

direct	100 Mar 07 j 22:00	25°II48'37		max. Earth dist.	107 Jul 08 j 13:15	13°☾54'04	31.02888 AU
				retrograde	107 Oct 21 j 06:33	16°☾24'46	
conjunction	100 Jun 22 j 01:51	28°II20'12	0°-43'-20	opposition	108 Jan 06 j 13:17	15°☾01'40	0°-12'-35
minimum elong	100 Jun 22 j 01:51	28°II20'12	0°43'21	min. Earth dist.	108 Jan 07 j 00:03	15°☾00'55	29.03266 AU
max. Earth dist.	100 Jun 21 j 20:39	28°II19'43	30.95923 AU	direct	108 Mar 26 j 00:47	13°☾36'28	
	100 Aug 09 j 18:44	0°☾					
retrograde	100 Oct 04 j 22:07	0°☾50'49		conjunction	108 Jul 10 j 15:19	16°☾08'24	0°-9'-38
	100 Dec 01 j 15:45	30°RII		minimum elong	108 Jul 10 j 15:19	16°☾08'24	0°09'38
opposition	100 Dec 21 j 13:04	29°II27'08	0°-44'-10	behind sun begin	108 Jul 10 j 09:55	16°☾07'55	
min. Earth dist.	100 Dec 21 j 17:39	29°II26'49	28.96477 AU	behind sun end	108 Jul 10 j 20:44	16°☾08'53	
direct	101 Mar 10 j 10:49	28°II02'03		max. Earth dist.	108 Jul 10 j 01:47	16°☾07'09	31.03629 AU
	101 Jun 09 j 09:54	0°☾		retrograde	108 Oct 22 j 16:24	18°☾37'45	
				opposition	109 Jan 07 j 23:32	17°☾14'41	0°-7'-58
conjunction	101 Jun 24 j 15:39	0°☾33'43	0°-39'-17	min. Earth dist.	109 Jan 08 j 11:52	17°☾13'49	29.04020 AU
minimum elong	101 Jun 24 j 15:40	0°☾33'43	0°39'18	direct	109 Mar 28 j 10:27	15°☾49'25	
max. Earth dist.	101 Jun 24 j 08:50	0°☾33'05	30.97026 AU				
retrograde	101 Oct 07 j 10:40	3°☾04'12		conjunction	109 Jul 13 j 04:36	18°☾21'21	0°-5'-19
opposition	101 Dec 23 j 23:25	1°☾40'38	0°-39'-48	minimum elong	109 Jul 13 j 04:35	18°☾21'20	0°05'21
min. Earth dist.	101 Dec 24 j 05:07	1°☾40'14	28.97616 AU	behind sun begin	109 Jul 12 j 22:14	18°☾20'47	
direct	102 Mar 12 j 22:23	0°☾15'34		behind sun end	109 Jul 13 j 10:57	18°☾21'54	
				max. Earth dist.	109 Jul 12 j 14:50	18°☾20'05	31.04402 AU
conjunction	102 Jun 27 j 05:25	2°☾47'18	0°-35'-9	retrograde	109 Oct 25 j 02:07	20°☾50'30	
minimum elong	102 Jun 27 j 05:25	2°☾47'18	0°35'09	opposition	110 Jan 10 j 09:47	19°☾27'29	0°-3'-20
max. Earth dist.	102 Jun 26 j 22:48	2°☾46'42	30.98176 AU	min. Earth dist.	110 Jan 10 j 21:57	19°☾26'38	29.04815 AU
retrograde	102 Oct 09 j 21:55	5°☾17'40		direct	110 Mar 30 j 23:48	18°☾02'10	
opposition	102 Dec 26 j 09:45	3°☾54'13	0°-35'-22				
min. Earth dist.	102 Dec 26 j 16:20	3°☾53'45	28.98750 AU	conjunction	110 Jul 15 j 17:28	20°☾34'04	0°00'-58
direct	103 Mar 15 j 11:51	2°☾29'10		minimum elong	110 Jul 15 j 17:28	20°☾34'04	0°00'58
				behind sun begin	110 Jul 15 j 10:53	20°☾33'29	
conjunction	103 Jun 29 j 19:11	5°☾00'58	0°-30'-59	behind sun end	110 Jul 16 j 00:03	20°☾34'39	
minimum elong	103 Jun 29 j 19:11	5°☾00'58	0°31'00	max. Earth dist.	110 Jul 15 j 02:26	20°☾32'41	31.05236 AU
max. Earth dist.	103 Jun 29 j 10:25	5°☾00'10	30.99293 AU	asc. node	110 Oct 03 j 12:19	22°☾53'09	
retrograde	103 Oct 12 j 10:44	7°☾31'12		retrograde	110 Oct 27 j 12:55	23°☾03'04	
opposition	103 Dec 28 j 19:58	6°☾07'51	0°-30'-52	opposition	111 Jan 12 j 20:02	21°☾40'05	0°01'17
min. Earth dist.	103 Dec 29 j 03:16	6°☾07'20	28.99838 AU	min. Earth dist.	111 Jan 13 j 08:57	21°☾39'10	29.05711 AU
direct	104 Mar 16 j 23:25	4°☾42'47		direct	111 Apr 02 j 11:05	20°☾14'44	
conjunction	104 Jul 01 j 09:09	7°☾14'40	0°-26'-46	conjunction	111 Jul 18 j 06:34	22°☾46'38	0°03'28
minimum elong	104 Jul 01 j 09:09	7°☾14'40	0°26'46	minimum elong	111 Jul 18 j 06:33	22°☾46'38	0°03'27
max. Earth dist.	104 Jul 01 j 00:17	7°☾13'51	31.00328 AU	behind sun begin	111 Jul 18 j 00:01	22°☾46'03	
retrograde	104 Oct 13 j 22:02	9°☾44'44		behind sun end	111 Jul 18 j 13:05	22°☾47'12	
opposition	104 Dec 30 j 06:26	8°☾21'28	0°-26'-20	max. Earth dist.	111 Jul 17 j 16:03	22°☾45'18	31.06187 AU
min. Earth dist.	104 Dec 30 j 15:20	8°☾20'51	29.00818 AU	retrograde	111 Oct 29 j 22:52	25°☾15'27	
direct	105 Mar 19 j 12:27	6°☾56'24		opposition	112 Jan 15 j 06:11	23°☾52'32	0°05'54
				min. Earth dist.	112 Jan 15 j 19:35	23°☾51'35	29.06716 AU
conjunction	105 Jul 03 j 22:45	9°☾28'19	0°-22'-30	direct	112 Apr 04 j 00:01	22°☾27'10	
minimum elong	105 Jul 03 j 22:45	9°☾28'19	0°22'32				
max. Earth dist.	105 Jul 03 j 11:47	9°☾27'18	31.01264 AU	conjunction	112 Jul 19 j 19:28	24°☾59'04	0°07'46
retrograde	105 Oct 16 j 10:41	11°☾58'13		minimum elong	112 Jul 19 j 19:28	24°☾59'04	0°07'46
opposition	106 Jan 01 j 16:43	10°☾35'01	0°-21'-47	behind sun begin	112 Jul 19 j 13:33	24°☾58'33	
min. Earth dist.	106 Jan 02 j 01:41	10°☾34'23	29.01705 AU	behind sun end	112 Jul 20 j 01:23	24°☾59'36	
direct	106 Mar 22 j 00:50	9°☾09'55		max. Earth dist.	112 Jul 19 j 03:26	24°☾57'36	31.07261 AU
				retrograde	112 Oct 31 j 11:07	27°☾27'45	
conjunction	106 Jul 06 j 12:26	11°☾41'51	0°-18'-14	opposition	113 Jan 16 j 16:27	26°☾04'54	0°10'31
minimum elong	106 Jul 06 j 12:26	11°☾41'51	0°18'14	min. Earth dist.	113 Jan 17 j 05:51	26°☾03'58	29.07858 AU
max. Earth dist.	106 Jul 06 j 01:03	11°☾40'49	31.02102 AU	direct	113 Apr 06 j 11:24	24°☾39'33	
retrograde	106 Oct 18 j 19:39	14°☾11'35					
opposition	107 Jan 04 j 03:04	12°☾48'27	0°-17'-11	conjunction	113 Jul 22 j 08:20	27°☾11'29	0°12'04
min. Earth dist.	107 Jan 04 j 13:57	12°☾47'40	29.02510 AU	minimum elong	113 Jul 22 j 08:20	27°☾11'29	0°12'03
direct	107 Mar 24 j 12:08	11°☾23'18		behind sun begin	113 Jul 22 j 03:55	27°☾11'05	
				behind sun end	113 Jul 22 j 12:44	27°☾11'52	
conjunction	107 Jul 09 j 01:55	13°☾55'14	0°-13'-56	max. Earth dist.	113 Jul 21 j 17:01	27°☾10'04	31.08448 AU
minimum elong	107 Jul 09 j 01:54	13°☾55'14	0°13'57	retrograde	113 Nov 02 j 21:57	29°☾40'02	
behind sun begin	107 Jul 08 j 22:43	13°☾54'57		opposition	114 Jan 19 j 02:49	28°☾17'16	0°15'07
behind sun end	107 Jul 09 j 05:05	13°☾55'31		min. Earth dist.	114 Jan 19 j 17:19	28°☾16'15	29.09081 AU

direct	114 Apr 09 j 00:44	26° $\mathcal{E}$ 51'57		retrograde	121 Nov 20 j 10:21	17° $\mathcal{O}$ 17'47	
				opposition	122 Feb 05 j 14:33	15° $\mathcal{O}$ 55'30	0°50'29
conjunction	114 Jul 24 j 21:04	29° $\mathcal{E}$ 23'54	0°16'21	min. Earth dist.	122 Feb 06 j 09:45	15° $\mathcal{O}$ 54'09	29.16703 AU
minimum elong	114 Jul 24 j 21:04	29° $\mathcal{E}$ 23'54	0°16'22		122 Mar 13 j 18:27	15° $\mathcal{R}$ $\mathcal{O}$	
max. Earth dist.	114 Jul 24 j 04:13	29° $\mathcal{E}$ 22'21	31.09703 AU	direct	122 Apr 26 j 23:26	14° $\mathcal{O}$ 30'09	
	114 Aug 10 j 05:25	0° $\mathcal{O}$			122 Jun 09 j 11:32	15° $\mathcal{O}$	
retrograde	114 Nov 05 j 10:12	1° $\mathcal{O}$ 52'21		max. Earth dist.	122 Aug 11 j 04:01	17° $\mathcal{O}$ 00'04	31.17000 AU
opposition	115 Jan 21 j 12:59	0° $\mathcal{O}$ 29'41	0°19'42				
min. Earth dist.	115 Jan 22 j 03:14	0° $\mathcal{O}$ 28'41	29.10344 AU	conjunction	122 Aug 12 j 01:17	17° $\mathcal{O}$ 02'02	0°49'14
	115 Feb 08 j 13:38	30° $\mathcal{R}$ $\mathcal{E}$		minimum elong	122 Aug 12 j 01:17	17° $\mathcal{O}$ 02'02	0°49'14
direct	115 Apr 11 j 13:12	29° $\mathcal{E}$ 04'23		retrograde	122 Nov 22 j 20:33	19° $\mathcal{O}$ 29'28	
	115 Jun 10 j 13:59	0° $\mathcal{O}$		opposition	123 Feb 08 j 01:02	18° $\mathcal{O}$ 07'12	0°54'37
				min. Earth dist.	123 Feb 08 j 21:14	18° $\mathcal{O}$ 05'48	29.17402 AU
conjunction	115 Jul 27 j 09:59	1° $\mathcal{O}$ 36'23	0°20'37	direct	123 Apr 29 j 13:06	16° $\mathcal{O}$ 41'51	
minimum elong	115 Jul 27 j 09:59	1° $\mathcal{O}$ 36'23	0°20'37				
max. Earth dist.	115 Jul 26 j 17:03	1° $\mathcal{O}$ 34'49	31.10943 AU	conjunction	123 Aug 14 j 13:10	19° $\mathcal{O}$ 13'42	0°53'04
retrograde	115 Nov 07 j 19:57	4° $\mathcal{O}$ 04'42		minimum elong	123 Aug 14 j 13:09	19° $\mathcal{O}$ 13'42	0°53'04
opposition	116 Jan 23 j 23:29	2° $\mathcal{O}$ 42'08	0°24'15	max. Earth dist.	123 Aug 13 j 14:42	19° $\mathcal{O}$ 11'37	31.17731 AU
min. Earth dist.	116 Jan 24 j 15:31	2° $\mathcal{O}$ 41'01	29.11561 AU	retrograde	123 Nov 25 j 08:11	21° $\mathcal{O}$ 41'02	
direct	116 Apr 13 j 00:34	1° $\mathcal{O}$ 16'52		opposition	124 Feb 10 j 11:31	20° $\mathcal{O}$ 18'47	0°58'40
				min. Earth dist.	124 Feb 11 j 06:54	20° $\mathcal{O}$ 17'27	29.18178 AU
conjunction	116 Jul 28 j 22:45	3° $\mathcal{O}$ 48'52	0°24'51	direct	124 May 01 j 01:56	18° $\mathcal{O}$ 53'26	
minimum elong	116 Jul 28 j 22:45	3° $\mathcal{O}$ 48'52	0°24'52	max. Earth dist.	124 Aug 15 j 03:09	21° $\mathcal{O}$ 23'14	31.18543 AU
max. Earth dist.	116 Jul 28 j 04:37	3° $\mathcal{O}$ 47'12	31.12116 AU				
retrograde	116 Nov 09 j 07:17	6° $\mathcal{O}$ 17'04		conjunction	124 Aug 16 j 01:02	21° $\mathcal{O}$ 25'16	0°56'49
opposition	117 Jan 25 j 09:53	4° $\mathcal{O}$ 54'36	0°28'45	minimum elong	124 Aug 16 j 01:02	21° $\mathcal{O}$ 25'16	0°56'49
min. Earth dist.	117 Jan 26 j 01:47	4° $\mathcal{O}$ 53'29	29.12679 AU	retrograde	124 Nov 26 j 17:34	23° $\mathcal{O}$ 52'30	
direct	117 Apr 15 j 13:12	3° $\mathcal{O}$ 29'20		opposition	125 Feb 11 j 22:14	22° $\mathcal{O}$ 30'19	1°02'38
				min. Earth dist.	125 Feb 12 j 18:42	22° $\mathcal{O}$ 28'54	29.19050 AU
conjunction	117 Jul 31 j 11:32	6° $\mathcal{O}$ 01'21	0°29'03	direct	125 May 03 j 13:34	21° $\mathcal{O}$ 04'59	
minimum elong	117 Jul 31 j 11:31	6° $\mathcal{O}$ 01'21	0°29'03				
max. Earth dist.	117 Jul 30 j 16:33	5° $\mathcal{O}$ 59'36	31.13168 AU	conjunction	125 Aug 18 j 12:44	23° $\mathcal{O}$ 36'48	1°00'29
retrograde	117 Nov 11 j 17:22	8° $\mathcal{O}$ 29'26		minimum elong	125 Aug 18 j 12:43	23° $\mathcal{O}$ 36'48	1°00'29
opposition	118 Jan 27 j 20:31	7° $\mathcal{O}$ 07'01	0°33'13	max. Earth dist.	125 Aug 17 j 14:26	23° $\mathcal{O}$ 34'44	31.19469 AU
min. Earth dist.	118 Jan 28 j 13:58	7° $\mathcal{O}$ 05'48	29.13686 AU	retrograde	125 Nov 29 j 04:53	26° $\mathcal{O}$ 03'57	
direct	118 Apr 17 j 23:06	5° $\mathcal{O}$ 41'45		opposition	126 Feb 14 j 08:46	24° $\mathcal{O}$ 41'51	1°06'30
max. Earth dist.	118 Aug 02 j 04:42	8° $\mathcal{O}$ 11'58	31.14111 AU	min. Earth dist.	126 Feb 15 j 04:25	24° $\mathcal{O}$ 40'29	29.20014 AU
				direct	126 May 06 j 02:20	23° $\mathcal{O}$ 16'34	
conjunction	118 Aug 03 j 00:04	8° $\mathcal{O}$ 13'46	0°33'12	max. Earth dist.	126 Aug 20 j 01:56	25° $\mathcal{O}$ 46'18	31.20456 AU
minimum elong	118 Aug 03 j 00:04	8° $\mathcal{O}$ 13'46	0°33'13				
retrograde	118 Nov 14 j 02:49	10° $\mathcal{O}$ 41'42		conjunction	126 Aug 21 j 00:18	25° $\mathcal{O}$ 48'22	1°04'04
opposition	119 Jan 30 j 07:02	9° $\mathcal{O}$ 19'21	0°37'38	minimum elong	126 Aug 21 j 00:18	25° $\mathcal{O}$ 48'22	1°04'04
min. Earth dist.	119 Jan 31 j 00:36	9° $\mathcal{O}$ 18'08	29.14558 AU	retrograde	126 Dec 01 j 14:54	28° $\mathcal{O}$ 15'29	
direct	119 Apr 20 j 12:26	7° $\mathcal{O}$ 54'05		opposition	127 Feb 16 j 19:31	26° $\mathcal{O}$ 53'26	1°10'17
				min. Earth dist.	127 Feb 17 j 16:12	26° $\mathcal{O}$ 52'00	29.21024 AU
conjunction	119 Aug 05 j 12:36	10° $\mathcal{O}$ 26'04	0°37'18	direct	127 May 08 j 12:21	25° $\mathcal{O}$ 28'12	
minimum elong	119 Aug 05 j 12:36	10° $\mathcal{O}$ 26'04	0°37'18				
max. Earth dist.	119 Aug 04 j 15:39	10° $\mathcal{O}$ 24'07	31.14924 AU	conjunction	127 Aug 23 j 11:59	28° $\mathcal{O}$ 00'00	1°07'33
retrograde	119 Nov 16 j 13:16	12° $\mathcal{O}$ 53'53		minimum elong	127 Aug 23 j 11:59	28° $\mathcal{O}$ 00'00	1°07'33
opposition	120 Feb 01 j 17:28	11° $\mathcal{O}$ 31'34	0°41'59	max. Earth dist.	127 Aug 22 j 13:44	27° $\mathcal{O}$ 57'56	31.21459 AU
min. Earth dist.	120 Feb 02 j 12:01	11° $\mathcal{O}$ 30'16	29.15334 AU		127 Oct 24 j 23:04	0° $\mathcal{M}$	
direct	120 Apr 21 j 23:10	10° $\mathcal{O}$ 06'16		retrograde	127 Dec 03 j 23:40	0° $\mathcal{M}$ 27'03	
max. Earth dist.	120 Aug 06 j 04:29	12° $\mathcal{O}$ 36'19	31.15653 AU		128 Jan 14 j 01:06	30° $\mathcal{R}$ $\mathcal{O}$	
				opposition	128 Feb 19 j 06:10	29° $\mathcal{O}$ 05'05	1°13'57
conjunction	120 Aug 07 j 01:07	12° $\mathcal{O}$ 38'14	0°41'21	min. Earth dist.	128 Feb 20 j 02:41	29° $\mathcal{O}$ 03'40	29.22002 AU
minimum elong	120 Aug 07 j 01:07	12° $\mathcal{O}$ 38'14	0°41'21	direct	128 May 10 j 01:18	27° $\mathcal{O}$ 39'54	
	120 Oct 30 j 12:14	15° $\mathcal{O}$			128 Aug 19 j 17:57	0° $\mathcal{M}$	
retrograde	120 Nov 17 j 22:44	15° $\mathcal{O}$ 05'55					
	120 Dec 06 j 16:06	15° $\mathcal{R}$ $\mathcal{O}$		conjunction	128 Aug 24 j 23:34	0° $\mathcal{M}$ 11'41	1°10'56
opposition	121 Feb 03 j 04:03	13° $\mathcal{O}$ 43'37	0°46'16	minimum elong	128 Aug 24 j 23:34	0° $\mathcal{M}$ 11'41	1°10'56
min. Earth dist.	121 Feb 03 j 23:18	13° $\mathcal{O}$ 42'16	29.16025 AU	max. Earth dist.	128 Aug 24 j 00:11	0° $\mathcal{M}$ 09'31	31.22398 AU
direct	121 Apr 24 j 11:49	12° $\mathcal{O}$ 18'18		retrograde	128 Dec 05 j 09:54	2° $\mathcal{M}$ 38'41	
				opposition	129 Feb 20 j 17:05	1° $\mathcal{M}$ 16'46	1°17'31
conjunction	121 Aug 09 j 13:08	14° $\mathcal{O}$ 50'13	0°45'19	min. Earth dist.	129 Feb 21 j 14:12	1° $\mathcal{M}$ 15'19	29.22912 AU
minimum elong	121 Aug 09 j 13:08	14° $\mathcal{O}$ 50'13	0°45'19		129 Apr 19 j 10:59	30° $\mathcal{R}$ $\mathcal{O}$	
max. Earth dist.	121 Aug 08 j 15:02	14° $\mathcal{O}$ 48'10	31.16325 AU	direct	129 May 12 j 11:02	29° $\mathcal{O}$ 51'37	
	121 Aug 13 j 22:28	15° $\mathcal{O}$			129 Jun 04 j 07:31	0° $\mathcal{M}$	

conjunction	129 Aug 27 j 11:02	2°♆23'23	1°14'13	retrograde	137 Dec 25 j 04:04	22°♆18'23	
minimum elong	129 Aug 27 j 11:02	2°♆23'23	1°14'13	opposition	138 Mar 12 j 20:16	20°♆56'28	1°43'54
max. Earth dist.	129 Aug 26 j 12:16	2°♆21'16	31.23244 AU	min. Earth dist.	138 Mar 13 j 18:02	20°♆54'58	29.27335 AU
retrograde	129 Dec 07 j 19:11	4°♆50'19		direct	138 Jun 02 j 00:03	19°♆31'21	
opposition	130 Feb 23 j 04:05	3°♆28'26	1°20'58				
min. Earth dist.	130 Feb 24 j 01:48	3°♆26'56	29.23693 AU	conjunction	138 Sep 16 j 13:38	22°♆02'30	1°38'21
direct	130 May 14 j 22:53	2°♆03'19		minimum elong	138 Sep 16 j 13:38	22°♆02'30	1°38'21
				max. Earth dist.	138 Sep 15 j 14:56	22°♆00'23	31.27533 AU
conjunction	130 Aug 29 j 22:27	4°♆35'01	1°17'24	retrograde	138 Dec 27 j 13:00	24°♆28'56	
minimum elong	130 Aug 29 j 22:26	4°♆35'01	1°17'24	opposition	139 Mar 15 j 07:20	23°♆07'04	1°46'08
max. Earth dist.	130 Aug 28 j 22:11	4°♆32'45	31.23957 AU	min. Earth dist.	139 Mar 16 j 05:10	23°♆05'34	29.27967 AU
retrograde	130 Dec 10 j 06:25	7°♆01'53		direct	139 Jun 04 j 11:23	21°♆42'02	
opposition	131 Feb 25 j 14:52	5°♆40'02	1°24'18	max. Earth dist.	139 Sep 18 j 00:34	24°♆10'57	31.28186 AU
min. Earth dist.	131 Feb 26 j 12:33	5°♆38'32	29.24351 AU				
direct	131 May 17 j 10:22	4°♆14'54		conjunction	139 Sep 19 j 00:04	24°♆13'08	1°40'21
max. Earth dist.	131 Aug 31 j 10:22	6°♆44'22	31.24534 AU	minimum elong	139 Sep 19 j 00:04	24°♆13'08	1°40'21
				retrograde	139 Dec 30 j 00:21	26°♆39'37	
conjunction	131 Sep 01 j 09:59	6°♆46'33	1°20'27	opposition	140 Mar 16 j 18:34	25°♆17'47	1°48'12
minimum elong	131 Sep 01 j 09:58	6°♆46'33	1°20'27	min. Earth dist.	140 Mar 17 j 15:43	25°♆16'20	29.28631 AU
retrograde	131 Dec 12 j 16:14	9°♆13'21		direct	140 Jun 05 j 21:59	23°♆52'49	
opposition	132 Feb 28 j 01:59	7°♆51'29	1°27'30				
min. Earth dist.	132 Feb 29 j 00:47	7°♆49'55	29.24863 AU	conjunction	140 Sep 20 j 10:29	26°♆23'55	1°42'14
direct	132 May 18 j 23:35	6°♆26'21		minimum elong	140 Sep 20 j 10:28	26°♆23'55	1°42'14
				max. Earth dist.	140 Sep 19 j 12:17	26°♆21'50	31.28826 AU
conjunction	132 Sep 02 j 21:07	8°♆57'56	1°23'24	retrograde	140 Dec 31 j 10:20	28°♆50'25	
minimum elong	132 Sep 02 j 21:07	8°♆57'56	1°23'24	opposition	141 Mar 19 j 06:04	27°♆28'37	1°50'07
max. Earth dist.	132 Sep 01 j 20:18	8°♆55'37	31.24989 AU	min. Earth dist.	141 Mar 20 j 03:55	27°♆27'07	29.29248 AU
retrograde	132 Dec 14 j 03:29	11°♆24'39		direct	141 Jun 08 j 09:54	26°♆03'45	
opposition	133 Mar 01 j 12:56	10°♆02'46	1°30'34				
min. Earth dist.	133 Mar 02 j 11:00	10°♆01'15	29.25270 AU	conjunction	141 Sep 22 j 20:47	28°♆34'47	1°43'57
direct	133 May 21 j 12:09	8°♆37'37		minimum elong	141 Sep 22 j 20:47	28°♆34'47	1°43'57
max. Earth dist.	133 Sep 04 j 07:58	11°♆06'51	31.25347 AU	max. Earth dist.	141 Sep 21 j 21:50	28°♆32'38	31.29410 AU
					141 Nov 02 j 06:26	0°♆	
conjunction	133 Sep 05 j 08:18	11°♆09'07	1°26'13	retrograde	142 Jan 02 j 22:00	1°♆01'19	
minimum elong	133 Sep 05 j 08:17	11°♆09'07	1°26'13		142 Mar 09 j 03:15	30°♆	
retrograde	133 Dec 16 j 13:06	13°♆35'45		opposition	142 Mar 21 j 17:24	29°♆39'33	1°51'53
opposition	134 Mar 04 j 00:00	12°♆13'50	1°33'31	min. Earth dist.	142 Mar 22 j 14:14	29°♆38'08	29.29789 AU
min. Earth dist.	134 Mar 04 j 23:15	12°♆12'14	29.25612 AU	direct	142 Jun 10 j 21:09	28°♆14'44	
direct	134 May 24 j 00:29	10°♆48'40			142 Sep 04 j 14:04	0°♆	
				max. Earth dist.	142 Sep 24 j 08:46	0°♆43'39	31.29883 AU
conjunction	134 Sep 07 j 19:07	13°♆20'04	1°28'54				
minimum elong	134 Sep 07 j 19:07	13°♆20'04	1°28'54	conjunction	142 Sep 25 j 07:11	0°♆45'45	1°45'31
max. Earth dist.	134 Sep 06 j 18:33	13°♆17'47	31.25677 AU	minimum elong	142 Sep 25 j 07:10	0°♆45'45	1°45'31
retrograde	134 Dec 19 j 00:00	15°♆46'37		retrograde	143 Jan 05 j 08:22	3°♆12'18	
opposition	135 Mar 06 j 10:56	14°♆24'41	1°36'20	opposition	143 Mar 24 j 05:01	1°♆50'33	1°53'29
min. Earth dist.	135 Mar 07 j 09:15	14°♆23'09	29.25935 AU	min. Earth dist.	143 Mar 25 j 02:55	1°♆49'03	29.30205 AU
direct	135 May 26 j 14:21	12°♆59'30		direct	143 Jun 13 j 09:24	0°♆25'47	
max. Earth dist.	135 Sep 09 j 05:29	15°♆28'33	31.26004 AU				
				conjunction	143 Sep 27 j 17:27	2°♆56'44	1°46'57
conjunction	135 Sep 10 j 05:56	15°♆30'49	1°31'28	minimum elong	143 Sep 27 j 17:26	2°♆56'44	1°46'56
minimum elong	135 Sep 10 j 05:56	15°♆30'49	1°31'27	max. Earth dist.	143 Sep 26 j 18:51	2°♆54'37	31.30233 AU
retrograde	135 Dec 21 j 09:32	17°♆57'18		retrograde	144 Jan 07 j 20:04	5°♆23'18	
opposition	136 Mar 07 j 21:59	16°♆35'22	1°39'00	opposition	144 Mar 25 j 16:32	4°♆01'33	1°54'55
min. Earth dist.	136 Mar 08 j 20:53	16°♆33'47	29.26307 AU	min. Earth dist.	144 Mar 26 j 13:30	4°♆00'07	29.30481 AU
direct	136 May 28 j 01:27	15°♆10'10		direct	144 Jun 14 j 23:28	2°♆36'49	
				max. Earth dist.	144 Sep 28 j 05:04	5°♆05'34	31.30440 AU
conjunction	136 Sep 11 j 16:39	17°♆41'25	1°33'54				
minimum elong	136 Sep 11 j 16:38	17°♆41'25	1°33'54	conjunction	144 Sep 29 j 03:43	5°♆07'41	1°48'13
max. Earth dist.	136 Sep 10 j 17:01	17°♆39'13	31.26416 AU	minimum elong	144 Sep 29 j 03:43	5°♆07'41	1°48'13
retrograde	136 Dec 22 j 18:04	20°♆07'52		retrograde	145 Jan 09 j 06:16	7°♆34'16	
opposition	137 Mar 10 j 09:08	18°♆45'55	1°41'31	opposition	145 Mar 28 j 04:17	6°♆12'29	1°56'11
min. Earth dist.	137 Mar 11 j 07:06	18°♆44'24	29.26764 AU	min. Earth dist.	145 Mar 29 j 01:53	6°♆11'01	29.30639 AU
direct	137 May 30 j 14:24	17°♆20'46		direct	145 Jun 17 j 10:58	4°♆47'47	
max. Earth dist.	137 Sep 13 j 03:02	19°♆49'42	31.26924 AU				
				conjunction	145 Oct 01 j 13:46	7°♆18'33	1°49'20
conjunction	137 Sep 14 j 03:03	19°♆51'57	1°36'11	minimum elong	145 Oct 01 j 13:45	7°♆18'33	1°49'19
minimum elong	137 Sep 14 j 03:03	19°♆51'57	1°36'11	max. Earth dist.	145 Sep 30 j 15:53	7°♆16'30	31.30542 AU

retrograde	146 Jan 11 j 14:43	9° <u>♁</u> 45'07		direct	154 Jul 07 j 19:28	24° <u>♁</u> 22'36	
opposition	146 Mar 30 j 15:55	8° <u>♁</u> 23'18	1°57'18				
min. Earth dist.	146 Mar 31 j 12:50	8° <u>♁</u> 21'52	29.30683 AU	conjunction	154 Oct 21 j 04:57	26° <u>♁</u> 52'37	1°52'13
direct	146 Jun 20 j 00:23	6° <u>♁</u> 58'36		minimum elong	154 Oct 21 j 04:57	26° <u>♁</u> 52'37	1°52'13
				max. Earth dist.	154 Oct 20 j 12:19	26° <u>♁</u> 51'03	31.31828 AU
conjunction	146 Oct 03 j 23:43	9° <u>♁</u> 29'16	1°50'17	retrograde	155 Jan 31 j 11:06	29° <u>♁</u> 19'36	
minimum elong	146 Oct 03 j 23:43	9° <u>♁</u> 29'16	1°50'17	opposition	155 Apr 20 j 02:40	27° <u>♁</u> 57'38	1°59'38
max. Earth dist.	146 Oct 03 j 01:16	9° <u>♁</u> 27'10	31.30552 AU	min. Earth dist.	155 Apr 20 j 18:55	27° <u>♁</u> 56'32	29.31982 AU
retrograde	147 Jan 14 j 00:37	11° <u>♁</u> 55'49		direct	155 Jul 10 j 08:47	26° <u>♁</u> 33'23	
opposition	147 Apr 02 j 03:26	10° <u>♁</u> 33'58	1°58'15				
min. Earth dist.	147 Apr 03 j 00:12	10° <u>♁</u> 32'33	29.30682 AU	conjunction	155 Oct 23 j 14:30	29° <u>♁</u> 03'20	1°51'44
direct	147 Jun 22 j 11:13	9° <u>♁</u> 09'16		minimum elong	155 Oct 23 j 14:30	29° <u>♁</u> 03'20	1°51'44
				max. Earth dist.	155 Oct 22 j 21:17	29° <u>♁</u> 01'43	31.31849 AU
conjunction	147 Oct 06 j 09:41	11° <u>♁</u> 39'49	1°51'05		155 Nov 18 j 08:04	0° <u>♁</u>	
minimum elong	147 Oct 06 j 09:41	11° <u>♁</u> 39'49	1°51'05	retrograde	156 Feb 02 j 22:18	1° <u>♁</u> 30'24	
max. Earth dist.	147 Oct 05 j 12:45	11° <u>♁</u> 37'51	31.30541 AU	opposition	156 Apr 21 j 14:59	0° <u>♁</u> 08'25	1°59'02
retrograde	148 Jan 16 j 09:14	14° <u>♁</u> 06'22		min. Earth dist.	156 Apr 22 j 06:57	0° <u>♁</u> 07'20	29.31938 AU
opposition	148 Apr 03 j 15:14	12° <u>♁</u> 44'28	1°59'01		156 Apr 26 j 19:41	30° <u>♁</u>	
min. Earth dist.	148 Apr 04 j 11:45	12° <u>♁</u> 43'04	29.30675 AU	direct	156 Jul 11 j 19:55	28° <u>♁</u> 44'14	
direct	148 Jun 23 j 23:41	11° <u>♁</u> 19'46			156 Sep 20 j 15:11	0° <u>♁</u>	
				max. Earth dist.	156 Oct 24 j 08:17	1° <u>♁</u> 12'37	31.31726 AU
conjunction	148 Oct 07 j 19:15	13° <u>♁</u> 50'12	1°51'44				
minimum elong	148 Oct 07 j 19:15	13° <u>♁</u> 50'12	1°51'44	conjunction	156 Oct 25 j 00:05	1° <u>♁</u> 14'06	1°51'05
max. Earth dist.	148 Oct 06 j 22:01	13° <u>♁</u> 48'12	31.30564 AU	minimum elong	156 Oct 25 j 00:05	1° <u>♁</u> 14'06	1°51'05
retrograde	149 Jan 17 j 19:29	16° <u>♁</u> 16'46		retrograde	157 Feb 04 j 07:34	3° <u>♁</u> 41'15	
opposition	149 Apr 06 j 02:59	14° <u>♁</u> 54'49	1°59'38	opposition	157 Apr 24 j 03:25	2° <u>♁</u> 19'14	1°58'15
min. Earth dist.	149 Apr 06 j 22:12	14° <u>♁</u> 53'31	29.30743 AU	min. Earth dist.	157 Apr 24 j 19:19	2° <u>♁</u> 18'10	29.31728 AU
direct	149 Jun 26 j 10:22	13° <u>♁</u> 30'09		direct	157 Jul 14 j 08:40	0° <u>♁</u> 55'06	
max. Earth dist.	149 Oct 09 j 09:33	15° <u>♁</u> 58'39	31.30670 AU				
conjunction	149 Oct 10 j 05:02	16° <u>♁</u> 00'29	1°52'13	conjunction	157 Oct 27 j 09:33	3° <u>♁</u> 24'52	1°50'17
minimum elong	149 Oct 10 j 05:02	16° <u>♁</u> 00'29	1°52'13	minimum elong	157 Oct 27 j 09:33	3° <u>♁</u> 24'52	1°50'17
retrograde	150 Jan 20 j 04:38	18° <u>♁</u> 27'06		max. Earth dist.	157 Oct 26 j 17:07	3° <u>♁</u> 23'19	31.31451 AU
opposition	150 Apr 08 j 14:44	17° <u>♁</u> 05'07	2°00'04	retrograde	158 Feb 06 j 18:15	5° <u>♁</u> 52'05	
min. Earth dist.	150 Apr 09 j 10:05	17° <u>♁</u> 03'48	29.30899 AU	opposition	158 Apr 26 j 15:34	4° <u>♁</u> 30'02	1°57'19
direct	150 Jun 28 j 21:15	15° <u>♁</u> 40'29		min. Earth dist.	158 Apr 27 j 06:30	4° <u>♁</u> 29'01	29.31384 AU
				direct	158 Jul 16 j 19:23	3° <u>♁</u> 05'55	
conjunction	150 Oct 12 j 14:37	18° <u>♁</u> 10'44	1°52'33	conjunction	158 Oct 29 j 19:06	5° <u>♁</u> 35'35	1°49'20
minimum elong	150 Oct 12 j 14:37	18° <u>♁</u> 10'44	1°52'33	minimum elong	158 Oct 29 j 19:06	5° <u>♁</u> 35'35	1°49'20
max. Earth dist.	150 Oct 11 j 19:02	18° <u>♁</u> 08'54	31.30879 AU	max. Earth dist.	158 Oct 29 j 04:03	5° <u>♁</u> 34'10	31.31041 AU
retrograde	151 Jan 22 j 16:02	20° <u>♁</u> 37'24		retrograde	159 Feb 09 j 03:35	8° <u>♁</u> 02'53	
opposition	151 Apr 11 j 02:29	19° <u>♁</u> 15'25	2°00'19	opposition	159 Apr 29 j 04:01	6° <u>♁</u> 40'45	1°56'13
min. Earth dist.	151 Apr 11 j 20:07	19° <u>♁</u> 14'14	29.31138 AU	min. Earth dist.	159 Apr 29 j 19:18	6° <u>♁</u> 39'43	29.30919 AU
direct	151 Jul 01 j 07:52	17° <u>♁</u> 50'52		direct	159 Jul 19 j 06:31	5° <u>♁</u> 16'39	
max. Earth dist.	151 Oct 14 j 05:46	20° <u>♁</u> 19'19	31.31140 AU				
conjunction	151 Oct 15 j 00:13	20° <u>♁</u> 21'03	1°52'42	conjunction	159 Nov 01 j 04:18	7° <u>♁</u> 46'12	1°48'13
minimum elong	151 Oct 15 j 00:13	20° <u>♁</u> 21'03	1°52'42	minimum elong	159 Nov 01 j 04:18	7° <u>♁</u> 46'12	1°48'13
retrograde	152 Jan 25 j 02:41	22° <u>♁</u> 47'47		max. Earth dist.	159 Oct 31 j 13:17	7° <u>♁</u> 44'48	31.30553 AU
opposition	152 Apr 12 j 14:30	21° <u>♁</u> 25'49	2°00'25	retrograde	160 Feb 11 j 14:50	10° <u>♁</u> 13'35	
min. Earth dist.	152 Apr 13 j 08:35	21° <u>♁</u> 24'35	29.31417 AU	opposition	160 Apr 30 j 16:21	8° <u>♁</u> 51'23	1°54'57
direct	152 Jul 02 j 19:37	20° <u>♁</u> 01'20		min. Earth dist.	160 May 01 j 05:50	8° <u>♁</u> 50'28	29.30408 AU
				direct	160 Jul 20 j 17:17	7° <u>♁</u> 27'17	
conjunction	152 Oct 16 j 09:48	22° <u>♁</u> 31'27	1°52'42	conjunction	160 Nov 02 j 13:34	9° <u>♁</u> 56'44	1°46'57
minimum elong	152 Oct 16 j 09:48	22° <u>♁</u> 31'27	1°52'43	minimum elong	160 Nov 02 j 13:34	9° <u>♁</u> 56'44	1°46'57
max. Earth dist.	152 Oct 15 j 15:54	22° <u>♁</u> 29'47	31.31430 AU	max. Earth dist.	160 Nov 01 j 23:42	9° <u>♁</u> 55'26	31.30040 AU
retrograde	153 Jan 26 j 14:35	24° <u>♁</u> 58'16		retrograde	161 Feb 13 j 01:38	12° <u>♁</u> 24'12	
opposition	153 Apr 15 j 02:28	23° <u>♁</u> 36'18	2°00'19	opposition	161 May 03 j 04:51	11° <u>♁</u> 01'55	1°53'31
min. Earth dist.	153 Apr 15 j 19:08	23° <u>♁</u> 35'10	29.31687 AU	min. Earth dist.	161 May 03 j 18:28	11° <u>♁</u> 01'00	29.29920 AU
direct	153 Jul 05 j 08:34	22° <u>♁</u> 11'55		direct	161 Jul 23 j 05:02	9° <u>♁</u> 37'51	
conjunction	153 Oct 18 j 19:16	24° <u>♁</u> 41'59	1°52'33	conjunction	161 Nov 04 j 22:41	12° <u>♁</u> 07'12	1°45'32
minimum elong	153 Oct 18 j 19:16	24° <u>♁</u> 41'59	1°52'32	minimum elong	161 Nov 04 j 22:41	12° <u>♁</u> 07'12	1°45'32
max. Earth dist.	153 Oct 18 j 01:38	24° <u>♁</u> 40'19	31.31671 AU	max. Earth dist.	161 Nov 04 j 09:52	12° <u>♁</u> 06'00	31.29589 AU
retrograde	154 Jan 29 j 01:34	27° <u>♁</u> 08'53		retrograde	162 Feb 15 j 13:40	14° <u>♁</u> 34'45	
opposition	154 Apr 17 j 14:37	25° <u>♁</u> 46'55	2°00'04	opposition	162 May 05 j 17:10	13° <u>♁</u> 12'25	1°51'56
min. Earth dist.	154 Apr 18 j 07:39	25° <u>♁</u> 45'46	29.31896 AU	min. Earth dist.	162 May 06 j 04:53	13° <u>♁</u> 11'38	29.29493 AU

direct	162 Jul 25 j 17:33	11°M48'23		min. Earth dist.	170 May 24 j 05:12	0°Z39'11	29.26199 AU
					170 Jun 18 j 10:30	30°RM	
conjunction	162 Nov 07 j 07:49	14°M17'40	1°43'58	direct	170 Aug 12 j 13:31	29°M16'03	
minimum elong	162 Nov 07 j 07:49	14°M17'40	1°43'58		170 Oct 04 j 02:02	0°Z	
max. Earth dist.	162 Nov 06 j 19:33	14°M16'31	31.29203 AU				
	162 Nov 26 j 06:34	15°M		conjunction	170 Nov 24 j 09:31	1°Z44'45	1°26'14
retrograde	163 Feb 18 j 00:46	16°M45'19		minimum elong	170 Nov 24 j 09:32	1°Z44'45	1°26'14
opposition	163 May 08 j 05:34	15°M22'57	1°50'10	max. Earth dist.	170 Nov 24 j 03:32	1°Z44'11	31.25707 AU
min. Earth dist.	163 May 08 j 17:04	15°M22'11	29.29154 AU	retrograde	171 Mar 07 j 15:59	4°Z13'24	
	163 May 22 j 13:36	15°RM		opposition	171 May 26 j 11:13	2°Z50'41	1°30'38
direct	163 Jul 28 j 03:54	13°M58'59		min. Earth dist.	171 May 26 j 16:21	2°Z50'20	29.25322 AU
	163 Sep 28 j 22:52	15°M		direct	171 Aug 15 j 01:31	1°Z27'05	
conjunction	163 Nov 09 j 17:01	16°M28'12	1°42'15	conjunction	171 Nov 26 j 18:43	3°Z55'41	1°23'25
minimum elong	163 Nov 09 j 17:01	16°M28'12	1°42'15	minimum elong	171 Nov 26 j 18:43	3°Z55'41	1°23'25
max. Earth dist.	163 Nov 09 j 06:30	16°M27'12	31.28908 AU	max. Earth dist.	171 Nov 26 j 12:57	3°Z55'08	31.24793 AU
retrograde	164 Feb 20 j 11:00	18°M55'58		retrograde	172 Mar 09 j 03:42	6°Z24'26	
opposition	164 May 09 j 18:06	17°M33'35	1°48'16	opposition	172 May 28 j 00:10	5°Z01'37	1°27'35
min. Earth dist.	164 May 10 j 04:09	17°M32'54	29.28872 AU	min. Earth dist.	172 May 28 j 05:14	5°Z01'16	29.24385 AU
direct	164 Jul 29 j 17:20	16°M09'41		direct	172 Aug 16 j 11:58	3°Z38'00	
conjunction	164 Nov 11 j 01:59	18°M38'50	1°40'23	conjunction	172 Nov 28 j 03:49	6°Z06'30	1°20'30
minimum elong	164 Nov 11 j 01:59	18°M38'50	1°40'23	minimum elong	172 Nov 28 j 03:49	6°Z06'30	1°20'30
max. Earth dist.	164 Nov 10 j 15:25	18°M37'51	31.28654 AU	max. Earth dist.	172 Nov 27 j 23:53	6°Z06'08	31.23850 AU
retrograde	165 Feb 21 j 23:14	21°M06'45		retrograde	173 Mar 11 j 14:27	8°Z35'21	
opposition	165 May 12 j 06:43	19°M44'20	1°46'11	opposition	173 May 30 j 12:58	7°Z12'26	1°24'24
min. Earth dist.	165 May 12 j 15:57	19°M43'43	29.28627 AU	min. Earth dist.	173 May 30 j 16:33	7°Z12'11	29.23437 AU
direct	165 Aug 01 j 04:48	18°M20'31		direct	173 Aug 19 j 01:37	5°Z48'49	
conjunction	165 Nov 13 j 11:16	20°M49'37	1°38'22	conjunction	173 Nov 30 j 12:52	8°Z17'13	1°17'28
minimum elong	165 Nov 13 j 11:16	20°M49'37	1°38'22	minimum elong	173 Nov 30 j 12:52	8°Z17'13	1°17'27
max. Earth dist.	165 Nov 13 j 02:33	20°M48'48	31.28402 AU	max. Earth dist.	173 Nov 30 j 08:55	8°Z16'51	31.22933 AU
retrograde	166 Feb 24 j 08:53	23°M17'39		retrograde	174 Mar 14 j 03:05	10°Z46'11	
opposition	166 May 14 j 19:14	21°M55'14	1°43'57	opposition	174 Jun 02 j 01:38	9°Z23'10	1°21'05
min. Earth dist.	166 May 15 j 04:07	21°M54'38	29.28346 AU	min. Earth dist.	174 Jun 02 j 04:12	9°Z23'00	29.22562 AU
direct	166 Aug 03 j 17:14	20°M31'29		direct	174 Aug 21 j 12:55	7°Z59'35	
conjunction	166 Nov 15 j 20:25	23°M00'32	1°36'13	conjunction	174 Dec 02 j 22:05	10°Z27'55	1°14'19
minimum elong	166 Nov 15 j 20:26	23°M00'32	1°36'13	minimum elong	174 Dec 02 j 22:05	10°Z27'55	1°14'18
max. Earth dist.	166 Nov 15 j 11:26	22°M59'41	31.28101 AU	max. Earth dist.	174 Dec 02 j 20:17	10°Z27'45	31.22102 AU
retrograde	167 Feb 26 j 19:47	25°M28'42		retrograde	175 Mar 16 j 13:00	12°Z57'01	
opposition	167 May 17 j 07:55	24°M06'15	1°41'35	opposition	175 Jun 04 j 14:30	11°Z33'57	1°17'40
min. Earth dist.	167 May 17 j 15:33	24°M05'44	29.28002 AU	min. Earth dist.	175 Jun 04 j 16:11	11°Z33'50	29.21773 AU
direct	167 Aug 06 j 04:06	22°M42'34		direct	175 Aug 24 j 01:19	10°Z10'24	
conjunction	167 Nov 18 j 05:40	25°M11'32	1°33'55	conjunction	175 Dec 05 j 07:01	12°Z38'40	1°11'03
minimum elong	167 Nov 18 j 05:40	25°M11'32	1°33'55	minimum elong	175 Dec 05 j 07:01	12°Z38'40	1°11'03
max. Earth dist.	167 Nov 17 j 22:11	25°M10'50	31.27699 AU	max. Earth dist.	175 Dec 05 j 05:30	12°Z38'32	31.21379 AU
retrograde	168 Feb 29 j 05:29	27°M39'51		retrograde	176 Mar 18 j 00:31	15°Z07'56	
opposition	168 May 18 j 20:51	26°M17'22	1°39'03	opposition	176 Jun 06 j 03:23	13°Z44'49	1°14'07
min. Earth dist.	168 May 19 j 04:43	26°M16'50	29.27538 AU	min. Earth dist.	176 Jun 06 j 03:16	13°Z44'49	29.21097 AU
direct	168 Aug 07 j 15:23	24°M53'44		direct	176 Aug 25 j 12:18	12°Z21'19	
conjunction	168 Nov 19 j 14:56	27°M22'37	1°31'29	conjunction	176 Dec 06 j 16:14	14°Z49'34	1°07'41
minimum elong	168 Nov 19 j 14:57	27°M22'37	1°31'29	minimum elong	176 Dec 06 j 16:14	14°Z49'34	1°07'41
max. Earth dist.	168 Nov 19 j 07:28	27°M21'55	31.27182 AU	max. Earth dist.	176 Dec 06 j 16:33	14°Z49'35	31.20743 AU
retrograde	169 Mar 02 j 17:18	29°M51'03		retrograde	177 Mar 20 j 10:47	17°Z18'59	
opposition	169 May 21 j 09:34	28°M28'30	1°36'23	opposition	177 Jun 08 j 16:17	15°Z55'51	1°10'28
min. Earth dist.	169 May 21 j 15:48	28°M28'05	29.26944 AU	min. Earth dist.	177 Jun 08 j 16:00	15°Z55'52	29.20494 AU
direct	169 Aug 10 j 02:23	27°M04'54		direct	177 Aug 27 j 23:18	14°Z32'26	
conjunction	169 Nov 22 j 00:15	29°M33'42	1°28'55	conjunction	177 Dec 09 j 01:23	17°Z00'38	1°04'13
minimum elong	169 Nov 22 j 00:15	29°M33'42	1°28'55	minimum elong	177 Dec 09 j 01:23	17°Z00'38	1°04'13
max. Earth dist.	169 Nov 21 j 17:25	29°M33'03	31.26510 AU	max. Earth dist.	177 Dec 09 j 02:16	17°Z00'43	31.20177 AU
	169 Dec 03 j 15:35	0°Z		retrograde	178 Mar 22 j 23:00	19°Z30'15	
retrograde	170 Mar 05 j 04:16	2°Z02'15		opposition	178 Jun 11 j 05:07	18°Z07'05	1°06'43
opposition	170 May 23 j 22:30	0°Z39'38	1°33'35	min. Earth dist.	178 Jun 11 j 02:50	18°Z07'14	29.19929 AU

direct	178 Aug 30 j 10:01	16° $\nearrow$ 43'44		opposition	186 Jun 29 j 13:49	5° $\overleftarrow$ 41'38	0°33'33
				min. Earth dist.	186 Jun 29 j 06:35	5° $\overleftarrow$ 42'07	29.12857 AU
conjunction	178 Dec 11 j 10:35	19° $\nearrow$ 11'55	1°00'39	direct	186 Sep 17 j 06:03	4° $\overleftarrow$ 18'28	
minimum elong	178 Dec 11 j 10:36	19° $\nearrow$ 11'55	1°00'39				
max. Earth dist.	178 Dec 11 j 12:23	19° $\nearrow$ 12'05	31.19607 AU	conjunction	186 Dec 28 j 14:52	6° $\overleftarrow$ 46'15	0°29'22
retrograde	179 Mar 25 j 10:24	21° $\nearrow$ 41'44		minimum elong	186 Dec 28 j 14:52	6° $\overleftarrow$ 46'15	0°29'22
opposition	179 Jun 13 j 18:12	20° $\nearrow$ 18'33	1°02'51	max. Earth dist.	186 Dec 28 j 22:54	6° $\overleftarrow$ 47'00	31.12335 AU
min. Earth dist.	179 Jun 13 j 16:07	20° $\nearrow$ 18'41	29.19350 AU	retrograde	187 Apr 12 j 11:47	9° $\overleftarrow$ 17'12	
direct	179 Sep 01 j 20:13	18° $\nearrow$ 55'17		opposition	187 Jul 02 j 02:45	7° $\overleftarrow$ 53'24	0°29'07
				min. Earth dist.	187 Jul 01 j 17:22	7° $\overleftarrow$ 54'02	29.11859 AU
conjunction	179 Dec 13 j 20:00	21° $\nearrow$ 23'26	0°56'59	direct	187 Sep 19 j 17:36	6° $\overleftarrow$ 30'14	
minimum elong	179 Dec 13 j 20:00	21° $\nearrow$ 23'26	0°56'59				
max. Earth dist.	179 Dec 13 j 22:59	21° $\nearrow$ 23'43	31.19017 AU	conjunction	187 Dec 31 j 00:29	8° $\overleftarrow$ 57'58	0°25'12
retrograde	180 Mar 26 j 22:56	23° $\nearrow$ 53'26		minimum elong	187 Dec 31 j 00:29	8° $\overleftarrow$ 57'58	0°25'12
opposition	180 Jun 15 j 07:14	22° $\nearrow$ 30'13	0°58'53	max. Earth dist.	187 Dec 31 j 09:27	8° $\overleftarrow$ 58'48	31.11384 AU
min. Earth dist.	180 Jun 15 j 03:27	22° $\nearrow$ 30'28	29.18718 AU	retrograde	188 Apr 13 j 22:31	11° $\overleftarrow$ 29'05	
direct	180 Sep 03 j 06:57	21° $\nearrow$ 07'00		opposition	188 Jul 03 j 15:52	10° $\overleftarrow$ 05'12	0°24'39
				min. Earth dist.	188 Jul 03 j 06:25	10° $\overleftarrow$ 05'51	29.10969 AU
conjunction	180 Dec 15 j 05:21	23° $\nearrow$ 35'09	0°53'15	direct	188 Sep 21 j 03:48	8° $\overleftarrow$ 42'03	
minimum elong	180 Dec 15 j 05:22	23° $\nearrow$ 35'09	0°53'14				
max. Earth dist.	180 Dec 15 j 08:24	23° $\nearrow$ 35'26	31.18340 AU	conjunction	189 Jan 01 j 10:14	11° $\overleftarrow$ 09'45	0°21'00
retrograde	181 Mar 29 j 11:43	26° $\nearrow$ 05'19		minimum elong	189 Jan 01 j 10:14	11° $\overleftarrow$ 09'45	0°21'00
opposition	181 Jun 17 j 20:26	24° $\nearrow$ 42'04	0°54'51	max. Earth dist.	189 Jan 01 j 20:44	11° $\overleftarrow$ 10'45	31.10552 AU
min. Earth dist.	181 Jun 17 j 16:48	24° $\nearrow$ 42'19	29.17992 AU	retrograde	189 Apr 16 j 10:29	13° $\overleftarrow$ 41'01	
direct	181 Sep 05 j 16:38	23° $\nearrow$ 18'54		opposition	189 Jul 06 j 04:48	12° $\overleftarrow$ 17'06	0°20'08
				min. Earth dist.	189 Jul 05 j 17:25	12° $\overleftarrow$ 17'53	29.10171 AU
conjunction	181 Dec 17 j 15:03	25° $\nearrow$ 47'00	0°49'26	direct	189 Sep 23 j 14:39	10° $\overleftarrow$ 53'59	
minimum elong	181 Dec 17 j 15:03	25° $\nearrow$ 47'00	0°49'25				
max. Earth dist.	181 Dec 17 j 19:32	25° $\nearrow$ 47'26	31.17552 AU	conjunction	190 Jan 03 j 19:57	13° $\overleftarrow$ 21'40	0°16'45
retrograde	182 Mar 31 j 23:57	28° $\nearrow$ 17'20		minimum elong	190 Jan 03 j 19:58	13° $\overleftarrow$ 21'40	0°16'45
opposition	182 Jun 20 j 09:23	26° $\nearrow$ 54'01	0°50'43	max. Earth dist.	190 Jan 04 j 06:39	13° $\overleftarrow$ 22'41	31.09790 AU
min. Earth dist.	182 Jun 20 j 04:42	26° $\nearrow$ 54'20	29.17126 AU	retrograde	190 Apr 18 j 23:30	15° $\overleftarrow$ 53'07	
direct	182 Sep 08 j 05:57	25° $\nearrow$ 30'53		opposition	190 Jul 08 j 17:47	14° $\overleftarrow$ 29'09	0°15'34
				min. Earth dist.	190 Jul 08 j 06:21	14° $\overleftarrow$ 29'56	29.09445 AU
conjunction	182 Dec 20 j 00:37	27° $\nearrow$ 58'56	0°45'32	direct	190 Sep 26 j 00:02	13° $\overleftarrow$ 06'05	
minimum elong	182 Dec 20 j 00:37	27° $\nearrow$ 58'57	0°45'32				
max. Earth dist.	182 Dec 20 j 04:35	27° $\nearrow$ 59'19	31.16629 AU	conjunction	191 Jan 06 j 05:57	15° $\overleftarrow$ 33'46	0°12'29
	183 Feb 19 j 21:13	0° $\overleftarrow$		minimum elong	191 Jan 06 j 05:56	15° $\overleftarrow$ 33'46	0°12'29
retrograde	183 Apr 03 j 14:12	0° $\overleftarrow$ 29'24		behind sun begin	191 Jan 06 j 01:42	15° $\overleftarrow$ 33'23	
	183 May 17 j 17:44	30° $\overleftarrow$ R $\nearrow$		behind sun end	191 Jan 06 j 10:10	15° $\overleftarrow$ 34'09	
opposition	183 Jun 22 j 22:36	29° $\nearrow$ 06'00	0°46'31	max. Earth dist.	191 Jan 06 j 18:30	15° $\overleftarrow$ 34'57	31.09087 AU
min. Earth dist.	183 Jun 22 j 17:20	29° $\nearrow$ 06'22	29.16142 AU	retrograde	191 Apr 21 j 12:07	18° $\overleftarrow$ 05'23	
direct	183 Sep 10 j 17:14	27° $\nearrow$ 42'52		opposition	191 Jul 11 j 06:52	16° $\overleftarrow$ 41'24	0°10'59
	183 Dec 17 j 15:32	0° $\overleftarrow$		min. Earth dist.	191 Jul 10 j 18:07	16° $\overleftarrow$ 42'16	29.08744 AU
conjunction	183 Dec 22 j 10:12	0° $\overleftarrow$ 10'52	0°41'34	direct	191 Sep 28 j 12:13	15° $\overleftarrow$ 18'23	
minimum elong	183 Dec 22 j 10:13	0° $\overleftarrow$ 10'52	0°41'35				
max. Earth dist.	183 Dec 22 j 15:55	0° $\overleftarrow$ 11'25	31.15589 AU	conjunction	192 Jan 08 j 15:47	17° $\overleftarrow$ 46'05	0°08'13
retrograde	184 Apr 05 j 00:36	2° $\overleftarrow$ 41'28		minimum elong	192 Jan 08 j 15:47	17° $\overleftarrow$ 46'05	0°08'13
opposition	184 Jun 24 j 11:48	1° $\overleftarrow$ 17'58	0°42'16	behind sun begin	192 Jan 08 j 10:05	17° $\overleftarrow$ 45'34	
min. Earth dist.	184 Jun 24 j 06:04	1° $\overleftarrow$ 18'21	29.15052 AU	behind sun end	192 Jan 08 j 21:29	17° $\overleftarrow$ 46'36	
	184 Aug 25 j 10:24	30° $\overleftarrow$ R $\nearrow$		max. Earth dist.	192 Jan 09 j 04:03	17° $\overleftarrow$ 47'14	31.08390 AU
direct	184 Sep 12 j 05:41	29° $\nearrow$ 54'49		retrograde	192 Apr 23 j 02:54	20° $\overleftarrow$ 17'53	
	184 Sep 29 j 18:54	0° $\overleftarrow$		opposition	192 Jul 12 j 20:04	18° $\overleftarrow$ 53'52	0°06'23
				min. Earth dist.	192 Jul 12 j 06:47	18° $\overleftarrow$ 54'46	29.08038 AU
				direct	192 Sep 29 j 22:21	17° $\overleftarrow$ 30'53	
conjunction	184 Dec 23 j 19:45	2° $\overleftarrow$ 22'44	0°37'33				
minimum elong	184 Dec 23 j 19:45	2° $\overleftarrow$ 22'44	0°37'34	conjunction	193 Jan 10 j 02:06	19° $\overleftarrow$ 58'36	0°03'55
max. Earth dist.	184 Dec 24 j 01:28	2° $\overleftarrow$ 23'17	31.14487 AU	minimum elong	193 Jan 10 j 02:04	19° $\overleftarrow$ 58'36	0°03'55
retrograde	185 Apr 07 j 13:01	4° $\overleftarrow$ 53'27		behind sun begin	193 Jan 09 j 19:44	19° $\overleftarrow$ 58'02	
opposition	185 Jun 27 j 00:43	3° $\overleftarrow$ 29'50	0°37'56	behind sun end	193 Jan 10 j 08:25	19° $\overleftarrow$ 59'11	
min. Earth dist.	185 Jun 26 j 17:38	3° $\overleftarrow$ 30'19	29.13943 AU	max. Earth dist.	193 Jan 10 j 15:57	19° $\overleftarrow$ 59'55	31.07647 AU
direct	185 Sep 14 j 17:49	2° $\overleftarrow$ 06'40		retrograde	193 Apr 25 j 14:42	22° $\overleftarrow$ 30'35	
				opposition	193 Jul 15 j 09:07	21° $\overleftarrow$ 06'32	0°01'46
conjunction	185 Dec 26 j 05:22	4° $\overleftarrow$ 34'31	0°33'29	min. Earth dist.	193 Jul 14 j 19:35	21° $\overleftarrow$ 07'27	29.07254 AU
minimum elong	185 Dec 26 j 05:22	4° $\overleftarrow$ 34'31	0°33'29	direct	193 Oct 02 j 10:08	19° $\overleftarrow$ 43'36	
max. Earth dist.	185 Dec 26 j 12:38	4° $\overleftarrow$ 35'13	31.13377 AU	desc. node	193 Dec 02 j 10:37	20° $\overleftarrow$ 43'49	
retrograde	186 Apr 09 j 23:58	7° $\overleftarrow$ 05'21					

conjunction	194 Jan 12 j 12:22	22°☾11'20	0°00'-29	conjunction	201 Jan 27 j 13:59	7°☾42'03	0°-30'-23
minimum elong	194 Jan 12 j 12:22	22°☾11'20	0°00'30	minimum elong	201 Jan 27 j 13:58	7°☾42'03	0°30'24
behind sun begin	194 Jan 12 j 05:59	22°☾10'45		max. Earth dist.	201 Jan 28 j 07:43	7°☾43'44	30.99057 AU
behind sun end	194 Jan 12 j 18:45	22°☾11'55		retrograde	201 May 13 j 20:27	10°☾15'09	
max. Earth dist.	194 Jan 13 j 01:53	22°☾12'36	31.06818 AU	opposition	201 Aug 02 j 17:20	8°☾50'30	0°-34'-43
retrograde	194 Apr 28 j 05:07	24°☾43'29		min. Earth dist.	201 Aug 01 j 22:53	8°☾51'46	28.98630 AU
opposition	194 Jul 17 j 22:16	23°☾19'24	0°-2'-51	direct	201 Oct 20 j 03:34	7°☾27'29	
min. Earth dist.	194 Jul 17 j 07:48	23°☾20'23	29.06367 AU				
direct	194 Oct 04 j 22:02	21°☾56'29		conjunction	202 Jan 30 j 00:50	9°☾55'11	0°-34'-31
				minimum elong	202 Jan 30 j 00:50	9°☾55'11	0°34'32
conjunction	195 Jan 14 j 22:43	24°☾24'13	0°-4'-52	max. Earth dist.	202 Jan 30 j 20:18	9°☾57'01	30.98166 AU
minimum elong	195 Jan 14 j 22:44	24°☾24'13	0°04'53	retrograde	202 May 16 j 08:34	12°☾28'25	
behind sun begin	195 Jan 14 j 16:28	24°☾23'39		min. Earth dist.	202 Aug 04 j 11:11	11°☾05'01	28.97789 AU
behind sun end	195 Jan 15 j 04:59	24°☾24'47		opposition	202 Aug 05 j 06:11	11°☾03'43	0°-39'-8
max. Earth dist.	195 Jan 15 j 13:13	24°☾25'35	31.05852 AU	direct	202 Oct 22 j 15:00	9°☾40'43	
retrograde	195 Apr 30 j 17:33	26°☾56'32					
opposition	195 Jul 20 j 11:34	25°☾32'22	0°-7'-28	conjunction	203 Feb 01 j 11:31	12°☾08'26	0°-38'-37
min. Earth dist.	195 Jul 19 j 21:30	25°☾33'20	29.05336 AU	minimum elong	203 Feb 01 j 11:30	12°☾08'26	0°38'38
direct	195 Oct 07 j 10:21	24°☾09'28		max. Earth dist.	203 Feb 02 j 06:59	12°☾10'17	30.97377 AU
				retrograde	203 May 19 j 00:01	14°☾41'49	
conjunction	196 Jan 17 j 09:14	26°☾37'11	0°-9'-9	opposition	203 Aug 07 j 19:05	13°☾17'05	0°-43'-29
minimum elong	196 Jan 17 j 09:14	26°☾37'11	0°09'10	min. Earth dist.	203 Aug 06 j 22:58	13°☾18'28	28.97039 AU
behind sun begin	196 Jan 17 j 03:46	26°☾36'42		direct	203 Oct 25 j 02:53	11°☾54'06	
behind sun end	196 Jan 17 j 14:42	26°☾37'41					
max. Earth dist.	196 Jan 17 j 23:55	26°☾38'34	31.04770 AU	conjunction	204 Feb 03 j 22:34	14°☾21'52	0°-42'-40
retrograde	196 May 02 j 06:19	29°☾09'38		minimum elong	204 Feb 03 j 22:34	14°☾21'52	0°42'41
min. Earth dist.	196 Jul 21 j 09:07	27°☾46'28	29.04196 AU	max. Earth dist.	204 Feb 04 j 19:11	14°☾23'49	30.96641 AU
opposition	196 Jul 22 j 00:38	27°☾45'24	0°-12'-5				
direct	196 Oct 08 j 22:20	26°☾22'29		retrograde	204 May 20 j 13:04	16°☾55'24	
				opposition	204 Aug 09 j 07:56	15°☾30'39	0°-47'-47
conjunction	197 Jan 18 j 19:41	28°☾50'10	0°-13'-27	min. Earth dist.	204 Aug 08 j 12:14	15°☾32'00	28.96326 AU
minimum elong	197 Jan 18 j 19:41	28°☾50'10	0°13'28				
behind sun begin	197 Jan 18 j 16:00	28°☾49'50		direct	204 Oct 26 j 14:37	14°☾07'41	
behind sun end	197 Jan 18 j 23:23	28°☾50'31					
max. Earth dist.	197 Jan 19 j 10:40	28°☾51'35	31.03580 AU				
	197 Feb 19 j 15:51	0°☾		conjunction	205 Feb 05 j 09:45	16°☾35'29	0°-46'-39
retrograde	197 May 04 j 17:22	1°☾22'46		minimum elong	205 Feb 05 j 09:45	16°☾35'29	0°46'40
	197 Jul 23 j 14:41	30°☾		max. Earth dist.	205 Feb 06 j 06:37	16°☾37'28	30.95936 AU
opposition	197 Jul 24 j 13:47	29°☾58'25	0°-16'-40	retrograde	205 May 23 j 02:57	19°☾09'10	
min. Earth dist.	197 Jul 23 j 22:47	29°☾59'27	29.02983 AU	opposition	205 Aug 11 j 20:42	17°☾44'22	0°-52'00
direct	197 Oct 11 j 09:12	28°☾35'29		min. Earth dist.	205 Aug 10 j 23:45	17°☾45'49	28.95609 AU
	197 Dec 23 j 15:26	0°☾		direct	205 Oct 29 j 02:29	16°☾21'26	
conjunction	198 Jan 21 j 06:15	1°☾03'09	0°-17'-43	conjunction	206 Feb 07 j 21:03	18°☾49'16	0°-50'-34
minimum elong	198 Jan 21 j 06:15	1°☾03'09	0°17'44	minimum elong	206 Feb 07 j 21:03	18°☾49'16	0°50'35
max. Earth dist.	198 Jan 21 j 22:27	1°☾04'40	31.02358 AU	max. Earth dist.	206 Feb 08 j 17:54	18°☾51'15	30.95178 AU
retrograde	198 May 07 j 05:19	3°☾35'50		retrograde	206 May 25 j 15:29	21°☾23'05	
min. Earth dist.	198 Jul 26 j 10:01	2°☾12'33	29.01765 AU	opposition	206 Aug 14 j 09:36	19°☾58'15	0°-56'-9
opposition	198 Jul 27 j 02:37	2°☾11'25	0°-21'-14	min. Earth dist.	206 Aug 13 j 13:30	19°☾59'38	28.94827 AU
direct	198 Oct 13 j 20:30	0°☾48'26		direct	206 Oct 31 j 13:44	18°☾35'19	
conjunction	199 Jan 23 j 16:43	3°☾16'05	0°-21'-58	conjunction	207 Feb 10 j 08:38	21°☾03'12	0°-54'-24
minimum elong	199 Jan 23 j 16:43	3°☾16'05	0°22'00	minimum elong	207 Feb 10 j 08:37	21°☾03'12	0°54'26
max. Earth dist.	199 Jan 24 j 08:55	3°☾17'37	31.01161 AU	max. Earth dist.	207 Feb 11 j 06:14	21°☾05'15	30.94354 AU
retrograde	199 May 09 j 18:03	5°☾48'55		retrograde	207 May 28 j 05:01	23°☾37'07	
opposition	199 Jul 29 j 15:42	4°☾24'24	0°-25'-46	opposition	207 Aug 16 j 22:26	22°☾12'14	-1°00'-13
min. Earth dist.	199 Jul 28 j 23:08	4°☾25'32	29.00618 AU	min. Earth dist.	207 Aug 16 j 01:13	22°☾13'42	28.93951 AU
direct	199 Oct 16 j 06:20	3°☾01'24		direct	207 Nov 03 j 01:58	20°☾49'17	
conjunction	200 Jan 26 j 03:20	5°☾29'02	0°-26'-11	conjunction	208 Feb 12 j 20:07	23°☾17'10	0°-58'-10
minimum elong	200 Jan 26 j 03:19	5°☾29'02	0°26'12	minimum elong	208 Feb 12 j 20:07	23°☾17'10	0°58'11
max. Earth dist.	200 Jan 26 j 21:23	5°☾30'45	31.00055 AU	max. Earth dist.	208 Feb 13 j 17:01	23°☾19'09	30.93420 AU
retrograde	200 May 11 j 06:08	8°☾02'00		retrograde	208 May 29 j 17:21	25°☾51'12	
min. Earth dist.	200 Jul 30 j 10:40	6°☾38'38	28.99563 AU	opposition	208 Aug 18 j 11:23	24°☾26'15	-1°-4'-12
opposition	200 Jul 31 j 04:34	6°☾37'25	0°-30'-16	min. Earth dist.	208 Aug 17 j 14:58	24°☾27'39	28.92975 AU
direct	200 Oct 17 j 18:16	5°☾14'24		direct	208 Nov 04 j 12:16	23°☾03'15	

conjunction	209 Feb 14 j 07:56	25°≈31'09	-1°-1'-51	direct	216 Nov 22 j 08:14	10°✕54'57	
minimum elong	209 Feb 14 j 07:55	25°≈31'09	1°01'52				
max. Earth dist.	209 Feb 15 j 05:57	25°≈33'14	30.92396 AU	conjunction	217 Mar 04 j 07:12	13°✕23'14	-1°-27'-30
retrograde	209 Jun 01 j 04:54	28°≈05'14		minimum elong	217 Mar 04 j 07:12	13°✕23'14	1°27'31
opposition	209 Aug 20 j 23:56	26°≈40'12	-1°-8'-5	max. Earth dist.	217 Mar 05 j 07:13	13°✕25'30	30.86378 AU
min. Earth dist.	209 Aug 20 j 02:53	26°≈41'40	28.91917 AU	retrograde	217 Jun 19 j 17:08	15°✕58'01	
direct	209 Nov 07 j 00:19	25°≈17'09		min. Earth dist.	217 Sep 07 j 04:49	14°✕34'18	28.86308 AU
				opposition	217 Sep 08 j 03:33	14°✕32'43	-1°-35'-1
conjunction	210 Feb 16 j 19:32	27°≈45'04	-1°-5'-26	direct	217 Nov 24 j 18:08	13°✕09'34	
minimum elong	210 Feb 16 j 19:31	27°≈45'04	1°05'26				
max. Earth dist.	210 Feb 17 j 16:42	27°≈47'04	30.91326 AU	conjunction	218 Mar 06 j 19:48	15°✕37'56	-1°-30'-10
	210 Apr 30 j 06:03	0°✕		minimum elong	218 Mar 06 j 19:47	15°✕37'56	1°30'10
retrograde	210 Jun 03 j 18:43	0°✕19'13		max. Earth dist.	218 Mar 07 j 20:51	15°✕40'19	30.86035 AU
	210 Jul 09 j 01:11	30°R≈		retrograde	218 Jun 22 j 05:27	18°✕12'49	
opposition	210 Aug 23 j 12:38	28°≈54'06	-1°-11'-52	opposition	218 Sep 10 j 15:52	16°✕47'32	-1°-37'-48
min. Earth dist.	210 Aug 22 j 15:33	28°≈55'34	28.90860 AU	min. Earth dist.	218 Sep 09 j 16:42	16°✕49'09	28.85954 AU
direct	210 Nov 09 j 09:57	27°≈30'59		direct	218 Nov 27 j 05:49	15°✕24'23	
conjunction	211 Feb 19 j 07:11	29°≈58'54	-1°-8'-55	conjunction	219 Mar 09 j 08:17	17°✕52'51	-1°-32'-41
minimum elong	211 Feb 19 j 07:10	29°≈58'54	1°08'56	minimum elong	219 Mar 09 j 08:16	17°✕52'51	1°32'42
	211 Feb 19 j 18:44	0°✕		max. Earth dist.	219 Mar 10 j 08:04	17°✕55'06	30.85657 AU
max. Earth dist.	211 Feb 20 j 05:48	0°✕01'03	30.90276 AU	retrograde	219 Jun 24 j 19:47	20°✕27'49	
retrograde	211 Jun 06 j 06:41	2°✕33'08		min. Earth dist.	219 Sep 12 j 05:40	19°✕04'06	28.85551 AU
min. Earth dist.	211 Aug 25 j 03:52	1°✕09'25	28.89847 AU	opposition	219 Sep 13 j 04:18	19°✕02'31	-1°-40'-26
opposition	211 Aug 26 j 01:14	1°✕07'56	-1°-15'-32	direct	219 Nov 29 j 15:06	17°✕39'22	
	211 Oct 12 j 15:54	30°R≈					
direct	211 Nov 11 j 21:50	29°≈44'47		conjunction	220 Mar 10 j 21:14	20°✕07'54	-1°-35'-5
	211 Dec 11 j 14:43	0°✕		minimum elong	220 Mar 10 j 21:14	20°✕07'54	1°35'05
				max. Earth dist.	220 Mar 11 j 21:41	20°✕10'13	30.85197 AU
conjunction	212 Feb 21 j 18:56	2°✕12'43	-1°-12'-17	retrograde	220 Jun 26 j 07:32	22°✕42'54	
minimum elong	212 Feb 21 j 18:56	2°✕12'43	1°12'18	opposition	220 Sep 14 j 16:31	21°✕17'36	-1°-42'-55
max. Earth dist.	212 Feb 22 j 17:15	2°✕14'50	30.89315 AU	min. Earth dist.	220 Sep 13 j 18:18	21°✕19'09	28.85043 AU
retrograde	212 Jun 07 j 21:43	4°✕47'02		direct	220 Dec 01 j 03:06	19°✕54'25	
opposition	212 Aug 27 j 13:38	3°✕21'46	-1°-19'-5				
min. Earth dist.	212 Aug 26 j 15:27	3°✕23'18	28.88952 AU	conjunction	221 Mar 13 j 10:10	22°✕23'00	-1°-37'-20
direct	212 Nov 13 j 09:17	1°✕58'33		minimum elong	221 Mar 13 j 10:10	22°✕23'00	1°37'21
				max. Earth dist.	221 Mar 14 j 09:23	22°✕25'12	30.84650 AU
conjunction	213 Feb 23 j 06:50	4°✕26'33	-1°-15'-34	retrograde	221 Jun 28 j 21:55	24°✕58'01	
minimum elong	213 Feb 23 j 06:50	4°✕26'33	1°15'35	min. Earth dist.	221 Sep 16 j 06:30	23°✕34'14	28.84458 AU
max. Earth dist.	213 Feb 24 j 06:09	4°✕28'46	30.88466 AU	opposition	221 Sep 17 j 04:45	23°✕32'41	-1°-45'-14
retrograde	213 Jun 10 j 10:18	7°✕00'57		direct	221 Dec 03 j 14:28	22°✕09'26	
min. Earth dist.	213 Aug 29 j 04:18	5°✕37'09	28.88178 AU				
opposition	213 Aug 30 j 02:08	5°✕35'38	-1°-22'-32	conjunction	222 Mar 15 j 23:02	24°✕38'04	-1°-39'-25
direct	213 Nov 15 j 20:47	4°✕12'25		minimum elong	222 Mar 15 j 23:02	24°✕38'04	1°39'26
				max. Earth dist.	222 Mar 16 j 22:38	24°✕40'18	30.84022 AU
conjunction	214 Feb 25 j 18:42	6°✕40'28	-1°-18'-44	retrograde	222 Jul 01 j 09:52	27°✕13'05	
minimum elong	214 Feb 25 j 18:42	6°✕40'28	1°18'44	opposition	222 Sep 19 j 16:58	25°✕47'42	-1°-47'-24
max. Earth dist.	214 Feb 26 j 18:18	6°✕42'42	30.87763 AU	min. Earth dist.	222 Sep 18 j 19:41	25°✕49'11	28.83819 AU
retrograde	214 Jun 13 j 00:48	9°✕14'57		direct	222 Dec 06 j 01:43	24°✕24'23	
opposition	214 Sep 01 j 14:27	7°✕49'37	-1°-25'-51				
min. Earth dist.	214 Aug 31 j 15:16	7°✕51'14	28.87548 AU	conjunction	223 Mar 18 j 12:02	26°✕53'03	-1°-41'-22
direct	214 Nov 18 j 08:40	6°✕26'24		minimum elong	223 Mar 18 j 12:02	26°✕53'03	1°41'24
				max. Earth dist.	223 Mar 19 j 11:17	26°✕55'14	30.83395 AU
conjunction	215 Feb 28 j 06:42	8°✕54'31	-1°-21'-46	retrograde	223 Jul 04 j 00:38	29°✕28'03	
minimum elong	215 Feb 28 j 06:41	8°✕54'31	1°21'48	min. Earth dist.	223 Sep 21 j 06:56	28°✕04'09	28.83210 AU
max. Earth dist.	215 Mar 01 j 06:28	8°✕56'46	30.87192 AU	opposition	223 Sep 22 j 04:57	28°✕02'36	-1°-49'-24
retrograde	215 Jun 15 j 14:20	11°✕29'06		direct	223 Dec 08 j 14:19	26°✕39'12	
min. Earth dist.	215 Sep 03 j 04:25	10°✕05'20	28.87051 AU				
opposition	215 Sep 04 j 02:56	10°✕03'46	-1°-29'-3	conjunction	224 Mar 20 j 01:02	29°✕07'55	-1°-43'-10
direct	215 Nov 20 j 19:55	8°✕40'34		minimum elong	224 Mar 20 j 01:02	29°✕07'55	1°43'11
				max. Earth dist.	224 Mar 21 j 00:01	29°✕10'05	30.82802 AU
conjunction	216 Mar 01 j 18:54	11°✕08'46	-1°-24'-42	retrograde	224 Apr 12 j 12:08	0°Y	
minimum elong	216 Mar 01 j 18:54	11°✕08'46	1°24'42	retrograde	224 Jul 05 j 14:07	1°Y42'54	
max. Earth dist.	216 Mar 02 j 19:36	11°✕11'06	30.86753 AU	opposition	224 Sep 23 j 17:01	0°Y17'24	-1°-51'-14
retrograde	216 Jun 17 j 04:48	13°✕43'27		min. Earth dist.	224 Sep 22 j 20:04	0°Y18'52	28.82666 AU
opposition	216 Sep 05 j 15:15	12°✕18'07	-1°-32'-6				
min. Earth dist.	216 Sep 04 j 15:35	12°✕19'46	28.86652 AU	direct	224 Dec 10 j 02:32	28°✕53'57	



	225 Feb 11 j 22:08	0°♆		minimum elong	233 Apr 10 j 02:24	19°♆23'17	1°52'00
				max. Earth dist.	233 Apr 10 j 22:35	19°♆25'11	30.81704 AU
conjunction	225 Mar 22 j 14:13	1°♆22'42	-1°-44'-48	retrograde	233 Jul 26 j 13:25	21°♆58'13	
minimum elong	225 Mar 22 j 14:12	1°♆22'42	1°44'50	min. Earth dist.	233 Oct 13 j 09:13	20°♆34'09	28.81762 AU
max. Earth dist.	225 Mar 23 j 13:39	1°♆24'55	30.82308 AU	opposition	233 Oct 14 j 02:53	20°♆32'54	-1°-59'-50
retrograde	225 Jul 08 j 04:00	3°♆57'39		direct	233 Dec 30 j 10:08	19°♆09'16	
min. Earth dist.	225 Sep 25 j 06:51	2°♆33'40	28.82229 AU				
opposition	225 Sep 26 j 04:44	2°♆32'08	-1°-52'-54	conjunction	234 Apr 12 j 16:25	21°♆38'49	-1°-52'-7
direct	225 Dec 12 j 15:45	1°♆08'37		minimum elong	234 Apr 12 j 16:26	21°♆38'49	1°52'07
				max. Earth dist.	234 Apr 13 j 12:13	21°♆40'41	30.81533 AU
conjunction	226 Mar 25 j 03:16	3°♆37'26	-1°-46'-17	retrograde	234 Jul 29 j 03:24	24°♆13'40	
minimum elong	226 Mar 25 j 03:16	3°♆37'26	1°46'17	opposition	234 Oct 16 j 14:22	22°♆48'22	-1°-59'-53
max. Earth dist.	226 Mar 26 j 01:57	3°♆39'34	30.81932 AU	min. Earth dist.	234 Oct 15 j 20:23	22°♆49'39	28.81550 AU
retrograde	226 Jul 10 j 16:51	6°♆12'23		direct	235 Jan 01 j 23:45	21°♆24'40	
opposition	226 Sep 28 j 16:41	4°♆46'50	-1°-54'-24				
min. Earth dist.	226 Sep 27 j 19:41	4°♆48'19	28.81934 AU	conjunction	235 Apr 15 j 06:16	23°♆54'17	-1°-52'-4
direct	226 Dec 15 j 02:10	3°♆23'18		minimum elong	235 Apr 15 j 06:16	23°♆54'17	1°52'06
				max. Earth dist.	235 Apr 16 j 00:42	23°♆56'01	30.81301 AU
conjunction	227 Mar 27 j 16:27	5°♆52'10	-1°-47'-36	retrograde	235 Jul 31 j 16:39	26°♆29'04	
minimum elong	227 Mar 27 j 16:27	5°♆52'10	1°47'37	min. Earth dist.	235 Oct 18 j 09:30	25°♆04'55	28.81313 AU
max. Earth dist.	227 Mar 28 j 16:12	5°♆54'24	30.81707 AU	opposition	235 Oct 19 j 01:57	25°♆03'45	-1°-59'-45
retrograde	227 Jul 13 j 05:59	8°♆27'07		direct	236 Jan 04 j 10:55	23°♆39'58	
min. Earth dist.	227 Sep 30 j 06:57	7°♆03'06	28.81772 AU				
opposition	227 Oct 01 j 04:28	7°♆01'35	-1°-55'-43	conjunction	236 Apr 16 j 20:25	26°♆09'39	-1°-51'-52
direct	227 Dec 17 j 14:43	5°♆38'01		minimum elong	236 Apr 16 j 20:25	26°♆09'39	1°51'52
				max. Earth dist.	236 Apr 17 j 15:14	26°♆11'25	30.81072 AU
conjunction	228 Mar 29 j 05:45	8°♆06'59	-1°-48'-45	retrograde	236 Aug 02 j 06:28	28°♆44'19	
minimum elong	228 Mar 29 j 05:45	8°♆06'59	1°48'46	opposition	236 Oct 20 j 13:08	27°♆19'00	-1°-59'-27
max. Earth dist.	228 Mar 30 j 04:15	8°♆09'06	30.81613 AU	min. Earth dist.	236 Oct 19 j 20:40	27°♆20'10	28.81095 AU
retrograde	228 Jul 14 j 19:45	10°♆41'56		direct	237 Jan 06 j 00:32	25°♆55'09	
opposition	228 Oct 02 j 16:12	9°♆16'25	-1°-56'-51				
min. Earth dist.	228 Oct 01 j 19:11	9°♆17'54	28.81744 AU	conjunction	237 Apr 19 j 10:20	28°♆24'53	-1°-51'-29
direct	228 Dec 19 j 00:29	7°♆52'51		minimum elong	237 Apr 19 j 10:20	28°♆24'53	1°51'31
				max. Earth dist.	237 Apr 20 j 03:32	28°♆26'30	30.80890 AU
conjunction	229 Mar 31 j 19:18	10°♆21'55	-1°-49'-44	retrograde	237 Jun 03 j 20:44	0°♆	
minimum elong	229 Mar 31 j 19:18	10°♆21'55	1°49'46	retrograde	237 Aug 04 j 19:20	0°♆59'28	
max. Earth dist.	229 Apr 01 j 18:38	10°♆24'06	30.81626 AU				
retrograde	229 Jul 17 j 07:17	12°♆56'52		min. Earth dist.	237 Oct 22 j 08:46	29°♆35'15	28.80965 AU
min. Earth dist.	229 Oct 04 j 07:16	11°♆32'53	28.81790 AU	opposition	237 Oct 23 j 00:28	29°♆34'09	-1°-58'-57
opposition	229 Oct 05 j 03:57	11°♆31'25	-1°-57'-49	direct	238 Jan 08 j 11:22	28°♆10'13	
direct	229 Dec 21 j 12:14	10°♆07'52			238 Apr 04 j 00:34	0°♆	
conjunction	230 Apr 03 j 08:42	12°♆37'01	-1°-50'-33	conjunction	238 Apr 22 j 00:17	0°♆40'01	-1°-50'-57
minimum elong	230 Apr 03 j 08:42	12°♆37'01	1°50'34	minimum elong	238 Apr 22 j 00:17	0°♆40'01	1°50'57
max. Earth dist.	230 Apr 04 j 06:47	12°♆39'05	30.81705 AU	max. Earth dist.	238 Apr 22 j 18:10	0°♆41'42	30.80809 AU
retrograde	230 Jul 19 j 21:19	15°♆11'59		retrograde	238 Aug 07 j 06:20	3°♆14'30	
opposition	230 Oct 07 j 15:43	13°♆46'35	-1°-58'-36	opposition	238 Oct 25 j 11:43	1°♆49'12	-1°-58'-16
min. Earth dist.	230 Oct 06 j 19:07	13°♆48'03	28.81880 AU	min. Earth dist.	238 Oct 24 j 20:19	1°♆50'17	28.80940 AU
direct	230 Dec 23 j 22:48	12°♆23'02		direct	239 Jan 10 j 23:48	0°♆25'13	
conjunction	231 Apr 05 j 22:30	14°♆52'18	-1°-51'-12	conjunction	239 Apr 24 j 14:15	2°♆55'04	-1°-50'-14
minimum elong	231 Apr 05 j 22:30	14°♆52'18	1°51'14	minimum elong	239 Apr 24 j 14:15	2°♆55'04	1°50'15
max. Earth dist.	231 Apr 06 j 20:46	14°♆54'24	30.81776 AU	max. Earth dist.	239 Apr 25 j 06:43	2°♆56'37	30.80865 AU
retrograde	231 Jul 22 j 09:35	17°♆27'17		retrograde	239 Aug 09 j 19:39	5°♆29'28	
min. Earth dist.	231 Oct 09 j 08:15	16°♆03'18	28.81931 AU	opposition	239 Oct 27 j 22:47	4°♆04'11	-1°-57'-25
opposition	231 Oct 10 j 03:28	16°♆01'56	-1°-59'-11	min. Earth dist.	239 Oct 27 j 07:26	4°♆05'17	28.81072 AU
direct	231 Dec 26 j 09:21	14°♆38'22		direct	240 Jan 13 j 10:12	2°♆40'09	
conjunction	232 Apr 07 j 12:27	17°♆07'45	-1°-51'-40	conjunction	240 Apr 26 j 04:26	5°♆10'06	-1°-49'-21
minimum elong	232 Apr 07 j 12:27	17°♆07'45	1°51'41	minimum elong	240 Apr 26 j 04:26	5°♆10'06	1°49'21
max. Earth dist.	232 Apr 08 j 09:34	17°♆09'44	30.81798 AU	max. Earth dist.	240 Apr 26 j 21:15	5°♆11'40	30.81062 AU
retrograde	232 Jul 24 j 00:18	19°♆42'43		retrograde	240 Aug 11 j 07:01	7°♆44'24	
opposition	232 Oct 11 j 15:10	18°♆17'24	-1°-59'-36	opposition	240 Oct 29 j 09:59	6°♆19'10	-1°-56'-23
min. Earth dist.	232 Oct 10 j 19:48	18°♆18'46	28.81901 AU	min. Earth dist.	240 Oct 28 j 19:44	6°♆20'11	28.81337 AU
direct	232 Dec 27 j 21:56	16°♆53'48		direct	241 Jan 14 j 20:25	4°♆55'06	
conjunction	233 Apr 10 j 02:24	19°♆23'17	-1°-51'-59	conjunction	241 Apr 28 j 18:30	7°♆25'08	-1°-48'-17

minimum elong	241 Apr 28 j 18:30	7°♃25'08	1°48'19	minimum elong	249 May 17 j 13:32	25°♃25'53	1°34'07
max. Earth dist.	241 Apr 29 j 10:22	7°♃26'37	30.81407 AU	max. Earth dist.	249 May 17 j 22:29	25°♃26'43	30.84428 AU
retrograde	241 Aug 13 j 19:49	9°♃59'21		retrograde	249 Sep 01 j 00:51	27°♃59'06	
opposition	241 Oct 31 j 20:58	8°♃34'11	-1°-55'-10	opposition	249 Nov 18 j 12:30	26°♃34'18	-1°-39'-19
min. Earth dist.	241 Oct 31 j 06:21	8°♃35'13	28.81737 AU	min. Earth dist.	249 Nov 18 j 05:31	26°♃34'48	28.84668 AU
direct	242 Jan 17 j 08:44	7°♃10'06		direct	250 Feb 04 j 09:12	25°♃09'49	
conjunction	242 May 01 j 08:40	9°♃40'13	-1°-47'-4	conjunction	250 May 20 j 03:45	27°♃40'30	-1°-31'-39
minimum elong	242 May 01 j 08:40	9°♃40'13	1°47'05	minimum elong	250 May 20 j 03:46	27°♃40'30	1°31'40
max. Earth dist.	242 May 02 j 00:03	9°♃41'40	30.81855 AU	max. Earth dist.	250 May 20 j 11:24	27°♃41'13	30.84775 AU
retrograde	242 Aug 16 j 07:42	12°♃14'22		retrograde	250 Aug 06 j 00:53	0°♂	
opposition	242 Nov 03 j 08:05	10°♃49'16	-1°-53'-46	retrograde	250 Sep 03 j 12:51	0°♂13'33	
min. Earth dist.	242 Nov 02 j 19:04	10°♃50'11	28.82223 AU	retrograde	250 Oct 02 j 06:19	30°♂	
direct	243 Jan 19 j 19:52	9°♃25'10		opposition	250 Nov 20 j 23:03	28°♃48'48	-1°-36'-38
conjunction	243 May 03 j 22:57	11°♃55'24	-1°-45'-41	min. Earth dist.	250 Nov 20 j 15:49	28°♃49'19	28.85063 AU
minimum elong	243 May 03 j 22:58	11°♃55'24	1°45'42	direct	251 Feb 06 j 21:30	27°♃24'14	
max. Earth dist.	243 May 04 j 13:48	11°♃56'47	30.82371 AU	conjunction	251 May 22 j 18:00	29°♃55'00	-1°-29'-4
retrograde	243 Aug 18 j 21:30	14°♃29'27		minimum elong	251 May 22 j 18:00	29°♃55'00	1°29'05
opposition	243 Nov 05 j 19:04	13°♃04'26	-1°-52'-11	max. Earth dist.	251 May 23 j 01:14	29°♃55'40	30.85224 AU
min. Earth dist.	243 Nov 05 j 05:53	13°♃05'22	28.82728 AU	retrograde	251 May 24 j 23:40	0°♂	
direct	244 Jan 22 j 08:47	11°♃40'18		retrograde	251 Sep 05 j 23:36	2°♂27'54	
conjunction	244 May 05 j 13:23	14°♃10'39	-1°-44'-8	opposition	251 Nov 23 j 09:43	1°♂03'12	-1°-33'-48
minimum elong	244 May 05 j 13:23	14°♃10'39	1°44'08	min. Earth dist.	251 Nov 23 j 04:00	1°♂03'36	28.85579 AU
max. Earth dist.	244 May 06 j 02:35	14°♃11'53	30.82858 AU	direct	252 Jan 04 j 05:32	30°♂	
retrograde	244 May 27 j 21:53	15°♂		direct	252 Feb 09 j 08:18	29°♃38'35	
retrograde	244 Aug 20 j 10:42	16°♃44'36		retrograde	252 Mar 16 j 04:15	0°♂	
opposition	244 Nov 07 j 06:07	15°♃19'38	-1°-50'-27	conjunction	252 May 24 j 08:16	2°♂09'25	-1°-26'-22
min. Earth dist.	244 Nov 06 j 18:47	15°♃20'26	28.83191 AU	minimum elong	252 May 24 j 08:17	2°♂09'25	1°26'22
direct	244 Nov 18 j 21:10	15°♂		max. Earth dist.	252 May 24 j 14:54	2°♂10'02	30.85822 AU
direct	245 Jan 23 j 20:06	13°♃55'29		retrograde	252 Sep 07 j 12:09	4°♂42'10	
conjunction	245 May 08 j 03:58	16°♃25'54	-1°-42'-25	opposition	252 Nov 24 j 20:08	3°♂17'33	-1°-30'-50
minimum elong	245 May 08 j 03:58	16°♃25'54	1°42'26	min. Earth dist.	252 Nov 24 j 13:58	3°♂17'59	28.86240 AU
max. Earth dist.	245 May 08 j 16:59	16°♃27'07	30.83288 AU	direct	253 Feb 10 j 20:39	1°♂52'55	
retrograde	245 Aug 23 j 00:24	18°♃59'44		conjunction	253 May 26 j 22:28	4°♂23'50	-1°-23'-31
opposition	245 Nov 09 j 17:08	17°♃34'49	-1°-48'-32	minimum elong	253 May 26 j 22:29	4°♂23'50	1°23'33
min. Earth dist.	245 Nov 09 j 06:09	17°♃35'36	28.83567 AU	max. Earth dist.	253 May 27 j 03:58	4°♂24'20	30.86562 AU
direct	246 Jan 26 j 10:16	16°♃10'37		retrograde	253 Sep 10 j 00:21	6°♂56'28	
conjunction	246 May 10 j 18:13	18°♃41'07	-1°-40'-34	opposition	253 Nov 27 j 06:47	5°♂31'55	-1°-27'-43
minimum elong	246 May 10 j 18:13	18°♃41'07	1°40'34	min. Earth dist.	253 Nov 27 j 01:59	5°♂32'16	28.87057 AU
max. Earth dist.	246 May 11 j 05:06	18°♃42'08	30.83631 AU	direct	254 Feb 13 j 07:48	4°♂07'17	
retrograde	246 Aug 25 j 13:18	21°♃14'48		conjunction	254 May 29 j 12:38	6°♂38'17	-1°-20'-33
opposition	246 Nov 12 j 04:12	19°♃49'55	-1°-46'-28	minimum elong	254 May 29 j 12:39	6°♂38'17	1°20'33
min. Earth dist.	246 Nov 11 j 18:27	19°♃50'37	28.83875 AU	max. Earth dist.	254 May 29 j 18:19	6°♂38'49	30.87452 AU
direct	247 Jan 28 j 21:52	18°♃25'39		retrograde	254 Sep 12 j 13:23	9°♂10'48	
conjunction	247 May 13 j 08:48	20°♃56'12	-1°-38'-33	opposition	254 Nov 29 j 17:17	7°♂46'22	-1°-24'-28
minimum elong	247 May 13 j 08:48	20°♃56'12	1°38'35	min. Earth dist.	254 Nov 29 j 12:37	7°♂46'42	28.87982 AU
max. Earth dist.	247 May 13 j 19:43	20°♃57'13	30.83910 AU	direct	255 Feb 15 j 21:46	6°♂21'44	
retrograde	247 Aug 28 j 01:03	23°♃29'44		conjunction	255 Jun 01 j 02:56	8°♂52'51	-1°-17'-27
opposition	247 Nov 14 j 14:59	22°♃04'52	-1°-44'-14	minimum elong	255 Jun 01 j 02:56	8°♂52'51	1°17'28
min. Earth dist.	247 Nov 14 j 06:10	22°♃05'30	28.84123 AU	max. Earth dist.	255 Jun 01 j 06:45	8°♂53'12	30.88422 AU
direct	248 Jan 31 j 10:51	20°♃40'32		retrograde	255 Sep 15 j 02:12	11°♂25'14	
conjunction	248 May 14 j 23:12	23°♃11'08	-1°-36'-24	opposition	255 Dec 02 j 03:44	10°♂00'55	-1°-21'-6
minimum elong	248 May 14 j 23:12	23°♃11'08	1°36'24	min. Earth dist.	255 Dec 02 j 00:17	10°♂01'10	28.88974 AU
max. Earth dist.	248 May 15 j 08:02	23°♃11'57	30.84163 AU	direct	256 Feb 18 j 08:54	8°♂36'17	
retrograde	248 Aug 29 j 14:29	25°♃44'30		conjunction	256 Jun 02 j 17:27	11°♂07'31	-1°-14'-14
opposition	248 Nov 16 j 01:46	24°♃19'40	-1°-41'-51	minimum elong	256 Jun 02 j 17:28	11°♂07'31	1°14'14
min. Earth dist.	248 Nov 15 j 17:24	24°♃20'16	28.84378 AU	max. Earth dist.	256 Jun 02 j 21:17	11°♂07'52	30.89414 AU
direct	249 Feb 01 j 22:11	22°♃55'15		retrograde	256 Sep 16 j 14:45	13°♂39'46	
conjunction	249 May 17 j 13:32	25°♃25'53	-1°-34'-6	opposition	256 Dec 03 j 14:20	12°♂15'34	-1°-17'-36
				min. Earth dist.	256 Dec 03 j 11:54	12°♂15'44	28.89940 AU
				direct	257 Feb 19 j 22:00	10°♂50'56	

conjunction	257 Jun 05 j 07:40	13°II22'15	-1°-10'-54	conjunction	265 Jun 24 j 00:40	1°☾15'09	0°-41'-1
minimum elong	257 Jun 05 j 07:41	13°II22'15	1°10'55	minimum elong	265 Jun 24 j 00:41	1°☾15'09	0°41'02
max. Earth dist.	257 Jun 05 j 09:12	13°II22'23	30.90357 AU	max. Earth dist.	265 Jun 23 j 19:36	1°☾14'41	30.96462 AU
retrograde	257 Sep 19 j 04:43	15°II54'21		retrograde	265 Oct 06 j 21:37	3°☾45'44	
opposition	257 Dec 06 j 00:54	14°II30'14	-1°-13'-59	opposition	265 Dec 23 j 11:59	2°☾22'03	0°-41'-41
min. Earth dist.	257 Dec 05 j 23:04	14°II30'21	28.90846 AU	min. Earth dist.	265 Dec 23 j 17:03	2°☾21'41	28.96990 AU
direct	258 Feb 22 j 09:56	13°II05'35		direct	266 Mar 12 j 11:06	0°☾56'58	
conjunction	258 Jun 07 j 22:09	15°II36'57	-1°-7'-28	conjunction	266 Jun 26 j 14:21	3°☾28'34	0°-36'-57
minimum elong	258 Jun 07 j 22:09	15°II36'57	1°07'29	minimum elong	266 Jun 26 j 14:21	3°☾28'34	0°36'59
max. Earth dist.	258 Jun 07 j 23:23	15°II37'04	30.91215 AU	max. Earth dist.	266 Jun 26 j 07:26	3°☾27'56	30.97521 AU
retrograde	258 Sep 21 j 14:57	18°II08'53		retrograde	266 Oct 09 j 10:48	5°☾59'00	
opposition	258 Dec 08 j 11:27	16°II44'51	-1°-10'-15	opposition	266 Dec 25 j 22:06	4°☾35'24	0°-37'-19
min. Earth dist.	258 Dec 08 j 11:25	16°II44'51	28.91652 AU	min. Earth dist.	266 Dec 26 j 03:22	4°☾35'02	28.98103 AU
direct	259 Feb 24 j 21:41	15°II20'10		direct	267 Mar 14 j 23:10	3°☾10'19	
conjunction	259 Jun 10 j 12:29	17°II51'34	-1°-3'-56	conjunction	267 Jun 29 j 04:14	5°☾42'00	0°-32'-50
minimum elong	259 Jun 10 j 12:29	17°II51'34	1°03'57	minimum elong	267 Jun 29 j 04:15	5°☾42'00	0°32'51
max. Earth dist.	259 Jun 10 j 11:46	17°II51'30	30.91990 AU	max. Earth dist.	267 Jun 28 j 21:33	5°☾41'23	30.98672 AU
retrograde	259 Sep 24 j 02:54	20°II23'19		retrograde	267 Oct 11 j 21:07	8°☾12'17	
opposition	259 Dec 10 j 21:54	18°II59'20	-1°-6'-26	opposition	267 Dec 28 j 08:29	6°☾48'49	0°-32'-53
min. Earth dist.	259 Dec 10 j 22:03	18°II59'19	28.92377 AU	min. Earth dist.	267 Dec 28 j 15:16	6°☾48'20	28.99272 AU
direct	260 Feb 27 j 10:09	17°II34'35		direct	268 Mar 16 j 11:05	5°☾23'45	
conjunction	260 Jun 12 j 02:49	20°II06'02	-1°00'-19	conjunction	268 Jun 30 j 17:55	7°☾55'30	0°-28'-40
minimum elong	260 Jun 12 j 02:49	20°II06'02	1°00'19	minimum elong	268 Jun 30 j 17:55	7°☾55'30	0°28'41
max. Earth dist.	260 Jun 12 j 01:20	20°II05'53	30.92676 AU	max. Earth dist.	268 Jun 30 j 09:34	7°☾54'44	30.99856 AU
retrograde	260 Sep 25 j 13:22	22°II37'34		retrograde	268 Oct 13 j 09:26	10°☾25'39	
opposition	260 Dec 12 j 08:23	21°II13'38	-1°-2'-31	opposition	268 Dec 29 j 18:42	9°☾02'19	0°-28'-24
min. Earth dist.	260 Dec 12 j 10:28	21°II13'29	28.93040 AU	min. Earth dist.	268 Dec 30 j 01:30	9°☾01'50	29.00444 AU
direct	261 Feb 28 j 20:42	19°II48'49		direct	269 Mar 18 j 23:06	7°☾37'16	
conjunction	261 Jun 14 j 17:00	22°II20'16	0°-56'-36	conjunction	269 Jul 03 j 07:44	10°☾09'05	0°-24'-28
minimum elong	261 Jun 14 j 17:00	22°II20'16	0°56'37	minimum elong	269 Jul 03 j 07:44	10°☾09'05	0°24'28
max. Earth dist.	261 Jun 14 j 14:26	22°II20'02	30.93339 AU	max. Earth dist.	269 Jul 02 j 22:51	10°☾08'16	31.00997 AU
retrograde	261 Sep 28 j 00:37	24°II51'37		retrograde	269 Oct 15 j 20:13	12°☾39'06	
opposition	261 Dec 14 j 18:41	23°II27'43	0°-58'-30	opposition	270 Jan 01 j 05:09	11°☾15'52	0°-23'-53
min. Earth dist.	261 Dec 14 j 20:38	23°II27'35	28.93693 AU	min. Earth dist.	270 Jan 01 j 13:53	11°☾15'15	29.01555 AU
direct	262 Mar 03 j 09:09	22°II02'49		direct	270 Mar 21 j 09:16	9°☾50'49	
conjunction	262 Jun 17 j 06:56	24°II34'17	0°-52'-49	conjunction	270 Jul 05 j 21:23	12°☾22'42	0°-20'-13
minimum elong	262 Jun 17 j 06:56	24°II34'17	0°52'49	minimum elong	270 Jul 05 j 21:23	12°☾22'42	0°20'14
max. Earth dist.	262 Jun 17 j 03:07	24°II33'56	30.94002 AU	max. Earth dist.	270 Jul 05 j 11:13	12°☾21'46	31.02064 AU
retrograde	262 Sep 30 j 10:58	27°II05'26		retrograde	270 Oct 18 j 07:15	14°☾52'34	
opposition	262 Dec 17 j 05:07	25°II41'34	0°-54'-25	opposition	271 Jan 03 j 15:30	13°☾29'26	0°-19'-20
min. Earth dist.	262 Dec 17 j 08:39	25°II41'19	28.94380 AU	min. Earth dist.	271 Jan 04 j 00:16	13°☾28'49	29.02555 AU
direct	263 Mar 05 j 20:49	24°II16'35		direct	271 Mar 23 j 21:35	12°☾04'22	
conjunction	263 Jun 19 j 21:01	26°II48'05	0°-48'-57	conjunction	271 Jul 08 j 11:08	14°☾36'17	0°-15'-57
minimum elong	263 Jun 19 j 21:02	26°II48'05	0°48'58	minimum elong	271 Jul 08 j 11:08	14°☾36'17	0°15'58
max. Earth dist.	263 Jun 19 j 17:06	26°II47'43	30.94725 AU	max. Earth dist.	271 Jul 07 j 23:27	14°☾35'12	31.03001 AU
retrograde	263 Oct 02 j 22:08	29°II19'01		retrograde	271 Oct 20 j 17:12	17°☾06'00	
opposition	263 Dec 19 j 15:17	27°II55'12	0°-50'-15	opposition	272 Jan 06 j 01:54	15°☾42'55	0°-14'-46
min. Earth dist.	263 Dec 19 j 18:59	27°II54'56	28.95132 AU	min. Earth dist.	272 Jan 06 j 12:29	15°☾42'11	29.03443 AU
direct	264 Mar 07 j 10:29	26°II30'10		direct	272 Mar 25 j 08:51	14°☾17'50	
conjunction	264 Jun 21 j 10:54	29°II01'41	0°-45'-1	conjunction	272 Jul 10 j 00:49	16°☾49'46	0°-11'-41
minimum elong	264 Jun 21 j 10:54	29°II01'41	0°45'02	minimum elong	272 Jul 10 j 00:49	16°☾49'46	0°11'42
max. Earth dist.	264 Jun 21 j 05:20	29°II01'10	30.95531 AU	behind sun begin	272 Jul 09 j 20:14	16°☾49'22	
retrograde	264 Jul 18 j 06:05	0°☾		behind sun end	272 Jul 10 j 05:24	16°☾50'10	
retrograde	264 Oct 04 j 10:09	1°☾32'26		max. Earth dist.	272 Jul 09 j 12:40	16°☾48'39	31.03838 AU
opposition	264 Dec 21 j 01:39	0°☾08'40	0°-46'00	retrograde	272 Oct 22 j 03:47	19°☾19'19	
min. Earth dist.	264 Dec 21 j 06:09	0°☾08'21	28.96004 AU	opposition	273 Jan 07 j 12:17	17°☾56'17	0°-10'-10
direct	264 Dec 26 j 04:20	30°RII		min. Earth dist.	273 Jan 07 j 23:16	17°☾55'31	29.04222 AU
direct	265 Mar 09 j 21:36	28°II43'36		direct	273 Mar 27 j 22:00	16°☾31'09	
direct	265 May 19 j 18:58	0°☾		conjunction	273 Jul 12 j 14:04	19°☾03'06	0°-7'-24

minimum elong	273 Jul 12 j 14:04	19° $\mathcal{E}$ 03'06	0°07'25	max. Earth dist.	279 Jul 26 j 03:21	2° $\mathcal{Q}$ 17'32	31.09639 AU
behind sun begin	273 Jul 12 j 08:04	19° $\mathcal{E}$ 02'34		retrograde	279 Nov 07 j 08:16	4° $\mathcal{Q}$ 47'29	
behind sun end	273 Jul 12 j 20:05	19° $\mathcal{E}$ 03'38		opposition	280 Jan 23 j 12:01	3° $\mathcal{Q}$ 24'48	0°21'49
max. Earth dist.	273 Jul 12 j 00:09	19° $\mathcal{E}$ 01'49	31.04581 AU	min. Earth dist.	280 Jan 24 j 02:30	3° $\mathcal{Q}$ 23'47	29.10220 AU
retrograde	273 Oct 24 j 15:08	21° $\mathcal{E}$ 32'29		direct	280 Apr 12 j 12:34	1° $\mathcal{Q}$ 59'28	
opposition	274 Jan 09 j 22:37	20° $\mathcal{E}$ 09'29	0°-5'-35	conjunction	280 Jul 28 j 08:54	4° $\mathcal{Q}$ 31'25	0°22'35
min. Earth dist.	274 Jan 10 j 10:38	20° $\mathcal{E}$ 08'39	29.04947 AU	minimum elong	280 Jul 28 j 08:54	4° $\mathcal{Q}$ 31'25	0°22'35
direct	274 Mar 30 j 08:51	18° $\mathcal{E}$ 44'18		max. Earth dist.	280 Jul 27 j 15:22	4° $\mathcal{Q}$ 29'47	31.10785 AU
conjunction	274 Jul 15 j 03:31	21° $\mathcal{E}$ 16'14	0°-3'-6	retrograde	280 Nov 08 j 17:55	6° $\mathcal{Q}$ 59'41	
minimum elong	274 Jul 15 j 03:29	21° $\mathcal{E}$ 16'14	0°03'08	opposition	281 Jan 24 j 22:28	5° $\mathcal{Q}$ 37'06	0°26'19
behind sun begin	274 Jul 14 j 20:56	21° $\mathcal{E}$ 15'39		min. Earth dist.	281 Jan 25 j 14:15	5° $\mathcal{Q}$ 36'00	29.11390 AU
behind sun end	274 Jul 15 j 10:03	21° $\mathcal{E}$ 16'49		direct	281 Apr 14 j 22:45	4° $\mathcal{Q}$ 11'47	
max. Earth dist.	274 Jul 14 j 13:48	21° $\mathcal{E}$ 14'59	31.05284 AU	conjunction	281 Jul 30 j 21:26	6° $\mathcal{Q}$ 43'45	0°26'46
retrograde	274 Oct 27 j 01:54	23° $\mathcal{E}$ 45'26		minimum elong	281 Jul 30 j 21:26	6° $\mathcal{Q}$ 43'45	0°26'46
opposition	275 Jan 12 j 08:47	22° $\mathcal{E}$ 22'28	0°00'-59	max. Earth dist.	281 Jul 30 j 03:54	6° $\mathcal{Q}$ 42'08	31.11947 AU
min. Earth dist.	275 Jan 12 j 21:42	22° $\mathcal{E}$ 21'34	29.05637 AU	retrograde	281 Nov 11 j 03:56	9° $\mathcal{Q}$ 11'55	
direct	275 Apr 01 j 23:02	20° $\mathcal{E}$ 57'14		opposition	282 Jan 27 j 08:52	7° $\mathcal{Q}$ 49'25	0°30'46
asc. node	275 Apr 02 j 00:01	20° $\mathcal{E}$ 57'14		min. Earth dist.	282 Jan 28 j 00:53	7° $\mathcal{Q}$ 48'17	29.12522 AU
conjunction	275 Jul 17 j 16:38	23° $\mathcal{E}$ 29'09	0°01'18	direct	282 Apr 17 j 10:42	6° $\mathcal{Q}$ 24'07	
minimum elong	275 Jul 17 j 16:38	23° $\mathcal{E}$ 29'09	0°01'18	conjunction	282 Aug 02 j 10:03	8° $\mathcal{Q}$ 56'06	0°30'54
behind sun begin	275 Jul 17 j 10:03	23° $\mathcal{E}$ 28'35		minimum elong	282 Aug 02 j 10:02	8° $\mathcal{Q}$ 56'06	0°30'54
behind sun end	275 Jul 17 j 23:13	23° $\mathcal{E}$ 29'44		max. Earth dist.	282 Aug 01 j 14:55	8° $\mathcal{Q}$ 54'19	31.13039 AU
max. Earth dist.	275 Jul 17 j 01:04	23° $\mathcal{E}$ 27'43	31.05985 AU	retrograde	282 Nov 13 j 14:57	11° $\mathcal{Q}$ 24'09	
retrograde	275 Oct 29 j 14:13	25° $\mathcal{E}$ 58'10		opposition	283 Jan 29 j 19:14	10° $\mathcal{Q}$ 01'43	0°35'10
opposition	276 Jan 14 j 19:01	24° $\mathcal{E}$ 35'14	0°03'36	min. Earth dist.	283 Jan 30 j 12:10	10° $\mathcal{Q}$ 00'32	29.13582 AU
min. Earth dist.	276 Jan 15 j 08:00	24° $\mathcal{E}$ 34'19	29.06363 AU	direct	283 Apr 19 j 21:09	8° $\mathcal{Q}$ 36'25	
direct	276 Apr 03 j 12:01	23° $\mathcal{E}$ 09'56		conjunction	283 Aug 04 j 22:45	11° $\mathcal{Q}$ 08'24	0°35'00
conjunction	276 Jul 19 j 05:43	25° $\mathcal{E}$ 41'52	0°05'37	minimum elong	283 Aug 04 j 22:45	11° $\mathcal{Q}$ 08'24	0°35'00
minimum elong	276 Jul 19 j 05:42	25° $\mathcal{E}$ 41'52	0°05'37	max. Earth dist.	283 Aug 04 j 03:50	11° $\mathcal{Q}$ 06'39	31.14034 AU
behind sun begin	276 Jul 18 j 23:23	25° $\mathcal{E}$ 41'18		retrograde	283 Nov 16 j 00:57	13° $\mathcal{Q}$ 36'20	
behind sun end	276 Jul 19 j 12:01	25° $\mathcal{E}$ 42'25		opposition	284 Feb 01 j 05:48	12° $\mathcal{Q}$ 13'57	0°39'31
max. Earth dist.	276 Jul 18 j 14:38	25° $\mathcal{E}$ 40'29	31.06731 AU	min. Earth dist.	284 Feb 01 j 23:40	12° $\mathcal{Q}$ 12'43	29.14516 AU
retrograde	276 Oct 30 j 23:43	28° $\mathcal{E}$ 10'42		direct	284 Apr 21 j 10:41	10° $\mathcal{Q}$ 48'40	
opposition	277 Jan 16 j 05:21	26° $\mathcal{E}$ 47'48	0°08'11	conjunction	284 Aug 06 j 11:04	13° $\mathcal{Q}$ 20'38	0°39'02
min. Earth dist.	277 Jan 16 j 19:33	26° $\mathcal{E}$ 46'48	29.07153 AU	minimum elong	284 Aug 06 j 11:04	13° $\mathcal{Q}$ 20'38	0°39'02
direct	277 Apr 06 j 00:28	25° $\mathcal{E}$ 22'28		max. Earth dist.	284 Aug 05 j 14:16	13° $\mathcal{Q}$ 18'42	31.14909 AU
conjunction	277 Jul 21 j 18:32	27° $\mathcal{E}$ 54'23	0°09'52	retrograde	284 Sep 24 j 02:39	15° $\mathcal{Q}$	
minimum elong	277 Jul 21 j 18:32	27° $\mathcal{E}$ 54'23	0°09'52	retrograde	284 Nov 17 j 12:51	15° $\mathcal{Q}$ 48'26	
behind sun begin	277 Jul 21 j 13:13	27° $\mathcal{E}$ 53'54		opposition	285 Jan 12 j 19:19	15° $\mathcal{R}$ $\mathcal{Q}$	
behind sun end	277 Jul 21 j 23:50	27° $\mathcal{E}$ 54'51		min. Earth dist.	285 Feb 02 j 16:19	14° $\mathcal{Q}$ 26'05	0°43'48
max. Earth dist.	277 Jul 21 j 02:12	27° $\mathcal{E}$ 52'52	31.07582 AU	direct	285 Feb 03 j 10:15	14° $\mathcal{Q}$ 24'50	29.15343 AU
retrograde	277 Sep 26 j 10:53	0° $\mathcal{Q}$		direct	285 Apr 23 j 23:03	13° $\mathcal{Q}$ 00'47	
retrograde	277 Nov 02 j 11:46	0° $\mathcal{Q}$ 23'03		retrograde	285 Jul 25 j 04:25	15° $\mathcal{Q}$	
retrograde	277 Dec 09 j 23:48	30° $\mathcal{R}$ $\mathcal{E}$		conjunction	285 Aug 08 j 23:32	15° $\mathcal{Q}$ 32'44	0°43'01
opposition	278 Jan 18 j 15:30	29° $\mathcal{E}$ 00'12	0°12'45	minimum elong	285 Aug 08 j 23:32	15° $\mathcal{Q}$ 32'44	0°43'01
min. Earth dist.	278 Jan 19 j 05:07	28° $\mathcal{E}$ 59'15	29.08067 AU	max. Earth dist.	285 Aug 08 j 03:03	15° $\mathcal{Q}$ 30'50	31.15676 AU
direct	278 Apr 08 j 13:09	27° $\mathcal{E}$ 34'51		retrograde	285 Nov 19 j 22:27	18° $\mathcal{Q}$ 00'25	
direct	278 Jul 21 j 06:26	0° $\mathcal{Q}$		opposition	286 Feb 05 j 02:50	16° $\mathcal{Q}$ 38'05	0°48'01
conjunction	278 Jul 24 j 07:23	0° $\mathcal{Q}$ 06'46	0°14'08	min. Earth dist.	286 Feb 05 j 22:16	16° $\mathcal{Q}$ 36'44	29.16068 AU
minimum elong	278 Jul 24 j 07:23	0° $\mathcal{Q}$ 06'46	0°14'07	direct	286 Apr 26 j 11:26	15° $\mathcal{Q}$ 12'46	
behind sun begin	278 Jul 24 j 04:19	0° $\mathcal{Q}$ 06'30		conjunction	286 Aug 11 j 11:42	17° $\mathcal{Q}$ 44'40	0°46'55
behind sun end	278 Jul 24 j 10:27	0° $\mathcal{Q}$ 07'02		minimum elong	286 Aug 11 j 11:42	17° $\mathcal{Q}$ 44'40	0°46'55
max. Earth dist.	278 Jul 23 j 15:15	0° $\mathcal{Q}$ 05'17	31.08551 AU	max. Earth dist.	286 Aug 10 j 13:46	17° $\mathcal{Q}$ 42'38	31.16366 AU
retrograde	278 Nov 04 j 22:12	2° $\mathcal{Q}$ 35'17		retrograde	286 Nov 22 j 10:20	20° $\mathcal{Q}$ 12'13	
opposition	279 Jan 21 j 01:52	1° $\mathcal{Q}$ 12'31	0°17'18	opposition	287 Feb 07 j 13:16	18° $\mathcal{Q}$ 49'55	0°52'09
min. Earth dist.	279 Jan 21 j 16:49	1° $\mathcal{Q}$ 11'28	29.09099 AU	min. Earth dist.	287 Feb 08 j 08:18	18° $\mathcal{Q}$ 48'36	29.16727 AU
retrograde	279 Mar 13 j 15:11	30° $\mathcal{R}$ $\mathcal{E}$		direct	287 Apr 29 j 00:52	17° $\mathcal{Q}$ 24'34	
direct	279 Apr 11 j 00:08	29° $\mathcal{E}$ 47'10		conjunction	287 Aug 13 j 23:52	19° $\mathcal{Q}$ 56'26	0°50'46
direct	279 May 09 j 01:57	0° $\mathcal{Q}$		minimum elong	287 Aug 13 j 23:52	19° $\mathcal{Q}$ 56'26	0°50'47
conjunction	279 Jul 26 j 20:09	2° $\mathcal{Q}$ 19'05	0°18'22	conjunction	287 Aug 13 j 23:52	19° $\mathcal{Q}$ 56'26	0°50'46
minimum elong	279 Jul 26 j 20:09	2° $\mathcal{Q}$ 19'05	0°18'22	minimum elong	287 Aug 13 j 23:52	19° $\mathcal{Q}$ 56'26	0°50'47

max. Earth dist.	287 Aug 13 j 02:06	19°Ω54'25	31.16996 AU	max. Earth dist.	295 Aug 30 j 21:02	7°♄25'53	31.24023 AU
retrograde	287 Nov 24 j 20:23	22°Ω23'51		retrograde	295 Dec 12 j 06:28	9°♄54'58	
opposition	288 Feb 09 j 23:51	21°Ω01'34	0°56'13	opposition	296 Feb 27 j 13:18	8°♄33'06	1°25'14
min. Earth dist.	288 Feb 10 j 20:15	21°Ω00'09	29.17363 AU	min. Earth dist.	296 Feb 28 j 10:17	8°♄31'40	29.24513 AU
direct	288 Apr 30 j 12:41	19°Ω36'12		direct	296 May 18 j 10:28	7°♄08'01	
				max. Earth dist.	296 Sep 01 j 08:39	9°♄37'30	31.24800 AU
conjunction	288 Aug 15 j 11:46	22°Ω08'01	0°54'32	conjunction	296 Sep 02 j 08:01	9°♄39'41	1°21'18
minimum elong	288 Aug 15 j 11:46	22°Ω08'01	0°54'31	minimum elong	296 Sep 02 j 08:01	9°♄39'41	1°21'18
max. Earth dist.	288 Aug 14 j 13:34	22°Ω05'58	31.17644 AU	retrograde	296 Dec 13 j 17:05	12°♄06'31	
retrograde	288 Nov 26 j 06:00	24°Ω35'19		opposition	297 Mar 01 j 00:26	10°♄44'40	1°28'22
opposition	289 Feb 11 j 10:21	23°Ω13'04	1°00'11	min. Earth dist.	297 Mar 01 j 22:46	10°♄43'08	29.25236 AU
min. Earth dist.	289 Feb 12 j 05:59	23°Ω11'42	29.18033 AU	direct	297 May 20 j 22:42	9°♄19'36	
direct	289 May 03 j 01:39	21°Ω47'41					
conjunction	289 Aug 17 j 23:25	24°Ω19'27	0°58'12	conjunction	297 Sep 04 j 19:10	11°♄51'12	1°24'10
minimum elong	289 Aug 17 j 23:25	24°Ω19'27	0°58'13	minimum elong	297 Sep 04 j 19:10	11°♄51'12	1°24'10
max. Earth dist.	289 Aug 17 j 00:55	24°Ω17'22	31.18342 AU	max. Earth dist.	297 Sep 03 j 19:19	11°♄48'59	31.25453 AU
retrograde	289 Nov 28 j 15:07	26°Ω46'39		retrograde	297 Dec 16 j 02:52	14°♄17'58	
opposition	290 Feb 13 j 20:58	25°Ω24'25	1°04'05	opposition	298 Mar 03 j 11:25	12°♄56'08	1°31'21
min. Earth dist.	290 Feb 14 j 17:23	25°Ω23'00	29.18793 AU	min. Earth dist.	298 Mar 04 j 09:10	12°♄54'38	29.25814 AU
direct	290 May 05 j 11:58	23°Ω59'03		direct	298 May 23 j 12:04	11°♄31'04	
				max. Earth dist.	298 Sep 06 j 05:53	14°♄00'20	31.25958 AU
conjunction	290 Aug 20 j 11:09	26°Ω30'48	1°01'48	conjunction	298 Sep 07 j 06:22	14°♄02'36	1°26'54
minimum elong	290 Aug 20 j 11:09	26°Ω30'48	1°01'47	minimum elong	298 Sep 07 j 06:21	14°♄02'36	1°26'53
max. Earth dist.	290 Aug 19 j 13:09	26°Ω28'45	31.19152 AU	retrograde	298 Dec 18 j 12:32	16°♄29'17	
retrograde	290 Dec 01 j 00:19	28°Ω57'54		opposition	299 Mar 05 j 22:25	15°♄07'27	1°34'13
opposition	291 Feb 16 j 07:26	27°Ω35'44	1°07'52	min. Earth dist.	299 Mar 06 j 21:09	15°♄05'53	29.26273 AU
min. Earth dist.	291 Feb 17 j 03:31	27°Ω34'20	29.19653 AU	direct	299 May 25 j 23:18	13°♄42'23	
direct	291 May 07 j 23:27	26°Ω10'22					
conjunction	291 Aug 22 j 22:45	28°Ω42'06	1°05'18	conjunction	299 Sep 09 j 17:26	16°♄13'50	1°29'31
minimum elong	291 Aug 22 j 22:45	28°Ω42'06	1°05'18	minimum elong	299 Sep 09 j 17:26	16°♄13'50	1°29'31
max. Earth dist.	291 Aug 21 j 23:55	28°Ω39'59	31.20067 AU	max. Earth dist.	299 Sep 08 j 17:25	16°♄11'35	31.26366 AU
retrograde	291 Sep 28 j 14:42	0°♄		retrograde	299 Dec 20 j 21:32	18°♄40'26	
retrograde	291 Dec 03 j 10:55	1°♄09'10		opposition	300 Mar 07 j 09:34	17°♄18'35	1°36'56
opposition	292 Feb 10 j 22:24	30°♄		min. Earth dist.	300 Mar 08 j 08:05	17°♄17'02	29.26637 AU
min. Earth dist.	292 Feb 18 j 18:05	29°Ω47'03	1°11'34	direct	300 May 27 j 12:06	15°♄53'29	
direct	292 Feb 19 j 14:17	29°Ω45'39	29.20630 AU	max. Earth dist.	300 Sep 10 j 03:21	18°♄22'31	31.26704 AU
	292 May 09 j 09:27	28°Ω21'45					
	292 Jul 30 j 22:37	0°♄		conjunction	300 Sep 11 j 04:07	18°♄24'50	1°31'59
conjunction	292 Aug 24 j 10:15	0°♄53'28	1°08'43	minimum elong	300 Sep 11 j 04:07	18°♄24'50	1°31'59
minimum elong	292 Aug 24 j 10:15	0°♄53'28	1°08'42	retrograde	300 Dec 22 j 07:19	20°♄51'23	
max. Earth dist.	292 Aug 23 j 12:29	0°♄51'27	31.21076 AU	opposition	301 Mar 09 j 20:41	19°♄29'30	1°39'31
retrograde	292 Dec 04 j 20:22	3°♄20'29		min. Earth dist.	301 Mar 10 j 19:10	19°♄27'57	29.26980 AU
opposition	293 Feb 20 j 04:51	1°♄58'27	1°15'09	direct	301 May 29 j 22:54	18°♄04'23	
min. Earth dist.	293 Feb 21 j 01:27	1°♄57'01	29.21658 AU	conjunction	301 Sep 13 j 14:54	20°♄35'38	1°34'20
direct	293 May 11 j 21:57	0°♄33'13		minimum elong	301 Sep 13 j 14:54	20°♄35'38	1°34'21
				max. Earth dist.	301 Sep 12 j 15:25	20°♄33'27	31.27043 AU
conjunction	293 Aug 26 j 21:39	3°♄04'56	1°12'01	retrograde	301 Dec 24 j 15:31	23°♄02'07	
minimum elong	293 Aug 26 j 21:39	3°♄04'56	1°12'02	opposition	302 Mar 12 j 07:44	21°♄40'13	1°41'57
max. Earth dist.	293 Aug 25 j 22:37	3°♄02'47	31.22113 AU	min. Earth dist.	302 Mar 13 j 06:24	21°♄38'39	29.27337 AU
retrograde	293 Dec 07 j 08:10	5°♄31'55		direct	302 Jun 01 j 11:03	20°♄15'06	
opposition	294 Feb 22 j 15:26	4°♄09'56	1°18'38	max. Earth dist.	302 Sep 15 j 01:09	22°♄44'00	31.27432 AU
min. Earth dist.	294 Feb 23 j 11:43	4°♄08'32	29.22697 AU				
direct	294 May 14 j 08:55	2°♄44'45		conjunction	302 Sep 16 j 01:28	22°♄46'16	1°36'33
max. Earth dist.	294 Aug 28 j 10:52	5°♄14'24	31.23113 AU	minimum elong	302 Sep 16 j 01:28	22°♄46'16	1°36'32
				retrograde	302 Dec 27 j 02:39	25°♄12'43	
conjunction	294 Aug 29 j 09:14	5°♄16'29	1°15'14	opposition	303 Mar 14 j 18:53	23°♄50'48	1°44'14
minimum elong	294 Aug 29 j 09:13	5°♄16'29	1°15'13	min. Earth dist.	303 Mar 15 j 16:30	23°♄49'19	29.27774 AU
retrograde	294 Dec 09 j 18:05	7°♄43'25		direct	303 Jun 03 j 21:38	22°♄25'43	
opposition	295 Feb 25 j 02:25	6°♄21'31	1°22'00				
min. Earth dist.	295 Feb 25 j 23:58	6°♄20'02	29.23660 AU	conjunction	303 Sep 18 j 12:03	24°♄56'49	1°38'37
direct	295 May 16 j 20:39	4°♄56'23		minimum elong	303 Sep 18 j 12:03	24°♄56'49	1°38'38
				max. Earth dist.	303 Sep 17 j 13:05	24°♄54'41	31.27903 AU
conjunction	295 Aug 31 j 20:35	7°♄28'05	1°18'19	retrograde	303 Dec 29 j 12:03	27°♄23'16	
minimum elong	295 Aug 31 j 20:34	7°♄28'05	1°18'20	opposition	304 Mar 16 j 06:13	26°♄01'22	1°46'22

min. Earth dist.	304 Mar 17 j 04:24	25°♄59'51	29.28291 AU	min. Earth dist.	312 Apr 03 j 22:56	13°♃26'59	29.31033 AU
direct	304 Jun 05 j 09:12	24°♄36'20		direct	312 Jun 23 j 07:36	12°♃03'45	
				max. Earth dist.	312 Oct 06 j 11:05	14°♃32'20	31.30831 AU
conjunction	304 Sep 19 j 22:27	27°♄07'23	1°40'33	conjunction	312 Oct 07 j 08:23	14°♃34'20	1°50'34
minimum elong	304 Sep 19 j 22:26	27°♄07'23	1°40'32	minimum elong	312 Oct 07 j 08:23	14°♃34'20	1°50'34
max. Earth dist.	304 Sep 18 j 23:07	27°♄05'12	31.28467 AU	retrograde	313 Jan 17 j 07:54	17°♃00'58	
retrograde	304 Dec 31 j 00:05	29°♄33'50		opposition	313 Apr 05 j 14:17	15°♃39'06	1°58'25
opposition	305 Mar 18 j 17:24	28°♄11'58	1°48'21	min. Earth dist.	313 Apr 06 j 11:21	15°♃37'40	29.30890 AU
min. Earth dist.	305 Mar 19 j 14:19	28°♄10'32	29.28884 AU	direct	313 Jun 25 j 19:21	14°♃14'29	
direct	305 Jun 07 j 22:02	26°♄47'00					
max. Earth dist.	305 Sep 21 j 10:18	29°♄15'55	31.29068 AU	conjunction	313 Oct 09 j 18:05	16°♃44'57	1°51'08
				minimum elong	313 Oct 09 j 18:04	16°♃44'57	1°51'08
conjunction	305 Sep 22 j 08:49	29°♄18'01	1°42'20	max. Earth dist.	313 Oct 08 j 20:37	16°♃42'56	31.30681 AU
minimum elong	305 Sep 22 j 08:49	29°♄18'01	1°42'20	retrograde	314 Jan 19 j 19:30	19°♃11'35	
	305 Oct 11 j 07:46	0°♃		opposition	314 Apr 08 j 01:56	17°♃49'40	1°58'56
retrograde	306 Jan 02 j 10:53	1°♃44'30		min. Earth dist.	314 Apr 08 j 21:31	17°♃48'20	29.30737 AU
opposition	306 Mar 21 j 04:49	0°♃22'40	1°50'11	direct	314 Jun 28 j 08:10	16°♃25'02	
min. Earth dist.	306 Mar 22 j 02:35	0°♃21'11	29.29491 AU	max. Earth dist.	314 Oct 11 j 07:23	18°♃53'29	31.30537 AU
	306 Apr 04 j 03:59	30°♄					
direct	306 Jun 10 j 09:33	28°♄57'47		conjunction	314 Oct 12 j 03:48	18°♃55'24	1°51'32
	306 Aug 13 j 10:10	0°♃		minimum elong	314 Oct 12 j 03:48	18°♃55'24	1°51'31
conjunction	306 Sep 24 j 19:11	1°♃28'47	1°43'58	retrograde	315 Jan 22 j 05:57	21°♃22'04	
minimum elong	306 Sep 24 j 19:10	1°♃28'47	1°43'57	opposition	315 Apr 10 j 13:48	20°♃00'05	1°59'17
max. Earth dist.	306 Sep 23 j 20:46	1°♃26'41	31.29660 AU	min. Earth dist.	315 Apr 11 j 09:42	19°♃58'43	29.30634 AU
retrograde	307 Jan 04 j 21:00	3°♃55'17		direct	315 Jun 30 j 19:13	18°♃35'28	
opposition	307 Mar 23 j 16:09	2°♃33'30	1°51'51				
min. Earth dist.	307 Mar 24 j 12:56	2°♃32'05	29.30048 AU	conjunction	315 Oct 14 j 13:25	21°♃05'43	1°51'46
direct	307 Jun 12 j 22:30	1°♃08'42		minimum elong	315 Oct 14 j 13:25	21°♃05'43	1°51'46
max. Earth dist.	307 Sep 26 j 06:54	3°♃37'33	31.30171 AU	max. Earth dist.	315 Oct 13 j 17:49	21°♃03'53	31.30483 AU
				retrograde	316 Jan 24 j 16:03	23°♃32'25	
conjunction	307 Sep 27 j 05:32	3°♃39'40	1°45'27	opposition	316 Apr 12 j 01:37	22°♃10'24	1°59'27
minimum elong	307 Sep 27 j 05:32	3°♃39'40	1°45'27	min. Earth dist.	316 Apr 12 j 19:48	22°♃09'10	29.30620 AU
retrograde	308 Jan 07 j 07:37	6°♃06'12		direct	316 Jul 02 j 08:22	20°♃45'50	
opposition	308 Mar 25 j 03:48	4°♃44'27	1°53'21				
min. Earth dist.	308 Mar 26 j 01:11	4°♃43'00	29.30522 AU	conjunction	316 Oct 15 j 22:51	23°♃16'01	1°51'51
direct	308 Jun 14 j 09:43	3°♃19'43		minimum elong	316 Oct 15 j 22:51	23°♃16'01	1°51'50
				max. Earth dist.	316 Oct 15 j 03:36	23°♃14'12	31.30518 AU
conjunction	308 Sep 28 j 15:46	5°♃50'38	1°46'47	retrograde	317 Jan 26 j 03:18	25°♃42'46	
minimum elong	308 Sep 28 j 15:46	5°♃50'38	1°46'46	opposition	317 Apr 14 j 13:34	24°♃20'44	1°59'27
max. Earth dist.	308 Sep 27 j 17:54	5°♃48'35	31.30581 AU	min. Earth dist.	317 Apr 15 j 07:36	24°♃19'30	29.30706 AU
retrograde	309 Jan 08 j 17:06	8°♃17'12		direct	317 Jul 04 j 20:03	22°♃56'13	
opposition	309 Mar 27 j 15:28	6°♃55'28	1°54'42				
min. Earth dist.	309 Mar 28 j 12:31	6°♃54'02	29.30858 AU	conjunction	317 Oct 18 j 08:26	25°♃26'19	1°51'46
direct	309 Jun 16 j 22:34	5°♃30'47		minimum elong	317 Oct 18 j 08:26	25°♃26'19	1°51'47
max. Earth dist.	309 Sep 30 j 03:16	7°♃59'30	31.30845 AU	max. Earth dist.	317 Oct 17 j 14:40	25°♃24'39	31.30640 AU
				retrograde	318 Jan 28 j 12:52	27°♃53'08	
conjunction	309 Oct 01 j 02:00	8°♃01'38	1°47'58	opposition	318 Apr 17 j 01:21	26°♃31'06	1°59'17
minimum elong	309 Oct 01 j 02:00	8°♃01'38	1°47'58	min. Earth dist.	318 Apr 17 j 18:33	26°♃29'56	29.30835 AU
retrograde	310 Jan 11 j 03:20	10°♃28'14		direct	318 Jul 07 j 09:13	25°♃06'39	
opposition	310 Mar 30 j 02:59	9°♃06'30	1°55'53				
min. Earth dist.	310 Mar 31 j 00:03	9°♃05'04	29.31059 AU	conjunction	318 Oct 20 j 17:55	27°♃36'42	1°51'32
direct	310 Jun 19 j 09:17	7°♃41'51		minimum elong	318 Oct 20 j 17:55	27°♃36'42	1°51'31
				max. Earth dist.	318 Oct 19 j 23:51	27°♃35'00	31.30785 AU
conjunction	310 Oct 03 j 12:22	10°♃12'38	1°48'59		319 Jan 16 j 09:49	0°♄	
minimum elong	310 Oct 03 j 12:21	10°♃12'38	1°48'59	retrograde	319 Jan 30 j 23:27	0°♄03'36	
max. Earth dist.	310 Oct 02 j 14:43	10°♃10'36	31.30965 AU		319 Feb 14 j 15:22	30°♄	
retrograde	311 Jan 13 j 11:36	12°♃39'15		opposition	319 Apr 19 j 13:25	28°♃41'34	1°58'57
opposition	311 Apr 01 j 14:47	11°♃17'29	1°56'53	min. Earth dist.	319 Apr 20 j 05:59	28°♃40'27	29.30984 AU
min. Earth dist.	311 Apr 02 j 12:09	11°♃16'02	29.31101 AU	direct	319 Jul 09 j 19:37	27°♃17'12	
direct	311 Jun 21 j 21:19	9°♃52'52		max. Earth dist.	319 Oct 22 j 11:05	29°♃45'38	31.30913 AU
conjunction	311 Oct 05 j 22:19	12°♃23'33	1°49'51	conjunction	319 Oct 23 j 03:25	29°♃47'11	1°51'08
minimum elong	311 Oct 05 j 22:19	12°♃23'33	1°49'52	minimum elong	319 Oct 23 j 03:25	29°♃47'11	1°51'08
max. Earth dist.	311 Oct 04 j 23:47	12°♃21'26	31.30948 AU		319 Oct 28 j 19:58	0°♄	
retrograde	312 Jan 15 j 22:42	14°♃50'11		retrograde	320 Feb 02 j 08:00	2°♄14'10	
opposition	312 Apr 03 j 02:30	13°♃28'22	1°57'44	opposition	320 Apr 21 j 01:41	0°♄52'08	1°58'26

min. Earth dist.	320 Apr 21 j 18:09	0°M.51'01	29.31077 AU	minimum elong	327 Nov 09 j 06:18	17°M.11'49	1°42'20
	320 May 25 j 14:43	30°R.Ω		max. Earth dist.	327 Nov 08 j 17:44	17°M.10'38	31.28505 AU
direct	320 Jul 11 j 07:47	29°Ω.27'50		retrograde	328 Feb 19 j 23:03	19°M.39'29	
	320 Aug 25 j 08:03	0°M.		opposition	328 May 09 j 04:28	18°M.17'04	1°48'23
				min. Earth dist.	328 May 09 j 15:35	18°M.16'19	29.28409 AU
conjunction	320 Oct 24 j 12:52	1°M.57'44	1°50'34	direct	328 Jul 29 j 05:05	16°M.53'03	
minimum elong	320 Oct 24 j 12:52	1°M.57'44	1°50'34				
max. Earth dist.	320 Oct 23 j 19:59	1°M.56'09	31.30976 AU	conjunction	328 Nov 10 j 15:32	19°M.22'15	1°40'33
retrograde	321 Feb 03 j 19:40	4°M.24'49		minimum elong	328 Nov 10 j 15:33	19°M.22'15	1°40'33
opposition	321 Apr 23 j 13:45	3°M.02'46	1°57'45	max. Earth dist.	328 Nov 10 j 05:05	19°M.21'16	31.28128 AU
min. Earth dist.	321 Apr 24 j 05:02	3°M.01'44	29.31096 AU	retrograde	329 Feb 21 j 07:38	21°M.50'01	
direct	321 Jul 13 j 17:58	1°M.38'32		opposition	329 May 11 j 16:51	20°M.27'35	1°46'25
				min. Earth dist.	329 May 12 j 03:23	20°M.26'52	29.28071 AU
conjunction	321 Oct 26 j 22:28	4°M.08'22	1°49'51	direct	329 Jul 31 j 17:28	19°M.03'38	
minimum elong	321 Oct 26 j 22:28	4°M.08'22	1°49'51				
max. Earth dist.	321 Oct 26 j 06:46	4°M.06'54	31.30929 AU	conjunction	329 Nov 13 j 00:36	21°M.32'46	1°38'38
retrograde	322 Feb 06 j 05:13	6°M.35'33		minimum elong	329 Nov 13 j 00:36	21°M.32'46	1°38'39
opposition	322 Apr 26 j 02:07	5°M.13'29	1°56'54	max. Earth dist.	329 Nov 12 j 14:07	21°M.31'47	31.27845 AU
min. Earth dist.	322 Apr 26 j 18:00	5°M.12'24	29.30982 AU	retrograde	330 Feb 23 j 19:40	24°M.00'40	
direct	322 Jul 16 j 05:24	3°M.49'18		opposition	330 May 14 j 05:16	22°M.38'13	1°44'17
				min. Earth dist.	330 May 14 j 14:03	22°M.37'37	29.27817 AU
conjunction	322 Oct 29 j 07:54	6°M.19'03	1°48'58	direct	330 Aug 03 j 03:46	21°M.14'20	
minimum elong	322 Oct 29 j 07:54	6°M.19'03	1°48'58				
max. Earth dist.	322 Oct 28 j 16:04	6°M.17'34	31.30754 AU	conjunction	330 Nov 15 j 09:42	23°M.43'25	1°36'34
retrograde	323 Feb 08 j 16:59	8°M.46'18		minimum elong	330 Nov 15 j 09:42	23°M.43'25	1°36'33
opposition	323 Apr 28 j 14:23	7°M.24'12	1°55'53	max. Earth dist.	330 Nov 15 j 00:53	23°M.42'35	31.27610 AU
min. Earth dist.	323 Apr 29 j 04:50	7°M.23'14	29.30730 AU	retrograde	331 Feb 26 j 05:08	26°M.11'28	
direct	323 Jul 18 j 17:16	6°M.00'04		opposition	331 May 16 j 17:57	24°M.49'00	1°42'00
				min. Earth dist.	331 May 17 j 02:48	24°M.48'24	29.27591 AU
conjunction	323 Oct 31 j 17:26	8°M.29'44	1°47'57	direct	331 Aug 05 j 14:46	23°M.25'13	
minimum elong	323 Oct 31 j 17:26	8°M.29'44	1°47'57				
max. Earth dist.	323 Oct 31 j 02:15	8°M.28'18	31.30434 AU	conjunction	331 Nov 17 j 18:49	25°M.54'14	1°34'22
retrograde	324 Feb 11 j 04:04	10°M.57'05		minimum elong	331 Nov 17 j 18:49	25°M.54'14	1°34'22
opposition	324 Apr 30 j 02:54	9°M.34'55	1°54'42	max. Earth dist.	331 Nov 17 j 10:29	25°M.53'27	31.27401 AU
min. Earth dist.	324 Apr 30 j 17:53	9°M.33'54	29.30351 AU	retrograde	332 Feb 28 j 17:06	28°M.22'26	
direct	324 Jul 20 j 03:46	8°M.10'48		opposition	332 May 18 j 06:34	26°M.59'57	1°39'34
				min. Earth dist.	332 May 18 j 13:37	26°M.59'28	29.27362 AU
conjunction	324 Nov 02 j 02:45	10°M.40'22	1°46'46	direct	332 Aug 07 j 01:23	25°M.36'14	
minimum elong	324 Nov 02 j 02:45	10°M.40'22	1°46'45				
max. Earth dist.	324 Nov 01 j 12:20	10°M.39'01	31.30009 AU	conjunction	332 Nov 19 j 03:58	28°M.05'13	1°32'01
retrograde	325 Feb 12 j 14:40	13°M.07'47		minimum elong	332 Nov 19 j 03:58	28°M.05'13	1°32'00
opposition	325 May 02 j 15:13	11°M.45'34	1°53'22	max. Earth dist.	332 Nov 18 j 20:28	28°M.04'30	31.27146 AU
min. Earth dist.	325 May 03 j 04:44	11°M.44'39	29.29866 AU		333 Jan 15 j 23:30	0°♁	
direct	325 Jul 22 j 17:07	10°M.21'28		retrograde	333 Mar 02 j 04:41	0°♁33'34	
					333 Apr 18 j 10:28	30°R.M.	
conjunction	325 Nov 04 j 12:02	12°M.50'56	1°45'26	opposition	333 May 20 j 19:24	29°M.11'03	1°37'00
minimum elong	325 Nov 04 j 12:02	12°M.50'56	1°45'26	min. Earth dist.	333 May 21 j 02:48	29°M.10'34	29.27072 AU
max. Earth dist.	325 Nov 03 j 21:40	12°M.49'35	31.29494 AU	direct	333 Aug 09 j 10:34	27°M.47'25	
	326 Jan 12 j 21:09	15°M.			333 Nov 14 j 08:07	0°♁	
retrograde	326 Feb 15 j 02:24	15°M.18'24					
	326 Mar 21 j 03:35	15°R.M.		conjunction	333 Nov 21 j 13:15	0°♁16'20	1°29'32
opposition	326 May 05 j 03:30	13°M.56'07	1°51'52	minimum elong	333 Nov 21 j 13:15	0°♁16'20	1°29'32
min. Earth dist.	326 May 05 j 16:57	13°M.55'12	29.29342 AU	max. Earth dist.	333 Nov 21 j 06:43	0°♁15'43	31.26812 AU
direct	326 Jul 25 j 04:55	12°M.32'02		retrograde	334 Mar 04 j 16:16	2°♁44'49	
				opposition	334 May 23 j 08:05	1°♁22'17	1°34'16
conjunction	326 Nov 06 j 21:19	15°M.01'24	1°43'57	min. Earth dist.	334 May 23 j 14:00	1°♁21'53	29.26667 AU
minimum elong	326 Nov 06 j 21:19	15°M.01'24	1°43'56		334 Aug 03 j 02:10	30°R.M.	
max. Earth dist.	326 Nov 06 j 08:41	15°M.00'13	31.28976 AU	direct	334 Aug 11 j 23:43	29°M.58'42	
	326 Nov 06 j 06:24	15°M.			334 Aug 20 j 22:22	0°♁	
retrograde	327 Feb 17 j 12:17	17°M.28'57					
opposition	327 May 07 j 15:58	16°M.06'36	1°50'12	conjunction	334 Nov 23 j 22:33	2°♁27'34	1°26'55
min. Earth dist.	327 May 08 j 04:14	16°M.05'46	29.28832 AU	minimum elong	334 Nov 23 j 22:34	2°♁27'34	1°26'54
	327 Jun 24 j 00:16	15°R.M.		max. Earth dist.	334 Nov 23 j 15:52	2°♁26'56	31.26345 AU
direct	327 Jul 27 j 18:27	14°M.42'32		retrograde	335 Mar 07 j 05:39	4°♁56'10	
	327 Aug 29 j 13:20	15°M.		opposition	335 May 25 j 21:06	3°♁33'35	1°31'25
				min. Earth dist.	335 May 26 j 03:00	3°♁33'11	29.26135 AU
conjunction	327 Nov 09 j 06:18	17°M.11'49	1°42'20	direct	335 Aug 14 j 10:53	2°♁10'03	

conjunction	335 Nov 26 j 07:54	4° $\overline{\text{A}}$ 38'50	1°24'11	retrograde	344 Mar 26 j 11:59	24° $\overline{\text{A}}$ 37'03	
minimum elong	335 Nov 26 j 07:54	4° $\overline{\text{A}}$ 38'50	1°24'12	opposition	344 Jun 14 j 17:27	23° $\overline{\text{A}}$ 13'50	1°00'22
max. Earth dist.	335 Nov 26 j 02:43	4° $\overline{\text{A}}$ 38'20	31.25741 AU	min. Earth dist.	344 Jun 14 j 15:05	23° $\overline{\text{A}}$ 14'00	29.19018 AU
retrograde	336 Mar 08 j 16:18	7° $\overline{\text{A}}$ 07'33		direct	344 Sep 02 j 18:20	21° $\overline{\text{A}}$ 50'32	
opposition	336 May 27 j 10:05	5° $\overline{\text{A}}$ 44'54	1°28'26				
min. Earth dist.	336 May 27 j 15:07	5° $\overline{\text{A}}$ 44'34	29.25441 AU	conjunction	344 Dec 14 j 19:05	24° $\overline{\text{A}}$ 18'41	0°54'40
direct	336 Aug 16 j 00:10	4° $\overline{\text{A}}$ 21'23		minimum elong	344 Dec 14 j 19:06	24° $\overline{\text{A}}$ 18'41	0°54'39
				max. Earth dist.	344 Dec 14 j 22:18	24° $\overline{\text{A}}$ 19'00	31.18672 AU
conjunction	336 Nov 27 j 17:12	6° $\overline{\text{A}}$ 50'04	1°21'20	retrograde	345 Mar 28 j 23:21	26° $\overline{\text{A}}$ 48'40	
minimum elong	336 Nov 27 j 17:12	6° $\overline{\text{A}}$ 50'04	1°21'20	opposition	345 Jun 17 j 06:18	25° $\overline{\text{A}}$ 25'26	0°56'24
max. Earth dist.	336 Nov 27 j 11:36	6° $\overline{\text{A}}$ 49'32	31.24986 AU	min. Earth dist.	345 Jun 17 j 02:54	25° $\overline{\text{A}}$ 25'39	29.18367 AU
retrograde	337 Mar 11 j 04:07	9° $\overline{\text{A}}$ 18'54		direct	345 Sep 05 j 06:26	24° $\overline{\text{A}}$ 02'11	
opposition	337 May 29 j 22:52	7° $\overline{\text{A}}$ 56'09	1°25'19				
min. Earth dist.	337 May 30 j 03:16	7° $\overline{\text{A}}$ 55'52	29.24622 AU	conjunction	345 Dec 17 j 04:28	26° $\overline{\text{A}}$ 30'20	0°50'55
direct	337 Aug 18 j 11:21	6° $\overline{\text{A}}$ 32'38		minimum elong	345 Dec 17 j 04:28	26° $\overline{\text{A}}$ 30'20	0°50'55
				max. Earth dist.	345 Dec 17 j 07:25	26° $\overline{\text{A}}$ 30'37	31.18004 AU
conjunction	337 Nov 30 j 02:36	9° $\overline{\text{A}}$ 01'14	1°18'22	retrograde	346 Mar 31 j 12:41	29° $\overline{\text{A}}$ 00'30	
minimum elong	337 Nov 30 j 02:36	9° $\overline{\text{A}}$ 01'14	1°18'22	opposition	346 Jun 19 j 19:25	27° $\overline{\text{A}}$ 37'14	0°52'20
max. Earth dist.	337 Nov 29 j 22:42	9° $\overline{\text{A}}$ 00'51	31.24111 AU	min. Earth dist.	346 Jun 19 j 15:17	27° $\overline{\text{A}}$ 37'30	29.17667 AU
retrograde	338 Mar 13 j 13:41	11° $\overline{\text{A}}$ 30'09		direct	346 Sep 07 j 17:11	26° $\overline{\text{A}}$ 14'03	
opposition	338 Jun 01 j 11:50	10° $\overline{\text{A}}$ 07'18	1°22'05				
min. Earth dist.	338 Jun 01 j 15:54	10° $\overline{\text{A}}$ 07'02	29.23697 AU	conjunction	346 Dec 19 j 14:01	28° $\overline{\text{A}}$ 42'11	0°47'05
direct	338 Aug 21 j 00:58	8° $\overline{\text{A}}$ 43'47		minimum elong	346 Dec 19 j 14:01	28° $\overline{\text{A}}$ 42'11	0°47'04
				max. Earth dist.	346 Dec 19 j 18:40	28° $\overline{\text{A}}$ 42'37	31.17251 AU
conjunction	338 Dec 02 j 11:38	11° $\overline{\text{A}}$ 12'16	1°15'17				
minimum elong	338 Dec 02 j 11:38	11° $\overline{\text{A}}$ 12'16	1°15'16	retrograde	347 Jan 24 j 11:58	0° $\overline{\text{C}}$	
max. Earth dist.	338 Dec 02 j 07:46	11° $\overline{\text{A}}$ 11'54	31.23177 AU		347 Apr 02 j 23:57	1° $\overline{\text{C}}$ 12'31	
retrograde	339 Mar 16 j 01:51	13° $\overline{\text{A}}$ 41'17			347 Jun 15 j 16:38	30° $\overline{\text{R}}$ $\overline{\text{A}}$	
opposition	339 Jun 04 j 00:44	12° $\overline{\text{A}}$ 18'21	1°18'45	opposition	347 Jun 22 j 08:40	29° $\overline{\text{A}}$ 49'13	0°48'12
min. Earth dist.	339 Jun 04 j 03:02	12° $\overline{\text{A}}$ 18'11	29.22758 AU	min. Earth dist.	347 Jun 22 j 04:16	29° $\overline{\text{A}}$ 49'30	29.16853 AU
direct	339 Aug 23 j 12:26	10° $\overline{\text{A}}$ 54'49		direct	347 Sep 10 j 06:37	28° $\overline{\text{A}}$ 26'05	
					347 Nov 27 j 15:07	0° $\overline{\text{C}}$	
conjunction	339 Dec 04 j 20:53	13° $\overline{\text{A}}$ 23'11	1°12'06	conjunction	347 Dec 21 j 23:37	0° $\overline{\text{C}}$ 54'11	0°43'10
minimum elong	339 Dec 04 j 20:53	13° $\overline{\text{A}}$ 23'11	1°12'06	minimum elong	347 Dec 21 j 23:37	0° $\overline{\text{C}}$ 54'11	0°43'11
max. Earth dist.	339 Dec 04 j 18:38	13° $\overline{\text{A}}$ 22'59	31.22248 AU	max. Earth dist.	347 Dec 22 j 04:02	0° $\overline{\text{C}}$ 54'36	31.16387 AU
retrograde	340 Mar 17 j 11:04	15° $\overline{\text{A}}$ 52'20		retrograde	348 Apr 04 j 13:31	3° $\overline{\text{C}}$ 24'41	
opposition	340 Jun 05 j 13:42	14° $\overline{\text{A}}$ 29'18	1°15'17	opposition	348 Jun 23 j 21:44	2° $\overline{\text{C}}$ 01'19	0°44'00
min. Earth dist.	340 Jun 05 j 15:52	14° $\overline{\text{A}}$ 29'09	29.21858 AU	min. Earth dist.	348 Jun 23 j 16:00	2° $\overline{\text{C}}$ 01'42	29.15922 AU
direct	340 Aug 24 j 23:52	13° $\overline{\text{A}}$ 05'47		direct	348 Sep 11 j 17:58	0° $\overline{\text{C}}$ 38'12	
conjunction	340 Dec 06 j 06:00	15° $\overline{\text{A}}$ 34'04	1°08'49	conjunction	348 Dec 23 j 09:21	3° $\overline{\text{C}}$ 06'16	0°39'12
minimum elong	340 Dec 06 j 06:00	15° $\overline{\text{A}}$ 34'04	1°08'48	minimum elong	348 Dec 23 j 09:22	3° $\overline{\text{C}}$ 06'16	0°39'12
max. Earth dist.	340 Dec 06 j 04:36	15° $\overline{\text{A}}$ 33'57	31.21398 AU	max. Earth dist.	348 Dec 23 j 14:46	3° $\overline{\text{C}}$ 06'47	31.15380 AU
retrograde	341 Mar 19 j 22:33	18° $\overline{\text{A}}$ 03'21		retrograde	349 Apr 06 j 23:05	5° $\overline{\text{C}}$ 36'55	
opposition	341 Jun 08 j 02:30	16° $\overline{\text{A}}$ 40'15	1°11'43	opposition	349 Jun 26 j 11:00	4° $\overline{\text{C}}$ 13'28	0°39'44
min. Earth dist.	341 Jun 08 j 02:30	16° $\overline{\text{A}}$ 40'15	29.21041 AU	min. Earth dist.	349 Jun 26 j 05:35	4° $\overline{\text{C}}$ 13'50	29.14844 AU
direct	341 Aug 27 j 10:46	15° $\overline{\text{A}}$ 16'46		direct	349 Sep 14 j 05:51	2° $\overline{\text{C}}$ 50'22	
conjunction	341 Dec 08 j 15:11	17° $\overline{\text{A}}$ 45'00	1°05'25	conjunction	349 Dec 25 j 19:01	5° $\overline{\text{C}}$ 18'22	0°35'11
minimum elong	341 Dec 08 j 15:11	17° $\overline{\text{A}}$ 45'00	1°05'25	minimum elong	349 Dec 25 j 19:01	5° $\overline{\text{C}}$ 18'22	0°35'12
max. Earth dist.	341 Dec 08 j 14:46	17° $\overline{\text{A}}$ 44'58	31.20620 AU	max. Earth dist.	349 Dec 26 j 00:56	5° $\overline{\text{C}}$ 18'55	31.14254 AU
retrograde	342 Mar 22 j 10:02	20° $\overline{\text{A}}$ 14'27		retrograde	350 Apr 09 j 10:40	7° $\overline{\text{C}}$ 49'08	
opposition	342 Jun 10 j 15:25	18° $\overline{\text{A}}$ 51'17	1°08'02	opposition	350 Jun 29 j 00:01	6° $\overline{\text{C}}$ 25'35	0°35'24
min. Earth dist.	342 Jun 10 j 15:23	18° $\overline{\text{A}}$ 51'17	29.20308 AU	min. Earth dist.	350 Jun 28 j 16:56	6° $\overline{\text{C}}$ 26'04	29.13662 AU
direct	342 Aug 29 j 19:58	17° $\overline{\text{A}}$ 27'51		direct	350 Sep 16 j 17:27	5° $\overline{\text{C}}$ 02'28	
conjunction	342 Dec 11 j 00:28	19° $\overline{\text{A}}$ 56'02	1°01'56	conjunction	350 Dec 28 j 04:40	7° $\overline{\text{C}}$ 30'23	0°31'07
minimum elong	342 Dec 11 j 00:28	19° $\overline{\text{A}}$ 56'02	1°01'55	minimum elong	350 Dec 28 j 04:40	7° $\overline{\text{C}}$ 30'23	0°31'06
max. Earth dist.	342 Dec 11 j 01:36	19° $\overline{\text{A}}$ 56'09	31.19937 AU	max. Earth dist.	350 Dec 28 j 11:10	7° $\overline{\text{C}}$ 31'00	31.13043 AU
retrograde	343 Mar 24 j 22:02	22° $\overline{\text{A}}$ 25'39		retrograde	351 Apr 11 j 22:09	10° $\overline{\text{C}}$ 01'18	
opposition	343 Jun 13 j 04:22	21° $\overline{\text{A}}$ 02'28	1°04'15	opposition	351 Jul 01 j 13:16	8° $\overline{\text{C}}$ 37'38	0°31'02
min. Earth dist.	343 Jun 13 j 02:19	21° $\overline{\text{A}}$ 02'36	29.19643 AU	min. Earth dist.	351 Jul 01 j 06:23	8° $\overline{\text{C}}$ 38'06	29.12446 AU
direct	343 Sep 01 j 08:20	19° $\overline{\text{A}}$ 39'05		direct	351 Sep 19 j 03:18	7° $\overline{\text{C}}$ 14'29	
conjunction	343 Dec 13 j 09:36	22° $\overline{\text{A}}$ 07'15	0°58'20	conjunction	351 Dec 30 j 14:19	9° $\overline{\text{C}}$ 42'19	0°27'01
minimum elong	343 Dec 13 j 09:36	22° $\overline{\text{A}}$ 07'15	0°58'21	minimum elong	351 Dec 30 j 14:19	9° $\overline{\text{C}}$ 42'19	0°27'01
max. Earth dist.	343 Dec 13 j 10:57	22° $\overline{\text{A}}$ 07'23	31.19298 AU	max. Earth dist.	351 Dec 30 j 22:23	9° $\overline{\text{C}}$ 43'05	31.11838 AU



retrograde	352 Apr 13 j 09:42	12°☾13'22		retrograde	359 Apr 30 j 02:57	27°☾39'07	
opposition	352 Jul 03 j 02:16	10°☾49'35	0°26'37	opposition	359 Jul 19 j 21:26	26°☾14'57	0°-5'-8
min. Earth dist.	352 Jul 02 j 17:30	10°☾50'11	29.11256 AU	min. Earth dist.	359 Jul 19 j 06:24	26°☾15'58	29.05285 AU
direct	352 Sep 20 j 15:51	9°☾26'24		direct	359 Oct 06 j 22:29	24°☾51'58	
conjunction	352 Dec 31 j 23:58	11°☾54'12	0°22'52	conjunction	360 Jan 16 j 21:46	27°☾19'42	0°-6'-58
minimum elong	352 Dec 31 j 23:58	11°☾54'12	0°22'51	minimum elong	360 Jan 16 j 21:46	27°☾19'42	0°06'59
max. Earth dist.	353 Jan 01 j 08:07	11°☾54'58	31.10683 AU	behind sun begin	360 Jan 16 j 15:49	27°☾19'10	
retrograde	353 Apr 15 j 22:57	14°☾25'22		behind sun end	360 Jan 17 j 03:44	27°☾20'14	
opposition	353 Jul 05 j 15:12	13°☾01'29	0°22'09	max. Earth dist.	360 Jan 17 j 12:14	27°☾21'04	31.04856 AU
min. Earth dist.	353 Jul 05 j 06:02	13°☾02'06	29.10158 AU	retrograde	360 May 01 j 15:11	29°☾52'01	
direct	353 Sep 23 j 01:07	11°☾38'18		opposition	360 Jul 21 j 10:40	28°☾27'49	0°-9'-43
conjunction	354 Jan 03 j 09:47	14°☾06'03	0°18'41	min. Earth dist.	360 Jul 20 j 20:17	28°☾28'47	29.04432 AU
minimum elong	354 Jan 03 j 09:47	14°☾06'03	0°18'41	direct	360 Oct 08 j 08:31	27°☾04'51	
max. Earth dist.	354 Jan 03 j 20:01	14°☾07'01	31.09637 AU	conjunction	361 Jan 18 j 08:23	29°☾32'35	0°-11'-14
retrograde	354 Apr 18 j 10:18	16°☾37'21		minimum elong	361 Jan 18 j 08:23	29°☾32'35	0°11'15
opposition	354 Jul 08 j 04:12	15°☾13'24	0°17'39	behind sun begin	361 Jan 18 j 03:37	29°☾32'09	
min. Earth dist.	354 Jul 07 j 17:35	15°☾14'07	29.09163 AU	behind sun end	361 Jan 18 j 13:09	29°☾33'01	
direct	354 Sep 25 j 12:52	13°☾50'13		max. Earth dist.	361 Jan 18 j 23:51	29°☾34'03	31.03946 AU
conjunction	355 Jan 05 j 19:21	16°☾17'56	0°14'28		361 Jan 30 j 10:26	0°≈	
minimum elong	355 Jan 05 j 19:21	16°☾17'56	0°14'28	retrograde	361 May 04 j 03:06	2°≈05'04	
behind sun begin	355 Jan 05 j 16:20	16°☾17'40		opposition	361 Jul 23 j 23:36	0°≈40'48	0°-14'-17
behind sun end	355 Jan 05 j 22:22	16°☾18'13		min. Earth dist.	361 Jul 23 j 07:55	0°≈41'52	29.03455 AU
max. Earth dist.	355 Jan 06 j 05:42	16°☾18'54	31.08707 AU	direct	361 Aug 18 j 23:44	30°R☾	
retrograde	355 Apr 21 j 00:26	18°☾49'24			361 Oct 10 j 20:42	29°☾17'51	
opposition	355 Jul 10 j 17:17	17°☾25'23	0°13'08		361 Nov 30 j 05:36	0°≈	
min. Earth dist.	355 Jul 10 j 05:37	17°☾26'10	29.08293 AU	conjunction	362 Jan 20 j 18:54	1°≈45'35	0°-15'-29
direct	355 Sep 27 j 23:33	16°☾02'14		minimum elong	362 Jan 20 j 18:54	1°≈45'35	0°15'29
conjunction	356 Jan 08 j 05:18	18°☾29'56	0°10'14	behind sun begin	362 Jan 20 j 16:58	1°≈45'24	
minimum elong	356 Jan 08 j 05:18	18°☾29'56	0°10'15	behind sun end	362 Jan 20 j 20:51	1°≈45'45	
behind sun begin	356 Jan 08 j 00:10	18°☾29'29		max. Earth dist.	362 Jan 21 j 09:48	1°≈46'59	31.02913 AU
behind sun end	356 Jan 08 j 10:26	18°☾30'24		retrograde	362 May 06 j 16:29	4°≈18'12	
max. Earth dist.	356 Jan 08 j 17:36	18°☾31'06	31.07880 AU	opposition	362 Jul 26 j 12:48	2°≈53'51	0°-18'-50
retrograde	356 Apr 22 j 12:44	21°☾01'34		min. Earth dist.	362 Jul 25 j 21:20	2°≈54'54	29.02378 AU
opposition	356 Jul 12 j 06:14	19°☾37'29	0°08'35	direct	362 Oct 13 j 06:00	1°≈30'53	
min. Earth dist.	356 Jul 11 j 18:04	19°☾38'19	29.07505 AU	conjunction	363 Jan 23 j 05:27	3°≈58'36	0°-19'-43
direct	356 Sep 29 j 12:11	18°☾14'23		minimum elong	363 Jan 23 j 05:27	3°≈58'36	0°19'44
conjunction	357 Jan 09 j 15:12	20°☾42'05	0°05'59	max. Earth dist.	363 Jan 23 j 21:58	4°≈00'09	31.01794 AU
minimum elong	357 Jan 09 j 15:12	20°☾42'05	0°05'59	retrograde	363 May 09 j 04:19	6°≈31'20	
behind sun begin	357 Jan 09 j 09:05	20°☾41'32		min. Earth dist.	363 Jul 28 j 09:28	5°≈08'02	29.01229 AU
behind sun end	357 Jan 09 j 21:19	20°☾42'39		opposition	363 Jul 29 j 01:50	5°≈06'54	0°-23'-21
max. Earth dist.	357 Jan 10 j 03:37	20°☾43'15	31.07133 AU	direct	363 Oct 15 j 17:51	3°≈43'55	
retrograde	357 Apr 25 j 02:39	23°☾13'53		conjunction	364 Jan 25 j 16:01	6°≈11'37	0°-23'-55
opposition	357 Jul 14 j 19:13	21°☾49'47	0°04'01	minimum elong	364 Jan 25 j 16:01	6°≈11'37	0°23'56
min. Earth dist.	357 Jul 14 j 05:32	21°☾50'42	29.06777 AU	max. Earth dist.	364 Jan 26 j 08:10	6°≈13'08	31.00643 AU
direct	357 Oct 01 j 23:04	20°☾26'42		retrograde	364 May 10 j 18:48	8°≈44'28	
conjunction	358 Jan 12 j 01:14	22°☾54'25	0°01'42	opposition	364 Jul 30 j 14:43	7°≈19'56	0°-27'-50
minimum elong	358 Jan 12 j 01:12	22°☾54'25	0°01'42	min. Earth dist.	364 Jul 29 j 21:51	7°≈21'06	29.00096 AU
behind sun begin	358 Jan 11 j 18:48	22°☾53'51		direct	364 Oct 17 j 04:34	5°≈56'55	
behind sun end	358 Jan 12 j 07:37	22°☾55'00		conjunction	365 Jan 27 j 02:44	8°≈24'37	0°-28'-6
max. Earth dist.	358 Jan 12 j 14:50	22°☾55'42	31.06402 AU	minimum elong	365 Jan 27 j 02:44	8°≈24'37	0°28'07
retrograde	358 Apr 27 j 13:43	25°☾26'24		max. Earth dist.	365 Jan 27 j 20:33	8°≈26'18	30.99519 AU
desc. node	358 Jun 01 j 18:34	25°☾07'20		retrograde	365 May 13 j 07:32	10°≈57'35	
opposition	358 Jul 17 j 08:22	24°☾02'16	0°00'-33	min. Earth dist.	365 Aug 01 j 10:22	9°≈34'09	28.99012 AU
min. Earth dist.	358 Jul 16 j 18:53	24°☾03'11	29.06047 AU	opposition	365 Aug 02 j 03:37	9°≈32'59	0°-32'-16
direct	358 Oct 04 j 10:47	22°☾39'15		direct	365 Oct 19 j 17:10	8°≈09'56	
conjunction	359 Jan 14 j 11:27	25°☾06'58	0°-2'-42	conjunction	366 Jan 29 j 13:17	10°≈37'38	0°-32'-14
minimum elong	359 Jan 14 j 11:27	25°☾06'58	0°02'44	minimum elong	366 Jan 29 j 13:17	10°≈37'38	0°32'14
behind sun begin	359 Jan 14 j 05:04	25°☾06'23		max. Earth dist.	366 Jan 30 j 07:13	10°≈39'20	30.98488 AU
behind sun end	359 Jan 14 j 17:51	25°☾07'33		retrograde	366 May 15 j 21:34	13°≈10'45	
max. Earth dist.	359 Jan 15 j 01:44	25°☾08'19	31.05667 AU	opposition	366 Aug 04 j 16:30	11°≈46'04	0°-36'-40

min. Earth dist.	366 Aug 03 j 21:45	11° <del>47</del> '21	28.98042 AU		374 Apr 01 j 04:29	0° <del>1</del> '	
direct	366 Oct 22 j 04:00	10° <del>23</del> '00		retrograde	374 Jun 03 j 04:53	1° <del>1</del> '01'14	
					374 Aug 08 j 11:01	30° <del>R</del> ' <del>R</del>	
conjunction	367 Feb 01 j 00:06	12° <del>50</del> '44	0°-36'-19	opposition	374 Aug 22 j 23:17	29° <del>36</del> '16	-1°-9'-29
minimum elong	367 Feb 01 j 00:06	12° <del>50</del> '44	0°36'20	min. Earth dist.	374 Aug 22 j 02:20	29° <del>37</del> '43	28.92320 AU
max. Earth dist.	367 Feb 01 j 19:10	12° <del>52</del> '32	30.97566 AU	direct	374 Nov 08 j 21:36	28° <del>13</del> '18	
	367 Apr 09 j 17:17	15° <del>5</del> '			375 Jan 31 j 09:38	0° <del>1</del> '	
retrograde	367 May 18 j 09:39	15° <del>23</del> '59					
	367 Jun 27 j 01:05	15° <del>R</del> ' <del>R</del>		conjunction	375 Feb 18 j 18:58	0° <del>1</del> '41'17	-1°-6'-42
min. Earth dist.	367 Aug 06 j 10:45	14° <del>00</del> '31	28.97190 AU	minimum elong	375 Feb 18 j 18:58	0° <del>1</del> '41'17	1°06'43
opposition	367 Aug 07 j 05:24	13° <del>59</del> '15	0°-41'-1	max. Earth dist.	375 Feb 19 j 16:39	0° <del>1</del> '43'20	30.91789 AU
direct	367 Oct 24 j 16:06	12° <del>36</del> '12		retrograde	375 Jun 05 j 19:29	3° <del>1</del> '15'32	
	368 Feb 01 j 17:24	15° <del>5</del> '		opposition	375 Aug 25 j 11:59	1° <del>1</del> '50'30	-1°-13'-11
				min. Earth dist.	375 Aug 24 j 14:24	1° <del>1</del> '51'59	28.91362 AU
conjunction	368 Feb 03 j 10:59	15° <del>03</del> '57	0°-40'-21	direct	375 Nov 11 j 08:37	0° <del>1</del> '27'27	
minimum elong	368 Feb 03 j 10:59	15° <del>03</del> '57	0°40'22				
max. Earth dist.	368 Feb 04 j 06:51	15° <del>05</del> '50	30.96778 AU	conjunction	376 Feb 21 j 06:51	2° <del>1</del> '55'28	-1°-10'-6
retrograde	368 May 20 j 00:12	17° <del>37</del> '20		minimum elong	376 Feb 21 j 06:51	2° <del>1</del> '55'28	1°10'07
opposition	368 Aug 08 j 18:11	16° <del>12</del> '34	0°-45'-18	max. Earth dist.	376 Feb 22 j 05:01	2° <del>1</del> '57'33	30.90791 AU
min. Earth dist.	368 Aug 07 j 21:51	16° <del>13</del> '58	28.96454 AU	retrograde	376 Jun 07 j 08:26	5° <del>1</del> '29'46	
	368 Oct 01 j 00:45	15° <del>R</del> ' <del>R</del>		min. Earth dist.	376 Aug 26 j 03:48	4° <del>1</del> '06'05	28.90357 AU
direct	368 Oct 26 j 04:21	14° <del>49</del> '33		opposition	376 Aug 27 j 00:42	4° <del>1</del> '04'38	-1°-16'-46
	368 Nov 19 j 17:13	15° <del>5</del> '		direct	376 Nov 12 j 21:21	2° <del>1</del> '41'33	
conjunction	369 Feb 04 j 21:57	17° <del>17</del> '20	0°-44'-20	conjunction	377 Feb 22 j 18:45	5° <del>1</del> '09'33	-1°-13'-25
minimum elong	369 Feb 04 j 21:57	17° <del>17</del> '20	0°44'22	minimum elong	377 Feb 22 j 18:44	5° <del>1</del> '09'33	1°13'26
max. Earth dist.	369 Feb 05 j 18:07	17° <del>19</del> '14	30.96077 AU	max. Earth dist.	377 Feb 23 j 17:13	5° <del>1</del> '11'41	30.89793 AU
retrograde	369 May 22 j 12:14	19° <del>50</del> '52		retrograde	377 Jun 09 j 23:06	7° <del>1</del> '43'54	
min. Earth dist.	369 Aug 10 j 11:12	18° <del>27</del> '26	28.95803 AU	opposition	377 Aug 29 j 13:06	6° <del>1</del> '18'42	-1°-20'-15
opposition	369 Aug 11 j 07:00	18° <del>26</del> '04	0°-49'-32	min. Earth dist.	377 Aug 28 j 14:59	6° <del>1</del> '20'14	28.89383 AU
direct	369 Oct 28 j 14:36	17° <del>03</del> '05		direct	377 Nov 15 j 10:11	4° <del>1</del> '55'33	
conjunction	370 Feb 07 j 09:08	19° <del>30</del> '54	0°-48'-15	conjunction	378 Feb 25 j 06:37	7° <del>1</del> '23'35	-1°-16'-36
minimum elong	370 Feb 07 j 09:08	19° <del>30</del> '54	0°48'16	minimum elong	378 Feb 25 j 06:36	7° <del>1</del> '23'35	1°16'37
max. Earth dist.	370 Feb 08 j 06:36	19° <del>32</del> '56	30.95460 AU	max. Earth dist.	378 Feb 26 j 05:07	7° <del>1</del> '25'43	30.88843 AU
retrograde	370 May 25 j 00:13	22° <del>04</del> '35		retrograde	378 Jun 12 j 11:18	9° <del>1</del> '58'00	
opposition	370 Aug 13 j 19:48	20° <del>39</del> '47	0°-53'-41	min. Earth dist.	378 Aug 31 j 04:17	8° <del>1</del> '34'13	28.88493 AU
min. Earth dist.	370 Aug 12 j 22:37	20° <del>41</del> '15	28.95203 AU	opposition	378 Sep 01 j 01:42	8° <del>1</del> '32'44	-1°-23'-36
direct	370 Oct 31 j 02:27	19° <del>16</del> '50		direct	378 Nov 17 j 21:04	7° <del>1</del> '09'32	
conjunction	371 Feb 09 j 20:15	21° <del>44</del> '41	0°-52'-6	conjunction	379 Feb 27 j 18:38	9° <del>1</del> '37'36	-1°-19'-41
minimum elong	371 Feb 09 j 20:14	21° <del>44</del> '41	0°52'08	minimum elong	379 Feb 27 j 18:38	9° <del>1</del> '37'36	1°19'42
max. Earth dist.	371 Feb 10 j 17:13	21° <del>46</del> '41	30.94863 AU	max. Earth dist.	379 Feb 28 j 18:17	9° <del>1</del> '39'50	30.88007 AU
retrograde	371 May 27 j 13:34	24° <del>18</del> '32		retrograde	379 Jun 15 j 00:02	12° <del>1</del> '12'05	
opposition	371 Aug 16 j 08:46	22° <del>53</del> '42	0°-57'-46	opposition	379 Sep 03 j 14:04	10° <del>1</del> '46'46	-1°-26'-50
min. Earth dist.	371 Aug 15 j 12:01	22° <del>55</del> '08	28.94610 AU	min. Earth dist.	379 Sep 02 j 15:24	10° <del>1</del> '48'21	28.87715 AU
direct	371 Nov 02 j 11:28	21° <del>30</del> '46		direct	379 Nov 20 j 09:30	9° <del>1</del> '23'33	
conjunction	372 Feb 12 j 07:52	23° <del>58</del> '41	0°-55'-53	conjunction	380 Mar 01 j 06:42	11° <del>1</del> '51'40	-1°-22'-39
minimum elong	372 Feb 12 j 07:52	23° <del>58</del> '41	0°55'53	minimum elong	380 Mar 01 j 06:42	11° <del>1</del> '51'40	1°22'39
max. Earth dist.	372 Feb 13 j 06:08	24° <del>00</del> '47	30.94240 AU	max. Earth dist.	380 Mar 02 j 05:43	11° <del>1</del> '53'51	30.87285 AU
retrograde	372 May 29 j 02:02	26° <del>32</del> '38		retrograde	380 Jun 16 j 13:23	14° <del>1</del> '26'14	
opposition	372 Aug 17 j 21:27	25° <del>07</del> '48	-1°-1'-46	min. Earth dist.	380 Sep 04 j 04:10	13° <del>1</del> '02'26	28.87070 AU
min. Earth dist.	372 Aug 17 j 00:12	25° <del>09</del> '16	28.93952 AU	opposition	380 Sep 05 j 02:24	13° <del>1</del> '00'53	-1°-29'-56
direct	372 Nov 03 j 23:10	23° <del>44</del> '52		direct	380 Nov 21 j 18:56	11° <del>1</del> '37'40	
conjunction	373 Feb 13 j 19:28	26° <del>12</del> '50	0°-59'-35	conjunction	381 Mar 03 j 19:00	14° <del>1</del> '05'51	-1°-25'-29
minimum elong	373 Feb 13 j 19:28	26° <del>12</del> '49	0°59'36	minimum elong	381 Mar 03 j 19:00	14° <del>1</del> '05'51	1°25'30
max. Earth dist.	373 Feb 14 j 16:47	26° <del>14</del> '51	30.93536 AU	max. Earth dist.	381 Mar 04 j 19:24	14° <del>1</del> '08'10	30.86695 AU
retrograde	373 May 31 j 16:21	28° <del>46</del> '54		retrograde	381 Jun 19 j 01:28	16° <del>1</del> '40'30	
opposition	373 Aug 20 j 10:22	27° <del>22</del> '01	-1°-5'-40	opposition	381 Sep 07 j 14:44	15° <del>1</del> '15'09	-1°-32'-54
min. Earth dist.	373 Aug 19 j 13:11	27° <del>23</del> '29	28.93202 AU	min. Earth dist.	381 Sep 06 j 15:45	15° <del>1</del> '16'45	28.86535 AU
direct	373 Nov 06 j 09:32	25° <del>59</del> '04		direct	381 Nov 24 j 06:42	13° <del>1</del> '51'56	
conjunction	374 Feb 16 j 07:10	28° <del>27</del> '03	-1°-3'-11	conjunction	382 Mar 06 j 07:05	16° <del>1</del> '20'11	-1°-28'-12
minimum elong	374 Feb 16 j 07:10	28° <del>27</del> '03	1°03'11	minimum elong	382 Mar 06 j 07:05	16° <del>1</del> '20'11	1°28'12
max. Earth dist.	374 Feb 17 j 05:30	28° <del>29</del> '10	30.92712 AU	max. Earth dist.	382 Mar 07 j 06:47	16° <del>1</del> '22'26	30.86217 AU

retrograde	382 Jun 21 j 15:11	18° $\mathring{K}$ 54'56		minimum elong	390 Mar 24 j 14:11	4° $\mathring{V}$ 19'53	1°44'46
min. Earth dist.	382 Sep 09 j 04:10	17° $\mathring{K}$ 31'12	28.86111 AU	max. Earth dist.	390 Mar 25 j 13:29	4° $\mathring{V}$ 22'04	30.82107 AU
opposition	382 Sep 10 j 03:10	17° $\mathring{K}$ 29'36	-1°-35'-43	retrograde	390 Jul 10 j 03:25	6° $\mathring{V}$ 54'52	
direct	382 Nov 26 j 16:30	16° $\mathring{K}$ 06'23		min. Earth dist.	390 Sep 27 j 07:18	5° $\mathring{V}$ 30'51	28.81955 AU
conjunction	383 Mar 08 j 19:38	18° $\mathring{K}$ 34'45	-1°-30'-46	opposition	390 Sep 28 j 04:30	5° $\mathring{V}$ 29'22	-1°-52'-48
minimum elong	383 Mar 08 j 19:38	18° $\mathring{K}$ 34'45	1°30'48	direct	390 Dec 14 j 15:47	4° $\mathring{V}$ 05'52	
max. Earth dist.	383 Mar 09 j 20:29	18° $\mathring{K}$ 37'05	30.85816 AU	conjunction	391 Mar 27 j 03:17	6° $\mathring{V}$ 34'42	-1°-46'-8
retrograde	383 Jun 24 j 03:36	21° $\mathring{K}$ 09'35		minimum elong	391 Mar 27 j 03:17	6° $\mathring{V}$ 34'42	1°46'10
opposition	383 Sep 12 j 15:26	19° $\mathring{K}$ 44'15	-1°-38'-24	max. Earth dist.	391 Mar 28 j 01:29	6° $\mathring{V}$ 36'47	30.81591 AU
min. Earth dist.	383 Sep 11 j 16:46	19° $\mathring{K}$ 45'50	28.85734 AU	retrograde	391 Jul 12 j 16:16	9° $\mathring{V}$ 09'40	
direct	383 Nov 29 j 03:29	18° $\mathring{K}$ 21'04		opposition	391 Sep 30 j 16:17	7° $\mathring{V}$ 44'07	-1°-54'-11
conjunction	384 Mar 10 j 08:16	20° $\mathring{K}$ 49'31	-1°-33'-12	min. Earth dist.	391 Sep 29 j 19:22	7° $\mathring{V}$ 45'35	28.81511 AU
minimum elong	384 Mar 10 j 08:16	20° $\mathring{K}$ 49'31	1°33'13	direct	391 Dec 17 j 01:54	6° $\mathring{V}$ 20'33	
max. Earth dist.	384 Mar 11 j 08:18	20° $\mathring{K}$ 51'47	30.85451 AU	conjunction	392 Mar 28 j 16:36	8° $\mathring{V}$ 49'27	-1°-47'-22
retrograde	384 Jun 25 j 18:40	23° $\mathring{K}$ 24'27		minimum elong	392 Mar 28 j 16:36	8° $\mathring{V}$ 49'27	1°47'23
min. Earth dist.	384 Sep 13 j 04:43	22° $\mathring{K}$ 00'44	28.85366 AU	max. Earth dist.	392 Mar 29 j 15:47	8° $\mathring{V}$ 51'38	30.81203 AU
opposition	384 Sep 14 j 03:44	21° $\mathring{K}$ 59'08	-1°-40'-56	retrograde	392 Jul 14 j 03:55	11° $\mathring{V}$ 24'23	
direct	384 Nov 30 j 13:49	20° $\mathring{K}$ 35'56		min. Earth dist.	392 Oct 01 j 07:24	10° $\mathring{V}$ 00'17	28.81195 AU
conjunction	385 Mar 12 j 21:03	23° $\mathring{K}$ 04'30	-1°-35'-30	opposition	392 Oct 02 j 04:03	9° $\mathring{V}$ 58'50	-1°-55'-25
minimum elong	385 Mar 12 j 21:03	23° $\mathring{K}$ 04'30	1°35'32	direct	392 Dec 18 j 12:55	8° $\mathring{V}$ 35'13	
max. Earth dist.	385 Mar 13 j 21:14	23° $\mathring{K}$ 06'46	30.85042 AU	conjunction	393 Mar 31 j 05:43	11° $\mathring{V}$ 04'10	-1°-48'-26
retrograde	385 Jun 28 j 08:07	25° $\mathring{K}$ 39'29		minimum elong	393 Mar 31 j 05:43	11° $\mathring{V}$ 04'10	1°48'27
opposition	385 Sep 16 j 16:04	24° $\mathring{K}$ 14'11	-1°-43'-19	max. Earth dist.	393 Apr 01 j 04:04	11° $\mathring{V}$ 06'17	30.80967 AU
min. Earth dist.	385 Sep 15 j 18:08	24° $\mathring{K}$ 15'43	28.84931 AU	retrograde	393 Jul 16 j 17:37	13° $\mathring{V}$ 39'06	
direct	385 Dec 03 j 02:23	22° $\mathring{K}$ 50'59		opposition	393 Oct 04 j 15:45	12° $\mathring{V}$ 13'33	-1°-56'-27
conjunction	386 Mar 15 j 10:01	25° $\mathring{K}$ 19'37	-1°-37'-39	min. Earth dist.	393 Oct 03 j 18:37	12° $\mathring{V}$ 15'02	28.81039 AU
minimum elong	386 Mar 15 j 10:01	25° $\mathring{K}$ 19'37	1°37'40	direct	393 Dec 20 j 23:30	10° $\mathring{V}$ 49'54	
max. Earth dist.	386 Mar 16 j 09:48	25° $\mathring{K}$ 21'52	30.84574 AU	conjunction	394 Apr 02 j 19:05	13° $\mathring{V}$ 18'56	-1°-49'-19
retrograde	386 Jun 30 j 23:24	27° $\mathring{K}$ 54'39		minimum elong	394 Apr 02 j 19:05	13° $\mathring{V}$ 18'56	1°49'20
min. Earth dist.	386 Sep 18 j 05:44	26° $\mathring{K}$ 30'54	28.84417 AU	max. Earth dist.	394 Apr 03 j 17:50	13° $\mathring{V}$ 21'04	30.80877 AU
opposition	386 Sep 19 j 04:18	26° $\mathring{K}$ 29'19	-1°-45'-32	retrograde	394 Jul 19 j 05:37	15° $\mathring{V}$ 53'52	
direct	386 Dec 05 j 15:21	25° $\mathring{K}$ 06'05		min. Earth dist.	394 Oct 06 j 07:13	14° $\mathring{V}$ 29'45	28.81021 AU
conjunction	387 Mar 17 j 22:58	27° $\mathring{K}$ 34'47	-1°-39'-40	opposition	394 Oct 07 j 03:28	14° $\mathring{V}$ 28'19	-1°-57'-19
minimum elong	387 Mar 17 j 22:58	27° $\mathring{K}$ 34'47	1°39'41	direct	394 Dec 23 j 11:09	13° $\mathring{V}$ 04'40	
max. Earth dist.	387 Mar 18 j 22:05	27° $\mathring{K}$ 36'58	30.84005 AU	conjunction	395 Apr 05 j 08:33	15° $\mathring{V}$ 33'48	-1°-50'-3
retrograde	387 Jun 08 j 22:23	0° $\mathring{V}$		minimum elong	395 Apr 05 j 08:33	15° $\mathring{V}$ 33'48	1°50'04
opposition	387 Jul 03 j 12:16	0° $\mathring{V}$ 09'50		max. Earth dist.	395 Apr 06 j 06:58	15° $\mathring{V}$ 35'54	30.80931 AU
min. Earth dist.	387 Jul 28 j 07:21	30° $\mathring{R}$ $\mathring{K}$		retrograde	395 Jul 21 j 20:12	18° $\mathring{V}$ 08'43	
opposition	387 Sep 21 j 16:37	28° $\mathring{K}$ 44'28	-1°-47'-36	opposition	395 Oct 09 j 15:02	16° $\mathring{V}$ 43'13	-1°-58'00
min. Earth dist.	387 Sep 20 j 19:30	28° $\mathring{K}$ 45'57	28.83813 AU	min. Earth dist.	395 Oct 08 j 18:09	16° $\mathring{V}$ 44'41	28.81117 AU
direct	387 Dec 08 j 02:41	27° $\mathring{K}$ 21'11		direct	395 Dec 25 j 23:16	15° $\mathring{V}$ 19'34	
conjunction	388 Mar 19 j 12:09	29° $\mathring{K}$ 49'55	-1°-41'-31	conjunction	396 Apr 06 j 22:11	17° $\mathring{V}$ 48'48	-1°-50'-36
minimum elong	388 Mar 19 j 12:09	29° $\mathring{K}$ 49'55	1°41'31	minimum elong	396 Apr 06 j 22:11	17° $\mathring{V}$ 48'48	1°50'37
max. Earth dist.	388 Mar 20 j 11:35	29° $\mathring{K}$ 52'08	30.83373 AU	max. Earth dist.	396 Apr 07 j 20:01	17° $\mathring{V}$ 50'51	30.81052 AU
retrograde	388 Jul 05 j 02:16	2° $\mathring{V}$ 24'57		retrograde	396 Jul 23 j 09:21	20° $\mathring{V}$ 23'43	
min. Earth dist.	388 Sep 22 j 06:50	1° $\mathring{V}$ 01'04	28.83159 AU	min. Earth dist.	396 Oct 10 j 07:19	18° $\mathring{V}$ 59'38	28.81263 AU
opposition	388 Sep 23 j 04:31	0° $\mathring{V}$ 59'32	-1°-49'-30	opposition	396 Oct 11 j 02:39	18° $\mathring{V}$ 58'16	-1°-58'-30
direct	388 Nov 01 j 12:42	30° $\mathring{R}$ $\mathring{K}$		direct	396 Dec 27 j 10:05	17° $\mathring{V}$ 34'37	
conjunction	388 Dec 09 j 16:06	29° $\mathring{K}$ 36'11		conjunction	397 Apr 09 j 12:00	20° $\mathring{V}$ 03'58	-1°-50'-59
minimum elong	389 Jan 15 j 20:36	0° $\mathring{V}$		minimum elong	397 Apr 09 j 12:01	20° $\mathring{V}$ 03'58	1°51'00
max. Earth dist.	389 Mar 22 j 01:09	2° $\mathring{V}$ 04'57	-1°-43'-13	max. Earth dist.	397 Apr 10 j 09:55	20° $\mathring{V}$ 06'01	30.81208 AU
retrograde	389 Mar 22 j 01:09	2° $\mathring{V}$ 04'57	1°43'14	retrograde	397 Jul 26 j 00:12	22° $\mathring{V}$ 38'52	
max. Earth dist.	389 Mar 22 j 23:26	2° $\mathring{V}$ 07'04	30.82716 AU	opposition	397 Oct 13 j 14:13	21° $\mathring{V}$ 13'29	-1°-58'-50
retrograde	389 Jul 07 j 16:10	4° $\mathring{V}$ 39'59		min. Earth dist.	397 Oct 12 j 18:35	21° $\mathring{V}$ 14'52	28.81404 AU
opposition	389 Sep 25 j 16:37	3° $\mathring{V}$ 14'30	-1°-51'-14	direct	397 Dec 29 j 23:27	19° $\mathring{V}$ 49'50	
min. Earth dist.	389 Sep 24 j 19:51	3° $\mathring{V}$ 15'58	28.82526 AU	conjunction	398 Apr 12 j 01:44	22° $\mathring{V}$ 19'17	-1°-51'-12
direct	389 Dec 12 j 03:01	1° $\mathring{V}$ 51'05		minimum elong	398 Apr 12 j 01:44	22° $\mathring{V}$ 19'17	1°51'13
conjunction	390 Mar 24 j 14:11	4° $\mathring{V}$ 19'53	-1°-44'-45	max. Earth dist.	398 Apr 12 j 22:03	22° $\mathring{V}$ 21'11	30.81320 AU
				retrograde	398 Jul 28 j 14:23	24° $\mathring{V}$ 54'10	

min. Earth dist.	398 Oct 15 j 07:49	23° $\Upsilon$ 30'06	28.81486 AU	opposition	406 Nov 02 j 20:12	11° $\Upsilon$ 30'05	-1°-53'-37
opposition	398 Oct 16 j 01:59	23° $\Upsilon$ 28'49	-1°-58'-58	min. Earth dist.	406 Nov 02 j 05:41	11° $\Upsilon$ 31'06	28.81945 AU
direct	399 Jan 01 j 10:42	22° $\Upsilon$ 05'08		direct	407 Jan 19 j 09:19	10° $\Upsilon$ 05'59	
conjunction	399 Apr 14 j 15:53	24° $\Upsilon$ 34'41	-1°-51'-15	conjunction	407 May 03 j 08:12	12° $\Upsilon$ 36'06	-1°-45'-35
minimum elong	399 Apr 14 j 15:54	24° $\Upsilon$ 34'41	1°51'16	minimum elong	407 May 03 j 08:12	12° $\Upsilon$ 36'06	1°45'36
max. Earth dist.	399 Apr 15 j 12:22	24° $\Upsilon$ 36'36	30.81358 AU	max. Earth dist.	407 May 03 j 23:08	12° $\Upsilon$ 37'30	30.82078 AU
retrograde	399 Jul 31 j 02:46	27° $\Upsilon$ 09'30			407 Jul 24 j 13:23	15° $\Upsilon$	
opposition	399 Oct 18 j 13:26	25° $\Upsilon$ 44'11	-1°-58'-55	retrograde	407 Aug 18 j 08:44	15° $\Upsilon$ 10'13	
min. Earth dist.	399 Oct 17 j 19:31	25° $\Upsilon$ 45'27	28.81471 AU		407 Sep 12 j 07:48	15° $\Upsilon$	
direct	400 Jan 03 j 23:44	24° $\Upsilon$ 20'29		opposition	407 Nov 05 j 07:13	13° $\Upsilon$ 45'06	-1°-52'-9
conjunction	400 Apr 16 j 05:54	26° $\Upsilon$ 50'05	-1°-51'-8	min. Earth dist.	407 Nov 04 j 18:01	13° $\Upsilon$ 46'03	28.82465 AU
minimum elong	400 Apr 16 j 05:54	26° $\Upsilon$ 50'05	1°51'09	direct	408 Jan 21 j 20:49	12° $\Upsilon$ 21'00	
max. Earth dist.	400 Apr 17 j 00:25	26° $\Upsilon$ 51'50	30.81311 AU	conjunction	408 May 04 j 22:33	14° $\Upsilon$ 51'14	-1°-44'-8
retrograde	400 Aug 01 j 16:24	29° $\Upsilon$ 24'51		minimum elong	408 May 04 j 22:33	14° $\Upsilon$ 51'14	1°44'09
min. Earth dist.	400 Oct 19 j 08:00	28° $\Upsilon$ 00'45	28.81395 AU	max. Earth dist.	408 May 05 j 13:48	14° $\Upsilon$ 52'39	30.82650 AU
opposition	400 Oct 20 j 01:00	27° $\Upsilon$ 59'33	-1°-58'-42		408 May 08 j 20:24	15° $\Upsilon$	
direct	401 Jan 05 j 10:29	26° $\Upsilon$ 35'46		retrograde	408 Aug 19 j 21:43	17° $\Upsilon$ 25'14	
conjunction	401 Apr 18 j 19:54	29° $\Upsilon$ 05'27	-1°-50'-50	opposition	408 Nov 06 j 18:14	16° $\Upsilon$ 00'14	-1°-50'-30
minimum elong	401 Apr 18 j 19:54	29° $\Upsilon$ 05'27	1°50'51	min. Earth dist.	408 Nov 06 j 05:10	16° $\Upsilon$ 01'09	28.83058 AU
max. Earth dist.	401 Apr 19 j 14:51	29° $\Upsilon$ 07'14	30.81210 AU	direct	408 Dec 16 j 04:09	15° $\Upsilon$	
retrograde	401 May 13 j 13:23	0° $\Upsilon$			409 Jan 23 j 09:36	14° $\Upsilon$ 36'07	
opposition	401 Aug 04 j 04:07	1° $\Upsilon$ 40'07			409 Mar 01 j 23:25	15° $\Upsilon$	
min. Earth dist.	401 Oct 22 j 12:26	0° $\Upsilon$ 14'50	-1°-58'-18	conjunction	409 May 07 j 12:38	17° $\Upsilon$ 06'26	-1°-42'-31
direct	401 Oct 21 j 20:14	0° $\Upsilon$ 15'58	28.81281 AU	minimum elong	409 May 07 j 12:39	17° $\Upsilon$ 06'27	1°42'32
conjunction	401 Oct 31 j 07:00	30° $\Upsilon$		max. Earth dist.	409 May 08 j 02:01	17° $\Upsilon$ 07'42	30.83268 AU
opposition	402 Jan 07 j 22:00	28° $\Upsilon$ 51'00		retrograde	409 Aug 22 j 12:20	19° $\Upsilon$ 40'22	
direct	402 Mar 14 j 15:04	0° $\Upsilon$		opposition	409 Nov 09 j 05:18	18° $\Upsilon$ 15'26	-1°-48'-41
conjunction	402 Apr 21 j 09:52	1° $\Upsilon$ 20'43	-1°-50'-23	min. Earth dist.	409 Nov 08 j 17:12	18° $\Upsilon$ 16'18	28.83680 AU
minimum elong	402 Apr 21 j 09:52	1° $\Upsilon$ 20'43	1°50'24	direct	410 Jan 25 j 21:02	16° $\Upsilon$ 51'19	
max. Earth dist.	402 Apr 22 j 03:20	1° $\Upsilon$ 22'22	30.81117 AU	conjunction	410 May 10 j 03:10	19° $\Upsilon$ 21'45	-1°-40'-44
retrograde	402 Aug 06 j 16:58	3° $\Upsilon$ 55'18		minimum elong	410 May 10 j 03:10	19° $\Upsilon$ 21'45	1°40'46
opposition	402 Oct 24 j 23:39	2° $\Upsilon$ 30'01	-1°-57'-43	max. Earth dist.	410 May 10 j 16:41	19° $\Upsilon$ 23'01	30.83871 AU
min. Earth dist.	402 Oct 24 j 07:33	2° $\Upsilon$ 31'09	28.81209 AU	retrograde	410 Aug 25 j 00:09	21° $\Upsilon$ 55'34	
direct	403 Jan 10 j 09:02	1° $\Upsilon$ 06'06		opposition	410 Nov 11 j 16:16	20° $\Upsilon$ 30'42	-1°-46'-42
conjunction	403 Apr 23 j 23:58	3° $\Upsilon$ 35'54	-1°-49'-45	min. Earth dist.	410 Nov 11 j 05:23	20° $\Upsilon$ 31'29	28.84244 AU
minimum elong	403 Apr 23 j 23:58	3° $\Upsilon$ 35'54	1°49'46	direct	411 Jan 28 j 09:12	19° $\Upsilon$ 06'34	
max. Earth dist.	403 Apr 24 j 17:28	3° $\Upsilon$ 37'33	30.81068 AU	conjunction	411 May 12 j 17:41	21° $\Upsilon$ 37'04	-1°-38'-49
retrograde	403 Aug 09 j 03:46	6° $\Upsilon$ 10'23		minimum elong	411 May 12 j 17:42	21° $\Upsilon$ 37'04	1°38'49
opposition	403 Oct 27 j 10:57	4° $\Upsilon$ 45'06	-1°-56'-58	max. Earth dist.	411 May 13 j 05:02	21° $\Upsilon$ 38'08	30.84403 AU
min. Earth dist.	403 Oct 26 j 20:03	4° $\Upsilon$ 46'10	28.81200 AU	retrograde	411 Aug 27 j 13:10	24° $\Upsilon$ 10'46	
direct	404 Jan 12 j 20:49	3° $\Upsilon$ 21'08		opposition	411 Nov 14 j 03:16	22° $\Upsilon$ 45'58	-1°-44'-33
conjunction	404 Apr 25 j 14:01	5° $\Upsilon$ 51'00	-1°-48'-58	min. Earth dist.	411 Nov 13 j 16:56	22° $\Upsilon$ 46'42	28.84723 AU
minimum elong	404 Apr 25 j 14:01	5° $\Upsilon$ 51'00	1°48'58	direct	412 Jan 30 j 20:51	21° $\Upsilon$ 21'47	
max. Earth dist.	404 Apr 26 j 06:42	5° $\Upsilon$ 52'34	30.81120 AU	conjunction	412 May 14 j 08:15	23° $\Upsilon$ 52'21	-1°-36'-44
retrograde	404 Aug 10 j 17:20	8° $\Upsilon$ 25'23		minimum elong	412 May 14 j 08:15	23° $\Upsilon$ 52'21	1°36'45
opposition	404 Oct 28 j 21:57	7° $\Upsilon$ 00'07	-1°-56'-1	max. Earth dist.	412 May 14 j 19:08	23° $\Upsilon$ 53'22	30.84821 AU
min. Earth dist.	404 Oct 28 j 06:32	7° $\Upsilon$ 01'13	28.81308 AU	retrograde	412 Aug 28 j 23:46	26° $\Upsilon$ 25'54	
direct	405 Jan 14 j 08:32	5° $\Upsilon$ 36'05		opposition	412 Nov 15 j 14:15	25° $\Upsilon$ 01'08	-1°-42'-15
conjunction	405 Apr 28 j 04:01	8° $\Upsilon$ 06'02	-1°-48'00	min. Earth dist.	412 Nov 15 j 05:39	25° $\Upsilon$ 01'45	28.85089 AU
minimum elong	405 Apr 28 j 04:02	8° $\Upsilon$ 06'02	1°48'01	direct	413 Feb 01 j 08:20	23° $\Upsilon$ 36'53	
max. Earth dist.	405 Apr 28 j 20:13	8° $\Upsilon$ 07'33	30.81290 AU	conjunction	413 May 16 j 22:43	26° $\Upsilon$ 07'30	-1°-34'-31
retrograde	405 Aug 13 j 05:22	10° $\Upsilon$ 40'20		minimum elong	413 May 16 j 22:44	26° $\Upsilon$ 07'30	1°34'32
opposition	405 Oct 31 j 09:10	9° $\Upsilon$ 15'06	-1°-54'-54	max. Earth dist.	413 May 17 j 08:00	26° $\Upsilon$ 08'22	30.85165 AU
min. Earth dist.	405 Oct 30 j 19:07	9° $\Upsilon$ 16'06	28.81556 AU	retrograde	413 Aug 31 j 13:03	28° $\Upsilon$ 40'53	
direct	406 Jan 16 j 19:26	7° $\Upsilon$ 51'02		opposition	413 Nov 18 j 01:03	27° $\Upsilon$ 16'09	-1°-39'-48
conjunction	406 Apr 30 j 18:04	10° $\Upsilon$ 21'03	-1°-46'-53	min. Earth dist.	413 Nov 17 j 16:25	27° $\Upsilon$ 16'46	28.85395 AU
minimum elong	406 Apr 30 j 18:04	10° $\Upsilon$ 21'03	1°46'53	direct	414 Feb 03 j 20:05	25° $\Upsilon$ 51'49	
max. Earth dist.	406 May 01 j 10:20	10° $\Upsilon$ 22'34	30.81620 AU	conjunction	414 May 19 j 13:07	28° $\Upsilon$ 22'29	-1°-32'-9
retrograde	406 Aug 15 j 19:27	12° $\Upsilon$ 55'15		minimum elong	414 May 19 j 13:07	28° $\Upsilon$ 22'29	1°32'10

max. Earth dist.	414 May 19 j 21:28	28°♄23'16	30.85450 AU	max. Earth dist.	422 Jun 07 j 09:10	16°♃18'29	30.90432 AU
	414 Jul 05 j 14:01	0°♃		retrograde	422 Sep 21 j 02:41	18°♃50'21	
retrograde	414 Sep 02 j 23:33	0°♃55'42		opposition	422 Dec 08 j 00:11	17°♃26'14	-1°-11'-33
	414 Nov 03 j 02:45	30°♃		min. Earth dist.	422 Dec 07 j 22:07	17°♃26'23	28.90932 AU
opposition	414 Nov 20 j 11:55	29°♄31'00	-1°-37'-12	direct	423 Feb 24 j 07:46	16°♃01'33	
min. Earth dist.	414 Nov 20 j 05:12	29°♄31'28	28.85670 AU				
direct	415 Feb 06 j 07:31	28°♄06'34		conjunction	423 Jun 09 j 21:40	18°♃32'54	-1°-5'-11
	415 May 05 j 07:58	0°♃		minimum elong	423 Jun 09 j 21:41	18°♃32'54	1°05'11
				max. Earth dist.	423 Jun 09 j 22:33	18°♃32'59	30.91331 AU
conjunction	415 May 22 j 03:37	0°♃37'17	-1°-29'-39	retrograde	423 Sep 23 j 12:21	21°♃04'48	
minimum elong	415 May 22 j 03:37	0°♃37'17	1°29'40	opposition	423 Dec 10 j 10:45	19°♃40'46	-1°-7'-48
max. Earth dist.	415 May 22 j 11:22	0°♃38'00	30.85740 AU	min. Earth dist.	423 Dec 10 j 10:46	19°♃40'46	28.91797 AU
retrograde	415 Sep 05 j 12:03	3°♃10'19		direct	424 Feb 26 j 18:55	18°♃16'04	
opposition	415 Nov 22 j 22:27	1°♃45'38	-1°-34'-28				
min. Earth dist.	415 Nov 22 j 15:39	1°♃46'07	28.85963 AU	conjunction	424 Jun 11 j 12:01	20°♃47'28	-1°-1'-38
direct	416 Feb 08 j 21:21	0°♃21'08		minimum elong	424 Jun 11 j 12:02	20°♃47'28	1°01'39
				max. Earth dist.	424 Jun 11 j 11:51	20°♃47'27	30.92162 AU
conjunction	416 May 23 j 17:55	2°♃51'54	-1°-27'-1	retrograde	424 Sep 25 j 00:13	23°♃19'12	
minimum elong	416 May 23 j 17:55	2°♃51'54	1°27'03	opposition	424 Dec 11 j 21:14	21°♃55'15	-1°-3'-57
max. Earth dist.	416 May 24 j 00:13	2°♃52'29	30.86064 AU	min. Earth dist.	424 Dec 11 j 21:23	21°♃55'15	28.92569 AU
retrograde	416 Sep 07 j 00:09	5°♃24'46		direct	425 Feb 28 j 08:05	20°♃30'31	
opposition	416 Nov 24 j 09:11	4°♃00'07	-1°-31'-35				
min. Earth dist.	416 Nov 24 j 03:47	4°♃00'30	28.86334 AU	conjunction	425 Jun 14 j 02:06	23°♃01'58	0°-57'-59
direct	417 Feb 10 j 08:54	2°♃35'32		minimum elong	425 Jun 14 j 02:06	23°♃01'58	0°58'00
				max. Earth dist.	425 Jun 14 j 00:15	23°♃01'47	30.92891 AU
conjunction	417 May 26 j 08:06	5°♃06'21	-1°-24'-16	retrograde	425 Sep 27 j 11:35	25°♃33'32	
minimum elong	417 May 26 j 08:07	5°♃06'21	1°24'16	opposition	425 Dec 14 j 07:48	24°♃09'37	-1°00'-1
max. Earth dist.	417 May 26 j 14:39	5°♃06'58	30.86490 AU	min. Earth dist.	425 Dec 14 j 09:41	24°♃09'29	28.93263 AU
retrograde	417 Sep 09 j 12:27	7°♃39'04		direct	426 Mar 02 j 19:06	22°♃44'49	
opposition	417 Nov 26 j 19:45	6°♃14'27	-1°-28'-34				
min. Earth dist.	417 Nov 26 j 14:22	6°♃14'50	28.86808 AU	conjunction	426 Jun 16 j 16:24	25°♃16'18	0°-54'-16
direct	418 Feb 12 j 22:07	4°♃49'50		minimum elong	426 Jun 16 j 16:24	25°♃16'18	0°54'18
				max. Earth dist.	426 Jun 16 j 14:12	25°♃16'06	30.93556 AU
conjunction	418 May 28 j 22:17	7°♃20'43	-1°-21'-23	retrograde	426 Sep 29 j 23:07	27°♃47'39	
minimum elong	418 May 28 j 22:17	7°♃20'43	1°21'24	opposition	426 Dec 16 j 18:03	26°♃23'48	0°-56'00
max. Earth dist.	418 May 29 j 03:02	7°♃21'09	30.87038 AU	min. Earth dist.	426 Dec 16 j 20:28	26°♃23'38	28.93890 AU
retrograde	418 Sep 12 j 02:22	9°♃53'16		direct	427 Mar 05 j 08:44	24°♃58'55	
opposition	418 Nov 29 j 06:14	8°♃28'43	-1°-25'-25				
min. Earth dist.	418 Nov 29 j 01:35	8°♃29'03	28.87431 AU	conjunction	427 Jun 19 j 06:29	27°♃30'25	0°-50'-28
direct	419 Feb 15 j 10:00	7°♃04'04		minimum elong	427 Jun 19 j 06:29	27°♃30'25	0°50'29
				max. Earth dist.	427 Jun 19 j 02:08	27°♃30'01	30.94177 AU
conjunction	419 May 31 j 12:39	9°♃35'02	-1°-18'-22				
minimum elong	419 May 31 j 12:40	9°♃35'02	1°18'23	retrograde	427 Sep 22 j 21:33	0°♄	
max. Earth dist.	419 May 31 j 17:51	9°♃35'31	30.87732 AU				
retrograde	419 Sep 14 j 13:35	12°♃07'27		opposition	427 Oct 02 j 12:08	0°♄01'35	
opposition	419 Dec 01 j 16:48	10°♃42'59	-1°-22'-8				
min. Earth dist.	419 Dec 01 j 12:57	10°♃43'16	28.88182 AU	min. Earth dist.	427 Dec 19 j 04:25	28°♃37'45	0°-51'-54
direct	420 Feb 17 j 22:32	9°♃18'19		direct	427 Dec 19 j 07:48	28°♃37'30	28.94511 AU
conjunction	420 Jun 02 j 02:44	11°♃49'22	-1°-15'-14	conjunction	428 Jun 20 j 20:28	29°♃44'19	0°-46'-36
minimum elong	420 Jun 02 j 02:45	11°♃49'22	1°15'16	minimum elong	428 Jun 20 j 20:28	29°♃44'19	0°46'37
max. Earth dist.	420 Jun 02 j 06:13	11°♃49'42	30.88559 AU	max. Earth dist.	428 Jun 20 j 16:24	29°♃43'56	30.94804 AU
retrograde	420 Sep 16 j 02:30	14°♃21'40					
opposition	420 Dec 03 j 03:14	12°♃57'19	-1°-18'-43	retrograde	428 Jun 27 j 21:22	0°♄	
min. Earth dist.	420 Dec 02 j 23:33	12°♃57'34	28.89060 AU				
direct	421 Feb 19 j 09:57	11°♃32'38		retrograde	428 Oct 03 j 22:20	2°♄15'16	
				opposition	428 Dec 20 j 14:44	0°♄51'28	0°-47'-43
conjunction	421 Jun 04 j 17:02	14°♃03'48	-1°-12'00	min. Earth dist.	428 Dec 20 j 19:06	0°♄51'09	28.95152 AU
minimum elong	421 Jun 04 j 17:02	14°♃03'48	1°12'00				
max. Earth dist.	421 Jun 04 j 20:35	14°♃04'07	30.89475 AU	direct	429 Jan 22 j 03:16	30°♃	
retrograde	421 Sep 18 j 13:25	16°♃35'57					
opposition	421 Dec 05 j 13:45	15°♃11'44	-1°-15'-11	direct	429 Mar 09 j 10:56	29°♃26'26	
min. Earth dist.	421 Dec 05 j 11:39	15°♃11'52	28.89997 AU				
direct	422 Feb 21 j 20:47	13°♃47'04		conjunction	429 Jun 23 j 10:14	1°♄57'58	0°-42'-40
				minimum elong	429 Jun 23 j 10:14	1°♄57'58	0°42'40
conjunction	422 Jun 07 j 07:16	16°♃18'19	-1°-8'-38	max. Earth dist.	429 Jun 23 j 04:22	1°♄57'26	30.95490 AU
minimum elong	422 Jun 07 j 07:16	16°♃18'19	1°08'39	retrograde	429 Oct 06 j 11:02	4°♄28'43	
				opposition	429 Dec 23 j 00:51	3°♄04'57	0°-43'-29
				min. Earth dist.	429 Dec 23 j 05:19	3°♄04'38	28.95887 AU
				direct	430 Mar 11 j 23:03	1°♄39'51	

conjunction	430 Jun 26 j 00:06	4°☾11'25	0°-38'-40	conjunction	438 Jul 14 j 12:54	21°☾57'38	0°-5'-13
minimum elong	430 Jun 26 j 00:06	4°☾11'25	0°38'41	minimum elong	438 Jul 14 j 12:54	21°☾57'38	0°05'15
max. Earth dist.	430 Jun 25 j 18:30	4°☾10'54	30.96271 AU	behind sun begin	438 Jul 14 j 06:32	21°☾57'04	
retrograde	430 Oct 08 j 21:37	6°☾41'57		behind sun end	438 Jul 14 j 19:17	21°☾58'12	
opposition	430 Dec 25 j 11:10	5°☾18'15	0°-39'-11	max. Earth dist.	438 Jul 13 j 23:20	21°☾56'23	31.04998 AU
min. Earth dist.	430 Dec 25 j 16:58	5°☾17'50	28.96727 AU	retrograde	438 Oct 26 j 16:06	24°☾26'59	
direct	431 Mar 14 j 11:06	3°☾53'07		opposition	439 Jan 11 j 21:23	23°☾04'02	0°-3'-15
				min. Earth dist.	439 Jan 12 j 08:43	23°☾03'14	29.05442 AU
conjunction	431 Jun 28 j 13:47	6°☾24'41	0°-34'-37	direct	439 Apr 01 j 10:22	21°☾38'52	
minimum elong	431 Jun 28 j 13:47	6°☾24'41	0°34'37				
max. Earth dist.	431 Jun 28 j 06:49	6°☾24'03	30.97188 AU	conjunction	439 Jul 17 j 02:22	24°☾10'49	0°00'-55
retrograde	431 Oct 11 j 09:38	8°☾55'03		minimum elong	439 Jul 17 j 02:20	24°☾10'49	0°00'55
opposition	431 Dec 27 j 21:17	7°☾31'25	0°-34'-50	behind sun begin	439 Jul 16 j 19:46	24°☾10'14	
min. Earth dist.	431 Dec 28 j 02:36	7°☾31'02	28.97709 AU	behind sun end	439 Jul 17 j 08:55	24°☾11'23	
direct	432 Mar 15 j 22:57	6°☾06'15		max. Earth dist.	439 Jul 16 j 12:48	24°☾09'34	31.05843 AU
				asc. node	439 Oct 02 j 01:27	26°☾27'33	
conjunction	432 Jun 30 j 03:29	8°☾37'53	0°-30'-31	retrograde	439 Oct 29 j 02:42	26°☾39'59	
minimum elong	432 Jun 30 j 03:29	8°☾37'53	0°30'33	opposition	440 Jan 14 j 07:45	25°☾17'04	0°01'18
max. Earth dist.	432 Jun 29 j 20:13	8°☾37'12	30.98238 AU	min. Earth dist.	440 Jan 14 j 20:44	25°☾16'10	29.06254 AU
retrograde	432 Oct 12 j 18:59	11°☾08'05		direct	440 Apr 02 j 23:10	23°☾51'53	
opposition	432 Dec 29 j 07:37	9°☾44'33	0°-30'-25				
min. Earth dist.	432 Dec 29 j 14:26	9°☾44'04	28.98827 AU	conjunction	440 Jul 18 j 15:29	26°☾23'49	0°03'27
direct	433 Mar 18 j 09:33	8°☾19'24		minimum elong	440 Jul 18 j 15:29	26°☾23'49	0°03'27
				behind sun begin	440 Jul 18 j 08:57	26°☾23'14	
conjunction	433 Jul 02 j 16:59	10°☾51'04	0°-26'-22	behind sun end	440 Jul 18 j 22:01	26°☾24'24	
minimum elong	433 Jul 02 j 16:59	10°☾51'04	0°26'23	max. Earth dist.	440 Jul 18 j 00:23	26°☾22'26	31.06644 AU
max. Earth dist.	433 Jul 02 j 09:10	10°☾50'21	30.99420 AU	retrograde	440 Oct 30 j 14:21	28°☾52'50	
retrograde	433 Oct 15 j 06:21	13°☾21'08		opposition	441 Jan 15 j 17:59	27°☾29'57	0°05'51
opposition	433 Dec 31 j 17:48	11°☾57'43	0°-25'-58	min. Earth dist.	441 Jan 16 j 06:39	27°☾29'04	29.07044 AU
min. Earth dist.	434 Jan 01 j 00:27	11°☾57'14	29.00033 AU	direct	441 Apr 05 j 11:49	26°☾04'43	
direct	434 Mar 20 j 21:39	10°☾32'34					
				conjunction	441 Jul 21 j 04:30	28°☾36'39	0°07'42
conjunction	434 Jul 05 j 06:39	13°☾04'19	0°-22'-11	minimum elong	441 Jul 21 j 04:30	28°☾36'39	0°07'42
minimum elong	434 Jul 05 j 06:39	13°☾04'19	0°22'13	behind sun begin	441 Jul 20 j 22:34	28°☾36'07	
max. Earth dist.	434 Jul 04 j 21:35	13°☾03'29	31.00645 AU	behind sun end	441 Jul 21 j 10:25	28°☾37'10	
retrograde	434 Oct 17 j 17:16	15°☾34'15		max. Earth dist.	441 Jul 20 j 13:06	28°☾35'14	31.07425 AU
opposition	435 Jan 03 j 04:01	14°☾10'57	0°-21'-28		441 Aug 29 j 18:15	0°♁	
min. Earth dist.	435 Jan 03 j 12:16	14°☾10'22	29.01270 AU	retrograde	441 Nov 01 j 23:05	1°♁05'29	
direct	435 Mar 23 j 07:33	12°☾45'49			442 Jan 07 j 19:14	30°☾☽	
				opposition	442 Jan 18 j 04:20	29°☾42'39	0°10'24
conjunction	435 Jul 07 j 20:24	15°☾17'38	0°-17'-58	min. Earth dist.	442 Jan 18 j 18:36	29°☾41'39	29.07843 AU
minimum elong	435 Jul 07 j 20:24	15°☾17'38	0°17'58	direct	442 Apr 07 j 22:57	28°☾17'22	
max. Earth dist.	435 Jul 07 j 11:05	15°☾16'46	31.01867 AU		442 Jul 01 j 04:50	0°♁	
retrograde	435 Oct 20 j 04:21	17°☾47'26					
opposition	436 Jan 05 j 14:22	16°☾24'15	0°-16'-56	conjunction	442 Jul 23 j 17:27	0°♁49'17	0°11'55
min. Earth dist.	436 Jan 05 j 23:06	16°☾23'38	29.02453 AU	minimum elong	442 Jul 23 j 17:27	0°♁49'17	0°11'55
direct	436 Mar 24 j 20:46	14°☾59'08		behind sun begin	442 Jul 23 j 12:59	0°♁48'53	
				behind sun end	442 Jul 23 j 21:56	0°♁49'41	
conjunction	436 Jul 09 j 09:50	17°☾30'59	0°-13'-44	max. Earth dist.	442 Jul 23 j 01:28	0°♁47'48	31.08250 AU
minimum elong	436 Jul 09 j 09:50	17°☾30'59	0°13'45	retrograde	442 Nov 04 j 09:41	3°♁17'56	
behind sun begin	436 Jul 09 j 06:29	17°☾30'42		opposition	443 Jan 20 j 14:28	1°♁55'09	0°14'56
behind sun end	436 Jul 09 j 13:10	17°☾31'17		min. Earth dist.	443 Jan 21 j 04:24	1°♁54'11	29.08695 AU
max. Earth dist.	436 Jul 08 j 22:26	17°☾29'57	31.03008 AU	direct	443 Apr 10 j 11:04	0°♁29'50	
retrograde	436 Oct 21 j 16:56	20°☾00'40					
opposition	437 Jan 07 j 00:45	18°☾37'33	0°-12'-23	conjunction	443 Jul 26 j 06:19	3°♁01'45	0°16'08
min. Earth dist.	437 Jan 07 j 10:27	18°☾36'52	29.03558 AU	minimum elong	443 Jul 26 j 06:19	3°♁01'45	0°16'09
direct	437 Mar 27 j 08:51	17°☾12'26		max. Earth dist.	443 Jul 25 j 13:34	3°♁00'12	31.09142 AU
				retrograde	443 Nov 06 j 19:27	5°♁30'16	
conjunction	437 Jul 11 j 23:28	19°☾44'21	0°-9'-28	opposition	444 Jan 23 j 00:52	4°♁07'32	0°19'26
minimum elong	437 Jul 11 j 23:28	19°☾44'21	0°09'29	min. Earth dist.	444 Jan 23 j 15:47	4°♁06'29	29.09655 AU
behind sun begin	437 Jul 11 j 18:01	19°☾43'52		direct	444 Apr 11 j 20:38	2°♁42'12	
behind sun end	437 Jul 12 j 04:55	19°☾44'50					
max. Earth dist.	437 Jul 11 j 12:05	19°☾43'18	31.04055 AU	conjunction	444 Jul 27 j 18:57	5°♁14'06	0°20'20
retrograde	437 Oct 24 j 03:12	22°☾13'52		minimum elong	444 Jul 27 j 18:57	5°♁14'06	0°20'19
opposition	438 Jan 09 j 11:04	20°☾50'50	0°-7'-49	max. Earth dist.	444 Jul 27 j 02:35	5°♁12'35	31.10155 AU
min. Earth dist.	438 Jan 09 j 22:04	20°☾50'04	29.04545 AU	retrograde	444 Nov 08 j 04:51	7°♁42'29	
direct	438 Mar 29 j 21:50	19°☾25'42		opposition	445 Jan 24 j 11:12	6°♁19'49	0°23'54

min. Earth dist. direct	445 Jan 25 j 02:01 445 Apr 14 j 09:51	6°♈18'47 4°♈54'30	29.10715 AU	min. Earth dist. direct	453 Feb 11 j 19:23 453 May 02 j 10:02	23°♈55'52 22°♈31'58	29.18302 AU
conjunction minimum elong max. Earth dist. retrograde opposition min. Earth dist. direct	445 Jul 30 j 07:35 445 Jul 30 j 07:35 445 Jul 29 j 13:48 445 Nov 10 j 16:18 446 Jan 26 j 21:24 446 Jan 27 j 12:40 446 Apr 16 j 20:41	7°♈26'25 7°♈26'25 7°♈24'46 9°♈54'41 8°♈32'05 8°♈31'01 7°♈06'47	0°24'30 0°24'30 31.11269 AU 29.11877 AU	conjunction minimum elong max. Earth dist. retrograde opposition min. Earth dist. direct	453 Aug 17 j 10:49 453 Aug 17 j 10:49 453 Aug 16 j 12:51 453 Nov 28 j 03:21 454 Feb 13 j 09:35 454 Feb 14 j 05:56 454 May 04 j 23:11	25°♈03'47 25°♈03'47 25°♈01'44 27°♈31'05 26°♈08'53 26°♈07'28 24°♈43'33	0°55'59 0°55'59 31.18532 AU 1°01'43 29.18853 AU
conjunction minimum elong max. Earth dist. retrograde opposition min. Earth dist. direct	446 Aug 01 j 20:21 446 Aug 01 j 20:21 446 Aug 01 j 03:07 446 Nov 13 j 02:14 447 Jan 29 j 07:50 447 Jan 30 j 00:05 447 Apr 19 j 08:43	9°♈38'44 9°♈38'44 9°♈37'08 12°♈06'53 10°♈44'23 10°♈43'15 9°♈19'07	0°28'38 0°28'37 31.12449 AU 29.13058 AU	conjunction minimum elong max. Earth dist. retrograde opposition min. Earth dist. direct	454 Aug 19 j 22:39 454 Aug 19 j 22:39 454 Aug 18 j 23:24 454 Nov 30 j 14:01 455 Feb 15 j 20:10 455 Feb 16 j 16:39 455 May 07 j 09:44	27°♈15'19 27°♈15'19 27°♈13'09 29°♈42'31 28°♈20'19 28°♈18'53 26°♈54'57	0°59'36 0°59'35 31.19079 AU 1°05'31 29.19428 AU
conjunction minimum elong max. Earth dist. retrograde opposition min. Earth dist. direct	447 Aug 04 j 08:50 447 Aug 04 j 08:49 447 Aug 03 j 13:55 447 Nov 15 j 14:53 448 Jan 31 j 18:14 448 Feb 01 j 10:30 448 Apr 20 j 21:15	11°♈51'04 11°♈51'04 11°♈49'19 14°♈19'08 12°♈56'43 12°♈55'35 11°♈31'28	0°32'43 0°32'44 31.13621 AU 29.14213 AU	conjunction minimum elong max. Earth dist. retrograde opposition min. Earth dist. direct	455 Aug 22 j 10:21 455 Aug 22 j 10:21 455 Aug 21 j 12:06 455 Sep 06 j 11:29 455 Dec 02 j 22:59 456 Feb 18 j 06:52 456 Feb 19 j 03:51 456 Mar 08 j 16:47 456 May 08 j 21:33 456 Jul 07 j 04:12	29°♈26'40 29°♈26'40 29°♈24'36 0°♈ 1°♈53'47 0°♈31'35 0°♈30'08 30°♈ 29°♈06'14 0°♈	1°03'07 1°03'07 31.19668 AU 1°09'14 29.20056 AU
conjunction minimum elong max. Earth dist. retrograde opposition min. Earth dist. direct	448 Aug 05 j 21:28 448 Aug 05 j 21:28 448 Aug 05 j 02:51 448 Aug 31 j 21:05 448 Nov 17 j 01:29 449 Feb 02 j 04:50 449 Feb 02 j 22:40 449 Feb 07 j 14:30 449 Apr 23 j 10:12 449 Jul 03 j 19:55	14°♈03'26 14°♈03'26 14°♈01'43 15°♈ 16°♈31'23 15°♈09'02 15°♈07'47 15°♈ 13°♈43'48 15°♈	0°36'46 0°36'45 31.14725 AU 29.15275 AU	conjunction minimum elong max. Earth dist. retrograde opposition min. Earth dist. direct	456 Aug 23 j 21:49 456 Aug 23 j 21:49 456 Aug 22 j 22:31 456 Dec 04 j 10:56 457 Feb 19 j 17:22 457 Feb 20 j 13:38 457 May 11 j 09:44 457 Aug 25 j 11:04	1°♈37'55 1°♈37'55 1°♈35'45 4°♈04'56 2°♈42'47 2°♈41'23 1°♈17'27 3°♈47'03	1°06'33 1°06'32 31.20348 AU 1°12'51 29.20801 AU 31.21136 AU
conjunction minimum elong max. Earth dist. retrograde opposition min. Earth dist. direct	449 Aug 08 j 09:51 449 Aug 08 j 09:51 449 Aug 07 j 13:41 449 Nov 19 j 13:07 450 Feb 04 j 15:20 450 Feb 05 j 08:53 450 Apr 25 j 23:21	16°♈15'46 16°♈15'46 16°♈13'54 18°♈43'35 17°♈21'17 17°♈20'04 15°♈56'03	0°40'45 0°40'45 31.15729 AU 29.16212 AU	conjunction minimum elong max. Earth dist. retrograde opposition min. Earth dist. direct	457 Aug 26 j 09:21 457 Aug 26 j 09:21 457 Dec 06 j 21:13 458 Feb 22 j 04:09 458 Feb 23 j 01:20 458 May 13 j 22:23	3°♈49'07 3°♈49'07 6°♈16'05 4°♈53'59 4°♈52'31 3°♈28'42	1°09'52 1°09'53 1°16'21 29.21637 AU
conjunction minimum elong max. Earth dist. retrograde opposition min. Earth dist. direct	450 Aug 10 j 22:23 450 Aug 10 j 22:23 450 Aug 10 j 01:45 450 Nov 21 j 22:38 451 Feb 07 j 01:57 451 Feb 07 j 21:14 451 Apr 28 j 10:50	18°♈28'00 18°♈28'00 18°♈26'06 20°♈55'42 19°♈33'27 19°♈32'06 18°♈08'12	0°44'40 0°44'39 31.16587 AU 29.17015 AU	conjunction minimum elong max. Earth dist. retrograde opposition min. Earth dist. direct	458 Aug 28 j 20:43 458 Aug 28 j 20:43 458 Aug 27 j 21:40 458 Dec 09 j 08:37 459 Feb 24 j 14:44 459 Feb 25 j 11:01 459 May 16 j 10:57 459 Aug 30 j 09:22	6°♈00'21 6°♈00'21 5°♈58'13 8°♈27'17 7°♈05'15 7°♈03'51 5°♈40'01 8°♈09'34	1°13'06 1°13'06 31.22014 AU 1°19'44 29.22538 AU 31.22918 AU
conjunction minimum elong max. Earth dist. retrograde opposition min. Earth dist. direct	451 Aug 13 j 10:43 451 Aug 13 j 10:43 451 Aug 12 j 13:21 451 Nov 24 j 09:20 452 Feb 09 j 12:32 452 Feb 10 j 07:36 452 Apr 29 j 23:44	20°♈40'07 20°♈40'07 20°♈38'08 23°♈07'40 21°♈45'27 21°♈44'07 20°♈20'11	0°48'31 0°48'31 31.17330 AU 29.17698 AU	conjunction minimum elong retrograde opposition min. Earth dist. direct	459 Aug 31 j 08:08 459 Aug 31 j 08:08 459 Dec 11 j 18:35 460 Feb 27 j 01:41 460 Feb 27 j 23:07 460 May 17 j 22:17	8°♈11'40 8°♈11'40 10°♈38'34 9°♈16'36 9°♈15'07 7°♈51'26	1°16'13 1°16'14 1°23'01 29.23450 AU
conjunction minimum elong max. Earth dist. retrograde opposition	452 Aug 14 j 22:45 452 Aug 14 j 22:45 452 Aug 14 j 00:31 452 Nov 25 j 18:44 453 Feb 10 j 23:10	22°♈52'02 22°♈52'02 22°♈49'59 25°♈19'29 23°♈57'16	0°52'17 0°52'17 31.17959 AU 0°57'48	conjunction minimum elong max. Earth dist. retrograde opposition	460 Sep 01 j 19:18 460 Sep 01 j 19:18 460 Aug 31 j 20:22 460 Dec 13 j 05:42 461 Feb 28 j 12:32	10°♈23'05 10°♈23'05 10°♈20'57 12°♈49'56 11°♈28'02	1°19'14 1°19'14 31.23809 AU 1°26'10

min. Earth dist.	461 Mar 01 j 09:30	11° $\mathring{\text{M}}$ 26'35	29.24303 AU	direct	469 Jun 07 j 09:32	27° $\mathring{\text{M}}$ 31'23	
direct	461 May 20 j 11:20	10° $\mathring{\text{M}}$ 02'55			469 Sep 20 j 19:19	0° $\mathring{\text{M}}$	
max. Earth dist.	461 Sep 03 j 07:00	12° $\mathring{\text{M}}$ 32'21	31.24607 AU				
conjunction	461 Sep 04 j 06:36	12° $\mathring{\text{M}}$ 34'33	1°22'07	conjunction	469 Sep 21 j 21:05	0° $\mathring{\text{M}}$ 02'24	1°40'40
minimum elong	461 Sep 04 j 06:36	12° $\mathring{\text{M}}$ 34'33	1°22'07	minimum elong	469 Sep 21 j 21:05	0° $\mathring{\text{M}}$ 02'24	1°40'40
retrograde	461 Dec 15 j 15:12	15° $\mathring{\text{M}}$ 01'22		max. Earth dist.	469 Sep 20 j 22:04	0° $\mathring{\text{M}}$ 00'15	31.27977 AU
opposition	462 Mar 02 j 23:25	13° $\mathring{\text{M}}$ 39'31	1°29'12	retrograde	470 Jan 01 j 22:59	2° $\mathring{\text{M}}$ 28'49	
min. Earth dist.	462 Mar 03 j 21:21	13° $\mathring{\text{M}}$ 38'00	29.25062 AU	opposition	470 Mar 20 j 16:18	1° $\mathring{\text{M}}$ 06'53	1°48'27
direct	462 May 22 j 21:42	12° $\mathring{\text{M}}$ 14'26		min. Earth dist.	470 Mar 21 j 13:28	1° $\mathring{\text{M}}$ 05'26	29.28351 AU
conjunction	462 Sep 06 j 17:57	14° $\mathring{\text{M}}$ 46'01	1°24'54	direct	470 May 06 j 11:58	30° $\mathring{\text{R}}$ $\mathring{\text{M}}$	
minimum elong	462 Sep 06 j 17:56	14° $\mathring{\text{M}}$ 46'01	1°24'53		470 Jun 09 j 23:00	29° $\mathring{\text{M}}$ 41'51	
max. Earth dist.	462 Sep 05 j 18:43	14° $\mathring{\text{M}}$ 43'51	31.25298 AU	max. Earth dist.	470 Jul 13 j 15:37	0° $\mathring{\text{M}}$	
retrograde	462 Dec 17 j 23:36	17° $\mathring{\text{M}}$ 12'47		conjunction	470 Sep 23 j 08:27	2° $\mathring{\text{M}}$ 10'41	31.28515 AU
opposition	463 Mar 05 j 10:30	15° $\mathring{\text{M}}$ 50'57	1°32'06	conjunction	470 Sep 24 j 07:27	2° $\mathring{\text{M}}$ 12'49	1°42'22
min. Earth dist.	463 Mar 06 j 08:29	15° $\mathring{\text{M}}$ 49'26	29.25683 AU	minimum elong	470 Sep 24 j 07:26	2° $\mathring{\text{M}}$ 12'49	1°42'22
direct	463 May 25 j 10:38	14° $\mathring{\text{M}}$ 25'54		retrograde	471 Jan 04 j 08:51	4° $\mathring{\text{M}}$ 39'15	
max. Earth dist.	463 Sep 08 j 04:28	16° $\mathring{\text{M}}$ 55'09	31.25852 AU	opposition	471 Mar 23 j 03:39	3° $\mathring{\text{M}}$ 17'21	1°50'11
conjunction	463 Sep 09 j 04:57	16° $\mathring{\text{M}}$ 57'25	1°27'33	min. Earth dist.	471 Mar 24 j 00:59	3° $\mathring{\text{M}}$ 15'53	29.28938 AU
minimum elong	463 Sep 09 j 04:57	16° $\mathring{\text{M}}$ 57'25	1°27'33	direct	471 Jun 12 j 09:26	1° $\mathring{\text{M}}$ 52'23	
retrograde	463 Dec 20 j 10:02	19° $\mathring{\text{M}}$ 24'09		conjunction	471 Sep 26 j 17:39	4° $\mathring{\text{M}}$ 23'19	1°43'55
opposition	464 Mar 06 j 21:35	18° $\mathring{\text{M}}$ 02'19	1°34'52	minimum elong	471 Sep 26 j 17:39	4° $\mathring{\text{M}}$ 23'19	1°43'55
min. Earth dist.	464 Mar 07 j 19:40	18° $\mathring{\text{M}}$ 00'48	29.26188 AU	max. Earth dist.	471 Sep 25 j 19:54	4° $\mathring{\text{M}}$ 21'17	31.29125 AU
direct	464 May 26 j 20:35	16° $\mathring{\text{M}}$ 37'15		retrograde	472 Jan 06 j 17:29	6° $\mathring{\text{M}}$ 49'46	
conjunction	464 Sep 10 j 16:05	19° $\mathring{\text{M}}$ 08'43	1°30'04	opposition	472 Mar 24 j 15:03	5° $\mathring{\text{M}}$ 27'54	1°51'45
minimum elong	464 Sep 10 j 16:04	19° $\mathring{\text{M}}$ 08'43	1°30'04	min. Earth dist.	472 Mar 25 j 11:55	5° $\mathring{\text{M}}$ 26'29	29.29551 AU
max. Earth dist.	464 Sep 09 j 16:25	19° $\mathring{\text{M}}$ 06'30	31.26289 AU	direct	472 Jun 13 j 21:58	4° $\mathring{\text{M}}$ 03'02	
retrograde	464 Dec 21 j 18:47	21° $\mathring{\text{M}}$ 35'22		max. Earth dist.	472 Sep 27 j 05:21	6° $\mathring{\text{M}}$ 31'49	31.29735 AU
opposition	465 Mar 09 j 08:38	20° $\mathring{\text{M}}$ 13'32	1°37'29	conjunction	472 Sep 28 j 03:50	6° $\mathring{\text{M}}$ 33'55	1°45'19
min. Earth dist.	465 Mar 10 j 07:29	20° $\mathring{\text{M}}$ 11'58	29.26570 AU	minimum elong	472 Sep 28 j 03:50	6° $\mathring{\text{M}}$ 33'55	1°45'19
direct	465 May 29 j 08:25	18° $\mathring{\text{M}}$ 48'28		retrograde	473 Jan 08 j 04:23	9° $\mathring{\text{M}}$ 00'25	
max. Earth dist.	465 Sep 12 j 02:04	21° $\mathring{\text{M}}$ 17'31	31.26629 AU	opposition	473 Mar 27 j 02:23	7° $\mathring{\text{M}}$ 38'36	1°53'10
conjunction	465 Sep 13 j 02:55	21° $\mathring{\text{M}}$ 19'50	1°32'28	min. Earth dist.	473 Mar 27 j 22:55	7° $\mathring{\text{M}}$ 37'12	29.30153 AU
minimum elong	465 Sep 13 j 02:55	21° $\mathring{\text{M}}$ 19'50	1°32'28	direct	473 Jun 16 j 07:29	6° $\mathring{\text{M}}$ 13'48	
retrograde	465 Dec 24 j 05:59	23° $\mathring{\text{M}}$ 46'26		conjunction	473 Sep 30 j 14:10	8° $\mathring{\text{M}}$ 44'39	1°46'34
opposition	466 Mar 11 j 19:40	22° $\mathring{\text{M}}$ 24'34	1°39'58	minimum elong	473 Sep 30 j 14:10	8° $\mathring{\text{M}}$ 44'39	1°46'34
min. Earth dist.	466 Mar 12 j 17:53	22° $\mathring{\text{M}}$ 23'02	29.26879 AU	max. Earth dist.	473 Sep 29 j 16:53	8° $\mathring{\text{M}}$ 42'40	31.30294 AU
direct	466 May 31 j 20:40	20° $\mathring{\text{M}}$ 59'28		retrograde	474 Jan 10 j 13:30	11° $\mathring{\text{M}}$ 11'12	
conjunction	466 Sep 15 j 13:44	23° $\mathring{\text{M}}$ 30'45	1°34'43	opposition	474 Mar 29 j 14:02	9° $\mathring{\text{M}}$ 49'25	1°54'25
minimum elong	466 Sep 15 j 13:44	23° $\mathring{\text{M}}$ 30'45	1°34'43	min. Earth dist.	474 Mar 30 j 11:05	9° $\mathring{\text{M}}$ 47'59	29.30661 AU
max. Earth dist.	466 Sep 14 j 13:56	23° $\mathring{\text{M}}$ 28'32	31.26904 AU	direct	474 Jun 18 j 19:05	8° $\mathring{\text{M}}$ 24'42	
retrograde	466 Dec 26 j 15:26	25° $\mathring{\text{M}}$ 57'17		max. Earth dist.	474 Oct 02 j 02:05	10° $\mathring{\text{M}}$ 53'25	31.30747 AU
opposition	467 Mar 14 j 06:51	24° $\mathring{\text{M}}$ 35'22	1°42'19	conjunction	474 Oct 03 j 00:16	10° $\mathring{\text{M}}$ 55'30	1°47'39
min. Earth dist.	467 Mar 15 j 05:57	24° $\mathring{\text{M}}$ 33'47	29.27152 AU	minimum elong	474 Oct 03 j 00:16	10° $\mathring{\text{M}}$ 55'30	1°47'39
direct	467 Jun 03 j 08:57	23° $\mathring{\text{M}}$ 10'17		retrograde	475 Jan 13 j 01:05	13° $\mathring{\text{M}}$ 22'06	
max. Earth dist.	467 Sep 17 j 00:05	25° $\mathring{\text{M}}$ 39'12	31.27190 AU	opposition	475 Apr 01 j 01:41	12° $\mathring{\text{M}}$ 00'20	1°55'31
conjunction	467 Sep 18 j 00:16	25° $\mathring{\text{M}}$ 41'27	1°36'51	min. Earth dist.	475 Apr 01 j 21:52	11° $\mathring{\text{M}}$ 58'57	29.31055 AU
minimum elong	467 Sep 18 j 00:16	25° $\mathring{\text{M}}$ 41'27	1°36'51	direct	475 Jun 21 j 06:24	10° $\mathring{\text{M}}$ 35'40	
retrograde	467 Dec 29 j 02:23	28° $\mathring{\text{M}}$ 07'56		conjunction	475 Oct 05 j 10:33	13° $\mathring{\text{M}}$ 06'26	1°48'36
opposition	468 Mar 15 j 17:58	26° $\mathring{\text{M}}$ 46'00	1°44'31	minimum elong	475 Oct 05 j 10:33	13° $\mathring{\text{M}}$ 06'26	1°48'36
min. Earth dist.	468 Mar 16 j 15:42	26° $\mathring{\text{M}}$ 44'30	29.27464 AU	max. Earth dist.	475 Oct 04 j 13:21	13° $\mathring{\text{M}}$ 04'26	31.31063 AU
direct	468 Jun 04 j 21:29	25° $\mathring{\text{M}}$ 20'53		retrograde	476 Jan 15 j 11:13	15° $\mathring{\text{M}}$ 33'04	
max. Earth dist.	468 Sep 18 j 11:11	27° $\mathring{\text{M}}$ 49'47	31.27529 AU	opposition	476 Apr 02 j 13:33	14° $\mathring{\text{M}}$ 11'17	1°56'26
conjunction	468 Sep 19 j 10:41	27° $\mathring{\text{M}}$ 51'59	1°38'50	min. Earth dist.	476 Apr 03 j 10:37	14° $\mathring{\text{M}}$ 09'51	29.31304 AU
minimum elong	468 Sep 19 j 10:40	27° $\mathring{\text{M}}$ 51'59	1°38'49	direct	476 Jun 22 j 17:39	12° $\mathring{\text{M}}$ 46'41	
retrograde	468 Nov 27 j 14:12	0° $\mathring{\text{M}}$ 18'25		conjunction	476 Oct 06 j 20:33	15° $\mathring{\text{M}}$ 17'22	1°49'23
opposition	469 Feb 02 j 03:29	30° $\mathring{\text{R}}$ $\mathring{\text{M}}$		minimum elong	476 Oct 06 j 20:33	15° $\mathring{\text{M}}$ 17'22	1°49'23
min. Earth dist.	469 Mar 18 j 05:14	28° $\mathring{\text{M}}$ 56'28	1°46'33	max. Earth dist.	476 Oct 05 j 22:53	15° $\mathring{\text{M}}$ 15'20	31.31243 AU
direct	469 Mar 19 j 03:33	28° $\mathring{\text{M}}$ 54'56	29.27860 AU	retrograde	477 Jan 16 j 22:33	17° $\mathring{\text{M}}$ 44'02	
conjunction	469 Mar 19 j 03:33	28° $\mathring{\text{M}}$ 54'56	29.27860 AU	opposition	477 Apr 05 j 01:15	16° $\mathring{\text{M}}$ 22'15	1°57'11
minimum elong	469 Mar 19 j 03:33	28° $\mathring{\text{M}}$ 54'56	29.27860 AU	min. Earth dist.	477 Apr 05 j 21:09	16° $\mathring{\text{M}}$ 20'54	29.31404 AU



direct	477 Jun 25 j 05:51	14°♁57'40		direct	485 Jul 13 j 04:06	2°♁22'48	
max. Earth dist.	477 Oct 08 j 09:16	17°♁26'16	31.31266 AU				
conjunction	477 Oct 09 j 06:39	17°♁28'16	1°50'01	conjunction	485 Oct 26 j 11:34	4°♁52'42	1°49'22
minimum elong	477 Oct 09 j 06:39	17°♁28'16	1°50'01	minimum elong	485 Oct 26 j 11:34	4°♁52'42	1°49'22
retrograde	478 Jan 19 j 09:14	19°♁54'58		max. Earth dist.	485 Oct 25 j 19:10	4°♁51'10	31.31092 AU
opposition	478 Apr 07 j 13:03	18°♁33'08	1°57'47	retrograde	486 Feb 05 j 18:16	7°♁19'48	
min. Earth dist.	478 Apr 08 j 09:47	18°♁31'44	29.31371 AU	opposition	486 Apr 25 j 12:44	5°♁57'47	1°56'26
direct	478 Jun 27 j 18:23	17°♁08'35		min. Earth dist.	486 Apr 26 j 03:47	5°♁56'46	29.31221 AU
				direct	486 Jul 15 j 15:42	4°♁33'34	
conjunction	478 Oct 11 j 16:36	19°♁39'05	1°50'29	conjunction	486 Oct 28 j 21:06	7°♁03'25	1°48'34
minimum elong	478 Oct 11 j 16:36	19°♁39'05	1°50'29	minimum elong	486 Oct 28 j 21:06	7°♁03'25	1°48'34
max. Earth dist.	478 Oct 10 j 19:44	19°♁37'08	31.31189 AU	max. Earth dist.	486 Oct 28 j 05:13	7°♁01'55	31.31087 AU
retrograde	479 Jan 21 j 20:24	22°♁05'47		retrograde	487 Feb 08 j 05:49	9°♁30'37	
opposition	479 Apr 10 j 00:53	20°♁43'55	1°58'12	opposition	487 Apr 28 j 01:11	8°♁08'34	1°55'30
min. Earth dist.	479 Apr 10 j 20:32	20°♁42'35	29.31246 AU	min. Earth dist.	487 Apr 28 j 16:43	8°♁07'31	29.31170 AU
direct	479 Jun 30 j 08:34	19°♁19'22		direct	487 Jul 18 j 03:22	6°♁44'25	
max. Earth dist.	479 Oct 13 j 05:25	21°♁47'49	31.31041 AU				
conjunction	479 Oct 14 j 02:15	21°♁49'46	1°50'48	conjunction	487 Oct 31 j 06:33	9°♁14'11	1°47'37
minimum elong	479 Oct 14 j 02:15	21°♁49'46	1°50'48	minimum elong	487 Oct 31 j 06:33	9°♁14'11	1°47'37
retrograde	480 Jan 24 j 06:07	24°♁16'29		max. Earth dist.	487 Oct 30 j 15:28	9°♁12'46	31.30980 AU
opposition	480 Apr 11 j 12:49	22°♁54'34	1°58'28	retrograde	488 Feb 10 j 17:21	11°♁41'28	
min. Earth dist.	480 Apr 12 j 08:28	22°♁53'13	29.31104 AU	opposition	488 Apr 29 j 13:32	10°♁19'24	1°54'24
direct	480 Jul 01 j 19:36	21°♁30'01		min. Earth dist.	488 Apr 30 j 03:56	10°♁18'25	29.30983 AU
				direct	488 Jul 19 j 16:41	8°♁55'18	
conjunction	480 Oct 15 j 12:00	24°♁00'18	1°50'58	conjunction	488 Nov 01 j 16:03	11°♁24'59	1°46'31
minimum elong	480 Oct 15 j 12:00	24°♁00'18	1°50'57	minimum elong	488 Nov 01 j 16:03	11°♁24'59	1°46'31
max. Earth dist.	480 Oct 14 j 16:41	23°♁58'30	31.30906 AU	max. Earth dist.	488 Nov 01 j 00:41	11°♁23'33	31.30720 AU
retrograde	481 Jan 25 j 14:23	26°♁27'02		retrograde	489 Feb 12 j 04:13	13°♁52'22	
opposition	481 Apr 14 j 00:33	25°♁05'04	1°58'33	opposition	489 May 02 j 01:49	12°♁30'15	1°53'08
min. Earth dist.	481 Apr 14 j 19:24	25°♁03'47	29.30985 AU	min. Earth dist.	489 May 02 j 16:24	12°♁29'16	29.30654 AU
direct	481 Jul 04 j 09:01	23°♁40'33		direct	489 Jul 22 j 03:32	11°♁06'11	
				max. Earth dist.	489 Nov 03 j 11:36	13°♁34'28	31.30315 AU
conjunction	481 Oct 17 j 21:34	26°♁10'45	1°50'58	conjunction	489 Nov 04 j 01:39	13°♁35'47	1°45'16
minimum elong	481 Oct 17 j 21:35	26°♁10'45	1°50'58	minimum elong	489 Nov 04 j 01:39	13°♁35'47	1°45'16
max. Earth dist.	481 Oct 17 j 01:55	26°♁08'54	31.30826 AU				
retrograde	482 Jan 28 j 01:13	28°♁37'31		retrograde	489 Dec 13 j 15:04	15°♁	
opposition	482 Apr 16 j 12:28	27°♁15'31	1°58'28	opposition	490 Feb 14 j 13:40	16°♁03'14	
min. Earth dist.	482 Apr 17 j 06:17	27°♁14'18	29.30952 AU		490 Apr 22 j 19:29	15°♁	
direct	482 Jul 06 j 19:33	25°♁51'02		opposition	490 May 04 j 14:20	14°♁41'03	1°51'43
				min. Earth dist.	490 May 05 j 04:18	14°♁40'07	29.30163 AU
conjunction	482 Oct 20 j 07:10	28°♁21'09	1°50'48	direct	490 Jul 24 j 17:29	13°♁17'01	
minimum elong	482 Oct 20 j 07:10	28°♁21'09	1°50'48		490 Oct 16 j 12:52	15°♁	
max. Earth dist.	482 Oct 19 j 13:21	28°♁19'28	31.30830 AU				
retrograde	482 Dec 07 j 06:38	0°♁		conjunction	490 Nov 06 j 10:55	15°♁46'31	1°43'52
	483 Jan 30 j 09:53	0°♁47'59		minimum elong	490 Nov 06 j 10:55	15°♁46'31	1°43'52
	483 Mar 28 j 11:27	30°♁		max. Earth dist.	490 Nov 05 j 20:19	15°♁45'09	31.29770 AU
opposition	483 Apr 19 j 00:33	29°♁25'58	1°58'13	retrograde	491 Feb 17 j 01:09	18°♁14'02	
min. Earth dist.	483 Apr 19 j 18:11	29°♁24'46	29.30987 AU	opposition	491 May 07 j 02:50	16°♁51'48	1°50'09
direct	483 Jul 09 j 07:39	28°♁01'33		min. Earth dist.	491 May 07 j 15:57	16°♁50'54	29.29567 AU
	483 Oct 08 j 13:59	0°♁		direct	491 Jul 27 j 04:51	15°♁27'46	
conjunction	483 Oct 22 j 16:36	0°♁31'35	1°50'29	conjunction	491 Nov 08 j 20:19	17°♁57'09	1°42'19
minimum elong	483 Oct 22 j 16:37	0°♁31'35	1°50'30	minimum elong	491 Nov 08 j 20:19	17°♁57'09	1°42'19
max. Earth dist.	483 Oct 21 j 22:37	0°♁29'53	31.30910 AU	max. Earth dist.	491 Nov 08 j 07:26	17°♁55'57	31.29134 AU
retrograde	484 Feb 01 j 20:46	2°♁58'30		retrograde	492 Feb 19 j 09:53	20°♁24'45	
opposition	484 Apr 20 j 12:29	1°♁36'29	1°57'47	opposition	492 May 08 j 15:19	19°♁02'25	1°48'25
min. Earth dist.	484 Apr 21 j 04:38	1°♁35'23	29.31088 AU	min. Earth dist.	492 May 09 j 04:20	19°♁01'33	29.28902 AU
direct	484 Jul 10 j 17:56	0°♁12'08		direct	492 Jul 28 j 17:24	17°♁38'24	
max. Earth dist.	484 Oct 23 j 09:36	2°♁40'33	31.31012 AU				
conjunction	484 Oct 24 j 02:07	2°♁42'06	1°50'00	conjunction	492 Nov 10 j 05:25	20°♁07'41	1°40'37
minimum elong	484 Oct 24 j 02:07	2°♁42'06	1°50'01	minimum elong	492 Nov 10 j 05:25	20°♁07'41	1°40'37
retrograde	485 Feb 03 j 06:43	5°♁09'06		max. Earth dist.	492 Nov 09 j 16:31	20°♁06'28	31.28476 AU
opposition	485 Apr 23 j 00:40	3°♁47'05	1°57'12	retrograde	493 Feb 20 j 20:35	22°♁35'21	
min. Earth dist.	485 Apr 23 j 17:16	3°♁45'57	29.31181 AU	opposition	493 May 11 j 03:42	21°♁12'57	1°46'32
				min. Earth dist.	493 May 11 j 15:01	21°♁12'11	29.28252 AU

direct	493 Jul 31 j 04:11	19°M48'56		direct	501 Aug 18 j 00:20	7°Z16'22	
conjunction	493 Nov 12 j 14:36	22°M18'08	1°38'47	conjunction	501 Nov 29 j 15:57	9°Z45'06	1°19'12
minimum elong	493 Nov 12 j 14:36	22°M18'08	1°38'47	minimum elong	501 Nov 29 j 15:58	9°Z45'06	1°19'12
max. Earth dist.	493 Nov 12 j 03:21	22°M17'04	31.27844 AU	max. Earth dist.	501 Nov 29 j 10:49	9°Z44'37	31.24215 AU
retrograde	494 Feb 23 j 06:20	24°M45'55		retrograde	502 Mar 13 j 01:32	12°Z13'59	
opposition	494 May 13 j 16:16	23°M23'26	1°44'30	opposition	502 May 31 j 21:56	10°Z51'15	1°23'02
min. Earth dist.	494 May 14 j 03:33	23°M22'41	29.27659 AU	min. Earth dist.	502 Jun 01 j 01:41	10°Z51'00	29.23895 AU
direct	494 Aug 02 j 14:21	21°M59'28		direct	502 Aug 20 j 11:50	9°Z27'44	
conjunction	494 Nov 14 j 23:42	24°M28'34	1°36'49	conjunction	502 Dec 02 j 01:22	11°Z56'23	1°16'12
minimum elong	494 Nov 14 j 23:42	24°M28'34	1°36'48	minimum elong	502 Dec 02 j 01:23	11°Z56'23	1°16'12
max. Earth dist.	494 Nov 14 j 13:12	24°M27'34	31.27312 AU	max. Earth dist.	502 Dec 01 j 21:22	11°Z56'01	31.23428 AU
retrograde	495 Feb 25 j 17:53	26°M56'28		retrograde	503 Mar 15 j 11:49	14°Z25'23	
opposition	495 May 16 j 04:46	25°M33'58	1°42'19	opposition	503 Jun 03 j 10:58	13°Z02'34	1°19'46
min. Earth dist.	495 May 16 j 13:49	25°M33'21	29.27168 AU	min. Earth dist.	503 Jun 03 j 15:03	13°Z02'17	29.23049 AU
direct	495 Aug 05 j 01:37	24°M10'01		direct	503 Aug 22 j 22:44	11°Z39'04	
conjunction	495 Nov 17 j 08:43	26°M39'04	1°34'42	conjunction	503 Dec 04 j 10:34	14°Z07'36	1°13'05
minimum elong	495 Nov 17 j 08:43	26°M39'04	1°34'42	minimum elong	503 Dec 04 j 10:35	14°Z07'36	1°13'05
max. Earth dist.	495 Nov 16 j 23:09	26°M38'10	31.26867 AU	max. Earth dist.	503 Dec 04 j 07:10	14°Z07'16	31.22548 AU
retrograde	496 Feb 28 j 05:50	29°M07'07		retrograde	504 Mar 16 j 23:08	16°Z36'42	
opposition	496 May 17 j 17:24	27°M44'34	1°39'59	opposition	504 Jun 04 j 23:47	15°Z13'47	1°16'23
min. Earth dist.	496 May 18 j 02:24	27°M43'58	29.26764 AU	min. Earth dist.	504 Jun 05 j 02:01	15°Z13'38	29.22120 AU
direct	496 Aug 06 j 12:27	26°M20'43		direct	504 Aug 24 j 10:37	13°Z50'15	
conjunction	496 Nov 18 j 17:52	28°M49'42	1°32'26	conjunction	504 Dec 05 j 19:48	16°Z18'42	1°09'53
minimum elong	496 Nov 18 j 17:53	28°M49'42	1°32'26	minimum elong	504 Dec 05 j 19:48	16°Z18'42	1°09'52
max. Earth dist.	496 Nov 18 j 09:44	28°M48'56	31.26503 AU	max. Earth dist.	504 Dec 05 j 16:57	16°Z18'25	31.21598 AU
retrograde	496 Dec 21 j 00:05	0°Z		retrograde	505 Mar 19 j 10:34	18°Z47'55	
opposition	497 Mar 01 j 17:49	1°Z17'53		opposition	505 Jun 07 j 12:39	17°Z24'53	1°12'54
min. Earth dist.	497 May 17 j 08:30	30°R		min. Earth dist.	505 Jun 07 j 14:56	17°Z24'43	29.21173 AU
opposition	497 May 20 j 05:48	29°M55'20	1°37'30	direct	505 Aug 26 j 21:01	16°Z01'21	
min. Earth dist.	497 May 20 j 13:11	29°M54'50	29.26404 AU	conjunction	505 Dec 08 j 05:03	18°Z29'41	1°06'34
direct	497 Aug 09 j 00:34	28°M31'32		minimum elong	505 Dec 08 j 05:03	18°Z29'41	1°06'34
	497 Oct 24 j 15:21	0°Z		max. Earth dist.	505 Dec 08 j 03:53	18°Z29'35	31.20675 AU
conjunction	497 Nov 21 j 02:59	1°Z00'30	1°30'03	retrograde	506 Mar 21 j 22:05	20°Z59'01	
minimum elong	497 Nov 21 j 02:59	1°Z00'30	1°30'03	opposition	506 Jun 10 j 01:33	19°Z35'53	1°09'18
max. Earth dist.	497 Nov 20 j 19:01	0°Z59'45	31.26158 AU	min. Earth dist.	506 Jun 10 j 01:56	19°Z35'52	29.20270 AU
retrograde	498 Mar 04 j 05:31	3°Z28'50		direct	506 Aug 29 j 08:47	18°Z12'22	
opposition	498 May 22 j 18:35	2°Z06'15	1°34'52	conjunction	506 Dec 10 j 14:05	20°Z40'37	1°03'09
min. Earth dist.	498 May 23 j 01:38	2°Z05'47	29.26061 AU	minimum elong	506 Dec 10 j 14:05	20°Z40'37	1°03'09
direct	498 Aug 11 j 10:46	0°Z42'33		max. Earth dist.	506 Dec 10 j 13:15	20°Z40'33	31.19818 AU
conjunction	498 Nov 23 j 12:09	3°Z11'28	1°27'31	retrograde	507 Mar 24 j 10:28	23°Z10'05	
minimum elong	498 Nov 23 j 12:09	3°Z11'28	1°27'31	opposition	507 Jun 12 j 14:34	21°Z46'53	1°05'37
max. Earth dist.	498 Nov 23 j 06:02	3°Z10'53	31.25803 AU	min. Earth dist.	507 Jun 12 j 14:17	21°Z46'54	29.19469 AU
retrograde	499 Mar 06 j 16:17	5°Z39'57		direct	507 Aug 31 j 19:08	20°Z23'23	
opposition	499 May 25 j 07:25	4°Z17'21	1°32'06	conjunction	507 Dec 12 j 23:26	22°Z51'35	0°59'39
min. Earth dist.	499 May 25 j 13:32	4°Z16'56	29.25669 AU	minimum elong	507 Dec 12 j 23:26	22°Z51'35	0°59'39
direct	499 Aug 14 j 00:36	2°Z53'43		max. Earth dist.	507 Dec 13 j 00:45	22°Z51'43	31.19069 AU
conjunction	499 Nov 25 j 21:20	5°Z22'35	1°24'52	retrograde	508 Mar 25 j 21:54	25°Z21'11	
minimum elong	499 Nov 25 j 21:20	5°Z22'35	1°24'52	opposition	508 Jun 14 j 03:21	23°Z57'56	1°01'49
max. Earth dist.	499 Nov 25 j 14:51	5°Z21'58	31.25384 AU	min. Earth dist.	508 Jun 14 j 01:48	23°Z58'02	29.18759 AU
retrograde	500 Mar 08 j 05:14	7°Z51'12		direct	508 Sep 02 j 08:11	22°Z34'29	
opposition	500 May 26 j 20:08	6°Z28'35	1°29'12	conjunction	508 Dec 14 j 08:37	25°Z02'39	0°56'03
min. Earth dist.	500 May 27 j 01:20	6°Z28'13	29.25209 AU	minimum elong	508 Dec 14 j 08:37	25°Z02'39	0°56'03
direct	500 Aug 15 j 11:56	5°Z05'00		max. Earth dist.	508 Dec 14 j 09:54	25°Z02'47	31.18412 AU
conjunction	500 Nov 27 j 06:44	7°Z33'49	1°22'06	retrograde	509 Mar 28 j 11:28	27°Z32'25	
minimum elong	500 Nov 27 j 06:44	7°Z33'49	1°22'06	opposition	509 Jun 16 j 16:17	26°Z09'08	0°57'55
max. Earth dist.	500 Nov 27 j 01:47	7°Z33'21	31.24863 AU	min. Earth dist.	509 Jun 16 j 13:25	26°Z09'20	29.18138 AU
retrograde	501 Mar 10 j 14:34	10°Z02'34		direct	509 Sep 04 j 19:01	24°Z45'45	
opposition	501 May 29 j 09:03	8°Z39'54	1°26'11	conjunction	509 Dec 16 j 17:55	27°Z13'54	0°52'22
min. Earth dist.	501 May 29 j 14:15	8°Z39'33	29.24617 AU				

minimum elong	509 Dec 16 j 17:55	27° <del>2</del> 13'54	0°52'22	minimum elong	518 Jan 02 j 23:09	14° <del>3</del> 49'55	0°20'33
max. Earth dist.	509 Dec 16 j 21:10	27° <del>2</del> 14'12	31.17814 AU	max. Earth dist.	518 Jan 03 j 07:14	14° <del>3</del> 50'41	31.10919 AU
retrograde	510 Mar 30 j 21:43	29° <del>2</del> 43'50		retrograde	518 Apr 18 j 01:06	17° <del>3</del> 21'10	
opposition	510 Jun 19 j 05:23	28° <del>2</del> 20'32	0°53'57	opposition	518 Jul 07 j 14:33	15° <del>3</del> 57'21	0°19'41
min. Earth dist.	510 Jun 19 j 02:05	28° <del>2</del> 20'45	29.17551 AU	min. Earth dist.	518 Jul 07 j 05:06	15° <del>3</del> 57'59	29.10353 AU
direct	510 Sep 07 j 07:03	26° <del>2</del> 57'13		direct	518 Sep 25 j 00:21	14° <del>3</del> 34'13	
conjunction	510 Dec 19 j 03:16	29° <del>2</del> 25'21	0°48'36	conjunction	519 Jan 05 j 09:02	17° <del>3</del> 02'03	0°16'23
minimum elong	510 Dec 19 j 03:16	29° <del>2</del> 25'21	0°48'37	minimum elong	519 Jan 05 j 09:02	17° <del>3</del> 02'03	0°16'23
max. Earth dist.	510 Dec 19 j 06:47	29° <del>2</del> 25'40	31.17249 AU	max. Earth dist.	519 Jan 05 j 18:57	17° <del>3</del> 02'59	31.09786 AU
retrograde	511 Jan 03 j 11:49	0° <del>3</del>		retrograde	519 Apr 20 j 11:53	19° <del>3</del> 33'25	
opposition	511 Apr 02 j 10:00	1° <del>3</del> 55'28		opposition	519 Jul 10 j 03:36	18° <del>3</del> 09'31	0°15'13
opposition	511 Jun 21 j 18:24	0° <del>3</del> 32'09	0°49'53	min. Earth dist.	519 Jul 09 j 17:40	18° <del>3</del> 10'11	29.09262 AU
min. Earth dist.	511 Jun 21 j 13:27	0° <del>3</del> 32'29	29.16979 AU	direct	519 Sep 27 j 12:34	16° <del>3</del> 46'23	
direct	511 Jul 12 j 02:26	30° <del>R</del>		conjunction	520 Jan 07 j 18:51	19° <del>3</del> 14'10	0°12'11
direct	511 Sep 09 j 18:17	29° <del>2</del> 08'55		minimum elong	520 Jan 07 j 18:51	19° <del>3</del> 14'10	0°12'11
direct	511 Nov 05 j 00:58	0° <del>3</del>		behind sun begin	520 Jan 07 j 14:28	19° <del>3</del> 13'46	
conjunction	511 Dec 21 j 12:45	1° <del>3</del> 37'01	0°44'46	behind sun end	520 Jan 07 j 23:13	19° <del>3</del> 14'34	
minimum elong	511 Dec 21 j 12:46	1° <del>3</del> 37'01	0°44'46	max. Earth dist.	520 Jan 08 j 05:10	19° <del>3</del> 15'08	31.08750 AU
max. Earth dist.	511 Dec 21 j 17:29	1° <del>3</del> 37'28	31.16652 AU	retrograde	520 Apr 22 j 01:03	21° <del>3</del> 45'40	
retrograde	512 Apr 03 j 21:22	4° <del>3</del> 07'21		opposition	520 Jul 11 j 16:33	20° <del>3</del> 21'41	0°10'42
opposition	512 Jun 23 j 07:36	2° <del>3</del> 44'00	0°45'44	min. Earth dist.	520 Jul 11 j 04:51	20° <del>3</del> 22'29	29.08274 AU
min. Earth dist.	512 Jun 23 j 02:59	2° <del>3</del> 44'19	29.16350 AU	direct	520 Sep 29 j 00:52	18° <del>3</del> 58'34	
direct	512 Sep 11 j 05:00	1° <del>3</del> 20'50		conjunction	521 Jan 09 j 04:44	21° <del>3</del> 26'20	0°07'59
conjunction	512 Dec 22 j 22:23	3° <del>3</del> 48'56	0°40'52	minimum elong	521 Jan 09 j 04:44	21° <del>3</del> 26'20	0°07'59
minimum elong	512 Dec 22 j 22:23	3° <del>3</del> 48'56	0°40'51	behind sun begin	521 Jan 08 j 22:58	21° <del>3</del> 25'49	
max. Earth dist.	512 Dec 23 j 03:44	3° <del>3</del> 49'26	31.15987 AU	behind sun end	521 Jan 09 j 10:29	21° <del>3</del> 26'52	
retrograde	513 Apr 06 j 09:21	6° <del>3</del> 19'26		max. Earth dist.	521 Jan 09 j 16:19	21° <del>3</del> 27'25	31.07799 AU
opposition	513 Jun 25 j 20:36	4° <del>3</del> 56'04	0°41'32	retrograde	521 Apr 24 j 12:54	23° <del>3</del> 58'00	
min. Earth dist.	513 Jun 25 j 14:17	4° <del>3</del> 56'29	29.15625 AU	opposition	521 Jul 14 j 05:37	22° <del>3</del> 33'57	0°06'11
direct	513 Sep 13 j 16:32	3° <del>3</del> 32'57		min. Earth dist.	521 Jul 13 j 17:56	22° <del>3</del> 34'44	29.07375 AU
conjunction	513 Dec 25 j 08:06	6° <del>3</del> 01'01	0°36'54	direct	521 Oct 01 j 12:13	21° <del>3</del> 10'51	
minimum elong	513 Dec 25 j 08:06	6° <del>3</del> 01'01	0°36'54	conjunction	522 Jan 11 j 14:44	23° <del>3</del> 38'36	0°03'46
max. Earth dist.	513 Dec 25 j 13:36	6° <del>3</del> 01'32	31.15199 AU	minimum elong	522 Jan 11 j 14:44	23° <del>3</del> 38'36	0°03'46
retrograde	514 Apr 08 j 21:37	8° <del>3</del> 31'43		behind sun begin	522 Jan 11 j 08:23	23° <del>3</del> 38'01	
opposition	514 Jun 28 j 09:59	7° <del>3</del> 08'17	0°37'15	behind sun end	522 Jan 11 j 21:04	23° <del>3</del> 39'10	
min. Earth dist.	514 Jun 28 j 04:00	7° <del>3</del> 08'41	29.14777 AU	max. Earth dist.	522 Jan 12 j 03:23	23° <del>3</del> 39'47	31.06956 AU
direct	514 Sep 16 j 02:25	5° <del>3</del> 45'12		retrograde	522 Apr 27 j 00:36	26° <del>3</del> 10'25	
conjunction	514 Dec 27 j 17:53	8° <del>3</del> 13'14	0°32'52	opposition	522 Jul 16 j 18:39	24° <del>3</del> 46'20	0°01'39
minimum elong	514 Dec 27 j 17:53	8° <del>3</del> 13'14	0°32'52	min. Earth dist.	522 Jul 16 j 04:58	24° <del>3</del> 47'16	29.06563 AU
max. Earth dist.	514 Dec 28 j 00:40	8° <del>3</del> 13'53	31.14286 AU	direct	522 Oct 03 j 23:47	23° <del>3</del> 23'16	
retrograde	515 Apr 11 j 09:44	10° <del>3</del> 44'05		desc. node	522 Nov 26 j 16:10	24° <del>3</del> 10'42	
opposition	515 Jun 30 j 23:12	9° <del>3</del> 20'35	0°32'56	conjunction	523 Jan 14 j 00:43	25° <del>3</del> 51'00	0°00'-34
min. Earth dist.	515 Jun 30 j 15:51	9° <del>3</del> 21'05	29.13782 AU	minimum elong	523 Jan 14 j 00:42	25° <del>3</del> 51'00	0°00'35
direct	515 Sep 18 j 13:42	7° <del>3</del> 57'30		behind sun begin	523 Jan 13 j 18:18	25° <del>3</del> 50'26	
conjunction	515 Dec 30 j 03:41	10° <del>3</del> 25'30	0°28'48	behind sun end	523 Jan 14 j 07:05	25° <del>3</del> 51'35	
minimum elong	515 Dec 30 j 03:41	10° <del>3</del> 25'30	0°28'49	max. Earth dist.	523 Jan 14 j 13:45	25° <del>3</del> 52'14	31.06168 AU
max. Earth dist.	515 Dec 30 j 10:08	10° <del>3</del> 26'06	31.13233 AU	retrograde	523 Apr 29 j 12:31	28° <del>3</del> 23'00	
retrograde	516 Apr 12 j 22:52	12° <del>3</del> 56'29		opposition	523 Jul 19 j 07:51	26° <del>3</del> 58'52	0°-2'-53
opposition	516 Jul 02 j 12:17	11° <del>3</del> 32'54	0°28'33	min. Earth dist.	523 Jul 18 j 18:22	26° <del>3</del> 59'47	29.05800 AU
min. Earth dist.	516 Jul 02 j 04:57	11° <del>3</del> 33'23	29.12680 AU	direct	523 Oct 06 j 09:35	25° <del>3</del> 35'51	
direct	516 Sep 20 j 00:11	10° <del>3</del> 09'48		conjunction	524 Jan 16 j 11:01	28° <del>3</del> 03'35	0°-4'-52
conjunction	516 Dec 31 j 13:34	12° <del>3</del> 37'45	0°24'42	minimum elong	524 Jan 16 j 11:01	28° <del>3</del> 03'35	0°04'53
minimum elong	516 Dec 31 j 13:34	12° <del>3</del> 37'45	0°24'42	behind sun begin	524 Jan 16 j 04:46	28° <del>3</del> 03'01	
max. Earth dist.	516 Dec 31 j 21:46	12° <del>3</del> 38'31	31.12090 AU	behind sun end	524 Jan 16 j 17:16	28° <del>3</del> 04'09	
retrograde	517 Apr 15 j 11:18	15° <del>3</del> 08'51		max. Earth dist.	524 Jan 17 j 01:34	28° <del>3</del> 04'58	31.05412 AU
opposition	517 Jul 05 j 01:25	13° <del>3</del> 45'09	0°24'08	retrograde	524 Mar 14 j 17:30	0° <del>3</del>	
min. Earth dist.	517 Jul 04 j 17:08	13° <del>3</del> 45'43	29.11505 AU	retrograde	524 May 01 j 00:43	0° <del>3</del> 35'45	
direct	517 Sep 22 j 13:25	12° <del>3</del> 22'03		opposition	524 Jun 19 j 07:00	30° <del>R</del>	
conjunction	518 Jan 02 j 23:09	14° <del>3</del> 49'55	0°20'33	opposition	524 Jul 20 j 20:44	29° <del>3</del> 11'35	0°-7'-26
				min. Earth dist.	524 Jul 20 j 05:52	29° <del>3</del> 12'36	29.05031 AU
				direct	524 Oct 07 j 20:38	27° <del>3</del> 48'35	

	525 Jan 10 j 16:48	0°		max. Earth dist.	532 Feb 03 j 18:09	15°49'38"	30.97003 AU
				retrograde	532 May 19 j 08:32	18°21'10"	
conjunction	525 Jan 17 j 21:18	0°16'21"	0°-9'-6"	min. Earth dist.	532 Aug 07 j 10:57	16°57'39"	28.96529 AU
minimum elong	525 Jan 17 j 21:18	0°16'21"	0°09'07"	opposition	532 Aug 08 j 05:05	16°56'24"	0°-42'-54"
behind sun begin	525 Jan 17 j 15:49	0°15'51"		direct	532 Oct 25 j 16:10	15°33'19"	
behind sun end	525 Jan 18 j 02:47	0°16'51"					
max. Earth dist.	525 Jan 18 j 11:32	0°17'41"	31.04625 AU	conjunction	533 Feb 04 j 11:00	18°01'04"	0°-42'-5"
retrograde	525 May 03 j 14:27	2°48'41"		minimum elong	533 Feb 04 j 11:00	18°01'04"	0°42'05"
opposition	525 Jul 23 j 09:57	1°24'29"	0°-11'-58"	max. Earth dist.	533 Feb 05 j 06:43	18°02'56"	30.96017 AU
min. Earth dist.	525 Jul 22 j 19:11	1°25'29"	29.04225 AU	retrograde	533 May 21 j 20:48	20°34'26"	
direct	525 Oct 10 j 06:37	0°01'31"		opposition	533 Aug 10 j 17:49	19°09'37"	0°-47'-7"
				min. Earth dist.	533 Aug 09 j 22:04	19°10'59"	28.95606 AU
conjunction	526 Jan 20 j 07:46	2°29'17"	0°-13'-19"	direct	533 Oct 28 j 03:21	17°46'32"	
minimum elong	526 Jan 20 j 07:46	2°29'17"	0°13'20"				
behind sun begin	526 Jan 20 j 04:00	2°28'56"		conjunction	534 Feb 06 j 21:45	20°14'18"	0°-45'-59"
behind sun end	526 Jan 20 j 11:32	2°29'37"		minimum elong	534 Feb 06 j 21:45	20°14'18"	0°46'00"
max. Earth dist.	526 Jan 20 j 23:35	2°30'46"	31.03770 AU	max. Earth dist.	534 Feb 07 j 17:20	20°16'09"	30.95158 AU
retrograde	526 May 06 j 03:12	5°01'47"		retrograde	534 May 24 j 09:52	22°47'51"	
opposition	526 Jul 25 j 23:09	3°37'32"	0°-16'-30"	min. Earth dist.	534 Aug 12 j 10:54	21°24'20"	28.94822 AU
min. Earth dist.	526 Jul 25 j 07:43	3°38'35"	29.03317 AU	opposition	534 Aug 13 j 06:44	21°22'58"	0°-51'-16"
direct	526 Oct 12 j 18:47	2°14'35"		direct	534 Oct 30 j 13:12	19°59'55"	
conjunction	527 Jan 22 j 18:21	4°42'21"	0°-17'-32"	conjunction	535 Feb 09 j 08:57	22°27'43"	0°-49'-50"
minimum elong	527 Jan 22 j 18:21	4°42'21"	0°17'33"	minimum elong	535 Feb 09 j 08:56	22°27'43"	0°49'51"
max. Earth dist.	527 Jan 23 j 09:29	4°43'47"	31.02810 AU	max. Earth dist.	535 Feb 10 j 06:19	22°29'44"	30.94423 AU
retrograde	527 May 08 j 17:41	7°15'00"		retrograde	535 May 26 j 22:10	25°01'23"	
opposition	527 Jul 28 j 12:15	5°50'41"	0°-21'00"	opposition	535 Aug 15 j 19:21	23°36'30"	0°-55'-21"
min. Earth dist.	527 Jul 27 j 20:19	5°51'46"	29.02303 AU	min. Earth dist.	535 Aug 14 j 22:43	23°37'55"	28.94135 AU
direct	527 Oct 15 j 05:07	4°27'43"		direct	535 Nov 02 j 00:15	22°13'27"	
conjunction	528 Jan 25 j 05:09	6°55'30"	0°-21'-43"	conjunction	536 Feb 11 j 20:05	24°41'19"	0°-53'-37"
minimum elong	528 Jan 25 j 05:09	6°55'30"	0°21'44"	minimum elong	536 Feb 11 j 20:05	24°41'19"	0°53'38"
max. Earth dist.	528 Jan 25 j 21:25	6°57'02"	31.01723 AU	max. Earth dist.	536 Feb 12 j 16:57	24°43'18"	30.93781 AU
retrograde	528 May 10 j 05:50	9°28'17"		retrograde	536 May 28 j 12:43	27°15'08"	
min. Earth dist.	528 Jul 29 j 09:34	8°04'57"	29.01157 AU	min. Earth dist.	536 Aug 16 j 10:56	25°51'42"	28.93530 AU
opposition	528 Jul 30 j 01:24	8°03'52"	0°-25'-28"	opposition	536 Aug 17 j 08:06	25°50'14"	0°-59'-21"
direct	528 Oct 16 j 17:33	6°40'53"		direct	536 Nov 03 j 09:32	24°27'13"	
conjunction	529 Jan 26 j 15:46	9°08'39"	0°-25'-53"	conjunction	537 Feb 13 j 07:25	26°55'08"	0°-57'-19"
minimum elong	529 Jan 26 j 15:46	9°08'39"	0°25'54"	minimum elong	537 Feb 13 j 07:25	26°55'08"	0°57'20"
max. Earth dist.	529 Jan 27 j 07:57	9°10'10"	31.00541 AU	max. Earth dist.	537 Feb 14 j 05:35	26°57'14"	30.93178 AU
retrograde	529 May 12 j 20:12	11°41'32"		retrograde	537 May 31 j 01:39	29°29'06"	
opposition	529 Aug 01 j 14:23	10°17'02"	0°-29'-54"	opposition	537 Aug 19 j 20:55	28°04'11"	-1°-3'-16"
min. Earth dist.	529 Jul 31 j 21:21	10°18'12"	28.99946 AU	min. Earth dist.	537 Aug 18 j 23:52	28°05'38"	28.92935 AU
direct	529 Oct 19 j 06:07	8°54'01"		direct	537 Nov 05 j 21:29	26°41'11"	
conjunction	530 Jan 29 j 02:30	11°21'46"	0°-30'00"	conjunction	538 Feb 15 j 18:57	29°09'10"	-1°00'-56"
minimum elong	530 Jan 29 j 02:30	11°21'46"	0°30'02"	minimum elong	538 Feb 15 j 18:57	29°09'10"	1°00'58"
max. Earth dist.	530 Jan 29 j 19:33	11°23'22"	30.99309 AU	max. Earth dist.	538 Feb 16 j 16:52	29°11'14"	30.92582 AU
retrograde	530 May 15 j 08:33	13°54'46"			538 Mar 10 j 13:25	0°	
min. Earth dist.	530 Aug 03 j 10:49	12°31'18"	28.98729 AU	retrograde	538 Jun 02 j 17:28	1°43'15"	
opposition	530 Aug 04 j 03:27	12°30'10"	0°-34'-17"	min. Earth dist.	538 Aug 21 j 11:46	0°19'49"	28.92323 AU
direct	530 Oct 21 j 17:53	11°07'07"		opposition	538 Aug 22 j 09:40	0°18'19"	-1°-7'-5"
					538 Sep 02 j 13:02	30°	
conjunction	531 Jan 31 j 13:14	13°34'50"	0°-34'-5"	direct	538 Nov 08 j 09:43	28°55'19"	
minimum elong	531 Jan 31 j 13:14	13°34'50"	0°34'06"		539 Jan 10 j 10:23	0°	
max. Earth dist.	531 Feb 01 j 07:11	13°36'32"	30.98120 AU				
	531 Mar 12 j 05:29	15°		conjunction	539 Feb 18 j 06:41	1°23'22"	-1°-4'-28"
retrograde	531 May 17 j 20:39	16°07'58"		minimum elong	539 Feb 18 j 06:40	1°23'22"	1°04'29"
	531 Jul 27 j 10:57	15°		max. Earth dist.	539 Feb 19 j 04:56	1°25'28"	30.91918 AU
opposition	531 Aug 06 j 16:17	14°43'16"	0°-38'-37"	retrograde	539 Jun 05 j 06:21	3°57'34"	
min. Earth dist.	531 Aug 05 j 21:54	14°44'32"	28.97576 AU	opposition	539 Aug 24 j 22:33	2°32'35"	-1°-10'-48"
direct	531 Oct 24 j 06:03	13°20'12"		min. Earth dist.	539 Aug 24 j 01:37	2°34'02"	28.91621 AU
	532 Jan 12 j 14:02	15°		direct	539 Nov 10 j 21:13	1°09'35"	
conjunction	532 Feb 03 j 00:03	15°47'55"	0°-38'-6"	conjunction	540 Feb 20 j 18:37	3°37'39"	-1°-7'-54"
minimum elong	532 Feb 03 j 00:03	15°47'55"	0°38'07"	minimum elong	540 Feb 20 j 18:37	3°37'39"	1°07'55"

max. Earth dist.	540 Feb 21 j 17:00	3° <del>✕</del> 39'46	30.91167 AU	min. Earth dist.	548 Sep 12 j 16:12	22° <del>✕</del> 42'12	28.85406 AU
retrograde	540 Jun 06 j 20:11	6° <del>✕</del> 11'56		direct	548 Nov 30 j 03:28	21° <del>✕</del> 17'23	
opposition	540 Aug 26 j 11:08	4° <del>✕</del> 46'55	-1°-14'-25				
min. Earth dist.	540 Aug 25 j 13:13	4° <del>✕</del> 48'26	28.90816 AU	conjunction	549 Mar 12 j 07:54	23° <del>✕</del> 45'48	-1°-33'-39
direct	540 Nov 12 j 09:57	3° <del>✕</del> 23'53		minimum elong	549 Mar 12 j 07:54	23° <del>✕</del> 45'48	1°33'40
				max. Earth dist.	549 Mar 13 j 08:35	23° <del>✕</del> 48'08	30.85180 AU
conjunction	541 Feb 22 j 06:28	5° <del>✕</del> 51'58	-1°-11'-14	retrograde	549 Jun 27 j 19:16	26° <del>✕</del> 20'40	
minimum elong	541 Feb 22 j 06:28	5° <del>✕</del> 51'58	1°11'14	min. Earth dist.	549 Sep 15 j 03:27	24° <del>✕</del> 56'57	28.85171 AU
max. Earth dist.	541 Feb 23 j 04:19	5° <del>✕</del> 54'02	30.90308 AU	opposition	549 Sep 16 j 02:59	24° <del>✕</del> 55'19	-1°-41'-22
retrograde	541 Jun 09 j 09:36	8° <del>✕</del> 26'19		direct	549 Dec 02 j 15:59	23° <del>✕</del> 32'05	
opposition	541 Aug 28 j 23:58	7° <del>✕</del> 01'13	-1°-17'-56				
min. Earth dist.	541 Aug 28 j 02:56	7° <del>✕</del> 02'40	28.89931 AU	conjunction	550 Mar 14 j 20:29	26° <del>✕</del> 00'37	-1°-35'-52
direct	541 Nov 14 j 21:18	5° <del>✕</del> 38'08		minimum elong	550 Mar 14 j 20:28	26° <del>✕</del> 00'37	1°35'53
				max. Earth dist.	550 Mar 15 j 20:38	26° <del>✕</del> 02'54	30.84948 AU
conjunction	542 Feb 24 j 18:23	8° <del>✕</del> 06'13	-1°-14'-27	retrograde	550 Jun 30 j 09:51	28° <del>✕</del> 35'34	
minimum elong	542 Feb 24 j 18:22	8° <del>✕</del> 06'13	1°14'28	opposition	550 Sep 18 j 15:21	27° <del>✕</del> 10'14	-1°-43'-39
max. Earth dist.	542 Feb 25 j 17:15	8° <del>✕</del> 08'23	30.89401 AU	min. Earth dist.	550 Sep 17 j 17:02	27° <del>✕</del> 11'47	28.84944 AU
retrograde	542 Jun 11 j 22:05	10° <del>✕</del> 40'37		direct	550 Dec 05 j 03:15	25° <del>✕</del> 47'02	
opposition	542 Aug 31 j 12:32	9° <del>✕</del> 15'26	-1°-21'-19				
min. Earth dist.	542 Aug 30 j 14:30	9° <del>✕</del> 16'58	28.89012 AU	conjunction	551 Mar 17 j 09:32	28° <del>✕</del> 15'39	-1°-37'-55
direct	542 Nov 17 j 09:57	7° <del>✕</del> 52'18		minimum elong	551 Mar 17 j 09:32	28° <del>✕</del> 15'39	1°37'56
				max. Earth dist.	551 Mar 18 j 10:10	28° <del>✕</del> 17'59	30.84698 AU
conjunction	543 Feb 27 j 06:19	10° <del>✕</del> 20'23	-1°-17'-34		551 May 06 j 21:40	0° <del>∇</del>	
minimum elong	543 Feb 27 j 06:19	10° <del>✕</del> 20'23	1°17'35	retrograde	551 Jul 02 j 23:17	0° <del>∇</del> 50'40	
max. Earth dist.	543 Feb 28 j 04:29	10° <del>✕</del> 22'29	30.88488 AU		551 Aug 30 j 20:50	30° <del>∇</del> <del>✕</del>	
retrograde	543 Jun 14 j 10:22	12° <del>✕</del> 54'50		min. Earth dist.	551 Sep 20 j 04:37	29° <del>✕</del> 26'57	28.84658 AU
min. Earth dist.	543 Sep 02 j 03:29	11° <del>✕</del> 31'04	28.88135 AU	opposition	551 Sep 21 j 03:25	29° <del>✕</del> 25'21	-1°-45'-46
opposition	543 Sep 03 j 01:00	11° <del>✕</del> 29'34	-1°-24'-35	direct	551 Dec 07 j 15:56	28° <del>✕</del> 02'09	
direct	543 Nov 19 j 20:08	10° <del>✕</del> 06'23			552 Mar 05 j 05:36	0° <del>∇</del>	
conjunction	544 Feb 29 j 18:28	12° <del>✕</del> 34'29	-1°-20'-34	conjunction	552 Mar 18 j 22:34	0° <del>∇</del> 30'51	-1°-39'-50
minimum elong	544 Feb 29 j 18:28	12° <del>✕</del> 34'29	1°20'35	minimum elong	552 Mar 18 j 22:34	0° <del>∇</del> 30'51	1°39'51
max. Earth dist.	544 Mar 01 j 18:04	12° <del>✕</del> 36'43	30.87636 AU	max. Earth dist.	552 Mar 19 j 21:47	0° <del>∇</del> 33'03	30.84363 AU
retrograde	544 Jun 15 j 21:50	15° <del>✕</del> 08'59		retrograde	552 Jul 04 j 12:23	3° <del>∇</del> 05'55	
opposition	544 Sep 04 j 13:24	13° <del>✕</del> 43'39	-1°-27'-44	opposition	552 Sep 22 j 15:46	1° <del>∇</del> 40'36	-1°-47'-44
min. Earth dist.	544 Sep 03 j 15:17	13° <del>✕</del> 45'12	28.87332 AU	min. Earth dist.	552 Sep 21 j 18:04	1° <del>∇</del> 42'07	28.84281 AU
direct	544 Nov 21 j 07:41	12° <del>✕</del> 20'26		direct	552 Dec 09 j 02:21	0° <del>∇</del> 17'23	
conjunction	545 Mar 03 j 06:22	14° <del>✕</del> 48'33	-1°-23'-26	conjunction	553 Mar 21 j 11:40	2° <del>∇</del> 46'09	-1°-41'-36
minimum elong	545 Mar 03 j 06:22	14° <del>✕</del> 48'33	1°23'27	minimum elong	553 Mar 21 j 11:40	2° <del>∇</del> 46'09	1°41'37
max. Earth dist.	545 Mar 04 j 05:20	14° <del>✕</del> 50'44	30.86890 AU	max. Earth dist.	553 Mar 22 j 11:37	2° <del>∇</del> 48'25	30.83927 AU
retrograde	545 Jun 18 j 11:58	17° <del>✕</del> 23'07		retrograde	553 Jul 07 j 00:34	5° <del>∇</del> 21'14	
min. Earth dist.	545 Sep 06 j 03:18	15° <del>✕</del> 59'19	28.86661 AU	min. Earth dist.	553 Sep 24 j 06:20	3° <del>∇</del> 57'25	28.83792 AU
opposition	545 Sep 07 j 01:51	15° <del>✕</del> 57'45	-1°-30'-44	opposition	553 Sep 25 j 03:58	3° <del>∇</del> 55'54	-1°-49'-32
direct	545 Nov 23 j 17:21	14° <del>✕</del> 34'29		direct	553 Dec 11 j 14:18	2° <del>∇</del> 32'38	
conjunction	546 Mar 05 j 18:37	17° <del>✕</del> 02'40	-1°-26'-11	conjunction	554 Mar 24 j 00:50	5° <del>∇</del> 01'27	-1°-43'-13
minimum elong	546 Mar 05 j 18:37	17° <del>✕</del> 02'40	1°26'13	minimum elong	554 Mar 24 j 00:50	5° <del>∇</del> 01'27	1°43'14
max. Earth dist.	546 Mar 06 j 18:48	17° <del>✕</del> 04'57	30.86274 AU	max. Earth dist.	554 Mar 24 j 23:17	5° <del>∇</del> 03'34	30.83408 AU
retrograde	546 Jun 21 j 00:09	19° <del>✕</del> 37'18		retrograde	554 Jul 09 j 14:27	7° <del>∇</del> 36'31	
opposition	546 Sep 09 j 14:11	18° <del>✕</del> 11'54	-1°-33'-36	opposition	554 Sep 27 j 16:02	6° <del>∇</del> 11'09	-1°-51'-11
min. Earth dist.	546 Sep 08 j 15:42	18° <del>✕</del> 13'28	28.86119 AU	min. Earth dist.	554 Sep 26 j 18:51	6° <del>∇</del> 12'38	28.83252 AU
direct	546 Nov 26 j 05:03	16° <del>✕</del> 48'37		direct	554 Dec 14 j 00:27	4° <del>∇</del> 47'48	
conjunction	547 Mar 08 j 06:55	19° <del>✕</del> 16'52	-1°-28'-49	conjunction	555 Mar 26 j 14:10	7° <del>∇</del> 16'40	-1°-44'-40
minimum elong	547 Mar 08 j 06:55	19° <del>✕</del> 16'52	1°28'50	minimum elong	555 Mar 26 j 14:10	7° <del>∇</del> 16'40	1°44'41
max. Earth dist.	547 Mar 09 j 06:49	19° <del>✕</del> 19'07	30.85805 AU	max. Earth dist.	555 Mar 27 j 13:10	7° <del>∇</del> 18'50	30.82843 AU
retrograde	547 Jun 23 j 15:24	21° <del>✕</del> 51'34		retrograde	555 Jul 12 j 01:22	9° <del>∇</del> 51'43	
min. Earth dist.	547 Sep 11 j 03:05	20° <del>✕</del> 27'48	28.85715 AU	min. Earth dist.	555 Sep 29 j 07:27	8° <del>∇</del> 27'45	28.82685 AU
opposition	547 Sep 12 j 02:29	20° <del>✕</del> 26'10	-1°-36'-20	opposition	555 Sep 30 j 04:02	8° <del>∇</del> 26'18	-1°-52'-39
direct	547 Nov 28 j 16:38	19° <del>✕</del> 02'54		direct	555 Dec 16 j 12:37	7° <del>∇</del> 02'54	
conjunction	548 Mar 09 j 19:20	21° <del>✕</del> 31'14	-1°-31'-18	conjunction	556 Mar 28 j 03:21	9° <del>∇</del> 31'47	-1°-45'-57
minimum elong	548 Mar 09 j 19:19	21° <del>✕</del> 31'14	1°31'20	minimum elong	556 Mar 28 j 03:21	9° <del>∇</del> 31'47	1°45'59
max. Earth dist.	548 Mar 10 j 19:45	21° <del>✕</del> 33'32	30.85441 AU	max. Earth dist.	556 Mar 29 j 01:29	9° <del>∇</del> 33'52	30.82298 AU
retrograde	548 Jun 25 j 04:07	24° <del>✕</del> 06'01		retrograde	556 Jul 13 j 15:17	12° <del>∇</del> 06'48	
opposition	548 Sep 13 j 14:45	22° <del>✕</del> 40'38	-1°-38'-56	opposition	556 Oct 01 j 15:50	10° <del>∇</del> 41'21	-1°-53'-56

min. Earth dist.	556 Sep 30 j 18:50	10° $\Upsilon$ 42'50	28.82172 AU	direct	565 Jan 04 j 22:01	27° $\Upsilon$ 17'55	
direct	556 Dec 18 j 00:02	9° $\Upsilon$ 17'51					
conjunction	557 Mar 30 j 16:38	11° $\Upsilon$ 46'49	-1°-47'-5	conjunction	565 Apr 18 j 05:50	29° $\Upsilon$ 47'30	-1°-50'-8
minimum elong	557 Mar 30 j 16:38	11° $\Upsilon$ 46'49	1°47'06	minimum elong	565 Apr 18 j 05:50	29° $\Upsilon$ 47'30	1°50'08
max. Earth dist.	557 Mar 31 j 15:02	11° $\Upsilon$ 48'55	30.81815 AU	max. Earth dist.	565 Apr 19 j 00:40	29° $\Upsilon$ 49'17	30.81529 AU
retrograde	557 Jul 16 j 03:16	14° $\Upsilon$ 21'48		retrograde	565 Apr 23 j 18:54	0° $\text{R}$	
min. Earth dist.	557 Oct 03 j 07:43	12° $\Upsilon$ 57'43	28.81748 AU	retrograde	565 Aug 03 j 14:52	2° $\text{R}$ 22'15	
opposition	557 Oct 04 j 03:43	12° $\Upsilon$ 56'18	-1°-55'-4	min. Earth dist.	565 Oct 21 j 07:11	0° $\text{R}$ 58'12	28.81637 AU
direct	557 Dec 20 j 10:38	11° $\Upsilon$ 32'45		opposition	565 Oct 22 j 00:37	0° $\text{R}$ 56'58	-1°-57'-35
				direct	565 Nov 27 j 21:53	30° $\text{R}$ $\Upsilon$	
conjunction	558 Apr 02 j 05:56	14° $\Upsilon$ 01'45	-1°-48'-3		566 Jan 07 j 09:07	29° $\Upsilon$ 33'12	
minimum elong	558 Apr 02 j 05:56	14° $\Upsilon$ 01'45	1°48'04		566 Feb 16 j 04:04	0° $\text{R}$	
max. Earth dist.	558 Apr 03 j 04:18	14° $\Upsilon$ 03'51	30.81457 AU	conjunction	566 Apr 20 j 19:56	2° $\text{R}$ 02'52	-1°-49'-45
retrograde	558 Jul 18 j 17:54	16° $\Upsilon$ 36'42		minimum elong	566 Apr 20 j 19:56	2° $\text{R}$ 02'52	1°49'46
opposition	558 Oct 06 j 15:25	15° $\Upsilon$ 11'12	-1°-56'00	max. Earth dist.	566 Apr 21 j 14:24	2° $\text{R}$ 04'36	30.81467 AU
min. Earth dist.	558 Oct 05 j 18:34	15° $\Upsilon$ 12'40	28.81451 AU	retrograde	566 Aug 06 j 02:22	4° $\text{R}$ 37'32	
direct	558 Dec 23 j 00:02	13° $\Upsilon$ 47'35		opposition	566 Oct 24 j 12:10	3° $\text{R}$ 12'16	-1°-57'-5
				min. Earth dist.	566 Oct 23 j 20:22	3° $\text{R}$ 13'23	28.81538 AU
conjunction	559 Apr 04 j 19:20	16° $\Upsilon$ 16'39	-1°-48'-51	direct	567 Jan 09 j 19:53	1° $\text{R}$ 48'26	
minimum elong	559 Apr 04 j 19:20	16° $\Upsilon$ 16'39	1°48'51				
max. Earth dist.	559 Apr 05 j 17:06	16° $\Upsilon$ 18'42	30.81217 AU	conjunction	567 Apr 23 j 10:05	4° $\text{R}$ 18'10	-1°-49'-12
retrograde	559 Jul 21 j 07:26	18° $\Upsilon$ 51'35		minimum elong	567 Apr 23 j 10:05	4° $\text{R}$ 18'10	1°49'12
min. Earth dist.	559 Oct 08 j 07:23	17° $\Upsilon$ 27'27	28.81287 AU	max. Earth dist.	567 Apr 24 j 03:40	4° $\text{R}$ 19'49	30.81357 AU
opposition	559 Oct 09 j 03:05	17° $\Upsilon$ 26'04	-1°-56'-46	retrograde	567 Aug 08 j 16:03	6° $\text{R}$ 52'44	
direct	559 Dec 25 j 11:40	16° $\Upsilon$ 02'25		opposition	567 Oct 26 j 23:18	5° $\text{R}$ 27'27	-1°-56'-25
				min. Earth dist.	567 Oct 26 j 07:17	5° $\text{R}$ 28'36	28.81411 AU
conjunction	560 Apr 06 j 08:53	18° $\Upsilon$ 31'34	-1°-49'-29	direct	568 Jan 12 j 09:24	4° $\text{R}$ 03'33	
minimum elong	560 Apr 06 j 08:53	18° $\Upsilon$ 31'34	1°49'31				
max. Earth dist.	560 Apr 07 j 07:13	18° $\Upsilon$ 33'40	30.81125 AU	conjunction	568 Apr 25 j 00:05	6° $\text{R}$ 33'22	-1°-48'-30
retrograde	560 Jul 22 j 20:56	21° $\Upsilon$ 06'27		minimum elong	568 Apr 25 j 00:06	6° $\text{R}$ 33'22	1°48'31
opposition	560 Oct 10 j 14:42	19° $\Upsilon$ 40'58	-1°-57'-22	max. Earth dist.	568 Apr 25 j 16:44	6° $\text{R}$ 34'55	30.81231 AU
min. Earth dist.	560 Oct 09 j 18:14	19° $\Upsilon$ 42'25	28.81253 AU	retrograde	568 Aug 10 j 04:31	9° $\text{R}$ 07'49	
direct	560 Dec 27 j 00:39	18° $\Upsilon$ 17'19		opposition	568 Oct 28 j 10:38	7° $\text{R}$ 42'33	-1°-55'-34
				min. Earth dist.	568 Oct 27 j 20:08	7° $\text{R}$ 43'34	28.81308 AU
conjunction	561 Apr 08 j 22:13	20° $\Upsilon$ 46'32	-1°-49'-57	direct	569 Jan 13 j 21:11	6° $\text{R}$ 18'34	
minimum elong	561 Apr 08 j 22:13	20° $\Upsilon$ 46'32	1°49'58				
max. Earth dist.	561 Apr 09 j 19:26	20° $\Upsilon$ 48'32	30.81151 AU	conjunction	569 Apr 27 j 14:04	8° $\text{R}$ 48'26	-1°-47'-38
retrograde	561 Jul 25 j 10:49	23° $\Upsilon$ 21'25		minimum elong	569 Apr 27 j 14:04	8° $\text{R}$ 48'26	1°47'38
min. Earth dist.	561 Oct 12 j 06:58	21° $\Upsilon$ 57'20	28.81332 AU	max. Earth dist.	569 Apr 28 j 06:49	8° $\text{R}$ 50'00	30.81166 AU
opposition	561 Oct 13 j 02:27	21° $\Upsilon$ 55'57	-1°-57'-46	retrograde	569 Aug 12 j 17:47	11° $\text{R}$ 22'48	
direct	561 Dec 29 j 11:18	20° $\Upsilon$ 32'18		opposition	569 Oct 30 j 21:44	9° $\text{R}$ 57'31	-1°-54'-33
				min. Earth dist.	569 Oct 30 j 06:48	9° $\text{R}$ 58'35	28.81276 AU
conjunction	562 Apr 11 j 12:02	23° $\Upsilon$ 01'37	-1°-50'-15	direct	570 Jan 16 j 10:31	8° $\text{R}$ 33'28	
minimum elong	562 Apr 11 j 12:02	23° $\Upsilon$ 01'37	1°50'17				
max. Earth dist.	562 Apr 12 j 10:02	23° $\Upsilon$ 03'41	30.81265 AU	conjunction	570 Apr 30 j 04:05	11° $\text{R}$ 03'25	-1°-46'-36
retrograde	562 Jul 28 j 00:02	25° $\Upsilon$ 36'28		minimum elong	570 Apr 30 j 04:06	11° $\text{R}$ 03'25	1°46'37
opposition	562 Oct 15 j 13:56	24° $\Upsilon$ 11'04	-1°-58'00	max. Earth dist.	570 Apr 30 j 19:26	11° $\text{R}$ 04'51	30.81188 AU
min. Earth dist.	562 Oct 14 j 18:39	24° $\Upsilon$ 12'25	28.81461 AU	retrograde	570 Aug 15 j 07:31	13° $\text{R}$ 37'40	
direct	562 Dec 31 j 23:42	22° $\Upsilon$ 47'24		opposition	570 Nov 02 j 08:47	12° $\text{R}$ 12'25	-1°-53'-22
				min. Earth dist.	570 Nov 01 j 19:01	12° $\text{R}$ 13'23	28.81365 AU
conjunction	563 Apr 14 j 01:51	25° $\Upsilon$ 16'49	-1°-50'-23	direct	571 Jan 18 j 21:49	10° $\text{R}$ 48'18	
minimum elong	563 Apr 14 j 01:51	25° $\Upsilon$ 16'49	1°50'23				
max. Earth dist.	563 Apr 14 j 22:08	25° $\Upsilon$ 18'43	30.81405 AU	conjunction	571 May 02 j 18:19	13° $\text{R}$ 18'19	-1°-45'-24
retrograde	563 Jul 30 j 13:38	27° $\Upsilon$ 51'39		minimum elong	571 May 02 j 18:19	13° $\text{R}$ 18'19	1°45'24
min. Earth dist.	563 Oct 17 j 06:59	26° $\Upsilon$ 27'36	28.81595 AU	max. Earth dist.	571 May 03 j 10:16	13° $\text{R}$ 19'49	30.81344 AU
opposition	563 Oct 18 j 01:33	26° $\Upsilon$ 26'18	-1°-58'-2		571 Jun 21 j 01:25	15° $\text{R}$	
direct	564 Jan 03 j 10:12	25° $\Upsilon$ 02'37		retrograde	571 Aug 17 j 20:41	15° $\text{R}$ 52'27	
					571 Oct 16 j 01:48	15° $\text{R}$ $\text{R}$	
conjunction	564 Apr 15 j 15:50	27° $\Upsilon$ 32'08	-1°-50'-20	opposition	571 Nov 04 j 19:48	14° $\text{R}$ 27'15	-1°-52'00
minimum elong	564 Apr 15 j 15:50	27° $\Upsilon$ 32'08	1°50'22	min. Earth dist.	571 Nov 04 j 06:04	14° $\text{R}$ 28'13	28.81585 AU
max. Earth dist.	564 Apr 16 j 12:19	27° $\Upsilon$ 34'03	30.81500 AU	direct	572 Jan 21 j 11:05	13° $\text{R}$ 03'06	
	564 Jul 11 j 14:14	0° $\text{R}$			572 Apr 19 j 10:54	15° $\text{R}$	
retrograde	564 Aug 01 j 00:51	0° $\text{R}$ 06'56					
	564 Aug 21 j 16:39	30° $\text{R}$ $\Upsilon$		conjunction	572 May 04 j 08:12	15° $\text{R}$ 33'11	-1°-44'-2
opposition	564 Oct 19 j 13:09	28° $\Upsilon$ 41'37	-1°-57'-54	minimum elong	572 May 04 j 08:12	15° $\text{R}$ 33'12	1°44'04
min. Earth dist.	564 Oct 18 j 19:34	28° $\Upsilon$ 42'52	28.81652 AU	max. Earth dist.	572 May 04 j 22:37	15° $\text{R}$ 34'32	30.81648 AU

retrograde	572 Aug 19 j 09:22	18°♃07'14		retrograde	580 Sep 06 j 12:16	6°♃06'36	
opposition	572 Nov 06 j 06:49	16°♃42'05	-1°-50'-27	opposition	580 Nov 23 j 21:49	4°♃41'57	-1°-32'-18
min. Earth dist.	572 Nov 05 j 17:30	16°♃43'01	28.81971 AU	min. Earth dist.	580 Nov 23 j 15:09	4°♃42'25	28.86296 AU
direct	573 Jan 22 j 22:00	15°♃17'55		direct	581 Feb 09 j 21:48	3°♃17'29	
conjunction	573 May 06 j 22:23	17°♃48'05	-1°-42'-31	conjunction	581 May 25 j 17:17	5°♃48'15	-1°-24'-59
minimum elong	573 May 06 j 22:24	17°♃48'05	1°42'32	minimum elong	581 May 25 j 17:17	5°♃48'15	1°25'00
max. Earth dist.	573 May 07 j 13:21	17°♃49'29	30.82108 AU	max. Earth dist.	581 May 25 j 23:31	5°♃48'50	30.86436 AU
retrograde	573 Aug 21 j 20:40	20°♃22'02		retrograde	581 Sep 09 j 00:59	8°♃21'07	
opposition	573 Nov 08 j 17:45	18°♃56'57	-1°-48'-45	opposition	581 Nov 26 j 08:24	6°♃56'29	-1°-29'-23
min. Earth dist.	573 Nov 08 j 05:12	18°♃57'51	28.82492 AU	min. Earth dist.	581 Nov 26 j 02:34	6°♃56'54	28.86721 AU
direct	574 Jan 25 j 09:38	17°♃32'47		direct	582 Feb 12 j 09:20	5°♃31'56	
conjunction	574 May 09 j 12:33	20°♃03'03	-1°-40'-51	conjunction	582 May 28 j 07:41	8°♃02'45	-1°-22'-11
minimum elong	574 May 09 j 12:33	20°♃03'03	1°40'52	minimum elong	582 May 28 j 07:41	8°♃02'45	1°22'12
max. Earth dist.	574 May 10 j 01:58	20°♃04'19	30.82703 AU	max. Earth dist.	582 May 28 j 14:10	8°♃03'21	30.86886 AU
retrograde	574 Aug 24 j 10:49	22°♃36'55		retrograde	582 Sep 11 j 12:25	10°♃35'26	
opposition	574 Nov 11 j 04:38	21°♃11'55	-1°-46'-52	opposition	582 Nov 28 j 18:59	9°♃10'51	-1°-26'-19
min. Earth dist.	574 Nov 10 j 16:06	21°♃12'49	28.83126 AU	min. Earth dist.	582 Nov 28 j 14:09	9°♃11'11	28.87200 AU
direct	575 Jan 27 j 20:10	19°♃47'44		direct	583 Feb 14 j 22:04	7°♃46'14	
conjunction	575 May 12 j 02:54	22°♃18'07	-1°-39'-1	conjunction	583 May 30 j 21:49	10°♃17'06	-1°-19'-15
minimum elong	575 May 12 j 02:54	22°♃18'07	1°39'01	minimum elong	583 May 30 j 21:50	10°♃17'06	1°19'16
max. Earth dist.	575 May 12 j 16:09	22°♃19'21	30.83358 AU	max. Earth dist.	583 May 31 j 02:33	10°♃17'32	30.87422 AU
retrograde	575 Aug 26 j 21:23	24°♃51'53		retrograde	583 Sep 14 j 01:38	12°♃49'36	
opposition	575 Nov 13 j 15:32	23°♃26'59	-1°-44'-49	opposition	583 Dec 01 j 05:25	11°♃25'04	-1°-23'-7
min. Earth dist.	575 Nov 13 j 04:43	23°♃27'45	28.83790 AU	min. Earth dist.	583 Dec 01 j 00:32	11°♃25'25	28.87792 AU
direct	576 Jan 30 j 06:20	22°♃02'48		direct	584 Feb 17 j 09:26	10°♃00'24	
conjunction	576 May 13 j 17:17	24°♃33'16	-1°-37'-2	conjunction	584 Jun 01 j 12:04	12°♃31'19	-1°-16'-13
minimum elong	576 May 13 j 17:17	24°♃33'16	1°37'03	minimum elong	584 Jun 01 j 12:04	12°♃31'20	1°16'14
max. Earth dist.	576 May 14 j 05:22	24°♃34'24	30.84032 AU	max. Earth dist.	584 Jun 01 j 16:51	12°♃31'46	30.88076 AU
retrograde	576 Aug 28 j 10:11	27°♃06'56		retrograde	584 Sep 15 j 11:34	15°♃03'41	
opposition	576 Nov 15 j 02:24	25°♃42'07	-1°-42'-37	opposition	584 Dec 02 j 16:00	13°♃39'13	-1°-19'-48
min. Earth dist.	576 Nov 14 j 15:34	25°♃42'53	28.84438 AU	min. Earth dist.	584 Dec 02 j 12:30	13°♃39'28	28.88515 AU
direct	577 Jan 31 j 19:19	24°♃17'54		direct	585 Feb 18 j 20:06	12°♃14'31	
conjunction	577 May 16 j 07:37	26°♃48'28	-1°-34'-54	conjunction	585 Jun 04 j 02:08	14°♃45'30	-1°-13'-3
minimum elong	577 May 16 j 07:37	26°♃48'28	1°34'54	minimum elong	585 Jun 04 j 02:08	14°♃45'31	1°13'04
max. Earth dist.	577 May 16 j 18:28	26°♃49'29	30.84643 AU	max. Earth dist.	585 Jun 04 j 05:55	14°♃45'52	30.88885 AU
retrograde	577 Aug 30 j 21:59	29°♃22'01		retrograde	585 Sep 17 j 23:40	17°♃17'43	
opposition	577 Nov 17 j 13:28	27°♃57'15	-1°-40'-16	opposition	585 Dec 05 j 02:25	15°♃53'21	-1°-16'-22
min. Earth dist.	577 Nov 17 j 04:34	27°♃57'53	28.85009 AU	min. Earth dist.	585 Dec 04 j 22:34	15°♃53'38	28.89379 AU
direct	578 Feb 03 j 06:17	26°♃33'00		direct	586 Feb 21 j 08:28	14°♃28'39	
conjunction	578 May 18 j 22:13	29°♃03'38	-1°-32'-37	conjunction	586 Jun 06 j 16:24	16°♃59'44	-1°-9'-47
minimum elong	578 May 18 j 22:14	29°♃03'38	1°32'38	minimum elong	586 Jun 06 j 16:25	16°♃59'44	1°09'48
max. Earth dist.	578 May 19 j 08:19	29°♃04'34	30.85179 AU	max. Earth dist.	586 Jun 06 j 19:27	17°♃00'01	30.89809 AU
retrograde	578 Jun 13 j 15:24	0°♃		retrograde	586 Sep 20 j 10:47	19°♃31'49	
opposition	578 Sep 02 j 10:57	1°♃37'01		opposition	586 Dec 07 j 12:54	18°♃07'33	-1°-12'-49
opposition	578 Nov 20 j 00:12	0°♃12'19	-1°-37'-45	min. Earth dist.	586 Dec 07 j 10:44	18°♃07'43	28.90356 AU
min. Earth dist.	578 Nov 19 j 15:26	0°♃12'56	28.85489 AU	direct	587 Feb 23 j 18:23	16°♃42'51	
direct	578 Nov 27 j 06:09	30°♃		conjunction	587 Jun 09 j 06:42	19°♃14'02	-1°-6'-24
conjunction	579 Feb 05 j 19:37	28°♃47'59		minimum elong	587 Jun 09 j 06:42	19°♃14'02	1°06'25
direct	579 Apr 14 j 15:33	0°♃		max. Earth dist.	587 Jun 09 j 09:14	19°♃14'16	30.90836 AU
conjunction	579 May 21 j 12:41	1°♃18'41	-1°-30'-12	retrograde	587 Sep 22 j 23:06	21°♃45'59	
minimum elong	579 May 21 j 12:41	1°♃18'41	1°30'13	opposition	587 Dec 09 j 23:20	20°♃21'52	-1°-9'-9
max. Earth dist.	579 May 21 j 20:48	1°♃19'26	30.85626 AU	min. Earth dist.	587 Dec 09 j 21:07	20°♃22'01	28.91391 AU
retrograde	579 Sep 05 j 00:00	3°♃51'54		direct	588 Feb 26 j 06:58	18°♃57'10	
opposition	579 Nov 22 j 11:07	2°♃27'13	-1°-35'-6	conjunction	588 Jun 10 j 20:46	21°♃28'27	-1°-2'-55
min. Earth dist.	579 Nov 22 j 03:57	2°♃27'44	28.85910 AU	minimum elong	588 Jun 10 j 20:46	21°♃28'27	1°02'57
direct	580 Feb 08 j 07:40	1°♃02'49		max. Earth dist.	588 Jun 10 j 21:37	21°♃28'32	30.91875 AU
conjunction	580 May 23 j 03:01	3°♃33'34	-1°-27'-39	retrograde	588 Sep 24 j 11:40	24°♃00'18	
minimum elong	580 May 23 j 03:02	3°♃33'34	1°27'41	opposition	588 Dec 11 j 09:55	22°♃36'17	-1°-5'-22
max. Earth dist.	580 May 23 j 11:15	3°♃34'20	30.86032 AU	min. Earth dist.	588 Dec 11 j 09:17	22°♃36'19	28.92423 AU

direct	589 Feb 27 j 18:34	21°II11'35		direct	597 Mar 17 j 21:18	9°☾03'13	
conjunction	589 Jun 13 j 11:10	23°II42'58	0°-59'-21	conjunction	597 Jul 02 j 03:02	11°☾34'49	0°-28'-10
minimum elong	589 Jun 13 j 11:10	23°II42'58	0°59'22	minimum elong	597 Jul 02 j 03:02	11°☾34'49	0°28'11
max. Earth dist.	589 Jun 13 j 11:48	23°II43'01	30.92879 AU	max. Earth dist.	597 Jul 01 j 18:51	11°☾34'04	30.98782 AU
retrograde	589 Sep 26 j 23:47	26°II14'40		retrograde	597 Oct 14 j 17:53	14°☾05'01	
opposition	589 Dec 13 j 20:20	24°II50'45	-1°-1'-30	opposition	597 Dec 31 j 07:05	12°☾41'29	0°-27'-55
min. Earth dist.	589 Dec 13 j 20:31	24°II50'44	28.93374 AU	min. Earth dist.	597 Dec 31 j 14:06	12°☾41'00	28.99273 AU
direct	590 Mar 02 j 08:27	23°II26'03		direct	598 Mar 20 j 08:14	11°☾16'20	
conjunction	590 Jun 16 j 01:28	25°II57'30	0°-55'-41	conjunction	598 Jul 04 j 16:45	13°☾47'59	0°-24'-2
minimum elong	590 Jun 16 j 01:28	25°II57'30	0°55'42	minimum elong	598 Jul 04 j 16:45	13°☾47'59	0°24'04
max. Earth dist.	590 Jun 15 j 23:42	25°II57'20	30.93784 AU	max. Earth dist.	598 Jul 04 j 08:48	13°☾47'15	30.99769 AU
retrograde	590 Sep 29 j 12:45	28°II29'03		retrograde	598 Oct 17 j 04:43	16°☾18'00	
opposition	590 Dec 16 j 06:53	27°II05'12	0°-57'-32	opposition	599 Jan 02 j 17:21	14°☾54'34	0°-23'-28
min. Earth dist.	590 Dec 16 j 08:10	27°II05'07	28.94226 AU	min. Earth dist.	599 Jan 03 j 00:39	14°☾54'03	29.00307 AU
direct	591 Mar 04 j 19:57	25°II40'28		direct	599 Mar 22 j 21:15	13°☾29'24	
conjunction	591 Jun 18 j 15:47	28°II11'59	0°-51'-56	conjunction	599 Jul 07 j 06:08	16°☾01'06	0°-19'-52
minimum elong	591 Jun 18 j 15:47	28°II11'59	0°51'57	minimum elong	599 Jul 07 j 06:08	16°☾01'06	0°19'53
max. Earth dist.	591 Jun 18 j 13:52	28°II11'48	30.94576 AU	max. Earth dist.	599 Jul 06 j 20:33	16°☾00'13	31.00860 AU
retrograde	591 Aug 11 j 06:46	0°☾		retrograde	599 Oct 19 j 17:02	18°☾30'59	
opposition	591 Oct 02 j 00:42	0°☾43'21		opposition	600 Jan 05 j 03:33	17°☾07'39	0°-19'00
min. Earth dist.	591 Nov 23 j 20:51	30°RII		min. Earth dist.	600 Jan 05 j 11:26	17°☾07'05	29.01444 AU
direct	591 Dec 18 j 17:23	29°II19'34	0°-53'-30	direct	600 Mar 24 j 08:14	15°☾42'29	
conjunction	591 Dec 18 j 20:02	29°II19'23	28.94959 AU	conjunction	600 Jul 08 j 19:43	18°☾14'14	0°-15'-41
direct	592 Mar 06 j 09:38	27°II54'47		minimum elong	600 Jul 08 j 19:43	18°☾14'14	0°15'42
retrograde	592 Jun 08 j 09:31	0°☾		behind sun begin	600 Jul 08 j 19:06	18°☾14'11	
conjunction	592 Jun 20 j 05:52	0°☾26'20	0°-48'-7	behind sun end	600 Jul 08 j 20:21	18°☾14'18	
minimum elong	592 Jun 20 j 05:52	0°☾26'20	0°48'09	max. Earth dist.	600 Jul 08 j 10:31	18°☾13'24	31.02017 AU
max. Earth dist.	592 Jun 20 j 01:42	0°☾25'57	30.95280 AU	retrograde	600 Oct 21 j 04:26	20°☾43'59	
retrograde	592 Oct 03 j 13:38	2°☾57'30					
opposition	592 Dec 20 j 03:43	1°☾33'46	0°-49'-23				
min. Earth dist.	592 Dec 20 j 06:40	1°☾33'33	28.95628 AU				
direct	593 Mar 08 j 22:02	0°☾08'54					
conjunction	593 Jun 22 j 19:58	2°☾40'29	0°-44'-15				
minimum elong	593 Jun 22 j 19:58	2°☾40'29	0°44'15				
max. Earth dist.	593 Jun 22 j 15:32	2°☾40'04	30.95920 AU				
retrograde	593 Oct 05 j 23:15	5°☾11'27					
opposition	593 Dec 22 j 14:09	3°☾47'45	0°-45'-12				
min. Earth dist.	593 Dec 22 j 18:55	3°☾47'25	28.96248 AU				
direct	594 Mar 11 j 09:52	2°☾22'50					
conjunction	594 Jun 25 j 09:57	4°☾54'24	0°-40'-18				
minimum elong	594 Jun 25 j 09:57	4°☾54'24	0°40'19				
max. Earth dist.	594 Jun 25 j 04:04	4°☾53'51	30.96548 AU				
retrograde	594 Oct 08 j 10:47	7°☾25'09					
opposition	594 Dec 25 j 00:18	6°☾01'30	0°-40'-57				
min. Earth dist.	594 Dec 25 j 04:57	6°☾01'10	28.96878 AU				
direct	595 Mar 13 j 22:21	4°☾36'30					
conjunction	595 Jun 27 j 23:50	7°☾08'05	0°-36'-18				
minimum elong	595 Jun 27 j 23:50	7°☾08'05	0°36'19				
max. Earth dist.	595 Jun 27 j 17:19	7°☾07'29	30.97196 AU				
retrograde	595 Oct 10 j 21:04	9°☾38'39					
opposition	595 Dec 27 j 10:42	8°☾15'01	0°-36'-40				
min. Earth dist.	595 Dec 27 j 16:56	8°☾14'35	28.97568 AU				
direct	596 Mar 15 j 08:12	6°☾49'57					
conjunction	596 Jun 29 j 13:25	9°☾21'32	0°-32'-16				
minimum elong	596 Jun 29 j 13:25	9°☾21'32	0°32'17				
max. Earth dist.	596 Jun 29 j 06:31	9°☾20'54	30.97936 AU				
retrograde	596 Oct 12 j 07:14	11°☾51'55					
opposition	596 Dec 28 j 20:54	10°☾28'20	0°-32'-18				
min. Earth dist.	596 Dec 29 j 02:48	10°☾27'55	28.98353 AU				