

direct	8100 Jan 11 03:51	4°832'49	conjunction	8106 May 07 23:38	20°815'29 -0°34'47
evening set	8100 Apr 09 01:58	6°826'57	minimum elong	8106 May 07 23:38	20°815'29 0°34'53
			max. Earth dist.	8106 May 08 04:37	20°815'57 31.05023 AU
conjunction	8100 Apr 24 10:50	7°801'34 -0°20'26	morning rise	8106 May 23 09:36	20°850'19
minimum elong	8100 Apr 24 10:50	7°801'34 0°20'30	retrograde	8106 Aug 20 18:05	22°846'48
max. Earth dist.	8100 Apr 24 10:23	7°801'32 31.10745 AU	opposition	8106 Nov 08 21:39	21°823'05 -0°38'23
morning rise	8100 May 09 20:15	7°836'16	min. Earth dist.	8106 Nov 08 16:21	21°823'27 29.04507 AU
retrograde	8100 Aug 06 16:18	9°831'50	direct	8107 Jan 27 10:17	19°859'42
opposition	8100 Oct 25 15:35	8°808'19 -0°23'09	evening set	8107 Apr 25 00:57	21°853'47
min. Earth dist.	8100 Oct 25 14:37	8°808'23 29.10207 AU			
direct	8101 Jan 13 14:20	6°844'40	conjunction	8107 May 10 09:59	22°828'32 -0°37'01
evening set	8101 Apr 11 11:50	8°838'46	minimum elong	8107 May 10 09:58	22°828'32 0°37'08
			max. Earth dist.	8107 May 10 14:25	22°828'57 31.03938 AU
conjunction	8101 Apr 26 20:51	9°813'25 -0°22'54	morning rise	8107 May 25 20:16	23°803'24
minimum elong	8101 Apr 26 20:51	9°813'25 0°23'00	retrograde	8107 Aug 23 08:20	25°800'01
max. Earth dist.	8101 Apr 26 22:16	9°813'33 31.09678 AU	opposition	8107 Nov 11 10:56	23°836'14 -0°40'45
morning rise	8101 May 12 06:13	9°848'08	min. Earth dist.	8107 Nov 11 05:39	23°836'35 29.03373 AU
retrograde	8101 Aug 09 02:23	11°843'50	direct	8108 Jan 29 22:12	22°812'51
opposition	8101 Oct 28 04:30	10°820'16 -0°25'47	evening set	8108 Apr 26 11:22	24°806'55
min. Earth dist.	8101 Oct 28 03:10	10°820'22 29.09188 AU			
direct	8102 Jan 16 01:42	8°856'40	conjunction	8108 May 11 20:40	24°841'41 -0°39'12
evening set	8102 Apr 13 21:47	10°850'44	minimum elong	8108 May 11 20:40	24°841'41 0°39'19
			max. Earth dist.	8108 May 12 02:33	24°842'15 31.02744 AU
conjunction	8102 Apr 29 06:41	11°825'24 -0°25'21	morning rise	8108 May 27 06:59	25°816'35
minimum elong	8102 Apr 29 06:41	11°825'24 0°25'27	retrograde	8108 Aug 24 19:33	27°813'19
max. Earth dist.	8102 Apr 29 08:19	11°825'33 31.08712 AU	opposition	8108 Nov 12 23:57	25°849'27 -0°43'03
morning rise	8102 May 14 16:15	12°800'08	min. Earth dist.	8108 Nov 12 18:08	25°849'51 29.02122 AU
retrograde	8102 Aug 11 15:23	13°856'00	direct	8109 Jan 31 11:29	24°826'04
opposition	8102 Oct 30 17:24	12°832'23 -0°28'23	evening set	8109 Apr 28 21:55	26°820'06
min. Earth dist.	8102 Oct 30 14:17	12°832'36 29.08257 AU			
direct	8103 Jan 18 12:00	11°808'49	conjunction	8109 May 14 07:09	26°854'53 -0°41'20
evening set	8103 Apr 16 07:49	13°802'54	minimum elong	8109 May 14 07:09	26°854'53 0°41'28
			max. Earth dist.	8109 May 14 12:34	26°855'23 31.01464 AU
conjunction	8103 May 01 16:46	13°837'34 -0°27'46	morning rise	8109 May 29 17:49	27°829'48
minimum elong	8103 May 01 16:46	13°837'34 0°27'53	retrograde	8109 Aug 27 08:00	29°826'38
max. Earth dist.	8103 May 01 19:35	13°837'50 31.07799 AU	opposition	8109 Nov 15 13:06	28°802'41 -0°45'18
morning rise	8103 May 17 02:24	14°812'20	min. Earth dist.	8109 Nov 15 06:32	28°803'08 29.00828 AU
	8103 Jun 08 23:50	15°8	direct	8110 Feb 02 22:52	26°839'16
retrograde	8103 Aug 14 03:00	16°808'21	evening set	8110 May 01 08:10	28°833'16
	8103 Oct 23 20:39	15°8			
opposition	8103 Nov 02 06:26	14°844'43 -0°30'57	conjunction	8110 May 16 17:38	29°808'03 -0°43'24
min. Earth dist.	8103 Nov 02 03:35	14°844'55 29.07368 AU	minimum elong	8110 May 16 17:37	29°808'03 0°43'31
direct	8104 Jan 20 22:52	13°821'13	max. Earth dist.	8110 May 17 00:43	29°808'44 31.00158 AU
	8104 Apr 10 17:37	15°8	morning rise	8110 Jun 01 04:21	29°843'00
evening set	8104 Apr 17 17:53	15°815'17		8110 Jun 08 23:11	0°II
			retrograde	8110 Aug 29 18:24	1°II39'56
conjunction	8104 May 03 02:55	15°849'58 -0°30'09	opposition	8110 Nov 18 02:20	0°II15'53 -0°47'29
minimum elong	8104 May 03 02:54	15°849'58 0°30'15	min. Earth dist.	8110 Nov 17 19:32	0°II16'21 28.99541 AU
max. Earth dist.	8104 May 03 06:30	15°850'18 31.06921 AU		8110 Nov 27 20:12	30°R8
morning rise	8104 May 18 12:41	16°824'46	direct	8111 Feb 05 11:16	28°852'28
retrograde	8104 Aug 15 16:33	18°820'56		8111 Apr 11 12:24	0°II
opposition	8104 Nov 03 19:22	16°857'17 -0°33'29	evening set	8111 May 03 18:40	0°II46'24
min. Earth dist.	8104 Nov 03 14:54	16°857'35 29.06476 AU			
direct	8105 Jan 22 10:37	15°833'49	conjunction	8111 May 19 04:09	1°II21'13 -0°45'24
evening set	8105 Apr 20 04:12	17°827'55	minimum elong	8111 May 19 04:09	1°II21'13 0°45'33
			max. Earth dist.	8111 May 19 11:26	1°II21'54 30.98912 AU
conjunction	8105 May 05 13:09	18°802'37 -0°32'29	morning rise	8111 Jun 03 15:11	1°II56'11
minimum elong	8105 May 05 13:09	18°802'37 0°32'36	retrograde	8111 Sep 01 07:41	3°II53'13
max. Earth dist.	8105 May 05 16:56	18°802'58 31.06001 AU	opposition	8111 Nov 20 15:17	2°II29'06 -0°49'35
morning rise	8105 May 20 23:05	18°837'26	min. Earth dist.	8111 Nov 20 06:48	2°II29'41 28.98347 AU
retrograde	8105 Aug 18 05:28	20°833'46	direct	8112 Feb 07 22:16	1°II05'39
opposition	8105 Nov 06 08:29	19°810'05 -0°35'57	evening set	8112 May 05 05:05	2°II59'34
min. Earth dist.	8105 Nov 06 04:30	19°810'21 29.05537 AU			
direct	8106 Jan 24 20:53	17°846'40	conjunction	8112 May 20 14:44	3°II34'24 -0°47'20
evening set	8106 Apr 22 14:31	19°840'46	minimum elong	8112 May 20 14:44	3°II34'24 0°47'28

max. Earth dist.	8112 May 20 23:08	3°II35'11	30.97759 AU	conjunction	8119 Jun 05 19:25	19°II10'31	-0°58'49
morning rise	8112 Jun 05 01:58	4°II09'24		minimum elong	8119 Jun 05 19:25	19°II10'31	0°58'58
retrograde	8112 Sep 02 18:22	6°II06'33		max. Earth dist.	8119 Jun 06 08:42	19°II11'47	30.92010 AU
opposition	8112 Nov 22 04:25	4°II42'21	-0°51'37	morning rise	8119 Jun 21 08:27	19°II45'43	
min. Earth dist.	8112 Nov 21 20:01	4°II42'55	28.97260 AU	retrograde	8119 Sep 19 15:36	21°II43'40	
direct	8113 Feb 09 09:18	3°II18'54		opposition	8119 Dec 09 00:41	20°II19'15	-1°03'36
evening set	8113 May 07 15:33	5°II12'48		min. Earth dist.	8119 Dec 08 12:15	20°II20'06	28.91600 AU
				direct	8120 Feb 25 20:05	18°II55'57	
conjunction	8113 May 23 01:22	5°II47'39	-0°49'12	evening set	8120 May 22 19:43	20°II49'51	
minimum elong	8113 May 23 01:22	5°II47'39	0°49'21				
max. Earth dist.	8113 May 23 10:45	5°II48'32	30.96738 AU	conjunction	8120 Jun 07 06:53	21°II24'52	-1°00'07
morning rise	8113 Jun 07 12:47	6°II22'40		minimum elong	8120 Jun 07 06:53	21°II24'52	1°00'16
retrograde	8113 Sep 05 07:19	8°II19'56		max. Earth dist.	8120 Jun 07 19:40	21°II26'04	30.91081 AU
opposition	8113 Nov 24 17:24	6°II55'41	-0°53'35	morning rise	8120 Jun 22 20:20	22°II00'06	
min. Earth dist.	8113 Nov 24 07:07	6°II56'24	28.96297 AU	retrograde	8120 Sep 21 05:33	23°II58'07	
direct	8114 Feb 11 20:24	5°II32'16		opposition	8120 Dec 10 13:56	22°II33'38	-1°04'57
evening set	8114 May 10 02:10	7°II26'10		min. Earth dist.	8120 Dec 10 00:29	22°II34'34	28.90612 AU
				direct	8121 Feb 27 08:06	21°II10'19	
conjunction	8114 May 25 12:03	8°II01'01	-0°51'00	evening set	8121 May 25 06:55	23°II04'12	
minimum elong	8114 May 25 12:02	8°II01'01	0°51'08				
max. Earth dist.	8114 May 25 21:52	8°II01'57	30.95830 AU	conjunction	8121 Jun 09 18:20	23°II39'13	-1°01'20
morning rise	8114 Jun 09 23:47	8°II36'04		minimum elong	8121 Jun 09 18:20	23°II39'13	1°01'30
retrograde	8114 Sep 07 20:20	10°II33'28		max. Earth dist.	8121 Jun 10 07:38	23°II40'29	30.90032 AU
opposition	8114 Nov 27 06:38	9°II09'11	-0°55'28	morning rise	8121 Jun 25 08:03	24°II14'29	
min. Earth dist.	8114 Nov 26 20:31	9°II09'52	28.95454 AU	retrograde	8121 Sep 23 16:25	26°II12'35	
direct	8115 Feb 14 05:57	7°II45'46		opposition	8121 Dec 13 03:16	24°II48'01	-1°06'12
evening set	8115 May 12 12:38	9°II39'40		min. Earth dist.	8121 Dec 12 14:26	24°II48'54	28.89531 AU
				direct	8122 Mar 01 19:47	23°II24'40	
conjunction	8115 May 27 22:51	10°II14'33	-0°52'44	evening set	8122 May 27 18:07	25°II18'30	
minimum elong	8115 May 27 22:51	10°II14'33	0°52'53				
max. Earth dist.	8115 May 28 10:15	10°II15'38	30.95036 AU	conjunction	8122 Jun 12 05:51	25°II53'33	-1°02'27
morning rise	8115 Jun 12 10:45	10°II49'38		minimum elong	8122 Jun 12 05:51	25°II53'33	1°02'36
retrograde	8115 Sep 10 09:44	12°II47'08		max. Earth dist.	8122 Jun 12 19:42	25°II54'52	30.88943 AU
opposition	8115 Nov 29 19:44	11°II22'50	-0°57'16	morning rise	8122 Jun 27 19:53	26°II28'50	
min. Earth dist.	8115 Nov 29 08:06	11°II23'38	28.94690 AU	retrograde	8122 Sep 26 05:29	28°II26'59	
direct	8116 Feb 16 19:22	9°II59'27		opposition	8122 Dec 15 16:22	27°II02'20	-1°07'21
evening set	8116 May 13 23:30	11°II53'21		min. Earth dist.	8122 Dec 15 02:07	27°II03'19	28.88437 AU
				direct	8123 Mar 04 07:32	25°II38'56	
conjunction	8116 May 29 09:44	12°II28'16	-0°54'22	evening set	8123 May 30 05:21	27°II32'45	
minimum elong	8116 May 29 09:44	12°II28'16	0°54'30				
max. Earth dist.	8116 May 29 20:46	12°II29'18	30.94297 AU	conjunction	8123 Jun 14 17:17	28°II07'49	-1°03'29
morning rise	8116 Jun 13 22:04	13°II03'22		minimum elong	8123 Jun 14 17:17	28°II07'49	1°03'39
retrograde	8116 Sep 12 00:47	15°II01'00		max. Earth dist.	8123 Jun 15 07:16	28°II09'09	30.87855 AU
opposition	8116 Dec 01 08:50	13°II36'40	-0°58'59	morning rise	8123 Jun 30 07:45	28°II43'08	
min. Earth dist.	8116 Nov 30 21:11	13°II37'28	28.93977 AU		8123 Aug 08 20:27	0°☾	
direct	8117 Feb 18 06:27	12°II13'19		retrograde	8123 Sep 28 18:05	0°☾41'21	
evening set	8117 May 16 10:19	14°II07'14			8123 Nov 20 16:57	30°☾II	
				opposition	8123 Dec 18 05:35	29°II16'38	-1°08'24
conjunction	8117 May 31 20:54	14°II42'10	-0°55'56	min. Earth dist.	8123 Dec 17 15:50	29°II17'35	28.87387 AU
minimum elong	8117 May 31 20:54	14°II42'10	0°56'06	direct	8124 Mar 05 17:41	27°II53'12	
max. Earth dist.	8117 Jun 01 09:34	14°II43'22	30.93582 AU	evening set	8124 May 31 16:34	29°II46'59	
morning rise	8117 Jun 16 09:19	15°II17'19			8124 Jun 06 11:57	0°☾	
retrograde	8117 Sep 14 12:51	17°II15'03					
opposition	8117 Dec 03 22:05	15°II50'42	-1°00'37	conjunction	8124 Jun 16 04:55	0°☾22'05	-1°04'25
min. Earth dist.	8117 Dec 03 09:48	15°II51'33	28.93249 AU	minimum elong	8124 Jun 16 04:55	0°☾22'05	1°04'33
direct	8118 Feb 20 19:16	14°II27'24		max. Earth dist.	8124 Jun 16 20:15	0°☾23'32	30.86845 AU
evening set	8118 May 18 21:19	16°II21'19		morning rise	8124 Jul 01 19:36	0°☾57'25	
				retrograde	8124 Sep 30 07:06	2°☾55'42	
conjunction	8118 Jun 03 07:57	16°II56'16	-0°57'25	opposition	8124 Dec 19 18:25	1°☾30'55	-1°09'21
minimum elong	8118 Jun 03 07:57	16°II56'16	0°57'33	min. Earth dist.	8124 Dec 19 03:15	1°☾31'58	28.86425 AU
max. Earth dist.	8118 Jun 03 20:04	16°II57'25	30.92838 AU	direct	8125 Mar 08 06:53	0°☾07'27	
morning rise	8118 Jun 18 20:48	17°II31'26		evening set	8125 Jun 03 03:58	2°☾01'15	
retrograde	8118 Sep 17 03:22	19°II29'18					
opposition	8118 Dec 06 11:26	18°II04'55	-1°02'09	conjunction	8125 Jun 18 16:26	2°☾36'22	-1°05'15
min. Earth dist.	8118 Dec 05 22:41	18°II05'47	28.92479 AU	minimum elong	8125 Jun 18 16:26	2°☾36'22	1°05'25
direct	8119 Feb 23 07:02	16°II41'37		max. Earth dist.	8125 Jun 19 07:24	2°☾37'47	30.85941 AU
evening set	8119 May 21 08:27	18°II35'32		morning rise	8125 Jul 04 07:37	3°☾11'44	

retrograde	8125 Oct 02 21:49	5°☾10'06		minimum elong	8132 Jul 04 04:26	18°☾20'33	1°08'24
opposition	8125 Dec 22 07:33	3°☾45'16	-1°10'12	max. Earth dist.	8132 Jul 04 22:05	18°☾22'13	30.82072 AU
min. Earth dist.	8125 Dec 21 16:17	3°☾46'19	28.85597 AU	morning rise	8132 Jul 19 22:17	18°☾56'09	
direct	8126 Mar 10 17:35	2°☾21'48		retrograde	8132 Oct 18 19:44	20°☾54'59	
evening set	8126 Jun 05 15:07	4°☾15'36		min. Earth dist.	8133 Jan 06 09:44	19°☾31'14	28.81824 AU
				opposition	8133 Jan 07 02:25	19°☾30'04	-1°13'02
conjunction	8126 Jun 21 04:05	4°☾50'45	-1°06'00	direct	8133 Mar 26 04:49	18°☾06'40	
minimum elong	8126 Jun 21 04:05	4°☾50'45	1°06'08	evening set	8133 Jun 21 01:32	20°☾00'35	
max. Earth dist.	8126 Jun 21 20:48	4°☾52'20	30.85173 AU				
morning rise	8126 Jul 06 19:28	5°☾26'09		conjunction	8133 Jul 06 16:59	20°☾35'56	-1°08'17
retrograde	8126 Oct 05 10:13	7°☾24'35		minimum elong	8133 Jul 06 16:59	20°☾35'56	1°08'27
opposition	8126 Dec 24 20:33	5°☾59'43	-1°10'56	max. Earth dist.	8133 Jul 07 11:19	20°☾37'40	30.81433 AU
min. Earth dist.	8126 Dec 24 04:24	6°☾00'50	28.84888 AU	morning rise	8133 Jul 22 11:08	21°☾11'34	
direct	8127 Mar 13 06:01	4°☾36'16		retrograde	8133 Oct 21 08:10	23°☾10'23	
evening set	8127 Jun 08 02:38	6°☾30'05		opposition	8134 Jan 09 15:20	21°☾45'26	-1°13'00
				min. Earth dist.	8134 Jan 08 21:46	21°☾46'39	28.81139 AU
conjunction	8127 Jun 23 15:47	7°☾05'16	-1°06'38	direct	8134 Mar 28 17:57	20°☾21'59	
minimum elong	8127 Jun 23 15:47	7°☾05'15	1°06'48	evening set	8134 Jun 23 13:34	22°☾15'52	
max. Earth dist.	8127 Jun 24 08:05	7°☾06'48	30.84533 AU				
morning rise	8127 Jul 09 07:43	7°☾40'42		conjunction	8134 Jul 09 05:17	22°☾51'14	-1°08'12
retrograde	8127 Oct 08 01:35	9°☾39'12		minimum elong	8134 Jul 09 05:17	22°☾51'14	1°08'21
opposition	8127 Dec 27 09:26	8°☾14'20	-1°11'33	max. Earth dist.	8134 Jul 09 22:42	22°☾52'53	30.80726 AU
min. Earth dist.	8127 Dec 26 16:45	8°☾15'29	28.84311 AU	morning rise	8134 Jul 25 00:03	23°☾26'53	
direct	8128 Mar 14 17:44	6°☾50'53		retrograde	8134 Oct 23 21:44	25°☾25'43	
evening set	8128 Jun 09 14:08	8°☾44'44		min. Earth dist.	8135 Jan 11 11:18	24°☾01'52	28.80426 AU
				opposition	8135 Jan 12 04:17	24°☾00'41	-1°12'51
conjunction	8128 Jun 25 03:45	9°☾19'57	-1°07'10	direct	8135 Mar 31 04:12	22°☾37'10	
minimum elong	8128 Jun 25 03:45	9°☾19'57	1°07'19	evening set	8135 Jun 26 01:36	24°☾31'02	
max. Earth dist.	8128 Jun 25 21:27	9°☾21'38	30.83995 AU				
morning rise	8128 Jul 10 19:56	9°☾55'25		conjunction	8135 Jul 11 17:54	25°☾06'25	-1°08'01
retrograde	8128 Oct 09 14:54	11°☾54'00		minimum elong	8135 Jul 11 17:54	25°☾06'25	1°08'10
opposition	8128 Dec 28 22:26	10°☾29'08	-1°12'05	max. Earth dist.	8135 Jul 12 12:33	25°☾08'11	30.80015 AU
min. Earth dist.	8128 Dec 28 05:49	10°☾30'17	28.83811 AU	morning rise	8135 Jul 27 12:55	25°☾42'05	
direct	8129 Mar 17 06:51	9°☾05'43		retrograde	8135 Oct 26 10:10	27°☾40'54	
evening set	8129 Jun 12 01:42	10°☾59'36		opposition	8136 Jan 14 16:51	26°☾15'48	-1°12'36
				min. Earth dist.	8136 Jan 13 23:24	26°☾17'01	28.79730 AU
conjunction	8129 Jun 27 15:34	11°☾34'50	-1°07'36	direct	8136 Apr 01 17:01	24°☾52'12	
minimum elong	8129 Jun 27 15:34	11°☾34'50	1°07'46	evening set	8136 Jun 27 13:47	26°☾46'03	
max. Earth dist.	8129 Jun 28 09:02	11°☾36'29	30.83534 AU				
morning rise	8129 Jul 13 08:13	12°☾10'20		conjunction	8136 Jul 13 06:20	27°☾21'28	-1°07'44
retrograde	8129 Oct 12 05:18	14°☾09'00		minimum elong	8136 Jul 13 06:20	27°☾21'28	1°07'52
opposition	8129 Dec 31 11:24	12°☾44'08	-1°12'29	max. Earth dist.	8136 Jul 14 00:12	27°☾23'09	30.79361 AU
min. Earth dist.	8129 Dec 30 17:46	12°☾45'21	28.83371 AU	morning rise	8136 Jul 29 01:56	27°☾57'09	
direct	8130 Mar 19 18:41	11°☾20'45		retrograde	8136 Oct 28 01:04	29°☾55'57	
evening set	8130 Jun 14 13:30	13°☾14'39		min. Earth dist.	8137 Jan 15 11:51	28°☾32'01	28.79131 AU
				opposition	8137 Jan 16 05:32	28°☾30'47	-1°12'14
conjunction	8130 Jun 30 03:43	13°☾49'55	-1°07'56	direct	8137 Apr 04 04:57	27°☾07'07	
minimum elong	8130 Jun 30 03:43	13°☾49'55	1°08'05	evening set	8137 Jun 30 01:43	29°☾00'57	
max. Earth dist.	8130 Jun 30 21:44	13°☾51'38	30.83091 AU				
morning rise	8130 Jul 15 20:44	14°☾25'27		conjunction	8137 Jul 15 18:47	29°☾36'24	-1°07'20
retrograde	8130 Oct 14 17:09	16°☾24'12		minimum elong	8137 Jul 15 18:47	29°☾36'24	1°07'29
min. Earth dist.	8131 Jan 02 07:38	15°☾00'30	28.82925 AU	max. Earth dist.	8137 Jul 16 14:01	29°☾38'13	30.78809 AU
opposition	8131 Jan 03 00:28	14°☾59'20	-1°12'47		8137 Jul 26 04:33	0°☾	
direct	8131 Mar 22 06:20	13°☾35'58		morning rise	8137 Jul 31 14:39	0°☾12'07	
evening set	8131 Jun 17 01:22	15°☾29'53		retrograde	8137 Oct 30 13:40	2°☾10'53	
				opposition	8138 Jan 18 18:12	0°☾45'40	-1°11'46
conjunction	8131 Jul 02 16:02	16°☾05'11	-1°08'09	min. Earth dist.	8138 Jan 18 00:32	0°☾46'54	28.78646 AU
minimum elong	8131 Jul 02 16:02	16°☾05'11	1°08'19		8138 Feb 16 13:17	30°☾	
max. Earth dist.	8131 Jul 03 10:11	16°☾06'54	30.82629 AU	direct	8138 Apr 06 18:06	29°☾21'59	
morning rise	8131 Jul 18 09:26	16°☾40'45			8138 May 24 07:19	0°☾	
retrograde	8131 Oct 17 07:40	18°☾39'32		evening set	8138 Jul 02 13:54	1°☾15'48	
opposition	8132 Jan 05 13:25	17°☾14'40	-1°12'58				
min. Earth dist.	8132 Jan 04 19:36	17°☾15'54	28.82423 AU	conjunction	8138 Jul 18 07:19	1°☾51'16	-1°06'51
direct	8132 Mar 23 18:17	15°☾51'18		minimum elong	8138 Jul 18 07:19	1°☾51'16	1°06'59
evening set	8132 Jun 18 13:31	17°☾45'14		max. Earth dist.	8138 Jul 19 02:12	1°☾53'03	30.78410 AU
				morning rise	8138 Aug 03 03:43	2°☾27'00	
conjunction	8132 Jul 04 04:26	18°☾20'33	-1°08'16	retrograde	8138 Nov 02 04:15	4°☾25'46	






















































































































opposition	8139 Jan 21 06:39	3°Ω00'32 -1°11'11	conjunction	8145 Aug 03 01:50	17°Ω37'57 -1°00'33
min. Earth dist.	8139 Jan 20 12:01	3°Ω01'50 28.78326 AU	minimum elong	8145 Aug 03 01:50	17°Ω37'57 1°00'40
direct	8139 Apr 09 05:56	1°Ω36'48	max. Earth dist.	8145 Aug 03 20:21	17°Ω39'42 30.78474 AU
evening set	8139 Jul 05 02:05	3°Ω30'38	morning rise	8145 Aug 19 01:13	18°Ω13'53
			retrograde	8145 Nov 18 01:48	20°Ω12'40
conjunction	8139 Jul 20 19:58	4°Ω06'08 -1°06'15	opposition	8146 Feb 05 21:42	18°Ω47'35 -1°04'04
minimum elong	8139 Jul 20 19:58	4°Ω06'08 1°06'24	min. Earth dist.	8146 Feb 05 04:00	18°Ω48'49 28.78509 AU
max. Earth dist.	8139 Jul 21 15:30	4°Ω07'58 30.78156 AU	direct	8146 Apr 24 14:38	17°Ω23'54
morning rise	8139 Aug 05 16:46	4°Ω41'54	evening set	8146 Jul 20 18:15	19°Ω17'55
retrograde	8139 Nov 04 16:59	6°Ω40'39			
opposition	8140 Jan 23 19:13	5°Ω15'25 -1°10'29	conjunction	8146 Aug 05 15:15	19°Ω53'37 -0°59'16
min. Earth dist.	8140 Jan 23 01:09	5°Ω16'40 28.78150 AU	minimum elong	8146 Aug 05 15:15	19°Ω53'37 0°59'23
direct	8140 Apr 10 18:09	3°Ω51'41	max. Earth dist.	8146 Aug 06 10:25	19°Ω55'25 30.78422 AU
evening set	8140 Jul 06 14:19	5°Ω45'32	morning rise	8146 Aug 21 14:56	20°Ω29'34
			retrograde	8146 Nov 20 14:12	22°Ω28'17
conjunction	8140 Jul 22 08:39	6°Ω21'03 -1°05'33	opposition	8147 Feb 08 09:56	21°Ω03'11 -1°02'39
minimum elong	8140 Jul 22 08:39	6°Ω21'03 1°05'40	min. Earth dist.	8147 Feb 07 16:57	21°Ω04'23 28.78426 AU
max. Earth dist.	8140 Jul 23 04:26	6°Ω22'55 30.78061 AU	direct	8147 Apr 27 03:26	19°Ω39'28
morning rise	8140 Aug 07 05:51	6°Ω56'51	evening set	8147 Jul 23 07:10	21°Ω33'29
retrograde	8140 Nov 06 07:47	8°Ω55'37			
opposition	8141 Jan 25 07:33	7°Ω30'23 -1°09'41	conjunction	8147 Aug 08 04:34	22°Ω09'12 -0°57'54
min. Earth dist.	8141 Jan 24 12:18	7°Ω31'44 28.78116 AU	minimum elong	8147 Aug 08 04:34	22°Ω09'12 0°58'00
direct	8141 Apr 13 06:27	6°Ω06'41	max. Earth dist.	8147 Aug 08 22:37	22°Ω10'54 30.78339 AU
evening set	8141 Jul 09 02:43	8°Ω00'33	morning rise	8147 Aug 24 04:47	22°Ω45'10
			retrograde	8147 Nov 23 04:58	24°Ω43'49
conjunction	8141 Jul 24 21:24	8°Ω36'06 -1°04'45	opposition	8148 Feb 10 22:05	23°Ω18'42 -1°01'08
minimum elong	8141 Jul 24 21:24	8°Ω36'06 1°04'53	min. Earth dist.	8148 Feb 10 04:45	23°Ω19'55 28.78340 AU
max. Earth dist.	8141 Jul 25 17:04	8°Ω37'58 30.78085 AU	direct	8148 Apr 28 15:26	21°Ω54'55
morning rise	8141 Aug 09 19:05	9°Ω11'56	evening set	8148 Jul 24 19:59	23°Ω48'57
retrograde	8141 Nov 08 19:53	11°Ω10'42			
opposition	8142 Jan 27 20:06	9°Ω45'31 -1°08'46	conjunction	8148 Aug 09 17:49	24°Ω24'40 -0°56'26
min. Earth dist.	8142 Jan 27 01:48	9°Ω46'48 28.78196 AU	minimum elong	8148 Aug 09 17:50	24°Ω24'40 0°56'31
direct	8142 Apr 15 16:49	8°Ω21'50	max. Earth dist.	8148 Aug 10 12:10	24°Ω26'24 30.78258 AU
evening set	8142 Jul 11 15:03	10°Ω15'44	morning rise	8148 Aug 25 18:21	25°Ω00'40
			retrograde	8148 Nov 24 18:05	26°Ω59'14
conjunction	8142 Jul 27 10:19	10°Ω51'19 -1°03'51	opposition	8149 Feb 12 10:12	25°Ω34'05 -0°59'32
minimum elong	8142 Jul 27 10:19	10°Ω51'19 1°03'58	min. Earth dist.	8149 Feb 11 17:50	25°Ω35'14 28.78289 AU
max. Earth dist.	8142 Jul 28 06:47	10°Ω53'15 30.78209 AU	direct	8149 May 01 04:41	24°Ω10'16
morning rise	8142 Aug 12 08:20	11°Ω27'10	evening set	8149 Jul 27 08:49	26°Ω04'16
retrograde	8142 Nov 11 08:49	13°Ω25'58			
opposition	8143 Jan 30 08:29	12°Ω00'49 -1°07'45	conjunction	8149 Aug 12 07:07	26°Ω40'02 -0°54'54
min. Earth dist.	8143 Jan 29 13:26	12°Ω02'09 28.78331 AU	minimum elong	8149 Aug 12 07:07	26°Ω40'02 0°54'59
direct	8143 Apr 18 05:09	10°Ω37'10	max. Earth dist.	8149 Aug 13 01:16	26°Ω41'44 30.78261 AU
evening set	8143 Jul 14 03:52	12°Ω31'07	morning rise	8149 Aug 28 08:03	27°Ω16'02
			retrograde	8149 Nov 27 08:47	29°Ω14'32
conjunction	8143 Jul 29 23:23	13°Ω06'43 -1°02'51	opposition	8150 Feb 14 22:06	27°Ω49'22 -0°57'50
minimum elong	8143 Jul 29 23:24	13°Ω06'43 1°02'58	min. Earth dist.	8150 Feb 14 04:50	27°Ω50'35 28.78340 AU
max. Earth dist.	8143 Jul 30 18:41	13°Ω08'33 30.78346 AU	direct	8150 May 03 17:59	26°Ω25'29
morning rise	8143 Aug 14 21:58	13°Ω42'37	evening set	8150 Jul 29 21:42	28°Ω19'30
	8143 Sep 23 21:50	15°Ω			
retrograde	8143 Nov 13 22:27	15°Ω41'25	conjunction	8150 Aug 14 20:22	28°Ω55'16 -0°53'16
	8144 Jan 05 12:23	15°Ω	minimum elong	8150 Aug 14 20:22	28°Ω55'16 0°53'20
opposition	8144 Feb 01 20:50	14°Ω16'18 -1°06'38	max. Earth dist.	8150 Aug 15 14:15	28°Ω56'57 30.78365 AU
min. Earth dist.	8144 Feb 01 02:47	14°Ω17'34 28.78463 AU	morning rise	8150 Aug 30 21:46	29°Ω31'18
direct	8144 Apr 19 14:32	12°Ω52'39		8150 Sep 13 08:08	0°Ω
evening set	8144 Jul 15 16:35	14°Ω46'39	retrograde	8150 Nov 29 20:32	1°Ω29'43
	8144 Jul 21 16:14	15°Ω	opposition	8151 Feb 17 10:08	0°Ω04'33 -0°56'03
			min. Earth dist.	8151 Feb 16 17:57	0°Ω05'41 28.78514 AU
conjunction	8144 Jul 31 12:43	15°Ω22'18 -1°01'45		8151 Feb 20 02:51	30°Ω
minimum elong	8144 Jul 31 12:43	15°Ω22'18 1°01'51	direct	8151 May 06 05:06	28°Ω40'38
max. Earth dist.	8144 Aug 01 08:42	15°Ω24'11 30.78449 AU		8151 Jul 16 01:15	0°Ω
morning rise	8144 Aug 16 11:31	15°Ω58'12	evening set	8151 Aug 01 10:36	0°Ω34'39
retrograde	8144 Nov 15 11:10	17°Ω57'00			
opposition	8145 Feb 03 09:14	16°Ω31'55 -1°05'24	conjunction	8151 Aug 17 09:50	1°Ω10'26 -0°51'33
min. Earth dist.	8145 Feb 02 15:07	16°Ω33'11 28.78522 AU	minimum elong	8151 Aug 17 09:50	1°Ω10'26 0°51'38
direct	8145 Apr 22 03:00	15°Ω08'16	max. Earth dist.	8151 Aug 18 04:15	1°Ω12'10 30.78613 AU
evening set	8145 Jul 18 05:25	17°Ω02'18	morning rise	8151 Sep 02 11:29	1°Ω46'29

retrograde	8151 Dec 02 09:39	3° \mathring{M} 44'49	minimum elong	8158 Sep 02 09:09	16° \mathring{M} 57'15	0°37'33
opposition	8152 Feb 19 21:48	2° \mathring{M} 19'40 -0°54'11	max. Earth dist.	8158 Sep 03 00:05	16° \mathring{M} 58'39	30.82653 AU
min. Earth dist.	8152 Feb 19 04:50	2° \mathring{M} 20'52 28.78826 AU	morning rise	8158 Sep 18 13:10	17° \mathring{M} 33'22	
direct	8152 May 07 17:48	0° \mathring{M} 55'44	retrograde	8158 Dec 18 05:07	19° \mathring{M} 31'12	
evening set	8152 Aug 02 23:40	2° \mathring{M} 49'45	opposition	8159 Mar 07 08:07	18° \mathring{M} 06'20	-0°38'53
			min. Earth dist.	8159 Mar 06 18:09	18° \mathring{M} 07'19	28.82889 AU
conjunction	8152 Aug 18 23:09	3° \mathring{M} 25'34 -0°49'46	direct	8159 May 24 04:05	16° \mathring{M} 42'21	
minimum elong	8152 Aug 18 23:09	3° \mathring{M} 25'34 0°49'50	evening set	8159 Aug 19 20:44	18° \mathring{M} 36'33	
max. Earth dist.	8152 Aug 19 16:36	3° \mathring{M} 27'13 30.79000 AU				
morning rise	8152 Sep 04 01:18	4° \mathring{M} 01'38	conjunction	8159 Sep 04 22:59	19° \mathring{M} 12'29	-0°35'15
retrograde	8152 Dec 03 22:49	5° \mathring{M} 59'54	minimum elong	8159 Sep 04 22:59	19° \mathring{M} 12'29	0°35'17
opposition	8153 Feb 21 09:45	4° \mathring{M} 34'46 -0°52'13	max. Earth dist.	8159 Sep 05 13:03	19° \mathring{M} 13'48	30.83062 AU
min. Earth dist.	8153 Feb 20 17:30	4° \mathring{M} 35'55 28.79292 AU	morning rise	8159 Sep 21 03:18	19° \mathring{M} 48'37	
direct	8153 May 10 03:27	3° \mathring{M} 10'50	retrograde	8159 Dec 20 17:21	21° \mathring{M} 46'19	
evening set	8153 Aug 05 12:27	5° \mathring{M} 04'52	opposition	8160 Mar 08 19:39	20° \mathring{M} 21'28	-0°36'27
			min. Earth dist.	8160 Mar 08 07:23	20° \mathring{M} 22'20	28.83274 AU
conjunction	8153 Aug 21 12:32	5° \mathring{M} 40'42 -0°47'54	direct	8160 May 25 15:39	18° \mathring{M} 57'26	
minimum elong	8153 Aug 21 12:32	5° \mathring{M} 40'42 0°47'59	evening set	8160 Aug 21 10:07	20° \mathring{M} 51'37	
max. Earth dist.	8153 Aug 22 06:57	5° \mathring{M} 42'26 30.79537 AU				
morning rise	8153 Sep 06 14:54	6° \mathring{M} 16'47	conjunction	8160 Sep 06 12:50	21° \mathring{M} 27'34	-0°32'57
retrograde	8153 Dec 06 10:15	8° \mathring{M} 14'59	minimum elong	8160 Sep 06 12:50	21° \mathring{M} 27'34	0°32'58
opposition	8154 Feb 23 21:33	6° \mathring{M} 49'54 -0°50'11	max. Earth dist.	8160 Sep 07 02:49	21° \mathring{M} 28'52	30.83444 AU
min. Earth dist.	8154 Feb 23 05:00	6° \mathring{M} 51'04 28.79878 AU	morning rise	8160 Sep 22 17:20	22° \mathring{M} 03'42	
direct	8154 May 12 16:04	5° \mathring{M} 25'59	retrograde	8160 Dec 22 06:58	24° \mathring{M} 01'16	
evening set	8154 Aug 08 01:41	7° \mathring{M} 20'03	opposition	8161 Mar 11 07:02	22° \mathring{M} 36'26	-0°33'57
			min. Earth dist.	8161 Mar 10 18:24	22° \mathring{M} 37'19	28.83647 AU
conjunction	8154 Aug 24 02:01	7° \mathring{M} 55'53 -0°45'58	direct	8161 May 28 05:05	21° \mathring{M} 12'20	
minimum elong	8154 Aug 24 02:02	7° \mathring{M} 55'53 0°46'02	evening set	8161 Aug 23 23:28	23° \mathring{M} 06'32	
max. Earth dist.	8154 Aug 24 19:06	7° \mathring{M} 57'30 30.80182 AU				
morning rise	8154 Sep 09 04:55	8° \mathring{M} 31'59	conjunction	8161 Sep 09 02:23	23° \mathring{M} 42'29	-0°30'36
retrograde	8154 Dec 08 23:31	10° \mathring{M} 30'07	minimum elong	8161 Sep 09 02:23	23° \mathring{M} 42'29	0°30'37
opposition	8155 Feb 26 09:15	9° \mathring{M} 05'07 -0°48'04	max. Earth dist.	8161 Sep 09 15:06	23° \mathring{M} 43'40	30.83830 AU
min. Earth dist.	8155 Feb 25 17:11	9° \mathring{M} 06'14 28.80560 AU	morning rise	8161 Sep 25 07:17	24° \mathring{M} 18'37	
direct	8155 May 15 02:19	7° \mathring{M} 41'11	retrograde	8161 Dec 24 19:31	26° \mathring{M} 16'05	
evening set	8155 Aug 10 14:56	9° \mathring{M} 35'18	opposition	8162 Mar 13 18:27	24° \mathring{M} 51'14	-0°31'25
			min. Earth dist.	8162 Mar 13 07:00	24° \mathring{M} 52'03	28.84061 AU
conjunction	8155 Aug 26 15:48	10° \mathring{M} 11'10 -0°43'57	direct	8162 May 30 15:37	23° \mathring{M} 27'06	
minimum elong	8155 Aug 26 15:48	10° \mathring{M} 11'10 0°44'01	evening set	8162 Aug 26 12:50	25° \mathring{M} 21'18	
max. Earth dist.	8155 Aug 27 09:31	10° \mathring{M} 12'50 30.80875 AU				
morning rise	8155 Sep 11 18:51	10° \mathring{M} 47'16	conjunction	8162 Sep 11 16:15	25° \mathring{M} 57'16	-0°28'12
retrograde	8155 Dec 11 11:40	12° \mathring{M} 45'21	minimum elong	8162 Sep 11 16:15	25° \mathring{M} 57'16	0°28'13
opposition	8156 Feb 28 21:01	11° \mathring{M} 20'24 -0°45'52	max. Earth dist.	8162 Sep 12 05:28	25° \mathring{M} 58'30	30.84277 AU
min. Earth dist.	8156 Feb 28 05:49	11° \mathring{M} 21'28 28.81247 AU	morning rise	8162 Sep 27 21:13	26° \mathring{M} 33'24	
direct	8156 May 16 13:56	9° \mathring{M} 56'29	retrograde	8162 Dec 27 06:22	28° \mathring{M} 30'44	
evening set	8156 Aug 12 04:17	11° \mathring{M} 50'38	opposition	8163 Mar 16 05:33	27° \mathring{M} 05'55	-0°28'49
			min. Earth dist.	8163 Mar 15 18:03	27° \mathring{M} 06'43	28.84544 AU
conjunction	8156 Aug 28 05:24	12° \mathring{M} 26'31 -0°41'52	direct	8163 Jun 02 04:33	25° \mathring{M} 41'44	
minimum elong	8156 Aug 28 05:24	12° \mathring{M} 26'31 0°41'54	evening set	8163 Aug 29 02:21	27° \mathring{M} 35'57	
max. Earth dist.	8156 Aug 28 21:39	12° \mathring{M} 28'03 30.81551 AU				
morning rise	8156 Sep 13 08:52	13° \mathring{M} 02'38	conjunction	8163 Sep 14 05:54	28° \mathring{M} 11'55	-0°25'46
retrograde	8156 Dec 13 02:05	15° \mathring{M} 00'39	minimum elong	8163 Sep 14 05:54	28° \mathring{M} 11'55	0°25'46
opposition	8157 Mar 02 08:45	13° \mathring{M} 35'45 -0°43'36	max. Earth dist.	8163 Sep 14 17:34	28° \mathring{M} 13'00	30.84816 AU
min. Earth dist.	8157 Mar 01 17:35	13° \mathring{M} 36'49 28.81891 AU	morning rise	8163 Sep 30 11:14	28° \mathring{M} 48'03	
direct	8157 May 19 01:39	12° \mathring{M} 11'49		8163 Nov 06 11:22	0° \mathring{A}	
evening set	8157 Aug 14 17:44	14° \mathring{M} 06'00	retrograde	8163 Dec 29 18:39	0° \mathring{A} 45'16	
				8164 Feb 22 10:16	30° \mathring{R} \mathring{M}	
conjunction	8157 Aug 30 19:17	14° \mathring{M} 41'55 -0°39'43	opposition	8164 Mar 17 16:46	29° \mathring{M} 20'29	-0°26'12
minimum elong	8157 Aug 30 19:17	14° \mathring{M} 41'55 0°39'46	min. Earth dist.	8164 Mar 17 05:41	29° \mathring{M} 21'16	28.85148 AU
max. Earth dist.	8157 Aug 31 11:20	14° \mathring{M} 43'25 30.82145 AU	direct	8164 Jun 03 14:40	27° \mathring{M} 56'16	
morning rise	8157 Sep 15 22:58	15° \mathring{M} 18'02	evening set	8164 Aug 30 15:32	29° \mathring{M} 50'30	
retrograde	8157 Dec 15 14:50	17° \mathring{M} 15'58		8164 Sep 03 23:13	0° \mathring{A}	
opposition	8158 Mar 04 20:33	15° \mathring{M} 51'05 -0°41'17				
min. Earth dist.	8158 Mar 04 06:52	15° \mathring{M} 52'03 28.82437 AU	conjunction	8164 Sep 15 19:30	0° \mathring{A} 26'29	-0°23'17
direct	8158 May 21 14:35	14° \mathring{M} 27'08	minimum elong	8164 Sep 15 19:31	0° \mathring{A} 26'29	0°23'17
evening set	8158 Aug 17 07:10	16° \mathring{M} 21'20	max. Earth dist.	8164 Sep 16 08:00	0° \mathring{A} 27'38	30.85479 AU
			morning rise	8164 Oct 02 00:51	1° \mathring{A} 02'37	
conjunction	8158 Sep 02 09:09	16° \mathring{M} 57'15 -0°37'31	retrograde	8164 Dec 31 05:45	2° \mathring{A} 59'44	

opposition	8165 Mar 20 03:58	1° <u>♁</u> 34'59 -0°23'32	retrograde	8171 Jan 14 11:06	16° <u>♁</u> 26'52	
min. Earth dist.	8165 Mar 19 17:24	1° <u>♁</u> 35'44 28.85874 AU	opposition	8171 Apr 02 22:04	15° <u>♁</u> 02'31 -0°06'56	
direct	8165 Jun 06 01:43	0° <u>♁</u> 10'46	min. Earth dist.	8171 Apr 02 15:34	15° <u>♁</u> 02'59 28.91576 AU	
evening set	8165 Sep 02 04:58	2° <u>♁</u> 05'01	direct	8171 Jun 20 02:32	13° <u>♁</u> 38'16	
			evening set	8171 Sep 16 14:31	15° <u>♁</u> 32'46	
conjunction	8165 Sep 18 09:07	2° <u>♁</u> 41'00 -0°20'47				
minimum elong	8165 Sep 18 09:07	2° <u>♁</u> 41'00 0°20'47	conjunction	8171 Oct 02 20:05	16° <u>♁</u> 08'47 -0°05'14	
max. Earth dist.	8165 Sep 18 20:19	2° <u>♁</u> 42'03 30.86288 AU	minimum elong	8171 Oct 02 20:06	16° <u>♁</u> 08'47 0°05'12	
morning rise	8165 Oct 04 14:48	3° <u>♁</u> 17'09	behind sun begin	8171 Oct 02 13:44	16° <u>♁</u> 08'13	
retrograde	8166 Jan 02 18:48	5° <u>♁</u> 14'10	behind sun end	8171 Oct 03 02:29	16° <u>♁</u> 09'21	
opposition	8166 Mar 22 14:58	3° <u>♁</u> 49'29 -0°20'50	max. Earth dist.	8171 Oct 03 03:30	16° <u>♁</u> 09'27 30.91961 AU	
min. Earth dist.	8166 Mar 22 04:12	3° <u>♁</u> 50'15 28.86752 AU	morning rise	8171 Oct 19 02:17	16° <u>♁</u> 44'54	
direct	8166 Jun 08 12:52	2° <u>♁</u> 25'15	retrograde	8172 Jan 16 22:20	18° <u>♁</u> 41'14	
evening set	8166 Sep 04 18:23	4° <u>♁</u> 19'34	opposition	8172 Apr 04 08:57	17° <u>♁</u> 16'55 -0°04'07	
			min. Earth dist.	8172 Apr 04 02:49	17° <u>♁</u> 17'21 28.92332 AU	
conjunction	8166 Sep 20 22:53	4° <u>♁</u> 55'34 -0°18'14	direct	8172 Jun 21 15:45	15° <u>♁</u> 52'37	
minimum elong	8166 Sep 20 22:53	4° <u>♁</u> 55'34 0°18'14	evening set	8172 Sep 18 04:05	17° <u>♁</u> 47'07	
max. Earth dist.	8166 Sep 21 10:20	4° <u>♁</u> 56'37 30.87219 AU				
morning rise	8166 Oct 07 04:38	5° <u>♁</u> 31'42	conjunction	8172 Oct 04 09:38	18° <u>♁</u> 23'08 -0°02'36	
retrograde	8167 Jan 05 06:28	7° <u>♁</u> 28'38	minimum elong	8172 Oct 04 09:38	18° <u>♁</u> 23'08 0°02'34	
opposition	8167 Mar 25 02:06	6° <u>♁</u> 04'01 -0°18'05	behind sun begin	8172 Oct 04 03:04	18° <u>♁</u> 22'32	
min. Earth dist.	8167 Mar 24 16:35	6° <u>♁</u> 04'42 28.87729 AU	behind sun end	8172 Oct 04 16:13	18° <u>♁</u> 23'43	
direct	8167 Jun 11 01:14	4° <u>♁</u> 39'48	max. Earth dist.	8172 Oct 04 15:05	18° <u>♁</u> 23'36 30.92694 AU	
evening set	8167 Sep 07 07:54	6° <u>♁</u> 34'11	morning rise	8172 Oct 20 16:02	18° <u>♁</u> 59'13	
			retrograde	8173 Jan 18 10:44	20° <u>♁</u> 55'24	
conjunction	8167 Sep 23 12:36	7° <u>♁</u> 10'11 -0°15'40	opposition	8173 Apr 06 19:50	19° <u>♁</u> 31'06 -0°01'18	
minimum elong	8167 Sep 23 12:36	7° <u>♁</u> 10'11 0°15'39	min. Earth dist.	8173 Apr 06 14:28	19° <u>♁</u> 31'29 28.93052 AU	
behind sun begin	8167 Sep 23 11:40	7° <u>♁</u> 10'06	direct	8173 Jun 24 02:34	18° <u>♁</u> 06'44	
behind sun end	8167 Sep 23 13:33	7° <u>♁</u> 10'16	evening set	8173 Sep 20 17:32	20° <u>♁</u> 01'13	
max. Earth dist.	8167 Sep 23 23:04	7° <u>♁</u> 11'09 30.88241 AU	asc. node	8173 Sep 22 12:52	20° <u>♁</u> 05'10	
morning rise	8167 Oct 09 18:32	7° <u>♁</u> 46'19				
retrograde	8168 Jan 07 20:06	9° <u>♁</u> 43'09	conjunction	8173 Oct 06 23:23	20° <u>♁</u> 37'14 0°00'07	
opposition	8168 Mar 26 12:59	8° <u>♁</u> 18'38 -0°15'20	minimum elong	8173 Oct 06 23:25	20° <u>♁</u> 37'14 0°00'10	
min. Earth dist.	8168 Mar 26 03:08	8° <u>♁</u> 19'19 28.88762 AU	behind sun begin	8173 Oct 06 16:53	20° <u>♁</u> 36'39	
direct	8168 Jun 12 13:45	6° <u>♁</u> 54'25	behind sun end	8173 Oct 07 05:56	20° <u>♁</u> 37'49	
evening set	8168 Sep 08 21:33	8° <u>♁</u> 48'51	max. Earth dist.	8173 Oct 07 05:14	20° <u>♁</u> 37'45 30.93402 AU	
			morning rise	8173 Oct 23 05:40	21° <u>♁</u> 13'18	
conjunction	8168 Sep 25 02:25	9° <u>♁</u> 24'52 -0°13'05	retrograde	8174 Jan 20 20:51	23° <u>♁</u> 09'19	
minimum elong	8168 Sep 25 02:24	9° <u>♁</u> 24'52 0°13'03	opposition	8174 Apr 09 06:28	21° <u>♁</u> 45'02 0°01'32	
behind sun begin	8168 Sep 24 22:34	9° <u>♁</u> 24'31	min. Earth dist.	8174 Apr 09 02:06	21° <u>♁</u> 45'21 28.93759 AU	
behind sun end	8168 Sep 25 06:15	9° <u>♁</u> 25'12	direct	8174 Jun 26 14:12	20° <u>♁</u> 20'37	
max. Earth dist.	8168 Sep 25 12:08	9° <u>♁</u> 25'45 30.89270 AU	evening set	8174 Sep 23 07:06	22° <u>♁</u> 15'06	
morning rise	8168 Oct 11 08:26	10° <u>♁</u> 01'00				
retrograde	8169 Jan 09 08:42	11° <u>♁</u> 57'44	conjunction	8174 Oct 09 12:59	22° <u>♁</u> 51'05 0°02'48	
opposition	8169 Mar 29 00:07	10° <u>♁</u> 33'18 -0°12'33	minimum elong	8174 Oct 09 12:59	22° <u>♁</u> 51'05 0°02'52	
min. Earth dist.	8169 Mar 28 16:02	10° <u>♁</u> 33'52 28.89784 AU	behind sun begin	8174 Oct 09 06:25	22° <u>♁</u> 50'30	
direct	8169 Jun 15 01:01	9° <u>♁</u> 09'06	behind sun end	8174 Oct 09 19:33	22° <u>♁</u> 51'40	
evening set	8169 Sep 11 11:03	11° <u>♁</u> 03'34	max. Earth dist.	8174 Oct 09 17:08	22° <u>♁</u> 51'26 30.94132 AU	
			morning rise	8174 Oct 25 19:25	23° <u>♁</u> 27'09	
conjunction	8169 Sep 27 16:14	11° <u>♁</u> 39'35 -0°10'28	retrograde	8175 Jan 23 08:19	25° <u>♁</u> 23'00	
minimum elong	8169 Sep 27 16:14	11° <u>♁</u> 39'35 0°10'26	opposition	8175 Apr 11 17:05	23° <u>♁</u> 58'44 0°04'20	
behind sun begin	8169 Sep 27 11:08	11° <u>♁</u> 39'08	min. Earth dist.	8175 Apr 11 12:43	23° <u>♁</u> 59'03 28.94516 AU	
behind sun end	8169 Sep 27 21:21	11° <u>♁</u> 40'02	direct	8175 Jun 29 01:45	22° <u>♁</u> 34'15	
max. Earth dist.	8169 Sep 28 01:28	11° <u>♁</u> 40'26 30.90265 AU	evening set	8175 Sep 25 20:29	24° <u>♁</u> 28'44	
morning rise	8169 Oct 13 22:20	12° <u>♁</u> 15'42				
retrograde	8170 Jan 11 22:51	14° <u>♁</u> 12'20	conjunction	8175 Oct 12 02:32	25° <u>♁</u> 04'43 0°05'26	
opposition	8170 Mar 31 11:06	12° <u>♁</u> 47'57 -0°09'44	minimum elong	8175 Oct 12 02:31	25° <u>♁</u> 04'43 0°05'30	
min. Earth dist.	8170 Mar 31 03:00	12° <u>♁</u> 48'31 28.90727 AU	behind sun begin	8175 Oct 11 20:10	25° <u>♁</u> 04'09	
direct	8170 Jun 17 15:07	11° <u>♁</u> 23'44	behind sun end	8175 Oct 12 08:51	25° <u>♁</u> 05'17	
evening set	8170 Sep 14 00:54	13° <u>♁</u> 18'14	max. Earth dist.	8175 Oct 12 06:54	25° <u>♁</u> 05'05 30.94912 AU	
			morning rise	8175 Oct 28 08:46	25° <u>♁</u> 40'45	
conjunction	8170 Sep 30 06:09	13° <u>♁</u> 54'15 -0°07'52	retrograde	8176 Jan 25 18:06	27° <u>♁</u> 36'28	
minimum elong	8170 Sep 30 06:09	13° <u>♁</u> 54'15 0°07'50	opposition	8176 Apr 13 03:41	26° <u>♁</u> 12'13 0°07'08	
behind sun begin	8170 Sep 30 00:15	13° <u>♁</u> 53'44	min. Earth dist.	8176 Apr 13 00:35	26° <u>♁</u> 12'26 28.95346 AU	
behind sun end	8170 Sep 30 12:03	13° <u>♁</u> 54'47	direct	8176 Jun 30 13:19	24° <u>♁</u> 47'41	
max. Earth dist.	8170 Sep 30 13:37	13° <u>♁</u> 54'56 30.91156 AU	evening set	8176 Sep 27 09:51	26° <u>♁</u> 42'11	
morning rise	8170 Oct 16 12:25	14° <u>♁</u> 30'22				

conjunction	8176 Oct 13 15:54	27° <u>♏</u> 18'09	0°08'02	evening set	8182 Oct 11 18:20	10° <u>♏</u> 02'24	
minimum elong	8176 Oct 13 15:54	27° <u>♏</u> 18'09	0°08'06				
behind sun begin	8176 Oct 13 10:04	27° <u>♏</u> 17'38		conjunction	8182 Oct 28 00:33	10° <u>♏</u> 38'20	0°23'18
behind sun end	8176 Oct 13 21:44	27° <u>♏</u> 18'40		minimum elong	8182 Oct 28 00:33	10° <u>♏</u> 38'20	0°23'24
max. Earth dist.	8176 Oct 13 19:17	27° <u>♏</u> 18'26	30.95808 AU	max. Earth dist.	8182 Oct 28 00:27	10° <u>♏</u> 38'19	31.03144 AU
morning rise	8176 Oct 29 22:12	27° <u>♏</u> 54'10		morning rise	8182 Nov 13 06:06	11° <u>♏</u> 14'14	
retrograde	8177 Jan 27 06:33	29° <u>♏</u> 49'44		retrograde	8183 Feb 10 05:39	13° <u>♏</u> 09'10	
opposition	8177 Apr 15 14:07	28° <u>♏</u> 25'32	0°09'56	opposition	8183 Apr 29 05:05	11° <u>♏</u> 45'31	0°26'12
min. Earth dist.	8177 Apr 15 10:23	28° <u>♏</u> 25'48	28.96305 AU	min. Earth dist.	8183 Apr 29 06:07	11° <u>♏</u> 45'27	29.03723 AU
direct	8177 Jul 03 01:15	27° <u>♏</u> 00'57		direct	8183 Jul 17 00:00	10° <u>♏</u> 21'03	
evening set	8177 Sep 29 23:09	28° <u>♏</u> 55'29		evening set	8183 Oct 14 07:51	12° <u>♏</u> 15'54	
conjunction	8177 Oct 16 05:17	29° <u>♏</u> 31'27	0°10'37	conjunction	8183 Oct 30 13:50	12° <u>♏</u> 51'48	0°25'45
minimum elong	8177 Oct 16 05:17	29° <u>♏</u> 31'27	0°10'42	minimum elong	8183 Oct 30 13:50	12° <u>♏</u> 51'48	0°25'52
behind sun begin	8177 Oct 16 00:16	29° <u>♏</u> 31'00		max. Earth dist.	8183 Oct 30 11:42	12° <u>♏</u> 51'37	31.04265 AU
behind sun end	8177 Oct 16 10:18	29° <u>♏</u> 31'53		morning rise	8183 Nov 15 19:21	13° <u>♏</u> 27'42	
max. Earth dist.	8177 Oct 16 08:18	29° <u>♏</u> 31'42	30.96830 AU		8184 Jan 06 21:10	15° <u>♏</u>	
	8177 Oct 29 01:46	0° <u>♏</u>		retrograde	8184 Feb 12 16:47	15° <u>♏</u> 22'30	
morning rise	8177 Nov 01 11:30	0° <u>♏</u> 07'27			8184 Mar 21 00:36	15° <u>♏</u>	
retrograde	8178 Jan 29 17:49	2° <u>♏</u> 02'54		opposition	8184 Apr 30 15:32	13° <u>♏</u> 58'56	0°28'48
opposition	8178 Apr 18 00:45	0° <u>♏</u> 38'45	0°12'42	min. Earth dist.	8184 Apr 30 16:48	13° <u>♏</u> 58'50	29.04795 AU
min. Earth dist.	8178 Apr 17 22:23	0° <u>♏</u> 38'55	28.97402 AU	direct	8184 Jul 18 11:24	12° <u>♏</u> 34'26	
	8178 May 11 18:45	30° <u>♏</u>		evening set	8184 Oct 15 21:14	14° <u>♏</u> 29'19	
direct	8178 Jul 05 12:31	29° <u>♏</u> 14'11			8184 Oct 29 19:14	15° <u>♏</u>	
	8178 Aug 28 00:47	0° <u>♏</u>					
evening set	8178 Oct 02 12:32	1° <u>♏</u> 08'45		conjunction	8184 Nov 01 03:16	15° <u>♏</u> 05'12	0°28'09
conjunction	8178 Oct 18 18:46	1° <u>♏</u> 44'42	0°13'12	minimum elong	8184 Nov 01 03:15	15° <u>♏</u> 05'12	0°28'15
minimum elong	8178 Oct 18 18:46	1° <u>♏</u> 44'42	0°13'16	max. Earth dist.	8184 Nov 01 01:00	15° <u>♏</u> 05'00	31.05283 AU
behind sun begin	8178 Oct 18 15:05	1° <u>♏</u> 44'22		morning rise	8184 Nov 17 08:27	15° <u>♏</u> 41'04	
behind sun end	8178 Oct 18 22:28	1° <u>♏</u> 45'02		retrograde	8185 Feb 14 02:12	17° <u>♏</u> 35'44	
max. Earth dist.	8178 Oct 18 21:35	1° <u>♏</u> 44'57	30.98000 AU	opposition	8185 May 03 02:00	16° <u>♏</u> 12'13	0°31'20
morning rise	8178 Nov 04 00:53	2° <u>♏</u> 20'40		min. Earth dist.	8185 May 03 04:56	16° <u>♏</u> 12'00	29.05774 AU
retrograde	8179 Feb 01 06:47	4° <u>♏</u> 16'00			8185 Jun 23 11:25	15° <u>♏</u>	
opposition	8179 Apr 20 11:04	2° <u>♏</u> 51'57	0°15'27	direct	8185 Jul 20 22:21	14° <u>♏</u> 47'42	
min. Earth dist.	8179 Apr 20 08:20	2° <u>♏</u> 52'09	28.98623 AU		8185 Aug 17 05:31	15° <u>♏</u>	
direct	8179 Jul 08 02:03	1° <u>♏</u> 27'24		evening set	8185 Oct 18 10:33	16° <u>♏</u> 42'34	
evening set	8179 Oct 05 02:01	3° <u>♏</u> 22'02		conjunction	8185 Nov 03 16:28	17° <u>♏</u> 18'27	0°30'30
conjunction	8179 Oct 21 08:09	3° <u>♏</u> 57'59	0°15'46	minimum elong	8185 Nov 03 16:28	17° <u>♏</u> 18'27	0°30'38
minimum elong	8179 Oct 21 08:09	3° <u>♏</u> 57'59	0°15'51	max. Earth dist.	8185 Nov 03 12:43	17° <u>♏</u> 18'06	31.06235 AU
max. Earth dist.	8179 Oct 21 09:48	3° <u>♏</u> 58'08	30.99272 AU	morning rise	8185 Nov 19 21:36	17° <u>♏</u> 54'17	
morning rise	8179 Nov 06 14:15	4° <u>♏</u> 33'57		retrograde	8186 Feb 16 14:01	19° <u>♏</u> 48'49	
retrograde	8180 Feb 03 18:50	6° <u>♏</u> 29'11		opposition	8186 May 05 12:17	18° <u>♏</u> 25'20	0°33'50
opposition	8180 Apr 21 21:38	5° <u>♏</u> 05'14	0°18'11	min. Earth dist.	8186 May 05 15:01	18° <u>♏</u> 25'08	29.06694 AU
min. Earth dist.	8180 Apr 21 20:09	5° <u>♏</u> 05'20	28.99940 AU	direct	8186 Jul 23 09:45	17° <u>♏</u> 00'45	
direct	8180 Jul 09 12:58	3° <u>♏</u> 40'43		evening set	8186 Oct 20 23:54	18° <u>♏</u> 55'39	
evening set	8180 Oct 06 15:13	5° <u>♏</u> 35'25		conjunction	8186 Nov 06 05:42	19° <u>♏</u> 31'30	0°32'49
conjunction	8180 Oct 22 21:30	6° <u>♏</u> 11'21	0°18'18	minimum elong	8186 Nov 06 05:42	19° <u>♏</u> 31'30	0°32'56
minimum elong	8180 Oct 22 21:30	6° <u>♏</u> 11'21	0°18'24	max. Earth dist.	8186 Nov 06 01:16	19° <u>♏</u> 31'06	31.07129 AU
max. Earth dist.	8180 Oct 22 23:22	6° <u>♏</u> 11'31	31.00607 AU	morning rise	8186 Nov 22 10:32	20° <u>♏</u> 07'18	
morning rise	8180 Nov 08 03:21	6° <u>♏</u> 47'18		retrograde	8187 Feb 18 23:56	22° <u>♏</u> 01'42	
retrograde	8181 Feb 05 06:28	8° <u>♏</u> 42'26		opposition	8187 May 07 22:36	20° <u>♏</u> 38'14	0°36'17
opposition	8181 Apr 24 08:06	7° <u>♏</u> 18'37	0°20'54	min. Earth dist.	8187 May 08 03:02	20° <u>♏</u> 37'56	29.07590 AU
min. Earth dist.	8181 Apr 24 06:57	7° <u>♏</u> 18'41	29.01266 AU	direct	8187 Jul 25 21:29	19° <u>♏</u> 13'37	
direct	8181 Jul 12 01:44	5° <u>♏</u> 54'08		evening set	8187 Oct 23 13:03	21° <u>♏</u> 08'31	
evening set	8181 Oct 09 04:50	7° <u>♏</u> 48'53		conjunction	8187 Nov 08 18:46	21° <u>♏</u> 44'21	0°35'05
conjunction	8181 Oct 25 10:55	8° <u>♏</u> 24'49	0°20'49	minimum elong	8187 Nov 08 18:46	21° <u>♏</u> 44'21	0°35'13
minimum elong	8181 Oct 25 10:55	8° <u>♏</u> 24'49	0°20'55	max. Earth dist.	8187 Nov 08 13:56	21° <u>♏</u> 43'54	31.08035 AU
max. Earth dist.	8181 Oct 25 10:45	8° <u>♏</u> 24'48	31.01915 AU	morning rise	8187 Nov 24 23:22	22° <u>♏</u> 20'06	
morning rise	8181 Nov 10 16:47	9° <u>♏</u> 00'45		retrograde	8188 Feb 21 11:36	24° <u>♏</u> 14'21	
retrograde	8182 Feb 07 19:25	10° <u>♏</u> 55'47		opposition	8188 May 09 08:50	22° <u>♏</u> 50'56	0°38'40
opposition	8182 Apr 26 18:31	9° <u>♏</u> 32'03	0°23'34	min. Earth dist.	8188 May 09 12:57	22° <u>♏</u> 50'38	29.08509 AU
min. Earth dist.	8182 Apr 26 18:17	9° <u>♏</u> 32'04	29.02550 AU	direct	8188 Jul 27 11:15	21° <u>♏</u> 26'16	
direct	8182 Jul 14 12:22	8° <u>♏</u> 07'35		evening set	8188 Oct 25 02:02	23° <u>♏</u> 21'11	

conjunction	8188 Nov 10 07:31	23° ℳ 56'58	0°37'17	retrograde	8195 Mar 08 16:14	9° ♂ 39'48	
minimum elong	8188 Nov 10 07:31	23° ℳ 56'58	0°37'24	opposition	8195 May 25 08:30	8° ♂ 16'54	0°53'33
max. Earth dist.	8188 Nov 10 01:39	23° ℳ 56'26	31.08979 AU	min. Earth dist.	8195 May 25 16:19	8° ♂ 16'21	29.16848 AU
morning rise	8188 Nov 26 11:56	24° ℳ 32'42		direct	8195 Aug 12 20:00	6° ♂ 52'15	
retrograde	8189 Feb 22 22:39	26° ℳ 26'49		evening set	8195 Nov 10 20:51	8° ♂ 47'24	
opposition	8189 May 11 19:09	25° ℳ 03'25	0°41'00				
min. Earth dist.	8189 May 12 00:19	25° ℳ 03'03	29.09504 AU	conjunction	8195 Nov 27 00:53	9° ♂ 23'03	0°51'00
direct	8189 Jul 29 22:24	23° ℳ 38'43		minimum elong	8195 Nov 27 00:53	9° ♂ 23'03	0°51'09
evening set	8189 Oct 27 15:00	25° ℳ 33'39		max. Earth dist.	8195 Nov 26 14:48	9° ♂ 22'07	31.17351 AU
				morning rise	8195 Dec 13 03:04	9° ♂ 58'33	
conjunction	8189 Nov 12 20:28	26° ℳ 09'25	0°39'26	retrograde	8196 Mar 10 01:46	11° ♂ 51'57	
minimum elong	8189 Nov 12 20:28	26° ℳ 09'25	0°39'34	opposition	8196 May 26 18:57	10° ♂ 29'06	0°55'23
max. Earth dist.	8189 Nov 12 14:58	26° ℳ 08'54	31.10017 AU	min. Earth dist.	8196 May 27 04:32	10° ♂ 28'26	29.17888 AU
morning rise	8189 Nov 29 00:31	26° ℳ 45'06		direct	8196 Aug 14 07:05	9° ♂ 04'27	
retrograde	8190 Feb 25 09:46	28° ℳ 39'05		evening set	8196 Nov 12 09:35	10° ♂ 59'37	
opposition	8190 May 14 05:16	27° ℳ 15'44	0°43'16				
min. Earth dist.	8190 May 14 10:29	27° ℳ 15'22	29.10590 AU	conjunction	8196 Nov 28 13:25	11° ♂ 35'14	0°52'40
direct	8190 Aug 01 11:34	25° ℳ 51'01		minimum elong	8196 Nov 28 13:25	11° ♂ 35'14	0°52'49
evening set	8190 Oct 30 04:06	27° ℳ 45'58		max. Earth dist.	8196 Nov 28 02:38	11° ♂ 34'14	31.18326 AU
				morning rise	8196 Dec 14 15:17	12° ♂ 10'42	
conjunction	8190 Nov 15 09:13	28° ℳ 21'43	0°41'32	retrograde	8197 Mar 12 12:44	14° ♂ 04'00	
minimum elong	8190 Nov 15 09:13	28° ℳ 21'43	0°41'39	opposition	8197 May 29 05:14	12° ♂ 41'12	0°57'08
max. Earth dist.	8190 Nov 15 02:10	28° ℳ 21'04	31.11162 AU	min. Earth dist.	8197 May 29 14:50	12° ♂ 40'31	29.18788 AU
morning rise	8190 Dec 01 13:08	28° ℳ 57'23		direct	8197 Aug 16 20:10	11° ♂ 16'31	
	8191 Jan 02 08:51	0° ♂		evening set	8197 Nov 14 22:30	13° ♂ 11'43	
retrograde	8191 Feb 27 22:29	0° ♂ 51'15					
	8191 Apr 27 02:41	30° ♂		conjunction	8197 Dec 01 01:59	13° ♂ 47'18	0°54'16
opposition	8191 May 16 15:30	29° ℳ 27'58	0°45'28	minimum elong	8197 Dec 01 01:59	13° ♂ 47'18	0°54'26
min. Earth dist.	8191 May 16 21:01	29° ℳ 27'35	29.11799 AU	max. Earth dist.	8197 Nov 30 13:47	13° ♂ 46'10	31.19161 AU
direct	8191 Aug 03 23:12	28° ℳ 03'15		morning rise	8197 Dec 17 03:32	14° ♂ 22'44	
evening set	8191 Nov 01 16:52	29° ℳ 58'14		retrograde	8198 Mar 14 23:35	16° ♂ 15'55	
	8191 Nov 02 12:26	0° ♂		opposition	8198 May 31 15:28	14° ♂ 53'09	0°58'48
				min. Earth dist.	8198 Jun 01 02:26	14° ♂ 52'23	29.19580 AU
conjunction	8191 Nov 17 21:56	0° ♂ 33'58	0°43'33	direct	8198 Aug 19 06:58	13° ♂ 28'27	
minimum elong	8191 Nov 17 21:56	0° ♂ 33'58	0°43'43	evening set	8198 Nov 17 11:11	15° ♂ 23'39	
max. Earth dist.	8191 Nov 17 15:35	0° ♂ 33'23	31.12414 AU				
morning rise	8191 Dec 04 01:22	1° ♂ 09'35		conjunction	8198 Dec 03 14:31	15° ♂ 59'13	0°55'47
retrograde	8192 Mar 01 07:53	3° ♂ 03'21		minimum elong	8198 Dec 03 14:31	15° ♂ 59'13	0°55'56
opposition	8192 May 18 01:48	1° ♂ 40'10	0°47'36	max. Earth dist.	8198 Dec 03 02:24	15° ♂ 58'05	31.19905 AU
min. Earth dist.	8192 May 18 08:10	1° ♂ 39'43	29.13084 AU	morning rise	8198 Dec 19 15:36	16° ♂ 34'36	
direct	8192 Aug 05 11:16	0° ♂ 15'29		retrograde	8199 Mar 17 10:17	18° ♂ 27'41	
evening set	8192 Nov 03 05:53	2° ♂ 10'30		opposition	8199 Jun 03 01:44	17° ♂ 04'57	1°00'22
				min. Earth dist.	8199 Jun 03 13:04	17° ♂ 04'10	29.20279 AU
conjunction	8192 Nov 19 10:35	2° ♂ 46'13	0°45'31	direct	8199 Aug 21 20:30	15° ♂ 40'13	
minimum elong	8192 Nov 19 10:35	2° ♂ 46'13	0°45'40	evening set	8199 Nov 19 23:44	17° ♂ 35'25	
max. Earth dist.	8192 Nov 19 02:39	2° ♂ 45'29	31.13731 AU				
morning rise	8192 Dec 05 13:54	3° ♂ 21'49		conjunction	8199 Dec 06 02:36	18° ♂ 10'57	0°57'13
retrograde	8193 Mar 03 19:17	5° ♂ 15'29		minimum elong	8199 Dec 06 02:36	18° ♂ 10'57	0°57'23
opposition	8193 May 20 11:54	3° ♂ 52'24	0°49'40	max. Earth dist.	8199 Dec 05 12:51	18° ♂ 09'40	31.20581 AU
min. Earth dist.	8193 May 20 18:16	3° ♂ 51'57	29.14411 AU	morning rise	8199 Dec 22 03:27	18° ♂ 46'18	
direct	8193 Aug 07 22:11	2° ♂ 27'44		retrograde	8200 Mar 19 22:30	20° ♂ 39'17	
evening set	8193 Nov 05 18:47	4° ♂ 22'48		opposition	8200 Jun 05 11:58	19° ♂ 16'33	1°01'51
				min. Earth dist.	8200 Jun 05 23:39	19° ♂ 15'45	29.20954 AU
conjunction	8193 Nov 21 23:25	4° ♂ 58'29	0°47'25	direct	8200 Aug 24 08:38	17° ♂ 51'47	
minimum elong	8193 Nov 21 23:25	4° ♂ 58'29	0°47'35	evening set	8200 Nov 22 12:05	19° ♂ 47'00	
max. Earth dist.	8193 Nov 21 15:37	4° ♂ 57'46	31.15032 AU				
morning rise	8193 Dec 08 02:16	5° ♂ 34'03		conjunction	8200 Dec 08 14:49	20° ♂ 22'30	0°58'34
retrograde	8194 Mar 06 04:52	7° ♂ 27'38		minimum elong	8200 Dec 08 14:49	20° ♂ 22'30	0°58'43
opposition	8194 May 22 22:16	6° ♂ 04'39	0°51'39	max. Earth dist.	8200 Dec 08 01:44	20° ♂ 21'17	31.21249 AU
min. Earth dist.	8194 May 23 06:18	6° ♂ 04'05	29.15681 AU	morning rise	8200 Dec 24 15:08	20° ♂ 57'49	
direct	8194 Aug 10 08:46	4° ♂ 40'00		retrograde	8201 Mar 22 07:22	22° ♂ 50'41	
evening set	8194 Nov 08 07:52	6° ♂ 35'07		opposition	8201 Jun 07 22:07	21° ♂ 28'00	1°03'15
				min. Earth dist.	8201 Jun 08 10:41	21° ♂ 27'07	29.21635 AU
conjunction	8194 Nov 24 12:09	7° ♂ 10'47	0°49'15	direct	8201 Aug 26 21:08	20° ♂ 03'11	
minimum elong	8194 Nov 24 12:09	7° ♂ 10'47	0°49'23	evening set	8201 Nov 25 00:32	21° ♂ 58'25	
max. Earth dist.	8194 Nov 24 02:49	7° ♂ 09'55	31.16256 AU				
morning rise	8194 Dec 10 14:45	7° ♂ 46'19		conjunction	8201 Dec 11 02:48	22° ♂ 33'53	0°59'49

minimum elong	8201 Dec 11 02:47	22°  33'53	1°00'00	opposition	8208 Jun 22 22:03	6°  46'45	1°10'20
max. Earth dist.	8201 Dec 10 12:21	22°  32'32	31.21960 AU	min. Earth dist.	8208 Jun 23 12:48	6°  45'44	29.27932 AU
morning rise	8201 Dec 27 02:54	23°  09'10		direct	8208 Sep 11 02:59	5°  22'03	
retrograde	8202 Mar 24 18:14	25°  01'56		evening set	8208 Dec 10 13:16	7°  17'28	
opposition	8202 Jun 10 08:16	23°  39'17	1°04'33				
min. Earth dist.	8202 Jun 10 20:22	23°  38'26	29.22388 AU	conjunction	8208 Dec 26 13:03	7°  52'45	1°06'08
direct	8202 Aug 29 08:37	22°  14'27		minimum elong	8208 Dec 26 13:03	7°  52'45	1°06'17
evening set	8202 Nov 27 12:44	24°  09'41		max. Earth dist.	8208 Dec 25 19:47	7°  51'09	31.28240 AU
				morning rise	8209 Jan 11 10:20	8°  27'48	
conjunction	8202 Dec 13 14:47	24°  45'08	1°01'00	retrograde	8209 Apr 08 18:26	10°  20'12	
minimum elong	8202 Dec 13 14:47	24°  45'08	1°01'09	opposition	8209 Jun 25 08:21	8°  57'58	1°10'57
max. Earth dist.	8202 Dec 13 01:00	24°  43'52	31.22748 AU	min. Earth dist.	8209 Jun 25 23:29	8°  56'55	29.28624 AU
morning rise	8202 Dec 29 14:19	25°  20'23		direct	8209 Sep 13 14:59	7°  33'15	
retrograde	8203 Mar 27 03:20	27°  13'04		evening set	8209 Dec 13 01:12	9°  28'41	
opposition	8203 Jun 12 18:34	25°  50'28	1°05'45	max. Earth dist.	8209 Dec 28 07:58	10°  02'22	31.28858 AU
min. Earth dist.	8203 Jun 13 07:43	25°  49'33	29.23232 AU				
direct	8203 Aug 31 19:11	24°  25'39		conjunction	8209 Dec 29 00:48	10°  03'56	1°06'40
evening set	8203 Nov 30 00:56	26°  20'55		minimum elong	8209 Dec 29 00:48	10°  03'56	1°06'50
max. Earth dist.	8203 Dec 15 12:00	26°  54'59	31.23655 AU	morning rise	8210 Jan 13 21:30	10°  38'57	
				retrograde	8210 Apr 11 03:24	12°  31'16	
conjunction	8203 Dec 16 02:34	26°  56'20	1°02'05	opposition	8210 Jun 27 18:54	11°  09'04	1°11'27
minimum elong	8203 Dec 16 02:34	26°  56'20	1°02'16	min. Earth dist.	8210 Jun 28 11:08	11°  07'57	29.29173 AU
morning rise	8204 Jan 01 01:50	27°  31'33		direct	8210 Sep 16 03:28	9°  44'20	
retrograde	8204 Mar 28 13:55	29°  24'11		evening set	8210 Dec 15 13:08	11°  39'45	
opposition	8204 Jun 14 04:42	28°  01'39	1°06'52				
min. Earth dist.	8204 Jun 14 16:59	28°  00'48	29.24184 AU	conjunction	8210 Dec 31 12:10	12°  14'57	1°07'06
direct	8204 Sep 02 05:54	26°  36'51		minimum elong	8210 Dec 31 12:10	12°  14'57	1°07'15
evening set	8204 Dec 01 12:57	28°  32'09		max. Earth dist.	8210 Dec 30 17:51	12°  13'16	31.29352 AU
				morning rise	8211 Jan 16 08:37	12°  49'57	
conjunction	8204 Dec 17 14:18	29°  07'32	1°03'05	retrograde	8211 Apr 13 14:41	14°  42'11	
minimum elong	8204 Dec 17 14:18	29°  07'32	1°03'14	opposition	8211 Jun 30 05:17	13°  19'59	1°11'52
max. Earth dist.	8204 Dec 16 23:40	29°  06'11	31.24638 AU	min. Earth dist.	8211 Jun 30 21:10	13°  18'53	29.29618 AU
morning rise	8205 Jan 02 13:08	29°  42'44		direct	8211 Sep 18 15:48	11°  55'13	
	8205 Jan 10 15:50	0°  3		evening set	8211 Dec 18 00:48	13°  50'37	
retrograde	8205 Mar 30 22:39	1°  35'19					
opposition	8205 Jun 16 15:01	0°  12'52	1°07'53	conjunction	8212 Jan 02 23:37	14°  25'48	1°07'26
min. Earth dist.	8205 Jun 17 04:37	0°  11'56	29.25194 AU	minimum elong	8212 Jan 02 23:37	14°  25'48	1°07'36
	8205 Jun 24 08:55	30°  11'56		max. Earth dist.	8212 Jan 02 05:45	14°  24'09	31.29749 AU
direct	8205 Sep 04 16:16	28°  48'07		morning rise	8212 Jan 18 19:30	15°  00'45	
	8205 Nov 12 19:22	0°  3		retrograde	8212 Apr 14 23:56	16°  52'55	
evening set	8205 Dec 04 01:05	0°  43'27		opposition	8212 Jul 01 15:46	15°  30'43	1°12'11
max. Earth dist.	8205 Dec 19 11:15	1°  17'26	31.25654 AU	min. Earth dist.	8212 Jul 02 08:56	15°  29'31	29.29988 AU
				direct	8212 Sep 20 03:28	14°  05'55	
conjunction	8205 Dec 20 02:05	1°  18'49	1°03'59	evening set	8212 Dec 19 12:21	16°  01'16	
minimum elong	8205 Dec 20 02:05	1°  18'49	1°04'09				
morning rise	8206 Jan 05 00:31	1°  53'58		conjunction	8213 Jan 04 10:43	16°  36'25	1°07'40
retrograde	8206 Apr 02 08:51	3°  46'30		minimum elong	8213 Jan 04 10:43	16°  36'25	1°07'49
opposition	8206 Jun 19 01:09	2°  32'40	1°08'48	max. Earth dist.	8213 Jan 03 16:06	16°  34'41	31.30106 AU
min. Earth dist.	8206 Jun 19 14:31	2°  23'13	29.26188 AU	morning rise	8213 Jan 20 06:22	17°  11'20	
direct	8206 Sep 07 03:50	0°  59'25		retrograde	8213 Apr 17 09:47	19°  03'26	
evening set	8206 Dec 06 13:17	2°  54'48		opposition	8213 Jul 04 02:05	17°  41'13	1°12'23
				min. Earth dist.	8213 Jul 04 18:26	17°  40'05	29.30330 AU
conjunction	8206 Dec 22 13:50	3°  30'08	1°04'48	direct	8213 Sep 22 15:29	16°  16'23	
minimum elong	8206 Dec 22 13:50	3°  30'08	1°04'57	evening set	8213 Dec 21 23:51	18°  11'43	
max. Earth dist.	8206 Dec 21 21:57	3°  28'40	31.26615 AU				
morning rise	8207 Jan 07 11:53	4°  05'16		conjunction	8214 Jan 06 21:52	18°  46'50	1°07'49
retrograde	8207 Apr 04 19:46	5°  57'46		minimum elong	8214 Jan 06 21:52	18°  46'50	1°07'59
opposition	8207 Jun 21 11:37	4°  35'28	1°09'37	max. Earth dist.	8214 Jan 06 03:15	18°  45'06	31.30448 AU
min. Earth dist.	8207 Jun 22 02:01	4°  34'28	29.27121 AU	morning rise	8214 Jan 22 17:01	19°  21'43	
direct	8207 Sep 09 13:33	3°  10'45		retrograde	8214 Apr 19 18:01	21°  13'45	
evening set	8207 Dec 09 01:09	5°  06'09		opposition	8214 Jul 06 12:32	19°  51'32	1°12'29
max. Earth dist.	8207 Dec 24 09:55	5°  40'01	31.27492 AU	min. Earth dist.	8214 Jul 07 05:53	19°  50'20	29.30705 AU
				direct	8214 Sep 25 01:48	18°  26'41	
conjunction	8207 Dec 25 01:28	5°  41'27	1°05'31	evening set	8214 Dec 24 11:14	20°  22'00	
minimum elong	8207 Dec 25 01:28	5°  41'27	1°05'41				
morning rise	8208 Jan 09 23:00	6° 16'33		conjunction	8215 Jan 09 08:52	20° 57'05	1°07'52
retrograde	8208 Apr 06 06:14	8° 09'00		minimum elong	8215 Jan 09 08:52	20° 57'05	1°08'01

max. Earth dist.	8215 Jan 08 14:35	20°35'23	31.30863 AU	min. Earth dist.	8221 Jul 22 08:56	5°03'06	29.34622 AU
morning rise	8215 Jan 25 03:36	21°31'56		direct	8221 Oct 10 09:21	3°39'47	
retrograde	8215 Apr 22 03:23	23°23'56		evening set	8222 Jan 08 17:29	5°35'14	
opposition	8215 Jul 08 23:01	22°01'44	1°12'30				
min. Earth dist.	8215 Jul 09 15:31	22°00'36	29.31160 AU	conjunction	8222 Jan 24 12:23	6°10'10	1°05'30
direct	8215 Sep 27 13:11	20°36'53		minimum elong	8222 Jan 24 12:23	6°10'10	1°05'38
evening set	8215 Dec 26 22:26	22°32'12		max. Earth dist.	8222 Jan 23 17:11	6°08'23	31.34716 AU
				morning rise	8222 Feb 09 04:29	6°44'51	
conjunction	8216 Jan 11 19:36	23°07'15	1°07'50	retrograde	8222 May 07 05:43	8°36'55	
minimum elong	8216 Jan 11 19:36	23°07'15	1°07'59	opposition	8222 Jul 24 01:41	7°15'04	1°09'36
max. Earth dist.	8216 Jan 11 00:55	23°05'31	31.31370 AU	min. Earth dist.	8222 Jul 24 18:58	7°13'52	29.34885 AU
morning rise	8216 Jan 27 14:00	23°34'05		direct	8222 Oct 12 21:36	5°50'31	
retrograde	8216 Apr 23 13:49	25°34'04		evening set	8223 Jan 11 04:32	7°45'58	
opposition	8216 Jul 10 09:34	24°11'54	1°12'24				
min. Earth dist.	8216 Jul 11 02:22	24°10'45	29.31729 AU	conjunction	8223 Jan 26 23:04	8°20'52	1°04'47
direct	8216 Sep 28 22:27	22°34'05		minimum elong	8223 Jan 26 23:05	8°20'52	1°04'54
evening set	8216 Dec 28 09:36	24°34'25		max. Earth dist.	8223 Jan 26 03:38	8°19'04	31.34904 AU
				morning rise	8223 Feb 11 14:45	8°55'33	
conjunction	8217 Jan 13 06:32	25°17'27	1°07'41	retrograde	8223 May 09 14:14	10°47'36	
minimum elong	8217 Jan 13 06:32	25°17'27	1°07'50	opposition	8223 Jul 26 12:43	9°25'45	1°08'47
max. Earth dist.	8217 Jan 12 12:51	25°15'49	31.31986 AU	min. Earth dist.	8223 Jul 27 07:06	9°24'30	29.35011 AU
morning rise	8217 Jan 29 00:27	25°35'21		direct	8223 Oct 15 07:55	8°01'13	
retrograde	8217 Apr 25 23:47	27°34'14		evening set	8224 Jan 13 15:19	9°56'38	
opposition	8217 Jul 12 19:58	26°22'08	1°12'11				
min. Earth dist.	8217 Jul 13 12:40	26°20'59	29.32367 AU	conjunction	8224 Jan 29 09:32	10°31'31	1°03'58
direct	8217 Oct 01 10:55	24°35'22		minimum elong	8224 Jan 29 09:32	10°31'31	1°04'06
evening set	8217 Dec 30 20:57	26°35'44		max. Earth dist.	8224 Jan 28 14:20	10°29'44	31.34970 AU
				morning rise	8224 Feb 14 00:53	11°06'10	
conjunction	8218 Jan 15 17:20	27°32'45	1°07'26	retrograde	8224 May 10 23:19	11°58'13	
minimum elong	8218 Jan 15 17:20	27°32'45	1°07'36	opposition	8224 Jul 27 23:39	11°36'21	1°07'52
max. Earth dist.	8218 Jan 14 22:33	27°26'01	31.32650 AU	min. Earth dist.	8224 Jul 28 17:32	11°35'07	29.35005 AU
morning rise	8218 Jan 31 11:01	28°02'32		direct	8224 Oct 16 19:24	10°11'48	
retrograde	8218 Apr 28 12:08	29°35'32		evening set	8225 Jan 15 02:14	12°07'10	
opposition	8218 Jul 15 06:33	28°32'30	1°11'52				
min. Earth dist.	8218 Jul 15 23:04	28°31'22	29.33040 AU	conjunction	8225 Jan 30 20:00	12°42'02	1°03'04
direct	8218 Oct 03 21:54	27°07'47		minimum elong	8225 Jan 30 20:00	12°42'02	1°03'11
evening set	8219 Jan 02 08:00	29°03'12		max. Earth dist.	8225 Jan 30 00:04	12°40'10	31.34916 AU
max. Earth dist.	8219 Jan 17 10:22	29°36'33	31.33304 AU	morning rise	8225 Feb 15 11:05	13°16'40	
					8225 Apr 20 19:24	15°	
conjunction	8219 Jan 18 04:09	29°38'12	1°07'06	retrograde	8225 May 13 09:26	15°08'42	
minimum elong	8219 Jan 18 04:09	29°38'12	1°07'14		8225 Jun 05 09:21	15°R	
	8219 Jan 27 23:21	0°		opposition	8225 Jul 30 10:29	13°46'48	1°06'52
morning rise	8219 Feb 02 21:15	0°12'57		min. Earth dist.	8225 Jul 31 04:50	13°45'32	29.34923 AU
retrograde	8219 Apr 30 21:29	2°04'59		direct	8225 Oct 19 05:08	12°22'13	
opposition	8219 Jul 17 17:20	0°43'00	1°11'28	evening set	8226 Jan 17 12:55	14°17'33	
min. Earth dist.	8219 Jul 18 10:40	0°41'49	29.33665 AU	max. Earth dist.	8226 Feb 01 11:36	14°50'38	31.34813 AU
	8219 Aug 14 01:53	30°R					
direct	8219 Oct 06 09:30	29°18'22		conjunction	8226 Feb 02 06:28	14°52'23	1°02'05
	8219 Nov 27 01:35	0°		minimum elong	8226 Feb 02 06:28	14°52'23	1°02'13
evening set	8220 Jan 04 19:15	1°13'48			8226 Feb 05 16:11	15°	
				morning rise	8226 Feb 17 21:05	15°26'59	
conjunction	8220 Jan 20 14:51	1°48'46	1°06'40	retrograde	8226 May 15 18:27	17°19'01	
minimum elong	8220 Jan 20 14:52	1°48'46	1°06'49	opposition	8226 Aug 01 21:31	15°57'05	1°05'46
max. Earth dist.	8220 Jan 19 19:56	1°47'01	31.33896 AU	min. Earth dist.	8226 Aug 02 15:40	15°55'50	29.34805 AU
morning rise	8220 Feb 05 07:45	2°23'30			8226 Sep 09 00:46	15°R	
retrograde	8220 May 02 09:24	4°15'33		direct	8226 Oct 21 17:51	14°32'29	
opposition	8220 Jul 19 03:58	2°53'38	1°10'56		8226 Dec 02 09:58	15°	
min. Earth dist.	8220 Jul 19 20:44	2°52'29	29.34211 AU	evening set	8227 Jan 19 23:32	16°27'46	
direct	8220 Oct 07 21:34	1°29'02					
evening set	8221 Jan 06 06:18	3°24'29		conjunction	8227 Feb 04 16:31	17°02'34	1°01'01
max. Earth dist.	8221 Jan 21 07:15	3°57'44	31.34373 AU	minimum elong	8227 Feb 04 16:31	17°02'34	1°01'07
				max. Earth dist.	8227 Feb 03 20:55	17°00'45	31.34710 AU
conjunction	8221 Jan 22 01:41	3°59'27	1°06'08	morning rise	8227 Feb 20 06:57	17°37'09	
minimum elong	8221 Jan 22 01:41	3°59'27	1°06'16	retrograde	8227 May 18 05:57	19°29'12	
morning rise	8221 Feb 06 18:04	4°34'09		opposition	8227 Aug 04 08:33	18°07'13	1°04'34
retrograde	8221 May 04 19:39	6°26'13		min. Earth dist.	8227 Aug 05 01:57	18°06'01	29.34737 AU
opposition	8221 Jul 21 14:53	5°04'20	1°10'19	direct	8227 Oct 24 04:19	16°42'37	

evening set	8228 Jan 22 09:58	18° \approx 37'52		conjunction	8234 Feb 19 15:15	2° \mathbb{H} 14'01	0°51'08
max. Earth dist.	8228 Feb 06 08:37	19° \approx 10'57	31.34673 AU	minimum elong	8234 Feb 19 15:15	2° \mathbb{H} 14'01	0°51'13
				max. Earth dist.	8234 Feb 18 21:30	2° \mathbb{H} 12'21	31.34867 AU
conjunction	8228 Feb 07 02:47	19° \approx 12'39	0°59'51	morning rise	8234 Mar 07 03:34	2° \mathbb{H} 48'30	
minimum elong	8228 Feb 07 02:47	19° \approx 12'39	0°59'59	retrograde	8234 Jun 02 05:51	4° \mathbb{H} 40'54	
morning rise	8228 Feb 22 16:43	19° \approx 47'12		opposition	8234 Aug 19 15:17	3° \mathbb{H} 18'58	0°53'43
retrograde	8228 May 19 15:01	21° \approx 39'16		min. Earth dist.	8234 Aug 20 07:46	3° \mathbb{H} 17'51	29.34783 AU
opposition	8228 Aug 05 19:34	20° \approx 17'16	1°03'17	direct	8234 Nov 08 11:49	1° \mathbb{H} 54'40	
min. Earth dist.	8228 Aug 06 13:17	20° \approx 16'03	29.34739 AU	evening set	8235 Feb 06 10:52	3° \mathbb{H} 49'51	
direct	8228 Oct 25 15:32	18° \approx 52'41		max. Earth dist.	8235 Feb 21 08:37	4° \mathbb{H} 22'58	31.34575 AU
evening set	8229 Jan 23 20:31	20° \approx 47'55					
				conjunction	8235 Feb 22 01:18	4° \mathbb{H} 24'31	0°49'25
conjunction	8229 Feb 08 12:51	21° \approx 22'41	0°58'36	minimum elong	8235 Feb 22 01:18	4° \mathbb{H} 24'31	0°49'29
minimum elong	8229 Feb 08 12:51	21° \approx 22'41	0°58'42	morning rise	8235 Mar 09 13:13	4° \mathbb{H} 59'01	
max. Earth dist.	8229 Feb 07 18:09	21° \approx 20'56	31.34727 AU	retrograde	8235 Jun 04 15:05	6° \mathbb{H} 51'28	
morning rise	8229 Feb 24 02:39	21° \approx 57'13		opposition	8235 Aug 22 02:54	5° \mathbb{H} 29'32	0°51'50
retrograde	8229 May 22 03:05	23° \approx 49'18		min. Earth dist.	8235 Aug 22 19:20	5° \mathbb{H} 28'24	29.34404 AU
opposition	8229 Aug 08 06:35	22° \approx 27'19	1°01'54	direct	8235 Nov 10 23:59	4° \mathbb{H} 05'15	
min. Earth dist.	8229 Aug 08 23:03	22° \approx 26'12	29.34822 AU	evening set	8236 Feb 08 21:17	6° \mathbb{H} 00'24	
direct	8229 Oct 28 03:58	21° \approx 02'46					
evening set	8230 Jan 26 06:54	22° \approx 58'00		conjunction	8236 Feb 24 11:16	6° \mathbb{H} 35'03	0°47'37
				minimum elong	8236 Feb 24 11:17	6° \mathbb{H} 35'03	0°47'42
conjunction	8230 Feb 10 22:59	23° \approx 32'45	0°57'16	max. Earth dist.	8236 Feb 23 17:32	6° \mathbb{H} 33'24	31.34128 AU
minimum elong	8230 Feb 10 22:59	23° \approx 32'45	0°57'23	morning rise	8236 Mar 10 23:07	7° \mathbb{H} 09'32	
max. Earth dist.	8230 Feb 10 05:22	23° \approx 31'07	31.34830 AU	retrograde	8236 Jun 06 02:51	9° \mathbb{H} 02'03	
morning rise	8230 Feb 26 12:20	24° \approx 07'16		opposition	8236 Aug 23 14:18	7° \mathbb{H} 40'04	0°49'53
retrograde	8230 May 24 13:31	25° \approx 59'25		min. Earth dist.	8236 Aug 24 06:16	7° \mathbb{H} 38'59	29.33889 AU
opposition	8230 Aug 10 17:49	24° \approx 37'26	1°00'26	direct	8236 Nov 12 10:01	6° \mathbb{H} 15'47	
min. Earth dist.	8230 Aug 11 11:01	24° \approx 36'16	29.34938 AU	evening set	8237 Feb 10 07:29	8° \mathbb{H} 10'54	
direct	8230 Oct 30 15:41	23° \approx 12'57					
evening set	8231 Jan 28 17:20	25° \approx 08'11		conjunction	8237 Feb 25 21:22	8° \mathbb{H} 45'33	0°45'46
				minimum elong	8237 Feb 25 21:22	8° \mathbb{H} 45'33	0°45'49
conjunction	8231 Feb 13 09:01	25° \approx 42'54	0°55'51	max. Earth dist.	8237 Feb 25 04:44	8° \mathbb{H} 44'00	31.33544 AU
minimum elong	8231 Feb 13 09:01	25° \approx 42'54	0°55'57	morning rise	8237 Mar 13 08:50	9° \mathbb{H} 20'02	
max. Earth dist.	8231 Feb 12 15:22	25° \approx 41'16	31.34956 AU	retrograde	8237 Jun 08 12:17	11° \mathbb{H} 12'36	
morning rise	8231 Feb 28 22:10	26° \approx 17'25		opposition	8237 Aug 26 01:58	9° \mathbb{H} 50'34	0°47'52
retrograde	8231 May 26 23:57	28° \approx 09'37		min. Earth dist.	8237 Aug 26 18:31	9° \mathbb{H} 49'26	29.33244 AU
opposition	8231 Aug 13 05:00	26° \approx 47'40	0°58'53	direct	8237 Nov 14 21:24	8° \mathbb{H} 26'17	
min. Earth dist.	8231 Aug 13 20:58	26° \approx 46'35	29.35043 AU	evening set	8238 Feb 12 17:39	10° \mathbb{H} 21'21	
direct	8231 Nov 02 03:50	25° \approx 23'14					
evening set	8232 Jan 31 03:39	27° \approx 18'27		conjunction	8238 Feb 28 07:05	10° \mathbb{H} 55'59	0°43'51
				minimum elong	8238 Feb 28 07:05	10° \mathbb{H} 55'59	0°43'54
conjunction	8232 Feb 15 19:00	27° \approx 53'10	0°54'22	max. Earth dist.	8238 Feb 27 14:00	10° \mathbb{H} 54'23	31.32869 AU
minimum elong	8232 Feb 15 19:00	27° \approx 53'10	0°54'27	morning rise	8238 Mar 15 18:28	11° \mathbb{H} 30'26	
max. Earth dist.	8232 Feb 15 01:27	27° \approx 51'32	31.35029 AU	retrograde	8238 Jun 11 00:23	13° \mathbb{H} 23'04	
morning rise	8232 Mar 02 07:51	28° \approx 27'41		opposition	8238 Aug 28 13:31	12° \mathbb{H} 00'57	0°45'48
	8232 Apr 23 21:30	0° \mathbb{H}		min. Earth dist.	8238 Aug 29 04:47	11° \mathbb{H} 59'55	29.32543 AU
retrograde	8232 May 28 09:31	0° \mathbb{H} 19'57		direct	8238 Nov 17 10:13	10° \mathbb{H} 36'40	
	8232 Jul 02 17:59	30° \mathbb{R}		evening set	8239 Feb 15 03:37	12° \mathbb{H} 31'41	
opposition	8232 Aug 14 16:25	28° \approx 58'01	0°57'14				
min. Earth dist.	8232 Aug 15 09:12	28° \approx 56'52	29.35082 AU	conjunction	8239 Mar 02 16:51	13° \mathbb{H} 06'18	0°41'52
direct	8232 Nov 03 14:13	27° \approx 33'38		minimum elong	8239 Mar 02 16:52	13° \mathbb{H} 06'18	0°41'55
evening set	8233 Feb 01 14:05	29° \approx 28'51		max. Earth dist.	8239 Mar 02 00:54	13° \mathbb{H} 04'49	31.32160 AU
	8233 Feb 15 15:08	0° \mathbb{H}		morning rise	8239 Mar 18 03:55	13° \mathbb{H} 40'46	
				retrograde	8239 Jun 13 11:11	15° \mathbb{H} 33'27	
conjunction	8233 Feb 17 05:09	0° \mathbb{H} 03'33	0°52'47	opposition	8239 Aug 31 01:15	14° \mathbb{H} 11'16	0°43'39
minimum elong	8233 Feb 17 05:09	0° \mathbb{H} 03'33	0°52'52	min. Earth dist.	8239 Aug 31 16:57	14° \mathbb{H} 10'12	29.31855 AU
max. Earth dist.	8233 Feb 16 12:06	0° \mathbb{H} 01'58	31.35018 AU	direct	8239 Nov 19 22:08	12° \mathbb{H} 46'59	
morning rise	8233 Mar 04 17:40	0° \mathbb{H} 38'03		evening set	8240 Feb 17 13:29	14° \mathbb{H} 41'57	
retrograde	8233 May 30 19:02	2° \mathbb{H} 30'22		max. Earth dist.	8240 Mar 03 10:57	15° \mathbb{H} 15'07	31.31508 AU
opposition	8233 Aug 17 03:42	1° \mathbb{H} 08'27	0°55'31				
min. Earth dist.	8233 Aug 17 19:54	1° \mathbb{H} 07'21	29.34997 AU	conjunction	8240 Mar 04 02:25	15° \mathbb{H} 16'34	0°39'50
	8233 Oct 04 23:43	30° \mathbb{R}		minimum elong	8240 Mar 04 02:26	15° \mathbb{H} 16'34	0°39'53
direct	8233 Nov 06 02:02	29° \approx 44'07		morning rise	8240 Mar 19 13:21	15° \mathbb{H} 51'01	
	8233 Dec 07 11:34	0° \mathbb{H}		retrograde	8240 Jun 14 21:21	17° \mathbb{H} 43'46	
evening set	8234 Feb 04 00:38	1° \mathbb{H} 39'19		opposition	8240 Sep 01 12:50	16° \mathbb{H} 21'33	0°41'27
				min. Earth dist.	8240 Sep 02 02:48	16° \mathbb{H} 20'36	29.31232 AU

direct	8240 Nov 21 10:36	14° ✕ 57'16		minimum elong	8247 Mar 19 22:00	0° ✓ 30'44	0°24'07
evening set	8241 Feb 18 23:26	16° ✕ 52'13		max. Earth dist.	8247 Mar 19 10:03	0° ✓ 29'37	31.28002 AU
				morning rise	8247 Apr 04 07:48	1° ✓ 05'12	
conjunction	8241 Mar 06 12:04	17° ✕ 26'49	0°37'44	retrograde	8247 Jun 30 23:18	2° ✓ 58'42	
minimum elong	8241 Mar 06 12:04	17° ✕ 26'49	0°37'46	opposition	8247 Sep 18 00:20	1° ✓ 36'20	0°24'28
max. Earth dist.	8241 Mar 05 21:01	17° ✕ 25'25	31.30927 AU	min. Earth dist.	8247 Sep 18 10:52	1° ✓ 35'37	29.27649 AU
morning rise	8241 Mar 21 22:47	18° ✕ 01'16		direct	8247 Dec 07 15:30	0° ✓ 12'22	
retrograde	8241 Jun 17 07:08	19° ✕ 54'07		evening set	8248 Mar 05 20:47	2° ✓ 07'09	
opposition	8241 Sep 04 00:33	18° ✕ 31'52	0°39'11				
min. Earth dist.	8241 Sep 04 14:40	18° ✕ 30'54	29.30703 AU	conjunction	8248 Mar 21 07:48	2° ✓ 41'44	0°21'42
direct	8241 Nov 23 21:30	17° ✕ 07'37		minimum elong	8248 Mar 21 07:48	2° ✓ 41'44	0°21'42
evening set	8242 Feb 21 09:18	19° ✕ 02'33		max. Earth dist.	8248 Mar 20 20:34	2° ✓ 40'41	31.27230 AU
				morning rise	8248 Apr 05 17:24	3° ✓ 16'12	
conjunction	8242 Mar 08 21:45	19° ✕ 37'09	0°35'35	retrograde	8248 Jul 02 10:35	5° ✓ 09'48	
minimum elong	8242 Mar 08 21:45	19° ✕ 37'09	0°35'38	opposition	8248 Sep 19 12:39	3° ✓ 47'21	0°21'52
max. Earth dist.	8242 Mar 08 08:01	19° ✕ 35'52	31.30448 AU	min. Earth dist.	8248 Sep 19 23:54	3° ✓ 46'35	29.26809 AU
morning rise	8242 Mar 24 08:13	20° ✕ 11'36		direct	8248 Dec 09 02:52	2° ✓ 23'24	
retrograde	8242 Jun 19 16:57	22° ✕ 04'32		evening set	8249 Mar 08 06:46	4° ✓ 18'09	
opposition	8242 Sep 06 12:21	20° ✕ 42'16	0°36'51				
min. Earth dist.	8242 Sep 07 01:12	20° ✕ 41'24	29.30246 AU	conjunction	8249 Mar 23 17:34	4° ✓ 52'42	0°19'16
direct	8242 Nov 26 09:46	19° ✕ 18'05		minimum elong	8249 Mar 23 17:34	4° ✓ 52'42	0°19'14
evening set	8243 Feb 23 19:08	21° ✕ 13'00		max. Earth dist.	8249 Mar 23 06:35	4° ✓ 51'41	31.26331 AU
				morning rise	8249 Apr 08 03:04	5° ✓ 27'11	
conjunction	8243 Mar 11 07:12	21° ✕ 47'35	0°33'23	retrograde	8249 Jul 04 21:33	7° ✓ 20'51	
minimum elong	8243 Mar 11 07:12	21° ✕ 47'35	0°33'25	opposition	8249 Sep 22 00:47	5° ✓ 58'21	0°19'15
max. Earth dist.	8243 Mar 10 17:21	21° ✕ 46'18	31.30021 AU	min. Earth dist.	8249 Sep 22 10:37	5° ✓ 57'41	29.25840 AU
morning rise	8243 Mar 26 17:37	22° ✕ 22'03		direct	8249 Dec 11 15:45	4° ✓ 34'23	
retrograde	8243 Jun 22 03:48	24° ✕ 15'06		evening set	8250 Mar 10 16:42	6° ✓ 29'04	
opposition	8243 Sep 09 00:14	22° ✕ 52'50	0°34'28				
min. Earth dist.	8243 Sep 09 12:48	22° ✕ 51'58	29.29838 AU	conjunction	8250 Mar 26 03:16	7° ✓ 03'37	0°16'47
direct	8243 Nov 28 19:33	21° ✕ 28'42		minimum elong	8250 Mar 26 03:16	7° ✓ 03'37	0°16'47
evening set	8244 Feb 26 04:57	23° ✕ 23'35		max. Earth dist.	8250 Mar 25 16:23	7° ✓ 02'37	31.25316 AU
				morning rise	8250 Apr 10 12:44	7° ✓ 38'06	
conjunction	8244 Mar 12 16:56	23° ✕ 58'11	0°31'08	retrograde	8250 Jul 07 08:36	9° ✓ 31'52	
minimum elong	8244 Mar 12 16:56	23° ✕ 58'11	0°31'10	opposition	8250 Sep 24 13:11	8° ✓ 09'15	0°16'35
max. Earth dist.	8244 Mar 12 04:40	23° ✕ 57'02	31.29612 AU	min. Earth dist.	8250 Sep 24 23:20	8° ✓ 08'34	29.24799 AU
morning rise	8244 Mar 28 03:03	24° ✕ 32'39		direct	8250 Dec 14 03:31	6° ✓ 45'17	
retrograde	8244 Jun 23 12:37	26° ✕ 25'48		evening set	8251 Mar 13 02:20	8° ✓ 39'53	
opposition	8244 Sep 10 12:02	25° ✕ 03'32	0°32'02				
min. Earth dist.	8244 Sep 11 00:16	25° ✕ 02'42	29.29408 AU	conjunction	8251 Mar 28 12:50	9° ✓ 14'27	0°14'18
direct	8244 Nov 30 07:02	23° ✕ 39'28		minimum elong	8251 Mar 28 12:50	9° ✓ 14'27	0°14'16
evening set	8245 Feb 27 14:59	25° ✕ 34'20		behind sun begin	8251 Mar 28 09:41	9° ✓ 14'10	
				behind sun end	8251 Mar 28 15:58	9° ✓ 14'44	
conjunction	8245 Mar 15 02:34	26° ✕ 08'55	0°28'50	max. Earth dist.	8251 Mar 28 03:23	9° ✓ 13'34	31.24265 AU
minimum elong	8245 Mar 15 02:34	26° ✕ 08'55	0°28'51	morning rise	8251 Apr 12 22:08	9° ✓ 48'56	
max. Earth dist.	8245 Mar 14 13:38	26° ✕ 07'43	31.29165 AU	retrograde	8251 Jul 09 18:44	11° ✓ 42'46	
morning rise	8245 Mar 30 12:41	26° ✕ 43'23		opposition	8251 Sep 27 01:27	10° ✓ 20'04	0°13'55
retrograde	8245 Jun 26 00:37	28° ✕ 36'40		min. Earth dist.	8251 Sep 27 10:19	10° ✓ 19'28	29.23741 AU
opposition	8245 Sep 13 00:01	27° ✕ 14'22	0°29'33	direct	8251 Dec 16 16:53	8° ✓ 56'05	
min. Earth dist.	8245 Sep 13 11:24	27° ✕ 13'36	29.28929 AU	evening set	8252 Mar 14 12:12	10° ✓ 50'38	
direct	8245 Dec 02 16:18	25° ✕ 50'20					
evening set	8246 Mar 02 00:49	27° ✕ 45'12		conjunction	8252 Mar 29 22:22	11° ✓ 25'11	0°11'48
				minimum elong	8252 Mar 29 22:22	11° ✓ 25'11	0°11'46
conjunction	8246 Mar 17 12:18	28° ✕ 19'47	0°26'30	behind sun begin	8252 Mar 29 17:49	11° ✓ 24'46	
minimum elong	8246 Mar 17 12:18	28° ✕ 19'47	0°26'31	behind sun end	8252 Mar 30 02:56	11° ✓ 25'36	
max. Earth dist.	8246 Mar 17 00:43	28° ✕ 18'42	31.28634 AU	max. Earth dist.	8252 Mar 29 12:50	11° ✓ 24'18	31.23227 AU
morning rise	8246 Apr 01 22:05	28° ✕ 54'15		morning rise	8252 Apr 14 07:44	11° ✓ 59'41	
	8246 May 05 05:54	0° ✓		retrograde	8252 Jul 11 05:34	13° ✓ 53'36	
retrograde	8246 Jun 28 10:36	0° ✓ 47'39		opposition	8252 Sep 28 13:36	12° ✓ 30'50	0°11'13
	8246 Aug 24 12:28	30° ✕		min. Earth dist.	8252 Sep 28 21:57	12° ✓ 30'16	29.22749 AU
opposition	8246 Sep 15 12:16	29° ✕ 25'19	0°27'02	direct	8252 Dec 18 03:09	11° ✓ 06'51	
min. Earth dist.	8246 Sep 16 00:02	29° ✕ 24'31	29.28345 AU	evening set	8253 Mar 16 21:52	13° ✓ 01'21	
direct	8246 Dec 05 03:30	28° ✕ 01'20					
evening set	8247 Mar 04 10:53	29° ✕ 56'09		conjunction	8253 Apr 01 08:03	13° ✓ 35'55	0°09'16
	8247 Mar 06 04:49	0° ✓		minimum elong	8253 Apr 01 08:03	13° ✓ 35'55	0°09'14
				behind sun begin	8253 Apr 01 02:36	13° ✓ 35'25	
conjunction	8247 Mar 19 22:00	0° ✓ 30'44	0°24'07	behind sun end	8253 Apr 01 13:30	13° ✓ 36'24	

max. Earth dist.	8253 Apr 01 00:26	13° Υ 35'13	31.22276 AU	evening set	8259 Mar 30 08:42	26° Υ 09'18	
morning rise	8253 Apr 16 17:10	14° Υ 10'25					
retrograde	8253 Jul 13 14:31	16° Υ 04'28		conjunction	8259 Apr 14 17:59	26° Υ 43'54	-0°06'15
opposition	8253 Oct 01 01:58	14° Υ 41'38	0°08'30	minimum elong	8259 Apr 14 17:59	26° Υ 43'54	0°06'20
min. Earth dist.	8253 Oct 01 09:27	14° Υ 41'07	29.21843 AU	behind sun begin	8259 Apr 14 11:55	26° Υ 43'21	
direct	8253 Dec 20 15:07	13° Υ 17'41		behind sun end	8259 Apr 15 00:03	26° Υ 44'27	
evening set	8254 Mar 19 07:36	15° Υ 12'10		max. Earth dist.	8259 Apr 14 13:55	26° Υ 43'33	31.17788 AU
				morning rise	8259 Apr 30 03:07	27° Υ 18'30	
conjunction	8254 Apr 03 17:27	15° Υ 46'43	0°06'44	retrograde	8259 Jul 27 15:11	29° Υ 13'28	
minimum elong	8254 Apr 03 17:27	15° Υ 46'43	0°06'42	opposition	8259 Oct 15 05:29	27° Υ 50'30	-0°07'59
behind sun begin	8254 Apr 03 11:27	15° Υ 46'11		min. Earth dist.	8259 Oct 15 09:02	27° Υ 50'16	29.17356 AU
behind sun end	8254 Apr 03 23:28	15° Υ 47'16		direct	8260 Jan 03 08:56	26° Υ 26'56	
max. Earth dist.	8254 Apr 03 09:43	15° Υ 46'01	31.21432 AU	evening set	8260 Mar 31 18:44	28° Υ 21'22	
morning rise	8254 Apr 19 02:42	16° Υ 21'14					
retrograde	8254 Jul 16 02:40	18° Υ 15'25		conjunction	8260 Apr 16 04:04	28° Υ 55'59	-0°08'48
opposition	8254 Oct 03 14:22	16° Υ 52'33	0°05'46	minimum elong	8260 Apr 16 04:04	28° Υ 55'59	0°08'52
min. Earth dist.	8254 Oct 03 20:23	16° Υ 52'09	29.21051 AU	behind sun begin	8260 Apr 15 22:31	28° Υ 55'29	
direct	8254 Dec 23 00:30	15° Υ 28'40		behind sun end	8260 Apr 16 09:36	28° Υ 56'29	
evening set	8255 Mar 21 17:15	17° Υ 23'07		max. Earth dist.	8260 Apr 16 01:09	28° Υ 55'44	31.16879 AU
				morning rise	8260 May 01 13:05	29° Υ 30'36	
conjunction	8255 Apr 06 03:08	17° Υ 57'42	0°04'11		8260 May 15 06:39	0° \mathcal{B}	
minimum elong	8255 Apr 06 03:07	17° Υ 57'42	0°04'08	retrograde	8260 Jul 29 02:56	1° \mathcal{B} 25'41	
behind sun begin	8255 Apr 05 20:48	17° Υ 57'07		opposition	8260 Oct 16 18:09	0° \mathcal{B} 02'41	-0°10'44
behind sun end	8255 Apr 06 09:27	17° Υ 58'16		min. Earth dist.	8260 Oct 16 20:46	0° \mathcal{B} 02'31	29.16369 AU
max. Earth dist.	8255 Apr 05 21:09	17° Υ 57'09	31.20678 AU		8260 Oct 18 09:47	30° \mathcal{R} Υ	
morning rise	8255 Apr 21 12:11	18° Υ 32'14		direct	8261 Jan 04 22:38	28° Υ 39'09	
retrograde	8255 Jul 18 12:56	20° Υ 26'34			8261 Mar 18 09:25	0° \mathcal{B}	
opposition	8255 Oct 06 02:47	19° Υ 03'41	0°03'02	evening set	8261 Apr 03 04:57	0° \mathcal{B} 33'34	
min. Earth dist.	8255 Oct 06 08:46	19° Υ 03'16	29.20331 AU				
direct	8255 Dec 25 11:16	17° Υ 39'51		conjunction	8261 Apr 18 14:03	1° \mathcal{B} 08'11	-0°11'21
evening set	8256 Mar 23 03:02	19° Υ 34'18		minimum elong	8261 Apr 18 14:03	1° \mathcal{B} 08'11	0°11'26
				behind sun begin	8261 Apr 18 09:21	1° \mathcal{B} 07'45	
conjunction	8256 Apr 07 12:42	20° Υ 08'53	0°01'36	behind sun end	8261 Apr 18 18:45	1° \mathcal{B} 08'36	
minimum elong	8256 Apr 07 12:42	20° Υ 08'53	0°01'32	max. Earth dist.	8261 Apr 18 10:34	1° \mathcal{B} 07'52	31.15826 AU
behind sun begin	8256 Apr 07 06:17	20° Υ 08'18		morning rise	8261 May 03 23:15	1° \mathcal{B} 42'49	
behind sun end	8256 Apr 07 19:06	20° Υ 09'27		retrograde	8261 Jul 31 14:32	3° \mathcal{B} 38'02	
max. Earth dist.	8256 Apr 07 06:53	20° Υ 08'22	31.19992 AU	opposition	8261 Oct 19 07:07	2° \mathcal{B} 14'57	-0°13'27
morning rise	8256 Apr 22 21:52	20° Υ 43'26		min. Earth dist.	8261 Oct 19 09:34	2° \mathcal{B} 14'47	29.15255 AU
retrograde	8256 Jul 20 02:06	22° Υ 37'55		direct	8262 Jan 07 09:24	0° \mathcal{B} 51'25	
opposition	8256 Oct 07 15:13	21° Υ 15'01	0°00'16	evening set	8262 Apr 05 14:51	2° \mathcal{B} 45'47	
min. Earth dist.	8256 Oct 07 19:35	21° Υ 14'44	29.19649 AU				
desc. node	8256 Nov 12 14:12	20° Υ 21'03		conjunction	8262 Apr 21 00:04	3° \mathcal{B} 20'24	-0°13'53
direct	8256 Dec 26 22:28	19° Υ 51'16		minimum elong	8262 Apr 21 00:04	3° \mathcal{B} 20'24	0°13'58
evening set	8257 Mar 25 12:50	21° Υ 45'44		behind sun begin	8262 Apr 20 20:41	3° \mathcal{B} 20'06	
				behind sun end	8262 Apr 21 03:26	3° \mathcal{B} 20'42	
conjunction	8257 Apr 09 22:22	22° Υ 20'19	-0°01'04	max. Earth dist.	8262 Apr 20 22:09	3° \mathcal{B} 20'14	31.14646 AU
minimum elong	8257 Apr 09 22:24	22° Υ 20'19	0°01'09	morning rise	8262 May 06 09:09	3° \mathcal{B} 55'04	
behind sun begin	8257 Apr 09 16:00	22° Υ 19'44		retrograde	8262 Aug 02 23:55	5° \mathcal{B} 50'22	
behind sun end	8257 Apr 10 04:48	22° Υ 20'53		opposition	8262 Oct 21 20:05	4° \mathcal{B} 27'12	-0°16'09
max. Earth dist.	8257 Apr 09 17:37	22° Υ 19'54	31.19300 AU	min. Earth dist.	8262 Oct 21 22:03	4° \mathcal{B} 27'04	29.14017 AU
morning rise	8257 Apr 25 07:28	22° Υ 54'53		direct	8263 Jan 09 22:41	3° \mathcal{B} 03'39	
retrograde	8257 Jul 22 14:08	24° Υ 49'32		evening set	8263 Apr 08 00:58	4° \mathcal{B} 57'57	
opposition	8257 Oct 10 03:55	23° Υ 26'37	-0°02'29				
min. Earth dist.	8257 Oct 10 08:42	23° Υ 26'18	29.18951 AU	conjunction	8263 Apr 23 09:59	5° \mathcal{B} 32'35	-0°16'23
direct	8257 Dec 29 08:46	22° Υ 02'56		minimum elong	8263 Apr 23 09:59	5° \mathcal{B} 32'35	0°16'29
evening set	8258 Mar 27 22:45	23° Υ 57'24		max. Earth dist.	8263 Apr 23 07:39	5° \mathcal{B} 32'22	31.13382 AU
				morning rise	8263 May 08 19:19	6° \mathcal{B} 07'15	
conjunction	8258 Apr 12 08:13	24° Υ 32'00	-0°03'41	retrograde	8263 Aug 05 12:27	8° \mathcal{B} 02'40	
minimum elong	8258 Apr 12 08:13	24° Υ 32'00	0°03'45	opposition	8263 Oct 24 08:48	6° \mathcal{B} 39'23	-0°18'50
behind sun begin	8258 Apr 12 01:52	24° Υ 31'25		min. Earth dist.	8263 Oct 24 09:41	6° \mathcal{B} 39'20	29.12739 AU
behind sun end	8258 Apr 12 14:33	24° Υ 32'34		direct	8264 Jan 12 09:21	5° \mathcal{B} 15'49	
max. Earth dist.	8258 Apr 12 04:07	24° Υ 31'39	31.18588 AU	evening set	8264 Apr 09 10:53	7° \mathcal{B} 10'03	
morning rise	8258 Apr 27 17:16	25° Υ 06'35					
retrograde	8258 Jul 25 02:21	27° Υ 01'23		conjunction	8264 Apr 24 20:00	7° \mathcal{B} 44'41	-0°18'53
opposition	8258 Oct 12 16:36	25° Υ 38'28	-0°05'14	minimum elong	8264 Apr 24 20:00	7° \mathcal{B} 44'41	0°18'59
min. Earth dist.	8258 Oct 12 19:46	25° Υ 38'15	29.18201 AU	max. Earth dist.	8264 Apr 24 19:15	7° \mathcal{B} 44'37	31.12092 AU
direct	8258 Dec 31 21:07	24° Υ 14'50		morning rise	8264 May 10 05:17	8° \mathcal{B} 19'22	

retrograde	8264 Aug 06 22:08	10° 8 14'53	evening set	8271 Apr 25 09:31	22° 8 36'11
opposition	8264 Oct 25 21:44	8° 8 51'30 -0°21'29			
min. Earth dist.	8264 Oct 25 22:33	8° 8 51'27 29.11467 AU	conjunction	8271 May 10 18:43	23° 8 10'55 -0°35'23
direct	8265 Jan 13 21:15	7° 8 27'54	minimum elong	8271 May 10 18:43	23° 8 10'55 0°35'31
evening set	8265 Apr 11 20:53	9° 8 22'05	max. Earth dist.	8271 May 10 23:58	23° 8 11'24 31.05023 AU
			morning rise	8271 May 26 04:45	23° 8 45'46
conjunction	8265 Apr 27 05:51	9° 8 56'43 -0°21'20	retrograde	8271 Aug 23 12:31	25° 8 42'13
minimum elong	8265 Apr 27 05:51	9° 8 56'43 0°21'27	opposition	8271 Nov 11 16:31	24° 8 18'29 -0°39'00
max. Earth dist.	8265 Apr 27 05:31	9° 8 56'41 31.10858 AU	min. Earth dist.	8271 Nov 11 11:34	24° 8 18'50 29.04551 AU
morning rise	8265 May 12 15:16	10° 8 31'26	direct	8272 Jan 30 06:36	22° 8 55'06
retrograde	8265 Aug 09 10:21	12° 8 27'03	evening set	8272 Apr 26 20:04	24° 8 49'12
opposition	8265 Oct 28 10:34	11° 8 03'35 -0°24'06			
min. Earth dist.	8265 Oct 28 09:29	11° 8 03'39 29.10277 AU	conjunction	8272 May 12 05:10	25° 8 23'56 -0°37'34
direct	8266 Jan 16 08:15	9° 8 39'58	minimum elong	8272 May 12 05:10	25° 8 23'56 0°37'42
evening set	8266 Apr 14 06:53	11° 8 34'06	max. Earth dist.	8272 May 12 09:49	25° 8 24'23 31.04034 AU
			morning rise	8272 May 27 15:31	25° 8 58'49
conjunction	8266 Apr 29 15:52	12° 8 08'45 -0°23'46	retrograde	8272 Aug 25 02:25	27° 8 55'25
minimum elong	8266 Apr 29 15:52	12° 8 08'45 0°23'53	opposition	8272 Nov 13 05:42	26° 8 31'39 -0°41'18
max. Earth dist.	8266 Apr 29 16:41	12° 8 08'50 31.09710 AU	min. Earth dist.	8272 Nov 12 23:53	26° 8 32'03 29.03514 AU
morning rise	8266 May 15 01:20	12° 8 43'29	direct	8273 Jan 31 17:39	25° 8 08'17
retrograde	8266 Aug 11 21:57	14° 8 39'14	evening set	8273 Apr 29 06:29	27° 8 02'22
opposition	8266 Oct 30 23:35	13° 8 15'41 -0°26'41			
min. Earth dist.	8266 Oct 30 22:34	13° 8 15'45 29.09191 AU	conjunction	8273 May 14 15:46	27° 8 37'08 -0°39'42
direct	8267 Jan 18 18:04	11° 8 52'06	minimum elong	8273 May 14 15:46	27° 8 37'08 0°39'50
evening set	8267 Apr 16 16:48	13° 8 46'12	max. Earth dist.	8273 May 14 21:34	27° 8 37'41 31.02924 AU
			morning rise	8273 May 30 02:08	28° 8 12'03
conjunction	8267 May 02 01:51	14° 8 20'51 -0°26'10		8273 Aug 04 12:34	0° II
minimum elong	8267 May 02 01:51	14° 8 20'51 0°26'18	retrograde	8273 Aug 27 12:53	0° II 08'47
max. Earth dist.	8267 May 02 03:47	14° 8 21'02 31.08680 AU		8273 Sep 20 01:05	30° R 8
morning rise	8267 May 17 11:25	14° 8 55'36	opposition	8273 Nov 15 19:04	28° 8 44'58 -0°43'33
	8267 May 19 11:13	15° 8	min. Earth dist.	8273 Nov 15 13:31	28° 8 45'20 29.02344 AU
retrograde	8267 Aug 14 10:38	16° 8 51'29	direct	8274 Feb 03 05:49	27° 8 21'36
opposition	8267 Nov 02 12:24	15° 8 27'53 -0°29'14	evening set	8274 May 01 17:06	29° 8 15'40
min. Earth dist.	8267 Nov 02 09:25	15° 8 28'05 29.08198 AU			
	8267 Nov 19 21:43	15° R 8	conjunction	8274 May 17 02:26	29° 8 50'26 -0°41'46
direct	8268 Jan 21 06:31	14° 8 04'19	minimum elong	8274 May 17 02:25	29° 8 50'26 0°41'54
	8268 Mar 20 06:47	15° 8	max. Earth dist.	8274 May 17 08:10	29° 8 50'59 31.01705 AU
evening set	8268 Apr 18 02:56	15° 8 58'25		8274 May 21 06:57	0° II
			morning rise	8274 Jun 01 13:04	0° II 25'22
conjunction	8268 May 03 11:54	16° 8 33'05 -0°28'32	retrograde	8274 Aug 30 01:39	2° II 22'13
minimum elong	8268 May 03 11:54	16° 8 33'05 0°28'39	opposition	8274 Nov 18 08:13	0° II 58'20 -0°45'44
max. Earth dist.	8268 May 03 14:05	16° 8 33'17 31.07721 AU	min. Earth dist.	8274 Nov 18 01:23	0° II 58'48 29.01069 AU
morning rise	8268 May 18 21:39	17° 8 07'51		8274 Dec 27 16:44	30° R 8
retrograde	8268 Aug 16 00:02	19° 8 03'52	direct	8275 Feb 05 17:01	29° 8 34'57
opposition	8268 Nov 04 01:19	17° 8 40'14 -0°31'45		8275 Mar 16 10:26	0° II
min. Earth dist.	8268 Nov 03 22:25	17° 8 40'26 29.07278 AU	evening set	8275 May 04 03:35	1° II 28'58
direct	8269 Jan 22 17:39	16° 8 16'42			
evening set	8269 Apr 20 13:02	18° 8 10'48	conjunction	8275 May 19 13:04	2° II 03'47 -0°43'46
			minimum elong	8275 May 19 13:03	2° II 03'47 0°43'56
conjunction	8269 May 05 22:09	18° 8 45'29 -0°30'52	max. Earth dist.	8275 May 19 19:26	2° II 04'23 31.00378 AU
minimum elong	8269 May 05 22:09	18° 8 45'29 0°31'00	morning rise	8275 Jun 03 23:56	2° II 38'44
max. Earth dist.	8269 May 06 01:59	18° 8 45'51 31.06825 AU	retrograde	8275 Sep 01 13:19	4° II 35'42
morning rise	8269 May 21 07:54	19° 8 20'17	opposition	8275 Nov 20 21:30	3° II 11'42 -0°47'51
retrograde	8269 Aug 18 12:26	21° 8 16'26	min. Earth dist.	8275 Nov 20 15:12	3° II 12'08 28.99718 AU
opposition	8269 Nov 06 14:20	19° 8 52'46 -0°34'13	direct	8276 Feb 08 03:04	1° II 48'18
min. Earth dist.	8269 Nov 06 10:04	19° 8 53'04 29.06387 AU	evening set	8276 May 05 14:05	3° II 42'17
direct	8270 Jan 25 06:47	18° 8 29'18			
evening set	8270 Apr 22 23:14	20° 8 23'23	conjunction	8276 May 20 23:43	4° II 17'05 -0°45'43
			minimum elong	8276 May 20 23:43	4° II 17'05 0°45'51
conjunction	8270 May 08 08:13	20° 8 58'05 -0°33'09	max. Earth dist.	8276 May 21 06:58	4° II 17'47 30.99021 AU
minimum elong	8270 May 08 08:12	20° 8 58'05 0°33'16	morning rise	8276 Jun 05 10:44	4° II 52'04
max. Earth dist.	8270 May 08 11:50	20° 8 58'26 31.05938 AU	retrograde	8276 Sep 03 02:08	6° II 49'07
morning rise	8270 May 23 18:15	21° 8 32'55	opposition	8276 Nov 22 10:29	5° II 25'02 -0°49'53
retrograde	8270 Aug 21 01:24	23° 8 29'13	min. Earth dist.	8276 Nov 22 02:27	5° II 25'35 28.98366 AU
opposition	8270 Nov 09 03:29	22° 8 05'31 -0°36'38	direct	8277 Feb 09 15:57	4° II 01'36
min. Earth dist.	8270 Nov 08 22:57	22° 8 05'50 29.05501 AU	evening set	8277 May 08 00:40	5° II 55'33
direct	8271 Jan 27 17:23	20° 8 42'06			

conjunction	8277 May 23 10:18	6° Π 30'23	-0°47'35	direct	8284 Feb 26 03:25	19° Π 37'01
minimum elong	8277 May 23 10:18	6° Π 30'23	0°47'45	evening set	8284 May 23 03:38	21° Π 30'56
max. Earth dist.	8277 May 23 17:44	6° Π 31'05	30.97692 AU			
morning rise	8277 Jun 07 21:38	7° Π 05'23		conjunction	8284 Jun 07 14:35	22° Π 05'56 -0°58'37
retrograde	8277 Sep 05 15:52	9° Π 02'32		minimum elong	8284 Jun 07 14:35	22° Π 05'56 0°58'47
opposition	8277 Nov 24 23:44	7° Π 38'21	-0°51'51	max. Earth dist.	8284 Jun 08 03:34	22° Π 07'10 30.91290 AU
min. Earth dist.	8277 Nov 24 15:43	7° Π 38'54	28.97093 AU	morning rise	8284 Jun 23 03:43	22° Π 41'08
direct	8278 Feb 12 03:01	6° Π 14'54		retrograde	8284 Sep 21 09:18	24° Π 39'05
evening set	8278 May 10 11:01	8° Π 08'49		opposition	8284 Dec 10 19:32	23° Π 14'37 -1°03'22
				min. Earth dist.	8284 Dec 10 07:06	23° Π 15'29 28.90945 AU
conjunction	8278 May 25 20:57	8° Π 43'40	-0°49'23	direct	8285 Feb 27 13:47	21° Π 51'17
minimum elong	8278 May 25 20:56	8° Π 43'40	0°49'33	evening set	8285 May 25 14:46	23° Π 45'12
max. Earth dist.	8278 May 26 06:11	8° Π 44'33	30.96470 AU			
morning rise	8278 Jun 10 08:22	9° Π 18'42		conjunction	8285 Jun 10 02:02	24° Π 20'13 -0°59'52
retrograde	8278 Sep 08 04:27	11° Π 15'58		minimum elong	8285 Jun 10 02:01	24° Π 20'13 1°00'02
opposition	8278 Nov 27 12:48	9° Π 51'42	-0°53'45	max. Earth dist.	8285 Jun 10 15:34	24° Π 21'30 30.90497 AU
min. Earth dist.	8278 Nov 27 03:14	9° Π 52'21	28.95928 AU	morning rise	8285 Jun 25 15:24	24° Π 55'27
direct	8279 Feb 14 15:55	8° Π 28'14		retrograde	8285 Sep 23 22:14	26° Π 53'29
evening set	8279 May 12 21:41	10° Π 22'09		opposition	8285 Dec 13 08:44	25° Π 28'59 -1°04'39
				min. Earth dist.	8285 Dec 12 18:57	25° Π 29'56 28.90106 AU
conjunction	8279 May 28 07:37	10° Π 57'01	-0°51'07	direct	8286 Mar 02 02:23	24° Π 05'39
minimum elong	8279 May 28 07:37	10° Π 57'01	0°51'17	evening set	8286 May 28 02:02	25° Π 59'34
max. Earth dist.	8279 May 28 16:44	10° Π 57'53	30.95369 AU			
morning rise	8279 Jun 12 19:28	11° Π 32'05		conjunction	8286 Jun 12 13:27	26° Π 34'35 -1°01'01
retrograde	8279 Sep 10 17:56	13° Π 29'27		minimum elong	8286 Jun 12 13:27	26° Π 34'35 1°01'11
opposition	8279 Nov 30 01:47	12° Π 05'08	-0°55'34	max. Earth dist.	8286 Jun 13 02:32	26° Π 35'50 30.89604 AU
min. Earth dist.	8279 Nov 29 15:48	12° Π 05'49	28.94902 AU	morning rise	8286 Jun 28 03:16	27° Π 09'51
direct	8280 Feb 17 02:36	10° Π 41'40		retrograde	8286 Sep 26 11:31	29° Π 07'58
evening set	8280 May 14 08:14	12° Π 35'35		opposition	8286 Dec 15 22:04	27° Π 43'25 -1°05'50
				min. Earth dist.	8286 Dec 15 08:59	27° Π 44'19 28.89172 AU
conjunction	8280 May 29 18:31	13° Π 10'29	-0°52'47	direct	8287 Mar 04 12:54	26° Π 20'03
minimum elong	8280 May 29 18:31	13° Π 10'29	0°52'56	evening set	8287 May 30 13:16	28° Π 13'55
max. Earth dist.	8280 May 30 05:31	13° Π 11'31	30.94397 AU			
morning rise	8280 Jun 14 06:26	13° Π 45'33		conjunction	8287 Jun 15 01:08	28° Π 48'59 -1°02'05
retrograde	8280 Sep 12 06:28	15° Π 43'02		minimum elong	8287 Jun 15 01:08	28° Π 48'59 1°02'15
opposition	8280 Dec 01 14:52	14° Π 18'41	-0°57'18	max. Earth dist.	8287 Jun 15 15:19	28° Π 50'20 30.88626 AU
min. Earth dist.	8280 Dec 01 04:04	14° Π 19'25	28.93985 AU	morning rise	8287 Jun 30 15:09	29° Π 24'16
direct	8281 Feb 18 16:30	12° Π 55'15			8287 Jul 17 09:01	0° Θ
evening set	8281 May 16 18:54	14° Π 49'09		retrograde	8287 Sep 29 00:14	1° Θ 22'26
					8287 Dec 17 03:06	30° \mathcal{R} Π
conjunction	8281 Jun 01 05:12	15° Π 24'04	-0°54'22	opposition	8287 Dec 18 11:02	29° Π 57'48 -1°06'55
minimum elong	8281 Jun 01 05:12	15° Π 24'04	0°54'32	min. Earth dist.	8287 Dec 17 21:00	29° Π 58'46 28.88152 AU
max. Earth dist.	8281 Jun 01 16:03	15° Π 25'06	30.93541 AU	direct	8288 Mar 06 01:36	28° Π 34'23
morning rise	8281 Jun 16 17:32	15° Π 59'11			8288 May 18 21:38	0° Θ
retrograde	8281 Sep 14 20:54	17° Π 56'47		evening set	8288 Jun 01 00:39	0° Θ 28'15
opposition	8281 Dec 04 04:03	16° Π 32'24	-0°58'57			
min. Earth dist.	8281 Dec 03 16:05	16° Π 33'13	28.93180 AU	conjunction	8288 Jun 16 12:37	1° Θ 03'19 -1°03'03
direct	8282 Feb 21 03:55	15° Π 08'59		minimum elong	8288 Jun 16 12:37	1° Θ 03'19 1°03'13
evening set	8282 May 19 05:39	17° Π 02'54		max. Earth dist.	8288 Jun 17 02:12	1° Θ 04'36 30.87593 AU
				morning rise	8288 Jul 02 03:09	1° Θ 38'38
conjunction	8282 Jun 03 16:15	17° Π 37'50	-0°55'52	retrograde	8288 Sep 30 14:27	3° Θ 36'51
minimum elong	8282 Jun 03 16:15	17° Π 37'50	0°56'02	min. Earth dist.	8288 Dec 19 10:17	2° Θ 13'05 28.87126 AU
max. Earth dist.	8282 Jun 04 04:34	17° Π 39'00	30.92764 AU	opposition	8288 Dec 20 00:14	2° Θ 12'08 -1°07'54
morning rise	8282 Jun 19 04:46	18° Π 12'59		direct	8289 Mar 08 12:54	0° Θ 48'40
retrograde	8282 Sep 17 07:42	20° Π 10'42		evening set	8289 Jun 03 11:44	2° Θ 42'30
opposition	8282 Dec 06 17:11	18° Π 46'17	-1°00'31			
min. Earth dist.	8282 Dec 06 05:19	18° Π 47'06	28.92433 AU	conjunction	8289 Jun 19 00:08	3° Θ 17'35 -1°03'55
direct	8283 Feb 23 15:57	17° Π 22'55		minimum elong	8289 Jun 19 00:08	3° Θ 17'35 1°04'06
evening set	8283 May 21 16:33	19° Π 16'50		max. Earth dist.	8289 Jun 19 15:25	3° Θ 19'02 30.86577 AU
				morning rise	8289 Jul 04 14:51	3° Θ 52'56
conjunction	8283 Jun 06 03:20	19° Π 51'47	-0°57'17	retrograde	8289 Oct 03 03:30	5° Θ 51'12
minimum elong	8283 Jun 06 03:20	19° Π 51'47	0°57'28	opposition	8289 Dec 22 13:20	4° Θ 26'24 -1°08'48
max. Earth dist.	8283 Jun 06 15:47	19° Π 52'58	30.92040 AU	min. Earth dist.	8289 Dec 21 22:45	4° Θ 27'24 28.86142 AU
morning rise	8283 Jun 21 16:13	20° Π 26'58		direct	8290 Mar 11 02:48	3° Θ 02'54
retrograde	8283 Sep 19 21:03	22° Π 24'48		evening set	8290 Jun 05 23:08	4° Θ 56'42
opposition	8283 Dec 09 06:17	21° Π 00'22	-1°01'59			
min. Earth dist.	8283 Dec 08 17:07	21° Π 01'16	28.91710 AU	conjunction	8290 Jun 21 11:42	5° Θ 31'50 -1°04'42

minimum elong	8290 Jun 21 11:42	5°☾31'50	1°04'53	evening set	8297 Jun 21 08:17	20°☾39'28	
max. Earth dist.	8290 Jun 22 02:35	5°☾33'14	30.85645 AU				
morning rise	8290 Jul 07 02:56	6°☾07'12		conjunction	8297 Jul 06 23:13	21°☾14'47	-1°07'22
retrograde	8290 Oct 05 17:55	8°☾05'31		minimum elong	8297 Jul 06 23:14	21°☾14'47	1°07'32
min. Earth dist.	8290 Dec 24 10:48	6°☾41'43	28.85276 AU	max. Earth dist.	8297 Jul 07 17:10	21°☾16'29	30.82258 AU
opposition	8290 Dec 25 02:16	6°☾40'39	-1°09'35	morning rise	8297 Jul 22 17:10	21°☾50'23	
direct	8291 Mar 13 14:20	5°☾17'08		retrograde	8297 Oct 21 14:13	23°☾49'12	
evening set	8291 Jun 08 10:27	7°☾10'56		opposition	8298 Jan 09 21:00	22°☾24'19	-1°12'03
				min. Earth dist.	8298 Jan 09 03:30	22°☾25'32	28.82135 AU
conjunction	8291 Jun 23 23:26	7°☾46'05	-1°05'23	direct	8298 Mar 28 21:52	21°☾00'56	
minimum elong	8291 Jun 23 23:26	7°☾46'05	1°05'34	evening set	8298 Jun 23 20:22	22°☾54'53	
max. Earth dist.	8291 Jun 24 15:40	7°☾47'37	30.84829 AU				
morning rise	8291 Jul 09 14:55	8°☾21'29		conjunction	8298 Jul 09 11:52	23°☾30'14	-1°07'20
retrograde	8291 Oct 08 05:41	10°☾19'51		minimum elong	8298 Jul 09 11:52	23°☾30'14	1°07'30
opposition	8291 Dec 27 15:16	8°☾54'57	-1°10'16	max. Earth dist.	8298 Jul 10 06:49	23°☾32'02	30.81863 AU
min. Earth dist.	8291 Dec 26 23:46	8°☾56'01	28.84527 AU	morning rise	8298 Jul 25 06:03	24°☾05'51	
direct	8292 Mar 15 02:51	7°☾31'26		retrograde	8298 Oct 24 03:57	26°☾04'42	
evening set	8292 Jun 09 21:49	9°☾25'14		opposition	8299 Jan 12 09:52	24°☾39'49	-1°11'57
				min. Earth dist.	8299 Jan 11 16:24	24°☾41'02	28.81685 AU
conjunction	8292 Jun 25 11:04	10°☾00'24	-1°05'59	direct	8299 Mar 31 11:20	23°☾16'24	
minimum elong	8292 Jun 25 11:04	10°☾00'24	1°06'09	evening set	8299 Jun 26 08:38	25°☾10'22	
max. Earth dist.	8292 Jun 26 03:29	10°☾01'58	30.84157 AU				
morning rise	8292 Jul 11 02:58	10°☾35'50		conjunction	8299 Jul 12 00:25	25°☾45'44	-1°07'12
retrograde	8292 Oct 09 19:50	12°☾34'17		minimum elong	8299 Jul 12 00:25	25°☾45'44	1°07'22
min. Earth dist.	8292 Dec 28 11:13	11°☾10'32	28.83925 AU	max. Earth dist.	8299 Jul 12 18:09	25°☾47'25	30.81371 AU
opposition	8292 Dec 29 04:08	11°☾09'21	-1°10'50	morning rise	8299 Jul 27 19:10	26°☾21'23	
direct	8293 Mar 17 14:45	9°☾45'51		retrograde	8299 Oct 26 18:30	28°☾20'15	
evening set	8293 Jun 12 09:18	11°☾39'40		opposition	8300 Jan 14 22:47	26°☾55'19	-1°11'45
				min. Earth dist.	8300 Jan 14 05:11	26°☾56'32	28.81148 AU
conjunction	8293 Jun 27 22:52	12°☾14'52	-1°06'28	direct	8300 Apr 02 22:45	25°☾31'51	
minimum elong	8293 Jun 27 22:52	12°☾14'52	1°06'38	evening set	8300 Jun 28 20:41	27°☾25'48	
max. Earth dist.	8293 Jun 28 16:03	12°☾16'30	30.83615 AU				
morning rise	8293 Jul 13 15:09	12°☾50'20		conjunction	8300 Jul 14 12:57	28°☾01'12	-1°06'58
retrograde	8293 Oct 12 08:21	14°☾48'51		minimum elong	8300 Jul 14 12:57	28°☾01'12	1°07'07
opposition	8293 Dec 31 17:11	13°☾23'56	-1°11'18	max. Earth dist.	8300 Jul 15 07:27	28°☾02'57	30.80789 AU
min. Earth dist.	8293 Dec 31 00:45	13°☾25'04	28.83454 AU	morning rise	8300 Jul 30 08:00	28°☾36'53	
direct	8294 Mar 20 01:20	12°☾00'27			8300 Sep 12 01:03	0°☾	
evening set	8294 Jun 14 20:45	13°☾54'17		retrograde	8300 Oct 29 07:25	0°☾35'43	
					8300 Dec 16 23:03	30°☾	
conjunction	8294 Jun 30 10:46	14°☾29'31	-1°06'51	opposition	8301 Jan 17 11:39	29°☾10'43	-1°11'27
minimum elong	8294 Jun 30 10:46	14°☾29'31	1°07'01	min. Earth dist.	8301 Jan 16 18:34	29°☾11'55	28.80542 AU
max. Earth dist.	8294 Jul 01 04:45	14°☾31'13	30.83208 AU	direct	8301 Apr 05 12:16	27°☾47'13	
morning rise	8294 Jul 16 03:25	15°☾05'01		evening set	8301 Jul 01 08:53	29°☾41'08	
retrograde	8294 Oct 14 21:09	17°☾03'37			8301 Jul 09 18:55	0°☾	
opposition	8295 Jan 03 06:03	15°☾38'42	-1°11'39				
min. Earth dist.	8295 Jan 02 12:12	15°☾39'57	28.83087 AU	conjunction	8301 Jul 17 01:31	0°☾16'33	-1°06'38
direct	8295 Mar 22 13:31	14°☾15'15		minimum elong	8301 Jul 17 01:31	0°☾16'33	1°06'47
evening set	8295 Jun 17 08:32	16°☾09'07		max. Earth dist.	8301 Jul 17 19:37	0°☾18'16	30.80193 AU
				morning rise	8301 Aug 01 21:04	0°☾52'15	
conjunction	8295 Jul 02 22:47	16°☾44'23	-1°07'07	retrograde	8301 Oct 31 22:38	2°☾51'04	
minimum elong	8295 Jul 02 22:47	16°☾44'23	1°07'17	min. Earth dist.	8302 Jan 19 06:21	1°☾27'15	28.79959 AU
max. Earth dist.	8295 Jul 03 16:29	16°☾46'04	30.82872 AU	opposition	8302 Jan 20 00:18	1°☾26'00	-1°11'02
morning rise	8295 Jul 18 15:55	17°☾19'55		direct	8302 Apr 08 01:30	0°☾02'26	
retrograde	8295 Oct 17 10:09	19°☾18'36		evening set	8302 Jul 03 21:02	1°☾56'19	
opposition	8296 Jan 05 18:58	17°☾53'42	-1°11'53				
min. Earth dist.	8296 Jan 05 01:49	17°☾54'53	28.82782 AU	conjunction	8302 Jul 19 14:05	2°☾31'47	-1°06'11
direct	8296 Mar 23 23:01	16°☾30'17		minimum elong	8302 Jul 19 14:05	2°☾31'47	1°06'21
evening set	8296 Jun 18 20:19	18°☾24'11		max. Earth dist.	8302 Jul 20 08:36	2°☾33'32	30.79625 AU
				morning rise	8302 Aug 04 10:04	3°☾07'30	
conjunction	8296 Jul 04 11:04	18°☾59'29	-1°07'18	retrograde	8302 Nov 03 10:38	5°☾06'18	
minimum elong	8296 Jul 04 11:04	18°☾59'29	1°07'28	opposition	8303 Jan 22 13:00	3°☾41'10	-1°10'31
max. Earth dist.	8296 Jul 05 05:53	19°☾01'16	30.82579 AU	min. Earth dist.	8303 Jan 21 19:54	3°☾42'22	28.79430 AU
morning rise	8296 Jul 20 04:26	19°☾35'02		direct	8303 Apr 10 13:27	2°☾17'33	
retrograde	8296 Oct 18 23:33	21°☾33'47		evening set	8303 Jul 06 09:15	4°☾11'25	
opposition	8297 Jan 07 07:54	20°☾08'55	-1°12'01				
min. Earth dist.	8297 Jan 06 13:52	20°☾10'10	28.82479 AU	conjunction	8303 Jul 22 02:47	4°☾46'53	-1°05'39
direct	8297 Mar 26 10:45	18°☾45'32		minimum elong	8303 Jul 22 02:47	4°☾46'53	1°05'47

max. Earth dist.	8303 Jul 22 21:43	4°Ω48'41	30.79149 AU	opposition	8310 Feb 07 04:07	19°Ω27'18	-1°03'53
morning rise	8303 Aug 06 23:07	5°Ω22'38		direct	8310 Apr 25 22:39	18°Ω03'38	
retrograde	8303 Nov 05 23:24	7°Ω21'23		evening set	8310 Jul 22 00:39	19°Ω57'39	
min. Earth dist.	8304 Jan 24 07:04	5°Ω57'31	28.79007 AU				
opposition	8304 Jan 25 01:23	5°Ω56'14	-1°09'53	conjunction	8310 Aug 06 21:10	20°Ω33'18	-0°59'07
direct	8304 Apr 12 02:05	4°Ω32'34		minimum elong	8310 Aug 06 21:11	20°Ω33'18	0°59'14
evening set	8304 Jul 07 21:33	6°Ω26'25		max. Earth dist.	8310 Aug 07 16:02	20°Ω35'05	30.78873 AU
				morning rise	8310 Aug 22 20:33	21°Ω09'14	
conjunction	8304 Jul 23 15:23	7°Ω01'55	-1°05'01	retrograde	8310 Nov 21 22:49	23°Ω07'57	
minimum elong	8304 Jul 23 15:23	7°Ω01'55	1°05'09	opposition	8311 Feb 09 16:28	21°Ω42'53	-1°02'31
max. Earth dist.	8304 Jul 24 10:01	7°Ω03'41	30.78785 AU	min. Earth dist.	8311 Feb 08 22:23	21°Ω44'09	28.78939 AU
morning rise	8304 Aug 08 12:14	7°Ω37'41		direct	8311 Apr 28 11:41	20°Ω19'13	
retrograde	8304 Nov 07 12:11	9°Ω36'26		evening set	8311 Jul 24 13:37	22°Ω13'15	
opposition	8305 Jan 26 14:01	8°Ω11'15	-1°09'09				
min. Earth dist.	8305 Jan 25 20:20	8°Ω12'29	28.78719 AU	conjunction	8311 Aug 09 10:33	22°Ω48'56	-0°57'48
direct	8305 Apr 14 12:20	6°Ω47'33		minimum elong	8311 Aug 09 10:34	22°Ω48'56	0°57'54
evening set	8305 Jul 10 09:39	8°Ω41'24		max. Earth dist.	8311 Aug 10 05:14	22°Ω50'42	30.78876 AU
				morning rise	8311 Aug 25 10:17	23°Ω24'53	
conjunction	8305 Jul 26 04:05	9°Ω16'55	-1°04'17	retrograde	8311 Nov 24 11:15	25°Ω23'35	
minimum elong	8305 Jul 26 04:05	9°Ω16'55	1°04'25	opposition	8312 Feb 12 04:49	23°Ω58'31	-1°01'04
max. Earth dist.	8305 Jul 26 23:51	9°Ω18'47	30.78570 AU	min. Earth dist.	8312 Feb 11 12:09	23°Ω59'41	28.78898 AU
morning rise	8305 Aug 11 01:15	9°Ω52'43		direct	8312 Apr 29 23:45	22°Ω34'49	
retrograde	8305 Nov 10 00:47	11°Ω51'27		evening set	8312 Jul 26 02:30	24°Ω28'51	
min. Earth dist.	8306 Jan 28 07:45	10°Ω27'34	28.78565 AU				
opposition	8306 Jan 29 02:29	10°Ω26'15	-1°08'18	conjunction	8312 Aug 10 23:58	25°Ω04'33	-0°56'24
direct	8306 Apr 17 00:32	9°Ω02'33		minimum elong	8312 Aug 10 23:58	25°Ω04'33	0°56'31
evening set	8306 Jul 12 22:09	10°Ω56'25		max. Earth dist.	8312 Aug 11 18:19	25°Ω06'17	30.78811 AU
				morning rise	8312 Aug 27 00:04	25°Ω40'32	
conjunction	8306 Jul 28 16:51	11°Ω31'57	-1°03'26	retrograde	8312 Nov 26 01:17	27°Ω39'09	
minimum elong	8306 Jul 28 16:51	11°Ω31'57	1°03'35	opposition	8313 Feb 13 17:01	26°Ω14'05	-0°59'31
max. Earth dist.	8306 Jul 29 11:50	11°Ω33'45	30.78486 AU	min. Earth dist.	8313 Feb 12 23:42	26°Ω15'18	28.78796 AU
morning rise	8306 Aug 13 14:37	12°Ω07'47		direct	8313 May 02 12:53	24°Ω50'20	
retrograde	8306 Nov 12 14:02	14°Ω06'31		evening set	8313 Jul 28 15:23	26°Ω44'22	
opposition	8307 Jan 31 14:53	12°Ω41'19	-1°07'21				
min. Earth dist.	8307 Jan 30 20:36	12°Ω42'36	28.78549 AU	conjunction	8313 Aug 13 13:12	27°Ω20'06	-0°54'55
direct	8307 Apr 19 10:56	11°Ω17'37		minimum elong	8313 Aug 13 13:12	27°Ω20'06	0°55'01
evening set	8307 Jul 15 10:33	13°Ω11'30		max. Earth dist.	8313 Aug 14 06:47	27°Ω21'45	30.78690 AU
				morning rise	8313 Aug 29 13:49	27°Ω56'06	
conjunction	8307 Jul 31 05:52	13°Ω47'04	-1°02'30	retrograde	8313 Nov 28 14:37	29°Ω54'39	
minimum elong	8307 Jul 31 05:52	13°Ω47'04	1°02'38	opposition	8314 Feb 16 05:16	28°Ω29'33	-0°57'54
max. Earth dist.	8307 Aug 01 02:05	13°Ω48'59	30.78522 AU	min. Earth dist.	8314 Feb 15 13:13	28°Ω30'40	28.78675 AU
morning rise	8307 Aug 16 03:53	14°Ω22'55		direct	8314 May 04 23:52	27°Ω05'45	
	8307 Sep 02 15:55	15°Ω		evening set	8314 Jul 31 04:16	28°Ω59'46	
retrograde	8307 Nov 15 02:47	16°Ω21'39					
	8308 Feb 01 01:13	15°Ω		conjunction	8314 Aug 16 02:40	29°Ω35'31	-0°53'21
min. Earth dist.	8308 Feb 02 08:49	14°Ω57'47	28.78621 AU	minimum elong	8314 Aug 16 02:40	29°Ω35'31	0°53'27
opposition	8308 Feb 03 03:17	14°Ω56'30	-1°06'18	max. Earth dist.	8314 Aug 16 20:44	29°Ω37'13	30.78585 AU
direct	8308 Apr 20 23:09	13°Ω32'48			8314 Aug 26 23:04	0°Ω	
	8308 Jul 04 12:08	15°Ω		morning rise	8314 Sep 01 03:34	0°Ω11'32	
evening set	8308 Jul 16 23:05	15°Ω26'44		retrograde	8314 Dec 01 02:30	2°Ω10'00	
				opposition	8315 Feb 18 17:05	0°Ω44'53	-0°56'11
conjunction	8308 Aug 01 18:40	16°Ω02'20	-1°01'28	min. Earth dist.	8315 Feb 18 00:26	0°Ω46'03	28.78584 AU
minimum elong	8308 Aug 01 18:40	16°Ω02'20	1°01'36		8315 Mar 18 17:57	30°Ω	
max. Earth dist.	8308 Aug 02 13:53	16°Ω04'09	30.78636 AU	direct	8315 May 07 12:35	29°Ω21'02	
morning rise	8308 Aug 17 17:15	16°Ω38'12			8315 Jun 24 18:27	0°Ω	
retrograde	8308 Nov 16 17:36	18°Ω36'57		evening set	8315 Aug 02 17:18	1°Ω15'02	
opposition	8309 Feb 04 15:44	17°Ω11'49	-1°05'08				
min. Earth dist.	8309 Feb 03 21:13	17°Ω13'07	28.78758 AU	conjunction	8315 Aug 18 15:57	1°Ω50'49	-0°51'43
direct	8309 Apr 23 09:45	15°Ω48'09		minimum elong	8315 Aug 18 15:57	1°Ω50'49	0°51'48
evening set	8309 Jul 19 11:46	17°Ω42'07		max. Earth dist.	8315 Aug 19 08:54	1°Ω52'24	30.78534 AU
				morning rise	8315 Sep 03 17:22	2°Ω26'51	
conjunction	8309 Aug 04 07:53	18°Ω17'45	-1°00'20	retrograde	8315 Dec 03 14:31	4°Ω25'15	
minimum elong	8309 Aug 04 07:53	18°Ω17'45	1°00'28	opposition	8316 Feb 21 05:05	3°Ω00'06	-0°54'23
max. Earth dist.	8309 Aug 05 03:47	18°Ω19'37	30.78770 AU	min. Earth dist.	8316 Feb 20 13:09	3°Ω01'13	28.78589 AU
morning rise	8309 Aug 20 06:45	18°Ω53'39		direct	8316 May 08 23:09	1°Ω36'12	
retrograde	8309 Nov 19 07:04	20°Ω52'24		evening set	8316 Aug 04 05:59	3°Ω30'12	
min. Earth dist.	8310 Feb 06 10:23	19°Ω28'33	28.78878 AU				

conjunction	8316 Aug 20 05:12	4° \mathring{M} 05'59 -0°50'00	direct	8323 May 25 10:22	17° \mathring{M} 21'44	
minimum elong	8316 Aug 20 05:12	4° \mathring{M} 05'59 0°50'05	evening set	8323 Aug 21 02:05	19° \mathring{M} 15'56	
max. Earth dist.	8316 Aug 20 23:18	4° \mathring{M} 07'42 30.78593 AU				
morning rise	8316 Sep 05 06:49	4° \mathring{M} 42'02	conjunction	8323 Sep 06 04:04	19° \mathring{M} 51'51 -0°35'58	
retrograde	8316 Dec 05 02:02	6° \mathring{M} 40'21	minimum elong	8323 Sep 06 04:04	19° \mathring{M} 51'51 0°36'00	
opposition	8317 Feb 22 16:56	5° \mathring{M} 15'12 -0°52'30	max. Earth dist.	8323 Sep 06 19:44	19° \mathring{M} 53'19 30.82378 AU	
min. Earth dist.	8317 Feb 22 00:47	5° \mathring{M} 16'21 28.78709 AU	morning rise	8323 Sep 22 07:58	20° \mathring{M} 27'59	
direct	8317 May 11 10:52	3° \mathring{M} 51'16	retrograde	8323 Dec 21 23:45	22° \mathring{M} 25'47	
evening set	8317 Aug 06 18:58	5° \mathring{M} 45'16	opposition	8324 Mar 10 02:33	21° \mathring{M} 00'55 -0°37'14	
			min. Earth dist.	8324 Mar 09 12:30	21° \mathring{M} 01'54 28.82694 AU	
conjunction	8317 Aug 22 18:28	6° \mathring{M} 21'05 -0°48'12	direct	8324 May 26 23:30	19° \mathring{M} 36'55	
minimum elong	8317 Aug 22 18:29	6° \mathring{M} 21'05 0°48'16	evening set	8324 Aug 22 15:30	21° \mathring{M} 31'07	
max. Earth dist.	8317 Aug 23 11:26	6° \mathring{M} 22'40 30.78795 AU				
morning rise	8317 Sep 07 20:37	6° \mathring{M} 57'08	conjunction	8324 Sep 07 17:41	22° \mathring{M} 07'03 -0°33'43	
retrograde	8317 Dec 07 15:46	8° \mathring{M} 55'23	minimum elong	8324 Sep 07 17:41	22° \mathring{M} 07'03 0°33'45	
opposition	8318 Feb 25 04:39	7° \mathring{M} 30'15 -0°50'32	max. Earth dist.	8324 Sep 08 07:40	22° \mathring{M} 08'21 30.82948 AU	
min. Earth dist.	8318 Feb 24 12:28	7° \mathring{M} 31'23 28.78993 AU	morning rise	8324 Sep 23 22:01	22° \mathring{M} 43'11	
direct	8318 May 13 21:00	6° \mathring{M} 06'15	retrograde	8324 Dec 23 12:23	24° \mathring{M} 40'53	
evening set	8318 Aug 09 07:56	8° \mathring{M} 00'18	opposition	8325 Mar 12 14:14	23° \mathring{M} 16'01 -0°34'48	
			min. Earth dist.	8325 Mar 12 01:25	23° \mathring{M} 16'56 28.83229 AU	
conjunction	8318 Aug 25 07:58	8° \mathring{M} 36'07 -0°46'20	direct	8325 May 29 10:17	21° \mathring{M} 52'00	
minimum elong	8318 Aug 25 07:58	8° \mathring{M} 36'07 0°46'25	evening set	8325 Aug 25 04:54	23° \mathring{M} 46'11	
max. Earth dist.	8318 Aug 26 01:45	8° \mathring{M} 37'47 30.79149 AU				
morning rise	8318 Sep 10 10:20	9° \mathring{M} 12'11	conjunction	8325 Sep 10 07:37	24° \mathring{M} 22'08 -0°31'25	
retrograde	8318 Dec 10 03:45	11° \mathring{M} 10'22	minimum elong	8325 Sep 10 07:37	24° \mathring{M} 22'08 0°31'26	
opposition	8319 Feb 27 16:24	9° \mathring{M} 45'15 -0°48'30	max. Earth dist.	8325 Sep 10 22:00	24° \mathring{M} 23'28 30.83451 AU	
min. Earth dist.	8319 Feb 27 00:43	9° \mathring{M} 46'21 28.79418 AU	morning rise	8325 Sep 26 12:04	24° \mathring{M} 58'16	
direct	8319 May 16 09:48	8° \mathring{M} 21'15	retrograde	8325 Dec 25 23:58	26° \mathring{M} 55'50	
evening set	8319 Aug 11 20:57	10° \mathring{M} 15'19	opposition	8326 Mar 15 01:34	25° \mathring{M} 31'00 -0°32'19	
			min. Earth dist.	8326 Mar 14 13:13	25° \mathring{M} 31'52 28.83699 AU	
conjunction	8319 Aug 27 21:18	10° \mathring{M} 51'09 -0°44'24	direct	8326 May 31 22:24	24° \mathring{M} 06'55	
minimum elong	8319 Aug 27 21:18	10° \mathring{M} 51'09 0°44'27	evening set	8326 Aug 27 18:27	26° \mathring{M} 01'06	
max. Earth dist.	8319 Aug 28 14:13	10° \mathring{M} 52'44 30.79659 AU				
morning rise	8319 Sep 13 00:05	11° \mathring{M} 27'14	conjunction	8326 Sep 12 21:21	26° \mathring{M} 37'03 -0°29'04	
retrograde	8319 Dec 12 18:14	13° \mathring{M} 25'21	minimum elong	8326 Sep 12 21:21	26° \mathring{M} 37'03 0°29'06	
min. Earth dist.	8320 Feb 29 11:44	12° \mathring{M} 01'25 28.79993 AU	max. Earth dist.	8326 Sep 13 09:58	26° \mathring{M} 38'14 30.83919 AU	
opposition	8320 Mar 01 04:00	12° \mathring{M} 00'16 -0°46'23	morning rise	8326 Sep 29 02:13	27° \mathring{M} 13'12	
direct	8320 May 17 22:06	10° \mathring{M} 36'16	retrograde	8326 Dec 28 12:37	29° \mathring{M} 10'38	
evening set	8320 Aug 13 10:03	12° \mathring{M} 30'22	opposition	8327 Mar 17 12:56	27° \mathring{M} 45'48 -0°29'48	
			min. Earth dist.	8327 Mar 17 01:04	27° \mathring{M} 46'38 28.84169 AU	
conjunction	8320 Aug 29 10:49	13° \mathring{M} 06'14 -0°42'23	direct	8327 Jun 03 09:06	26° \mathring{M} 21'40	
minimum elong	8320 Aug 29 10:49	13° \mathring{M} 06'14 0°42'27	evening set	8327 Aug 30 07:44	28° \mathring{M} 15'51	
max. Earth dist.	8320 Aug 30 03:59	13° \mathring{M} 07'50 30.80290 AU				
morning rise	8320 Sep 14 13:53	13° \mathring{M} 42'19	conjunction	8327 Sep 15 11:04	28° \mathring{M} 51'49 -0°26'42	
retrograde	8320 Dec 14 06:43	15° \mathring{M} 40'22	minimum elong	8327 Sep 15 11:04	28° \mathring{M} 51'49 0°26'41	
opposition	8321 Mar 03 15:45	14° \mathring{M} 15'21 -0°44'12	max. Earth dist.	8327 Sep 16 00:10	28° \mathring{M} 53'02 30.84393 AU	
min. Earth dist.	8321 Mar 03 00:43	14° \mathring{M} 16'25 28.80670 AU	morning rise	8327 Oct 01 15:58	29° \mathring{M} 27'57	
direct	8321 May 20 09:26	12° \mathring{M} 51'22		8327 Oct 16 20:09	0° \mathring{A}	
evening set	8321 Aug 15 23:11	14° \mathring{M} 45'30	retrograde	8327 Dec 30 23:13	1° \mathring{A} 25'16	
			opposition	8328 Mar 19 00:13	0° \mathring{A} 00'27 -0°27'13	
conjunction	8321 Sep 01 00:24	15° \mathring{M} 21'23 -0°40'18	min. Earth dist.	8328 Mar 18 13:10	0° \mathring{A} 01'14 28.84664 AU	
minimum elong	8321 Sep 01 00:24	15° \mathring{M} 21'23 0°40'21		8328 Mar 19 06:31	30° \mathring{R} \mathring{M}	
max. Earth dist.	8321 Sep 01 17:12	15° \mathring{M} 22'57 30.81009 AU	direct	8328 Jun 04 21:35	28° \mathring{M} 36'16	
morning rise	8321 Sep 17 03:48	15° \mathring{M} 57'29		8328 Aug 17 11:02	0° \mathring{A}	
retrograde	8321 Dec 16 21:41	17° \mathring{M} 55'28	evening set	8328 Aug 31 21:08	0° \mathring{A} 30'27	
min. Earth dist.	8322 Mar 05 11:51	16° \mathring{M} 31'36 28.81392 AU				
opposition	8322 Mar 06 03:19	16° \mathring{M} 30'30 -0°41'56	conjunction	8328 Sep 17 00:40	1° \mathring{A} 06'25 -0°24'16	
direct	8322 May 22 22:49	15° \mathring{M} 06'32	minimum elong	8328 Sep 17 00:40	1° \mathring{A} 06'25 0°24'17	
evening set	8322 Aug 18 12:41	17° \mathring{M} 00'42	max. Earth dist.	8328 Sep 17 12:30	1° \mathring{A} 07'31 30.84937 AU	
			morning rise	8328 Oct 03 05:55	1° \mathring{A} 42'33	
conjunction	8322 Sep 03 14:10	17° \mathring{M} 36'36 -0°38'10	retrograde	8329 Jan 01 12:39	3° \mathring{A} 39'45	
minimum elong	8322 Sep 03 14:10	17° \mathring{M} 36'36 0°38'13	opposition	8329 Mar 21 11:19	2° \mathring{A} 14'57 -0°24'37	
max. Earth dist.	8322 Sep 04 05:57	17° \mathring{M} 38'05 30.81717 AU	min. Earth dist.	8329 Mar 20 23:56	2° \mathring{A} 15'45 28.85256 AU	
morning rise	8322 Sep 19 17:54	18° \mathring{M} 12'43	direct	8329 Jun 07 09:26	0° \mathring{A} 50'42	
retrograde	8322 Dec 19 11:13	20° \mathring{M} 10'37	evening set	8329 Sep 03 10:27	2° \mathring{A} 44'56	
opposition	8323 Mar 08 14:57	18° \mathring{M} 45'43 -0°39'37				
min. Earth dist.	8323 Mar 08 01:06	18° \mathring{M} 46'41 28.82084 AU	conjunction	8329 Sep 19 14:20	3° \mathring{A} 20'54 -0°21'49	

minimum elong	8329 Sep 19 14:20	3° <u>♂</u> 20'54	0°21'48	behind sun begin	8335 Oct 03 18:17	16° <u>♂</u> 47'18	
max. Earth dist.	8329 Sep 20 02:19	3° <u>♂</u> 22'01	30.85574 AU	behind sun end	8335 Oct 04 06:39	16° <u>♂</u> 48'24	
morning rise	8329 Oct 05 19:43	3° <u>♂</u> 57'02		max. Earth dist.	8335 Oct 04 08:21	16° <u>♂</u> 48'34	30.91676 AU
retrograde	8330 Jan 04 00:11	5° <u>♂</u> 54'07		morning rise	8335 Oct 20 06:40	17° <u>♂</u> 23'59	
opposition	8330 Mar 23 22:32	4° <u>♂</u> 29'21	-0°21'58	retrograde	8336 Jan 18 04:59	19° <u>♂</u> 20'28	
min. Earth dist.	8330 Mar 23 12:24	4° <u>♂</u> 30'04	28.85952 AU	opposition	8336 Apr 05 16:30	17° <u>♂</u> 56'10	-0°05'32
direct	8330 Jun 09 20:44	3° <u>♂</u> 05'05		min. Earth dist.	8336 Apr 05 09:07	17° <u>♂</u> 56'42	28.92199 AU
evening set	8330 Sep 05 23:51	4° <u>♂</u> 59'20		direct	8336 Jun 22 19:57	16° <u>♂</u> 31'59	
				evening set	8336 Sep 19 08:58	18° <u>♂</u> 26'30	
conjunction	8330 Sep 22 04:02	5° <u>♂</u> 35'18	-0°19'20				
minimum elong	8330 Sep 22 04:01	5° <u>♂</u> 35'18	0°19'19	conjunction	8336 Oct 05 14:25	19° <u>♂</u> 02'31	-0°03'57
max. Earth dist.	8330 Sep 22 15:28	5° <u>♂</u> 36'22	30.86344 AU	minimum elong	8336 Oct 05 14:26	19° <u>♂</u> 02'31	0°03'55
morning rise	8330 Oct 08 09:35	6° <u>♂</u> 11'26		behind sun begin	8336 Oct 05 07:55	19° <u>♂</u> 01'56	
retrograde	8331 Jan 06 14:19	8° <u>♂</u> 08'24		behind sun end	8336 Oct 05 20:56	19° <u>♂</u> 03'06	
opposition	8331 Mar 26 09:27	6° <u>♂</u> 43'41	-0°19'17	max. Earth dist.	8336 Oct 05 22:20	19° <u>♂</u> 03'14	30.92678 AU
min. Earth dist.	8331 Mar 25 22:41	6° <u>♂</u> 44'26	28.86786 AU	morning rise	8336 Oct 21 20:31	19° <u>♂</u> 38'37	
direct	8331 Jun 12 10:15	5° <u>♂</u> 19'25		retrograde	8337 Jan 19 14:56	21° <u>♂</u> 34'59	
evening set	8331 Sep 08 13:17	7° <u>♂</u> 13'42		opposition	8337 Apr 08 03:27	20° <u>♂</u> 10'45	-0°02'45
				min. Earth dist.	8337 Apr 07 21:22	20° <u>♂</u> 11'11	28.93144 AU
conjunction	8331 Sep 24 17:37	7° <u>♂</u> 49'41	-0°16'49	direct	8337 Jun 25 07:48	18° <u>♂</u> 46'33	
minimum elong	8331 Sep 24 17:37	7° <u>♂</u> 49'41	0°16'47	evening set	8337 Sep 21 22:42	20° <u>♂</u> 41'04	
max. Earth dist.	8331 Sep 25 04:29	7° <u>♂</u> 50'41	30.87245 AU				
morning rise	8331 Oct 10 23:22	8° <u>♂</u> 25'48		conjunction	8337 Oct 08 04:16	21° <u>♂</u> 17'04	-0°01'19
retrograde	8332 Jan 09 03:06	10° <u>♂</u> 22'41		minimum elong	8337 Oct 08 04:15	21° <u>♂</u> 17'04	0°01'15
opposition	8332 Mar 27 20:36	8° <u>♂</u> 58'02	-0°16'35	behind sun begin	8337 Oct 07 21:40	21° <u>♂</u> 16'29	
min. Earth dist.	8332 Mar 27 11:03	8° <u>♂</u> 58'42	28.87764 AU	behind sun end	8337 Oct 08 10:50	21° <u>♂</u> 17'40	
direct	8332 Jun 13 21:48	7° <u>♂</u> 33'47		max. Earth dist.	8337 Oct 08 10:09	21° <u>♂</u> 17'36	30.93579 AU
evening set	8332 Sep 10 02:28	9° <u>♂</u> 28'06		morning rise	8337 Oct 24 10:33	21° <u>♂</u> 53'10	
				retrograde	8338 Jan 22 04:02	23° <u>♂</u> 49'24	
conjunction	8332 Sep 26 07:11	10° <u>♂</u> 04'06	-0°14'16	asc. node	8338 Apr 04 15:39	22° <u>♂</u> 35'13	
minimum elong	8332 Sep 26 07:11	10° <u>♂</u> 04'06	0°14'16	opposition	8338 Apr 10 14:18	22° <u>♂</u> 25'11	0°00'03
behind sun begin	8332 Sep 26 04:15	10° <u>♂</u> 03'50		min. Earth dist.	8338 Apr 10 08:23	22° <u>♂</u> 25'37	28.93992 AU
behind sun end	8332 Sep 26 10:07	10° <u>♂</u> 04'21		direct	8338 Jun 27 19:03	21° <u>♂</u> 00'55	
max. Earth dist.	8332 Sep 26 18:14	10° <u>♂</u> 05'07	30.88293 AU	evening set	8338 Sep 24 12:23	22° <u>♂</u> 55'28	
morning rise	8332 Oct 12 13:00	10° <u>♂</u> 40'13					
retrograde	8333 Jan 10 15:40	12° <u>♂</u> 37'00		conjunction	8338 Oct 10 18:06	23° <u>♂</u> 31'28	0°01'23
opposition	8333 Mar 30 07:34	11° <u>♂</u> 12'26	-0°13'51	minimum elong	8338 Oct 10 18:06	23° <u>♂</u> 31'28	0°01'27
min. Earth dist.	8333 Mar 29 21:37	11° <u>♂</u> 13'08	28.88851 AU	behind sun begin	8338 Oct 10 11:31	23° <u>♂</u> 30'52	
direct	8333 Jun 16 10:42	9° <u>♂</u> 48'13		behind sun end	8338 Oct 11 00:41	23° <u>♂</u> 32'03	
evening set	8333 Sep 12 16:05	11° <u>♂</u> 42'35		max. Earth dist.	8338 Oct 10 23:39	23° <u>♂</u> 31'57	30.94376 AU
				morning rise	8338 Oct 27 00:17	24° <u>♂</u> 07'32	
conjunction	8333 Sep 28 20:52	12° <u>♂</u> 18'35	-0°11'43	retrograde	8339 Jan 24 14:06	26° <u>♂</u> 03'37	
minimum elong	8333 Sep 28 20:52	12° <u>♂</u> 18'35	0°11'40	opposition	8339 Apr 13 01:07	24° <u>♂</u> 39'26	0°02'50
behind sun begin	8333 Sep 28 16:17	12° <u>♂</u> 18'11		min. Earth dist.	8339 Apr 12 20:57	24° <u>♂</u> 39'44	28.94759 AU
behind sun end	8333 Sep 29 01:28	12° <u>♂</u> 19'00		direct	8339 Jun 30 06:20	23° <u>♂</u> 15'06	
max. Earth dist.	8333 Sep 29 06:28	12° <u>♂</u> 19'28	30.89421 AU	evening set	8339 Sep 27 01:57	25° <u>♂</u> 09'39	
morning rise	8333 Oct 15 02:56	12° <u>♂</u> 54'43					
retrograde	8334 Jan 13 04:53	14° <u>♂</u> 51'24		conjunction	8339 Oct 13 07:47	25° <u>♂</u> 45'38	0°04'01
opposition	8334 Apr 01 18:30	13° <u>♂</u> 26'56	-0°11'05	minimum elong	8339 Oct 13 07:47	25° <u>♂</u> 45'38	0°04'06
min. Earth dist.	8334 Apr 01 09:48	13° <u>♂</u> 27'33	28.90007 AU	behind sun begin	8339 Oct 13 01:17	25° <u>♂</u> 45'03	
direct	8334 Jun 18 21:13	12° <u>♂</u> 02'45		behind sun end	8339 Oct 13 14:16	25° <u>♂</u> 46'12	
evening set	8334 Sep 15 05:38	13° <u>♂</u> 57'11		max. Earth dist.	8339 Oct 13 12:16	25° <u>♂</u> 46'01	30.95135 AU
				morning rise	8339 Oct 29 14:02	26° <u>♂</u> 21'41	
conjunction	8334 Oct 01 10:48	14° <u>♂</u> 33'12	-0°09'08	retrograde	8340 Jan 27 02:48	28° <u>♂</u> 17'36	
minimum elong	8334 Oct 01 10:47	14° <u>♂</u> 33'12	0°09'06	opposition	8340 Apr 14 11:47	26° <u>♂</u> 53'26	0°05'36
behind sun begin	8334 Oct 01 05:14	14° <u>♂</u> 32'42		min. Earth dist.	8340 Apr 14 07:20	26° <u>♂</u> 53'45	28.95504 AU
behind sun end	8334 Oct 01 16:21	14° <u>♂</u> 33'41		direct	8340 Jul 01 20:16	25° <u>♂</u> 29'02	
max. Earth dist.	8334 Oct 01 20:41	14° <u>♂</u> 34'06	30.90576 AU	evening set	8340 Sep 28 15:23	27° <u>♂</u> 23'34	
morning rise	8334 Oct 17 16:47	15° <u>♂</u> 09'19					
retrograde	8335 Jan 15 16:58	17° <u>♂</u> 05'54		conjunction	8340 Oct 14 21:16	27° <u>♂</u> 59'33	0°06'35
opposition	8335 Apr 04 05:28	15° <u>♂</u> 41'32	-0°08'19	minimum elong	8340 Oct 14 21:16	27° <u>♂</u> 59'33	0°06'39
min. Earth dist.	8335 Apr 03 21:21	15° <u>♂</u> 42'07	28.91137 AU	behind sun begin	8340 Oct 14 15:07	27° <u>♂</u> 59'00	
direct	8335 Jun 21 09:09	14° <u>♂</u> 17'22		behind sun end	8340 Oct 15 03:25	28° <u>♂</u> 00'06	
evening set	8335 Sep 17 19:19	16° <u>♂</u> 11'51		max. Earth dist.	8340 Oct 15 00:58	27° <u>♂</u> 59'52	30.95877 AU
				morning rise	8340 Oct 31 03:32	28° <u>♂</u> 35'35	
conjunction	8335 Oct 04 00:28	16° <u>♂</u> 47'51	-0°06'33		8340 Dec 15 19:55	0° <u>♂</u>	
minimum elong	8335 Oct 04 00:28	16° <u>♂</u> 47'51	0°06'29	retrograde	8341 Jan 28 14:04	0° <u>♂</u> 31'21	

	8341 Mar 14 04:17	30° $\mathbb{R}\mathbb{Q}$		max. Earth dist.	8346 Oct 29 05:39	11° \mathbb{M} 19'37	31.02068 AU
opposition	8341 Apr 16 22:31	29° \mathbb{Q} 07'11 0°08'22		morning rise	8346 Nov 14 11:30	11° \mathbb{M} 55'32	
min. Earth dist.	8341 Apr 16 19:39	29° \mathbb{Q} 07'23 28.96266 AU		retrograde	8347 Feb 11 12:13	13° \mathbb{M} 50'32	
direct	8341 Jul 04 08:07	27° \mathbb{Q} 42'44		opposition	8347 Apr 30 13:21	12° \mathbb{M} 26'47 0°24'29	
evening set	8341 Oct 01 04:49	29° \mathbb{Q} 37'16		min. Earth dist.	8347 Apr 30 12:41	12° \mathbb{M} 26'49 29.02696 AU	
	8341 Oct 11 12:36	0° \mathbb{M}		direct	8347 Jul 18 06:06	11° \mathbb{M} 02'16	
				evening set	8347 Oct 15 13:06	12° \mathbb{M} 57'02	
conjunction	8341 Oct 17 10:54	0° \mathbb{M} 13'14 0°09'09					
minimum elong	8341 Oct 17 10:54	0° \mathbb{M} 13'14 0°09'14		conjunction	8347 Oct 31 19:09	13° \mathbb{M} 32'57 0°24'08	
behind sun begin	8341 Oct 17 05:23	0° \mathbb{M} 12'44		minimum elong	8347 Oct 31 19:09	13° \mathbb{M} 32'57 0°24'16	
behind sun end	8341 Oct 17 16:25	0° \mathbb{M} 13'43		max. Earth dist.	8347 Oct 31 18:54	13° \mathbb{M} 32'55 31.03301 AU	
max. Earth dist.	8341 Oct 17 14:23	0° \mathbb{M} 13'32 30.96666 AU		morning rise	8347 Nov 17 00:39	14° \mathbb{M} 08'51	
morning rise	8341 Nov 02 17:04	0° \mathbb{M} 49'14			8347 Dec 12 06:32	15° \mathbb{M}	
retrograde	8342 Jan 31 02:10	2° \mathbb{M} 44'50		retrograde	8348 Feb 13 21:59	16° \mathbb{M} 03'45	
opposition	8342 Apr 19 08:55	1° \mathbb{M} 20'42 0°11'07			8348 Apr 20 01:53	15° $\mathbb{R}\mathbb{M}$	
min. Earth dist.	8342 Apr 19 05:47	1° \mathbb{M} 20'55 28.97081 AU		opposition	8348 May 01 23:56	14° \mathbb{M} 40'05 0°27'04	
	8342 Jun 21 19:01	30° $\mathbb{R}\mathbb{Q}$		min. Earth dist.	8348 May 02 01:02	14° \mathbb{M} 40'00 29.03904 AU	
direct	8342 Jul 06 21:26	29° \mathbb{Q} 56'12		direct	8348 Jul 19 16:43	13° \mathbb{M} 15'36	
	8342 Jul 21 20:52	0° \mathbb{M}			8348 Oct 12 06:00	15° \mathbb{M}	
evening set	8342 Oct 03 18:20	1° \mathbb{M} 50'44		evening set	8348 Oct 17 02:27	15° \mathbb{M} 10'24	
conjunction	8342 Oct 20 00:20	2° \mathbb{M} 26'42 0°11'42		conjunction	8348 Nov 02 08:27	15° \mathbb{M} 46'18 0°26'31	
minimum elong	8342 Oct 20 00:19	2° \mathbb{M} 26'42 0°11'47		minimum elong	8348 Nov 02 08:27	15° \mathbb{M} 46'18 0°26'38	
behind sun begin	8342 Oct 19 19:47	2° \mathbb{M} 26'17		max. Earth dist.	8348 Nov 02 06:52	15° \mathbb{M} 46'09 31.04468 AU	
behind sun end	8342 Oct 20 04:52	2° \mathbb{M} 27'06		morning rise	8348 Nov 18 13:52	16° \mathbb{M} 22'10	
max. Earth dist.	8342 Oct 20 02:25	2° \mathbb{M} 26'52 30.97522 AU		retrograde	8349 Feb 15 10:11	18° \mathbb{M} 16'58	
morning rise	8342 Nov 05 06:32	3° \mathbb{M} 02'41		opposition	8349 May 04 10:21	16° \mathbb{M} 53'23 0°29'36	
retrograde	8343 Feb 02 14:49	4° \mathbb{M} 58'08		min. Earth dist.	8349 May 04 11:24	16° \mathbb{M} 53'19 29.05012 AU	
opposition	8343 Apr 21 19:33	3° \mathbb{M} 34'01 0°13'50		direct	8349 Jul 22 05:54	15° \mathbb{M} 28'54	
min. Earth dist.	8343 Apr 21 17:22	3° \mathbb{M} 34'11 28.98001 AU		evening set	8349 Oct 19 15:58	17° \mathbb{M} 23'45	
direct	8343 Jul 09 08:55	2° \mathbb{M} 09'29					
evening set	8343 Oct 06 07:29	4° \mathbb{M} 04'02		conjunction	8349 Nov 04 21:52	17° \mathbb{M} 59'38 0°28'52	
				minimum elong	8349 Nov 04 21:52	17° \mathbb{M} 59'38 0°29'00	
conjunction	8343 Oct 22 13:39	4° \mathbb{M} 39'59 0°14'14		max. Earth dist.	8349 Nov 04 19:11	17° \mathbb{M} 59'23 31.05511 AU	
minimum elong	8343 Oct 22 13:39	4° \mathbb{M} 39'59 0°14'20		morning rise	8349 Nov 21 03:04	18° \mathbb{M} 35'29	
behind sun begin	8343 Oct 22 10:48	4° \mathbb{M} 39'44		retrograde	8350 Feb 17 21:03	20° \mathbb{M} 30'10	
behind sun end	8343 Oct 22 16:31	4° \mathbb{M} 40'14		opposition	8350 May 06 20:48	19° \mathbb{M} 06'38 0°32'05	
max. Earth dist.	8343 Oct 22 16:22	4° \mathbb{M} 40'14 30.98497 AU		min. Earth dist.	8350 May 06 23:44	19° \mathbb{M} 06'26 29.06008 AU	
morning rise	8343 Nov 07 19:38	5° \mathbb{M} 15'57		direct	8350 Jul 24 17:06	17° \mathbb{M} 42'07	
retrograde	8344 Feb 05 01:52	7° \mathbb{M} 11'16		evening set	8350 Oct 22 05:21	19° \mathbb{M} 37'01	
opposition	8344 Apr 23 06:04	5° \mathbb{M} 47'13 0°16'32					
min. Earth dist.	8344 Apr 23 04:02	5° \mathbb{M} 47'21 28.99032 AU		conjunction	8350 Nov 07 11:14	20° \mathbb{M} 12'52 0°31'10	
direct	8344 Jul 10 21:42	4° \mathbb{M} 22'40		minimum elong	8350 Nov 07 11:14	20° \mathbb{M} 12'52 0°31'18	
evening set	8344 Oct 07 20:54	6° \mathbb{M} 17'15		max. Earth dist.	8350 Nov 07 07:56	20° \mathbb{M} 12'34 31.06458 AU	
				morning rise	8350 Nov 23 16:11	20° \mathbb{M} 48'41	
conjunction	8344 Oct 24 02:57	6° \mathbb{M} 53'11 0°16'45		retrograde	8351 Feb 20 08:56	22° \mathbb{M} 43'15	
minimum elong	8344 Oct 24 02:56	6° \mathbb{M} 53'11 0°16'50		opposition	8351 May 09 07:11	21° \mathbb{M} 19'46 0°34'31	
max. Earth dist.	8344 Oct 24 04:05	6° \mathbb{M} 53'17 30.99599 AU		min. Earth dist.	8351 May 09 10:07	21° \mathbb{M} 19'34 29.06902 AU	
morning rise	8344 Nov 09 09:00	7° \mathbb{M} 29'08		direct	8351 Jul 27 06:19	19° \mathbb{M} 55'13	
retrograde	8345 Feb 06 13:35	9° \mathbb{M} 24'20		evening set	8351 Oct 24 18:34	21° \mathbb{M} 50'08	
opposition	8345 Apr 25 16:28	8° \mathbb{M} 00'22 0°19'13					
min. Earth dist.	8345 Apr 25 14:48	8° \mathbb{M} 00'29 29.00199 AU		conjunction	8351 Nov 10 00:12	22° \mathbb{M} 25'58 0°33'26	
direct	8345 Jul 13 08:21	6° \mathbb{M} 35'49		minimum elong	8351 Nov 10 00:12	22° \mathbb{M} 25'58 0°33'34	
evening set	8345 Oct 10 10:13	8° \mathbb{M} 30'27		max. Earth dist.	8351 Nov 09 19:17	22° \mathbb{M} 25'31 31.07314 AU	
				morning rise	8351 Nov 26 05:02	23° \mathbb{M} 01'45	
conjunction	8345 Oct 26 16:26	9° \mathbb{M} 06'23 0°19'14		retrograde	8352 Feb 22 21:32	24° \mathbb{M} 56'11	
minimum elong	8345 Oct 26 16:26	9° \mathbb{M} 06'23 0°19'22		opposition	8352 May 10 17:35	23° \mathbb{M} 32'44 0°36'54	
max. Earth dist.	8345 Oct 26 18:05	9° \mathbb{M} 06'32 31.00808 AU		min. Earth dist.	8352 May 10 21:45	23° \mathbb{M} 32'26 29.07740 AU	
morning rise	8345 Nov 11 22:13	9° \mathbb{M} 42'19		direct	8352 Jul 28 18:26	22° \mathbb{M} 08'08	
retrograde	8346 Feb 08 23:31	11° \mathbb{M} 37'24		evening set	8352 Oct 26 07:42	24° \mathbb{M} 03'03	
opposition	8346 Apr 28 02:59	10° \mathbb{M} 13'32 0°21'52					
min. Earth dist.	8346 Apr 28 02:21	10° \mathbb{M} 13'35 29.01435 AU		conjunction	8352 Nov 11 13:23	24° \mathbb{M} 38'53 0°35'38	
direct	8346 Jul 15 19:41	8° \mathbb{M} 49'01		minimum elong	8352 Nov 11 13:23	24° \mathbb{M} 38'53 0°35'46	
evening set	8346 Oct 12 23:41	10° \mathbb{M} 43'42		max. Earth dist.	8352 Nov 11 08:41	24° \mathbb{M} 38'27 31.08131 AU	
				morning rise	8352 Nov 27 17:52	25° \mathbb{M} 14'38	
conjunction	8346 Oct 29 05:43	11° \mathbb{M} 19'38 0°21'42		retrograde	8353 Feb 24 08:02	27° \mathbb{M} 08'54	
minimum elong	8346 Oct 29 05:43	11° \mathbb{M} 19'38 0°21'49		opposition	8353 May 13 03:45	25° \mathbb{M} 45'29 0°39'13	

min. Earth dist.	8353 May 13 08:29	25° ℓ 45'09	29.08543 AU	conjunction	8359 Nov 28 06:21	10° ♊ 04'46	0°49'22
direct	8353 Jul 31 07:58	24° ℓ 20'51		minimum elong	8359 Nov 28 06:21	10° ♊ 04'46	0°49'32
evening set	8353 Oct 28 20:57	26° ℓ 15'47		max. Earth dist.	8359 Nov 27 21:53	10° ♊ 03'59	31.15544 AU
				morning rise	8359 Dec 14 08:51	10° ♊ 40'18	
conjunction	8353 Nov 14 02:20	26° ℓ 51'35	0°37'47	retrograde	8360 Mar 11 09:06	12° ♊ 33'47	
minimum elong	8353 Nov 14 02:20	26° ℓ 51'35	0°37'56	opposition	8360 May 28 03:08	11° ♊ 10'49	0°53'40
max. Earth dist.	8353 Nov 13 19:52	26° ℓ 50'59	31.08941 AU	min. Earth dist.	8360 May 28 10:48	11° ♊ 10'17	29.16188 AU
morning rise	8353 Nov 30 06:43	27° ℓ 27'18		direct	8360 Aug 15 14:52	9° ♊ 46'07	
retrograde	8354 Feb 26 19:17	29° ℓ 21'26		evening set	8360 Nov 13 15:00	11° ♊ 41'15	
opposition	8354 May 15 13:59	27° ℓ 58'03	0°41'29				
min. Earth dist.	8354 May 15 19:07	27° ℓ 57'41	29.09377 AU	conjunction	8360 Nov 29 18:57	12° ♊ 16'53	0°51'04
direct	8354 Aug 02 19:13	26° ℓ 33'21		minimum elong	8360 Nov 29 18:57	12° ♊ 16'53	0°51'14
evening set	8354 Oct 31 09:51	28° ℓ 28'17		max. Earth dist.	8360 Nov 29 08:53	12° ♊ 15'57	31.16766 AU
				morning rise	8360 Dec 15 21:11	12° ♊ 52'23	
conjunction	8354 Nov 16 15:12	29° ℓ 04'04	0°39'52	retrograde	8361 Mar 13 21:13	14° ♊ 45'47	
minimum elong	8354 Nov 16 15:12	29° ℓ 04'04	0°40'01	opposition	8361 May 30 13:21	13° ♊ 22'53	0°55'26
max. Earth dist.	8354 Nov 16 09:21	29° ℓ 03'31	31.09790 AU	min. Earth dist.	8361 May 30 22:15	13° ♊ 22'16	29.17377 AU
morning rise	8354 Dec 02 19:08	29° ℓ 39'45		direct	8361 Aug 18 02:22	11° ♊ 58'12	
	8354 Dec 12 07:59	0° ♊		evening set	8361 Nov 16 03:50	13° ♊ 53'22	
retrograde	8355 Mar 01 04:38	1° ♊ 33'44					
opposition	8355 May 18 00:14	0° ♊ 10'23	0°43'41	conjunction	8361 Dec 02 07:40	14° ♊ 28'59	0°52'41
min. Earth dist.	8355 May 18 06:15	0° ♊ 09'58	29.10265 AU	minimum elong	8361 Dec 02 07:40	14° ♊ 28'59	0°52'51
	8355 May 24 04:36	30° ♋		max. Earth dist.	8361 Dec 01 21:39	14° ♊ 28'04	31.17893 AU
direct	8355 Aug 05 07:13	28° ℓ 45'40		morning rise	8361 Dec 18 09:25	15° ♊ 04'27	
	8355 Oct 14 05:07	0° ♊		retrograde	8362 Mar 16 07:35	16° ♊ 57'45	
evening set	8355 Nov 02 22:49	0° ♊ 40'36		opposition	8362 Jun 01 23:43	15° ♊ 34'55	0°57'07
				min. Earth dist.	8362 Jun 02 09:20	15° ♊ 34'15	29.18437 AU
conjunction	8355 Nov 19 03:52	1° ♊ 16'21	0°41'54	direct	8362 Aug 20 15:43	14° ♊ 10'14	
minimum elong	8355 Nov 19 03:52	1° ♊ 16'21	0°42'03	evening set	8362 Nov 18 16:39	16° ♊ 05'26	
max. Earth dist.	8355 Nov 18 20:35	1° ♊ 15'41	31.10736 AU				
morning rise	8355 Dec 05 07:41	1° ♊ 52'01		conjunction	8362 Dec 04 20:01	16° ♊ 41'00	0°54'13
retrograde	8356 Mar 02 16:32	3° ♊ 45'53		minimum elong	8362 Dec 04 20:01	16° ♊ 41'00	0°54'23
opposition	8356 May 19 10:19	2° ♊ 22'34	0°45'50	max. Earth dist.	8362 Dec 04 08:07	16° ♊ 39'54	31.18891 AU
min. Earth dist.	8356 May 19 15:50	2° ♊ 22'11	29.11276 AU	morning rise	8362 Dec 20 21:34	17° ♊ 16'26	
direct	8356 Aug 06 17:49	0° ♊ 57'49		retrograde	8363 Mar 18 19:19	19° ♊ 09'38	
evening set	8356 Nov 04 11:35	2° ♊ 52'46		opposition	8363 Jun 04 10:02	17° ♊ 46'51	0°58'43
				min. Earth dist.	8363 Jun 04 20:06	17° ♊ 46'09	29.19385 AU
conjunction	8356 Nov 20 16:34	3° ♊ 28'30	0°43'52	direct	8363 Aug 23 03:04	16° ♊ 22'09	
minimum elong	8356 Nov 20 16:34	3° ♊ 28'30	0°44'01	evening set	8363 Nov 21 05:15	18° ♊ 17'21	
max. Earth dist.	8356 Nov 20 09:35	3° ♊ 27'52	31.11800 AU				
morning rise	8356 Dec 06 19:59	4° ♊ 04'08		conjunction	8363 Dec 07 08:31	18° ♊ 52'55	0°55'40
retrograde	8357 Mar 05 00:43	5° ♊ 57'53		minimum elong	8363 Dec 07 08:31	18° ♊ 52'55	0°55'51
opposition	8357 May 21 20:36	4° ♊ 34'39	0°47'54	max. Earth dist.	8363 Dec 06 20:56	18° ♊ 51'51	31.19776 AU
min. Earth dist.	8357 May 22 03:24	4° ♊ 34'10	29.12404 AU	morning rise	8363 Dec 23 09:32	19° ♊ 28'18	
direct	8357 Aug 09 04:27	3° ♊ 09'53		retrograde	8364 Mar 20 04:59	21° ♊ 21'24	
evening set	8357 Nov 07 00:30	5° ♊ 04'53		opposition	8364 Jun 05 20:17	19° ♊ 58'40	1°00'14
				min. Earth dist.	8364 Jun 06 07:39	19° ♊ 57'52	29.20219 AU
conjunction	8357 Nov 23 05:13	5° ♊ 40'35	0°45'46	direct	8364 Aug 24 15:33	18° ♊ 33'56	
minimum elong	8357 Nov 23 05:13	5° ♊ 40'35	0°45'56	evening set	8364 Nov 22 17:53	20° ♊ 29'08	
max. Earth dist.	8357 Nov 22 21:26	5° ♊ 39'52	31.12992 AU				
morning rise	8357 Dec 09 08:25	6° ♊ 16'11		conjunction	8364 Dec 08 20:44	21° ♊ 04'40	0°57'03
retrograde	8358 Mar 07 11:33	8° ♊ 09'49		minimum elong	8364 Dec 08 20:44	21° ♊ 04'40	0°57'14
opposition	8358 May 24 06:37	6° ♊ 46'41	0°49'53	max. Earth dist.	8364 Dec 08 07:25	21° ♊ 03'26	31.20572 AU
min. Earth dist.	8358 May 24 12:54	6° ♊ 46'14	29.13637 AU	morning rise	8364 Dec 24 21:35	21° ♊ 40'02	
direct	8358 Aug 11 16:19	5° ♊ 21'56		retrograde	8365 Mar 22 16:35	23° ♊ 33'01	
evening set	8358 Nov 09 13:23	7° ♊ 16'58		opposition	8365 Jun 08 06:29	22° ♊ 10'19	1°01'39
				min. Earth dist.	8365 Jun 08 17:37	22° ♊ 09'32	29.20976 AU
conjunction	8358 Nov 25 17:52	7° ♊ 52'40	0°47'36	direct	8365 Aug 27 03:04	20° ♊ 45'33	
minimum elong	8358 Nov 25 17:52	7° ♊ 52'40	0°47'46	evening set	8365 Nov 25 06:22	22° ♊ 40'46	
max. Earth dist.	8358 Nov 25 09:38	7° ♊ 51'54	31.14255 AU				
morning rise	8358 Dec 11 20:42	8° ♊ 28'14		conjunction	8365 Dec 11 09:01	23° ♊ 16'16	0°58'21
retrograde	8359 Mar 09 21:53	10° ♊ 21'48		minimum elong	8365 Dec 11 09:01	23° ♊ 16'16	0°58'31
opposition	8359 May 26 16:56	8° ♊ 58'44	0°51'49	max. Earth dist.	8365 Dec 10 19:46	23° ♊ 15'02	31.21292 AU
min. Earth dist.	8359 May 27 00:39	8° ♊ 58'12	29.14926 AU	morning rise	8365 Dec 27 09:20	23° ♊ 51'35	
direct	8359 Aug 14 01:55	7° ♊ 34'01		retrograde	8366 Mar 25 00:34	25° ♊ 44'28	
evening set	8359 Nov 12 02:02	9° ♊ 29'06		opposition	8366 Jun 10 16:45	24° ♊ 21'47	1°02'59
				min. Earth dist.	8366 Jun 11 05:24	24° ♊ 20'55	29.21686 AU

direct	8366 Aug 29 14:03	22° \nearrow 57'00		conjunction	8372 Dec 26 19:41	8° \searrow 34'58	1°04'55
evening set	8366 Nov 27 18:46	24° \nearrow 52'13		minimum elong	8372 Dec 26 19:41	8° \searrow 34'58	1°05'06
				max. Earth dist.	8372 Dec 26 04:34	8° \searrow 33'34	31.27517 AU
conjunction	8366 Dec 13 21:02	25° \nearrow 27'41	0°59'33	morning rise	8373 Jan 11 17:14	9° \searrow 10'04	
minimum elong	8366 Dec 13 21:01	25° \nearrow 27'41	0°59'44	retrograde	8373 Apr 09 02:42	11° \searrow 02'32	
max. Earth dist.	8366 Dec 13 06:59	25° \nearrow 26'23	31.22006 AU	opposition	8373 Jun 25 16:41	9° \searrow 40'18	1°09'40
morning rise	8366 Dec 29 21:03	26° \nearrow 02'58		min. Earth dist.	8373 Jun 26 07:28	9° \searrow 39'16	29.28023 AU
retrograde	8367 Mar 27 10:42	27° \nearrow 55'45		direct	8373 Sep 13 23:08	8° \searrow 15'38	
opposition	8367 Jun 13 02:55	26° \nearrow 33'06	1°04'14	evening set	8373 Dec 13 07:31	10° \searrow 11'04	
min. Earth dist.	8367 Jun 13 14:56	26° \nearrow 32'16	29.22410 AU				
direct	8367 Sep 01 01:47	25° \nearrow 08'17		conjunction	8373 Dec 29 07:17	10° \searrow 46'21	1°05'29
evening set	8367 Nov 30 06:54	27° \nearrow 03'30		minimum elong	8373 Dec 29 07:17	10° \searrow 46'21	1°05'39
				max. Earth dist.	8373 Dec 28 14:35	10° \searrow 44'48	31.28399 AU
conjunction	8367 Dec 16 08:51	27° \nearrow 38'57	1°00'40	morning rise	8374 Jan 14 04:33	11° \searrow 21'25	
minimum elong	8367 Dec 16 08:51	27° \nearrow 38'57	1°00'51	retrograde	8374 Apr 11 14:25	13° \searrow 13'50	
max. Earth dist.	8367 Dec 15 18:36	27° \nearrow 37'38	31.22746 AU	opposition	8374 Jun 28 03:04	11° \searrow 51'40	1°10'13
morning rise	8368 Jan 01 08:27	28° \nearrow 14'12		min. Earth dist.	8374 Jun 28 17:31	11° \searrow 50'40	29.28842 AU
	8368 Mar 08 18:56	0° \searrow		direct	8374 Sep 16 11:05	10° \searrow 27'00	
retrograde	8368 Mar 28 20:14	0° \searrow 06'54		evening set	8374 Dec 15 19:29	12° \searrow 22'28	
	8368 Apr 18 04:27	30° \nwarrow					
opposition	8368 Jun 14 13:14	28° \nearrow 44'17	1°05'23	conjunction	8374 Dec 31 19:00	12° \searrow 57'43	1°05'57
min. Earth dist.	8368 Jun 15 02:22	28° \nearrow 43'22	29.23195 AU	minimum elong	8374 Dec 31 18:59	12° \searrow 57'43	1°06'08
direct	8368 Sep 02 11:02	27° \nearrow 19'27		max. Earth dist.	8374 Dec 31 02:19	12° \searrow 56'10	31.29140 AU
evening set	8368 Dec 01 19:04	29° \nearrow 14'41		morning rise	8375 Jan 16 15:42	13° \searrow 32'45	
				retrograde	8375 Apr 13 22:39	15° \searrow 25'07	
conjunction	8368 Dec 17 20:45	29° \nearrow 50'06	1°01'42	opposition	8375 Jun 30 13:41	14° \searrow 02'59	1°10'40
minimum elong	8368 Dec 17 20:45	29° \nearrow 50'06	1°01'53	min. Earth dist.	8375 Jul 01 05:42	14° \searrow 01'53	29.29518 AU
max. Earth dist.	8368 Dec 17 06:38	29° \nearrow 48'47	31.23575 AU	direct	8375 Sep 18 22:07	12° \searrow 38'20	
	8368 Dec 22 07:31	0° \searrow		evening set	8375 Dec 18 07:19	14° \searrow 33'47	
morning rise	8369 Jan 02 19:57	0° \searrow 25'19					
retrograde	8369 Mar 31 06:26	2° \searrow 17'57		conjunction	8376 Jan 03 06:25	15° \searrow 09'00	1°06'20
opposition	8369 Jun 16 23:19	0° \searrow 55'24	1°06'26	minimum elong	8376 Jan 03 06:25	15° \searrow 09'00	1°06'30
min. Earth dist.	8369 Jun 17 11:56	0° \searrow 54'31	29.24065 AU	max. Earth dist.	8376 Jan 02 12:50	15° \searrow 07'23	31.29747 AU
	8369 Jul 23 04:00	30° \nwarrow		morning rise	8376 Jan 19 02:51	15° \searrow 44'00	
direct	8369 Sep 04 23:48	29° \nearrow 30'34		retrograde	8376 Apr 15 08:47	17° \searrow 36'18	
	8369 Oct 18 00:56	0° \searrow		opposition	8376 Jul 02 00:08	16° \searrow 14'12	1°11'02
evening set	8369 Dec 04 07:19	1° \searrow 25'51		min. Earth dist.	8376 Jul 02 15:45	16° \searrow 13'07	29.30044 AU
				direct	8376 Sep 20 10:00	14° \searrow 49'31	
conjunction	8369 Dec 20 08:33	2° \searrow 01'13	1°02'39	evening set	8376 Dec 19 19:12	16° \searrow 44'58	
minimum elong	8369 Dec 20 08:33	2° \searrow 01'13	1°02'50				
max. Earth dist.	8369 Dec 19 17:28	1° \searrow 59'50	31.24494 AU	conjunction	8377 Jan 04 17:57	17° \searrow 20'10	1°06'37
morning rise	8370 Jan 05 07:25	2° \searrow 36'25		minimum elong	8377 Jan 04 17:57	17° \searrow 20'10	1°06'48
retrograde	8370 Apr 02 18:16	4° \searrow 28'59		max. Earth dist.	8377 Jan 03 23:46	17° \searrow 18'28	31.30199 AU
opposition	8370 Jun 19 09:39	3° \searrow 06'30	1°07'23	morning rise	8377 Jan 20 13:56	17° \searrow 55'08	
min. Earth dist.	8370 Jun 19 22:48	3° \searrow 05'35	29.25040 AU	retrograde	8377 Apr 17 18:04	19° \searrow 47'22	
direct	8370 Sep 07 10:43	1° \searrow 41'43		opposition	8377 Jul 04 10:38	18° \searrow 25'15	1°11'17
evening set	8370 Dec 06 19:13	3° \searrow 37'02		min. Earth dist.	8377 Jul 05 03:38	18° \searrow 24'05	29.30442 AU
				direct	8377 Sep 22 19:26	17° \searrow 00'33	
conjunction	8370 Dec 22 20:15	4° \searrow 12'23	1°03'30	evening set	8377 Dec 22 06:57	18° \searrow 55'58	
minimum elong	8370 Dec 22 20:14	4° \searrow 12'23	1°03'41	max. Earth dist.	8378 Jan 06 11:12	19° \searrow 29'26	31.30545 AU
max. Earth dist.	8370 Dec 22 05:56	4° \searrow 11'04	31.25502 AU				
morning rise	8371 Jan 07 18:35	4° \searrow 47'32		conjunction	8378 Jan 07 05:23	19° \searrow 31'08	1°06'48
retrograde	8371 Apr 05 04:10	6° \searrow 40'05		minimum elong	8378 Jan 07 05:23	19° \searrow 31'08	1°06'59
opposition	8371 Jun 21 19:59	5° \searrow 17'41	1°08'15	morning rise	8378 Jan 23 00:56	20° \searrow 06'04	
min. Earth dist.	8371 Jun 22 09:26	5° \searrow 16'45	29.26060 AU	retrograde	8378 Apr 20 03:09	21° \searrow 58'14	
direct	8371 Sep 09 23:16	3° \searrow 52'56		opposition	8378 Jul 06 21:09	20° \searrow 36'07	1°11'26
evening set	8371 Dec 09 07:22	5° \searrow 48'18		min. Earth dist.	8378 Jul 07 13:51	20° \searrow 34'57	29.30735 AU
				direct	8378 Sep 25 08:38	19° \searrow 11'22	
conjunction	8371 Dec 25 07:52	6° \searrow 23'38	1°04'15	evening set	8378 Dec 24 18:27	21° \searrow 06'45	
minimum elong	8371 Dec 25 07:52	6° \searrow 23'38	1°04'26				
max. Earth dist.	8371 Dec 24 16:10	6° \searrow 22'11	31.26532 AU	conjunction	8379 Jan 09 16:23	21° \searrow 41'53	1°06'54
morning rise	8372 Jan 10 05:58	6° \searrow 58'46		minimum elong	8379 Jan 09 16:23	21° \searrow 41'53	1°07'05
retrograde	8372 Apr 06 16:17	8° \searrow 51'16		max. Earth dist.	8379 Jan 08 21:12	21° \searrow 40'06	31.30807 AU
opposition	8372 Jun 23 06:11	7° \searrow 28'57	1°09'00	morning rise	8379 Jan 25 11:38	22° \searrow 16'47	
min. Earth dist.	8372 Jun 23 19:47	7° \searrow 28'01	29.27086 AU	retrograde	8379 Apr 22 13:42	24° \searrow 08'53	
direct	8372 Sep 11 10:06	6° \searrow 04'15		opposition	8379 Jul 09 07:41	22° \searrow 46'44	1°11'29
evening set	8372 Dec 10 19:22	7° \searrow 59'40		min. Earth dist.	8379 Jul 10 00:52	22° \searrow 45'33	29.30991 AU

direct	8379 Sep 27 19:01	21° $\overline{3}$ 21'57		minimum elong	8386 Jan 24 20:17	6° \approx 54'21	1°05'03
evening set	8379 Dec 27 05:47	23° $\overline{3}$ 17'18		max. Earth dist.	8386 Jan 24 01:30	6° \approx 52'36	31.33674 AU
max. Earth dist.	8380 Jan 11 09:14	23° $\overline{3}$ 50'43	31.31058 AU	morning rise	8386 Feb 09 12:47	7° \approx 29'04	
				retrograde	8386 May 07 12:37	9° \approx 21'07	
conjunction	8380 Jan 12 03:31	23° $\overline{3}$ 52'24	1°06'54	opposition	8386 Jul 24 10:04	7° \approx 59'11	1°08'59
minimum elong	8380 Jan 12 03:31	23° $\overline{3}$ 52'24	1°07'04	min. Earth dist.	8386 Jul 25 03:48	7° \approx 57'58	29.33925 AU
morning rise	8380 Jan 27 22:15	24° $\overline{3}$ 27'16		direct	8386 Oct 13 02:26	6° \approx 34'35	
retrograde	8380 Apr 23 22:45	26° $\overline{3}$ 19'19		evening set	8387 Jan 11 11:53	8° \approx 30'01	
opposition	8380 Jul 10 18:07	24° $\overline{3}$ 57'10	1°11'26				
min. Earth dist.	8380 Jul 11 11:29	24° $\overline{3}$ 55'58	29.31249 AU	conjunction	8387 Jan 27 06:54	9° \approx 04'57	1°04'14
direct	8380 Sep 29 07:19	23° $\overline{3}$ 32'20		minimum elong	8387 Jan 27 06:54	9° \approx 04'57	1°04'23
evening set	8380 Dec 28 17:14	25° $\overline{3}$ 27'41		max. Earth dist.	8387 Jan 26 12:27	9° \approx 03'14	31.34030 AU
				morning rise	8387 Feb 11 22:59	9° \approx 39'39	
conjunction	8381 Jan 13 14:24	26° $\overline{3}$ 02'44	1°06'48	retrograde	8387 May 09 21:49	11° \approx 31'43	
minimum elong	8381 Jan 13 14:24	26° $\overline{3}$ 02'44	1°06'59	opposition	8387 Jul 26 20:58	10° \approx 09'50	1°08'14
max. Earth dist.	8381 Jan 12 19:06	26° $\overline{3}$ 00'57	31.31346 AU	min. Earth dist.	8387 Jul 27 14:19	10° \approx 08'38	29.34208 AU
morning rise	8381 Jan 29 08:54	26° $\overline{3}$ 37'35		direct	8387 Oct 15 15:04	8° \approx 45'16	
retrograde	8381 Apr 26 10:20	28° $\overline{3}$ 29'35		evening set	8388 Jan 13 23:01	10° \approx 40'41	
opposition	8381 Jul 13 04:38	27° $\overline{3}$ 07'25	1°11'17				
min. Earth dist.	8381 Jul 13 21:29	27° $\overline{3}$ 06'16	29.31581 AU	conjunction	8388 Jan 29 17:32	11° \approx 15'36	1°03'29
direct	8381 Oct 01 18:31	25° $\overline{3}$ 42'36		minimum elong	8388 Jan 29 17:33	11° \approx 15'36	1°03'37
evening set	8381 Dec 31 04:22	27° $\overline{3}$ 37'56		max. Earth dist.	8388 Jan 28 21:59	11° \approx 13'47	31.34246 AU
max. Earth dist.	8382 Jan 15 07:14	28° $\overline{3}$ 11'18	31.31714 AU	morning rise	8388 Feb 14 09:22	11° \approx 50'17	
				retrograde	8388 May 11 08:45	13° \approx 42'23	
conjunction	8382 Jan 16 01:18	28° $\overline{3}$ 12'58	1°06'37	opposition	8388 Jul 28 07:46	12° \approx 20'29	1°07'23
minimum elong	8382 Jan 16 01:18	28° $\overline{3}$ 12'58	1°06'47	min. Earth dist.	8388 Jul 29 01:38	12° \approx 19'16	29.34364 AU
morning rise	8382 Jan 31 19:13	28° $\overline{3}$ 47'46		direct	8388 Oct 17 00:33	10° \approx 55'56	
	8382 Mar 10 15:28	0° \approx		evening set	8389 Jan 15 09:59	12° \approx 51'22	
retrograde	8382 Apr 28 20:07	0° \approx 39'46		max. Earth dist.	8389 Jan 30 09:28	13° \approx 24'30	31.34327 AU
	8382 Jun 18 16:44	30° \overline{R} $\overline{3}$					
opposition	8382 Jul 15 15:18	29° $\overline{3}$ 17'37	1°11'01	conjunction	8389 Jan 31 04:18	13° \approx 26'15	1°02'38
min. Earth dist.	8382 Jul 16 08:41	29° $\overline{3}$ 16'25	29.31993 AU	minimum elong	8389 Jan 31 04:18	13° \approx 26'15	1°02'47
direct	8382 Oct 04 07:20	27° $\overline{3}$ 52'49		morning rise	8389 Feb 15 19:38	14° \approx 00'55	
evening set	8383 Jan 02 15:37	29° $\overline{3}$ 48'10			8389 Mar 17 12:55	15° \approx	
	8383 Jan 08 01:41	0° \approx		retrograde	8389 May 13 17:59	15° \approx 53'01	
					8389 Jul 12 19:43	15° \overline{R} \approx	
conjunction	8383 Jan 18 12:01	0° \approx 23'10	1°06'20	opposition	8389 Jul 30 18:48	14° \approx 31'08	1°06'26
minimum elong	8383 Jan 18 12:01	0° \approx 23'10	1°06'30	min. Earth dist.	8389 Jul 31 13:03	14° \approx 29'53	29.34365 AU
max. Earth dist.	8383 Jan 17 17:10	0° \approx 21'26	31.32183 AU	direct	8389 Oct 19 12:14	13° \approx 06'35	
morning rise	8383 Feb 03 05:44	0° \approx 57'57			8390 Jan 16 22:59	15° \approx	
retrograde	8383 May 01 07:40	2° \approx 49'56		evening set	8390 Jan 17 20:56	15° \approx 01'59	
opposition	8383 Jul 18 01:48	1° \approx 27'51	1°10'40				
min. Earth dist.	8383 Jul 18 18:08	1° \approx 26'43	29.32497 AU	conjunction	8390 Feb 02 14:41	15° \approx 36'51	1°01'42
direct	8383 Oct 06 18:59	0° \approx 03'05		minimum elong	8390 Feb 02 14:42	15° \approx 36'51	1°01'50
evening set	8384 Jan 05 02:36	1° \approx 58'27		max. Earth dist.	8390 Feb 01 18:42	15° \approx 34'59	31.34272 AU
				morning rise	8390 Feb 18 05:50	16° \approx 11'29	
conjunction	8384 Jan 20 22:46	2° \approx 33'27	1°05'57	retrograde	8390 May 16 05:50	18° \approx 03'36	
minimum elong	8384 Jan 20 22:46	2° \approx 33'27	1°06'06	opposition	8390 Aug 02 05:46	16° \approx 41'41	1°05'23
max. Earth dist.	8384 Jan 20 04:35	2° \approx 31'46	31.32703 AU	min. Earth dist.	8390 Aug 02 23:37	16° \approx 40'28	29.34258 AU
morning rise	8384 Feb 05 15:59	3° \approx 08'12		direct	8390 Oct 21 23:41	15° \approx 17'07	
retrograde	8384 May 02 16:26	5° \approx 00'13		evening set	8391 Jan 20 07:37	17° \approx 12'30	
opposition	8384 Jul 19 12:32	3° \approx 38'11	1°10'13	max. Earth dist.	8391 Feb 04 06:15	17° \approx 45'35	31.34115 AU
min. Earth dist.	8384 Jul 20 05:59	3° \approx 36'59	29.33023 AU				
direct	8384 Oct 08 05:47	2° \approx 13'29		conjunction	8391 Feb 05 01:12	17° \approx 47'20	1°00'41
evening set	8385 Jan 06 13:47	4° \approx 08'52		minimum elong	8391 Feb 05 01:12	17° \approx 47'20	1°00'50
				morning rise	8391 Feb 20 15:51	18° \approx 21'57	
conjunction	8385 Jan 22 09:31	4° \approx 43'50	1°05'28	retrograde	8391 May 18 15:57	20° \approx 14'04	
minimum elong	8385 Jan 22 09:31	4° \approx 43'50	1°05'37	opposition	8391 Aug 04 16:46	18° \approx 52'06	1°04'16
max. Earth dist.	8385 Jan 21 14:58	4° \approx 42'07	31.33226 AU	min. Earth dist.	8391 Aug 05 11:23	18° \approx 50'50	29.34066 AU
morning rise	8385 Feb 07 02:25	5° \approx 18'35		direct	8391 Oct 24 12:50	17° \approx 27'31	
retrograde	8385 May 05 02:45	7° \approx 10'36		evening set	8392 Jan 22 18:15	19° \approx 22'51	
opposition	8385 Jul 21 23:07	5° \approx 48'38	1°09'39				
min. Earth dist.	8385 Jul 22 15:51	5° \approx 47'29	29.33513 AU	conjunction	8392 Feb 07 11:22	19° \approx 57'40	0°59'35
direct	8385 Oct 10 17:24	4° \approx 23'59		minimum elong	8392 Feb 07 11:22	19° \approx 57'40	0°59'42
evening set	8386 Jan 09 00:58	6° \approx 19'23		max. Earth dist.	8392 Feb 06 15:44	19° \approx 55'51	31.33914 AU
				morning rise	8392 Feb 23 01:53	20° \approx 32'16	
conjunction	8386 Jan 24 20:17	6° \approx 54'21	1°04'54	retrograde	8392 May 20 03:07	22° \approx 24'22	

opposition	8392 Aug 06 03:41	21° 00 02'22	1°03'03	conjunction	8399 Feb 22 09:36	5° 00 08'45	0°49'37
min. Earth dist.	8392 Aug 06 21:08	21° 00 01'11	29.33857 AU	minimum elong	8399 Feb 22 09:36	5° 00 08'45	0°49'42
direct	8392 Oct 26 00:57	19° 00 37'46		max. Earth dist.	8399 Feb 21 16:21	5° 00 07'08	31.33813 AU
evening set	8393 Jan 24 04:46	21° 00 33'04		morning rise	8399 Mar 09 22:03	5° 00 43'15	
				retrograde	8399 Jun 05 00:40	7° 00 35'40	
conjunction	8393 Feb 08 21:36	22° 00 07'51	0°58'25	opposition	8399 Aug 22 10:06	6° 00 13'41	0°52'05
minimum elong	8393 Feb 08 21:36	22° 00 07'51	0°58'31	min. Earth dist.	8399 Aug 23 01:38	6° 00 12'38	29.33817 AU
max. Earth dist.	8393 Feb 08 02:47	22° 00 06'06	31.33710 AU	direct	8399 Nov 11 05:51	4° 00 49'20	
morning rise	8393 Feb 24 11:40	22° 00 42'26		evening set	8400 Feb 09 05:11	6° 00 44'31	
retrograde	8393 May 22 11:50	24° 00 34'32					
opposition	8393 Aug 08 14:46	23° 00 12'30	1°01'44	conjunction	8400 Feb 24 19:44	7° 00 19'12	0°47'53
min. Earth dist.	8393 Aug 09 08:54	23° 00 11'16	29.33687 AU	minimum elong	8400 Feb 24 19:44	7° 00 19'12	0°47'57
direct	8393 Oct 28 12:36	21° 00 47'53		max. Earth dist.	8400 Feb 24 03:32	7° 00 17'42	31.33709 AU
evening set	8394 Jan 26 15:16	23° 00 43'09		morning rise	8400 Mar 11 07:46	7° 00 53'42	
				retrograde	8400 Jun 06 11:09	9° 00 46'12	
conjunction	8394 Feb 11 07:41	24° 00 17'55	0°57'09	opposition	8400 Aug 23 21:44	8° 00 42'12	0°50'12
minimum elong	8394 Feb 11 07:41	24° 00 17'55	0°57'15	min. Earth dist.	8400 Aug 24 14:01	8° 00 23'05	29.33642 AU
max. Earth dist.	8394 Feb 10 13:11	24° 00 16'12	31.33590 AU	direct	8400 Nov 12 17:58	6° 00 59'54	
morning rise	8394 Feb 26 21:29	24° 00 52'28		evening set	8401 Feb 10 15:37	8° 00 55'04	
retrograde	8394 May 24 22:16	26° 00 44'35					
opposition	8394 Aug 11 01:50	25° 00 22'33	1°00'20	conjunction	8401 Feb 26 05:42	9° 00 29'44	0°46'05
min. Earth dist.	8394 Aug 11 18:31	25° 00 21'24	29.33610 AU	minimum elong	8401 Feb 26 05:42	9° 00 29'44	0°46'09
direct	8394 Oct 31 01:13	23° 00 57'57		max. Earth dist.	8401 Feb 25 12:48	9° 00 28'09	31.33468 AU
evening set	8395 Jan 29 01:33	25° 00 53'10		morning rise	8401 Mar 13 17:36	10° 00 04'13	
				retrograde	8401 Jun 08 22:55	11° 00 56'47	
conjunction	8395 Feb 13 17:37	26° 00 27'56	0°55'48	opposition	8401 Aug 26 09:16	10° 00 34'46	0°48'15
minimum elong	8395 Feb 13 17:37	26° 00 27'56	0°55'55	min. Earth dist.	8401 Aug 27 00:27	10° 00 33'44	29.33323 AU
max. Earth dist.	8395 Feb 12 23:27	26° 00 26'15	31.33563 AU	direct	8401 Nov 15 05:46	9° 00 10'29	
morning rise	8395 Mar 01 07:08	27° 00 02'29		evening set	8402 Feb 13 01:55	11° 00 05'37	
retrograde	8395 May 27 07:55	28° 00 54'38					
opposition	8395 Aug 13 13:00	27° 00 32'35	0°58'52	conjunction	8402 Feb 28 15:47	11° 00 40'17	0°44'13
min. Earth dist.	8395 Aug 14 06:01	27° 00 31'26	29.33636 AU	minimum elong	8402 Feb 28 15:47	11° 00 40'17	0°44'17
direct	8395 Nov 02 11:01	26° 00 08'02		max. Earth dist.	8402 Feb 27 23:20	11° 00 38'45	31.33073 AU
evening set	8396 Jan 31 11:51	28° 00 03'15		morning rise	8402 Mar 16 03:21	12° 00 14'46	
max. Earth dist.	8396 Feb 15 10:32	28° 00 36'23	31.33631 AU	retrograde	8402 Jun 11 08:53	14° 00 07'23	
				opposition	8402 Aug 28 21:04	12° 00 45'20	0°46'13
conjunction	8396 Feb 16 03:41	28° 00 37'59	0°54'22	min. Earth dist.	8402 Aug 29 13:09	12° 00 44'15	29.32861 AU
minimum elong	8396 Feb 16 03:41	28° 00 37'59	0°54'28	direct	8402 Nov 17 17:37	11° 00 21'05	
morning rise	8396 Mar 02 16:51	29° 00 12'31		evening set	8403 Feb 15 12:03	13° 00 16'10	
	8396 Mar 25 22:04	0° 00 00		max. Earth dist.	8403 Mar 02 09:23	13° 00 49'18	31.32556 AU
retrograde	8396 May 28 16:27	1° 00 04'43					
	8396 Aug 04 08:38	30° 00 00		conjunction	8403 Mar 03 01:38	13° 00 50'49	0°42'18
opposition	8396 Aug 14 23:59	29° 00 42'42	0°57'17	minimum elong	8403 Mar 03 01:38	13° 00 50'49	0°42'21
min. Earth dist.	8396 Aug 15 16:11	29° 00 41'36	29.33714 AU	morning rise	8403 Mar 18 13:03	14° 00 25'17	
direct	8396 Nov 03 23:02	28° 00 18'12		retrograde	8403 Jun 13 19:46	16° 00 17'58	
	8397 Jan 26 16:42	0° 00 00		opposition	8403 Aug 31 08:40	14° 00 55'52	0°44'08
evening set	8397 Feb 01 22:18	0° 00 13'24		min. Earth dist.	8403 Aug 31 23:40	14° 00 54'51	29.32274 AU
				direct	8403 Nov 20 06:53	13° 00 31'37	
conjunction	8397 Feb 17 13:40	0° 00 48'08	0°52'52	evening set	8404 Feb 17 22:15	15° 00 26'39	
minimum elong	8397 Feb 17 13:40	0° 00 48'08	0°52'58				
max. Earth dist.	8397 Feb 16 19:56	0° 00 46'29	31.33726 AU	conjunction	8404 Mar 04 11:31	16° 00 01'18	0°40'19
morning rise	8397 Mar 05 02:39	1° 00 22'39		minimum elong	8404 Mar 04 11:31	16° 00 01'18	0°40'21
retrograde	8397 May 31 03:12	3° 00 14'55		max. Earth dist.	8404 Mar 03 19:13	15° 00 59'47	31.31924 AU
opposition	8397 Aug 17 11:19	1° 00 52'55	0°55'38	morning rise	8404 Mar 19 22:44	16° 00 35'46	
min. Earth dist.	8397 Aug 18 03:24	1° 00 51'49	29.33812 AU	retrograde	8404 Jun 15 05:44	18° 00 28'30	
direct	8397 Nov 06 07:59	0° 00 28'28		opposition	8404 Sep 01 20:17	17° 00 06'20	0°41'59
evening set	8398 Feb 04 08:29	2° 00 23'40		min. Earth dist.	8404 Sep 02 11:46	17° 00 05'17	29.31620 AU
				direct	8404 Nov 21 17:29	15° 00 42'05	
conjunction	8398 Feb 19 23:40	2° 00 58'23	0°51'17	evening set	8405 Feb 19 08:17	17° 00 37'05	
minimum elong	8398 Feb 19 23:40	2° 00 58'23	0°51'22				
max. Earth dist.	8398 Feb 19 07:16	2° 00 56'51	31.33804 AU	conjunction	8405 Mar 06 21:21	18° 00 11'42	0°38'16
morning rise	8398 Mar 07 12:13	3° 00 32'54		minimum elong	8405 Mar 06 21:22	18° 00 11'42	0°38'19
retrograde	8398 Jun 02 12:37	5° 00 25'15		max. Earth dist.	8405 Mar 06 06:17	18° 00 10'18	31.31262 AU
opposition	8398 Aug 19 22:46	4° 00 03'15	0°53'54	morning rise	8405 Mar 22 08:17	18° 00 46'10	
min. Earth dist.	8398 Aug 20 14:55	4° 00 02'09	29.33853 AU	retrograde	8405 Jun 17 14:16	20° 00 38'57	
direct	8398 Nov 08 19:13	2° 00 38'52		opposition	8405 Sep 04 08:03	19° 00 16'45	0°39'46
evening set	8399 Feb 06 18:55	4° 00 34'03		min. Earth dist.	8405 Sep 04 22:28	19° 00 15'46	29.30954 AU

direct	8405 Nov 24 06:08	17° $\mathbf{\text{H}}$ 52'29		minimum elong	8412 Mar 21 17:02	3° $\mathbf{\text{Y}}$ 26'16	0°22'35
evening set	8406 Feb 21 18:15	19° $\mathbf{\text{H}}$ 47'26		max. Earth dist.	8412 Mar 21 05:50	3° $\mathbf{\text{Y}}$ 25'13	31.27784 AU
				morning rise	8412 Apr 06 02:51	4° $\mathbf{\text{Y}}$ 00'44	
conjunction	8406 Mar 09 06:53	20° $\mathbf{\text{H}}$ 22'03	0°36'11	retrograde	8412 Jul 02 20:38	5° $\mathbf{\text{Y}}$ 54'17	
minimum elong	8406 Mar 09 06:53	20° $\mathbf{\text{H}}$ 22'03	0°36'13	opposition	8412 Sep 19 19:34	4° $\mathbf{\text{Y}}$ 31'56	0°22'51
max. Earth dist.	8406 Mar 08 15:32	20° $\mathbf{\text{H}}$ 20'37	31.30621 AU	min. Earth dist.	8412 Sep 20 05:55	4° $\mathbf{\text{Y}}$ 31'14	29.27480 AU
morning rise	8406 Mar 24 17:44	20° $\mathbf{\text{H}}$ 56'31		direct	8412 Dec 09 12:02	3° $\mathbf{\text{Y}}$ 08'02	
retrograde	8406 Jun 20 00:51	22° $\mathbf{\text{H}}$ 49'23		evening set	8413 Mar 08 15:51	5° $\mathbf{\text{Y}}$ 02'52	
opposition	8406 Sep 06 19:51	21° $\mathbf{\text{H}}$ 27'08	0°37'31				
min. Earth dist.	8406 Sep 07 09:38	21° $\mathbf{\text{H}}$ 26'11	29.30359 AU	conjunction	8413 Mar 24 02:51	5° $\mathbf{\text{Y}}$ 37'28	0°20'12
direct	8406 Nov 26 15:21	20° $\mathbf{\text{H}}$ 02'53		minimum elong	8413 Mar 24 02:51	5° $\mathbf{\text{Y}}$ 37'28	0°20'12
evening set	8407 Feb 24 04:06	21° $\mathbf{\text{H}}$ 57'48		max. Earth dist.	8413 Mar 23 15:30	5° $\mathbf{\text{Y}}$ 36'24	31.27124 AU
				morning rise	8413 Apr 08 12:35	6° $\mathbf{\text{Y}}$ 11'57	
conjunction	8407 Mar 11 16:39	22° $\mathbf{\text{H}}$ 32'25	0°34'02	retrograde	8413 Jul 05 07:31	8° $\mathbf{\text{Y}}$ 05'37	
minimum elong	8407 Mar 11 16:39	22° $\mathbf{\text{H}}$ 32'25	0°34'04	opposition	8413 Sep 22 07:58	6° $\mathbf{\text{Y}}$ 43'13	0°20'16
max. Earth dist.	8407 Mar 11 03:04	22° $\mathbf{\text{H}}$ 31'09	31.30065 AU	min. Earth dist.	8413 Sep 22 18:44	6° $\mathbf{\text{Y}}$ 42'29	29.26759 AU
morning rise	8407 Mar 27 03:10	23° $\mathbf{\text{H}}$ 06'53		direct	8413 Dec 11 22:56	5° $\mathbf{\text{Y}}$ 19'20	
retrograde	8407 Jun 22 10:11	24° $\mathbf{\text{H}}$ 59'50		evening set	8414 Mar 11 01:43	7° $\mathbf{\text{Y}}$ 14'08	
opposition	8407 Sep 09 07:35	23° $\mathbf{\text{H}}$ 37'33	0°35'11				
min. Earth dist.	8407 Sep 09 20:57	23° $\mathbf{\text{H}}$ 36'39	29.29839 AU	conjunction	8414 Mar 26 12:38	7° $\mathbf{\text{Y}}$ 48'43	0°17'46
direct	8407 Nov 29 02:24	22° $\mathbf{\text{H}}$ 13'22		minimum elong	8414 Mar 26 12:38	7° $\mathbf{\text{Y}}$ 48'43	0°17'45
evening set	8408 Feb 26 14:06	24° $\mathbf{\text{H}}$ 08'16		max. Earth dist.	8414 Mar 26 02:24	7° $\mathbf{\text{Y}}$ 47'46	31.26330 AU
				morning rise	8414 Apr 10 22:10	8° $\mathbf{\text{Y}}$ 23'13	
conjunction	8408 Mar 13 02:15	24° $\mathbf{\text{H}}$ 42'51	0°31'50	retrograde	8414 Jul 07 16:49	10° $\mathbf{\text{Y}}$ 16'58	
minimum elong	8408 Mar 13 02:15	24° $\mathbf{\text{H}}$ 42'51	0°31'51	opposition	8414 Sep 24 20:21	8° $\mathbf{\text{Y}}$ 54'31	0°17'40
max. Earth dist.	8408 Mar 12 12:20	24° $\mathbf{\text{H}}$ 41'33	31.29595 AU	min. Earth dist.	8414 Sep 25 06:18	8° $\mathbf{\text{Y}}$ 53'51	29.25880 AU
morning rise	8408 Mar 28 12:46	25° $\mathbf{\text{H}}$ 17'20		direct	8414 Dec 14 12:07	7° $\mathbf{\text{Y}}$ 30'39	
retrograde	8408 Jun 23 22:15	27° $\mathbf{\text{H}}$ 10'24		evening set	8415 Mar 13 11:50	9° $\mathbf{\text{Y}}$ 25'23	
opposition	8408 Sep 10 19:22	25° $\mathbf{\text{H}}$ 48'06	0°32'49				
min. Earth dist.	8408 Sep 11 07:31	25° $\mathbf{\text{H}}$ 47'17	29.29399 AU	conjunction	8415 Mar 28 22:26	9° $\mathbf{\text{Y}}$ 59'58	0°15'19
direct	8408 Nov 30 12:43	24° $\mathbf{\text{H}}$ 23'58		minimum elong	8415 Mar 28 22:26	9° $\mathbf{\text{Y}}$ 59'58	0°15'19
evening set	8409 Feb 27 23:55	26° $\mathbf{\text{H}}$ 18'51		behind sun begin	8415 Mar 28 20:16	9° $\mathbf{\text{Y}}$ 59'47	
				behind sun end	8415 Mar 29 00:36	10° $\mathbf{\text{Y}}$ 00'10	
conjunction	8409 Mar 15 11:56	26° $\mathbf{\text{H}}$ 53'27	0°29'35	max. Earth dist.	8415 Mar 28 11:28	9° $\mathbf{\text{Y}}$ 58'57	31.25384 AU
minimum elong	8409 Mar 15 11:56	26° $\mathbf{\text{H}}$ 53'27	0°29'37	morning rise	8415 Apr 13 08:01	10° $\mathbf{\text{Y}}$ 34'29	
max. Earth dist.	8409 Mar 14 23:36	26° $\mathbf{\text{H}}$ 52'18	31.29171 AU	retrograde	8415 Jul 10 03:56	12° $\mathbf{\text{Y}}$ 28'19	
morning rise	8409 Mar 30 22:07	27° $\mathbf{\text{H}}$ 27'55		opposition	8415 Sep 27 08:34	11° $\mathbf{\text{Y}}$ 05'47	0°15'02
retrograde	8409 Jun 26 09:01	29° $\mathbf{\text{H}}$ 21'07		min. Earth dist.	8415 Sep 27 18:17	11° $\mathbf{\text{Y}}$ 05'07	29.24872 AU
opposition	8409 Sep 13 07:24	27° $\mathbf{\text{H}}$ 58'49	0°30'23	direct	8415 Dec 16 22:39	9° $\mathbf{\text{Y}}$ 41'54	
min. Earth dist.	8409 Sep 13 19:48	27° $\mathbf{\text{H}}$ 57'58	29.28983 AU	evening set	8416 Mar 14 21:44	11° $\mathbf{\text{Y}}$ 36'34	
direct	8409 Dec 02 23:52	26° $\mathbf{\text{H}}$ 34'45					
evening set	8410 Mar 02 09:54	28° $\mathbf{\text{H}}$ 29'38		conjunction	8416 Mar 30 08:20	12° $\mathbf{\text{Y}}$ 11'09	0°12'51
				minimum elong	8416 Mar 30 08:20	12° $\mathbf{\text{Y}}$ 11'09	0°12'49
conjunction	8410 Mar 17 21:34	29° $\mathbf{\text{H}}$ 04'13	0°27'18	behind sun begin	8416 Mar 30 04:16	12° $\mathbf{\text{Y}}$ 10'47	
minimum elong	8410 Mar 17 21:35	29° $\mathbf{\text{H}}$ 04'13	0°27'18	behind sun end	8416 Mar 30 12:24	12° $\mathbf{\text{Y}}$ 11'31	
max. Earth dist.	8410 Mar 17 09:10	29° $\mathbf{\text{H}}$ 03'04	31.28766 AU	max. Earth dist.	8416 Mar 29 22:48	12° $\mathbf{\text{Y}}$ 10'16	31.24315 AU
morning rise	8410 Apr 02 07:44	29° $\mathbf{\text{H}}$ 38'42		morning rise	8416 Apr 14 17:41	12° $\mathbf{\text{Y}}$ 45'40	
	8410 Apr 12 05:41	0° $\mathbf{\text{Y}}$		retrograde	8416 Jul 11 13:21	14° $\mathbf{\text{Y}}$ 39'35	
retrograde	8410 Jun 28 21:13	1° $\mathbf{\text{Y}}$ 32'01		opposition	8416 Sep 28 21:00	13° $\mathbf{\text{Y}}$ 16'57	0°12'22
opposition	8410 Sep 15 19:20	0° $\mathbf{\text{Y}}$ 09'42	0°27'55	min. Earth dist.	8416 Sep 29 06:33	13° $\mathbf{\text{Y}}$ 16'18	29.23749 AU
min. Earth dist.	8410 Sep 16 06:12	0° $\mathbf{\text{Y}}$ 08'58	29.28562 AU	direct	8416 Dec 18 11:03	11° $\mathbf{\text{Y}}$ 53'03	
	8410 Sep 21 18:40	30° $\mathbf{\text{R}}$ $\mathbf{\text{H}}$		evening set	8417 Mar 17 07:37	13° $\mathbf{\text{Y}}$ 47'39	
direct	8410 Dec 05 10:35	28° $\mathbf{\text{H}}$ 45'42					
	8411 Feb 13 08:20	0° $\mathbf{\text{Y}}$		conjunction	8417 Apr 01 17:52	14° $\mathbf{\text{Y}}$ 22'13	0°10'22
evening set	8411 Mar 04 19:43	0° $\mathbf{\text{Y}}$ 40'34		minimum elong	8417 Apr 01 17:53	14° $\mathbf{\text{Y}}$ 22'13	0°10'20
				behind sun begin	8417 Apr 01 12:46	14° $\mathbf{\text{Y}}$ 21'46	
conjunction	8411 Mar 20 07:14	1° $\mathbf{\text{Y}}$ 15'10	0°24'58	behind sun end	8417 Apr 01 22:59	14° $\mathbf{\text{Y}}$ 22'41	
minimum elong	8411 Mar 20 07:14	1° $\mathbf{\text{Y}}$ 15'10	0°24'58	max. Earth dist.	8417 Apr 01 08:03	14° $\mathbf{\text{Y}}$ 21'19	31.23174 AU
max. Earth dist.	8411 Mar 19 19:33	1° $\mathbf{\text{Y}}$ 14'05	31.28314 AU	morning rise	8417 Apr 17 03:19	14° $\mathbf{\text{Y}}$ 56'44	
morning rise	8411 Apr 04 17:12	1° $\mathbf{\text{Y}}$ 49'39		retrograde	8417 Jul 14 00:39	16° $\mathbf{\text{Y}}$ 50'44	
retrograde	8411 Jul 01 08:22	3° $\mathbf{\text{Y}}$ 43'05		opposition	8417 Oct 01 09:22	15° $\mathbf{\text{Y}}$ 28'01	0°09'42
opposition	8411 Sep 18 07:32	2° $\mathbf{\text{Y}}$ 20'45	0°25'24	min. Earth dist.	8417 Oct 01 17:39	15° $\mathbf{\text{Y}}$ 27'27	29.22604 AU
min. Earth dist.	8411 Sep 18 19:04	2° $\mathbf{\text{Y}}$ 19'59	29.28075 AU	direct	8417 Dec 20 21:44	14° $\mathbf{\text{Y}}$ 04'05	
direct	8411 Dec 07 22:35	0° $\mathbf{\text{Y}}$ 56'48		evening set	8418 Mar 19 17:22	15° $\mathbf{\text{Y}}$ 58'37	
evening set	8412 Mar 06 05:44	2° $\mathbf{\text{Y}}$ 51'40					
				conjunction	8418 Apr 04 03:36	16° $\mathbf{\text{Y}}$ 33'11	0°07'53
conjunction	8412 Mar 21 17:02	3° $\mathbf{\text{Y}}$ 26'15	0°22'36	minimum elong	8418 Apr 04 03:35	16° $\mathbf{\text{Y}}$ 33'11	0°07'49

behind sun begin	8418 Apr 03 21:48	16° Υ 32'40		min. Earth dist.	8423 Oct 15 15:48	28° Υ 34'56	29.17141 AU
behind sun end	8418 Apr 04 09:23	16° Υ 33'42		direct	8424 Jan 03 19:26	27° Υ 11'29	
max. Earth dist.	8418 Apr 03 19:25	16° Υ 32'26	31.22034 AU	evening set	8424 Apr 01 04:18	29° Υ 05'55	
morning rise	8418 Apr 19 12:49	17° Υ 07'42					
retrograde	8418 Jul 16 10:50	19° Υ 01'48		conjunction	8424 Apr 16 13:38	29° Υ 40'32	-0°07'25
opposition	8418 Oct 03 21:50	17° Υ 38'59	0°07'01	minimum elong	8424 Apr 16 13:38	29° Υ 40'32	0°07'30
min. Earth dist.	8418 Oct 04 06:06	17° Υ 38'25	29.21497 AU	behind sun begin	8424 Apr 16 07:46	29° Υ 40'00	
direct	8418 Dec 23 08:39	16° Υ 15'03		behind sun end	8424 Apr 16 19:29	29° Υ 41'04	
evening set	8419 Mar 22 03:07	18° Υ 09'31		max. Earth dist.	8424 Apr 16 09:23	29° Υ 40'09	31.16737 AU
					8424 Apr 25 04:09	0° \mathcal{B}	
conjunction	8419 Apr 06 13:07	18° Υ 44'06	0°05'23	morning rise	8424 May 01 22:52	0° \mathcal{B} 15'09	
minimum elong	8419 Apr 06 13:07	18° Υ 44'06	0°05'19	retrograde	8424 Jul 29 09:34	2° \mathcal{B} 10'04	
behind sun begin	8419 Apr 06 06:55	18° Υ 43'32		opposition	8424 Oct 17 00:59	0° \mathcal{B} 47'02	-0°09'13
behind sun end	8419 Apr 06 19:20	18° Υ 44'39		min. Earth dist.	8424 Oct 17 04:03	0° \mathcal{B} 46'50	29.16318 AU
max. Earth dist.	8419 Apr 06 05:18	18° Υ 43'23	31.20975 AU		8424 Nov 16 16:08	30° $\mathcal{R}\Upsilon$	
morning rise	8419 Apr 21 22:25	19° Υ 18'38		direct	8425 Jan 05 06:01	29° Υ 23'24	
retrograde	8419 Jul 18 22:57	21° Υ 12'50			8425 Feb 21 18:36	0° \mathcal{B}	
opposition	8419 Oct 06 10:10	19° Υ 49'56	0°04'19	evening set	8425 Apr 03 14:10	1° \mathcal{B} 17'50	
min. Earth dist.	8419 Oct 06 16:27	19° Υ 49'30	29.20480 AU				
direct	8419 Dec 25 19:35	18° Υ 26'01		conjunction	8425 Apr 18 23:33	1° \mathcal{B} 52'27	-0°09'55
evening set	8420 Mar 23 12:54	20° Υ 20'28		minimum elong	8425 Apr 18 23:33	1° \mathcal{B} 52'27	0°10'00
				behind sun begin	8425 Apr 18 18:20	1° \mathcal{B} 51'59	
conjunction	8420 Apr 07 22:45	20° Υ 55'02	0°02'51	behind sun end	8425 Apr 19 04:45	1° \mathcal{B} 52'55	
minimum elong	8420 Apr 07 22:46	20° Υ 55'02	0°02'47	max. Earth dist.	8425 Apr 18 20:55	1° \mathcal{B} 52'13	31.15869 AU
behind sun begin	8420 Apr 07 16:23	20° Υ 54'28		morning rise	8425 May 04 08:37	2° \mathcal{B} 27'05	
behind sun end	8420 Apr 08 05:10	20° Υ 55'37		retrograde	8425 Jul 31 19:55	4° \mathcal{B} 22'10	
max. Earth dist.	8420 Apr 07 15:56	20° Υ 54'25	31.20000 AU	opposition	8425 Oct 19 13:52	2° \mathcal{B} 59'07	-0°11'54
morning rise	8420 Apr 23 07:58	21° Υ 29'35		min. Earth dist.	8425 Oct 19 16:42	2° \mathcal{B} 58'55	29.15401 AU
retrograde	8420 Jul 20 10:25	23° Υ 23'55		direct	8426 Jan 07 18:21	1° \mathcal{B} 35'31	
opposition	8420 Oct 07 22:38	22° Υ 00'58	0°01'37	evening set	8426 Apr 06 00:20	3° \mathcal{B} 29'56	
min. Earth dist.	8420 Oct 08 05:04	22° Υ 00'32	29.19559 AU				
direct	8420 Dec 27 07:10	20° Υ 37'05		conjunction	8426 Apr 21 09:29	4° \mathcal{B} 04'33	-0°12'25
evening set	8421 Mar 25 22:41	22° Υ 31'32		minimum elong	8426 Apr 21 09:29	4° \mathcal{B} 04'33	0°12'31
				behind sun begin	8426 Apr 21 05:16	4° \mathcal{B} 04'10	
conjunction	8421 Apr 10 08:28	23° Υ 06'06	0°00'15	behind sun end	8426 Apr 21 13:42	4° \mathcal{B} 04'56	
minimum elong	8421 Apr 10 08:27	23° Υ 06'06	0°00'12	max. Earth dist.	8426 Apr 21 06:24	4° \mathcal{B} 04'17	31.14908 AU
behind sun begin	8421 Apr 10 02:07	23° Υ 05'32		morning rise	8426 May 06 18:44	4° \mathcal{B} 39'13	
behind sun end	8421 Apr 10 14:47	23° Υ 06'41		retrograde	8426 Aug 03 07:50	6° \mathcal{B} 34'27	
max. Earth dist.	8421 Apr 10 02:47	23° Υ 05'36	31.19133 AU	opposition	8426 Oct 22 02:38	5° \mathcal{B} 11'20	-0°14'34
morning rise	8421 Apr 25 17:36	23° Υ 40'40		min. Earth dist.	8426 Oct 22 04:27	5° \mathcal{B} 11'13	29.14388 AU
desc. node	8421 May 16 19:21	24° Υ 24'37		direct	8427 Jan 10 04:45	3° \mathcal{B} 47'46	
retrograde	8421 Jul 22 23:04	25° Υ 35'08		evening set	8427 Apr 08 10:23	5° \mathcal{B} 42'09	
opposition	8421 Oct 10 11:07	24° Υ 12'09	-0°01'05				
min. Earth dist.	8421 Oct 10 15:45	24° Υ 11'51	29.18720 AU	conjunction	8427 Apr 23 19:37	6° \mathcal{B} 16'48	-0°14'54
direct	8421 Dec 29 20:02	22° Υ 48'20		minimum elong	8427 Apr 23 19:37	6° \mathcal{B} 16'48	0°15'00
evening set	8422 Mar 28 08:26	24° Υ 42'46		behind sun begin	8427 Apr 23 17:06	6° \mathcal{B} 16'34	
				behind sun end	8427 Apr 23 22:08	6° \mathcal{B} 17'01	
conjunction	8422 Apr 12 17:59	25° Υ 17'21	-0°02'21	max. Earth dist.	8427 Apr 23 17:40	6° \mathcal{B} 16'37	31.13821 AU
minimum elong	8422 Apr 12 18:00	25° Υ 17'21	0°02'26	morning rise	8427 May 09 04:49	6° \mathcal{B} 51'28	
behind sun begin	8422 Apr 12 11:36	25° Υ 16'47		retrograde	8427 Aug 05 18:28	8° \mathcal{B} 46'50	
behind sun end	8422 Apr 13 00:24	25° Υ 17'56		opposition	8427 Oct 24 15:35	7° \mathcal{B} 23'39	-0°17'14
max. Earth dist.	8422 Apr 12 12:38	25° Υ 16'53	31.18321 AU	min. Earth dist.	8427 Oct 24 17:49	7° \mathcal{B} 23'30	29.13236 AU
morning rise	8422 Apr 28 03:13	25° Υ 51'56		direct	8428 Jan 12 15:26	6° \mathcal{B} 00'05	
retrograde	8422 Jul 25 10:47	27° Υ 46'34		evening set	8428 Apr 09 20:29	7° \mathcal{B} 54'26	
opposition	8422 Oct 12 23:46	26° Υ 23'33	-0°03'48				
min. Earth dist.	8422 Oct 13 04:24	26° Υ 23'15	29.17934 AU	conjunction	8428 Apr 25 05:37	8° \mathcal{B} 29'04	-0°17'22
direct	8423 Jan 01 06:32	24° Υ 59'48		minimum elong	8428 Apr 25 05:36	8° \mathcal{B} 29'04	0°17'29
evening set	8423 Mar 30 18:14	26° Υ 54'14		max. Earth dist.	8428 Apr 25 03:40	8° \mathcal{B} 28'54	31.12620 AU
				morning rise	8428 May 10 14:55	9° \mathcal{B} 03'46	
conjunction	8423 Apr 15 03:51	27° Υ 28'50	-0°04'54	retrograde	8428 Aug 07 06:56	10° \mathcal{B} 59'14	
minimum elong	8423 Apr 15 03:51	27° Υ 28'50	0°04'58	opposition	8428 Oct 26 04:21	9° \mathcal{B} 35'58	-0°19'51
behind sun begin	8423 Apr 14 21:36	27° Υ 28'16		min. Earth dist.	8428 Oct 26 05:00	9° \mathcal{B} 35'56	29.11983 AU
behind sun end	8423 Apr 15 10:05	27° Υ 29'23		direct	8429 Jan 14 02:31	8° \mathcal{B} 12'23	
max. Earth dist.	8423 Apr 15 00:04	27° Υ 28'30	31.17542 AU	evening set	8429 Apr 12 06:33	10° \mathcal{B} 06'41	
morning rise	8423 Apr 30 12:56	28° Υ 03'25					
retrograde	8423 Jul 27 21:08	29° Υ 58'11		conjunction	8429 Apr 27 15:38	10° \mathcal{B} 41'20	-0°19'49
opposition	8423 Oct 15 12:14	28° Υ 35'11	-0°06'31	minimum elong	8429 Apr 27 15:38	10° \mathcal{B} 41'20	0°19'55

max. Earth dist.	8429 Apr 27 14:21	10°841'13	31.11331 AU	retrograde	8435 Aug 23 19:34	26°825'56	
morning rise	8429 May 13 01:01	11°816'02		opposition	8435 Nov 11 22:47	25°802'11	-0°37'15
retrograde	8429 Aug 09 19:00	13°811'37		min. Earth dist.	8435 Nov 11 17:36	25°802'32	29.04551 AU
opposition	8429 Oct 28 17:24	11°848'15	-0°22'27	direct	8436 Jan 30 14:07	23°838'41	
min. Earth dist.	8429 Oct 28 18:23	11°848'10	29.10687 AU	evening set	8436 Apr 27 04:57	25°832'46	
direct	8430 Jan 16 14:28	10°824'39					
evening set	8430 Apr 14 16:25	12°818'52		conjunction	8436 May 12 14:10	26°807'30	-0°35'56
				minimum elong	8436 May 12 14:10	26°807'30	0°36'06
conjunction	8430 Apr 30 01:34	12°853'32	-0°22'13	max. Earth dist.	8436 May 12 19:27	26°808'00	31.04135 AU
minimum elong	8430 Apr 30 01:34	12°853'32	0°22'21	morning rise	8436 May 28 00:18	26°842'21	
max. Earth dist.	8430 Apr 30 01:30	12°853'31	31.10044 AU	retrograde	8436 Aug 25 06:42	28°838'48	
morning rise	8430 May 15 11:00	13°828'15		opposition	8436 Nov 13 11:58	27°815'01	-0°39'34
	8430 Jul 05 02:51	15°8		min. Earth dist.	8436 Nov 13 06:59	27°815'22	29.03748 AU
retrograde	8430 Aug 12 07:55	15°823'55		direct	8437 Feb 01 01:04	25°851'35	
	8430 Sep 20 16:24	15°8		evening set	8437 Apr 29 15:22	27°845'39	
opposition	8430 Oct 31 06:12	14°800'27	-0°25'01				
min. Earth dist.	8430 Oct 31 05:25	14°800'30	29.09415 AU	conjunction	8437 May 15 00:36	28°820'24	-0°38'04
direct	8431 Jan 19 03:12	12°836'49		minimum elong	8437 May 15 00:36	28°820'24	0°38'13
evening set	8431 Apr 17 02:31	14°831'00		max. Earth dist.	8437 May 15 06:08	28°820'56	31.03330 AU
	8431 Apr 29 23:38	15°8		morning rise	8437 May 30 10:56	28°855'17	
					8437 Jul 01 16:39	0°II	
conjunction	8431 May 02 11:31	15°805'40	-0°24'36	retrograde	8437 Aug 27 19:57	0°II51'53	
minimum elong	8431 May 02 11:31	15°805'40	0°24'43		8437 Oct 27 00:46	30°8	
max. Earth dist.	8431 May 02 11:42	15°805'41	31.08803 AU	opposition	8437 Nov 16 01:05	29°828'04	-0°41'49
morning rise	8431 May 17 21:08	15°840'24		min. Earth dist.	8437 Nov 15 18:32	29°828'31	29.02920 AU
retrograde	8431 Aug 14 19:46	17°836'11		direct	8438 Feb 03 12:10	28°804'40	
opposition	8431 Nov 02 19:01	16°812'37	-0°27'33	evening set	8438 May 02 01:49	29°858'44	
min. Earth dist.	8431 Nov 02 18:06	16°812'41	29.08235 AU		8438 May 02 15:26	0°II	
	8431 Dec 26 10:49	15°8					
direct	8432 Jan 21 13:49	14°848'59		conjunction	8438 May 17 11:06	0°II33'31	-0°40'08
	8432 Feb 16 07:42	15°8		minimum elong	8438 May 17 11:06	0°II33'31	0°40'18
evening set	8432 Apr 18 12:30	16°843'08		max. Earth dist.	8438 May 17 17:03	0°II34'04	31.02455 AU
				morning rise	8438 Jun 01 21:37	1°II08'25	
conjunction	8432 May 03 21:39	17°817'49	-0°26'57	retrograde	8438 Aug 30 08:25	3°II05'10	
minimum elong	8432 May 03 21:39	17°817'49	0°27'05	opposition	8438 Nov 18 14:24	1°II41'19	-0°44'00
max. Earth dist.	8432 May 03 23:41	17°818'00	31.07677 AU	min. Earth dist.	8438 Nov 18 08:28	1°II41'43	29.02005 AU
morning rise	8432 May 19 07:12	17°852'34		direct	8439 Feb 05 23:12	0°II17'57	
retrograde	8432 Aug 16 07:18	19°848'27		evening set	8439 May 04 12:25	2°II12'01	
opposition	8432 Nov 04 07:54	18°824'49	-0°30'02				
min. Earth dist.	8432 Nov 04 05:29	18°824'59	29.07162 AU	conjunction	8439 May 19 21:52	2°II46'48	-0°42'09
direct	8433 Jan 23 03:34	17°801'12		minimum elong	8439 May 19 21:52	2°II46'48	0°42'18
evening set	8433 Apr 20 22:31	18°855'19		max. Earth dist.	8439 May 20 04:35	2°II47'26	31.01485 AU
				morning rise	8439 Jun 04 08:30	3°II21'44	
conjunction	8433 May 06 07:31	19°830'01	-0°29'16	retrograde	8439 Sep 01 21:44	5°II18'36	
minimum elong	8433 May 06 07:30	19°830'01	0°29'23	opposition	8439 Nov 21 03:28	3°II54'42	-0°46'07
max. Earth dist.	8433 May 06 09:28	19°830'12	31.06667 AU	min. Earth dist.	8439 Nov 20 20:14	3°II55'12	29.00968 AU
morning rise	8433 May 21 17:21	20°804'47		direct	8440 Feb 08 11:24	2°II31'20	
retrograde	8433 Aug 18 20:45	22°800'49		evening set	8440 May 05 23:10	4°II25'24	
opposition	8433 Nov 06 20:54	20°837'07	-0°32'29				
min. Earth dist.	8433 Nov 06 17:35	20°837'20	29.06216 AU	conjunction	8440 May 21 08:36	5°II00'12	-0°44'06
direct	8434 Jan 25 15:00	19°813'32		minimum elong	8440 May 21 08:36	5°II00'12	0°44'17
evening set	8434 Apr 23 08:33	21°807'38		max. Earth dist.	8440 May 21 14:57	5°II00'48	31.00384 AU
				morning rise	8440 Jun 05 19:32	5°II35'10	
conjunction	8434 May 08 17:44	21°842'20	-0°31'32	retrograde	8440 Sep 03 10:53	7°II32'09	
minimum elong	8434 May 08 17:44	21°842'20	0°31'41	opposition	8440 Nov 22 16:50	6°II08'11	-0°48'10
max. Earth dist.	8434 May 08 21:39	21°842'42	31.05764 AU	min. Earth dist.	8440 Nov 22 10:01	6°II08'39	28.99818 AU
morning rise	8434 May 24 03:33	22°817'08		direct	8441 Feb 09 22:11	4°II44'49	
retrograde	8434 Aug 21 07:12	24°813'17		evening set	8441 May 08 09:37	6°II38'51	
opposition	8434 Nov 09 09:48	22°849'33	-0°34'54				
min. Earth dist.	8434 Nov 09 05:55	22°849'49	29.05352 AU	conjunction	8441 May 23 19:20	7°II13'40	-0°45'59
direct	8435 Jan 28 03:18	21°826'01		minimum elong	8441 May 23 19:20	7°II13'40	0°46'09
evening set	8435 Apr 25 18:46	23°820'06		max. Earth dist.	8441 May 24 03:09	7°II14'24	30.99187 AU
				morning rise	8441 Jun 08 06:21	7°II48'39	
conjunction	8435 May 11 03:53	23°854'49	-0°33'45	retrograde	8441 Sep 05 23:38	9°II45'43	
minimum elong	8435 May 11 03:52	23°854'49	0°33'54	opposition	8441 Nov 25 06:04	8°II21'41	-0°50'09
max. Earth dist.	8435 May 11 07:43	23°855'11	31.04940 AU	min. Earth dist.	8441 Nov 24 22:13	8°II22'13	28.98581 AU
morning rise	8435 May 26 13:59	24°829'39		direct	8442 Feb 12 12:18	6°II58'17	

evening set	8442 May 10 20:20	8° Π 52'17	opposition	8448 Dec 11 01:54	23° Π 57'34 -1°01'48
			min. Earth dist.	8448 Dec 10 12:43	23° Π 58'28 28.91742 AU
conjunction	8442 May 26 06:02	9° Π 27'07 -0°47'48	direct	8449 Feb 27 21:02	22° Π 34'13
minimum elong	8442 May 26 06:02	9° Π 27'07 0°48'00	evening set	8449 May 25 23:30	24° Π 28'09
max. Earth dist.	8442 May 26 13:21	9° Π 27'49 30.97938 AU			
morning rise	8442 Jun 10 17:27	10° Π 02'08	conjunction	8449 Jun 10 10:29	25° Π 03'08 -0°58'25
retrograde	8442 Sep 08 13:55	11° Π 59'18	minimum elong	8449 Jun 10 10:29	25° Π 03'08 0°58'36
opposition	8442 Nov 27 19:08	10° Π 35'09 -0°52'04	max. Earth dist.	8449 Jun 10 23:09	25° Π 04'21 30.91356 AU
min. Earth dist.	8442 Nov 27 10:51	10° Π 35'43 28.97344 AU	morning rise	8449 Jun 25 23:46	25° Π 38'21
direct	8443 Feb 15 00:09	9° Π 11'44	retrograde	8449 Sep 24 05:00	27° Π 36'18
evening set	8443 May 13 06:53	11° Π 05'42	opposition	8449 Dec 13 15:14	26° Π 11'52 -1°03'07
			min. Earth dist.	8449 Dec 13 02:30	26° Π 12'45 28.91047 AU
conjunction	8443 May 28 16:53	11° Π 40'34 -0°49'33	direct	8450 Mar 02 07:29	24° Π 48'33
minimum elong	8443 May 28 16:53	11° Π 40'34 0°49'44	evening set	8450 May 28 10:37	26° Π 42'30
max. Earth dist.	8443 May 29 01:56	11° Π 41'25 30.96708 AU			
morning rise	8443 Jun 13 04:22	12° Π 15'36	conjunction	8450 Jun 12 22:00	27° Π 17'31 -0°59'36
retrograde	8443 Sep 11 00:45	14° Π 12'51	minimum elong	8450 Jun 12 22:00	27° Π 17'31 0°59'48
opposition	8443 Nov 30 08:16	12° Π 48'38 -0°53'54	max. Earth dist.	8450 Jun 13 12:01	27° Π 18'51 30.90643 AU
min. Earth dist.	8443 Nov 29 23:25	12° Π 49'14 28.96146 AU	morning rise	8450 Jun 28 11:25	27° Π 52'45
direct	8444 Feb 17 12:57	11° Π 25'12	retrograde	8450 Sep 26 18:43	29° Π 50'48
evening set	8444 May 14 17:32	13° Π 19'08	opposition	8450 Dec 16 04:17	28° Π 26'21 -1°04'20
			min. Earth dist.	8450 Dec 15 14:45	28° Π 27'17 28.90303 AU
conjunction	8444 May 30 03:32	13° Π 54'01 -0°51'14	direct	8451 Mar 04 20:55	27° Π 03'02
minimum elong	8444 May 30 03:32	13° Π 54'01 0°51'25	evening set	8451 May 30 22:01	28° Π 57'00
max. Earth dist.	8444 May 30 12:34	13° Π 54'52 30.95561 AU			
morning rise	8444 Jun 14 15:23	14° Π 29'05	conjunction	8451 Jun 15 09:29	29° Π 32'02 -1°00'41
retrograde	8444 Sep 12 13:36	16° Π 26'26	minimum elong	8451 Jun 15 09:29	29° Π 32'02 1°00'52
opposition	8444 Dec 01 21:23	15° Π 02'09 -0°55'39	max. Earth dist.	8451 Jun 15 22:36	29° Π 33'17 30.89862 AU
min. Earth dist.	8444 Dec 01 11:11	15° Π 02'51 28.95059 AU		8451 Jun 27 16:54	0° Θ
direct	8445 Feb 19 00:41	13° Π 38'43	morning rise	8451 Jun 30 23:23	0° Θ 07'18
evening set	8445 May 17 04:10	15° Π 32'38	retrograde	8451 Sep 29 09:41	2° Θ 05'27
			opposition	8451 Dec 18 17:36	0° Θ 40'57 -1°05'27
conjunction	8445 Jun 01 14:25	16° Π 07'32 -0°52'50	min. Earth dist.	8451 Dec 18 04:05	0° Θ 41'53 28.89483 AU
minimum elong	8445 Jun 01 14:25	16° Π 07'32 0°53'00		8452 Jan 13 14:46	30° \mathbb{R} Π
max. Earth dist.	8445 Jun 02 00:58	16° Π 08'33 30.94521 AU	direct	8452 Mar 06 08:21	29° Π 17'37
morning rise	8445 Jun 17 02:26	16° Π 42'38		8452 Apr 25 21:56	0° Θ
retrograde	8445 Sep 15 01:21	18° Π 40'06	evening set	8452 Jun 01 09:14	1° Θ 11'35
opposition	8445 Dec 04 10:34	17° Π 15'46 -0°57'19			
min. Earth dist.	8445 Dec 04 00:21	17° Π 16'28 28.94086 AU	conjunction	8452 Jun 16 21:06	1° Θ 46'39 -1°01'41
direct	8446 Feb 21 12:09	15° Π 52'21	minimum elong	8452 Jun 16 21:06	1° Θ 46'39 1°01'53
evening set	8446 May 19 14:50	17° Π 46'15	max. Earth dist.	8452 Jun 17 11:26	1° Θ 48'00 30.88977 AU
			morning rise	8452 Jul 02 11:09	2° Θ 21'56
conjunction	8446 Jun 04 01:17	18° Π 21'11 -0°54'21	retrograde	8452 Sep 30 21:48	4° Θ 20'09
minimum elong	8446 Jun 04 01:17	18° Π 21'11 0°54'32	opposition	8452 Dec 20 06:56	2° Θ 55'35 -1°06'28
max. Earth dist.	8446 Jun 04 12:19	18° Π 22'14 30.93614 AU	min. Earth dist.	8452 Dec 19 17:17	2° Θ 56'32 28.88539 AU
morning rise	8446 Jun 19 13:38	18° Π 56'18	direct	8453 Mar 08 21:25	1° Θ 32'14
retrograde	8446 Sep 17 14:14	20° Π 53'53	evening set	8453 Jun 03 20:42	3° Θ 26'10
opposition	8446 Dec 06 23:37	19° Π 29'31 -0°58'54			
min. Earth dist.	8446 Dec 06 11:38	19° Π 30'21 28.93229 AU	conjunction	8453 Jun 19 08:45	4° Θ 01'15 -1°02'36
direct	8447 Feb 23 23:36	18° Π 06'07	minimum elong	8453 Jun 19 08:45	4° Θ 01'15 1°02'47
evening set	8447 May 22 01:40	20° Π 00'02	max. Earth dist.	8453 Jun 19 22:25	4° Θ 02'33 30.87995 AU
			morning rise	8453 Jul 04 23:18	4° Θ 36'35
conjunction	8447 Jun 06 12:16	20° Π 34'59 -0°55'47	retrograde	8453 Oct 03 12:28	6° Θ 34'49
minimum elong	8447 Jun 06 12:16	20° Π 34'59 0°55'58	opposition	8453 Dec 22 20:05	5° Θ 10'11 -1°07'23
max. Earth dist.	8447 Jun 06 23:54	20° Π 36'05 30.92794 AU	min. Earth dist.	8453 Dec 22 05:49	5° Θ 11'10 28.87520 AU
morning rise	8447 Jun 22 00:54	21° Π 10'08	direct	8454 Mar 11 10:14	3° Θ 46'47
retrograde	8447 Sep 20 01:56	23° Π 07'50	evening set	8454 Jun 06 08:02	5° Θ 40'40
opposition	8447 Dec 09 12:45	21° Π 43'27 -1°00'24			
min. Earth dist.	8447 Dec 09 01:08	21° Π 44'15 28.92456 AU	conjunction	8454 Jun 21 20:29	6° Θ 15'47 -1°03'24
direct	8448 Feb 26 09:59	20° Π 20'04	minimum elong	8454 Jun 21 20:28	6° Θ 15'47 1°03'37
evening set	8448 May 23 12:31	22° Π 14'00	max. Earth dist.	8454 Jun 22 11:07	6° Θ 17'11 30.86940 AU
			morning rise	8454 Jul 07 11:19	6° Θ 51'08
conjunction	8448 Jun 07 23:25	22° Π 48'58 -0°57'09	retrograde	8454 Oct 06 00:41	8° Θ 49'25
minimum elong	8448 Jun 07 23:25	22° Π 48'58 0°57'20	opposition	8454 Dec 25 09:16	7° Θ 24'41 -1°08'13
max. Earth dist.	8448 Jun 08 12:12	22° Π 50'11 30.92061 AU	min. Earth dist.	8454 Dec 24 19:28	7° Θ 25'38 28.86455 AU
morning rise	8448 Jun 23 12:15	23° Π 24'08	direct	8455 Mar 13 22:59	6° Θ 01'14
retrograde	8448 Sep 21 15:11	25° Π 21'58	evening set	8455 Jun 08 19:25	7° Θ 55'05

conjunction	8455 Jun 24 08:07	8° \mathring{U} 30'13 -1°04'08	direct	8462 Mar 29 07:24	21° \mathring{U} 42'49
minimum elong	8455 Jun 24 08:07	8° \mathring{U} 30'13 1°04'18	evening set	8462 Jun 24 04:20	23° \mathring{U} 36'43
max. Earth dist.	8455 Jun 24 22:54	8° \mathring{U} 31'37 30.85890 AU			
morning rise	8455 Jul 09 23:19	9° \mathring{U} 05'36	conjunction	8462 Jul 09 19:25	24° \mathring{U} 12'02 -1°06'24
retrograde	8455 Oct 08 13:29	11° \mathring{U} 03'54	minimum elong	8462 Jul 09 19:25	24° \mathring{U} 12'02 1°06'36
opposition	8455 Dec 27 22:11	9° \mathring{U} 39'06 -1°08'56	max. Earth dist.	8462 Jul 10 13:26	24° \mathring{U} 13'45 30.81610 AU
min. Earth dist.	8455 Dec 27 06:58	9° \mathring{U} 40'09 28.85430 AU	morning rise	8462 Jul 25 13:24	24° \mathring{U} 47'38
direct	8456 Mar 15 11:18	8° \mathring{U} 15'35	retrograde	8462 Oct 24 12:05	26° \mathring{U} 46'22
evening set	8456 Jun 10 06:50	10° \mathring{U} 09'24	opposition	8463 Jan 12 16:26	25° \mathring{U} 21'25 -1°10'59
			min. Earth dist.	8463 Jan 11 22:27	25° \mathring{U} 22'40 28.81521 AU
conjunction	8456 Jun 25 19:48	10° \mathring{U} 44'33 -1°04'45	direct	8463 Mar 31 19:57	23° \mathring{U} 57'57
minimum elong	8456 Jun 25 19:48	10° \mathring{U} 44'33 1°04'57	evening set	8463 Jun 26 16:19	25° \mathring{U} 51'54
max. Earth dist.	8456 Jun 26 11:03	10° \mathring{U} 46'00 30.84897 AU			
morning rise	8456 Jul 11 11:23	11° \mathring{U} 19'58	conjunction	8463 Jul 12 07:48	26° \mathring{U} 27'15 -1°06'20
retrograde	8456 Oct 10 01:01	13° \mathring{U} 18'20	minimum elong	8463 Jul 12 07:48	26° \mathring{U} 27'15 1°06'29
opposition	8456 Dec 29 11:18	11° \mathring{U} 53'26 -1°09'33	max. Earth dist.	8463 Jul 13 02:37	26° \mathring{U} 29'02 30.81302 AU
min. Earth dist.	8456 Dec 28 20:29	11° \mathring{U} 54'28 28.84500 AU	morning rise	8463 Jul 28 02:04	27° \mathring{U} 02'53
direct	8457 Mar 17 22:17	10° \mathring{U} 29'54	retrograde	8463 Oct 27 01:07	29° \mathring{U} 01'41
evening set	8457 Jun 12 18:07	12° \mathring{U} 23'42	opposition	8464 Jan 15 05:21	27° \mathring{U} 36'44 -1°10'51
			min. Earth dist.	8464 Jan 14 12:07	27° \mathring{U} 37'56 28.81193 AU
conjunction	8457 Jun 28 07:30	12° \mathring{U} 58'52 -1°05'17	direct	8464 Apr 02 08:32	26° \mathring{U} 13'17
minimum elong	8457 Jun 28 07:30	12° \mathring{U} 58'52 1°05'27	evening set	8464 Jun 28 04:28	28° \mathring{U} 07'15
max. Earth dist.	8457 Jun 28 23:52	13° \mathring{U} 00'26 30.84033 AU			
morning rise	8457 Jul 13 23:24	13° \mathring{U} 34'18	conjunction	8464 Jul 13 20:20	28° \mathring{U} 42'38 -1°06'09
retrograde	8457 Oct 12 14:01	15° \mathring{U} 32'43	minimum elong	8464 Jul 13 20:20	28° \mathring{U} 42'38 1°06'20
min. Earth dist.	8457 Dec 31 07:46	14° \mathring{U} 08'55 28.83699 AU	max. Earth dist.	8464 Jul 14 14:43	28° \mathring{U} 44'22 30.80952 AU
opposition	8458 Jan 01 00:09	14° \mathring{U} 07'47 -1°10'03	morning rise	8464 Jul 29 15:02	29° \mathring{U} 18'17
direct	8458 Mar 20 09:50	12° \mathring{U} 44'13		8464 Aug 18 09:34	0° \mathring{N}
evening set	8458 Jun 15 05:42	14° \mathring{U} 38'01	retrograde	8464 Oct 28 15:18	1° \mathring{N} 17'07
				8465 Jan 12 01:25	30° \mathring{R} \mathring{U}
conjunction	8458 Jun 30 19:17	15° \mathring{U} 13'13 -1°05'42	opposition	8465 Jan 16 18:13	29° \mathring{U} 52'10 -1°10'36
minimum elong	8458 Jun 30 19:17	15° \mathring{U} 13'13 1°05'54	min. Earth dist.	8465 Jan 16 00:09	29° \mathring{U} 53'25 28.80801 AU
max. Earth dist.	8458 Jul 01 11:30	15° \mathring{U} 14'45 30.83297 AU	direct	8465 Apr 04 20:59	28° \mathring{U} 28'42
morning rise	8458 Jul 16 11:41	15° \mathring{U} 48'41		8465 Jun 20 05:19	0° \mathring{N}
retrograde	8458 Oct 15 03:00	17° \mathring{U} 47'09	evening set	8465 Jun 30 16:38	0° \mathring{N} 22'40
opposition	8459 Jan 03 12:59	16° \mathring{U} 22'11 -1°10'27			
min. Earth dist.	8459 Jan 02 20:59	16° \mathring{U} 23'17 28.83044 AU	conjunction	8465 Jul 16 08:53	0° \mathring{N} 58'04 -1°05'52
direct	8459 Mar 22 20:08	14° \mathring{U} 58'37	minimum elong	8465 Jul 16 08:53	0° \mathring{N} 58'04 1°06'01
evening set	8459 Jun 17 17:11	16° \mathring{U} 52'26	max. Earth dist.	8465 Jul 17 03:06	0° \mathring{N} 59'48 30.80509 AU
			morning rise	8465 Aug 01 04:03	1° \mathring{N} 33'46
conjunction	8459 Jul 03 07:17	17° \mathring{U} 27'39 -1°06'02	retrograde	8465 Oct 31 03:51	3° \mathring{N} 32'36
minimum elong	8459 Jul 03 07:17	17° \mathring{U} 27'39 1°06'12	opposition	8466 Jan 19 07:10	2° \mathring{N} 07'37 -1°10'15
max. Earth dist.	8459 Jul 04 01:03	17° \mathring{U} 29'21 30.82712 AU	min. Earth dist.	8466 Jan 18 14:11	2° \mathring{N} 08'48 28.80318 AU
morning rise	8459 Jul 18 23:54	18° \mathring{U} 03'09	direct	8466 Apr 07 08:42	0° \mathring{N} 44'07
retrograde	8459 Oct 17 16:13	20° \mathring{U} 01'41	evening set	8466 Jul 03 04:50	2° \mathring{N} 38'04
min. Earth dist.	8460 Jan 05 08:40	18° \mathring{U} 37'54 28.82521 AU			
opposition	8460 Jan 06 01:49	18° \mathring{U} 36'42 -1°10'45	conjunction	8466 Jul 18 21:37	3° \mathring{N} 13'30 -1°05'29
direct	8460 Mar 24 08:41	17° \mathring{U} 13'09	minimum elong	8466 Jul 18 21:37	3° \mathring{N} 13'30 1°05'39
evening set	8460 Jun 19 04:44	19° \mathring{U} 06'59	max. Earth dist.	8466 Jul 19 16:07	3° \mathring{N} 15'15 30.80003 AU
			morning rise	8466 Aug 03 17:08	3° \mathring{N} 49'13
conjunction	8460 Jul 04 19:01	19° \mathring{U} 42'15 -1°06'16	retrograde	8466 Nov 02 17:29	5° \mathring{N} 48'02
minimum elong	8460 Jul 04 19:01	19° \mathring{U} 42'15 1°06'27	opposition	8467 Jan 21 19:43	4° \mathring{N} 23'00 -1°09'47
max. Earth dist.	8460 Jul 05 12:15	19° \mathring{U} 43'53 30.82255 AU	min. Earth dist.	8467 Jan 21 01:48	4° \mathring{N} 24'15 28.79785 AU
morning rise	8460 Jul 20 12:12	20° \mathring{U} 17'46	direct	8467 Apr 09 20:59	2° \mathring{N} 59'27
retrograde	8460 Oct 19 06:56	22° \mathring{U} 16'23	evening set	8467 Jul 05 17:08	4° \mathring{N} 53'23
opposition	8461 Jan 07 14:47	20° \mathring{U} 51'24 -1°10'57			
min. Earth dist.	8461 Jan 06 21:28	20° \mathring{U} 52'36 28.82127 AU	conjunction	8467 Jul 21 10:11	5° \mathring{N} 28'50 -1°05'00
direct	8461 Mar 26 19:08	19° \mathring{U} 27'52	minimum elong	8467 Jul 21 10:11	5° \mathring{N} 28'50 1°05'09
evening set	8461 Jun 21 16:25	21° \mathring{U} 21'45	max. Earth dist.	8467 Jul 22 04:05	5° \mathring{N} 30'32 30.79465 AU
			morning rise	8467 Aug 06 06:15	6° \mathring{N} 04'34
conjunction	8461 Jul 07 07:13	21° \mathring{U} 57'02 -1°06'23	retrograde	8467 Nov 05 05:06	8° \mathring{N} 03'22
minimum elong	8461 Jul 07 07:13	21° \mathring{U} 57'02 1°06'34	opposition	8468 Jan 24 08:29	6° \mathring{N} 38'17 -1°09'13
max. Earth dist.	8461 Jul 08 01:55	21° \mathring{U} 58'48 30.81902 AU	min. Earth dist.	8468 Jan 23 15:25	6° \mathring{N} 39'28 28.79267 AU
morning rise	8461 Jul 23 00:39	22° \mathring{U} 32'35	direct	8468 Apr 11 07:55	5° \mathring{N} 14'41
retrograde	8461 Oct 21 19:59	24° \mathring{U} 31'16	evening set	8468 Jul 07 05:08	7° \mathring{N} 08'34
min. Earth dist.	8462 Jan 09 10:03	23° \mathring{U} 07'31 28.81805 AU			
opposition	8462 Jan 10 03:35	23° \mathring{U} 06'18 -1°11'01	conjunction	8468 Jul 22 22:46	7° \mathring{N} 44'03 -1°04'26



























































































































minimum elong	8468 Jul 22 22:46	7°Ω44'03	1°04'36	opposition	8475 Feb 08 23:18	22°Ω23'55	-1°02'22
max. Earth dist.	8468 Jul 23 17:54	7°Ω45'51	30.78976 AU	min. Earth dist.	8475 Feb 08 05:29	22°Ω25'09	28.78813 AU
morning rise	8468 Aug 07 19:06	8°Ω19'48		direct	8475 Apr 27 19:14	21°Ω00'12	
retrograde	8468 Nov 06 17:02	10°Ω18'35		evening set	8475 Jul 23 20:11	22°Ω54'10	
opposition	8469 Jan 25 21:02	8°Ω53'26	-1°08'33				
min. Earth dist.	8469 Jan 25 03:08	8°Ω54'42	28.78813 AU	conjunction	8475 Aug 08 16:48	23°Ω29'50	-0°57'41
direct	8469 Apr 13 20:19	7°Ω29'47		minimum elong	8475 Aug 08 16:48	23°Ω29'50	0°57'48
evening set	8469 Jul 09 17:29	9°Ω23'39		max. Earth dist.	8475 Aug 09 12:32	23°Ω31'42	30.78911 AU
				morning rise	8475 Aug 24 16:05	24°Ω05'45	
conjunction	8469 Jul 25 11:23	9°Ω59'09	-1°03'45	retrograde	8475 Nov 23 17:47	26°Ω04'25	
minimum elong	8469 Jul 25 11:23	9°Ω59'09	1°03'54	opposition	8476 Feb 11 11:33	24°Ω39'20	-1°00'59
max. Earth dist.	8469 Jul 26 05:39	10°Ω00'53	30.78577 AU	min. Earth dist.	8476 Feb 10 17:00	24°Ω40'38	28.79090 AU
morning rise	8469 Aug 10 08:19	10°Ω34'56		direct	8476 Apr 29 07:49	23°Ω15'38	
retrograde	8469 Nov 09 06:52	12°Ω33'41		evening set	8476 Jul 25 09:04	25°Ω09'39	
opposition	8470 Jan 28 09:30	11°Ω08'30	-1°07'47				
min. Earth dist.	8470 Jan 27 15:46	11°Ω09'44	28.78484 AU	conjunction	8476 Aug 10 05:58	25°Ω45'20	-0°56'21
direct	8470 Apr 16 06:17	9°Ω44'47		minimum elong	8476 Aug 10 05:58	25°Ω45'20	0°56'28
evening set	8470 Jul 12 05:43	11°Ω38'40		max. Earth dist.	8476 Aug 11 00:45	25°Ω47'06	30.79161 AU
				morning rise	8476 Aug 26 05:47	26°Ω21'17	
conjunction	8470 Jul 28 00:12	12°Ω14'11	-1°02'59	retrograde	8476 Nov 25 06:10	28°Ω19'56	
minimum elong	8470 Jul 28 00:12	12°Ω14'11	1°03'09	min. Earth dist.	8477 Feb 12 06:49	26°Ω56'05	28.79310 AU
max. Earth dist.	8470 Jul 28 19:45	12°Ω16'02	30.78308 AU	opposition	8477 Feb 13 00:01	26°Ω54'52	-0°59'30
morning rise	8470 Aug 12 21:24	12°Ω49'59		direct	8477 May 01 18:34	25°Ω31'11	
retrograde	8470 Nov 11 19:14	14°Ω48'43		evening set	8477 Jul 27 22:01	27°Ω25'12	
opposition	8471 Jan 30 21:54	13°Ω23'30	-1°06'54				
min. Earth dist.	8471 Jan 30 03:53	13°Ω24'46	28.78280 AU	conjunction	8477 Aug 12 19:32	28°Ω00'55	-0°54'56
direct	8471 Apr 18 19:01	11°Ω59'46		minimum elong	8477 Aug 12 19:33	28°Ω00'55	0°55'02
evening set	8471 Jul 14 18:02	13°Ω53'38		max. Earth dist.	8477 Aug 13 14:44	28°Ω02'44	30.79338 AU
				morning rise	8477 Aug 28 19:37	28°Ω36'53	
conjunction	8471 Jul 30 12:48	14°Ω29'11	-1°02'07		8477 Oct 11 17:21	0°♊	
minimum elong	8471 Jul 30 12:48	14°Ω29'11	1°02'15	retrograde	8477 Nov 27 18:45	0°♊35'29	
max. Earth dist.	8471 Jul 31 07:40	14°Ω30'58	30.78186 AU		8478 Jan 15 00:57	30°♊	
	8471 Aug 13 04:27	15°Ω		opposition	8478 Feb 15 12:08	29°Ω10'27	-0°57'56
morning rise	8471 Aug 15 10:32	15°Ω05'00		min. Earth dist.	8478 Feb 14 18:47	29°Ω11'40	28.79429 AU
retrograde	8471 Nov 14 10:24	17°Ω03'42		direct	8478 May 04 06:52	27°Ω46'45	
opposition	8472 Feb 02 10:18	15°Ω38'29	-1°05'55	evening set	8478 Jul 30 11:10	29°Ω40'47	
min. Earth dist.	8472 Feb 01 15:43	15°Ω39'47	28.78236 AU		8478 Aug 08 01:44	0°♊	
	8472 Feb 26 04:58	15°♊					
direct	8472 Apr 20 07:04	14°Ω14'44		conjunction	8478 Aug 15 08:58	0°♊16'31	-0°53'25
	8472 Jun 11 11:27	15°Ω		minimum elong	8478 Aug 15 08:58	0°♊16'31	0°53'32
evening set	8472 Jul 16 06:23	16°Ω08'37		max. Earth dist.	8478 Aug 16 02:31	0°♊18'10	30.79417 AU
				morning rise	8478 Aug 31 09:36	0°♊52'30	
conjunction	8472 Aug 01 01:39	16°Ω44'11	-1°01'09	retrograde	8478 Nov 30 08:19	2°♊51'03	
minimum elong	8472 Aug 01 01:40	16°Ω44'11	1°01'18	min. Earth dist.	8479 Feb 17 07:55	1°♊27'10	28.79472 AU
max. Earth dist.	8472 Aug 01 21:34	16°Ω46'04	30.78209 AU	opposition	8479 Feb 18 00:24	1°♊26'01	-0°56'17
morning rise	8472 Aug 16 23:43	17°Ω20'02		direct	8479 May 06 16:55	0°♊02'16	
retrograde	8472 Nov 15 22:50	19°Ω18'44		evening set	8479 Aug 01 24:00	1°♊56'18	
opposition	8473 Feb 03 22:43	17°Ω53'31	-1°04'50				
min. Earth dist.	8473 Feb 03 04:38	17°Ω54'47	28.78328 AU	conjunction	8479 Aug 17 22:23	2°♊32'03	-0°51'50
direct	8473 Apr 22 19:04	16°Ω29'46		minimum elong	8479 Aug 17 22:23	2°♊32'03	0°51'55
evening set	8473 Jul 18 18:49	18°Ω23'40		max. Earth dist.	8479 Aug 18 16:38	2°♊33'46	30.79430 AU
				morning rise	8479 Sep 02 23:13	3°♊08'03	
conjunction	8473 Aug 03 14:32	18°Ω59'16	-1°00'06	retrograde	8479 Dec 02 19:58	5°♊06'32	
minimum elong	8473 Aug 03 14:32	18°Ω59'16	1°00'13	opposition	8480 Feb 20 12:31	3°♊41'29	-0°54'32
max. Earth dist.	8473 Aug 04 10:09	19°Ω01'07	30.78376 AU	min. Earth dist.	8480 Feb 19 20:14	3°♊42'38	28.79465 AU
morning rise	8473 Aug 19 13:06	19°Ω35'08		direct	8480 May 08 05:51	2°♊17'42	
retrograde	8473 Nov 18 14:01	21°Ω33'49		evening set	8480 Aug 03 13:03	4°♊11'43	
opposition	8474 Feb 06 11:01	20°Ω08'39	-1°03'39				
min. Earth dist.	8474 Feb 05 16:03	20°Ω09'58	28.78541 AU	conjunction	8480 Aug 19 11:44	4°♊47'29	-0°50'10
direct	8474 Apr 25 07:31	18°Ω44'55		minimum elong	8480 Aug 19 11:44	4°♊47'29	0°50'16
evening set	8474 Jul 21 07:29	20°Ω38'51		max. Earth dist.	8480 Aug 20 04:40	4°♊49'05	30.79437 AU
				morning rise	8480 Sep 04 13:07	5°♊23'30	
conjunction	8474 Aug 06 03:35	21°Ω14'28	-0°58'56	retrograde	8480 Dec 04 10:15	7°♊21'55	
minimum elong	8474 Aug 06 03:35	21°Ω14'28	0°59'04	min. Earth dist.	8481 Feb 21 08:13	5°♊57'59	28.79489 AU
max. Earth dist.	8474 Aug 06 23:13	21°Ω16'20	30.78620 AU	opposition	8481 Feb 22 00:28	5°♊56'51	-0°52'43
morning rise	8474 Aug 22 02:33	21°Ω50'22		direct	8481 May 10 17:41	4°♊32'59	
retrograde	8474 Nov 21 03:26	23°Ω49'03		evening set	8481 Aug 06 02:00	6°♊27'02	

conjunction	8481 Aug 22 01:13	7° <u>02</u> '49 -0°48'26	direct	8488 May 26 05:15	20° <u>08</u> '18'51
minimum elong	8481 Aug 22 01:13	7° <u>02</u> '49 0°48'30	evening set	8488 Aug 21 21:49	22° <u>08</u> '13'02
max. Earth dist.	8481 Aug 22 18:48	7° <u>04</u> '28 30.79480 AU			
morning rise	8481 Sep 07 02:52	7° <u>03</u> '51	conjunction	8488 Sep 06 23:47	22° <u>08</u> '48'57 -0°34'22
retrograde	8481 Dec 06 22:01	9° <u>03</u> '11	minimum elong	8488 Sep 06 23:47	22° <u>08</u> '48'57 0°34'25
opposition	8482 Feb 24 12:24	8° <u>03</u> '12'06 -0°50'49	max. Earth dist.	8488 Sep 07 15:47	22° <u>08</u> '50'26 30.82814 AU
min. Earth dist.	8482 Feb 23 20:59	8° <u>03</u> '13'11 28.79565 AU	morning rise	8488 Sep 23 03:39	23° <u>08</u> '25'04
direct	8482 May 13 05:31	6° <u>03</u> '48'11	retrograde	8488 Dec 22 17:39	25° <u>08</u> '22'52
evening set	8482 Aug 08 15:01	8° <u>03</u> '42'14	opposition	8489 Mar 11 22:06	23° <u>08</u> '58'02 -0°35'32
			min. Earth dist.	8489 Mar 11 08:24	23° <u>08</u> '59'00 28.83169 AU
conjunction	8482 Aug 24 14:36	9° <u>03</u> '18'02 -0°46'38	direct	8489 May 28 17:45	22° <u>08</u> '34'05
minimum elong	8482 Aug 24 14:36	9° <u>03</u> '18'02 0°46'42	evening set	8489 Aug 24 11:23	24° <u>08</u> '28'18
max. Earth dist.	8482 Aug 25 07:30	9° <u>03</u> '19'37 30.79611 AU			
morning rise	8482 Sep 09 16:40	9° <u>03</u> '54'05	conjunction	8489 Sep 09 13:35	25° <u>08</u> '04'13 -0°32'08
retrograde	8482 Dec 09 12:50	11° <u>08</u> '52'20	minimum elong	8489 Sep 09 13:35	25° <u>08</u> '04'13 0°32'09
min. Earth dist.	8483 Feb 26 08:00	10° <u>08</u> '28'22 28.79749 AU	max. Earth dist.	8489 Sep 10 03:39	25° <u>08</u> '05'32 30.83465 AU
opposition	8483 Feb 27 00:05	10° <u>08</u> '27'14 -0°48'51	morning rise	8489 Sep 25 17:53	25° <u>08</u> '40'21
direct	8483 May 15 18:25	9° <u>08</u> '03'18	retrograde	8489 Dec 25 07:04	27° <u>08</u> '38'04
evening set	8483 Aug 11 04:03	10° <u>08</u> '57'21	opposition	8490 Mar 14 09:41	26° <u>08</u> '13'16 -0°33'07
			min. Earth dist.	8490 Mar 13 20:27	26° <u>08</u> '14'12 28.83775 AU
conjunction	8483 Aug 27 04:00	11° <u>08</u> '33'11 -0°44'45	direct	8490 May 31 04:37	24° <u>08</u> '49'17
minimum elong	8483 Aug 27 04:00	11° <u>08</u> '33'11 0°44'48	evening set	8490 Aug 27 00:51	26° <u>08</u> '43'30
max. Earth dist.	8483 Aug 27 20:57	11° <u>08</u> '34'46 30.79850 AU			
morning rise	8483 Sep 12 06:24	12° <u>08</u> '09'14	conjunction	8490 Sep 12 03:28	27° <u>08</u> '19'27 -0°29'50
retrograde	8483 Dec 12 02:06	14° <u>08</u> '07'25	minimum elong	8490 Sep 12 03:28	27° <u>08</u> '19'27 0°29'51
opposition	8484 Feb 29 11:57	12° <u>08</u> '42'19 -0°46'48	max. Earth dist.	8490 Sep 12 17:38	27° <u>08</u> '20'46 30.84013 AU
min. Earth dist.	8484 Feb 28 20:52	12° <u>08</u> '43'23 28.80061 AU	morning rise	8490 Sep 28 07:52	27° <u>08</u> '55'34
direct	8484 May 17 06:53	11° <u>08</u> '18'22	retrograde	8490 Dec 27 18:24	29° <u>08</u> '53'10
evening set	8484 Aug 12 16:55	13° <u>08</u> '12'25	opposition	8491 Mar 16 21:12	28° <u>08</u> '28'23 -0°30'38
			min. Earth dist.	8491 Mar 16 09:17	28° <u>08</u> '29'14 28.84274 AU
conjunction	8484 Aug 28 17:22	13° <u>08</u> '48'17 -0°42'48	direct	8491 Jun 02 16:04	27° <u>08</u> '04'21
minimum elong	8484 Aug 28 17:22	13° <u>08</u> '48'17 0°42'52	evening set	8491 Aug 29 14:22	28° <u>08</u> '58'35
max. Earth dist.	8484 Aug 29 10:24	13° <u>08</u> '49'52 30.80242 AU			
morning rise	8484 Sep 13 20:05	14° <u>08</u> '24'21	conjunction	8491 Sep 14 17:15	29° <u>08</u> '34'31 -0°27'30
retrograde	8484 Dec 13 15:55	16° <u>08</u> '22'26	minimum elong	8491 Sep 14 17:15	29° <u>08</u> '34'31 0°27'30
opposition	8485 Mar 02 23:38	14° <u>08</u> '57'23 -0°44'41	max. Earth dist.	8491 Sep 15 06:02	29° <u>08</u> '35'43 30.84490 AU
min. Earth dist.	8485 Mar 02 07:38	14° <u>08</u> '58'31 28.80512 AU		8491 Sep 26 02:02	0° <u>08</u> '
direct	8485 May 19 20:07	13° <u>08</u> '33'25	morning rise	8491 Sep 30 21:59	0° <u>08</u> '10'39
evening set	8485 Aug 15 06:08	15° <u>08</u> '27'30	retrograde	8491 Dec 30 08:06	2° <u>08</u> '08'07
			opposition	8492 Mar 18 08:34	0° <u>08</u> '43'20 -0°28'07
conjunction	8485 Aug 31 06:52	16° <u>08</u> '03'22 -0°40'47	min. Earth dist.	8492 Mar 17 20:29	0° <u>08</u> '44'11 28.84721 AU
minimum elong	8485 Aug 31 06:52	16° <u>08</u> '03'22 0°40'50		8492 Apr 14 05:21	30° <u>08</u> '
max. Earth dist.	8485 Aug 31 23:10	16° <u>08</u> '04'53 30.80759 AU	direct	8492 Jun 04 05:09	29° <u>08</u> '19'15
morning rise	8485 Sep 16 10:00	16° <u>08</u> '39'27		8492 Jul 23 23:29	0° <u>08</u> '
retrograde	8485 Dec 16 04:21	18° <u>08</u> '37'28	evening set	8492 Aug 31 03:44	1° <u>08</u> '13'28
opposition	8486 Mar 05 11:17	17° <u>08</u> '12'27 -0°42'29			
min. Earth dist.	8486 Mar 04 20:27	17° <u>08</u> '13'30 28.81096 AU	conjunction	8492 Sep 16 06:58	1° <u>08</u> '49'25 -0°25'08
direct	8486 May 22 06:45	15° <u>08</u> '48'30	minimum elong	8492 Sep 16 06:58	1° <u>08</u> '49'25 0°25'08
evening set	8486 Aug 17 19:15	17° <u>08</u> '42'36	max. Earth dist.	8492 Sep 16 19:24	1° <u>08</u> '50'34 30.84915 AU
			morning rise	8492 Oct 02 11:55	2° <u>08</u> '25'33
conjunction	8486 Sep 02 20:31	18° <u>08</u> '18'29 -0°38'42	retrograde	8492 Dec 31 20:03	4° <u>08</u> '22'53
minimum elong	8486 Sep 02 20:32	18° <u>08</u> '18'30 0°38'46	opposition	8493 Mar 20 19:57	2° <u>08</u> '58'05 -0°25'34
max. Earth dist.	8486 Sep 03 13:26	18° <u>08</u> '20'05 30.81401 AU	min. Earth dist.	8493 Mar 20 09:26	2° <u>08</u> '58'50 28.85140 AU
morning rise	8486 Sep 18 23:50	18° <u>08</u> '54'36	direct	8493 Jun 06 17:38	1° <u>08</u> '33'56
retrograde	8486 Dec 18 17:49	20° <u>08</u> '52'32	evening set	8493 Sep 02 17:11	3° <u>08</u> '28'09
opposition	8487 Mar 07 22:52	19° <u>08</u> '27'35 -0°40'14			
min. Earth dist.	8487 Mar 07 07:42	19° <u>08</u> '28'39 28.81768 AU	conjunction	8493 Sep 18 20:47	4° <u>08</u> '04'06 -0°22'44
direct	8487 May 24 19:13	18° <u>08</u> '03'38	minimum elong	8493 Sep 18 20:47	4° <u>08</u> '04'06 0°22'43
evening set	8487 Aug 20 08:29	19° <u>08</u> '57'47	max. Earth dist.	8493 Sep 19 08:38	4° <u>08</u> '05'12 30.85351 AU
			morning rise	8493 Oct 05 01:56	4° <u>08</u> '40'14
conjunction	8487 Sep 05 09:56	20° <u>08</u> '33'41 -0°36'34	retrograde	8494 Jan 03 09:20	6° <u>08</u> '37'25
minimum elong	8487 Sep 05 09:56	20° <u>08</u> '33'41 0°36'36	opposition	8494 Mar 23 06:58	5° <u>08</u> '12'38 -0°22'58
max. Earth dist.	8487 Sep 06 01:28	20° <u>08</u> '35'08 30.82104 AU	min. Earth dist.	8494 Mar 22 19:57	5° <u>08</u> '13'25 28.85588 AU
morning rise	8487 Sep 21 13:42	21° <u>08</u> '09'48	direct	8494 Jun 09 07:07	3° <u>08</u> '48'25
retrograde	8487 Dec 21 06:35	23° <u>08</u> '07'41	evening set	8494 Sep 05 06:40	5° <u>08</u> '42'38
opposition	8488 Mar 09 10:34	21° <u>08</u> '42'48 -0°37'55			
min. Earth dist.	8488 Mar 08 20:19	21° <u>08</u> '43'48 28.82488 AU	conjunction	8494 Sep 21 10:26	6° <u>08</u> '18'36 -0°20'18

minimum elong	8494 Sep 21 10:26	6° <u>♂</u> 18'36	0°20'17	conjunction	8500 Oct 05 20:01	19° <u>♂</u> 44'03	-0°05'14
max. Earth dist.	8494 Sep 21 21:22	6° <u>♂</u> 19'37	30.85827 AU	minimum elong	8500 Oct 05 20:02	19° <u>♂</u> 44'03	0°05'10
morning rise	8494 Oct 07 15:49	6° <u>♂</u> 54'43		behind sun begin	8500 Oct 05 13:39	19° <u>♂</u> 43'29	
retrograde	8495 Jan 05 21:42	8° <u>♂</u> 51'47		behind sun end	8500 Oct 06 02:25	19° <u>♂</u> 44'37	
opposition	8495 Mar 25 18:11	7° <u>♂</u> 27'00	-0°20'21	max. Earth dist.	8500 Oct 06 04:20	19° <u>♂</u> 44'48	30.91221 AU
min. Earth dist.	8495 Mar 25 08:29	7° <u>♂</u> 27'41	28.86114 AU	morning rise	8500 Oct 22 02:10	20° <u>♂</u> 20'10	
direct	8495 Jun 11 18:22	6° <u>♂</u> 02'44		retrograde	8501 Jan 19 22:01	22° <u>♂</u> 16'36	
evening set	8495 Sep 07 19:48	7° <u>♂</u> 56'57		opposition	8501 Apr 08 11:47	20° <u>♂</u> 52'15	-0°04'08
				min. Earth dist.	8501 Apr 08 03:54	20° <u>♂</u> 52'49	28.91791 AU
conjunction	8495 Sep 23 23:58	8° <u>♂</u> 32'56	-0°17'50	direct	8501 Jun 25 14:50	19° <u>♂</u> 28'00	
minimum elong	8495 Sep 23 23:58	8° <u>♂</u> 32'56	0°17'49	evening set	8501 Sep 22 04:33	21° <u>♂</u> 22'29	
max. Earth dist.	8495 Sep 24 11:22	8° <u>♂</u> 33'59	30.86408 AU				
morning rise	8495 Oct 10 05:25	9° <u>♂</u> 09'03		conjunction	8501 Oct 08 09:54	21° <u>♂</u> 58'29	-0°02'40
retrograde	8496 Jan 08 10:43	11° <u>♂</u> 05'59		minimum elong	8501 Oct 08 09:54	21° <u>♂</u> 58'29	0°02'36
opposition	8496 Mar 27 05:13	9° <u>♂</u> 41'13	-0°17'42	behind sun begin	8501 Oct 08 03:19	21° <u>♂</u> 57'54	
min. Earth dist.	8496 Mar 26 19:07	9° <u>♂</u> 41'56	28.86747 AU	behind sun end	8501 Oct 08 16:28	21° <u>♂</u> 59'04	
direct	8496 Jun 13 07:34	8° <u>♂</u> 16'56		max. Earth dist.	8501 Oct 08 17:42	21° <u>♂</u> 59'12	30.92336 AU
evening set	8496 Sep 09 09:15	10° <u>♂</u> 11'09		morning rise	8501 Oct 24 15:59	22° <u>♂</u> 34'35	
				retrograde	8502 Jan 22 09:24	24° <u>♂</u> 30'56	
conjunction	8496 Sep 25 13:31	10° <u>♂</u> 47'08	-0°15'21	opposition	8502 Apr 10 22:41	23° <u>♂</u> 06'39	-0°01'23
minimum elong	8496 Sep 25 13:31	10° <u>♂</u> 47'08	0°15'20	min. Earth dist.	8502 Apr 10 16:38	23° <u>♂</u> 07'05	28.92875 AU
behind sun begin	8496 Sep 25 11:51	10° <u>♂</u> 46'59		direct	8502 Jun 28 02:28	21° <u>♂</u> 42'24	
behind sun end	8496 Sep 25 15:11	10° <u>♂</u> 47'17		evening set	8502 Sep 24 18:11	23° <u>♂</u> 36'56	
max. Earth dist.	8496 Sep 25 23:35	10° <u>♂</u> 48'04	30.87111 AU				
morning rise	8496 Oct 11 19:16	11° <u>♂</u> 23'16		conjunction	8502 Oct 10 23:42	24° <u>♂</u> 12'56	-0°00'01
retrograde	8497 Jan 09 22:38	13° <u>♂</u> 20'05		minimum elong	8502 Oct 10 23:42	24° <u>♂</u> 12'56	0°00'03
opposition	8497 Mar 29 16:10	11° <u>♂</u> 55'22	-0°15'02	behind sun begin	8502 Oct 10 17:48	24° <u>♂</u> 12'25	
min. Earth dist.	8497 Mar 29 06:51	11° <u>♂</u> 56'01	28.87531 AU	behind sun end	8502 Oct 11 05:37	24° <u>♂</u> 13'27	
direct	8497 Jun 15 17:55	10° <u>♂</u> 31'03		max. Earth dist.	8502 Oct 11 06:24	24° <u>♂</u> 13'32	30.93383 AU
evening set	8497 Sep 11 22:34	12° <u>♂</u> 25'19		asc. node	8502 Oct 14 15:24	24° <u>♂</u> 21'07	
				morning rise	8502 Oct 27 05:51	24° <u>♂</u> 49'01	
conjunction	8497 Sep 28 03:16	13° <u>♂</u> 01'18	-0°12'51	retrograde	8503 Jan 24 22:37	26° <u>♂</u> 45'15	
minimum elong	8497 Sep 28 03:15	13° <u>♂</u> 01'18	0°12'48	opposition	8503 Apr 13 09:32	25° <u>♂</u> 21'02	0°01'21
behind sun begin	8497 Sep 27 23:15	13° <u>♂</u> 00'56		min. Earth dist.	8503 Apr 13 03:16	25° <u>♂</u> 21'29	28.93868 AU
behind sun end	8497 Sep 28 07:15	13° <u>♂</u> 01'39		direct	8503 Jun 30 15:29	23° <u>♂</u> 56'46	
max. Earth dist.	8497 Sep 28 13:59	13° <u>♂</u> 02'17	30.87965 AU	evening set	8503 Sep 27 07:43	25° <u>♂</u> 51'19	
morning rise	8497 Oct 14 08:58	13° <u>♂</u> 37'25					
retrograde	8498 Jan 12 09:18	15° <u>♂</u> 34'07		conjunction	8503 Oct 13 13:17	26° <u>♂</u> 27'19	0°02'37
opposition	8498 Apr 01 03:07	14° <u>♂</u> 09'29	-0°12'20	minimum elong	8503 Oct 13 13:17	26° <u>♂</u> 27'19	0°02'41
min. Earth dist.	8498 Mar 31 17:59	14° <u>♂</u> 10'08	28.88449 AU	behind sun begin	8503 Oct 13 06:43	26° <u>♂</u> 26'44	
direct	8498 Jun 18 06:08	12° <u>♂</u> 45'11		behind sun end	8503 Oct 13 19:52	26° <u>♂</u> 27'54	
evening set	8498 Sep 14 11:59	14° <u>♂</u> 39'28		max. Earth dist.	8503 Oct 13 18:42	26° <u>♂</u> 27'47	30.94325 AU
				morning rise	8503 Oct 29 19:30	27° <u>♂</u> 03'23	
conjunction	8498 Sep 30 16:42	15° <u>♂</u> 15'28	-0°10'19	retrograde	8504 Jan 27 11:08	28° <u>♂</u> 59'29	
minimum elong	8498 Sep 30 16:42	15° <u>♂</u> 15'28	0°10'16	opposition	8504 Apr 14 20:29	27° <u>♂</u> 35'18	0°04'06
behind sun begin	8498 Sep 30 11:32	15° <u>♂</u> 15'00		min. Earth dist.	8504 Apr 14 15:57	27° <u>♂</u> 35'37	28.94773 AU
behind sun end	8498 Sep 30 21:53	15° <u>♂</u> 15'56		direct	8504 Jul 02 03:18	26° <u>♂</u> 11'00	
max. Earth dist.	8498 Oct 01 01:55	15° <u>♂</u> 16'19	30.88959 AU	evening set	8504 Sep 28 21:14	28° <u>♂</u> 05'33	
morning rise	8498 Oct 16 22:41	15° <u>♂</u> 51'35					
retrograde	8499 Jan 14 22:07	17° <u>♂</u> 48'12		conjunction	8504 Oct 15 03:06	28° <u>♂</u> 41'33	0°05'10
opposition	8499 Apr 03 14:01	16° <u>♂</u> 23'39	-0°09'37	minimum elong	8504 Oct 15 03:05	28° <u>♂</u> 41'33	0°05'15
min. Earth dist.	8499 Apr 03 04:59	16° <u>♂</u> 24'17	28.89507 AU	behind sun begin	8504 Oct 14 20:42	28° <u>♂</u> 40'59	
direct	8499 Jun 20 16:04	14° <u>♂</u> 59'21		behind sun end	8504 Oct 15 09:27	28° <u>♂</u> 42'07	
evening set	8499 Sep 17 01:21	16° <u>♂</u> 53'43		max. Earth dist.	8504 Oct 15 08:14	28° <u>♂</u> 42'00	30.95197 AU
				morning rise	8504 Oct 31 09:12	29° <u>♂</u> 17'36	
conjunction	8499 Oct 03 06:25	17° <u>♂</u> 29'43	-0°07'47		8504 Nov 20 21:27	0° <u>♂</u>	
minimum elong	8499 Oct 03 06:24	17° <u>♂</u> 29'43	0°07'44	retrograde	8505 Jan 29 00:05	1° <u>♂</u> 13'32	
behind sun begin	8499 Oct 03 00:28	17° <u>♂</u> 29'11			8505 Apr 11 00:17	30° <u>♂</u> 11'32	
behind sun end	8499 Oct 03 12:20	17° <u>♂</u> 30'14		opposition	8505 Apr 17 07:04	29° <u>♂</u> 49'23	0°06'50
max. Earth dist.	8499 Oct 03 16:07	17° <u>♂</u> 30'36	30.90063 AU	min. Earth dist.	8505 Apr 17 02:42	29° <u>♂</u> 49'41	28.95606 AU
morning rise	8499 Oct 19 12:19	18° <u>♂</u> 05'49		direct	8505 Jul 04 17:32	28° <u>♂</u> 25'02	
retrograde	8500 Jan 17 09:00	20° <u>♂</u> 02'21			8505 Sep 22 06:06	0° <u>♂</u>	
opposition	8500 Apr 06 00:56	18° <u>♂</u> 37'54	-0°06'53	evening set	8505 Oct 01 10:54	0° <u>♂</u> 19'36	
min. Earth dist.	8500 Apr 05 17:05	18° <u>♂</u> 38'27	28.90641 AU				
direct	8500 Jun 23 02:19	17° <u>♂</u> 13'38		conjunction	8505 Oct 17 16:40	0° <u>♂</u> 55'34	0°07'42
evening set	8500 Sep 19 14:51	19° <u>♂</u> 08'03		minimum elong	8505 Oct 17 16:40	0° <u>♂</u> 55'35	0°07'48
				behind sun begin	8505 Oct 17 10:46	0° <u>♂</u> 55'03	

behind sun end	8505 Oct 17 22:35	0°M.56'06		max. Earth dist.	8511 Nov 01 01:22	14°M.15'40	31.02151 AU
max. Earth dist.	8505 Oct 17 20:04	0°M.55'52	30.96013 AU	morning rise	8511 Nov 17 06:25	14°M.51'31	
morning rise	8505 Nov 02 22:55	1°M.31'37			8511 Nov 21 04:57	15°M.	
retrograde	8506 Jan 31 11:29	3°M.27'23		retrograde	8512 Feb 14 05:44	16°M.46'28	
opposition	8506 Apr 19 17:47	2°M.03'15	0°09'33	opposition	8512 May 02 08:34	15°M.22'40	0°25'22
min. Earth dist.	8506 Apr 19 14:33	2°M.03'29	28.96423 AU	min. Earth dist.	8512 May 02 07:33	15°M.22'44	29.02822 AU
direct	8506 Jul 07 04:46	0°M.38'51			8512 May 15 22:23	15°R.M.	
evening set	8506 Oct 04 00:10	2°M.33'24		direct	8512 Jul 20 01:57	13°M.58'07	
					8512 Sep 21 02:19	15°M.	
conjunction	8506 Oct 20 06:11	3°M.09'23	0°10'14	evening set	8512 Oct 17 08:10	15°M.52'50	
minimum elong	8506 Oct 20 06:10	3°M.09'22	0°10'20				
behind sun begin	8506 Oct 20 01:01	3°M.08'55		conjunction	8512 Nov 02 14:06	16°M.28'43	0°24'56
behind sun end	8506 Oct 20 11:19	3°M.09'50		minimum elong	8512 Nov 02 14:06	16°M.28'43	0°25'04
max. Earth dist.	8506 Oct 20 09:58	3°M.09'42	30.96828 AU	max. Earth dist.	8512 Nov 02 13:43	16°M.28'41	31.03497 AU
morning rise	8506 Nov 05 12:12	3°M.45'23		morning rise	8512 Nov 18 19:37	17°M.04'36	
retrograde	8507 Feb 02 22:09	5°M.41'00		retrograde	8513 Feb 15 17:35	18°M.59'28	
opposition	8507 Apr 22 04:20	4°M.16'54	0°12'15	opposition	8513 May 04 18:58	17°M.35'46	0°27'53
min. Earth dist.	8507 Apr 22 01:35	4°M.17'06	28.97246 AU	min. Earth dist.	8513 May 04 19:37	17°M.35'43	29.04178 AU
direct	8507 Jul 09 17:41	2°M.52'26		direct	8513 Jul 22 13:10	16°M.11'15	
evening set	8507 Oct 06 13:37	4°M.46'59		evening set	8513 Oct 19 21:34	18°M.06'01	
conjunction	8507 Oct 22 19:30	5°M.22'57	0°12'44	conjunction	8513 Nov 05 03:33	18°M.41'54	0°27'16
minimum elong	8507 Oct 22 19:30	5°M.22'57	0°12'51	minimum elong	8513 Nov 05 03:33	18°M.41'54	0°27'24
behind sun begin	8507 Oct 22 15:32	5°M.22'35		max. Earth dist.	8513 Nov 05 02:53	18°M.41'51	31.04834 AU
behind sun end	8507 Oct 22 23:28	5°M.23'18		morning rise	8513 Nov 21 08:48	19°M.17'45	
max. Earth dist.	8507 Oct 22 21:32	5°M.23'07	30.97685 AU	retrograde	8514 Feb 18 06:05	21°M.12'31	
morning rise	8507 Nov 08 01:39	5°M.58'56		opposition	8514 May 07 05:25	19°M.48'55	0°30'22
retrograde	8508 Feb 05 10:27	7°M.54'24		min. Earth dist.	8514 May 07 06:18	19°M.48'52	29.05474 AU
opposition	8508 Apr 23 14:46	6°M.30'19	0°14'55	direct	8514 Jul 25 02:52	18°M.24'26	
min. Earth dist.	8508 Apr 23 12:13	6°M.30'29	28.98148 AU	evening set	8514 Oct 22 10:59	20°M.19'16	
direct	8508 Jul 11 04:20	5°M.05'48					
evening set	8508 Oct 08 02:53	7°M.00'21		conjunction	8514 Nov 07 16:43	20°M.55'08	0°29'34
				minimum elong	8514 Nov 07 16:43	20°M.55'08	0°29'43
conjunction	8508 Oct 24 08:59	7°M.36'18	0°15'14	max. Earth dist.	8514 Nov 07 14:14	20°M.54'54	31.06078 AU
minimum elong	8508 Oct 24 08:59	7°M.36'18	0°15'21	morning rise	8514 Nov 23 21:53	21°M.30'58	
behind sun begin	8508 Oct 24 07:23	7°M.36'09		retrograde	8515 Feb 20 17:54	23°M.25'38	
behind sun end	8508 Oct 24 10:34	7°M.36'26		opposition	8515 May 09 15:58	22°M.02'07	0°32'48
max. Earth dist.	8508 Oct 24 11:29	7°M.36'31	30.98623 AU	min. Earth dist.	8515 May 09 18:05	22°M.01'58	29.06675 AU
morning rise	8508 Nov 09 14:54	8°M.12'16		direct	8515 Jul 27 13:51	20°M.37'38	
retrograde	8509 Feb 06 19:49	10°M.07'34		evening set	8515 Oct 25 00:19	22°M.32'30	
opposition	8509 Apr 26 01:19	8°M.43'32	0°17'35				
min. Earth dist.	8509 Apr 25 23:50	8°M.43'38	28.99136 AU	conjunction	8515 Nov 10 06:08	23°M.08'22	0°31'49
direct	8509 Jul 13 15:32	7°M.18'59		minimum elong	8515 Nov 10 06:07	23°M.08'22	0°31'58
evening set	8509 Oct 10 16:17	9°M.13'33		max. Earth dist.	8515 Nov 10 03:38	23°M.08'08	31.07213 AU
				morning rise	8515 Nov 26 10:56	23°M.44'10	
conjunction	8509 Oct 26 22:16	9°M.49'28	0°17'42	retrograde	8516 Feb 23 05:04	25°M.38'42	
minimum elong	8509 Oct 26 22:16	9°M.49'28	0°17'49	opposition	8516 May 11 02:22	24°M.15'16	0°35'11
max. Earth dist.	8509 Oct 26 23:29	9°M.49'35	30.99676 AU	min. Earth dist.	8516 May 11 05:22	24°M.15'04	29.07742 AU
morning rise	8509 Nov 12 04:12	10°M.25'25		direct	8516 Jul 29 02:55	22°M.50'47	
retrograde	8510 Feb 09 07:07	12°M.20'35		evening set	8516 Oct 26 13:47	24°M.45'41	
opposition	8510 Apr 28 11:39	10°M.56'36	0°20'12				
min. Earth dist.	8510 Apr 28 09:45	10°M.56'45	29.00253 AU	conjunction	8516 Nov 11 19:21	25°M.21'31	0°34'01
direct	8510 Jul 16 03:17	9°M.32'02		minimum elong	8516 Nov 11 19:21	25°M.21'31	0°34'11
evening set	8510 Oct 13 05:35	11°M.26'38		max. Earth dist.	8516 Nov 11 14:37	25°M.21'05	31.08224 AU
				morning rise	8516 Nov 28 00:08	25°M.57'18	
conjunction	8510 Oct 29 11:37	12°M.02'33	0°20'08	retrograde	8517 Feb 24 17:37	27°M.51'43	
minimum elong	8510 Oct 29 11:37	12°M.02'33	0°20'16	opposition	8517 May 13 12:47	26°M.28'20	0°37'30
max. Earth dist.	8510 Oct 29 12:53	12°M.02'40	31.00850 AU	min. Earth dist.	8517 May 13 16:18	26°M.28'05	29.08701 AU
morning rise	8510 Nov 14 17:20	12°M.38'28		direct	8517 Jul 31 14:04	25°M.03'48	
retrograde	8511 Feb 11 17:24	14°M.33'32		evening set	8517 Oct 29 03:02	26°M.58'44	
opposition	8511 Apr 30 22:13	13°M.09'38	0°22'48				
min. Earth dist.	8511 Apr 30 21:39	13°M.09'40	29.01493 AU	conjunction	8517 Nov 14 08:36	27°M.34'33	0°36'10
direct	8511 Jul 18 13:43	11°M.45'04		minimum elong	8517 Nov 14 08:36	27°M.34'33	0°36'20
evening set	8511 Oct 15 18:43	13°M.39'42		max. Earth dist.	8517 Nov 14 03:57	27°M.34'07	31.09122 AU
				morning rise	8517 Nov 30 12:58	28°M.10'18	
conjunction	8511 Nov 01 00:46	14°M.15'36	0°22'33		8518 Feb 10 16:41	0°Z.	
minimum elong	8511 Nov 01 00:46	14°M.15'36	0°22'40	retrograde	8518 Feb 27 02:35	0°Z.04'35	

	8518 Mar 15 14:56	30° 8 ℓ	evening set	8524 Nov 13 21:24	12° 7 25'32	
opposition	8518 May 15 23:10	28° ℓ 41'15 0°39'46				
min. Earth dist.	8518 May 16 04:10	28° ℓ 40'54 29.09557 AU	conjunction	8524 Nov 30 01:42	13° 7 01'11 0°49'30	
direct	8518 Aug 03 01:41	27° ℓ 16'41	minimum elong	8524 Nov 30 01:42	13° 7 01'11 0°49'42	
evening set	8518 Oct 31 16:16	29° ℓ 11'37	max. Earth dist.	8524 Nov 29 17:22	13° 7 00'25 31.15724 AU	
			morning rise	8524 Dec 16 04:06	13° 7 36'42	
conjunction	8518 Nov 16 21:35	29° ℓ 47'25 0°38'16	retrograde	8525 Mar 14 05:54	15° 7 30'11	
minimum elong	8518 Nov 16 21:35	29° ℓ 47'25 0°38'26	opposition	8525 May 30 22:42	14° 7 07'12 0°53'46	
max. Earth dist.	8518 Nov 16 15:18	29° ℓ 46'50 31.09958 AU	min. Earth dist.	8525 May 31 06:48	14° 7 06'38 29.16341 AU	
	8518 Nov 22 13:15	0° 7	direct	8525 Aug 18 12:05	12° 7 42'31	
morning rise	8518 Dec 03 01:51	0° 7 23'08	evening set	8525 Nov 16 10:17	14° 7 37'38	
retrograde	8519 Mar 01 13:15	2° 7 17'17				
opposition	8519 May 18 09:24	0° 7 53'59 0°41'59	conjunction	8525 Dec 02 14:08	15° 7 13'16 0°51'08	
min. Earth dist.	8519 May 18 14:15	0° 7 53'39 29.10375 AU	minimum elong	8525 Dec 02 14:08	15° 7 13'16 0°51'19	
	8519 Jun 22 04:36	30° 8 ℓ	max. Earth dist.	8525 Dec 02 04:02	15° 7 12'20 31.16908 AU	
direct	8519 Aug 05 13:22	29° ℓ 29'23	morning rise	8525 Dec 18 16:20	15° 7 48'46	
	8519 Sep 18 03:12	0° 7	retrograde	8526 Mar 16 18:17	17° 7 42'10	
evening set	8519 Nov 03 05:12	1° 7 24'19	opposition	8526 Jun 02 08:54	16° 7 19'16 0°55'28	
			min. Earth dist.	8526 Jun 02 17:14	16° 7 18'41 29.17514 AU	
conjunction	8519 Nov 19 10:27	2° 7 00'06 0°40'18	direct	8526 Aug 20 23:42	14° 7 54'36	
minimum elong	8519 Nov 19 10:27	2° 7 00'06 0°40'28	evening set	8526 Nov 18 23:01	16° 7 49'46	
max. Earth dist.	8519 Nov 19 04:06	1° 7 59'31 31.10758 AU				
morning rise	8519 Dec 05 14:23	2° 7 35'47	conjunction	8526 Dec 05 02:45	17° 7 25'22 0°52'41	
retrograde	8520 Mar 02 22:43	4° 7 29'48	minimum elong	8526 Dec 05 02:45	17° 7 25'22 0°52'53	
opposition	8520 May 19 19:45	3° 7 06'32 0°44'07	max. Earth dist.	8526 Dec 04 16:54	17° 7 24'28 31.18037 AU	
min. Earth dist.	8520 May 20 02:10	3° 7 06'05 29.11183 AU	morning rise	8526 Dec 21 04:26	18° 7 00'50	
direct	8520 Aug 06 23:25	1° 7 41'53	retrograde	8527 Mar 19 03:25	19° 7 54'08	
evening set	8520 Nov 04 18:13	3° 7 36'49	opposition	8527 Jun 04 19:15	18° 7 31'20 0°57'05	
			min. Earth dist.	8527 Jun 05 05:03	18° 7 30'39 29.18601 AU	
conjunction	8520 Nov 20 23:17	4° 7 12'34 0°42'16	direct	8527 Aug 23 11:26	17° 7 06'40	
minimum elong	8520 Nov 20 23:17	4° 7 12'34 0°42'27	evening set	8527 Nov 21 11:46	19° 7 01'51	
max. Earth dist.	8520 Nov 20 16:06	4° 7 11'55 31.11584 AU				
morning rise	8520 Dec 07 03:01	4° 7 48'14	conjunction	8527 Dec 07 15:08	19° 7 37'26 0°54'09	
retrograde	8521 Mar 05 09:30	6° 7 42'07	minimum elong	8527 Dec 07 15:08	19° 7 37'26 0°54'20	
opposition	8521 May 22 05:49	5° 7 18'53 0°46'12	max. Earth dist.	8527 Dec 07 03:35	19° 7 36'22 31.19073 AU	
min. Earth dist.	8521 May 22 11:43	5° 7 18'28 29.12030 AU	morning rise	8527 Dec 23 16:38	20° 7 12'52	
direct	8521 Aug 09 11:30	3° 7 54'11	retrograde	8528 Mar 20 14:27	22° 7 06'04	
evening set	8521 Nov 07 07:11	5° 7 49'09	opposition	8528 Jun 06 05:31	20° 7 43'19 0°58'37	
			min. Earth dist.	8528 Jun 06 15:13	20° 7 42'38 29.19573 AU	
conjunction	8521 Nov 23 12:00	6° 7 24'52 0°44'11	direct	8528 Aug 24 23:03	19° 7 18'38	
minimum elong	8521 Nov 23 12:00	6° 7 24'52 0°44'21	evening set	8528 Nov 23 00:32	21° 7 13'51	
max. Earth dist.	8521 Nov 23 04:07	6° 7 24'08 31.12461 AU				
morning rise	8521 Dec 09 15:25	7° 7 00'30	conjunction	8528 Dec 09 03:41	21° 7 49'24 0°55'33	
retrograde	8522 Mar 07 20:01	8° 7 54'16	minimum elong	8528 Dec 09 03:41	21° 7 49'24 0°55'45	
opposition	8522 May 24 16:08	7° 7 31'04 0°48'12	max. Earth dist.	8528 Dec 08 15:51	21° 7 48'18 31.19969 AU	
min. Earth dist.	8522 May 24 23:13	7° 7 30'34 29.12968 AU	morning rise	8528 Dec 25 04:42	22° 7 24'48	
direct	8522 Aug 11 22:55	6° 7 06'20	retrograde	8529 Mar 22 23:56	24° 7 17'54	
evening set	8522 Nov 09 19:48	8° 7 01'20	opposition	8529 Jun 08 15:51	22° 7 55'12 1°00'04	
			min. Earth dist.	8529 Jun 09 03:19	22° 7 54'24 29.20413 AU	
conjunction	8522 Nov 26 00:30	8° 7 37'01 0°46'01	direct	8529 Aug 27 09:12	21° 7 30'29	
minimum elong	8522 Nov 26 00:30	8° 7 37'01 0°46'12	evening set	8529 Nov 25 13:13	23° 7 25'42	
max. Earth dist.	8522 Nov 25 16:51	8° 7 36'19 31.13452 AU				
morning rise	8522 Dec 12 03:33	9° 7 12'37	conjunction	8529 Dec 11 16:03	24° 7 01'14 0°56'52	
retrograde	8523 Mar 10 07:08	11° 7 06'17	minimum elong	8529 Dec 11 16:03	24° 7 01'14 0°57'03	
opposition	8523 May 27 02:21	9° 7 43'08 0°50'08	max. Earth dist.	8529 Dec 11 03:10	24° 7 00'02 31.20754 AU	
min. Earth dist.	8523 May 27 09:07	9° 7 42'40 29.14007 AU	morning rise	8529 Dec 27 16:45	24° 7 36'36	
direct	8523 Aug 14 12:19	8° 7 18'24	retrograde	8530 Mar 25 10:02	26° 7 29'35	
evening set	8523 Nov 12 08:40	10° 7 13'26	opposition	8530 Jun 11 02:07	25° 7 06'55 1°01'25	
			min. Earth dist.	8530 Jun 11 13:14	25° 7 06'08 29.21139 AU	
conjunction	8523 Nov 28 13:01	10° 7 49'06 0°47'48	direct	8530 Aug 29 21:28	23° 7 42'11	
minimum elong	8523 Nov 28 13:01	10° 7 49'06 0°47'58	evening set	8530 Nov 28 01:37	25° 7 37'23	
max. Earth dist.	8523 Nov 28 04:10	10° 7 48'17 31.14546 AU				
morning rise	8523 Dec 14 15:53	11° 7 24'40	conjunction	8530 Dec 14 04:08	26° 7 12'53 0°58'06	
retrograde	8524 Mar 11 18:35	13° 7 18'14	minimum elong	8530 Dec 14 04:08	26° 7 12'53 0°58'18	
opposition	8524 May 28 12:28	11° 7 55'10 0°51'59	max. Earth dist.	8530 Dec 13 14:23	26° 7 11'37 31.21428 AU	
min. Earth dist.	8524 May 28 19:58	11° 7 54'38 29.15156 AU	morning rise	8530 Dec 30 04:28	26° 7 48'13	
direct	8524 Aug 15 22:38	10° 7 30'27	retrograde	8531 Mar 27 19:46	28° 7 41'07	

opposition	8531 Jun 13 12:28	27°  18'27	1°02'41	conjunction	8537 Dec 29 14:39	11°  30'32	1°04'16
min. Earth dist.	8531 Jun 14 01:00	27°  17'35	29.21784 AU	minimum elong	8537 Dec 29 14:39	11°  30'32	1°04'27
direct	8531 Sep 01 08:21	25°  53'40		max. Earth dist.	8537 Dec 28 23:20	11°  29'07	31.26648 AU
evening set	8531 Nov 30 13:59	27°  48'53		morning rise	8538 Jan 14 12:13	12°  05'37	
				retrograde	8538 Apr 11 20:47	13°  05'03	
conjunction	8531 Dec 16 16:18	28°  24'21	0°59'14	opposition	8538 Jun 28 12:05	12°  35'44	1°08'57
minimum elong	8531 Dec 16 16:17	28°  24'21	0°59'26	min. Earth dist.	8538 Jun 29 02:41	12°  34'43	29.27178 AU
max. Earth dist.	8531 Dec 16 02:31	28°  23'04	31.22046 AU	direct	8538 Sep 16 17:22	11°  11'00	
morning rise	8532 Jan 01 16:14	28°  59'38		evening set	8538 Dec 16 02:10	13°  06'23	
	8532 Feb 01 05:41	0°  00		max. Earth dist.	8538 Dec 31 10:11	13°  04'11	31.27599 AU
retrograde	8532 Mar 29 05:51	0°  05'22					
	8532 May 27 09:58	30°  00'00		conjunction	8539 Jan 01 02:02	13°  04'40	1°04'47
opposition	8532 Jun 14 22:32	29°  29'47	1°03'52	minimum elong	8539 Jan 01 02:02	13°  04'40	1°04'59
min. Earth dist.	8532 Jun 15 11:06	29°  28'55	29.22376 AU	morning rise	8539 Jan 16 23:17	14°  01'44	
direct	8532 Sep 02 21:15	28°  04'58		retrograde	8539 Apr 14 06:25	16°  09'08	
evening set	8532 Dec 02 02:24	0°  00'11		opposition	8539 Jun 30 22:25	14°  06'54	1°09'27
	8532 Dec 02 00:23	0°  00		min. Earth dist.	8539 Jul 01 12:30	14°  05'55	29.28090 AU
				direct	8539 Sep 19 05:10	13°  02'11	
conjunction	8532 Dec 18 04:16	0°  03'37	1°00'18	evening set	8539 Dec 18 14:07	15°  01'36	
minimum elong	8532 Dec 18 04:16	0°  03'37	1°00'31				
max. Earth dist.	8532 Dec 17 13:13	0°  03'41	31.22632 AU	conjunction	8540 Jan 03 13:35	15°  02'52	1°05'12
morning rise	8533 Jan 03 03:55	1°  01'52		minimum elong	8540 Jan 03 13:35	15°  02'52	1°05'23
retrograde	8533 Mar 31 16:51	3°  03'34		max. Earth dist.	8540 Jan 02 20:56	15°  01'19	31.28458 AU
opposition	8533 Jun 17 08:47	1°  04'56	1°04'57	morning rise	8540 Jan 19 10:25	16°  02'54	
min. Earth dist.	8533 Jun 17 21:57	1°  04'01	29.22982 AU	retrograde	8540 Apr 15 15:59	18°  02'17	
direct	8533 Sep 05 07:46	0°  01'60		opposition	8540 Jul 02 08:50	16°  05'06	1°09'51
evening set	8533 Dec 04 14:27	2°  01'18		min. Earth dist.	8540 Jul 03 00:14	16°  05'02	29.28906 AU
				direct	8540 Sep 20 15:04	15°  03'25	
conjunction	8533 Dec 20 16:07	2°  04'42	1°01'16	evening set	8540 Dec 20 02:02	17°  02'52	
minimum elong	8533 Dec 20 16:06	2°  04'42	1°01'28	max. Earth dist.	8541 Jan 04 08:33	18°  02'33	31.29211 AU
max. Earth dist.	8533 Dec 20 01:53	2°  04'53	31.23251 AU				
morning rise	8534 Jan 05 15:13	3°  02'55		conjunction	8541 Jan 05 01:12	18°  04'06	1°05'32
retrograde	8534 Apr 03 03:12	5°  01'43		minimum elong	8541 Jan 05 01:12	18°  04'06	1°05'44
opposition	8534 Jun 19 19:02	3°  05'55	1°05'57	morning rise	8541 Jan 20 21:34	18°  03'06	
min. Earth dist.	8534 Jun 20 08:29	3°  05'09	29.23633 AU	retrograde	8541 Apr 18 01:53	20°  03'26	
direct	8534 Sep 07 21:22	2°  02'70		opposition	8541 Jul 04 19:22	19°  09'18	1°10'09
evening set	8534 Dec 07 02:35	4°  02'17		min. Earth dist.	8541 Jul 05 10:51	19°  08'14	29.29584 AU
				direct	8541 Sep 23 02:53	17°  04'38	
conjunction	8534 Dec 23 03:44	4°  05'40	1°02'09	evening set	8541 Dec 22 13:51	19°  04'05	
minimum elong	8534 Dec 23 03:44	4°  05'40	1°02'22				
max. Earth dist.	8534 Dec 22 12:13	4°  05'13	31.23955 AU	conjunction	8542 Jan 07 12:30	20°  01'57	1°05'46
morning rise	8535 Jan 08 02:37	5°  03'25		minimum elong	8542 Jan 07 12:30	20°  01'57	1°05'57
retrograde	8535 Apr 05 15:05	7°  02'53		max. Earth dist.	8542 Jan 06 18:30	20°  01'37	31.29821 AU
opposition	8535 Jun 22 05:11	6°  02'49	1°06'51	morning rise	8542 Jan 23 08:33	20°  05'15	
min. Earth dist.	8535 Jun 22 18:12	6°  01'55	29.24401 AU	retrograde	8542 Apr 20 12:58	22°  04'23	
direct	8535 Sep 10 08:58	4°  03'75		opposition	8542 Jul 07 05:57	21°  02'27	1°10'21
evening set	8535 Dec 09 14:28	6°  03'13		min. Earth dist.	8542 Jul 07 22:01	21°  01'20	29.30138 AU
				direct	8542 Sep 25 13:13	19°  05'45	
conjunction	8535 Dec 25 15:28	7°  08'34	1°02'57	evening set	8542 Dec 25 01:30	21°  05'12	
minimum elong	8535 Dec 25 15:28	7°  08'34	1°03'08				
max. Earth dist.	8535 Dec 25 00:49	7°  07'13	31.24772 AU	conjunction	8543 Jan 09 23:57	22°  02'22	1°05'55
morning rise	8536 Jan 10 13:49	7°  04'43		minimum elong	8543 Jan 09 23:57	22°  02'22	1°06'07
retrograde	8536 Apr 07 00:01	9°  03'12		max. Earth dist.	8543 Jan 09 06:33	22°  02'45	31.30308 AU
opposition	8536 Jun 23 15:30	8°  01'34	1°07'39	morning rise	8543 Jan 25 19:28	23°  01'19	
min. Earth dist.	8536 Jun 24 05:26	8°  01'24	29.25267 AU	retrograde	8543 Apr 22 23:15	24°  03'33	
direct	8536 Sep 11 20:36	6°  04'52		opposition	8543 Jul 09 16:26	23°  03'27	1°10'27
evening set	8536 Dec 11 02:30	8°  04'11		min. Earth dist.	8543 Jul 10 09:10	23°  03'18	29.30561 AU
max. Earth dist.	8536 Dec 26 11:21	9°  01'80	31.25690 AU	direct	8543 Sep 28 02:53	22°  06'45	
				evening set	8543 Dec 27 13:13	24°  02'11	
conjunction	8536 Dec 27 03:01	9°  01'30	1°03'39				
minimum elong	8536 Dec 27 03:01	9°  01'30	1°03'52	conjunction	8544 Jan 12 11:09	24°  03'19	1°05'57
morning rise	8537 Jan 12 01:07	9°  05'47		minimum elong	8544 Jan 12 11:09	24°  03'19	1°06'08
retrograde	8537 Apr 09 10:53	11°  04'70		max. Earth dist.	8544 Jan 11 16:11	24°  03'33	31.30684 AU
opposition	8537 Jun 26 01:37	10°  02'44	1°08'21	morning rise	8544 Jan 28 06:28	25°  02'13	
min. Earth dist.	8537 Jun 26 14:54	10°  02'34	29.26214 AU	retrograde	8544 Apr 24 10:49	27°  04'24	
direct	8537 Sep 14 07:54	8°  05'52		opposition	8544 Jul 11 02:55	25°  04'17	1°10'27
evening set	8537 Dec 13 14:24	10°  05'13		min. Earth dist.	8544 Jul 11 19:26	25°  04'09	29.30895 AU

direct	8544 Sep 29 14:55	24° \approx 17'33		minimum elong	8551 Jan 27 15:02	9° \approx 50'04	1°03'51
evening set	8544 Dec 29 00:40	26° \approx 12'58		max. Earth dist.	8551 Jan 26 20:17	9° \approx 48'20	31.33484 AU
				morning rise	8551 Feb 12 07:40	10° \approx 24'48	
conjunction	8545 Jan 13 22:23	26° \approx 48'04	1°05'55	retrograde	8551 May 10 07:25	12° \approx 16'50	
minimum elong	8545 Jan 13 22:23	26° \approx 48'04	1°06'06	opposition	8551 Jul 27 05:19	10° \approx 54'52	1°07'40
max. Earth dist.	8545 Jan 13 04:08	26° \approx 46'22	31.30977 AU	min. Earth dist.	8551 Jul 27 22:15	10° \approx 53'43	29.33786 AU
morning rise	8545 Jan 29 17:07	27° \approx 22'56		direct	8551 Oct 15 20:41	9° \approx 30'15	
retrograde	8545 Apr 26 19:41	29° \approx 15'03		evening set	8552 Jan 14 06:44	11° \approx 25'39	
opposition	8545 Jul 13 13:30	27° \approx 52'56	1°10'21	max. Earth dist.	8552 Jan 29 08:00	11° \approx 58'55	31.33954 AU
min. Earth dist.	8545 Jul 14 07:05	27° \approx 51'43	29.31167 AU				
direct	8545 Oct 02 03:04	26° \approx 28'10		conjunction	8552 Jan 30 01:50	12° \approx 00'35	1°02'58
evening set	8545 Dec 31 12:06	28° \approx 23'32		minimum elong	8552 Jan 30 01:50	12° \approx 00'35	1°03'07
				morning rise	8552 Feb 14 17:57	12° \approx 35'17	
conjunction	8546 Jan 16 09:18	28° \approx 58'37	1°05'46	retrograde	8552 May 11 17:46	14° \approx 27'21	
minimum elong	8546 Jan 16 09:18	28° \approx 58'37	1°05'57	opposition	8552 Jul 28 16:15	13° \approx 05'27	1°06'52
max. Earth dist.	8546 Jan 15 14:13	28° \approx 56'51	31.31253 AU	min. Earth dist.	8552 Jul 29 09:42	13° \approx 04'15	29.34196 AU
morning rise	8546 Feb 01 03:48	29° \approx 33'27		direct	8552 Oct 17 09:20	11° \approx 40'52	
	8546 Feb 13 18:00	0° \approx		evening set	8553 Jan 15 17:53	13° \approx 36'17	
retrograde	8546 Apr 29 06:38	1° \approx 25'30					
opposition	8546 Jul 16 00:00	0° \approx 03'22	1°10'09	conjunction	8553 Jan 31 12:25	14° \approx 11'12	1°02'11
min. Earth dist.	8546 Jul 16 16:39	0° \approx 02'13	29.31454 AU	minimum elong	8553 Jan 31 12:25	14° \approx 11'12	1°02'20
	8546 Jul 18 00:53	30° \approx 17'3		max. Earth dist.	8553 Jan 30 17:15	14° \approx 09'25	31.34306 AU
direct	8546 Oct 04 15:39	28° \approx 38'34		morning rise	8553 Feb 16 04:19	14° \approx 45'53	
	8546 Dec 17 16:15	0° \approx			8553 Feb 22 18:06	15° \approx	
evening set	8547 Jan 02 23:12	0° \approx 33'55		retrograde	8553 May 14 05:46	16° \approx 38'00	
				opposition	8553 Jul 31 03:11	15° \approx 16'06	1°05'58
conjunction	8547 Jan 18 20:07	1° \approx 08'58	1°05'32	min. Earth dist.	8553 Jul 31 20:11	15° \approx 14'56	29.34486 AU
minimum elong	8547 Jan 18 20:07	1° \approx 08'58	1°05'43		8553 Aug 09 23:43	15° \approx 17'3	
max. Earth dist.	8547 Jan 18 01:40	1° \approx 07'16	31.31556 AU	direct	8553 Oct 19 20:35	13° \approx 51'34	
morning rise	8547 Feb 03 14:08	1° \approx 43'47			8553 Dec 26 04:08	15° \approx	
retrograde	8547 May 01 16:05	3° \approx 35'48		evening set	8554 Jan 18 04:49	15° \approx 47'00	
opposition	8547 Jul 18 10:41	2° \approx 13'39	1°09'51				
min. Earth dist.	8547 Jul 19 04:14	2° \approx 12'27	29.31799 AU	conjunction	8554 Feb 02 23:08	16° \approx 21'54	1°01'18
direct	8547 Oct 07 02:28	0° \approx 48'51		minimum elong	8554 Feb 02 23:09	16° \approx 21'54	1°01'26
evening set	8548 Jan 05 10:26	2° \approx 44'11		max. Earth dist.	8554 Feb 02 04:40	16° \approx 20'11	31.34517 AU
				morning rise	8554 Feb 18 14:31	16° \approx 56'33	
conjunction	8548 Jan 21 06:57	3° \approx 19'12	1°05'13	retrograde	8554 May 16 15:25	18° \approx 48'42	
minimum elong	8548 Jan 21 06:57	3° \approx 19'12	1°05'23	opposition	8554 Aug 02 14:17	17° \approx 26'49	1°04'59
max. Earth dist.	8548 Jan 20 12:30	3° \approx 17'30	31.31948 AU	min. Earth dist.	8554 Aug 03 08:24	17° \approx 25'35	29.34622 AU
morning rise	8548 Feb 06 00:38	3° \approx 53'59		direct	8554 Oct 22 08:22	16° \approx 02'19	
retrograde	8548 May 03 01:08	5° \approx 45'58		evening set	8555 Jan 20 15:44	17° \approx 57'44	
opposition	8548 Jul 19 21:08	4° \approx 23'52	1°09'28				
min. Earth dist.	8548 Jul 20 13:36	4° \approx 22'44	29.32227 AU	conjunction	8555 Feb 05 09:35	18° \approx 32'37	1°00'20
direct	8548 Oct 08 14:30	2° \approx 59'05		minimum elong	8555 Feb 05 09:35	18° \approx 32'37	1°00'29
evening set	8549 Jan 06 21:39	4° \approx 54'25		max. Earth dist.	8555 Feb 04 14:12	18° \approx 30'49	31.34584 AU
				morning rise	8555 Feb 21 00:48	19° \approx 07'15	
conjunction	8549 Jan 22 17:45	5° \approx 29'25	1°04'48	retrograde	8555 May 19 03:00	20° \approx 59'24	
minimum elong	8549 Jan 22 17:45	5° \approx 29'25	1°04'58	opposition	8555 Aug 05 01:17	19° \approx 37'32	1°03'54
max. Earth dist.	8549 Jan 21 23:06	5° \approx 27'41	31.32418 AU	min. Earth dist.	8555 Aug 05 18:39	19° \approx 36'21	29.34605 AU
morning rise	8549 Feb 07 11:03	6° \approx 04'11		direct	8555 Oct 24 21:24	18° \approx 13'02	
retrograde	8549 May 05 10:38	7° \approx 56'10		evening set	8556 Jan 23 02:37	20° \approx 08'27	
opposition	8549 Jul 22 07:54	6° \approx 34'06	1°08'58				
min. Earth dist.	8549 Jul 23 00:58	6° \approx 32'56	29.32739 AU	conjunction	8556 Feb 07 20:12	20° \approx 43'18	0°59'17
direct	8549 Oct 10 23:54	5° \approx 09'22		minimum elong	8556 Feb 07 20:12	20° \approx 43'18	0°59'25
evening set	8550 Jan 09 08:34	7° \approx 04'42		max. Earth dist.	8556 Feb 07 01:01	20° \approx 41'31	31.34487 AU
max. Earth dist.	8550 Jan 24 10:32	7° \approx 38'02	31.32956 AU	morning rise	8556 Feb 23 10:58	21° \approx 17'56	
				retrograde	8556 May 20 13:04	23° \approx 10'05	
conjunction	8550 Jan 25 04:23	7° \approx 39'41	1°04'17	opposition	8556 Aug 06 12:22	21° \approx 48'12	1°02'45
minimum elong	8550 Jan 25 04:23	7° \approx 39'41	1°04'26	min. Earth dist.	8556 Aug 07 06:56	21° \approx 46'56	29.34444 AU
morning rise	8550 Feb 09 21:15	8° \approx 14'26		direct	8556 Oct 26 08:49	20° \approx 23'42	
retrograde	8550 May 07 20:10	10° \approx 06'26		evening set	8557 Jan 24 13:26	22° \approx 19'04	
opposition	8550 Jul 24 18:38	8° \approx 44'25	1°08'22	max. Earth dist.	8557 Feb 08 11:25	22° \approx 52'07	31.34278 AU
min. Earth dist.	8550 Jul 25 11:19	8° \approx 43'17	29.33272 AU				
direct	8550 Oct 13 11:03	7° \approx 19'45		conjunction	8557 Feb 09 06:39	22° \approx 53'54	0°58'09
evening set	8551 Jan 11 19:44	9° \approx 15'07		minimum elong	8557 Feb 09 06:39	22° \approx 53'54	0°58'18
				morning rise	8557 Feb 24 21:08	23° \approx 28'31	
conjunction	8551 Jan 27 15:02	9° \approx 50'04	1°03'40	retrograde	8557 May 22 21:49	25° \approx 20'40	

opposition	8557 Aug 08 23:28	23° 58 '45	1°01'29	conjunction	8564 Feb 25 05:05	8° 05 '54	0°48'03
min. Earth dist.	8557 Aug 09 17:04	23° 57 '33	29.34179 AU	minimum elong	8564 Feb 25 05:05	8° 05 '54	0°48'07
direct	8557 Oct 28 21:30	22° 34 '14		max. Earth dist.	8564 Feb 24 12:04	8° 04 '19	31.33093 AU
evening set	8558 Jan 26 23:59	24° 29 '34		morning rise	8564 Mar 11 17:35	8° 40 '25	
				retrograde	8564 Jun 06 21:48	10° 32 '52	
conjunction	8558 Feb 11 16:48	25° 04 '23	0°56'57	opposition	8564 Aug 24 05:58	9° 10 '50	0°50'24
minimum elong	8558 Feb 11 16:48	25° 04 '23	0°57'03	min. Earth dist.	8564 Aug 24 21:16	9° 09 '48	29.33072 AU
max. Earth dist.	8558 Feb 10 21:20	25° 02 '34	31.33982 AU	direct	8564 Nov 13 03:05	7° 46 '29	
morning rise	8558 Feb 27 07:00	25° 38 '58		evening set	8565 Feb 11 00:38	9° 41 '40	
retrograde	8558 May 25 06:54	27° 31 '08					
opposition	8558 Aug 11 10:39	26° 09 '10	1°00'09	conjunction	8565 Feb 26 15:10	10° 16 '22	0°46'18
min. Earth dist.	8558 Aug 12 04:45	26° 07 '56	29.33879 AU	minimum elong	8565 Feb 26 15:10	10° 16 '22	0°46'23
direct	8558 Oct 31 07:29	24° 44 '38		max. Earth dist.	8565 Feb 25 22:39	10° 14 '50	31.32964 AU
evening set	8559 Jan 29 10:27	26° 39 '55		morning rise	8565 Mar 14 03:19	10° 50 '52	
max. Earth dist.	8559 Feb 13 08:38	27° 13 '00	31.33686 AU	retrograde	8565 Jun 09 08:34	12° 43 '24	
				opposition	8565 Aug 26 17:39	11° 21 '22	0°48'31
conjunction	8559 Feb 14 03:01	27° 14 '42	0°55'39	min. Earth dist.	8565 Aug 27 09:48	11° 20 '16	29.32903 AU
minimum elong	8559 Feb 14 03:02	27° 14 '42	0°55'47	direct	8565 Nov 15 14:24	9° 57 '03	
morning rise	8559 Mar 01 16:51	27° 49 '17		evening set	8566 Feb 13 10:51	11° 52 '13	
retrograde	8559 May 27 15:41	29° 41 '27		max. Earth dist.	8566 Feb 28 08:52	12° 25 '23	31.32744 AU
opposition	8559 Aug 13 21:39	28° 19 '27	0°58'44				
min. Earth dist.	8559 Aug 14 15:07	28° 18 '15	29.33592 AU	conjunction	8566 Mar 01 01:04	12° 26 '54	0°44'30
direct	8559 Nov 02 18:46	26° 54 '54		minimum elong	8566 Mar 01 01:04	12° 26 '54	0°44'33
evening set	8560 Jan 31 21:02	28° 50 '09		morning rise	8566 Mar 16 13:00	13° 01 '24	
				retrograde	8566 Jun 11 18:12	14° 53 '59	
conjunction	8560 Feb 16 13:06	29° 24 '55	0°54'17	opposition	8566 Aug 29 05:13	13° 31 '56	0°46'33
minimum elong	8560 Feb 16 13:07	29° 24 '55	0°54'23	min. Earth dist.	8566 Aug 29 20:20	13° 30 '55	29.32610 AU
max. Earth dist.	8560 Feb 15 18:11	29° 23 '09	31.33433 AU	direct	8566 Nov 18 03:03	12° 07 '39	
morning rise	8560 Mar 03 02:45	29° 59 '29		evening set	8567 Feb 15 21:14	14° 02 '48	
	8560 Mar 03 08:28	0° 51 '41					
retrograde	8560 May 29 02:21	1° 51 '41		conjunction	8567 Mar 03 11:06	14° 37 '28	0°42'38
opposition	8560 Aug 15 08:50	0° 29 '39	0°57'14	minimum elong	8567 Mar 03 11:06	14° 37 '28	0°42'42
min. Earth dist.	8560 Aug 16 01:51	0° 28 '29	29.33388 AU	max. Earth dist.	8567 Mar 02 18:25	14° 35 '55	31.32381 AU
	8560 Sep 02 19:53	30° 08 '00		morning rise	8567 Mar 18 22:50	15° 11 '58	
direct	8560 Nov 04 04:52	29° 05 '07		retrograde	8567 Jun 14 04:21	17° 04 '37	
	8561 Jan 02 22:12	0° 00 '20		opposition	8567 Aug 31 16:47	15° 42 '33	0°44'31
evening set	8561 Feb 02 07:18	1° 00 '20		min. Earth dist.	8567 Sep 01 08:29	15° 41 '29	29.32185 AU
				direct	8567 Nov 20 13:32	14° 18 '17	
conjunction	8561 Feb 17 23:11	1° 35 '05	0°52'50	evening set	8568 Feb 18 07:31	16° 13 '23	
minimum elong	8561 Feb 17 23:12	1° 35 '05	0°52'57				
max. Earth dist.	8561 Feb 17 05:52	1° 33 '28	31.33269 AU	conjunction	8568 Mar 04 21:13	16° 48 '03	0°40'42
morning rise	8561 Mar 05 12:21	2° 09 '37		minimum elong	8568 Mar 04 21:13	16° 48 '03	0°40'45
retrograde	8561 May 31 11:51	4° 01 '53		max. Earth dist.	8568 Mar 04 05:24	16° 46 '34	31.31886 AU
opposition	8561 Aug 17 20:07	2° 39 '50	0°55'39	morning rise	8568 Mar 20 08:37	17° 22 '32	
min. Earth dist.	8561 Aug 18 12:59	2° 38 '41	29.33259 AU	retrograde	8568 Jun 15 13:36	19° 15 '15	
direct	8561 Nov 06 16:36	1° 15 '20		opposition	8568 Sep 02 04:30	17° 53 '08	0°42'26
evening set	8562 Feb 04 17:43	3° 10 '32		min. Earth dist.	8568 Sep 02 19:48	17° 52 '06	29.31608 AU
				direct	8568 Nov 22 01:40	16° 28 '52	
conjunction	8562 Feb 20 09:07	3° 45 '16	0°51'19	evening set	8569 Feb 19 17:44	18° 23 '56	
minimum elong	8562 Feb 20 09:07	3° 45 '16	0°51'24				
max. Earth dist.	8562 Feb 19 15:11	3° 43 '36	31.33190 AU	conjunction	8569 Mar 07 06:59	18° 58 '35	0°38'43
morning rise	8562 Mar 07 22:11	4° 19 '48		minimum elong	8569 Mar 07 06:59	18° 58 '35	0°38'47
retrograde	8562 Jun 02 23:36	6° 12 '07		max. Earth dist.	8569 Mar 06 14:27	18° 57 '02	31.31252 AU
opposition	8562 Aug 20 07:16	4° 50 '04	0°53'59	morning rise	8569 Mar 22 18:19	19° 33 '04	
min. Earth dist.	8562 Aug 20 23:02	4° 49 '00	29.33208 AU	retrograde	8569 Jun 18 00:21	21° 25 '51	
direct	8562 Nov 09 02:39	3° 25 '37		opposition	8569 Sep 04 16:15	20° 03 '40	0°40'17
evening set	8563 Feb 07 03:53	5° 20 '49		min. Earth dist.	8569 Sep 05 07:15	20° 02 '39	29.30925 AU
				direct	8569 Nov 24 12:01	18° 39 '24	
conjunction	8563 Feb 22 19:08	5° 55 '32	0°49'43	evening set	8570 Feb 22 03:45	20° 34 '24	
minimum elong	8563 Feb 22 19:08	5° 55 '32	0°49'49				
max. Earth dist.	8563 Feb 22 02:28	5° 53 '59	31.33148 AU	conjunction	8570 Mar 09 16:55	21° 09 '03	0°36'41
morning rise	8563 Mar 10 07:48	6° 30 '04		minimum elong	8570 Mar 09 16:55	21° 09 '03	0°36'43
retrograde	8563 Jun 05 09:40	8° 22 '27		max. Earth dist.	8570 Mar 09 01:50	21° 07 '38	31.30526 AU
opposition	8563 Aug 22 18:41	7° 00 '25	0°52'14	morning rise	8570 Mar 25 03:53	21° 43 '32	
min. Earth dist.	8563 Aug 23 11:07	6° 59 '17	29.33160 AU	retrograde	8570 Jun 20 09:38	23° 36 '22	
direct	8563 Nov 11 14:10	5° 36 '00		opposition	8570 Sep 07 03:58	22° 14 '07	0°38'05
evening set	8564 Feb 09 14:17	7° 31 '12		min. Earth dist.	8570 Sep 07 19:00	22° 13 '06	29.30167 AU

direct	8570 Nov 26 23:38	20° ✕ 49'51		conjunction	8577 Mar 24 12:22	6° ° 22'40	0°21'07
evening set	8571 Feb 24 13:46	22° ✕ 44'47		minimum elong	8577 Mar 24 12:22	6° ° 22'40	0°21'07
max. Earth dist.	8571 Mar 11 10:57	23° ✕ 17'58	31.29768 AU	max. Earth dist.	8577 Mar 24 01:54	6° ° 21'42	31.26550 AU
				morning rise	8577 Apr 08 22:13	6° ° 57'10	
conjunction	8571 Mar 12 02:32	23° ✕ 19'25	0°34'36	retrograde	8577 Jul 05 13:59	8° ° 50'44	
minimum elong	8571 Mar 12 02:32	23° ✕ 19'25	0°34'38	opposition	8577 Sep 22 15:24	7° ° 28'19	0°21'17
morning rise	8571 Mar 27 13:31	23° ✕ 53'54		min. Earth dist.	8577 Sep 23 01:37	7° ° 27'37	29.26316 AU
retrograde	8571 Jun 22 21:12	25° ✕ 46'48		direct	8577 Dec 12 08:32	6° ° 04'22	
opposition	8571 Sep 09 15:38	24° ✕ 24'29	0°35'49	evening set	8578 Mar 11 11:01	7° ° 59'12	
min. Earth dist.	8571 Sep 10 05:22	24° ✕ 23'33	29.29416 AU				
direct	8571 Nov 29 09:48	23° ✕ 00'12		conjunction	8578 Mar 26 22:03	8° ° 33'48	0°18'45
evening set	8572 Feb 26 23:39	24° ✕ 55'07		minimum elong	8578 Mar 26 22:04	8° ° 33'48	0°18'43
				max. Earth dist.	8578 Mar 26 11:02	8° ° 32'46	31.26052 AU
conjunction	8572 Mar 13 12:14	25° ✕ 29'44	0°32'28	morning rise	8578 Apr 11 07:56	9° ° 08'18	
minimum elong	8572 Mar 13 12:14	25° ✕ 29'44	0°32'28	retrograde	8578 Jul 08 01:06	11° ° 01'59	
max. Earth dist.	8572 Mar 12 22:07	25° ✕ 28'24	31.29033 AU	opposition	8578 Sep 25 03:31	9° ° 39'33	0°18'43
morning rise	8572 Mar 28 22:51	26° ✕ 04'12		min. Earth dist.	8578 Sep 25 13:20	9° ° 38'53	29.25781 AU
retrograde	8572 Jun 24 07:13	27° ✕ 57'11		direct	8578 Dec 14 18:36	8° ° 15'39	
opposition	8572 Sep 11 03:31	26° ✕ 34'49	0°33'31	evening set	8579 Mar 13 20:57	10° ° 10'28	
min. Earth dist.	8572 Sep 11 17:27	26° ✕ 33'52	29.28721 AU				
direct	8572 Nov 30 21:23	25° ✕ 10'33		conjunction	8579 Mar 29 07:58	10° ° 45'04	0°16'20
evening set	8573 Feb 28 09:37	27° ✕ 05'26		minimum elong	8579 Mar 29 07:58	10° ° 45'04	0°16'19
				max. Earth dist.	8579 Mar 28 22:20	10° ° 44'10	31.25454 AU
conjunction	8573 Mar 15 21:51	27° ✕ 40'02	0°30'17	morning rise	8579 Apr 13 17:34	11° ° 19'35	
minimum elong	8573 Mar 15 21:51	27° ✕ 40'02	0°30'18	retrograde	8579 Jul 10 10:30	13° ° 13'23	
max. Earth dist.	8573 Mar 15 08:01	27° ✕ 38'45	31.28399 AU	opposition	8579 Sep 27 15:54	11° ° 50'55	0°16'08
morning rise	8573 Mar 31 08:23	28° ✕ 14'31		min. Earth dist.	8579 Sep 28 01:48	11° ° 50'15	29.25113 AU
	8573 Jun 05 13:15	0° °		direct	8579 Dec 17 05:53	10° ° 27'03	
retrograde	8573 Jun 26 19:38	0° ° 07'35		evening set	8580 Mar 15 07:04	12° ° 21'50	
	8573 Jul 18 07:16	30° ° ✕					
opposition	8573 Sep 13 15:20	28° ✕ 45'11	0°31'09	conjunction	8580 Mar 30 17:43	12° ° 56'26	0°13'55
min. Earth dist.	8573 Sep 14 03:26	28° ✕ 44'22	29.28135 AU	minimum elong	8580 Mar 30 17:43	12° ° 56'26	0°13'52
direct	8573 Dec 03 10:04	27° ✕ 20'58		behind sun begin	8580 Mar 30 14:17	12° ° 56'08	
evening set	8574 Mar 02 19:21	29° ✕ 15'50		behind sun end	8580 Mar 30 21:09	12° ° 56'45	
				max. Earth dist.	8580 Mar 30 07:25	12° ° 55'29	31.24724 AU
conjunction	8574 Mar 18 07:24	29° ✕ 50'26	0°28'03	morning rise	8580 Apr 15 03:21	13° ° 30'57	
minimum elong	8574 Mar 18 07:24	29° ✕ 50'26	0°28'03	retrograde	8580 Jul 11 22:40	15° ° 24'52	
max. Earth dist.	8574 Mar 17 18:32	29° ✕ 49'14	31.27860 AU	opposition	8580 Sep 29 04:15	14° ° 02'21	0°13'31
	8574 Mar 22 13:23	0° °		min. Earth dist.	8580 Sep 29 13:01	14° ° 01'46	29.24312 AU
morning rise	8574 Apr 02 17:44	0° ° 24'55		direct	8580 Dec 18 15:55	12° ° 38'30	
retrograde	8574 Jun 29 06:54	2° ° 18'06		evening set	8581 Mar 17 17:05	14° ° 33'14	
opposition	8574 Sep 16 03:18	0° ° 55'41	0°28'45				
min. Earth dist.	8574 Sep 16 15:42	0° ° 54'51	29.27644 AU	conjunction	8581 Apr 02 03:41	15° ° 07'50	0°11'28
	8574 Oct 23 09:43	30° ° ✕		minimum elong	8581 Apr 02 03:40	15° ° 07'50	0°11'25
direct	8574 Dec 05 21:03	29° ✕ 31'31		behind sun begin	8581 Apr 01 22:58	15° ° 07'25	
	8575 Jan 17 00:30	0° °		behind sun end	8581 Apr 02 08:23	15° ° 08'16	
evening set	8575 Mar 05 05:12	1° ° 26'23		max. Earth dist.	8581 Apr 01 18:23	15° ° 06'59	31.23848 AU
				morning rise	8581 Apr 17 13:05	15° ° 42'22	
conjunction	8575 Mar 20 17:04	2° ° 00'59	0°25'47	retrograde	8581 Jul 14 09:13	17° ° 36'23	
minimum elong	8575 Mar 20 17:04	2° ° 00'59	0°25'48	opposition	8581 Oct 01 16:48	16° ° 13'47	0°10'53
max. Earth dist.	8575 Mar 20 05:08	1° ° 59'53	31.27411 AU	min. Earth dist.	8581 Oct 02 02:08	16° ° 13'09	29.23372 AU
morning rise	8575 Apr 05 03:15	2° ° 35'28		direct	8581 Dec 21 03:43	14° ° 49'56	
retrograde	8575 Jul 01 16:50	4° ° 28'46		evening set	8582 Mar 20 03:00	16° ° 44'36	
opposition	8575 Sep 18 15:03	3° ° 06'22	0°26'18				
min. Earth dist.	8575 Sep 19 01:58	3° ° 05'37	29.27205 AU	conjunction	8582 Apr 04 13:23	17° ° 19'12	0°09'00
direct	8575 Dec 08 09:28	1° ° 42'16		minimum elong	8582 Apr 04 13:23	17° ° 19'12	0°08'56
evening set	8576 Mar 06 15:11	3° ° 37'08		behind sun begin	8582 Apr 04 07:52	17° ° 18'42	
				behind sun end	8582 Apr 04 18:55	17° ° 19'42	
conjunction	8576 Mar 22 02:43	4° ° 11'44	0°23'28	max. Earth dist.	8582 Apr 04 04:12	17° ° 18'21	31.22861 AU
minimum elong	8576 Mar 22 02:43	4° ° 11'44	0°23'27	morning rise	8582 Apr 19 22:51	17° ° 53'44	
max. Earth dist.	8576 Mar 21 14:45	4° ° 10'37	31.26984 AU	retrograde	8582 Jul 16 21:46	19° ° 47'50	
morning rise	8576 Apr 06 12:49	4° ° 46'13		opposition	8582 Oct 04 05:09	18° ° 25'08	0°08'15
retrograde	8576 Jul 03 04:00	6° ° 39'39		min. Earth dist.	8582 Oct 04 13:02	18° ° 24'36	29.22328 AU
opposition	8576 Sep 20 03:12	5° ° 17'14	0°23'49	direct	8582 Dec 23 16:16	17° ° 01'16	
min. Earth dist.	8576 Sep 20 14:09	5° ° 16'30	29.26784 AU	evening set	8583 Mar 22 12:57	18° ° 55'53	
direct	8576 Dec 09 20:14	3° ° 53'13					
evening set	8577 Mar 09 00:57	5° ° 48'04		conjunction	8583 Apr 06 23:11	19° ° 30'28	0°06'32

minimum elong	8583 Apr 06 23:11	19° Υ 30'28	0°06'29	max. Earth dist.	8588 Apr 16 19:57	0° \mathcal{B} 26'12	31.17133 AU
behind sun begin	8583 Apr 06 17:08	19° Υ 29'56		morning rise	8588 May 02 08:48	1° \mathcal{B} 01'07	
behind sun end	8583 Apr 07 05:14	19° Υ 31'01		retrograde	8588 Jul 29 15:14	2° \mathcal{B} 55'53	
max. Earth dist.	8583 Apr 06 14:34	19° Υ 29'41	31.21780 AU	opposition	8588 Oct 17 08:14	1° \mathcal{B} 32'50	-0°07'46
morning rise	8583 Apr 22 08:34	20° Υ 05'00		min. Earth dist.	8588 Oct 17 12:05	1° \mathcal{B} 32'35	29.16754 AU
retrograde	8583 Jul 19 08:59	21° Υ 59'11		direct	8589 Jan 05 14:32	0° \mathcal{B} 09'07	
opposition	8583 Oct 06 17:32	20° Υ 36'24	0°05'35	evening set	8589 Apr 04 00:00	2° \mathcal{B} 03'31	
min. Earth dist.	8583 Oct 07 01:53	20° Υ 35'50	29.21240 AU				
direct	8583 Dec 26 03:14	19° Υ 12'30		conjunction	8589 Apr 19 09:26	2° \mathcal{B} 38'08	-0°08'33
evening set	8584 Mar 23 22:48	21° Υ 07'03		minimum elong	8589 Apr 19 09:25	2° \mathcal{B} 38'08	0°08'39
				behind sun begin	8589 Apr 19 03:50	2° \mathcal{B} 37'38	
conjunction	8584 Apr 08 08:56	21° Υ 41'38	0°04'03	behind sun end	8589 Apr 19 15:01	2° \mathcal{B} 38'38	
minimum elong	8584 Apr 08 08:55	21° Υ 41'38	0°03'59	max. Earth dist.	8589 Apr 19 05:33	2° \mathcal{B} 37'48	31.16382 AU
behind sun begin	8584 Apr 08 02:36	21° Υ 41'04		morning rise	8589 May 04 18:43	3° \mathcal{B} 12'45	
behind sun end	8584 Apr 08 15:15	21° Υ 42'13		retrograde	8589 Aug 01 04:06	5° \mathcal{B} 07'41	
max. Earth dist.	8584 Apr 08 01:29	21° Υ 40'58	31.20703 AU	opposition	8589 Oct 19 20:55	3° \mathcal{B} 44'37	-0°10'25
morning rise	8584 Apr 23 18:12	22° Υ 16'11		min. Earth dist.	8589 Oct 19 23:18	3° \mathcal{B} 44'27	29.16001 AU
retrograde	8584 Jul 20 19:45	24° Υ 10'26		direct	8590 Jan 08 00:23	2° \mathcal{B} 20'57	
opposition	8584 Oct 08 05:59	22° Υ 47'34	0°02'56	evening set	8590 Apr 06 09:53	4° \mathcal{B} 15'22	
min. Earth dist.	8584 Oct 08 12:34	22° Υ 47'07	29.20179 AU				
direct	8584 Dec 27 16:39	21° Υ 23'40		conjunction	8590 Apr 21 19:20	4° \mathcal{B} 49'59	-0°11'01
evening set	8585 Mar 26 08:37	23° Υ 18'10		minimum elong	8590 Apr 21 19:20	4° \mathcal{B} 49'59	0°11'09
				behind sun begin	8590 Apr 21 14:31	4° \mathcal{B} 49'33	
conjunction	8585 Apr 10 18:28	23° Υ 52'45	0°01'32	behind sun end	8590 Apr 22 00:09	4° \mathcal{B} 50'25	
minimum elong	8585 Apr 10 18:28	23° Υ 52'45	0°01'28	max. Earth dist.	8590 Apr 21 16:41	4° \mathcal{B} 49'45	31.15602 AU
behind sun begin	8585 Apr 10 12:03	23° Υ 52'10		morning rise	8590 May 07 04:34	5° \mathcal{B} 24'38	
behind sun end	8585 Apr 11 00:53	23° Υ 53'19		retrograde	8590 Aug 03 15:14	7° \mathcal{B} 19'44	
max. Earth dist.	8585 Apr 10 11:11	23° Υ 52'05	31.19675 AU	opposition	8590 Oct 22 09:48	5° \mathcal{B} 56'38	-0°13'04
morning rise	8585 Apr 26 03:48	24° Υ 27'18		min. Earth dist.	8590 Oct 22 12:37	5° \mathcal{B} 56'27	29.15194 AU
retrograde	8585 Jul 23 07:44	26° Υ 21'40		direct	8591 Jan 10 11:34	4° \mathcal{B} 33'03	
opposition	8585 Oct 10 18:34	24° Υ 58'43	0°00'15	evening set	8591 Apr 08 20:01	6° \mathcal{B} 27'27	
min. Earth dist.	8585 Oct 11 00:48	24° Υ 58'18	29.19208 AU				
desc. node	8585 Nov 14 11:52	24° Υ 06'16		conjunction	8591 Apr 24 05:20	7° \mathcal{B} 02'05	-0°13'29
direct	8585 Dec 30 04:06	23° Υ 34'50		minimum elong	8591 Apr 24 05:20	7° \mathcal{B} 02'05	0°13'36
evening set	8586 Mar 28 18:21	25° Υ 29'17		behind sun begin	8591 Apr 24 01:43	7° \mathcal{B} 01'45	
				behind sun end	8591 Apr 24 08:57	7° \mathcal{B} 02'24	
conjunction	8586 Apr 13 04:15	26° Υ 03'53	-0°01'03	max. Earth dist.	8591 Apr 24 02:55	7° \mathcal{B} 01'52	31.14760 AU
minimum elong	8586 Apr 13 04:14	26° Υ 03'53	0°01'08	morning rise	8591 May 09 14:37	7° \mathcal{B} 36'44	
behind sun begin	8586 Apr 12 21:50	26° Υ 03'18		retrograde	8591 Aug 06 04:31	9° \mathcal{B} 31'59	
behind sun end	8586 Apr 13 10:39	26° Υ 04'27		opposition	8591 Oct 24 22:31	8° \mathcal{B} 08'53	-0°15'42
max. Earth dist.	8586 Apr 12 22:48	26° Υ 03'24	31.18751 AU	min. Earth dist.	8591 Oct 24 23:53	8° \mathcal{B} 08'47	29.14298 AU
morning rise	8586 Apr 28 13:24	26° Υ 38'27		direct	8592 Jan 12 23:14	6° \mathcal{B} 45'19	
retrograde	8586 Jul 25 17:52	28° Υ 32'55		evening set	8592 Apr 10 06:15	8° \mathcal{B} 39'44	
opposition	8586 Oct 13 06:56	27° Υ 09'56	-0°02'25				
min. Earth dist.	8586 Oct 13 12:01	27° Υ 09'35	29.18322 AU	conjunction	8592 Apr 25 15:27	9° \mathcal{B} 14'22	-0°15'56
direct	8587 Jan 01 16:50	25° Υ 46'05		minimum elong	8592 Apr 25 15:27	9° \mathcal{B} 14'22	0°16'03
evening set	8587 Mar 31 04:16	27° Υ 40'31		behind sun begin	8592 Apr 25 14:32	9° \mathcal{B} 14'17	
				behind sun end	8592 Apr 25 16:22	9° \mathcal{B} 14'27	
conjunction	8587 Apr 15 13:54	28° Υ 15'06	-0°03'35	max. Earth dist.	8592 Apr 25 13:22	9° \mathcal{B} 14'11	31.13801 AU
minimum elong	8587 Apr 15 13:54	28° Υ 15'06	0°03'40	morning rise	8592 May 11 00:45	9° \mathcal{B} 49'03	
behind sun begin	8587 Apr 15 07:32	28° Υ 14'32		retrograde	8592 Aug 07 16:54	11° \mathcal{B} 44'27	
behind sun end	8587 Apr 15 20:15	28° Υ 15'41		opposition	8592 Oct 26 11:38	10° \mathcal{B} 21'18	-0°18'18
max. Earth dist.	8587 Apr 15 08:17	28° Υ 14'36	31.17914 AU	min. Earth dist.	8592 Oct 26 13:35	10° \mathcal{B} 21'10	29.13285 AU
morning rise	8587 Apr 30 23:13	28° Υ 49'42		direct	8593 Jan 14 09:33	8° \mathcal{B} 57'46	
	8587 Jun 05 20:13	0° \mathcal{B}		evening set	8593 Apr 12 16:19	10° \mathcal{B} 52'10	
retrograde	8587 Jul 28 05:28	0° \mathcal{B} 44'19					
	8587 Sep 21 02:40	30° \mathcal{R} Υ		conjunction	8593 Apr 28 01:34	11° \mathcal{B} 26'49	-0°18'21
opposition	8587 Oct 15 19:30	29° Υ 21'17	-0°05'05	minimum elong	8593 Apr 28 01:34	11° \mathcal{B} 26'49	0°18'28
min. Earth dist.	8587 Oct 15 23:42	29° Υ 21'00	29.17523 AU	max. Earth dist.	8593 Apr 28 00:23	11° \mathcal{B} 26'43	31.12723 AU
direct	8588 Jan 04 03:05	27° Υ 57'29		morning rise	8593 May 13 10:52	12° \mathcal{B} 01'31	
evening set	8588 Apr 01 14:00	29° Υ 51'54		retrograde	8593 Aug 10 05:03	13° \mathcal{B} 57'03	
	8588 Apr 05 05:31	0° \mathcal{B}		opposition	8593 Oct 29 00:36	12° \mathcal{B} 33'50	-0°20'53
				min. Earth dist.	8593 Oct 29 01:12	12° \mathcal{B} 33'47	29.12129 AU
conjunction	8588 Apr 16 23:40	0° \mathcal{B} 26'31	-0°06'04	direct	8594 Jan 16 23:14	11° \mathcal{B} 10'19	
minimum elong	8588 Apr 16 23:40	0° \mathcal{B} 26'31	0°06'11	evening set	8594 Apr 15 02:37	13° \mathcal{B} 04'40	
behind sun begin	8588 Apr 16 17:35	0° \mathcal{B} 25'58					
behind sun end	8588 Apr 17 05:45	0° \mathcal{B} 27'04		conjunction	8594 Apr 30 11:43	13° \mathcal{B} 39'20	-0°20'45

minimum elong	8594 Apr 30 11:43	13° 8 39'20 0°20'53	opposition	8600 Nov 14 19:14	28° 8 01'22 -0°37'52
max. Earth dist.	8594 Apr 30 10:06	13° 8 39'11 31.11502 AU	min. Earth dist.	8600 Nov 14 14:07	28° 8 01'43 29.03740 AU
morning rise	8594 May 15 21:13	14° 8 14'03	direct	8601 Feb 02 09:39	26° 8 37'49
	8594 Jun 06 21:28	15° 8	evening set	8601 May 01 01:26	28° 8 31'55
retrograde	8594 Aug 12 18:36	16° 8 09'41			
	8594 Oct 23 04:18	15° 8	conjunction	8601 May 16 10:39	29° 8 06'39 -0°36'29
opposition	8594 Oct 31 13:30	14° 8 46'23 -0°23'26	minimum elong	8601 May 16 10:39	29° 8 06'39 0°36'39
min. Earth dist.	8594 Oct 31 14:17	14° 8 46'20 29.10858 AU	max. Earth dist.	8601 May 16 15:14	29° 8 07'05 31.03277 AU
direct	8595 Jan 19 11:16	13° 8 22'51	morning rise	8601 May 31 20:55	29° 8 41'31
	8595 Apr 09 15:22	15° 8		8601 Jun 09 08:19	0° II
evening set	8595 Apr 17 12:43	15° 8 17'10	retrograde	8601 Aug 29 03:09	1° II 37'59
			opposition	8601 Nov 17 08:22	0° II 14'09 -0°40'07
conjunction	8595 May 02 21:58	15° 8 51'51 -0°23'07	min. Earth dist.	8601 Nov 17 03:33	0° II 14'29 29.02856 AU
minimum elong	8595 May 02 21:58	15° 8 51'51 0°23'15		8601 Nov 26 00:30	30° 8
max. Earth dist.	8595 May 02 21:53	15° 8 51'50 31.10185 AU			
morning rise	8595 May 18 07:25	16° 8 26'35			
retrograde	8595 Aug 15 05:19	18° 8 22'19			
opposition	8595 Nov 03 02:28	16° 8 58'54 -0°25'56			
min. Earth dist.	8595 Nov 03 02:20	16° 8 58'55 29.09506 AU			
direct	8596 Jan 22 00:50	15° 8 35'21			
evening set	8596 Apr 18 22:50	17° 8 29'37			
conjunction	8596 May 04 07:53	18° 8 04'17 -0°25'26			
minimum elong	8596 May 04 07:53	18° 8 04'17 0°25'36			
max. Earth dist.	8596 May 04 07:35	18° 8 04'16 31.08829 AU			
morning rise	8596 May 19 17:35	18° 8 39'03			
retrograde	8596 Aug 16 17:05	20° 8 34'53			
opposition	8596 Nov 04 15:29	19° 8 11'22 -0°28'25			
min. Earth dist.	8596 Nov 04 14:31	19° 8 11'26 29.08171 AU			
direct	8597 Jan 23 12:07	17° 8 47'47			
evening set	8597 Apr 21 08:53	19° 8 41'59			
conjunction	8597 May 06 18:04	20° 8 16'41 -0°27'44			
minimum elong	8597 May 06 18:04	20° 8 16'41 0°27'53			
max. Earth dist.	8597 May 06 19:42	20° 8 16'50 31.07514 AU			
morning rise	8597 May 22 03:42	20° 8 51'27			
retrograde	8597 Aug 19 02:55	22° 8 47'24			
opposition	8597 Nov 07 04:26	21° 8 23'47 -0°30'51			
min. Earth dist.	8597 Nov 07 02:56	21° 8 23'53 29.06901 AU			
direct	8598 Jan 26 00:45	20° 8 00'12			
evening set	8598 Apr 23 19:00	21° 8 54'21			
conjunction	8598 May 09 04:06	22° 8 29'04 -0°29'59			
minimum elong	8598 May 09 04:06	22° 8 29'04 0°30'09			
max. Earth dist.	8598 May 09 05:48	22° 8 29'13 31.06301 AU			
morning rise	8598 May 24 14:00	23° 8 03'51			
retrograde	8598 Aug 21 15:55	24° 8 59'55			
opposition	8598 Nov 09 17:18	23° 8 36'14 -0°33'14			
min. Earth dist.	8598 Nov 09 14:06	23° 8 36'27 29.05744 AU			
direct	8599 Jan 28 11:40	22° 8 12'38			
evening set	8599 Apr 26 05:06	24° 8 06'46			
conjunction	8599 May 11 14:17	24° 8 41'29 -0°32'12			
minimum elong	8599 May 11 14:17	24° 8 41'29 0°32'21			
max. Earth dist.	8599 May 11 17:23	24° 8 41'46 31.05189 AU			
morning rise	8599 May 27 00:11	25° 8 16'18			
retrograde	8599 Aug 24 01:57	27° 8 12'29			
opposition	8599 Nov 12 06:17	25° 8 48'44 -0°35'35			
min. Earth dist.	8599 Nov 12 03:05	25° 8 48'57 29.04690 AU			
direct	8600 Jan 30 22:48	24° 8 25'10			
evening set	8600 Apr 28 15:18	26° 8 19'16			
conjunction	8600 May 14 00:30	26° 8 54'00 -0°34'22			
minimum elong	8600 May 14 00:30	26° 8 54'00 0°34'32			
max. Earth dist.	8600 May 14 04:22	26° 8 54'22 31.04197 AU			
morning rise	8600 May 29 10:34	27° 8 28'50			
retrograde	8600 Aug 26 14:44	29° 8 25'09			