direct	1600 Jan 05 11:59	21°♈16'49	
conjunction	1600 Apr 12 11:57	22°♈44'24	-16°40'28
minimum elong	1600 Apr 12 12:02	22°♈44'24	16°40'28
max. Earth dist.	1600 Apr 14 03:56	22°♈46'44	49.60105 AU
retrograde	1600 Jul 24 11:53	24°♈15'49	
min. Earth dist.	1600 Oct 14 19:21	23°♈16'58	47.72344 AU
opposition	1600 Oct 16 09:18	23°♈15'10	-17°20'37
direct	1601 Jan 05 14:56	22°♈15'51	
conjunction	1601 Apr 13 17:49	23°♈43'16	-16°38'12
minimum elong	1601 Apr 13 17:55	23°♈43'16	16°38'11
max. Earth dist.	1601 Apr 15 08:53	23°♈45'32	49.66939 AU
retrograde	1601 Jul 25 18:21	25°♈14'28	
min. Earth dist.	1601 Oct 16 02:33	24°♈15'36	47.78994 AU
opposition	1601 Oct 17 14:48	24°♈13'53	-17°18'03
direct	1602 Jan 06 18:30	23°♈14'37	
conjunction	1602 Apr 14 23:42	24°♈41'51	-16°35'38
minimum elong	1602 Apr 14 23:48	24°♈41'51	16°35'38
max. Earth dist.	1602 Apr 16 14:39	24°♈44'06	49.73488 AU
retrograde	1602 Jul 26 20:21	26°♈12'52	
min. Earth dist.	1602 Oct 17 08:01	25°♈14'03	47.85345 AU
opposition	1602 Oct 18 20:04	25°♈12'21	-17°15'11
direct	1603 Jan 08 02:48	24°♈13'08	
conjunction	1603 Apr 16 05:26	25°♈40'13	-16°32'48
minimum elong	1603 Apr 16 05:33	25°♈40'13	16°32'47
max. Earth dist.	1603 Apr 17 18:30	25°♈42'22	49.79749 AU
retrograde	1603 Jul 28 01:05	27°♈11'04	
min. Earth dist.	1603 Oct 18 14:00	26°♈12'17	47.91417 AU
opposition	1603 Oct 20 01:15	26°♈10'37	-17°12'02
direct	1604 Jan 09 09:19	25°♈11'28	
conjunction	1604 Apr 16 11:11	26°♈38'25	-16°29'41
minimum elong	1604 Apr 16 11:17	26°♈38'26	16°29'41
max. Earth dist.	1604 Apr 18 00:26	26°♈40'34	49.85724 AU
retrograde	1604 Jul 28 07:16	28°♈09'07	
min. Earth dist.	1604 Oct 18 20:42	27°♈10'22	47.97179 AU
opposition	1604 Oct 20 06:30	27°♈08'45	-17°08'36
direct	1605 Jan 09 15:18	26°♈09'42	
conjunction	1605 Apr 17 16:43	27°♈36'31	-16°26'17
minimum elong	1605 Apr 17 16:51	27°♈36'31	16°26'17
max. Earth dist.	1605 Apr 19 04:34	27°♈38'34	49.91392 AU
retrograde	1605 Jul 29 14:53	29°♈07'05	
min. Earth dist.	1605 Oct 20 01:49	28°♈08'24	48.02603 AU
opposition	1605 Oct 21 11:37	28°♈06'49	-17°04'53
direct	1606 Jan 10 18:16	27°♈07'49	
conjunction	1606 Apr 18 22:25	28°♈34'32	-16°22'38
minimum elong	1606 Apr 18 22:31	28°♈34'32	16°22'38
max. Earth dist.	1606 Apr 20 08:59	28°♈36'31	49.96678 AU
	1606 Jul 08 23:15	0°♉	
retrograde	1606 Jul 30 20:55	0°♉04'58	
	1606 Aug 21 17:53	30°♓℞	
min. Earth dist.	1606 Oct 21 09:05	29°♈06'17	48.07619 AU
opposition	1606 Oct 22 16:41	29°♈04'48	-17°00'55
direct	1607 Jan 11 22:17	28°♈05'54	
conjunction	1607 Apr 20 04:15	29°♈32'31	-16°18'44
minimum elong	1607 Apr 20 04:24	29°♈32'31	16°18'44
max. Earth dist.	1607 Apr 21 14:17	29°♈34'28	50.01531 AU
	1607 May 10 10:28	0°♉	
retrograde	1607 Jul 31 23:49	1°♉02'49	
opposition	1607 Oct 23 21:39	0°♉02'44	-16°56'42
min. Earth dist.	1607 Oct 22 14:47	0°♉04'12	48.12150 AU
	1607 Oct 26 07:44	30°♓℞	
direct	1608 Jan 13 04:58	29°♈03'54	
	1608 Mar 28 19:48	0°♉	
conjunction	1608 Apr 20 09:46	0°♉30'25	-16°14'36
minimum elong	1608 Apr 20 09:54	0°♉30'26	16°14'36
max. Earth dist.	1608 Apr 21 17:19	0°♉32'14	50.05873 AU
retrograde	1608 Aug 01 05:32	2°♉00'37	
min. Earth dist.	1608 Oct 22 21:15	1°♉02'00	48.16158 AU
opposition	1608 Oct 24 02:44	1°♉00'36	-16°52'15
direct	1609 Jan 13 10:27	0°♉01'50	
conjunction	1609 Apr 21 15:31	1°♉28'15	-16°10'15
minimum elong	1609 Apr 21 15:40	1°♉28'15	16°10'16
max. Earth dist.	1609 Apr 22 22:32	1°♉30'01	50.09680 AU
retrograde	1609 Aug 02 10:38	2°♉58'20	
min. Earth dist.	1609 Oct 24 04:01	1°♉59'40	48.19620 AU
opposition	1609 Oct 25 07:39	1°♉58'22	-16°47'35
direct	1610 Jan 14 17:06	0°♉59'38	
conjunction	1610 Apr 22 21:06	2°♉25'56	-16°05'41
minimum elong	1610 Apr 22 21:14	2°♉25'57	16°05'40
max. Earth dist.	1610 Apr 24 02:12	2°♉27'36	50.12973 AU
retrograde	1610 Aug 03 18:23	3°♉55'53	
min. Earth dist.	1610 Oct 25 09:14	2°♉57'15	48.22580 AU
opposition	1610 Oct 26 12:26	2°♉55'59	-16°42'41
direct	1611 Jan 15 19:43	1°♉57'16	
conjunction	1611 Apr 24 02:38	3°♉23'28	-16°00'53
minimum elong	1611 Apr 24 02:46	3°♉23'29	16°00'53
max. Earth dist.	1611 Apr 25 06:22	3°♉25'03	50.15771 AU
retrograde	1611 Aug 05 01:18	4°♉53'17	
opposition	1611 Oct 27 17:10	3°♉53'25	-16°37'32
min. Earth dist.	1611 Oct 26 16:08	3°♉54'36	48.25082 AU
direct	1612 Jan 16 22:00	2°♉54'43	
conjunction	1612 Apr 24 08:07	4°♉20'51	-15°55'50
minimum elong	1612 Apr 24 08:16	4°♉20'51	15°55'49
max. Earth dist.	1612 Apr 25 11:25	4°♉22'24	50.18160 AU
retrograde	1612 Aug 05 03:21	5°♉50'32	
opposition	1612 Oct 27 21:47	4°♉50'42	-16°32'09
min. Earth dist.	1612 Oct 26 20:58	4°♉51'52	48.27189 AU
direct	1613 Jan 17 05:02	3°♉52'01	
conjunction	1613 Apr 25 13:17	5°♉18'03	-15°50'32
minimum elong	1613 Apr 25 13:26	5°♉18'04	15°50'32
max. Earth dist.	1613 Apr 26 14:38	5°♉19'30	50.20181 AU
retrograde	1613 Aug 06 06:40	6°♉47'39	
min. Earth dist.	1613 Oct 28 02:49	5°♉48'57	48.28958 AU
opposition	1613 Oct 29 02:29	5°♉47'50	-16°26'30
direct	1614 Jan 18 11:41	4°♉49'11	
conjunction	1614 Apr 26 18:44	6°♉15'09	-15°45'00
minimum elong	1614 Apr 26 18:54	6°♉15'09	15°44'59
max. Earth dist.	1614 Apr 27 20:09	6°♉16'36	50.21874 AU
retrograde	1614 Aug 07 11:32	7°♉44'38	
min. Earth dist.	1614 Oct 29 08:38	6°♉45'56	48.30400 AU
opposition	1614 Oct 30 06:58	6°♉44'53	-16°20'35
direct	1615 Jan 19 18:12	5°♉46'15	
conjunction	1615 Apr 28 00:03	7°♉12'09	-15°39'11
minimum elong	1615 Apr 28 00:12	7°♉12'09	15°39'12
max. Earth dist.	1615 Apr 28 23:54	7°♉13'30	50.23269 AU

retrograde	1615 Aug 08 19:22	8°♉41'33	
opposition	1615 Oct 31 11:28	7°♉41'51	-16°14'24
min. Earth dist.	1615 Oct 30 13:06	7°♉42'54	48.31544 AU
direct	1616 Jan 20 20:42	6°♉43'15	
conjunction	1616 Apr 28 05:10	8°♉09'05	-15°33'08
minimum elong	1616 Apr 28 05:21	8°♉09'06	15°33'08
max. Earth dist.	1616 Apr 29 04:01	8°♉10'23	50.24349 AU
retrograde	1616 Aug 09 01:24	9°♉38'26	
opposition	1616 Oct 31 16:06	8°♉38'46	-16°07'58
min. Earth dist.	1616 Oct 30 19:34	8°♉39'44	48.32369 AU
direct	1617 Jan 20 23:23	7°♉40'13	
conjunction	1617 Apr 29 10:31	9°♉06'01	-15°26'49
minimum elong	1617 Apr 29 10:40	9°♉06'02	15°26'50
max. Earth dist.	1617 Apr 30 09:06	9°♉07'18	50.25116 AU
retrograde	1617 Aug 10 04:29	10°♉35'17	
opposition	1617 Nov 01 20:29	9°♉35'41	-16°01'16
min. Earth dist.	1617 Nov 01 00:21	9°♉36'37	48.32842 AU
direct	1618 Jan 22 04:25	8°♉37'10	
conjunction	1618 Apr 30 15:45	10°♉02'57	-15°20'17
minimum elong	1618 Apr 30 15:56	10°♉02'58	15°20'17
max. Earth dist.	1618 May 01 12:06	10°♉04'06	50.25502 AU
retrograde	1618 Aug 11 09:04	11°♉32'10	
min. Earth dist.	1618 Nov 02 06:16	10°♉33'29	48.32909 AU
opposition	1618 Nov 03 00:59	10°♉32'37	-15°54'20
direct	1619 Jan 23 09:41	9°♉34'07	
conjunction	1619 May 01 21:13	10°♉59'53	-15°13'30
minimum elong	1619 May 01 21:22	10°♉59'54	15°13'29
max. Earth dist.	1619 May 02 17:04	11°♉01'01	50.25434 AU
retrograde	1619 Aug 12 12:30	12°♉29'03	
opposition	1619 Nov 04 05:22	11°♉29'33	-15°47'11
min. Earth dist.	1619 Nov 03 12:25	11°♉30'21	48.32481 AU
direct	1620 Jan 24 16:33	10°♉31'05	
conjunction	1620 May 02 02:35	11°♉56'49	-15°06'30
minimum elong	1620 May 02 02:46	11°♉56'49	15°06'31
max. Earth dist.	1620 May 02 20:28	11°♉57'50	50.24866 AU
retrograde	1620 Aug 12 19:41	13°♉25'56	
opposition	1620 Nov 04 09:48	12°♉26'27	-15°39'49
min. Earth dist.	1620 Nov 03 17:28	12°♉27'13	48.31527 AU
direct	1621 Jan 24 20:03	11°♉27'59	
evening set	1621 May 02 16:48	12°♉52'50	
conjunction	1621 May 03 07:51	12°♉53'41	-14°59'18
minimum elong	1621 May 03 08:01	12°♉53'42	14°59'18
evening rise	1621 May 03 23:17	12°♉54'33	
max. Earth dist.	1621 May 04 00:02	12°♉54'36	50.23744 AU
retrograde	1621 Aug 14 03:37	14°♉22'45	
opposition	1621 Nov 05 14:23	13°♉23'16	-15°32'13
min. Earth dist.	1621 Nov 05 00:23	13°♉23'55	48.30019 AU
direct	1622 Jan 25 22:04	12°♉24'47	
evening set	1622 May 02 09:57	13°♉47'33	
conjunction	1622 May 04 13:20	13°♉50'27	-14°51'54
minimum elong	1622 May 04 13:31	13°♉50'28	14°51'54
max. Earth dist.	1622 May 05 04:42	13°♉51'19	50.22094 AU
morning rise	1622 May 06 17:10	13°♉53'23	
	1622 Jul 02 06:37	15°♉	
retrograde	1622 Aug 15 06:53	15°♉19'26	
	1622 Sep 28 15:36	15°℞♉	
opposition	1622 Nov 06 18:35	14°♉19'57	-15°24'25
min. Earth dist.	1622 Nov 06 05:11	14°♉20'35	48.27985 AU
direct	1623 Jan 27 03:19	13°♉21'27	
evening set	1623 May 02 19:01	14°♉43'02	
conjunction	1623 May 05 18:35	14°♉47'05	-14°44'16
minimum elong	1623 May 05 18:46	14°♉47'06	14°44'16
max. Earth dist.	1623 May 06 07:36	14°♉47'49	50.19944 AU
morning rise	1623 May 08 18:39	14°♉51'09	
	1623 May 15 07:55	15°♉	
retrograde	1623 Aug 16 10:14	16°♉16'00	
opposition	1623 Nov 07 22:58	15°♉16'30	-15°16'24
min. Earth dist.	1623 Nov 07 11:05	15°♉17'04	48.25496 AU
	1623 Nov 22 19:19	15°℞♉	
direct	1624 Jan 28 09:06	14°♉17'58	
	1624 Apr 02 07:06	15°♉	
evening set	1624 May 02 08:15	15°♉38'38	
conjunction	1624 May 05 23:45	15°♉43'35	-14°36'25
minimum elong	1624 May 05 23:56	15°♉43'35	14°36'26
max. Earth dist.	1624 May 06 12:36	15°♉44'18	50.17358 AU
morning rise	1624 May 09 15:46	15°♉48'33	
retrograde	1624 Aug 16 13:03	17°♉12'27	
opposition	1624 Nov 08 03:16	16°♉12'56	-15°08'08
min. Earth dist.	1624 Nov 07 16:44	16°♉13'26	48.22593 AU
direct	1625 Jan 28 16:21	15°♉14'22	
evening set	1625 May 02 23:46	16°♉34'15	
conjunction	1625 May 07 04:56	16°♉39'58	-14°28'20
minimum elong	1625 May 07 05:07	16°♉39'58	14°28'20
max. Earth dist.	1625 May 07 16:11	16°♉40'36	50.14412 AU
morning rise	1625 May 11 10:41	16°♉45'43	
retrograde	1625 Aug 17 19:48	18°♉08'48	
opposition	1625 Nov 09 07:22	17°♉09'17	-14°59'37
min. Earth dist.	1625 Nov 08 20:58	17°♉09'46	48.19355 AU
direct	1626 Jan 29 19:27	16°♉10'41	
evening set	1626 May 03 16:38	17°♉29'53	
conjunction	1626 May 08 10:09	17°♉36'17	-14°20'01
minimum elong	1626 May 08 10:20	17°♉36'17	14°20'01
max. Earth dist.	1626 May 08 20:15	17°♉36'51	50.11133 AU
morning rise	1626 May 13 04:18	17°♉42'43	
retrograde	1626 Aug 19 01:59	19°♉05'06	
opposition	1626 Nov 10 11:41	18°♉05'35	-14°50'51
min. Earth dist.	1626 Nov 10 03:11	18°♉05'59	48.15802 AU
direct	1627 Jan 30 22:10	17°♉06'57	
evening set	1627 May 04 10:37	18°♉25'33	
conjunction	1627 May 09 15:24	18°♉32'35	-14°11'26
minimum elong	1627 May 09 15:37	18°♉32'36	14°11'26
max. Earth dist.	1627 May 10 01:20	18°♉33'09	50.07566 AU
morning rise	1627 May 14 20:51	18°♉39'39	
retrograde	1627 Aug 20 05:28	20°♉01'23	
opposition	1627 Nov 11 15:46	19°♉01'53	-14°41'50
min. Earth dist.	1627 Nov 11 07:19	19°♉02'16	48.11958 AU
direct	1628 Feb 01 02:50	18°♉03'15	
evening set	1628 May 04 05:12	19°♉21'17	
conjunction	1628 May 09 20:31	19°♉28'56	-14°02'37
minimum elong	1628 May 09 20:42	19°♉28'56	14°02'37
max. Earth dist.	1628 May 10 04:23	19°♉29'22	50.03717 AU
morning rise	1628 May 15 12:36	19°♉36'36	
retrograde	1628 Aug 20 09:46	20°♉57'44	
opposition	1628 Nov 11 20:03	19°♉58'15	-14°32'33
min. Earth dist.	1628 Nov 11 12:45	19°♉58'36	48.07838 AU
direct	1629 Feb 01 07:38	18°♉59'38	
evening set	1629 May 05 00:23	20°♉17'10	
conjunction	1629 May 11 01:44	20°♉25'22	-13°53'32
minimum elong	1629 May 11 01:57	20°♉25'23	13°53'32
max. Earth dist.	1629 May 11 09:37	20°♉25'49	49.99573 AU
morning rise	1629 May 17 03:51	20°♉33'36	

retrograde	1629 Aug 21 13:16	21°♉54'13	
opposition	1629 Nov 13 00:20	20°♉54'46	-14°23'01
min. Earth dist.	1629 Nov 12 18:18	20°♉55'03	48.03388 AU
direct	1630 Feb 02 13:53	19°♉56'08	
evening set	1630 May 05 20:21	21°♉13'14	
conjunction	1630 May 12 07:05	21°♉21'57	-13°44'14
minimum elong	1630 May 12 07:16	21°♉21'57	13°44'14
max. Earth dist.	1630 May 12 13:19	21°♉22'18	49.95092 AU
morning rise	1630 May 18 18:37	21°♉30'44	
retrograde	1630 Aug 22 20:18	22°♉50'51	
opposition	1630 Nov 14 04:25	21°♉51'26	-14°13'15
min. Earth dist.	1630 Nov 13 22:55	21°♉51'41	47.98571 AU
direct	1631 Feb 03 17:09	20°♉52'48	
evening set	1631 May 06 16:43	22°♉09'28	
conjunction	1631 May 13 12:30	22°♉18'42	-13°34'42
minimum elong	1631 May 13 12:43	22°♉18'43	13°34'42
max. Earth dist.	1631 May 13 17:11	22°♉18'58	49.90188 AU
morning rise	1631 May 20 09:14	22°♉28'00	
retrograde	1631 Aug 24 04:55	23°♉47'39	
opposition	1631 Nov 15 08:49	22°♉48'15	-14°03'15
min. Earth dist.	1631 Nov 15 05:34	22°♉48'24	47.93302 AU
direct	1632 Feb 04 18:26	21°♉49'37	
evening set	1632 May 06 13:27	23°♉05'52	
conjunction	1632 May 13 17:54	23°♉15'36	-13°24'56
minimum elong	1632 May 13 18:05	23°♉15'37	13°24'56
max. Earth dist.	1632 May 13 21:52	23°♉15'50	49.84813 AU
morning rise	1632 May 20 23:10	23°♉25'23	
retrograde	1632 Aug 24 10:00	24°♉44'36	
opposition	1632 Nov 15 13:09	23°♉45'12	-13°53'01
min. Earth dist.	1632 Nov 15 10:24	23°♉45'20	47.87523 AU
direct	1633 Feb 04 22:02	22°♉46'33	
evening set	1633 May 07 10:41	24°♉02'24	
conjunction	1633 May 14 23:22	24°♉12'36	-13°14'58
minimum elong	1633 May 14 23:34	24°♉12'37	13°14'59
max. Earth dist.	1633 May 15 00:46	24°♉12'41	49.78914 AU
morning rise	1633 May 22 13:06	24°♉22'52	
retrograde	1633 Aug 25 14:00	25°♉41'39	
opposition	1633 Nov 16 17:31	24°♉42'13	-13°42'35
min. Earth dist.	1633 Nov 16 16:37	24°♉42'16	47.81224 AU
direct	1634 Feb 06 03:35	23°♉43'31	
evening set	1634 May 08 08:11	24°♉59'00	
conjunction	1634 May 16 05:02	25°♉09'39	-13°04'48
minimum elong	1634 May 16 05:13	25°♉09'40	13°04'48
max. Earth dist.	1634 May 16 05:46	25°♉09'42	49.72493 AU
morning rise	1634 May 24 02:47	25°♉20'22	
retrograde	1634 Aug 26 15:38	26°♉38'44	
opposition	1634 Nov 17 21:54	25°♉39'16	-13°31'56
min. Earth dist.	1634 Nov 17 22:31	25°♉39'15	47.74404 AU
direct	1635 Feb 07 12:04	24°♉40'31	
evening set	1635 May 09 06:01	25°♉55'38	
conjunction	1635 May 17 10:30	26°♉06'43	-12°54'24
minimum elong	1635 May 17 10:41	26°♉06'44	12°54'25
max. Earth dist.	1635 May 17 09:21	26°♉06'39	49.65590 AU
morning rise	1635 May 25 16:01	26°♉17'53	
retrograde	1635 Aug 27 22:01	27°♉35'49	
opposition	1635 Nov 19 02:07	26°♉36'19	-13°21'03
min. Earth dist.	1635 Nov 19 03:14	26°♉36'16	47.67131 AU
direct	1636 Feb 08 16:14	25°♉37'30	
evening set	1636 May 09 03:55	26°♉52'15	
conjunction	1636 May 17 15:59	27°♉03'46	-12°43'47
minimum elong	1636 May 17 16:11	27°♉03'46	12°43'47
max. Earth dist.	1636 May 17 13:29	27°♉03'37	49.58249 AU
morning rise	1636 May 26 05:09	27°♉15'22	
retrograde	1636 Aug 28 05:06	28°♉32'55	
opposition	1636 Nov 19 06:32	27°♉33'22	-13°09'55
min. Earth dist.	1636 Nov 19 09:42	27°♉33'13	47.59459 AU
direct	1637 Feb 08 18:50	26°♉34'27	
evening set	1637 May 10 02:04	27°♉48'51	
conjunction	1637 May 18 21:29	28°♉00'48	-12°32'56
minimum elong	1637 May 18 21:40	28°♉00'49	12°32'56
max. Earth dist.	1637 May 18 18:39	28°♉00'38	49.50548 AU
morning rise	1637 May 27 17:53	28°♉12'49	
retrograde	1637 Aug 29 10:03	29°♉29'59	
opposition	1637 Nov 20 10:50	28°♉30'23	-12°58'33
min. Earth dist.	1637 Nov 20 14:10	28°♉30'14	47.51436 AU
direct	1638 Feb 09 23:08	27°♉31'24	
evening set	1638 May 11 00:35	28°♉45'29	
conjunction	1638 May 20 03:01	28°♉57'51	-12°21'50
minimum elong	1638 May 20 03:13	28°♉57'52	12°21'50
max. Earth dist.	1638 May 19 22:01	28°♉57'34	49.42514 AU
morning rise	1638 May 29 06:41	29°♉10'16	
	1638 Jul 09 12:34	0°♊	
retrograde	1638 Aug 30 14:42	0°♊27'05	
	1638 Oct 22 05:55	30°℞♉	
opposition	1638 Nov 21 15:10	29°♉27'26	-12°46'56
min. Earth dist.	1638 Nov 21 19:48	29°♉27'13	47.43113 AU
direct	1639 Feb 11 03:35	28°♉28'22	
evening set	1639 May 11 23:11	29°♉42'11	
conjunction	1639 May 21 08:42	29°♉54'56	-12°10'30
minimum elong	1639 May 21 08:53	29°♉54'57	12°10'30
max. Earth dist.	1639 May 21 03:40	29°♉54'39	49.34186 AU
	1639 May 25 01:58	0°♊	
morning rise	1639 May 30 19:15	0°♊07'45	
retrograde	1639 Aug 31 17:31	1°♊24'15	
opposition	1639 Nov 22 19:39	0°♊24'33	-12°35'03
min. Earth dist.	1639 Nov 23 01:18	0°♊24'17	47.34496 AU
	1639 Dec 15 01:36	30°℞♉	
direct	1640 Feb 12 10:25	29°♉25'26	
	1640 Apr 10 15:37	0°♊	
evening set	1640 May 11 21:58	0°♊38'58	
conjunction	1640 May 21 14:07	0°♊52'06	-11°58'55
minimum elong	1640 May 21 14:20	0°♊52'07	11°58'55
max. Earth dist.	1640 May 21 07:45	0°♊51'45	49.25591 AU
morning rise	1640 May 31 07:30	1°♊05'20	
retrograde	1640 Aug 31 23:00	2°♊21'31	
opposition	1640 Nov 23 00:08	1°♊21'48	-12°22'54
min. Earth dist.	1640 Nov 23 05:57	1°♊21'31	47.25610 AU
direct	1641 Feb 12 15:17	0°♊22'37	
evening set	1641 May 12 21:01	1°♊35'54	
conjunction	1641 May 22 19:52	1°♊49'26	-11°47'04
minimum elong	1641 May 22 20:03	1°♊49'27	11°47'05
max. Earth dist.	1641 May 22 12:11	1°♊49'00	49.16699 AU
morning rise	1641 Jun 01 19:58	2°♊03'03	
retrograde	1641 Sep 02 06:51	3°♊18'58	
opposition	1641 Nov 24 04:40	2°♊19'13	-12°10'30
min. Earth dist.	1641 Nov 24 12:26	2°♊18'51	47.16414 AU
direct	1642 Feb 13 18:07	1°♊19'59	
evening set	1642 May 13 20:27	2°♊33'03	
conjunction	1642 May 24 01:48	2°♊46'58	-11°34'59
minimum elong	1642 May 24 02:00	2°♊46'59	11°35'00
max. Earth dist.	1642 May 23 17:45	2°♊46'31	49.07486 AU

morning rise	1642 Jun 03 08:16	3°♊00'58	
retrograde	1642 Sep 03 13:40	4°♊16'38	
opposition	1642 Nov 25 09:12	3°♊16'51	-11°57'51
min. Earth dist.	1642 Nov 25 17:17	3°♊16'28	47.06851 AU
direct	1643 Feb 14 21:10	2°♊17'35	
evening set	1643 May 14 20:08	3°♊30'28	
conjunction	1643 May 25 07:40	3°♊44'45	-11°22'41
minimum elong	1643 May 25 07:52	3°♊44'46	11°22'40
max. Earth dist.	1643 May 24 21:13	3°♊44'09	48.97862 AU
morning rise	1643 Jun 04 20:36	3°♊59'07	
retrograde	1643 Sep 04 19:52	5°♊14'33	
opposition	1643 Nov 26 13:53	4°♊14'45	-11°44'58
min. Earth dist.	1643 Nov 26 23:50	4°♊14'17	46.96854 AU
direct	1644 Feb 16 01:27	3°♊15'25	
evening set	1644 May 14 20:01	4°♊28'07	
conjunction	1644 May 25 13:51	4°♊42'47	-11°10'08
minimum elong	1644 May 25 14:03	4°♊42'47	11°10'08
max. Earth dist.	1644 May 25 02:45	4°♊42'09	48.87765 AU
morning rise	1644 Jun 05 08:51	4°♊57'31	
retrograde	1644 Sep 04 22:31	6°♊12'44	
opposition	1644 Nov 26 18:40	5°♊12'53	-11°31'51
min. Earth dist.	1644 Nov 27 06:05	5°♊12'21	46.86349 AU
direct	1645 Feb 16 09:23	4°♊13'29	
evening set	1645 May 15 20:14	5°♊26'01	
conjunction	1645 May 26 19:59	5°♊41'02	-10°57'22
minimum elong	1645 May 26 20:10	5°♊41'02	10°57'21
max. Earth dist.	1645 May 26 06:46	5°♊40'16	48.77157 AU
morning rise	1645 Jun 06 21:03	5°♊56'08	
retrograde	1645 Sep 06 04:58	7°♊11'08	
opposition	1645 Nov 27 23:31	6°♊11'14	-11°18'31
min. Earth dist.	1645 Nov 28 11:43	6°♊10'39	46.75317 AU
direct	1646 Feb 17 14:20	5°♊11'44	
evening set	1646 May 16 20:39	6°♊24'06	
max. Earth dist.	1646 May 27 11:20	6°♊38'37	48.66002 AU
conjunction	1646 May 28 02:20	6°♊39'29	-10°44'23
minimum elong	1646 May 28 02:32	6°♊39'29	10°44'24
morning rise	1646 Jun 08 09:21	6°♊54'57	
retrograde	1646 Sep 07 12:47	8°♊09'43	
opposition	1646 Nov 29 04:25	7°♊09'46	-11°04'56
min. Earth dist.	1646 Nov 29 19:02	7°♊09'04	46.63757 AU
direct	1647 Feb 18 17:32	6°♊10'10	
evening set	1647 May 17 21:18	7°♊22'22	
conjunction	1647 May 29 08:44	7°♊38'05	-10°31'11
minimum elong	1647 May 29 08:56	7°♊38'06	10°31'10
max. Earth dist.	1647 May 28 16:59	7°♊37'11	48.54356 AU
morning rise	1647 Jun 09 21:20	7°♊53'55	
retrograde	1647 Sep 08 18:55	9°♊08'28	
opposition	1647 Nov 30 09:18	8°♊08'26	-10°51'07
min. Earth dist.	1647 Dec 01 00:15	8°♊07'43	46.51723 AU
direct	1648 Feb 19 22:23	7°♊08'44	
evening set	1648 May 17 21:57	8°♊20'47	
conjunction	1648 May 29 14:52	8°♊36'51	-10°17'45
minimum elong	1648 May 29 15:03	8°♊36'52	10°17'45
max. Earth dist.	1648 May 28 20:45	8°♊35'49	48.42257 AU
morning rise	1648 Jun 10 09:15	8°♊53'01	
retrograde	1648 Sep 09 01:13	10°♊07'23	
opposition	1648 Nov 30 14:22	9°♊07'16	-10°37'04
min. Earth dist.	1648 Dec 01 07:00	9°♊06'28	46.39277 AU
direct	1649 Feb 20 03:10	8°♊07'26	
evening set	1649 May 18 22:51	9°♊19'22	

conjunction	1649 May 30 21:23	9°♊35'47	-10°04'04
minimum elong	1649 May 30 21:35	9°♊35'47	10°04'04
max. Earth dist.	1649 May 30 03:06	9°♊34'43	48.29764 AU
morning rise	1649 Jun 11 21:06	9°♊52'17	
retrograde	1649 Sep 10 04:38	11°♊06'29	
opposition	1649 Dec 01 19:21	10°♊06'16	-10°22'45
min. Earth dist.	1649 Dec 02 13:05	10°♊05'24	46.26457 AU
direct	1650 Feb 21 11:01	9°♊06'19	
evening set	1650 May 20 00:07	10°♊18'08	
max. Earth dist.	1650 May 31 07:54	10°♊33'43	48.16937 AU
conjunction	1650 Jun 01 03:53	10°♊34'52	-9°50'08
minimum elong	1650 Jun 01 04:04	10°♊34'53	9°50'09
morning rise	1650 Jun 13 09:00	10°♊51'42	
retrograde	1650 Sep 11 10:12	12°♊05'45	
opposition	1650 Dec 03 00:26	11°♊05'27	-10°08'10
min. Earth dist.	1650 Dec 03 18:35	11°♊04'34	46.13329 AU
direct	1651 Feb 22 16:50	10°♊05'23	
evening set	1651 May 21 01:24	11°♊17'05	
conjunction	1651 Jun 02 10:24	11°♊34'10	-9°35'58
minimum elong	1651 Jun 02 10:35	11°♊34'10	9°35'57
max. Earth dist.	1651 Jun 01 13:13	11°♊32'56	48.03798 AU
morning rise	1651 Jun 14 20:44	11°♊51'20	
retrograde	1651 Sep 12 17:50	13°♊05'15	
opposition	1651 Dec 04 05:44	12°♊04'51	-9°53'19
min. Earth dist.	1651 Dec 05 01:33	12°♊03'54	45.99911 AU
direct	1652 Feb 23 21:09	11°♊04'41	
evening set	1652 May 21 02:57	12°♊16'18	
conjunction	1652 Jun 02 17:05	12°♊33'43	-9°21'32
minimum elong	1652 Jun 02 17:16	12°♊33'43	9°21'32
max. Earth dist.	1652 Jun 01 19:40	12°♊32'28	47.90400 AU
morning rise	1652 Jun 15 08:24	12°♊51'13	
retrograde	1652 Sep 13 02:51	14°♊05'00	
opposition	1652 Dec 04 10:58	13°♊04'32	-9°38'12
min. Earth dist.	1652 Dec 05 06:45	13°♊03'35	45.86229 AU
direct	1653 Feb 23 23:43	12°♊04'14	
evening set	1653 May 22 04:46	13°♊15'49	
conjunction	1653 Jun 03 23:46	13°♊33'33	-9°06'50
minimum elong	1653 Jun 03 23:57	13°♊33'34	9°06'50
max. Earth dist.	1653 Jun 03 00:17	13°♊32'11	47.76727 AU
morning rise	1653 Jun 16 20:13	13°♊51'23	
retrograde	1653 Sep 14 11:00	15°♊05'05	
opposition	1653 Dec 05 16:27	14°♊04'32	-9°22'49
min. Earth dist.	1653 Dec 06 13:52	14°♊03'30	45.72265 AU
direct	1654 Feb 25 03:35	13°♊04'08	
evening set	1654 May 23 06:50	14°♊15'41	
max. Earth dist.	1654 Jun 04 07:06	14°♊32'21	47.62741 AU
conjunction	1654 Jun 05 06:51	14°♊33'44	-8°51'53
minimum elong	1654 Jun 05 07:01	14°♊33'45	8°51'53
morning rise	1654 Jun 18 07:58	14°♊51'53	
retrograde	1654 Sep 15 14:25	16°♊05'30	
opposition	1654 Dec 06 21:53	15°♊04'52	-9°07'10
min. Earth dist.	1654 Dec 07 20:21	15°♊03'47	45.57956 AU
direct	1655 Feb 26 12:14	14°♊04'22	
evening set	1655 May 24 09:22	15°♊15'54	
conjunction	1655 Jun 06 13:56	15°♊34'17	-8°36'41
minimum elong	1655 Jun 06 14:07	15°♊34'17	8°36'41
max. Earth dist.	1655 Jun 05 12:21	15°♊32'47	47.48393 AU
morning rise	1655 Jun 19 19:50	15°♊52'44	
retrograde	1655 Sep 16 20:09	17°♊06'18	
opposition	1655 Dec 08 03:33	16°♊05'35	-8°51'15
min. Earth dist.	1655 Dec 09 02:47	16°♊04'27	45.43256 AU

direct	1656 Feb 27 19:19	15°♊04'58	
evening set	1656 May 24 11:54	16°♊16'29	
conjunction	1656 Jun 06 21:06	16°♊35'10	-8°21'14
minimum elong	1656 Jun 06 21:16	16°♊35'11	8°21'14
max. Earth dist.	1656 Jun 05 18:00	16°♊33'35	47.33594 AU
morning rise	1656 Jun 20 07:34	16°♊53'57	
retrograde	1656 Sep 17 03:46	18°♊07'28	
opposition	1656 Dec 08 09:29	17°♊06'40	-8°35'05
min. Earth dist.	1656 Dec 09 10:59	17°♊05'25	45.28082 AU
direct	1657 Feb 28 00:41	16°♊05'54	
evening set	1657 May 25 14:56	17°♊17'25	
max. Earth dist.	1657 Jun 07 00:35	17°♊34'45	47.18318 AU
conjunction	1657 Jun 08 04:39	17°♊36'24	-8°05'33
minimum elong	1657 Jun 08 04:50	17°♊36'25	8°05'34
morning rise	1657 Jun 21 19:28	17°♊55'29	
retrograde	1657 Sep 18 11:48	19°♊08'57	
opposition	1657 Dec 09 15:16	18°♊08'02	-8°18'40
min. Earth dist.	1657 Dec 10 17:14	18°♊06'46	45.12411 AU
direct	1658 Mar 01 05:49	17°♊07'06	
evening set	1658 May 26 18:21	18°♊18'38	
max. Earth dist.	1658 Jun 08 05:32	18°♊36'07	47.02537 AU
conjunction	1658 Jun 09 12:16	18°♊37'55	-7°49'38
minimum elong	1658 Jun 09 12:26	18°♊37'56	7°49'38
morning rise	1658 Jun 23 07:32	18°♊57'19	
retrograde	1658 Sep 19 21:30	20°♊10'43	
opposition	1658 Dec 10 21:24	19°♊09'40	-8°01'59
min. Earth dist.	1658 Dec 12 01:23	19°♊08'18	44.96255 AU
direct	1659 Mar 02 10:08	18°♊08'34	
evening set	1659 May 27 21:44	19°♊20'06	
conjunction	1659 Jun 10 20:00	19°♊39'42	-7°33'28
minimum elong	1659 Jun 10 20:10	19°♊39'43	7°33'28
max. Earth dist.	1659 Jun 09 12:53	19°♊37'52	46.86279 AU
morning rise	1659 Jun 24 19:14	19°♊59'23	
retrograde	1659 Sep 21 03:12	21°♊12'45	
opposition	1659 Dec 12 03:32	20°♊11'32	-7°45'03
min. Earth dist.	1659 Dec 13 08:35	20°♊10'07	44.79644 AU
direct	1660 Mar 02 18:31	19°♊10'15	
evening set	1660 May 28 01:33	20°♊21'50	
max. Earth dist.	1660 Jun 09 18:39	20°♊39'45	46.69611 AU
conjunction	1660 Jun 11 03:45	20°♊41'43	-7°17'03
minimum elong	1660 Jun 11 03:54	20°♊41'44	7°17'02
morning rise	1660 Jun 25 07:08	21°♊01'42	
retrograde	1660 Sep 21 09:48	22°♊15'02	
opposition	1660 Dec 12 09:42	21°♊13'40	-7°27'51
min. Earth dist.	1660 Dec 13 15:31	21°♊12'12	44.62660 AU
direct	1661 Mar 04 01:23	20°♊12'11	
evening set	1661 May 29 05:29	21°♊23'48	
max. Earth dist.	1661 Jun 11 01:22	21°♊41'57	46.52571 AU
conjunction	1661 Jun 12 11:41	21°♊43'59	-7°00'22
minimum elong	1661 Jun 12 11:50	21°♊44'00	7°00'23
morning rise	1661 Jun 26 18:58	22°♊04'15	
retrograde	1661 Sep 22 16:08	23°♊17'36	
opposition	1661 Dec 13 16:10	22°♊16'05	-7°10'23
min. Earth dist.	1661 Dec 14 23:46	22°♊14'31	44.45334 AU
direct	1662 Mar 05 08:53	21°♊14'24	
evening set	1662 May 30 09:49	22°♊26'05	
max. Earth dist.	1662 Jun 12 09:05	22°♊44'29	46.35230 AU
conjunction	1662 Jun 13 19:50	22°♊46'33	-6°43'26
minimum elong	1662 Jun 13 19:59	22°♊46'34	6°43'25
morning rise	1662 Jun 28 06:47	23°♊07'06	
retrograde	1662 Sep 24 01:13	24°♊20'28	
opposition	1662 Dec 14 22:32	23°♊18'48	-6°52'37
min. Earth dist.	1662 Dec 16 06:07	23°♊17'14	44.27731 AU
direct	1663 Mar 06 14:01	22°♊16'56	
evening set	1663 May 31 14:27	23°♊28'43	
max. Earth dist.	1663 Jun 13 15:13	23°♊47'16	46.17623 AU
conjunction	1663 Jun 15 03:59	23°♊49'28	-6°26'14
minimum elong	1663 Jun 15 04:08	23°♊49'28	6°26'14
morning rise	1663 Jun 29 18:41	24°♊10'18	
retrograde	1663 Sep 25 11:33	25°♊23'43	
opposition	1663 Dec 16 05:18	24°♊21'54	-6°34'34
min. Earth dist.	1663 Dec 17 14:29	24°♊20'15	44.09899 AU
direct	1664 Mar 06 18:02	23°♊19'51	
evening set	1664 May 31 19:04	24°♊31'45	
max. Earth dist.	1664 Jun 13 23:39	24°♊50'35	45.99795 AU
conjunction	1664 Jun 15 12:18	24°♊52'47	-6°08'46
minimum elong	1664 Jun 15 12:27	24°♊52'48	6°08'46
morning rise	1664 Jun 30 06:18	25°♊13'54	
retrograde	1664 Sep 25 18:17	26°♊27'24	
opposition	1664 Dec 16 12:12	25°♊25'26	-6°16'14
min. Earth dist.	1664 Dec 17 21:45	25°♊23'46	43.91842 AU
direct	1665 Mar 08 02:45	24°♊23'13	
evening set	1665 Jun 02 00:23	25°♊35'17	
max. Earth dist.	1665 Jun 15 06:31	25°♊54'17	45.81754 AU
conjunction	1665 Jun 16 20:51	25°♊56'36	-5°51'01
minimum elong	1665 Jun 16 20:59	25°♊56'36	5°51'02
morning rise	1665 Jul 01 18:21	26°♊17'59	
retrograde	1665 Sep 27 01:51	27°♊31'35	
opposition	1665 Dec 17 19:06	26°♊29'30	-5°57'37
min. Earth dist.	1665 Dec 19 05:21	26°♊27'47	43.73571 AU
direct	1666 Mar 09 10:53	25°♊27'07	
evening set	1666 Jun 03 05:59	26°♊39'22	
max. Earth dist.	1666 Jun 16 14:30	26°♊58'35	45.63455 AU
conjunction	1666 Jun 18 05:47	27°♊00'58	-5°33'00
minimum elong	1666 Jun 18 05:55	27°♊00'58	5°33'00
morning rise	1666 Jul 03 06:21	27°♊22'38	
retrograde	1666 Sep 28 09:42	28°♊36'22	
opposition	1666 Dec 19 02:25	27°♊34'10	-5°38'42
min. Earth dist.	1666 Dec 20 14:28	27°♊32'21	43.55019 AU
direct	1667 Mar 10 18:25	26°♊31'37	
evening set	1667 Jun 04 11:53	27°♊44'04	
max. Earth dist.	1667 Jun 17 22:43	28°♊03'30	45.44856 AU
conjunction	1667 Jun 19 14:45	28°♊05'56	-5°14'43
minimum elong	1667 Jun 19 14:52	28°♊05'56	5°14'43
morning rise	1667 Jul 04 18:19	28°♊27'52	
retrograde	1667 Sep 29 19:27	29°♊41'46	
opposition	1667 Dec 20 09:46	28°♊39'27	-5°19'31
min. Earth dist.	1667 Dec 21 22:00	28°♊37'37	43.36132 AU
direct	1668 Mar 11 00:31	27°♊36'44	
evening set	1668 Jun 04 18:20	28°♊49'24	
max. Earth dist.	1668 Jun 18 05:38	29°♊08'57	45.25872 AU
conjunction	1668 Jun 20 00:01	29°♊11'32	-4°56'10
minimum elong	1668 Jun 20 00:08	29°♊11'33	4°56'10
morning rise	1668 Jul 05 06:33	29°♊33'45	
	1668 Jul 24 13:26	0°♋	
retrograde	1668 Sep 30 07:48	0°♋47'49	
	1668 Dec 08 12:23	30°℞♊	
opposition	1668 Dec 20 17:27	29°♊45'20	-5°00'02
min. Earth dist.	1668 Dec 22 07:51	29°♊43'24	43.16844 AU
direct	1669 Mar 12 05:16	28°♊42'26	
evening set	1669 Jun 06 01:03	29°♊55'21	

	1669 Jun 09	06:39	0°♋		
max. Earth dist.	1669 Jun 19	14:52	0°♋15'08	45.06457 AU	
conjunction	1669 Jun 21	09:42	0°♋17'45	-4°37'22	
minimum elong	1669 Jun 21	09:48	0°♋17'45	4°37'21	
morning rise	1669 Jul 06	18:47	0°♋40'13		
retrograde	1669 Oct 01	17:57	1°♋54'28		
opposition	1669 Dec 22	01:21	0°♋51'49	-4°40'17	
min. Earth dist.	1669 Dec 23	16:37	0°♋49'50	42.97100 AU	
	1670 Feb 10	00:24	30°♑℞♊		
direct	1670 Mar 13	13:49	29°♊48'42		
	1670 Apr 14	00:40	0°♋		
evening set	1670 Jun 07	08:23	1°♋01'52		
max. Earth dist.	1670 Jun 20	22:11	1°♋21'44	44.86588 AU	
conjunction	1670 Jun 22	19:28	1°♋24'32	-4°18'18	
minimum elong	1670 Jun 22	19:35	1°♋24'32	4°18'18	
morning rise	1670 Jul 08	07:15	1°♋47'15		
retrograde	1670 Oct 03	04:19	3°♋01'40		
opposition	1670 Dec 23	09:22	1°♋58'51	-4°20'16	
min. Earth dist.	1670 Dec 25	01:56	1°♋56'47	42.76920 AU	
direct	1671 Mar 14	21:44	0°♋55'30		
evening set	1671 Jun 08	15:54	2°♋08'56		
max. Earth dist.	1671 Jun 22	07:05	2°♋28'57	44.66277 AU	
conjunction	1671 Jun 24	05:32	2°♋31'50	-3°58'58	
minimum elong	1671 Jun 24	05:38	2°♋31'50	3°58'58	
morning rise	1671 Jul 09	19:34	2°♋54'48		
retrograde	1671 Oct 04	10:19	4°♋09'25		
opposition	1671 Dec 24	17:44	3°♋06'24	-3°59'57	
min. Earth dist.	1671 Dec 26	11:59	3°♋04'14	42.56324 AU	
direct	1672 Mar 15	08:47	2°♋02'48		
evening set	1672 Jun 08	23:40	3°♋16'29		
max. Earth dist.	1672 Jun 22	16:15	3°♋36'41	44.45588 AU	
conjunction	1672 Jun 24	15:35	3°♋39'38	-3°39'23	
minimum elong	1672 Jun 24	15:41	3°♋39'38	3°39'23	
morning rise	1672 Jul 10	07:54	4°♋02'50		
retrograde	1672 Oct 04	19:37	5°♋17'40		
opposition	1672 Dec 25	02:09	4°♋14'26	-3°39'21	
min. Earth dist.	1672 Dec 26	20:40	4°♋12'15	42.35375 AU	
direct	1673 Mar 16	17:20	3°♋10'35		
evening set	1673 Jun 10	08:06	4°♋24'33		
max. Earth dist.	1673 Jun 24	00:37	4°♋44'51	44.24551 AU	
conjunction	1673 Jun 26	02:02	4°♋47'56	-3°19'31	
minimum elong	1673 Jun 26	02:07	4°♋47'57	3°19'31	
morning rise	1673 Jul 11	20:26	5°♋11'23		
retrograde	1673 Oct 06	07:46	6°♋26'27		
opposition	1673 Dec 26	10:48	5°♋22'59	-3°18'28	
min. Earth dist.	1673 Dec 28	07:21	5°♋20'41	42.14124 AU	
direct	1674 Mar 17	22:35	4°♋18'52		
evening set	1674 Jun 11	16:48	5°♋33'08		
max. Earth dist.	1674 Jun 25	11:20	5°♋53'39	44.03235 AU	
conjunction	1674 Jun 27	12:49	5°♋56'45	-2°59'24	
minimum elong	1674 Jun 27	12:53	5°♋56'46	2°59'25	
morning rise	1674 Jul 13	08:55	6°♋20'25		
retrograde	1674 Oct 07	18:23	7°♋35'45		
opposition	1674 Dec 27	19:43	6°♋32'03	-2°57'18	
min. Earth dist.	1674 Dec 29	16:25	6°♋29'45	41.92620 AU	
direct	1675 Mar 19	08:17	5°♋27'40		
evening set	1675 Jun 13	01:57	6°♋42'17		
max. Earth dist.	1675 Jun 26	20:11	7°♋02'53	43.81692 AU	
conjunction	1675 Jun 28	23:31	7°♋06'07	-2°39'00	
minimum elong	1675 Jun 28	23:35	7°♋06'08	2°39'00	
morning rise	1675 Jul 14	21:25	7°♋30'00		
retrograde	1675 Oct 09	06:47	8°♋45'37		
opposition	1675 Dec 29	04:54	7°♋41'42	-2°35'50	
min. Earth dist.	1675 Dec 31	02:33	7°♋39'19	41.70927 AU	
direct	1676 Mar 19	17:15	6°♋37'01		
evening set	1676 Jun 13	11:28	7°♋52'01		
max. Earth dist.	1676 Jun 27	07:02	8°♋12'49	43.59956 AU	
conjunction	1676 Jun 29	10:44	8°♋16'06	-2°18'20	
minimum elong	1676 Jun 29	10:47	8°♋16'06	2°18'21	
morning rise	1676 Jul 15	09:57	8°♋40'11		
retrograde	1676 Oct 09	16:38	9°♋56'06		
opposition	1676 Dec 29	14:21	8°♋51'58	-2°14'04	
min. Earth dist.	1676 Dec 31	13:10	8°♋49'32	41.49057 AU	
direct	1677 Mar 21	04:25	7°♋47'02		
evening set	1677 Jun 14	21:35	9°♋02'27		
max. Earth dist.	1677 Jun 28	17:34	9°♋23'22	43.38064 AU	
conjunction	1677 Jun 30	22:11	9°♋26'44	-1°57'24	
minimum elong	1677 Jun 30	22:14	9°♋26'44	1°57'24	
morning rise	1677 Jul 16	22:48	9°♋51'03		
retrograde	1677 Oct 11	02:55	11°♋07'18		
opposition	1677 Dec 31	00:02	10°♋02'58	-1°52'01	
min. Earth dist.	1678 Jan 01	22:51	10°♋00'30	41.27023 AU	
direct	1678 Mar 22	14:32	8°♋57'46		
evening set	1678 Jun 16	08:17	10°♋13'38		
max. Earth dist.	1678 Jun 30	03:41	10°♋34'38	43.15965 AU	
conjunction	1678 Jul 02	09:59	10°♋38'07	-1°36'12	
minimum elong	1678 Jul 02	10:01	10°♋38'07	1°36'12	
morning rise	1678 Jul 18	11:38	11°♋02'38		
retrograde	1678 Oct 12	14:46	12°♋19'18		
opposition	1679 Jan 01	10:05	11°♋14'45	-1°29'40	
min. Earth dist.	1679 Jan 03	10:48	11°♋12'11	41.04778 AU	
direct	1679 Mar 23	22:48	10°♋09'18		
evening set	1679 Jun 17	19:26	11°♋25'38		
max. Earth dist.	1679 Jul 01	15:51	11°♋46'50	42.93632 AU	
conjunction	1679 Jul 03	22:11	11°♋50'20	-1°14'43	
minimum elong	1679 Jul 03	22:13	11°♋50'20	1°14'43	
morning rise	1679 Jul 20	00:36	12°♋15'03		
retrograde	1679 Oct 14	04:15	13°♋32'08		
opposition	1680 Jan 02	20:24	12°♋27'22	-1°07'02	
min. Earth dist.	1680 Jan 04	21:23	12°♋24'47	40.82266 AU	
direct	1680 Mar 24	07:35	11°♋21'40		
evening set	1680 Jun 18	07:11	12°♋38'32		
max. Earth dist.	1680 Jul 02	01:47	12°♋59'44	42.70989 AU	
conjunction	1680 Jul 04	10:31	13°♋03'25	-0°53'00	
minimum elong	1680 Jul 04	10:33	13°♋03'25	0°52'59	
morning rise	1680 Jul 20	13:45	13°♋28'19		
retrograde	1680 Oct 14	19:02	14°♋45'51		
opposition	1681 Jan 03	07:08	13°♋40'52	-0°44'07	
min. Earth dist.	1681 Jan 05	09:51	13°♋38'11	40.59427 AU	
direct	1681 Mar 25	16:09	12°♋34'53		
evening set	1681 Jun 19	19:34	13°♋52'17		
max. Earth dist.	1681 Jul 03	14:06	14°♋13'37	42.47970 AU	
conjunction	1681 Jul 05	23:35	14°♋17'22	-0°31'00	
minimum elong	1681 Jul 05	23:36	14°♋17'22	0°31'00	
morning rise	1681 Jul 22	03:03	14°♋42'27		
retrograde	1681 Oct 16	06:54	16°♋00'27		
opposition	1682 Jan 04	18:09	14°♋55'13	-0°20'55	
min. Earth dist.	1682 Jan 06	22:10	14°♋52'27	40.36198 AU	
direct	1682 Mar 27	05:06	13°♋48'57		
evening set	1682 Jun 21	08:39	15°♋06'55		
max. Earth dist.	1682 Jul 05	01:39	15°♋28'17	42.24571 AU	

conjunction	1682 Jul 07	12:51	15°♋32'10	-0°08'47	
minimum elong	1682 Jul 07	12:51	15°♋32'10	0°08'48	
behind sun begin	1682 Jul 07	07:15	15°♋31'49		
behind sun end	1682 Jul 07	18:26	15°♋32'31		
morning rise	1682 Jul 23	16:38	15°♋57'25		
retrograde	1682 Oct 17	19:40	17°♋15'54		
asc. node	1682 Nov 27	10:30	16°♋56'28		
opposition	1683 Jan 06	05:30	16°♋10'26	0°02'34	
min. Earth dist.	1683 Jan 08	10:11	16°♋07'36	40.12602 AU	
direct	1683 Mar 28	17:33	15°♋03'50		
evening set	1683 Jun 22	22:05	16°♋22'23		
max. Earth dist.	1683 Jul 06	13:26	16°♋43'47	42.00787 AU	
conjunction	1683 Jul 09	02:20	16°♋47'49	0°13'47	
minimum elong	1683 Jul 09	02:19	16°♋47'49	0°13'47	
behind sun begin	1683 Jul 08	23:03	16°♋47'36		
behind sun end	1683 Jul 09	05:36	16°♋48'01		
morning rise	1683 Jul 25	05:59	17°♋13'13		
retrograde	1683 Oct 19	08:05	18°♋32'14		
opposition	1684 Jan 07	17:17	17°♋26'29	0°26'19	
min. Earth dist.	1684 Jan 10	00:03	17°♋23'31	39.88654 AU	
direct	1684 Mar 29	04:18	16°♋19'34		
evening set	1684 Jun 23	12:07	17°♋38'43		
max. Earth dist.	1684 Jul 07	02:55	18°♋00'12	41.76684 AU	
conjunction	1684 Jul 09	16:15	18°♋04'17	0°36'31	
minimum elong	1684 Jul 09	16:14	18°♋04'17	0°36'31	
morning rise	1684 Jul 25	19:37	18°♋29'51		
retrograde	1684 Oct 19	21:38	19°♋49'24		
opposition	1685 Jan 08	05:08	18°♋43'22	0°50'21	
min. Earth dist.	1685 Jan 10	11:59	18°♋40'23	39.64418 AU	
direct	1685 Mar 30	15:55	17°♋36'06		
evening set	1685 Jun 25	02:54	18°♋55'54		
max. Earth dist.	1685 Jul 08	14:54	19°♋17'21	41.52305 AU	
conjunction	1685 Jul 11	06:28	19°♋21'36	0°59'31	
minimum elong	1685 Jul 11	06:26	19°♋21'36	0°59'31	
morning rise	1685 Jul 27	09:24	19°♋47'18		
retrograde	1685 Oct 21	14:36	21°♋07'26		
opposition	1686 Jan 09	17:30	20°♋01'05	1°14'39	
min. Earth dist.	1686 Jan 12	02:02	19°♋58'01	39.39953 AU	
direct	1686 Apr 01	01:38	18°♋53'28		
evening set	1686 Jun 26	18:06	20°♋13'58		
max. Earth dist.	1686 Jul 10	05:38	20°♋35'32	41.27708 AU	
conjunction	1686 Jul 12	21:07	20°♋39'48	1°22'45	
minimum elong	1686 Jul 12	21:04	20°♋39'48	1°22'46	
morning rise	1686 Jul 28	23:03	21°♋05'37		
retrograde	1686 Oct 23	05:43	22°♋26'22		
opposition	1687 Jan 11	06:11	21°♋19'42	1°39'13	
min. Earth dist.	1687 Jan 13	15:12	21°♋16'35	39.15309 AU	
direct	1687 Apr 02	15:00	20°♋11'44		
evening set	1687 Jun 28	10:05	21°♋32'58		
max. Earth dist.	1687 Jul 11	19:00	21°♋54'30	41.02975 AU	
conjunction	1687 Jul 14	11:56	21°♋58'55	1°46'13	
minimum elong	1687 Jul 14	11:53	21°♋58'54	1°46'13	
morning rise	1687 Jul 30	12:57	22°♋24'50		
retrograde	1687 Oct 24	21:37	23°♋46'14		
opposition	1688 Jan 12	19:14	22°♋39'16	2°04'02	
min. Earth dist.	1688 Jan 15	04:40	22°♋36'06	38.90578 AU	
direct	1688 Apr 03	03:49	21°♋30'55		
evening set	1688 Jun 29	02:30	22°♋52'55		
max. Earth dist.	1688 Jul 12	09:36	23°♋14'30	40.78146 AU	
conjunction	1688 Jul 15	03:12	23°♋18'59	2°09'55	
minimum elong	1688 Jul 15	03:08	23°♋18'59	2°09'56	
morning rise	1688 Jul 31	02:44	23°♋45'00		
retrograde	1688 Oct 25	10:28	25°♋07'05		
opposition	1689 Jan 13	08:50	23°♋59'50	2°29'06	
min. Earth dist.	1689 Jan 15	19:29	23°♋56'35	38.65778 AU	
direct	1689 Apr 04	18:56	22°♋51'08		
evening set	1689 Jun 30	19:52	24°♋13'57		
max. Earth dist.	1689 Jul 14	01:12	24°♋35'34	40.53274 AU	
conjunction	1689 Jul 16	19:00	24°♋40'06	2°33'50	
minimum elong	1689 Jul 16	18:55	24°♋40'06	2°33'49	
morning rise	1689 Aug 01	16:55	25°♋06'12		
retrograde	1689 Oct 27	01:18	26°♋29'02		
opposition	1690 Jan 14	22:36	25°♋21'29	2°54'25	
min. Earth dist.	1690 Jan 17	08:55	25°♋18'14	38.40943 AU	
direct	1690 Apr 06	08:21	24°♋12'26		
evening set	1690 Jul 02	14:05	25°♋36'07		
max. Earth dist.	1690 Jul 15	15:48	25°♋57'40	40.28341 AU	
conjunction	1690 Jul 18	11:15	26°♋02'21	2°57'57	
minimum elong	1690 Jul 18	11:10	26°♋02'20	2°57'58	
morning rise	1690 Aug 03	07:14	26°♋28'31		
retrograde	1690 Oct 28	18:28	27°♋52'09		
opposition	1691 Jan 16	13:03	26°♋44'19	3°19'58	
min. Earth dist.	1691 Jan 19	01:04	26°♋40'57	38.16056 AU	
direct	1691 Apr 07	19:12	25°♋34'55		
evening set	1691 Jul 04	08:48	26°♋59'32		
max. Earth dist.	1691 Jul 17	08:45	27°♋21'06	40.03324 AU	
conjunction	1691 Jul 20	03:54	27°♋25'48	3°22'17	
minimum elong	1691 Jul 20	03:48	27°♋25'47	3°22'16	
morning rise	1691 Aug 04	21:29	27°♋52'01		
retrograde	1691 Oct 30	11:59	29°♋16'30		
opposition	1692 Jan 18	03:53	28°♋08'22	3°45'43	
min. Earth dist.	1692 Jan 20	16:00	28°♋04'59	37.91061 AU	
direct	1692 Apr 08	09:42	26°♋58'38		
evening set	1692 Jul 05	04:41	28°♋24'12		
max. Earth dist.	1692 Jul 17	23:56	28°♋45'38	39.78167 AU	
conjunction	1692 Jul 20	21:05	28°♋50'31	3°46'47	
minimum elong	1692 Jul 20	20:58	28°♋50'30	3°46'48	
morning rise	1692 Aug 05	12:13	29°♋16'46		
	1692 Sep 02	23:58	0°♌		
retrograde	1692 Oct 31	08:53	0°♌42'08		
	1692 Dec 29	21:15	30°℞♋		
opposition	1693 Jan 18	19:06	29°♋33'41	4°11'42	
min. Earth dist.	1693 Jan 21	08:26	29°♋30'13	37.65917 AU	
direct	1693 Apr 09	23:28	28°♋23'34		
evening set	1693 Jul 07	01:20	29°♋50'10		
	1693 Jul 12	22:14	0°♌		
max. Earth dist.	1693 Jul 19	17:22	0°♌11'33	39.52804 AU	
conjunction	1693 Jul 22	15:02	0°♌16'30	4°11'29	
minimum elong	1693 Jul 22	14:54	0°♌16'29	4°11'29	
morning rise	1693 Aug 07	03:03	0°♌42'45		
retrograde	1693 Nov 02	02:54	2°♌09'02		
opposition	1694 Jan 20	11:03	1°♌00'15	4°37'53	
min. Earth dist.	1694 Jan 23	01:40	0°♌56'42	37.40556 AU	
	1694 Mar 14	09:01	30°℞♋		
direct	1694 Apr 11	15:44	29°♋49'45		
	1694 May 09	18:55	0°♌		
evening set	1694 Jul 08	22:56	1°♌17'25		
max. Earth dist.	1694 Jul 21	10:24	1°♌38'38	39.27228 AU	
conjunction	1694 Jul 24	09:18	1°♌43'43	4°36'21	
minimum elong	1694 Jul 24	09:09	1°♌43'43	4°36'22	
morning rise	1694 Aug 08	18:07	2°♌09'57		
retrograde	1694 Nov 03	21:00	3°♌37'12		

opposition	1695 Jan 22 03:20	2°♌28'04	5°04'16
min. Earth dist.	1695 Jan 24 18:15	2°♌24'28	37.14995 AU
direct	1695 Apr 13 09:09	1°♌17'09	
evening set	1695 Jul 10 21:21	2°♌45'54	
max. Earth dist.	1695 Jul 23 03:39	3°♌06'56	39.01435 AU
conjunction	1695 Jul 26 04:09	3°♌12'11	5°01'23
minimum elong	1695 Jul 26 04:00	3°♌12'10	5°01'22
morning rise	1695 Aug 10 09:15	3°♌38'22	
retrograde	1695 Nov 05 14:32	5°♌06'37	
opposition	1696 Jan 23 20:17	3°♌57'07	5°30'49
min. Earth dist.	1696 Jan 26 12:59	3°♌53'23	36.89254 AU
direct	1696 Apr 14 01:21	2°♌45'46	
evening set	1696 Jul 11 20:32	4°♌15'39	
max. Earth dist.	1696 Jul 23 22:56	4°♌36'35	38.75486 AU
conjunction	1696 Jul 26 23:27	4°♌41'52	5°26'33
minimum elong	1696 Jul 26 23:16	4°♌41'51	5°26'33
morning rise	1696 Aug 11 00:29	5°♌07'59	
retrograde	1696 Nov 06 08:58	6°♌37'16	
opposition	1697 Jan 24 13:37	5°♌27'24	5°57'32
min. Earth dist.	1697 Jan 27 06:09	5°♌23'39	36.63380 AU
direct	1697 Apr 15 17:57	4°♌15'35	
evening set	1697 Jul 13 20:53	5°♌46'40	
max. Earth dist.	1697 Jul 25 16:53	6°♌07'19	38.49413 AU
conjunction	1697 Jul 28 19:18	6°♌12'47	5°51'50
minimum elong	1697 Jul 28 19:07	6°♌12'47	5°51'50
morning rise	1697 Aug 12 16:01	6°♌38'49	
retrograde	1697 Nov 08 05:54	8°♌09'12	
opposition	1698 Jan 26 07:28	6°♌58'56	6°24'23
min. Earth dist.	1698 Jan 29 01:29	6°♌55'04	36.37441 AU
direct	1698 Apr 17 09:35	5°♌46'40	
evening set	1698 Jul 15 22:01	7°♌18'59	
max. Earth dist.	1698 Jul 27 13:44	7°♌39'30	38.23291 AU
conjunction	1698 Jul 30 15:47	7°♌45'00	6°17'13
minimum elong	1698 Jul 30 15:35	7°♌44'59	6°17'13
morning rise	1698 Aug 14 07:29	8°♌10'54	
retrograde	1698 Nov 10 02:53	9°♌42'26	
opposition	1699 Jan 28 01:59	8°♌31'45	6°51'20
min. Earth dist.	1699 Jan 30 20:10	8°♌27'52	36.11495 AU
direct	1699 Apr 19 04:18	7°♌19'02	
evening set	1699 Jul 18 00:04	8°♌52'40	
max. Earth dist.	1699 Jul 29 09:15	9°♌12'54	37.97201 AU
conjunction	1699 Aug 01 12:27	9°♌18'32	6°42'41
minimum elong	1699 Aug 01 12:14	9°♌18'31	6°42'40
morning rise	1699 Aug 15 23:01	9°♌44'16	
retrograde	1699 Nov 12 02:21	11°♌17'02	
opposition	1700 Jan 29 20:59	10°♌05'57	7°18'23
min. Earth dist.	1700 Feb 01 15:17	10°♌02'02	35.85635 AU
direct	1700 Apr 20 22:49	8°♌52'46	
evening set	1700 Jul 20 03:09	10°♌27'48	
max. Earth dist.	1700 Jul 31 06:44	10°♌47'48	37.71195 AU
conjunction	1700 Aug 03 10:00	10°♌53'29	7°08'11
minimum elong	1700 Aug 03 09:45	10°♌53'28	7°08'10
morning rise	1700 Aug 17 14:43	11°♌19'02	
retrograde	1700 Nov 13 23:19	12°♌53'05	
opposition	1701 Jan 31 16:37	11°♌41'37	7°45'29
min. Earth dist.	1701 Feb 03 11:47	11°♌37'37	35.59901 AU
direct	1701 Apr 22 18:25	10°♌27'59	
evening set	1701 Jul 22 07:30	12°♌04'30	
max. Earth dist.	1701 Aug 02 04:54	12°♌24'13	37.45348 AU
conjunction	1701 Aug 05 08:06	12°♌29'57	7°33'42
minimum elong	1701 Aug 05 07:52	12°♌29'56	7°33'41
morning rise	1701 Aug 19 06:43	12°♌55'17	
retrograde	1701 Nov 15 21:35	14°♌30'41	
opposition	1702 Feb 02 12:51	13°♌18'52	8°12'35
min. Earth dist.	1702 Feb 05 07:21	13°♌14'52	35.34345 AU
direct	1702 Apr 24 14:52	12°♌04'48	
evening set	1702 Jul 24 12:50	13°♌42'52	
max. Earth dist.	1702 Aug 04 02:35	14°♌02'12	37.19658 AU
conjunction	1702 Aug 07 06:48	14°♌08'04	7°59'12
minimum elong	1702 Aug 07 06:32	14°♌08'03	7°59'12
morning rise	1702 Aug 20 22:44	14°♌33'08	
	1702 Sep 05 06:37	15°♌	
retrograde	1702 Nov 17 20:24	16°♌10'00	
	1703 Feb 02 21:32	15°℞♌	
opposition	1703 Feb 04 09:52	14°♌57'49	8°39'42
min. Earth dist.	1703 Feb 07 05:36	14°♌53'43	35.08964 AU
direct	1703 Apr 26 08:40	13°♌43'20	
	1703 Jul 13 20:17	15°♌	
evening set	1703 Jul 26 19:22	15°♌23'02	
max. Earth dist.	1703 Aug 06 02:49	15°♌42'04	36.94131 AU
conjunction	1703 Aug 09 06:15	15°♌47'56	8°24'39
minimum elong	1703 Aug 09 05:58	15°♌47'55	8°24'39
morning rise	1703 Aug 22 14:56	16°♌12'42	
retrograde	1703 Nov 19 19:49	17°♌51'06	
opposition	1704 Feb 06 07:25	16°♌38'33	9°06'45
min. Earth dist.	1704 Feb 09 02:35	16°♌34'28	34.83727 AU
direct	1704 Apr 27 05:00	15°♌23'40	
evening set	1704 Jul 28 03:11	17°♌05'05	
max. Earth dist.	1704 Aug 07 01:22	17°♌23'36	36.68712 AU
conjunction	1704 Aug 10 06:17	17°♌29'38	8°50'02
minimum elong	1704 Aug 10 05:59	17°♌29'36	8°50'02
morning rise	1704 Aug 23 07:26	17°♌54'03	
retrograde	1704 Nov 20 22:13	19°♌34'04	
opposition	1705 Feb 07 05:48	18°♌21'09	9°33'45
min. Earth dist.	1705 Feb 10 02:02	18°♌16'59	34.58590 AU
direct	1705 Apr 29 00:36	17°♌05'50	
evening set	1705 Jul 30 12:22	18°♌49'04	
max. Earth dist.	1705 Aug 09 02:53	19°♌07'10	36.43345 AU
conjunction	1705 Aug 12 07:20	19°♌13'13	9°15'20
minimum elong	1705 Aug 12 07:03	19°♌13'11	9°15'20
morning rise	1705 Aug 25 00:03	19°♌37'13	
retrograde	1705 Nov 23 00:18	21°♌18'55	
opposition	1706 Feb 09 04:55	20°♌05'37	10°00'40
min. Earth dist.	1706 Feb 12 01:37	20°♌01'24	34.33496 AU
direct	1706 Apr 30 23:34	18°♌49'52	
evening set	1706 Aug 01 22:59	20°♌34'58	
max. Earth dist.	1706 Aug 11 03:18	20°♌52'27	36.18025 AU
conjunction	1706 Aug 14 08:57	20°♌58'39	9°40'29
minimum elong	1706 Aug 14 08:37	20°♌58'37	9°40'29
morning rise	1706 Aug 26 16:58	21°♌22'12	
retrograde	1706 Nov 25 04:24	23°♌05'38	
opposition	1707 Feb 11 04:48	21°♌51'57	10°27'26
min. Earth dist.	1707 Feb 14 01:35	21°♌47'42	34.08464 AU
direct	1707 May 02 22:23	20°♌35'44	
evening set	1707 Aug 04 10:38	22°♌22'46	
max. Earth dist.	1707 Aug 13 05:20	22°♌39'40	35.92743 AU
conjunction	1707 Aug 16 11:16	22°♌45'57	10°05'30
minimum elong	1707 Aug 16 10:57	22°♌45'55	10°05'30
morning rise	1707 Aug 28 09:45	23°♌08'59	
retrograde	1707 Nov 27 07:11	24°♌54'13	
opposition	1708 Feb 13 05:33	23°♌40'08	10°54'03

min. Earth dist.	1708 Feb 16 03:25	23°♌35'47	33.83492 AU
direct	1708 May 03 23:27	22°♌23'26	
evening set	1708 Aug 05 23:58	24°♌12'29	
max. Earth dist.	1708 Aug 14 08:25	24°♌28'43	35.67552 AU
conjunction	1708 Aug 17 14:22	24°♌35'04	10°30'17
minimum elong	1708 Aug 17 14:01	24°♌35'02	10°30'17
morning rise	1708 Aug 29 02:47	24°♌57'31	
retrograde	1708 Nov 28 12:04	26°♌44'38	
opposition	1709 Feb 14 06:43	25°♌30'07	11°20'26
min. Earth dist.	1709 Feb 17 04:01	25°♌25'46	33.58637 AU
direct	1709 May 06 01:30	24°♌12'55	
evening set	1709 Aug 08 14:39	26°♌04'04	
max. Earth dist.	1709 Aug 16 11:22	26°♌19'31	35.42483 AU
conjunction	1709 Aug 19 18:17	26°♌26'00	10°54'50
minimum elong	1709 Aug 19 17:56	26°♌25'59	10°54'50
morning rise	1709 Aug 30 19:57	26°♌47'48	
retrograde	1709 Nov 30 15:24	28°♌36'53	
opposition	1710 Feb 16 08:56	27°♌21'55	11°46'32
min. Earth dist.	1710 Feb 19 07:28	27°♌17'28	33.33954 AU
direct	1710 May 08 01:18	26°♌04'13	
evening set	1710 Aug 11 06:46	27°♌57'33	
max. Earth dist.	1710 Aug 18 16:53	28°♌12'16	35.17620 AU
conjunction	1710 Aug 21 22:46	28°♌18'45	11°19'03
minimum elong	1710 Aug 21 22:24	28°♌18'43	11°19'03
morning rise	1710 Sep 01 12:46	28°♌39'48	
	1710 Oct 18 08:38	0°♍	
retrograde	1710 Dec 02 18:30	0°♍30'57	
	1711 Jan 18 07:14	30°℞♌	
opposition	1711 Feb 18 11:49	29°♌15'32	12°12'18
min. Earth dist.	1711 Feb 21 09:25	29°♌11'06	33.09514 AU
direct	1711 May 10 04:14	27°♌57'19	
evening set	1711 Aug 14 00:23	29°♌52'56	
	1711 Aug 17 13:16	0°♍	
max. Earth dist.	1711 Aug 20 21:09	0°♍06'41	34.93037 AU
conjunction	1711 Aug 24 03:57	0°♍13'19	11°42'55
minimum elong	1711 Aug 24 03:35	0°♍13'17	11°42'55
morning rise	1711 Sep 03 05:46	0°♍33'33	
retrograde	1711 Dec 05 00:23	2°♍26'51	
opposition	1712 Feb 20 15:27	1°♍10'59	12°37'39
min. Earth dist.	1712 Feb 23 13:24	1°♍06'30	32.85417 AU
	1712 Apr 18 05:50	30°℞♌	
direct	1712 May 11 04:34	29°♌52'15	
	1712 Jun 03 01:26	0°♍	
evening set	1712 Aug 15 19:36	1°♍50'16	
max. Earth dist.	1712 Aug 22 04:42	2°♍03'10	34.68820 AU
conjunction	1712 Aug 25 09:59	2°♍09'44	12°06'20
minimum elong	1712 Aug 25 09:36	2°♍09'42	12°06'20
morning rise	1712 Sep 03 22:27	2°♍29'04	
retrograde	1712 Dec 06 06:06	4°♍24'38	
opposition	1713 Feb 21 20:03	3°♍08'19	13°02'32
min. Earth dist.	1713 Feb 24 17:23	3°♍03'50	32.61714 AU
direct	1713 May 13 07:49	1°♍49'05	
evening set	1713 Aug 18 16:42	3°♍49'37	
max. Earth dist.	1713 Aug 24 11:12	4°♍01'26	34.45044 AU
conjunction	1713 Aug 27 16:42	4°♍08'04	12°29'14
minimum elong	1713 Aug 27 16:19	4°♍08'02	12°29'15
morning rise	1713 Sep 05 15:08	4°♍26'24	
retrograde	1713 Dec 08 15:19	6°♍24'21	
opposition	1714 Feb 24 01:20	5°♍07'36	13°26'51
min. Earth dist.	1714 Feb 26 21:59	5°♍03'09	32.38493 AU
direct	1714 May 15 12:17	3°♍47'54	
evening set	1714 Aug 21 15:33	5°♍51'06	
max. Earth dist.	1714 Aug 26 20:01	6°♍01'49	34.21754 AU
conjunction	1714 Aug 30 00:21	6°♍08'25	12°51'34
minimum elong	1714 Aug 29 23:58	6°♍08'23	12°51'34
morning rise	1714 Sep 07 07:29	6°♍25'38	
retrograde	1714 Dec 10 24:00	8°♍26'07	
opposition	1715 Feb 26 07:43	7°♍08'57	13°50'32
min. Earth dist.	1715 Mar 01 04:20	7°♍04'28	32.15768 AU
direct	1715 May 17 18:25	5°♍48'49	
evening set	1715 Aug 24 16:27	7°♍54'49	
max. Earth dist.	1715 Aug 29 04:54	8°♍04'16	33.98983 AU
conjunction	1715 Sep 01 08:32	8°♍10'52	13°13'16
minimum elong	1715 Sep 01 08:10	8°♍10'50	13°13'16
morning rise	1715 Sep 08 23:13	8°♍26'49	
retrograde	1715 Dec 13 10:46	10°♍29'59	
opposition	1716 Feb 28 14:46	9°♍12'26	14°13'31
min. Earth dist.	1716 Mar 02 09:58	9°♍08'02	31.93548 AU
direct	1716 May 19 01:32	7°♍51'52	
evening set	1716 Aug 26 19:44	10°♍00'53	
max. Earth dist.	1716 Aug 30 14:31	10°♍08'52	33.76685 AU
conjunction	1716 Sep 02 17:50	10°♍15'30	13°34'16
minimum elong	1716 Sep 02 17:26	10°♍15'28	13°34'16
morning rise	1716 Sep 09 14:33	10°♍30'02	
retrograde	1716 Dec 14 20:36	12°♍36'03	
opposition	1717 Mar 01 22:45	11°♍18'08	14°35'46
min. Earth dist.	1717 Mar 04 18:33	11°♍13'39	31.71792 AU
direct	1717 May 21 07:34	9°♍57'08	
evening set	1717 Aug 30 02:06	12°♍09'21	
max. Earth dist.	1717 Sep 02 02:04	12°♍15'45	33.54851 AU
conjunction	1717 Sep 05 03:59	12°♍22'20	13°54'31
minimum elong	1717 Sep 05 03:37	12°♍22'18	13°54'31
morning rise	1717 Sep 11 04:40	12°♍35'13	
retrograde	1717 Dec 17 08:20	14°♍44'18	
opposition	1718 Mar 04 07:43	13°♍26'01	14°57'11
min. Earth dist.	1718 Mar 07 02:08	13°♍21'36	31.50477 AU
direct	1718 May 23 16:16	12°♍04'36	
evening set	1718 Sep 02 11:43	14°♍20'17	
max. Earth dist.	1718 Sep 04 12:35	14°♍24'40	33.33450 AU
conjunction	1718 Sep 07 14:47	14°♍31'21	14°13'57
minimum elong	1718 Sep 07 14:24	14°♍31'19	14°13'56
morning rise	1718 Sep 12 16:47	14°♍42'19	
retrograde	1718 Dec 19 19:59	16°♍54'44	
opposition	1719 Mar 06 17:41	15°♍36'04	15°17'43
min. Earth dist.	1719 Mar 09 12:24	15°♍31'36	31.29603 AU
direct	1719 May 25 22:56	14°♍14'14	
evening set	1719 Sep 06 03:01	16°♍33'49	
max. Earth dist.	1719 Sep 07 02:12	16°♍35'55	33.12505 AU
conjunction	1719 Sep 10 02:35	16°♍42'30	14°32'30
minimum elong	1719 Sep 10 02:14	16°♍42'28	14°32'30
morning rise	1719 Sep 14 01:14	16°♍51'06	
retrograde	1719 Dec 22 07:04	19°♍07'16	
opposition	1720 Mar 08 04:25	17°♍48'14	15°37'17
min. Earth dist.	1720 Mar 10 21:57	17°♍43'49	31.09176 AU
direct	1720 May 27 09:24	16°♍25'59	
evening set	1720 Sep 09 05:18	18°♍50'26	
max. Earth dist.	1720 Sep 08 14:22	18°♍49'04	32.92040 AU
conjunction	1720 Sep 11 15:05	18°♍55'44	14°50'05
minimum elong	1720 Sep 11 14:43	18°♍55'42	14°50'05
morning rise	1720 Sep 14 00:04	19°♍00'58	
retrograde	1720 Dec 23 20:47	21°♍21'53	

opposition	1721 Mar 10 16:04	20°♍02'27	15°55'49
min. Earth dist.	1721 Mar 13 09:05	19°♍58'03	30.89248 AU
direct	1721 May 29 18:45	18°♍39'46	
max. Earth dist.	1721 Sep 11 05:50	21°♍04'27	32.72096 AU
conjunction	1721 Sep 14 04:28	21°♍11'00	15°06'39
minimum elong	1721 Sep 14 04:08	21°♍10'58	15°06'39
retrograde	1721 Dec 26 09:37	23°♍38'28	
opposition	1722 Mar 13 04:39	22°♍18'39	16°13'12
min. Earth dist.	1722 Mar 15 20:56	22°♍14'17	30.69853 AU
direct	1722 Jun 01 05:56	20°♍55'34	
max. Earth dist.	1722 Sep 13 20:17	23°♍21'39	32.52756 AU
conjunction	1722 Sep 16 18:24	23°♍28'11	15°22'05
minimum elong	1722 Sep 16 18:04	23°♍28'09	15°22'05
retrograde	1722 Dec 29 01:37	25°♍56'58	
opposition	1723 Mar 15 17:58	24°♍36'45	16°29'21
min. Earth dist.	1723 Mar 18 08:40	24°♍32'29	30.51094 AU
direct	1723 Jun 03 18:55	23°♍13'16	
max. Earth dist.	1723 Sep 16 13:01	25°♍40'52	32.34086 AU
conjunction	1723 Sep 19 09:02	25°♍47'16	15°36'18
minimum elong	1723 Sep 19 08:44	25°♍47'14	15°36'18
retrograde	1723 Dec 31 16:30	28°♍17'19	
opposition	1724 Mar 17 08:13	26°♍56'42	16°44'10
min. Earth dist.	1724 Mar 19 22:20	26°♍52'27	30.33030 AU
direct	1724 Jun 05 09:11	25°♍32'49	
max. Earth dist.	1724 Sep 18 05:50	28°♍01'51	32.16193 AU
conjunction	1724 Sep 21 00:18	28°♍08'09	15°49'13
minimum elong	1724 Sep 20 24:00	28°♍08'07	15°49'13
	1724 Nov 14 23:14	0°♎	
retrograde	1725 Jan 02 09:31	0°♎39'25	
	1725 Feb 21 14:10	30°℞♍	
opposition	1725 Mar 19 23:02	29°♍18'27	16°57'33
min. Earth dist.	1725 Mar 22 10:35	29°♍14'21	30.15766 AU
direct	1725 Jun 08 00:39	27°♍54'12	
	1725 Sep 10 03:58	0°♎	
max. Earth dist.	1725 Sep 20 23:47	0°♎24'38	31.99146 AU
conjunction	1725 Sep 23 16:21	0°♎30'48	16°00'45
minimum elong	1725 Sep 23 16:06	0°♎30'47	16°00'45
retrograde	1726 Jan 05 02:15	3°♎03'15	
opposition	1726 Mar 22 14:58	1°♎41'58	17°09'23
min. Earth dist.	1726 Mar 25 01:41	1°♎37'54	29.99376 AU
direct	1726 Jun 10 14:57	0°♎17'23	
max. Earth dist.	1726 Sep 23 19:00	2°♎49'16	31.83046 AU
conjunction	1726 Sep 26 08:48	2°♎55'13	16°10'47
minimum elong	1726 Sep 26 08:33	2°♎55'11	16°10'47
retrograde	1727 Jan 07 21:16	5°♎28'48	
opposition	1727 Mar 25 07:31	4°♎07'13	17°19'36
min. Earth dist.	1727 Mar 27 15:15	4°♎03'20	29.83919 AU
direct	1727 Jun 13 08:18	2°♎42'21	
max. Earth dist.	1727 Sep 26 13:52	5°♎15'32	31.67909 AU
conjunction	1727 Sep 29 02:02	5°♎21'22	16°19'16
minimum elong	1727 Sep 29 01:50	5°♎21'21	16°19'16
retrograde	1728 Jan 10 14:41	7°♎56'03	
opposition	1728 Mar 27 00:45	6°♎34'12	17°28'06
min. Earth dist.	1728 Mar 29 07:27	6°♎30'24	29.69416 AU
direct	1728 Jun 14 23:20	5°♎09'06	
max. Earth dist.	1728 Sep 28 10:58	7°♎43'39	31.53751 AU
conjunction	1728 Sep 30 19:56	7°♎49'13	16°26'07
minimum elong	1728 Sep 30 19:44	7°♎49'12	16°26'07
retrograde	1729 Jan 12 08:56	10°♎24'56	

opposition	1729 Mar 29 18:49	9°♎02'52	17°34'50
min. Earth dist.	1729 Mar 31 22:52	8°♎59'13	29.55834 AU
direct	1729 Jun 17 17:33	7°♎37'34	
max. Earth dist.	1729 Oct 01 06:35	10°♎13'14	31.40531 AU
conjunction	1729 Oct 03 14:15	10°♎18'42	16°31'18
minimum elong	1729 Oct 03 14:07	10°♎18'41	16°31'18
retrograde	1730 Jan 15 05:00	12°♎55'22	
opposition	1730 Apr 01 13:38	11°♎33'06	17°39'46
min. Earth dist.	1730 Apr 03 16:04	11°♎29'34	29.43167 AU
direct	1730 Jun 20 09:45	10°♎07'36	
max. Earth dist.	1730 Oct 04 05:01	12°♎44'31	31.28241 AU
conjunction	1730 Oct 06 09:16	12°♎49'41	16°34'47
minimum elong	1730 Oct 06 09:08	12°♎49'40	16°34'47
retrograde	1731 Jan 17 23:10	15°♎27'13	
opposition	1731 Apr 04 09:09	14°♎04'45	17°42'50
min. Earth dist.	1731 Apr 06 09:28	14°♎01'21	29.31382 AU
direct	1731 Jun 23 04:33	12°♎39'05	
max. Earth dist.	1731 Oct 07 01:35	15°♎16'55	31.16869 AU
conjunction	1731 Oct 09 04:29	15°♎21'59	16°36'30
minimum elong	1731 Oct 09 04:26	15°♎21'58	16°36'30
retrograde	1732 Jan 20 19:09	18°♎00'18	
opposition	1732 Apr 06 05:10	16°♎37'39	17°43'59
min. Earth dist.	1732 Apr 08 03:13	16°♎34'25	29.20488 AU
direct	1732 Jun 24 23:35	15°♎11'49	
max. Earth dist.	1732 Oct 09 00:53	17°♎50'41	31.06409 AU
conjunction	1732 Oct 11 00:25	17°♎55'26	16°36'26
minimum elong	1732 Oct 11 00:22	17°♎55'26	16°36'26
retrograde	1733 Jan 22 14:04	20°♎34'26	
opposition	1733 Apr 09 01:46	19°♎11'36	17°43'12
min. Earth dist.	1733 Apr 10 22:13	19°♎08'28	29.10474 AU
direct	1733 Jun 27 19:22	17°♎45'38	
max. Earth dist.	1733 Oct 11 22:40	20°♎25'14	30.96892 AU
conjunction	1733 Oct 13 20:28	20°♎29'49	16°34'33
minimum elong	1733 Oct 13 20:28	20°♎29'50	16°34'32
retrograde	1734 Jan 25 11:18	23°♎09'24	
opposition	1734 Apr 11 22:49	21°♎46'25	17°40'26
min. Earth dist.	1734 Apr 13 16:08	21°♎43'30	29.01389 AU
direct	1734 Jun 30 15:55	20°♎20'18	
max. Earth dist.	1734 Oct 14 22:16	23°♎00'42	30.88342 AU
conjunction	1734 Oct 16 16:45	23°♎04'58	16°30'48
minimum elong	1734 Oct 16 16:46	23°♎04'58	16°30'48
retrograde	1735 Jan 28 06:31	25°♎45'02	
opposition	1735 Apr 14 20:21	24°♎21'52	17°35'38
min. Earth dist.	1735 Apr 16 12:07	24°♎19'04	28.93262 AU
direct	1735 Jul 03 13:41	22°♎55'40	
max. Earth dist.	1735 Oct 17 21:08	25°♎36'38	30.80825 AU
conjunction	1735 Oct 19 13:08	25°♎40'40	16°25'10
minimum elong	1735 Oct 19 13:13	25°♎40'41	16°25'09
retrograde	1736 Jan 31 03:53	28°♎21'05	
opposition	1736 Apr 16 17:50	26°♎57'47	17°28'48
min. Earth dist.	1736 Apr 18 05:57	26°♎55'14	28.86158 AU
direct	1736 Jul 05 12:31	25°♎31'30	
max. Earth dist.	1736 Oct 19 20:55	28°♎13'02	30.74384 AU
conjunction	1736 Oct 21 09:42	28°♎16'45	16°17'37
minimum elong	1736 Oct 21 09:49	28°♎16'45	16°17'38
	1736 Dec 06 11:35	0°♏	
retrograde	1737 Feb 01 23:57	0°♏57'26	
	1737 Apr 04 02:21	30°℞♎	
opposition	1737 Apr 19 15:56	29°♎34'01	17°19'53

min. Earth dist.	1737 Apr 21	02:15	29°♎31'35	28.80144 AU
direct	1737 Jul 08	09:42	28°♎07'40	
	1737 Oct 02	00:05	0°♏	
max. Earth dist.	1737 Oct 22	20:52	0°♏49'40	30.69113 AU
conjunction	1737 Oct 24	06:07	0°♏53'02	16°08'09
minimum elong	1737 Oct 24	06:16	0°♏53'03	16°08'09
retrograde	1738 Feb 04	21:38	3°♏33'53	
opposition	1738 Apr 22	14:05	2°♏10'24	17°08'53
min. Earth dist.	1738 Apr 23	20:17	2°♏08'16	28.75291 AU
direct	1738 Jul 11	09:53	0°♏44'04	
max. Earth dist.	1738 Oct 25	20:25	3°♏26'23	30.65061 AU
conjunction	1738 Oct 27	02:34	3°♏29'27	15°56'45
minimum elong	1738 Oct 27	02:45	3°♏29'28	15°56'46
retrograde	1739 Feb 07	18:26	6°♏10'23	
opposition	1739 Apr 25	12:24	4°♏46'52	16°55'48
min. Earth dist.	1739 Apr 26	16:07	4°♏44'54	28.71668 AU
direct	1739 Jul 14	07:35	3°♏20'35	
conjunction	1739 Oct 29	22:57	6°♏05'53	15°43'26
minimum elong	1739 Oct 29	23:11	6°♏05'54	15°43'25
max. Earth dist.	1739 Oct 28	20:54	6°♏03'15	30.62287 AU
retrograde	1740 Feb 10	14:52	8°♏46'49	
opposition	1740 Apr 27	10:42	7°♏23'20	16°40'39
min. Earth dist.	1740 Apr 28	10:29	7°♏21'39	28.69267 AU
direct	1740 Jul 16	07:06	5°♏57'09	
conjunction	1740 Oct 31	19:10	8°♏42'17	15°28'14
minimum elong	1740 Oct 31	19:25	8°♏42'18	15°28'14
max. Earth dist.	1740 Oct 30	19:44	8°♏39'54	30.60756 AU
retrograde	1741 Feb 12	12:39	11°♏23'07	
opposition	1741 Apr 30	09:00	9°♏59'42	16°23'29
min. Earth dist.	1741 May 01	05:55	9°♏58'14	28.68085 AU
direct	1741 Jul 19	04:40	8°♏33'41	
conjunction	1741 Nov 03	15:21	11°♏18'32	15°11'12
minimum elong	1741 Nov 03	15:38	11°♏18'33	15°11'12
max. Earth dist.	1741 Nov 02	20:19	11°♏16'36	30.60451 AU
retrograde	1742 Feb 15	08:15	13°♏59'11	
opposition	1742 May 03	07:24	12°♏35'52	16°04'22
min. Earth dist.	1742 May 04	01:07	12°♏34'37	28.68065 AU
direct	1742 Jul 22	03:52	11°♏10'03	
evening set	1742 Nov 04	10:31	13°♏49'34	
conjunction	1742 Nov 06	11:02	13°♏54'29	14°52'25
minimum elong	1742 Nov 06	11:21	13°♏54'31	14°52'25
max. Earth dist.	1742 Nov 05	18:22	13°♏52'48	30.61310 AU
morning rise	1742 Nov 08	12:10	13°♏59'27	
	1742 Dec 04	05:24	15°♏	
retrograde	1743 Feb 18	04:35	16°♏34'52	
opposition	1743 May 06	05:36	15°♏11'40	15°43'23
min. Earth dist.	1743 May 06	20:01	15°♏10'39	28.69174 AU
	1743 May 13	04:39	15°℞♏	
direct	1743 Jul 25	01:33	13°♏46'03	
	1743 Sep 30	21:18	15°♏	
evening set	1743 Nov 05	09:47	16°♏20'36	
conjunction	1743 Nov 09	06:47	16°♏29'59	14°31'56
minimum elong	1743 Nov 09	07:07	16°♏30'01	14°31'55
max. Earth dist.	1743 Nov 08	18:24	16°♏28'44	30.63283 AU
morning rise	1743 Nov 13	04:16	16°♏39'25	
retrograde	1744 Feb 20	22:53	19°♏09'59	
opposition	1744 May 08	03:35	17°♏46'55	15°20'37
min. Earth dist.	1744 May 08	15:34	17°♏46'05	28.71342 AU
direct	1744 Jul 26	23:47	16°♏21'31	
evening set	1744 Nov 05	22:40	18°♏52'25	

conjunction	1744 Nov 11	02:04	19°♏04'51	14°09'50
minimum elong	1744 Nov 11	02:25	19°♏04'53	14°09'51
max. Earth dist.	1744 Nov 10	15:43	19°♏03'48	30.66322 AU
morning rise	1744 Nov 16	05:55	19°♏17'18	
retrograde	1745 Feb 22	19:20	21°♏44'22	
opposition	1745 May 11	01:24	20°♏21'26	14°56'09
min. Earth dist.	1745 May 11	09:35	20°♏20'52	28.74551 AU
direct	1745 Jul 29	21:11	18°♏56'16	
evening set	1745 Nov 07	16:28	21°♏23'59	
conjunction	1745 Nov 13	20:59	21°♏38'52	13°46'13
minimum elong	1745 Nov 13	21:22	21°♏38'54	13°46'12
max. Earth dist.	1745 Nov 13	14:39	21°♏38'14	30.70389 AU
morning rise	1745 Nov 20	01:49	21°♏53'47	
retrograde	1746 Feb 25	11:37	24°♏17'49	
opposition	1746 May 13	23:04	22°♏55'02	14°30'04
min. Earth dist.	1746 May 14	05:11	22°♏54'36	28.78758 AU
direct	1746 Aug 01	19:23	21°♏30'06	
evening set	1746 Nov 09	13:06	23°♏54'51	
conjunction	1746 Nov 16	15:25	24°♏11'52	13°21'09
minimum elong	1746 Nov 16	15:48	24°♏11'54	13°21'09
max. Earth dist.	1746 Nov 16	11:18	24°♏11'27	30.75474 AU
morning rise	1746 Nov 23	18:04	24°♏28'54	
retrograde	1747 Feb 28	06:15	26°♏50'08	
opposition	1747 May 16	20:00	25°♏27'30	14°02'28
min. Earth dist.	1747 May 16	22:12	25°♏27'21	28.83964 AU
direct	1747 Aug 04	17:08	24°♏02'47	
evening set	1747 Nov 11	11:16	26°♏24'45	
conjunction	1747 Nov 19	09:23	26°♏43'38	12°54'42
minimum elong	1747 Nov 19	09:46	26°♏43'40	12°54'42
max. Earth dist.	1747 Nov 19	08:52	26°♏43'35	30.81553 AU
morning rise	1747 Nov 27	07:39	27°♏02'33	
retrograde	1748 Mar 01	22:32	29°♏21'09	
opposition	1748 May 18	16:42	27°♏58'39	13°33'26
min. Earth dist.	1748 May 18	16:57	27°♏58'38	28.90166 AU
direct	1748 Aug 06	12:55	26°♏34'11	
evening set	1748 Nov 12	10:41	28°♏53'27	
conjunction	1748 Nov 21	02:37	29°♏14'01	12°26'59
minimum elong	1748 Nov 21	03:01	29°♏14'03	12°27'00
max. Earth dist.	1748 Nov 21	04:58	29°♏14'15	30.88654 AU
morning rise	1748 Nov 29	18:41	29°♏34'36	
	1748 Dec 10	16:56	0°♐	
retrograde	1749 Mar 04	15:32	1°♐50'41	
opposition	1749 May 21	12:44	0°♐28'20	13°03'04
min. Earth dist.	1749 May 21	08:55	0°♐28'36	28.97391 AU
	1749 Jun 08	01:40	30°℞♏	
direct	1749 Aug 09	12:00	29°♏04'07	
	1749 Oct 07	10:37	0°♐	
evening set	1749 Nov 14	10:47	1°♐20'47	
conjunction	1749 Nov 23	19:15	1°♐42'52	11°58'05
minimum elong	1749 Nov 23	19:38	1°♐42'54	11°58'04
max. Earth dist.	1749 Nov 24	00:54	1°♐43'25	30.96798 AU
morning rise	1749 Dec 03	03:47	2°♐04'57	
retrograde	1750 Mar 07	07:47	4°♐18'38	
opposition	1750 May 24	08:23	2°♐56'27	12°31'27
min. Earth dist.	1750 May 24	01:58	2°♐56'54	29.05703 AU
direct	1750 Aug 12	07:37	1°♐32'30	
evening set	1750 Nov 16	11:28	3°♐46'40	
conjunction	1750 Nov 26	11:07	4°♐10'06	11°28'03
minimum elong	1750 Nov 26	11:31	4°♐10'08	11°28'03
max. Earth dist.	1750 Nov 26	20:24	4°♐11'01	31.06050 AU
morning rise	1750 Dec 06	10:42	4°♐33'32	

retrograde	1751 Mar 09 23:04	6°♐44'55	
opposition	1751 May 27 03:17	5°♐22'57	11°58'42
min. Earth dist.	1751 May 26 17:02	5°♐23'38	29.15118 AU
direct	1751 Aug 15 04:36	3°♐59'18	
evening set	1751 Nov 18 12:41	6°♐11'03	
conjunction	1751 Nov 29 02:23	6°♐35'43	10°57'00
minimum elong	1751 Nov 29 02:46	6°♐35'45	10°56'59
max. Earth dist.	1751 Nov 29 14:20	6°♐36'53	31.16409 AU
morning rise	1751 Dec 09 16:06	7°♐00'22	
retrograde	1752 Mar 11 15:07	9°♐09'33	
opposition	1752 May 28 21:32	7°♐47'48	11°24'53
min. Earth dist.	1752 May 28 08:10	7°♐48'42	29.25662 AU
direct	1752 Aug 16 23:23	6°♐24'30	
evening set	1752 Nov 19 14:20	8°♐33'57	
conjunction	1752 Nov 30 17:07	8°♐59'42	10°25'02
minimum elong	1752 Nov 30 17:30	8°♐59'45	10°25'02
max. Earth dist.	1752 Dec 01 09:09	9°♐01'16	31.27883 AU
morning rise	1752 Dec 11 19:38	9°♐25'27	
retrograde	1753 Mar 14 05:22	11°♐32'32	
opposition	1753 May 31 15:18	10°♐11'03	10°50'08
min. Earth dist.	1753 May 30 22:53	10°♐12'10	29.37290 AU
direct	1753 Aug 19 19:45	8°♐48'07	
evening set	1753 Nov 21 16:12	10°♐55'22	
conjunction	1753 Dec 03 06:52	11°♐22'06	9°52'14
minimum elong	1753 Dec 03 07:14	11°♐22'08	9°52'14
max. Earth dist.	1753 Dec 04 01:10	11°♐23'51	31.40410 AU
morning rise	1753 Dec 14 21:32	11°♐48'49	
retrograde	1754 Mar 16 19:47	13°♐53'54	
opposition	1754 Jun 03 08:25	12°♐32'42	10°14'35
min. Earth dist.	1754 Jun 02 12:19	12°♐34'03	29.49966 AU
direct	1754 Aug 22 12:43	11°♐10'10	
evening set	1754 Nov 23 18:21	13°♐15'17	
conjunction	1754 Dec 05 20:16	13°♐42'53	9°18'44
minimum elong	1754 Dec 05 20:38	13°♐42'55	9°18'45
max. Earth dist.	1754 Dec 06 18:36	13°♐45'02	31.53928 AU
morning rise	1754 Dec 17 21:50	14°♐10'29	
retrograde	1755 Mar 19 07:25	16°♐13'37	
min. Earth dist.	1755 Jun 05 02:36	14°♐54'14	29.63598 AU
opposition	1755 Jun 06 00:45	14°♐52'45	9°38'20
direct	1755 Aug 25 06:51	13°♐30'38	
evening set	1755 Nov 25 20:53	15°♐33'42	
conjunction	1755 Dec 08 08:49	16°♐02'04	8°44'39
minimum elong	1755 Dec 08 09:09	16°♐02'06	8°44'39
max. Earth dist.	1755 Dec 09 08:47	16°♐04'20	31.68354 AU
morning rise	1755 Dec 20 20:41	16°♐30'25	
retrograde	1756 Mar 20 21:01	18°♐31'43	
opposition	1756 Jun 07 16:27	17°♐11'10	9°01'30
min. Earth dist.	1756 Jun 06 14:36	17°♐12'53	29.78116 AU
direct	1756 Aug 26 22:59	15°♐49'27	
evening set	1756 Nov 26 23:24	17°♐50'33	
conjunction	1756 Dec 09 20:46	18°♐19'35	8°10'03
minimum elong	1756 Dec 09 21:06	18°♐19'37	8°10'04
max. Earth dist.	1756 Dec 11 00:17	18°♐22'11	31.83599 AU
morning rise	1756 Dec 22 17:50	18°♐48'36	
retrograde	1757 Mar 23 06:53	20°♐48'08	
min. Earth dist.	1757 Jun 09 04:19	19°♐29'43	29.93439 AU
opposition	1757 Jun 10 07:39	19°♐27'55	8°24'13
direct	1757 Aug 29 14:33	18°♐06'38	
evening set	1757 Nov 29 02:17	20°♐05'49	
conjunction	1757 Dec 12 08:01	20°♐35'25	7°35'04
minimum elong	1757 Dec 12 08:19	20°♐35'27	7°35'04
max. Earth dist.	1757 Dec 13 13:13	20°♐38'10	31.99610 AU
morning rise	1757 Dec 25 13:36	21°♐05'01	
retrograde	1758 Mar 25 17:40	23°♐02'51	
opposition	1758 Jun 12 21:58	21°♐42'57	7°46'34
min. Earth dist.	1758 Jun 11 15:09	21°♐44'59	30.09507 AU
direct	1758 Sep 01 05:41	20°♐22'04	
evening set	1758 Dec 01 05:05	22°♐19'26	
conjunction	1758 Dec 14 18:33	22°♐49'31	6°59'47
minimum elong	1758 Dec 14 18:50	22°♐49'33	6°59'47
max. Earth dist.	1758 Dec 16 02:32	22°♐52'30	32.16304 AU
morning rise	1758 Dec 28 07:52	23°♐19'36	
retrograde	1759 Mar 28 03:23	25°♐15'48	
min. Earth dist.	1759 Jun 14 03:23	23°♐58'19	30.26263 AU
opposition	1759 Jun 15 11:42	23°♐56'13	7°08'39
direct	1759 Sep 03 18:05	22°♐35'44	
evening set	1759 Dec 03 08:03	24°♐31'20	
conjunction	1759 Dec 17 04:26	25°♐01'49	6°24'16
minimum elong	1759 Dec 17 04:42	25°♐01'50	6°24'15
max. Earth dist.	1759 Dec 18 14:27	25°♐04'58	32.33651 AU
morning rise	1759 Dec 31 00:36	25°♐32'18	
retrograde	1760 Mar 29 12:38	27°♐26'55	
min. Earth dist.	1760 Jun 15 13:14	26°♐09'55	30.43660 AU
opposition	1760 Jun 17 00:25	26°♐07'39	6°30'34
direct	1760 Sep 05 08:44	24°♐47'32	
evening set	1760 Dec 04 11:00	26°♐41'26	
conjunction	1760 Dec 18 13:29	27°♐12'15	5°48'37
minimum elong	1760 Dec 18 13:44	27°♐12'16	5°48'37
max. Earth dist.	1760 Dec 20 01:24	27°♐15'32	32.51614 AU
morning rise	1761 Jan 01 15:58	27°♐43'03	
retrograde	1761 Mar 31 22:41	29°♐36'10	
min. Earth dist.	1761 Jun 17 23:23	28°♐19'34	30.61722 AU
opposition	1761 Jun 19 12:38	28°♐17'10	5°52'24
direct	1761 Sep 07 21:08	26°♐57'26	
evening set	1761 Dec 06 13:38	28°♐49'42	
conjunction	1761 Dec 20 21:43	29°♐20'45	5°12'53
minimum elong	1761 Dec 20 21:56	29°♐20'46	5°12'53
max. Earth dist.	1761 Dec 22 12:35	29°♐24'17	32.70228 AU
morning rise	1762 Jan 04 05:35	29°♐51'48	
	1762 Jan 08 02:40	0°♑	
retrograde	1762 Apr 03 06:36	1°♑43'28	
min. Earth dist.	1762 Jun 20 08:33	0°♑27'17	30.80452 AU
opposition	1762 Jun 21 23:59	0°♑24'46	5°14'12
	1762 Jul 08 08:33	30°℞♐	
direct	1762 Sep 10 10:48	29°♐05'24	
	1762 Nov 09 17:38	0°♑	
evening set	1762 Dec 08 16:27	0°♑56'07	
conjunction	1762 Dec 23 05:09	1°♑27'20	4°37'10
minimum elong	1762 Dec 23 05:20	1°♑27'21	4°37'10
max. Earth dist.	1762 Dec 24 21:32	1°♑30'59	32.89506 AU
morning rise	1763 Jan 06 18:00	1°♑58'34	
retrograde	1763 Apr 05 14:24	3°♑48'51	
min. Earth dist.	1763 Jun 22 15:56	2°♑33'09	30.99908 AU
opposition	1763 Jun 24 10:21	2°♑30'26	4°36'04
direct	1763 Sep 12 21:03	1°♑11'28	
evening set	1763 Dec 10 19:02	3°♑00'43	
conjunction	1763 Dec 25 12:00	3°♑32'02	4°01'30
minimum elong	1763 Dec 25 12:09	3°♑32'03	4°01'30
max. Earth dist.	1763 Dec 27 07:45	3°♑35'57	33.09491 AU
morning rise	1764 Jan 09 04:50	4°♑03'23	
retrograde	1764 Apr 06 19:31	5°♑52'22	

min. Earth dist.	1764 Jun 24 00:06	4°♑37'04	31.20083 AU	
opposition	1764 Jun 25 20:10	4°♑34'16	3°58'04	
direct	1764 Sep 14 10:00	3°♑15'42		
evening set	1764 Dec 11 21:36	5°♑03'33		
conjunction	1764 Dec 26 17:53	5°♑34'56	3°25'58	
minimum elong	1764 Dec 26 18:01	5°♑34'56	3°25'58	
max. Earth dist.	1764 Dec 28 14:54	5°♑38'56	33.30177 AU	
morning rise	1765 Jan 10 14:22	6°♑06'19		
retrograde	1765 Apr 09 02:30	7°♑54'05		
min. Earth dist.	1765 Jun 26 05:38	6°♑39'19	31.40977 AU	
opposition	1765 Jun 28 05:09	6°♑36'20	3°20'15	
direct	1765 Sep 16 20:09	5°♑18'11		
evening set	1765 Dec 14 00:01	7°♑04'42		
conjunction	1765 Dec 28 23:16	7°♑36'05	2°50'37	
minimum elong	1765 Dec 28 23:22	7°♑36'05	2°50'37	
max. Earth dist.	1765 Dec 30 23:23	7°♑40'19	33.51534 AU	
morning rise	1766 Jan 12 22:36	8°♑07'29		
retrograde	1766 Apr 11 05:31	9°♑54'06		
min. Earth dist.	1766 Jun 28 12:50	8°♑39'44	31.62542 AU	
opposition	1766 Jun 30 13:29	8°♑36'41	2°42'42	
direct	1766 Sep 19 05:10	7°♑18'58		
evening set	1766 Dec 16 02:22	9°♑04'14		
conjunction	1766 Dec 31 03:54	9°♑35'34	2°15'30	
minimum elong	1766 Dec 31 04:00	9°♑35'34	2°15'30	
max. Earth dist.	1767 Jan 02 05:27	9°♑39'54	33.73512 AU	
morning rise	1767 Jan 15 05:38	10°♑06'55		
retrograde	1767 Apr 13 09:02	11°♑52'28		
min. Earth dist.	1767 Jun 30 17:23	10°♑38'38	31.84697 AU	
opposition	1767 Jul 02 20:58	10°♑35'24	2°05'27	
direct	1767 Sep 21 13:24	9°♑18'07		
evening set	1767 Dec 18 04:43	11°♑02'13		
conjunction	1768 Jan 02 07:53	11°♑33'26	1°40'42	
minimum elong	1768 Jan 02 07:57	11°♑33'27	1°40'41	
max. Earth dist.	1768 Jan 04 11:36	11°♑37'56	33.96005 AU	
morning rise	1768 Jan 17 11:26	12°♑04'41		
retrograde	1768 Apr 14 12:59	13°♑49'14		
min. Earth dist.	1768 Jul 01 23:03	12°♑35'48	32.07374 AU	
opposition	1768 Jul 04 03:54	12°♑32'32	1°28'35	
direct	1768 Sep 22 18:39	11°♑15'41		
evening set	1768 Dec 19 06:57	12°♑58'39		
conjunction	1769 Jan 03 11:24	13°♑29'44	1°06'14	
minimum elong	1769 Jan 03 11:26	13°♑29'44	1°06'14	
max. Earth dist.	1769 Jan 05 16:57	13°♑34'20	34.18965 AU	
morning rise	1769 Jan 18 16:03	14°♑00'50		
retrograde	1769 Apr 16 16:04	15°♑44'25		
min. Earth dist.	1769 Jul 04 03:27	14°♑31'27	32.30478 AU	
opposition	1769 Jul 06 10:11	14°♑28'05	0°52'09	
direct	1769 Sep 25 02:05	13°♑11'39		
evening set	1769 Dec 21 09:10	14°♑53'35		
conjunction	1770 Jan 05 14:06	15°♑24'27	0°32'11	
minimum elong	1770 Jan 05 14:08	15°♑24'27	0°32'10	
max. Earth dist.	1770 Jan 07 20:35	15°♑29'06	34.42286 AU	
morning rise	1770 Jan 20 19:38	15°♑55'23		
retrograde	1770 Apr 18 20:57	17°♑38'04		
min. Earth dist.	1770 Jul 06 07:28	16°♑25'31	32.53947 AU	
opposition	1770 Jul 08 15:53	16°♑22'04	0°16'10	
direct	1770 Sep 27 06:47	15°♑06'03		
desc. node	1770 Dec 22 10:48	16°♑44'58		
evening set	1770 Dec 23 11:17	16°♑46'59		
conjunction	1771 Jan 07 16:32	17°♑17'38	-0°01'32	
minimum elong	1771 Jan 07 16:32	17°♑17'38	0°01'31	
behind sun begin	1771 Jan 07 10:11	17°♑17'07		
behind sun end	1771 Jan 07 22:54	17°♑18'08		
max. Earth dist.	1771 Jan 10 01:12	17°♑22'25	34.65907 AU	
morning rise	1771 Jan 22 22:07	17°♑48'19		
retrograde	1771 Apr 20 23:05	19°♑30'09		
min. Earth dist.	1771 Jul 08 11:41	18°♑17'57	32.77685 AU	
opposition	1771 Jul 10 20:43	18°♑14'29	-0°19'18	
direct	1771 Sep 29 13:12	16°♑58'51		
evening set	1771 Dec 25 13:27	18°♑38'50		
conjunction	1772 Jan 09 18:13	19°♑09'13	-0°34'40	
minimum elong	1772 Jan 09 18:12	19°♑09'13	0°34'40	
max. Earth dist.	1772 Jan 12 03:01	19°♑13'59	34.89755 AU	
morning rise	1772 Jan 24 23:40	19°♑39'38		
retrograde	1772 Apr 22 01:38	21°♑20'39		
min. Earth dist.	1772 Jul 09 13:46	20°♑08'53	33.01658 AU	
opposition	1772 Jul 12 01:01	20°♑05'18	-0°54'14	
direct	1772 Sep 30 17:25	18°♑50'03		
evening set	1772 Dec 26 15:11	20°♑29'08		
conjunction	1773 Jan 10 19:16	20°♑59'12	-1°07'21	
minimum elong	1773 Jan 10 19:14	20°♑59'12	1°07'21	
max. Earth dist.	1773 Jan 13 06:16	21°♑04'07	35.13799 AU	
morning rise	1773 Jan 25 23:53	21°♑29'20		
retrograde	1773 Apr 24 00:25	23°♑09'34		
min. Earth dist.	1773 Jul 11 17:20	21°♑58'06	33.25841 AU	
opposition	1773 Jul 14 04:48	21°♑54'31	-1°28'36	
direct	1773 Oct 02 23:48	20°♑39'38		
evening set	1773 Dec 28 16:52	22°♑17'51		
conjunction	1774 Jan 12 19:42	22°♑47'35	-1°39'32	
minimum elong	1774 Jan 12 19:38	22°♑47'35	1°39'32	
max. Earth dist.	1774 Jan 15 07:04	22°♑52'30	35.38051 AU	
morning rise	1774 Jan 27 23:13	23°♑17'23		
retrograde	1774 Apr 25 23:57	24°♑56'53		
min. Earth dist.	1774 Jul 13 17:59	23°♑45'49	33.50259 AU	
opposition	1774 Jul 16 07:37	23°♑42'07	-2°02'23	
direct	1774 Oct 05 04:11	22°♑27'34		
evening set	1774 Dec 30 18:18	24°♑04'59		
conjunction	1775 Jan 14 19:28	24°♑34'22	-2°11'10	
minimum elong	1775 Jan 14 19:23	24°♑34'21	2°11'09	
max. Earth dist.	1775 Jan 17 08:36	24°♑39'22	35.62529 AU	
morning rise	1775 Jan 29 21:26	25°♑03'48		
retrograde	1775 Apr 27 22:52	26°♑42'38		
min. Earth dist.	1775 Jul 15 19:45	25°♑31'52	33.74954 AU	
opposition	1775 Jul 18 09:59	25°♑28'09	-2°35'34	
direct	1775 Oct 07 06:32	24°♑13'58		
evening set	1776 Jan 01 19:30	25°♑50'37		
conjunction	1776 Jan 16 18:41	26°♑19'36	-2°42'14	
minimum elong	1776 Jan 16 18:35	26°♑19'35	2°42'15	
max. Earth dist.	1776 Jan 19 09:14	26°♑24'42	35.87288 AU	
morning rise	1776 Jan 31 18:31	26°♑48'39		
retrograde	1776 Apr 28 21:15	28°♑26'52		
min. Earth dist.	1776 Jul 16 19:31	27°♑16'29	33.99940 AU	
opposition	1776 Jul 19 11:33	27°♑12'41	-3°08'06	
direct	1776 Oct 08 08:59	25°♑58'52		
evening set	1777 Jan 02 20:42	27°♑34'50		
conjunction	1777 Jan 17 17:17	28°♑03'24	-3°12'43	
minimum elong	1777 Jan 17 17:10	28°♑03'23	3°12'43	
max. Earth dist.	1777 Jan 20 08:41	28°♑08'31	36.12335 AU	
morning rise	1777 Feb 01 14:51	28°♑32'02		
	1777 Apr 04 16:21	0°♒		
retrograde	1777 Apr 30 22:20	0°♒09'41		

	1777 May 27	15:13	30°℞♑		
min. Earth dist.	1777 Jul 18	19:05	28°♑59'42	34.25253 AU	
opposition	1777 Jul 21	12:43	28°♑55'50	-3°39'59	
direct	1777 Oct 10	07:38	27°♑42'23		
evening set	1778 Jan 04	21:28	29°♑17'43		
conjunction	1778 Jan 19	15:25	29°♑45'51	-3°42'37	
minimum elong	1778 Jan 19	15:18	29°♑45'51	3°42'37	
max. Earth dist.	1778 Jan 22	08:57	29°♑51'06	36.37681 AU	
	1778 Jan 27	00:07	0°♒		
morning rise	1778 Feb 03	10:05	0°♒14'03		
retrograde	1778 May 02	20:01	1°♒51'12		
min. Earth dist.	1778 Jul 20	18:59	0°♒41'33	34.50837 AU	
opposition	1778 Jul 23	13:13	0°♒37'40	-4°11'11	
	1778 Aug 20	15:17	30°℞♑		
direct	1778 Oct 12	08:36	29°♑24'36		
	1778 Dec 01	20:40	0°♒		
evening set	1779 Jan 06	22:22	0°♒59'22		
conjunction	1779 Jan 21	13:01	1°♒27'03	-4°11'53	
minimum elong	1779 Jan 21	12:53	1°♒27'02	4°11'52	
max. Earth dist.	1779 Jan 24	06:39	1°♒32'16	36.63268 AU	
morning rise	1779 Feb 05	04:42	1°♒54'49		
retrograde	1779 May 04	18:55	3°♒31'28		
min. Earth dist.	1779 Jul 22	16:42	2°♒22'16	34.76660 AU	
opposition	1779 Jul 25	12:57	2°♒18'17	-4°41'43	
direct	1779 Oct 14	08:24	1°♒05'37		
evening set	1780 Jan 08	22:59	2°♒39'51		
conjunction	1780 Jan 23	10:13	3°♒07'04	-4°40'32	
minimum elong	1780 Jan 23	10:04	3°♒07'03	4°40'33	
max. Earth dist.	1780 Jan 26	05:57	3°♒12'25	36.89040 AU	
morning rise	1780 Feb 06	22:21	3°♒34'22		
retrograde	1780 May 05	15:03	5°♒10'36		
min. Earth dist.	1780 Jul 23	16:16	4°♒01'42	35.02647 AU	
opposition	1780 Jul 26	12:27	3°♒57'45	-5°11'34	
direct	1780 Oct 15	09:44	2°♒45'28		
evening set	1781 Jan 09	23:25	4°♒19'13		
conjunction	1781 Jan 24	06:47	4°♒45'57	-5°08'34	
minimum elong	1781 Jan 24	06:38	4°♒45'56	5°08'33	
max. Earth dist.	1781 Jan 27	02:38	4°♒51'16	37.14938 AU	
morning rise	1781 Feb 07	15:07	5°♒12'45		
retrograde	1781 May 07	11:22	6°♒48'36		
min. Earth dist.	1781 Jul 25	13:23	5°♒40'08	35.28726 AU	
opposition	1781 Jul 28	11:19	5°♒36'06	-5°40'43	
direct	1781 Oct 17	09:33	4°♒24'11		
evening set	1782 Jan 11	23:55	5°♒57'29		
conjunction	1782 Jan 26	03:05	6°♒23'43	-5°35'58	
minimum elong	1782 Jan 26	02:55	6°♒23'42	5°35'58	
max. Earth dist.	1782 Jan 28	23:55	6°♒29'04	37.40871 AU	
morning rise	1782 Feb 09	07:22	6°♒50'01		
retrograde	1782 May 09	06:47	8°♒25'32		
min. Earth dist.	1782 Jul 27	11:58	7°♒17'21	35.54832 AU	
opposition	1782 Jul 30	09:42	7°♒13'20	-6°09'11	
direct	1782 Oct 19	08:04	6°♒01'48		
evening set	1783 Jan 14	00:12	7°♒34'40		
conjunction	1783 Jan 27	23:03	8°♒00'22	-6°02'44	
minimum elong	1783 Jan 27	22:53	8°♒00'22	6°02'43	
max. Earth dist.	1783 Jan 30	20:30	8°♒05'45	37.66786 AU	
morning rise	1783 Feb 10	22:46	8°♒26'10		
retrograde	1783 May 11	02:22	10°♒01'21		
min. Earth dist.	1783 Jul 29	09:10	8°♒53'29	35.80869 AU	
opposition	1783 Aug 01	07:31	8°♒49'28	-6°36'58	
direct	1783 Oct 21	06:14	7°♒38'16		
evening set	1784 Jan 16	00:28	9°♒10'44		
conjunction	1784 Jan 29	18:25	9°♒35'55	-6°28'52	
minimum elong	1784 Jan 29	18:14	9°♒35'54	6°28'53	
max. Earth dist.	1784 Feb 01	15:35	9°♒41'14	37.92590 AU	
morning rise	1784 Feb 12	13:34	10°♒01'10		
retrograde	1784 May 11	23:54	11°♒36'03		
min. Earth dist.	1784 Jul 30	05:57	10°♒28'29	36.06803 AU	
opposition	1784 Aug 02	04:59	10°♒24'27	-7°04'04	
direct	1784 Oct 22	01:10	9°♒13'35		
evening set	1785 Jan 17	00:28	10°♒45'40		
conjunction	1785 Jan 30	13:35	11°♒10'17	-6°54'23	
minimum elong	1785 Jan 30	13:23	11°♒10'16	6°54'22	
max. Earth dist.	1785 Feb 02	11:57	11°♒15'39	38.18272 AU	
morning rise	1785 Feb 13	03:34	11°♒34'59		
retrograde	1785 May 13	18:33	13°♒09'34		
min. Earth dist.	1785 Aug 01	03:23	12°♒02'14	36.32600 AU	
opposition	1785 Aug 04	01:57	11°♒58'14	-7°30'29	
direct	1785 Oct 23	23:23	10°♒47'40		
evening set	1786 Jan 19	00:19	12°♒19'23		
conjunction	1786 Feb 01	08:03	12°♒43'27	-7°19'16	
minimum elong	1786 Feb 01	07:51	12°♒43'26	7°19'16	
max. Earth dist.	1786 Feb 04	05:41	12°♒48'43	38.43822 AU	
morning rise	1786 Feb 14	16:54	13°♒07'36		
retrograde	1786 May 15	14:10	14°♒41'53		
min. Earth dist.	1786 Aug 02	22:29	13°♒34'50	36.58290 AU	
opposition	1786 Aug 05	22:20	13°♒30'48	-7°56'14	
direct	1786 Oct 25	19:48	12°♒20'30		
evening set	1787 Jan 20	23:57	13°♒51'54		
conjunction	1787 Feb 03	02:12	14°♒15'23	-7°43'31	
minimum elong	1787 Feb 03	02:00	14°♒15'22	7°43'30	
max. Earth dist.	1787 Feb 06	01:12	14°♒20'43	38.69269 AU	
morning rise	1787 Feb 16	05:28	14°♒38'57		
	1787 Feb 28	10:35	15°♒		
retrograde	1787 May 17	07:22	16°♒12'59		
min. Earth dist.	1787 Aug 04	18:56	15°♒06'07	36.83914 AU	
opposition	1787 Aug 07	18:10	15°♒02'07	-8°21'17	
	1787 Aug 09	08:00	15°℞♒		
direct	1787 Oct 27	16:53	13°♒52'06		
	1788 Jan 09	09:14	15°♒		
evening set	1788 Jan 22	23:25	15°♒23'12		
conjunction	1788 Feb 04	19:51	15°♒46'06	-8°07'07	
minimum elong	1788 Feb 04	19:39	15°♒46'05	8°07'08	
max. Earth dist.	1788 Feb 07	18:54	15°♒51'24	38.94683 AU	
morning rise	1788 Feb 17	17:15	16°♒09'04		
retrograde	1788 May 17	22:43	17°♒42'53		
min. Earth dist.	1788 Aug 05	12:52	16°♒36'19	37.09523 AU	
opposition	1788 Aug 08	13:32	16°♒32'16	-8°45'38	
direct	1788 Oct 28	14:09	15°♒22'31		
evening set	1789 Jan 23	22:36	16°♒53'21		
conjunction	1789 Feb 05	12:55	17°♒15'39	-8°30'06	
minimum elong	1789 Feb 05	12:43	17°♒15'38	8°30'05	
max. Earth dist.	1789 Feb 08	12:35	17°♒20'58	39.20090 AU	
morning rise	1789 Feb 18	04:22	17°♒38'02		
retrograde	1789 May 19	15:23	19°♒11'40		
min. Earth dist.	1789 Aug 07	07:47	18°♒05'20	37.35158 AU	
opposition	1789 Aug 10	08:37	18°♒01'17	-9°09'18	
direct	1789 Oct 30	09:35	16°♒51'50		
evening set	1790 Jan 25	21:40	18°♒22'25		
conjunction	1790 Feb 07	05:51	18°♒44'08	-8°52'26	
minimum elong	1790 Feb 07	05:38	18°♒44'07	8°52'25	

max. Earth dist.	1790 Feb 10 06:35	18°♒49'30	39.45525 AU
morning rise	1790 Feb 19 14:52	19°♒05'55	
retrograde	1790 May 21 07:56	20°♒39'24	
min. Earth dist.	1790 Aug 09 01:47	19°♒33'20	37.60800 AU
opposition	1790 Aug 12 02:58	19°♒29'16	-9°32'17
direct	1790 Nov 01 04:12	18°♒20'06	
evening set	1791 Jan 27 20:43	19°♒50'31	
conjunction	1791 Feb 08 22:14	20°♒11'37	-9°14'07
minimum elong	1791 Feb 08 22:02	20°♒11'36	9°14'07
max. Earth dist.	1791 Feb 11 22:36	20°♒16'55	39.70957 AU
morning rise	1791 Feb 21 00:52	20°♒32'48	
retrograde	1791 May 23 02:27	22°♒06'10	
min. Earth dist.	1791 Aug 10 18:48	21°♒00'24	37.86438 AU
opposition	1791 Aug 13 21:04	20°♒56'19	-9°54'35
direct	1791 Nov 02 20:21	19°♒47'26	
evening set	1792 Jan 29 19:23	21°♒17'42	
conjunction	1792 Feb 10 14:18	21°♒38'11	-9°35'11
minimum elong	1792 Feb 10 14:05	21°♒38'10	9°35'11
max. Earth dist.	1792 Feb 13 16:08	21°♒43'34	39.96356 AU
morning rise	1792 Feb 22 10:04	21°♒58'45	
retrograde	1792 May 23 18:30	23°♒32'02	
min. Earth dist.	1792 Aug 11 13:10	22°♒26'30	38.12014 AU
opposition	1792 Aug 14 14:49	22°♒22'27	-10°16'12
direct	1792 Nov 03 14:23	21°♒13'54	
evening set	1793 Jan 30 18:12	22°♒44'02	
conjunction	1793 Feb 11 06:04	23°♒03'55	-9°55'37
minimum elong	1793 Feb 11 05:51	23°♒03'54	9°55'38
max. Earth dist.	1793 Feb 14 07:14	23°♒09'12	40.21678 AU
morning rise	1793 Feb 22 18:51	23°♒23'51	
retrograde	1793 May 25 10:51	24°♒57'05	
min. Earth dist.	1793 Aug 13 05:19	23°♒51'51	38.37487 AU
opposition	1793 Aug 16 08:05	23°♒47'46	-10°37'10
direct	1793 Nov 05 07:35	22°♒39'31	
evening set	1794 Feb 01 16:48	24°♒09'35	
conjunction	1794 Feb 12 21:31	24°♒28'50	-10°15'28
minimum elong	1794 Feb 12 21:18	24°♒28'49	10°15'28
max. Earth dist.	1794 Feb 15 23:23	24°♒34'08	40.46851 AU
morning rise	1794 Feb 24 03:10	24°♒48'08	
retrograde	1794 May 27 01:37	26°♒21'21	
min. Earth dist.	1794 Aug 14 23:20	25°♒16'20	38.62786 AU
opposition	1794 Aug 18 01:08	25°♒12'19	-10°57'30
direct	1794 Nov 07 01:14	24°♒04'22	
evening set	1795 Feb 03 15:29	25°♒34'22	
conjunction	1795 Feb 14 12:50	25°♒52'58	-10°34'42
minimum elong	1795 Feb 14 12:38	25°♒52'57	10°34'43
max. Earth dist.	1795 Feb 17 14:36	25°♒58'15	40.71819 AU
morning rise	1795 Feb 25 10:54	26°♒11'38	
retrograde	1795 May 28 15:12	27°♒44'51	
min. Earth dist.	1795 Aug 16 15:26	26°♒40'06	38.87832 AU
opposition	1795 Aug 19 17:31	26°♒36'05	-11°17'12
direct	1795 Nov 08 19:27	25°♒28'25	
evening set	1796 Feb 05 14:08	26°♒58'22	
conjunction	1796 Feb 16 03:43	27°♒16'20	-10°53'22
minimum elong	1796 Feb 16 03:30	27°♒16'19	10°53'22
max. Earth dist.	1796 Feb 19 04:41	27°♒21'31	40.96507 AU
morning rise	1796 Feb 26 18:15	27°♒34'21	
retrograde	1796 May 29 08:14	29°♒07'35	
min. Earth dist.	1796 Aug 17 08:00	28°♒03'03	39.12595 AU
opposition	1796 Aug 20 09:52	27°♒59'04	-11°36'18
direct	1796 Nov 09 10:09	26°♒51'40	
evening set	1797 Feb 06 12:30	28°♒21'35	
conjunction	1797 Feb 16 18:22	28°♒38'54	-11°11'28
minimum elong	1797 Feb 16 18:10	28°♒38'53	11°11'28
max. Earth dist.	1797 Feb 19 19:59	28°♒44'06	41.20893 AU
morning rise	1797 Feb 27 00:52	28°♒56'16	
	1797 Apr 11 12:47	0°♓	
retrograde	1797 May 30 23:08	0°♓29'31	
	1797 Jul 21 01:48	30°♒℞	
min. Earth dist.	1797 Aug 19 00:51	29°♒25'08	39.37029 AU
opposition	1797 Aug 22 01:46	29°♒21'13	-11°54'47
direct	1797 Nov 11 01:49	28°♒14'05	
evening set	1798 Feb 08 11:00	29°♒43'58	
	1798 Feb 17 23:48	0°♓	
conjunction	1798 Feb 18 08:38	0°♓00'37	-11°29'01
minimum elong	1798 Feb 18 08:25	0°♓00'36	11°29'00
max. Earth dist.	1798 Feb 21 08:59	0°♓05'42	41.44965 AU
morning rise	1798 Feb 28 07:02	0°♓17'19	
retrograde	1798 Jun 01 14:48	1°♓50'35	
min. Earth dist.	1798 Aug 20 15:31	0°♓46'27	39.61172 AU
opposition	1798 Aug 23 17:06	0°♓42'31	-12°12'42
	1798 Sep 28 10:45	30°♒℞	
direct	1798 Nov 12 15:54	29°♒35'36	
	1798 Dec 26 14:10	0°♓	
evening set	1799 Feb 10 09:14	1°♓05'29	
conjunction	1799 Feb 19 22:37	1°♓21'28	-11°46'00
minimum elong	1799 Feb 19 22:25	1°♓21'28	11°46'00
max. Earth dist.	1799 Feb 22 23:44	1°♓26'35	41.68760 AU
morning rise	1799 Mar 01 12:39	1°♓37'30	
retrograde	1799 Jun 03 03:15	3°♓10'48	
min. Earth dist.	1799 Aug 22 07:51	2°♓06'47	39.85065 AU
opposition	1799 Aug 25 08:14	2°♓02'55	-12°30'00
direct	1799 Nov 14 08:27	0°♓56'14	
evening set	1800 Feb 12 07:23	2°♓26'09	
conjunction	1800 Feb 21 12:05	2°♓41'27	-12°02'25
minimum elong	1800 Feb 21 11:54	2°♓41'26	12°02'24
max. Earth dist.	1800 Feb 24 12:44	2°♓46'30	41.92348 AU
morning rise	1800 Mar 02 17:20	2°♓56'46	
retrograde	1800 Jun 04 14:41	4°♓30'09	
min. Earth dist.	1800 Aug 23 21:37	3°♓26'22	40.08771 AU
opposition	1800 Aug 26 22:53	3°♓22'28	-12°46'43
direct	1800 Nov 16 00:38	2°♓16'00	
evening set	1801 Feb 14 05:30	3°♓45'59	
conjunction	1801 Feb 23 01:19	4°♓00'35	-12°18'16
minimum elong	1801 Feb 23 01:07	4°♓00'34	12°18'17
max. Earth dist.	1801 Feb 26 02:00	4°♓05'36	42.15772 AU
morning rise	1801 Mar 03 21:46	4°♓15'13	
retrograde	1801 Jun 06 03:34	5°♓48'42	
min. Earth dist.	1801 Aug 25 12:32	4°♓45'05	40.32350 AU
opposition	1801 Aug 28 13:21	4°♓41'13	-13°02'50
direct	1801 Nov 17 15:51	3°♓34'59	
evening set	1802 Feb 16 03:37	5°♓05'02	
conjunction	1802 Feb 24 14:22	5°♓18'56	-12°33'34
minimum elong	1802 Feb 24 14:11	5°♓18'55	12°33'33
max. Earth dist.	1802 Feb 27 15:50	5°♓23'59	42.39085 AU
morning rise	1802 Mar 05 01:30	5°♓32'52	
retrograde	1802 Jun 07 15:53	7°♓06'29	
min. Earth dist.	1802 Aug 27 02:30	6°♓03'04	40.55793 AU
opposition	1802 Aug 30 03:21	5°♓59'12	-13°18'21
direct	1802 Nov 19 07:09	4°♓53'12	
evening set	1803 Feb 18 01:49	6°♓23'23	
conjunction	1803 Feb 26 03:01	6°♓36'33	-12°48'18
minimum elong	1803 Feb 26 02:49	6°♓36'32	12°48'18

max. Earth dist.	1803 Mar 01 03:29	6°♓41'31	42.62267 AU
morning rise	1803 Mar 06 04:42	6°♓49'46	
retrograde	1803 Jun 09 07:50	8°♓23'33	
min. Earth dist.	1803 Aug 28 15:35	7°♓20'21	40.79111 AU
opposition	1803 Aug 31 17:00	7°♓16'30	-13°33'17
direct	1803 Nov 20 17:44	6°♓10'44	
evening set	1804 Feb 19 23:59	7°♓41'04	
conjunction	1804 Feb 27 15:31	7°♓53'31	-13°02'30
minimum elong	1804 Feb 27 15:21	7°♓53'30	13°02'29
max. Earth dist.	1804 Mar 01 17:01	7°♓58'30	42.85312 AU
morning rise	1804 Mar 06 07:24	8°♓06'00	
retrograde	1804 Jun 09 20:58	9°♓39'58	
min. Earth dist.	1804 Aug 29 06:11	8°♓36'56	41.02264 AU
opposition	1804 Sep 01 06:32	8°♓33'09	-13°47'40
direct	1804 Nov 21 06:39	7°♓27'38	
evening set	1805 Feb 20 22:18	8°♓58'08	
conjunction	1805 Feb 28 03:37	9°♓09'51	-13°16'09
minimum elong	1805 Feb 28 03:26	9°♓09'50	13°16'09
max. Earth dist.	1805 Mar 03 04:20	9°♓14'46	43.08186 AU
morning rise	1805 Mar 07 09:14	9°♓21'34	
retrograde	1805 Jun 11 08:29	10°♓55'46	
min. Earth dist.	1805 Aug 30 18:35	9°♓52'59	41.25212 AU
opposition	1805 Sep 02 19:41	9°♓49'11	-14°01'28
direct	1805 Nov 22 19:50	8°♓43'54	
evening set	1806 Feb 22 20:52	10°♓14'38	
conjunction	1806 Mar 01 15:39	10°♓25'35	-13°29'18
minimum elong	1806 Mar 01 15:29	10°♓25'35	13°29'17
max. Earth dist.	1806 Mar 04 16:24	10°♓30'29	43.30815 AU
morning rise	1806 Mar 08 10:46	10°♓36'32	
retrograde	1806 Jun 12 19:17	12°♓11'00	
min. Earth dist.	1806 Sep 01 08:43	11°♓08'22	41.47895 AU
opposition	1806 Sep 04 08:33	11°♓04'38	-14°14'45
direct	1806 Nov 24 09:45	9°♓59'35	
evening set	1807 Feb 24 19:52	11°♓30'36	
conjunction	1807 Mar 03 03:35	11°♓40'45	-13°41'57
minimum elong	1807 Mar 03 03:25	11°♓40'44	13°41'57
max. Earth dist.	1807 Mar 06 04:06	11°♓45'37	43.53155 AU
morning rise	1807 Mar 09 11:27	11°♓50'55	
retrograde	1807 Jun 14 05:24	13°♓25'40	
min. Earth dist.	1807 Sep 02 21:37	12°♓23'13	41.70232 AU
opposition	1807 Sep 05 21:09	12°♓19'31	-14°27'32
direct	1807 Nov 26 00:19	11°♓14'42	
evening set	1808 Feb 26 19:09	12°♓46'01	
conjunction	1808 Mar 03 15:04	12°♓55'20	-13°54'07
minimum elong	1808 Mar 03 14:56	12°♓55'19	13°54'07
max. Earth dist.	1808 Mar 06 14:15	13°♓00'05	43.75119 AU
morning rise	1808 Mar 09 11:14	13°♓04'40	
retrograde	1808 Jun 14 18:35	14°♓39'46	
min. Earth dist.	1808 Sep 03 10:36	13°♓37'29	41.92183 AU
opposition	1808 Sep 06 09:41	13°♓33'48	-14°39'48
direct	1808 Nov 26 11:59	12°♓29'13	
evening set	1809 Feb 27 19:07	14°♓00'52	
conjunction	1809 Mar 05 02:40	14°♓09'19	-14°05'49
minimum elong	1809 Mar 05 02:30	14°♓09'18	14°05'49
max. Earth dist.	1809 Mar 08 02:11	14°♓14'04	43.96679 AU
morning rise	1809 Mar 10 10:15	14°♓17'47	
retrograde	1809 Jun 16 06:52	15°♓53'15	
min. Earth dist.	1809 Sep 05 00:14	14°♓51'04	42.13699 AU
opposition	1809 Sep 07 21:51	14°♓47'29	-14°51'36
direct	1809 Nov 27 23:48	13°♓43'04	
evening set	1810 Mar 01 19:57	15°♓15'09	
conjunction	1810 Mar 06 13:52	15°♓22'40	-14°17'04
minimum elong	1810 Mar 06 13:44	15°♓22'39	14°17'04
max. Earth dist.	1810 Mar 09 11:42	15°♓27'16	44.17819 AU
morning rise	1810 Mar 11 07:51	15°♓30'11	
retrograde	1810 Jun 17 20:01	17°♓06'05	
min. Earth dist.	1810 Sep 06 11:47	16°♓04'04	42.34798 AU
opposition	1810 Sep 09 09:41	16°♓00'29	-15°02'56
direct	1810 Nov 29 09:39	14°♓56'15	
evening set	1811 Mar 03 21:46	16°♓28'50	
conjunction	1811 Mar 08 00:49	16°♓35'20	-14°27'52
minimum elong	1811 Mar 08 00:40	16°♓35'19	14°27'52
max. Earth dist.	1811 Mar 10 22:35	16°♓39'55	44.38554 AU
morning rise	1811 Mar 12 03:49	16°♓41'50	
retrograde	1811 Jun 19 05:15	18°♓18'15	
min. Earth dist.	1811 Sep 08 01:01	17°♓16'18	42.55526 AU
opposition	1811 Sep 10 21:16	17°♓12'49	-15°13'47
direct	1811 Nov 30 22:14	16°♓08'45	
evening set	1812 Mar 05 01:42	17°♓41'58	
conjunction	1812 Mar 08 11:33	17°♓47'20	-14°38'13
minimum elong	1812 Mar 08 11:25	17°♓47'19	14°38'13
morning rise	1812 Mar 11 21:17	17°♓52'41	
max. Earth dist.	1812 Mar 11 09:00	17°♓51'52	44.58967 AU
retrograde	1812 Jun 19 12:58	19°♓29'46	
min. Earth dist.	1812 Sep 08 12:01	18°♓27'59	42.75945 AU
opposition	1812 Sep 11 08:30	18°♓24'29	-15°24'10
direct	1812 Dec 01 12:04	17°♓20'36	
evening set	1813 Mar 07 09:02	18°♓54'44	
conjunction	1813 Mar 09 21:49	18°♓58'41	-14°48'06
minimum elong	1813 Mar 09 21:41	18°♓58'41	14°48'05
morning rise	1813 Mar 12 10:28	19°♓02'38	
max. Earth dist.	1813 Mar 12 18:23	19°♓03'09	44.79099 AU
retrograde	1813 Jun 21 00:10	20°♓40'40	
min. Earth dist.	1813 Sep 09 23:36	19°♓39'01	42.96119 AU
opposition	1813 Sep 12 19:38	19°♓35'33	-15°34'03
direct	1813 Dec 02 23:18	18°♓31'51	
evening set	1814 Mar 10 04:18	20°♓07'40	
conjunction	1814 Mar 11 08:13	20°♓09'29	-14°57'31
minimum elong	1814 Mar 11 08:06	20°♓09'28	14°57'31
morning rise	1814 Mar 12 11:55	20°♓11'16	
max. Earth dist.	1814 Mar 14 05:23	20°♓13'58	44.99003 AU
retrograde	1814 Jun 22 10:05	21°♓51'01	
min. Earth dist.	1814 Sep 11 11:06	20°♓49'30	43.16052 AU
opposition	1814 Sep 14 06:14	20°♓46'05	-15°43'28
direct	1814 Dec 04 10:43	19°♓42'34	
conjunction	1815 Mar 12 18:11	21°♓19'45	-15°06'29
minimum elong	1815 Mar 12 18:05	21°♓19'45	15°06'28
max. Earth dist.	1815 Mar 15 14:01	21°♓24'08	45.18688 AU
retrograde	1815 Jun 23 22:29	23°♓00'52	
min. Earth dist.	1815 Sep 12 21:07	21°♓59'33	43.35767 AU
opposition	1815 Sep 15 16:46	21°♓56'07	-15°52'24
direct	1815 Dec 05 18:27	20°♓52'48	
conjunction	1816 Mar 13 03:55	22°♓29'34	-15°15'00
minimum elong	1816 Mar 13 03:49	22°♓29'34	15°15'01
max. Earth dist.	1816 Mar 16 00:16	22°♓33'58	45.38142 AU
retrograde	1816 Jun 24 08:44	24°♓10'17	
min. Earth dist.	1816 Sep 13 09:00	23°♓09'04	43.55236 AU
opposition	1816 Sep 16 03:15	23°♓05'44	-16°00'53
direct	1816 Dec 06 03:56	22°♓02'38	
conjunction	1817 Mar 14 13:39	23°♓38'59	-15°23'05
minimum elong	1817 Mar 14 13:33	23°♓38'59	15°23'04

max. Earth dist.	1817 Mar 17 09:16	23°♓43'19	45.57355 AU
retrograde	1817 Jun 25 16:48	25°♓19'18	
min. Earth dist.	1817 Sep 14 18:43	24°♓18'18	43.74425 AU
opposition	1817 Sep 17 13:16	24°♓14'57	-16°08'54
direct	1817 Dec 07 14:21	23°♓12'03	
conjunction	1818 Mar 15 23:08	24°♓48'02	-15°30'44
minimum elong	1818 Mar 15 23:02	24°♓48'01	15°30'45
max. Earth dist.	1818 Mar 18 17:49	24°♓52'17	45.76257 AU
retrograde	1818 Jun 27 01:45	26°♓27'59	
min. Earth dist.	1818 Sep 16 06:02	25°♓27'06	43.93285 AU
opposition	1818 Sep 18 23:19	25°♓23'49	-16°16'30
direct	1818 Dec 09 01:48	24°♓21'07	
conjunction	1819 Mar 17 08:38	25°♓56'43	-15°38'00
minimum elong	1819 Mar 17 08:34	25°♓56'42	15°37'59
max. Earth dist.	1819 Mar 20 03:28	26°♓00'58	45.94801 AU
retrograde	1819 Jun 28 10:31	27°♓36'18	
min. Earth dist.	1819 Sep 17 16:43	26°♓35'33	44.11732 AU
opposition	1819 Sep 20 08:59	26°♓32'20	-16°23'41
direct	1819 Dec 10 13:22	25°♓29'49	
conjunction	1820 Mar 17 17:54	27°♓05'02	-15°44'52
minimum elong	1820 Mar 17 17:49	27°♓05'02	15°44'52
max. Earth dist.	1820 Mar 20 10:43	27°♓09'08	46.12917 AU
retrograde	1820 Jun 28 23:09	28°♓44'15	
min. Earth dist.	1820 Sep 18 02:39	27°♓43'39	44.29734 AU
opposition	1820 Sep 20 18:38	27°♓40'27	-16°30'29
direct	1820 Dec 10 20:20	26°♓38'07	
conjunction	1821 Mar 19 03:05	28°♓12'57	-15°51'22
minimum elong	1821 Mar 19 03:02	28°♓12'57	15°51'21
max. Earth dist.	1821 Mar 21 19:46	28°♓17'01	46.30556 AU
retrograde	1821 Jun 30 08:56	29°♓51'47	
min. Earth dist.	1821 Sep 19 14:15	28°♓51'13	44.47229 AU
opposition	1821 Sep 22 04:09	28°♓48'09	-16°36'55
direct	1821 Dec 12 05:11	27°♓45'57	
conjunction	1822 Mar 20 12:11	29°♓20'24	-15°57'30
minimum elong	1822 Mar 20 12:06	29°♓20'24	15°57'30
max. Earth dist.	1822 Mar 23 03:23	29°♓24'22	46.47705 AU
	1822 Apr 16 13:47	0°♈	
retrograde	1822 Jul 01 16:19	0°♈58'50	
	1822 Sep 19 14:53	30°♓℞	
min. Earth dist.	1822 Sep 20 23:22	29°♓58'23	44.64230 AU
opposition	1822 Sep 23 13:09	29°♓55'19	-16°42'58
direct	1822 Dec 13 14:34	28°♓53'16	
	1823 Mar 03 09:45	0°♈	
conjunction	1823 Mar 21 20:56	0°♈27'19	-16°03'17
minimum elong	1823 Mar 21 20:53	0°♈27'19	16°03'17
max. Earth dist.	1823 Mar 24 11:02	0°♈31'12	46.64376 AU
retrograde	1823 Jul 02 23:12	2°♈05'21	
min. Earth dist.	1823 Sep 22 09:58	1°♈04'57	44.80790 AU
opposition	1823 Sep 24 22:13	1°♈01'58	-16°48'39
direct	1823 Dec 15 00:44	0°♈00'01	
conjunction	1824 Mar 22 05:27	1°♈33'41	-16°08'42
minimum elong	1824 Mar 22 05:23	1°♈33'41	16°08'42
max. Earth dist.	1824 Mar 24 19:33	1°♈37'33	46.80646 AU
retrograde	1824 Jul 03 05:15	3°♈11'20	
min. Earth dist.	1824 Sep 22 19:19	2°♈11'01	44.96962 AU
opposition	1824 Sep 25 06:58	2°♈08'03	-16°53'57
direct	1824 Dec 15 12:15	1°♈06'14	
conjunction	1825 Mar 23 13:47	2°♈39'30	-16°13'45
minimum elong	1825 Mar 23 13:45	2°♈39'30	16°13'45
max. Earth dist.	1825 Mar 26 02:19	2°♈43'16	46.96570 AU
retrograde	1825 Jul 04 15:02	4°♈16'48	
min. Earth dist.	1825 Sep 24 04:06	3°♈16'33	45.12826 AU
opposition	1825 Sep 26 15:28	3°♈13'37	-16°58'51
direct	1825 Dec 16 20:28	2°♈11'54	
conjunction	1826 Mar 24 22:05	3°♈44'49	-16°18'25
minimum elong	1826 Mar 24 22:02	3°♈44'49	16°18'25
max. Earth dist.	1826 Mar 27 11:00	3°♈48'35	47.12201 AU
retrograde	1826 Jul 06 00:36	5°♈21'45	
min. Earth dist.	1826 Sep 25 13:54	4°♈21'33	45.28397 AU
opposition	1826 Sep 27 23:52	4°♈18'42	-17°03'22
direct	1826 Dec 18 04:00	3°♈17'07	
conjunction	1827 Mar 26 06:05	4°♈49'41	-16°22'43
minimum elong	1827 Mar 26 06:04	4°♈49'41	16°22'43
max. Earth dist.	1827 Mar 28 17:53	4°♈53'22	47.27569 AU
retrograde	1827 Jul 07 09:35	6°♈26'15	
min. Earth dist.	1827 Sep 26 21:29	5°♈26'12	45.43702 AU
opposition	1827 Sep 29 07:56	5°♈23'20	-17°07'30
direct	1827 Dec 19 10:00	4°♈21'53	
conjunction	1828 Mar 26 13:57	5°♈54'08	-16°26'38
minimum elong	1828 Mar 26 13:55	5°♈54'08	16°26'37
max. Earth dist.	1828 Mar 29 01:09	5°♈57'46	47.42674 AU
retrograde	1828 Jul 07 16:04	7°♈30'23	
min. Earth dist.	1828 Sep 27 07:02	6°♈30'24	45.58748 AU
opposition	1828 Sep 29 16:04	6°♈27'36	-17°11'15
direct	1828 Dec 19 18:55	5°♈26'18	
conjunction	1829 Mar 27 21:46	6°♈58'14	-16°30'11
minimum elong	1829 Mar 27 21:45	6°♈58'14	16°30'12
max. Earth dist.	1829 Mar 30 09:05	7°♈01'52	47.57520 AU
retrograde	1829 Jul 08 21:00	8°♈34'11	
min. Earth dist.	1829 Sep 28 15:14	7°♈34'20	45.73491 AU
opposition	1829 Sep 30 23:52	7°♈31'33	-17°14'38
direct	1829 Dec 21 05:24	6°♈30'24	
conjunction	1830 Mar 29 05:25	8°♈02'03	-16°33'23
minimum elong	1830 Mar 29 05:25	8°♈02'03	16°33'22
max. Earth dist.	1830 Mar 31 14:55	8°♈05'33	47.72049 AU
retrograde	1830 Jul 10 06:25	9°♈37'43	
min. Earth dist.	1830 Sep 29 23:25	8°♈37'59	45.87904 AU
opposition	1830 Oct 02 07:27	8°♈35'14	-17°17'39
direct	1830 Dec 22 12:20	7°♈34'14	
conjunction	1831 Mar 30 13:07	9°♈05'37	-16°36'15
minimum elong	1831 Mar 30 13:07	9°♈05'37	16°36'16
max. Earth dist.	1831 Apr 01 22:44	9°♈09'07	47.86213 AU
retrograde	1831 Jul 11 14:55	10°♈41'01	
min. Earth dist.	1831 Oct 01 08:52	9°♈41'20	46.01908 AU
opposition	1831 Oct 03 15:04	9°♈38'41	-17°20'20
direct	1831 Dec 23 19:54	8°♈37'51	
conjunction	1832 Mar 30 20:32	10°♈08'57	-16°38'48
minimum elong	1832 Mar 30 20:34	10°♈08'57	16°38'47
max. Earth dist.	1832 Apr 02 04:32	10°♈12'20	47.99957 AU
retrograde	1832 Jul 11 23:27	11°♈44'04	
min. Earth dist.	1832 Oct 01 16:26	10°♈44'32	46.15456 AU
opposition	1832 Oct 03 22:31	10°♈41'54	-17°22'41
direct	1832 Dec 24 01:12	9°♈41'11	
conjunction	1833 Apr 01 04:03	11°♈12'02	-16°41'02
minimum elong	1833 Apr 01 04:03	11°♈12'02	16°41'02
max. Earth dist.	1833 Apr 03 10:53	11°♈15'21	48.13209 AU
retrograde	1833 Jul 13 06:24	12°♈46'52	
min. Earth dist.	1833 Oct 03 01:56	11°♈47'21	46.28500 AU

opposition	1833 Oct 05 05:54	11°♈44'50	-17°24'44
direct	1833 Dec 25 08:13	10°♈44'15	
conjunction	1834 Apr 02 11:33	12°♈14'50	-16°42'59
minimum elong	1834 Apr 02 11:35	12°♈14'50	16°42'59
max. Earth dist.	1834 Apr 04 17:39	12°♈18'05	48.25965 AU
retrograde	1834 Jul 14 10:52	13°♈49'23	
min. Earth dist.	1834 Oct 04 09:42	12°♈49'57	46.41026 AU
opposition	1834 Oct 06 13:02	12°♈47'27	-17°26'30
direct	1834 Dec 26 17:54	11°♈46'58	
conjunction	1835 Apr 03 18:36	13°♈17'16	-16°44'38
minimum elong	1835 Apr 03 18:37	13°♈17'16	16°44'38
max. Earth dist.	1835 Apr 05 22:41	13°♈20'24	48.38224 AU
retrograde	1835 Jul 15 18:06	14°♈51'33	
min. Earth dist.	1835 Oct 05 17:47	13°♈52'10	46.53093 AU
opposition	1835 Oct 07 20:04	13°♈49'43	-17°27'57
direct	1835 Dec 28 01:51	12°♈49'20	
conjunction	1836 Apr 04 01:42	14°♈19'22	-16°45'59
minimum elong	1836 Apr 04 01:45	14°♈19'22	16°45'59
max. Earth dist.	1836 Apr 06 05:57	14°♈22'30	48.50055 AU
retrograde	1836 Jul 16 01:57	15°♈53'22	
min. Earth dist.	1836 Oct 06 02:07	14°♈54'00	46.64752 AU
opposition	1836 Oct 08 02:56	14°♈51'38	-17°29'05
direct	1836 Dec 28 09:12	13°♈51'20	
conjunction	1837 Apr 05 08:32	15°♈21'06	-16°47'01
minimum elong	1837 Apr 05 08:33	15°♈21'06	16°47'01
max. Earth dist.	1837 Apr 07 11:12	15°♈24'07	48.61526 AU
retrograde	1837 Jul 17 11:46	16°♈54'49	
min. Earth dist.	1837 Oct 07 08:36	15°♈55'33	46.76070 AU
opposition	1837 Oct 09 09:35	15°♈53'11	-17°29'53
direct	1837 Dec 29 12:49	14°♈52'59	
conjunction	1838 Apr 06 15:19	16°♈22'29	-16°47'45
minimum elong	1838 Apr 06 15:23	16°♈22'30	16°47'44
max. Earth dist.	1838 Apr 08 17:25	16°♈25'28	48.72666 AU
retrograde	1838 Jul 18 17:29	17°♈55'57	
min. Earth dist.	1838 Oct 08 16:53	16°♈56'41	46.87082 AU
opposition	1838 Oct 10 16:05	16°♈54'25	-17°30'22
direct	1838 Dec 30 18:53	15°♈54'18	
conjunction	1839 Apr 07 22:02	17°♈23'34	-16°48'09
minimum elong	1839 Apr 07 22:05	17°♈23'34	16°48'08
max. Earth dist.	1839 Apr 09 23:56	17°♈26'32	48.83533 AU
retrograde	1839 Jul 19 20:08	18°♈56'47	
min. Earth dist.	1839 Oct 09 23:15	17°♈57'37	46.97808 AU
opposition	1839 Oct 11 22:28	17°♈55'21	-17°30'32
direct	1840 Jan 01 03:55	16°♈55'20	
conjunction	1840 Apr 08 04:22	18°♈24'23	-16°48'14
minimum elong	1840 Apr 08 04:26	18°♈24'23	16°48'14
max. Earth dist.	1840 Apr 10 04:40	18°♈27'15	48.94122 AU
retrograde	1840 Jul 20 02:14	19°♈57'22	
min. Earth dist.	1840 Oct 10 06:26	18°♈58'16	47.08265 AU
opposition	1840 Oct 12 04:54	18°♈56'02	-17°30'22
direct	1841 Jan 01 11:30	17°♈56'08	
conjunction	1841 Apr 09 10:57	19°♈24'58	-16°48'01
minimum elong	1841 Apr 09 11:00	19°♈24'58	16°48'00
max. Earth dist.	1841 Apr 11 11:32	19°♈27'50	49.04432 AU
retrograde	1841 Jul 21 08:30	20°♈57'44	
min. Earth dist.	1841 Oct 11 13:56	19°♈58'41	47.18409 AU
opposition	1841 Oct 13 11:03	19°♈56'31	-17°29'53
direct	1842 Jan 02 19:03	18°♈56'43	
conjunction	1842 Apr 10 17:22	20°♈25'21	-16°47'29
minimum elong	1842 Apr 10 17:26	20°♈25'21	16°47'30
max. Earth dist.	1842 Apr 12 16:22	20°♈28'07	49.14429 AU
retrograde	1842 Jul 22 17:25	21°♈57'54	
min. Earth dist.	1842 Oct 12 20:08	20°♈58'58	47.28212 AU
opposition	1842 Oct 14 17:08	20°♈56'49	-17°29'05
direct	1843 Jan 03 22:49	19°♈57'08	
conjunction	1843 Apr 11 23:38	21°♈25'35	-16°46'40
minimum elong	1843 Apr 11 23:43	21°♈25'35	16°46'40
max. Earth dist.	1843 Apr 13 21:49	21°♈28'17	49.24041 AU
retrograde	1843 Jul 24 01:18	22°♈57'55	
min. Earth dist.	1843 Oct 14 04:16	21°♈59'00	47.37602 AU
opposition	1843 Oct 15 23:15	21°♈56'57	-17°28'01
direct	1844 Jan 05 02:49	20°♈57'23	
conjunction	1844 Apr 12 06:04	22°♈25'38	-16°45'35
minimum elong	1844 Apr 12 06:09	22°♈25'39	16°45'36
max. Earth dist.	1844 Apr 14 03:28	22°♈28'18	49.33226 AU
retrograde	1844 Jul 24 05:32	23°♈57'47	
min. Earth dist.	1844 Oct 14 10:43	22°♈58'56	47.46515 AU
opposition	1844 Oct 16 05:08	22°♈56'55	-17°26'40
direct	1845 Jan 05 09:18	21°♈57'26	
conjunction	1845 Apr 13 12:19	23°♈25'30	-16°44'15
minimum elong	1845 Apr 13 12:25	23°♈25'31	16°44'14
max. Earth dist.	1845 Apr 15 07:30	23°♈28'02	49.41903 AU
retrograde	1845 Jul 25 11:01	24°♈57'27	
min. Earth dist.	1845 Oct 15 18:15	23°♈58'37	47.54906 AU
opposition	1845 Oct 17 11:06	23°♈56'40	-17°25'04
direct	1846 Jan 06 16:30	22°♈57'16	
conjunction	1846 Apr 14 18:44	24°♈25'09	-16°42'40
minimum elong	1846 Apr 14 18:49	24°♈25'09	16°42'39
max. Earth dist.	1846 Apr 16 13:30	24°♈27'39	49.50044 AU
retrograde	1846 Jul 26 15:40	25°♈56'53	
min. Earth dist.	1846 Oct 17 01:37	24°♈58'03	47.62744 AU
opposition	1846 Oct 18 16:46	24°♈56'11	-17°23'13
direct	1847 Jan 08 00:55	23°♈56'50	
conjunction	1847 Apr 16 00:51	25°♈24'31	-16°40'49
minimum elong	1847 Apr 16 00:58	25°♈24'31	16°40'49
max. Earth dist.	1847 Apr 17 17:30	25°♈26'53	49.57669 AU
retrograde	1847 Jul 28 00:04	26°♈56'02	
min. Earth dist.	1847 Oct 18 07:35	25°♈57'15	47.70088 AU
opposition	1847 Oct 19 22:24	25°♈55'24	-17°21'07
direct	1848 Jan 09 04:48	24°♈56'07	
conjunction	1848 Apr 16 06:45	26°♈23'36	-16°38'44
minimum elong	1848 Apr 16 06:50	26°♈23'36	16°38'44
max. Earth dist.	1848 Apr 17 22:34	26°♈25'55	49.64814 AU
retrograde	1848 Jul 28 06:44	27°♈54'55	
min. Earth dist.	1848 Oct 18 15:23	26°♈56'05	47.76984 AU
opposition	1848 Oct 20 04:03	26°♈54'20	-17°18'45
direct	1849 Jan 09 09:09	25°♈55'06	
conjunction	1849 Apr 17 12:48	27°♈22'24	-16°36'23
minimum elong	1849 Apr 17 12:55	27°♈22'24	16°36'23
max. Earth dist.	1849 Apr 19 04:03	27°♈24'41	49.71555 AU
retrograde	1849 Jul 29 09:49	28°♈53'30	
min. Earth dist.	1849 Oct 19 20:48	27°♈54'43	47.83489 AU
opposition	1849 Oct 21 09:18	27°♈53'00	-17°16'06
direct	1850 Jan 10 16:02	26°♈53'48	
conjunction	1850 Apr 18 18:36	28°♈20'57	-16°33'46
minimum elong	1850 Apr 18 18:42	28°♈20'57	16°33'46
max. Earth dist.	1850 Apr 20 07:56	28°♈23'07	49.77929 AU

retrograde	1850 Jul 30 14:22	29°♈51'52		
min. Earth dist.	1850 Oct 21 03:22	28°♈53'06	47.89658 AU	
opposition	1850 Oct 22 14:41	28°♈51'25	-17°13'11	
direct	1851 Jan 11 22:34	27°♈52'17		
conjunction	1851 Apr 20 00:20	29°♈19'17	-16°30'52	
minimum elong	1851 Apr 20 00:28	29°♈19'18	16°30'53	
max. Earth dist.	1851 Apr 21 13:56	29°♈21'28	49.83982 AU	
	1851 May 20 10:54	0°♉		
retrograde	1851 Jul 31 18:52	0°♉50'03		
	1851 Oct 14 16:41	30°℞♈		
min. Earth dist.	1851 Oct 22 09:43	29°♈51'18	47.95502 AU	
opposition	1851 Oct 23 19:57	29°♈49'41	-17°09'58	
direct	1852 Jan 13 05:50	28°♈50'36		
	1852 Apr 07 12:59	0°♉		
conjunction	1852 Apr 20 05:59	0°♉17'28	-16°27'42	
minimum elong	1852 Apr 20 06:05	0°♉17'28	16°27'42	
max. Earth dist.	1852 Apr 21 17:57	0°♉19'32	49.89742 AU	
retrograde	1852 Aug 01 02:42	1°♉48'06		
min. Earth dist.	1852 Oct 22 14:52	0°♉49'25	48.01056 AU	
opposition	1852 Oct 24 01:04	0°♉47'48	-17°06'29	
	1852 Dec 12 00:46	30°℞♈		
direct	1853 Jan 13 09:20	29°♈48'48		
	1853 Feb 14 08:13	0°♉		
conjunction	1853 Apr 21 11:36	1°♉15'33	-16°24'16	
minimum elong	1853 Apr 21 11:44	1°♉15'33	16°24'16	
max. Earth dist.	1853 Apr 22 22:56	1°♉17'35	49.95192 AU	
retrograde	1853 Aug 02 10:09	2°♉46'02		
min. Earth dist.	1853 Oct 23 21:56	1°♉47'22	48.06285 AU	
opposition	1853 Oct 25 06:17	1°♉45'50	-17°02'43	
direct	1854 Jan 14 12:17	0°♉46'55		
conjunction	1854 Apr 22 17:18	2°♉13'34	-16°20'33	
minimum elong	1854 Apr 22 17:26	2°♉13'35	16°20'32	
max. Earth dist.	1854 Apr 24 04:00	2°♉15'34	50.00319 AU	
retrograde	1854 Aug 03 14:29	3°♉43'56		
min. Earth dist.	1854 Oct 25 03:00	2°♉45'21	48.11153 AU	
opposition	1854 Oct 26 11:09	2°♉43'50	-16°58'41	
direct	1855 Jan 15 16:29	1°♉44'59		
conjunction	1855 Apr 23 22:49	3°♉11'33	-16°16'35	
minimum elong	1855 Apr 23 22:57	3°♉11'34	16°16'36	
max. Earth dist.	1855 Apr 25 07:35	3°♉13'26	50.05061 AU	
retrograde	1855 Aug 04 19:30	4°♉41'48		
min. Earth dist.	1855 Oct 26 09:42	3°♉43'14	48.15620 AU	
opposition	1855 Oct 27 16:13	3°♉41'48	-16°54'23	
direct	1856 Jan 16 22:19	2°♉43'02		
conjunction	1856 Apr 24 04:24	4°♉09'30	-16°12'23	
minimum elong	1856 Apr 24 04:33	4°♉09'30	16°12'22	
max. Earth dist.	1856 Apr 25 12:58	4°♉11'22	50.09363 AU	
retrograde	1856 Aug 04 22:33	5°♉39'39		
opposition	1856 Oct 27 21:13	4°♉39'43	-16°49'52	
min. Earth dist.	1856 Oct 26 16:08	4°♉41'05	48.19596 AU	
direct	1857 Jan 17 06:45	3°♉41'01		
conjunction	1857 Apr 25 10:04	5°♉07'24	-16°07'56	
minimum elong	1857 Apr 25 10:12	5°♉07'24	16°07'57	
max. Earth dist.	1857 Apr 26 16:17	5°♉09'08	50.13161 AU	
retrograde	1857 Aug 06 06:40	6°♉37'26		
min. Earth dist.	1857 Oct 27 21:41	5°♉38'54	48.23048 AU	
opposition	1857 Oct 29 02:01	5°♉37'34	-16°45'06	
direct	1858 Jan 18 10:26	4°♉38'54		
conjunction	1858 Apr 26 15:44	6°♉05'11	-16°03'17	
minimum elong	1858 Apr 26 15:53	6°♉05'12	16°03'17	
max. Earth dist.	1858 Apr 27 20:45	6°♉06'50	50.16409 AU	
retrograde	1858 Aug 07 14:36	7°♉35'05		
min. Earth dist.	1858 Oct 29 05:01	6°♉36'29	48.25948 AU	
opposition	1858 Oct 30 06:59	6°♉35'16	-16°40'07	
direct	1859 Jan 19 13:15	5°♉36'39		
conjunction	1859 Apr 27 21:10	7°♉02'48	-15°58'25	
minimum elong	1859 Apr 27 21:18	7°♉02'49	15°58'25	
max. Earth dist.	1859 Apr 29 01:11	7°♉04'24	50.19135 AU	
retrograde	1859 Aug 08 17:56	8°♉32'34		
min. Earth dist.	1859 Oct 30 10:04	7°♉33'59	48.28331 AU	
opposition	1859 Oct 31 11:42	7°♉32'47	-16°34'55	
direct	1860 Jan 20 18:35	6°♉34'09		
conjunction	1860 Apr 28 02:31	8°♉00'13	-15°53'18	
minimum elong	1860 Apr 28 02:41	8°♉00'13	15°53'19	
max. Earth dist.	1860 Apr 29 04:23	8°♉01'41	50.21373 AU	
retrograde	1860 Aug 08 21:09	9°♉29'50		
opposition	1860 Oct 31 16:24	8°♉30'03	-16°29'28	
min. Earth dist.	1860 Oct 30 16:23	8°♉31'11	48.30271 AU	
direct	1861 Jan 21 00:19	7°♉31'26		
conjunction	1861 Apr 29 07:57	8°♉57'23	-15°47'58	
minimum elong	1861 Apr 29 08:05	8°♉57'24	15°47'58	
max. Earth dist.	1861 Apr 30 09:48	8°♉58'52	50.23194 AU	
retrograde	1861 Aug 09 23:30	10°♉26'53		
opposition	1861 Nov 01 20:58	9°♉27'07	-16°23'47	
min. Earth dist.	1861 Oct 31 22:09	9°♉28'11	48.31806 AU	
direct	1862 Jan 22 08:14	8°♉28'30		
conjunction	1862 Apr 30 13:11	9°♉54'21	-15°42'23	
minimum elong	1862 Apr 30 13:21	9°♉54'21	15°42'23	
max. Earth dist.	1862 May 01 13:15	9°♉55'43	50.24651 AU	
retrograde	1862 Aug 11 05:27	11°♉23'44		
min. Earth dist.	1862 Nov 02 02:47	10°♉25'02	48.33007 AU	
opposition	1862 Nov 03 01:21	10°♉23'59	-16°17'50	
direct	1863 Jan 23 12:44	9°♉25'22		
conjunction	1863 May 01 18:25	10°♉51'07	-15°36'33	
minimum elong	1863 May 01 18:34	10°♉51'08	15°36'32	
max. Earth dist.	1863 May 02 17:45	10°♉52'27	50.25786 AU	
retrograde	1863 Aug 12 12:15	12°♉20'24		
min. Earth dist.	1863 Nov 03 09:03	11°♉21'40	48.33903 AU	
opposition	1863 Nov 04 05:55	11°♉20'41	-16°11'37	
direct	1864 Jan 24 16:05	10°♉22'04		
conjunction	1864 May 01 23:33	11°♉47'46	-15°30'27	
minimum elong	1864 May 01 23:44	11°♉47'47	15°30'28	
max. Earth dist.	1864 May 02 22:31	11°♉49'04	50.26646 AU	
retrograde	1864 Aug 12 17:33	13°♉16'57		
opposition	1864 Nov 04 10:19	12°♉17'15	-16°05'09	
min. Earth dist.	1864 Nov 03 13:24	12°♉18'14	48.34512 AU	
direct	1865 Jan 24 19:00	11°♉18'40		
conjunction	1865 May 03 04:43	12°♉44'19	-15°24'07	
minimum elong	1865 May 03 04:53	12°♉44'20	15°24'06	
max. Earth dist.	1865 May 04 01:51	12°♉45'31	50.27215 AU	
retrograde	1865 Aug 13 22:31	14°♉13'26		
opposition	1865 Nov 05 14:42	13°♉13'47	-15°58'24	
min. Earth dist.	1865 Nov 04 19:13	13°♉14'42	48.34834 AU	
direct	1866 Jan 25 23:11	12°♉15'13		
conjunction	1866 May 04 10:02	13°♉40'50	-15°17'31	
minimum elong	1866 May 04 10:12	13°♉40'51	15°17'31	
max. Earth dist.	1866 May 05 07:11	13°♉42'02	50.27482 AU	
	1866 Jul 15 00:20	15°♉		

retrograde	1866 Aug 15 00:31	15°♉09'54	
	1866 Sep 15 08:54	15°℞♉	
opposition	1866 Nov 06 19:06	14°♉10'18	-15°51'25
min. Earth dist.	1866 Nov 06 00:37	14°♉11'10	48.34818 AU
direct	1867 Jan 27 06:36	13°♉11'47	
conjunction	1867 May 05 15:04	14°♉37'23	-15°10'40
minimum elong	1867 May 05 15:14	14°♉37'23	15°10'40
max. Earth dist.	1867 May 06 10:23	14°♉38'29	50.27404 AU
	1867 May 22 10:47	15°♉	
retrograde	1867 Aug 16 07:01	16°♉06'24	
opposition	1867 Nov 07 23:28	15°♉06'52	-15°44'11
min. Earth dist.	1867 Nov 07 05:30	15°♉07'43	48.34431 AU
	1867 Nov 14 02:19	15°℞♉	
direct	1868 Jan 28 10:34	14°♉08'23	
	1868 Apr 10 03:01	15°♉	
conjunction	1868 May 05 20:21	15°♉33'59	-15°03'36
minimum elong	1868 May 05 20:31	15°♉34'00	15°03'36
max. Earth dist.	1868 May 06 14:40	15°♉35'01	50.26904 AU
retrograde	1868 Aug 16 14:57	17°♉02'59	
opposition	1868 Nov 08 03:53	16°♉03'30	-15°36'43
min. Earth dist.	1868 Nov 07 12:15	16°♉04'14	48.33588 AU
direct	1869 Jan 28 12:57	15°♉05'02	
evening set	1869 May 05 15:02	16°♉28'41	
conjunction	1869 May 07 01:46	16°♉30'39	-14°56'18
minimum elong	1869 May 07 01:57	16°♉30'39	14°56'17
morning rise	1869 May 08 12:56	16°♉32'38	
max. Earth dist.	1869 May 07 18:58	16°♉31'37	50.25931 AU
retrograde	1869 Aug 17 19:33	17°♉59'36	
opposition	1869 Nov 09 08:13	17°♉00'10	-15°29'02
min. Earth dist.	1869 Nov 08 16:59	17°♉00'53	48.32229 AU
direct	1870 Jan 29 16:53	16°♉01'43	
evening set	1870 May 05 18:37	17°♉23'54	
conjunction	1870 May 08 07:03	17°♉27'19	-14°48'48
minimum elong	1870 May 08 07:12	17°♉27'20	14°48'48
max. Earth dist.	1870 May 08 21:44	17°♉28'09	50.24419 AU
morning rise	1870 May 10 19:54	17°♉30'46	
retrograde	1870 Aug 18 23:37	18°♉56'15	
opposition	1870 Nov 10 12:36	17°♉56'50	-15°21'08
min. Earth dist.	1870 Nov 09 23:21	17°♉57'27	48.30335 AU
direct	1871 Jan 30 21:48	16°♉58'23	
evening set	1871 May 06 06:01	18°♉19'33	
conjunction	1871 May 09 12:25	18°♉23'59	-14°41'05
minimum elong	1871 May 09 12:36	18°♉24'00	14°41'05
max. Earth dist.	1871 May 10 02:46	18°♉24'48	50.22384 AU
morning rise	1871 May 12 19:19	18°♉28'27	
retrograde	1871 Aug 20 01:44	19°♉52'53	
opposition	1871 Nov 11 16:56	18°♉53'28	-15°13'01
min. Earth dist.	1871 Nov 11 04:59	18°♉54'01	48.27922 AU
direct	1872 Feb 01 05:29	17°♉55'00	
evening set	1872 May 05 20:18	19°♉15'20	
conjunction	1872 May 09 17:31	19°♉20'36	-14°33'09
minimum elong	1872 May 09 17:41	19°♉20'36	14°33'09
max. Earth dist.	1872 May 10 05:44	19°♉21'17	50.19868 AU
morning rise	1872 May 13 15:15	19°♉25'54	
retrograde	1872 Aug 20 07:34	20°♉49'27	
opposition	1872 Nov 11 21:13	19°♉50'03	-15°04'41
min. Earth dist.	1872 Nov 11 09:54	19°♉50'34	48.25057 AU
direct	1873 Feb 01 09:50	18°♉51'34	
evening set	1873 May 06 12:33	20°♉11'10	
conjunction	1873 May 10 22:48	20°♉17'09	-14°25'00
minimum elong	1873 May 10 23:00	20°♉17'09	14°25'01
max. Earth dist.	1873 May 11 10:01	20°♉17'47	50.16908 AU
morning rise	1873 May 15 09:41	20°♉23'11	
retrograde	1873 Aug 21 14:08	21°♉45'59	
opposition	1873 Nov 13 01:25	20°♉46'34	-14°56'06
min. Earth dist.	1873 Nov 12 16:08	20°♉47'00	48.21779 AU
direct	1874 Feb 02 13:14	19°♉48'03	
evening set	1874 May 07 06:02	21°♉06'59	
conjunction	1874 May 12 04:04	21°♉13'39	-14°16'38
minimum elong	1874 May 12 04:14	21°♉13'39	14°16'37
max. Earth dist.	1874 May 12 14:40	21°♉14'15	50.13581 AU
morning rise	1874 May 17 02:41	21°♉20'20	
retrograde	1874 Aug 22 20:12	22°♉42'27	
opposition	1874 Nov 14 05:35	21°♉43'01	-14°47'17
min. Earth dist.	1874 Nov 13 20:21	21°♉43'27	48.18148 AU
direct	1875 Feb 03 15:28	20°♉44'30	
evening set	1875 May 08 00:06	22°♉02'50	
conjunction	1875 May 13 09:01	22°♉10'07	-14°08'00
minimum elong	1875 May 13 09:13	22°♉10'07	14°08'01
max. Earth dist.	1875 May 13 17:45	22°♉10'36	50.09916 AU
morning rise	1875 May 18 18:41	22°♉17'25	
retrograde	1875 Aug 24 01:22	23°♉38'53	
opposition	1875 Nov 15 09:54	22°♉39'28	-14°38'13
min. Earth dist.	1875 Nov 15 02:07	22°♉39'50	48.14209 AU
direct	1876 Feb 04 18:53	21°♉40'55	
evening set	1876 May 07 19:04	22°♉58'43	
conjunction	1876 May 13 14:17	23°♉06'34	-13°59'08
minimum elong	1876 May 13 14:28	23°♉06'34	13°59'08
max. Earth dist.	1876 May 13 23:04	23°♉07'03	50.05958 AU
morning rise	1876 May 19 10:12	23°♉14'27	
retrograde	1876 Aug 24 02:32	24°♉35'21	
opposition	1876 Nov 15 14:03	23°♉35'55	-14°28'54
min. Earth dist.	1876 Nov 15 07:01	23°♉36'15	48.09970 AU
direct	1877 Feb 05 02:21	22°♉37'21	
evening set	1877 May 08 14:38	23°♉54'39	
conjunction	1877 May 14 19:27	24°♉03'02	-13°50'01
minimum elong	1877 May 14 19:39	24°♉03'03	13°50'02
max. Earth dist.	1877 May 15 02:31	24°♉03'26	50.01716 AU
morning rise	1877 May 21 01:06	24°♉11'29	
retrograde	1877 Aug 25 07:26	25°♉31'51	
opposition	1877 Nov 16 18:16	24°♉32'26	-14°19'19
min. Earth dist.	1877 Nov 16 11:40	24°♉32'45	48.05442 AU
direct	1878 Feb 06 07:51	23°♉33'51	
evening set	1878 May 09 10:34	24°♉50'41	
conjunction	1878 May 16 00:42	24°♉59'36	-13°40'40
minimum elong	1878 May 16 00:54	24°♉59'36	13°40'39
max. Earth dist.	1878 May 16 06:56	24°♉59'57	49.97156 AU
morning rise	1878 May 22 15:43	25°♉08'34	
retrograde	1878 Aug 26 15:13	26°♉28'26	
opposition	1878 Nov 17 22:31	25°♉29'02	-14°09'29
min. Earth dist.	1878 Nov 17 17:50	25°♉29'16	48.00580 AU
direct	1879 Feb 07 10:43	24°♉30'27	
evening set	1879 May 10 07:04	25°♉46'51	
conjunction	1879 May 17 06:02	25°♉56'16	-13°31'04
minimum elong	1879 May 17 06:13	25°♉56'17	13°31'05
max. Earth dist.	1879 May 17 11:32	25°♉56'35	49.92262 AU
morning rise	1879 May 24 05:49	26°♉05'44	
retrograde	1879 Aug 27 21:15	27°♉25'09	
opposition	1879 Nov 19 02:42	26°♉25'46	-13°59'25
min. Earth dist.	1879 Nov 18 22:12	26°♉25'59	47.95342 AU
direct	1880 Feb 08 13:03	25°♉27'10	

evening set	1880 May 10 03:51	26°♉43'09	
conjunction	1880 May 17 11:18	26°♉53'03	-13°21'15
minimum elong	1880 May 17 11:30	26°♉53'04	13°21'14
max. Earth dist.	1880 May 17 14:35	26°♉53'15	49.86946 AU
morning rise	1880 May 24 19:46	27°♉03'00	
retrograde	1880 Aug 28 02:52	28°♉21'59	
opposition	1880 Nov 19 07:06	27°♉22'36	-13°49'07
min. Earth dist.	1880 Nov 19 04:37	27°♉22'43	47.89655 AU
direct	1881 Feb 08 16:51	26°♉23'59	
evening set	1881 May 11 01:14	27°♉39'36	
conjunction	1881 May 18 16:58	27°♉49'58	-13°11'13
minimum elong	1881 May 18 17:09	27°♉49'58	13°11'12
max. Earth dist.	1881 May 18 19:44	27°♉50'07	49.81139 AU
morning rise	1881 May 26 09:35	28°♉00'23	
retrograde	1881 Aug 29 04:43	29°♉18'55	
opposition	1881 Nov 20 11:22	28°♉19'32	-13°38'37
min. Earth dist.	1881 Nov 20 10:18	28°♉19'35	47.83435 AU
direct	1882 Feb 10 00:17	27°♉20'53	
evening set	1882 May 11 23:02	28°♉36'08	
conjunction	1882 May 19 22:31	28°♉46'56	-13°00'58
minimum elong	1882 May 19 22:44	28°♉46'57	13°00'57
max. Earth dist.	1882 May 19 22:51	28°♉46'57	49.74799 AU
morning rise	1882 May 27 23:05	28°♉57'48	
	1882 Jul 21 21:47	0°♊	
retrograde	1882 Aug 30 09:52	0°♊15'57	
	1882 Oct 09 08:35	30°℞♉	
opposition	1882 Nov 21 15:46	29°♉16'32	-13°27'53
min. Earth dist.	1882 Nov 21 15:36	29°♉16'32	47.76676 AU
direct	1883 Feb 11 05:12	28°♉17'49	
evening set	1883 May 12 20:43	29°♉32'42	
conjunction	1883 May 21 03:58	29°♉43'56	-12°50'30
minimum elong	1883 May 21 04:09	29°♉43'57	12°50'31
max. Earth dist.	1883 May 21 02:56	29°♉43'53	49.67905 AU
morning rise	1883 May 29 12:16	29°♉55'15	
	1883 Jun 02 01:09	0°♊	
retrograde	1883 Aug 31 15:46	1°♊13'00	
opposition	1883 Nov 22 20:18	0°♊13'32	-13°16'57
min. Earth dist.	1883 Nov 22 22:22	0°♊13'26	47.69378 AU
	1883 Dec 04 21:54	30°℞♉	
direct	1884 Feb 12 10:04	29°♉14'45	
	1884 Apr 20 00:25	0°♊	
evening set	1884 May 12 18:59	0°♊29'17	
conjunction	1884 May 21 09:37	0°♊40'57	-12°39'50
minimum elong	1884 May 21 09:49	0°♊40'58	12°39'51
max. Earth dist.	1884 May 21 07:41	0°♊40'50	49.60513 AU
morning rise	1884 May 30 01:15	0°♊52'41	
retrograde	1884 Aug 31 22:13	2°♊10'02	
opposition	1884 Nov 23 00:32	1°♊10'32	-13°05'47
min. Earth dist.	1884 Nov 23 03:00	1°♊10'25	47.61599 AU
direct	1885 Feb 12 13:14	0°♊11'40	
evening set	1885 May 13 17:22	1°♊25'52	
conjunction	1885 May 22 15:10	1°♊37'57	-12°28'57
minimum elong	1885 May 22 15:21	1°♊37'58	12°28'57
max. Earth dist.	1885 May 22 10:52	1°♊37'43	49.52658 AU
morning rise	1885 May 31 14:11	1°♊50'06	
retrograde	1885 Sep 02 04:35	3°♊07'05	
opposition	1885 Nov 24 05:00	2°♊07'31	-12°54'23
min. Earth dist.	1885 Nov 24 09:18	2°♊07'19	47.53396 AU
direct	1886 Feb 13 16:19	1°♊08'35	
evening set	1886 May 14 15:53	2°♊22'29	
conjunction	1886 May 23 20:48	2°♊34'58	-12°17'50
minimum elong	1886 May 23 21:00	2°♊34'58	12°17'50
max. Earth dist.	1886 May 23 16:24	2°♊34'43	49.44401 AU
morning rise	1886 Jun 02 02:45	2°♊47'30	
retrograde	1886 Sep 03 06:58	4°♊04'09	
opposition	1886 Nov 25 09:20	3°♊04'32	-12°42'44
min. Earth dist.	1886 Nov 25 14:26	3°♊04'17	47.44811 AU
direct	1887 Feb 14 23:16	2°♊05'31	
evening set	1887 May 15 14:42	3°♊19'08	
conjunction	1887 May 25 02:19	3°♊32'00	-12°06'29
minimum elong	1887 May 25 02:30	3°♊32'01	12°06'28
max. Earth dist.	1887 May 24 20:08	3°♊31'39	49.35808 AU
morning rise	1887 Jun 03 15:10	3°♊44'57	
retrograde	1887 Sep 04 11:20	5°♊01'16	
opposition	1887 Nov 26 13:44	4°♊01'37	-12°30'50
min. Earth dist.	1887 Nov 26 19:22	4°♊01'21	47.35918 AU
direct	1888 Feb 16 04:56	3°♊02'31	
evening set	1888 May 15 13:30	4°♊15'53	
conjunction	1888 May 25 07:55	4°♊29'09	-11°54'52
minimum elong	1888 May 25 08:07	4°♊29'09	11°54'53
max. Earth dist.	1888 May 25 00:53	4°♊28'45	49.26903 AU
morning rise	1888 Jun 04 03:33	4°♊42'29	
retrograde	1888 Sep 04 18:17	5°♊58'31	
opposition	1888 Nov 26 18:19	4°♊58'49	-12°18'41
min. Earth dist.	1888 Nov 27 01:39	4°♊58'28	47.26722 AU
direct	1889 Feb 16 08:53	3°♊59'40	
evening set	1889 May 16 12:46	5°♊12'47	
conjunction	1889 May 26 13:42	5°♊26'26	-11°43'02
minimum elong	1889 May 26 13:53	5°♊26'26	11°43'01
max. Earth dist.	1889 May 26 06:05	5°♊26'00	49.17721 AU
morning rise	1889 Jun 05 15:46	5°♊40'10	
retrograde	1889 Sep 06 01:25	6°♊55'55	
opposition	1889 Nov 27 22:41	5°♊56'11	-12°06'17
min. Earth dist.	1889 Nov 28 05:55	5°♊55'51	47.17242 AU
direct	1890 Feb 17 10:59	4°♊56'59	
evening set	1890 May 17 12:11	6°♊09'54	
conjunction	1890 May 27 19:25	6°♊23'55	-11°30'56
minimum elong	1890 May 27 19:37	6°♊23'56	11°30'56
max. Earth dist.	1890 May 27 09:52	6°♊23'23	49.08243 AU
morning rise	1890 Jun 07 04:02	6°♊38'02	
retrograde	1890 Sep 07 07:52	7°♊53'32	
opposition	1890 Nov 29 03:22	6°♊53'47	-11°53'36
min. Earth dist.	1890 Nov 29 12:20	6°♊53'22	47.07465 AU
direct	1891 Feb 18 14:41	5°♊54'32	
evening set	1891 May 18 11:36	7°♊07'16	
conjunction	1891 May 29 01:12	7°♊21'40	-11°18'35
minimum elong	1891 May 29 01:24	7°♊21'40	11°18'35
max. Earth dist.	1891 May 28 15:40	7°♊21'07	48.98446 AU
morning rise	1891 Jun 08 15:56	7°♊36'08	
retrograde	1891 Sep 08 10:24	8°♊51'26	
opposition	1891 Nov 30 08:02	7°♊51'39	-11°40'41
min. Earth dist.	1891 Nov 30 17:52	7°♊51'11	46.97328 AU
direct	1892 Feb 19 22:05	6°♊52'21	
evening set	1892 May 18 11:36	8°♊04'55	
conjunction	1892 May 29 07:09	8°♊19'41	-11°06'00
minimum elong	1892 May 29 07:20	8°♊19'42	11°06'01
max. Earth dist.	1892 May 28 19:29	8°♊19'01	48.88268 AU
morning rise	1892 Jun 09 04:05	8°♊34'31	
retrograde	1892 Sep 08 15:54	9°♊49'36	
opposition	1892 Nov 30 12:39	8°♊49'48	-11°27'32
min. Earth dist.	1892 Nov 30 23:27	8°♊49'17	46.86782 AU

direct	1893 Feb 20 03:27	7°♊50'26	
evening set	1893 May 19 11:48	9°♊02'51	
conjunction	1893 May 30 13:23	9°♊17'58	-10°53'12
minimum elong	1893 May 30 13:35	9°♊17'59	10°53'12
max. Earth dist.	1893 May 30 00:24	9°♊17'14	48.77623 AU
morning rise	1893 Jun 10 16:18	9°♊33'11	
retrograde	1893 Sep 09 22:13	10°♊48'04	
opposition	1893 Dec 01 17:33	9°♊48'13	-11°14'08
min. Earth dist.	1893 Dec 02 06:34	9°♊47'36	46.75739 AU
direct	1894 Feb 21 08:45	8°♊48'47	
evening set	1894 May 20 12:14	10°♊01'02	
conjunction	1894 May 31 19:37	10°♊16'30	-10°40'10
minimum elong	1894 May 31 19:48	10°♊16'30	10°40'10
max. Earth dist.	1894 May 31 05:30	10°♊15'41	48.66478 AU
morning rise	1894 Jun 12 04:13	10°♊32'04	
retrograde	1894 Sep 11 05:57	11°♊46'45	
opposition	1894 Dec 02 22:21	10°♊46'51	-11°00'31
min. Earth dist.	1894 Dec 03 11:50	10°♊46'12	46.64179 AU
direct	1895 Feb 22 12:01	9°♊47'18	
evening set	1895 May 21 12:54	10°♊59'23	
max. Earth dist.	1895 Jun 01 09:12	11°♊14'16	48.54813 AU
conjunction	1895 Jun 02 01:52	11°♊15'13	-10°26'55
minimum elong	1895 Jun 02 02:04	11°♊15'14	10°26'55
morning rise	1895 Jun 13 16:18	11°♊31'08	
retrograde	1895 Sep 12 14:45	12°♊45'37	
opposition	1895 Dec 04 03:20	11°♊45'37	-10°46'39
min. Earth dist.	1895 Dec 04 18:53	11°♊44'53	46.52122 AU
direct	1896 Feb 23 14:11	10°♊45'58	
evening set	1896 May 21 13:35	11°♊57'55	
conjunction	1896 Jun 02 08:16	12°♊14'05	-10°13'27
minimum elong	1896 Jun 02 08:27	12°♊14'05	10°13'26
max. Earth dist.	1896 Jun 01 15:13	12°♊13'06	48.42667 AU
morning rise	1896 Jun 14 04:07	12°♊30'20	
retrograde	1896 Sep 12 18:53	13°♊44'37	
opposition	1896 Dec 04 08:20	12°♊44'31	-10°32'33
min. Earth dist.	1896 Dec 05 00:50	12°♊43'44	46.39593 AU
direct	1897 Feb 23 21:15	11°♊44'44	
evening set	1897 May 22 14:45	12°♊56'33	
conjunction	1897 Jun 03 14:41	13°♊13'03	-9°59'44
minimum elong	1897 Jun 03 14:53	13°♊13'03	9°59'44
max. Earth dist.	1897 Jun 02 19:34	13°♊11'56	48.30085 AU
morning rise	1897 Jun 15 16:03	13°♊29'38	
retrograde	1897 Sep 13 22:26	14°♊43'44	
opposition	1897 Dec 05 13:14	13°♊43'32	-10°18'12
min. Earth dist.	1897 Dec 06 06:41	13°♊42'42	46.26667 AU
direct	1898 Feb 25 04:20	12°♊43'36	
evening set	1898 May 23 15:55	13°♊55'18	
conjunction	1898 Jun 04 21:13	14°♊12'07	-9°45'47
minimum elong	1898 Jun 04 21:23	14°♊12'08	9°45'46
max. Earth dist.	1898 Jun 04 01:03	14°♊10'57	48.17114 AU
morning rise	1898 Jun 17 03:49	14°♊29'02	
retrograde	1898 Sep 15 03:36	15°♊42'59	
opposition	1898 Dec 06 18:26	14°♊42'40	-10°03'36
min. Earth dist.	1898 Dec 07 13:35	14°♊41'45	46.13385 AU
direct	1899 Feb 26 11:07	13°♊42'36	
evening set	1899 May 24 17:10	14°♊54'10	
max. Earth dist.	1899 Jun 05 06:55	15°♊10'08	48.03831 AU
conjunction	1899 Jun 06 03:37	15°♊11'20	-9°31'34
minimum elong	1899 Jun 06 03:48	15°♊11'20	9°31'35
morning rise	1899 Jun 18 15:19	15°♊28'34	
retrograde	1899 Sep 16 11:25	16°♊42'22	
opposition	1899 Dec 07 23:35	15°♊41'57	-9°48'44
min. Earth dist.	1899 Dec 08 18:37	15°♊41'02	45.99808 AU
direct	1900 Feb 27 14:47	14°♊41'45	
evening set	1900 May 25 18:49	15°♊53'13	
max. Earth dist.	1900 Jun 06 11:38	16°♊09'24	47.90260 AU
conjunction	1900 Jun 07 10:13	16°♊10'42	-9°17'07
minimum elong	1900 Jun 07 10:24	16°♊10'43	9°17'07
morning rise	1900 Jun 20 03:05	16°♊28'16	
retrograde	1900 Sep 17 19:24	17°♊41'56	
opposition	1900 Dec 09 04:52	16°♊41'25	-9°33'36
min. Earth dist.	1900 Dec 10 01:38	16°♊40'25	45.85972 AU
direct	1901 Feb 28 18:16	15°♊41'05	
evening set	1901 May 26 20:38	16°♊52'30	
conjunction	1901 Jun 08 17:07	17°♊10'18	-9°02'24
minimum elong	1901 Jun 08 17:18	17°♊10'18	9°02'25
max. Earth dist.	1901 Jun 07 18:33	17°♊08'59	47.76437 AU
morning rise	1901 Jun 21 14:44	17°♊28'11	
retrograde	1901 Sep 19 00:35	18°♊41'44	
opposition	1901 Dec 10 10:16	17°♊41'07	-9°18'11
min. Earth dist.	1901 Dec 11 07:29	17°♊40'05	45.71874 AU
direct	1902 Mar 02 01:06	16°♊40'40	
evening set	1902 May 27 22:45	17°♊52'03	
conjunction	1902 Jun 09 23:50	18°♊10'10	-8°47'25
minimum elong	1902 Jun 10 00:01	18°♊10'10	8°47'25
max. Earth dist.	1902 Jun 08 23:27	18°♊08'45	47.62362 AU
morning rise	1902 Jun 23 02:20	18°♊28'22	
retrograde	1902 Sep 20 06:47	19°♊41'50	
opposition	1902 Dec 11 15:44	18°♊41'09	-9°02'30
min. Earth dist.	1902 Dec 12 13:35	18°♊40'05	45.57523 AU
direct	1903 Mar 03 07:12	17°♊40'35	
evening set	1903 May 29 01:02	18°♊51'57	
max. Earth dist.	1903 Jun 10 05:45	19°♊08'55	47.47997 AU
conjunction	1903 Jun 11 06:54	19°♊10'23	-8°32'11
minimum elong	1903 Jun 11 07:04	19°♊10'23	8°32'12
morning rise	1903 Jun 24 14:00	19°♊28'54	
retrograde	1903 Sep 21 12:39	20°♊42'19	
opposition	1903 Dec 12 21:24	19°♊41'33	-8°46'32
min. Earth dist.	1903 Dec 13 21:04	19°♊40'24	45.42856 AU
direct	1904 Mar 03 13:41	18°♊40'53	
evening set	1904 May 29 03:42	19°♊52'15	
conjunction	1904 Jun 11 14:07	20°♊10'59	-8°16'42
minimum elong	1904 Jun 11 14:17	20°♊11'00	8°16'41
max. Earth dist.	1904 Jun 10 12:05	20°♊09'28	47.33299 AU
morning rise	1904 Jun 25 01:43	20°♊29'50	
retrograde	1904 Sep 21 20:45	21°♊43'13	
opposition	1904 Dec 13 03:06	20°♊42'22	-8°30'19
min. Earth dist.	1904 Dec 14 03:06	20°♊41'12	45.27810 AU
direct	1905 Mar 04 18:28	19°♊41'35	
evening set	1905 May 30 06:50	20°♊52'59	
conjunction	1905 Jun 12 21:33	21°♊12'02	-8°00'58
minimum elong	1905 Jun 12 21:43	21°♊12'03	8°00'58
max. Earth dist.	1905 Jun 11 17:02	21°♊10'22	47.18164 AU
morning rise	1905 Jun 26 13:39	21°♊31'11	
retrograde	1905 Sep 23 07:12	22°♊44'33	
opposition	1905 Dec 14 09:02	21°♊43'37	-8°13'51
min. Earth dist.	1905 Dec 15 11:17	21°♊42'20	45.12311 AU
direct	1906 Mar 05 21:25	20°♊42'41	
evening set	1906 May 31 10:07	21°♊54'08	
max. Earth dist.	1906 Jun 13 00:17	22°♊11'47	47.02554 AU

conjunction	1906 Jun	14	05:15	22°♊13'29	-7°44'59
minimum elong	1906 Jun	14	05:25	22°♊13'30	7°44'59
morning rise	1906 Jun	28	01:25	22°♊32'56	
retrograde	1906 Sep	24	14:12	23°♊46'17	
opposition	1906 Dec	15	15:09	22°♊45'15	-7°57'07
min. Earth dist.	1906 Dec	16	18:13	22°♊43'55	44.96313 AU
direct	1907 Mar	07	04:17	21°♊44'11	
evening set	1907 Jun	01	13:38	22°♊55'40	
max. Earth dist.	1907 Jun	14	05:25	23°♊13'28	46.86452 AU
conjunction	1907 Jun	15	12:47	23°♊15'19	-7°28'46
minimum elong	1907 Jun	15	12:56	23°♊15'20	7°28'47
morning rise	1907 Jun	29	13:14	23°♊35'05	
retrograde	1907 Sep	25	20:52	24°♊48'24	
opposition	1907 Dec	16	21:23	23°♊47'15	-7°40'08
min. Earth dist.	1907 Dec	18	01:47	23°♊45'51	44.79836 AU
direct	1908 Mar	07	11:14	22°♊46'01	
evening set	1908 Jun	01	17:27	23°♊57'33	
conjunction	1908 Jun	15	20:44	24°♊17'31	-7°12'19
minimum elong	1908 Jun	15	20:54	24°♊17'31	7°12'19
max. Earth dist.	1908 Jun	14	12:10	24°♊15'35	46.69864 AU
morning rise	1908 Jun	30	01:05	24°♊37'33	
retrograde	1908 Sep	26	02:04	25°♊50'54	
opposition	1908 Dec	17	03:40	24°♊49'36	-7°22'53
min. Earth dist.	1908 Dec	18	09:57	24°♊48'06	44.62895 AU
direct	1909 Mar	08	19:55	23°♊48'12	
evening set	1909 Jun	02	21:37	24°♊59'47	
max. Earth dist.	1909 Jun	15	19:08	25°♊18'02	46.52852 AU
conjunction	1909 Jun	17	04:47	25°♊20'02	-6°55'36
minimum elong	1909 Jun	17	04:55	25°♊20'03	6°55'36
morning rise	1909 Jul	01	12:59	25°♊40'22	
retrograde	1909 Sep	27	10:44	26°♊53'43	
opposition	1909 Dec	18	10:02	25°♊52'17	-7°05'22
min. Earth dist.	1909 Dec	19	16:33	25°♊50'46	44.45555 AU
direct	1910 Mar	10	01:14	24°♊50'42	
evening set	1910 Jun	04	01:59	26°♊02'22	
max. Earth dist.	1910 Jun	17	01:07	26°♊20'46	46.35447 AU
conjunction	1910 Jun	18	12:46	26°♊22'54	-6°38'38
minimum elong	1910 Jun	18	12:56	26°♊22'54	6°38'38
morning rise	1910 Jul	03	00:45	26°♊43'31	
retrograde	1910 Sep	28	20:28	27°♊56'55	
opposition	1910 Dec	19	16:39	26°♊55'19	-6°47'35
min. Earth dist.	1910 Dec	21	01:10	26°♊53'42	44.27867 AU
direct	1911 Mar	11	05:17	25°♊53'32	
evening set	1911 Jun	05	06:32	27°♊05'19	
max. Earth dist.	1911 Jun	18	09:22	27°♊23'59	46.17727 AU
conjunction	1911 Jun	19	21:05	27°♊26'07	-6°21'24
minimum elong	1911 Jun	19	21:14	27°♊26'08	6°21'24
morning rise	1911 Jul	04	12:29	27°♊47'01	
retrograde	1911 Sep	30	04:38	29°♊00'27	
opposition	1911 Dec	20	23:16	27°♊58'42	-6°29'31
min. Earth dist.	1911 Dec	22	08:06	27°♊57'04	44.09884 AU
direct	1912 Mar	11	12:45	26°♊56'44	
evening set	1912 Jun	05	11:33	28°♊08'38	
max. Earth dist.	1912 Jun	18	15:43	28°♊27'28	45.99735 AU
conjunction	1912 Jun	20	05:26	28°♊29'44	-6°03'55
minimum elong	1912 Jun	20	05:35	28°♊29'44	6°03'55
morning rise	1912 Jul	05	00:26	28°♊50'54	
	1912 Sep	10	16:27	0°♋	
retrograde	1912 Sep	30	13:09	0°♋04'24	
	1912 Oct	20	08:21	30°℞♊	
opposition	1912 Dec	21	06:09	29°♊02'30	-6°11'10
min. Earth dist.	1912 Dec	22	15:53	29°♊00'49	43.91654 AU
direct	1913 Mar	12	20:19	28°♊00'20	
evening set	1913 Jun	06	16:50	29°♊12'23	
max. Earth dist.	1913 Jun	19	23:54	29°♊31'27	45.81486 AU
conjunction	1913 Jun	21	14:09	29°♊33'45	-5°46'09
minimum elong	1913 Jun	21	14:17	29°♊33'46	5°46'08
morning rise	1913 Jul	06	12:17	29°♊55'12	
	1913 Jul	09	22:24	0°♋	
retrograde	1913 Oct	01	19:27	1°♋08'48	
opposition	1913 Dec	22	13:14	0°♋06'45	-5°52'31
min. Earth dist.	1913 Dec	24	00:18	0°♋04'59	43.73180 AU
	1913 Dec	28	04:18	30°℞♊	
direct	1914 Mar	14	05:02	29°♊04'24	
	1914 May	26	20:42	0°♋	
evening set	1914 Jun	07	22:29	0°♋16'37	
max. Earth dist.	1914 Jun	21	07:52	0°♋35'53	45.63018 AU
conjunction	1914 Jun	22	22:57	0°♋38'15	-5°28'07
minimum elong	1914 Jun	22	23:05	0°♋38'16	5°28'08
morning rise	1914 Jul	08	00:15	0°♋59'58	
retrograde	1914 Oct	03	03:15	2°♋13'42	
opposition	1914 Dec	23	20:27	1°♋11'30	-5°33'35
min. Earth dist.	1914 Dec	25	07:32	1°♋09'44	43.54478 AU
direct	1915 Mar	15	12:31	0°♋08'59	
evening set	1915 Jun	09	04:22	1°♋21'23	
max. Earth dist.	1915 Jun	22	14:55	1°♋40'48	45.44286 AU
conjunction	1915 Jun	24	07:49	1°♋43'17	-5°09'49
minimum elong	1915 Jun	24	07:56	1°♋43'18	5°09'48
morning rise	1915 Jul	09	12:10	2°♋05'17	
retrograde	1915 Oct	04	14:44	3°♋19'09	
opposition	1915 Dec	25	04:00	2°♋16'49	-5°14'22
min. Earth dist.	1915 Dec	26	17:02	2°♋14'57	43.35499 AU
direct	1916 Mar	15	16:59	1°♋14'07	
evening set	1916 Jun	09	10:46	2°♋26'44	
max. Earth dist.	1916 Jun	23	00:12	2°♋46'24	45.25245 AU
conjunction	1916 Jun	24	17:15	2°♋48'55	-4°51'14
minimum elong	1916 Jun	24	17:22	2°♋48'55	4°51'15
morning rise	1916 Jul	10	00:18	3°♋11'09	
retrograde	1916 Oct	05	01:22	4°♋25'12	
opposition	1916 Dec	25	11:32	3°♋22'43	-4°54'52
min. Earth dist.	1916 Dec	27	01:06	3°♋20'49	43.16171 AU
direct	1917 Mar	16	23:11	2°♋19'49	
evening set	1917 Jun	10	17:48	3°♋32'41	
max. Earth dist.	1917 Jun	24	07:18	3°♋52'27	45.05818 AU
conjunction	1917 Jun	26	02:49	3°♋55'07	-4°32'24
minimum elong	1917 Jun	26	02:56	3°♋55'08	4°32'24
morning rise	1917 Jul	11	12:41	4°♋17'37	
retrograde	1917 Oct	06	12:13	5°♋31'51	
opposition	1917 Dec	26	19:28	4°♋29'12	-4°35'05
min. Earth dist.	1917 Dec	28	10:41	4°♋27'13	42.96440 AU
direct	1918 Mar	18	06:18	3°♋26'06	
evening set	1918 Jun	12	00:56	4°♋39'13	
max. Earth dist.	1918 Jun	25	16:09	4°♋59'09	44.85941 AU
conjunction	1918 Jun	27	12:39	5°♋01'54	-4°13'19
minimum elong	1918 Jun	27	12:45	5°♋01'54	4°13'19
morning rise	1918 Jul	13	00:49	5°♋24'39	
retrograde	1918 Oct	07	19:13	6°♋39'04	
opposition	1918 Dec	28	03:41	5°♋36'14	-4°15'02
min. Earth dist.	1918 Dec	29	20:29	5°♋34'09	42.76245 AU
direct	1919 Mar	19	17:33	4°♋32'54	
evening set	1919 Jun	13	08:38	5°♋46'16	
max. Earth dist.	1919 Jun	27	00:39	6°♋06'21	44.65617 AU

conjunction	1919 Jun	28	22:41	6°♋09'13	-3°53'58
minimum elong	1919 Jun	28	22:47	6°♋09'13	3°53'58
morning rise	1919 Jul	14	13:17	6°♋32'12	
retrograde	1919 Oct	09	04:02	7°♋46'49	
opposition	1919 Dec	29	11:55	6°♋43'47	-3°54'42
min. Earth dist.	1919 Dec	31	05:15	6°♋41'40	42.55610 AU
direct	1920 Mar	20	02:47	5°♋40'12	
evening set	1920 Jun	13	16:43	6°♋53'50	
max. Earth dist.	1920 Jun	27	08:52	7°♋14'02	44.44841 AU
conjunction	1920 Jun	29	09:00	7°♋17'01	-3°34'21
minimum elong	1920 Jun	29	09:05	7°♋17'02	3°34'21
morning rise	1920 Jul	15	01:47	7°♋40'16	
retrograde	1920 Oct	09	14:24	8°♋55'05	
opposition	1920 Dec	29	20:33	7°♋51'50	-3°34'05
min. Earth dist.	1920 Dec	31	16:11	7°♋49'36	42.34550 AU
direct	1921 Mar	21	10:00	6°♋47'59	
evening set	1921 Jun	15	01:08	8°♋01'55	
max. Earth dist.	1921 Jun	28	19:03	8°♋22'18	44.23666 AU
conjunction	1921 Jun	30	19:35	8°♋25'20	-3°14'29
minimum elong	1921 Jun	30	19:40	8°♋25'20	3°14'28
morning rise	1921 Jul	16	14:15	8°♋48'48	
retrograde	1921 Oct	11	01:05	10°♋03'52	
opposition	1921 Dec	31	05:11	9°♋00'23	-3°13'11
min. Earth dist.	1922 Jan	02	01:06	8°♋58'07	42.13120 AU
direct	1922 Mar	22	18:40	7°♋56'15	
evening set	1922 Jun	16	10:03	9°♋10'31	
max. Earth dist.	1922 Jun	30	03:23	9°♋30'58	44.02150 AU
conjunction	1922 Jul	02	06:13	9°♋34'09	-2°54'20
minimum elong	1922 Jul	02	06:17	9°♋34'09	2°54'20
morning rise	1922 Jul	18	02:50	9°♋57'50	
retrograde	1922 Oct	12	14:08	11°♋13'10	
opposition	1923 Jan	01	14:11	10°♋09'27	-2°51'59
min. Earth dist.	1923 Jan	03	11:30	10°♋07'06	41.91400 AU
direct	1923 Mar	24	02:07	9°♋05'02	
evening set	1923 Jun	17	19:03	10°♋19'38	
max. Earth dist.	1923 Jul	01	14:04	10°♋40'18	43.80351 AU
conjunction	1923 Jul	03	17:05	10°♋43'31	-2°33'56
minimum elong	1923 Jul	03	17:09	10°♋43'31	2°33'56
morning rise	1923 Jul	19	15:10	11°♋07'25	
retrograde	1923 Oct	14	00:01	12°♋23'02	
opposition	1924 Jan	02	23:26	11°♋19'05	-2°30'30
min. Earth dist.	1924 Jan	04	21:43	11°♋16'40	41.69424 AU
direct	1924 Mar	24	12:42	10°♋14'23	
evening set	1924 Jun	18	04:47	11°♋29'22	
max. Earth dist.	1924 Jul	02	00:00	11°♋50'08	43.58336 AU
conjunction	1924 Jul	04	04:14	11°♋53'27	-2°13'15
minimum elong	1924 Jul	04	04:18	11°♋53'28	2°13'15
morning rise	1924 Jul	20	03:53	12°♋17'35	
retrograde	1924 Oct	14	09:40	13°♋33'30	
opposition	1925 Jan	03	08:45	12°♋29'20	-2°08'44
min. Earth dist.	1925 Jan	05	07:17	12°♋26'54	41.47266 AU
direct	1925 Mar	25	23:07	11°♋24'22	
evening set	1925 Jun	19	15:00	12°♋39'45	
max. Earth dist.	1925 Jul	03	10:10	13°♋00'38	43.36131 AU
conjunction	1925 Jul	05	15:45	13°♋04'04	-1°52'19
minimum elong	1925 Jul	05	15:48	13°♋04'04	1°52'19
morning rise	1925 Jul	21	16:33	13°♋28'24	
retrograde	1925 Oct	15	20:16	14°♋44'41	
opposition	1926 Jan	04	18:37	13°♋40'17	-1°46'40
min. Earth dist.	1926 Jan	06	18:43	13°♋37'45	41.24947 AU
direct	1926 Mar	27	08:09	12°♋35'03	
evening set	1926 Jun	21	01:27	13°♋50'53	
max. Earth dist.	1926 Jul	04	21:55	14°♋11'58	43.13784 AU
conjunction	1926 Jul	07	03:23	14°♋15'24	-1°31'06
minimum elong	1926 Jul	07	03:26	14°♋15'24	1°31'06
morning rise	1926 Jul	23	05:09	14°♋39'56	
retrograde	1926 Oct	17	08:51	15°♋56'38	
opposition	1927 Jan	06	04:37	14°♋52'01	-1°24'19
min. Earth dist.	1927 Jan	08	04:26	14°♋49'30	41.02484 AU
direct	1927 Mar	28	16:01	13°♋46'32	
evening set	1927 Jun	22	12:42	15°♋02'52	
max. Earth dist.	1927 Jul	06	07:58	15°♋24'00	42.91276 AU
conjunction	1927 Jul	08	15:24	15°♋27'34	-1°09'37
minimum elong	1927 Jul	08	15:26	15°♋27'34	1°09'38
morning rise	1927 Jul	24	18:06	15°♋52'18	
retrograde	1927 Oct	18	23:12	17°♋09'26	
opposition	1928 Jan	07	14:53	16°♋04'37	-1°01'40
min. Earth dist.	1928 Jan	09	16:22	16°♋02'00	40.79859 AU
direct	1928 Mar	28	23:46	14°♋58'52	
evening set	1928 Jun	23	00:24	16°♋15'44	
max. Earth dist.	1928 Jul	06	20:22	16°♋37'02	42.68561 AU
conjunction	1928 Jul	09	03:58	16°♋40'39	-0°47'53
minimum elong	1928 Jul	09	04:00	16°♋40'39	0°47'52
morning rise	1928 Jul	25	07:07	17°♋05'34	
retrograde	1928 Oct	19	12:08	18°♋23'09	
opposition	1929 Jan	08	01:34	17°♋18'07	-0°38'45
min. Earth dist.	1929 Jan	10	03:52	17°♋15'27	40.56992 AU
direct	1929 Mar	30	11:50	16°♋12'07	
evening set	1929 Jun	24	12:54	17°♋29'34	
max. Earth dist.	1929 Jul	08	07:21	17°♋50'54	42.45575 AU
conjunction	1929 Jul	10	16:46	17°♋54'39	-0°25'53
minimum elong	1929 Jul	10	16:47	17°♋54'39	0°25'53
morning rise	1929 Jul	26	20:24	18°♋19'45	
retrograde	1929 Oct	21	02:07	19°♋37'49	
opposition	1930 Jan	09	12:28	18°♋32'34	-0°15'32
min. Earth dist.	1930 Jan	11	15:35	18°♋29'51	40.33838 AU
direct	1930 Mar	31	23:39	17°♋26'18	
evening set	1930 Jun	26	01:55	18°♋44'19	
max. Earth dist.	1930 Jul	09	19:15	19°♋05'43	42.22250 AU
conjunction	1930 Jul	12	06:04	19°♋09'35	-0°03'42
minimum elong	1930 Jul	12	06:04	19°♋09'35	0°03'41
behind sun begin	1930 Jul	11	23:35	19°♋09'11	
behind sun end	1930 Jul	12	12:32	19°♋09'59	
morning rise	1930 Jul	28	09:43	19°♋34'51	
asc. node	1930 Sep	09	11:06	20°♋31'14	
retrograde	1930 Oct	22	13:32	20°♋53'27	
opposition	1931 Jan	10	23:58	19°♋47'57	0°07'57
min. Earth dist.	1931 Jan	13	05:01	19°♋45'06	40.10340 AU
direct	1931 Apr	02	11:25	18°♋41'22	
evening set	1931 Jun	27	15:22	19°♋59'59	
max. Earth dist.	1931 Jul	11	08:01	20°♋21'28	41.98584 AU
conjunction	1931 Jul	13	19:34	20°♋25'25	0°18'55
minimum elong	1931 Jul	13	19:34	20°♋25'25	0°18'54
morning rise	1931 Jul	29	23:10	20°♋50'51	
retrograde	1931 Oct	24	01:48	22°♋09'58	
opposition	1932 Jan	12	11:39	21°♋04'13	0°31'43
min. Earth dist.	1932 Jan	14	16:57	21°♋01'20	39.86497 AU
direct	1932 Apr	02	22:58	19°♋57'18	
evening set	1932 Jun	28	05:42	21°♋16'33	
max. Earth dist.	1932 Jul	11	19:33	21°♋38'00	41.74562 AU
conjunction	1932 Jul	14	09:33	21°♋42'08	0°41'39

minimum elong	1932 Jul	14	09:32	21°♋42'07	0°41'40
morning rise	1932 Jul	30	12:53	22°♋07'42	
retrograde	1932 Oct	24	17:44	23°♋27'22	
opposition	1933 Jan	12	23:40	22°♋21'20	0°55'45
min. Earth dist.	1933 Jan	15	07:00	22°♋18'20	39.62334 AU
direct	1933 Apr	04	07:29	21°♋14'05	
evening set	1933 Jun	29	20:29	22°♋33'58	
max. Earth dist.	1933 Jul	13	09:53	22°♋55'32	41.50232 AU
conjunction	1933 Jul	15	23:59	22°♋59'41	1°04'39
minimum elong	1933 Jul	15	23:58	22°♋59'41	1°04'38
morning rise	1933 Aug	01	02:34	23°♋25'23	
retrograde	1933 Oct	26	08:09	24°♋45'38	
opposition	1934 Jan	14	12:05	23°♋39'17	1°20'03
min. Earth dist.	1934 Jan	16	19:52	23°♋36'15	39.37891 AU
direct	1934 Apr	05	19:22	22°♋31'41	
evening set	1934 Jul	01	11:51	23°♋52'15	
max. Earth dist.	1934 Jul	14	22:28	24°♋13'47	41.25652 AU
conjunction	1934 Jul	17	14:25	24°♋18'05	1°27'53
minimum elong	1934 Jul	17	14:22	24°♋18'05	1°27'53
morning rise	1934 Aug	02	16:18	24°♋43'55	
retrograde	1934 Oct	28	00:34	26°♋04'46	
opposition	1935 Jan	16	00:49	24°♋58'06	1°44'37
min. Earth dist.	1935 Jan	18	09:33	24°♋55'00	39.13248 AU
direct	1935 Apr	07	07:55	23°♋50'07	
evening set	1935 Jul	03	03:49	25°♋11'25	
max. Earth dist.	1935 Jul	16	12:55	25°♋32'59	41.00874 AU
conjunction	1935 Jul	19	05:29	25°♋37'22	1°51'21
minimum elong	1935 Jul	19	05:25	25°♋37'22	1°51'21
morning rise	1935 Aug	04	06:05	26°♋03'17	
retrograde	1935 Oct	29	14:17	27°♋24'47	
opposition	1936 Jan	17	13:55	26°♋17'47	2°09'26
min. Earth dist.	1936 Jan	19	23:53	26°♋14'35	38.88449 AU
direct	1936 Apr	07	23:25	25°♋09'25	
evening set	1936 Jul	03	20:34	26°♋31'29	
max. Earth dist.	1936 Jul	17	03:42	26°♋53'04	40.75979 AU
conjunction	1936 Jul	19	20:52	26°♋57'32	2°15'03
minimum elong	1936 Jul	19	20:48	26°♋57'32	2°15'03
morning rise	1936 Aug	04	20:09	27°♋23'32	
retrograde	1936 Oct	30	05:18	28°♋45'43	
opposition	1937 Jan	18	03:23	27°♋38'24	2°34'30
min. Earth dist.	1937 Jan	20	13:07	27°♋35'12	38.63567 AU
direct	1937 Apr	09	13:47	26°♋29'39	
evening set	1937 Jul	05	14:02	27°♋52'31	
max. Earth dist.	1937 Jul	18	18:04	28°♋14'04	40.50995 AU
conjunction	1937 Jul	21	12:39	28°♋18'39	2°38'57
minimum elong	1937 Jul	21	12:34	28°♋18'39	2°38'57
morning rise	1937 Aug	06	10:10	28°♋44'45	
	1937 Oct	07	12:14	0°♌	
retrograde	1937 Oct	31	20:06	0°♌07'40	
	1937 Nov	25	09:06	30°℞♋	
opposition	1938 Jan	19	17:24	29°♋00'01	2°59'49
min. Earth dist.	1938 Jan	22	04:41	28°♋56'43	38.38639 AU
direct	1938 Apr	11	01:54	27°♋50'55	
evening set	1938 Jul	07	08:08	29°♋14'38	
max. Earth dist.	1938 Jul	20	10:45	29°♋36'14	40.25985 AU
conjunction	1938 Jul	23	04:55	29°♋40'50	3°03'04
minimum elong	1938 Jul	23	04:49	29°♋40'49	3°03'04
	1938 Aug	03	17:58	0°♌	
morning rise	1938 Aug	08	00:21	0°♌06'59	
retrograde	1938 Nov	02	12:19	1°♌30'41	
opposition	1939 Jan	21	07:47	0°♌22'44	3°25'21
min. Earth dist.	1939 Jan	23	18:44	0°♌19'26	38.13696 AU
	1939 Feb	07	12:56	30°℞♋	
direct	1939 Apr	12	15:16	29°♋13'16	
	1939 Jun	14	04:49	0°♌	
evening set	1939 Jul	09	03:04	0°♌37'54	
max. Earth dist.	1939 Jul	22	01:32	0°♌59'24	40.00951 AU
conjunction	1939 Jul	24	21:29	1°♌04'09	3°27'23
minimum elong	1939 Jul	24	21:23	1°♌04'09	3°27'23
morning rise	1939 Aug	09	14:45	1°♌30'21	
retrograde	1939 Nov	04	08:08	2°♌54'54	
opposition	1940 Jan	22	22:40	1°♌46'39	3°51'06
min. Earth dist.	1940 Jan	25	10:44	1°♌43'16	37.88727 AU
direct	1940 Apr	13	03:16	0°♌36'49	
evening set	1940 Jul	09	22:52	2°♌02'27	
max. Earth dist.	1940 Jul	22	18:56	2°♌23'56	39.75843 AU
conjunction	1940 Jul	25	14:52	2°♌28'44	3°51'52
minimum elong	1940 Jul	25	14:45	2°♌28'43	3°51'52
morning rise	1940 Aug	10	05:18	2°♌54'57	
retrograde	1940 Nov	05	01:31	4°♌20'24	
opposition	1941 Jan	23	13:59	3°♌11'51	4°17'03
min. Earth dist.	1941 Jan	26	02:55	3°♌08'24	37.63666 AU
direct	1941 Apr	14	18:27	2°♌01'41	
evening set	1941 Jul	11	19:43	3°♌28'21	
max. Earth dist.	1941 Jul	24	11:29	3°♌49'43	39.50619 AU
conjunction	1941 Jul	27	08:39	3°♌54'38	4°16'32
minimum elong	1941 Jul	27	08:31	3°♌54'37	4°16'33
morning rise	1941 Aug	11	20:11	4°♌20'51	
retrograde	1941 Nov	06	20:44	5°♌47'15	
opposition	1942 Jan	25	05:52	4°♌38'24	4°43'12
min. Earth dist.	1942 Jan	27	19:13	4°♌34'54	37.38475 AU
direct	1942 Apr	16	11:04	3°♌27'51	
evening set	1942 Jul	13	17:13	4°♌55'36	
max. Earth dist.	1942 Jul	26	04:25	5°♌16'50	39.25205 AU
conjunction	1942 Jul	29	02:55	5°♌21'53	4°41'22
minimum elong	1942 Jul	29	02:46	5°♌21'53	4°41'22
morning rise	1942 Aug	13	11:00	5°♌48'05	
retrograde	1942 Nov	08	14:39	7°♌15'29	
opposition	1943 Jan	26	22:26	6°♌06'19	5°09'33
min. Earth dist.	1943 Jan	29	13:36	6°♌02'41	37.13091 AU
direct	1943 Apr	18	03:04	4°♌55'23	
evening set	1943 Jul	15	15:48	6°♌24'15	
max. Earth dist.	1943 Jul	27	22:59	6°♌45'22	38.99595 AU
conjunction	1943 Jul	30	21:52	6°♌50'30	5°06'22
minimum elong	1943 Jul	30	21:42	6°♌50'29	5°06'22
morning rise	1943 Aug	15	02:14	7°♌16'40	
retrograde	1943 Nov	10	08:58	8°♌45'05	
opposition	1944 Jan	28	15:15	7°♌35'35	5°36'03
min. Earth dist.	1944 Jan	31	06:23	7°♌31'56	36.87510 AU
direct	1944 Apr	18	19:20	6°♌24'15	
evening set	1944 Jul	16	15:25	7°♌54'17	
max. Earth dist.	1944 Jul	28	16:19	8°♌15'09	38.73774 AU
conjunction	1944 Jul	31	17:22	8°♌20'28	5°31'29
minimum elong	1944 Jul	31	17:11	8°♌20'28	5°31'29
morning rise	1944 Aug	15	17:43	8°♌46'34	
retrograde	1944 Nov	11	05:10	10°♌16'04	
opposition	1945 Jan	29	08:50	9°♌06'13	6°02'44
min. Earth dist.	1945 Feb	01	01:47	9°♌02'26	36.61751 AU
direct	1945 Apr	20	10:19	7°♌54'27	
evening set	1945 Jul	18	15:47	9°♌25'43	
max. Earth dist.	1945 Jul	30	12:32	9°♌46'26	38.47780 AU

conjunction	1945 Aug 02	13:26	9°♌51'48	5°56'44
minimum elong	1945 Aug 02	13:14	9°♌51'47	5°56'45
morning rise	1945 Aug 17	09:06	10°♌17'48	
retrograde	1945 Nov 13	01:56	11°♌48'25	
opposition	1946 Jan 31	02:52	10°♌38'11	6°29'33
min. Earth dist.	1946 Feb 02	20:07	10°♌34'23	36.35849 AU
direct	1946 Apr 22	03:52	9°♌25'59	
evening set	1946 Jul 20	17:16	10°♌58'32	
max. Earth dist.	1946 Aug 01	07:14	11°♌18'57	38.21675 AU
conjunction	1946 Aug 04	09:53	11°♌24'30	6°22'05
minimum elong	1946 Aug 04	09:40	11°♌24'29	6°22'05
morning rise	1946 Aug 19	00:48	11°♌50'21	
retrograde	1946 Nov 15	00:44	13°♌22'10	
opposition	1947 Feb 01	21:23	12°♌11'32	6°56'28
min. Earth dist.	1947 Feb 04	15:22	12°♌07'40	36.09891 AU
direct	1947 Apr 23	20:51	10°♌58'52	
evening set	1947 Jul 22	19:29	12°♌32'45	
max. Earth dist.	1947 Aug 03	04:09	12°♌52'58	37.95513 AU
conjunction	1947 Aug 06	06:59	12°♌58'34	6°47'31
minimum elong	1947 Aug 06	06:46	12°♌58'33	6°47'31
morning rise	1947 Aug 20	16:26	13°♌24'16	
retrograde	1947 Nov 16	21:41	14°♌57'19	
opposition	1948 Feb 03	16:38	13°♌46'17	7°23'29
min. Earth dist.	1948 Feb 06	11:32	13°♌42'19	35.83917 AU
direct	1948 Apr 24	17:03	12°♌33'10	
evening set	1948 Jul 23	23:00	14°♌08'26	
max. Earth dist.	1948 Aug 04	01:24	14°♌28'22	37.69377 AU
conjunction	1948 Aug 07	04:37	14°♌34'04	7°12'59
minimum elong	1948 Aug 07	04:23	14°♌34'03	7°12'58
morning rise	1948 Aug 21	08:21	14°♌59'34	
	1948 Aug 21	14:13	15°♌	
retrograde	1948 Nov 17	20:13	16°♌33'53	
opposition	1949 Feb 04	12:14	15°♌22'27	7°50'33
min. Earth dist.	1949 Feb 07	06:46	15°♌18'30	35.58017 AU
	1949 Feb 20	11:11	15°℞♌	
direct	1949 Apr 26	14:03	14°♌08'52	
	1949 Jun 28	16:57	15°♌	
evening set	1949 Jul 26	03:27	15°♌45'38	
max. Earth dist.	1949 Aug 05	22:45	16°♌05'13	37.43321 AU
conjunction	1949 Aug 09	02:54	16°♌11'01	7°38'28
minimum elong	1949 Aug 09	02:39	16°♌11'00	7°38'28
morning rise	1949 Aug 23	00:20	16°♌36'18	
retrograde	1949 Nov 19	18:16	18°♌11'59	
opposition	1950 Feb 06	08:47	17°♌00'09	8°17'38
min. Earth dist.	1950 Feb 09	04:31	16°♌56'05	35.32253 AU
direct	1950 Apr 28	08:38	15°♌46'07	
evening set	1950 Jul 28	08:53	17°♌24'24	
max. Earth dist.	1950 Aug 07	22:14	17°♌43'43	37.17428 AU
conjunction	1950 Aug 11	01:37	17°♌49'32	8°03'56
minimum elong	1950 Aug 11	01:20	17°♌49'31	8°03'55
morning rise	1950 Aug 24	16:14	18°♌14'32	
retrograde	1950 Nov 21	15:51	19°♌51'40	
opposition	1951 Feb 08	05:49	18°♌39'27	8°44'42
min. Earth dist.	1951 Feb 11	00:41	18°♌35'24	35.06671 AU
direct	1951 Apr 30	05:17	17°♌24'58	
evening set	1951 Jul 30	15:39	19°♌04'52	
max. Earth dist.	1951 Aug 09	20:24	19°♌23'44	36.91717 AU
conjunction	1951 Aug 13	01:05	19°♌29'41	8°29'21
minimum elong	1951 Aug 13	00:48	19°♌29'40	8°29'21
morning rise	1951 Aug 26	08:37	19°♌54'23	
retrograde	1951 Nov 23	16:27	21°♌33'02	
opposition	1952 Feb 10	03:26	20°♌20'26	9°11'43
min. Earth dist.	1952 Feb 12	23:16	20°♌16'19	34.81290 AU
direct	1952 Apr 30	23:19	19°♌05'30	
evening set	1952 Jul 31	23:39	20°♌47'08	
max. Earth dist.	1952 Aug 10	21:38	21°♌05'39	36.66180 AU
conjunction	1952 Aug 14	01:27	21°♌11'36	8°54'40
minimum elong	1952 Aug 14	01:10	21°♌11'34	8°54'40
morning rise	1952 Aug 27	01:02	21°♌35'55	
retrograde	1952 Nov 24	17:05	23°♌16'11	
opposition	1953 Feb 11	01:54	22°♌03'12	9°38'39
min. Earth dist.	1953 Feb 13	21:46	21°♌59'04	34.56068 AU
direct	1953 May 02	20:24	20°♌47'51	
evening set	1953 Aug 03	08:59	22°♌31'16	
max. Earth dist.	1953 Aug 12	21:21	22°♌49'14	36.40782 AU
conjunction	1953 Aug 16	02:16	22°♌55'19	9°19'54
minimum elong	1953 Aug 16	01:57	22°♌55'18	9°19'54
morning rise	1953 Aug 28	17:39	23°♌19'14	
retrograde	1953 Nov 26	20:46	25°♌01'11	
opposition	1954 Feb 13	01:02	23°♌47'49	10°05'29
min. Earth dist.	1954 Feb 15	21:10	23°♌43'38	34.30984 AU
direct	1954 May 04	17:51	22°♌32'01	
evening set	1954 Aug 05	19:33	24°♌17'19	
max. Earth dist.	1954 Aug 14	23:03	24°♌34'45	36.15474 AU
conjunction	1954 Aug 18	04:03	24°♌40'54	9°44'58
minimum elong	1954 Aug 18	03:44	24°♌40'52	9°44'58
morning rise	1954 Aug 30	10:23	25°♌04'21	
retrograde	1954 Nov 28	23:45	26°♌48'03	
opposition	1955 Feb 15	01:01	25°♌34'17	10°32'10
min. Earth dist.	1955 Feb 17	22:07	25°♌30'00	34.05985 AU
direct	1955 May 06	18:37	24°♌18'01	
evening set	1955 Aug 08	07:36	26°♌05'16	
max. Earth dist.	1955 Aug 17	01:07	26°♌22'05	35.90255 AU
conjunction	1955 Aug 20	06:26	26°♌28'20	10°09'53
minimum elong	1955 Aug 20	06:06	26°♌28'18	10°09'53
morning rise	1955 Sep 01	03:19	26°♌51'15	
retrograde	1955 Dec 01	04:45	28°♌36'46	
opposition	1956 Feb 17	01:40	27°♌22'35	10°58'40
min. Earth dist.	1956 Feb 19	22:19	27°♌18'19	33.81072 AU
direct	1956 May 07	20:06	26°♌05'50	
evening set	1956 Aug 09	21:02	27°♌55'08	
max. Earth dist.	1956 Aug 18	03:25	28°♌11'12	35.65099 AU
conjunction	1956 Aug 21	09:43	28°♌17'36	10°34'34
minimum elong	1956 Aug 21	09:23	28°♌17'34	10°34'34
morning rise	1956 Sep 01	20:24	28°♌39'55	
	1956 Oct 20	06:20	0°♍	
retrograde	1956 Dec 02	07:11	0°♍27'20	
	1957 Jan 15	02:36	30°℞♌	
opposition	1957 Feb 18	03:13	29°♌12'44	11°24'56
min. Earth dist.	1957 Feb 21	01:14	29°♌08'20	33.56255 AU
direct	1957 May 09	19:54	27°♌55'29	
evening set	1957 Aug 12	12:01	29°♌46'53	
	1957 Aug 19	04:28	0°♍	
max. Earth dist.	1957 Aug 20	08:05	0°♍02'16	35.40067 AU
conjunction	1957 Aug 23	13:43	0°♍08'41	10°59'00
minimum elong	1957 Aug 23	13:22	0°♍08'39	10°59'01
morning rise	1957 Sep 03	13:26	0°♍30'20	
retrograde	1957 Dec 04	10:23	2°♍19'43	
opposition	1958 Feb 20	05:28	1°♍04'41	11°50'56
min. Earth dist.	1958 Feb 23	02:46	1°♍00'18	33.31586 AU
	1958 Apr 11	14:47	30°℞♌	
direct	1958 May 11	22:01	29°♌46'56	

	1958 Jun 10 19:01	0°♑	
evening set	1958 Aug 15 04:13	1°♑40'32	
max. Earth dist.	1958 Aug 22 11:22	1°♑55'01	35.15202 AU
conjunction	1958 Aug 25 18:12	2°♑01'35	11°23'07
minimum elong	1958 Aug 25 17:50	2°♑01'33	11°23'07
morning rise	1958 Sep 05 06:24	2°♑22'30	
retrograde	1958 Dec 06 15:36	4°♑13'58	
opposition	1959 Feb 22 08:29	2°♑58'28	12°16'35
min. Earth dist.	1959 Feb 25 06:33	2°♑54'00	33.07134 AU
direct	1959 May 13 21:50	1°♑40'12	
evening set	1959 Aug 17 22:09	3°♑36'06	
max. Earth dist.	1959 Aug 24 18:03	3°♑49'47	34.90575 AU
conjunction	1959 Aug 27 23:42	3°♑56'19	11°46'52
minimum elong	1959 Aug 27 23:20	3°♑56'17	11°46'53
morning rise	1959 Sep 06 23:18	4°♑16'24	
retrograde	1959 Dec 08 20:24	6°♑10'02	
opposition	1960 Feb 24 12:12	4°♑54'05	12°41'50
min. Earth dist.	1960 Feb 27 09:51	4°♑49'37	32.82955 AU
direct	1960 May 15 00:47	3°♑35'18	
evening set	1960 Aug 19 17:47	5°♑33'37	
max. Earth dist.	1960 Aug 25 23:36	5°♑46'16	34.66271 AU
conjunction	1960 Aug 29 05:47	5°♑52'54	12°10'11
minimum elong	1960 Aug 29 05:25	5°♑52'52	12°10'10
morning rise	1960 Sep 07 16:11	6°♑12'04	
retrograde	1960 Dec 10 04:41	8°♑07'59	
opposition	1961 Feb 25 16:47	6°♑51'35	13°06'35
min. Earth dist.	1961 Feb 28 14:05	6°♑47'06	32.59154 AU
direct	1961 May 17 04:27	5°♑32'17	
evening set	1961 Aug 22 14:54	7°♑33'08	
max. Earth dist.	1961 Aug 28 07:38	7°♑44'48	34.42363 AU
conjunction	1961 Aug 31 12:38	7°♑51'24	12°32'59
minimum elong	1961 Aug 31 12:15	7°♑51'22	12°32'59
morning rise	1961 Sep 09 08:36	8°♑09'33	
retrograde	1961 Dec 12 12:01	10°♑07'52	
opposition	1962 Feb 27 22:21	8°♑51'00	13°30'47
min. Earth dist.	1962 Mar 02 19:36	8°♑46'31	32.35795 AU
direct	1962 May 19 09:47	7°♑31'15	
evening set	1962 Aug 25 14:06	9°♑34'46	
max. Earth dist.	1962 Aug 30 15:44	9°♑45'15	34.18958 AU
conjunction	1962 Sep 02 20:10	9°♑51'52	12°55'12
minimum elong	1962 Sep 02 19:47	9°♑51'50	12°55'11
morning rise	1962 Sep 11 00:46	10°♑08'52	
retrograde	1962 Dec 14 21:51	12°♑09'44	
opposition	1963 Mar 02 04:30	10°♑52'28	13°54'21
min. Earth dist.	1963 Mar 05 00:15	10°♑48'02	32.12970 AU
direct	1963 May 21 15:50	9°♑32'14	
evening set	1963 Aug 28 15:15	11°♑38'36	
max. Earth dist.	1963 Sep 02 00:45	11°♑47'47	33.96092 AU
conjunction	1963 Sep 05 04:39	11°♑54'25	13°16'46
minimum elong	1963 Sep 05 04:16	11°♑54'23	13°16'46
morning rise	1963 Sep 12 16:36	12°♑10'09	
retrograde	1963 Dec 17 07:08	14°♑13'43	
opposition	1964 Mar 03 11:46	12°♑56'03	14°17'12
min. Earth dist.	1964 Mar 06 07:46	12°♑51'34	31.90697 AU
direct	1964 May 22 21:35	11°♑35'23	
evening set	1964 Aug 30 19:00	13°♑44'46	
max. Earth dist.	1964 Sep 03 11:36	13°♑52'35	33.73799 AU
conjunction	1964 Sep 06 13:55	13°♑59'09	13°37'36
minimum elong	1964 Sep 06 13:33	13°♑59'07	13°37'35
morning rise	1964 Sep 13 07:33	14°♑13'24	
retrograde	1964 Dec 18 18:35	16°♑19'51	
opposition	1965 Mar 05 19:44	15°♑01'50	14°39'15
min. Earth dist.	1965 Mar 08 14:04	14°♑57'26	31.68982 AU
direct	1965 May 25 05:19	13°♑40'46	
evening set	1965 Sep 03 01:26	15°♑53'23	
max. Earth dist.	1965 Sep 05 21:41	15°♑59'28	33.52051 AU
conjunction	1965 Sep 09 00:01	16°♑06'05	13°57'39
minimum elong	1965 Sep 08 23:38	16°♑06'03	13°57'40
morning rise	1965 Sep 14 21:26	16°♑18'41	
retrograde	1965 Dec 21 05:00	18°♑28'15	
opposition	1966 Mar 08 04:47	17°♑09'52	15°00'27
min. Earth dist.	1966 Mar 10 23:26	17°♑05'26	31.47810 AU
direct	1966 May 27 11:04	15°♑48'24	
evening set	1966 Sep 06 11:42	18°♑04'33	
max. Earth dist.	1966 Sep 08 10:33	18°♑08'46	33.30837 AU
conjunction	1966 Sep 11 10:54	18°♑15'17	14°16'52
minimum elong	1966 Sep 11 10:32	18°♑15'15	14°16'51
morning rise	1966 Sep 16 09:02	18°♑25'55	
retrograde	1966 Dec 23 15:29	20°♑38'52	
opposition	1967 Mar 10 14:42	19°♑20'08	15°20'45
min. Earth dist.	1967 Mar 13 08:02	19°♑15'45	31.27138 AU
direct	1967 May 29 20:22	17°♑58'16	
evening set	1967 Sep 10 03:45	20°♑18'25	
max. Earth dist.	1967 Sep 10 21:56	20°♑20'04	33.10125 AU
conjunction	1967 Sep 13 22:41	20°♑26'42	14°35'10
minimum elong	1967 Sep 13 22:19	20°♑26'40	14°35'11
morning rise	1967 Sep 17 16:44	20°♑34'53	
retrograde	1967 Dec 26 04:39	22°♑51'41	
opposition	1968 Mar 12 01:25	21°♑32'35	15°40'03
min. Earth dist.	1968 Mar 14 18:29	21°♑28'12	31.06969 AU
direct	1968 May 31 03:56	20°♑10'19	
evening set	1968 Sep 13 09:06	22°♑35'38	
max. Earth dist.	1968 Sep 12 12:38	22°♑33'45	32.89918 AU
conjunction	1968 Sep 15 11:27	22°♑40'15	14°52'30
minimum elong	1968 Sep 15 11:06	22°♑40'13	14°52'29
morning rise	1968 Sep 17 13:03	22°♑44'49	
retrograde	1968 Dec 27 17:00	25°♑06'37	
opposition	1969 Mar 14 13:16	23°♑47'09	15°58'17
min. Earth dist.	1969 Mar 17 05:35	23°♑42'48	30.87295 AU
direct	1969 Jun 02 13:58	22°♑24'29	
max. Earth dist.	1969 Sep 15 02:06	24°♑49'20	32.70250 AU
conjunction	1969 Sep 18 00:40	24°♑55'52	15°08'47
minimum elong	1969 Sep 18 00:19	24°♑55'50	15°08'48
retrograde	1969 Dec 30 08:11	27°♑23'35	
opposition	1970 Mar 17 01:51	26°♑03'44	16°15'22
min. Earth dist.	1970 Mar 19 16:57	25°♑59'27	30.68173 AU
direct	1970 Jun 05 02:27	24°♑40'40	
max. Earth dist.	1970 Sep 17 18:06	27°♑07'03	32.51154 AU
conjunction	1970 Sep 20 14:53	27°♑13'28	15°23'57
minimum elong	1970 Sep 20 14:34	27°♑13'26	15°23'56
retrograde	1971 Jan 01 22:06	29°♑42'28	
opposition	1971 Mar 19 15:17	28°♑22'14	16°31'13
min. Earth dist.	1971 Mar 22 06:04	28°♑17'57	30.49635 AU
direct	1971 Jun 07 15:28	26°♑58'46	
max. Earth dist.	1971 Sep 20 09:58	29°♑26'33	32.32707 AU
conjunction	1971 Sep 23 05:41	29°♑32'56	15°37'53
minimum elong	1971 Sep 23 05:23	29°♑32'54	15°37'54
	1971 Oct 05 06:18	0°♎	
retrograde	1972 Jan 04 14:52	2°♎03'10	
opposition	1972 Mar 21 05:30	0°♎42'34	16°45'44

min. Earth dist.	1972 Mar 23	18:11	0°♎38'25	30.31757 AU	
	1972 Apr 17	07:43	30°℞♍		
direct	1972 Jun 09	06:00	29°♍18'42		
	1972 Jul 30	11:44	0°♎		
max. Earth dist.	1972 Sep 22	03:02	1°♎47'54	32.14958 AU	
conjunction	1972 Sep 24	21:12	1°♎54'11	15°50'32	
minimum elong	1972 Sep 24	20:54	1°♎54'09	15°50'32	
retrograde	1973 Jan 06	07:05	4°♎25'37		
opposition	1973 Mar 23	20:40	3°♎04'39	16°58'50	
min. Earth dist.	1973 Mar 26	08:50	3°♎00'30	30.14611 AU	
direct	1973 Jun 11	20:23	1°♎40'25		
max. Earth dist.	1973 Sep 24	21:29	4°♎11'01	31.98023 AU	
conjunction	1973 Sep 27	13:15	4°♎17'07	16°01'47	
minimum elong	1973 Sep 27	12:59	4°♎17'06	16°01'48	
retrograde	1974 Jan 09	01:03	6°♎49'42		
opposition	1974 Mar 26	12:31	5°♎28'23	17°10'23	
min. Earth dist.	1974 Mar 28	21:57	5°♎24'24	29.98295 AU	
direct	1974 Jun 14	13:25	4°♎03'48		
max. Earth dist.	1974 Sep 27	15:38	6°♎35'43	31.81972 AU	
conjunction	1974 Sep 30	05:51	6°♎41'42	16°11'34	
minimum elong	1974 Sep 30	05:36	6°♎41'41	16°11'33	
retrograde	1975 Jan 11	17:45	9°♎15'24		
opposition	1975 Mar 29	05:13	7°♎53'45	17°20'18	
min. Earth dist.	1975 Mar 31	13:37	7°♎49'50	29.82887 AU	
direct	1975 Jun 17	04:09	6°♎28'52		
max. Earth dist.	1975 Sep 30	12:13	9°♎02'10	31.66890 AU	
conjunction	1975 Oct 02	23:13	9°♎07'54	16°19'46	
minimum elong	1975 Oct 02	23:01	9°♎07'53	16°19'46	
retrograde	1976 Jan 14	11:41	11°♎42'38		
opposition	1976 Mar 30	22:31	10°♎20'43	17°28'31	
min. Earth dist.	1976 Apr 02	04:11	10°♎16'59	29.68431 AU	
direct	1976 Jun 18	21:43	8°♎55'35		
max. Earth dist.	1976 Oct 02	07:28	11°♎30'04	31.52812 AU	
conjunction	1976 Oct 04	17:06	11°♎35'41	16°26'20	
minimum elong	1976 Oct 04	16:55	11°♎35'40	16°26'20	
retrograde	1977 Jan 16	07:03	14°♎11'26		
opposition	1977 Apr 02	16:40	12°♎49'18	17°34'56	
min. Earth dist.	1977 Apr 04	20:35	12°♎45'40	29.54970 AU	
direct	1977 Jun 21	13:15	11°♎23'56		
max. Earth dist.	1977 Oct 05	05:29	13°♎59'45	31.39744 AU	
conjunction	1977 Oct 07	11:28	14°♎05'03	16°31'13	
minimum elong	1977 Oct 07	11:21	14°♎05'03	16°31'13	
retrograde	1978 Jan 19	00:44	16°♎41'45		
opposition	1978 Apr 05	11:32	15°♎19'25	17°39'31	
min. Earth dist.	1978 Apr 07	13:12	15°♎15'56	29.42467 AU	
direct	1978 Jun 24	07:32	13°♎53'53		
max. Earth dist.	1978 Oct 08	01:45	16°♎30'43	31.27664 AU	
conjunction	1978 Oct 10	06:21	16°♎35'56	16°34'22	
minimum elong	1978 Oct 10	06:15	16°♎35'55	16°34'21	
retrograde	1979 Jan 21	20:43	19°♎13'29		
opposition	1979 Apr 08	06:50	17°♎50'59	17°42'12	
min. Earth dist.	1979 Apr 10	06:16	17°♎47'39	29.30916 AU	
direct	1979 Jun 27	01:19	16°♎25'18		
max. Earth dist.	1979 Oct 11	00:46	19°♎03'18	31.16537 AU	
conjunction	1979 Oct 13	01:56	19°♎08'12	16°35'44	
minimum elong	1979 Oct 13	01:53	19°♎08'11	16°35'45	
retrograde	1980 Jan 24	15:46	21°♎46'33		
opposition	1980 Apr 10	03:02	20°♎23'53	17°42'59	
min. Earth dist.	1980 Apr 12	00:56	20°♎20'39	29.20268 AU	
direct	1980 Jun 28	20:04	18°♎58'05		
max. Earth dist.	1980 Oct 12	22:08	21°♎36'56	31.06352 AU	
conjunction	1980 Oct 14	21:40	21°♎41'41	16°35'18	
minimum elong	1980 Oct 14	21:38	21°♎41'41	16°35'18	
retrograde	1981 Jan 26	12:53	24°♎20'44		
opposition	1981 Apr 12	23:39	22°♎57'56	17°41'48	
min. Earth dist.	1981 Apr 14	18:35	22°♎54'55	29.10531 AU	
direct	1981 Jul 01	16:08	21°♎32'02		
max. Earth dist.	1981 Oct 15	21:34	24°♎11'48	30.97100 AU	
conjunction	1981 Oct 17	17:57	24°♎16'15	16°33'03	
minimum elong	1981 Oct 17	17:58	24°♎16'15	16°33'04	
retrograde	1982 Jan 29	08:25	26°♎55'53		
opposition	1982 Apr 15	20:51	25°♎32'57	17°38'39	
min. Earth dist.	1982 Apr 17	14:25	25°♎30'01	29.01702 AU	
direct	1982 Jul 04	13:12	24°♎06'57		
max. Earth dist.	1982 Oct 18	20:01	26°♎47'24	30.88811 AU	
conjunction	1982 Oct 20	14:16	26°♎51'39	16°28'57	
minimum elong	1982 Oct 20	14:18	26°♎51'39	16°28'57	
retrograde	1983 Feb 01	06:00	29°♎31'46		
opposition	1983 Apr 18	18:16	28°♎08'43	17°33'29	
min. Earth dist.	1983 Apr 20	08:25	28°♎06'01	28.93800 AU	
direct	1983 Jul 07	11:31	26°♎42'38		
max. Earth dist.	1983 Oct 21	19:30	29°♎23'43	30.81483 AU	
conjunction	1983 Oct 23	10:55	29°♎27'42	16°22'59	
minimum elong	1983 Oct 23	11:02	29°♎27'42	16°22'59	
	1983 Nov 05	21:09	0°♏		
retrograde	1984 Feb 04	02:16	2°♏08'12		
opposition	1984 Apr 20	16:05	0°♏45'01	17°26'17	
min. Earth dist.	1984 Apr 22	04:52	0°♏42'25	28.86858 AU	
	1984 May 18	14:32	30°℞♎		
direct	1984 Jul 09	08:28	29°♎18'52		
	1984 Aug 28	04:46	0°♏		
max. Earth dist.	1984 Oct 23	19:13	2°♏00'30	30.75189 AU	
conjunction	1984 Oct 25	07:35	2°♏04'10	16°15'07	
minimum elong	1984 Oct 25	07:42	2°♏04'11	16°15'07	
retrograde	1985 Feb 06	00:11	4°♏44'55		
opposition	1985 Apr 23	14:06	3°♏21'38	17°17'03	
min. Earth dist.	1985 Apr 24	23:11	3°♏19'18	28.80932 AU	
direct	1985 Jul 12	08:46	1°♏55'27		
max. Earth dist.	1985 Oct 26	18:32	4°♏37'28	30.69964 AU	
conjunction	1985 Oct 28	04:04	4°♏40'51	16°05'22	
minimum elong	1985 Oct 28	04:15	4°♏40'53	16°05'22	
retrograde	1986 Feb 08	20:29	7°♏21'46		
opposition	1986 Apr 26	12:20	5°♏58'24	17°05'45	
min. Earth dist.	1986 Apr 27	19:23	5°♏56'12	28.76097 AU	
direct	1986 Jul 15	06:37	4°♏32'11		
max. Earth dist.	1986 Oct 29	19:00	7°♏14'35	30.65901 AU	
conjunction	1986 Oct 31	00:38	7°♏17'35	15°53'42	
minimum elong	1986 Oct 31	00:49	7°♏17'36	15°53'41	
retrograde	1987 Feb 11	17:04	9°♏58'31		
opposition	1987 Apr 29	10:26	8°♏35'07	16°52'24	
min. Earth dist.	1987 Apr 30	13:43	8°♏33'11	28.72410 AU	
direct	1987 Jul 18	06:16	7°♏08'56		
conjunction	1987 Nov 02	21:02	9°♏54'12	15°40'08	
minimum elong	1987 Nov 02	21:16	9°♏54'14	15°40'08	
max. Earth dist.	1987 Nov 01	18:00	9°♏51'28	30.63046 AU	
retrograde	1988 Feb 14	14:57	12°♏35'06		
opposition	1988 May 01	08:47	11°♏11'40	16°37'00	
min. Earth dist.	1988 May 02	09:08	11°♏09'57	28.69943 AU	

direct	1988 Jul 20 04:21	9°♏45'33	
conjunction	1988 Nov 04 17:16	12°♏30'36	15°24'42
minimum elong	1988 Nov 04 17:31	12°♏30'38	15°24'42
max. Earth dist.	1988 Nov 03 18:43	12°♏28'19	30.61457 AU
	1989 Jan 22 07:01	15°♏	
retrograde	1989 Feb 16 09:51	15°♏11'22	
	1989 Mar 14 00:18	15°℞♏	
opposition	1989 May 04 07:11	13°♏47'59	16°19'35
min. Earth dist.	1989 May 05 04:03	13°♏46'30	28.68702 AU
direct	1989 Jul 23 03:54	12°♏22'00	
	1989 Nov 04 18:54	15°♏	
conjunction	1989 Nov 07 13:14	15°♏06'43	15°07'26
minimum elong	1989 Nov 07 13:32	15°♏06'45	15°07'27
max. Earth dist.	1989 Nov 06 17:13	15°♏04'41	30.61125 AU
retrograde	1990 Feb 19 06:30	17°♏47'15	
opposition	1990 May 07 05:17	16°♏23'56	16°00'13
min. Earth dist.	1990 May 07 22:41	16°♏22'43	28.68696 AU
	1990 Jul 15 09:46	15°℞♏	
direct	1990 Jul 26 01:24	14°♏58'07	
	1990 Aug 05 12:29	15°♏	
evening set	1990 Nov 07 21:02	17°♏36'21	
conjunction	1990 Nov 10 09:05	17°♏42'25	14°48'24
minimum elong	1990 Nov 10 09:23	17°♏42'27	14°48'25
max. Earth dist.	1990 Nov 09 17:35	17°♏40'51	30.62022 AU
morning rise	1990 Nov 12 21:40	17°♏48'32	
retrograde	1991 Feb 22 01:24	20°♏22'38	
opposition	1991 May 10 03:25	18°♏59'26	15°38'58
min. Earth dist.	1991 May 10 18:10	18°♏58'24	28.69854 AU
direct	1991 Jul 28 23:42	17°♏33'48	
evening set	1991 Nov 09 00:48	20°♏07'31	
conjunction	1991 Nov 13 04:30	20°♏17'34	14°27'40
minimum elong	1991 Nov 13 04:51	20°♏17'36	14°27'40
max. Earth dist.	1991 Nov 12 15:19	20°♏16'15	30.64086 AU
morning rise	1991 Nov 17 08:44	20°♏27'40	
retrograde	1992 Feb 24 21:30	22°♏57'24	
opposition	1992 May 12 01:14	21°♏34'19	15°15'56
min. Earth dist.	1992 May 12 12:06	21°♏33'34	28.72144 AU
direct	1992 Jul 30 21:28	20°♏08'54	
evening set	1992 Nov 09 15:01	22°♏39'06	
conjunction	1992 Nov 14 23:47	22°♏52'03	14°05'20
minimum elong	1992 Nov 15 00:07	22°♏52'05	14°05'20
max. Earth dist.	1992 Nov 14 14:45	22°♏51'08	30.67264 AU
morning rise	1992 Nov 20 08:54	23°♏05'01	
retrograde	1993 Feb 26 14:26	25°♏31'22	
opposition	1993 May 14 23:04	24°♏08'26	14°51'11
min. Earth dist.	1993 May 15 07:46	24°♏07'50	28.75508 AU
direct	1993 Aug 02 19:24	22°♏43'15	
evening set	1993 Nov 11 09:26	25°♏10'19	
conjunction	1993 Nov 17 18:25	25°♏25'39	13°41'28
minimum elong	1993 Nov 17 18:48	25°♏25'41	13°41'27
max. Earth dist.	1993 Nov 17 11:44	25°♏24'59	30.71519 AU
morning rise	1993 Nov 24 03:47	25°♏41'01	
retrograde	1994 Mar 01 09:57	28°♏04'23	
opposition	1994 May 17 20:22	26°♏41'37	14°24'51
min. Earth dist.	1994 May 18 01:04	26°♏41'17	28.79910 AU
direct	1994 Aug 05 17:03	25°♏16'40	
evening set	1994 Nov 13 06:22	27°♏40'51	
conjunction	1994 Nov 20 12:52	27°♏58'14	13°16'10
minimum elong	1994 Nov 20 13:14	27°♏58'16	13°16'10
max. Earth dist.	1994 Nov 20 09:45	27°♏57'55	30.76790 AU
morning rise	1994 Nov 27 19:33	28°♏15'40	
	1995 Jan 17 09:16	0°♐	
retrograde	1995 Mar 04 02:33	0°♐36'18	
	1995 Apr 21 02:56	30°℞♏	
opposition	1995 May 20 17:19	29°♏13'41	13°57'01
min. Earth dist.	1995 May 20 20:11	29°♏13'29	28.85310 AU
direct	1995 Aug 08 13:30	27°♏48'59	
	1995 Nov 10 19:12	0°♐	
evening set	1995 Nov 15 05:06	0°♐10'25	
conjunction	1995 Nov 23 06:45	0°♐29'38	12°49'31
minimum elong	1995 Nov 23 07:09	0°♐29'40	12°49'30
max. Earth dist.	1995 Nov 23 06:19	0°♐29'35	30.83070 AU
morning rise	1995 Dec 01 08:35	0°♐48'53	
retrograde	1996 Mar 05 20:19	3°♐06'56	
opposition	1996 May 22 13:50	1°♐44'29	13°27'46
min. Earth dist.	1996 May 22 12:47	1°♐44'33	28.91690 AU
direct	1996 Aug 10 12:32	0°♐20'02	
evening set	1996 Nov 16 04:35	2°♐38'49	
conjunction	1996 Nov 24 23:56	2°♐59'41	12°21'36
minimum elong	1996 Nov 25 00:20	2°♐59'43	12°21'37
max. Earth dist.	1996 Nov 25 02:36	2°♐59'57	30.90324 AU
morning rise	1996 Dec 03 19:22	3°♐20'34	
retrograde	1997 Mar 08 12:57	5°♐36'10	
opposition	1997 May 25 09:59	4°♐13'51	12°57'12
min. Earth dist.	1997 May 25 06:41	4°♐14'05	28.99062 AU
direct	1997 Aug 13 08:32	2°♐49'40	
evening set	1997 Nov 18 05:05	5°♐05'54	
conjunction	1997 Nov 27 16:35	5°♐28'14	11°52'32
minimum elong	1997 Nov 27 16:59	5°♐28'17	11°52'32
max. Earth dist.	1997 Nov 27 22:35	5°♐28'50	30.98589 AU
morning rise	1997 Dec 07 04:03	5°♐50'36	
retrograde	1998 Mar 11 04:57	8°♐03'48	
opposition	1998 May 28 05:15	6°♐41'41	12°25'26
min. Earth dist.	1998 May 27 22:20	6°♐42'10	29.07438 AU
direct	1998 Aug 16 06:09	5°♐17'46	
evening set	1998 Nov 20 05:58	7°♐31'31	
conjunction	1998 Nov 30 08:26	7°♐55'12	11°22'22
minimum elong	1998 Nov 30 08:50	7°♐55'14	11°22'23
max. Earth dist.	1998 Nov 30 17:01	7°♐56'02	31.07869 AU
morning rise	1998 Dec 10 10:57	8°♐18'53	
retrograde	1999 Mar 13 21:36	10°♐29'49	
opposition	1999 May 31 00:06	9°♐07'53	11°52'32
min. Earth dist.	1999 May 30 14:16	9°♐08'33	29.16873 AU
direct	1999 Aug 19 01:47	7°♐44'16	
evening set	1999 Nov 22 07:18	9°♐55'38	
conjunction	1999 Dec 02 23:39	10°♐20'30	10°51'13
minimum elong	1999 Dec 03 00:02	10°♐20'32	10°51'12
max. Earth dist.	1999 Dec 03 12:17	10°♐21'44	31.18222 AU
morning rise	1999 Dec 13 15:46	10°♐45'22	
retrograde	2000 Mar 15 11:53	12°♐54'08	
opposition	2000 Jun 01 18:18	11°♐32'25	11°18'38
min. Earth dist.	2000 Jun 01 05:17	11°♐33'18	29.27385 AU
direct	2000 Aug 20 22:43	10°♐09'08	
evening set	2000 Nov 23 09:03	12°♐18'12	
conjunction	2000 Dec 04 14:05	12°♐44'09	10°19'09
minimum elong	2000 Dec 04 14:27	12°♐44'11	10°19'09
max. Earth dist.	2000 Dec 05 05:05	12°♐45'36	31.29667 AU
morning rise	2000 Dec 15 19:06	13°♐10'06	
retrograde	2001 Mar 18 02:39	15°♐16'46	
opposition	2001 Jun 04 11:51	13°♐55'18	10°43'48
min. Earth dist.	2001 Jun 03 19:02	13°♐56'26	29.39021 AU

direct	2001 Aug 23 16:08	12°♐32'22	
evening set	2001 Nov 25 10:53	14°♐39'15	
conjunction	2001 Dec 07 03:55	15°♐06'10	9°46'17
minimum elong	2001 Dec 07 04:17	15°♐06'12	9°46'16
max. Earth dist.	2001 Dec 07 23:13	15°♐08'01	31.42211 AU
morning rise	2001 Dec 18 20:35	15°♐33'03	
retrograde	2002 Mar 20 14:54	17°♐37'44	
min. Earth dist.	2002 Jun 06 09:24	16°♐17'52	29.51729 AU
opposition	2002 Jun 07 04:44	16°♐16'34	10°08'10
direct	2002 Aug 26 11:00	14°♐54'02	
evening set	2002 Nov 27 13:11	16°♐58'49	
conjunction	2002 Dec 09 16:57	17°♐26'34	9°12'43
minimum elong	2002 Dec 09 17:18	17°♐26'36	9°12'43
max. Earth dist.	2002 Dec 10 14:13	17°♐28'36	31.55797 AU
morning rise	2002 Dec 21 20:38	17°♐54'18	
retrograde	2003 Mar 23 05:12	19°♐57'04	
opposition	2003 Jun 09 20:44	18°♐36'14	9°31'50
min. Earth dist.	2003 Jun 08 21:27	18°♐37'47	29.65467 AU
direct	2003 Aug 29 03:33	17°♐14'07	
evening set	2003 Nov 29 15:33	19°♐16'52	
conjunction	2003 Dec 12 05:28	19°♐45'22	8°38'33
minimum elong	2003 Dec 12 05:49	19°♐45'24	8°38'32
max. Earth dist.	2003 Dec 13 06:37	19°♐47'46	31.70357 AU
morning rise	2003 Dec 24 19:03	20°♐13'52	
retrograde	2004 Mar 24 15:08	22°♐14'48	
min. Earth dist.	2004 Jun 10 11:19	20°♐55'58	29.80158 AU
opposition	2004 Jun 11 12:26	20°♐54'18	8°54'57
direct	2004 Aug 30 19:37	19°♐32'37	
evening set	2004 Nov 30 18:07	21°♐33'24	
conjunction	2004 Dec 13 17:05	22°♐02'33	8°03'54
minimum elong	2004 Dec 13 17:23	22°♐02'35	8°03'54
max. Earth dist.	2004 Dec 14 20:12	22°♐05'07	31.85819 AU
morning rise	2004 Dec 26 15:52	22°♐31'42	
retrograde	2005 Mar 27 02:28	24°♐30'53	
min. Earth dist.	2005 Jun 12 22:27	23°♐12'38	29.95722 AU
opposition	2005 Jun 14 03:15	23°♐10'44	8°17'36
direct	2005 Sep 02 10:51	21°♐49'28	
evening set	2005 Dec 02 20:51	23°♐48'23	
conjunction	2005 Dec 16 04:12	24°♐18'06	7°28'51
minimum elong	2005 Dec 16 04:30	24°♐18'08	7°28'51
max. Earth dist.	2005 Dec 17 10:26	24°♐20'56	32.02085 AU
morning rise	2005 Dec 29 11:20	24°♐47'47	
retrograde	2006 Mar 29 12:40	26°♐45'19	
min. Earth dist.	2006 Jun 15 11:00	25°♐27'29	30.12085 AU
opposition	2006 Jun 16 17:24	25°♐25'29	7°39'53
direct	2006 Sep 04 23:21	24°♐04'39	
evening set	2006 Dec 04 23:46	26°♐01'46	
conjunction	2006 Dec 18 14:40	26°♐31'57	6°53'31
minimum elong	2006 Dec 18 14:56	26°♐31'58	6°53'31
max. Earth dist.	2006 Dec 19 23:02	26°♐34'57	32.19095 AU
morning rise	2007 Jan 01 05:18	27°♐02'07	
retrograde	2007 Mar 31 22:45	28°♐58'01	
min. Earth dist.	2007 Jun 17 21:23	27°♐40'42	30.29156 AU
opposition	2007 Jun 19 06:49	27°♐38'32	7°01'56
direct	2007 Sep 07 14:54	26°♐18'07	
evening set	2007 Dec 07 02:42	28°♐13'29	
conjunction	2007 Dec 21 00:17	28°♐44'02	6°17'58
minimum elong	2007 Dec 21 00:32	28°♐44'04	6°17'58
max. Earth dist.	2007 Dec 22 10:39	28°♐47'13	32.36754 AU
morning rise	2008 Jan 03 21:47	29°♐14'35	
	2008 Jan 26 02:38	0°♑	
retrograde	2008 Apr 02 09:24	1°♑08'57	
	2008 Jun 14 05:12	30°℞♐	
min. Earth dist.	2008 Jun 19 08:16	29°♐52'04	30.46892 AU
opposition	2008 Jun 20 19:42	29°♐49'46	6°23'50
direct	2008 Sep 09 03:14	28°♐29'46	
	2008 Nov 27 01:04	0°♑	
evening set	2008 Dec 08 05:39	0°♑23'27	
conjunction	2008 Dec 22 09:23	0°♑54'19	5°42'18
minimum elong	2008 Dec 22 09:37	0°♑54'20	5°42'19
max. Earth dist.	2008 Dec 23 22:22	0°♑57'42	32.55039 AU
morning rise	2009 Jan 05 12:50	1°♑25'10	
retrograde	2009 Apr 04 17:35	3°♑18'02	
min. Earth dist.	2009 Jun 21 18:12	2°♑01'35	30.65236 AU
opposition	2009 Jun 23 07:42	1°♑59'10	5°45'39
direct	2009 Sep 11 16:57	0°♑39'32	
evening set	2009 Dec 10 08:34	2°♑31'37	
conjunction	2009 Dec 24 17:32	3°♑02'42	5°06'35
minimum elong	2009 Dec 24 17:44	3°♑02'44	5°06'34
max. Earth dist.	2009 Dec 26 07:47	3°♑06'11	32.73900 AU
morning rise	2010 Jan 08 02:32	3°♑33'48	
retrograde	2010 Apr 07 02:34	5°♑25'13	
min. Earth dist.	2010 Jun 24 02:47	4°♑09'12	30.84193 AU
opposition	2010 Jun 25 18:55	4°♑06'38	5°07'29
direct	2010 Sep 14 04:36	2°♑47'23	
evening set	2010 Dec 12 11:18	4°♑37'54	
conjunction	2010 Dec 27 01:04	5°♑09'10	4°30'53
minimum elong	2010 Dec 27 01:15	5°♑09'11	4°30'53
max. Earth dist.	2010 Dec 28 18:29	5°♑12'54	32.93350 AU
morning rise	2011 Jan 10 14:36	5°♑40'25	
retrograde	2011 Apr 09 08:51	7°♑30'27	
min. Earth dist.	2011 Jun 26 11:45	6°♑14'49	31.03762 AU
opposition	2011 Jun 28 05:19	6°♑12'10	4°29'24
direct	2011 Sep 16 18:24	4°♑53'17	
evening set	2011 Dec 14 14:07	6°♑42'19	
conjunction	2011 Dec 29 07:43	7°♑13'40	3°55'15
minimum elong	2011 Dec 29 07:52	7°♑13'41	3°55'15
max. Earth dist.	2011 Dec 31 02:18	7°♑17'29	33.13415 AU
morning rise	2012 Jan 13 01:25	7°♑45'02	
retrograde	2012 Apr 10 16:24	9°♑33'46	
min. Earth dist.	2012 Jun 27 18:05	8°♑18'36	31.23998 AU
opposition	2012 Jun 29 15:02	8°♑15'46	3°51'26
direct	2012 Sep 18 05:07	6°♑57'15	
evening set	2012 Dec 15 16:35	8°♑44'53	
conjunction	2012 Dec 30 13:38	9°♑16'17	3°19'46
minimum elong	2012 Dec 30 13:46	9°♑16'17	3°19'47
max. Earth dist.	2013 Jan 01 11:27	9°♑20'20	33.34125 AU
morning rise	2013 Jan 14 10:40	9°♑47'41	
retrograde	2013 Apr 12 19:35	11°♑35'11	
min. Earth dist.	2013 Jun 30 01:54	10°♑20'25	31.44910 AU
opposition	2013 Jul 02 00:05	10°♑17'30	3°13'41
direct	2013 Sep 20 15:29	8°♑59'23	
evening set	2013 Dec 17 19:11	10°♑45'41	
conjunction	2014 Jan 01 18:57	11°♑17'04	2°44'29
minimum elong	2014 Jan 01 19:03	11°♑17'05	2°44'29
max. Earth dist.	2014 Jan 03 18:10	11°♑21'13	33.55495 AU
morning rise	2014 Jan 16 18:50	11°♑48'27	
retrograde	2014 Apr 14 23:47	13°♑34'49	
min. Earth dist.	2014 Jul 02 06:43	12°♑20'33	31.66483 AU
opposition	2014 Jul 04 08:03	12°♑17'28	2°36'13
direct	2014 Sep 23 00:36	10°♑59'45	

evening set	2014 Dec	19	21:39	12°♑44'49	
conjunction	2015 Jan	03	23:34	13°♑16'08	2°09'27
minimum elong	2015 Jan	03	23:39	13°♑16'09	2°09'28
max. Earth dist.	2015 Jan	06	01:16	13°♑20'29	33.77477 AU
morning rise	2015 Jan	19	01:43	13°♑47'28	
retrograde	2015 Apr	17	03:54	15°♑32'46	
min. Earth dist.	2015 Jul	04	12:52	14°♑18'55	31.88679 AU
opposition	2015 Jul	06	15:38	14°♑15'45	1°59'03
direct	2015 Sep	25	06:58	12°♑58'29	
evening set	2015 Dec	21	23:52	14°♑42'23	
conjunction	2016 Jan	06	03:28	15°♑13'35	1°34'43
minimum elong	2016 Jan	06	03:32	15°♑13'35	1°34'43
max. Earth dist.	2016 Jan	08	07:11	15°♑18'04	34.00031 AU
morning rise	2016 Jan	21	07:12	15°♑44'48	
retrograde	2016 Apr	18	07:26	17°♑29'06	
min. Earth dist.	2016 Jul	05	17:20	16°♑15'45	32.11415 AU
opposition	2016 Jul	07	22:27	16°♑12'28	1°22'17
direct	2016 Sep	26	15:02	14°♑55'38	
evening set	2016 Dec	23	02:12	16°♑38'26	
conjunction	2017 Jan	07	06:45	17°♑09'28	1°00'21
minimum elong	2017 Jan	07	06:47	17°♑09'29	1°00'22
max. Earth dist.	2017 Jan	09	11:46	17°♑14'02	34.23065 AU
morning rise	2017 Jan	22	11:45	17°♑40'33	
retrograde	2017 Apr	20	12:48	19°♑23'55	
min. Earth dist.	2017 Jul	07	21:41	18°♑11'00	32.34638 AU
opposition	2017 Jul	10	04:35	18°♑07'38	0°45'56
direct	2017 Sep	28	19:36	16°♑51'15	
evening set	2017 Dec	25	04:16	18°♑33'01	
conjunction	2018 Jan	09	09:33	19°♑03'52	0°26'23
minimum elong	2018 Jan	09	09:34	19°♑03'52	0°26'22
max. Earth dist.	2018 Jan	11	16:54	19°♑08'35	34.46516 AU
morning rise	2018 Jan	24	15:01	19°♑34'45	
retrograde	2018 Apr	22	15:26	21°♑17'14	
min. Earth dist.	2018 Jul	10	02:13	20°♑04'44	32.58234 AU
opposition	2018 Jul	12	10:04	20°♑01'20	0°10'04
direct	2018 Oct	01	02:03	18°♑45'22	
desc. node	2018 Oct	24	10:19	18°♑53'30	
evening set	2018 Dec	27	06:30	20°♑26'12	
conjunction	2019 Jan	11	11:38	20°♑56'48	-0°07'15
minimum elong	2019 Jan	11	11:38	20°♑56'48	0°07'15
behind sun begin	2019 Jan	11	05:46	20°♑56'20	
behind sun end	2019 Jan	11	17:30	20°♑57'16	
max. Earth dist.	2019 Jan	13	19:23	21°♑01'30	34.70279 AU
morning rise	2019 Jan	26	17:22	21°♑27'27	
retrograde	2019 Apr	24	18:48	23°♑09'06	
min. Earth dist.	2019 Jul	12	04:46	21°♑57'05	32.82141 AU
opposition	2019 Jul	14	14:51	21°♑53'34	-0°25'18
direct	2019 Oct	03	06:39	20°♑38'01	
evening set	2019 Dec	29	08:31	22°♑17'56	
conjunction	2020 Jan	13	13:20	22°♑48'16	-0°40'17
minimum elong	2020 Jan	13	13:19	22°♑48'16	0°40'17
max. Earth dist.	2020 Jan	15	23:22	22°♑53'08	34.94290 AU
morning rise	2020 Jan	28	18:34	23°♑18'39	
retrograde	2020 Apr	25	18:54	24°♑59'32	
min. Earth dist.	2020 Jul	13	08:54	23°♑47'51	33.06278 AU
opposition	2020 Jul	15	19:12	23°♑44'19	-1°00'07
direct	2020 Oct	04	13:32	22°♑29'12	
evening set	2020 Dec	30	10:24	24°♑08'14	
conjunction	2021 Jan	14	14:19	24°♑38'16	-1°12'51
minimum elong	2021 Jan	14	14:16	24°♑38'16	1°12'51
max. Earth dist.	2021 Jan	17	00:28	24°♑43'06	35.18491 AU
morning rise	2021 Jan	29	18:50	25°♑08'20	
retrograde	2021 Apr	27	20:01	26°♑48'29	
min. Earth dist.	2021 Jul	15	10:21	25°♑37'14	33.30593 AU
opposition	2021 Jul	17	22:46	25°♑33'36	-1°34'22
direct	2021 Oct	06	18:29	24°♑18'51	
evening set	2022 Jan	01	12:14	25°♑57'03	
conjunction	2022 Jan	16	14:51	26°♑26'45	-1°44'55
minimum elong	2022 Jan	16	14:47	26°♑26'45	1°44'56
max. Earth dist.	2022 Jan	19	02:32	26°♑31'41	35.42827 AU
morning rise	2022 Jan	31	18:07	26°♑56'30	
retrograde	2022 Apr	29	18:36	28°♑35'56	
min. Earth dist.	2022 Jul	17	13:06	27°♑24'59	33.55066 AU
opposition	2022 Jul	20	01:38	27°♑21'21	-2°08'02
direct	2022 Oct	08	21:56	26°♑06'58	
evening set	2023 Jan	03	13:46	27°♑44'22	
conjunction	2023 Jan	18	14:44	28°♑13'42	-2°16'27
minimum elong	2023 Jan	18	14:40	28°♑13'41	2°16'26
max. Earth dist.	2023 Jan	21	03:21	28°♑18'40	35.67316 AU
morning rise	2023 Feb	02	16:17	28°♑43'05	
	2023 Mar	23	12:23	0°♒	
retrograde	2023 May	01	17:08	0°♒21'51	
	2023 Jun	11	09:35	30°℞♑	
min. Earth dist.	2023 Jul	19	13:41	29°♑11'16	33.79703 AU
opposition	2023 Jul	22	03:52	29°♑07'34	-2°41'05
direct	2023 Oct	11	01:10	27°♑53'31	
evening set	2024 Jan	05	15:04	29°♑30'10	
conjunction	2024 Jan	20	13:46	29°♑59'05	-2°47'25
minimum elong	2024 Jan	20	13:40	29°♑59'05	2°47'25
	2024 Jan	21	00:56	0°♒	
max. Earth dist.	2024 Jan	23	03:20	0°♒04'06	35.91969 AU
morning rise	2024 Feb	04	13:22	0°♒28'05	
retrograde	2024 May	02	17:47	2°♒06'14	
min. Earth dist.	2024 Jul	20	14:10	0°♒55'58	34.04569 AU
opposition	2024 Jul	23	05:38	0°♒52'14	-3°13'30
	2024 Sep	01	23:57	30°℞♑	
direct	2024 Oct	12	00:32	29°♑38'31	
	2024 Nov	19	20:40	0°♒	
evening set	2025 Jan	06	16:07	1°♒14'28	
conjunction	2025 Jan	21	12:29	1°♒42'58	-3°17'47
minimum elong	2025 Jan	21	12:22	1°♒42'58	3°17'47
max. Earth dist.	2025 Jan	24	03:59	1°♒48'06	36.16855 AU
morning rise	2025 Feb	05	09:27	2°♒11'33	
retrograde	2025 May	04	15:27	3°♒49'07	
min. Earth dist.	2025 Jul	22	14:17	2°♒39'10	34.29681 AU
opposition	2025 Jul	25	06:33	2°♒35'24	-3°45'16
direct	2025 Oct	14	02:52	1°♒22'01	
evening set	2026 Jan	08	17:08	2°♒57'20	
conjunction	2026 Jan	23	10:28	3°♒25'24	-3°47'34
minimum elong	2026 Jan	23	10:21	3°♒25'23	3°47'35
max. Earth dist.	2026 Jan	26	02:12	3°♒30'30	36.41989 AU
morning rise	2026 Feb	07	04:47	3°♒53'32	
retrograde	2026 May	06	15:34	5°♒30'34	
min. Earth dist.	2026 Jul	24	12:35	4°♒21'01	34.55068 AU
opposition	2026 Jul	27	06:55	4°♒17'08	-4°16'22
direct	2026 Oct	16	02:40	3°♒04'07	
evening set	2027 Jan	10	17:49	4°♒38'50	
conjunction	2027 Jan	25	08:01	5°♒06'27	-4°16'44
minimum elong	2027 Jan	25	07:53	5°♒06'26	4°16'44
max. Earth dist.	2027 Jan	28	02:02	5°♒11'41	36.67370 AU
morning rise	2027 Feb	08	23:00	5°♒34'08	

retrograde	2027 May 08	12:54	7°♒10'41	
min. Earth dist.	2027 Jul 26	12:15	6°♒01'26	34.80697 AU
opposition	2027 Jul 29	06:48	5°♒57'33	-4°46'46
direct	2027 Oct 18	03:52	4°♒44'54	
evening set	2028 Jan 12	18:28	6°♒19'04	
conjunction	2028 Jan 27	05:03	6°♒46'12	-4°45'17
minimum elong	2028 Jan 27	04:54	6°♒46'11	4°45'17
max. Earth dist.	2028 Jan 29	23:18	6°♒51'26	36.92979 AU
morning rise	2028 Feb 10	16:33	7°♒13'25	
retrograde	2028 May 09	09:29	8°♒49'31	
min. Earth dist.	2028 Jul 27	09:21	7°♒40'41	35.06540 AU
opposition	2028 Jul 30	06:03	7°♒36'43	-5°16'30
direct	2028 Oct 19	03:46	6°♒24'25	
evening set	2029 Jan 13	18:51	7°♒58'05	
conjunction	2029 Jan 28	01:33	8°♒24'43	-5°13'12
minimum elong	2029 Jan 28	01:23	8°♒24'43	5°13'12
max. Earth dist.	2029 Jan 30	21:20	8°♒30'02	37.18751 AU
morning rise	2029 Feb 11	09:15	8°♒51'27	
retrograde	2029 May 11	04:14	10°♒27'10	
min. Earth dist.	2029 Jul 29	08:11	9°♒18'38	35.32536 AU
opposition	2029 Aug 01	04:56	9°♒14'40	-5°45'31
direct	2029 Oct 21	03:56	8°♒02'44	
evening set	2030 Jan 15	19:11	9°♒35'56	
conjunction	2030 Jan 29	21:47	10°♒02'04	-5°40'28
minimum elong	2030 Jan 29	21:36	10°♒02'04	5°40'28
max. Earth dist.	2030 Feb 01	18:15	10°♒07'24	37.44636 AU
morning rise	2030 Feb 13	01:11	10°♒28'17	
retrograde	2030 May 12	23:11	12°♒03'39	
min. Earth dist.	2030 Jul 31	05:12	10°♒55'28	35.58602 AU
opposition	2030 Aug 03	02:59	10°♒51'28	-6°13'52
direct	2030 Oct 23	03:06	9°♒39'53	
evening set	2031 Jan 17	19:31	11°♒12'40	
conjunction	2031 Jan 31	17:27	11°♒38'17	-6°07'07
minimum elong	2031 Jan 31	17:17	11°♒38'16	6°07'07
max. Earth dist.	2031 Feb 03	14:11	11°♒43'36	37.70544 AU
morning rise	2031 Feb 14	16:32	12°♒03'58	
retrograde	2031 May 14	20:27	13°♒39'01	
min. Earth dist.	2031 Aug 02	02:24	12°♒31'09	35.84689 AU
opposition	2031 Aug 05	00:51	12°♒27'08	-6°41'30
direct	2031 Oct 24	23:13	11°♒15'55	
evening set	2032 Jan 19	19:28	12°♒48'18	
conjunction	2032 Feb 02	12:47	13°♒13'22	-6°33'07
minimum elong	2032 Feb 02	12:35	13°♒13'21	6°33'07
max. Earth dist.	2032 Feb 05	10:50	13°♒18'45	37.96425 AU
morning rise	2032 Feb 16	06:55	13°♒38'31	
	2032 Apr 14	03:55	15°♒	
retrograde	2032 May 15	15:54	15°♒13'17	
	2032 Jun 16	22:25	15°℞♒	
min. Earth dist.	2032 Aug 02	23:54	14°♒05'41	36.10706 AU
opposition	2032 Aug 05	22:12	14°♒01'41	-7°08'27
direct	2032 Oct 25	21:09	12°♒50'48	
evening set	2033 Jan 20	19:36	14°♒22'49	
conjunction	2033 Feb 03	07:42	14°♒47'21	-6°58'30
minimum elong	2033 Feb 03	07:31	14°♒47'20	6°58'29
max. Earth dist.	2033 Feb 06	05:00	14°♒52'38	38.22205 AU
	2033 Feb 10	05:59	15°♒	
morning rise	2033 Feb 16	20:56	15°♒11'57	
retrograde	2033 May 17	12:58	16°♒46'25	
min. Earth dist.	2033 Aug 04	19:30	15°♒39'08	36.36616 AU
opposition	2033 Aug 07	18:55	15°♒35'06	-7°34'44
	2033 Sep 03	19:39	15°℞♒	
direct	2033 Oct 27	16:42	14°♒24'31	
	2033 Dec 18	08:12	15°♒	
evening set	2034 Jan 22	19:26	15°♒56'13	
conjunction	2034 Feb 05	02:20	16°♒20'11	-7°23'15
minimum elong	2034 Feb 05	02:07	16°♒20'10	7°23'14
max. Earth dist.	2034 Feb 08	00:48	16°♒25'31	38.47845 AU
morning rise	2034 Feb 18	10:10	16°♒44'14	
retrograde	2034 May 19	06:56	18°♒18'26	
min. Earth dist.	2034 Aug 06	16:43	17°♒11'21	36.62378 AU
opposition	2034 Aug 09	15:18	17°♒07'23	-8°00'19
direct	2034 Oct 29	13:47	15°♒57'06	
evening set	2035 Jan 24	19:02	17°♒28'28	
conjunction	2035 Feb 06	20:18	17°♒51'52	-7°47'22
minimum elong	2035 Feb 06	20:07	17°♒51'51	7°47'22
max. Earth dist.	2035 Feb 09	18:25	17°♒57'08	38.73345 AU
morning rise	2035 Feb 19	22:32	18°♒15'20	
retrograde	2035 May 20	22:55	19°♒49'17	
min. Earth dist.	2035 Aug 08	11:11	18°♒42'31	36.88010 AU
opposition	2035 Aug 11	11:04	18°♒38'29	-8°25'14
direct	2035 Oct 31	11:39	17°♒28'29	
evening set	2036 Jan 26	18:29	18°♒59'34	
conjunction	2036 Feb 08	13:53	19°♒22'22	-8°10'51
minimum elong	2036 Feb 08	13:40	19°♒22'21	8°10'51
max. Earth dist.	2036 Feb 11	12:38	19°♒27'39	38.98730 AU
morning rise	2036 Feb 21	10:22	19°♒45'15	
retrograde	2036 May 21	15:35	21°♒19'01	
min. Earth dist.	2036 Aug 09	06:48	20°♒12'26	37.13580 AU
opposition	2036 Aug 12	06:31	20°♒08'26	-8°49'28
direct	2036 Nov 01	07:56	18°♒58'43	
evening set	2037 Jan 27	17:37	20°♒29'32	
conjunction	2037 Feb 09	07:03	20°♒51'45	-8°33'43
minimum elong	2037 Feb 09	06:51	20°♒51'44	8°33'44
max. Earth dist.	2037 Feb 12	06:37	20°♒57'04	39.24075 AU
morning rise	2037 Feb 21	21:19	21°♒14'02	
retrograde	2037 May 23	07:51	22°♒47'37	
min. Earth dist.	2037 Aug 11	01:04	21°♒41'18	37.39115 AU
opposition	2037 Aug 14	01:19	21°♒37'17	-9°13'01
direct	2037 Nov 03	03:33	20°♒27'51	
evening set	2038 Jan 29	16:48	21°♒58'27	
conjunction	2038 Feb 10	23:45	22°♒20'03	-8°55'56
minimum elong	2038 Feb 10	23:33	22°♒20'03	8°55'55
max. Earth dist.	2038 Feb 13	23:07	22°♒25'19	39.49401 AU
morning rise	2038 Feb 23	07:49	22°♒41'45	
retrograde	2038 May 25	02:25	24°♒15'11	
min. Earth dist.	2038 Aug 12	18:27	23°♒09'09	37.64667 AU
opposition	2038 Aug 15	19:39	23°♒05'07	-9°35'53
direct	2038 Nov 04	20:17	21°♒55'58	
evening set	2039 Jan 31	15:39	23°♒26'23	
conjunction	2039 Feb 12	16:13	23°♒47'23	-9°17'31
minimum elong	2039 Feb 12	16:00	23°♒47'22	9°17'31
max. Earth dist.	2039 Feb 15	17:11	23°♒52'44	39.74747 AU
morning rise	2039 Feb 24	17:36	24°♒08'28	
retrograde	2039 May 26	19:21	25°♒41'47	
min. Earth dist.	2039 Aug 14	12:45	24°♒36'00	37.90226 AU
opposition	2039 Aug 17	13:42	24°♒31'59	-9°58'03
direct	2039 Nov 06	13:55	23°♒23'09	
evening set	2040 Feb 02	14:23	24°♒53'25	
conjunction	2040 Feb 14	08:04	25°♒13'48	-9°38'28
minimum elong	2040 Feb 14	07:51	25°♒13'48	9°38'27
max. Earth dist.	2040 Feb 17	08:31	25°♒19'05	40.00100 AU

morning rise	2040 Feb 26 02:42	25°♒34'16	
retrograde	2040 May 27 13:19	27°♒07'31	
min. Earth dist.	2040 Aug 15 04:52	26°♒02'04	38.15783 AU
opposition	2040 Aug 18 07:18	25°♒57'59	-10°19'33
direct	2040 Nov 07 06:08	24°♒49'27	
evening set	2041 Feb 03 13:00	26°♒19'37	
conjunction	2041 Feb 14 23:46	26°♒39'23	-9°58'47
minimum elong	2041 Feb 14 23:34	26°♒39'22	9°58'47
max. Earth dist.	2041 Feb 18 01:22	26°♒44'42	40.25419 AU
morning rise	2041 Feb 26 11:27	26°♒59'13	
retrograde	2041 May 29 03:23	28°♒32'26	
min. Earth dist.	2041 Aug 16 22:52	27°♒27'12	38.41289 AU
opposition	2041 Aug 20 00:29	27°♒23'11	-10°40'23
direct	2041 Nov 09 00:20	26°♒14'57	
evening set	2042 Feb 05 11:37	27°♒45'02	
conjunction	2042 Feb 16 15:11	28°♒04'11	-10°18'30
minimum elong	2042 Feb 16 14:59	28°♒04'10	10°18'29
max. Earth dist.	2042 Feb 19 16:46	28°♒09'28	40.50667 AU
morning rise	2042 Feb 27 19:31	28°♒23'23	
retrograde	2042 May 30 16:30	29°♒56'34	
min. Earth dist.	2042 Aug 18 14:49	28°♒51'39	38.66678 AU
opposition	2042 Aug 21 17:14	28°♒47'36	-11°00'34
direct	2042 Nov 10 19:29	27°♒39'41	
evening set	2043 Feb 07 10:03	29°♒09'42	
conjunction	2043 Feb 18 06:06	29°♒28'13	-10°37'36
minimum elong	2043 Feb 18 05:53	29°♒28'12	10°37'37
max. Earth dist.	2043 Feb 21 07:33	29°♒33'28	40.75758 AU
morning rise	2043 Mar 01 03:05	29°♒46'47	
	2043 Mar 09 01:03	0°♓	
retrograde	2043 Jun 01 08:41	1°♓19'59	
min. Earth dist.	2043 Aug 20 07:37	0°♓15'18	38.91899 AU
opposition	2043 Aug 23 09:51	0°♓11'17	-11°20'08
	2043 Sep 01 03:11	30°℞♒	
direct	2043 Nov 12 11:27	29°♒03'40	
	2044 Jan 19 09:50	0°♓	
evening set	2044 Feb 09 08:30	0°♓33'39	
conjunction	2044 Feb 19 21:01	0°♓51'30	-10°56'07
minimum elong	2044 Feb 19 20:49	0°♓51'30	10°56'07
max. Earth dist.	2044 Feb 22 23:07	0°♓56'46	41.00649 AU
morning rise	2044 Mar 01 10:11	1°♓09'26	
retrograde	2044 Jun 01 23:17	2°♓42'39	
min. Earth dist.	2044 Aug 21 00:23	1°♓38'11	39.16870 AU
opposition	2044 Aug 24 02:00	1°♓34'13	-11°39'04
direct	2044 Nov 13 04:04	0°♓26'53	
evening set	2045 Feb 10 07:01	1°♓56'50	
conjunction	2045 Feb 20 11:31	2°♓14'03	-11°14'04
minimum elong	2045 Feb 20 11:19	2°♓14'02	11°14'05
max. Earth dist.	2045 Feb 23 12:21	2°♓19'11	41.25262 AU
morning rise	2045 Mar 02 16:51	2°♓31'19	
retrograde	2045 Jun 03 16:40	4°♓04'33	
min. Earth dist.	2045 Aug 22 15:49	3°♓00'20	39.41542 AU
opposition	2045 Aug 25 17:51	2°♓56'22	-11°57'24
direct	2045 Nov 14 17:30	1°♓49'18	
evening set	2046 Feb 12 05:24	3°♓19'14	
conjunction	2046 Feb 22 01:54	3°♓35'47	-11°31'28
minimum elong	2046 Feb 22 01:43	3°♓35'46	11°31'27
max. Earth dist.	2046 Feb 25 03:23	3°♓40'57	41.49544 AU
morning rise	2046 Mar 03 23:03	3°♓52'23	
retrograde	2046 Jun 05 07:21	5°♓25'40	
min. Earth dist.	2046 Aug 24 08:39	4°♓21'34	39.65866 AU
opposition	2046 Aug 27 09:18	4°♓17'41	-12°15'09
direct	2046 Nov 16 08:52	3°♓10'51	
evening set	2047 Feb 14 03:48	4°♓40'48	
conjunction	2047 Feb 23 15:53	4°♓56'41	-11°48'19
minimum elong	2047 Feb 23 15:40	4°♓56'40	11°48'19
max. Earth dist.	2047 Feb 26 16:18	5°♓01'44	41.73498 AU
morning rise	2047 Mar 05 04:32	5°♓12'36	
retrograde	2047 Jun 06 20:40	6°♓45'55	
min. Earth dist.	2047 Aug 25 23:04	5°♓42'02	39.89865 AU
opposition	2047 Aug 29 00:23	5°♓38'08	-12°32'20
direct	2047 Nov 18 00:08	4°♓31'31	
evening set	2048 Feb 16 01:54	6°♓01'29	
conjunction	2048 Feb 25 05:21	6°♓16'41	-12°04'37
minimum elong	2048 Feb 25 05:10	6°♓16'40	12°04'37
max. Earth dist.	2048 Feb 28 05:47	6°♓21'42	41.97139 AU
morning rise	2048 Mar 05 09:29	6°♓31'54	
retrograde	2048 Jun 07 08:07	8°♓05'17	
min. Earth dist.	2048 Aug 26 14:54	7°♓01'32	40.13591 AU
opposition	2048 Aug 29 15:16	6°♓57'42	-12°48'55
direct	2048 Nov 18 17:07	5°♓51'18	
evening set	2049 Feb 17 00:06	7°♓21'17	
conjunction	2049 Feb 25 18:45	7°♓35'47	-12°20'22
minimum elong	2049 Feb 25 18:32	7°♓35'46	12°20'22
max. Earth dist.	2049 Feb 28 19:31	7°♓40'49	42.20543 AU
morning rise	2049 Mar 06 13:47	7°♓50'19	
retrograde	2049 Jun 08 19:13	9°♓23'46	
min. Earth dist.	2049 Aug 28 05:04	8°♓20'12	40.37088 AU
opposition	2049 Aug 31 05:26	8°♓16'22	-13°04'56
direct	2049 Nov 20 09:45	7°♓10'10	
evening set	2050 Feb 18 22:19	8°♓40'14	
conjunction	2050 Feb 27 07:39	8°♓54'02	-12°35'34
minimum elong	2050 Feb 27 07:28	8°♓54'01	12°35'34
max. Earth dist.	2050 Mar 02 07:34	8°♓58'58	42.43746 AU
morning rise	2050 Mar 07 17:33	9°♓07'51	
retrograde	2050 Jun 10 10:04	10°♓41'26	
min. Earth dist.	2050 Aug 29 18:43	9°♓38'03	40.60420 AU
opposition	2050 Sep 01 19:29	9°♓34'13	-13°20'22
direct	2050 Nov 21 22:11	8°♓28'14	
evening set	2051 Feb 20 20:21	9°♓58'24	
conjunction	2051 Feb 28 20:19	10°♓11'28	-12°50'14
minimum elong	2051 Feb 28 20:07	10°♓11'28	12°50'13
max. Earth dist.	2051 Mar 03 21:16	10°♓16'27	42.66794 AU
morning rise	2051 Mar 08 20:37	10°♓24'35	
retrograde	2051 Jun 11 22:48	11°♓58'19	
min. Earth dist.	2051 Aug 31 09:20	10°♓55'05	40.83589 AU
opposition	2051 Sep 03 09:15	10°♓51'18	-13°35'13
direct	2051 Nov 23 12:09	9°♓45'33	
evening set	2052 Feb 22 18:40	11°♓15'51	
conjunction	2052 Mar 01 08:43	11°♓28'12	-13°04'20
minimum elong	2052 Mar 01 08:33	11°♓28'11	13°04'20
max. Earth dist.	2052 Mar 04 08:46	11°♓33'05	42.89701 AU
morning rise	2052 Mar 08 23:07	11°♓40'34	
retrograde	2052 Jun 12 12:08	13°♓14'28	
min. Earth dist.	2052 Aug 31 21:46	12°♓11'30	41.06609 AU
opposition	2052 Sep 03 22:36	12°♓07'41	-13°49'30
direct	2052 Nov 24 00:03	11°♓02'10	
evening set	2053 Feb 23 16:56	12°♓32'39	
conjunction	2053 Mar 02 20:53	12°♓44'16	-13°17'55
minimum elong	2053 Mar 02 20:42	12°♓44'15	13°17'55
max. Earth dist.	2053 Mar 05 21:26	12°♓49'10	43.12438 AU
morning rise	2053 Mar 10 01:09	12°♓55'53	

retrograde	2053 Jun 13 23:57	14°♓30'01	
min. Earth dist.	2053 Sep 02 12:05	13°♓27'11	41.29443 AU
opposition	2053 Sep 05 11:50	13°♓23'27	-14°03'14
direct	2053 Nov 25 13:20	12°♓18'11	
evening set	2054 Feb 25 15:35	13°♓48'54	
conjunction	2054 Mar 04 08:53	13°♓59'44	-13°30'58
minimum elong	2054 Mar 04 08:43	13°♓59'44	13°30'59
max. Earth dist.	2054 Mar 07 09:15	14°♓04'37	43.34979 AU
morning rise	2054 Mar 11 02:23	14°♓10'35	
retrograde	2054 Jun 15 10:00	15°♓44'59	
min. Earth dist.	2054 Sep 04 00:33	14°♓42'24	41.52038 AU
opposition	2054 Sep 07 00:32	14°♓38'39	-14°16'25
direct	2054 Nov 27 03:52	13°♓33'38	
evening set	2055 Feb 27 14:24	15°♓04'38	
conjunction	2055 Mar 05 20:33	15°♓14'40	-13°43'32
minimum elong	2055 Mar 05 20:23	15°♓14'40	13°43'31
max. Earth dist.	2055 Mar 08 20:00	15°♓19'27	43.57261 AU
morning rise	2055 Mar 12 02:57	15°♓24'44	
retrograde	2055 Jun 16 22:51	16°♓59'27	
min. Earth dist.	2055 Sep 05 13:48	15°♓57'03	41.74363 AU
opposition	2055 Sep 08 13:15	15°♓53'20	-14°29'05
direct	2055 Nov 28 16:14	14°♓48'34	
evening set	2056 Feb 29 13:39	16°♓19'54	
conjunction	2056 Mar 06 08:08	16°♓29'06	-13°55'36
minimum elong	2056 Mar 06 07:59	16°♓29'06	13°55'36
max. Earth dist.	2056 Mar 09 08:11	16°♓33'54	43.79237 AU
morning rise	2056 Mar 12 02:42	16°♓38'20	
retrograde	2056 Jun 17 11:31	18°♓13'25	
min. Earth dist.	2056 Sep 06 03:24	17°♓11'09	41.96327 AU
opposition	2056 Sep 09 01:39	17°♓07'32	-14°41'16
direct	2056 Nov 29 04:06	16°♓02'59	
evening set	2057 Mar 02 13:42	17°♓34'42	
conjunction	2057 Mar 07 19:33	17°♓43'02	-14°07'11
minimum elong	2057 Mar 07 19:24	17°♓43'01	14°07'10
max. Earth dist.	2057 Mar 10 17:52	17°♓47'42	44.00833 AU
morning rise	2057 Mar 13 01:30	17°♓51'23	
retrograde	2057 Jun 19 01:37	19°♓26'52	
min. Earth dist.	2057 Sep 07 15:12	18°♓24'49	42.17888 AU
opposition	2057 Sep 10 13:38	18°♓21'12	-14°52'57
direct	2057 Nov 30 13:33	17°♓16'52	
evening set	2058 Mar 04 14:31	18°♓49'01	
conjunction	2058 Mar 09 06:50	18°♓56'26	-14°18'20
minimum elong	2058 Mar 09 06:41	18°♓56'25	14°18'21
max. Earth dist.	2058 Mar 12 05:06	19°♓01'04	44.21995 AU
morning rise	2058 Mar 13 23:10	19°♓03'50	
retrograde	2058 Jun 20 11:39	20°♓39'48	
min. Earth dist.	2058 Sep 09 05:04	19°♓37'49	42.38998 AU
opposition	2058 Sep 12 01:36	19°♓34'18	-15°04'10
direct	2058 Dec 02 02:03	18°♓30'11	
evening set	2059 Mar 06 16:34	20°♓02'51	
conjunction	2059 Mar 10 17:45	20°♓09'15	-14°29'03
minimum elong	2059 Mar 10 17:37	20°♓09'14	14°29'02
morning rise	2059 Mar 14 18:52	20°♓15'37	
max. Earth dist.	2059 Mar 13 15:01	20°♓13'48	44.42724 AU
retrograde	2059 Jun 21 19:57	21°♓52'07	
min. Earth dist.	2059 Sep 10 16:32	20°♓50'19	42.59666 AU
opposition	2059 Sep 13 13:11	20°♓46'48	-15°14'56
direct	2059 Dec 03 15:36	19°♓42'51	
evening set	2060 Mar 07 20:38	21°♓16'13	
conjunction	2060 Mar 11 04:24	21°♓21'26	-14°39'19
minimum elong	2060 Mar 11 04:16	21°♓21'25	14°39'19
morning rise	2060 Mar 14 12:05	21°♓26'39	
max. Earth dist.	2060 Mar 14 00:47	21°♓25'54	44.63031 AU
retrograde	2060 Jun 22 06:04	23°♓03'50	
min. Earth dist.	2060 Sep 11 04:58	22°♓02'07	42.79956 AU
opposition	2060 Sep 14 00:33	21°♓58'40	-15°25'14
direct	2060 Dec 04 04:04	20°♓54'53	
evening set	2061 Mar 10 04:52	22°♓29'11	
conjunction	2061 Mar 12 14:56	22°♓32'58	-14°49'08
minimum elong	2061 Mar 12 14:50	22°♓32'57	14°49'08
morning rise	2061 Mar 15 00:52	22°♓36'44	
max. Earth dist.	2061 Mar 15 11:37	22°♓37'26	44.82994 AU
retrograde	2061 Jun 23 15:10	24°♓14'54	
min. Earth dist.	2061 Sep 12 16:36	23°♓13'18	42.99907 AU
opposition	2061 Sep 15 11:32	23°♓09'53	-15°35'04
direct	2061 Dec 05 17:00	22°♓06'16	
evening set	2062 Mar 13 03:23	23°♓42'27	
conjunction	2062 Mar 14 01:03	23°♓43'52	-14°58'30
minimum elong	2062 Mar 14 00:55	23°♓43'51	14°58'31
evening rise	2062 Mar 14 22:29	23°♓45'15	
max. Earth dist.	2062 Mar 16 20:17	23°♓48'13	45.02660 AU
retrograde	2062 Jun 25 04:02	25°♓25'20	
min. Earth dist.	2062 Sep 14 03:04	24°♓23'53	43.19599 AU
opposition	2062 Sep 16 22:13	24°♓20'29	-15°44'26
direct	2062 Dec 07 01:35	23°♓17'01	
conjunction	2063 Mar 15 11:04	24°♓54'09	-15°07'26
minimum elong	2063 Mar 15 10:58	24°♓54'09	15°07'25
max. Earth dist.	2063 Mar 18 07:01	24°♓58'32	45.22086 AU
retrograde	2063 Jun 26 15:49	26°♓35'11	
min. Earth dist.	2063 Sep 15 14:57	25°♓33'49	43.39058 AU
opposition	2063 Sep 18 08:50	25°♓30'29	-15°53'20
direct	2063 Dec 08 10:25	24°♓27'12	
conjunction	2064 Mar 15 20:47	26°♓03'54	-15°15'54
minimum elong	2064 Mar 15 20:40	26°♓03'53	15°15'54
max. Earth dist.	2064 Mar 18 15:55	26°♓08'12	45.41307 AU
retrograde	2064 Jun 27 00:37	27°♓44'29	
min. Earth dist.	2064 Sep 16 00:30	26°♓43'19	43.58297 AU
opposition	2064 Sep 18 19:04	26°♓39'58	-16°01'45
direct	2064 Dec 08 20:07	25°♓36'51	
conjunction	2065 Mar 17 06:21	27°♓13'07	-15°23'56
minimum elong	2065 Mar 17 06:16	27°♓13'06	15°23'55
max. Earth dist.	2065 Mar 20 01:02	27°♓17'23	45.60299 AU
retrograde	2065 Jun 28 08:05	28°♓53'18	
min. Earth dist.	2065 Sep 17 11:42	27°♓52'14	43.77309 AU
opposition	2065 Sep 20 05:05	27°♓48'56	-16°09'44
direct	2065 Dec 10 08:02	26°♓46'01	
conjunction	2066 Mar 18 15:52	28°♓21'52	-15°31'32
minimum elong	2066 Mar 18 15:46	28°♓21'52	15°31'31
max. Earth dist.	2066 Mar 21 10:47	28°♓26'08	45.79062 AU
	2066 Jun 17 15:36	0°♈	
retrograde	2066 Jun 29 15:14	0°♈01'40	
	2066 Jul 11 21:45	30°℞♓	
min. Earth dist.	2066 Sep 18 21:55	29°♓00'44	43.96047 AU
opposition	2066 Sep 21 14:53	28°♓57'28	-16°17'15
direct	2066 Dec 11 20:30	27°♓54'44	
conjunction	2067 Mar 20 00:55	29°♓30'12	-15°38'42
minimum elong	2067 Mar 20 00:51	29°♓30'11	15°38'43
max. Earth dist.	2067 Mar 22 18:25	29°♓34'21	45.97539 AU
	2067 Apr 08 22:05	0°♈	
retrograde	2067 Jul 01 02:25	1°♈09'37	

min. Earth dist.	2067 Sep 20	07:50	0°♈08'51	44.14486 AU
opposition	2067 Sep 23	00:38	0°♈05'36	-16°24'22
	2067 Sep 27	16:44	30°♓	
direct	2067 Dec 13	05:04	29°♓03'03	
	2068 Feb 23	13:43	0°♈	
conjunction	2068 Mar 20	10:10	0°♈38'07	-15°45'29
minimum elong	2068 Mar 20	10:05	0°♈38'07	15°45'29
max. Earth dist.	2068 Mar 23	03:56	0°♈42'17	46.15681 AU
retrograde	2068 Jul 01	12:37	2°♈17'10	
min. Earth dist.	2068 Sep 20	19:04	1°♈16'29	44.32546 AU
opposition	2068 Sep 23	10:06	1°♈13'21	-16°31'03
direct	2068 Dec 13	14:10	0°♈10'58	
conjunction	2069 Mar 21	19:17	1°♈45'40	-15°51'53
minimum elong	2069 Mar 21	19:13	1°♈45'40	15°51'54
max. Earth dist.	2069 Mar 24	11:29	1°♈49'42	46.33428 AU
retrograde	2069 Jul 02	22:47	3°♈24'20	
min. Earth dist.	2069 Sep 22	04:23	2°♈23'48	44.50170 AU
opposition	2069 Sep 24	19:22	2°♈20'40	-16°37'22
direct	2069 Dec 14	21:36	1°♈18'27	
conjunction	2070 Mar 23	04:11	2°♈52'47	-15°57'55
minimum elong	2070 Mar 23	04:07	2°♈52'47	15°57'54
max. Earth dist.	2070 Mar 25	19:29	2°♈56'45	46.50703 AU
retrograde	2070 Jul 04	07:13	4°♈31'05	
min. Earth dist.	2070 Sep 23	15:26	3°♈30'36	44.67312 AU
opposition	2070 Sep 26	04:36	3°♈27'34	-16°43'18
direct	2070 Dec 16	06:30	2°♈25'31	
conjunction	2071 Mar 24	13:03	3°♈59'28	-16°03'36
minimum elong	2071 Mar 24	13:00	3°♈59'28	16°03'36
max. Earth dist.	2071 Mar 27	03:50	4°♈03'23	46.67512 AU
retrograde	2071 Jul 05	13:08	5°♈37'23	
min. Earth dist.	2071 Sep 25	00:56	4°♈37'01	44.83969 AU
opposition	2071 Sep 27	13:31	4°♈34'00	-16°48'53
direct	2071 Dec 17	18:13	3°♈32'05	
conjunction	2072 Mar 24	21:29	5°♈05'39	-16°08'55
minimum elong	2072 Mar 24	21:27	5°♈05'39	16°08'54
max. Earth dist.	2072 Mar 27	10:26	5°♈09'27	46.83857 AU
retrograde	2072 Jul 05	22:17	6°♈43'12	
min. Earth dist.	2072 Sep 25	10:30	5°♈42'54	45.00195 AU
opposition	2072 Sep 27	22:20	5°♈39'57	-16°54'05
direct	2072 Dec 18	03:27	4°♈38'09	
conjunction	2073 Mar 26	05:59	6°♈11'21	-16°13'53
minimum elong	2073 Mar 26	05:56	6°♈11'21	16°13'53
max. Earth dist.	2073 Mar 28	19:15	6°♈15'09	46.99794 AU
retrograde	2073 Jul 07	07:28	7°♈48'32	
min. Earth dist.	2073 Sep 26	20:28	6°♈48'17	45.16031 AU
opposition	2073 Sep 29	06:44	6°♈45'24	-16°58'55
direct	2073 Dec 19	11:50	5°♈43'44	
conjunction	2074 Mar 27	14:09	7°♈16'34	-16°18'29
minimum elong	2074 Mar 27	14:07	7°♈16'34	16°18'28
max. Earth dist.	2074 Mar 30	01:58	7°♈20'16	47.15391 AU
retrograde	2074 Jul 08	17:08	8°♈53'24	
min. Earth dist.	2074 Sep 28	04:18	7°♈53'18	45.31552 AU
opposition	2074 Sep 30	15:01	7°♈50'24	-17°03'23
direct	2074 Dec 20	17:55	6°♈48'52	
conjunction	2075 Mar 28	22:00	8°♈21'22	-16°22'43
minimum elong	2075 Mar 28	21:58	8°♈21'22	16°22'43
max. Earth dist.	2075 Mar 31	09:33	8°♈25'02	47.30688 AU
retrograde	2075 Jul 09	23:44	9°♈57'52	
min. Earth dist.	2075 Sep 29	14:08	8°♈57'48	45.46792 AU
opposition	2075 Oct 01	23:19	8°♈55'00	-17°07'27
direct	2075 Dec 22	02:36	7°♈53'36	
conjunction	2076 Mar 29	05:58	9°♈25'47	-16°26'35
minimum elong	2076 Mar 29	05:58	9°♈25'47	16°26'34
max. Earth dist.	2076 Mar 31	17:24	9°♈29'26	47.45734 AU
retrograde	2076 Jul 10	04:23	11°♈01'58	
min. Earth dist.	2076 Sep 29	21:59	10°♈02'03	45.61765 AU
opposition	2076 Oct 02	07:09	9°♈59'14	-17°11'08
direct	2076 Dec 22	12:43	8°♈57'59	
conjunction	2077 Mar 30	13:40	10°♈29'53	-16°30'04
minimum elong	2077 Mar 30	13:38	10°♈29'53	16°30'05
max. Earth dist.	2077 Apr 01	23:39	10°♈33'26	47.60515 AU
retrograde	2077 Jul 11	12:54	12°♈05'46	
min. Earth dist.	2077 Oct 01	06:30	11°♈05'57	45.76476 AU
opposition	2077 Oct 03	15:02	11°♈03'11	-17°14'27
direct	2077 Dec 23	20:47	10°♈02'05	
conjunction	2078 Mar 31	21:17	11°♈33'41	-16°33'13
minimum elong	2078 Mar 31	21:18	11°♈33'41	16°33'13
max. Earth dist.	2078 Apr 03	07:41	11°♈37'15	47.75022 AU
retrograde	2078 Jul 12	20:43	13°♈09'18	
min. Earth dist.	2078 Oct 02	15:22	12°♈09'35	45.90879 AU
opposition	2078 Oct 04	22:43	12°♈06'53	-17°17'24
direct	2078 Dec 25	05:26	11°♈05'56	
conjunction	2079 Apr 02	04:46	12°♈37'16	-16°36'00
minimum elong	2079 Apr 02	04:46	12°♈37'16	16°36'00
max. Earth dist.	2079 Apr 04	13:34	12°♈40'43	47.89226 AU
retrograde	2079 Jul 14	07:14	14°♈12'36	
min. Earth dist.	2079 Oct 03	22:52	13°♈13'02	46.04954 AU
opposition	2079 Oct 06	06:14	13°♈10'21	-17°20'00
direct	2079 Dec 26	09:44	12°♈09'33	
conjunction	2080 Apr 02	12:11	13°♈40'37	-16°38'28
minimum elong	2080 Apr 02	12:12	13°♈40'38	16°38'28
max. Earth dist.	2080 Apr 04	20:35	13°♈44'02	48.03059 AU
retrograde	2080 Jul 14	16:34	15°♈15'41	
min. Earth dist.	2080 Oct 04	08:27	14°♈16'11	46.18624 AU
opposition	2080 Oct 06	13:46	14°♈13'35	-17°22'16
direct	2080 Dec 26	14:43	13°♈12'57	
conjunction	2081 Apr 03	19:43	14°♈43'46	-16°40'36
minimum elong	2081 Apr 03	19:43	14°♈43'46	16°40'36
max. Earth dist.	2081 Apr 06	03:09	14°♈47'07	48.16465 AU
retrograde	2081 Jul 15	21:02	16°♈18'33	
min. Earth dist.	2081 Oct 05	15:58	15°♈19'10	46.31816 AU
opposition	2081 Oct 07	20:51	15°♈16'36	-17°24'13
direct	2081 Dec 27	23:43	14°♈16'05	
conjunction	2082 Apr 05	03:00	15°♈46'38	-16°42'27
minimum elong	2082 Apr 05	03:01	15°♈46'38	16°42'28
max. Earth dist.	2082 Apr 07	08:25	15°♈49'52	48.29369 AU
retrograde	2082 Jul 17	02:41	17°♈21'10	
min. Earth dist.	2082 Oct 07	00:45	16°♈21'49	46.44498 AU
opposition	2082 Oct 09	04:09	16°♈19'20	-17°25'52
direct	2082 Dec 29	08:53	15°♈18'56	
conjunction	2083 Apr 06	10:12	16°♈49'13	-16°44'01
minimum elong	2083 Apr 06	10:14	16°♈49'13	16°44'00
max. Earth dist.	2083 Apr 08	15:29	16°♈52'25	48.41754 AU
retrograde	2083 Jul 18	09:05	18°♈23'28	
min. Earth dist.	2083 Oct 08	09:24	17°♈24'08	46.56641 AU
opposition	2083 Oct 10	11:15	17°♈21'43	-17°27'14
direct	2083 Dec 30	18:22	16°♈21'25	

conjunction	2084 Apr 06	17:17	17°♈51'25	-16°45'18
minimum elong	2084 Apr 06	17:19	17°♈51'25	16°45'18
max. Earth dist.	2084 Apr 08	20:29	17°♈54'29	48.53631 AU
retrograde	2084 Jul 18	18:20	19°♈25'22	
min. Earth dist.	2084 Oct 08	16:30	18°♈26'07	46.68298 AU
opposition	2084 Oct 10	18:01	18°♈23'43	-17°28'18
direct	2084 Dec 30	23:49	17°♈23'30	
conjunction	2085 Apr 08	00:16	18°♈53'13	-16°46'17
minimum elong	2085 Apr 08	00:18	18°♈53'13	16°46'17
max. Earth dist.	2085 Apr 10	02:49	18°♈56'14	48.65039 AU
retrograde	2085 Jul 20	01:31	20°♈26'53	
min. Earth dist.	2085 Oct 10	01:18	19°♈27'36	46.79516 AU
opposition	2085 Oct 12	00:49	19°♈25'19	-17°29'04
direct	2086 Jan 01	05:34	18°♈25'10	
conjunction	2086 Apr 09	07:02	19°♈54'36	-16°46'58
minimum elong	2086 Apr 09	07:04	19°♈54'36	16°46'59
max. Earth dist.	2086 Apr 11	08:57	19°♈57'34	48.76053 AU
retrograde	2086 Jul 21	06:07	21°♈27'59	
min. Earth dist.	2086 Oct 11	07:51	20°♈28'46	46.90353 AU
opposition	2086 Oct 13	07:18	20°♈26'29	-17°29'32
direct	2087 Jan 02	12:27	19°♈26'25	
conjunction	2087 Apr 10	13:36	20°♈55'36	-16°47'21
minimum elong	2087 Apr 10	13:40	20°♈55'37	16°47'21
max. Earth dist.	2087 Apr 12	14:01	20°♈58'29	48.86717 AU
retrograde	2087 Jul 22	11:45	22°♈28'43	
min. Earth dist.	2087 Oct 12	15:26	21°♈29'32	47.00877 AU
opposition	2087 Oct 14	13:48	21°♈27'18	-17°29'40
direct	2088 Jan 03	19:38	20°♈27'18	
conjunction	2088 Apr 10	20:13	21°♈56'15	-16°47'26
minimum elong	2088 Apr 10	20:16	21°♈56'15	16°47'26
max. Earth dist.	2088 Apr 12	20:52	21°♈59'08	48.97082 AU
retrograde	2088 Jul 22	16:18	23°♈29'07	
min. Earth dist.	2088 Oct 12	22:42	22°♈29'59	47.11085 AU
opposition	2088 Oct 14	20:07	22°♈27'48	-17°29'29
direct	2089 Jan 04	04:26	21°♈27'54	
conjunction	2089 Apr 12	02:40	22°♈56'37	-16°47'11
minimum elong	2089 Apr 12	02:44	22°♈56'37	16°47'11
max. Earth dist.	2089 Apr 14	01:37	22°♈59'23	49.07155 AU
retrograde	2089 Jul 24	00:41	24°♈29'15	
min. Earth dist.	2089 Oct 14	04:50	23°♈30'12	47.21004 AU
opposition	2089 Oct 16	02:10	23°♈28'02	-17°29'00
direct	2090 Jan 05	09:27	22°♈28'14	
conjunction	2090 Apr 13	09:01	23°♈56'45	-16°46'39
minimum elong	2090 Apr 13	09:04	23°♈56'45	16°46'39
max. Earth dist.	2090 Apr 15	07:44	23°♈59'29	49.16925 AU
retrograde	2090 Jul 25	09:13	25°♈29'10	
min. Earth dist.	2090 Oct 15	12:48	24°♈30'09	47.30608 AU
opposition	2090 Oct 17	08:23	24°♈28'04	-17°28'11
direct	2091 Jan 06	13:31	23°♈28'22	
conjunction	2091 Apr 14	15:13	24°♈56'41	-16°45'49
minimum elong	2091 Apr 14	15:18	24°♈56'42	16°45'49
max. Earth dist.	2091 Apr 16	13:14	24°♈59'24	49.26385 AU
retrograde	2091 Jul 26	14:29	26°♈28'55	
min. Earth dist.	2091 Oct 16	18:46	25°♈30'01	47.39863 AU
opposition	2091 Oct 18	14:21	25°♈27'56	-17°27'05
direct	2092 Jan 07	18:55	24°♈28'21	
conjunction	2092 Apr 14	21:26	25°♈56'30	-16°44'41
minimum elong	2092 Apr 14	21:30	25°♈56'30	16°44'41
max. Earth dist.	2092 Apr 16	17:45	25°♈59'06	49.35465 AU
retrograde	2092 Jul 26	19:34	27°♈28'32	
min. Earth dist.	2092 Oct 17	02:23	26°♈29'40	47.48719 AU
opposition	2092 Oct 18	20:15	26°♈27'41	-17°25'41
direct	2093 Jan 08	01:58	25°♈28'12	
conjunction	2093 Apr 16	03:50	26°♈56'12	-16°43'18
minimum elong	2093 Apr 16	03:56	26°♈56'12	16°43'18
max. Earth dist.	2093 Apr 18	00:00	26°♈58'47	49.44113 AU
retrograde	2093 Jul 28	00:01	28°♈28'04	
min. Earth dist.	2093 Oct 18	09:34	27°♈29'14	47.57092 AU
opposition	2093 Oct 20	02:05	27°♈27'19	-17°24'02
direct	2094 Jan 09	10:35	26°♈27'56	
conjunction	2094 Apr 17	09:54	27°♈55'46	-16°41'39
minimum elong	2094 Apr 17	09:59	27°♈55'46	16°41'39
max. Earth dist.	2094 Apr 19	03:44	27°♈58'12	49.52263 AU
retrograde	2094 Jul 29	08:26	29°♈27'27	
min. Earth dist.	2094 Oct 19	15:55	28°♈28'42	47.64951 AU
opposition	2094 Oct 21	07:51	28°♈26'48	-17°22'07
direct	2095 Jan 10	15:10	27°♈27'31	
conjunction	2095 Apr 18	16:05	28°♈55'10	-16°39'46
minimum elong	2095 Apr 18	16:11	28°♈55'10	16°39'47
max. Earth dist.	2095 Apr 20	09:05	28°♈57'33	49.59881 AU
	2095 Jun 09	04:58	0°♉	
retrograde	2095 Jul 30	15:37	0°♉26'40	
	2095 Sep 20	22:06	30°℞♈	
min. Earth dist.	2095 Oct 20	23:58	29°♈27'53	47.72274 AU
opposition	2095 Oct 22	13:36	29°♈26'06	-17°19'58
direct	2096 Jan 11	19:47	28°♈26'53	
conjunction	2096 Apr 18	22:10	29°♈54'22	-16°37'38
minimum elong	2096 Apr 18	22:16	29°♈54'22	16°37'38
max. Earth dist.	2096 Apr 20	13:59	29°♈56'40	49.66994 AU
	2096 Apr 22	23:20	0°♉	
retrograde	2096 Jul 30	20:44	1°♉25'39	
min. Earth dist.	2096 Oct 21	05:44	0°♉26'56	47.79092 AU
opposition	2096 Oct 22	19:05	0°♉25'10	-17°17'34
	2096 Nov 14	14:32	30°℞♈	
direct	2097 Jan 12	00:40	29°♈25'59	
	2097 Mar 10	00:48	0°♉	
conjunction	2097 Apr 20	04:02	0°♉53'18	-16°35'15
minimum elong	2097 Apr 20	04:08	0°♉53'18	16°35'16
max. Earth dist.	2097 Apr 21	17:59	0°♉55'30	49.73621 AU
retrograde	2097 Aug 01	01:00	2°♉24'24	
min. Earth dist.	2097 Oct 22	12:48	1°♉25'38	47.85471 AU
opposition	2097 Oct 24	00:27	1°♉23'57	-17°14'53
direct	2098 Jan 13	06:33	0°♉24'49	
conjunction	2098 Apr 21	09:55	1°♉51'58	-16°32'37
minimum elong	2098 Apr 21	10:02	1°♉51'59	16°32'36
max. Earth dist.	2098 Apr 22	23:52	1°♉54'10	49.79847 AU
retrograde	2098 Aug 02	03:48	3°♉22'53	
min. Earth dist.	2098 Oct 23	18:54	2°♉24'09	47.91461 AU
opposition	2098 Oct 25	05:43	2°♉22'30	-17°11'57
direct	2099 Jan 14	14:51	1°♉23'25	
conjunction	2099 Apr 22	15:25	2°♉50'23	-16°29'42
minimum elong	2099 Apr 22	15:31	2°♉50'23	16°29'42
max. Earth dist.	2099 Apr 24	03:37	2°♉52'29	49.85727 AU
retrograde	2099 Aug 03	10:27	4°♉21'08	
min. Earth dist.	2099 Oct 25	00:28	3°♉22'25	47.97134 AU
opposition	2099 Oct 26	10:55	3°♉20'48	-17°08'44
direct	2100 Jan 15	20:38	2°♉21'45	
conjunction	2100 Apr 23	21:08	3°♉48'35	-16°26'31

minimum elong	2100 Apr 23 21:16	3°♉48'35	16°26'30
max. Earth dist.	2100 Apr 25 09:04	3°♉50'39	49.91294 AU
retrograde	2100 Aug 04 18:34	5°♉19'09	
min. Earth dist.	2100 Oct 26 07:14	4°♉20'26	48.02503 AU
opposition	2100 Oct 27 16:00	4°♉18'53	-17°05'14
direct	2101 Jan 17 00:15	3°♉19'54	
conjunction	2101 Apr 25 02:47	4°♉46'35	-16°23'04
minimum elong	2101 Apr 25 02:53	4°♉46'35	16°23'04
max. Earth dist.	2101 Apr 26 13:52	4°♉48'36	49.96588 AU
retrograde	2101 Aug 06 00:57	6°♉17'00	
opposition	2101 Oct 28 20:59	5°♉16'48	-17°01'27
min. Earth dist.	2101 Oct 27 12:01	5°♉18'21	48.07587 AU