



Astrodienst Ephemeris Tables for the year 1709

tropical geocentric zodiac

contains Sun, Moon, Mercury, Venus, Mars, Jupiter, Saturn, Uranus, Neptune, Pluto, True Node, Moon's Node, Lilith, Chiron

Programming
Dieter Koch and Alois Treindl
based on Swiss Ephemeris
Code D5EPH

ASTRODIENST EPHEMERIS for the year 1709
geocentric

JANUARY 1709

00:00 UT

Day	Sid.t	☉	☽	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day
T 1	6 41 46	10°31'47	14°24'24	18°15'15	29°24'24	15°R50	28°11'11	27°R39	22°R10	22°R57	26°R28	22°R16	23°17'17	2°48'48	18°34'41	T 1
W 2	6 45 43	11°32'57	28°22'22	19°27'27	0°27'36	15°26'26	28°19'19	27°11'34	22°8'8	22°Y57	26°27'27	22°D16	23°14'14	2°55'55	18°47'47	W 2
T 3	6 49 39	12°34'06	11°15'56	20°41'41	1°47'47	15°2'2	28°26'26	27°30'30	22°7'7	22°D57	26°26'26	22°R16	23°10'10	3°1'1	18°52'52	T 3
F 4	6 53 36	13°35'16	25°8'8	21°56'56	2°59'59	14°38'38	28°33'33	27°25'25	22°5'5	22°57'57	26°25'25	22°16'16	23°7'7	3°8'8	18°58'58	F 4
S 5	6 57 32	14°36'26	8°11'11	23°13'13	4°11'11	14°14'14	28°40'40	27°20'20	22°3'3	22°57'57	26°24'24	22°13'13	23°4'4	3°15'15	19°3'3	S 5
S 6	7 1 29	15°37'36	20°39'39	24°32'32	5°23'23	13°50'50	28°47'47	27°16'16	22°1'1	22°57'57	26°23'23	22°8'8	23°1'1	3°22'22	19°9'9	S 6
M 7	7 5 25	16°38'46	3°4'4	25°52'52	6°35'35	13°26'26	28°54'54	27°11'11	21°59'59	22°57'57	26°22'22	22°0'0	22°58'58	3°28'28	19°14'14	M 7
T 8	7 9 22	17°39'56	15°19'19	27°13'13	7°47'47	13°2'2	29°1'1	27°7'7	21°57'57	22°57'57	26°21'21	21°50'50	22°55'55	3°35'35	19°20'20	T 8
W 9	7 13 18	18°41'06	27°26'26	28°35'35	8°59'59	12°39'39	29°7'7	27°2'2	21°55'55	22°58'58	26°20'20	21°38'38	22°51'51	3°42'42	19°25'25	W 9
T 10	7 17 15	19°42'15	9°27'27	29°58'58	10°11'11	12°16'16	29°13'13	26°58'58	21°53'53	22°58'58	26°19'19	21°25'25	22°48'48	3°48'48	19°31'31	T 10
F 11	7 21 12	20°43'24	21°22'22	1°23'23	11°24'24	11°53'53	29°20'20	26°53'53	21°51'51	22°58'58	26°18'18	21°12'12	22°45'45	3°55'55	19°36'36	F 11
S 12	7 25 8	21°44'32	3°14'14	2°47'47	12°36'36	11°30'30	29°26'26	26°49'49	21°49'49	22°58'58	26°16'16	21°2'2	22°42'42	4°2'2	19°42'42	S 12
S 13	7 29 5	22°45'40	15°3'3	4°12'12	13°48'48	11°8'8	29°31'31	26°45'45	21°46'46	22°59'59	26°15'15	20°53'53	22°39'39	4°8'8	19°48'48	S 13
M14	7 33 1	23°46'47	26°52'52	5°39'39	15°1'1	10°47'47	29°37'37	26°41'41	21°44'44	22°59'59	26°14'14	20°47'47	22°36'36	4°15'15	19°53'53	M14
T 15	7 36 58	24°47'54	8°42'42	7°6'6	16°13'13	10°26'26	29°43'43	26°37'37	21°42'42	22°59'59	26°13'13	20°44'44	22°32'32	4°22'22	19°59'59	T 15
W16	7 40 54	25°48'59	20°39'39	8°34'34	17°26'26	10°5'5	29°48'48	26°33'33	21°40'40	23°0'0	26°12'12	20°D43	22°29'29	4°28'28	20°4'4	W16
T 17	7 44 51	26°50'04	2°45'45	10°3'3	18°39'39	9°45'45	29°53'53	26°29'29	21°37'37	23°0'0	26°10'10	20°44'44	22°26'26	4°35'35	20°10'10	T 17
F 18	7 48 47	27°51'08	15°5'5	11°32'32	19°51'51	9°25'25	29°58'58	26°25'25	21°35'35	23°1'1	26°9'9	20°45'45	22°23'23	4°42'42	20°15'15	F 18
S 19	7 52 44	28°52'10	27°44'44	13°2'2	21°4'4	9°7'7	0°11'11	26°21'21	21°33'33	23°1'1	26°8'8	20°R46	22°20'20	4°49'49	20°21'21	S 19
S 20	7 56 41	29°53'12	10°48'48	14°32'32	22°17'17	8°48'48	0°8'8	26°17'17	21°30'30	23°2'2	26°6'6	20°45'45	22°16'16	4°55'55	20°26'26	S 20
M21	8 0 37	0°54'13	24°18'18	16°4'4	23°30'30	8°31'31	0°13'13	26°14'14	21°28'28	23°3'3	26°5'5	20°42'42	22°13'13	5°2'2	20°31'31	M21
T 22	8 4 34	1°55'12	8°19'19	17°35'35	24°42'42	8°14'14	0°17'17	26°10'10	21°26'26	23°3'3	26°4'4	20°38'38	22°10'10	5°9'9	20°37'37	T 22
W23	8 8 30	2°56'11	22°48'48	19°8'8	25°55'55	7°58'58	0°21'21	26°7'7	21°23'23	23°4'4	26°3'3	20°31'31	22°7'7	5°15'15	20°42'42	W23
T 24	8 12 27	3°57'08	7°24'24	20°41'41	27°8'8	7°42'42	0°25'25	26°3'3	21°21'21	23°5'5	26°1'1	20°24'24	22°4'4	5°22'22	20°48'48	T 24
F 25	8 16 23	4°58'04	22°54'54	22°15'15	28°21'21	7°28'28	0°29'29	26°0'0	21°18'18	23°5'5	26°0'0	20°17'17	22°1'1	5°29'29	20°53'53	F 25
S 26	8 20 20	5°58'59	8°14'14	23°50'50	29°34'34	7°14'14	0°33'33	25°57'57	21°16'16	23°6'6	25°58'58	20°11'11	21°57'57	5°35'35	20°59'59	S 26
S 27	8 24 16	6°59'53	23°30'30	25°25'25	0°47'47	7°1'1	0°37'37	25°54'54	21°13'13	23°7'7	25°57'57	20°6'6	21°54'54	5°42'42	21°4'4	S 27
M28	8 28 13	8°0'46	8°11'31	27°1'1	2°0'0	6°48'48	0°40'40	25°51'51	21°11'11	23°8'8	25°56'56	20°4'4	21°51'51	5°49'49	21°9'9	M28
T 29	8 32 10	9°1'39	23°11'11	28°37'37	3°14'14	6°37'37	0°43'43	25°48'48	21°8'8	23°9'9	25°54'54	20°D3	21°48'48	5°55'55	21°15'15	T 29
W30	8 36 6	10°2'30	7°25'25	0°14'14	4°27'27	6°26'26	0°46'46	25°45'45	21°6'6	23°10'10	25°53'53	20°4'4	21°45'45	6°2'2	21°20'20	W30
T 31	8 40 3	11°3'20	21°11'11	1°53'53	5°40'40	6°26'26	0°49'49	25°42'42	21°11'11	23°10'10	25°51'51	20°11'11	21°42'42	6°9'9	21°25'25	T 31

Delta T = 11.75 sec

Greg. Calendar

FEBRUARY 1709

00:00 UT

Day	Sid.t	☉	☽	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day
F 1	8 43 59	12° 4'10	4♂31	3°31	6♂53	6°R 7	0♂52	25°R39	21°R 1	23°Y11	25°R50	20♂ 7	21♂38	6°15	21♂30	F 1
S 2	8 47 56	13° 4'58	17°27	5°11	8° 6	5♂58	0°54	25♂37	20♂58	23°12	25♂48	20°R 7	21°35	6°22	21°36	S 2
S 3	8 51 52	14° 5'46	0♂ 2	6°51	9°20	5°50	0°57	25°34	20°55	23°13	25°47	20° 5	21°32	6°29	21°41	S 3
M 4	8 55 49	15° 6'33	12°22	8°32	10°33	5°44	0°59	25°32	20°53	23°15	25°45	20° 2	21°29	6°36	21°46	M 4
T 5	8 59 45	16° 7'18	24°30	10°14	11°46	5°38	1° 1	25°30	20°50	23°16	25°44	19°58	21°26	6°42	21°51	T 5
W 6	9 3 42	17° 8'03	6♂29	11°57	13° 0	5°32	1° 2	25°28	20°47	23°17	25°43	19°52	21°22	6°49	21°56	W 6
T 7	9 7 39	18° 8'46	18°23	13°40	14°13	5°28	1° 4	25°26	20°45	23°18	25°41	19°46	21°19	6°56	22° 2	T 7
F 8	9 11 35	19° 9'29	0°13	15°25	15°27	5°24	1° 5	25°24	20°42	23°19	25°40	19°40	21°16	7° 2	22° 7	F 8
S 9	9 15 32	20°10'09	12° 2	17°10	16°40	5°21	1° 6	25°22	20°40	23°20	25°38	19°35	21°13	7° 9	22°12	S 9
S 10	9 19 28	21°10'49	23°53	18°56	17°54	5°19	1° 7	25°20	20°37	23°22	25°37	19°31	21°10	7°16	22°17	S 10
M11	9 23 25	22°11'27	5♂46	20°43	19° 7	5°18	1° 8	25°19	20°34	23°23	25°35	19°29	21° 7	7°22	22°22	M11
T 12	9 27 21	23°12'03	17°43	22°30	20°20	5°D17	1° 9	25°17	20°32	23°24	25°34	19°D28	21° 3	7°29	22°27	T 12
W13	9 31 18	24°12'37	29°48	24°19	21°34	5°18	1° 9	25°16	20°29	23°25	25°32	19°28	21° 0	7°36	22°32	W13
T 14	9 35 14	25°13'10	12°Y 2	26° 8	22°48	5°19	1°10	25°14	20°26	23°27	25°31	19°29	20°57	7°42	22°36	T 14
F 15	9 39 11	26°13'41	24°28	27°58	24° 1	5°20	1°R10	25°13	20°24	23°28	25°29	19°31	20°54	7°49	22°41	F 15
S 16	9 43 8	27°14'11	7♂11	29°49	25°15	5°23	1° 9	25°12	20°21	23°30	25°28	19°33	20°51	7°56	22°46	S 16
S 17	9 47 4	28°14'38	20°13	1♂41	26°28	5°26	1° 9	25°11	20°19	23°31	25°26	19°34	20°48	8° 2	22°51	S 17
M18	9 51 1	29°15'04	3♂13	3°33	27°42	5°30	1° 9	25°10	20°16	23°33	25°25	19°R34	20°44	8° 9	22°56	M18
T 19	9 54 57	0♂15'28	17°26	5°26	28°55	5°34	1° 8	25°10	20°13	23°34	25°23	19°33	20°41	8°16	23° 0	T 19
W20	9 58 54	1°15'50	1♂39	7°19	0°49	5°39	1° 7	25° 9	20°11	23°36	25°22	19°31	20°38	8°22	23° 5	W20
T 21	10 2 50	2°16'10	16°15	9°13	1°23	5°45	1° 6	25° 8	20° 8	23°37	25°20	19°29	20°35	8°29	23°10	T 21
F 22	10 6 47	3°16'27	1♂10	11° 6	2°36	5°52	1° 5	25° 8	20° 6	23°39	25°19	19°27	20°32	8°36	23°14	F 22
S 23	10 10 43	4°16'43	16°15	13° 0	3°50	5°59	1° 3	25° 8	20° 3	23°40	25°17	19°25	20°28	8°42	23°19	S 23
S 24	10 14 40	5°16'57	1♂23	14°54	5° 4	6° 7	1° 2	25° 8	20° 1	23°42	25°16	19°24	20°25	8°49	23°23	S 24
M25	10 18 37	6°17'09	16°24	16°47	6°17	6°15	1° 0	25°D 8	19°58	23°44	25°14	19°D23	20°22	8°56	23°28	M25
T 26	10 22 33	7°17'19	1♂10	18°39	7°31	6°24	0°58	25° 8	19°56	23°45	25°13	19°24	20°19	9° 3	23°32	T 26
W27	10 26 30	8°17'28	15°33	20°30	8°45	6°34	0°56	25° 8	19°53	23°47	25°11	19°24	20°16	9° 9	23°36	W27
T28	10 30 26	9♂17'35	29♂30	22♂20	9°58	6♂44	0♂53	25♂ 8	19♂251	23°Y49	25♂10	19♂25	20♂13	9°16	23♂41	T 28

ASTRODIENST EPHEMERIS for the year 1709

geocentric

MARCH 1709

00:00 UT

Day	Sid.t	☉	☽	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day
F 1	10 34 23	10 ¹⁷ 41	13 ¹¹ 0	24 ¹⁷ 7	11 ¹¹ 12	6 ⁵⁵ 55	0 ⁵¹ R51	25 ¹¹ 9	19 ¹⁹ R48	23 ¹⁷ 50	25 ¹⁹ R 8	19 ¹⁹ X26	20 ¹⁷ 9	9 ²³ 23	23 ¹⁷ 45	F 1
S 2	10 38 19	11 ¹⁷ 44	26 ¹⁰ 4	25 ¹⁵ 53	12 ¹² 26	7 ¹⁰ 6	0 ¹¹ M48	25 ¹⁰ 9	19 ¹⁹ Q46	23 ¹⁵ 52	25 ¹⁹ Q 7	19 ¹⁹ 27	20 ¹⁰ 6	9 ²⁹ 29	23 ¹⁷ 49	S 2
S 3	10 42 16	12 ¹⁷ 47	8 ¹⁷ 46	27 ¹⁰ 36	13 ¹³ 40	7 ¹¹ 18	0 ¹⁴ 45	25 ¹⁰ 10	19 ¹⁹ 44	23 ¹⁵ 54	25 ¹⁰ 5	19 ¹⁹ R27	20 ¹⁰ 3	9 ³⁶ 36	23 ¹⁵ 53	S 3
M 4	10 46 12	13 ¹⁷ 48	21 ¹⁰ 8	29 ¹⁵ 15	14 ¹⁴ 53	7 ¹² 30	0 ¹⁴ 42	25 ¹⁰ 10	19 ¹⁹ 41	23 ¹⁵ 56	25 ¹⁰ 4	19 ¹⁹ 27	20 ¹⁰ 0	9 ⁴³ 43	23 ¹⁵ 57	M 4
T 5	10 50 9	14 ¹⁷ 47	3 ¹⁵ 15	0 ¹⁵ 51	16 ¹⁶ 7	7 ¹³ 43	0 ¹³ 39	25 ¹¹ 11	19 ¹⁹ 39	23 ¹⁵ 58	25 ¹⁰ 3	19 ¹⁹ 27	19 ¹⁹ 57	9 ⁴⁹ 49	24 ¹⁰ 1	T 5
W 6	10 54 6	15 ¹⁷ 44	15 ¹² 2	2 ²² 22	17 ¹⁷ 21	7 ¹⁴ 56	0 ¹³ 35	25 ¹² 12	19 ¹⁹ 37	23 ¹⁵ 59	25 ¹⁰ 1	19 ¹⁹ 26	19 ¹⁹ 53	9 ⁵⁶ 56	24 ¹⁰ 5	W 6
T 7	10 58 2	16 ¹⁷ 40	27 ¹⁰ 3	3 ⁴⁸ 48	18 ¹⁸ 35	8 ¹⁵ 10	0 ¹³ 32	25 ¹³ 13	19 ¹⁹ 34	24 ¹⁰ 1	25 ¹⁰ 0	19 ¹⁹ 26	19 ¹⁹ 50	10 ¹⁰ 3	24 ¹⁰ 9	T 7
F 8	11 1 59	17 ¹⁷ 34	8 ¹⁵ 51	5 ¹⁰ 9	19 ¹⁹ 48	8 ¹⁶ 25	0 ¹² 28	25 ¹⁴ 14	19 ¹⁹ 32	24 ¹⁰ 3	24 ¹⁰ 58	19 ¹⁹ 25	19 ¹⁹ 47	10 ¹⁰ 9	24 ¹⁰ 13	F 8
S 9	11 5 55	18 ¹⁷ 26	20 ¹⁴ 1	6 ²⁴ 24	21 ²¹ 2	8 ¹⁷ 39	0 ¹² 24	25 ¹⁶ 16	19 ¹⁹ 30	24 ¹⁰ 5	24 ¹⁰ 57	19 ¹⁹ 25	19 ¹⁹ 44	10 ¹⁰ 16	24 ¹⁰ 17	S 9
S 10	11 9 52	19 ¹⁷ 16	2 ¹⁷ 34	7 ³² 32	22 ¹⁶ 16	8 ¹⁸ 55	0 ¹² 20	25 ¹⁷ 17	19 ¹⁹ 28	24 ¹⁰ 7	24 ¹⁰ 56	19 ¹⁹ D25	19 ¹⁹ 41	10 ¹⁰ 23	24 ¹⁰ 21	S 10
M 11	11 13 48	20 ¹⁷ 04	14 ³⁵ 8	8 ³⁴ 34	23 ¹⁶ 30	9 ¹⁹ 10	0 ¹⁵ 15	25 ¹⁹ 19	19 ¹⁹ 26	24 ¹⁰ 9	24 ¹⁰ 54	19 ¹⁹ R25	19 ¹⁹ 38	10 ¹⁰ 29	24 ¹⁰ 24	M 11
T 12	11 17 45	21 ¹⁶ 50	26 ⁴³ 9	9 ²⁹ 29	24 ¹⁶ 44	9 ²⁷ 27	0 ¹¹ 11	25 ²⁰ 20	19 ¹⁹ 23	24 ¹⁰ 11	24 ¹⁰ 53	19 ¹⁹ 25	19 ¹⁹ 34	10 ¹⁰ 36	24 ¹⁰ 28	T 12
W 13	11 21 41	22 ¹⁶ 35	9 ¹⁷ 2	10 ¹⁶ 16	25 ¹⁵ 57	9 ⁴³ 43	0 ¹⁰ 6	25 ²² 22	19 ¹⁹ 21	24 ¹⁰ 13	24 ¹⁰ 52	19 ¹⁹ 25	19 ¹⁹ 31	10 ¹⁰ 43	24 ¹⁰ 32	W 13
T 14	11 25 38	23 ¹⁶ 17	21 ³¹ 1	10 ¹⁵ 55	27 ¹¹ 11	10 ¹⁰ 0	0 ² 2	25 ²⁴ 24	19 ¹⁹ 19	24 ¹⁰ 15	24 ¹⁰ 50	19 ¹⁹ 25	19 ¹⁹ 28	10 ¹⁰ 49	24 ¹⁰ 35	T 14
F 15	11 29 35	24 ¹⁵ 57	4 ¹⁴ 14	11 ²⁶ 26	28 ²⁵ 25	10 ¹⁸ 18	29 ¹⁵ 57	25 ²⁶ 26	19 ¹⁹ 17	24 ¹⁰ 17	24 ¹⁰ 49	19 ¹⁹ 24	19 ¹⁹ 25	10 ¹⁰ 56	24 ¹⁰ 39	F 15
S 16	11 33 31	25 ¹⁵ 35	17 ¹¹ 11	11 ⁴⁹ 49	29 ³⁹ 39	10 ³⁶ 36	29 ¹⁵ 51	25 ²⁸ 28	19 ¹⁹ 15	24 ¹⁰ 19	24 ¹⁰ 48	19 ¹⁹ 23	19 ¹⁹ 22	11 ¹⁰ 3	24 ¹⁰ 42	S 16
S 17	11 37 28	26 ¹⁵ 11	0 ¹¹ 22	12 ¹⁰ 4	0 ¹⁵ 53	10 ⁵⁴ 54	29 ¹⁶ 46	25 ³⁰ 30	19 ¹⁹ 13	24 ¹⁰ 21	24 ¹⁰ 47	19 ¹⁹ 23	19 ¹⁹ 19	11 ¹⁰ 9	24 ¹⁰ 46	S 17
M 18	11 41 24	27 ¹⁴ 44	13 ⁵⁰ 12	12 ¹¹ R11	2 ¹⁰ 6	11 ¹³ 13	29 ¹⁶ 41	25 ³² 32	19 ¹⁹ 11	24 ¹⁰ 23	24 ¹⁰ 45	19 ¹⁹ 22	19 ¹⁹ 15	11 ¹⁰ 16	24 ¹⁰ 49	M 18
T 19	11 45 21	28 ¹⁴ 15	27 ³⁵ 12	12 ¹⁰ 10	3 ²⁰ 20	11 ³² 32	29 ¹⁶ 35	25 ³⁵ 35	19 ¹⁹ 10	24 ¹⁰ 25	24 ¹⁰ 44	19 ¹⁹ D22	19 ¹⁹ 12	11 ¹⁰ 23	24 ¹⁰ 52	T 19
W 20	11 49 17	29 ¹³ 44	11 ³⁷ 12	12 ¹¹ 1	4 ³⁴ 34	11 ⁵¹ 51	29 ¹⁶ 30	25 ³⁷ 37	19 ¹⁹ 8	24 ¹⁰ 27	24 ¹⁰ 43	19 ¹⁹ 22	19 ¹⁹ 9	11 ¹⁰ 29	24 ¹⁰ 55	W 20
T 21	11 53 14	0 ¹³ 13	10 ¹³ 10	25 ⁵⁵ 11	11 ⁴⁵ 45	5 ⁴⁸ 48	12 ¹¹ 11	29 ¹⁶ 24	25 ⁴⁰ 40	19 ¹⁹ 6	24 ¹⁰ 29	19 ¹⁹ 23	19 ¹⁹ 6	11 ¹⁰ 36	24 ¹⁰ 58	T 21
F 22	11 57 10	1 ¹² 34	10 ¹² 10	11 ²² 7	7 ² 2	12 ³¹ 31	29 ¹⁸ 18	25 ⁴² 42	19 ¹⁹ 4	24 ¹⁰ 31	24 ¹⁰ 41	19 ¹⁹ 24	19 ¹⁹ 3	11 ¹⁰ 43	25 ¹⁰ 1	F 22
S 23	12 1 7	2 ¹¹ 56	25 ⁷ 7	10 ⁵² 8	8 ¹⁵ 15	12 ⁵² 52	29 ¹² 12	25 ⁴⁵ 45	19 ¹⁹ 3	24 ¹⁰ 33	24 ¹⁰ 39	19 ¹⁹ 25	18 ¹⁰ 59	11 ¹⁰ 49	25 ¹⁰ 4	S 23
S 24	12 5 4	3 ¹¹ 15	9 ¹¹ 52	10 ¹⁷ 9	9 ²⁹ 29	13 ¹³ 13	29 ⁶ 6	25 ⁴⁸ 48	19 ¹⁹ 1	24 ¹⁰ 35	24 ¹⁰ 38	19 ¹⁹ 25	18 ¹⁰ 56	11 ¹⁰ 56	25 ¹⁰ 7	S 24
M 25	12 9 0	4 ¹⁰ 33	24 ³⁴ 9	9 ³⁷ 10	10 ⁴³ 43	13 ³⁴ 34	29 ⁰ 0	25 ⁵¹ 51	18 ¹⁰ 59	24 ¹⁰ 38	24 ¹⁰ 37	19 ¹⁹ R25	18 ¹⁰ 53	12 ¹⁰ 3	25 ¹⁰ 10	M 25
T 26	12 12 57	5 ⁹ 48	9 ¹⁴ 7	8 ⁵⁴ 7	11 ⁵⁷ 57	13 ⁵⁵ 55	28 ⁵³ 53	25 ⁵⁴ 54	18 ¹⁰ 58	24 ¹⁰ 40	24 ¹⁰ 36	19 ¹⁹ 25	18 ¹⁰ 50	12 ¹⁰ 9	25 ¹⁰ 13	T 26
W 27	12 16 53	6 ⁹ 01	23 ²⁵ 8	8 ⁷ 7	13 ¹¹ 11	14 ¹⁷ 17	28 ⁴⁷ 47	25 ⁵⁷ 57	18 ¹⁰ 56	24 ¹⁰ 42	24 ¹⁰ 35	19 ¹⁹ 23	18 ¹⁰ 47	12 ¹⁰ 16	25 ¹⁰ 16	W 27
T 28	12 20 50	7 ⁸ 12	7 ¹¹ 22	7 ¹⁸ 18	14 ²⁴ 24	14 ³⁹ 39	28 ⁴⁰ 40	26 ¹ 1	18 ¹⁰ 55	24 ¹⁰ 44	24 ¹⁰ 34	19 ¹⁹ 21	18 ¹⁰ 44	12 ¹⁰ 23	25 ¹⁰ 18	T 28
F 29	12 24 46	8 ⁷ 21	20 ⁵⁶ 6	6 ²⁹ 29	15 ³⁸ 38	15 ² 2	28 ³⁴ 34	26 ⁴ 4	18 ¹⁰ 53	24 ¹⁰ 46	24 ¹⁰ 33	19 ¹⁹ 18	18 ¹⁰ 40	12 ¹⁰ 29	25 ¹⁰ 21	F 29
S 30	12 28 43	9 ⁶ 28	4 ¹⁷ 6	5 ³⁹ 39	16 ⁵² 52	15 ²⁴ 24	28 ²⁷ 27	26 ⁸ 8	18 ¹⁰ 52	24 ¹⁰ 48	24 ¹⁰ 32	19 ¹⁹ 16	18 ¹⁰ 37	12 ¹⁰ 36	25 ¹⁰ 24	S 30
S 31	12 32 39	10 ¹⁷ 53	16 ¹⁷ 52	4 ¹⁷ 51	18 ¹⁷ 6	15 ²⁴ 24	28 ²⁰ 20	26 ¹¹ 11	18 ¹⁰ 50	24 ¹⁰ 51	24 ¹⁰ 31	19 ¹⁹ X13	18 ¹⁰ X34	12 ¹⁰ 43	25 ¹⁰ 26	S 31

Delta T = 11.72 sec

Greg. Calendar

APRIL 1709

00:00 UT

Day	Sid.t	☉	☽	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day
M 1	12 36 36	11 ¹⁷ 43	29 ¹⁷ 19	4 ¹⁹ R 4	19 ¹⁷ X19	16 ¹¹ 11	28 ¹⁹ R13	26 ¹¹ 15	18 ¹⁹ R49	24 ¹⁷ 53	24 ¹⁹ R30	19 ¹⁹ R12	18 ¹⁹ X31	12 ¹⁷ 49	25 ¹⁷ 28	M 1
T 2	12 40 33	12 ¹⁷ 40	11 ¹⁷ 29	3 ¹⁷ 20	20 ¹³ 33	16 ¹³ 34	28 ¹⁸ 6	26 ¹⁹ 19	18 ¹⁹ Q48	24 ¹⁵ 55	24 ¹⁹ Q29	19 ¹⁹ D11	18 ¹⁸ 28	12 ¹⁵ 56	25 ¹⁷ 31	T 2
W 3	12 44 29	13 ¹⁷ 40	23 ²⁷ 27	2 ³⁹ 29	21 ¹⁴ 47	16 ¹⁵ 58	27 ⁵⁹ 59	26 ²² 22	18 ¹⁸ 47	24 ¹⁵ 57	24 ¹⁹ 28	19 ¹⁹ X12	18 ¹⁸ 25	13 ¹³ 3	25 ¹⁷ 33	W 3
T 4	12 48 26	14 ¹⁷ 39	5 ¹⁸ 18	2 ³ 3	23 ¹ 1	17 ²² 22	27 ⁵¹ 51	26 ²⁶ 26	18 ¹⁸ 45	25 ¹⁰ 0	24 ¹⁷ 27	19 ¹⁹ 13	18 ¹⁸ 21	13 ¹³ 9	25 ¹⁷ 35	T 4
F 5	12 52 22	15 ¹⁷ 35	17 ⁷ 7	1 ³¹ 31	24 ¹⁵ 15	17 ⁴⁶ 46	27 ⁴⁴ 44	26 ³⁰ 30	18 ¹⁸ 44	25 ¹⁰ 2	24 ¹⁷ 26	19 ¹⁹ 15	18 ¹⁸ 18	13 ¹³ 16	25 ¹⁷ 37	F 5
S 6	12 56 19	15 ⁵⁹ 30	28 ⁵⁸ 58	1 ³ 3	25 ²⁸ 28	18 ¹¹ 11	27 ³⁷ 37	26 ³⁵ 35	18 ¹⁸ 43	25 ¹⁰ 4	24 ¹⁷ 26	19 ¹⁹ 16	18 ¹⁸ 15	13 ¹³ 23	25 ¹⁷ 39	S 6
S 7	13 0 15	16 ⁵⁸ 23	10 ¹⁷ 56	0 ⁴¹ 41	26 ⁴² 42	18 ³⁶ 36	27 ²⁹ 29	26 ³⁹ 39	18 ¹⁸ 42	25 ¹⁰ 6	24 ¹⁷ 25	19 ¹⁹ 18	18 ¹⁸ 12	13 ¹³ 29	25 ¹⁷ 41	S 7
M 8	13 4 12	17 ⁵⁷ 14	23 ³ 3	0 ²³ 23	27 ⁵⁶ 56	19 ¹ 1	27 ²² 22	26 ⁴³ 43	18 ¹⁸ 41	25 ¹⁰ 9	24 ¹⁷ 24	19 ¹⁹ R18	18 ¹⁸ 9	13 ¹³ 36	25 ¹⁷ 43	M 8
T 9	13 8 8	18 ⁵⁶ 03	5 ¹⁷ 24	0 ¹² 12	29 ¹⁰ 10	19 ²⁶ 26	27 ¹⁵ 15	26 ⁴⁸ 48	18 ¹⁸ 40	25 ¹¹ 11	24 ¹⁷ 23	19 ¹⁹ 17	18 ¹⁸ 5	13 ¹³ 43	25 ¹⁷ 45	T 9
W10	13 12 5	19 ⁵⁴ 50	17 ⁵⁸ 58	0 ⁵ 5	0 ¹⁷ 24	19 ⁵² 52	27 ⁷ 7	26 ⁵² 52	18 ¹⁸ 39	25 ¹³ 13	24 ¹⁷ 23	19 ¹⁹ 14	18 ¹⁸ 2	13 ¹³ 49	25 ¹⁷ 47	W10
T 11	13 16 1	20 ⁵³ 35	0 ⁸ 48	0 ^D 4	1 ³⁷ 37	20 ¹⁷ 17	26 ⁵⁹ 59	26 ⁵⁷ 57	18 ¹⁸ 39	25 ¹⁵ 15	24 ¹⁷ 22	19 ¹⁹ 10	17 ¹⁷ 59	13 ¹³ 56	25 ¹⁷ 48	T 11
F 12	13 19 58	21 ⁵² 19	13 ⁵³ 53	0 ⁸ 8	2 ⁵¹ 51	20 ⁴³ 43	26 ⁵² 52	27 ¹ 1	18 ¹⁸ 38	25 ¹⁸ 18	24 ¹⁷ 21	19 ¹⁹ 5	17 ¹⁷ 56	14 ¹⁴ 3	25 ¹⁷ 50	F 12
S 13	13 23 55	22 ⁵¹ 00	27 ¹³ 13	0 ¹⁷ 17	4 ⁵ 5	21 ¹⁰ 10	26 ⁴⁴ 44	27 ⁶ 6	18 ¹⁸ 37	25 ²⁰ 20	24 ¹⁷ 20	19 ¹⁹ 0	17 ¹⁷ 53	14 ¹⁴ 9	25 ¹⁷ 51	S 13
S 14	13 27 51	23 ⁴⁹ 39	10 ¹⁷ 56	0 ³¹ 31	5 ¹⁹ 19	21 ³⁶ 36	26 ³⁷ 37	27 ¹¹ 11	18 ¹⁸ 36	25 ²² 22	24 ¹⁷ 20	18 ¹⁸ 54	17 ¹⁷ 50	14 ¹⁴ 16	25 ¹⁷ 53	S 14
M15	13 31 48	24 ⁴⁸ 16	24 ²⁸ 08	0 ⁴⁹ 49	6 ³² 32	22 ³ 3	26 ²⁹ 29	27 ¹⁶ 16	18 ¹⁸ 36	25 ²⁴ 24	24 ¹⁷ 19	18 ¹⁸ 50	17 ¹⁷ 46	14 ¹⁴ 23	25 ¹⁷ 54	M15
T 16	13 35 44	25 ⁴⁶ 51	8 ²² 22	1 ¹³ 13	7 ⁴⁶ 46	22 ²⁹ 29	26 ²¹ 21	27 ²¹ 21	18 ¹⁸ 35	25 ²⁷ 27	24 ¹⁷ 19	18 ¹⁸ 47	17 ¹⁷ 43	14 ¹⁴ 30	25 ¹⁷ 55	T 16
W17	13 39 41	26 ⁴⁵ 24	22 ²³ 23	1 ⁴⁰ 40	9 ⁰ 0	22 ⁵⁶ 56	26 ¹³ 13	27 ²⁶ 26	18 ¹⁸ 35	25 ²⁹ 29	24 ¹⁷ 18	18 ¹⁸ D46	17 ¹⁷ 40	14 ¹⁴ 36	25 ¹⁷ 57	W17
T 18	13 43 37	27 ⁴³ 54	6 ¹³ 13	2 ¹² 12	10 ¹⁴ 14	23 ²⁴ 24	26 ⁶ 6	27 ³¹ 31	18 ¹⁸ 34	25 ³¹ 31	24 ¹⁷ 18	18 ¹⁸ 46	17 ¹⁷ 37	14 ¹⁴ 43	25 ¹⁷ 58	T 18
F 19	13 47 34	28 ⁴² 22	20 ⁴⁵ 45	2 ⁴⁸ 48	11 ²⁷ 27	23 ²⁵ 25	25 ⁵⁸ 58	27 ³⁶ 36	18 ¹⁸ 34	25 ³³ 33	24 ¹⁷ 17	18 ¹⁸ 47	17 ¹⁷ 34	14 ¹⁴ 50	25 ¹⁷ 59	F 19
S 20	13 51 31	29 ⁴⁰ 48	5 ¹⁷ 17	3 ²⁸ 28	12 ⁴¹ 41	24 ¹⁹ 19	25 ⁵⁰ 50	27 ⁴¹ 41	18 ¹⁸ 34	25 ³⁶ 36	24 ¹⁷ 17	18 ¹⁸ 48	17 ¹⁷ 31	14 ¹⁴ 56	26 ¹⁶ 0	S 20
S 21	13 55 27	0 ⁸ 39	19 ²¹ 21	4 ¹² 12	13 ⁵⁵ 55	24 ⁴⁶ 46	25 ⁴³ 43	27 ⁴⁷ 47	18 ¹⁸ 33	25 ³⁸ 38	24 ¹⁶ 16	18 ¹⁸ R49	17 ¹⁷ 27	15 ¹⁵ 3	26 ¹⁶ 1	S 21
M22	13 59 24	1 ³⁷ 33	3 ¹⁶ 16	4 ⁵⁹ 59	15 ⁸ 8	25 ¹⁴ 14	25 ³⁵ 35	27 ⁵² 52	18 ¹⁸ 33	25 ⁴⁰ 40	24 ¹⁶ 16	18 ¹⁸ 48	17 ¹⁷ 24	15 ¹⁵ 10	26 ¹⁶ 2	M22
T23	14 3 20	2 ³⁵ 53	17 ⁴⁶ 46	5 ⁴⁹ 49	16 ²² 22	25 ⁴³ 43	25 ²⁸ 28	27 ⁵⁸ 58	18 ¹⁸ 33	25 ⁴² 42	24 ¹⁵ 15	18 ¹⁸ 45	17 ¹⁷ 21	15 ¹⁵ 16	26 ¹⁶ 2	T 23
W24	14 7 17	3 ³⁴ 11	1 ¹⁷ 44	6 ⁴³ 43	17 ³⁶ 36	26 ¹¹ 11	25 ²⁰ 20	28 ³ 3	18 ¹⁸ 33	25 ⁴⁵ 45	24 ¹⁵ 15	18 ¹⁸ 40	17 ¹⁷ 18	15 ¹⁵ 23	26 ¹⁶ 3	W24
T 25	14 11 13	4 ³² 26	15 ²⁸ 28	7 ⁴⁰ 40	18 ⁴⁹ 49	26 ³⁹ 39	25 ¹³ 13	28 ⁹ 9	18 ¹⁸ 33	25 ⁴⁷ 47	24 ¹⁵ 15	18 ¹⁸ 34	17 ¹⁷ 15	15 ¹⁵ 30	26 ¹⁶ 4	T 25
F 26	14 15 10	5 ³⁰ 41	28 ⁵⁴ 54	8 ³⁹ 39	20 ³ 3	27 ⁸ 8	25 ⁵ 5	28 ¹⁴ 14	18 ¹⁸ D33	25 ⁴⁹ 49	24 ¹⁴ 14	18 ¹⁸ 26	17 ¹⁷ 11	15 ¹⁵ 36	26 ¹⁶ 4	F 26
S 27	14 19 6	6 ²⁸ 53	12 ¹⁷ 0	9 ⁴² 42	21 ¹⁷ 17	27 ³⁷ 37	24 ⁵⁸ 58	28 ²⁰ 20	18 ¹⁸ 33	25 ⁵¹ 51	24 ¹⁴ 14	18 ¹⁸ 18	17 ¹⁷ 8	15 ¹⁵ 43	26 ¹⁶ 5	S 27
S 28	14 23 3	7 ²⁷ 04	24 ¹⁶ 16	10 ⁴⁷ 47	22 ³⁰ 30	28 ⁶ 6	24 ⁵⁰ 50	28 ²⁶ 26	18 ¹⁸ 33	25 ⁵⁴ 54	24 ¹⁴ 14	18 ¹⁸ 10	17 ¹⁷ 5	15 ¹⁵ 50	26 ¹⁶ 5	S 28
M29	14 26 59	8 ²⁵ 14	7 ¹² 12	11 ⁵⁶ 56	23 ⁴⁴ 44	28 ³⁵ 35	24 ⁴³ 43	28 ³² 32	18 ¹⁸ 33	25 ⁵⁶ 56	24 ¹⁴ 14	18 ¹⁸ 4	17 ¹⁷ 2	15 ¹⁵ 56	26 ¹⁶ 5	M29
T 30	14 30 56	9 ²³ 22	19 ²³ 23	13 ¹⁷ 17	24 ¹⁷ 58	29 ²⁸ 28	24 ¹⁶ 36	28 ¹¹ 38	18 ¹⁸ Q33	25 ¹⁷ 58	24 ¹³ 13	18 ¹⁸ X0	16 ¹⁶ X59	16 ¹⁶ X3	26 ¹⁶ X6	T 30

ASTRODIENST EPHEMERIS for the year 1709

geocentric

MAY 1709

00:00 UT

Day	Sid.t	☉	☽	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day
W 1	14 34 53	10♈21'28	1♌22	14♍19	26♍12	29♈33	24°R29	28♈44	18♈33	26♍0	24°R13	17°R58	16♈56	16♈10	26♈6	W 1
T 2	14 38 49	11°19'33	13°14	15°35	27°25	0♈3	24♈22	28°50	18°33	26°2	24♈13	17°D57	16°52	16°16	26°R6	T 2
F 3	14 42 46	12°17'37	25°3	16°53	28°39	0°33	24°14	28°56	18°34	26°5	24°13	17°H58	16°49	16°23	26°6	F 3
S 4	14 46 42	13°15'39	6♈56	18°13	29°53	1°2	24°8	29°2	18°34	26°7	24°13	17°59	16°46	16°30	26°6	S 4
S 5	14 50 39	14°13'40	18°56	19°36	1♌6	1°32	24°1	29°9	18°35	26°9	24°13	17°R59	16°43	16°36	26°5	S 5
M 6	14 54 35	15°11'39	1♍10	21°1	2°20	2°2	23°54	29°15	18°35	26°11	24°D13	17°58	16°40	16°43	26°5	M 6
T 7	14 58 32	16°9'37	13°40	22°28	3°34	2°33	23°47	29°21	18°36	26°13	24°13	17°55	16°36	16°49	26°5	T 7
W 8	15 2 28	17°7'34	26°28	23°57	4°47	3°3	23°41	29°28	18°36	26°16	24°13	17°50	16°33	16°56	26°5	W 8
T 9	15 6 25	18°5'29	9♈37	25°28	6°1	3°34	23°34	29°34	18°37	26°18	24°13	17°42	16°30	17°3	26°4	T 9
F 10	15 10 22	19°3'23	23°5	27°2	7°15	4°4	23°28	29°41	18°38	26°20	24°13	17°33	16°27	17°9	26°4	F 10
S 11	15 14 18	20°1'15	6♈50	28°37	8°28	4°35	23°22	29°47	18°39	26°22	24°13	17°23	16°24	17°16	26°3	S 11
S 12	15 18 15	20°59'06	20°49	0♈15	9°42	5°6	23°15	29°54	18°39	26°24	24°13	17°13	16°21	17°23	26°2	S 12
M13	15 22 11	21°56'55	4♈56	1°55	10°55	5°37	23°9	0♈1	18°40	26°26	24°14	17°4	16°17	17°29	26°2	M13
T 14	15 26 8	22°54'43	19°8	3°37	12°9	6°8	23°4	0°8	18°41	26°28	24°14	16°58	16°14	17°36	26°1	T 14
W15	15 30 4	23°52'28	3♈21	5°21	13°23	6°39	22°58	0°14	18°42	26°30	24°14	16°54	16°11	17°43	26°0	W15
T 16	15 34 1	24°50'12	17°33	7°7	14°36	7°11	22°52	0°21	18°43	26°32	24°14	16°52	16°8	17°49	25°59	T 16
F 17	15 37 58	25°47'55	1♈40	8°55	15°50	7°42	22°47	0°28	18°44	26°34	24°15	16°D52	16°5	17°56	25°58	F 17
S 18	15 41 54	26°45'35	15°43	10°45	17°4	8°14	22°41	0°35	18°45	26°36	24°15	16°R53	16°2	18°3	25°57	S 18
S 19	15 45 51	27°43'15	29°41	12°38	18°17	8°46	22°36	0°42	18°47	26°38	24°15	16°52	15°58	18°9	25°55	S 19
M20	15 49 47	28°40'52	13♈32	14°32	19°31	9°17	22°31	0°49	18°48	26°40	24°16	16°50	15°55	18°16	25°54	M20
T 21	15 53 44	29°38'28	27°16	16°29	20°44	9°49	22°26	0°56	18°49	26°42	24°16	16°45	15°52	18°23	25°53	T 21
W22	15 57 40	0♈36'03	10♈50	18°27	21°58	10°21	22°21	1°3	18°50	26°44	24°17	16°37	15°49	18°29	25°51	W22
T 23	16 1 37	1°33'36	24°12	20°28	23°12	10°53	22°17	1°10	18°52	26°46	24°17	16°27	15°46	18°36	25°50	T 23
F 24	16 5 33	2°31'09	7♈20	22°30	24°25	11°26	22°12	1°17	18°53	26°48	24°18	16°15	15°42	18°43	25°48	F 24
S 25	16 9 30	3°28'40	20°13	24°34	25°39	11°58	22°8	1°25	18°55	26°50	24°18	16°2	15°39	18°49	25°47	S 25
S 26	16 13 27	4°26'10	2♈51	26°40	26°53	12°30	22°4	1°32	18°56	26°52	24°19	15°51	15°36	18°56	25°45	S 26
M27	16 17 23	5°23'39	15°12	28°47	28°6	13°3	22°0	1°39	18°58	26°54	24°19	15°41	15°33	19°3	25°43	M27
T 28	16 21 20	6°21'08	27°20	0♈56	29°20	13°36	21°56	1°47	19°0	26°56	24°20	15°33	15°30	19°9	25°42	T 28
W29	16 25 16	7°18'35	9♈17	3°6	0♈33	14°8	21°52	1°54	19°1	26°58	24°21	15°28	15°27	19°16	25°40	W29
T 30	16 29 13	8°16'02	21°8	5°17	1°47	14°41	21°49	2°1	19°3	26°59	24°21	15°25	15°23	19°23	25°38	T 30
F 31	16 33 9	9♈13'28	2♈57	7♈28	3♈1	15°14	21°46	2°9	19°5	27°0	24°22	15°H24	15°H20	19°29	25°36	F 31

Delta T = 11.68 sec

Greg. Calendar

JUNE 1709

00:00 UT

Day	Sid.t	☉	☽	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day
S 1	16 37 6	10♈10'53	14♈49	9♈40	4♈14	15°14	21°R42	2♈16	19°17	27°0	24°R23	15°R24	15°H17	19°36	25°R34	S 1
S 2	16 41 2	11°8'17	26°50	11°52	5°28	16°20	21♈39	2°24	19°8	27°5	24°24	15°H24	15°14	19°43	25°32	S 2
M 3	16 44 59	12°5'41	9♈6	14°4	6°42	16°53	21°37	2°31	19°10	27°6	24°24	15°22	15°11	19°49	25°29	M 3
T 4	16 48 56	13°3'04	21°40	16°16	7°55	17°26	21°34	2°39	19°12	27°8	24°25	15°19	15°8	19°56	25°27	T 4
W 5	16 52 52	14°0'27	4♈37	18°27	9°9	18°0	21°31	2°46	19°14	27°10	24°26	15°12	15°4	20°3	25°25	W 5
T 6	16 56 49	14°57'49	17°58	20°37	10°23	18°33	21°29	2°54	19°16	27°11	24°27	15°4	15°1	20°9	25°23	T 6
F 7	17 0 45	15°55'11	1♈43	22°46	11°36	19°7	21°27	3°1	19°18	27°13	24°28	14°53	14°58	20°16	25°20	F 7
S 8	17 4 42	16°52'32	15°50	24°53	12°50	19°40	21°25	3°9	19°21	27°15	24°29	14°41	14°55	20°23	25°18	S 8
S 9	17 8 38	17°49'52	0♈13	26°59	14°4	20°14	21°23	3°16	19°23	27°16	24°30	14°30	14°52	20°29	25°15	S 9
M10	17 12 35	18°47'12	14°46	29°4	15°17	20°48	21°22	3°24	19°25	27°18	24°31	14°20	14°48	20°36	25°13	M10
T 11	17 16 31	19°44'30	29°23	1♈6	16°31	21°22	21°20	3°32	19°27	27°19	24°32	14°13	14°45	20°43	25°10	T 11
W12	17 20 28	20°41'48	13♈56	3°7	17°45	21°56	21°19	3°40	19°30	27°21	24°33	14°8	14°42	20°49	25°7	W12
T 13	17 24 25	21°39'05	28°20	5°5	18°58	22°30	21°18	3°47	19°32	27°23	24°34	14°5	14°39	20°56	25°5	T 13
F 14	17 28 21	22°36'21	12♈34	7°2	20°12	23°4	21°17	3°55	19°34	27°24	24°35	14°D5	14°36	21°3	25°2	F 14
S 15	17 32 18	23°33'36	26°34	8°56	21°26	23°38	21°16	4°3	19°37	27°25	24°36	14°R5	14°33	21°9	24°59	S 15
S 16	17 36 14	24°30'51	10♈22	10°48	22°39	24°12	21°16	4°10	19°39	27°27	24°37	14°4	14°29	21°16	24°56	S 16
M17	17 40 11	25°28'04	23°58	12°38	23°53	24°47	21°16	4°18	19°42	27°28	24°38	14°2	14°26	21°23	24°53	M17
T 18	17 44 7	26°25'18	7♈21	14°26	25°7	25°21	21°D16	4°26	19°44	27°30	24°39	13°57	14°23	21°29	24°50	T 18
W19	17 48 4	27°22'30	20°33	16°11	26°20	25°55	21°16	4°34	19°47	27°31	24°40	13°49	14°20	21°36	24°47	W19
T 20	17 52 0	28°19'42	3♈33	17°54	27°34	26°30	21°16	4°41	19°49	27°32	24°42	13°39	14°17	21°43	24°44	T 20
F 21	17 55 57	29°16'54	16°21	19°35	28°48	27°5	21°16	4°49	19°52	27°34	24°43	13°27	14°14	21°49	24°41	F 21
S 22	17 59 54	0♈14'05	28°57	21°13	0♈1	27°39	21°17	4°57	19°55	27°35	24°44	13°15	14°10	21°56	24°38	S 22
S 23	18 3 50	1°11'16	11♈31	22°49	1°15	28°14	21°18	5°5	19°58	27°36	24°45	13°3	14°7	22°3	24°35	S 23
M24	18 7 47	2°8'27	23°33	24°23	2°29	28°49	21°18	5°13	20°0	27°37	24°47	12°53	14°4	22°9	24°32	M24
T 25	18 11 43	3°5'37	5♈34	25°54	3°42	29°24	21°20	5°21	20°3	27°39	24°48	12°45	14°1	22°16	24°28	T 25
W26	18 15 40	4°2'48	17°28	27°23	4°56	29°59	21°21	5°28	20°6	27°40	24°49	12°40	13°58	22°23	24°25	W26
T 27	18 19 36	4°59'58	29°16	28°50	6°10	0♈34	21°22	5°36	20°9	27°41	24°51	12°37	13°54	22°29	24°22	T 27
F 28	18 23 33	5°57'09	11♈4	0♈14	7°24	1°9	21°24	5°44	20°12	27°42	24°52	12°D36	13°51	22°36	24°19	F 28
S 29	18 27 30	6°54'20	22°55	1°36	8°37	1°44	21°26	5°52	20°15	27°43	24°54	12°36	13°48	22°42	24°15	S 29
S 30	18 31 26	7°51'31	4♈56	2♈55	9♈51	2♈20	21♈28	6°0	20°18	27°44	24°55	12°R37	13°H45	22°49	24°12	S 30

Delta T = 11.67 sec

Greg. Calendar

ASTRODIENST EPHEMERIS for the year 1709
geocentric

JULY 1709

00:00 UT

Day	Sid.t	☉	☾	♂	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day
M 1	18 35 23	8♂48'42	17♂10	4♂12	11♂5	2♂55	21♂30	6♂7	20♂21	27♂45	24♂56	12♂R36	13♂42	22♂56	24♂R 9	M 1
T 2	18 39 19	9°45'54	29°44	5°26	12°19	3°30	21°32	6°15	20°24	27°46	24°58	12♂34	13°39	23° 2	24♂5	T 2
W 3	18 43 16	10°43'06	12♂42	6°38	13°32	4° 6	21°35	6°23	20°27	27°47	24°59	12°30	13°35	23° 9	24° 2	W 3
T 4	18 47 12	11°40'18	26° 7	7°47	14°46	4°41	21°37	6°31	20°30	27°48	25° 1	12°24	13°32	23°16	23°58	T 4
F 5	18 51 9	12°37'31	9♂59	8°53	16° 0	5°17	21°40	6°39	20°33	27°49	25° 2	12°16	13°29	23°22	23°55	F 5
S 6	18 55 5	13°34'44	24°17	9°56	17°14	5°53	21°43	6°46	20°36	27°50	25° 4	12° 7	13°26	23°29	23°51	S 6
S 7	18 59 2	14°31'57	8♂56	10°56	18°28	6°28	21°47	6°54	20°39	27°50	25° 6	11°59	13°23	23°36	23°48	S 7
M 8	19 2 59	15°29'11	23°49	11°54	19°42	7° 4	21°50	7° 2	20°42	27°51	25° 7	11°51	13°20	23°42	23°44	M 8
T 9	19 6 55	16°26'25	8♂47	12°48	20°55	7°40	21°53	7°10	20°46	27°52	25° 9	11°45	13°16	23°49	23°41	T 9
W10	19 10 52	17°23'39	23°41	13°38	22° 9	8°16	21°57	7°18	20°49	27°53	25°10	11°42	13°13	23°56	23°37	W10
T 11	19 14 48	18°20'53	8♂25	14°26	23°23	8°52	22° 1	7°25	20°52	27°53	25°12	11°D40	13°10	24° 2	23°34	T 11
F 12	19 18 45	19°18'07	22°53	15°10	24°37	9°28	22° 5	7°33	20°56	27°54	25°14	11°41	13° 7	24° 9	23°30	F 12
S 13	19 22 41	20°15'21	7♂1	15°50	25°51	10° 4	22° 9	7°41	20°59	27°55	25°15	11°42	13° 4	24°16	23°27	S 13
S 14	19 26 38	21°12'35	20°50	16°26	27° 5	10°41	22°13	7°48	21° 2	27°55	25°17	11°R42	13° 0	24°22	23°23	S 14
M15	19 30 34	22° 9'50	4♂21	16°59	28°18	11°17	22°18	7°56	21° 6	27°56	25°19	11°41	12°57	24°29	23°19	M15
T 16	19 34 31	23° 7'05	17°33	17°27	29°32	11°53	22°23	8° 4	21° 9	27°56	25°20	11°39	12°54	24°36	23°16	T 16
W17	19 38 28	24° 4'20	0♂30	17°51	0♂46	12°30	22°27	8°11	21°12	27°57	25°22	11°34	12°51	24°42	23°12	W17
T 18	19 42 24	25° 1'35	13°13	18°10	2° 0	13° 6	22°32	8°19	21°16	27°57	25°24	11°28	12°48	24°49	23° 9	T 18
F 19	19 46 21	25°58'51	25°44	18°25	3°14	13°43	22°38	8°27	21°19	27°58	25°26	11°20	12°45	24°56	23° 5	F 19
S 20	19 50 17	26°56'07	8♂3	18°35	4°28	14°19	22°43	8°34	21°23	27°58	25°27	11°12	12°41	25° 2	23° 2	S 20
S 21	19 54 14	27°53'24	20°13	18°40	5°42	14°56	22°48	8°42	21°26	27°59	25°29	11° 5	12°38	25° 9	22°58	S 21
M22	19 58 10	28°50'41	2♂15	18°R40	6°56	15°33	22°54	8°49	21°30	27°59	25°31	10°58	12°35	25°16	22°55	M22
T 23	20 2 7	29°47'59	14° 9	18°35	8° 9	16° 9	22°59	8°57	21°33	27°59	25°33	10°53	12°32	25°22	22°51	T 23
W24	20 6 3	0♂45'18	25°59	18°25	9°23	16°46	23° 5	9° 4	21°37	28° 0	25°35	10°50	12°29	25°29	22°47	W24
T 25	20 10 0	1°42'38	7♂46	18°11	10°37	17°23	23°11	9°12	21°40	28° 0	25°36	10°D49	12°26	25°35	22°44	T 25
F 26	20 13 57	2°39'59	19°34	17°51	11°51	18° 0	23°17	9°19	21°44	28° 0	25°38	10°49	12°22	25°42	22°40	F 26
S 27	20 17 53	3°37'20	1°V26	17°26	13° 5	18°37	23°24	9°26	21°48	28° 0	25°40	10°50	12°19	25°49	22°37	S 27
S 28	20 21 50	4°34'43	13°27	16°57	14°19	19°14	23°30	9°34	21°51	28° 0	25°42	10°52	12°16	25°55	22°34	S 28
M29	20 25 46	5°32'07	25°41	16°23	15°33	19°51	23°37	9°41	21°55	28° 1	25°44	10°53	12°13	26° 2	22°30	M29
T 30	20 29 43	6°29'32	8♂14	15°45	16°47	20°28	23°43	9°48	21°58	28° 1	25°46	10°R54	12°10	26° 9	22°27	T 30
W31	20 33 39	7♂26'58	21♂8	15♂5	18♂1	21♂6	23♂50	9♂56	22♂2	28♂V 1	25♂48	10♂53	12♂6	26♂15	22♂23	W31

Delta T = 11.65 sec

Greg. Calendar

AUGUST 1709

00:00 UT

Day	Sid.t	☉	☾	♂	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day
T 1	20 37 36	8♂24'26	4♂29	14°R21	19♂15	21♂43	23♂57	10♂3	22♂6	28°R 1	25♂49	10°R51	12♂3	26♂22	22°R20	T 1
F 2	20 41 32	9°21'55	18°18	13♂35	20°29	22°20	24° 4	10°10	22° 9	28°V 1	25°51	10♂47	12° 0	26°29	22♂17	F 2
S 3	20 45 29	10°19'25	2♂35	12°48	21°43	22°58	24°12	10°17	22°13	28° 1	25°53	10°43	11°57	26°35	22°13	S 3
S 4	20 49 26	11°16'56	17°16	12° 1	22°57	23°35	24°19	10°24	22°17	28° 1	25°55	10°39	11°54	26°42	22°10	S 4
M 5	20 53 22	12°14'29	2♂15	11°14	24°11	24°13	24°26	10°31	22°21	28° 0	25°57	10°35	11°51	26°49	22° 7	M 5
T 6	20 57 19	13°12'03	17°24	10°28	25°25	24°51	24°34	10°38	22°24	28° 0	25°59	10°33	11°47	26°55	22° 4	T 6
W 7	21 1 15	14° 9'38	2♂34	9°44	26°39	25°28	24°42	10°45	22°28	28° 0	26° 1	10°31	11°44	27° 2	22° 0	W 7
T 8	21 5 12	15° 7'14	17°34	9° 4	27°52	26° 6	24°50	10°52	22°32	28° 0	26° 3	10°D31	11°41	27° 9	21°57	T 8
F 9	21 9 8	16° 4'50	2♂18	8°27	29° 6	26°44	24°58	10°59	22°35	28° 0	26° 5	10°32	11°38	27°15	21°54	F 9
S 10	21 13 5	17° 2'28	16°41	7°55	0♂20	27°22	25° 6	11° 6	22°39	27°59	26° 7	10°33	11°35	27°22	21°51	S 10
S 11	21 17 1	18° 0'07	0♂39	7°28	1°34	28° 0	25°14	11°13	22°43	27°59	26° 9	10°35	11°32	27°29	21°48	S 11
M12	21 20 58	18°57'47	14°13	7° 8	2°48	28°38	25°22	11°20	22°47	27°59	26°11	10°R35	11°28	27°35	21°45	M12
T 13	21 24 55	19°55'28	27°14	6°53	4° 2	29°16	25°31	11°27	22°50	27°58	26°13	10°35	11°25	27°42	21°42	T 13
W14	21 28 51	20°53'10	10♂15	6°46	5°16	29°54	25°39	11°33	22°54	27°58	26°15	10°34	11°22	27°48	21°39	W14
T 15	21 32 48	21°50'53	22°48	6°D46	6°30	0♂32	25°48	11°40	22°58	27°58	26°17	10°32	11°19	27°55	21°36	T 15
F 16	21 36 44	22°48'37	5♂8	6°53	7°44	1°10	25°57	11°46	23° 2	27°57	26°19	10°30	11°16	28° 2	21°33	F 16
S 17	21 40 41	23°46'23	17°16	7° 8	8°58	1°49	26° 6	11°53	23° 5	27°57	26°21	10°27	11°12	28° 8	21°31	S 17
S 18	21 44 37	24°44'09	29°15	7°31	10°12	2°27	26°15	11°59	23° 9	27°56	26°23	10°25	11° 9	28°15	21°28	S 18
M19	21 48 34	25°41'57	11♂8	8° 1	11°26	3° 6	26°24	12° 6	23°13	27°56	26°25	10°23	11° 6	28°22	21°25	M19
T 20	21 52 30	26°39'47	22°58	8°39	12°40	3°44	26°33	12°12	23°17	27°55	26°26	10°22	11° 3	28°28	21°23	T 20
W21	21 56 27	27°37'38	4♂45	9°24	13°54	4°23	26°42	12°18	23°20	27°54	26°28	10°D21	11° 0	28°35	21°20	W21
T 22	22 0 24	28°35'30	16°34	10°17	15° 8	5° 1	26°52	12°25	23°24	27°54	26°30	10°21	10°57	28°42	21°18	T 22
F 23	22 4 20	29°33'24	28°26	11°17	16°22	5°40	27° 1	12°31	23°28	27°53	26°32	10°22	10°53	28°48	21°15	F 23
S 24	22 8 17	0♂31'20	10♂23	12°23	17°36	6°18	27°11	12°37	23°31	27°52	26°34	10°22	10°50	28°55	21°13	S 24
S 25	22 12 13	1°29'17	22°29	13°36	18°50	6°57	27°21	12°43	23°35	27°52	26°36	10°23	10°47	29° 2	21°10	S 25
M26	22 16 10	2°27'16	4♂47	14°54	20° 4	7°36	27°31	12°49	23°39	27°51	26°38	10°24	10°44	29° 8	21° 8	M26
T 27	22 20 6	3°25'17	17°21	16°19	21°18	8°15	27°41	12°55	23°43	27°50	26°40	10°25	10°41	29°15	21° 6	T 27
W28	22 24 3	4°23'21	0♂14	17°48	22°32	8°54	27°51	13° 1	23°46	27°49	26°42	10°R25	10°38	29°22	21° 4	W28
T 29	22 27 59	5°21'26	13°29	19°22	23°46	9°33	28° 1	13° 7	23°50	27°48	26°44	10°25	10°34	29°28	21° 1	T 29
F 30	22 31 56	6°19'33	27° 9	21° 0	25° 0	10°12	28°11	13°12	23°54	27°47	26°46	10°25	10°31	29°35	20°59	F 30
S 31	22 35 53	7♂17'42	11♂15	22♂42	26♂14	10♂51	28♂21	13♂18	23♂57	27♂46	26♂48	10♂24	10♂28	29♂42	22♂57	S 31

Delta T = 11.63 sec

Greg. Calendar

ASTRODIENST EPHEMERIS for the year 1709

geocentric

SEPTEMBER 1709

00:00 UT

Day	Sid.t	☉	☽	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day
S 1	22 39 49	8 ^h 15'53"	25 ^h 45'	24 ^h 26'	27 ^h 27'	11 ^h 30'	28 ^h 32'	13 ^h 24'	24 ^h 01'	27 ^h 46'	26 ^h 50'	10 ^h R24	10 ^h 25'	29 ^h 48'	20 ^h R55	S 1
M 2	22 43 46	9 ^h 14'06"	10 ^h 36'	26 ^h 14'	28 ^h 41'	12 ^h 10'	28 ^h 42'	13 ^h 29'	24 ^h 5'	27 ^h 45'	26 ^h 52'	10 ^h R24	10 ^h 22'	29 ^h 55'	20 ^h 54'	M 2
T 3	22 47 42	10 ^h 12'21"	25 ^h 41'	28 ^h 3'	29 ^h 55'	12 ^h 49'	28 ^h 53'	13 ^h 35'	24 ^h 8'	27 ^h 44'	26 ^h 54'	10 ^h D24	10 ^h 18'	0 ^h 1'	20 ^h 52'	T 3
W 4	22 51 39	11 ^h 10'38"	10 ^h 51'	29 ^h 54'	1 ^h 9'	13 ^h 28'	29 ^h 3'	13 ^h 40'	24 ^h 12'	27 ^h 43'	26 ^h 56'	10 ^h R24	10 ^h 15'	0 ^h 8'	20 ^h 50'	W 4
T 5	22 55 35	12 ^h 8'57"	25 ^h 58'	1 ^h 47'	2 ^h 23'	14 ^h 8'	29 ^h 14'	13 ^h 45'	24 ^h 16'	27 ^h 42'	26 ^h 58'	10 ^h 24'	10 ^h 12'	0 ^h 15'	20 ^h 48'	T 5
F 6	22 59 32	13 ^h 7'17"	10 ^h 52'	3 ^h 40'	3 ^h 37'	14 ^h 47'	29 ^h 25'	13 ^h 51'	24 ^h 19'	27 ^h 40'	27 ^h 0'	10 ^h 24'	10 ^h 9'	0 ^h 21'	20 ^h 47'	F 6
S 7	23 3 28	14 ^h 5'39"	25 ^h 26'	5 ^h 34'	4 ^h 51'	15 ^h 27'	29 ^h 36'	13 ^h 56'	24 ^h 23'	27 ^h 39'	27 ^h 2'	10 ^h 23'	10 ^h 6'	0 ^h 28'	20 ^h 45'	S 7
S 8	23 7 25	15 ^h 4'02"	9 ^h 36'	7 ^h 28'	6 ^h 5'	16 ^h 7'	29 ^h 47'	14 ^h 1'	24 ^h 26'	27 ^h 38'	27 ^h 4'	10 ^h 23'	10 ^h 3'	0 ^h 35'	20 ^h 44'	S 8
M 9	23 11 22	16 ^h 2'28"	23 ^h 18'	9 ^h 23'	7 ^h 19'	16 ^h 46'	29 ^h 58'	14 ^h 6'	24 ^h 30'	27 ^h 37'	27 ^h 5'	10 ^h 22'	9 ^h 59'	0 ^h 41'	20 ^h 42'	M 9
T 10	23 15 18	17 ^h 0'55"	6 ^h 35'	11 ^h 17'	8 ^h 33'	17 ^h 26'	0 ^h 9'	14 ^h 11'	24 ^h 34'	27 ^h 36'	27 ^h 7'	10 ^h 22'	9 ^h 56'	0 ^h 48'	20 ^h 41'	T 10
W 11	23 19 15	17 ^h 59'23"	19 ^h 27'	13 ^h 11'	9 ^h 47'	18 ^h 6'	0 ^h 20'	14 ^h 16'	24 ^h 37'	27 ^h 35'	27 ^h 9'	10 ^h D22	9 ^h 53'	0 ^h 55'	20 ^h 40'	W 11
T 12	23 23 11	18 ^h 57'53"	1 ^h 58'	15 ^h 4'	11 ^h 0'	18 ^h 46'	0 ^h 31'	14 ^h 21'	24 ^h 41'	27 ^h 34'	27 ^h 11'	10 ^h 22'	9 ^h 50'	1 ^h 1'	20 ^h 38'	T 12
F 13	23 27 8	19 ^h 56'25"	14 ^h 12'	16 ^h 57'	12 ^h 14'	19 ^h 26'	0 ^h 42'	14 ^h 25'	24 ^h 44'	27 ^h 32'	27 ^h 13'	10 ^h 23'	9 ^h 47'	1 ^h 8'	20 ^h 37'	F 13
S 14	23 31 4	20 ^h 54'59"	26 ^h 14'	18 ^h 49'	13 ^h 28'	20 ^h 6'	0 ^h 54'	14 ^h 30'	24 ^h 48'	27 ^h 31'	27 ^h 15'	10 ^h 24'	9 ^h 44'	1 ^h 15'	20 ^h 36'	S 14
S 15	23 35 1	21 ^h 53'34"	8 ^h 7'	20 ^h 41'	14 ^h 42'	20 ^h 46'	1 ^h 5'	14 ^h 34'	24 ^h 51'	27 ^h 30'	27 ^h 17'	10 ^h 25'	9 ^h 40'	1 ^h 21'	20 ^h 35'	S 15
M 16	23 38 57	22 ^h 52'11"	19 ^h 56'	22 ^h 31'	15 ^h 56'	21 ^h 26'	1 ^h 17'	14 ^h 39'	24 ^h 54'	27 ^h 28'	27 ^h 18'	10 ^h 26'	9 ^h 37'	1 ^h 28'	20 ^h 34'	M 16
T 17	23 42 54	23 ^h 50'49"	1 ^h 43'	24 ^h 21'	17 ^h 10'	22 ^h 6'	1 ^h 28'	14 ^h 43'	24 ^h 58'	27 ^h 27'	27 ^h 20'	10 ^h 27'	9 ^h 34'	1 ^h 34'	20 ^h 34'	T 17
W 18	23 46 51	24 ^h 49'30"	13 ^h 33'	26 ^h 10'	18 ^h 23'	22 ^h 46'	1 ^h 40'	14 ^h 47'	25 ^h 1'	27 ^h 26'	27 ^h 22'	10 ^h R27	9 ^h 31'	1 ^h 41'	20 ^h 33'	W 18
T 19	23 50 47	25 ^h 48'12"	25 ^h 26'	27 ^h 57'	19 ^h 37'	23 ^h 26'	1 ^h 52'	14 ^h 52'	25 ^h 5'	27 ^h 24'	27 ^h 24'	10 ^h 26'	9 ^h 28'	1 ^h 48'	20 ^h 32'	T 19
F 20	23 54 44	26 ^h 46'57"	7 ^h 26'	29 ^h 44'	20 ^h 51'	24 ^h 7'	2 ^h 4'	14 ^h 56'	25 ^h 8'	27 ^h 23'	27 ^h 26'	10 ^h 25'	9 ^h 24'	1 ^h 54'	20 ^h 31'	F 20
S 21	23 58 40	27 ^h 45'43"	19 ^h 34'	1 ^h 30'	22 ^h 5'	24 ^h 47'	2 ^h 15'	15 ^h 0'	25 ^h 11'	27 ^h 22'	27 ^h 27'	10 ^h 23'	9 ^h 21'	2 ^h 1'	20 ^h 31'	S 21
S 22	0 2 37	28 ^h 44'32"	1 ^h 51'	3 ^h 15'	23 ^h 19'	25 ^h 28'	2 ^h 27'	15 ^h 4'	25 ^h 14'	27 ^h 20'	27 ^h 29'	10 ^h 20'	9 ^h 18'	2 ^h 8'	20 ^h 30'	S 22
M 23	0 6 33	29 ^h 43'23"	14 ^h 21'	4 ^h 59'	24 ^h 32'	26 ^h 8'	2 ^h 39'	15 ^h 7'	25 ^h 18'	27 ^h 19'	27 ^h 31'	10 ^h 17'	9 ^h 15'	2 ^h 14'	20 ^h 30'	M 23
T 24	0 10 30	0 ^h 42'16"	2 ^h 3'	6 ^h 43'	25 ^h 46'	26 ^h 49'	2 ^h 51'	15 ^h 11'	25 ^h 21'	27 ^h 17'	27 ^h 33'	10 ^h 14'	9 ^h 12'	2 ^h 21'	20 ^h 30'	T 24
W 25	0 14 26	1 ^h 41'11"	10 ^h 11'	8 ^h 25'	27 ^h 0'	27 ^h 29'	3 ^h 3'	15 ^h 15'	25 ^h 24'	27 ^h 16'	27 ^h 34'	10 ^h 12'	9 ^h 9'	2 ^h 28'	20 ^h 29'	W 25
T 26	0 18 23	2 ^h 40'09"	23 ^h 16'	10 ^h 6'	28 ^h 14'	28 ^h 10'	3 ^h 16'	15 ^h 18'	25 ^h 27'	27 ^h 14'	27 ^h 36'	10 ^h 11'	9 ^h 5'	2 ^h 34'	20 ^h 29'	T 26
F 27	0 22 20	3 ^h 39'09"	6 ^h 50'	11 ^h 47'	29 ^h 27'	28 ^h 51'	3 ^h 28'	15 ^h 22'	25 ^h 31'	27 ^h 13'	27 ^h 38'	10 ^h D10	9 ^h 2'	2 ^h 41'	20 ^h 29'	F 27
S 28	0 26 16	4 ^h 38'12"	20 ^h 44'	13 ^h 26'	0 ^h 41'	29 ^h 32'	3 ^h 40'	15 ^h 25'	25 ^h 34'	27 ^h 11'	27 ^h 39'	10 ^h 11'	8 ^h 59'	2 ^h 48'	20 ^h D29	S 28
S 29	0 30 13	5 ^h 37'16"	4 ^h 58'	15 ^h 5'	1 ^h 55'	0 ^h 41'	3 ^h 52'	15 ^h 28'	25 ^h 37'	27 ^h 10'	27 ^h 41'	10 ^h 12'	8 ^h 56'	2 ^h 54'	20 ^h 29'	S 29
M 30	0 34 9	6 ^h 36'23"	19 ^h 30'	16 ^h 43'	3 ^h 8'	0 ^h 45'	4 ^h 5'	15 ^h 32'	25 ^h 40'	27 ^h 8'	27 ^h 43'	10 ^h 14'	8 ^h 53'	3 ^h 1'	20 ^h 29'	M 30

Delta T = 11.62 sec

Greg. Calendar

OCTOBER 1709

00:00 UT

Day	Sid.t	☉	☾	♂	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day
T 1	0 38 6	7♂35°33	4♂16	18♂20	4♂22	1♂34	4♂17	15♂35	25♂43	27°R 7	27♂44	10°R15	8♂49	3♂ 8	20♂30	T 1
W 2	0 42 2	8°34'44	19°12	19°56	5°36	2°16	4°29	15°38	25°46	27°Y 5	27°46	10°X15	8°46	3°14	20°30	W 2
T 3	0 45 59	9°33'58	4♂ 9	21°32	6°49	2°57	4°42	15°41	25°49	27° 4	27°47	10°13	8°43	3°21	20°30	T 3
F 4	0 49 55	10°33'14	18°59	23° 6	8° 3	3°38	4°54	15°43	25°52	27° 2	27°49	10°10	8°40	3°27	20°31	F 4
S 5	0 53 52	11°32'31	3♂35	24°40	9°17	4°19	5° 7	15°46	25°55	27° 0	27°50	10° 6	8°37	3°34	20°31	S 5
S 6	0 57 49	12°31'51	17°49	26°14	10°30	5° 0	5°19	15°48	25°58	26°59	27°52	10° 1	8°34	3°41	20°32	S 6
M 7	1 1 45	13°31'13	1♂38	27°46	11°44	5°42	5°32	15°51	26° 0	26°57	27°53	9°56	8°30	3°47	20°32	M 7
T 8	1 5 42	14°30'37	15° 0	29°18	12°58	6°23	5°45	15°53	26° 3	26°56	27°55	9°51	8°27	3°54	20°33	T 8
W 9	1 9 38	15°30'02	27°57	0♂49	14°11	7° 5	5°57	15°55	26° 6	26°54	27°56	9°48	8°24	4° 1	20°34	W 9
T 10	1 13 35	16°29'29	10♂30	2°19	15°25	7°46	6°10	15°58	26° 9	26°52	27°58	9°47	8°21	4° 7	20°35	T 10
F 11	1 17 31	17°28'58	22°44	3°49	16°38	8°28	6°23	16° 0	26°11	26°51	27°59	9°D47	8°18	4°14	20°36	F 11
S 12	1 21 28	18°28'29	4♂44	5°18	17°52	9°10	6°36	16° 2	26°14	26°49	28° 1	9°48	8°15	4°21	20°37	S 12
S 13	1 25 24	19°28'01	16°36	6°46	19° 5	9°51	6°49	16° 3	26°17	26°47	28° 2	9°50	8°11	4°27	20°38	S 13
M14	1 29 21	20°27'36	28°23	8°13	20°19	10°33	7° 2	16° 5	26°19	26°46	28° 3	9°51	8° 8	4°34	20°39	M14
T 15	1 33 18	21°27'12	10♂11	9°40	21°32	11°15	7°14	16° 7	26°22	26°44	28° 5	9°R52	8° 5	4°41	20°41	T 15
W16	1 37 14	22°26'49	22° 4	11° 6	22°46	11°57	7°27	16° 8	26°24	26°42	28° 6	9°51	8° 2	4°47	20°42	W16
T 17	1 41 11	23°26'29	4°Y 5	12°31	23°59	12°39	7°40	16°10	26°27	26°41	28° 7	9°48	7°59	4°54	20°43	T 17
F 18	1 45 7	24°26'11	16°15	13°56	25°13	13°21	7°53	16°11	26°29	26°39	28° 9	9°43	7°55	5° 0	20°45	F 18
S 19	1 49 4	25°25'54	28°38	15°19	26°26	14° 3	8° 6	16°12	26°31	26°37	28°10	9°36	7°52	5° 7	20°46	S 19
S 20	1 53 0	26°25'40	11♂13	16°42	27°40	14°45	8°19	16°13	26°34	26°35	28°11	9°28	7°49	5°14	20°48	S 20
M21	1 56 57	27°25'28	24° 1	18° 3	28°53	15°27	8°32	16°14	26°36	26°34	28°12	9°19	7°46	5°20	20°50	M21
T 22	2 0 53	28°25'18	7♂ 2	19°24	0♂ 6	16°10	8°45	16°15	26°38	26°32	28°13	9°11	7°43	5°27	20°51	T 22
W23	2 4 50	29°25'10	20°15	20°44	1°20	16°52	8°59	16°15	26°40	26°30	28°14	9° 3	7°40	5°34	20°53	W23
T 24	2 8 46	0♂25'04	3♂40	22° 2	2°33	17°34	9°12	16°16	26°43	26°29	28°16	8°58	7°36	5°40	20°55	T 24
F 25	2 12 43	1°25'01	17°17	23°19	3°46	18°17	9°25	16°17	26°45	26°27	28°17	8°55	7°33	5°47	20°57	F 25
S 26	2 16 40	2°25'00	1♂ 6	24°35	5° 0	18°59	9°38	16°17	26°47	26°25	28°18	8°D54	7°30	5°54	20°59	S 26
S 27	2 20 36	3°25'00	15° 7	25°50	6°13	19°42	9°51	16°17	26°49	26°24	28°19	8°54	7°27	6° 0	21° 1	S 27
M28	2 24 33	4°25'03	29°20	27° 2	7°26	20°24	10° 4	16°17	26°51	26°22	28°20	8°55	7°24	6° 7	21° 4	M28
T 29	2 28 29	5°25'09	13♂44	28°13	8°39	21° 7	10°17	16°R17	26°53	26°20	28°21	8°R55	7°21	6°14	21° 6	T 29
W30	2 32 26	6°25'16	28°15	29°22	9°53	21°50	10°31	16°17	26°54	26°19	28°22	8°54	7°17	6°20	21° 8	W30
T 31	2 36 22	7♂25'25	12♂49	0♂29	11♂ 6	22♂33	10♂44	16♂17	26♂56	26°Y17	28♂23	8♂50	7♂14	6♂27	21♂11	T 31

ASTRODIENST EPHEMERIS for the year 1709
geocentric

NOVEMBER 1709

00:00 UT

Day	Sid.t	☉	☽	♂	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day
F 1	2 40 19	8♉25'37	27♊20	1♈34	12♈19	23♉15	10♉57	16°R17	26♉58	26°R15	28♉24	8°R43	7♈11	6♈34	21♈13	F 1
S 2	2 44 15	9°25'50	11♉42	2°35	13°32	23°58	11°10	16♉16	27° 0	26°Y14	28°24	8♈34	7° 8	6°40	21°16	S 2
S 3	2 48 12	10°26'05	25°49	3°34	14°45	24°41	11°23	16°16	27° 1	26°12	28°25	8°24	7° 5	6°47	21°18	S 3
M 4	2 52 9	11°26'22	9♈34	4°29	15°58	25°24	11°37	16°15	27° 3	26°11	28°26	8°13	7° 1	6°53	21°21	M 4
T 5	2 56 5	12°26'40	22°56	5°20	17°12	26° 7	11°50	16°14	27° 5	26° 9	28°27	8° 3	6°58	7° 0	21°24	T 5
W 6	3 0 2	13°27'00	5♈54	6° 7	18°25	26°51	12° 3	16°14	27° 6	26° 7	28°28	7°55	6°55	7° 7	21°26	W 6
T 7	3 3 58	14°27'22	18°30	6°49	19°38	27°34	12°16	16°13	27° 7	26° 6	28°28	7°49	6°52	7°13	21°29	T 7
F 8	3 7 55	15°27'45	0♈45	7°25	20°51	28°17	12°29	16°11	27° 9	26° 4	28°29	7°46	6°49	7°20	21°32	F 8
S 9	3 11 51	16°28'09	12°46	7°56	22° 4	29° 0	12°43	16°10	27°10	26° 3	28°30	7°D45	6°46	7°27	21°35	S 9
S 10	3 15 48	17°28'35	24°38	8°20	23°17	29°44	12°56	16° 9	27°12	26° 1	28°30	7°45	6°42	7°33	21°38	S 10
M 11	3 19 45	18°29'02	6♈26	8°36	24°30	0♈27	13° 9	16° 7	27°13	26° 0	28°31	7°R45	6°39	7°40	21°41	M 11
T 12	3 23 41	19°29'30	18°15	8°R44	25°42	1°11	13°22	16° 6	27°14	25°58	28°32	7°45	6°36	7°47	21°45	T 12
W 13	3 27 38	20°30'00	0°Y10	8°43	26°55	1°54	13°35	16° 4	27°15	25°57	28°32	7°43	6°33	7°53	21°48	W 13
T 14	3 31 34	21°30'31	12°16	8°32	28° 8	2°38	13°49	16° 3	27°16	25°55	28°33	7°38	6°30	8° 0	21°51	T 14
F 15	3 35 31	22°31'04	24°37	8°12	29°21	3°22	14° 2	16° 1	27°17	25°54	28°33	7°30	6°26	8° 7	21°54	F 15
S 16	3 39 27	23°31'38	7♈14	7°40	0♈34	4° 5	14°15	15°59	27°18	25°52	28°34	7°20	6°23	8°13	21°58	S 16
S 17	3 43 24	24°32'13	20° 8	6°59	1°46	4°49	14°28	15°57	27°19	25°51	28°34	7° 8	6°20	8°20	22° 1	S 17
M 18	3 47 20	25°32'50	3♉18	6° 7	2°59	5°33	14°41	15°55	27°20	25°49	28°34	6°54	6°17	8°26	22° 5	M 18
T 19	3 51 17	26°33'28	16°43	5° 5	4°11	6°17	14°54	15°52	27°21	25°48	28°35	6°42	6°14	8°33	22° 8	T 19
W 20	3 55 14	27°34'08	0♈20	3°55	5°24	7° 1	15° 7	15°50	27°22	25°47	28°35	6°30	6°11	8°40	22°12	W 20
T 21	3 59 10	28°34'50	14° 7	2°39	6°37	7°45	15°21	15°47	27°22	25°45	28°35	6°22	6° 7	8°46	22°16	T 21
F 22	4 3 7	29°35'33	28° 0	1°18	7°49	8°29	15°34	15°45	27°23	25°44	28°36	6°16	6° 4	8°53	22°19	F 22
S 23	4 7 3	0♈36'17	11♉57	29♉56	9° 1	9°13	15°47	15°42	27°24	25°42	28°36	6°13	6° 1	9° 0	22°23	S 23
S 24	4 11 0	1°37'03	25°59	28°35	10°14	9°57	16° 0	15°39	27°24	25°41	28°36	6°12	5°58	9° 6	22°27	S 24
M 25	4 14 56	2°37'51	10♉ 3	27°17	11°26	10°41	16°13	15°37	27°25	25°40	28°36	6°12	5°55	9°13	22°31	M 25
T 26	4 18 53	3°38'40	24°10	26° 6	12°38	11°25	16°26	15°34	27°25	25°39	28°37	6°12	5°52	9°20	22°35	T 26
W 27	4 22 49	4°39'31	8♉18	25° 3	13°51	12°10	16°38	15°31	27°25	25°37	28°37	6° 9	5°48	9°26	22°39	W 27
T 28	4 26 46	5°40'23	22°26	24°11	15° 3	12°54	16°51	15°27	27°26	25°36	28°37	6° 4	5°45	9°33	22°43	T 28
F 29	4 30 43	6°41'16	6♉30	23°29	16°15	13°38	17° 4	15°24	27°26	25°35	28°37	5°56	5°42	9°40	22°47	F 29
S 30	4 34 39	7♈42'11	20♉27	22♉58	17♈27	14♈23	17♉17	15♈21	27♉26	25°Y34	28♉37	5♈44	5♈39	9♈46	22♈51	S 30

Delta T = 11.58 sec

Greg. Calendar

DECEMBER 1709

00:00 UT

Day	Sid.t	☉	☽	♂	♀	♂	♂	♂	♂	♂	♂	♂	♂	♂	♂	Day
S 1	4 38 36	8♈43'07	4♈12	22°R40	18♈39	15♈ 8	17♉30	15°R17	27♉26	25°R33	28°R37	5°R32	5♈36	9♈53	22♈55	S 1
M 2	4 42 32	9°44'04	17°42	22°D32	19°51	15°52	17°43	15♈14	27°26	25°Y32	28♉37	5♈18	5°32	10° 0	23° 0	M 2
T 3	4 46 29	10°45'02	0♈53	22♉35	21° 3	16°37	17°55	15°10	27°R26	25°31	28°37	5° 5	5°29	10° 6	23° 4	T 3
W 4	4 50 25	11°46'01	13°45	22°47	22°15	17°21	18° 8	15° 7	27°26	25°29	28°37	4°55	5°26	10°13	23° 8	W 4
T 5	4 54 22	12°47'01	26°17	23° 9	23°27	18° 6	18°21	15° 3	27°26	25°28	28°37	4°47	5°23	10°19	23°12	T 5
F 6	4 58 18	13°48'02	8♈32	23°39	24°38	18°51	18°33	14°59	27°26	25°27	28°36	4°41	5°20	10°26	23°17	F 6
S 7	5 2 15	14°49'03	20°33	24°16	25°50	19°36	18°46	14°55	27°26	25°26	28°36	4°39	5°17	10°33	23°21	S 7
S 8	5 6 12	15°50'04	2♈25	25° 0	27° 2	20°21	18°58	14°51	27°26	25°26	28°36	4°D38	5°13	10°39	23°26	S 8
M 9	5 10 8	16°51'07	14°12	25°50	28°13	21° 6	19°11	14°47	27°25	25°25	28°36	4°R38	5°10	10°46	23°30	M 9
T 10	5 14 5	17°52'09	26° 1	26°44	29°24	21°51	19°23	14°43	27°25	25°24	28°36	4°38	5° 7	10°53	23°35	T 10
W 11	5 18 1	18°53'12	7°Y57	27°43	0♈36	22°36	19°36	14°39	27°25	25°23	28°35	4°36	5° 4	10°59	23°39	W 11
T 12	5 21 58	19°54'16	20° 5	28°46	1°47	23°21	19°48	14°35	27°24	25°22	28°35	4°32	5° 1	11° 6	23°44	T 12
F 13	5 25 54	20°55'20	2♈30	29°53	2°58	24° 6	20° 0	14°31	27°24	25°21	28°35	4°26	4°58	11°13	23°49	F 13
S 14	5 29 51	21°56'24	15°15	1♈ 2	4° 9	24°51	20°13	14°26	27°23	25°20	28°34	4°17	4°54	11°19	23°53	S 14
S 15	5 33 47	22°57'29	28°22	2°14	5°20	25°36	20°25	14°22	27°22	25°20	28°34	4° 6	4°51	11°26	23°58	S 15
M 16	5 37 44	23°58'35	11♉51	3°28	6°31	26°22	20°37	14°17	27°22	25°19	28°33	3°54	4°48	11°33	24° 3	M 16
T 17	5 41 41	24°59'41	25°39	4°45	7°42	27° 7	20°49	14°13	27°21	25°18	28°33	3°42	4°45	11°39	24° 7	T 17
W 18	5 45 37	26° 0'47	9♈42	6° 3	8°52	27°52	21° 1	14° 8	27°20	25°18	28°32	3°31	4°42	11°46	24°12	W 18
T 19	5 49 34	27° 1'54	23°56	7°22	10° 3	28°38	21°13	14° 4	27°19	25°17	28°32	3°23	4°39	11°53	24°17	T 19
F 20	5 53 30	28° 3'01	8♉15	8°43	11°13	29°23	21°25	13°59	27°18	25°17	28°31	3°18	4°35	11°59	24°22	F 20
S 21	5 57 27	29° 4'09	22°35	10° 5	12°23	0♈ 9	21°37	13°54	27°17	25°16	28°31	3°16	4°32	12° 6	24°27	S 21
S 22	6 1 23	0♈ 5'18	6♉51	11°29	13°33	0°54	21°48	13°50	27°16	25°15	28°30	3°D15	4°29	12°12	24°32	S 22
M 23	6 5 20	1° 6'27	12°53	14°44	1°40	22° 0	22° 0	13°45	27°15	25°15	28°29	3°16	4°26	12°19	24°37	M 23
T 24	6 9 17	2° 7'36	5♉ 6	14°18	15°53	2°25	22°12	13°40	27°14	25°15	28°29	3°R16	4°23	12°26	24°42	T 24
W 25	6 13 13	3° 8'46	19° 2	15°44	17° 3	3°11	22°23	13°35	27°13	25°14	28°28	3°15	4°19	12°32	24°47	W 25
T 26	6 17 10	4° 9'57	2♉51	17°10	18°13	3°57	22°35	13°30	27°12	25°14	28°27	3°11	4°16	12°39	24°52	T 26
F 27	6 21 6	5°11'08	16°31	18°37	19°22	4°42	22°46	13°26	27°11	25°13	28°26	3° 5	4°13	12°46	24°57	F 27
S 28	6 25 3	6°12'19	0♈ 1	20° 5	20°32	5°28	22°58	13°21	27° 9	25°13	28°26	2°57	4°10	12°52	25° 2	S 28
S 29	6 28 59	7°13'31	13°20	21°34	21°41	6°14	23° 9	13°16	27° 8	25°13	28°25	2°47	4° 7	12°59	25° 7	S 29
M 30	6 32 56	8°14'43	26°26	23° 2	22°50	7° 0	23°20	13°11	27° 7	25°13	28°24	2°37	4° 4	13° 6	25°12	M 30
T 31	6 36 52	9♈15'55	9♈18	24♈32	23♈59	7♈46	23♉31	13♈ 6	27♉ 5	25°Y12	28♉23	2♈27	4♈ 0	13♈12	25♈17	T 31

Delta T = 11.57 sec

Greg. Calendar