

**Пояснение для эфемерид больших планет.** В эфемеридах планет приводятся: Date (год, месяц, день), Right Asc. – прямое восхождение, Declination – склонение, Distance - геоцентрическое расстояние от Земли до планеты в астрономических единицах, dia – видимый диаметр в секундах дуги, mag - звездная величина, Elong – видимое угловое удаление (элонгация) от Солнца в градусах, I - фазовый угол (угол при центре планеты между направлениями на Солнце и Землю), Фаза - величина освещенной части диска планеты (от 0 до 100%), Limb - позиционный угол средней точки светлого лимба в градусах (отсчитывается от точки севера против часовой стрелки от 0° до 360°), De - угол наклона оси планеты к картинной плоскости перпендикулярной лучу зрения в градусах, причем знак указывает наклон северного «+» или южного «-» полюса планеты к Земле (для Сатурна это также наклон колец), Pr – позиционный угол северного полюса планеты по отношению к полюсу мира в градусах (отсчитывается при центре планеты против часовой стрелки от 0° до 360°). (*Occult v4.0*)

Sun

Equinox of J2000

year	Date	Right Asc.	Declination	Distance	dia	Po	Bo	Lo	Carrington
month	day	h m s	o ' "	AU	"	o	o	o	Rotation #
2033	Jan 1	18 45 19.01	-23 1 35.1	0.983322	1951.8	1.92	-3.03	30.22	2399
2033	Jan 6	19 7 19.93	-22 31 59.8	0.983304	1951.8	359.50	-3.60	324.37	2400
2033	Jan 11	19 29 9.08	-21 51 18.3	0.983397	1951.7	357.10	-4.14	258.53	2400
2033	Jan 16	19 50 43.39	-20 59 59.8	0.983635	1951.2	354.75	-4.65	192.69	2400
2033	Jan 21	20 12 0.74	-19 58 39.6	0.984028	1950.4	352.46	-5.13	126.85	2400
2033	Jan 26	20 32 59.65	-18 47 58.2	0.984557	1949.4	350.25	-5.56	61.02	2400
2033	Jan 31	20 53 39.04	-17 28 41.9	0.985190	1948.1	348.15	-5.95	355.19	2401
2033	Feb 5	21 13 58.04	-16 1 41.1	0.985900	1946.7	346.15	-6.30	289.36	2401
2033	Feb 10	21 33 56.42	-14 27 48.2	0.986705	1945.1	344.28	-6.59	223.52	2401
2033	Feb 15	21 53 35.06	-12 47 54.2	0.987630	1943.3	342.54	-6.83	157.69	2401
2033	Feb 20	22 12 55.58	-11 2 49.5	0.988676	1941.2	340.94	-7.02	91.84	2401
2033	Feb 25	22 31 59.93	- 9 13 24.6	0.989820	1939.0	339.49	-7.15	25.99	2401
2033	Mar 2	22 50 50.09	- 7 20 30.6	0.991022	1936.6	338.20	-7.23	320.14	2402
2033	Mar 7	23 9 27.80	- 5 24 59.7	0.992255	1934.2	337.06	-7.25	254.26	2402
2033	Mar 12	23 27 55.05	- 3 27 42.3	0.993537	1931.7	336.08	-7.22	188.38	2402
2033	Mar 17	23 46 14.48	- 1 29 25.0	0.994885	1929.1	335.27	-7.13	122.48	2402
2033	Mar 22	0 4 28.97	0 29 7.4	0.996298	1926.4	334.63	-6.99	56.57	2402
2033	Mar 27	0 22 41.37	2 27 10.6	0.997748	1923.6	334.16	-6.79	350.63	2403
2033	Apr 1	0 40 54.21	4 23 59.6	0.999191	1920.8	333.87	-6.55	284.68	2403
2033	Apr 6	0 59 9.43	6 18 48.1	1.000605	1918.1	333.76	-6.25	218.71	2403
2033	Apr 11	1 17 29.09	8 10 51.7	1.002006	1915.4	333.83	-5.92	152.72	2403
2033	Apr 16	1 35 55.53	9 59 28.6	1.003413	1912.7	334.08	-5.54	86.71	2403
2033	Apr 21	1 54 31.08	11 43 58.1	1.004820	1910.1	334.52	-5.12	20.68	2403
2033	Apr 26	2 13 17.82	13 23 39.6	1.006200	1907.4	335.14	-4.66	314.62	2404
2033	May 1	2 32 17.10	14 57 51.6	1.007507	1905.0	335.94	-4.18	248.55	2404
2033	May 6	2 51 29.50	16 25 52.4	1.008727	1902.7	336.92	-3.66	182.46	2404
2033	May 11	3 10 55.49	17 47 2.1	1.009880	1900.5	338.08	-3.12	116.36	2404
2033	May 16	3 30 35.49	19 0 44.1	1.010983	1898.4	339.41	-2.56	50.23	2404
2033	May 21	3 50 29.69	20 6 23.9	1.012033	1896.4	340.90	-1.98	344.10	2405
2033	May 26	4 10 37.73	21 3 29.5	1.013001	1894.6	342.54	-1.39	277.95	2405
2033	May 31	4 30 58.19	21 51 31.2	1.013846	1893.0	344.31	-0.79	211.79	2405
2033	Jun 5	4 51 28.84	22 30 2.9	1.014564	1891.7	346.22	-0.19	145.62	2405
2033	Jun 10	5 12 7.35	22 58 43.7	1.015176	1890.6	348.23	0.41	79.44	2405
2033	Jun 15	5 32 51.41	23 17 18.3	1.015703	1889.6	350.33	1.02	13.26	2405
2033	Jun 20	5 53 38.71	23 25 37.0	1.016147	1888.8	352.50	1.61	307.08	2406
2033	Jun 25	6 14 26.63	23 23 36.0	1.016474	1888.2	354.72	2.19	240.89	2406
2033	Jun 30	6 35 11.92	23 11 17.9	1.016654	1887.8	356.98	2.76	174.71	2406
2033	Jul 5	6 55 51.28	22 48 51.6	1.016690	1887.8	359.24	3.30	108.53	2406
2033	Jul 10	7 16 21.92	22 16 31.2	1.016609	1887.9	1.50	3.83	42.36	2406
2033	Jul 15	7 36 41.78	21 34 35.8	1.016437	1888.2	3.73	4.33	336.19	2407
2033	Jul 20	7 56 49.50	20 43 28.5	1.016174	1888.7	5.92	4.79	270.03	2407
2033	Jul 25	8 16 43.89	19 43 37.1	1.015790	1889.4	8.04	5.23	203.88	2407
2033	Jul 30	8 36 23.68	18 35 34.1	1.015263	1890.4	10.10	5.63	137.74	2407
2033	Aug 4	8 55 48.08	17 19 54.7	1.014604	1891.6	12.07	5.99	71.61	2407
2033	Aug 9	9 14 57.00	15 57 15.5	1.013844	1893.1	13.94	6.31	5.50	2407
2033	Aug 14	9 33 51.22	14 28 12.8	1.013015	1894.6	15.71	6.59	299.39	2408
2033	Aug 19	9 52 32.19	12 53 23.3	1.012116	1896.3	17.37	6.82	233.31	2408
2033	Aug 24	10 11 1.29	11 13 26.3	1.011119	1898.2	18.90	7.00	167.23	2408
2033	Aug 29	10 29 19.78	9 29 2.9	1.010011	1900.2	20.31	7.14	101.17	2408
2033	Sep 3	10 47 29.17	7 40 54.6	1.008809	1902.5	21.58	7.22	35.12	2408
2033	Sep 8	11 5 31.41	5 49 42.1	1.007548	1904.9	22.72	7.25	329.08	2409
2033	Sep 13	11 23 29.04	3 56 4.4	1.006265	1907.3	23.70	7.23	263.06	2409
2033	Sep 18	11 41 24.92	2 0 40.4	1.004955	1909.8	24.54	7.16	197.05	2409
2033	Sep 23	11 59 21.55	0 4 11.6	1.003593	1912.4	25.21	7.03	131.05	2409
2033	Sep 28	12 17 21.14	- 1 52 38.3	1.002175	1915.1	25.72	6.85	65.06	2409

2033 Oct 3	12 35 25.89	- 3 49 4.6	1.000719	1917.9	26.06	6.63	359.08	2410
2033 Oct 8	12 53 38.24	- 5 44 23.1	0.999266	1920.7	26.23	6.35	293.11	2410
2033 Oct 13	13 12 1.01	- 7 37 50.1	0.997851	1923.4	26.21	6.02	227.15	2410
2033 Oct 18	13 30 37.04	- 9 28 41.4	0.996466	1926.1	26.01	5.65	161.19	2410
2033 Oct 23	13 49 28.50	-11 16 9.1	0.995091	1928.7	25.62	5.23	95.25	2410
2033 Oct 28	14 8 37.03	-12 59 22.8	0.993721	1931.4	25.03	4.78	29.31	2410
2033 Nov 2	14 28 3.96	-14 37 31.6	0.992378	1934.0	24.25	4.29	323.37	2411
2033 Nov 7	14 47 50.49	-16 9 44.6	0.991105	1936.5	23.27	3.76	257.45	2411
2033 Nov 12	15 7 57.91	-17 35 12.7	0.989932	1938.8	22.10	3.20	191.52	2411
2033 Nov 17	15 28 26.94	-18 53 7.1	0.988845	1940.9	20.74	2.62	125.61	2411
2033 Nov 22	15 49 17.18	-20 2 39.0	0.987826	1942.9	19.20	2.02	59.70	2411
2033 Nov 27	16 10 27.28	-21 3 1.6	0.986868	1944.8	17.48	1.40	353.80	2412
2033 Dec 2	16 31 55.15	-21 53 31.7	0.985993	1946.5	15.60	0.76	287.90	2412
2033 Dec 7	16 53 38.35	-22 33 31.9	0.985241	1948.0	13.57	0.12	222.01	2412
2033 Dec 12	17 15 34.34	-23 2 31.7	0.984634	1949.2	11.42	-0.52	156.13	2412
2033 Dec 17	17 37 39.91	-23 20 7.8	0.984154	1950.2	9.17	-1.15	90.25	2412
2033 Dec 22	17 59 50.98	-23 26 4.9	0.983777	1950.9	6.84	-1.78	24.38	2412
2033 Dec 27	18 22 2.93	-23 20 17.1	0.983494	1951.5	4.45	-2.40	318.52	2413

Mercury  
Equinox of J2000

Date	Right Asc.	Declination	Distance	dia	mag	Elong	I	%Ill	Limb	De	Pp
year mth d	h m s	o ' "	AU	"		o	o		o	o	o
2033 Jan 1	18 14 59.11	-24 32 52.9	1.426335	4.7	-0.8	7.1w	15	98.3	79.2	-4	3
2033 Jan 4	18 35 47.65	-24 35 59.1	1.434055	4.7	-1.0	5.5w	12	99.0	71.6	-4	1
2033 Jan 7	18 56 48.28	-24 26 35.3	1.436835	4.6	-1.1	4.0w	9	99.4	60.0	-4	358
2033 Jan 10	19 17 58.10	-24 4 14.9	1.434580	4.7	-1.3	2.6w	6	99.8	37.6	-4	356
2033 Jan 13	19 39 14.07	-23 28 34.9	1.427093	4.7	-1.4	2.0e	4	99.9	350.3	-4	353
2033 Jan 16	20 0 32.84	-22 39 16.3	1.414062	4.7	-1.4	2.8e	6	99.7	305.5	-4	351
2033 Jan 19	20 21 50.61	-21 36 6.2	1.395049	4.8	-1.3	4.4e	10	99.2	284.8	-5	349
2033 Jan 22	20 43 2.66	-20 19 0.7	1.369479	4.9	-1.2	6.3e	15	98.2	274.0	-5	346
2033 Jan 25	21 4 2.68	-18 48 10.4	1.336653	5.0	-1.1	8.3e	21	96.5	266.9	-5	344
2033 Jan 28	21 24 41.68	-17 4 10.5	1.295773	5.2	-1.1	10.4e	29	93.9	261.6	-5	342
2033 Jan 31	21 44 46.20	-15 8 15.9	1.246046	5.4	-1.0	12.5e	37	90.0	257.4	-6	340
2033 Feb 3	22 3 55.73	-13 2 45.6	1.186879	5.6	-1.0	14.5e	47	84.3	253.9	-6	338
2033 Feb 6	22 21 39.60	-10 51 34.8	1.118245	6.0	-1.0	16.2e	58	76.4	250.8	-6	337
2033 Feb 9	22 37 14.24	- 8 40 48.8	1.041196	6.4	-0.9	17.5e	71	66.0	248.1	-7	336
2033 Feb 12	22 49 43.17	- 6 39 1.8	0.958396	7.0	-0.6	18.2e	86	53.3	245.4	-7	335
2033 Feb 15	22 58 3.05	- 4 56 51.6	0.874338	7.6	-0.2	17.7e	102	39.2	242.7	-8	334
2033 Feb 18	23 1 18.60	- 3 45 30.8	0.794921	8.4	0.5	16.0e	120	25.3	239.3	-9	334
2033 Feb 21	22 59 5.22	- 3 14 10.0	0.726375	9.2	1.7	12.9e	137	13.3	234.1	-9	334
2033 Feb 24	22 51 53.06	- 3 26 32.9	0.673940	9.9	3.4	8.5e	154	4.9	223.4	-10	335
2033 Feb 27	22 41 17.74	- 4 17 58.8	0.640742	10.4	5.1	4.2e	168	1.1	185.9	-10	335
2033 Mar 2	22 29 41.45	- 5 35 20.7	0.627221	10.7	4.7	5.5w	165	1.7	108.7	-10	336
2033 Mar 5	22 19 26.88	- 7 1 31.3	0.631373	10.6	3.3	10.6w	152	5.9	86.1	-10	337
2033 Mar 8	22 12 13.91	- 8 21 31.5	0.649706	10.3	2.1	15.5w	139	12.2	78.5	-9	338
2033 Mar 11	22 8 45.92	- 9 25 55.1	0.678386	9.8	1.4	19.5w	128	19.4	74.7	-9	338
2033 Mar 14	22 9 2.33	-10 10 33.6	0.714031	9.4	0.9	22.7w	118	26.6	72.1	-8	338
2033 Mar 17	22 12 39.09	-10 34 41.2	0.754018	8.9	0.6	25.0w	109	33.4	70.2	-7	338
2033 Mar 20	22 19 4.36	-10 39 9.8	0.796471	8.4	0.4	26.5w	102	39.6	68.6	-7	337
2033 Mar 23	22 27 47.13	-10 25 26.0	0.840112	8.0	0.3	27.4w	96	45.1	67.1	-6	337
2033 Mar 26	22 38 20.80	- 9 55 0.4	0.884104	7.6	0.2	27.8w	90	50.2	65.8	-5	336
2033 Mar 29	22 50 24.01	- 9 9 16.9	0.927904	7.2	0.1	27.7w	85	54.7	64.6	-5	335
2033 Apr 1	23 3 40.37	- 8 9 28.6	0.971172	6.9	0.1	27.3w	80	58.9	63.5	-4	334
2033 Apr 4	23 17 57.89	- 6 56 39.0	1.013686	6.6	0.0	26.5w	75	62.9	62.5	-4	334
2033 Apr 7	23 33 8.36	- 5 31 42.6	1.055287	6.3	0.0	25.5w	71	66.6	61.6	-3	333
2033 Apr 10	23 49 6.78	- 3 55 28.0	1.095817	6.1	-0.1	24.2w	66	70.3	60.9	-3	332
2033 Apr 13	0 5 50.84	- 2 8 40.0	1.135081	5.9	-0.2	22.6w	61	73.9	60.4	-3	332
2033 Apr 16	0 23 20.56	- 0 12 2.3	1.172793	5.7	-0.3	20.7w	57	77.5	60.0	-2	332
2033 Apr 19	0 41 38.06	1 53 38.5	1.208531	5.5	-0.4	18.6w	51	81.2	59.9	-2	331
2033 Apr 22	1 0 47.24	4 7 28.9	1.241674	5.4	-0.6	16.3w	46	85.0	59.9	-2	332
2033 Apr 25	1 20 53.44	6 28 21.1	1.271332	5.3	-0.8	13.7w	39	88.9	60.2	-1	332
2033 Apr 28	1 42 2.77	8 54 43.8	1.296282	5.2	-1.1	10.8w	32	92.6	60.8	-1	332
2033 May 1	2 4 20.93	11 24 28.3	1.314932	5.1	-1.4	7.7w	23	96.0	61.6	-1	333
2033 May 4	2 27 51.17	13 54 34.3	1.325362	5.0	-1.8	4.3w	13	98.7	62.7	0	335

2033 May 7	2 52 31.35	16 20 58.3	1.325536	5.0	-2.4	0.8w	2	100.0	61.9	0 336
2033 May 10	3 18 10.59	18 38 38.3	1.313743	5.1	-2.1	2.9e	9	99.3	247.5	0 338
2033 May 13	3 44 27.26	20 42 6.8	1.289199	5.2	-1.7	6.5e	22	96.4	249.4	0 340
2033 May 16	4 10 50.55	22 26 31.2	1.252501	5.3	-1.4	10.0e	34	91.3	251.8	1 343
2033 May 19	4 36 45.67	23 48 35.9	1.205600	5.5	-1.1	13.2e	46	84.5	254.5	1 345
2033 May 22	5 1 40.08	24 47 11.8	1.151259	5.8	-0.9	16.1e	58	76.8	257.2	1 348
2033 May 25	5 25 7.48	25 23 3.3	1.092348	6.1	-0.6	18.6e	68	69.0	260.0	2 351
2033 May 28	5 46 48.38	25 38 11.3	1.031361	6.5	-0.4	20.6e	77	61.3	262.7	2 353
2033 May 31	6 6 28.71	25 35 16.6	0.970239	6.9	-0.2	22.1e	85	54.1	265.3	3 356
2033 Jun 3	6 23 57.80	25 17 14.2	0.910409	7.3	0.1	23.2e	93	47.3	267.8	3 358
2033 Jun 6	6 39 6.60	24 46 59.8	0.852907	7.8	0.3	23.8e	101	40.9	270.1	4 359
2033 Jun 9	6 51 46.55	24 7 23.4	0.798521	8.4	0.6	23.8e	108	34.8	272.4	4 1
2033 Jun 12	7 1 48.99	23 21 8.9	0.747913	8.9	0.8	23.3e	115	29.1	274.5	5 2
2033 Jun 15	7 9 5.34	22 30 54.7	0.701719	9.5	1.2	22.1e	122	23.5	276.7	6 3
2033 Jun 18	7 13 28.29	21 39 15.3	0.660627	10.1	1.6	20.4e	129	18.2	279.1	7 4
2033 Jun 21	7 14 54.11	20 48 42.6	0.625417	10.7	2.2	18.0e	137	13.3	281.9	8 4
2033 Jun 24	7 13 26.26	20 1 45.2	0.596991	11.2	2.8	15.0e	146	8.8	285.9	8 4
2033 Jun 27	7 9 19.99	19 20 46.7	0.576348	11.6	3.7	11.6e	154	5.0	292.2	9 3
2033 Jun 30	7 3 6.76	18 47 58.9	0.564514	11.8	4.7	7.9e	163	2.3	305.2	10 2
2033 Jul 3	6 55 35.81	18 25 13.2	0.562417	11.9	5.5	4.9e	169	0.9	338.1	10 1
2033 Jul 6	6 47 50.62	18 13 47.0	0.570734	11.7	5.4	5.3w	168	1.1	31.8	10 0
2033 Jul 9	6 40 59.80	18 14 9.9	0.589783	11.3	4.4	8.4w	160	2.9	59.1	10 360
2033 Jul 12	6 36 6.12	18 25 52.9	0.619480	10.8	3.3	11.9w	151	6.4	70.5	10 359
2033 Jul 15	6 33 58.14	18 47 24.9	0.659381	10.1	2.4	15.0w	141	11.2	76.6	10 359
2033 Jul 18	6 35 7.51	19 16 17.9	0.708760	9.4	1.6	17.4w	131	17.4	80.9	9 359
2033 Jul 21	6 39 50.76	19 49 15.5	0.766653	8.7	0.9	19.0w	120	24.7	84.3	9 359
2033 Jul 24	6 48 13.32	20 22 22.0	0.831850	8.0	0.4	19.8w	110	33.1	87.6	8 1
2033 Jul 27	7 0 12.73	20 51 7.7	0.902789	7.4	0.0	19.9w	99	42.5	90.8	8 2
2033 Jul 30	7 15 39.82	21 10 36.5	0.977392	6.8	-0.4	19.1w	87	52.7	94.2	7 4
2033 Aug 2	7 34 17.31	21 15 41.6	1.052924	6.3	-0.7	17.7w	74	63.4	97.9	7 6
2033 Aug 5	7 55 37.09	21 1 39.7	1.126011	5.9	-1.0	15.6w	61	73.9	102.0	6 8
2033 Aug 8	8 18 58.88	20 25 4.4	1.192992	5.6	-1.2	13.1w	48	83.4	106.5	6 11
2033 Aug 11	8 43 33.37	19 24 40.3	1.250626	5.3	-1.4	10.1w	35	90.9	112.0	6 14
2033 Aug 14	9 8 30.34	18 1 44.4	1.296813	5.2	-1.6	7.0w	23	96.0	119.4	5 16
2033 Aug 17	9 33 7.87	16 19 35.2	1.330923	5.0	-1.8	4.0w	12	98.8	133.6	5 19
2033 Aug 20	9 56 57.63	14 22 31.0	1.353567	4.9	-2.0	1.8e	5	99.8	185.5	5 21
2033 Aug 23	10 19 44.85	12 14 50.6	1.366069	4.9	-1.7	3.1e	9	99.4	257.6	5 23
2033 Aug 26	10 41 24.98	10 0 19.4	1.369967	4.9	-1.4	5.7e	15	98.2	275.9	5 24
2033 Aug 29	11 1 59.81	7 41 58.5	1.366696	4.9	-1.1	8.3e	22	96.5	283.1	5 26
2033 Sep 1	11 21 34.36	5 22 8.0	1.357459	4.9	-0.8	10.7e	27	94.5	287.1	5 27
2033 Sep 4	11 40 14.87	3 2 35.0	1.343191	5.0	-0.6	13.0e	32	92.3	289.7	5 27
2033 Sep 7	11 58 7.62	0 44 41.7	1.324589	5.0	-0.5	15.0e	37	90.1	291.6	5 28
2033 Sep 10	12 15 18.29	- 1 30 26.7	1.302145	5.1	-0.3	17.0e	41	87.8	292.9	5 28
2033 Sep 13	12 31 51.65	- 3 41 56.5	1.276191	5.2	-0.2	18.7e	45	85.4	293.9	5 29
2033 Sep 16	12 47 51.25	- 5 49 0.4	1.246928	5.4	-0.2	20.3e	49	82.8	294.6	5 29
2033 Sep 19	13 3 19.15	- 7 50 53.8	1.214461	5.5	-0.1	21.7e	53	80.2	295.1	5 29
2033 Sep 22	13 18 15.63	- 9 46 51.1	1.178834	5.7	-0.1	22.9e	57	77.3	295.4	5 28
2033 Sep 25	13 32 38.82	-11 36 2.5	1.140055	5.9	-0.1	24.0e	61	74.0	295.5	4 28
2033 Sep 28	13 46 24.13	-13 17 30.3	1.098130	6.1	-0.1	24.8e	66	70.4	295.5	4 28
2033 Oct 1	13 59 23.41	-14 50 4.5	1.053095	6.3	0.0	25.4e	71	66.3	295.5	4 27
2033 Oct 4	14 11 23.75	-16 12 15.8	1.005076	6.6	0.0	25.6e	77	61.6	295.4	4 26
2033 Oct 7	14 22 5.98	-17 22 7.2	0.954362	7.0	0.0	25.5e	83	56.0	295.3	4 26
2033 Oct 10	14 31 2.75	-18 17 0.7	0.901530	7.4	0.0	24.9e	91	49.5	295.4	4 25
2033 Oct 13	14 37 36.79	-18 53 19.2	0.847631	7.9	0.2	23.6e	99	41.8	295.6	4 25
2033 Oct 16	14 41 0.63	-19 6 7.6	0.794472	8.4	0.4	21.5e	110	32.9	296.1	4 25
2033 Oct 19	14 40 21.59	-18 49 7.6	0.745002	9.0	1.0	18.3e	123	23.0	297.1	4 25
2033 Oct 22	14 34 58.90	-17 55 41.3	0.703704	9.5	1.9	13.8e	138	12.9	298.8	3 25
2033 Oct 25	14 24 59.23	-16 22 42.4	0.676612	9.9	3.5	8.1e	156	4.5	302.2	3 26
2033 Oct 28	14 11 59.17	-14 17 50.4	0.670283	10.0	6.1	1.5e	175	0.2	327.9	2 26
2033 Oct 31	13 59 8.68	-12 4 32.3	0.689298	9.7	4.2	5.5w	162	2.3	110.9	2 27
2033 Nov 3	13 49 56.54	-10 14 30.4	0.733547	9.1	2.0	11.3w	141	11.2	115.7	1 27
2033 Nov 6	13 46 30.57	- 9 10 37.1	0.797753	8.4	0.6	15.5w	121	24.4	117.0	1 27
2033 Nov 9	13 49 5.64	- 8 58 2.0	0.873816	7.6	-0.2	18.0w	103	39.1	117.3	0 27
2033 Nov 12	13 56 43.49	- 9 28 49.8	0.953832	7.0	-0.5	19.1w	87	52.8	117.0	0 27
2033 Nov 15	14 8 5.10	-10 30 30.6	1.031906	6.5	-0.7	19.1w	73	64.4	116.3	0 27
2033 Nov 18	14 22 1.08	-11 51 22.0	1.104466	6.0	-0.7	18.5w	62	73.5	115.4	-1 26
2033 Nov 21	14 37 40.71	-13 22 20.3	1.169782	5.7	-0.7	17.4w	52	80.5	114.0	-1 25



2033 Aug 29	8 25 42.61	19 14 50.9	1.353478	12.4	-3.9	31.4w	47	84.1	103.7	0	12
2033 Sep 3	8 50 31.12	17 57 59.8	1.381248	12.2	-3.9	30.3w	45	85.4	106.1	0	14
2033 Sep 8	9 15 2.29	16 28 20.8	1.407951	11.9	-3.9	29.1w	43	86.6	108.3	0	16
2033 Sep 13	9 39 15.01	14 46 56.7	1.433578	11.7	-3.9	27.9w	41	87.8	110.3	0	18
2033 Sep 18	10 3 9.31	12 54 58.0	1.458084	11.5	-3.9	26.6w	39	88.9	112.1	0	19
2033 Sep 23	10 26 45.95	10 53 43.0	1.481427	11.4	-3.9	25.4w	37	90.0	113.7	0	20
2033 Sep 28	10 50 6.59	8 44 34.4	1.503593	11.2	-3.9	24.2w	35	91.0	115.0	0	21
2033 Oct 3	11 13 13.85	6 28 57.2	1.524592	11.0	-3.9	23.0w	33	92.0	116.1	0	22
2033 Oct 8	11 36 11.22	4 8 18.0	1.544448	10.9	-3.9	21.7w	31	92.9	116.9	0	23
2033 Oct 13	11 59 3.01	1 44 3.8	1.563171	10.8	-3.9	20.5w	29	93.7	117.5	0	23
2033 Oct 18	12 21 53.83	- 0 42 16.1	1.580735	10.6	-3.9	19.2w	27	94.5	117.7	0	23
2033 Oct 23	12 44 48.23	- 3 9 9.8	1.597114	10.5	-3.9	18.0w	25	95.2	117.7	0	23
2033 Oct 28	13 7 50.78	- 5 35 3.0	1.612312	10.4	-3.9	16.7w	23	95.9	117.4	0	22
2033 Nov 2	13 31 6.07	- 7 58 20.4	1.626352	10.3	-3.9	15.5w	22	96.5	116.8	0	21
2033 Nov 7	13 54 38.66	-10 17 25.5	1.639276	10.3	-3.9	14.2w	20	97.1	115.8	0	20
2033 Nov 12	14 18 33.00	-12 30 41.3	1.651108	10.2	-3.9	13.0w	18	97.6	114.6	0	19
2033 Nov 17	14 42 52.87	-14 36 28.2	1.661834	10.1	-3.9	11.7w	16	98.0	113.0	0	18
2033 Nov 22	15 7 40.93	-16 33 5.5	1.671443	10.1	-3.9	10.5w	14	98.4	111.1	0	16
2033 Nov 27	15 32 58.65	-18 18 52.9	1.679941	10.0	-3.9	9.2w	13	98.8	108.8	0	14
2033 Dec 2	15 58 46.21	-19 52 12.9	1.687362	10.0	-3.9	8.0w	11	99.1	106.1	0	12
2033 Dec 7	16 25 2.48	-21 11 34.1	1.693752	9.9	-3.9	6.8w	9	99.4	103.0	1	10
2033 Dec 12	16 51 44.97	-22 15 33.8	1.699137	9.9	-3.9	5.6w	8	99.6	99.2	1	8
2033 Dec 17	17 18 49.42	-23 3 0.8	1.703507	9.9	-3.9	4.3w	6	99.7	94.7	1	5
2033 Dec 22	17 46 9.85	-23 32 58.9	1.706848	9.9	-4.0	3.1w	4	99.9	88.6	1	2
2033 Dec 27	18 13 38.96	-23 44 50.7	1.709162	9.8	-4.0	2.0w	3	99.9	78.4	1	360

Mars  
Equinox of J2000

Date	Right Asc.	Declination	Distance	dia	mag	Elong	I	%Ill	Limb	De	Pp
year mth d	h m s	o ' "	AU	"		o	o		o	o	o
2033 Jan 1	14 24 43.46	-13 10 4.1	1.852024	5.1	1.4	62.2w	32	92.4	109.3	17	38
2033 Jan 6	14 36 22.88	-14 7 52.2	1.805468	5.2	1.4	64.3w	33	92.1	108.5	16	38
2033 Jan 11	14 48 3.95	-15 3 13.2	1.758202	5.3	1.3	66.5w	33	91.7	107.7	15	39
2033 Jan 16	14 59 46.63	-15 55 59.9	1.710319	5.5	1.3	68.6w	34	91.4	106.8	14	38
2033 Jan 21	15 11 30.69	-16 46 5.4	1.661883	5.6	1.2	70.8w	35	91.1	105.8	13	38
2033 Jan 26	15 23 15.53	-17 33 23.1	1.612947	5.8	1.1	72.9w	35	90.8	104.9	12	38
2033 Jan 31	15 35 0.19	-18 17 46.7	1.563590	6.0	1.1	75.1w	36	90.5	103.9	11	38
2033 Feb 5	15 46 43.57	-18 59 11.1	1.513925	6.2	1.0	77.3w	37	90.2	102.8	10	37
2033 Feb 10	15 58 24.78	-19 37 33.3	1.464082	6.4	0.9	79.6w	37	89.9	101.8	9	37
2033 Feb 15	16 10 3.04	-20 12 52.2	1.414152	6.6	0.9	81.8w	38	89.7	100.7	7	36
2033 Feb 20	16 21 37.25	-20 45 7.4	1.364198	6.9	0.8	84.1w	38	89.4	99.6	6	35
2033 Feb 25	16 33 5.83	-21 14 20.3	1.314285	7.1	0.7	86.4w	38	89.3	98.5	5	35
2033 Mar 2	16 44 26.79	-21 40 33.5	1.264504	7.4	0.6	88.8w	39	89.1	97.4	4	34
2033 Mar 7	16 55 38.04	-22 3 51.6	1.214984	7.7	0.5	91.2w	39	89.0	96.3	3	33
2033 Mar 12	17 6 37.91	-22 24 21.7	1.165851	8.0	0.4	93.6w	39	88.9	95.2	2	32
2033 Mar 17	17 17 24.63	-22 42 13.5	1.117188	8.4	0.3	96.1w	39	88.9	94.2	1	31
2033 Mar 22	17 27 55.91	-22 57 38.7	1.069061	8.8	0.2	98.6w	39	88.9	93.1	0	30
2033 Mar 27	17 38 8.85	-23 10 51.6	1.021546	9.2	0.1	101.2w	39	88.9	92.1	-1	29
2033 Apr 1	17 48 0.02	-23 22 8.9	0.974754	9.6	0.0	103.9w	39	89.1	91.2	-2	28
2033 Apr 6	17 57 26.08	-23 31 49.3	0.928832	10.1	-0.1	106.6w	38	89.3	90.3	-3	27
2033 Apr 11	18 6 24.08	-23 40 14.3	0.883907	10.6	-0.2	109.5w	38	89.5	89.5	-4	26
2033 Apr 16	18 14 50.61	-23 47 48.2	0.840071	11.1	-0.4	112.5w	37	89.9	88.7	-4	25
2033 Apr 21	18 22 41.39	-23 54 58.4	0.797415	11.7	-0.5	115.6w	36	90.3	88.0	-5	24
2033 Apr 26	18 29 51.19	-24 2 14.9	0.756058	12.4	-0.6	118.8w	35	90.8	87.5	-6	23
2033 May 1	18 36 14.18	-24 10 8.4	0.716167	13.1	-0.8	122.2w	34	91.3	87.0	-6	22
2033 May 6	18 41 44.98	-24 19 8.9	0.677940	13.8	-0.9	125.8w	33	92.0	86.8	-6	22
2033 May 11	18 46 18.45	-24 29 45.4	0.641550	14.6	-1.1	129.6w	31	92.8	86.6	-7	21
2033 May 16	18 49 48.82	-24 42 26.0	0.607156	15.4	-1.3	133.7w	29	93.6	86.8	-7	21
2033 May 21	18 52 9.57	-24 57 34.6	0.574938	16.3	-1.4	138.0w	27	94.5	87.1	-7	20
2033 May 26	18 53 13.94	-25 15 26.3	0.545127	17.2	-1.6	142.5w	25	95.5	87.8	-6	20
2033 May 31	18 52 56.80	-25 36 0.3	0.518011	18.1	-1.8	147.4w	22	96.5	89.0	-6	20
2033 Jun 5	18 51 16.49	-25 58 57.0	0.493871	19.0	-1.9	152.5w	19	97.4	90.8	-6	20
2033 Jun 10	18 48 14.62	-26 23 39.1	0.472945	19.8	-2.1	157.9w	15	98.3	93.7	-5	21
2033 Jun 15	18 43 56.27	-26 49 11.8	0.455442	20.6	-2.2	163.5w	11	99.0	98.5	-4	21
2033 Jun 20	18 38 30.63	-27 14 24.8	0.441554	21.2	-2.4	169.2w	8	99.6	108.1	-3	22
2033 Jun 25	18 32 12.74	-27 37 55.8	0.431469	21.7	-2.5	174.2w	4	99.9	135.6	-2	23

2033 Jun 30	18 25 24.90	-27 58 23.6	0.425304	22.0	-2.5	174.7e	4	99.9	205.3	-2	23
2033 Jul 5	18 18 34.06	-28 14 48.7	0.423042	22.1	-2.5	170.0e	7	99.6	239.2	-1	24
2033 Jul 10	18 12 7.24	-28 26 43.7	0.424538	22.0	-2.4	164.2e	11	99.1	250.6	0	25
2033 Jul 15	18 6 28.20	-28 34 12.1	0.429569	21.8	-2.3	158.4e	15	98.3	256.2	1	26
2033 Jul 20	18 1 55.93	-28 37 38.2	0.437885	21.4	-2.2	152.8e	19	97.3	259.6	1	26
2033 Jul 25	17 58 45.41	-28 37 37.8	0.449224	20.8	-2.1	147.4e	23	96.1	261.9	2	27
2033 Jul 30	17 57 7.08	-28 34 52.8	0.463273	20.2	-2.0	142.4e	26	94.9	263.6	2	27
2033 Aug 4	17 57 5.27	-28 30 3.4	0.479680	19.5	-1.9	137.6e	29	93.7	264.7	2	27
2033 Aug 9	17 58 38.79	-28 23 38.6	0.498109	18.8	-1.8	133.2e	32	92.5	265.5	1	27
2033 Aug 14	18 1 42.62	-28 15 52.6	0.518281	18.1	-1.7	129.1e	34	91.4	265.9	1	26
2033 Aug 19	18 6 10.43	-28 6 44.4	0.539995	17.3	-1.6	125.3e	36	90.3	266.1	0	26
2033 Aug 24	18 11 56.34	-27 56 3.9	0.563080	16.6	-1.4	121.8e	38	89.4	266.0	0	25
2033 Aug 29	18 18 54.00	-27 43 35.8	0.587353	15.9	-1.3	118.6e	40	88.5	265.7	-1	24
2033 Sep 3	18 26 56.16	-27 29 1.9	0.612645	15.3	-1.2	115.6e	41	87.7	265.3	-2	23
2033 Sep 8	18 35 54.98	-27 12 1.0	0.638821	14.7	-1.1	112.7e	42	87.1	264.7	-3	22
2033 Sep 13	18 45 42.72	-26 52 10.4	0.665802	14.1	-1.0	110.1e	43	86.5	264.1	-4	21
2033 Sep 18	18 56 13.02	-26 29 6.2	0.693563	13.5	-0.9	107.6e	44	86.1	263.3	-5	20
2033 Sep 23	19 7 20.71	-26 2 27.7	0.722065	13.0	-0.8	105.3e	44	85.7	262.4	-7	18
2033 Sep 28	19 19 0.71	-25 31 58.1	0.751244	12.5	-0.7	103.0e	45	85.4	261.5	-8	17
2033 Oct 3	19 31 7.79	-24 57 25.1	0.781041	12.0	-0.6	100.9e	45	85.1	260.5	-9	15
2033 Oct 8	19 43 36.68	-24 18 40.1	0.811418	11.5	-0.5	98.9e	46	85.0	259.5	-11	13
2033 Oct 13	19 56 22.61	-23 35 37.3	0.842385	11.1	-0.5	97.0e	46	84.9	258.5	-12	11
2033 Oct 18	20 9 22.11	-22 48 12.4	0.873968	10.7	-0.4	95.1e	46	84.8	257.5	-13	9
2033 Oct 23	20 22 32.42	-21 56 25.0	0.906158	10.3	-0.3	93.3e	46	84.8	256.4	-14	7
2033 Oct 28	20 35 50.81	-21 0 19.5	0.938923	10.0	-0.2	91.6e	46	84.9	255.4	-16	5
2033 Nov 2	20 49 14.55	-20 0 4.2	0.972228	9.6	-0.1	89.9e	46	84.9	254.5	-17	3
2033 Nov 7	21 2 40.93	-18 55 50.6	1.006057	9.3	-0.1	88.2e	45	85.1	253.5	-18	1
2033 Nov 12	21 16 7.90	-17 47 51.2	1.040437	9.0	0.0	86.6e	45	85.2	252.6	-19	359
2033 Nov 17	21 29 34.36	-16 36 18.6	1.075388	8.7	0.1	84.9e	45	85.4	251.8	-20	357
2033 Nov 22	21 42 59.60	-15 21 27.1	1.110889	8.4	0.1	83.4e	45	85.6	251.0	-21	355
2033 Nov 27	21 56 22.87	-14 3 33.9	1.146898	8.2	0.2	81.8e	44	85.9	250.2	-22	353
2033 Dec 2	22 9 43.36	-12 42 58.3	1.183370	7.9	0.3	80.2e	44	86.1	249.6	-23	350
2033 Dec 7	22 23 0.29	-11 20 0.6	1.220286	7.7	0.4	78.7e	43	86.4	249.0	-24	348
2033 Dec 12	22 36 13.45	-9 55 0.0	1.257663	7.4	0.4	77.2e	43	86.7	248.4	-25	346
2033 Dec 17	22 49 23.20	-8 28 14.5	1.295492	7.2	0.5	75.6e	42	87.0	248.0	-25	344
2033 Dec 22	23 2 30.02	-7 0 2.5	1.333730	7.0	0.5	74.1e	42	87.4	247.6	-26	342
2033 Dec 27	23 15 34.26	-5 30 43.7	1.372312	6.8	0.6	72.6e	41	87.7	247.2	-26	340

Jupiter  
Equinox of J2000

Date	Right Asc.	Declination	Distance	dia	mag	Elong	I	%Ill	Limb	De	Pp
year mth d	h m s	o ' "	AU	"		o	o		o	o	o
2033 Jan 1	20 34 55.05	-19 16 10.0	5.948267	33.1	-1.8	25.8e	5	99.8	256.8	-1	344
2033 Jan 6	20 39 34.89	-18 59 12.7	5.978924	32.9	-1.8	21.8e	4	99.9	256.6	-1	343
2033 Jan 11	20 44 17.74	-18 41 36.5	6.004556	32.8	-1.8	17.9e	3	99.9	256.6	-1	343
2033 Jan 16	20 49 2.80	-18 23 23.6	6.025096	32.7	-1.8	14.0e	3	99.9	256.8	0	343
2033 Jan 21	20 53 49.40	-18 4 36.2	6.040486	32.6	-1.8	10.1e	2	100.0	257.4	0	342
2033 Jan 26	20 58 36.91	-17 45 17.1	6.050657	32.5	-1.8	6.2e	1	100.0	259.3	0	342
2033 Jan 31	21 3 24.65	-17 25 29.2	6.055541	32.5	-1.8	2.3e	0	100.0	268.3	0	341
2033 Feb 5	21 8 11.86	-17 5 16.3	6.055098	32.5	-1.8	1.7w	0	100.0	52.7	0	341
2033 Feb 10	21 12 57.80	-16 44 42.0	6.049367	32.6	-1.8	5.5w	1	100.0	66.4	0	341
2033 Feb 15	21 17 41.85	-16 23 50.0	6.038416	32.6	-1.8	9.4w	2	100.0	68.7	0	340
2033 Feb 20	21 22 23.46	-16 2 43.8	6.022307	32.7	-1.8	13.3w	3	99.9	69.4	0	340
2033 Feb 25	21 27 2.05	-15 41 27.3	6.001091	32.8	-1.8	17.1w	3	99.9	69.7	0	340
2033 Mar 2	21 31 37.01	-15 20 5.1	5.974830	33.0	-1.8	21.0w	4	99.9	69.8	0	339
2033 Mar 7	21 36 7.63	-14 58 42.0	5.943633	33.1	-1.8	24.8w	5	99.8	69.8	0	339
2033 Mar 12	21 40 33.25	-14 37 22.7	5.907677	33.3	-1.8	28.7w	5	99.8	69.7	0	339
2033 Mar 17	21 44 53.35	-14 16 11.6	5.867144	33.6	-1.9	32.6w	6	99.7	69.6	0	339
2033 Mar 22	21 49 7.38	-13 55 13.5	5.822200	33.8	-1.9	36.5w	7	99.7	69.5	0	338
2033 Mar 27	21 53 14.79	-13 34 33.3	5.773007	34.1	-1.9	40.4w	7	99.6	69.4	0	338
2033 Apr 1	21 57 14.88	-13 14 16.7	5.719748	34.4	-1.9	44.3w	8	99.5	69.3	0	338
2033 Apr 6	22 1 6.95	-12 54 29.2	5.662672	34.8	-1.9	48.2w	8	99.5	69.1	0	338
2033 Apr 11	22 4 50.36	-12 35 16.2	5.602070	35.2	-1.9	52.2w	9	99.4	69.0	0	337
2033 Apr 16	22 8 24.55	-12 16 42.8	5.538218	35.6	-2.0	56.1w	10	99.3	68.9	0	337
2033 Apr 21	22 11 48.94	-11 58 54.4	5.471381	36.0	-2.0	60.1w	10	99.2	68.8	0	337
2033 Apr 26	22 15 2.83	-11 41 56.9	5.401825	36.5	-2.0	64.2w	10	99.2	68.7	1	337
2033 May 1	22 18 5.44	-11 25 56.4	5.329860	37.0	-2.0	68.2w	11	99.1	68.6	1	337



2033 Mar 2	5 58 53.37	22 38 37.7	8.652479	19.3	-0.1	108.5e	6	99.7	269.6	-27	355
2033 Mar 7	5 59 0.47	22 39 32.6	8.732492	19.1	0.0	103.5e	6	99.7	269.7	-27	355
2033 Mar 12	5 59 19.80	22 40 27.3	8.814143	18.9	0.0	98.6e	6	99.7	269.8	-27	355
2033 Mar 17	5 59 51.14	22 41 21.3	8.896821	18.7	0.0	93.7e	6	99.7	269.9	-27	354
2033 Mar 22	6 0 34.20	22 42 14.0	8.979955	18.6	0.0	88.9e	6	99.7	270.1	-27	354
2033 Mar 27	6 1 28.69	22 43 4.6	9.062988	18.4	0.0	84.2e	6	99.7	270.2	-27	354
2033 Apr 1	6 2 34.29	22 43 52.1	9.145353	18.2	0.1	79.5e	6	99.7	270.4	-27	354
2033 Apr 6	6 3 50.54	22 44 35.7	9.226465	18.1	0.1	74.8e	6	99.7	270.6	-27	354
2033 Apr 11	6 5 16.89	22 45 14.5	9.305795	17.9	0.1	70.3e	6	99.7	270.8	-27	354
2033 Apr 16	6 6 52.76	22 45 47.5	9.382883	17.8	0.1	65.7e	6	99.7	271.0	-27	354
2033 Apr 21	6 8 37.60	22 46 13.5	9.457310	17.6	0.1	61.2e	6	99.8	271.2	-27	354
2033 Apr 26	6 10 30.90	22 46 31.5	9.528667	17.5	0.1	56.8e	5	99.8	271.5	-27	354
2033 May 1	6 12 32.10	22 46 40.5	9.596531	17.4	0.1	52.4e	5	99.8	271.7	-27	354
2033 May 6	6 14 40.57	22 46 39.7	9.660500	17.3	0.1	48.0e	5	99.8	272.0	-27	354
2033 May 11	6 16 55.65	22 46 28.3	9.720249	17.1	0.1	43.7e	4	99.8	272.3	-27	354
2033 May 16	6 19 16.70	22 46 5.3	9.775506	17.0	0.1	39.4e	4	99.9	272.6	-26	354
2033 May 21	6 21 43.16	22 45 30.2	9.826031	17.0	0.1	35.2e	4	99.9	273.0	-26	354
2033 May 26	6 24 14.48	22 44 42.2	9.871573	16.9	0.1	31.0e	3	99.9	273.4	-26	354
2033 May 31	6 26 50.08	22 43 40.9	9.911876	16.8	0.1	26.8e	3	99.9	273.8	-26	354
2033 Jun 5	6 29 29.29	22 42 26.2	9.946735	16.8	0.1	22.6e	2	100.0	274.3	-26	354
2033 Jun 10	6 32 11.48	22 40 57.8	9.976015	16.7	0.1	18.4e	2	100.0	274.8	-26	354
2033 Jun 15	6 34 56.08	22 39 15.5	9.999622	16.7	0.1	14.3e	2	100.0	275.6	-26	354
2033 Jun 20	6 37 42.55	22 37 19.5	10.017466	16.6	0.1	10.2e	1	100.0	276.7	-26	354
2033 Jun 25	6 40 30.37	22 35 10.0	10.029443	16.6	0.0	6.1e	1	100.0	278.9	-26	354
2033 Jun 30	6 43 18.93	22 32 47.3	10.035463	16.6	0.0	2.0e	0	100.0	289.3	-26	354
2033 Jul 5	6 46 7.60	22 30 12.2	10.035505	16.6	0.0	2.3w	0	100.0	81.6	-26	354
2033 Jul 10	6 48 55.79	22 27 25.3	10.029603	16.6	0.0	6.3w	1	100.0	90.3	-25	354
2033 Jul 15	6 51 42.98	22 24 27.2	10.017815	16.6	0.1	10.5w	1	100.0	92.4	-25	354
2033 Jul 20	6 54 28.64	22 21 19.1	10.000188	16.7	0.1	14.6w	2	100.0	93.5	-25	354
2033 Jul 25	6 57 12.24	22 18 1.9	9.976759	16.7	0.1	18.7w	2	100.0	94.2	-25	354
2033 Jul 30	6 59 53.15	22 14 37.2	9.947615	16.8	0.1	22.9w	3	100.0	94.8	-25	354
2033 Aug 4	7 2 30.76	22 11 6.3	9.912909	16.8	0.1	27.1w	3	99.9	95.2	-25	354
2033 Aug 9	7 5 4.50	22 7 30.8	9.872836	16.9	0.1	31.2w	3	99.9	95.6	-25	354
2033 Aug 14	7 7 33.86	22 3 52.3	9.827601	17.0	0.2	35.5w	4	99.9	96.0	-25	353
2033 Aug 19	7 9 58.31	22 0 12.4	9.777388	17.0	0.2	39.7w	4	99.9	96.3	-24	353
2033 Aug 24	7 12 17.24	21 56 33.3	9.722404	17.1	0.2	44.0w	4	99.8	96.6	-24	353
2033 Aug 29	7 14 30.04	21 52 57.0	9.662924	17.2	0.2	48.3w	5	99.8	96.9	-24	353
2033 Sep 3	7 16 36.10	21 49 25.6	9.599282	17.4	0.2	52.6w	5	99.8	97.2	-24	353
2033 Sep 8	7 18 34.88	21 46 1.1	9.531839	17.5	0.2	57.0w	5	99.8	97.4	-24	353
2033 Sep 13	7 20 25.88	21 42 45.6	9.460954	17.6	0.2	61.4w	6	99.8	97.6	-24	353
2033 Sep 18	7 22 8.56	21 39 41.4	9.386974	17.8	0.2	65.9w	6	99.7	97.8	-24	353
2033 Sep 23	7 23 42.33	21 36 50.8	9.310302	17.9	0.2	70.4w	6	99.7	98.0	-24	353
2033 Sep 28	7 25 6.61	21 34 15.9	9.231411	18.1	0.2	75.0w	6	99.7	98.2	-24	353
2033 Oct 3	7 26 20.91	21 31 58.8	9.150816	18.2	0.1	79.6w	6	99.7	98.3	-24	353
2033 Oct 8	7 27 24.83	21 30 1.3	9.069044	18.4	0.1	84.3w	6	99.7	98.5	-23	353
2033 Oct 13	7 28 17.98	21 28 25.1	8.986602	18.5	0.1	89.0w	6	99.7	98.6	-23	353
2033 Oct 18	7 28 59.97	21 27 11.8	8.904009	18.7	0.1	93.8w	6	99.7	98.7	-23	353
2033 Oct 23	7 29 30.42	21 26 23.1	8.821849	18.9	0.1	98.7w	6	99.7	98.8	-23	353
2033 Oct 28	7 29 49.06	21 25 59.7	8.740756	19.1	0.0	103.6w	6	99.7	98.8	-23	353
2033 Nov 2	7 29 55.78	21 26 2.5	8.661373	19.2	0.0	108.6w	6	99.7	98.9	-23	353
2033 Nov 7	7 29 50.59	21 26 31.4	8.584319	19.4	0.0	113.6w	6	99.7	98.9	-23	353
2033 Nov 12	7 29 33.54	21 27 26.6	8.510177	19.6	0.0	118.7w	6	99.8	98.9	-23	353
2033 Nov 17	7 29 4.77	21 28 47.7	8.439551	19.7	-0.1	123.8w	5	99.8	98.9	-23	353
2033 Nov 22	7 28 24.52	21 30 33.7	8.373079	19.9	-0.1	129.0w	5	99.8	98.9	-23	353
2033 Nov 27	7 27 33.25	21 32 43.2	8.311395	20.1	-0.1	134.3w	4	99.8	98.9	-23	353
2033 Dec 2	7 26 31.63	21 35 14.2	8.255082	20.2	-0.2	139.6w	4	99.9	98.8	-24	353
2033 Dec 7	7 25 20.47	21 38 4.3	8.204648	20.3	-0.2	144.9w	4	99.9	98.8	-24	353
2033 Dec 12	7 24 0.64	21 41 11.2	8.160543	20.4	-0.3	150.3w	3	99.9	98.8	-24	353
2033 Dec 17	7 22 33.12	21 44 32.1	8.123215	20.5	-0.3	155.8w	3	99.9	98.8	-24	353
2033 Dec 22	7 20 59.08	21 48 3.9	8.093078	20.6	-0.3	161.2w	2	100.0	98.9	-24	353
2033 Dec 27	7 19 19.87	21 51 43.2	8.070471	20.7	-0.4	166.7w	1	100.0	99.1	-24	353

Uranus  
Equinox of J2000

Date	Right Asc.	Declination	Distance	dia	mag	Elong	I	%Ill	Limb	De	Pp
year mth d	h m s	o ' "	AU	"		o	o		o	o	o



2033 Jan 1	5 54 16.73	23 38 49.7	18.053575	3.8	5.5 168.3e	1 100.0 270.5	76 53
2033 Jan 6	5 53 22.76	23 38 43.7	18.074158	3.8	5.5 163.0e	1 100.0 270.1	77 52
2033 Jan 11	5 52 30.82	23 38 36.6	18.102265	3.8	5.5 157.7e	1 100.0 269.8	77 52
2033 Jan 16	5 51 41.49	23 38 28.6	18.137597	3.8	5.5 152.4e	1 100.0 269.6	77 51
2033 Jan 21	5 50 55.27	23 38 20.1	18.179834	3.8	5.5 147.1e	2 100.0 269.4	77 51
2033 Jan 26	5 50 12.67	23 38 11.3	18.228625	3.8	5.5 141.9e	2 100.0 269.3	77 50
2033 Jan 31	5 49 34.16	23 38 2.5	18.283563	3.7	5.5 136.7e	2 100.0 269.2	77 50
2033 Feb 5	5 49 0.20	23 37 54.0	18.344154	3.7	5.5 131.4e	2 100.0 269.1	77 49
2033 Feb 10	5 48 31.15	23 37 46.2	18.409823	3.7	5.5 126.3e	2 100.0 269.0	77 49
2033 Feb 15	5 48 7.28	23 37 39.3	18.479987	3.7	5.5 121.1e	3 100.0 269.0	78 48
2033 Feb 20	5 47 48.82	23 37 33.7	18.554071	3.7	5.6 116.0e	3 99.9 268.9	78 48
2033 Feb 25	5 47 35.97	23 37 29.4	18.631495	3.7	5.6 110.9e	3 99.9 268.9	78 48
2033 Mar 2	5 47 28.87	23 37 26.7	18.711639	3.7	5.6 105.9e	3 99.9 268.8	78 48
2033 Mar 7	5 47 27.66	23 37 25.6	18.793830	3.6	5.6 100.9e	3 99.9 268.8	78 48
2033 Mar 12	5 47 32.32	23 37 26.2	18.877382	3.6	5.6 95.9e	3 99.9 268.8	78 48
2033 Mar 17	5 47 42.83	23 37 28.6	18.961659	3.6	5.6 90.9e	3 99.9 268.8	78 48
2033 Mar 22	5 47 59.10	23 37 32.6	19.046059	3.6	5.6 86.0e	3 99.9 268.8	78 48
2033 Mar 27	5 48 21.04	23 37 38.0	19.129989	3.6	5.6 81.2e	3 99.9 268.8	78 49
2033 Apr 1	5 48 48.55	23 37 44.8	19.212836	3.6	5.6 76.3e	3 99.9 268.8	77 49
2033 Apr 6	5 49 21.45	23 37 52.7	19.293968	3.6	5.6 71.5e	3 99.9 268.9	77 49
2033 Apr 11	5 49 59.49	23 38 1.6	19.372812	3.5	5.6 66.7e	3 99.9 268.9	77 50
2033 Apr 16	5 50 42.44	23 38 11.1	19.448858	3.5	5.7 62.0e	3 99.9 269.0	77 50
2033 Apr 21	5 51 30.02	23 38 20.9	19.521638	3.5	5.7 57.3e	3 100.0 269.0	77 51
2033 Apr 26	5 52 21.98	23 38 30.8	19.590694	3.5	5.7 52.6e	2 100.0 269.1	77 52
2033 May 1	5 53 18.06	23 38 40.4	19.655554	3.5	5.7 48.0e	2 100.0 269.1	77 52
2033 May 6	5 54 17.91	23 38 49.4	19.715776	3.5	5.7 43.4e	2 100.0 269.2	76 53
2033 May 11	5 55 21.19	23 38 57.7	19.771001	3.5	5.7 38.8e	2 100.0 269.3	76 54
2033 May 16	5 56 27.55	23 39 4.9	19.820929	3.5	5.7 34.2e	2 100.0 269.3	76 54
2033 May 21	5 57 36.65	23 39 10.6	19.865293	3.5	5.7 29.6e	2 100.0 269.4	76 55
2033 May 26	5 58 48.19	23 39 14.7	19.903821	3.4	5.7 25.1e	1 100.0 269.4	76 56
2033 May 31	6 0 1.80	23 39 17.0	19.936250	3.4	5.7 20.6e	1 100.0 269.4	75 56
2033 Jun 5	6 1 17.09	23 39 17.4	19.962378	3.4	5.7 16.1e	1 100.0 269.4	75 57
2033 Jun 10	6 2 33.68	23 39 15.8	19.982086	3.4	5.7 11.6e	1 100.0 269.2	75 58
2033 Jun 15	6 3 51.21	23 39 11.9	19.995296	3.4	5.7 7.1e	0 100.0 268.6	75 59
2033 Jun 20	6 5 9.34	23 39 5.8	20.001947	3.4	5.7 2.6e	0 100.0 265.7	74 59
2033 Jun 25	6 6 27.71	23 38 57.6	20.001970	3.4	5.7 1.8w	0 100.0 97.6	74 60
2033 Jun 30	6 7 45.95	23 38 47.1	19.995329	3.4	5.7 6.3w	0 100.0 92.8	74 61
2033 Jul 5	6 9 3.65	23 38 34.7	19.982070	3.4	5.7 10.8w	1 100.0 92.1	74 61
2033 Jul 10	6 10 20.45	23 38 20.4	19.962302	3.4	5.7 15.3w	1 100.0 91.9	73 62
2033 Jul 15	6 11 35.99	23 38 4.3	19.936162	3.4	5.7 19.7w	1 100.0 91.8	73 62
2033 Jul 20	6 12 49.96	23 37 46.6	19.903782	3.4	5.7 24.2w	1 100.0 91.8	73 63
2033 Jul 25	6 14 1.99	23 37 27.7	19.865300	3.5	5.7 28.7w	1 100.0 91.8	73 64
2033 Jul 30	6 15 11.71	23 37 7.9	19.820922	3.5	5.7 33.2w	2 100.0 91.9	72 64
2033 Aug 4	6 16 18.75	23 36 47.5	19.770925	3.5	5.7 37.8w	2 100.0 91.9	72 65
2033 Aug 9	6 17 22.78	23 36 26.7	19.715632	3.5	5.7 42.3w	2 100.0 92.0	72 65
2033 Aug 14	6 18 23.49	23 36 6.0	19.655376	3.5	5.7 46.9w	2 100.0 92.0	72 65
2033 Aug 19	6 19 20.59	23 35 45.7	19.590476	3.5	5.7 51.5w	2 100.0 92.1	72 66
2033 Aug 24	6 20 13.76	23 35 26.3	19.521288	3.5	5.7 56.1w	3 100.0 92.2	71 66
2033 Aug 29	6 21 2.67	23 35 8.1	19.448244	3.5	5.7 60.7w	3 99.9 92.2	71 66
2033 Sep 3	6 21 47.03	23 34 51.6	19.371831	3.5	5.6 65.4w	3 99.9 92.3	71 67
2033 Sep 8	6 22 26.61	23 34 36.9	19.292559	3.6	5.6 70.1w	3 99.9 92.3	71 67
2033 Sep 13	6 23 1.21	23 34 24.5	19.210924	3.6	5.6 74.8w	3 99.9 92.4	71 67
2033 Sep 18	6 23 30.61	23 34 14.8	19.127418	3.6	5.6 79.6w	3 99.9 92.4	71 67
2033 Sep 23	6 23 54.59	23 34 7.9	19.042591	3.6	5.6 84.3w	3 99.9 92.4	71 67
2033 Sep 28	6 24 12.98	23 34 4.1	18.957053	3.6	5.6 89.2w	3 99.9 92.4	71 68
2033 Oct 3	6 24 25.68	23 34 3.5	18.871436	3.6	5.6 94.0w	3 99.9 92.4	70 68
2033 Oct 8	6 24 32.63	23 34 6.3	18.786363	3.6	5.6 98.9w	3 99.9 92.4	70 68
2033 Oct 13	6 24 33.82	23 34 12.4	18.702422	3.7	5.6 103.9w	3 99.9 92.4	70 68
2033 Oct 18	6 24 29.22	23 34 21.9	18.620205	3.7	5.6 108.9w	3 99.9 92.3	70 68
2033 Oct 23	6 24 18.87	23 34 34.7	18.540357	3.7	5.5 113.9w	3 99.9 92.3	70 68
2033 Oct 28	6 24 2.85	23 34 50.6	18.463536	3.7	5.5 118.9w	3 99.9 92.2	71 68
2033 Nov 2	6 23 41.36	23 35 9.4	18.390380	3.7	5.5 124.0w	2 100.0 92.2	71 67
2033 Nov 7	6 23 14.64	23 35 30.6	18.321467	3.7	5.5 129.1w	2 100.0 92.1	71 67
2033 Nov 12	6 22 42.95	23 35 54.1	18.257325	3.8	5.5 134.2w	2 100.0 92.0	71 67
2033 Nov 17	6 22 6.57	23 36 19.5	18.198486	3.8	5.5 139.4w	2 100.0 91.9	71 67
2033 Nov 22	6 21 25.87	23 36 46.3	18.145485	3.8	5.5 144.6w	2 100.0 91.7	71 66
2033 Nov 27	6 20 41.30	23 37 14.0	18.098815	3.8	5.5 149.8w	1 100.0 91.6	71 66



2033 Oct 3	1	10	41.26	5	41	5.4	28.853884	2.5	7.8	171.0w	0	100.0	78.4	-12	313
2033 Oct 8	1	10	10.43	5	37	53.5	28.845926	2.5	7.8	175.9w	0	100.0	91.7	-12	313
2033 Oct 13	1	9	39.35	5	34	41.5	28.845475	2.5	7.8	177.9e	0	100.0	195.9	-13	313
2033 Oct 18	1	9	8.30	5	31	31.4	28.852586	2.5	7.8	173.4e	0	100.0	233.1	-13	313
2033 Oct 23	1	8	37.59	5	28	24.8	28.867275	2.5	7.8	168.4e	0	100.0	239.5	-13	313
2033 Oct 28	1	8	7.56	5	25	24.0	28.889463	2.5	7.8	163.3e	1	100.0	242.1	-13	313
2033 Nov 2	1	7	38.50	5	22	30.6	28.918979	2.5	7.8	158.2e	1	100.0	243.4	-13	313
2033 Nov 7	1	7	10.72	5	19	46.5	28.955568	2.5	7.8	153.1e	1	100.0	244.3	-13	313
2033 Nov 12	1	6	44.48	5	17	13.2	28.998950	2.5	7.8	147.9e	1	100.0	244.9	-13	313
2033 Nov 17	1	6	20.03	5	14	52.3	29.048833	2.5	7.8	142.8e	1	100.0	245.4	-13	313
2033 Nov 22	1	5	57.64	5	12	45.4	29.104857	2.5	7.8	137.6e	1	100.0	245.7	-13	313
2033 Nov 27	1	5	37.56	5	10	53.8	29.166576	2.5	7.8	132.5e	1	100.0	246.0	-13	313
2033 Dec 2	1	5	20.00	5	9	18.8	29.233467	2.5	7.8	127.4e	2	100.0	246.3	-13	313
2033 Dec 7	1	5	5.13	5	8	1.4	29.304970	2.5	7.8	122.2e	2	100.0	246.5	-13	313
2033 Dec 12	1	4	53.10	5	7	2.2	29.380543	2.5	7.8	117.1e	2	100.0	246.7	-13	313
2033 Dec 17	1	4	44.04	5	6	22.1	29.459625	2.5	7.9	112.0e	2	100.0	246.9	-13	313
2033 Dec 22	1	4	38.07	5	6	1.6	29.541599	2.5	7.9	106.9e	2	100.0	247.0	-13	313
2033 Dec 27	1	4	35.30	5	6	1.2	29.625794	2.5	7.9	101.8e	2	100.0	247.2	-13	313