

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

Date	Right Asc.	Declination	Distance	dia	Po	Bo	Lo	Carrington
year mth d	h m s	o ' "	AU	"	o	o	o	Rotation #
2023 Jan 1	18 43 23.52	-23 3 42.2	0.983337	1951.8	2.19	-2.97	5.27	2265
2023 Jan 6	19 5 24.31	-22 35 6.8	0.983301	1951.9	359.77	-3.54	299.42	2266
2023 Jan 11	19 27 14.05	-21 55 23.1	0.983421	1951.6	357.36	-4.09	233.57	2266
2023 Jan 16	19 48 49.91	-21 4 59.2	0.983688	1951.1	355.00	-4.61	167.73	2266
2023 Jan 21	20 10 9.46	-20 4 29.1	0.984072	1950.3	352.71	-5.08	101.90	2266
2023 Jan 26	20 31 10.44	-18 54 34.0	0.984544	1949.4	350.49	-5.52	36.06	2266
2023 Jan 31	20 51 51.14	-17 36 1.8	0.985114	1948.3	348.37	-5.92	330.23	2267
2023 Feb 5	21 12 11.12	-16 9 42.2	0.985810	1946.9	346.36	-6.27	264.40	2267
2023 Feb 10	21 32 10.87	-14 36 25.2	0.986642	1945.2	344.47	-6.56	198.57	2267
2023 Feb 15	21 51 51.46	-12 57 0.2	0.987594	1943.4	342.72	-6.81	132.73	2267
2023 Feb 20	22 11 14.20	-11 12 17.6	0.988629	1941.3	341.10	-7.00	66.89	2267
2023 Feb 25	22 30 20.28	- 9 23 10.9	0.989714	1939.2	339.64	-7.14	1.04	2267
2023 Mar 2	22 49 11.23	- 7 30 34.3	0.990860	1937.0	338.32	-7.22	295.18	2268
2023 Mar 7	23 7 49.28	- 5 35 18.3	0.992088	1934.6	337.16	-7.25	229.31	2268
2023 Mar 12	23 26 17.11	- 3 38 9.9	0.993402	1932.0	336.17	-7.22	163.43	2268
2023 Mar 17	23 44 37.50	- 1 39 54.0	0.994783	1929.3	335.34	-7.14	97.53	2268
2023 Mar 22	0 2 53.05	0 18 43.7	0.996186	1926.6	334.68	-7.00	31.62	2268
2023 Mar 27	0 21 5.91	2 16 54.6	0.997582	1923.9	334.19	-6.81	325.69	2269
2023 Apr 1	0 39 18.27	4 13 51.0	0.998982	1921.2	333.88	-6.57	259.74	2269
2023 Apr 6	0 57 32.64	6 8 48.9	1.000402	1918.5	333.75	-6.28	193.77	2269
2023 Apr 11	1 15 51.67	8 1 7.5	1.001848	1915.7	333.79	-5.95	127.78	2269
2023 Apr 16	1 34 17.91	9 50 6.9	1.003295	1913.0	334.03	-5.57	61.77	2269
2023 Apr 21	1 52 53.37	11 35 4.7	1.004697	1910.3	334.44	-5.16	355.74	2270
2023 Apr 26	2 11 39.41	13 15 15.8	1.006030	1907.8	335.04	-4.71	289.69	2270
2023 May 1	2 30 37.19	14 49 57.2	1.007308	1905.3	335.83	-4.22	223.62	2270
2023 May 6	2 49 47.86	16 18 29.3	1.008547	1903.0	336.79	-3.71	157.53	2270
2023 May 11	3 9 12.53	17 40 15.6	1.009756	1900.7	337.93	-3.17	91.42	2270
2023 May 16	3 28 51.89	18 54 40.4	1.010904	1898.6	339.24	-2.61	25.30	2270
2023 May 21	3 48 45.69	20 1 6.9	1.011950	1896.6	340.71	-2.04	319.17	2271
2023 May 26	4 8 52.83	20 58 59.8	1.012880	1894.9	342.33	-1.45	253.02	2271
2023 May 31	4 29 11.82	21 47 48.8	1.013706	1893.3	344.10	-0.85	186.86	2271
2023 Jun 5	4 49 41.04	22 27 9.1	1.014454	1891.9	345.99	-0.25	120.69	2271
2023 Jun 10	5 10 18.85	22 56 41.5	1.015130	1890.7	347.99	0.36	54.51	2271
2023 Jun 15	5 31 3.16	23 16 10.3	1.015704	1889.6	350.08	0.96	348.33	2272
2023 Jun 20	5 51 51.05	23 25 23.6	1.016140	1888.8	352.24	1.55	282.15	2272
2023 Jun 25	6 12 39.13	23 24 16.4	1.016434	1888.2	354.46	2.13	215.97	2272
2023 Jun 30	6 33 24.18	23 12 51.2	1.016602	1887.9	356.72	2.70	149.78	2272
2023 Jul 5	6 54 3.45	22 51 17.1	1.016675	1887.8	358.98	3.25	83.60	2272
2023 Jul 10	7 14 34.83	22 19 47.8	1.016660	1887.8	1.24	3.78	17.43	2272
2023 Jul 15	7 34 56.32	21 38 40.9	1.016528	1888.1	3.48	4.28	311.26	2273
2023 Jul 20	7 55 5.75	20 48 19.3	1.016252	1888.6	5.67	4.75	245.10	2273
2023 Jul 25	8 15 1.26	19 49 11.9	1.015833	1889.3	7.81	5.19	178.95	2273
2023 Jul 30	8 34 41.66	18 41 51.5	1.015295	1890.3	9.87	5.59	112.81	2273
2023 Aug 4	8 54 6.67	17 26 52.6	1.014673	1891.5	11.86	5.96	46.68	2273
2023 Aug 9	9 13 16.87	16 4 49.0	1.013976	1892.8	13.74	6.28	340.56	2274
2023 Aug 14	9 32 12.92	14 36 16.1	1.013174	1894.3	15.53	6.56	274.46	2274
2023 Aug 19	9 50 55.45	13 1 53.0	1.012250	1896.0	17.20	6.80	208.37	2274
2023 Aug 24	10 9 25.35	11 22 21.0	1.011212	1898.0	18.75	6.99	142.29	2274
2023 Aug 29	10 27 44.01	9 38 21.9	1.010088	1900.1	20.17	7.13	76.23	2274
2023 Sep 3	10 45 53.49	7 50 35.1	1.008921	1902.3	21.46	7.21	10.18	2274
2023 Sep 8	11 3 56.34	5 59 37.1	1.007714	1904.6	22.61	7.25	304.14	2275
2023 Sep 13	11 21 54.87	4 6 7.1	1.006443	1907.0	23.61	7.23	238.12	2275
2023 Sep 18	11 39 51.22	2 10 47.4	1.005097	1909.5	24.46	7.17	172.11	2275
2023 Sep 23	11 57 47.52	0 14 22.3	1.003686	1912.2	25.16	7.05	106.11	2275
2023 Sep 28	12 15 46.12	- 1 42 24.2	1.002249	1915.0	25.69	6.87	40.12	2275

2023	Oct	3	12	33	49.83	- 3	38	51.2	1.000826	1917.7	26.05	6.65	334.14	2276
2023	Oct	8	12	52	1.64	- 5	34	18.4	0.999418	1920.4	26.23	6.38	268.17	2276
2023	Oct	13	13	10	24.08	- 7	28	1.4	0.998005	1923.1	26.24	6.05	202.20	2276
2023	Oct	18	13	28	59.33	- 9	19	12.1	0.996577	1925.9	26.06	5.69	136.25	2276
2023	Oct	23	13	47	49.23	-11	6	59.8	0.995148	1928.6	25.69	5.28	70.30	2276
2023	Oct	28	14	6	55.61	-12	50	34.7	0.993761	1931.3	25.12	4.82	4.36	2276
2023	Nov	2	14	26	20.50	-14	29	9.9	0.992453	1933.9	24.36	4.33	298.43	2277
2023	Nov	7	14	46	5.65	-16	1	57.6	0.991219	1936.3	23.41	3.81	232.50	2277
2023	Nov	12	15	6	12.02	-17	28	7.1	0.990041	1938.6	22.26	3.26	166.58	2277
2023	Nov	17	15	26	39.71	-18	46	46.0	0.988908	1940.8	20.92	2.68	100.66	2277
2023	Nov	22	15	47	28.00	-19	57	3.3	0.987835	1942.9	19.39	2.08	34.75	2277
2023	Nov	27	16	8	35.81	-20	58	13.2	0.986865	1944.8	17.69	1.46	328.85	2278
2023	Dec	2	16	30	1.90	-21	49	35.2	0.986026	1946.5	15.82	0.83	262.95	2278
2023	Dec	7	16	51	44.34	-22	30	32.5	0.985311	1947.9	13.81	0.19	197.06	2278
2023	Dec	12	17	13	40.21	-23	0	32.5	0.984697	1949.1	11.68	-0.45	131.18	2278
2023	Dec	17	17	35	45.65	-23	19	9.4	0.984168	1950.1	9.43	-1.09	65.30	2278
2023	Dec	22	17	57	56.15	-23	26	6.9	0.983740	1951.0	7.11	-1.72	359.43	2279
2023	Dec	27	18	20	7.47	-23	21	19.3	0.983451	1951.6	4.72	-2.34	293.57	2279

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
2023	Jan	1	19	40	19.75	-20	33	25.7	0.749123	8.9	1.3	13.4e	132	16.4	256.7	-7	353
2023	Jan	4	19	29	41.80	-19	59	0.0	0.699087	9.6	3.1	8.2e	153	5.5	248.4	-8	355
2023	Jan	7	19	13	47.78	-19	39	41.9	0.673224	9.9	5.3	3.0e	171	0.7	198.3	-9	356
2023	Jan	10	18	56	50.36	-19	34	27.7	0.674304	9.9	3.9	6.6w	160	3.1	113.4	-9	358
2023	Jan	13	18	43	11.65	-19	41	20.9	0.699165	9.6	2.0	12.5w	141	11.2	101.1	-9	0
2023	Jan	16	18	35	17.07	-19	57	56.3	0.740995	9.0	0.9	17.2w	124	21.9	96.9	-9	1
2023	Jan	19	18	33	24.10	-20	20	47.7	0.792693	8.4	0.3	20.7w	110	32.7	94.3	-8	1
2023	Jan	22	18	36	41.91	-20	45	52.9	0.848737	7.9	0.0	22.9w	99	42.5	92.1	-8	1
2023	Jan	25	18	44	3.29	-21	9	25.5	0.905481	7.4	-0.1	24.2w	89	50.9	89.8	-7	0
2023	Jan	28	18	54	28.27	-21	28	22.9	0.960742	7.0	-0.1	24.8w	81	58.0	87.6	-7	359
2023	Jan	31	19	7	10.02	-21	40	29.6	1.013314	6.6	-0.2	25.0w	74	63.9	85.2	-7	357
2023	Feb	3	19	21	33.71	-21	44	8.7	1.062585	6.3	-0.2	24.7w	68	68.8	82.8	-6	356
2023	Feb	6	19	37	13.89	-21	38	12.8	1.108290	6.0	-0.1	24.1w	63	73.0	80.4	-6	354
2023	Feb	9	19	53	51.87	-21	21	54.8	1.150353	5.8	-0.1	23.3w	58	76.5	77.9	-6	352
2023	Feb	12	20	11	13.92	-20	54	42.7	1.188795	5.6	-0.2	22.3w	54	79.6	75.4	-6	350
2023	Feb	15	20	29	9.87	-20	16	14.6	1.223673	5.5	-0.2	21.1w	50	82.4	72.9	-6	348
2023	Feb	18	20	47	32.23	-19	26	15.9	1.255038	5.3	-0.2	19.8w	46	84.9	70.4	-5	346
2023	Feb	21	21	6	15.55	-18	24	37.6	1.282917	5.2	-0.3	18.3w	42	87.1	67.9	-5	344
2023	Feb	24	21	25	16.12	-17	11	14.9	1.307289	5.1	-0.4	16.6w	38	89.3	65.4	-5	342
2023	Feb	27	21	44	31.68	-15	46	5.6	1.328063	5.0	-0.5	14.9w	34	91.3	62.9	-5	340
2023	Mar	2	22	4	1.29	-14	9	9.9	1.345050	5.0	-0.6	12.9w	30	93.2	60.2	-5	338
2023	Mar	5	22	23	45.06	-12	20	30.9	1.357933	4.9	-0.8	10.8w	26	95.0	57.3	-5	337
2023	Mar	8	22	43	43.99	-10	20	16.2	1.366233	4.9	-1.0	8.6w	21	96.7	53.8	-4	335
2023	Mar	11	23	3	59.64	- 8	8	40.6	1.369271	4.9	-1.3	6.2w	16	98.1	48.6	-4	334
2023	Mar	14	23	24	33.71	- 5	46	11.9	1.366137	4.9	-1.6	3.7w	10	99.3	37.8	-4	333
2023	Mar	17	23	45	27.22	- 3	13	40.1	1.355673	4.9	-1.9	1.6e	4	99.9	352.5	-4	332
2023	Mar	20	0	6	39.27	- 0	32	31.0	1.336507	5.0	-1.9	2.8e	8	99.5	271.3	-4	332
2023	Mar	23	0	28	5.06	2	14	55.0	1.307206	5.1	-1.7	5.6e	17	97.8	254.1	-4	331
2023	Mar	26	0	49	33.53	5	5	4.7	1.266589	5.3	-1.5	8.6e	28	94.1	248.5	-4	331
2023	Mar	29	1	10	45.06	7	53	3.5	1.214219	5.5	-1.3	11.6e	40	88.1	246.0	-4	332
2023	Apr	1	1	31	10.91	10	32	53.0	1.150929	5.8	-1.1	14.3e	53	79.8	244.8	-4	332
2023	Apr	4	1	50	15.64	12	58	19.9	1.079045	6.2	-0.9	16.6e	67	69.5	244.2	-4	333
2023	Apr	7	2	7	22.10	15	3	59.8	1.002057	6.7	-0.7	18.3e	81	58.2	244.0	-4	333
2023	Apr	10	2	21	56.54	16	45	57.8	0.923873	7.2	-0.3	19.3e	94	46.8	243.9	-4	334
2023	Apr	13	2	33	31.63	18	1	50.4	0.848104	7.9	0.2	19.4e	106	36.0	243.8	-4	335
2023	Apr	16	2	41	47.72	18	50	18.8	0.777692	8.6	0.7	18.6e	118	26.3	243.5	-4	335
2023	Apr	19	2	46	34.23	19	10	45.0	0.714891	9.3	1.4	16.9e	130	17.8	242.9	-3	336
2023	Apr	22	2	47	52.57	19	3	9.6	0.661398	10.1	2.4	14.2e	142	10.8	241.8	-3	336
2023	Apr	25	2	46	0.48	18	28	42.2	0.618477	10.8	3.5	10.7e	153	5.4	240.2	-3	336
2023	Apr	28	2	41	35.46	17	30	35.2	0.586995	11.4	4.8	6.5e	165	1.8	236.9	-2	335
2023	May	1	2	35	33.90	16	14	50.7	0.567373	11.8	6.5	1.8e	176	0.1	220.3	-2	335
2023	May	4	2	29	3.57	14	50	14.1	0.559507	11.9	6.0	3.3w	173	0.4	73.7	-1	335

2023	May	7	2	23	11.32	13	26	51.4	0.562763	11.9	4.6	8.0w	162	2.4	65.9	-1	334	
2023	May	10	2	18	51.27	12	14	2.8	0.576070	11.6	3.5	12.4w	152	5.8	63.8	0	334	
2023	May	13	2	16	38.51	11	18	37.1	0.598119	11.2	2.6	16.1w	143	10.1	63.0	1	334	
2023	May	16	2	16	49.54	10	44	15.3	0.627564	10.6	2.0	19.2w	135	14.9	62.7	1	334	
2023	May	19	2	19	26.99	10	31	54.7	0.663181	10.1	1.5	21.6w	127	20.1	62.8	2	334	
2023	May	22	2	24	25.47	10	40	40.9	0.703941	9.5	1.1	23.3w	119	25.4	63.2	2	334	
2023	May	25	2	31	36.35	11	8	37.1	0.749014	8.9	0.8	24.4w	113	30.8	63.7	2	335	
2023	May	28	2	40	50.93	11	53	18.1	0.797740	8.4	0.5	24.8w	106	36.3	64.5	3	335	
2023	May	31	2	52	2.29	12	52	9.8	0.849559	7.9	0.3	24.8w	99	41.8	65.6	3	336	
2023	Jun	3	3	5	6.17	14	2	36.6	0.903950	7.4	0.1	24.3w	93	47.5	66.8	3	337	
2023	Jun	6	3	20	1.22	15	22	1.5	0.960342	7.0	-0.1	23.3w	86	53.5	68.4	3	338	
2023	Jun	9	3	36	48.91	16	47	40.4	1.018015	6.6	-0.3	21.8w	79	59.9	70.3	3	340	
2023	Jun	12	3	55	32.73	18	16	32.8	1.075983	6.2	-0.5	20.0w	71	66.6	72.5	4	341	
2023	Jun	15	4	16	16.96	19	45	11.1	1.132872	5.9	-0.7	17.7w	62	73.6	75.2	4	343	
2023	Jun	18	4	39	4.29	21	9	29.4	1.186811	5.6	-0.9	15.1w	52	80.7	78.5	4	346	
2023	Jun	21	5	3	52.15	22	24	39.9	1.235412	5.4	-1.2	12.0w	41	87.6	82.6	4	348	
2023	Jun	24	5	30	28.20	23	25	25.2	1.275951	5.2	-1.5	8.7w	30	93.5	88.1	4	351	
2023	Jun	27	5	58	26.72	24	6	39.0	1.305850	5.1	-1.8	5.2w	17	97.7	97.3	4	355	
2023	Jun	30	6	27	9.26	24	24	28.1	1.323353	5.0	-2.3	1.9w	6	99.7	129.5	4	358	
2023	Jul	3	6	55	51.03	24	17	9.2	1.328057	5.0	-2.1	2.6e	8	99.5	241.6	4	1	
2023	Jul	6	7	23	50.50	23	45	24.8	1.320932	5.1	-1.6	6.0e	19	97.3	261.7	4	5	
2023	Jul	9	7	50	36.58	22	51	50.3	1.303845	5.1	-1.3	9.3e	29	93.9	269.4	5	8	
2023	Jul	12	8	15	50.78	21	40	0.4	1.278954	5.2	-1.0	12.3e	37	89.8	274.4	5	11	
2023	Jul	15	8	39	25.13	20	13	42.3	1.248253	5.4	-0.7	15.1e	45	85.5	278.2	5	13	
2023	Jul	18	9	1	18.77	18	36	28.1	1.213374	5.5	-0.5	17.6e	52	81.1	281.4	5	16	
2023	Jul	21	9	21	34.66	16	51	24.8	1.175548	5.7	-0.4	19.9e	58	76.9	284.1	6	18	
2023	Jul	24	9	40	17.25	15	1	13.4	1.135664	5.9	-0.2	21.8e	63	72.7	286.5	6	20	
2023	Jul	27	9	57	30.92	13	8	13.3	1.094341	6.1	-0.1	23.5e	68	68.7	288.5	6	21	
2023	Jul	30	10	13	19.05	11	14	28.3	1.052011	6.3	0.0	24.9e	73	64.7	290.4	7	22	
2023	Aug	2	10	27	43.32	9	21	52.6	1.008980	6.6	0.1	26.0e	78	60.6	292.0	7	24	
2023	Aug	5	10	40	43.36	7	32	16.8	0.965485	6.9	0.1	26.8e	83	56.5	293.5	7	24	
2023	Aug	8	10	52	16.18	5	47	35.2	0.921744	7.2	0.2	27.3e	87	52.2	294.9	8	25	
2023	Aug	11	11	2	15.71	4	9	53.0	0.878000	7.6	0.3	27.4e	93	47.6	296.2	8	26	
2023	Aug	14	11	10	32.35	2	41	35.5	0.834594	8.0	0.4	27.0e	98	42.7	297.6	9	26	
2023	Aug	17	11	16	52.65	1	25	37.0	0.792027	8.4	0.5	26.1e	105	37.3	299.1	9	27	
2023	Aug	20	11	20	59.59	0	25	29.3	0.751058	8.9	0.8	24.7e	112	31.5	300.7	9	27	
2023	Aug	23	11	22	33.84	-	0	14	34.7	0.712808	9.4	1.1	22.5e	120	25.2	302.7	10	27
2023	Aug	26	11	21	17.35	-	0	29	52.0	0.678892	9.8	1.5	19.6e	129	18.6	305.3	10	27
2023	Aug	29	11	17	0.71	-	0	15	53.0	0.651519	10.3	2.2	15.8e	139	12.0	309.3	10	27
2023	Sep	1	11	9	54.81	0	30	0.4	0.633507	10.5	3.3	11.2e	151	6.2	316.2	11	26	
2023	Sep	4	11	0	44.33	1	46	3.3	0.628058	10.6	4.6	6.4e	163	2.1	334.0	10	26	
2023	Sep	7	10	50	54.35	3	23	51.8	0.638220	10.5	5.4	3.8w	170	0.8	38.3	10	25	
2023	Sep	10	10	42	19.59	5	8	33.0	0.666090	10.0	4.0	7.2w	159	3.2	88.9	9	25	
2023	Sep	13	10	36	55.23	6	42	28.0	0.712059	9.4	2.4	11.5w	144	9.6	102.5	8	24	
2023	Sep	16	10	36	4.34	7	50	20.2	0.774448	8.6	1.1	14.9w	127	19.7	108.4	8	24	
2023	Sep	19	10	40	19.99	8	22	31.2	0.849614	7.9	0.2	17.0w	111	32.3	111.9	7	24	
2023	Sep	22	10	49	26.74	8	15	32.2	0.932441	7.2	-0.4	17.8w	94	46.2	114.5	6	25	
2023	Sep	25	11	2	34.59	7	31	4.3	1.017171	6.6	-0.8	17.5w	79	59.8	116.7	5	26	
2023	Sep	28	11	18	37.62	6	14	29.6	1.098475	6.1	-0.9	16.3w	64	71.8	118.7	4	27	
2023	Oct	1	11	36	31.28	4	33	7.5	1.172385	5.7	-1.0	14.5w	51	81.4	120.5	4	27	
2023	Oct	4	11	55	23.71	2	34	33.2	1.236684	5.4	-1.1	12.4w	40	88.5	122.1	4	28	
2023	Oct	7	12	14	39.42	0	25	26.4	1.290675	5.2	-1.2	10.1w	30	93.4	123.8	3	28	
2023	Oct	10	12	33	57.43	-	1	48	58.5	1.334658	5.0	-1.3	7.8w	21	96.6	125.7	3	29
2023	Oct	13	12	53	7.30	-	4	4	50.7	1.369426	4.9	-1.4	5.5w	14	98.5	128.4	3	29
2023	Oct	16	13	12	5.29	-	6	19	26.6	1.395915	4.8	-1.5	3.3w	8	99.5	134.2	2	28
2023	Oct	19	13	30	51.52	-	8	30	51.4	1.415019	4.7	-1.6	1.3w	3	99.9	158.4	2	28
2023	Oct	22	13	49	28.15	-10	37	43.6	1.427510	4.7	-1.5	1.3e	3	99.9	264.2	2	27	
2023	Oct	25	14	7	58.26	-12	39	3.1	1.434012	4.7	-1.2	3.2e	7	99.6	284.9	1	27	
2023	Oct	28	14	26	25.20	-14	34	3.7	1.435002	4.7	-1.0	5.0e	11	99.1	289.4	1	26	
2023	Oct	31	14	44	52.23	-16	22	6.8	1.430824	4.7	-0.9	6.8e	15	98.3	290.8	1	24	
2023	Nov	3	15	3	22.15	-18	2	37.8	1.421697	4.7	-0.7	8.6e	19	97.4	291.0	1	23	
2023	Nov	6	15	21	57.11	-19	35	3.3	1.407734	4.7	-0.6	10.2e	22	96.3	290.5	0	22	
2023	Nov	9	15	40	38.33	-20	58	49.2	1.388959	4.8	-0.5	11.8e	26	95.0	289.6	0	20	
2023	Nov	12	15	59	25.86	-22	13	20.2	1.365314	4.9	-0.5	13.4e	30	93.4	288.4	0	18	
2023	Nov	15	16	18	18.24	-23	17	59.4	1.336673	5.0	-0.4	14.9e	34	91.6	287.0	0	16	
2023	Nov	18	16	37	11.97	-24	12	8.4	1.302851	5.1	-0.4	16.3e	38	89.4	285.3	-1	15	
2023	Nov	21	16	56	0.87	-24	55	8.9	1.263621	5.3	-0.4	17.6e	43	86.7	283.5	-1	13	

2023	Nov	24	17	14	35.08	-25	26	24.0	1.218738	5.5	-0.4	18.8e	48	83.3	281.6	-1	10
2023	Nov	27	17	32	39.70	-25	45	22.4	1.167984	5.7	-0.4	19.9e	54	79.1	279.6	-2	8
2023	Nov	30	17	49	52.52	-25	51	42.6	1.111243	6.0	-0.5	20.7e	62	73.8	277.5	-2	6
2023	Dec	3	18	5	40.98	-25	45	20.8	1.048650	6.4	-0.5	21.2e	70	67.1	275.4	-2	5
2023	Dec	6	18	19	17.92	-25	26	41.5	0.980854	6.8	-0.4	21.2e	80	58.6	273.5	-3	3
2023	Dec	9	18	29	37.18	-24	56	48.4	0.909447	7.3	-0.3	20.5e	92	48.1	271.6	-4	2
2023	Dec	12	18	35	12.32	-24	17	29.7	0.837575	8.0	0.0	18.7e	107	35.6	269.8	-4	1
2023	Dec	15	18	34	28.39	-23	31	6.2	0.770602	8.7	0.8	15.5e	124	22.0	267.7	-5	1
2023	Dec	18	18	26	24.02	-22	40	5.1	0.716262	9.3	2.2	10.7e	144	9.5	264.0	-6	2
2023	Dec	21	18	11	49.05	-21	47	23.1	0.683209	9.8	4.6	4.5e	165	1.6	248.0	-7	4
2023	Dec	24	17	54	16.64	-20	58	38.7	0.677445	9.9	4.9	3.8w	168	1.1	130.8	-7	6
2023	Dec	27	17	38	43.79	-20	22	47.2	0.698845	9.6	2.6	10.1w	148	7.8	109.1	-7	8
2023	Dec	30	17	28	44.63	-20	6	54.9	0.741436	9.0	1.1	15.3w	129	18.9	104.6	-7	9

Venus
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
2023	Jan	1	19	57	37.80	-22	5	48.2	1.607515	10.5	-3.9	17.2e	23	95.9	263.2	1	350
2023	Jan	6	20	23	59.31	-20	50	34.0	1.592578	10.6	-3.9	18.3e	25	95.3	260.9	1	348
2023	Jan	11	20	49	50.12	-19	20	6.7	1.576754	10.7	-3.9	19.5e	27	94.6	258.8	1	346
2023	Jan	16	21	15	8.36	-17	35	51.5	1.560040	10.8	-3.9	20.6e	28	94.0	256.8	1	344
2023	Jan	21	21	39	53.71	-15	39	19.9	1.542406	10.9	-3.9	21.8e	30	93.2	255.0	1	342
2023	Jan	26	22	4	7.09	-13	32	8.8	1.523811	11.0	-3.9	22.9e	32	92.5	253.4	1	341
2023	Jan	31	22	27	50.44	-11	15	58.7	1.504243	11.2	-3.9	24.1e	34	91.6	251.9	1	340
2023	Feb	5	22	51	6.95	- 8	52	29.4	1.483720	11.3	-3.9	25.2e	35	90.8	250.7	1	339
2023	Feb	10	23	14	0.77	- 6	23	17.9	1.462248	11.5	-3.9	26.3e	37	89.9	249.8	0	338
2023	Feb	15	23	36	36.66	- 3	49	58.8	1.439819	11.7	-3.9	27.4e	39	88.9	249.0	0	337
2023	Feb	20	23	58	59.69	- 1	14	4.8	1.416396	11.9	-3.9	28.5e	41	87.9	248.5	0	337
2023	Feb	25	0	21	14.81	1	22	50.7	1.391933	12.1	-3.9	29.6e	43	86.8	248.1	0	337
2023	Mar	2	0	43	26.81	3	59	13.3	1.366419	12.3	-3.9	30.7e	45	85.6	248.1	-1	337
2023	Mar	7	1	5	40.54	6	33	30.9	1.339871	12.6	-3.9	31.8e	46	84.4	248.2	-1	338
2023	Mar	12	1	28	0.82	9	4	13.5	1.312307	12.8	-3.9	32.9e	48	83.2	248.6	-1	338
2023	Mar	17	1	50	32.20	11	29	52.7	1.283730	13.1	-4.0	33.9e	50	81.8	249.2	-1	339
2023	Mar	22	2	13	18.68	13	48	59.9	1.254117	13.4	-4.0	35.0e	53	80.4	250.0	-2	340
2023	Mar	27	2	36	23.11	16	0	4.0	1.223442	13.7	-4.0	36.0e	55	78.9	251.1	-2	342
2023	Apr	1	2	59	47.17	18	1	34.6	1.191719	14.1	-4.0	37.0e	57	77.4	252.4	-2	343
2023	Apr	6	3	23	31.50	19	52	5.1	1.158990	14.5	-4.0	38.0e	59	75.8	253.9	-2	345
2023	Apr	11	3	47	35.56	21	30	15.3	1.125305	14.9	-4.1	38.9e	61	74.1	255.6	-3	347
2023	Apr	16	4	11	57.58	22	54	53.0	1.090705	15.4	-4.1	39.9e	64	72.3	257.5	-3	349
2023	Apr	21	4	36	34.02	24	4	54.0	1.055201	15.9	-4.1	40.7e	66	70.5	259.5	-3	351
2023	Apr	26	5	1	19.19	24	59	24.8	1.018811	16.5	-4.1	41.6e	68	68.5	261.7	-3	353
2023	May	1	5	26	5.60	25	37	47.2	0.981590	17.1	-4.2	42.3e	71	66.5	264.0	-3	356
2023	May	6	5	50	44.62	25	59	42.2	0.943624	17.8	-4.2	43.1e	73	64.4	266.3	-3	358
2023	May	11	6	15	7.08	26	5	11.2	0.905015	18.6	-4.2	43.7e	76	62.2	268.7	-3	0
2023	May	16	6	39	3.84	25	54	34.7	0.865850	19.4	-4.3	44.3e	79	59.9	271.0	-3	3
2023	May	21	7	2	25.46	25	28	31.3	0.826189	20.4	-4.3	44.7e	81	57.5	273.3	-3	5
2023	May	26	7	25	2.13	24	47	57.5	0.786108	21.4	-4.4	45.1e	84	54.9	275.5	-3	7
2023	May	31	7	46	44.24	23	54	7.1	0.745720	22.6	-4.4	45.3e	87	52.3	277.6	-3	9
2023	Jun	5	8	7	22.71	22	48	28.5	0.705176	23.9	-4.4	45.4e	91	49.5	279.6	-3	11
2023	Jun	10	8	26	49.30	21	32	40.4	0.664654	25.3	-4.5	45.3e	94	46.6	281.5	-2	13
2023	Jun	15	8	44	56.22	20	8	27.7	0.624322	26.9	-4.5	44.9e	98	43.5	283.2	-2	14
2023	Jun	20	9	1	34.53	18	37	43.6	0.584341	28.8	-4.6	44.3e	101	40.2	284.8	-1	15
2023	Jun	25	9	16	33.14	17	2	32.8	0.544917	30.9	-4.6	43.4e	105	36.7	286.3	-1	16
2023	Jun	30	9	29	38.52	15	25	13.5	0.506329	33.2	-4.7	42.1e	110	32.9	287.7	0	17
2023	Jul	5	9	40	34.47	13	48	17.8	0.468945	35.9	-4.7	40.4e	115	29.0	289.2	1	18
2023	Jul	10	9	49	2.50	12	14	30.8	0.433222	38.8	-4.7	38.1e	120	24.8	290.7	1	18
2023	Jul	15	9	54	41.64	10	46	54.4	0.399678	42.1	-4.7	35.2e	126	20.3	292.4	2	19
2023	Jul	20	9	57	8.42	9	28	59.5	0.368939	45.6	-4.6	31.5e	133	15.8	294.6	3	19
2023	Jul	25	9	56	0.91	8	24	46.9	0.341796	49.2	-4.5	27.0e	141	11.3	297.7	5	19
2023	Jul	30	9	51	7.61	7	38	28.2	0.319212	52.7	-4.4	21.6e	149	7.1	302.7	6	19
2023	Aug	4	9	42	41.12	7	13	33.8	0.302254	55.6	-4.2	15.6e	158	3.7	311.9	7	18
2023	Aug	9	9	31	31.74	7	11	28.4	0.291888	57.6	-4.1	9.9e	166	1.5	333.7	8	17
2023	Aug	14	9	19	7.37	7	30	29.0	0.288733	58.3	-4.1	7.8w	169	0.9	24.1	8	17
2023	Aug	19	9	7	16.61	8	5	44.2	0.292917	57.4	-4.1	11.8w	163	2.1	64.4	8	16

2023	Aug	24	8	57	41.23	8	50	22.1	0.304050	55.3	-4.3	17.8w	155	4.8	80.3	8	15	
2023	Aug	29	8	51	32.41	9	37	16.6	0.321346	52.3	-4.5	23.7w	146	8.5	87.9	8	15	
2023	Sep	3	8	49	23.01	10	20	25.4	0.343802	48.9	-4.6	28.9w	138	12.9	92.5	7	14	
2023	Sep	8	8	51	12.80	10	55	22.3	0.370358	45.4	-4.7	33.2w	131	17.4	95.8	7	15	
2023	Sep	13	8	56	39.70	11	19	20.9	0.400054	42.0	-4.7	36.7w	124	22.0	98.4	6	15	
2023	Sep	18	9	5	12.89	11	30	47.4	0.432124	38.9	-4.8	39.4w	118	26.3	100.7	5	16	
2023	Sep	23	9	16	20.90	11	28	53.0	0.465985	36.1	-4.7	41.6w	113	30.4	102.8	5	16	
2023	Sep	28	9	29	35.58	11	13	14.7	0.501201	33.6	-4.7	43.3w	108	34.2	104.8	4	17	
2023	Oct	3	9	44	33.08	10	43	45.6	0.537414	31.3	-4.7	44.5w	104	37.8	106.6	3	18	
2023	Oct	8	10	0	52.75	10	0	38.9	0.574304	29.3	-4.6	45.4w	100	41.2	108.2	3	19	
2023	Oct	13	10	18	16.86	9	4	30.0	0.611620	27.5	-4.6	46.0w	97	44.3	109.7	2	20	
2023	Oct	18	10	36	31.11	7	56	9.9	0.649179	25.9	-4.6	46.3w	93	47.3	111.1	2	21	
2023	Oct	23	10	55	24.60	6	36	39.4	0.686860	24.5	-4.5	46.4w	90	50.1	112.2	1	22	
2023	Oct	28	11	14	49.69	5	7	3.4	0.724572	23.2	-4.5	46.4w	87	52.7	113.2	1	22	
2023	Nov	2	11	34	41.31	3	28	30.9	0.762211	22.1	-4.4	46.2w	84	55.2	113.9	0	23	
2023	Nov	7	11	54	55.80	1	42	20.6	0.799658	21.0	-4.4	45.8w	81	57.6	114.5	0	23	
2023	Nov	12	12	15	30.71	-	0	9	59.6	0.836812	20.1	-4.3	45.4w	79	59.8	114.8	0	23
2023	Nov	17	12	36	24.84	-	2	6	56.7	0.873607	19.3	-4.3	44.9w	76	62.0	114.8	-1	23
2023	Nov	22	12	57	38.28	-	4	6	56.4	0.910009	18.5	-4.3	44.3w	74	64.1	114.6	-1	22
2023	Nov	27	13	19	12.40	-	6	8	25.8	0.945995	17.8	-4.2	43.6w	71	66.1	114.1	-1	22
2023	Dec	2	13	41	9.27	-	8	9	51.1	0.981511	17.1	-4.2	42.8w	69	68.0	113.4	-1	21
2023	Dec	7	14	3	31.00	-10	9	33.1	1.016484	16.5	-4.2	42.0w	67	69.8	112.5	-1	20	
2023	Dec	12	14	26	19.45	-12	5	48.5	1.050854	16.0	-4.1	41.2w	64	71.6	111.2	-1	19	
2023	Dec	17	14	49	36.14	-13	56	52.7	1.084585	15.5	-4.1	40.3w	62	73.2	109.7	-1	17	
2023	Dec	22	15	13	22.34	-15	41	3.3	1.117676	15.0	-4.1	39.4w	60	74.8	108.0	-1	16	
2023	Dec	27	15	37	39.08	-17	16	41.8	1.150128	14.6	-4.1	38.4w	58	76.4	106.0	-1	14	

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
2023	Jan	1	4	26	10.18	24	32	8.1	0.638421	14.7	-1.2	148.7e	19	97.3	265.5	-9	325
2023	Jan	6	4	23	26.21	24	27	32.0	0.669409	14.0	-1.1	143.0e	22	96.3	264.4	-9	324
2023	Jan	11	4	22	11.49	24	24	53.9	0.703737	13.3	-0.9	137.6e	25	95.4	263.6	-9	324
2023	Jan	16	4	22	22.37	24	24	28.3	0.741016	12.6	-0.7	132.6e	27	94.4	263.1	-9	324
2023	Jan	21	4	23	53.92	24	26	17.4	0.780881	12.0	-0.6	127.8e	29	93.6	262.8	-9	325
2023	Jan	26	4	26	40.58	24	30	13.3	0.822963	11.4	-0.4	123.4e	31	92.8	262.7	-9	325
2023	Jan	31	4	30	35.72	24	35	57.3	0.866886	10.8	-0.3	119.2e	33	92.1	262.8	-8	325
2023	Feb	5	4	35	32.08	24	43	3.5	0.912327	10.3	-0.2	115.3e	34	91.6	263.0	-8	325
2023	Feb	10	4	41	22.92	24	51	3.5	0.959033	9.8	0.0	111.5e	35	91.1	263.3	-7	326
2023	Feb	15	4	48	2.41	24	59	30.0	1.006795	9.3	0.1	108.0e	36	90.7	263.8	-6	326
2023	Feb	20	4	55	25.77	25	7	56.8	1.055419	8.9	0.2	104.6e	36	90.3	264.3	-6	327
2023	Feb	25	5	3	28.66	25	15	58.2	1.104682	8.5	0.3	101.4e	37	90.1	264.9	-5	328
2023	Mar	2	5	12	6.55	25	23	8.2	1.154368	8.1	0.4	98.4e	37	89.9	265.6	-4	329
2023	Mar	7	5	21	15.06	25	29	2.2	1.204314	7.8	0.5	95.4e	37	89.8	266.4	-3	329
2023	Mar	12	5	30	50.43	25	33	18.6	1.254396	7.5	0.6	92.6e	37	89.7	267.2	-2	330
2023	Mar	17	5	40	49.61	25	35	38.6	1.304514	7.2	0.7	89.9e	37	89.7	268.1	-1	331
2023	Mar	22	5	51	10.16	25	35	45.7	1.354552	6.9	0.8	87.2e	37	89.8	269.0	0	333
2023	Mar	27	6	1	49.57	25	33	24.3	1.404360	6.7	0.9	84.7e	37	89.9	270.0	1	334
2023	Apr	1	6	12	45.11	25	28	20.7	1.453804	6.4	1.0	82.2e	37	90.0	271.0	3	335
2023	Apr	6	6	23	54.17	25	20	23.3	1.502796	6.2	1.0	79.8e	37	90.1	272.0	4	336
2023	Apr	11	6	35	14.56	25	9	23.5	1.551275	6.0	1.1	77.4e	36	90.3	273.1	5	338
2023	Apr	16	6	46	44.61	24	55	14.0	1.599187	5.9	1.2	75.2e	36	90.5	274.1	6	339
2023	Apr	21	6	58	22.91	24	37	48.7	1.646445	5.7	1.2	72.9e	35	90.8	275.2	7	341
2023	Apr	26	7	10	7.82	24	17	3.2	1.692938	5.5	1.3	70.8e	35	91.0	276.3	9	342
2023	May	1	7	21	57.60	23	52	55.0	1.738581	5.4	1.3	68.6e	34	91.3	277.3	10	344
2023	May	6	7	33	50.66	23	25	23.5	1.783328	5.2	1.4	66.5e	34	91.5	278.4	11	345
2023	May	11	7	45	45.81	22	54	29.5	1.827154	5.1	1.4	64.5e	33	91.8	279.4	12	347
2023	May	16	7	57	42.27	22	20	14.4	1.870026	5.0	1.5	62.5e	33	92.1	280.4	13	349
2023	May	21	8	9	39.34	21	42	39.7	1.911869	4.9	1.5	60.5e	32	92.4	281.4	14	351
2023	May	26	8	21	36.13	21	1	49.1	1.952603	4.8	1.5	58.6e	31	92.7	282.4	15	352
2023	May	31	8	33	31.75	20	17	47.7	1.992176	4.7	1.6	56.6e	31	93.1	283.3	16	354
2023	Jun	5	8	45	25.51	19	30	41.7	2.030570	4.6	1.6	54.8e	30	93.4	284.2	17	356
2023	Jun	10	8	57	17.06	18	40	37.4	2.067784	4.5	1.6	52.9e	29	93.7	285.1	18	358
2023	Jun	15	9	9	6.40	17	47	40.3	2.103791	4.4	1.7	51.1e	28	94.0	285.9	19	360
2023	Jun	20	9	20	53.45	16	51	56.8	2.138527	4.4	1.7	49.2e	28	94.3	286.7	20	2

2023	Jun	25	9	32	37.98	15	53	34.8	2.171935	4.3	1.7	47.5e	27	94.6	287.4	21	4
2023	Jun	30	9	44	19.85	14	52	43.3	2.203991	4.2	1.7	45.7e	26	95.0	288.1	22	5
2023	Jul	5	9	55	59.05	13	49	31.5	2.234696	4.2	1.7	43.9e	25	95.3	288.7	23	7
2023	Jul	10	10	7	35.93	12	44	7.5	2.264065	4.1	1.7	42.2e	24	95.6	289.3	23	9
2023	Jul	15	10	19	10.99	11	36	38.8	2.292070	4.1	1.8	40.5e	23	95.9	289.8	24	11
2023	Jul	20	10	30	44.61	10	27	14.0	2.318659	4.0	1.8	38.8e	23	96.2	290.3	24	13
2023	Jul	25	10	42	17.06	9	16	3.1	2.343797	4.0	1.8	37.1e	22	96.4	290.7	25	15
2023	Jul	30	10	53	48.67	8	3	16.7	2.367478	4.0	1.8	35.4e	21	96.7	291.1	25	17
2023	Aug	4	11	5	19.91	6	49	5.2	2.389725	3.9	1.8	33.7e	20	97.0	291.4	26	19
2023	Aug	9	11	16	51.57	5	33	37.3	2.410557	3.9	1.8	32.1e	19	97.2	291.6	26	21
2023	Aug	14	11	28	24.42	4	17	1.8	2.429945	3.9	1.8	30.4e	18	97.5	291.8	26	22
2023	Aug	19	11	39	59.12	2	59	29.1	2.447853	3.8	1.8	28.8e	17	97.7	292.0	26	24
2023	Aug	24	11	51	36.24	1	41	10.9	2.464265	3.8	1.8	27.1e	16	98.0	292.0	26	26
2023	Aug	29	12	3	16.39	0	22	19.4	2.479193	3.8	1.8	25.5e	16	98.2	292.0	26	27
2023	Sep	3	12	15	0.34	- 0	56	54.1	2.492679	3.8	1.7	23.9e	15	98.4	292.0	26	29
2023	Sep	8	12	26	49.08	- 2	16	19.3	2.504741	3.7	1.7	22.3e	14	98.6	291.9	25	30
2023	Sep	13	12	38	43.54	- 3	35	45.1	2.515355	3.7	1.7	20.7e	13	98.8	291.7	25	32
2023	Sep	18	12	50	44.50	- 4	54	58.3	2.524503	3.7	1.7	19.1e	12	98.9	291.4	24	33
2023	Sep	23	13	2	52.66	- 6	13	44.8	2.532186	3.7	1.7	17.5e	11	99.1	291.1	24	34
2023	Sep	28	13	15	8.75	- 7	31	49.8	2.538440	3.7	1.7	15.9e	10	99.3	290.8	23	35
2023	Oct	3	13	27	33.66	- 8	48	59.5	2.543318	3.7	1.7	14.3e	9	99.4	290.3	22	36
2023	Oct	8	13	40	8.42	-10	5	0.5	2.546839	3.7	1.6	12.7e	8	99.5	289.8	22	37
2023	Oct	13	13	52	53.90	-11	19	37.8	2.548993	3.7	1.6	11.2e	7	99.6	289.3	21	37
2023	Oct	18	14	5	50.81	-12	32	34.4	2.549776	3.7	1.6	9.6e	6	99.7	288.7	20	38
2023	Oct	23	14	18	59.72	-13	43	32.3	2.549214	3.7	1.6	8.0e	5	99.8	288.1	19	38
2023	Oct	28	14	32	21.18	-14	52	13.4	2.547365	3.7	1.5	6.5e	4	99.9	287.4	18	39
2023	Nov	2	14	45	55.92	-15	58	20.6	2.544291	3.7	1.5	5.0e	3	99.9	286.8	16	39
2023	Nov	7	14	59	44.60	-17	1	36.3	2.540015	3.7	1.5	3.4e	2	100.0	286.4	15	39
2023	Nov	12	15	13	47.65	-18	1	41.4	2.534542	3.7	1.5	1.9e	1	100.0	286.9	14	38
2023	Nov	17	15	28	5.23	-18	58	15.8	2.527890	3.7	1.4	0.4e	0	100.0	299.6	12	38
2023	Nov	22	15	42	37.23	-19	50	58.8	2.520104	3.7	1.4	1.1w	1	100.0	95.3	11	38
2023	Nov	27	15	57	23.54	-20	39	30.9	2.511266	3.7	1.4	2.6w	2	100.0	97.3	10	37
2023	Dec	2	16	12	24.07	-21	23	33.8	2.501441	3.7	1.4	4.1w	3	99.9	96.9	8	36
2023	Dec	7	16	27	38.52	-22	2	48.9	2.490662	3.8	1.4	5.6w	4	99.9	95.9	7	35
2023	Dec	12	16	43	6.26	-22	36	58.0	2.478946	3.8	1.4	7.1w	5	99.8	94.7	5	34
2023	Dec	17	16	58	46.26	-23	5	43.1	2.466327	3.8	1.4	8.5w	6	99.8	93.3	3	33
2023	Dec	22	17	14	37.22	-23	28	48.4	2.452874	3.8	1.4	9.9w	7	99.7	91.9	2	31
2023	Dec	27	17	30	37.90	-23	46	0.3	2.438678	3.8	1.4	11.3w	7	99.6	90.4	0	30

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
2023	Jan	1	0	5	15.66	-	0	49	57.3	5.010397	39.3	-2.2	80.9e	11	99.0	246.8	2 335
2023	Jan	6	0	7	33.74	-	0	33	40.7	5.088318	38.7	-2.2	76.4e	11	99.1	246.9	2 335
2023	Jan	11	0	10	5.66	-	0	15	58.1	5.164844	38.1	-2.2	72.1e	11	99.1	247.0	2 335
2023	Jan	16	0	12	50.58		0	3	4.7	5.239585	37.6	-2.1	67.7e	11	99.1	247.1	2 335
2023	Jan	21	0	15	47.71		0	23	22.1	5.312147	37.1	-2.1	63.4e	10	99.2	247.2	2 335
2023	Jan	26	0	18	56.21		0	44	48.2	5.382124	36.6	-2.1	59.2e	10	99.3	247.4	2 335
2023	Jan	31	0	22	15.16		1	7	16.3	5.449150	36.1	-2.0	55.0e	9	99.3	247.5	2 335
2023	Feb	5	0	25	43.64		1	30	39.7	5.512935	35.7	-2.0	50.9e	9	99.4	247.7	2 335
2023	Feb	10	0	29	20.88		1	54	52.5	5.573231	35.3	-2.0	46.9e	8	99.5	247.8	2 335
2023	Feb	15	0	33	6.16		2	19	49.4	5.629796	35.0	-2.0	42.8e	8	99.5	248.0	2 335
2023	Feb	20	0	36	58.82		2	45	25.1	5.682382	34.7	-2.0	38.8e	7	99.6	248.3	2 335
2023	Feb	25	0	40	58.10		3	11	34.1	5.730738	34.4	-2.0	34.9e	7	99.7	248.6	2 335
2023	Mar	2	0	45	3.25		3	38	10.1	5.774679	34.1	-1.9	31.0e	6	99.7	248.9	2 335
2023	Mar	7	0	49	13.55		4	5	7.7	5.814080	33.9	-1.9	27.1e	5	99.8	249.3	2 335
2023	Mar	12	0	53	28.41		4	32	21.8	5.848835	33.7	-1.9	23.3e	5	99.8	249.8	2 335
2023	Mar	17	0	57	47.29		4	59	48.2	5.878836	33.5	-1.9	19.4e	4	99.9	250.4	2 336
2023	Mar	22	1	2	9.63		5	27	22.4	5.903957	33.4	-1.9	15.7e	3	99.9	251.3	2 336
2023	Mar	27	1	6	34.80		5	54	59.2	5.924097	33.2	-1.9	11.9e	2	100.0	252.7	2 336
2023	Apr	1	1	11	2.15		6	22	33.6	5.939223	33.2	-1.9	8.2e	2	100.0	255.2	3 336
2023	Apr	6	1	15	31.14		6	50	1.0	5.949338	33.1	-1.9	4.5e	1	100.0	261.5	3 336
2023	Apr	11	1	20	1.28		7	17	17.8	5.954452	33.1	-1.9	1.3e	0	100.0	305.4	3 336
2023	Apr	16	1	24	32.11		7	44	20.4	5.954557	33.1	-1.9	3.2w	1	100.0	48.8	3 337
2023	Apr	21	1	29	3.08		8	11	4.9	5.949635	33.1	-1.9	6.8w	1	100.0	59.4	3 337
2023	Apr	26	1	33	33.58		8	37	26.7	5.939715	33.2	-1.9	10.4w	2	100.0	62.8	3 337

2023	May	1	1	38	3.03	9	3	22.0	5.924883	33.2	-1.9	14.1w	3	99.9	64.5	3	337
2023	May	6	1	42	30.90	9	28	47.4	5.905244	33.4	-1.9	17.7w	4	99.9	65.7	3	338
2023	May	11	1	46	56.71	9	53	39.9	5.880894	33.5	-1.9	21.4w	4	99.9	66.5	3	338
2023	May	16	1	51	19.95	10	17	56.8	5.851904	33.7	-1.9	25.1w	5	99.8	67.1	3	338
2023	May	21	1	55	39.99	10	41	34.4	5.818359	33.8	-1.9	28.8w	6	99.8	67.7	3	338
2023	May	26	1	59	56.14	11	4	29.1	5.780404	34.1	-1.9	32.5w	6	99.7	68.1	3	339
2023	May	31	2	4	7.76	11	26	37.9	5.738223	34.3	-1.9	36.2w	7	99.6	68.6	3	339
2023	Jun	5	2	8	14.25	11	47	58.2	5.692005	34.6	-2.0	39.9w	8	99.6	69.0	3	339
2023	Jun	10	2	12	15.03	12	8	28.0	5.641922	34.9	-2.0	43.6w	8	99.5	69.4	3	339
2023	Jun	15	2	16	9.41	12	28	4.5	5.588128	35.2	-2.0	47.4w	9	99.4	69.7	3	340
2023	Jun	20	2	19	56.56	12	46	44.7	5.530821	35.6	-2.0	51.2w	9	99.4	70.1	3	340
2023	Jun	25	2	23	35.66	13	4	25.5	5.470258	36.0	-2.0	55.0w	10	99.3	70.4	3	340
2023	Jun	30	2	27	5.93	13	21	4.8	5.406721	36.4	-2.1	58.9w	10	99.2	70.7	3	340
2023	Jul	5	2	30	26.63	13	36	40.6	5.340491	36.9	-2.1	62.8w	11	99.2	71.0	3	341
2023	Jul	10	2	33	36.97	13	51	11.2	5.271823	37.4	-2.1	66.8w	11	99.1	71.3	3	341
2023	Jul	15	2	36	36.02	14	4	33.9	5.200988	37.9	-2.1	70.8w	11	99.1	71.6	3	341
2023	Jul	20	2	39	22.78	14	16	45.9	5.128321	38.4	-2.2	74.8w	11	99.0	71.9	3	341
2023	Jul	25	2	41	56.30	14	27	45.0	5.054205	39.0	-2.2	79.0w	12	99.0	72.2	3	341
2023	Jul	30	2	44	15.68	14	37	29.4	4.979042	39.6	-2.2	83.2w	12	99.0	72.4	3	342
2023	Aug	4	2	46	20.12	14	45	57.7	4.903224	40.2	-2.3	87.4w	12	98.9	72.6	3	342
2023	Aug	9	2	48	8.71	14	53	8.2	4.827125	40.8	-2.3	91.7w	12	98.9	72.9	3	342
2023	Aug	14	2	49	40.48	14	58	58.3	4.751174	41.5	-2.3	96.2w	12	99.0	73.1	3	342
2023	Aug	19	2	50	54.51	15	3	25.9	4.675865	42.1	-2.4	100.7w	12	99.0	73.2	3	342
2023	Aug	24	2	51	50.08	15	6	29.8	4.601722	42.8	-2.4	105.2w	11	99.0	73.4	3	342
2023	Aug	29	2	52	26.64	15	8	9.4	4.529276	43.5	-2.4	109.9w	11	99.1	73.6	3	342
2023	Sep	3	2	52	43.78	15	8	24.3	4.459028	44.2	-2.5	114.7w	11	99.1	73.7	3	342
2023	Sep	8	2	52	41.14	15	7	13.9	4.391486	44.8	-2.5	119.5w	10	99.2	73.9	3	342
2023	Sep	13	2	52	18.49	15	4	37.7	4.327219	45.5	-2.5	124.5w	10	99.3	74.0	3	342
2023	Sep	18	2	51	35.95	15	0	36.7	4.266826	46.2	-2.6	129.6w	9	99.4	74.2	3	342
2023	Sep	23	2	50	34.04	14	55	13.5	4.210898	46.8	-2.6	134.7w	8	99.5	74.3	3	342
2023	Sep	28	2	49	13.65	14	48	32.0	4.159981	47.3	-2.6	139.9w	7	99.6	74.5	3	342
2023	Oct	3	2	47	35.94	14	40	36.7	4.114562	47.9	-2.7	145.3w	7	99.7	74.8	3	342
2023	Oct	8	2	45	42.27	14	31	32.9	4.075127	48.3	-2.7	150.7w	6	99.8	75.2	3	342
2023	Oct	13	2	43	34.41	14	21	27.8	4.042164	48.7	-2.7	156.1w	5	99.8	75.7	3	342
2023	Oct	18	2	41	14.60	14	10	30.8	4.016114	49.0	-2.7	161.7w	4	99.9	76.6	3	341
2023	Oct	23	2	38	45.49	13	58	53.7	3.997327	49.3	-2.7	167.2w	3	100.0	78.5	3	341
2023	Oct	28	2	36	9.94	13	46	49.2	3.986032	49.4	-2.8	172.8w	1	100.0	83.3	3	341
2023	Nov	2	2	33	30.86	13	34	30.3	3.982371	49.5	-2.8	178.0w	0	100.0	117.9	3	341
2023	Nov	7	2	30	51.18	13	22	10.8	3.986445	49.4	-2.8	175.5e	1	100.0	233.7	3	341
2023	Nov	12	2	28	13.99	13	10	5.5	3.998285	49.3	-2.7	169.9e	2	100.0	243.6	3	340
2023	Nov	17	2	25	42.39	12	58	30.1	4.017814	49.0	-2.7	164.2e	3	99.9	246.4	3	340
2023	Nov	22	2	23	19.38	12	47	39.8	4.044818	48.7	-2.7	158.6e	4	99.9	247.7	3	340
2023	Nov	27	2	21	7.57	12	37	48.0	4.078974	48.3	-2.7	153.0e	5	99.8	248.4	3	340
2023	Dec	2	2	19	9.13	12	29	6.0	4.119914	47.8	-2.7	147.4e	6	99.7	248.8	3	340
2023	Dec	7	2	17	26.01	12	21	44.1	4.167242	47.3	-2.6	141.9e	7	99.6	249.2	3	340
2023	Dec	12	2	15	59.89	12	15	51.4	4.220504	46.7	-2.6	136.5e	8	99.5	249.4	3	340
2023	Dec	17	2	14	52.15	12	11	35.4	4.279171	46.0	-2.6	131.1e	9	99.4	249.6	3	339
2023	Dec	22	2	14	3.78	12	9	1.1	4.342634	45.4	-2.5	125.9e	9	99.4	249.7	3	339
2023	Dec	27	2	13	35.25	12	8	10.6	4.410275	44.7	-2.5	120.6e	10	99.3	249.9	3	339

Saturn
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
2023	Jan	1	21 39 32.52	-15 18 58.5	10.542492	15.8	0.8	42.1e	4	99.9	252.4	14 6
2023	Jan	6	21 41 32.25	-15 8 56.1	10.595462	15.7	0.8	37.6e	3	99.9	252.5	13 6
2023	Jan	11	21 43 36.57	-14 58 28.4	10.643189	15.7	0.8	33.0e	3	99.9	252.7	13 6
2023	Jan	16	21 45 44.93	-14 47 37.7	10.685404	15.6	0.8	28.5e	3	99.9	252.9	13 6
2023	Jan	21	21 47 56.80	-14 36 26.5	10.721840	15.5	0.8	23.9e	2	100.0	253.3	13 6
2023	Jan	26	21 50 11.56	-14 24 57.5	10.752248	15.5	0.8	19.4e	2	100.0	253.9	12 6
2023	Jan	31	21 52 28.58	-14 13 13.8	10.776463	15.5	0.8	15.0e	1	100.0	254.9	12 6
2023	Feb	5	21 54 47.28	-14 1 18.4	10.794394	15.4	0.8	10.5e	1	100.0	256.9	12 6
2023	Feb	10	21 57 7.12	-13 49 14.1	10.805973	15.4	0.8	6.1e	1	100.0	261.8	12 6
2023	Feb	15	21 59 27.57	-13 37 3.7	10.811142	15.4	0.8	2.0e	0	100.0	289.6	11 6
2023	Feb	20	22 1 48.09	-13 24 49.9	10.809850	15.4	0.8	3.2w	0	100.0	46.5	11 6

2023	Feb	25	22	4	8.10	-13	12	36.2	10.802088	15.4	0.8	7.5w	1	100.0	59.9	11	6
2023	Mar	2	22	6	27.00	-13	0	25.9	10.787940	15.4	0.9	11.9w	1	100.0	63.4	11	6
2023	Mar	7	22	8	44.28	-12	48	22.2	10.767534	15.5	0.9	16.3w	2	100.0	65.0	10	6
2023	Mar	12	22	10	59.46	-12	36	27.9	10.741010	15.5	0.9	20.7w	2	100.0	65.9	10	6
2023	Mar	17	22	13	12.05	-12	24	46.1	10.708506	15.6	0.9	25.1w	2	100.0	66.4	10	6
2023	Mar	22	22	15	21.53	-12	13	19.9	10.670175	15.6	0.9	29.5w	3	99.9	66.8	10	6
2023	Mar	27	22	17	27.34	-12	2	12.9	10.626240	15.7	1.0	33.9w	3	99.9	67.0	9	6
2023	Apr	1	22	19	28.99	-11	51	28.3	10.576997	15.8	1.0	38.3w	4	99.9	67.2	9	6
2023	Apr	6	22	21	26.03	-11	41	9.3	10.522758	15.8	1.0	42.7w	4	99.9	67.3	9	6
2023	Apr	11	22	23	18.02	-11	31	18.5	10.463832	15.9	1.0	47.1w	4	99.9	67.5	9	6
2023	Apr	16	22	25	4.52	-11	21	58.9	10.400523	16.0	1.0	51.6w	5	99.8	67.6	9	6
2023	Apr	21	22	26	45.05	-11	13	13.8	10.333173	16.1	1.0	56.0w	5	99.8	67.6	8	6
2023	Apr	26	22	28	19.13	-11	5	6.2	10.262199	16.2	1.0	60.5w	5	99.8	67.7	8	6
2023	May	1	22	29	46.35	-10	57	39.0	10.188056	16.4	1.0	65.0w	5	99.8	67.8	8	6
2023	May	6	22	31	6.36	-10	50	54.5	10.111197	16.5	1.0	69.5w	6	99.8	67.9	8	6
2023	May	11	22	32	18.81	-10	44	55.0	10.032059	16.6	1.0	74.0w	6	99.8	67.9	8	6
2023	May	16	22	33	23.34	-10	39	42.7	9.951084	16.7	1.0	78.6w	6	99.7	68.0	8	6
2023	May	21	22	34	19.56	-10	35	20.2	9.868770	16.9	1.0	83.1w	6	99.7	68.1	8	6
2023	May	26	22	35	7.17	-10	31	49.3	9.785671	17.0	1.0	87.7w	6	99.7	68.2	7	6
2023	May	31	22	35	45.94	-10	29	11.4	9.702345	17.2	1.0	92.4w	6	99.7	68.3	7	6
2023	Jun	5	22	36	15.70	-10	27	27.4	9.619331	17.3	0.9	97.0w	6	99.7	68.4	7	6
2023	Jun	10	22	36	36.32	-10	26	37.9	9.537140	17.5	0.9	101.7w	6	99.7	68.5	7	6
2023	Jun	15	22	36	47.64	-10	26	43.5	9.456307	17.6	0.9	106.5w	6	99.8	68.6	7	6
2023	Jun	20	22	36	49.58	-10	27	44.6	9.377418	17.8	0.9	111.2w	6	99.8	68.8	7	6
2023	Jun	25	22	36	42.16	-10	29	40.4	9.301072	17.9	0.8	116.1w	5	99.8	69.0	7	6
2023	Jun	30	22	36	25.55	-10	32	29.6	9.227838	18.1	0.8	120.9w	5	99.8	69.2	7	6
2023	Jul	5	22	35	59.98	-10	36	10.2	9.158241	18.2	0.8	125.8w	5	99.8	69.4	7	6
2023	Jul	10	22	35	25.69	-10	40	39.9	9.092770	18.3	0.7	130.7w	5	99.8	69.6	8	6
2023	Jul	15	22	34	42.99	-10	45	56.3	9.031944	18.5	0.7	135.7w	4	99.9	70.0	8	6
2023	Jul	20	22	33	52.35	-10	51	56.1	8.976293	18.6	0.7	140.7w	4	99.9	70.3	8	6
2023	Jul	25	22	32	54.36	-10	58	34.8	8.926300	18.7	0.6	145.7w	3	99.9	70.8	8	6
2023	Jul	30	22	31	49.73	-11	5	47.6	8.882380	18.8	0.6	150.7w	3	99.9	71.4	8	6
2023	Aug	4	22	30	39.25	-11	13	29.0	8.844872	18.8	0.6	155.8w	2	100.0	72.3	8	6
2023	Aug	9	22	29	23.69	-11	21	33.8	8.814085	18.9	0.5	160.9w	2	100.0	73.5	8	6
2023	Aug	14	22	28	3.95	-11	29	56.4	8.790330	19.0	0.5	166.1w	1	100.0	75.6	9	6
2023	Aug	19	22	26	41.04	-11	38	30.1	8.773863	19.0	0.5	171.2w	1	100.0	80.0	9	6
2023	Aug	24	22	25	16.07	-11	47	8.3	8.764848	19.0	0.4	176.1w	0	100.0	95.7	9	6
2023	Aug	29	22	23	50.18	-11	55	44.0	8.763354	19.0	0.4	177.5e	0	100.0	202.8	9	6
2023	Sep	3	22	22	24.46	-12	4	10.8	8.769366	19.0	0.4	172.8e	1	100.0	234.4	9	6
2023	Sep	8	22	20	59.98	-12	12	22.8	8.782853	19.0	0.4	167.7e	1	100.0	240.6	9	6
2023	Sep	13	22	19	37.86	-12	20	13.7	8.803746	18.9	0.5	162.5e	2	100.0	243.2	10	6
2023	Sep	18	22	18	19.21	-12	27	37.6	8.831888	18.9	0.5	157.3e	2	100.0	244.6	10	6
2023	Sep	23	22	17	5.15	-12	34	28.7	8.867024	18.8	0.5	152.2e	3	99.9	245.6	10	6
2023	Sep	28	22	15	56.64	-12	40	42.0	8.908811	18.7	0.5	147.0e	3	99.9	246.3	10	6
2023	Oct	3	22	14	54.52	-12	46	13.5	8.956869	18.6	0.6	141.8e	4	99.9	246.8	10	6
2023	Oct	8	22	13	59.58	-12	50	59.7	9.010820	18.5	0.6	136.6e	4	99.9	247.3	10	6
2023	Oct	13	22	13	12.55	-12	54	57.3	9.070237	18.4	0.6	131.5e	4	99.9	247.6	10	6
2023	Oct	18	22	12	34.09	-12	58	3.4	9.134619	18.2	0.6	126.4e	5	99.8	247.9	10	6
2023	Oct	23	22	12	4.73	-13	0	15.6	9.203396	18.1	0.7	121.3e	5	99.8	248.2	10	6
2023	Oct	28	22	11	44.83	-13	1	32.9	9.275968	18.0	0.7	116.2e	5	99.8	248.4	11	6
2023	Nov	2	22	11	34.61	-13	1	54.6	9.351758	17.8	0.7	111.2e	5	99.8	248.6	11	6
2023	Nov	7	22	11	34.25	-13	1	20.5	9.430205	17.7	0.8	106.2e	6	99.8	248.8	11	6
2023	Nov	12	22	11	43.89	-12	59	50.1	9.510711	17.5	0.8	101.2e	6	99.8	248.9	10	6
2023	Nov	17	22	12	3.54	-12	57	23.8	9.592638	17.4	0.8	96.3e	6	99.7	249.0	10	6
2023	Nov	22	22	12	33.12	-12	54	2.4	9.675327	17.2	0.8	91.4e	6	99.7	249.2	10	6
2023	Nov	27	22	13	12.37	-12	49	47.2	9.758153	17.1	0.8	86.5e	6	99.7	249.3	10	6
2023	Dec	2	22	14	1.04	-12	44	40.1	9.840549	16.9	0.9	81.6e	6	99.7	249.4	10	6
2023	Dec	7	22	14	58.84	-12	38	42.6	9.921961	16.8	0.9	76.8e	6	99.8	249.5	10	6
2023	Dec	12	22	16	5.46	-12	31	56.2	10.001818	16.7	0.9	72.0e	6	99.8	249.6	10	6
2023	Dec	17	22	17	20.50	-12	24	23.0	10.079541	16.5	0.9	67.3e	5	99.8	249.7	10	6
2023	Dec	22	22	18	43.50	-12	16	5.5	10.154573	16.4	0.9	62.6e	5	99.8	249.8	10	6
2023	Dec	27	22	20	13.91	-12	7	6.4	10.226438	16.3	0.9	57.9e	5	99.8	249.9	9	6

Uranus
Equinox of J2000

Date	Right Asc.	Declination	Distance	dia	mag	Elong	I	%Ill	Limb	De	Pp
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year	mth	d	h	m	s	o	'	"	AU	"	o	o	o	o	o
2023	Jan	1	2	49	53.26	15	56	29.6	19.091430	3.6	5.7	124.9e	2	100.0	252.7
2023	Jan	6	2	49	33.46	15	55	9.7	19.163796	3.6	5.7	119.7e	2	100.0	252.7
2023	Jan	11	2	49	18.51	15	54	11.3	19.239937	3.6	5.7	114.5e	3	99.9	252.7
2023	Jan	16	2	49	8.58	15	53	35.2	19.319259	3.5	5.7	109.4e	3	99.9	252.8
2023	Jan	21	2	49	3.79	15	53	22.1	19.401141	3.5	5.7	104.3e	3	99.9	252.8
2023	Jan	26	2	49	4.26	15	53	32.5	19.484906	3.5	5.7	99.2e	3	99.9	252.8
2023	Jan	31	2	49	10.00	15	54	6.3	19.569844	3.5	5.7	94.1e	3	99.9	252.9
2023	Feb	5	2	49	20.96	15	55	3.2	19.655288	3.5	5.8	89.1e	3	99.9	252.9
2023	Feb	10	2	49	37.07	15	56	22.7	19.740610	3.5	5.8	84.1e	3	99.9	253.0
2023	Feb	15	2	49	58.25	15	58	4.5	19.825201	3.5	5.8	79.1e	3	99.9	253.0
2023	Feb	20	2	50	24.38	16	0	7.8	19.908441	3.4	5.8	74.2e	3	99.9	253.1
2023	Feb	25	2	50	55.31	16	2	31.9	19.989683	3.4	5.8	69.3e	3	99.9	253.1
2023	Mar	2	2	51	30.83	16	5	15.7	20.068321	3.4	5.8	64.4e	3	99.9	253.2
2023	Mar	7	2	52	10.71	16	8	17.7	20.143824	3.4	5.8	59.6e	2	100.0	253.3
2023	Mar	12	2	52	54.68	16	11	36.7	20.215710	3.4	5.8	54.8e	2	100.0	253.4
2023	Mar	17	2	53	42.52	16	15	11.6	20.283520	3.4	5.8	50.0e	2	100.0	253.5
2023	Mar	22	2	54	33.96	16	19	1.0	20.346791	3.4	5.8	45.2e	2	100.0	253.6
2023	Mar	27	2	55	28.72	16	23	3.4	20.405073	3.4	5.8	40.5e	2	100.0	253.7
2023	Apr	1	2	56	26.45	16	27	17.1	20.457997	3.4	5.8	35.8e	2	100.0	253.9
2023	Apr	6	2	57	26.83	16	31	40.6	20.505271	3.3	5.8	31.1e	2	100.0	254.0
2023	Apr	11	2	58	29.55	16	36	12.2	20.546643	3.3	5.8	26.5e	1	100.0	254.2
2023	Apr	16	2	59	34.30	16	40	50.7	20.581876	3.3	5.8	21.8e	1	100.0	254.4
2023	Apr	21	3	0	40.76	16	45	34.6	20.610730	3.3	5.9	17.2e	1	100.0	254.7
2023	Apr	26	3	1	48.57	16	50	22.0	20.633021	3.3	5.9	12.6e	1	100.0	255.2
2023	May	1	3	2	57.37	16	55	11.5	20.648652	3.3	5.9	8.1e	0	100.0	256.1
2023	May	6	3	4	6.82	17	0	1.6	20.657583	3.3	5.9	3.5e	0	100.0	259.1
2023	May	11	3	5	16.59	17	4	50.9	20.659802	3.3	5.9	1.1w	0	100.0	57.7
2023	May	16	3	6	26.37	17	9	38.1	20.655292	3.3	5.9	5.6w	0	100.0	71.0
2023	May	21	3	7	35.81	17	14	21.8	20.644055	3.3	5.9	10.1w	1	100.0	72.5
2023	May	26	3	8	44.56	17	19	0.5	20.626173	3.3	5.9	14.7w	1	100.0	73.1
2023	May	31	3	9	52.26	17	23	33.0	20.601797	3.3	5.8	19.2w	1	100.0	73.5
2023	Jun	5	3	10	58.60	17	27	58.0	20.571117	3.3	5.8	23.7w	1	100.0	73.8
2023	Jun	10	3	12	3.28	17	32	14.5	20.534328	3.3	5.8	28.2w	1	100.0	74.0
2023	Jun	15	3	13	5.99	17	36	21.4	20.491618	3.3	5.8	32.7w	2	100.0	74.2
2023	Jun	20	3	14	6.40	17	40	17.6	20.443223	3.4	5.8	37.3w	2	100.0	74.3
2023	Jun	25	3	15	4.18	17	44	2.0	20.389460	3.4	5.8	41.8w	2	100.0	74.5
2023	Jun	30	3	15	59.03	17	47	33.4	20.330691	3.4	5.8	46.3w	2	100.0	74.6
2023	Jul	5	3	16	50.70	17	50	51.3	20.267297	3.4	5.8	50.9w	2	100.0	74.7
2023	Jul	10	3	17	38.92	17	53	54.8	20.199644	3.4	5.8	55.5w	2	100.0	74.8
2023	Jul	15	3	18	23.45	17	56	43.2	20.128108	3.4	5.8	60.0w	3	99.9	74.9
2023	Jul	20	3	19	3.99	17	59	15.5	20.053135	3.4	5.8	64.6w	3	99.9	75.0
2023	Jul	25	3	19	40.32	18	1	31.0	19.975228	3.4	5.8	69.3w	3	99.9	75.0
2023	Jul	30	3	20	12.23	18	3	29.2	19.894917	3.4	5.8	73.9w	3	99.9	75.1
2023	Aug	4	3	20	39.57	18	5	9.8	19.812720	3.5	5.8	78.6w	3	99.9	75.2
2023	Aug	9	3	21	2.19	18	6	32.4	19.729133	3.5	5.8	83.3w	3	99.9	75.2
2023	Aug	14	3	21	19.92	18	7	36.4	19.644690	3.5	5.7	88.0w	3	99.9	75.3
2023	Aug	19	3	21	32.63	18	8	21.4	19.559985	3.5	5.7	92.8w	3	99.9	75.3
2023	Aug	24	3	21	40.26	18	8	47.4	19.475637	3.5	5.7	97.5w	3	99.9	75.4
2023	Aug	29	3	21	42.78	18	8	54.4	19.392259	3.5	5.7	102.4w	3	99.9	75.4
2023	Sep	3	3	21	40.21	18	8	42.5	19.310424	3.6	5.7	107.2w	3	99.9	75.4
2023	Sep	8	3	21	32.59	18	8	11.8	19.230688	3.6	5.7	112.1w	3	99.9	75.4
2023	Sep	13	3	21	19.96	18	7	22.5	19.153650	3.6	5.7	117.0w	3	99.9	75.5
2023	Sep	18	3	21	2.44	18	6	15.0	19.079931	3.6	5.7	121.9w	2	100.0	75.5
2023	Sep	23	3	20	40.21	18	4	49.9	19.010135	3.6	5.7	126.9w	2	100.0	75.5
2023	Sep	28	3	20	13.50	18	3	8.0	18.944815	3.6	5.7	131.9w	2	100.0	75.5
2023	Oct	3	3	19	42.59	18	1	10.4	18.884458	3.6	5.7	137.0w	2	100.0	75.5
2023	Oct	8	3	19	7.76	17	58	57.8	18.829542	3.6	5.7	142.0w	2	100.0	75.5
2023	Oct	13	3	18	29.34	17	56	31.5	18.780558	3.7	5.6	147.1w	2	100.0	75.6
2023	Oct	18	3	17	47.72	17	53	52.8	18.737965	3.7	5.6	152.2w	1	100.0	75.6
2023	Oct	23	3	17	3.35	17	51	3.4	18.702153	3.7	5.6	157.4w	1	100.0	75.7
2023	Oct	28	3	16	16.74	17	48	5.0	18.673420	3.7	5.6	162.6w	1	100.0	75.9
2023	Nov	2	3	15	28.36	17	44	59.6	18.651992	3.7	5.6	167.8w	1	100.0	76.3
2023	Nov	7	3	14	38.70	17	41	48.7	18.638081	3.7	5.6	173.0w	0	100.0	77.4
2023	Nov	12	3	13	48.30	17	38	34.5	18.631866	3.7	5.6	178.2w	0	100.0	84.8
2023	Nov	17	3	12	57.72	17	35	19.1	18.633449	3.7	5.6	176.5e	0	100.0	249.4
2023	Nov	22	3	12	7.56	17	32	5.0	18.642827	3.7	5.6	171.3e	0	100.0	252.5

2023	Nov	27	3	11	18.36	17	28	54.3	18.659892	3.7	5.6	166.0e	1	100.0	253.2	62	270
2023	Dec	2	3	10	30.65	17	25	49.1	18.684494	3.7	5.6	160.8e	1	100.0	253.5	61	270
2023	Dec	7	3	9	44.94	17	22	51.5	18.716456	3.7	5.6	155.5e	1	100.0	253.7	61	270
2023	Dec	12	3	9	1.73	17	20	3.6	18.755546	3.7	5.6	150.3e	1	100.0	253.8	61	270
2023	Dec	17	3	8	21.53	17	17	27.5	18.801440	3.6	5.6	145.0e	2	100.0	253.8	61	270
2023	Dec	22	3	7	44.79	17	15	5.3	18.853714	3.6	5.7	139.8e	2	100.0	253.9	61	270
2023	Dec	27	3	7	11.90	17	12	58.5	18.911883	3.6	5.7	134.5e	2	100.0	253.9	61	270

Neptune
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
2023	Jan	1	23 34 31.77	- 4 2 40.8	30.192046	2.4	7.9	72.6e	2	100.0	247.1	-22 320
2023	Jan	6	23 34 50.64	- 4 0 29.4	30.273586	2.4	7.9	67.6e	2	100.0	247.2	-22 320
2023	Jan	11	23 35 12.35	- 3 58 0.1	30.352289	2.4	7.9	62.6e	2	100.0	247.3	-22 320
2023	Jan	16	23 35 36.78	- 3 55 13.8	30.427600	2.4	7.9	57.6e	2	100.0	247.4	-22 320
2023	Jan	21	23 36 3.80	- 3 52 11.5	30.498963	2.4	7.9	52.6e	1	100.0	247.6	-22 320
2023	Jan	26	23 36 33.23	- 3 48 54.2	30.565822	2.4	7.9	47.7e	1	100.0	247.8	-22 320
2023	Jan	31	23 37 4.88	- 3 45 23.4	30.627680	2.4	7.9	42.8e	1	100.0	248.0	-22 320
2023	Feb	5	23 37 38.54	- 3 41 40.3	30.684131	2.4	7.9	37.8e	1	100.0	248.2	-22 320
2023	Feb	10	23 38 14.02	- 3 37 46.3	30.734821	2.4	7.9	32.9e	1	100.0	248.5	-22 320
2023	Feb	15	23 38 51.10	- 3 33 42.8	30.779417	2.4	8.0	28.1e	1	100.0	248.9	-22 320
2023	Feb	20	23 39 29.58	- 3 29 31.1	30.817598	2.4	8.0	23.2e	1	100.0	249.4	-22 319
2023	Feb	25	23 40 9.22	- 3 25 12.9	30.849076	2.4	8.0	18.3e	1	100.0	250.2	-22 319
2023	Mar	2	23 40 49.76	- 3 20 49.6	30.873664	2.4	8.0	13.5e	0	100.0	251.5	-22 319
2023	Mar	7	23 41 30.98	- 3 16 23.0	30.891253	2.4	8.0	8.7e	0	100.0	254.3	-22 319
2023	Mar	12	23 42 12.64	- 3 11 54.6	30.901775	2.4	8.0	4.0e	0	100.0	263.6	-22 319
2023	Mar	17	23 42 54.52	- 3 7 25.6	30.905175	2.4	8.0	1.5w	0	100.0	16.4	-22 319
2023	Mar	22	23 43 36.38	- 3 2 57.8	30.901419	2.4	8.0	5.9w	0	100.0	55.2	-22 319
2023	Mar	27	23 44 17.97	- 2 58 32.6	30.890539	2.4	8.0	10.6w	0	100.0	60.3	-21 319
2023	Apr	1	23 44 59.05	- 2 54 11.7	30.872667	2.4	8.0	15.3w	1	100.0	62.3	-21 319
2023	Apr	6	23 45 39.40	- 2 49 56.4	30.847986	2.4	8.0	20.1w	1	100.0	63.4	-21 319
2023	Apr	11	23 46 18.81	- 2 45 48.3	30.816696	2.4	8.0	24.8w	1	100.0	64.1	-21 319
2023	Apr	16	23 46 57.08	- 2 41 48.4	30.779003	2.4	8.0	29.5w	1	100.0	64.5	-21 319
2023	Apr	21	23 47 33.99	- 2 37 58.2	30.735143	2.4	7.9	34.2w	1	100.0	64.9	-21 319
2023	Apr	26	23 48 9.33	- 2 34 19.0	30.685441	2.4	7.9	39.0w	1	100.0	65.1	-21 318
2023	May	1	23 48 42.89	- 2 30 52.2	30.630284	2.4	7.9	43.7w	1	100.0	65.3	-21 318
2023	May	6	23 49 14.52	- 2 27 38.7	30.570083	2.4	7.9	48.4w	1	100.0	65.5	-21 318
2023	May	11	23 49 44.06	- 2 24 39.5	30.505243	2.4	7.9	53.1w	2	100.0	65.7	-21 318
2023	May	16	23 50 11.35	- 2 21 55.6	30.436168	2.4	7.9	57.8w	2	100.0	65.8	-21 318
2023	May	21	23 50 36.24	- 2 19 27.9	30.363317	2.4	7.9	62.5w	2	100.0	66.0	-21 318
2023	May	26	23 50 58.57	- 2 17 17.3	30.287216	2.4	7.9	67.2w	2	100.0	66.1	-21 318
2023	May	31	23 51 18.24	- 2 15 24.5	30.208419	2.4	7.9	71.9w	2	100.0	66.2	-21 318
2023	Jun	5	23 51 35.16	- 2 13 50.0	30.127474	2.4	7.9	76.6w	2	100.0	66.3	-21 318
2023	Jun	10	23 51 49.26	- 2 12 34.1	30.044901	2.4	7.9	81.3w	2	100.0	66.4	-21 318
2023	Jun	15	23 52 0.46	- 2 11 37.3	29.961230	2.4	7.9	86.1w	2	100.0	66.5	-21 318
2023	Jun	20	23 52 8.69	- 2 10 59.9	29.877050	2.4	7.9	90.8w	2	100.0	66.6	-21 318
2023	Jun	25	23 52 13.92	- 2 10 42.1	29.792982	2.5	7.9	95.5w	2	100.0	66.7	-21 318
2023	Jun	30	23 52 16.14	- 2 10 43.8	29.709634	2.5	7.9	100.3w	2	100.0	66.8	-21 318
2023	Jul	5	23 52 15.39	- 2 11 4.8	29.627580	2.5	7.9	105.1w	2	100.0	66.9	-21 318
2023	Jul	10	23 52 11.69	- 2 11 44.6	29.547356	2.5	7.9	109.9w	2	100.0	67.0	-21 318
2023	Jul	15	23 52 5.07	- 2 12 43.1	29.469523	2.5	7.9	114.7w	2	100.0	67.1	-21 318
2023	Jul	20	23 51 55.59	- 2 13 59.7	29.394676	2.5	7.9	119.5w	2	100.0	67.3	-21 318
2023	Jul	25	23 51 43.36	- 2 15 33.7	29.323395	2.5	7.8	124.3w	2	100.0	67.4	-21 318
2023	Jul	30	23 51 28.51	- 2 17 24.1	29.256211	2.5	7.8	129.1w	2	100.0	67.6	-21 318
2023	Aug	4	23 51 11.18	- 2 19 29.8	29.193595	2.5	7.8	134.0w	1	100.0	67.8	-21 318
2023	Aug	9	23 50 51.53	- 2 21 49.9	29.135986	2.5	7.8	138.9w	1	100.0	68.0	-21 318
2023	Aug	14	23 50 29.72	- 2 24 23.0	29.083845	2.5	7.8	143.8w	1	100.0	68.3	-21 318
2023	Aug	19	23 50 5.94	- 2 27 8.0	29.037620	2.5	7.8	148.7w	1	100.0	68.7	-21 318
2023	Aug	24	23 49 40.43	- 2 30 3.1	28.997699	2.5	7.8	153.6w	1	100.0	69.1	-21 318
2023	Aug	29	23 49 13.44	- 2 33 6.7	28.964392	2.5	7.8	158.6w	1	100.0	69.8	-21 318
2023	Sep	3	23 48 45.22	- 2 36 17.0	28.937935	2.5	7.8	163.5w	1	100.0	70.9	-21 318
2023	Sep	8	23 48 16.02	- 2 39 32.5	28.918549	2.5	7.8	168.5w	0	100.0	72.8	-21 318
2023	Sep	13	23 47 46.11	- 2 42 51.3	28.906448	2.5	7.8	173.4w	0	100.0	77.7	-21 319
2023	Sep	18	23 47 15.78	- 2 46 11.5	28.901784	2.5	7.8	178.1w	0	100.0	107.6	-21 319
2023	Sep	23	23 46 45.34	- 2 49 31.1	28.904624	2.5	7.8	176.2e	0	100.0	226.9	-21 319
2023	Sep	28	23 46 15.10	- 2 52 48.1	28.914940	2.5	7.8	171.3e	0	100.0	238.2	-21 319

2023	Oct	3	23	45	45.34	-	2	56	0.6	28.932647	2.5	7.8	166.3e	0	100.0	241.4	-21	319
2023	Oct	8	23	45	16.33	-	2	59	6.9	28.957653	2.5	7.8	161.3e	1	100.0	242.8	-21	319
2023	Oct	13	23	44	48.37	-	3	2	5.2	28.989826	2.5	7.8	156.2e	1	100.0	243.7	-21	319
2023	Oct	18	23	44	21.75	-	3	4	53.6	29.028951	2.5	7.8	151.1e	1	100.0	244.3	-21	319
2023	Oct	23	23	43	56.76	-	3	7	30.2	29.074720	2.5	7.8	146.1e	1	100.0	244.7	-21	319
2023	Oct	28	23	43	33.64	-	3	9	53.7	29.126749	2.5	7.8	141.0e	1	100.0	245.1	-21	319
2023	Nov	2	23	43	12.61	-	3	12	2.5	29.184638	2.5	7.8	135.9e	1	100.0	245.3	-21	319
2023	Nov	7	23	42	53.90	-	3	13	55.5	29.247981	2.5	7.8	130.8e	1	100.0	245.5	-21	319
2023	Nov	12	23	42	37.69	-	3	15	31.5	29.316318	2.5	7.8	125.7e	2	100.0	245.7	-22	319
2023	Nov	17	23	42	24.19	-	3	16	49.2	29.389116	2.5	7.8	120.6e	2	100.0	245.9	-22	319
2023	Nov	22	23	42	13.54	-	3	17	47.8	29.465771	2.5	7.9	115.5e	2	100.0	246.0	-22	319
2023	Nov	27	23	42	5.87	-	3	18	26.7	29.545658	2.5	7.9	110.4e	2	100.0	246.2	-22	319
2023	Dec	2	23	42	1.25	-	3	18	45.5	29.628176	2.5	7.9	105.4e	2	100.0	246.3	-22	319
2023	Dec	7	23	41	59.75	-	3	18	43.8	29.712723	2.5	7.9	100.3e	2	100.0	246.4	-22	319
2023	Dec	12	23	42	1.44	-	3	18	21.3	29.798656	2.5	7.9	95.2e	2	100.0	246.5	-22	319
2023	Dec	17	23	42	6.35	-	3	17	38.0	29.885286	2.4	7.9	90.2e	2	100.0	246.6	-22	319
2023	Dec	22	23	42	14.45	-	3	16	33.9	29.971905	2.4	7.9	85.1e	2	100.0	246.7	-22	319
2023	Dec	27	23	42	25.71	-	3	15	9.7	30.057850	2.4	7.9	80.1e	2	100.0	246.8	-22	319