ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
172001 2001 UN_{23}	15.2	X	139.08935	46.78240	310.72122	9.11278	0.2272212	0.17710948	3.1403268	20	2 5.1	20.2
172002 2001 UO_{28}	14.9	X	288.35356	189.16211	38.69250	10.95280	0.0322879	0.17839851	3.1251814	20	2 4.9	19.5
172003 2001 UB_{33}	14.9	X	176.00489	300.28645	61.83064	12.99337	0.1143593	0.18125599	3.0922491	20	3 13.8	20.0
172004 2001 UD_{38}	14.9	X	217.74998	268.76396	17.40800	10.75344	0.0518614	0.17730993	3.1379596	20	1 23.2	19.7
172005 2001 UH_{43}	15.6	X	63.89288	34.90311	53.51376	6.06804	0.1798724	0.17433392	3.1735703	20	2 24.9	19.5
172006 2001 UT_{51}	15.1	X	149.87805	320.40173	39.50917	10.59266	0.1109338	0.17679634	3.1440338	20	2 12.8	20.1
172007 2001 UG_{53}	14.3	X	172.50907	247.49683	72.00714	22.94625	0.2731822	0.17582841	3.1555618	20	1 24.2	20.1
172008 2001 UO_{53}	14.9	X	284.54981	203.25062	54.19601	11.57870	0.0433108	0.18110416	3.0939771	20	3 7.1	19.4
172009 2001 UM_{59}	15.0	X	201.93140	57.65926	258.37597	2.70618	0.1142379	0.18011308	3.1053166	20	2 5.9	19.9
172010 2001 US_{62}	15.7	X	140.34764	165.20580	216.57899	9.20531	0.0986556	0.18072202	3.0983371	20	2 19.4	20.6
172011 2001 UT_{100}	15.1	X	214.52567	67.70758	45.59461	2.86849	0.0101756	0.20664484	2.8334769	20	9 12.0	18.9
172012 2001 UK_{101}	15.4	X	186.46448	288.78294	36.61475	10.05258	0.0679484	0.17962512	3.1109379	20	2 5.8	20.2
172013 2001 UB_{102}	15.3	X	243.00902	234.22354	31.91873	10.84681	0.0439379	0.17767527	3.1336565	20	1 27.5	20.1
172014 2001 UX_{103}	16.1	X	120.74033	350.69075	95.12023	2.46890	0.2192333	0.18209629	3.0827287	20	5 2.0	20.9
172015 2001 UJ_{105}	15.0	X	255.04330	225.50994	49.82096	11.32012	0.0784528	0.18030318	3.1031335	20	2 18.7	19.8
172016 2001 UY_{112}	15.3	X	130.78739	95.97894	16.54450	5.41362	0.2143084	0.18387422	3.0628248	20	6 10.6	20.3
172017 2001 UA_{125}	14.6	X	70.01210	7.50077	88.67380	16.70396	0.2487988	0.17521125	3.1629674	20	3 31.6	19.0
172018 2001 UL_{137}	15.5	X	183.87790	120.48835	199.17350	2.37517	0.0718495	0.17780034	3.1321868	20	1 23.5	20.2
172019 2001 UP_{163}	15.4	X	48.89130	63.82072	33.73747	9.75598	0.0694282	0.17506696	3.1647051	20	2 2.4	19.7
172020 2001 UN_{187}	15.2	X	55.51954	101.23374	28.27687	10.09484	0.0702538	0.18285750	3.0741676	20	3 20.9	19.3
172021 2001 UQ_{204}	14.8	X	218.34871	264.36812	28.88850	16.18865	0.0060855	0.17559792	3.1583225	20	2 6.5	19.6
172022 2001 UZ_{209}	14.9	X	126.30546	290.47796	140.83648	17.91130	0.2521364	0.18063610	3.0993195	20	4 27.9	20.3
172023 2001 UV_{211}	15.4	X	221.23838	108.52452	219.62366	7.40586	0.0320856	0.18242012	3.0790794	20	3 11.4	20.1
172024 2001 UF_{214}	15.5	X	202.93353	229.05569	82.88676	2.48919	0.1200540	0.17914962	3.1164401	20	2 3.7	20.4
172025 2001 UL_{214}	15.0	X	294.82679	32.25473	185.08675	3.88379	0.0896450	0.17611719	3.1521114	20	1 18.7	19.5
172026 2001 VF_{1}	15.3	X	180.63628	284.17648	92.31545	18.77839	0.2992442	0.18601576	3.0392719	20	4 9.5	21.1
172027 2001 VA_{10}	15.0	X	227.85263	54.83207	285.19129	9.25375	0.2907441	0.18907190	3.0064321	20	3 15.9	20.5
172028 2001 VL_{23}	15.6	X	211.17592	62.08135	338.40250	1.04432	0.1821984	0.18883906	3.0089028	20	5 22.1	20.4
172029 2001 VP_{39}	14.9	X	148.08497	313.17416	61.36572	19.67514	0.1058369	0.17521866	3.1628783	20	3 4.7	20.1
172030 2001 VR_{91}	14.9	X	111.93931	344.22589	91.03268	18.36898	0.0867704	0.17850746	3.1239097	20	4 4.4	19.8
172031 2001 VL_{112}	15.3	X	185.57074	347.45289	10.39122	4.70865	0.2357066	0.18112448	3.0937458	20	3 13.4	20.6
172032 2001 VW_{132}	15.1	X	189.34453	76.20937	281.85943	8.03973	0.0730521	0.17901202	3.1180370	20	3 10.5	20.0
172033 2001 WQ	15.4	X	157.60640	267.51102	44.29502	1.30917	0.1138324	0.16886854	3.2416805	20	—	—
172034 2001 WR_{1}	17.8	X	290.27585	48.55622	6.51676	25.02902	0.2024731	0.68278333	1.2772643	20	—	—
172035 2001 WG_{16}	15.5	X	225.97155	98.33163	260.36380	3.38094	0.1095635	0.18676999	3.0310840	20	4 18.7	20.3
172036 2001 WO_{28}	14.7	X	139.76864	292.74211	77.65043	10.96324	0.2426597	0.17589523	3.1547626	20	2 26.6	20.0
172037 2001 WZ_{32}	15.4	X	154.67634	310.18715	83.90647	10.23871	0.1611845	0.18028849	3.1033021	20	4 1.4	20.6
172038 2001 WE_{51}	16.0	X	183.73325	55.34767	352.70247	1.98436	0.0881852	0.18761735	3.0219508	20	5 7.3	20.7
172039 2001 WZ_{58}	15.0	X	18.33041	117.41504	32.59997	8.34716	0.2032605	0.17448166	3.1717786	20	2 25.0	18.4
172040 2001 WQ_{71}	15.5	X	18.42383	68.47927	65.58282	5.87483	0.1548608	0.17171268	3.2057856	20	2 2.6	19.2
172041 2001 WJ_{96}	16.1	X	297.64838	229.76517	59.52861	2.65504	0.0636103	0.18551801	3.0447058	20	4 23.4	20.1
172042 2001 WT_{101}	15.6	X	26.55612	282.87355	211.94781	6.35117	0.0841401	0.17512803	3.1639694	20	2 11.2	19.7
172043 2001 XJ_{9}	14.7	X	143.21372	307.62361	46.49715	14.78161	0.3003368	0.17482724	3.1675975	20	2 16.9	20.4
172044 2001 XZ_{10}	14.8	X	130.90458	287.98522	78.54339	10.46799	0.0896899	0.17421090	3.1750641	20	1 27.3	19.5
172045 2001 XR_{22}	14.9	X	77.95300	176.24711	301.62134	12.30992	0.1373909	0.17536581	3.1611088	20	4 5.8	19.5
172046 2001 XA_{51}	14.2	X	170.09104	61.68745	272.91189	15.43236	0.2339079	0.17800214	3.1298191	20	1 31.1	19.8
172047 2001 XY_{71}	14.6	X	39.68488	101.89893	68.84061	26.38281	0.2495813	0.17726851	3.1384483	20	5 14.3	18.2
172048 2001 XL_{75}	14.9	X	138.62040	320.81366	81.99728	16.53553	0.0673104	0.17696544	3.1420306	20	3 23.1	19.9
172049 2001 XB_{92}	15.7	X	263.75316	15.54525	325.19115	1.93826	0.1359997	0.18901581	3.0070267	20	5 4.6	20.1
172050 2001 XE_{110}	15.5	X	148.70645	259.72326	73.76649	16.75129	0.2083681	0.17321322	3.1872444	20	1 17.4	20.8
172051 2001 XA_{125}	16.1	X	170.65648	340.38461	130.69706	2.71009	0.1521384	0.18981324	2.9985989	20	7 12.1	20.9
172052 2001 XX_{125}	15.1	X	76.73733	46.95378	84.61417	11.03703	0.1304030	0.17892096	3.1190948	20	5 1.1	19.4
172053 2001 XH_{131}	15.4	X	61.92753	71.99570	83.82422	9.07403	0.0880425	0.18006661	3.1058508	20	5 4.5	19.6
172054 2001 XJ_{132}	15.1	X	176.00302	277.07477	77.95351	9.55925	0.1321821	0.17704487	3.1410907	20	3 4.1	20.2
172055 2001 XG_{137}	15.0	X	2.87406	87.83797	83.48087	16.08625	0.0639144	0.17314709	3.1880558	20	3 3.5	19.5
172056 2001 XZ_{153}	14.8	X	171.15250	250.45021	92.16155	13.90450	0.1202557	0.17247796	3.1962959	20	2 13.1	20.0
172057 2001 XY_{196}	14.7	X	110.81023	334.56486	119.17186	13.72794	0.1813162	0.17432646	3.1736609	20	5 3.1	19.8
172058 2001 XN_{201}	15.4	X	87.00486	320.65111	126.11233	1.94308	0.0806366	0.16870924	3.2437208	20	3 9.9	19.9
172059 2001 XL_{203}	14.9	X	209.56217	231.11612	111.64892	8.03483	0.1904106	0.18258352	3.0772421	20	3 17.1	20.1
172060 2001 XR_{208}	14.5	X	211.08071	317.24382	247.71038	16.64955	0.0828462	0.15489682	3.4337951	20	12 9.8	19.5
172061 2001 XH_{223}	15.3	X	71.23938	217.85292	268.14291	8.59385	0.0483167	0.17848012	3.1242286	20	3 27.7	19.8
172062 2001 XV_{227}	15.5	X	142.74367	119.84088	280.14594	9.09193	0.0813161	0.17717924	3.1395025	20	3 11.8	20.4
172063 2001 XP_{237}	15.8	X	96.77262	33.05683	69.14351	4.06854	0.0684107	0.17856149	3.1232794	20	4 8.5	20.2
172064 2001 XA_{245}	14.9	X	47.52501	20.55790	81.55928	16.56348	0.1033921	0.17294371	3.1905548	20	2 9.7	19.2
172065 2001 XL_{245}	14.6	X	79.17663	9.92983	110.20049	11.80350	0.1757611	0.17824173	3.1270138	20	4 27.9	19.1
172066 2001 YB_{39}	15.6	X	73.33472	158.48809	275.48221	4.59093	0.0981804	0.17011980	3.2257656	20	2 6.1	19.9
172067 2001 YH_{94}	15.1	X	232.89071	74.38186	273.51113	10.32702	0.0844841	0.18623352	3.0369022	20	4 11.5	19.8
172068 2002 AE_{13}	16.7	X	48.50623	315.89519	303.68234	4.99407	0.1275460	0.29260559	2.2470581	20	9 14.9	19.4
172069 2002 AA_{38}	14.7	X	12.14179	78.04509	97.98014	23.44767	0.0995354	0.17355255	3.1830885	20	3 27.2	19.2
172070 2002 AR_{70}	15.1	X	10.77137	89.43228	77.69849	5.86518	0.0988931	0.17160484	3.2071285	20	3 4.8	19.1
172071 2002 AP_{74}	14.8	X	6.01864	300.42615	301.76895	10.55803	0.0871245	0.18122570	3.0925936	20	5 29.3	18.9
172072 2002 AF_{81}	15.1	X	146.33669	314.96052	138.45105	8.63551	0.1083778	0.18246903	3.0785292	20	5 28.2	20.0
172073 2002 AF_{85}	14.8	X	273.05040	204.92770	128.20397	19.38301	0.0889466	0.18176448	3.0864793	20	5 20.1	19.6
172074 2002 AQ_{93}	15.7	X	126.99648	76.41726	340.94292	0.52468	0.1663801	0.17383050	3.1796945	20	3 29.4	20.6
172075 2002 AC_{95}	14.7	X	340.90621	328.58577	101.61299	11.02890	0.0377661	0.15197571	3.4776558	20	12 14.3	19.5
172076 2002 AS_{199}	16.4	X	89.49351	250.19594	76.65826	2.01025	0.1845920	0.31482497	2.1400468	20	—	—
172077 2002 AF_{202}	16.8	X	83.70581	348.94028	239.94565	3.87422	0.1129092	0.29386865	2.2406149	20	9 16.7	19.8
172078 2002 BL_{16}	16.8	X	186.36934	252.40601	291.94379	5.20199	0.0965550	0.30191432	2.2006294	20	11 13.4	19.8
172079 2002 BX_{30}	14.7	X	11.03743	21.80912	32.33426	15.61849	0.1833610	0.15682688	3.4055640	20	—	—
172080 2002 CA_{18}	16.7	X	264.46652	54.10563	334.23346	6.74853	0.1086112	0.29522757	2.2337339	20	7 17.9	19.3

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
172081 2002 CA_{35}	16.4	X	293.62498	310.52950	60.50752	7.92009	0.2013301	0.29647041	2.2274869	20	7 24.0	18.5
172082 2002 CX_{71}	17.1	X	7.57349	309.93182	77.18164	2.44796	0.1415753	0.30992005	2.1625672	20	—	—
172083 2002 CZ_{72}	17.3	X	2.94452	295.94021	97.93383	2.60048	0.0580625	0.30877116	2.1679282	20	—	—
172084 2002 CR_{88}	15.3	X	334.96866	245.21226	342.38797	0.57566	0.0888314	0.16917740	3.2377339	20	3 24.9	19.4
172085 2002 CV_{97}	16.1	X	15.12431	309.22729	353.55407	6.93378	0.2159898	0.29120665	2.2542488	20	10 11.7	18.1
172086 2002 CL_{99}	16.1	X	14.26091	221.45386	43.98740	2.71763	0.2249129	0.28398329	2.2923144	20	8 13.2	17.6
172087 2002 CS_{170}	16.4	X	348.03802	188.39070	53.05874	3.47294	0.1261893	0.27801822	2.3249871	20	4 22.9	18.3
172088 2002 CB_{211}	17.3	X	288.26173	92.41458	6.48900	2.80019	0.0855883	0.30583226	2.1817946	20	12 18.6	19.1
172089 2002 CK_{223}	17.2	X	263.35814	194.75963	282.55650	3.19122	0.0476045	0.30440474	2.1886103	20	12 6.6	19.6
172090 Davidmccomas	15.6	X	348.25652	67.99567	148.33014	1.79634	0.1081070	0.17085893	3.2164559	20	3 29.5	19.6
172091 2002 CL_{311}	16.9	X	90.13262	3.66388	251.54342	3.73774	0.1132430	0.29698524	2.2249118	20	10 31.8	19.9
172092 2002 EH_{20}	16.3	X	344.42706	150.93163	21.22852	2.86411	0.1250418	0.26694775	2.3888298	20	1 6.5	18.9
172093 2002 EM_{28}	16.9	X	90.56403	258.74181	359.63930	2.23299	0.1177513	0.29592201	2.2302380	20	11 5.9	20.1
172094 2002 EK_{69}	16.7	X	92.03325	229.81671	348.35455	4.67332	0.0804511	0.28946736	2.2632697	20	9 9.6	19.4
172095 2002 EP_{79}	16.8	X	157.67935	263.55946	294.89539	4.54018	0.0772712	0.29619700	2.2288574	20	10 29.7	19.8
172096 2002 EP_{90}	16.0	X	277.30662	297.16411	12.46625	5.66808	0.2372041	0.27528789	2.3403347	20	3 24.9	19.2
172097 2002 EX_{107}	17.3	X	340.64108	23.44583	19.10238	1.98616	0.1723916	0.30619061	2.1800919	20	—	—
172098 2002 EE_{115}	16.8	X	158.20137	131.83307	115.50326	5.82167	0.1984778	0.30112108	2.2044924	20	12 27.9	20.0
172099 2002 ET_{127}	17.6	X	103.67902	71.85697	146.56141	1.63345	0.0648684	0.29376622	2.2411356	20	9 24.2	20.4
172100 2002 FO_{8}	16.7	X	183.49225	296.71994	264.47330	3.08646	0.1343375	0.30125086	2.2038593	20	11 29.7	19.5
172101 2002 FR_{14}	16.6	X	306.07718	171.03125	104.28128	1.60775	0.1987509	0.27240100	2.3568408	20	3 20.0	19.4
172102 2002 FK_{15}	16.6	X	67.91744	158.64184	93.25366	7.85040	0.0933126	0.29080878	2.2563045	20	10 2.5	19.5
172103 2002 FT_{34}	16.3	X	312.23116	335.94077	195.33420	7.08929	0.1110906	0.26048298	2.4281927	20	—	—
172104 2002 GA_{12}	17.0	X	165.83334	78.80528	106.97978	2.39705	0.0998783	0.29474590	2.2361668	20	10 23.7	20.0
172105 2002 GB_{18}	16.7	X	28.54266	164.17526	65.63569	2.56114	0.2360235	0.27740415	2.3284169	20	7 16.1	18.5
172106 2002 GH_{24}	16.6	X	342.33945	94.36478	193.51819	1.74965	0.1371029	0.28189181	2.3036389	20	6 25.2	18.4
172107 2002 GW_{41}	16.5	X	284.77114	79.63752	206.87321	6.23595	0.1191259	0.27231857	2.3573164	20	3 16.8	19.6
172108 2002 GH_{60}	15.9	X	79.74826	56.03487	211.26420	13.30421	0.0800417	0.23633440	2.5909046	20	10 22.3	19.4
172109 2002 GP_{72}	16.4	X	275.68418	168.61336	116.91825	3.21214	0.1633453	0.26972955	2.3723770	20	3 1.7	19.8
172110 2002 GV_{79}	17.0	X	235.82061	129.48456	37.44133	2.29608	0.1203866	0.30226768	2.1989140	20	12 24.0	19.3
172111 2002 GV_{87}	16.4	X	292.80265	135.26237	138.84942	5.15969	0.1423255	0.26933676	2.3746829	20	3 10.1	19.5
172112 2002 GB_{88}	16.4	X	19.90428	170.26349	77.86159	7.03690	0.0659330	0.27968249	2.3157546	20	7 3.1	18.7
172113 2002 GA_{93}	16.1	X	282.48443	156.01421	221.54758	5.59167	0.1871215	0.28680634	2.2772474	20	7 12.4	18.5
172114 2002 GA_{108}	16.4	X	280.92025	213.19756	56.94846	6.88983	0.1212327	0.26851195	2.3795434	20	2 24.5	19.7
172115 2002 GH_{112}	16.9	X	68.97105	118.20308	93.49820	5.65755	0.1066915	0.28243743	2.3006711	20	8 4.4	19.6
172116 2002 GO_{113}	16.4	X	111.04421	20.24628	153.05711	6.12389	0.0489351	0.28556295	2.2838530	20	7 27.3	19.3
172117 2002 GH_{114}	16.3	X	74.17871	142.20985	67.38368	5.05470	0.0834686	0.28469939	2.2884690	20	8 5.8	19.1
172118 2002 GN_{114}	16.0	X	296.07002	215.70428	63.33790	6.89439	0.1792318	0.27188247	2.3598365	20	3 17.8	19.1
172119 2002 GR_{117}	16.2	X	335.38767	253.84597	59.89145	7.93519	0.1376568	0.28347773	2.2950391	20	7 26.7	18.2
172120 2002 GZ_{131}	16.9	X	340.57531	267.79712	20.70079	1.68964	0.0702375	0.28059869	2.3107110	20	6 25.9	19.2
172121 2002 GO_{135}	16.0	X	357.16191	287.93121	339.80182	6.41512	0.1033867	0.27951218	2.3166951	20	6 24.2	18.2
172122 2002 GD_{151}	17.1	X	306.78917	199.60999	301.98546	2.77272	0.0748419	0.31017727	2.1613714	20	—	—
172123 2002 GQ_{168}	16.9	X	75.56556	47.19046	258.53946	2.80780	0.0818967	0.29698796	2.2248983	20	12 19.2	19.6
172124 2002 GA_{171}	16.6	X	332.54148	357.62088	222.54607	4.78467	0.0547920	0.27197430	2.3593053	20	3 1.8	19.5
172125 2002 HE_{4}	16.4	X	118.59389	73.02974	114.70960	5.84268	0.1401297	0.28742922	2.2739563	20	9 6.3	19.7
172126 2002 HV_{4}	16.5	X	64.18141	203.43655	2.17498	4.45511	0.1221669	0.28060902	2.3106543	20	7 21.9	19.1
172127 2002 HD_{10}	16.2	X	307.12485	250.75421	38.53889	6.00287	0.1272366	0.27465625	2.3439215	20	4 22.1	18.5
172128 2002 HO_{14}	16.5	X	343.40385	202.00153	108.38571	7.49045	0.1301356	0.28166044	2.3049003	20	8 6.7	18.4
172129 2002 HR_{16}	17.0	X	149.54707	255.15247	261.44354	5.00147	0.1124754	0.28783418	2.2718229	20	8 22.6	20.3
172130 2002 JC_{21}	16.1	X	231.60850	41.07515	252.28494	5.91329	0.0766250	0.26254583	2.4154570	20	1 29.3	19.7
172131 2002 JT_{24}	16.2	X	251.96727	212.87994	70.68726	6.69541	0.1395668	0.26337309	2.4103963	20	2 7.7	19.9
172132 2002 JE_{34}	16.7	X	258.85757	219.40871	94.37936	1.70032	0.2072002	0.26631200	2.3926301	20	3 15.9	20.3
172133 2002 JH_{39}	17.1	X	270.63769	274.54226	249.84229	2.40832	0.0432677	0.30468353	2.1872750	20	—	—
172134 2002 JN_{40}	15.8	X	290.17574	90.16072	245.52662	5.09224	0.1869762	0.27882786	2.3204842	20	5 23.1	18.3
172135 2002 JK_{48}	16.7	X	197.66373	288.72411	248.12729	3.66211	0.1063116	0.29672587	2.2262082	20	11 15.9	19.7
172136 2002 JP_{56}	17.1	X	347.24382	174.20233	52.25543	3.20800	0.1456387	0.27146243	2.3622702	20	3 27.9	19.2
172137 2002 JY_{61}	16.1	X	244.34729	218.05884	81.94071	7.95194	0.1293784	0.26375293	2.4080815	20	2 22.3	19.8
172138 2002 JK_{64}	16.7	X	22.10557	140.55373	90.09197	2.99151	0.1753843	0.27605402	2.3360026	20	6 21.5	18.3
172139 2002 JS_{77}	16.6	X	203.72810	122.57322	32.27059	6.33520	0.0912466	0.29649452	2.2273661	20	10 26.6	19.5
172140 2002 JP_{78}	16.7	X	311.94825	72.40006	208.74065	6.15567	0.1020143	0.27449576	2.3448350	20	4 21.7	19.0
172141 2002 JT_{79}	16.0	X	258.37255	317.32850	37.26860	6.85912	0.1579286	0.27696116	2.3308991	20	5 11.4	19.0
172142 2002 JN_{80}	16.9	X	73.84369	177.73063	40.38462	6.06822	0.0542714	0.28415435	2.2913944	20	8 14.2	19.7
172143 2002 JW_{80}	16.3	X	318.63131	9.96095	332.81701	2.03512	0.1489786	0.28332620	2.2958573	20	8 4.4	18.1
172144 2002 JO_{101}	16.9	X	89.58099	26.35617	182.81082	1.75958	0.1527488	0.28470044	2.2884633	20	9 1.8	20.0
172145 2002 JY_{138}	16.0	X	183.66768	125.75359	236.59479	9.44412	0.1745286	0.26325916	2.4110917	20	3 5.7	20.0
172146 2002 JJ_{149}	15.6	X	118.60307	321.16564	263.72568	25.08068	0.2102981	0.28696653	2.2763999	20	10 18.7	19.8
172147 2002 KU_{5}	15.1	X	110.86185	69.99802	251.25517	12.35073	0.1904740	0.24070387	2.5594540	20	—	—
172148 2002 LU_{5}	16.9	X	254.47380	326.58485	327.09104	0.72751	0.1798438	0.26332790	2.4106720	20	2 17.4	20.6
172149 2002 LA_{13}	15.4	X	141.57818	200.13871	110.32046	9.76983	0.2442471	0.24350013	2.5398218	20	—	—
172150 2002 LR_{36}	14.9	X	83.46127	182.76107	144.93164	12.43630	0.1821691	0.23510620	2.5999201	20	—	—
172151 2002 LL_{43}	15.4	X	21.69343	104.93100	248.94108	13.85888	0.1542151	0.22957835	2.6414887	20	12 8.7	18.5
172152 2002 LH_{62}	16.3	X	46.70450	280.80353	93.87660	6.26939	0.3211153	0.23494708	2.6010938	20	—	—
172153 2002 NK_{6}	16.2	X	160.66493	27.91684	286.27581	5.04298	0.0681860	0.24656893	2.5187041	20	—	—
172154 2002 NR_{13}	16.2	X	238.59923	71.55931	279.79739	5.89338	0.1269827	0.26328240	2.4109498	20	4 16.4	19.8
172155 2002 NM_{18}	15.8	X	13.22375	196.04891	140.82053	9.16094	0.2233814	0.22638339	2.6662836	20	11 16.6	18.9
172156 2002 ND_{22}	15.3	X	331.42009	94.59731	285.90765	9.45917	0.2166398	0.22385167	2.6863493	20	10 12.2	17.9
172157 2002 NN_{26}	15.4	X	9.80304	36.78335	318.98396	10.88048	0.2130772	0.22554529	2.6728846	20	11 29.6	18.6
172158 2002 NS_{28}	16.7	X	203.72609	86.06263	258.57632	0.79847	0.1277786	0.25781075	2.4449428	20	3 5.9	20.4
172159 2002 NJ_{30}	16.2	X	340.55590	127.86992	103.95920	6.59906	0.1721201	0.26538711	2.3981859	20	3 22.8	18.5
172160 2002 NF_{32}	15.5	X	67.00757	62.06617	229.49014	12.98716	0.1949629	0.22859805	2.6490351	20	11 20.2	19.4

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
172161 2002 NR_{34}	15.5	X	10.79406	192.20078	145.80791	12.86459	0.1926080	0.22623694	2.6674341	20	11 10.6	18.8
172162 2002 NX_{37}	16.0	X	338.24846	88.52716	249.28145	6.64335	0.2230167	0.21988648	2.7185481	20	8 22.9	18.4
172163 2002 NV_{48}	16.9	X	5.67564	88.07863	246.79358	2.51064	0.2783752	0.22418983	2.6836473	20	11 5.2	19.5
172164 2002 NR_{52}	15.9	X	58.52469	262.45184	119.24736	4.79302	0.0716841	0.24002127	2.5643043	20	—	—
172165 2002 NL_{53}	15.7	X	100.25176	198.04208	120.95492	4.31448	0.1785243	0.23726646	2.5841149	20	—	—
172166 2002 NU_{56}	15.5	X	98.83490	334.33338	4.42549	2.32451	0.2600914	0.24100299	2.5573358	20	—	—
172167 2002 NK_{61}	15.9	X	117.42512	170.20974	144.59308	4.42426	0.2013266	0.24076989	2.5589861	20	—	—
172168 2002 OA_{1}	15.8	X	9.16848	148.32825	256.47024	12.56585	0.1770624	0.23447534	2.6045814	20	—	—
172169 2002 OY_{2}	15.5	X	313.32451	179.56731	180.20119	13.73857	0.2084375	0.21631432	2.7483954	20	7 30.6	18.5
172170 2002 OE_{4}	15.6	X	31.93807	55.47634	294.60313	10.36851	0.2019124	0.22763951	2.6564662	20	12 24.5	19.2
172171 2002 PT	15.8	X	339.52503	141.86848	289.32029	5.19933	0.2081023	0.23136263	2.6278904	20	—	—
172172 2002 PU_{23}	16.3	X	351.85598	238.60391	294.22002	5.42026	0.0741263	0.25418831	2.4681166	20	1 27.6	19.1
172173 2002 PW_{24}	16.8	X	349.27313	353.42535	248.20901	3.51772	0.0828843	0.26486817	2.4013172	20	4 28.3	19.4
172174 2002 PW_{26}	16.3	X	24.59011	173.65060	243.23492	3.79425	0.1972209	0.23695187	2.5864016	20	—	—
172175 2002 PP_{36}	15.9	X	69.30068	87.41833	278.35122	4.01270	0.0994800	0.23733255	2.5836351	20	—	—
172176 2002 PH_{41}	15.9	X	61.94842	52.80510	302.74678	11.38951	0.1819779	0.23177183	2.6247964	20	—	—
172177 2002 PS_{42}	15.7	X	26.10598	274.11125	116.26983	5.36615	0.1967896	0.22893016	2.6464725	20	—	—
172178 2002 PU_{43}	15.3	X	343.84656	339.43784	341.69199	11.40405	0.1834841	0.21620273	2.7493410	20	8 16.4	17.9
172179 2002 PK_{47}	17.5	X	285.05118	84.18100	315.19895	18.25524	0.1493365	0.38403118	1.8745271	20	9 7.2	18.9
172180 2002 PR_{48}	15.5	X	291.76630	102.89309	295.41756	10.56869	0.1422755	0.21748816	2.7384973	20	8 24.8	18.9
172181 2002 PW_{48}	15.3	X	28.26849	355.16136	294.98699	10.46486	0.1201501	0.21925874	2.7237345	20	9 11.1	18.8
172182 2002 PK_{74}	15.7	X	43.19129	109.17269	194.96801	11.66013	0.1002883	0.22540464	2.6739964	20	10 26.4	19.2
172183 2002 PZ_{74}	16.2	X	325.64207	129.77437	278.87573	11.89925	0.2327021	0.22549104	2.6733133	20	11 15.2	18.6
172184 2002 PT_{83}	15.7	X	3.64266	208.33011	137.51369	13.02648	0.1894423	0.22376123	2.6870732	20	11 8.4	18.9
172185 2002 PS_{104}	15.3	X	313.79993	81.11332	275.22143	8.56990	0.1053604	0.21782758	2.7356517	20	8 8.5	18.7
172186 2002 PK_{108}	16.2	X	358.04048	350.60658	352.56692	5.48249	0.2507803	0.22350837	2.6890994	20	10 25.8	18.7
172187 2002 PX_{112}	15.6	X	19.02028	86.81655	315.06394	12.81317	0.2135627	0.23238537	2.6201743	20	—	—
172188 2002 PD_{117}	15.4	X	319.73477	8.29914	309.59929	6.43362	0.2264337	0.21308041	2.7761336	20	6 10.2	18.3
172189 2002 PA_{122}	16.2	X	175.03801	10.60243	273.92226	5.75667	0.1451517	0.24305248	2.5429394	20	—	—
172190 2002 PQ_{126}	16.0	X	33.07369	274.70869	109.44803	8.23527	0.1301547	0.23383388	2.6093425	20	—	—
172191 Ralphmcnutt	15.9	X	352.11966	72.09319	323.02259	11.13082	0.0557180	0.23028335	2.6360948	20	12 5.7	19.5
172192 2002 PB_{156}	16.0	X	43.82354	110.93246	321.03927	11.42370	0.2553646	0.24152595	2.5536430	20	—	—
172193 2002 PA_{160}	16.6	X	156.90645	294.76672	31.98708	2.37652	0.1356268	0.24660349	2.5184688	20	—	—
172194 2002 PD_{162}	16.7	X	11.73154	49.15430	325.40317	2.25885	0.1523402	0.22953441	2.6418258	20	12 21.2	19.8
172195 2002 QK_{9}	15.9	X	39.07862	291.94297	29.31622	8.61542	0.0782035	0.22617076	2.6679545	20	11 6.6	19.5
172196 2002 QT_{12}	16.1	X	184.38311	54.59431	186.31843	5.98762	0.0501176	0.23757914	2.5818470	20	—	—
172197 2002 QF_{19}	16.4	X	36.38897	273.77062	119.29086	5.13470	0.1707195	0.23400349	2.6080815	20	—	—
172198 2002 QF_{20}	16.0	X	29.20664	82.77502	245.10421	6.00221	0.1266700	0.22421964	2.6834094	20	11 9.3	19.3
172199 2002 QK_{24}	15.9	X	38.26687	348.71054	330.09589	11.46084	0.1893574	0.22877564	2.6476640	20	11 16.9	19.7
172200 2002 QO_{28}	16.2	X	37.54403	325.26323	359.37255	5.89961	0.1773760	0.22866800	2.6484948	20	11 23.9	19.8
172201 2002 QU_{30}	16.7	X	307.90524	227.03721	112.11436	2.87792	0.2489599	0.21494938	2.7600180	20	6 15.4	19.7
172202 2002 QL_{34}	16.0	X	146.96822	207.46351	81.20800	3.33055	0.1606664	0.23897229	2.5718030	20	—	—
172203 2002 QZ_{36}	16.2	X	29.17411	313.73471	132.37025	2.44639	0.1719529	0.23854332	2.5748852	20	—	—
172204 2002 QR_{52}	16.0	X	192.88289	79.45192	137.21194	9.24576	0.0093747	0.23371758	2.6102080	20	12 29.9	19.5
172205 2002 QT_{52}	16.4	X	28.57165	26.19024	13.10373	3.70943	0.2131799	0.23335502	2.6129110	20	—	—
172206 2002 QQ_{54}	16.5	X	219.19315	139.36376	114.50910	3.06457	0.0758529	0.24443205	2.5333622	20	—	—
172207 2002 QN_{68}	16.1	X	353.51322	43.55995	351.65020	4.17672	0.0387865	0.22991212	2.6389317	20	12 6.6	19.6
172208 2002 QH_{74}	16.9	X	35.46950	61.62577	354.95637	1.13397	0.1273805	0.23825326	2.5769747	20	—	—
172209 2002 QG_{75}	17.2	X	138.16070	248.43649	57.83913	0.93874	0.0207737	0.23944800	2.5683956	20	—	—
172210 2002 QF_{77}	16.5	X	296.66705	247.33456	121.91213	1.10179	0.0777835	0.21588747	2.7520169	20	8 5.4	19.9
172211 2002 QE_{84}	16.5	X	2.31636	188.65210	336.80032	4.10374	0.1668519	0.25246214	2.4793540	20	1 25.9	18.8
172212 2002 QW_{89}	16.4	X	60.49789	203.55807	313.30681	3.09337	0.1309869	0.25935826	2.4352076	20	5 2.3	19.0
172213 2002 QA_{110}	16.6	X	335.83700	135.88797	281.86849	2.01854	0.0686949	0.23133407	2.6281066	20	12 14.1	19.8
172214 2002 QV_{115}	16.3	X	141.43972	192.29964	64.86968	1.21816	0.0897721	0.23306412	2.6150847	20	12 15.4	20.3
172215 2002 RL_{26}	16.0	X	5.05295	112.80312	309.59091	13.39809	0.1475683	0.23218687	2.6216675	20	—	—
172216 2002 RF_{44}	15.9	X	276.96354	9.85809	356.97106	13.97377	0.2052445	0.21170262	2.7881656	20	6 12.8	20.0
172217 2002 RK_{44}	16.3	X	347.32465	301.05149	91.87881	3.25194	0.2590849	0.22481285	2.6786869	20	12 18.8	18.5
172218 2002 RG_{47}	15.5	X	10.60714	23.78378	4.28378	11.82843	0.2007155	0.22823743	2.6518247	20	—	—
172219 2002 RR_{47}	16.0	X	8.75755	339.81085	55.83244	3.24907	0.1620630	0.22909085	2.6452347	20	—	—
172220 2002 RZ_{57}	16.2	X	121.69309	54.52678	288.62017	4.52259	0.0926485	0.23983283	2.5656473	20	—	—
172221 2002 RP_{59}	15.6	X	283.91353	5.66407	12.25916	10.83120	0.2824501	0.21193701	2.7861095	20	6 26.5	19.5
172222 2002 RH_{60}	15.5	X	5.86788	249.51360	72.80664	3.17834	0.2340717	0.21965598	2.7204496	20	10 11.7	18.0
172223 2002 RP_{66}	15.1	X	272.12175	204.12189	273.07742	11.61859	0.1127304	0.22636266	2.6664464	20	11 18.6	18.4
172224 2002 RU_{88}	16.1	X	204.20916	246.37757	322.10894	4.13803	0.0503156	0.23355965	2.6113846	20	12 28.5	19.6
172225 2002 RS_{90}	15.6	X	273.22907	31.67558	352.44057	13.90717	0.0444502	0.21240879	2.7819825	20	8 1.4	19.5
172226 2002 RB_{97}	15.6	X	17.10081	318.65090	23.01085	4.35254	0.1090995	0.22202169	2.7010903	20	11 6.7	19.0
172227 2002 RG_{109}	15.4	X	348.59753	50.27761	311.17398	8.31438	0.1410078	0.22258293	2.6965479	20	10 17.4	18.6
172228 2002 RJ_{113}	16.0	X	18.98519	252.03204	124.02226	4.49003	0.0972073	0.22976375	2.6400676	20	12 25.2	19.4
172229 2002 RT_{113}	15.8	X	212.92545	352.32613	13.26193	1.70006	0.0943911	0.20310900	2.8662667	20	4 14.9	20.1
172230 2002 RZ_{113}	15.9	X	258.60220	141.90634	171.22162	1.77225	0.0669391	0.20269485	2.8701697	20	4 3.0	19.8
172231 2002 RZ_{127}	16.0	X	298.48025	185.59494	255.60704	11.99780	0.1234216	0.22647114	2.6655948	20	11 11.4	19.0
172232 2002 RL_{131}	15.6	X	294.28378	172.03898	275.68887	10.99635	0.1506298	0.22563546	2.6721724	20	11 8.9	18.6
172233 2002 RB_{141}	15.7	X	45.27454	33.01454	33.23008	15.73231	0.0972706	0.23892434	2.5721470	20	—	—
172234 2002 RS_{142}	16.4	X	329.82699	149.70627	224.56750	5.32971	0.0302562	0.22114254	2.7082444	20	10 3.7	19.9
172235 2002 RF_{149}	15.9	X	289.61505	263.62473	185.00384	14.13894	0.0655610	0.22743648	2.6580468	20	11 16.5	19.4
172236 2002 RH_{173}	15.4	X	272.91212	315.24006	76.80446	9.02771	0.2332260	0.21179220	2.7873793	20	7 8.6	19.3
172237 2002 RG_{178}	16.3	X	234.19355	226.53388	190.01481	1.71086	0.0836589	0.20964438	2.8063849	20	7 13.7	20.3
172238 2002 RY_{179}	15.6	X	233.19413	292.30290	182.78829	12.96085	0.0330713	0.21961500	2.7207881	20	10 6.6	19.3
172239 2002 RO_{182}	15.6	X	13.01897	61.77632	295.62326	14.11544	0.0925877	0.22475848	2.6791190	20	11 17.7	19.2
172240 2002 RO_{191}	16.2	X	355.34072	226.50077	145.70194	3.41568	0.1251719	0.22502755	2.6769828	20	11 18.2	19.1

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
172241 2002 RT_{196}	16.5	X	108.21294	308.65042	354.57345	3.42470	0.1411518	0.23476887	2.6024099	20	—	—
172242 2002 RA_{200}	16.2	X	326.11809	274.55586	71.00742	2.14891	0.1044757	0.21606571	2.7505032	20	8 18.4	19.4
172243 2002 RT_{202}	15.6	X	332.46048	351.25189	328.05913	8.83888	0.1717559	0.21422484	2.7662377	20	7 18.7	18.5
172244 2002 RG_{206}	16.1	X	298.53071	69.37576	322.73640	4.02179	0.1200619	0.21730677	2.7400209	20	9 2.9	19.3
172245 2002 RV_{206}	16.5	X	100.94134	49.35383	315.54111	4.17450	0.1825261	0.23906531	2.5711358	20	—	—
172246 2002 RS_{223}	15.7	X	291.20566	77.94712	39.70294	8.56676	0.0818565	0.22897376	2.6461364	20	12 23.9	18.9
172247 2002 RF_{224}	15.5	X	246.65247	309.37126	94.33479	10.10926	0.2037673	0.21115383	2.7929944	20	6 27.4	19.8
172248 2002 RV_{225}	15.4	X	270.87891	119.22099	320.35468	8.53817	0.1251705	0.21972395	2.7198886	20	9 21.8	18.9
172249 2002 RG_{226}	16.0	X	80.96040	156.92485	123.98416	3.27842	0.1779958	0.22626393	2.6672220	20	11 19.5	20.0
172250 2002 RR_{232}	16.3	X	250.28926	249.71983	294.33410	2.98673	0.1657429	0.23538058	2.5978992	20	—	—
172251 2002 RR_{237}	16.6	X	75.85219	172.57670	112.32862	0.99078	0.0865207	0.22679229	2.6630778	20	11 8.7	20.2
172252 2002 RR_{263}	17.0	X	58.73472	64.20875	245.39426	3.79785	0.1038612	0.22592218	2.6699111	20	11 21.3	20.6
172253 2002 RC_{271}	16.3	X	24.90949	168.29080	173.54438	5.37684	0.0605206	0.22662554	2.6643840	20	11 14.4	19.8
172254 2002 SY_{8}	16.2	X	89.50730	142.29918	144.91651	4.22935	0.0495255	0.22484772	2.6784100	20	11 23.7	20.0
172255 2002 SQ_{9}	16.1	X	359.57983	327.80799	24.61272	5.18764	0.0631427	0.22045804	2.7138474	20	10 20.5	19.3
172256 2002 SN_{11}	16.1	X	95.77868	235.51268	25.91383	4.91802	0.0407721	0.22132533	2.7067530	20	10 26.6	19.9
172257 2002 SD_{16}	15.9	X	330.55565	104.15307	298.61317	11.93731	0.2359927	0.22147570	2.7055277	20	11 15.9	18.5
172258 2002 SG_{23}	16.1	X	317.53693	249.34961	95.80391	1.75395	0.0822319	0.21312736	2.7757259	20	8 4.1	19.4
172259 2002 SF_{26}	16.3	X	41.69087	176.35375	133.64393	4.74464	0.2387199	0.22347589	2.6893600	20	11 21.1	20.0
172260 2002 SN_{40}	15.7	X	348.58549	10.88148	28.11828	8.02425	0.1224824	0.22547752	2.6734201	20	12 11.0	18.8
172261 2002 SN_{51}	16.1	X	90.50118	252.49527	91.73681	4.79692	0.2028579	0.23551962	2.5968766	20	—	—
172262 2002 SK_{54}	15.6	X	320.70321	357.86086	324.15529	8.75667	0.1570324	0.21359105	2.7717072	20	6 29.8	18.8
172263 2002 SF_{61}	15.8	X	323.73939	358.81552	35.74315	7.42717	0.0753282	0.22172134	2.7035291	20	10 23.5	19.0
172264 2002 TW_{15}	15.5	X	302.58000	117.74028	229.11751	2.94075	0.1082690	0.21209410	2.7847336	20	7 9.2	19.0
172265 2002 TW_{21}	15.5	X	344.07217	351.43257	33.50901	6.52359	0.0225884	0.22240157	2.6980137	20	11 7.3	18.8
172266 2002 TM_{23}	16.0	X	294.76117	28.02305	32.81385	6.67657	0.0606518	0.21948706	2.7218453	20	10 15.3	19.4
172267 2002 TP_{29}	15.7	X	272.44507	67.69816	18.03767	3.34531	0.1698357	0.21695866	2.7429510	20	9 29.1	18.9
172268 2002 TE_{64}	16.0	X	296.26587	238.53829	276.94215	3.75005	0.0756208	0.23440851	2.6050764	20	—	—
172269 Tator	15.6	X	283.86392	64.24139	343.29498	8.55775	0.2189925	0.21531740	2.7568722	20	8 18.1	19.0
172270 2002 TN_{70}	15.4	X	97.48847	53.76902	240.24688	12.06430	0.1679938	0.23104997	2.6302605	20	12 19.1	19.6
172271 2002 TW_{79}	15.4	X	246.82478	17.06122	58.79506	14.74542	0.2053509	0.21013492	2.8020157	20	8 13.4	19.8
172272 2002 TP_{83}	15.7	X	319.91177	250.94499	92.80838	6.39554	0.1875718	0.21520257	2.7578528	20	7 26.8	18.5
172273 2002 TP_{89}	16.2	X	57.72484	353.57442	341.50701	5.69272	0.0897539	0.22614833	2.6681308	20	12 20.2	20.0
172274 2002 TD_{98}	16.0	X	223.01386	86.24121	201.75988	1.20099	0.1501844	0.19201138	2.9756698	20	1 22.2	20.7
172275 2002 TO_{108}	15.7	X	307.64646	318.52751	74.34184	10.11645	0.1580531	0.21810342	2.7333447	20	9 22.9	18.8
172276 2002 TP_{111}	15.5	X	278.07608	314.98786	351.74684	14.86429	0.1477649	0.20651592	2.8346560	20	4 2.5	19.6
172277 2002 TU_{111}	16.1	X	356.04355	301.96475	108.15847	4.54743	0.1843541	0.22896295	2.6462198	20	—	—
172278 2002 TU_{112}	15.8	X	270.38983	184.38871	17.61734	3.69368	0.0836366	0.23917500	2.5703496	20	—	—
172279 2002 TO_{121}	15.7	X	276.71641	89.04754	318.30285	6.27217	0.0523433	0.21346593	2.7727901	20	8 30.3	19.2
172280 2002 TM_{124}	14.8	X	32.57489	184.31334	278.07840	9.07612	0.0527148	0.18644450	3.0346108	20	1 9.9	18.8
172281 2002 TD_{133}	15.8	X	30.48304	300.48240	329.43358	6.26509	0.0958990	0.26951098	2.3736594	20	8 26.3	18.4
172282 2002 TJ_{134}	15.0	X	171.83046	31.08663	240.55555	9.57290	0.1009458	0.18012095	3.1052261	20	—	—
172283 2002 TU_{137}	15.2	X	279.21450	106.49087	271.56317	7.87381	0.1386566	0.20828236	2.8186061	20	7 11.8	18.8
172284 2002 TO_{138}	15.4	X	326.69663	59.53175	288.98904	7.46707	0.3495773	0.21529817	2.7570363	20	7 26.2	17.1
172285 2002 TX_{138}	14.7	X	124.34439	71.90921	273.86528	8.14820	0.1149472	0.18152889	3.0891492	20	—	—
172286 2002 TL_{139}	15.3	X	326.80772	70.10149	276.72346	6.93656	0.1793394	0.21351339	2.7723793	20	8 12.1	18.1
172287 2002 TE_{144}	16.9	X	108.24976	257.15156	101.65978	4.93691	0.1584885	0.23958292	2.5674312	20	—	—
172288 2002 TO_{156}	16.1	X	324.15037	133.16677	229.37530	5.43245	0.0387338	0.21844070	2.7305304	20	9 7.9	19.8
172289 2002 TS_{164}	15.3	X	344.21436	302.51614	130.83627	15.30329	0.1076296	0.22552248	2.6730648	20	—	—
172290 2002 TW_{166}	15.3	X	320.35187	136.32474	257.69966	13.64714	0.0226313	0.22163454	2.7042349	20	10 13.4	19.1
172291 2002 TH_{174}	15.7	X	291.33046	354.98984	73.20698	8.62329	0.0750410	0.22051061	2.7134160	20	10 21.6	19.1
172292 2002 TR_{177}	15.1	X	350.36507	33.17590	264.43752	17.02706	0.1677447	0.21157439	2.7892920	20	7 17.8	18.1
172293 2002 TD_{178}	15.1	X	262.00882	32.89515	315.95900	14.38664	0.1536136	0.20369763	2.8607422	20	5 5.4	19.7
172294 2002 TQ_{179}	15.7	X	168.77426	21.40923	296.69195	12.28808	0.1937679	0.23983031	2.5656653	20	1 7.4	19.8
172295 2002 TC_{195}	15.6	X	311.63997	331.23520	59.22534	5.74482	0.1126819	0.21535068	2.7565882	20	9 27.2	18.8
172296 2002 TV_{195}	15.6	X	248.44173	171.44279	218.33586	14.70485	0.1373540	0.20403414	2.8575959	20	6 18.2	20.0
172297 2002 TU_{199}	15.6	X	1.30789	69.38210	311.94003	13.60151	0.2696176	0.22398152	2.6853110	20	—	—
172298 2002 TD_{213}	16.1	X	304.10442	325.18840	70.70896	5.63519	0.0781972	0.21734261	2.7397197	20	9 26.0	19.5
172299 2002 TD_{217}	15.8	X	267.59791	317.35652	77.61673	5.45745	0.0747536	0.21104904	2.7939189	20	7 30.9	19.5
172300 2002 TE_{228}	15.3	X	55.60484	288.05661	57.86035	17.51293	0.2802109	0.22842288	2.6503892	20	—	—
172301 2002 TM_{234}	15.2	X	5.77153	34.39215	284.63495	12.10541	0.1663583	0.21723062	2.7406612	20	9 17.1	18.5
172302 2002 TY_{235}	15.3	X	38.21373	148.37520	258.92796	13.55828	0.0943878	0.23254524	2.6189733	20	—	—
172303 2002 TZ_{235}	15.3	X	293.68714	120.39649	296.00517	12.84284	0.0701898	0.21761360	2.7374448	20	9 27.7	19.2
172304 2002 TC_{238}	15.7	X	58.82426	65.16164	289.66293	11.96298	0.1930222	0.22993932	2.6387235	20	—	—
172305 2002 TY_{239}	15.6	X	325.88905	192.97425	221.98994	12.08889	0.1348536	0.22149497	2.7053709	20	11 24.3	18.5
172306 2002 TV_{250}	16.0	X	9.42236	85.96266	264.18857	1.53269	0.1942846	0.22020417	2.7159328	20	11 18.5	18.9
172307 2002 TT_{262}	15.7	X	5.16764	283.58465	25.51945	7.15588	0.0619135	0.21363766	2.7713040	20	9 2.4	19.2
172308 2002 TQ_{267}	16.0	X	7.90245	127.76507	302.07693	2.30748	0.1006280	0.22923662	2.6441132	20	—	—
172309 2002 TU_{268}	15.6	X	264.11476	83.00252	341.95336	8.19325	0.2207250	0.21369605	2.7707992	20	8 13.5	19.4
172310 2002 TL_{273}	16.3	X	293.75814	151.94686	240.79877	3.43825	0.1194769	0.21458545	2.7631377	20	8 25.7	19.7
172311 2002 TO_{275}	15.4	X	10.84459	90.47940	226.89076	7.88940	0.1763584	0.21653817	2.7465009	20	9 30.7	18.4
172312 2002 TO_{284}	14.9	X	154.84570	125.17037	277.81231	9.03651	0.1153843	0.19263584	2.9692356	20	3 29.7	19.7
172313 2002 TM_{286}	15.5	X	310.25711	311.23645	27.32154	9.42929	0.1673201	0.20882810	2.8136933	20	7 2.7	18.9
172314 2002 TR_{290}	15.6	X	0.08071	69.93352	322.22641	4.48921	0.1013212	0.22330601	2.6907237	20	12 17.8	18.8
172315 Changqiaoxiaoxue	15.5	X	220.99221	80.35449	53.87720	15.26490	0.0686980	0.21907435	2.7252626	20	10 15.9	19.5
172316 2002 TD_{303}	16.5	X	62.39723	290.67662	80.17028	2.71004	0.1062499	0.23208342	2.6224465	20	—	—
172317 Walterbos	15.8	X	118.92266	133.32353	92.61606	14.15536	0.0866850	0.21602124	2.7508806	20	10 19.1	20.2
172318 Wangshui	15.9	X	167.19146	352.09039	155.11099	9.01220	0.1199102	0.21146670	2.7902389	20	8 24.1	20.2
172319 2002 TR_{375}	15.8	X	299.79094	348.04849	66.63349	6.31126	0.0743360	0.21873007	2.7281216	20	10 14.9	19.2
172320 2002 TZ_{377}	15.7	X	106.69810	13.45698	10.07760	2.19159	0.1098005	0.18338608	3.0682574	20	1 19.9	20.0

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
172321 2002 UY_5	15.6	X	6.61478	261.74907	92.61815	7.30448	0.0416516	0.22057031	2.7129264	20	11 3.1	19.1
172322 2002 UQ_{22}	15.5	X	267.89490	25.73396	22.07077	3.21616	0.1705543	0.20892624	2.8128121	20	8 2.3	19.2
172323 2002 UP_{23}	16.0	X	186.67741	292.03972	346.86097	4.87963	0.1094590	0.23683194	2.5872747	20	—	—
172324 2002 UM_{26}	15.7	X	256.89800	52.13240	64.84072	10.68717	0.1339983	0.21861119	2.7291105	20	10 27.2	19.4
172325 2002 UW_{32}	15.8	X	149.49390	327.48810	45.88069	4.41612	0.1378681	0.24331596	2.5411033	20	2 21.4	19.5
172326 2002 UL_{47}	16.2	X	284.12931	347.43918	42.95523	7.47482	0.1217625	0.21272935	2.7791870	20	8 12.1	19.8
172327 2002 VF	15.5	X	291.32806	332.38317	87.45157	4.85680	0.1434686	0.21592814	2.7516713	20	9 29.9	18.7
172328 2002 VV_3	15.5	X	280.44929	64.95851	329.73046	4.72318	0.0372651	0.20996340	2.8035415	20	8 21.5	19.1
172329 2002 VE_{16}	16.1	X	261.62143	177.02129	225.29043	3.19904	0.1004737	0.20893929	2.8126950	20	7 26.2	20.0
172330 2002 VH_{18}	15.7	X	262.49496	349.89506	49.43043	6.95381	0.0743058	0.20820794	2.8192777	20	7 30.6	19.6
172331 2002 VS_{19}	15.4	X	313.71600	327.72327	70.59622	5.91419	0.1249871	0.21535232	2.7565742	20	10 10.8	18.5
172332 2002 VW_{19}	16.1	X	159.28924	356.99510	53.77204	3.22650	0.1868338	0.19314601	2.9640047	20	4 21.2	20.9
172333 2002 VH_{23}	15.8	X	334.87330	141.37584	261.97267	3.89481	0.1124098	0.21955630	2.7212730	20	11 21.9	18.8
172334 2002 VB_{25}	15.7	X	299.08301	124.72964	275.18428	5.22421	0.0164346	0.21504150	2.7592297	20	9 23.2	19.5
172335 2002 VO_{32}	15.5	X	285.79911	354.20342	66.24048	10.00150	0.1401320	0.21297917	2.7770133	20	9 24.8	19.0
172336 2002 VE_{37}	15.5	X	245.52556	352.48273	73.89446	8.59451	0.0685513	0.20950853	2.8075979	20	8 15.4	19.5
172337 2002 VR_{38}	16.4	X	48.74550	12.95445	328.76739	3.03266	0.2293161	0.22541560	2.6739097	20	—	—
172338 2002 VX_{43}	15.1	X	204.12043	282.32525	51.65282	11.98904	0.1395498	0.19052510	2.9911251	20	3 5.4	20.1
172339 2002 VL_{57}	15.6	X	281.48477	65.82036	62.31693	13.46449	0.1302239	0.22375283	2.6871404	20	12 15.4	18.8
172340 2002 VN_{74}	16.3	X	317.43581	350.30317	69.34488	7.03131	0.1152727	0.21980198	2.7192448	20	11 15.5	19.4
172341 2002 VZ_{85}	15.2	X	258.89442	158.17725	318.34484	25.76519	0.2103806	0.21257040	2.7805723	20	9 26.7	19.6
172342 2002 VQ_{92}	15.3	X	120.66655	69.21044	113.35195	4.90439	0.0864891	0.20605461	2.8388852	20	8 19.8	19.4
172343 2002 VC_{97}	15.5	X	301.54101	179.05096	329.55121	7.94914	0.2304920	0.22644769	2.6657789	20	—	—
172344 2002 VL_{104}	15.4	X	155.21758	164.07253	247.54351	9.43388	0.1046656	0.19235624	2.9721122	20	4 10.7	20.2
172345 2002 VR_{105}	15.1	X	340.96739	96.91767	262.86923	11.94435	0.2183764	0.21549654	2.7553441	20	9 29.6	17.8
172346 2002 VK_{106}	15.4	X	303.43031	178.12116	261.75987	4.93051	0.1156960	0.21833890	2.7313790	20	11 17.1	18.3
172347 2002 VL_{108}	15.5	X	290.36704	60.09056	7.91354	4.29271	0.0654326	0.21464139	2.7626577	20	10 15.4	19.0
172348 2002 VU_{113}	15.9	X	176.07812	217.85813	163.79280	1.57405	0.1654050	0.19227250	2.9729751	20	3 31.1	20.9
172349 2002 VO_{122}	15.3	X	315.77582	111.22750	288.87792	7.97648	0.1578768	0.21630172	2.7485021	20	10 7.4	18.5
172350 2002 VN_{123}	15.4	X	331.59304	36.61869	356.44670	13.57051	0.2039690	0.21927889	2.7235676	20	10 29.7	18.1
172351 2002 VG_{126}	15.5	X	351.57257	87.31450	279.57745	7.23127	0.1807026	0.21784050	2.7355435	20	11 4.6	18.5
172352 2002 VG_{127}	15.6	X	263.20804	125.77779	232.36812	7.10423	0.1844126	0.20299748	2.8673164	20	5 20.4	19.9
172353 2002 VR_{133}	16.0	X	9.26954	274.54204	100.87153	6.46318	0.0915118	0.22141858	2.7059930	20	12 8.2	19.3
172354 2002 WY_7	15.8	X	112.08609	292.92466	151.05057	1.48514	0.1460400	0.18867438	3.0106534	20	4 12.6	20.1
172355 2002 XM	14.9	X	197.53173	1.42065	94.75004	14.01607	0.1914577	0.20277900	2.8693756	20	7 17.9	19.7
172356 2002 XG_7	15.6	X	180.18585	186.20483	306.37160	8.36505	0.0913123	0.20868753	2.8149566	20	8 18.1	20.0
172357 2002 XC_{12}	15.5	X	346.85815	44.20155	305.03196	6.84565	0.2881291	0.21620225	2.7493450	20	10 6.8	17.7
172358 2002 XS_{12}	15.3	X	133.20060	200.40773	256.84983	9.97141	0.0808922	0.19318246	2.9636318	20	5 13.7	19.7
172359 2002 XE_{16}	15.2	X	317.99808	48.36697	331.87433	8.67773	0.1197139	0.21391682	2.7688925	20	9 17.5	18.5
172360 2002 XM_{39}	15.0	X	335.09709	148.41089	55.98834	12.02844	0.0793196	0.18520209	3.0481673	20	3 1.9	19.2
172361 2002 XK_{51}	15.3	X	235.31248	279.39637	83.19072	14.73523	0.1913606	0.19763761	2.9189254	20	5 2.5	20.2
172362 2002 XM_{55}	14.8	X	39.68986	278.22258	229.63223	8.04520	0.0992461	0.18469294	3.0537666	20	3 17.3	18.7
172363 2002 XK_{60}	15.6	X	296.13813	168.20949	242.87329	3.69400	0.0636051	0.21310035	2.7759605	20	9 30.3	19.1
172364 2002 XV_{63}	15.2	X	273.28074	157.35654	291.79103	13.10053	0.1597087	0.21244757	2.7816440	20	9 27.3	19.1
172365 2002 XR_{64}	14.9	X	190.00569	267.78389	59.62692	13.14559	0.1163305	0.18284516	3.0743058	20	2 13.6	20.0
172366 2002 XB_{71}	15.4	X	280.91754	347.53913	65.96278	5.07020	0.1392039	0.20904541	2.8117430	20	9 4.1	19.0
172367 2002 XL_{72}	15.2	X	139.62225	13.35023	55.01530	4.50577	0.0933183	0.18929756	3.0040422	20	4 17.9	19.7
172368 2002 XC_{74}	15.1	X	69.84187	68.95569	58.44000	10.55104	0.1286188	0.18610911	3.0382555	20	4 15.3	19.1
172369 2002 XF_{85}	15.2	X	222.73803	150.79333	282.89282	14.08092	0.1123395	0.20309187	2.8664279	20	7 18.3	19.6
172370 2002 XL_{85}	14.6	X	134.08188	65.37639	64.62802	17.29064	0.0599478	0.19654096	2.9297732	20	6 23.3	19.0
172371 2002 XB_{93}	16.0	X	203.02611	58.98746	350.20115	1.38489	0.1329124	0.19731783	2.9220782	20	5 27.4	20.7
172372 2002 XO_{95}	15.3	X	184.00421	132.62378	228.00678	8.51011	0.1151073	0.19029173	2.9935701	20	3 8.8	20.2
172373 2002 XX_{101}	15.9	X	213.75373	54.30855	328.62466	1.45170	0.1185710	0.19620977	2.9330691	20	5 5.9	20.5
172374 2002 XB_{107}	15.5	X	185.47819	254.18252	126.54570	2.30535	0.2485870	0.19244319	2.9712169	20	4 8.4	20.8
172375 2002 YH_{13}	15.7	X	37.62880	327.72701	158.63071	0.18578	0.1238986	0.17865971	3.1221347	20	2 21.2	19.2
172376 2002 YE_{25}	14.6	X	89.47086	128.28311	279.84344	12.11779	0.0591285	0.17605176	3.1528923	20	1 20.4	19.0
172377 2002 YT_{34}	15.1	X	263.58307	100.68611	250.00028	7.16425	0.2370642	0.20000362	2.8958594	20	5 4.0	19.6
172378 2002 YK_{35}	15.0	X	83.78728	204.88887	249.86344	13.03629	0.1242118	0.18294426	3.0731955	20	3 13.6	19.4
172379 2003 AO_7	14.9	X	104.67093	191.00804	224.99728	16.25097	0.2325846	0.18190612	3.0848769	20	3 6.9	19.8
172380 2003 AH_{10}	15.7	X	244.14054	351.59225	129.83371	10.66267	0.1834139	0.21189678	2.7864621	20	10 9.4	19.8
172381 2003 AY_{10}	15.5	X	324.37522	331.62634	122.23998	13.69127	0.1673492	0.22182328	2.7027008	20	—	—
172382 2003 AD_{11}	15.2	X	74.62109	258.77892	216.77022	7.81664	0.2523693	0.18344344	3.0676178	20	4 21.8	19.1
172383 2003 AW_{15}	15.5	X	242.35491	185.89999	332.75556	8.62302	0.1090039	0.21585036	2.7523323	20	11 28.3	19.3
172384 2003 AF_{21}	15.1	X	84.03095	46.78057	72.61719	10.55766	0.0515504	0.18490514	3.0514298	20	4 14.1	19.4
172385 2003 AN_{21}	15.4	X	321.79608	127.52519	46.14458	2.72619	0.0580460	0.17304448	3.1893159	20	1 5.3	19.7
172386 2003 AO_{35}	14.5	X	2.18326	247.97950	261.34806	13.91961	0.1023614	0.17679565	3.1440419	20	1 21.7	18.7
172387 2003 AZ_{37}	14.6	X	358.32073	56.09898	122.67586	24.11485	0.1366718	0.17787603	3.1312982	20	2 26.6	18.5
172388 2003 AG_{45}	14.6	X	318.80897	120.97159	78.59503	10.27289	0.1164338	0.17604292	3.1529978	20	1 25.6	18.9
172389 2003 AX_{50}	14.6	X	184.59923	245.51308	91.14937	9.04307	0.0431381	0.17824834	3.1269365	20	2 15.3	19.3
172390 2003 AO_{52}	15.6	X	73.90331	75.13473	64.31721	6.66513	0.1358092	0.18446030	3.0563337	20	5 5.0	19.6
172391 2003 AG_{54}	15.0	X	83.44370	74.98517	103.70954	16.02703	0.0667938	0.19130768	2.9829624	20	6 26.5	19.2
172392 2003 AA_{55}	14.8	X	357.43134	61.42928	102.75376	17.12527	0.0513641	0.17575300	3.1564643	20	2 12.0	19.2
172393 2003 AK_{68}	15.1	X	15.65377	46.65815	72.85203	12.13458	0.0732726	0.17177949	3.2049543	20	1 11.1	19.4
172394 2003 AL_{78}	14.4	X	299.61295	104.17332	86.14641	17.62134	0.0309681	0.16989484	3.2286125	20	1 1.8	19.1
172395 2003 AN_{84}	15.6	X	37.36954	300.06218	197.94014	9.66085	0.1866187	0.17740227	3.1368706	20	3 10.2	19.2
172396 2003 BV_6	15.6	X	272.50826	10.05748	103.80405	13.58081	0.1473780	0.21713120	2.7414978	20	11 13.9	19.2
172397 2003 BR_{14}	15.0	X	16.78532	279.29763	298.98219	7.43406	0.1119901	0.18587810	3.0407723	20	5 14.7	18.7
172398 2003 BT_{20}	15.2	X	94.73181	14.93844	112.18972	7.64844	0.2059386	0.18294215	3.0732192	20	5 25.8	19.8
172399 2003 BC_{22}	15.5	X	353.28795	309.92331	114.92641	14.11631	0.2527930	0.22611134	2.6684219	20	—	—
172400 2003 BH_{22}	15.6	X	175.03208	130.02569	295.09744	8.81842	0.0958290	0.19007595	2.9958353	20	5 18.4	20.4

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
172401 2003 BG_{24}	15.1	X	50.60134	296.04155	174.38961	16.50587	0.2173672	0.17605199	3.1528895	20	3 2.9	18.6
172402 2003 BJ_{51}	15.1	X	35.52387	225.40823	301.93632	4.48952	0.1706230	0.17944342	3.1130375	20	4 13.0	18.7
172403 2003 BO_{52}	15.2	X	36.34532	236.10401	296.06515	7.53216	0.0726974	0.18077325	3.0977517	20	4 10.0	19.4
172404 2003 BC_{53}	15.1	X	145.35362	353.64836	108.12438	11.74966	0.0715419	0.18897786	3.0074294	20	6 3.9	19.6
172405 2003 BH_{65}	15.3	X	191.70430	78.08503	296.29658	6.74062	0.1513173	0.18557430	3.0440900	20	4 1.5	20.3
172406 2003 BY_{67}	15.7	X	153.01212	330.95272	102.82554	4.34372	0.1040173	0.18665941	3.0322811	20	5 9.9	20.4
172407 2003 BN_{69}	15.0	X	160.79449	316.98616	326.80730	13.27663	0.1506470	0.21900482	2.7258394	20	—	—
172408 2003 BL_{75}	15.2	X	14.77841	87.94110	58.96084	10.59578	0.0567799	0.17436124	3.1732387	20	2 16.3	19.5
172409 2003 BJ_{77}	15.8	X	42.03070	23.41572	89.47331	2.68641	0.1756525	0.17532096	3.1616478	20	2 17.1	19.3
172410 2003 CB_{2}	14.1	X	301.10904	319.36565	291.25024	25.78493	0.1224722	0.17621914	3.1508955	20	2 18.8	19.0
172411 2003 CM_{14}	15.1	X	240.42137	215.64622	125.91951	12.39376	0.0596950	0.18431955	3.0578895	20	4 24.3	19.8
172412 2003 DC_{13}	14.8	X	100.38249	85.92596	289.48938	12.64422	0.1653966	0.17086628	3.2163636	20	1 11.8	19.4
172413 2003 EH_{2}	15.3	X	35.94556	219.26902	326.73947	4.22369	0.1122093	0.18096349	3.0955803	20	5 3.4	19.1
172414 2003 EW_{14}	15.3	X	351.03690	95.73851	99.40844	5.12954	0.1018081	0.17495003	3.1661151	20	3 8.7	19.3
172415 2003 EZ_{39}	15.5	X	17.77389	95.98092	100.18448	16.86141	0.1855077	0.17685603	3.1433263	20	4 30.8	19.2
172416 2003 FV_{5}	14.4	X	112.44188	93.99699	227.83467	5.64613	0.0472011	0.15241806	3.4709239	20	—	—
172417 2003 FW_{37}	16.4	X	108.84742	297.86069	219.05833	1.40960	0.2144421	0.18553933	3.0444725	20	7 15.4	21.2
172418 2003 FV_{106}	14.1	X	52.34940	114.19647	32.45678	26.66983	0.1707290	0.17328226	3.1863977	20	4 18.9	18.0
172419 2003 GD_{21}	16.8	X	231.97812	101.57746	42.64238	23.01734	0.1275230	0.37640771	1.8997526	20	11 29.7	18.5
172420 2003 GM_{48}	15.1	X	167.47764	205.70768	100.80886	7.37801	0.0539364	0.15821802	3.3855722	20	—	—
172421 2003 HF	16.4	X	341.26531	206.44362	70.57733	44.37862	0.1077038	0.35130848	1.9891932	20	6 4.1	17.5
172422 2003 OW_{13}	17.1	X	23.97469	210.31652	95.19732	8.06896	0.1769686	0.29681727	2.2257511	20	10 30.9	19.6
172423 2003 OK_{16}	16.4	X	227.52499	166.05375	166.45818	4.54101	0.2532451	0.27104452	2.3646977	20	3 8.4	20.5
172424 2003 OU_{17}	17.6	X	43.86600	229.53252	52.07424	4.35679	0.1924771	0.29730773	2.2233026	20	10 24.7	20.3
172425 Taliajacobi	15.3	X	192.80692	79.03237	356.55591	21.33848	0.3576863	0.27120386	2.3637714	20	6 13.3	20.2
172426 2003 OJ_{31}	16.6	X	194.70667	162.96363	175.48881	7.46131	0.2443148	0.26644218	2.3918507	20	2 19.1	20.8
172427 2003 PF_{4}	16.5	X	227.73321	29.09806	317.70190	6.90470	0.2354641	0.27364970	2.3496656	20	3 23.5	20.5
172428 2003 PX_{9}	16.6	X	258.09228	100.03152	220.02072	7.25647	0.1891908	0.27708841	2.3301854	20	3 20.9	20.3
172429 2003 QN_{1}	16.9	X	248.30755	128.75439	193.25460	2.94836	0.2417427	0.27401291	2.3475888	20	3 11.9	20.9
172430 2003 QL_{8}	16.4	X	247.18127	72.42151	296.77209	6.32843	0.1320423	0.27991952	2.3144471	20	5 20.8	19.8
172431 2003 QO_{16}	16.9	X	84.76285	75.88345	336.67132	3.64201	0.1382612	0.25892824	2.4379031	20	1 17.4	19.5
172432 2003 QD_{18}	16.9	X	263.71306	280.42127	56.81408	2.82769	0.2240220	0.27859653	2.3217685	20	4 17.4	20.3
172433 2003 QN_{22}	16.9	X	252.33283	118.14054	224.93726	3.73446	0.1517520	0.27687615	2.3313762	20	4 19.8	20.3
172434 2003 QG_{24}	17.0	X	229.36804	185.28609	183.91166	4.82684	0.1327971	0.27756182	2.3275351	20	5 2.9	20.3
172435 2003 QX_{24}	17.3	X	289.59371	141.79512	211.62235	2.31381	0.1214189	0.28505108	2.2865863	20	6 29.9	19.9
172436 2003 QE_{25}	16.1	X	321.21728	304.82062	309.78415	9.55469	0.0986191	0.27587424	2.3370174	20	3 23.3	18.9
172437 2003 QO_{37}	17.2	X	5.25041	51.64715	226.83583	0.75852	0.1760579	0.28781665	2.2719152	20	8 5.0	18.8
172438 2003 QW_{37}	16.7	X	303.15336	10.73024	314.99577	4.61536	0.1737496	0.28402093	2.2921119	20	5 31.0	18.9
172439 2003 QP_{40}	16.6	X	299.44551	354.20824	318.53066	6.65403	0.1390597	0.28268063	2.2993514	20	5 8.9	19.4
172440 2003 QE_{42}	16.3	X	196.66247	337.75307	29.40922	3.11001	0.2100612	0.26826474	2.3810050	20	3 27.8	20.2
172441 2003 QR_{45}	16.5	X	216.28458	259.57895	155.31080	5.90997	0.1193736	0.28110072	2.3079589	20	6 19.9	19.9
172442 2003 QC_{48}	17.1	X	300.95135	72.22271	240.43270	5.99690	0.1388426	0.28098087	2.3086152	20	5 14.0	19.5
172443 2003 QX_{52}	17.2	X	354.95141	259.09826	60.27468	2.22698	0.1428675	0.29159028	2.2522712	20	9 19.4	18.9
172444 2003 QN_{55}	16.7	X	223.86895	273.38915	72.50040	3.22762	0.2240329	0.27255323	2.3559631	20	3 24.4	20.5
172445 2003 QM_{57}	16.8	X	271.44952	326.02211	48.65974	1.57340	0.2222502	0.28430929	2.2905618	20	6 16.5	19.7
172446 2003 QN_{58}	16.8	X	158.72124	346.51480	65.03217	2.49327	0.1765218	0.27034817	2.3687565	20	4 18.4	20.5
172447 2003 QX_{59}	16.3	X	257.61320	291.42271	29.09395	6.72462	0.1464341	0.27413992	2.3468637	20	3 29.4	19.6
172448 2003 QX_{61}	16.4	X	224.18926	271.50189	109.34064	3.31710	0.2359764	0.27412150	2.3469688	20	5 6.4	20.2
172449 2003 QN_{65}	17.3	X	208.88317	305.04610	57.72557	3.16346	0.2022472	0.27247034	2.3564410	20	4 2.0	21.0
172450 2003 QR_{78}	16.0	X	245.67715	108.55612	253.75372	3.99995	0.2521424	0.27511229	2.3413305	20	4 28.2	19.8
172451 2003 QV_{79}	16.6	X	104.77564	212.67794	37.00410	9.13039	0.2742495	0.30282906	2.1961956	20	11 16.7	20.5
172452 2003 QB_{93}	16.7	X	317.15652	264.51768	48.98502	6.10953	0.1699130	0.28391535	2.2926801	20	6 8.4	18.8
172453 2003 QD_{93}	16.6	X	291.82506	267.59207	44.65364	6.69202	0.1280408	0.27928835	2.3179328	20	5 1.5	19.0
172454 2003 QR_{101}	16.2	X	285.46860	305.86123	87.57711	7.24510	0.0758237	0.28801957	2.2708479	20	9 5.4	18.7
172455 2003 QT_{107}	16.8	X	325.20474	40.01961	269.47871	4.08774	0.1989065	0.28429697	2.2906280	20	6 15.6	18.4
172456 2003 RW	16.4	X	345.90640	61.03401	240.86340	5.80196	0.1249851	0.28547977	2.2842966	20	7 25.7	18.4
172457 2003 RU_{1}	17.0	X	298.10580	260.24171	70.87285	2.20338	0.2356357	0.28192012	2.3034847	20	5 20.2	19.6
172458 2003 RF_{4}	16.5	X	257.37759	253.01921	96.89775	5.51687	0.1348559	0.27809725	2.3245466	20	5 9.3	19.7
172459 2003 RO_{5}	16.5	X	199.61632	335.27528	24.01042	2.99565	0.1904624	0.26880643	2.3778053	20	3 20.6	20.4
172460 2003 RT_{11}	17.1	X	197.37261	84.35080	357.62728	4.08411	0.1571021	0.27978004	2.3152163	20	7 4.2	20.6
172461 2003 SE_{4}	17.0	X	132.79389	95.65386	6.15196	1.51350	0.1435902	0.27105207	2.3646538	20	5 24.7	20.3
172462 2003 SF_{4}	17.1	X	182.95929	353.97936	4.62386	1.17566	0.1998541	0.26575758	2.3959566	20	3 5.5	20.9
172463 2003 SO_{6}	16.5	X	239.38591	42.32375	301.53986	1.61003	0.2207560	0.27402013	2.3475476	20	4 1.6	20.1
172464 2003 SQ_{10}	17.4	X	147.61732	229.65340	235.30999	1.88364	0.1854602	0.27306719	2.3530060	20	6 16.2	21.1
172465 2003 SV_{10}	17.1	X	140.86299	97.96982	324.74927	1.69680	0.1892318	0.26626610	2.3929051	20	4 15.2	20.7
172466 2003 SN_{17}	16.2	X	251.06037	123.19164	205.84948	4.28854	0.2500489	0.27413581	2.3468871	20	3 22.1	19.8
172467 2003 SZ_{22}	16.2	X	225.28399	114.49255	272.55073	3.06977	0.1866192	0.27572708	2.3378489	20	5 16.8	19.8
172468 2003 SE_{37}	16.3	X	209.07787	55.87901	324.73991	6.54316	0.1146016	0.27399326	2.3477010	20	4 23.3	19.8
172469 2003 SF_{45}	16.4	X	242.77436	336.24400	29.44376	2.95727	0.2572471	0.27668071	2.3324739	20	4 30.2	20.3
172470 2003 SY_{45}	16.4	X	169.50137	314.31065	91.36498	3.73986	0.1260646	0.27007497	2.3703537	20	4 19.9	20.0
172471 2003 SW_{46}	16.5	X	191.44074	165.88166	234.13012	1.44013	0.2191931	0.27192540	2.3595881	20	5 2.6	20.3
172472 2003 SM_{52}	16.5	X	219.53738	253.89609	92.38626	3.24429	0.1795503	0.27006009	2.3704408	20	3 22.9	20.2
172473 2003 SB_{55}	16.6	X	284.10764	60.70470	314.67792	5.48228	0.1426700	0.28461271	2.2889335	20	7 21.7	18.8
172474 2003 ST_{70}	16.4	X	280.92134	112.86045	296.60845	7.25076	0.1129517	0.29016847	2.2596226	20	9 8.6	18.7
172475 2003 SA_{76}	17.1	X	197.11168	207.41568	134.68622	1.80926	0.1902475	0.26642378	2.3919608	20	2 26.1	21.0
172476 2003 SR_{79}	16.2	X	201.61457	44.53852	317.63355	5.45219	0.1274974	0.26921439	2.3754025	20	3 23.2	19.8
172477 2003 SM_{86}	16.1	X	242.64626	103.17880	244.55563	5.97029	0.1331670	0.27350802	2.3504770	20	4 16.1	19.5
172478 2003 SM_{87}	16.9	X	167.64292	283.23115	68.20589	4.21599	0.1438003	0.26314057	2.4118160	20	2 10.4	20.6
172479 2003 SL_{95}	17.0	X	283.37562	53.03732	324.17052	5.00392	0.1773046	0.28369403	2.2938724	20	7 17.2	19.4
172480 2003 SE_{97}	16.7	X	152.95532	328.52486	48.22398	2.70420	0.2151626	0.26221215	2.4175057	20	3 3.9	20.4

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
172481 2003 SN_{103}	16.6	X	213.63507	249.45913	107.67558	0.93220	0.1701357	0.27000002	2.3707924	20	3 30.3	20.4
172482 2003 SS_{104}	16.3	X	173.23157	348.43818	354.02107	6.54002	0.1375424	0.26149936	2.4218968	20	2 4.8	19.9
172483 2003 SA_{108}	16.4	X	217.35279	105.69867	233.59916	7.10527	0.1772998	0.26819183	2.3814366	20	3 7.6	20.4
172484 2003 SC_{108}	16.6	X	252.77848	177.18847	293.89361	4.72039	0.0851952	0.29199376	2.2501959	20	10 31.3	19.1
172485 2003 ST_{117}	16.2	X	244.80519	46.85876	270.24337	6.07373	0.1256408	0.26987589	2.3715193	20	3 8.5	19.8
172486 2003 SO_{120}	16.8	X	185.30850	118.41519	23.40366	4.17919	0.1219088	0.28888953	2.2662867	20	9 14.2	20.0
172487 2003 SP_{130}	16.3	X	225.95695	186.55756	310.04166	9.61531	0.0877559	0.29487160	2.2355313	20	10 25.8	19.3
172488 2003 ST_{131}	17.2	X	123.10642	248.13068	196.25551	1.75543	0.1877284	0.26461978	2.4028197	20	4 26.2	20.6
172489 2003 SV_{138}	16.4	X	217.49297	178.42747	249.82940	4.79070	0.1351423	0.27833153	2.3232420	20	7 7.4	19.8
172490 2003 SV_{139}	17.1	X	219.43305	166.83072	286.97809	1.21440	0.1178761	0.28477094	2.2880856	20	8 16.8	20.2
172491 2003 SF_{142}	16.5	X	338.52427	38.10011	258.27126	6.99643	0.1826558	0.28465646	2.2886990	20	6 27.8	18.1
172492 2003 SL_{146}	16.0	X	156.50932	139.71085	291.95078	4.56273	0.1751455	0.26866138	2.3786610	20	5 10.2	19.9
172493 2003 SB_{151}	16.1	X	268.13575	276.49889	71.56526	7.72357	0.1857664	0.27894483	2.3198354	20	5 12.3	19.1
172494 2003 SH_{151}	16.5	X	257.22849	244.53242	79.46327	7.34529	0.1386221	0.27375468	2.3490649	20	4 5.8	19.9
172495 2003 SR_{155}	16.4	X	197.55726	63.38828	0.92147	7.34551	0.0831580	0.27574371	2.3377549	20	6 12.5	19.7
172496 2003 SC_{165}	16.7	X	284.05834	316.91861	92.54161	4.33000	0.0457390	0.28787052	2.2716317	20	9 29.9	19.1
172497 2003 SB_{168}	16.5	X	276.11724	308.99885	66.21073	4.73651	0.1916998	0.28428746	2.2906791	20	6 29.2	19.3
172498 2003 SB_{169}	16.2	X	241.22795	317.04517	59.59922	4.80745	0.2558347	0.27743538	2.3282422	20	5 13.5	19.8
172499 2003 SJ_{169}	16.8	X	143.69437	335.97948	64.82750	3.24868	0.1539645	0.26458113	2.4030537	20	3 20.2	20.3
172500 2003 SH_{171}	16.4	X	202.03433	334.03063	32.78258	7.35435	0.1527512	0.26984662	2.3716908	20	4 2.3	20.0
172501 2003 SV_{178}	16.7	X	104.05361	213.96829	221.39264	2.05447	0.2136964	0.26235434	2.4166322	20	3 26.2	19.8
172502 2003 SZ_{180}	16.5	X	173.71939	40.57961	299.46470	5.19531	0.1447373	0.26182309	2.4199000	20	1 31.4	20.3
172503 2003 SK_{184}	16.5	X	207.39701	140.44611	10.00998	4.66577	0.0610725	0.29303094	2.2448831	20	10 27.7	19.4
172504 2003 SW_{190}	16.9	X	157.94937	327.91142	127.96929	1.07514	0.0818171	0.27537782	2.3398252	20	6 10.2	19.9
172505 Kimberlyespy	16.4	X	325.11886	243.86424	102.86469	6.16582	0.1716238	0.28609796	2.2810048	20	8 28.1	18.0
172506 2003 SB_{204}	17.0	X	33.25515	161.90619	212.54806	0.76591	0.1006748	0.30090785	2.2055337	20	—	—
172507 2003 SH_{208}	16.5	X	175.94797	89.64290	218.00954	5.68697	0.1313821	0.26020312	2.4299335	20	—	—
172508 2003 SU_{212}	16.3	X	90.39026	333.91807	80.26150	8.98265	0.2361713	0.25804812	2.4434432	20	2 16.7	19.2
172509 2003 SS_{218}	15.9	X	52.36872	33.40639	223.96591	13.40569	0.0748263	0.22190418	2.7020439	20	8 26.3	19.8
172510 2003 ST_{224}	16.5	X	225.23688	263.40255	68.08674	5.50336	0.1650674	0.26829245	2.3808411	20	3 11.5	20.3
172511 2003 SZ_{224}	16.3	X	122.20153	250.63647	171.00397	4.39859	0.1106522	0.26187095	2.4196051	20	3 16.6	19.4
172512 2003 SN_{231}	16.5	X	280.17448	251.48562	51.61761	5.12575	0.1116117	0.27480778	2.3430598	20	4 6.9	19.5
172513 2003 SU_{241}	17.5	X	134.83915	31.53850	73.86309	1.06380	0.1903571	0.27107042	2.3645471	20	6 4.8	21.1
172514 2003 SV_{242}	17.3	X	59.65868	54.95441	52.06639	2.74950	0.1367990	0.25789564	2.4444062	20	2 21.8	19.6
172515 2003 SC_{247}	16.6	X	155.93639	2.18386	16.16961	1.25326	0.1830329	0.26305750	2.4123237	20	3 5.3	20.2
172516 2003 SN_{247}	16.9	X	229.98787	292.62162	39.35992	1.87522	0.1970222	0.26996485	2.3709983	20	3 12.7	20.5
172517 2003 SQ_{247}	17.2	X	90.94647	277.75600	26.06935	4.11906	0.1530377	0.30186868	2.2008512	20	—	—
172518 2003 SD_{251}	16.5	X	314.07271	237.06650	51.24444	2.98592	0.1903155	0.27652027	2.3333761	20	4 21.2	18.6
172519 2003 SQ_{255}	16.8	X	157.70257	72.24980	4.13579	2.34138	0.1615809	0.26909305	2.3761165	20	5 17.6	20.5
172520 2003 SL_{261}	17.4	X	244.93596	75.30183	231.78427	2.69104	0.1597968	0.26851465	2.3795275	20	2 24.6	21.0
172521 2003 SG_{266}	17.4	X	226.69364	105.12010	312.15016	0.60621	0.1449583	0.27913768	2.3187668	20	7 2.4	20.5
172522 2003 SP_{269}	16.9	X	221.77296	274.62734	65.79323	3.04917	0.2147280	0.26976301	2.3721808	20	3 16.3	20.8
172523 2003 SO_{291}	17.0	X	182.43245	275.33481	67.89978	2.06613	0.2152953	0.26203146	2.4186170	20	2 16.9	21.0
172524 2003 SK_{310}	17.2	X	224.77829	249.44270	84.40367	2.45007	0.1951689	0.26947082	2.3738953	20	3 11.2	21.1
172525 Adamblock	16.2	X	220.60730	8.90848	25.92709	3.79430	0.0192057	0.27400355	2.3476423	20	6 5.7	19.1
172526 Carolinegarcia	16.9	X	177.91962	25.73110	58.85301	6.26601	0.2052952	0.27336485	2.3512976	20	6 17.1	20.8
172527 2003 TT_{4}	16.5	X	96.85630	261.98833	245.30165	8.29833	0.0916370	0.27188511	2.3598212	20	6 6.7	19.5
172528 2003 TL_{13}	15.9	X	82.26698	261.47342	164.51987	18.02540	0.2106785	0.25316768	2.4747455	20	2 11.4	18.7
172529 2003 TK_{26}	16.4	X	167.62775	357.38490	69.90190	8.16040	0.0793432	0.27281262	2.3544695	20	5 14.1	19.6
172530 2003 TF_{50}	16.1	X	348.37530	230.19252	57.02945	5.56854	0.1638575	0.28250175	2.3003219	20	7 8.6	17.8
172531 2003 TW_{57}	16.6	X	214.04153	182.23770	136.49803	5.74687	0.1728087	0.26422945	2.4051855	20	2 12.3	20.3
172532 2003 UN_{8}	16.5	X	115.20907	33.82797	38.65009	10.48902	0.2177554	0.26000659	2.4311578	20	4 8.2	20.0
172533 2003 UO_{9}	17.0	X	123.76191	203.62351	258.28132	0.50185	0.1413331	0.26797272	2.3827345	20	5 14.8	20.3
172534 2003 UT_{11}	16.8	X	307.98649	239.09484	80.33948	10.81919	0.2682578	0.28023957	2.3126846	20	5 15.5	19.1
172535 2003 UV_{21}	16.0	X	258.38195	68.23088	275.59025	9.24909	0.2399857	0.27483195	2.3429224	20	4 14.2	19.8
172536 2003 UM_{26}	17.1	X	132.68913	245.83914	127.42633	3.83080	0.2241584	0.25808429	2.4432149	20	2 9.8	20.7
172537 2003 UH_{27}	16.7	X	33.30064	216.53425	115.71152	6.18656	0.1708957	0.29505399	2.2346099	20	12 15.3	19.5
172538 2003 UZ_{36}	16.1	X	130.09704	120.72882	313.08590	6.09975	0.0812949	0.26417104	2.4055400	20	4 4.1	19.4
172539 2003 UP_{37}	16.1	X	138.17718	93.14955	325.75215	6.03461	0.1003477	0.26290897	2.4132322	20	3 27.9	19.5
172540 2003 UV_{40}	16.3	X	139.77368	42.78017	33.10208	5.65084	0.0661295	0.26568248	2.3964081	20	4 20.5	19.6
172541 2003 UM_{48}	16.6	X	208.81313	328.46194	92.54635	6.72510	0.1042042	0.27476861	2.3432825	20	6 20.6	19.6
172542 2003 UU_{48}	16.7	X	358.15300	220.18998	156.40426	6.45965	0.3042435	0.23549623	2.5970486	20	12 28.7	19.4
172543 2003 UX_{49}	16.4	X	88.51409	253.83206	87.61426	11.50054	0.1976477	0.24571057	2.5245666	20	—	—
172544 2003 UX_{52}	15.8	X	246.83092	6.82600	347.56521	8.81667	0.1913548	0.27388176	2.3483382	20	4 21.9	19.4
172545 2003 UX_{53}	16.5	X	173.18998	56.81831	331.93613	5.62499	0.1140493	0.26496832	2.4007121	20	3 28.7	20.1
172546 2003 UH_{56}	16.5	X	309.90687	256.77586	102.27407	6.98893	0.1572563	0.28435888	2.2902955	20	8 13.5	18.4
172547 2003 UU_{60}	16.3	X	30.52015	218.83359	101.95699	5.96844	0.2460706	0.29560100	2.2318523	20	12 7.5	19.0
172548 2003 UA_{80}	16.4	X	140.48061	242.62425	121.24628	6.10705	0.1306706	0.25727137	2.4483589	20	1 26.3	19.7
172549 2003 UR_{88}	15.7	X	81.41517	242.79024	89.29852	15.46958	0.1243075	0.24092647	2.5578773	20	—	—
172550 2003 UC_{92}	16.6	X	170.57702	46.47507	62.74961	9.06687	0.1504326	0.27600636	2.3362716	20	7 14.4	20.3
172551 2003 UC_{94}	15.6	X	337.78071	82.74408	213.99448	13.76063	0.1215284	0.22108555	2.7087098	20	6 25.9	18.9
172552 2003 UL_{95}	16.8	X	95.84834	44.21861	26.97717	2.94610	0.1091562	0.25920115	2.4361915	20	2 24.8	19.6
172553 2003 UX_{100}	16.5	X	69.36434	290.07678	229.50169	5.92762	0.0537700	0.27063482	2.3670836	20	5 9.1	19.3
172554 2003 UR_{104}	16.7	X	109.36728	119.76303	357.44092	5.79637	0.0720206	0.26915528	2.3757502	20	5 6.8	19.8
172555 2003 US_{109}	16.2	X	75.61035	94.89672	250.43193	13.87420	0.1594374	0.24316131	2.5421806	20	—	—
172556 2003 UZ_{112}	16.5	X	238.29371	235.55598	72.40004	8.28234	0.2386149	0.26730357	2.3867094	20	2 20.5	20.7
172557 2003 UC_{116}	16.5	X	119.93591	112.48312	349.83338	6.53787	0.0906058	0.26907893	2.3761996	20	5 1.9	19.7
172558 2003 UM_{133}	16.5	X	200.17423	16.26599	106.36533	7.27417	0.0505989	0.28429123	2.2906588	20	9 13.8	19.5
172559 2003 UZ_{133}	15.9	X	103.00264	160.70033	274.13649	7.94939	0.2086008	0.25955033	2.4340061	20	3 19.8	19.3
172560 2003 UU_{134}	16.4	X	210.59382	49.92008	286.35800	4.41383	0.1442860	0.26391574	2.4070911	20	2 28.9	20.3

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
172561 2003 UW_{134}	16.2	X	98.27913	159.18428	256.85717	5.58109	0.1228220	0.25573742	2.4581395	20	2 6.8	19.3
172562 2003 UM_{147}	16.0	X	20.34510	298.67865	66.49067	10.39810	0.1200043	0.23513657	2.5996962	20	12 17.3	19.2
172563 2003 UO_{149}	16.6	X	53.77725	275.25539	45.94616	6.18383	0.2566182	0.23999445	2.5644954	20	12 21.4	20.5
172564 2003 UU_{161}	16.4	X	27.99801	176.89829	175.59955	5.35868	0.2039976	0.23812083	2.5779300	20	12 25.0	19.9
172565 2003 UZ_{164}	18.1	X	102.93401	12.94888	6.25010	2.11721	0.1998803	0.25331485	2.4737869	20	1 10.4	21.1
172566 2003 UH_{165}	16.5	X	273.24196	89.45979	211.35873	4.32920	0.2693370	0.27167532	2.3610359	20	3 4.4	20.1
172567 2003 UX_{166}	16.1	X	88.99124	15.97430	190.93025	2.09465	0.1749428	0.28166841	2.3048568	20	8 31.0	19.2
172568 2003 UB_{171}	17.2	X	118.54622	22.87328	25.21215	2.63288	0.1194547	0.25909757	2.4368408	20	2 25.6	20.3
172569 2003 UB_{175}	17.4	X	181.76438	355.78836	88.01284	2.30060	0.1554953	0.27349962	2.3505251	20	6 20.4	20.8
172570 2003 UX_{178}	17.2	X	114.66978	41.20558	46.17755	2.82973	0.1664975	0.26347626	2.4097670	20	4 18.5	20.5
172571 2003 UD_{179}	16.7	X	223.94022	63.38717	40.60044	4.81815	0.0872089	0.28471826	2.2883678	20	9 12.8	19.6
172572 2003 UJ_{190}	16.5	X	251.47160	237.12163	62.21190	4.97026	0.1399103	0.26533323	2.3985105	20	2 26.9	20.1
172573 2003 UL_{201}	17.0	X	95.44101	4.32950	65.19820	2.27031	0.1731437	0.25728931	2.4482450	20	3 3.3	19.8
172574 2003 UA_{207}	16.5	X	166.67318	34.87502	21.09866	4.55922	0.1396522	0.26578417	2.3957968	20	4 28.8	20.2
172575 2003 UO_{222}	16.6	X	267.82861	24.58596	344.01078	3.14931	0.1539594	0.27709401	2.3301540	20	6 13.3	19.5
172576 2003 UK_{229}	16.2	X	69.08870	180.51260	257.23667	5.25179	0.0590789	0.25468950	2.4648776	20	1 16.7	19.1
172577 2003 UF_{240}	16.9	X	112.22819	189.56071	268.15189	0.63588	0.1566426	0.26403053	2.4063934	20	4 27.5	20.2
172578 2003 UR_{246}	16.6	X	231.55329	15.81830	68.23319	3.97920	0.1421589	0.27986959	2.3147224	20	8 16.7	19.7
172579 2003 UC_{249}	15.7	X	342.83691	64.71592	218.44704	16.29116	0.0465303	0.21809308	2.7334311	20	6 19.0	19.4
172580 2003 UQ_{249}	16.5	X	111.74029	225.32368	192.41223	5.16530	0.0491611	0.25800202	2.4437343	20	2 16.4	19.6
172581 2003 UC_{250}	16.3	X	358.28572	268.57580	248.32215	5.37229	0.0638643	0.25586162	2.4573440	20	1 15.8	19.2
172582 2003 UE_{252}	17.0	X	145.05107	238.80455	206.41119	1.83840	0.1612803	0.26754100	2.3852971	20	5 17.5	20.6
172583 2003 UZ_{264}	16.5	X	82.29212	231.70730	131.81642	4.26794	0.2244841	0.24615778	2.5215080	20	—	—
172584 2003 UO_{267}	16.3	X	164.44675	14.22915	53.48806	4.11300	0.1154173	0.26774259	2.3840997	20	5 11.7	19.6
172585 2003 UR_{271}	17.1	X	103.54018	33.96422	51.37891	3.15723	0.1691865	0.26049223	2.4281352	20	4 3.5	20.1
172586 2003 UR_{274}	16.3	X	94.41007	193.20020	240.29867	5.15779	0.1022488	0.25861405	2.4398772	20	2 20.9	19.4
172587 2003 UW_{275}	15.8	X	21.80101	355.50699	52.65368	19.24655	0.1729080	0.24142349	2.5543654	20	—	—
172588 2003 UJ_{282}	16.7	X	258.54349	339.83452	113.03292	5.80904	0.1159310	0.28645751	2.2790958	20	10 13.1	19.2
172589 2003 UM_{282}	16.2	X	198.64240	255.66461	125.82800	5.48068	0.0815140	0.26629483	2.3927329	20	4 19.9	19.7
172590 2003 UK_{283}	16.6	X	197.20828	95.76795	271.83225	7.08991	0.2910962	0.26696104	2.3887505	20	3 24.6	21.0
172591 2003 UP_{290}	17.1	X	97.87457	138.46259	12.95487	2.45414	0.1386691	0.26836915	2.3803875	20	6 20.7	20.2
172592 2003 UD_{298}	17.2	X	13.06353	245.41740	280.19969	0.79928	0.0942615	0.26068479	2.4269394	20	2 18.3	19.7
172593 2003 VM	15.9	X	6.31652	342.88514	52.65113	14.63496	0.1294902	0.23136000	2.6279103	20	—	—
172594 2003 WL_{8}	16.4	X	121.48285	142.94116	321.81932	5.87725	0.0824747	0.26579010	2.3957611	20	5 6.5	19.7
172595 2003 WS_{16}	17.2	X	151.12495	292.99288	47.18828	3.29654	0.2021375	0.25544368	2.4600236	20	1 16.5	20.9
172596 2003 WA_{21}	16.2	X	226.77009	56.32331	304.25673	5.16077	0.1378294	0.26833953	2.3805626	20	4 14.9	19.8
172597 2003 WC_{28}	16.0	X	110.18922	210.57284	303.69224	3.07384	0.0694465	0.21248959	2.7812772	20	6 29.2	20.0
172598 2003 WK_{31}	16.3	X	54.55971	221.35285	273.90272	5.28884	0.0601534	0.26151706	2.4217875	20	3 10.7	19.3
172599 2003 WO_{31}	16.1	X	273.73436	327.24662	260.07601	5.28336	0.1017302	0.25463320	2.4652409	20	—	—
172600 2003 WY_{35}	16.1	X	95.67575	32.31331	293.03766	4.38482	0.1057878	0.24162243	2.5529632	20	—	—
172601 2003 WG_{43}	16.8	X	284.20708	71.22424	284.07717	5.11846	0.1286832	0.27885588	2.3203287	20	6 22.7	19.3
172602 2003 WA_{49}	16.4	X	344.16040	173.37256	48.96101	5.52793	0.1176135	0.26530279	2.3986940	20	3 21.6	18.9
172603 2003 WX_{54}	16.6	X	238.43231	95.09550	272.96445	6.62789	0.1425524	0.27176418	2.3605212	20	5 7.9	20.1
172604 2003 WB_{66}	16.4	X	56.12170	123.64217	350.04637	6.40518	0.0718267	0.25528370	2.4610513	20	2 18.6	19.2
172605 2003 WM_{73}	16.1	X	344.24341	125.77218	17.49395	2.65091	0.1387303	0.24563137	2.5251092	20	—	—
172606 2003 WB_{81}	16.6	X	106.92659	86.58195	14.73314	2.68140	0.1572078	0.26066724	2.4270483	20	4 25.9	19.8
172607 2003 WS_{83}	15.8	X	190.82562	212.90301	242.08449	7.88149	0.0505927	0.21919354	2.7242746	20	7 14.7	19.8
172608 2003 WA_{86}	14.9	X	58.72082	43.87121	322.31135	12.34788	0.1899994	0.24072594	2.5592976	20	—	—
172609 2003 WA_{87}	15.7	X	187.00320	139.51749	279.87011	23.32358	0.1644883	0.26830988	2.3807380	20	5 23.5	19.8
172610 2003 WN_{95}	16.5	X	315.57184	136.90729	197.76236	2.56038	0.1904626	0.22073575	2.7115707	20	7 3.0	19.3
172611 2003 WD_{99}	15.0	X	80.58361	30.56260	246.76451	32.30755	0.1745084	0.23127758	2.6285345	20	11 14.5	19.2
172612 2003 WN_{99}	15.9	X	350.09942	0.68491	99.86602	13.84463	0.0331212	0.24526547	2.5276200	20	—	—
172613 2003 WE_{101}	16.7	X	80.63032	316.67582	308.90324	6.69837	0.1357690	0.28997850	2.2606093	20	11 2.9	20.0
172614 2003 WY_{119}	16.6	X	265.25625	102.87721	292.42081	2.18184	0.1665148	0.27817461	2.3241156	20	7 16.9	19.4
172615 2003 WB_{132}	16.5	X	100.57251	74.51211	71.13422	5.59672	0.0192901	0.26872315	2.3782965	20	5 29.1	19.5
172616 2003 WX_{137}	16.1	X	53.78694	331.39720	69.07372	2.64780	0.2100258	0.24436639	2.5338160	20	—	—
172617 2003 WG_{139}	16.2	X	23.43527	192.15542	264.99850	10.01579	0.0531769	0.24574983	2.5242977	20	—	—
172618 2003 WH_{139}	15.4	X	356.25454	272.52198	70.95720	16.04517	0.0979079	0.22444478	2.6816147	20	10 16.0	18.8
172619 2003 WO_{139}	16.0	X	33.35345	342.11924	49.63599	3.79257	0.1570747	0.23889295	2.5723723	20	—	—
172620 2003 WD_{140}	16.2	X	39.85244	298.11780	34.68340	2.00091	0.1612436	0.23304929	2.6151957	20	12 7.2	19.5
172621 2003 WO_{141}	15.7	X	351.12759	216.67231	259.12531	14.13660	0.0694003	0.24154657	2.5534977	20	—	—
172622 2003 WY_{144}	16.5	X	278.90582	263.43763	235.39280	3.78055	0.0782050	0.23701914	2.5859122	20	—	—
172623 2003 WW_{158}	16.8	X	46.27741	15.23925	242.34882	2.12435	0.0686650	0.28036830	2.3119766	20	8 29.1	19.3
172624 2003 WR_{159}	15.1	X	241.08208	232.62370	296.39339	11.76252	0.2002134	0.22489446	2.6780389	20	11 29.2	18.8
172625 2003 WF_{174}	16.0	X	196.10318	310.17158	219.78659	16.68432	0.1521708	0.23018431	2.6368509	20	10 19.4	20.0
172626 2003 XY_{4}	15.4	X	98.29302	63.62581	310.33455	12.62990	0.2156203	0.24528096	2.5275136	20	1 1.9	18.5
172627 2003 XP_{10}	15.1	X	323.87997	320.56654	103.87731	26.94441	0.0744914	0.22780903	2.6551482	20	12 9.4	18.6
172628 2003 XD_{16}	16.1	X	234.88822	251.18965	63.53764	7.40043	0.1270125	0.26035871	2.4289653	20	3 3.3	19.8
172629 2003 XD_{17}	15.7	X	307.58497	179.12379	227.01483	3.48739	0.2164458	0.22740206	2.6583151	20	9 30.0	18.0
172630 2003 XJ_{17}	16.0	X	144.58647	194.81207	91.08585	11.12293	0.1459766	0.24037536	2.5617854	20	—	—
172631 2003 XX_{20}	16.1	X	202.17656	324.41168	267.00221	12.33349	0.0330159	0.23898463	2.5717144	20	—	—
172632 2003 XV_{29}	16.5	X	138.12265	226.14897	59.49960	7.25668	0.1830604	0.24071707	2.5593605	20	—	—
172633 2003 YU_{7}	16.6	X	353.04234	320.24285	268.48414	4.21029	0.0745534	0.25925586	2.4358488	20	4 15.3	19.3
172634 2003 YY_{13}	15.4	X	22.32962	312.58798	91.50699	22.93338	0.1206233	0.23436970	2.6053640	20	—	—
172635 2003 YV_{14}	15.1	X	85.89952	260.42661	64.17723	12.57873	0.3000105	0.23717403	2.5847862	20	—	—
172636 2003 YZ_{14}	15.5	X	28.22984	28.13635	314.76353	10.91709	0.1898584	0.22954978	2.6417079	20	12 8.3	19.1
172637 2003 YK_{21}	16.1	X	335.37326	47.69871	314.49928	3.59919	0.1968406	0.22149541	2.7053672	20	9 26.2	18.6
172638 2003 YM_{21}	15.1	X	177.00288	152.34810	97.33495	8.72534	0.1192417	0.17031179	3.2233409	20	12 27.6	20.0
172639 2003 YP_{37}	17.0	X	190.41168	115.54537	73.77251	4.38856	0.0875776	0.29077998	2.2564535	20	11 25.5	20.0
172640 2003 YY_{44}	16.4	X	337.50400	233.00017	111.70438	8.38084	0.1407179	0.28462694	2.2888573	20	9 25.3	18.4

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
172641 2003 YJ_{46}	16.1	*X*	290.30006	98.28044	72.70618	12.66663	0.0669620	0.23945265	2.5683623	20	—	—
172642 2003 YA_{47}	16.2	*X*	16.22108	141.70723	225.48755	2.12627	0.0604839	0.23177423	2.6247783	20	12 5.4	19.6
172643 2003 YY_{47}	16.1	*X*	121.03778	59.34558	282.32688	1.08794	0.1280516	0.24547460	2.5261841	20	—	—
172644 2003 YA_{48}	16.1	*X*	315.66640	95.11141	62.02250	1.23210	0.0195822	0.24427881	2.5344216	20	—	—
172645 2003 YU_{52}	16.3	*X*	83.60375	123.06114	323.87381	7.05814	0.0288397	0.25487729	2.4636667	20	2 15.9	19.3
172646 2003 YK_{54}	15.8	*X*	119.87688	48.40909	257.06952	4.71812	0.1834125	0.24178465	2.5518211	20	—	—
172647 2003 YC_{56}	16.2	*X*	45.73209	48.03439	90.92999	7.72759	0.0486485	0.25590916	2.4570396	20	3 9.5	19.2
172648 2003 YM_{56}	16.3	*X*	88.66399	32.10522	99.84592	3.07453	0.1569053	0.26023794	2.4297167	20	5 15.9	19.3
172649 2003 YO_{58}	15.5	*X*	236.90972	294.42939	264.13635	13.91345	0.0447159	0.23609335	2.5926678	20	—	—
172650 2003 YV_{66}	15.5	*X*	308.52795	166.46174	295.74566	14.07574	0.1556883	0.22934800	2.6432572	20	12 31.3	18.1
172651 2003 YM_{71}	15.9	*X*	202.60345	101.73576	49.76813	3.07604	0.0521555	0.22441246	2.6818722	20	10 13.8	19.6
172652 2003 YE_{77}	16.3	*X*	83.87960	179.61248	313.02047	4.74201	0.1575586	0.25859810	2.4399776	20	5 7.6	19.4
172653 2003 YO_{77}	16.5	*X*	32.33758	80.84760	329.93206	3.07533	0.1430631	0.23967551	2.5667699	20	—	—
172654 2003 YL_{80}	15.7	*X*	150.71980	129.02639	92.08595	14.23294	0.0719522	0.22266868	2.6958556	20	11 13.7	19.9
172655 2003 YX_{80}	16.4	*X*	1.51476	46.94132	59.26440	4.40118	0.1184171	0.23937705	2.5689030	20	—	—
172656 2003 YD_{82}	15.3	*X*	207.70390	118.27969	91.42727	13.13930	0.2285617	0.22750334	2.6575261	20	12 11.8	19.4
172657 2003 YH_{82}	16.1	*X*	314.06412	105.84100	47.99881	3.46529	0.0735054	0.23912548	2.5707044	20	—	—
172658 2003 YV_{83}	15.9	*X*	263.42870	354.17218	36.74860	2.47815	0.0876415	0.21769002	2.7368041	20	7 17.5	19.6
172659 2003 YW_{92}	16.9	*X*	191.65665	130.40402	327.60889	2.02575	0.1288334	0.27296581	2.3535886	20	7 20.8	20.2
172660 2003 YE_{94}	16.2	*X*	253.67124	54.03897	81.69172	3.94593	0.1272513	0.22513217	2.6761535	20	11 15.9	19.7
172661 2003 YE_{96}	16.5	*X*	164.17342	262.68471	125.93603	3.13951	0.0906397	0.25895642	2.4377262	20	3 21.3	20.0
172662 2003 YX_{97}	16.5	*X*	358.11110	323.63644	122.98185	2.72111	0.0411553	0.23925095	2.5698056	20	—	—
172663 2003 YP_{101}	15.6	*X*	263.40123	90.37018	98.52376	14.32275	0.1029711	0.23295189	2.6159246	20	—	—
172664 2003 YA_{103}	15.8	*X*	261.55283	355.27677	180.06063	3.85552	0.1698663	0.23267148	2.6180260	20	—	—
172665 2003 YE_{103}	15.5	*X*	281.61462	259.72624	282.95532	21.34448	0.0153534	0.23883118	2.5728158	20	—	—
172666 2003 YB_{113}	15.7	*X*	252.76139	60.02494	69.32406	9.44396	0.0470129	0.22597317	2.6695094	20	11 18.7	19.1
172667 2003 YY_{113}	15.7	*X*	299.54853	54.85614	89.40815	14.67622	0.0862025	0.23685289	2.5871221	20	—	—
172668 2003 YT_{115}	15.3	*X*	85.63342	285.58016	46.09173	7.83520	0.2078527	0.23569124	2.5956159	20	—	—
172669 2003 YR_{118}	16.2	*X*	37.08942	10.87738	46.24550	6.05750	0.1262631	0.24011000	2.5636725	20	—	—
172670 2003 YD_{119}	15.3	*X*	261.01505	34.60242	84.43831	14.80188	0.1113897	0.22632193	2.6667663	20	11 11.1	18.8
172671 2003 YS_{119}	17.0	*X*	292.89411	142.66727	337.44485	3.98521	0.2292617	0.23004507	2.6379148	20	12 18.5	19.2
172672 2003 YV_{125}	15.5	*X*	252.72534	6.25826	48.48130	14.38971	0.1408795	0.21886127	2.7270312	20	7 31.8	19.6
172673 2003 YH_{126}	14.8	*X*	57.44257	266.12537	50.64929	13.44557	0.2088649	0.23070815	2.6328579	20	12 11.4	18.8
172674 2003 YW_{130}	15.6	*X*	186.77917	145.33251	76.84219	14.55233	0.0888060	0.23026218	2.6362563	20	12 19.2	19.3
172675 2003 YM_{134}	15.7	*X*	324.87985	335.17070	72.63274	13.47014	0.1688772	0.22634213	2.6666076	20	11 16.2	18.4
172676 2003 YD_{136}	16.1	*X*	242.51646	209.05329	91.99962	13.74468	0.0618705	0.25658668	2.4527125	20	2 29.8	19.7
172677 2003 YA_{137}	14.9	*X*	77.19153	147.16598	294.34847	9.32863	0.0805880	0.19096910	2.9864871	20	2 13.8	18.9
172678 2003 YM_{137}	18.7	*X*	309.39132	127.23176	77.05911	2.70197	0.6892832	0.23596377	2.5936169	20	—	—
172679 2003 YW_{137}	16.2	*X*	315.73679	163.32277	285.86888	4.09406	0.0397118	0.22954576	2.6417387	20	12 24.6	19.5
172680 2003 YK_{138}	15.8	*X*	263.88728	128.58370	314.42082	4.00626	0.0848751	0.21914698	2.7246605	20	9 24.5	19.4
172681 2003 YR_{146}	15.9	*X*	358.61240	52.14397	119.13756	25.55766	0.1829905	0.24346596	2.5400594	20	1 26.7	18.3
172682 2003 YD_{147}	15.7	*X*	203.13477	229.60637	322.00706	12.25826	0.1868103	0.22932934	2.6434005	20	11 15.8	20.1
172683 2003 YX_{148}	15.9	*X*	267.83991	60.95729	64.52204	15.64286	0.1069306	0.22748264	2.6576873	20	11 25.8	19.2
172684 2003 YQ_{149}	15.7	*X*	300.67097	337.57989	47.97739	12.42290	0.1200897	0.21839045	2.7309492	20	9 5.8	19.2
172685 2003 YG_{155}	15.4	*X*	243.03715	78.79642	54.52026	13.33260	0.1065699	0.22287627	2.6941814	20	11 2.7	19.0
172686 2003 YR_{155}	15.6	*X*	20.84660	221.11599	192.98038	10.30100	0.2359436	0.23728331	2.5839925	20	—	—
172687 2003 YQ_{162}	15.9	*X*	298.66869	60.43933	49.84965	12.01803	0.1445587	0.23099185	2.6307018	20	12 22.9	18.8
172688 2003 YY_{163}	17.0	*X*	304.36640	31.38392	63.17224	3.55877	0.0723792	0.23288414	2.6164319	20	12 15.3	20.1
172689 2003 YQ_{169}	16.2	*X*	117.43733	77.16104	326.59752	5.61872	0.1098668	0.25214346	2.4814427	20	2 16.9	19.4
172690 2003 YC_{175}	16.0	*X*	43.42138	236.75413	92.31500	6.61308	0.1139610	0.22456401	2.6806655	20	11 29.2	19.5
172691 2003 YG_{175}	16.6	*X*	39.62040	273.88875	65.18441	3.53792	0.0200008	0.22462441	2.6801849	20	11 22.6	20.1
172692 2004 AR_{5}	15.8	*X*	321.03527	125.13208	267.29011	11.71472	0.2622444	0.22406069	2.6846784	20	9 30.6	18.2
172693 2004 AV_{5}	15.3	*X*	95.16632	289.05384	265.55892	11.96144	0.1204401	0.20590984	2.8402157	20	8 4.6	19.6
172694 2004 AZ_{7}	16.2	*X*	334.62291	12.04005	85.55346	5.36850	0.1681129	0.23318292	2.6141965	20	—	—
172695 2004 BO_{5}	16.0	*X*	33.85989	2.29147	319.98547	4.40668	0.0564621	0.22048372	2.7136366	20	10 26.7	19.7
172696 2004 BE_{7}	16.3	*X*	357.00664	239.50106	66.50366	4.19930	0.0611164	0.21239386	2.7821129	20	8 14.8	19.7
172697 2004 BT_{11}	16.8	*X*	34.83130	23.32876	23.00557	1.23605	0.1822975	0.23719718	2.5846180	20	—	—
172698 2004 BQ_{15}	16.7	*X*	31.38928	207.15170	219.63947	1.11904	0.2134580	0.24016978	2.5632471	20	—	—
172699 2004 BR_{23}	15.7	*X*	134.57957	76.22969	125.09894	3.63260	0.0885895	0.21248270	2.7813374	20	9 28.9	19.8
172700 2004 BJ_{24}	15.8	*X*	125.22001	69.28113	285.96988	5.04691	0.2324545	0.24587602	2.5234339	20	1 12.8	19.2
172701 2004 BM_{25}	16.1	*X*	238.35396	202.98415	298.04133	2.16293	0.1461696	0.22319730	2.6915974	20	10 28.9	19.7
172702 2004 BF_{28}	16.1	*X*	45.00923	312.33738	108.60568	5.90445	0.1688941	0.23963926	2.5670288	20	—	—
172703 2004 BE_{29}	16.0	*X*	266.18390	302.35196	123.71002	5.87002	0.1079015	0.21570944	2.7535309	20	9 4.5	19.6
172704 2004 BS_{31}	16.1	*X*	230.57141	104.90337	72.66124	3.24217	0.1003013	0.22748869	2.6576401	20	12 13.0	19.7
172705 2004 BK_{32}	16.3	*X*	2.03325	219.99567	48.66573	2.67605	0.0364930	0.20459776	2.8523456	20	6 28.8	20.1
172706 2004 BQ_{35}	15.7	*X*	170.98205	26.96601	39.16605	2.47583	0.0173156	0.19938939	2.9018036	20	5 14.7	19.7
172707 2004 BW_{43}	15.5	*X*	187.18470	111.40696	12.82752	3.56667	0.0473432	0.20929638	2.8094948	20	8 20.1	19.4
172708 2004 BT_{46}	15.5	*X*	282.57950	225.32353	296.53346	10.56172	0.1275710	0.23192805	2.6236176	20	—	—
172709 2004 BZ_{48}	15.7	*X*	144.06912	28.14929	140.34979	4.98289	0.0856518	0.21155293	2.7894807	20	8 27.4	19.9
172710 2004 BD_{49}	16.6	*X*	286.42125	301.83599	114.52855	5.91356	0.1516687	0.22054852	2.7131051	20	9 16.5	19.9
172711 2004 BG_{55}	15.8	*X*	316.44048	135.94713	302.71970	13.28744	0.0944046	0.22672544	2.6636013	20	12 11.1	19.0
172712 2004 BT_{56}	15.9	*X*	103.72816	282.88847	240.26491	1.39686	0.1548593	0.20007126	2.8952067	20	7 12.5	20.1
172713 2004 BA_{60}	16.3	*X*	280.26133	297.64540	273.15376	5.06226	0.2389755	0.23884253	2.5727344	20	—	—
172714 2004 BS_{62}	15.7	*X*	350.07291	198.82877	97.97602	5.42424	0.0865241	0.20866546	2.8151552	20	7 20.3	18.9
172715 2004 BP_{67}	16.0	*X*	305.88139	46.06979	298.76300	1.92885	0.0182198	0.20925285	2.8098844	20	7 23.0	19.6
172716 2004 BS_{77}	16.3	*X*	258.12544	20.81917	83.42690	3.06421	0.0301289	0.22090326	2.7101997	20	10 25.9	19.9
172717 2004 BS_{81}	15.6	*X*	328.55675	282.56090	81.53284	7.20442	0.0621343	0.21698988	2.7426879	20	9 22.7	19.0
172718 2004 BD_{85}	18.6	*X*	308.29536	284.36729	267.39723	19.57399	0.2044423	0.48251411	1.6098894	20	—	—
172719 2004 BQ_{89}	15.6	*X*	243.14729	214.90896	265.24836	6.62955	0.0833228	0.21867320	2.7285945	20	10 14.6	19.5
172720 2004 BO_{93}	15.1	*X*	323.17012	185.95658	267.78699	21.06090	0.0394677	0.22831875	2.6511949	20	—	—

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
172721 2004 BH_{101}	16.2	X	264.82458	293.35171	128.70807	3.42259	0.0820641	0.21546571	2.7556070	20	8 31.3	19.7
172722 2004 BV_{102}	17.5	X	211.98494	17.18319	341.30972	7.21922	0.6994145	0.51393395	1.5435872	20	3 16.2	21.0
172723 2004 BL_{108}	15.9	X	56.21813	338.63800	70.55837	4.74825	0.2281408	0.24029636	2.5623469	20	—	—
172724 2004 BR_{111}	15.6	X	328.96466	334.61734	108.99941	15.00660	0.2171928	0.22822319	2.6519350	20	—	—
172725 2004 BG_{112}	16.5	X	4.64302	226.54184	308.30117	9.76613	0.2373169	0.24516664	2.5282992	20	2 5.5	18.4
172726 2004 BK_{114}	16.3	X	32.97684	152.45011	299.68866	5.84547	0.2399058	0.24036953	2.5618268	20	—	—
172727 2004 BF_{118}	16.1	X	14.74459	138.35023	302.67473	14.33292	0.1733667	0.23667318	2.5884315	20	—	—
172728 2004 BN_{119}	15.8	X	337.93785	51.35874	51.83495	14.42550	0.0486977	0.23227891	2.6209749	20	—	—
172729 2004 BF_{120}	15.9	X	131.87607	12.94022	179.93681	3.50769	0.0929339	0.21072856	2.7967509	20	9 13.6	20.1
172730 2004 BL_{120}	15.8	X	248.86299	115.85392	77.63778	12.25555	0.1136556	0.23096009	2.6309429	20	—	—
172731 2004 BY_{120}	15.6	X	227.21807	64.35281	69.72573	14.23456	0.1176352	0.21791888	2.7348876	20	10 17.5	19.7
172732 2004 BZ_{120}	15.3	X	19.32026	68.66538	76.41220	15.81323	0.0607048	0.24442875	2.5333850	20	2 9.2	18.6
172733 2004 BR_{122}	16.1	X	27.21223	176.34672	349.25581	2.91779	0.0525960	0.18583144	3.0412813	20	3 21.4	20.2
172734 Giansimon	15.8	X	252.05801	339.84773	298.20905	7.00296	0.1250501	0.24447031	2.5330978	20	2 1.3	19.4
172735 2004 CF_3	15.6	X	329.87118	102.85542	18.52178	10.63953	0.1508130	0.23687536	2.5869585	20	—	—
172736 2004 CA_8	16.3	X	289.73284	91.27152	64.15949	8.62898	0.1500064	0.23166109	2.6256328	20	—	—
172737 2004 CD_9	16.3	X	26.53322	179.68497	72.95421	3.10399	0.0500425	0.20483298	2.8501614	20	7 14.3	19.9
172738 2004 CF_{12}	15.1	X	7.69396	71.80124	130.85692	10.42946	0.0666842	0.18966813	3.0001282	20	4 14.8	19.1
172739 2004 CT_{23}	15.8	X	345.58110	229.72150	96.35452	6.13155	0.0657713	0.21178226	2.7874666	20	8 25.3	19.2
172740 2004 CZ_{27}	16.0	X	27.39895	310.38341	351.96853	4.00565	0.0599346	0.21480515	2.7612534	20	9 22.6	19.5
172741 2004 CG_{61}	16.2	X	210.93897	359.57528	104.06102	10.95898	0.1680006	0.21254672	2.7807788	20	8 12.1	20.6
172742 2004 CC_{67}	15.8	X	354.86444	331.12321	55.86133	6.67965	0.0384278	0.22179859	2.7029014	20	11 26.0	19.3
172743 2004 CO_{74}	15.9	X	263.95256	141.20509	330.93078	4.32760	0.1136067	0.22076778	2.7113084	20	10 28.9	19.3
172744 2004 CX_{78}	15.8	X	155.26764	51.96665	85.11367	2.05416	0.0409670	0.20489286	2.8496061	20	7 28.6	19.9
172745 2004 CQ_{81}	16.4	X	148.86329	248.52133	12.80354	1.40104	0.0213208	0.22559200	2.6725156	20	12 28.9	20.0
172746 2004 CB_{86}	15.8	X	193.90239	268.94906	151.25835	2.49104	0.0848846	0.20045344	2.8915256	20	6 3.3	20.1
172747 2004 CZ_{88}	16.2	X	287.64146	337.17486	48.76838	4.72249	0.1104238	0.21303455	2.7765320	20	8 11.8	19.7
172748 2004 CX_{96}	15.8	X	210.87899	262.86629	293.77959	7.15606	0.0519089	0.22350656	2.6891139	20	12 18.8	19.4
172749 2004 CB_{98}	15.7	X	263.83368	0.03719	78.08966	13.29271	0.1215923	0.21703930	2.7422716	20	9 21.7	19.6
172750 2004 CE_{98}	15.6	X	189.41008	180.17300	81.47739	13.56053	0.1226387	0.23089156	2.6314635	20	—	—
172751 2004 CJ_{100}	15.7	X	64.77707	140.26673	78.25257	4.65716	0.2534691	0.19844935	2.9109602	20	8 23.5	19.8
172752 2004 CF_{108}	16.3	X	278.78503	118.73478	3.14398	10.08935	0.0580421	0.22491582	2.6778693	20	12 10.8	19.9
172753 2004 CO_{117}	16.0	X	227.35723	146.61184	284.69453	2.45797	0.0701551	0.20933040	2.8091905	20	7 26.5	20.0
172754 2004 DM	15.2	X	119.03490	140.38948	353.66009	10.84451	0.0368259	0.19701251	2.9250963	20	6 7.5	19.6
172755 2004 DV_6	15.4	X	14.93643	151.63179	42.17726	0.84045	0.1742180	0.18816456	3.0160891	20	4 11.9	18.3
172756 2004 DJ_{12}	15.7	X	232.79339	119.89601	25.03445	4.47437	0.2024765	0.21844462	2.7304977	20	10 19.9	19.5
172757 2004 DT_{12}	16.2	X	327.45715	127.50136	11.67832	4.57724	0.2132149	0.23379325	2.6096448	20	—	—
172758 2004 DC_{18}	16.4	X	305.48814	75.08232	30.96539	2.82871	0.1153988	0.22571102	2.6715761	20	12 29.4	19.2
172759 2004 DK_{23}	15.8	X	309.18732	314.17116	166.32981	14.02407	0.1120415	0.22619617	2.6677547	20	—	—
172760 2004 DQ_{23}	15.1	X	79.51629	343.14254	148.04404	10.98768	0.0688444	0.18803086	3.0175186	20	4 24.7	19.4
172761 2004 DP_{24}	14.5	X	304.60028	255.18341	333.22873	10.35405	0.0713512	0.18130892	3.0916472	20	2 16.0	18.7
172762 2004 DN_{25}	15.8	X	51.13359	142.14210	135.60199	7.82998	0.1006338	0.21308960	2.7760538	20	10 2.2	19.5
172763 2004 DJ_{32}	16.1	X	102.98855	296.51795	260.77293	4.75659	0.2270407	0.20406464	2.8573112	20	8 28.9	20.9
172764 2004 DY_{42}	15.7	X	22.39933	135.24510	104.62699	2.20540	0.1181469	0.19874298	2.9080923	20	6 26.0	19.1
172765 2004 DW_{51}	15.7	X	37.42766	115.97977	85.05486	3.26573	0.0885058	0.19231029	2.9725855	20	5 25.2	19.4
172766 2004 DR_{56}	16.1	X	288.56553	139.93321	195.54015	2.39537	0.0876842	0.20088334	2.8873988	20	6 6.3	19.9
172767 2004 DH_{60}	15.5	X	270.81379	287.32350	317.30057	3.87795	0.0757968	0.18022139	3.1040723	20	1 25.9	20.0
172768 2004 DJ_{60}	16.3	X	8.36273	100.27320	310.24811	3.04293	0.1552633	0.22925169	2.6439974	20	—	—
172769 2004 DV_{75}	15.9	X	19.47919	44.08029	136.89395	1.03795	0.1142196	0.18939386	3.0030239	20	4 1.2	19.2
172770 2004 EV_2	15.6	X	313.98252	17.00783	100.80154	12.91709	0.1450637	0.22919703	2.6444177	20	—	—
172771 2004 ER_3	16.0	X	24.60763	23.18669	96.35317	8.09489	0.1361214	0.24050636	2.5608551	20	1 7.2	18.5
172772 2004 EZ_{12}	15.3	X	301.56694	131.16410	112.27448	3.12666	0.0991918	0.18261443	3.0768949	20	2 26.8	19.5
172773 2004 EQ_{15}	15.9	X	265.91343	188.42192	301.46929	2.56581	0.0842421	0.22252474	2.6970180	20	11 30.0	19.2
172774 2004 EO_{23}	14.9	X	344.60004	132.35017	313.03969	31.63217	0.2284384	0.23010280	2.6374735	20	—	—
172775 2004 EW_{30}	16.1	X	261.50645	357.27554	138.68367	4.82312	0.0869736	0.21745060	2.7388125	20	12 1.4	19.6
172776 2004 ER_{31}	15.7	X	192.45006	236.82651	311.28872	6.73089	0.1531618	0.21572068	2.7534352	20	11 3.2	20.2
172777 2004 EL_{57}	14.7	X	304.86946	321.54710	232.61965	17.71307	0.1387969	0.17495039	3.1661108	20	—	—
172778 2004 EE_{64}	14.9	X	44.72192	68.00942	42.33631	9.35403	0.0484577	0.18188638	3.0851001	20	2 10.1	19.2
172779 2004 ET_{65}	15.2	X	185.63554	333.89663	90.26259	13.10580	0.0196285	0.19693255	2.9258881	20	6 1.3	19.3
172780 2004 ED_{66}	16.0	X	297.18654	260.18905	273.68412	1.17202	0.0316767	0.23289141	2.6163774	20	—	—
172781 2004 EV_{75}	15.6	X	125.60580	116.78331	150.87150	5.42537	0.1305964	0.21305996	2.7763113	20	12 9.8	20.0
172782 2004 EZ_{75}	15.5	X	262.35351	142.03066	131.43542	2.41330	0.1604937	0.17990379	3.1077244	20	2 10.9	20.4
172783 2004 EL_{80}	15.0	X	244.55841	255.48042	82.21964	10.85775	0.0723860	0.19062669	2.9900624	20	4 21.9	19.5
172784 2004 EH_{83}	14.9	X	313.40441	237.26697	353.06689	11.45685	0.0485721	0.18165020	3.0877737	20	3 4.2	19.0
172785 2004 ES_{114}	15.3	X	45.09541	167.54811	102.95359	15.04584	0.1221590	0.20333294	2.8641618	20	9 20.4	19.4
172786 2004 FX_{14}	16.0	X	294.13187	168.85270	342.69712	2.97561	0.1950727	0.22784722	2.6548514	20	—	—
172787 2004 FK_{15}	15.5	X	204.36757	271.48836	287.43309	12.09695	0.1554972	0.21947851	2.7219160	20	11 30.3	19.7
172788 2004 FH_{17}	15.1	X	39.81672	334.11547	164.33633	11.46885	0.0514993	0.18154281	3.0889912	20	3 5.6	19.1
172789 2004 FQ_{31}	14.6	X	301.93028	111.36679	95.33781	25.19966	0.0628043	0.17248735	3.1961799	20	1 19.5	19.2
172790 2004 FQ_{32}	15.5	X	23.69767	228.96587	234.37941	18.14801	0.1990519	0.24224249	2.5486048	20	—	—
172791 2004 FY_{35}	15.7	X	134.07879	135.96480	104.84516	5.51300	0.0778001	0.21272997	2.7791816	20	11 15.6	19.9
172792 2004 FW_{40}	15.7	X	81.38471	114.38193	71.53143	2.66347	0.0908427	0.19602694	2.9348926	20	7 6.9	19.8
172793 2004 FP_{42}	15.7	X	251.48341	338.22137	253.89481	2.43915	0.0874181	0.17522661	3.1627826	20	—	—
172794 2004 FU_{60}	15.5	X	212.72635	69.90795	90.66307	10.29846	0.1658788	0.21230212	2.7829143	20	10 26.2	19.9
172795 2004 FT_{62}	15.8	X	332.85909	118.16855	86.02626	2.26282	0.1557538	0.17984755	3.1083723	20	2 13.0	19.5
172796 2004 FP_{91}	16.1	X	219.87773	78.10237	34.93256	4.72995	0.0769968	0.20938941	2.8086626	20	9 11.3	20.1
172797 2004 FN_{103}	15.9	X	49.82387	2.53139	177.08836	2.62882	0.0434763	0.19001739	2.9964508	20	5 10.2	20.0
172798 2004 FU_{108}	15.9	X	82.32320	49.68789	62.36587	2.00665	0.1412315	0.18504183	3.0499270	20	4 11.6	19.9
172799 2004 FE_{112}	16.1	X	236.20988	32.33922	24.13669	1.94245	0.0580795	0.20142889	2.8821829	20	7 19.7	20.3
172800 2004 FW_{122}	15.8	X	245.41503	256.85133	306.05433	7.68034	0.1324834	0.22553116	2.6729962	20	—	—

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
172801 2004 FS_{129}	15.0	X	312.80146	348.79216	271.90291	4.93246	0.0374575	0.18674087	3.0313992	20	4 7.6	19.2
172802 2004 FJ_{132}	15.7	X	200.94245	98.85318	212.43019	1.61183	0.0652610	0.17788511	3.1311917	20	1 31.0	20.5
172803 2004 FH_{139}	15.7	X	198.98227	105.90891	46.20299	8.12923	0.1627811	0.21076330	2.7964435	20	10 1.2	20.1
172804 2004 FL_{143}	15.5	X	244.48014	225.42987	291.63865	8.08837	0.1544912	0.22055551	2.7130478	20	11 24.0	19.3
172805 2004 FQ_{156}	15.7	X	113.19303	308.75674	142.17297	2.90825	0.1183942	0.18856349	3.0118336	20	4 19.7	20.1
172806 2004 GT_{10}	15.3	X	274.48470	216.47004	129.59766	16.16872	0.1529417	0.20358837	2.8617657	20	5 26.9	19.6
172807 2004 GC_{16}	15.4	X	220.67174	38.15416	62.14109	7.22977	0.0249718	0.20610917	2.8383841	20	9 3.6	19.4
172808 2004 GS_{26}	15.2	X	17.21550	327.44100	189.56735	14.59521	0.1323721	0.17853622	3.1235742	20	2 24.1	19.0
172809 2004 GV_{27}	15.1	X	32.10640	110.13218	82.14146	22.86177	0.1356348	0.18508564	3.0494457	20	5 16.2	19.0
172810 2004 GR_{32}	14.9	X	22.44551	180.15319	335.49410	10.19628	0.0727403	0.18146342	3.0898922	20	3 2.6	18.7
172811 2004 GO_{35}	15.6	X	214.75419	246.07312	275.65528	7.78160	0.2636236	0.21552809	2.7550752	20	10 12.8	20.3
172812 2004 GG_{38}	15.1	X	307.22635	352.61988	241.50650	8.99897	0.0520144	0.18081129	3.0973173	20	2 24.1	19.5
172813 2004 GD_{55}	15.9	X	101.59210	233.63735	208.11193	6.91264	0.0466158	0.18087351	3.0966068	20	3 13.4	20.2
172814 2004 GV_{55}	16.0	X	95.83295	53.75711	348.00046	3.39832	0.0865314	0.17286481	3.1915255	20	1 27.2	20.4
172815 2004 GD_{88}	15.0	X	15.73785	294.09972	299.16150	12.89181	0.1298625	0.18892937	3.0079439	20	6 5.2	18.7
172816 2004 HX_{1}	15.9	X	33.41582	117.74199	68.00473	2.10982	0.1804643	0.18533545	3.0467049	20	5 7.9	19.3
172817 2004 HS_{54}	16.2	X	222.00295	325.51696	220.77808	2.53723	0.1300829	0.21748426	2.7385300	20	12 7.4	19.9
172818 2004 HS_{58}	14.3	X	289.84105	288.01543	53.37745	5.62925	0.2033690	0.12589263	3.9427796	20	5 28.4	19.8
172819 2004 JN_{42}	12.1	X	9.96378	133.64349	212.21381	15.19729	0.0740882	0.08139066	5.2733470	20	9 30.1	18.8
172820 2004 RN_{2}	17.1	X	176.37373	254.92983	242.07333	18.92293	0.0662508	0.36700834	1.9320518	20	8 29.1	19.9
172821 2004 RB_{138}	17.0	X	345.89564	192.05603	170.10974	23.40366	0.0397790	0.37876688	1.8918559	20	11 23.9	19.3
172822 2004 TD_{13}	17.3	X	166.60879	251.88011	207.36263	20.65132	0.0700786	0.35775865	1.9652114	20	6 24.8	20.2
172823 2004 TL_{183}	17.0	X	116.03305	242.26965	336.32122	3.27769	0.0721293	0.30791434	2.1719481	20	10 10.7	19.7
172824 2004 XA	16.1	X	186.49142	238.24872	270.48735	23.45929	0.0411503	0.36351005	1.9444276	20	9 30.1	19.0
172825 2004 YH_{14}	17.4	X	327.93054	76.43335	296.43377	1.66099	0.1506875	0.29972227	2.2113460	20	10 19.6	18.8
172826 2004 YL_{31}	16.4	X	21.27048	283.11973	21.96720	4.52219	0.2351324	0.30270012	2.1968192	20	11 2.0	18.6
172827 2005 AA_{2}	16.8	X	283.85309	122.13304	296.81693	6.11242	0.1345170	0.29845097	2.2176213	20	9 27.4	19.1
172828 2005 AQ_{9}	16.7	X	47.50140	245.46978	227.10506	4.42723	0.1591035	0.26344970	2.4099289	20	2 3.9	18.8
172829 2005 AV_{13}	16.6	X	325.84246	288.90985	88.59542	7.19032	0.0717795	0.29921826	2.2138286	20	10 24.4	18.8
172830 2005 AB_{82}	16.3	X	27.91008	344.27001	226.80250	4.61747	0.1772175	0.27315310	2.3525126	20	6 1.9	18.0
172831 2005 CC_{4}	16.3	X	33.91992	110.07880	112.95776	5.98843	0.1568962	0.27404547	2.3474029	20	7 1.1	18.3
172832 2005 CN_{4}	16.8	X	45.69330	89.55374	121.14423	3.76418	0.1146627	0.27535960	2.3399284	20	6 26.5	19.2
172833 2005 CZ_{11}	17.1	X	212.19764	68.14361	35.59372	3.67658	0.1144228	0.28963101	2.2624171	20	8 25.0	20.1
172834 2005 CO_{18}	16.6	X	227.07563	158.33640	137.65410	5.58255	0.1057782	0.26145748	2.4221554	20	1 28.6	20.2
172835 2005 CW_{36}	16.9	X	16.98416	140.72596	81.08350	2.34770	0.1390595	0.27185062	2.3600208	20	5 22.4	18.7
172836 2005 CX_{37}	17.4	X	108.07614	192.65035	331.17873	2.32810	0.1798485	0.27832325	2.3232880	20	7 25.5	20.7
172837 2005 CR_{43}	16.3	X	315.48374	288.69318	325.33303	4.98562	0.0686755	0.26879844	2.3778523	20	3 22.6	19.0
172838 2005 CP_{48}	17.2	X	289.30995	123.55526	355.82925	2.72172	0.1506669	0.30497702	2.1858716	20	—	—
172839 2005 CE_{73}	16.6	X	230.19740	272.11355	103.65426	3.72385	0.1779998	0.27838754	2.3229303	20	5 9.1	20.2
172840 2005 EK_{3}	17.0	X	26.54109	79.34417	113.90553	4.20920	0.0728896	0.27007081	2.3703781	20	4 23.9	19.5
172841 2005 EA_{5}	16.9	X	110.73545	89.58352	6.21718	7.27119	0.0764153	0.26681377	2.3896294	20	4 10.4	20.0
172842 2005 EN_{9}	16.5	X	69.79283	301.65343	202.71846	3.82085	0.0639313	0.26802920	2.3823998	20	4 19.6	19.3
172843 2005 ER_{9}	17.0	X	83.56967	350.07950	190.88372	3.55796	0.1842567	0.27548926	2.3391941	20	7 20.2	20.0
172844 2005 EP_{10}	16.4	X	212.20298	318.14377	283.78845	1.47097	0.1108089	0.24318827	2.5419927	20	—	—
172845 2005 EK_{11}	16.6	X	159.57623	358.07781	109.31893	5.72967	0.0896389	0.27956590	2.3163984	20	6 28.5	19.9
172846 2005 EH_{14}	16.1	X	171.90747	139.59606	64.67731	2.58749	0.0687069	0.23074244	2.6325971	20	11 13.3	19.9
172847 2005 EC_{15}	16.7	X	147.51760	14.80622	149.70258	3.60761	0.0787209	0.28515663	2.2860220	20	9 2.2	19.7
172848 2005 EA_{17}	17.1	X	96.64173	135.34944	359.61315	2.79940	0.1179481	0.27102667	2.3648015	20	5 23.1	20.0
172849 2005 EN_{21}	16.7	X	118.57285	124.36945	96.60308	3.27394	0.1202956	0.28821816	2.2698047	20	10 18.9	19.9
172850 Coppens	16.6	X	164.85592	63.36566	23.33778	1.78451	0.0540349	0.20863590	2.8154211	20	6 4.1	20.6
172851 2005 EF_{28}	16.9	X	82.27944	189.39379	31.71598	3.43856	0.1030444	0.28085611	2.3092988	20	9 4.7	19.9
172852 2005 EW_{33}	17.3	X	176.86445	249.50317	265.78005	2.65128	0.1808292	0.28906231	2.2653835	20	9 17.1	20.9
172853 2005 EC_{39}	17.4	X	55.02449	89.28086	341.99359	1.29212	0.1313110	0.25532396	2.4607925	20	—	—
172854 2005 ED_{44}	16.5	X	79.86658	352.65404	348.24008	5.01593	0.1547540	0.23805352	2.5784160	20	—	—
172855 2005 EL_{46}	17.2	X	97.54143	321.76000	215.76137	1.93903	0.1262682	0.27880333	2.3206202	20	7 25.2	20.3
172856 2005 ES_{46}	16.7	X	138.01849	315.15632	181.21849	5.80681	0.0753471	0.28009842	2.3134615	20	7 11.5	19.8
172857 2005 EL_{49}	16.9	X	312.12249	335.32667	233.77276	1.67797	0.1405324	0.25630802	2.4544899	20	1 9.5	20.1
172858 2005 EC_{69}	16.6	X	120.24277	312.80288	179.79663	3.15417	0.1765496	0.27391824	2.3481297	20	6 25.1	20.1
172859 2005 ET_{73}	16.3	X	151.49795	235.34400	17.45859	4.66296	0.1168486	0.23428343	2.6060035	20	12 19.5	20.3
172860 2005 EC_{79}	16.5	X	15.90124	127.65073	64.51025	5.31397	0.1228727	0.26457414	2.4030960	20	4 5.0	18.7
172861 2005 EY_{82}	17.3	X	214.17250	191.60196	236.37658	1.16922	0.1883085	0.28212074	2.3023926	20	6 29.7	20.9
172862 2005 EO_{83}	16.3	X	249.07565	251.67125	339.65686	4.69177	0.0611346	0.24771777	2.5109108	20	—	—
172863 2005 EW_{83}	17.3	X	133.42345	257.07516	231.89967	5.19891	0.1103660	0.27737322	2.3285900	20	6 28.7	20.7
172864 2005 EQ_{84}	17.0	X	6.15609	118.14800	46.10950	3.85241	0.0837489	0.26103712	2.4247550	20	2 7.4	19.6
172865 2005 EC_{97}	15.8	X	65.67044	254.61670	302.26256	6.72045	0.0808535	0.21210256	2.7846596	20	6 29.9	19.6
172866 2005 EC_{102}	16.0	X	129.71376	9.16903	108.10445	7.32180	0.0516669	0.27143323	2.3624396	20	6 3.4	19.1
172867 2005 EX_{118}	17.0	X	183.08182	230.09117	296.64626	6.08281	0.1268528	0.29091502	2.2557551	20	10 10.3	20.3
172868 2005 ET_{124}	17.0	X	77.19923	346.26395	196.01178	1.52400	0.1042272	0.27399698	2.3476798	20	7 1.6	19.7
172869 2005 EH_{126}	15.7	X	128.34303	177.58398	103.72860	15.67037	0.0778428	0.23524475	2.5988991	20	12 31.9	19.5
172870 2005 EH_{132}	15.7	X	88.92879	34.28397	303.76235	2.81872	0.1589769	0.23960938	2.5672422	20	—	—
172871 2005 EH_{137}	16.4	X	243.85783	179.12720	52.06380	2.89559	0.1576993	0.24367881	2.5385801	20	—	—
172872 2005 EH_{139}	16.2	X	175.50855	85.32965	162.52956	3.27202	0.0855588	0.23426546	2.6061368	20	—	—
172873 2005 EC_{143}	16.9	X	221.04636	27.09410	53.52332	3.63937	0.1147702	0.28230849	2.3013716	20	8 2.1	19.9
172874 2005 EO_{161}	16.1	X	236.23262	225.80014	54.88312	2.92482	0.2515446	0.18246564	3.0785673	20	1 22.6	21.4
172875 2005 EW_{165}	16.3	X	348.75103	235.43914	67.74251	1.36458	0.0553116	0.21333039	2.7739645	20	7 27.4	19.7
172876 2005 EY_{168}	16.5	X	88.80846	342.50830	321.49297	1.58901	0.0764971	0.22951179	2.6419994	20	12 16.1	20.4
172877 2005 EL_{175}	16.2	X	223.48990	35.09743	316.24474	3.81459	0.1459776	0.26490851	2.4010734	20	3 31.3	20.0
172878 2005 EP_{175}	16.0	X	196.85668	91.61495	250.35224	1.89083	0.2075514	0.25730630	2.4481373	20	2 25.5	20.1
172879 2005 EX_{193}	16.8	X	254.79266	348.88934	231.73449	1.64302	0.0716229	0.24782533	2.5101842	20	—	—
172880 2005 EJ_{198}	17.4	X	151.05339	160.60147	289.84995	1.57173	0.1926539	0.27235243	2.3571210	20	5 31.5	21.0

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
172881 2005 EQ_{199}	16.6	X	211.38272	317.75409	9.75127	3.52676	0.0919484	0.25789980	2.4443799	20	2 22.9	20.0
172882 2005 EQ_{220}	17.3	X	169.89115	145.72130	334.21072	1.99913	0.1844730	0.28175099	2.3044064	20	7 27.3	21.0
172883 2005 EP_{256}	16.2	X	57.96755	327.81119	225.24264	10.21275	0.1695462	0.27193771	2.3595169	20	6 28.5	19.0
172884 2005 ES_{256}	16.7	X	142.18892	312.31383	264.17214	6.52742	0.0993088	0.29011546	2.2598978	20	11 3.9	20.0
172885 2005 EL_{269}	17.6	X	136.31967	202.70699	279.57018	1.61843	0.1863118	0.27337975	2.3512122	20	6 28.4	21.3
172886 2005 EU_{281}	16.3	X	20.76670	109.87144	79.39846	8.57596	0.1524550	0.26330000	2.4108423	20	4 13.6	18.5
172887 2005 ET_{287}	17.2	X	183.35864	236.40397	219.02220	2.08946	0.0924647	0.28141248	2.3062541	20	7 9.2	20.5
172888 2005 EE_{290}	15.3	X	102.40137	129.65941	204.48961	10.03053	0.0488927	0.17237224	3.1976027	20	—	—
172889 2005 EG_{291}	15.8	X	82.99201	172.21809	102.37635	6.46612	0.1407155	0.22233621	2.6985424	20	11 10.8	19.9
172890 2005 FN_6	16.5	X	33.79589	103.64901	95.37672	5.19571	0.1983059	0.26745436	2.3858122	20	5 29.7	18.5
172891 2005 GX_2	16.7	X	84.16459	151.40581	53.44949	4.49309	0.1274082	0.27572557	2.3378574	20	8 18.7	19.8
172892 2005 GL_6	15.7	X	36.88367	234.81274	65.76055	6.00258	0.1059439	0.21687368	2.7436676	20	10 13.7	19.2
172893 2005 GE_9	15.5	X	118.18653	171.66716	90.35620	15.64438	0.0692782	0.22398462	2.6852862	20	11 27.5	19.5
172894 2005 GX_{17}	16.0	X	208.08813	48.67195	154.48740	11.72597	0.1055795	0.23260488	2.6185257	20	12 19.5	19.9
172895 2005 GQ_{27}	16.6	X	322.30191	318.51190	245.23276	4.44705	0.1115337	0.25448604	2.4661912	20	1 19.9	19.7
172896 2005 GN_{30}	16.5	X	334.43658	313.23885	169.83348	6.76903	0.0269067	0.24371016	2.5383624	20	—	—
172897 2005 GO_{30}	15.7	X	6.90268	180.09893	106.01118	3.98962	0.1454927	0.21070274	2.7969793	20	8 7.6	18.7
172898 2005 GV_{35}	15.5	X	33.15406	238.46768	74.57800	10.24091	0.0896958	0.22385895	2.6862911	20	10 25.4	19.0
172899 2005 GU_{47}	15.4	X	353.06595	237.28657	67.90857	14.29554	0.2182725	0.21033525	2.8002363	20	8 17.6	18.3
172900 2005 GQ_{51}	16.0	X	98.78166	125.80229	113.08911	5.06726	0.0763512	0.21830767	2.7316395	20	10 7.7	20.0
172901 2005 GY_{68}	15.9	X	138.08966	346.19173	201.82237	4.59054	0.0574458	0.21757232	2.7377910	20	9 12.5	19.9
172902 2005 GO_{75}	17.3	X	356.20223	238.90314	296.92345	0.68406	0.1283227	0.25605937	2.4560786	20	2 1.6	19.6
172903 2005 GC_{78}	15.8	X	356.77485	252.87241	61.08703	14.62856	0.1402613	0.21369672	2.7707934	20	9 6.5	19.2
172904 2005 GR_{79}	17.1	X	55.89106	90.22090	55.93357	2.91636	0.1279050	0.26221593	2.4174825	20	4 10.4	19.6
172905 2005 GX_{79}	16.5	X	197.04946	65.03380	137.73652	7.78287	0.0617292	0.29477468	2.2360213	20	12 26.4	19.4
172906 2005 GY_{79}	16.4	X	345.98629	88.18333	74.11477	10.67450	0.1621116	0.25130847	2.4869362	20	—	—
172907 2005 GC_{90}	16.3	X	13.59017	176.24209	113.23800	7.49746	0.1174520	0.27937156	2.3174725	20	9 4.0	18.6
172908 2005 GV_{92}	16.2	X	64.61135	187.76765	77.04008	3.12500	0.0281782	0.21586336	2.7522218	20	9 21.3	19.8
172909 2005 GH_{95}	16.2	X	266.58997	328.47500	173.17978	3.83113	0.1201143	0.23393553	2.6085866	20	12 15.6	19.4
172910 2005 GF_{96}	16.9	X	22.98652	350.92269	163.96432	1.20912	0.1327025	0.25757314	2.4464462	20	2 20.4	19.3
172911 2005 GA_{99}	16.2	X	270.11576	351.51081	219.22770	2.02370	0.1240876	0.24372256	2.5382763	20	—	—
172912 2005 GB_{99}	15.7	X	163.14915	4.78314	219.27744	3.80180	0.1170345	0.22632783	2.6667199	20	11 25.2	19.9
172913 2005 GM_{99}	16.5	X	103.61904	27.18905	238.99577	0.57428	0.0426711	0.22280863	2.6947266	20	11 11.7	20.2
172914 2005 GJ_{103}	16.5	X	2.13835	260.40821	158.22150	1.67733	0.0060482	0.23537026	2.5979752	20	—	—
172915 2005 GE_{106}	16.0	X	173.59539	108.30415	55.36297	6.26731	0.0274484	0.21933356	2.7231150	20	9 27.8	19.9
172916 2005 GU_{112}	16.2	X	27.10986	81.62533	251.54433	5.30307	0.0327075	0.22297747	2.6933661	20	10 29.8	19.7
172917 2005 GX_{130}	16.5	X	222.54436	195.09366	238.62560	2.48925	0.0697860	0.21055178	2.7983161	20	7 23.6	20.5
172918 2005 GL_{135}	16.4	X	337.28443	336.17716	106.12892	4.70506	0.0578780	0.23412117	2.6072075	20	—	—
172919 2005 GP_{135}	16.0	X	24.88926	284.93738	84.78405	10.27860	0.1134540	0.22662123	2.6644177	20	12 26.4	19.5
172920 2005 GL_{138}	16.2	X	356.53757	218.74080	129.45972	2.85725	0.0520371	0.22047680	2.7136935	20	10 11.0	19.5
172921 2005 GX_{138}	15.5	X	228.88107	259.15910	23.37802	12.00939	0.1171144	0.18248299	3.0783722	20	1 27.6	20.5
172922 2005 GL_{139}	15.8	X	216.48195	45.74588	67.45008	7.16583	0.0081968	0.21671052	2.7450445	20	9 18.7	19.6
172923 2005 GK_{140}	15.7	X	191.99210	139.13995	54.55096	16.00911	0.1568374	0.22757316	2.6569825	20	11 14.1	19.8
172924 2005 GE_{144}	14.9	X	201.83463	201.26961	95.28196	6.91791	0.1466126	0.17860902	3.1227254	20	1 15.9	19.9
172925 2005 GY_{155}	16.1	X	222.25289	309.00795	73.96623	3.18038	0.0793729	0.20120071	2.8843616	20	5 18.3	20.4
172926 2005 GE_{156}	16.6	X	351.49008	20.70330	63.40845	2.98180	0.1313111	0.23810861	2.5780182	20	—	—
172927 2005 GK_{157}	15.9	X	344.62577	334.81543	358.31386	4.39832	0.0791257	0.21370027	2.7707627	20	9 1.5	19.1
172928 2005 GQ_{168}	16.3	X	180.73447	47.56449	198.00427	1.87610	0.1558682	0.23330028	2.6133197	20	—	—
172929 2005 GM_{170}	16.5	X	234.88871	318.69111	225.04529	5.69125	0.1910599	0.23470795	2.6028602	20	12 14.9	20.0
172930 2005 HZ_3	15.8	X	200.27936	153.00673	75.41649	29.95704	0.1780617	0.23227185	2.6210280	20	12 29.9	20.0
172931 2005 HA_4	15.8	X	204.54487	284.41900	296.36023	2.86828	0.1402654	0.23252653	2.6191138	20	—	—
172932 Bachleitner	16.2	X	331.87636	42.98164	106.33831	9.26104	0.1221350	0.24365523	2.5387439	20	—	—
172933 2005 JH	15.5	X	207.75749	320.78840	243.31366	18.52225	0.1301271	0.22920461	2.6443594	20	12 14.9	19.4
172934 2005 JX	15.6	X	77.84226	90.56445	148.35394	6.38803	0.0460619	0.21234198	2.7825660	20	9 5.6	19.4
172935 2005 JF_4	16.0	X	184.83855	347.11619	228.55694	11.17159	0.1345291	0.22706219	2.6609671	20	12 5.2	20.2
172936 2005 JW_{29}	15.9	X	286.76388	87.95021	81.67631	6.40764	0.1579101	0.23944346	2.5684280	20	—	—
172937 2005 JS_{32}	15.5	X	155.04623	301.67955	52.91615	7.83413	0.1250856	0.18012052	3.1052311	20	2 11.1	20.4
172938 2005 JV_{48}	15.5	X	139.78192	270.19127	84.19614	11.22982	0.0962066	0.17652389	3.1472680	20	1 22.4	20.2
172939 2005 JY_{49}	15.0	X	112.29843	265.14621	78.87892	6.25555	0.1596355	0.16993424	3.2281134	20	—	—
172940 2005 JA_{51}	16.0	X	277.03687	213.62028	111.20508	3.28227	0.1111323	0.19747500	2.9205275	20	5 5.4	20.0
172941 2005 JU_{66}	17.3	X	143.69780	142.73544	20.10146	2.81987	0.1544297	0.27878930	2.3206981	20	8 28.3	20.9
172942 2005 JX_{71}	15.2	X	108.34418	327.09875	271.11740	11.77922	0.1303448	0.22019926	2.7159732	20	10 14.7	19.7
172943 2005 JT_{88}	15.4	X	88.72961	167.18063	214.62781	10.54229	0.0363571	0.17376943	3.1804394	20	—	—
172944 2005 JS_{104}	15.5	X	43.64302	203.04252	84.28025	7.46786	0.0940020	0.21597926	2.7512371	20	10 5.3	19.2
172945 2005 JO_{125}	15.9	X	287.47684	124.37387	69.80773	15.63502	0.0489839	0.24352483	2.5396501	20	—	—
172946 2005 JJ_{134}	16.1	X	303.84213	339.44656	70.20217	5.73435	0.0635449	0.21996798	2.7178766	20	10 15.4	19.5
172947 Baeyens	15.5	X	309.32382	192.96525	54.30252	11.44207	0.0746092	0.18940028	3.0029560	20	3 20.2	19.7
172948 2005 JR_{164}	15.9	X	132.84183	310.67102	231.86356	13.03068	0.1419493	0.21444337	2.7643581	20	8 30.1	20.5
172949 2005 JQ_{166}	15.2	X	150.59114	342.16364	330.83431	4.58467	0.1106169	0.17033901	3.2229975	20	—	—
172950 2005 JU_{166}	15.4	X	260.57607	53.36731	234.73762	9.18275	0.0497001	0.18767659	3.0213149	20	3 4.3	19.9
172951 Mehoke	16.7	X	96.45245	328.81990	197.96303	5.81856	0.0566810	0.27117275	2.3639521	20	6 28.3	19.8
172952 2005 KC_3	15.5	X	43.28790	230.12798	50.53064	12.09619	0.0469806	0.21418950	2.7665420	20	9 21.1	19.3
172953 2005 KG_5	16.1	X	186.77793	250.33616	193.63722	1.66897	0.0287967	0.20266627	2.8704395	20	6 26.9	20.2
172954 2005 KC_6	17.1	X	297.41769	70.99284	106.72206	0.81293	0.1876292	0.24333077	2.5410002	20	—	—
172955 2005 KR_{11}	15.2	X	238.03612	36.49071	251.77547	16.17945	0.1651894	0.18013404	3.1050756	20	1 30.6	20.6
172956 2005 LZ_1	15.7	X	19.74388	208.42707	97.27023	12.53075	0.1248954	0.20909219	2.8113236	20	9 30.8	19.4
172957 2005 LY_8	15.4	X	135.70384	288.39426	158.42524	10.05982	0.0883080	0.19348914	2.9604994	20	5 7.9	19.9
172958 2005 LH_{11}	14.6	X	195.73280	69.77111	278.31698	14.30859	0.0350267	0.17861971	3.1226008	20	3 1.9	19.5
172959 2005 LG_{19}	15.4	X	110.25809	245.34206	162.26678	8.62714	0.1050964	0.17912586	3.1167157	20	2 20.8	20.0
172960 2005 LG_{37}	16.1	X	299.93806	243.38100	236.46604	6.28339	0.0839986	0.23217666	2.6217443	20	—	—

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
172961 2005 MH_{2}	15.0	X	268.12420	176.29622	80.97899	14.40880	0.1339339	0.18120695	3.0928070	20	2 2.9	19.8
172962 2005 MZ_{13}	15.4	X	305.50045	143.74591	116.53581	10.90526	0.0410269	0.18951380	3.0017567	20	4 4.5	19.7
172963 2005 MY_{14}	14.7	X	107.57048	125.71345	294.73750	13.88690	0.0191561	0.17220161	3.1997146	20	2 18.0	19.4
172964 2005 MR_{34}	15.9	X	122.82177	112.70609	139.46935	4.25522	0.0460661	0.21121057	2.7924942	20	11 15.8	20.0
172965 2005 MX_{38}	13.8	X	293.22671	51.54031	304.58679	4.00271	0.2026929	0.12461909	3.9695962	20	6 20.2	19.0
172966 2005 MC_{54}	14.3	X	290.34644	79.83172	274.39023	10.20677	0.2280648	0.12331454	3.9975433	20	6 10.4	19.7
172967 2005 NK_{55}	14.8	X	266.57933	315.89626	329.00784	9.05076	0.0523849	0.18097218	3.0954812	20	3 9.7	19.3
172968 2005 NQ_{80}	15.3	X	243.62085	223.10209	85.22659	6.49577	0.1577871	0.17911067	3.1168920	20	3 8.1	20.3
172969 2005 QA_{20}	16.2	X	18.19665	220.00631	135.93560	7.78194	0.1361153	0.27442057	2.3452633	20	12 16.7	19.1
172970 2005 QD_{32}	14.8	X	220.75842	6.14058	307.90633	6.22820	0.1296396	0.17117017	3.2125557	20	2 20.8	20.0
172971 2005 QN_{176}	14.3	X	338.03159	306.96403	309.87131	16.80495	0.0998675	0.17916543	3.1162568	20	4 26.9	18.7
172972 2005 SG_{13}	16.5	X	12.78417	53.40607	333.64224	1.84800	0.1278088	0.20641062	2.8356200	20	12 28.4	19.9
172973 2005 SR_{167}	14.4	X	115.71645	222.44775	134.54014	10.91263	0.0982224	0.15211680	3.4755051	20	1 2.2	19.4
172974 2005 YW_{55}	19.3	X	301.75229	256.63323	239.41531	8.47294	0.2467799	0.47064581	1.6368413	20	—	—
172975 2006 DY_{6}	16.6	X	23.07194	273.22967	327.52640	4.40779	0.1421451	0.29188583	2.2507506	20	7 7.9	18.5
172976 2006 DC_{113}	15.9	X	208.69702	347.03360	359.10537	23.98967	0.1646436	0.28042567	2.3116613	20	3 13.5	19.4
172977 2006 DK_{116}	17.0	X	220.61338	247.23692	29.36918	4.69235	0.1693222	0.26463574	2.4027231	20	—	—
172978 2006 HB_{8}	16.2	X	280.80689	267.95406	59.17413	9.40704	0.1879196	0.28076697	2.3097876	20	4 29.4	19.2
172979 2006 HT_{25}	16.9	X	247.50041	232.13107	74.18067	4.66963	0.1837397	0.26949837	2.3737335	20	2 27.9	20.6
172980 2006 HG_{26}	15.5	X	45.42593	269.36427	53.60075	14.85129	0.2738708	0.23134405	2.6280311	20	12 14.4	19.5
172981 2006 HN_{30}	16.8	X	95.42936	229.21729	72.86411	4.11827	0.1629861	0.31042695	2.1602123	20	—	—
172982 2006 HZ_{60}	16.5	X	126.58708	13.55308	220.59166	4.09712	0.1134396	0.30533805	2.1841481	20	11 14.8	19.6
172983 2006 HD_{71}	16.8	X	36.61499	158.82632	162.21424	5.26721	0.1302116	0.30274578	2.1965984	20	11 30.8	19.4
172984 2006 HK_{89}	15.1	X	59.85532	213.38041	77.87582	33.83623	0.1840195	0.23107774	2.6300498	20	11 20.4	19.2
172985 Ericmelin	18.1	X	167.76772	53.36264	287.50727	0.59184	0.1982520	0.25950010	2.4343202	20	1 31.1	22.0
172986 2006 JE_{36}	17.7	X	258.13824	257.31002	126.37587	3.17815	0.1816665	0.28742113	2.2739989	20	6 18.5	20.7
172987 2006 KP_{28}	17.1	X	270.38935	279.37369	65.01855	4.53616	0.1351816	0.28197101	2.3032076	20	5 16.5	19.9
172988 2006 KQ_{48}	16.6	X	157.38629	200.22674	119.36890	3.80688	0.1840937	0.25340204	2.4732194	20	—	—
172989 Xuliyang	17.2	X	302.02289	34.86991	249.57942	4.60382	0.1861034	0.27470476	2.3436455	20	3 25.6	20.1
172990 2006 KV_{81}	16.4	X	212.57699	208.49201	85.20161	15.15645	0.1922998	0.25917141	2.4363779	20	1 12.5	20.5
172991 2006 KR_{114}	15.8	X	1.40216	47.20998	246.58227	7.95115	0.2698600	0.21367067	2.7710186	20	8 14.7	18.2
172992 2006 KW_{116}	16.7	X	184.52386	267.05080	117.22598	4.69102	0.1665059	0.27253530	2.3560665	20	4 8.8	20.4
172993 2006 KV_{118}	15.8	X	95.20919	24.69417	249.70112	12.03156	0.0662902	0.22780677	2.6551657	20	11 14.7	19.7
172994 2006 KE_{122}	14.8	X	181.69403	208.95418	101.16607	18.89827	0.1862377	0.18056527	3.1001300	20	1 14.9	19.9
172995 2006 KN_{122}	16.3	X	197.24290	181.38485	135.73758	5.65493	0.2045722	0.25824944	2.4421732	20	1 27.7	20.4
172996 Stooke	16.0	X	9.73966	275.41008	49.25409	3.86250	0.0929915	0.22672454	2.6636084	20	10 4.5	19.1
172997 2006 LO_{1}	16.7	X	335.17747	163.78719	109.35919	6.41102	0.1570899	0.27998591	2.3140812	20	5 15.7	18.7
172998 2006 LT_{6}	16.3	X	114.69211	151.74589	152.09174	4.20659	0.2533218	0.23945625	2.5683366	20	—	—
172999 2006 MF_{2}	17.0	X	233.86048	180.86801	147.67915	6.85769	0.1304315	0.27063389	2.3670891	20	3 16.3	20.4
173000 2006 MT_{3}	16.3	X	312.48747	279.35487	84.11948	8.32127	0.1475487	0.29101932	2.2552161	20	9 1.4	18.3
173001 2006 MH_{15}	16.1	X	156.06946	316.01481	143.27091	5.83761	0.2041640	0.26696479	2.3887281	20	6 17.5	20.1
173002 Dorfi	16.1	X	126.72035	281.72264	35.76305	2.76136	0.1360634	0.24146199	2.5540940	20	—	—
173003 2006 OD_{6}	15.2	X	38.45479	342.60648	316.99647	11.68568	0.1306920	0.21818718	2.7326451	20	10 9.6	18.9
173004 2006 OH_{14}	15.8	X	240.91303	217.07996	143.13621	2.52160	0.0710045	0.19861318	2.9093592	20	5 12.1	19.9
173005 2006 OQ_{20}	15.1	X	220.89733	299.23214	79.48545	12.05381	0.1618786	0.19344486	2.9609512	20	5 8.8	20.0
173006 2006 PC_{6}	15.9	X	336.36865	267.79351	130.65533	6.61099	0.0272267	0.22514977	2.6760140	20	11 17.9	19.4
173007 2006 PU_{6}	16.3	X	243.16064	257.86172	72.00376	3.29024	0.2264671	0.19314205	2.9640452	20	3 25.3	21.2
173008 2006 PL_{9}	16.2	X	176.11866	153.58987	182.19787	2.09377	0.1574582	0.17991310	3.1076172	20	2 6.8	21.3
173009 2006 PB_{10}	15.9	X	227.98062	138.16518	252.33151	0.83490	0.1634623	0.19761548	2.9191433	20	5 26.7	20.5
173010 2006 PW_{11}	16.7	X	345.25767	190.86020	119.35892	4.09361	0.1797517	0.28041645	2.3117120	20	8 11.1	18.0
173011 2006 PL_{13}	16.8	X	117.61408	300.69662	255.05235	6.13874	0.1082383	0.28667716	2.2779315	20	9 8.2	20.0
173012 2006 PG_{17}	14.2	X	254.72442	213.49391	151.95294	5.08675	0.2502676	0.12455244	3.9710122	20	5 15.8	20.4
173013 2006 PQ_{19}	17.3	X	255.24081	329.91417	289.58075	0.92201	0.1591061	0.25490866	2.4634646	20	1 9.7	21.2
173014 2006 PF_{22}	16.6	X	156.27524	86.73683	189.58277	3.22019	0.2407344	0.23826116	2.5769177	20	—	—
173015 2006 PX_{25}	15.2	X	129.39978	230.94608	133.34302	5.62389	0.1462558	0.17408296	3.1766195	20	1 27.6	20.0
173016 2006 PZ_{26}	15.6	X	311.04990	101.78974	284.43347	4.64534	0.0518027	0.21280824	2.7785002	20	9 18.9	19.1
173017 2006 PO_{27}	15.6	X	90.16957	259.44649	75.54513	15.77130	0.1792850	0.23437233	2.6053445	20	—	—
173018 2006 PS_{27}	14.6	X	141.58030	284.98835	88.24060	26.96547	0.2119769	0.17787567	3.1313024	20	3 5.3	20.2
173019 2006 PT_{29}	15.3	X	161.65635	73.63995	315.36666	14.54664	0.2368544	0.18501256	3.0502486	20	3 23.5	20.7
173020 2006 PF_{37}	15.7	X	22.41589	288.04591	95.35298	13.59910	0.1688265	0.22819819	2.6521286	20	—	—
173021 2006 QW_{1}	16.4	X	226.77259	257.69826	80.69414	3.05390	0.2342977	0.26097692	2.4251279	20	3 17.8	20.5
173022 2006 QU_{2}	16.8	X	231.92238	348.18790	335.93096	3.33745	0.0150616	0.25861921	2.4398447	20	3 15.2	19.9
173023 2006 QX_{3}	15.4	X	147.80037	357.16825	344.47423	4.30023	0.1664815	0.17310971	3.1885147	20	1 22.4	20.4
173024 2006 QG_{7}	15.5	X	301.92266	88.74777	348.35704	8.72591	0.1478577	0.21651252	2.7467178	20	11 4.5	18.7
173025 2006 QA_{17}	16.4	X	55.77680	254.08153	88.69482	3.22868	0.1675198	0.22785012	2.6548289	20	—	—
173026 2006 QL_{18}	15.3	X	191.85237	312.69371	30.00741	9.78526	0.0677760	0.18345895	3.0674450	20	3 2.7	20.0
173027 2006 QO_{18}	16.0	X	206.57546	219.77119	58.36001	7.44568	0.1087586	0.24653407	2.5189415	20	—	—
173028 2006 QP_{18}	15.1	X	306.86243	200.96644	29.05925	11.01019	0.0851909	0.18532740	3.0467931	20	2 22.8	19.4
173029 2006 QQ_{19}	15.8	X	60.14247	224.86620	63.70463	10.16944	0.1128493	0.21893856	2.7263893	20	10 30.0	19.6
173030 2006 QE_{29}	17.0	X	80.21008	175.67933	113.78900	5.49197	0.1734487	0.29586091	2.2305450	20	12 10.8	20.3
173031 2006 QM_{29}	15.9	X	57.73548	203.92506	83.48077	4.54577	0.1581966	0.22036058	2.7146475	20	10 31.1	19.6
173032 Mingus	15.7	X	223.61677	140.91264	161.30238	12.59443	0.1656635	0.18241205	3.0791703	20	2 7.5	20.9
173033 2006 QX_{44}	15.2	X	148.97430	7.74313	333.11044	8.95574	0.0770108	0.17383090	3.1796896	20	1 15.2	19.9
173034 2006 QG_{45}	16.5	X	356.63948	167.54984	201.53024	2.04566	0.0948625	0.21926347	2.7236953	20	11 10.5	19.6
173035 2006 QL_{50}	15.9	X	39.67420	73.77175	12.58606	6.94105	0.0903256	0.24184371	2.5514057	20	—	—
173036 2006 QR_{51}	16.4	X	276.85102	183.62930	81.43670	7.56699	0.1085661	0.25946794	2.4345213	20	2 15.1	19.8
173037 2006 QK_{57}	15.5	X	57.15058	7.72348	276.04843	13.36245	0.1619964	0.21911581	2.7249188	20	10 19.2	19.6
173038 2006 QZ_{76}	15.8	X	278.03877	195.03122	156.85310	2.34324	0.0756044	0.20203220	2.8764422	20	6 15.5	19.7
173039 2006 QW_{80}	16.3	X	357.03778	27.58591	343.06751	0.98684	0.0894819	0.21959124	2.7209843	20	11 12.1	19.5
173040 2006 QV_{92}	16.0	X	47.34485	357.00158	307.67995	11.30777	0.0040306	0.22024551	2.7155929	20	10 9.8	19.9

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
173041 2006 QD_{96}	16.1	X	23.33357	263.89076	76.47595	10.14219	0.1350767	0.21963747	2.7206025	20	11 19.5	19.4
173042 2006 QU_{96}	15.9	X	339.03775	186.20652	111.85153	8.75388	0.1516741	0.27496477	2.3421678	20	7 3.9	17.7
173043 2006 QP_{104}	15.3	X	101.19541	228.43666	136.53213	2.95918	0.1029146	0.16913985	3.2382130	20	—	—
173044 2006 QL_{107}	15.9	X	172.28914	117.00282	190.96087	4.76829	0.1458731	0.17318365	3.1876071	20	1 3.3	21.0
173045 2006 QP_{114}	14.8	X	129.28660	189.74014	173.78141	15.02742	0.1448727	0.17397678	3.1779119	20	1 24.6	19.8
173046 2006 QD_{116}	14.8	X	88.03213	92.87373	338.17553	11.70298	0.1050986	0.17446534	3.1719764	20	2 23.8	19.0
173047 2006 QJ_{121}	16.1	X	37.96695	48.68936	230.51367	3.85112	0.0905025	0.21193515	2.7861258	20	9 9.2	19.6
173048 2006 QQ_{128}	16.8	X	335.59041	253.19317	53.14669	6.69110	0.1185732	0.27704796	2.3304122	20	7 13.6	18.9
173049 2006 QH_{141}	15.4	X	213.04674	142.78166	255.82092	9.04888	0.0662644	0.19621233	2.9330436	20	5 28.4	19.8
173050 2006 QU_{142}	15.6	X	249.21939	20.62964	275.94748	8.62362	0.0492050	0.18443985	3.0565596	20	3 1.7	20.3
173051 2006 QM_{168}	16.2	X	68.94179	265.64179	93.40073	4.69613	0.1017997	0.23092935	2.6311764	20	—	—
173052 2006 QP_{170}	15.8	X	264.26683	74.85418	299.67433	1.04645	0.0825754	0.20276566	2.8695014	20	6 26.1	19.8
173053 2006 RU_{9}	16.2	X	69.59927	21.35723	330.00217	0.62683	0.0226526	0.22881337	2.6473729	20	—	—
173054 2006 RR_{71}	15.5	X	27.76155	350.79331	177.82679	5.08517	0.0790359	0.18188566	3.0851082	20	3 28.4	19.4
173055 2006 RT_{79}	15.5	X	238.43496	218.23102	23.05872	4.72614	0.0782529	0.16840256	3.2476578	20	—	—
173056 2006 SP_{8}	14.8	X	156.31237	286.22737	85.08440	12.59868	0.1388753	0.17372348	3.1810003	20	3 6.8	20.0
173057 2006 SD_{51}	15.5	X	230.57790	159.20063	319.71264	8.30198	0.1138104	0.21108134	2.7936339	20	9 21.6	19.6
173058 2006 SY_{53}	14.2	X	77.17638	75.18069	257.05416	15.48711	0.1672339	0.15598487	3.4178085	20	12 29.6	19.5
173059 2006 SE_{56}	15.2	X	233.52984	265.61276	88.56352	9.46464	0.1117159	0.18754057	3.0227755	20	4 25.8	19.9
173060 2006 SA_{59}	15.5	X	187.46159	306.03841	276.93523	11.45023	0.1152067	0.22835801	2.6508911	20	12 18.7	19.3
173061 2006 SQ_{59}	14.9	X	167.21093	105.68923	304.28091	14.39714	0.2032932	0.18359721	3.0659048	20	4 20.8	20.4
173062 2006 SD_{86}	15.8	X	310.29996	21.79780	194.38334	0.35863	0.1151190	0.17477837	3.1681878	20	2 2.4	20.0
173063 2006 SG_{93}	16.5	X	324.79380	218.08031	208.84517	1.48751	0.0855540	0.21667544	2.7453408	20	12 5.8	19.8
173064 2006 SD_{122}	15.0	X	216.10782	80.01997	285.30885	15.81165	0.1277764	0.18555106	3.0443442	20	4 9.8	20.2
173065 2006 SZ_{123}	15.7	X	263.22366	44.91686	94.16442	9.96115	0.0423961	0.22261677	2.6962746	20	12 14.4	19.2
173066 2006 SY_{127}	14.7	X	162.86649	86.36279	289.13472	15.40434	0.1249909	0.17855490	3.1233563	20	3 3.2	19.9
173067 2006 SX_{148}	16.0	X	209.71148	320.07418	267.86467	2.34711	0.1284061	0.22976570	2.6400526	20	—	—
173068 2006 SU_{171}	15.7	X	298.48524	145.50452	218.85337	1.26831	0.0805106	0.20335201	2.8639828	20	7 30.3	19.2
173069 2006 SQ_{199}	17.3	X	94.44671	262.39297	2.22921	0.77951	0.1384556	0.28945618	2.2633280	20	11 18.9	20.4
173070 2006 SW_{256}	15.6	X	51.51506	334.41517	210.96177	9.46986	0.1817247	0.25887886	2.4382131	20	6 9.2	18.3
173071 2006 SM_{280}	14.5	X	301.79868	274.46557	75.76219	6.51925	0.2223775	0.12638662	3.9324992	20	6 21.8	19.5
173072 2006 SG_{387}	16.0	X	109.06382	12.95428	101.75637	3.69473	0.1138290	0.18387178	3.0628518	20	5 14.0	20.4
173073 2006 TS_{49}	16.4	X	221.16535	215.65358	67.03608	2.70420	0.1179796	0.24291424	2.5439041	20	1 9.1	20.3
173074 2006 TU_{60}	16.2	X	265.66250	247.17804	189.92056	5.88115	0.0403281	0.20549977	2.8439928	20	9 24.9	20.1
173075 2006 UC	15.1	X	70.35973	195.93798	263.04219	16.86730	0.1105132	0.17774994	3.1327789	20	2 25.6	19.6
173076 2006 UV_{50}	16.0	X	238.85287	201.09237	263.60206	2.37059	0.0550446	0.20907319	2.8114939	20	9 23.3	19.9
173077 2006 UH_{134}	15.7	X	42.80595	43.30258	120.92329	3.01762	0.1861675	0.17365408	3.1818477	20	4 28.0	19.4
173078 2006 UM_{187}	15.2	X	142.27347	137.71428	314.76883	13.00458	0.1736663	0.18374723	3.0642358	20	5 22.8	20.4
173079 2006 UY_{187}	15.0	X	108.90942	218.51429	269.81636	10.79137	0.1677531	0.18392281	3.0622853	20	6 5.3	19.7
173080 2006 UN_{188}	15.0	X	293.90153	353.43628	297.05132	13.19210	0.1027879	0.18756405	3.0225233	20	4 6.4	19.5
173081 2006 UD_{219}	15.8	X	160.08668	179.06148	68.24099	5.97199	0.0795935	0.22405432	2.6847293	20	12 21.1	19.7
173082 2006 UT_{265}	15.1	X	288.77991	343.18055	329.25710	5.19861	0.2224013	0.19089893	2.9872189	20	4 14.9	19.4
173083 2006 WG_{80}	14.6	X	122.65819	264.82139	308.51227	1.93062	0.1385403	0.12585345	3.9435979	20	9 22.1	20.6
173084 2007 PO_{1}	12.2	X	5.96076	114.77171	241.68413	15.88527	0.0494141	0.08405818	5.1611847	20	10 3.9	19.0
173085 2007 PY_{31}	16.0	X	220.72041	324.52766	7.00763	1.83025	0.0674076	0.20348477	2.8627370	20	3 13.9	20.1
173086 Nireus	12.6	X	308.58428	184.57975	237.40483	17.50056	0.0961798	0.08467377	5.1361394	20	10 2.3	19.3
173087 2007 RJ_{20}	15.0	X	133.26201	124.54012	193.74791	8.84460	0.0714542	0.17609996	3.1523170	20	—	—
173088 2007 RS_{36}	17.1	X	106.50684	209.10689	178.10428	0.94007	0.1943953	0.25913213	2.4366241	20	1 23.4	19.9
173089 2007 RJ_{37}	17.3	X	337.53100	307.23105	7.40185	1.69754	0.1955617	0.29860592	2.2168541	20	8 1.2	18.2
173090 2007 RJ_{207}	16.8	X	159.95216	242.23932	162.90369	6.14369	0.1342251	0.27417877	2.3466420	20	4 9.5	20.3
173091 2007 RU_{217}	16.3	X	183.81994	209.78016	194.01175	1.43066	0.0879881	0.20139452	2.8825108	20	5 2.6	20.5
173092 2007 RP_{240}	17.2	X	123.84660	199.06120	305.96023	0.51078	0.0607828	0.27895261	2.3197923	20	7 5.4	20.1
173093 2007 TH_{35}	15.8	X	264.42611	248.37448	211.86559	10.63630	0.1506979	0.22334747	2.6903907	20	10 9.4	19.1
173094 Wielicki	16.2	X	197.38346	181.62028	238.33060	1.11413	0.0454257	0.20271638	2.8699664	20	6 7.9	20.4
173095 2007 TV_{73}	16.8	X	299.61565	156.68063	222.26800	5.72171	0.1832796	0.29883685	2.2157119	20	8 17.7	18.8
173096 2007 TA_{79}	15.7	X	49.61695	184.53267	312.68802	1.19941	0.0455293	0.18833311	3.0142893	20	3 15.7	19.6
173097 2007 TJ_{115}	15.0	X	178.23266	244.85461	96.76304	9.54175	0.0654708	0.18465222	3.0542156	20	2 14.2	19.6
173098 2007 TO_{129}	15.9	X	275.42088	118.68544	215.52746	5.13956	0.0692745	0.20258359	2.8712204	20	5 20.9	19.9
173099 2007 TR_{149}	15.6	X	24.09594	112.16222	230.19158	15.70016	0.1912106	0.22835431	2.6509197	20	12 2.6	18.9
173100 2007 TF_{263}	16.8	X	263.34225	133.31232	212.48733	5.25869	0.1152139	0.28242742	2.3007255	20	5 12.4	19.6
173101 2007 TV_{320}	15.8	X	223.78121	291.61397	104.71470	7.36698	0.0765958	0.20343961	2.8631606	20	6 6.8	20.0
173102 2007 TJ_{379}	15.2	X	25.30721	154.01476	23.15633	13.84028	0.0662091	0.19451248	2.9501068	20	4 4.3	18.8
173103 2007 UF_{38}	16.1	X	7.62291	143.00324	236.57312	3.86101	0.1129119	0.23199095	2.6231433	20	12 16.7	19.3
173104 2007 UY_{114}	16.8	X	315.33535	172.78460	243.82495	5.14696	0.1029557	0.30536504	2.1840195	20	12 4.0	18.6
173105 2007 VU_{5}	17.1	X	179.99894	104.35578	274.22539	1.54346	0.2353602	0.27098817	2.3650255	20	3 27.2	21.1
173106 2007 VN_{79}	17.1	X	90.73009	49.30373	67.43857	3.00424	0.1643944	0.26604398	2.3942367	20	4 28.3	20.1
173107 2007 VX_{111}	16.1	X	222.02867	199.05567	207.00667	1.27868	0.0733766	0.20290513	2.8681863	20	6 16.9	20.3
173108 Ingola	15.2	X	200.24090	136.89325	268.99052	0.75938	0.3278904	0.12566308	3.9475798	20	5 16.4	22.1
173109 7635 P–L	16.8	X	293.48948	21.82222	35.90681	5.11749	0.1859895	0.29594754	2.2301097	20	10 13.2	18.2
173110 2323 T–1	16.1	X	276.15988	81.64450	87.10170	3.20058	0.1120117	0.23520248	2.5992105	20	—	—
173111 2059 T–2	16.3	X	78.26257	150.54180	180.06732	3.15388	0.1909241	0.23541038	2.5976800	20	—	—
173112 4327 T–2	15.5	X	36.64752	335.75670	19.71625	10.73490	0.1413190	0.23392538	2.6086621	20	12 30.1	19.2
173113 5038 T–2	16.2	X	168.75116	80.63499	291.17124	5.56450	0.1578767	0.26370982	2.4083440	20	3 4.6	19.9
173114 1195 T–3	15.7	X	13.35733	177.45525	227.71799	14.67106	0.0495347	0.23351733	2.6117001	20	—	—
173115 3145 T–3	15.3	X	203.42054	300.35016	23.13996	18.53980	0.2466800	0.19586169	2.9365431	20	2 23.2	20.8
173116 4162 T–3	16.9	X	22.33963	304.95189	112.86107	4.22757	0.2162519	0.23430761	2.6058242	20	—	—
173117 Promachus	12.7	X	335.66567	205.58971	182.06742	7.77785	0.1218145	0.08395456	5.1654307	20	10 3.4	18.9
173118 1981 EB_{4}	15.3	X	4.80057	266.26411	305.50656	8.48216	0.0880576	0.17792788	3.1306899	20	4 13.8	19.4
173119 1981 EU_{46}	15.6	X	68.22339	41.52464	162.87182	2.48423	0.0675820	0.18214245	3.0822079	20	7 9.2	19.9
173120 1990 TL_{9}	16.1	X	65.43426	105.18344	254.07304	2.76359	0.2902989	0.23762399	2.5815222	20	—	—

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
173121 1991 VO_{10}	16.3	X	212.98345	287.37095	100.14375	2.26526	0.1620127	0.19222721	2.9734420	20	5 9.8	21.2
173122 1992 BV_4	15.9	X	118.44668	349.51918	114.29033	10.76730	0.2278733	0.18395512	3.0619267	20	5 24.3	20.9
173123 1993 FB_{35}	16.4	X	172.05118	10.11030	135.17197	1.90771	0.3330284	0.19575705	2.9375895	20	8 22.9	21.8
173124 1993 FX_{47}	15.9	X	72.37303	330.73852	173.50893	3.79862	0.1572543	0.25808396	2.4432170	20	5 10.2	18.8
173125 1993 PB_2	16.9	X	157.32934	254.75577	306.70447	7.00965	0.1011691	0.29931000	2.2133762	20	10 31.5	20.1
173126 1994 AY_8	16.2	X	296.68998	326.01892	125.86265	3.45518	0.0421612	0.21534066	2.7566737	20	11 28.1	19.6
173127 1994 CQ_{10}	16.2	X	235.94780	25.89190	135.19205	11.41320	0.2352829	0.21259731	2.7803376	20	11 11.4	20.5
173128 1994 HL_1	17.4	X	41.71604	61.98627	188.33985	1.75798	0.1982849	0.27171842	2.3607862	20	9 2.2	19.9
173129 1994 JH_2	15.5	X	209.37942	266.37407	51.01309	16.14439	0.2262460	0.25557574	2.4591761	20	2 13.9	20.0
173130 1994 JA_6	17.4	X	70.38739	296.75339	213.17814	4.46829	0.1612565	0.26585917	2.3953462	20	5 15.2	20.0
173131 1994 PY_{36}	15.5	X	174.48295	13.94680	321.62158	3.90233	0.1669389	0.17288949	3.1912218	20	2 6.9	20.7
173132 1994 RY_2	15.0	X	238.28988	299.76511	317.51754	4.55299	0.1419409	0.17166511	3.2063778	20	1 4.1	20.0
173133 1994 TS_6	16.8	X	359.03992	40.10340	94.39919	1.26501	0.1212861	0.24220777	2.5488484	20	—	—
173134 1994 YP_2	16.9	X	262.10706	179.40429	284.60968	21.58332	0.0893950	0.37771523	1.8953659	20	12 3.7	18.6
173135 1995 FO_7	16.1	X	293.63189	48.37573	55.95263	5.79430	0.0746330	0.21991705	2.7182963	20	12 7.7	19.3
173136 1995 HP_1	15.4	X	171.78291	197.98332	150.95814	11.05451	0.0521417	0.18894117	3.0078186	20	2 12.0	19.7
173137 1995 HH_3	15.7	X	175.19190	175.29616	91.66264	3.97029	0.1543066	0.17979760	3.1089480	20	—	—
173138 1995 QZ_4	16.8	X	96.03020	329.81539	288.04352	5.71453	0.1924997	0.28387040	2.2929222	20	11 13.1	20.5
173139 1995 SO_{16}	16.9	X	174.52131	77.05441	298.34341	0.27170	0.2054876	0.26047383	2.4282496	20	3 19.1	20.9
173140 1995 SH_{19}	15.7	X	228.65766	118.87446	185.44808	0.57738	0.1144090	0.17882542	3.1202056	20	2 18.1	20.6
173141 1995 SQ_{44}	16.4	X	178.81469	61.60081	300.61769	0.39795	0.1902176	0.25876324	2.4389393	20	3 6.2	20.3
173142 1995 SJ_{57}	17.4	X	139.64499	256.12116	229.34259	1.36773	0.1637919	0.26771983	2.3842348	20	7 4.2	21.0
173143 1995 SY_{66}	16.6	X	134.48352	55.58789	23.60826	0.53236	0.1790693	0.18182115	3.0858380	20	5 2.4	21.4
173144 1995 TY_2	16.6	X	34.04974	343.57998	8.19830	10.65513	0.1980313	0.24234818	2.5478638	20	—	—
173145 1995 TT_3	16.1	X	45.65781	244.79115	210.79522	4.21885	0.1556617	0.17161750	3.2069708	20	1 28.7	20.0
173146 1995 UM	16.1	X	99.39884	192.63319	231.70405	5.41567	0.1180121	0.25501316	2.4627915	20	2 18.5	19.3
173147 1995 UC_{38}	16.6	X	73.63948	169.54229	20.31973	3.16300	0.1135118	0.26641247	2.3920285	20	7 9.5	19.6
173148 1995 VX_3	15.0	X	125.32448	342.70895	62.48917	11.39252	0.0698848	0.17542645	3.1603802	20	3 8.6	19.8
173149 1995 VH_{18}	17.1	X	203.40988	83.70239	245.42894	1.39615	0.2097676	0.25658254	2.4527389	20	2 15.7	21.2
173150 1995 WM_{12}	16.0	X	235.66197	184.22571	147.58855	4.38309	0.1854092	0.18069179	3.0986827	20	3 24.3	21.0
173151 1995 WV_{24}	16.7	X	272.89151	39.36808	271.34716	5.42486	0.1344942	0.26208609	2.4182809	20	3 31.8	20.2
173152 1995 XC_4	14.9	X	143.47477	285.30328	83.99033	11.56871	0.1463404	0.17279693	3.1923613	20	2 20.5	20.0
173153 1996 EB_{12}	15.9	X	310.21138	89.16747	318.25381	11.64016	0.2588157	0.22869439	2.6482910	20	9 27.6	18.4
173154 1996 ME	16.6	X	53.29569	208.69590	121.69764	7.68220	0.3051375	0.29965304	2.2116866	20	—	—
173155 1996 RP	14.9	X	275.80085	90.08098	132.46879	28.38388	0.3495010	0.23284984	2.6166889	20	—	—
173156 1996 RV_9	16.9	X	272.97492	72.29441	352.51008	6.07415	0.1377281	0.28823511	2.2697157	20	9 17.8	19.3
173157 1996 RX_{12}	17.1	X	209.11374	350.90496	164.73794	0.81520	0.1828858	0.29230032	2.2486223	20	10 22.2	20.1
173158 1996 TJ_1	16.5	X	309.52813	187.59536	169.54139	7.04647	0.1375891	0.20181229	2.8785314	20	7 29.3	20.1
173159 1996 TS_{39}	16.9	X	344.36924	220.58823	131.07738	2.81271	0.1738527	0.28880697	2.2667186	20	10 23.0	18.5
173160 1996 UD_2	17.0	X	88.07004	311.69551	306.88493	6.11812	0.0645861	0.29071943	2.2567668	20	10 25.9	20.1
173161 1996 VN_{22}	16.4	X	55.72061	105.04369	296.25451	5.01950	0.0748571	0.25815895	2.4427438	20	—	—
173162 1996 XP_9	17.5	X	180.28961	105.97693	346.73040	4.83772	0.2011543	0.27507127	2.3415633	20	6 30.6	21.3
173163 1996 XP_{12}	16.8	X	167.36545	121.76355	310.39075	4.72062	0.1885328	0.27225727	2.3576702	20	5 21.6	20.6
173164 1996 XZ_{18}	16.5	X	215.45894	347.26988	50.23813	3.40000	0.2310232	0.27304740	2.3531197	20	5 19.1	20.4
173165 1997 AM_{18}	15.0	X	168.86884	264.61983	130.97469	17.76442	0.2058105	0.18097393	3.0954612	20	4 18.5	20.5
173166 1997 BP_2	14.2	X	34.68325	34.41231	131.62166	28.57875	0.1413093	0.17503494	3.1650911	20	4 20.9	18.6
173167 1997 CS_{17}	16.3	X	237.60502	219.37511	142.17914	7.61110	0.1518659	0.26559838	2.3969139	20	5 2.3	19.9
173168 1997 EB_2	17.0	X	113.98022	270.09870	176.40261	3.83713	0.2346168	0.26234409	2.4166951	20	4 25.5	20.5
173169 1997 ED_{27}	14.6	X	52.98609	345.35670	145.49338	22.11750	0.0879468	0.17278240	3.1925402	20	3 22.8	19.0
173170 1997 EU_{31}	17.8	X	118.94562	66.31005	17.77903	1.70536	0.2051097	0.26013577	2.4303529	20	4 23.0	21.2
173171 1997 EE_{44}	15.1	X	204.80578	80.47210	319.72505	9.69305	0.0589461	0.18097058	3.0954995	20	5 19.2	19.9
173172 1997 EN_{58}	16.9	X	73.16532	155.11561	15.43846	2.26468	0.1527220	0.26215963	2.4178286	20	6 16.5	19.8
173173 1997 GX_2	15.4	X	91.34700	187.81677	172.48341	2.78843	0.2076579	0.24354144	2.5395346	20	—	—
173174 1997 GO_{12}	16.5	X	53.15137	175.96080	57.55133	2.04617	0.1229851	0.26527364	2.3988697	20	8 13.7	19.2
173175 1997 HL_2	16.8	X	7.43419	82.53214	136.55340	3.22803	0.1389777	0.25631973	2.4544152	20	4 29.4	19.1
173176 1997 KO	16.7	X	35.71494	341.59069	205.95757	4.93343	0.1030655	0.25699586	2.4501084	20	5 3.1	19.1
173177 1997 SW_4	17.1	X	79.92548	280.55018	72.54522	2.76263	0.1541005	0.31136517	2.1558706	20	—	—
173178 1997 TY_{10}	16.4	X	152.50067	121.21878	185.13365	2.89156	0.0636850	0.23068131	2.6330622	20	—	—
173179 1997 TL_{24}	17.1	X	206.89136	6.25155	32.18137	5.96822	0.2599623	0.28638887	2.2794599	20	5 11.3	20.9
173180 1997 UP_{17}	16.0	X	15.11673	308.21536	62.77219	6.58058	0.0509401	0.21640543	2.7476239	20	12 3.2	19.6
173181 1998 FM	15.7	X	32.53029	204.12373	48.70993	2.76044	0.1904398	0.18839789	3.0135983	20	8 10.7	19.2
173182 1998 FY	17.0	X	40.23772	220.52449	70.20545	3.27144	0.1564980	0.28216596	2.3021465	20	10 24.3	19.7
173183 1998 FN_{51}	16.7	X	140.41753	143.01551	43.37563	3.52040	0.1450095	0.28441049	2.2900184	20	9 25.8	20.2
173184 1998 FQ_{61}	16.6	X	114.68862	215.70980	353.43750	5.48339	0.1861812	0.28269188	2.2992904	20	9 29.7	20.1
173185 1998 FB_{72}	16.9	X	353.34635	192.72721	38.71765	3.13789	0.1588155	0.27025794	2.3692838	20	4 15.3	18.8
173186 1998 FT_{92}	16.8	X	155.98479	153.53535	25.77032	6.21755	0.1053294	0.28621874	2.2803631	20	10 2.7	20.0
173187 1998 HU_{53}	15.9	X	55.26094	95.92286	130.28264	3.12279	0.3105598	0.18836532	3.0139457	20	8 27.6	20.1
173188 1998 HV_{71}	16.6	X	322.02517	184.45182	71.43837	5.96180	0.1920868	0.26688160	2.3892245	20	3 21.3	19.3
173189 1998 HE_{108}	15.2	X	30.62838	84.83629	120.69760	7.31321	0.1206263	0.18181328	3.0859270	20	5 25.4	19.0
173190 1998 KC_{46}	16.6	X	81.61212	151.30413	93.08778	5.67815	0.2078993	0.27862180	2.3216281	20	10 18.3	20.1
173191 1998 KJ_{61}	16.8	X	45.97607	123.60539	133.25391	6.11662	0.2082275	0.27509644	2.3414204	20	9 23.0	19.6
173192 1998 NK_1	16.6	X	353.69816	244.30071	300.31641	4.00723	0.0469857	0.25515496	2.4618790	20	2 17.6	19.6
173193 1998 QK_3	16.1	X	40.49792	37.41905	330.02713	18.28374	0.2916076	0.23306651	2.6150669	20	—	—
173194 1998 QN_{15}	15.9	X	337.03657	175.00468	207.33006	7.14166	0.2610326	0.22645846	2.6656943	20	11 9.2	17.7
173195 1998 QD_{33}	16.9	X	88.03829	87.40589	262.88142	3.13076	0.2394893	0.23847735	2.5753601	20	—	—
173196 1998 QF_{33}	16.5	X	91.13762	84.06554	276.64433	2.98472	0.2789106	0.23952438	2.5678495	20	—	—
173197 1998 QZ_{38}	15.7	X	54.14097	36.99468	316.92046	7.64540	0.1652578	0.23447267	2.6046012	20	—	—
173198 1998 QW_{44}	15.9	X	71.32091	69.84739	298.95702	3.26429	0.2782430	0.23725674	2.5841855	20	—	—
173199 1998 QQ_{86}	15.7	X	52.78469	75.09566	310.84835	9.77406	0.2858873	0.23614093	2.5923196	20	—	—
173200 1998 QJ_{91}	15.8	X	62.36235	140.58934	232.41146	5.48991	0.3391776	0.23495454	2.6010388	20	—	—

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
173201 1998 RR_6	16.0	X	80.26329	19.73605	346.79802	13.27012	0.1613358	0.23745979	2.5827121	20	—	—
173202 1998 RN_{51}	16.0	X	84.57373	193.72511	124.85300	5.42270	0.2064997	0.23500771	2.6006464	20	—	—
173203 1998 RD_{64}	16.5	X	72.79232	12.73157	24.33683	4.41225	0.2430889	0.23941060	2.5686630	20	—	—
173204 1998 RN_{66}	15.4	X	27.67591	5.08324	352.90653	13.32070	0.1864446	0.22999341	2.6383098	20	12 28.3	19.1
173205 1998 RT_{67}	15.4	X	277.61044	10.66225	341.04699	5.11642	0.1550777	0.21553076	2.7550525	20	6 1.4	19.1
173206 1998 SS_{14}	15.9	X	1.61660	287.66833	82.12261	4.16578	0.2787860	0.22742451	2.6581401	20	12 18.2	18.4
173207 1998 ST_{20}	16.7	X	356.50054	283.86909	166.30683	2.76455	0.1476276	0.23637934	2.5905762	20	—	—
173208 1998 SO_{26}	16.3	X	46.96733	70.93302	313.56004	14.22204	0.1283333	0.23488148	2.6015781	20	—	—
173209 1998 SP_{29}	16.5	X	102.33892	287.84780	89.74528	2.34917	0.1867514	0.24088913	2.5581416	20	1 7.5	19.6
173210 1998 SM_{42}	16.2	X	12.91783	343.94483	203.35684	1.53136	0.1201906	0.25275030	2.4774692	20	3 21.1	18.7
173211 1998 SE_{83}	16.9	X	99.30936	99.03785	265.24382	0.98530	0.2381972	0.23988394	2.5652829	20	—	—
173212 1998 SX_{99}	16.5	X	71.74740	143.19022	270.44176	3.27144	0.2309648	0.24005911	2.5640348	20	1 13.7	18.8
173213 1998 SB_{104}	16.6	X	50.62854	296.57247	154.00894	5.30368	0.2822533	0.24049196	2.5609573	20	1 28.6	18.3
173214 1998 SR_{121}	15.9	X	157.28784	348.52908	2.99672	11.36676	0.1671237	0.24500845	2.5293873	20	2 6.7	19.9
173215 1998 SG_{176}	17.5	X	314.42502	201.20702	188.00093	2.74930	0.2962972	0.22303327	2.6929169	20	9 8.5	19.2
173216 1998 TY_5	16.4	X	60.09274	308.56989	69.13260	4.46072	0.2706227	0.23450892	2.6043328	20	—	—
173217 1998 TS_9	16.4	X	345.41888	152.28672	34.22511	5.76834	0.1209022	0.24490862	2.5300747	20	2 4.2	19.3
173218 1998 TP_{15}	15.6	X	311.63871	320.92205	222.41787	12.79248	0.1004508	0.24050425	2.5608701	20	—	—
173219 1998 TZ_{25}	16.8	X	104.85981	116.84965	232.94888	1.08764	0.1486628	0.23669316	2.5882859	20	—	—
173220 1998 TN_{26}	16.5	X	43.23744	346.06947	18.78054	1.74554	0.2536299	0.23110295	2.6298585	20	—	—
173221 1998 TL_{31}	16.6	X	27.00055	62.68291	346.88232	2.21216	0.2979137	0.23344766	2.6122197	20	—	—
173222 1998 UQ_8	16.4	X	332.15077	332.73035	70.23000	4.08551	0.3088680	0.22615127	2.6681077	20	12 2.6	17.9
173223 1998 UY_{14}	16.0	X	1.15890	222.94278	193.48795	3.86401	0.2372344	0.23003299	2.6380071	20	—	—
173224 1998 UF_{17}	16.4	X	58.68005	6.04728	15.77982	8.36239	0.1627817	0.23476192	2.6024613	20	—	—
173225 1998 VE_1	15.3	X	29.15098	327.03742	62.10821	14.16603	0.2990362	0.23151852	2.6267106	20	—	—
173226 1998 VW_{14}	15.9	X	271.60223	141.32113	230.20176	7.81874	0.3072368	0.21544939	2.7557461	20	5 31.1	19.9
173227 1998 VJ_{38}	15.9	X	28.94200	30.18795	0.82241	4.10732	0.2735956	0.23127881	2.6285252	20	—	—
173228 1998 VM_{42}	17.1	X	73.44312	338.68131	39.45510	2.22100	0.0768420	0.23542728	2.5975557	20	—	—
173229 1998 WH_{15}	16.0	X	15.25105	194.23639	221.91773	12.80279	0.1497535	0.23080708	2.6321056	20	—	—
173230 1998 XM	16.5	X	56.16763	130.27483	253.68685	3.61768	0.0965691	0.23111286	2.6297834	20	—	—
173231 1998 XX	16.1	X	17.00645	330.84196	63.72523	14.27455	0.1629550	0.22941870	2.6427141	20	—	—
173232 1998 XC_9	18.1	X	253.83701	124.44294	317.35361	9.58265	0.5330898	0.21610902	2.7501357	20	7 19.6	23.2
173233 1998 YD_{17}	15.9	X	155.00855	257.92160	288.70106	5.97261	0.1389122	0.21094530	2.7948348	20	9 27.1	20.6
173234 1999 AK_{11}	16.1	X	28.90792	242.18100	122.28508	7.19795	0.0384216	0.22019017	2.7160479	20	12 13.2	19.8
173235 1999 BE_{15}	15.4	X	294.35770	266.78400	136.95037	10.08829	0.3544237	0.21597662	2.7512595	20	8 4.2	18.4
173236 1999 BA_{27}	16.3	X	64.38223	273.59470	116.04944	3.60648	0.1118773	0.22889099	2.6467744	20	—	—
173237 1999 BD_{32}	16.5	X	21.11412	62.63990	327.87110	3.19961	0.1257995	0.22367568	2.6877583	20	—	—
173238 1999 DW_3	17.7	X	231.62791	7.31422	288.22561	2.32217	0.1597169	0.32520949	2.0942438	20	1 23.4	20.6
173239 1999 FJ_{61}	15.8	X	165.91883	216.15199	348.46170	7.24799	0.1577471	0.20989293	2.8041690	20	10 28.7	20.4
173240 1999 GA_{11}	17.7	X	165.07978	163.43070	52.46430	1.46159	0.1915157	0.30280066	2.1963329	20	11 25.5	21.1
173241 1999 HU_3	15.9	X	253.86816	134.55774	97.58806	9.42958	0.2175443	0.22267708	2.6957878	20	—	—
173242 1999 JC_{10}	16.5	X	65.00520	62.34133	169.75247	6.75570	0.1347678	0.28984448	2.2613061	20	9 1.1	19.1
173243 1999 JC_{90}	16.8	X	106.43380	123.79554	111.03059	6.27401	0.1403076	0.29566870	2.2315116	20	10 27.9	20.2
173244 1999 KD	17.6	X	257.36688	270.21652	61.24596	6.01510	0.2666827	0.27675383	2.3320631	20	4 1.7	21.3
173245 1999 LY_7	16.7	X	32.53294	168.93906	105.24542	6.15179	0.2737016	0.28832962	2.2692197	20	10 12.9	19.3
173246 1999 MP	15.9	X	263.13333	261.17357	97.89365	10.54619	0.2823666	0.27596442	2.3365083	20	5 11.8	19.5
173247 1999 RQ_{46}	15.8	X	279.05114	4.61211	323.60217	8.97038	0.2412316	0.27485676	2.3427814	20	4 14.7	19.2
173248 1999 RA_{54}	16.7	X	277.28607	341.43809	348.17383	4.69810	0.2475564	0.27405121	2.3473701	20	4 16.8	20.0
173249 1999 RV_{64}	17.0	X	303.72709	222.50804	123.20308	2.94437	0.2342347	0.27822485	2.3238358	20	6 22.5	19.0
173250 1999 RV_{72}	16.4	X	208.59463	24.86428	357.13331	2.56739	0.1519983	0.26892546	2.3771036	20	4 25.7	20.0
173251 1999 RD_{73}	17.0	X	222.35077	105.20808	260.22539	1.17823	0.2432873	0.26884627	2.3775703	20	4 13.6	20.9
173252 1999 RT_{80}	17.4	X	206.39944	336.11022	40.80233	1.73009	0.1946850	0.26807450	2.3821314	20	4 16.9	21.3
173253 1999 RQ_{93}	16.6	X	224.68832	308.53069	52.98052	2.85044	0.2262662	0.26811391	2.3818979	20	4 12.7	20.4
173254 1999 RG_{97}	16.8	X	181.83327	214.78672	127.13739	3.32447	0.1906444	0.26092536	2.4254474	20	2 13.5	20.6
173255 1999 RP_{106}	16.4	X	2.17818	43.84013	302.92161	6.45350	0.1460973	0.28496279	2.2870585	20	11 10.1	18.7
173256 1999 RT_{114}	16.5	X	115.72804	103.06512	295.14103	5.99244	0.1995592	0.25801872	2.4436288	20	2 17.8	19.8
173257 1999 RH_{120}	16.4	X	279.43960	175.55358	173.09841	2.63116	0.2385088	0.27580792	2.3373920	20	5 19.1	19.5
173258 1999 RT_{136}	16.9	X	153.18941	50.19570	258.96339	0.70918	0.2493463	0.25561290	2.4589377	20	—	—
173259 1999 RF_{137}	17.0	X	260.92768	111.53066	232.04168	1.55432	0.2443065	0.27257561	2.3558342	20	4 19.9	20.7
173260 1999 RS_{141}	16.2	X	255.51868	351.65662	355.24082	5.76641	0.1461495	0.27260801	2.3556475	20	4 27.8	19.6
173261 1999 RQ_{156}	16.5	X	296.25428	354.61658	331.45897	5.24198	0.2467815	0.27541829	2.3395960	20	5 5.6	19.3
173262 1999 RD_{176}	17.0	X	6.65362	235.85673	72.08391	2.76387	0.1893380	0.28118170	2.3075158	20	9 30.0	18.8
173263 1999 RT_{178}	16.3	X	242.35113	271.24207	100.63516	3.01251	0.2270456	0.27188331	2.3598316	20	5 11.6	19.8
173264 1999 RD_{179}	16.3	X	181.65256	290.97527	68.15255	3.53099	0.2128653	0.26276381	2.4141209	20	3 7.3	20.3
173265 1999 RG_{183}	16.3	X	188.80357	231.88246	148.32128	2.83216	0.1531107	0.26559256	2.3969489	20	4 6.4	20.0
173266 1999 RY_{189}	17.5	X	215.04193	23.66235	332.61163	1.87927	0.1982129	0.26683310	2.3895140	20	3 28.7	21.4
173267 1999 RG_{190}	14.8	X	224.63823	5.61052	308.79448	13.33032	0.1141501	0.16980332	3.2297725	20	2 23.4	19.9
173268 1999 RY_{190}	16.5	X	266.32408	55.92833	289.24329	5.12992	0.2362532	0.27312178	2.3526925	20	4 26.5	20.0
173269 1999 RC_{218}	16.6	X	242.78727	149.54384	218.44167	1.87669	0.2132002	0.27298257	2.3534922	20	5 7.3	20.2
173270 1999 RO_{222}	16.1	X	64.96159	134.68653	204.75541	14.50947	0.1590353	0.24540358	2.5266715	20	—	—
173271 1999 RW_{253}	16.8	X	293.23816	354.10455	330.89743	2.70723	0.2411017	0.27603935	2.3360854	20	5 1.7	19.5
173272 1999 RG_{258}	17.0	X	265.91133	199.41797	168.89952	2.57801	0.1566563	0.27392358	2.3480992	20	6 10.4	19.9
173273 1999 SZ_4	15.8	X	267.68472	342.68176	354.66118	12.33287	0.2753724	0.27308644	2.3528955	20	4 11.4	19.4
173274 1999 SS_7	16.0	X	54.26058	253.39797	41.46376	7.05457	0.3151843	0.28938057	2.2637222	20	12 3.7	19.6
173275 1999 TQ_{16}	15.6	X	24.87369	290.44620	20.97125	15.20887	0.1289268	0.23295567	2.6158963	20	10 14.6	18.7
173276 1999 TC_{40}	16.8	X	255.91744	248.49209	120.30220	3.32205	0.2028233	0.27244053	2.3566128	20	5 23.9	20.1
173277 1999 TG_{47}	17.2	X	42.90140	205.69862	70.46138	1.38862	0.0434366	0.28005777	2.3136854	20	9 18.1	19.7
173278 1999 TB_{54}	17.1	X	285.73929	91.98635	247.79946	1.79634	0.1392647	0.27233764	2.3572063	20	5 30.8	20.0
173279 1999 TZ_{67}	17.0	X	165.99586	303.56392	73.76353	2.59708	0.1729132	0.25890443	2.4380525	20	3 14.1	20.7
173280 1999 TN_{69}	16.1	X	84.67399	96.98157	3.77081	2.37603	0.1575511	0.25795758	2.4440150	20	3 26.8	18.9

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
173281 1999 TY_{86}	14.6	X	320.80040	306.26130	331.79401	11.69555	0.1007208	0.18013117	3.1051086	20	4 30.6	18.9
173282 1999 TC_{115}	16.6	X	128.40633	62.36551	349.88735	10.52732	0.2284481	0.25925314	2.4358658	20	3 23.7	20.2
173283 1999 TE_{115}	16.3	X	329.67789	9.26736	323.00148	5.74275	0.2082436	0.27880121	2.3206320	20	8 7.5	17.7
173284 1999 TG_{117}	16.6	X	338.56777	61.26513	357.69633	3.56276	0.3041234	0.23948233	2.5681501	20	—	—
173285 1999 TL_{118}	16.9	X	302.94256	77.15870	240.84408	2.82488	0.2003840	0.27373929	2.3491529	20	5 14.7	19.3
173286 1999 TT_{118}	17.0	X	279.70849	355.99796	355.44317	4.76438	0.2503640	0.27404075	2.3474298	20	5 19.4	20.2
173287 1999 TF_{146}	16.9	X	7.48058	16.50901	1.21109	5.72695	0.2543692	0.23991142	2.5650870	20	—	—
173288 1999 TH_{150}	15.9	X	184.11227	287.02566	52.63486	3.30535	0.2219868	0.25978837	2.4325190	20	2 14.9	19.9
173289 1999 TC_{157}	16.4	X	6.56097	18.52529	359.49732	10.82837	0.0829320	0.24072726	2.5592883	20	12 9.8	19.7
173290 1999 TD_{175}	16.5	X	43.92833	163.46435	239.39532	4.74227	0.1910691	0.24594958	2.5229307	20	—	—
173291 1999 TT_{193}	16.4	X	163.77425	15.31623	17.52346	7.36888	0.1062003	0.26066368	2.4270704	20	3 26.9	19.9
173292 1999 TG_{202}	14.9	X	8.63984	275.67952	11.35057	10.82344	0.1203913	0.18114651	3.0934948	20	8 10.3	18.8
173293 1999 TZ_{220}	16.4	X	118.00091	349.29648	302.02384	5.91040	0.2362147	0.29528031	2.2334680	20	—	—
173294 1999 TB_{223}	16.5	X	205.03590	86.74258	291.72613	5.54432	0.1463403	0.26720177	2.3873156	20	4 15.9	20.3
173295 1999 TR_{229}	16.5	X	126.77318	307.53855	85.37753	2.41883	0.1863890	0.25765307	2.4459402	20	2 24.7	19.9
173296 1999 TM_{262}	16.3	X	229.17037	79.28113	279.68489	3.81325	0.2805386	0.26868278	2.3785347	20	4 7.9	20.5
173297 1999 TE_{276}	16.6	X	154.47508	235.07548	204.26492	5.72881	0.1112102	0.26593954	2.3948635	20	5 16.9	20.1
173298 1999 TV_{289}	17.1	X	127.47864	305.85337	111.66442	2.16539	0.1799431	0.25844152	2.4409630	20	3 27.2	20.6
173299 1999 TZ_{300}	16.7	X	155.62206	77.93461	321.18645	5.35200	0.2183624	0.26123138	2.4235528	20	3 30.6	20.8
173300 1999 TJ_{312}	17.0	X	147.69456	305.43861	193.65295	1.96932	0.1457566	0.27450001	2.3448108	20	7 29.5	20.7
173301 1999 TN_{318}	17.0	X	286.56174	267.15303	30.06811	2.68901	0.2065857	0.26812826	2.3818129	20	3 23.6	20.0
173302 1999 UH_{10}	17.1	X	293.52019	61.72666	8.30436	21.39903	0.1066690	0.37718301	1.8971484	20	11 30.9	19.0
173303 1999 UH_{16}	16.5	X	16.95467	345.70669	29.02147	5.71394	0.2358410	0.23983878	2.5656049	20	—	—
173304 1999 UM_{32}	17.3	X	0.22718	37.65684	50.97077	2.91453	0.1953235	0.24441528	2.5334781	20	—	—
173305 1999 UC_{34}	17.0	X	95.46656	97.46284	36.96011	2.98132	0.1164952	0.26360370	2.4089903	20	5 20.9	20.2
173306 1999 UY_{43}	16.8	X	147.92277	63.91158	321.62742	3.78980	0.1700949	0.25808606	2.4432037	20	3 4.6	20.4
173307 1999 UK_{62}	15.9	X	131.92968	129.75416	319.15734	6.67352	0.1044033	0.26285547	2.4135596	20	4 29.7	19.5
173308 1999 VO_{5}	15.1	X	69.61820	173.49928	219.75614	3.78514	0.0907224	0.24694341	2.5161571	20	—	—
173309 1999 VK_{22}	16.1	X	160.59371	133.23782	242.99137	7.67779	0.3203098	0.26001894	2.4310808	20	3 11.2	20.7
173310 1999 VU_{29}	16.7	X	205.35296	107.98590	264.57736	1.68252	0.2166705	0.26372761	2.4082357	20	4 9.4	20.8
173311 1999 VJ_{39}	16.3	X	120.07262	23.99942	65.26487	7.60672	0.2011607	0.25858001	2.4400914	20	5 2.4	19.8
173312 1999 VM_{39}	16.5	X	183.60025	279.54544	76.90521	2.32010	0.2038361	0.25877024	2.4388954	20	3 4.9	20.4
173313 1999 VY_{39}	17.0	X	179.87854	339.17901	52.15656	3.59987	0.1709016	0.26414393	2.4057046	20	4 12.5	20.7
173314 1999 VO_{44}	16.4	X	164.38524	85.91973	273.62906	5.45240	0.1837212	0.25881691	2.4386021	20	2 16.8	20.3
173315 1999 VF_{51}	16.5	X	147.51472	76.84615	339.14329	6.31225	0.1099825	0.26036782	2.4289086	20	4 5.2	20.0
173316 1999 VL_{51}	16.4	X	148.18302	169.98366	263.23688	5.59678	0.0868455	0.26257701	2.4152657	20	4 27.4	19.9
173317 1999 VL_{56}	16.3	X	202.24121	316.71670	50.29266	3.31090	0.2276303	0.26395185	2.4068715	20	4 1.8	20.3
173318 1999 VR_{56}	16.0	X	40.58500	119.14580	204.22930	3.63617	0.1025448	0.23640443	2.5903929	20	11 18.9	19.2
173319 1999 VX_{69}	16.6	X	323.03672	62.57808	243.94182	1.57102	0.1684475	0.27220178	2.3579906	20	6 9.9	18.8
173320 1999 VP_{94}	16.8	X	197.17344	33.84098	352.74839	0.73145	0.1655629	0.26547654	2.3976472	20	4 21.1	20.4
173321 1999 VQ_{95}	16.4	X	232.39225	320.82772	52.93575	2.51958	0.1843917	0.26885631	2.3775112	20	5 7.3	20.0
173322 1999 VC_{131}	16.5	X	348.56709	255.74493	41.07908	7.35698	0.1443942	0.27366633	2.3495704	20	7 27.0	18.6
173323 1999 VD_{134}	16.5	X	148.94856	205.86954	233.16345	5.99094	0.0816138	0.26340216	2.4102189	20	5 7.2	19.8
173324 1999 VT_{139}	16.7	X	127.07680	89.45795	6.62593	2.44127	0.1568314	0.26246796	2.4159347	20	5 11.8	20.1
173325 1999 VZ_{141}	16.7	X	283.42629	271.16679	35.11443	2.87797	0.1990007	0.26714559	2.3876503	20	4 2.0	19.7
173326 1999 VW_{146}	16.4	X	167.48972	164.31946	174.63014	1.69142	0.1943580	0.25484160	2.4638967	20	1 28.4	20.3
173327 1999 VA_{165}	16.9	X	88.49658	190.74113	253.37816	1.62029	0.1453410	0.25488655	2.4636070	20	3 6.9	19.8
173328 1999 VJ_{167}	16.4	X	256.79030	333.99259	359.31840	1.12696	0.2024353	0.26596772	2.3946944	20	4 7.2	20.0
173329 1999 VF_{186}	16.5	X	231.15757	188.68330	165.71125	2.92731	0.2062349	0.26613563	2.3936871	20	4 10.5	20.4
173330 1999 VA_{187}	16.5	X	354.44808	162.78712	215.26472	11.19192	0.1962360	0.23648980	2.5897695	20	12 6.9	19.3
173331 1999 VS_{187}	16.0	X	84.19105	28.57098	67.04689	11.27725	0.1313133	0.25563002	2.4588280	20	3 21.9	19.1
173332 1999 VQ_{209}	16.3	X	111.82703	114.54219	318.02015	3.45890	0.1526973	0.25852944	2.4404095	20	3 22.8	19.5
173333 1999 VK_{217}	17.3	X	12.37253	207.99291	64.10199	3.23128	0.0522670	0.27462738	2.3440858	20	7 26.3	19.8
173334 1999 WU_{11}	16.6	X	202.43060	14.53465	38.63395	6.30370	0.0980186	0.26941658	2.3742139	20	6 1.9	19.9
173335 1999 WB_{14}	16.8	X	102.70171	57.63659	70.68669	2.63997	0.1135381	0.26251193	2.4156649	20	5 22.1	19.7
173336 1999 WS_{14}	16.9	X	257.32053	89.14295	230.05757	2.64751	0.2015444	0.26460768	2.4028929	20	3 19.9	20.7
173337 1999 XZ_{11}	16.0	X	179.10933	88.08835	313.75121	5.98718	0.1345749	0.26306928	2.4122517	20	4 20.6	19.9
173338 1999 XY_{12}	15.7	X	326.47258	323.19081	118.82308	8.19030	0.1694626	0.23732628	2.5836807	20	—	—
173339 1999 XL_{16}	16.0	X	186.44036	281.37958	75.23667	11.44679	0.2801165	0.25956737	2.4338996	20	3 13.9	20.6
173340 1999 XY_{23}	15.2	X	45.61312	181.00613	235.17335	8.00048	0.0734861	0.24734607	2.5134256	20	—	—
173341 1999 XL_{48}	16.3	X	149.61227	255.58545	151.36728	1.46012	0.1845284	0.25897902	2.4375844	20	4 4.7	20.0
173342 1999 XW_{53}	16.5	X	200.18876	292.42615	80.52883	6.87663	0.1638252	0.26211965	2.4180744	20	4 10.3	20.4
173343 1999 XU_{56}	16.4	X	122.38257	208.24214	216.75304	1.73738	0.1739425	0.25656314	2.4528625	20	3 29.2	19.9
173344 1999 XB_{68}	16.6	X	97.82560	293.54852	157.28447	2.28631	0.1750726	0.25520199	2.4615765	20	4 4.4	19.6
173345 1999 XE_{71}	15.7	X	295.13370	154.78918	241.79777	8.20165	0.2067850	0.22828921	2.6514237	20	8 19.5	18.7
173346 1999 XB_{90}	16.6	X	149.81697	291.39707	138.19121	2.99811	0.1785273	0.25837137	2.4414048	20	5 4.1	20.4
173347 1999 XC_{93}	15.4	X	43.49493	112.30282	282.73258	26.07349	0.1868519	0.23996980	2.5646709	20	—	—
173348 1999 XQ_{134}	15.1	X	149.07016	28.69737	84.30844	25.97740	0.2306086	0.26439631	2.4041734	20	6 28.3	19.2
173349 1999 XD_{141}	16.2	X	130.92659	195.39886	216.56899	11.59553	0.1753890	0.25958196	2.4338083	20	3 18.9	19.9
173350 1999 XX_{154}	16.1	X	154.99649	211.25629	160.73564	2.59021	0.2105243	0.25555278	2.4593234	20	2 27.8	20.0
173351 1999 XZ_{163}	13.6	X	278.51034	270.83715	93.57303	10.62960	0.1960761	0.12570189	3.9467673	20	6 13.2	19.1
173352 1999 XB_{182}	16.1	X	321.82453	130.88987	321.44577	6.92800	0.1651882	0.23793458	2.5792751	20	—	—
173353 1999 XQ_{251}	16.8	X	216.70363	143.27739	194.24753	1.97812	0.1748940	0.26060213	2.4274525	20	3 8.2	20.7
173354 1999 YD_{1}	16.2	X	274.05394	135.10761	308.45462	21.09812	0.1117760	0.37507717	1.9042427	20	11 8.9	18.2
173355 1999 YP_{2}	16.0	X	146.08704	216.75651	100.57878	9.93838	0.1251126	0.24145170	2.5541665	20	—	—
173356 1999 YK_{3}	15.6	X	207.94452	121.50353	29.85813	26.18808	0.2661242	0.22410764	2.6843034	20	10 6.5	20.3
173357 1999 YG_{8}	16.4	X	71.20174	7.15238	104.41266	7.93334	0.0893567	0.25127320	2.4871689	20	3 15.6	19.4
173358 1999 YL_{12}	15.0	X	146.90444	1.34615	264.53306	27.68164	0.0450086	0.23696918	2.5862756	20	12 31.1	18.8
173359 2000 AQ	16.2	X	19.58692	246.04828	133.21979	5.49815	0.1666580	0.23262627	2.6183652	20	—	—
173360 2000 AN_{1}	17.0	X	279.51615	35.03732	93.91683	23.97578	0.1221805	0.37752754	1.8959940	20	—	—

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
173361 2000 AQ_{42}	16.5	X	77.33909	295.32826	295.04884	18.14796	0.0663710	0.36335297	1.9449879	20	9 4.3	19.0
173362 2000 AW_{42}	16.8	X	210.35461	70.18674	116.63998	24.06246	0.0741516	0.37394075	1.9080988	20	—	—
173363 2000 AD_{49}	16.7	X	274.15378	98.34986	275.00636	21.93196	0.0770562	0.36370626	1.9437282	20	7 15.1	18.5
173364 2000 AT_{49}	16.5	X	64.05443	290.92732	281.14306	17.92205	0.0426509	0.35882312	1.9613229	20	7 19.4	18.4
173365 2000 AD_{58}	16.8	X	95.04406	331.34527	130.51819	1.18073	0.1812310	0.25272717	2.4776203	20	4 16.7	20.0
173366 2000 AU_{69}	15.6	X	352.12702	312.04193	106.30479	9.77339	0.1535582	0.23801831	2.5786703	20	—	—
173367 2000 AM_{82}	17.1	X	148.72948	291.87154	150.00421	0.62327	0.1717504	0.25933855	2.4353310	20	5 17.5	20.9
173368 2000 AG_{93}	16.8	X	135.74448	249.71491	291.27863	16.31842	0.0621788	0.36539654	1.9377293	20	9 10.1	19.4
173369 2000 AJ_{143}	15.9	X	346.13403	225.51666	262.22810	3.48501	0.2319966	0.23899883	2.5716125	20	—	—
173370 2000 AX_{152}	16.6	X	33.46920	32.87829	276.83022	17.84697	0.0532398	0.36805188	1.9283981	20	11 8.1	18.8
173371 2000 AH_{186}	16.0	X	180.12523	229.47236	139.85274	9.30055	0.3038445	0.26162146	2.4211432	20	3 21.7	20.5
173372 2000 AM_{205}	16.2	X	2.03616	37.43447	109.00518	4.06465	0.1082636	0.24417266	2.5351560	20	1 6.4	18.9
173373 2000 AC_{216}	16.4	X	354.39889	62.56203	314.98331	17.37955	0.1107745	0.37156223	1.9162331	20	—	—
173374 2000 AS_{227}	16.1	X	15.32029	36.73722	318.53149	17.35755	0.0824790	0.37060946	1.9195159	20	—	—
173375 2000 AV_{230}	16.6	X	337.35334	58.02518	122.18280	8.43370	0.1814776	0.24417830	2.5351170	20	1 2.4	19.4
173376 2000 AO_{251}	16.0	X	299.76278	59.82354	112.13262	3.72883	0.1307504	0.24058198	2.5603185	20	—	—
173377 2000 BZ	16.7	X	110.33874	282.63211	333.05960	17.58522	0.0674780	0.37187002	1.9151756	20	12 7.3	19.4
173378 2000 BO_{2}	17.1	X	274.99599	92.05829	344.10116	20.33737	0.1157374	0.37188706	1.9151171	20	10 22.0	19.0
173379 2000 BH_{9}	16.5	X	161.29092	344.37029	269.56563	1.17114	0.0518539	0.23140327	2.6275827	20	—	—
173380 2000 BL_{9}	16.8	X	200.45099	24.57044	271.73853	1.05362	0.0799281	0.24262181	2.5459478	20	1 4.3	20.4
173381 2000 BB_{13}	16.4	X	306.10882	171.48701	326.13192	6.90949	0.1252597	0.23495363	2.6010454	20	—	—
173382 2000 BZ_{40}	16.3	X	73.60847	219.60631	291.40829	5.48868	0.0571806	0.25686875	2.4509166	20	5 1.9	19.3
173383 2000 CR_{11}	15.8	X	37.36747	164.32279	293.78950	1.48859	0.1095575	0.24447393	2.5330729	20	—	—
173384 2000 CW_{21}	15.7	X	29.13819	186.32264	298.40663	7.69871	0.0174988	0.24498041	2.5295804	20	1 22.8	18.7
173385 2000 CU_{36}	15.7	X	237.24797	182.71073	325.97928	11.57135	0.1896048	0.22554377	2.6728966	20	10 27.2	19.8
173386 2000 CF_{48}	15.6	X	235.41677	256.88280	288.35192	7.83577	0.1207140	0.22978223	2.6399260	20	12 26.9	19.2
173387 2000 CG_{50}	15.4	X	262.87308	203.28529	313.29953	11.85802	0.1192585	0.23007896	2.6376557	20	12 29.7	18.6
173388 2000 CT_{58}	16.9	X	316.70001	253.78633	150.47753	22.82168	0.1179377	0.37005723	1.9214251	20	12 17.2	18.9
173389 2000 CW_{58}	16.9	X	309.34305	293.15507	146.09584	23.61795	0.0973241	0.37564704	1.9023163	20	—	—
173390 2000 CA_{59}	17.1	X	287.32101	320.10465	148.84434	23.01214	0.0697946	0.37557093	1.9025733	20	—	—
173391 2000 CF_{67}	14.9	X	63.52012	158.49047	232.63698	7.61479	0.2961404	0.24208691	2.5496967	20	—	—
173392 2000 CU_{68}	16.0	X	300.08936	83.47449	139.63469	3.93252	0.1439543	0.24414441	2.5353516	20	1 14.3	19.4
173393 2000 CP_{82}	16.2	X	32.49319	320.89003	135.25447	5.52998	0.1723325	0.24213844	2.5493349	20	—	—
173394 2000 CP_{137}	16.5	X	163.08577	194.70245	137.66351	5.64768	0.2249411	0.24233057	2.5479872	20	1 20.3	20.7
173395 Dweinberg	16.0	X	29.12833	16.25038	354.84389	6.09315	0.0440442	0.22527568	2.6750167	20	12 23.5	19.6
173396 2000 DY_{9}	16.7	X	327.48744	159.32737	346.21658	0.76443	0.0232565	0.23831306	2.5765435	20	—	—
173397 2000 DP_{18}	16.1	X	262.22533	226.56675	349.29554	5.30665	0.1321197	0.23734404	2.5835517	20	—	—
173398 2000 DV_{20}	16.4	X	52.38250	275.76057	167.70134	3.50982	0.1674009	0.24393001	2.5368370	20	1 8.8	18.8
173399 2000 DD_{24}	16.2	X	18.48874	92.96517	332.89567	3.18751	0.2202071	0.23793073	2.5793030	20	—	—
173400 2000 DQ_{41}	15.9	X	339.79474	68.52793	341.77740	8.52699	0.0761391	0.22754453	2.6572054	20	12 8.6	19.2
173401 2000 DZ_{43}	16.9	X	27.61469	124.61071	343.19285	4.32216	0.2321369	0.24266409	2.5456520	20	—	—
173402 2000 DR_{91}	16.7	X	262.70449	345.96192	169.06279	2.96626	0.0283305	0.22921418	2.6442858	20	—	—
173403 2000 DM_{100}	16.3	X	321.27596	101.72525	91.71769	5.73754	0.1832696	0.24151056	2.5537515	20	—	—
173404 2000 DA_{110}	16.2	X	235.83999	258.13375	345.82707	11.46674	0.2429589	0.23353638	2.6115580	20	—	—
173405 2000 EQ_{11}	15.8	X	293.31530	35.19570	114.06198	13.48176	0.1164867	0.23340086	2.6125689	20	—	—
173406 2000 EG_{16}	15.9	X	309.62390	58.24852	342.95921	7.95840	0.0895101	0.22104996	2.7090005	20	10 5.9	19.2
173407 2000 EJ_{16}	16.4	X	342.43420	43.93315	69.26594	1.81948	0.1223562	0.23610817	2.5925594	20	—	—
173408 2000 EN_{18}	16.5	X	337.03352	347.30820	120.68215	4.94044	0.1655696	0.23553216	2.5967845	20	—	—
173409 2000 EV_{21}	16.4	X	294.27553	3.84531	343.70600	17.86759	0.0789317	0.35750541	1.9661394	20	7 18.5	18.5
173410 2000 ET_{29}	16.3	X	327.81515	54.16398	118.82996	5.30181	0.1587219	0.24089353	2.5581105	20	—	—
173411 2000 EY_{61}	16.4	X	205.36152	257.29261	356.84335	1.75371	0.1409713	0.23096429	2.6309110	20	—	—
173412 2000 EP_{65}	16.3	X	275.46781	183.13350	359.31134	2.77034	0.1274960	0.23257410	2.6187567	20	—	—
173413 2000 EM_{98}	16.4	X	353.11774	125.93784	320.69089	3.42025	0.1293729	0.23609534	2.5926532	20	—	—
173414 2000 ED_{99}	16.1	X	313.48053	71.34313	343.48401	12.76789	0.1874652	0.22507822	2.6765811	20	10 23.1	18.9
173415 2000 EA_{119}	15.4	X	155.26080	63.43044	94.70277	8.96410	0.1641011	0.21588774	2.7520146	20	8 30.5	20.0
173416 2000 EU_{131}	16.8	X	29.32651	104.37504	348.93890	1.29175	0.0870023	0.23862837	2.5742734	20	—	—
173417 2000 EB_{139}	15.7	X	7.02859	30.98994	72.85395	14.55446	0.2020947	0.23670489	2.5882004	20	—	—
173418 2000 ER_{200}	16.2	X	208.93609	82.76866	343.87121	18.23035	0.1242750	0.35672031	1.9690231	20	7 3.7	19.1
173419 2000 FX_{5}	16.4	X	20.84361	127.27521	12.50606	13.45725	0.2040781	0.24216415	2.5491545	20	1 31.9	18.9
173420 2000 FV_{57}	16.3	X	289.39405	344.91575	148.10490	4.61287	0.1787247	0.22951337	2.6419873	20	—	—
173421 2000 FL_{61}	15.7	X	150.26750	182.14214	83.19904	5.33578	0.1174372	0.22446719	2.6814362	20	12 31.6	19.8
173422 2000 FP_{65}	16.0	X	308.80968	217.12856	319.08715	3.11142	0.0909778	0.23567948	2.5957022	20	—	—
173423 2000 FE_{73}	16.1	X	322.00078	113.64754	67.47846	7.24412	0.1060200	0.23895715	2.5719116	20	—	—
173424 2000 GV_{23}	16.0	X	321.63632	98.28839	12.97707	11.57138	0.1438208	0.23016526	2.6369964	20	—	—
173425 2000 GG_{31}	16.0	X	247.64904	166.29011	36.76468	2.73452	0.0354616	0.23004722	2.6378983	20	—	—
173426 2000 GY_{130}	15.9	X	68.15212	109.15389	217.70949	4.79123	0.0656637	0.22059127	2.7127546	20	12 17.8	19.6
173427 2000 GD_{141}	16.8	X	181.78048	181.05660	322.04474	17.45323	0.0874424	0.36253324	1.9479187	20	9 14.6	19.4
173428 2000 GR_{150}	16.3	X	112.49642	143.37997	183.96789	2.73419	0.1049607	0.22728532	2.6592253	20	—	—
173429 2000 GZ_{152}	15.8	X	268.49713	237.97188	329.10193	7.09154	0.0334088	0.23339800	2.6125902	20	—	—
173430 2000 GM_{154}	16.6	X	256.49519	296.74465	288.10119	3.56545	0.2071901	0.23345137	2.6121920	20	—	—
173431 2000 GB_{163}	15.7	X	303.50716	110.02866	80.16444	13.87931	0.1202364	0.23538191	2.5978894	20	—	—
173432 2000 GE_{178}	16.6	X	287.86726	264.29086	303.67291	3.87435	0.2229867	0.23736312	2.5834133	20	—	—
173433 2000 HL_{1}	16.8	X	151.81649	247.71286	36.58900	2.74287	0.0426680	0.22524033	2.6752966	20	—	—
173434 2000 HD_{43}	15.9	X	159.88147	168.72699	65.06937	5.76642	0.1048889	0.21983252	2.7189930	20	12 2.6	20.1
173435 2000 HT_{43}	16.1	X	101.31245	81.55074	208.07496	1.33697	0.0473179	0.21802703	2.7339831	20	12 7.7	19.8
173436 2000 HQ_{72}	15.9	X	214.53802	37.11315	239.85497	7.37581	0.2111240	0.23150061	2.6268461	20	—	—
173437 2000 JD_{42}	15.8	X	196.34063	210.18746	45.75681	15.27046	0.0571026	0.22723720	2.6596006	20	—	—
173438 2000 JL_{68}	16.4	X	321.89048	331.70178	93.52349	3.23715	0.0537642	0.22077565	2.7112440	20	11 30.1	19.6
173439 2000 KQ_{3}	16.9	X	94.21654	225.92558	101.63630	6.13059	0.2142155	0.31676339	2.1313073	20	—	—
173440 2000 KD_{39}	15.9	X	73.93605	189.44115	91.10855	6.45412	0.0330562	0.21275028	2.7790048	20	10 24.8	19.8

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
173441 2000 KY_{40}	16.2	X	241.15269	2.82718	212.46005	6.82055	0.2009005	0.22772644	2.6557901	20	—	—
173442 2000 KC_{54}	15.9	X	231.24674	78.67458	146.78121	15.05876	0.1589934	0.22697579	2.6616423	20	—	—
173443 2000 KE_{81}	16.3	X	22.26808	146.53387	145.51908	24.13962	0.0679321	0.35537767	1.9739794	20	10 3.6	18.6
173444 2000 LG_{3}	15.4	X	6.95563	25.51460	297.46906	25.29768	0.2726319	0.29976567	2.2111326	20	11 1.9	18.3
173445 2000 NC_{18}	15.0	X	177.59235	15.47547	348.59804	7.51228	0.2238832	0.17875003	3.1210829	20	3 13.4	20.2
173446 2000 OH_{9}	14.4	X	77.59347	154.34156	313.86919	17.31738	0.1519054	0.17921320	3.1157030	20	3 23.2	18.9
173447 2000 PT_{2}	16.8	X	219.46022	164.61172	187.89685	4.74057	0.1848453	0.28282553	2.2985660	20	3 28.0	20.4
173448 2000 PY_{23}	14.9	X	178.01770	96.95089	265.40270	7.51373	0.1945400	0.17903315	3.1177916	20	3 7.7	20.3
173449 2000 QO_{6}	15.4	X	231.47176	46.26834	286.83447	8.90559	0.0712554	0.18085751	3.0967895	20	3 23.9	20.2
173450 2000 QG_{7}	15.1	X	275.71919	49.58979	160.98545	30.11495	0.0678278	0.22170466	2.7036647	20	—	—
173451 2000 QN_{8}	15.0	X	219.56376	223.63785	167.16148	13.85406	0.3066567	0.18358485	3.0660424	20	5 14.8	20.7
173452 2000 QE_{14}	17.4	X	313.80116	72.13157	305.39004	0.82907	0.2254345	0.29734457	2.2231190	20	9 18.5	18.1
173453 2000 QF_{16}	15.1	X	140.84825	56.24014	329.82231	15.13867	0.1848434	0.17497847	3.1657720	20	3 4.7	20.2
173454 2000 QD_{20}	16.7	X	23.50053	262.06587	132.73589	2.09566	0.1698289	0.30803988	2.1713580	20	—	—
173455 2000 QE_{41}	15.3	X	136.71208	303.02303	318.24410	10.53088	0.2409662	0.21225405	2.7833344	20	12 11.6	20.3
173456 2000 QV_{41}	15.8	X	258.43970	134.38541	195.84524	1.20454	0.2441033	0.18628941	3.0362949	20	4 5.2	20.6
173457 2000 QG_{45}	17.2	X	93.11982	186.30559	151.33649	1.84561	0.2345533	0.31249302	2.1506802	20	—	—
173458 2000 QV_{82}	16.5	X	342.60039	205.39929	174.74971	6.99054	0.2483781	0.29969050	2.2115023	20	12 19.8	18.3
173459 2000 QX_{88}	16.9	X	298.54998	209.49861	182.89909	5.19616	0.2251473	0.29559657	2.2318746	20	9 2.0	18.3
173460 2000 QU_{92}	17.1	X	25.05365	84.68789	282.96719	2.33430	0.1931973	0.30483950	2.1865289	20	—	—
173461 2000 QC_{96}	16.7	X	107.24331	273.13090	16.48106	2.67089	0.1702833	0.30862998	2.1685893	20	—	—
173462 2000 QM_{107}	15.2	X	215.79728	225.05789	116.20681	2.65302	0.1786918	0.18064972	3.0991637	20	3 18.7	20.3
173463 2000 QH_{131}	15.1	X	190.39822	72.16092	322.28721	10.49873	0.1207589	0.18356407	3.0662737	20	4 23.2	20.1
173464 2000 QX_{154}	14.5	X	143.64629	65.94400	295.48401	25.94331	0.1729685	0.17469207	3.1692312	20	2 3.7	19.7
173465 2000 QX_{168}	15.1	X	253.38616	31.56358	328.68686	9.79840	0.0789568	0.18673233	3.0314916	20	5 22.8	19.6
173466 2000 QJ_{169}	16.8	X	340.43763	183.87843	225.36898	2.97919	0.1540936	0.30368315	2.1920759	20	—	—
173467 2000 QG_{194}	15.1	X	187.20827	147.43301	221.02403	10.97276	0.2238219	0.17944205	3.1130534	20	3 23.3	20.5
173468 2000 QF_{210}	15.3	X	154.24763	24.13930	339.55169	4.17922	0.1673543	0.17383809	3.1796020	20	2 21.6	20.2
173469 2000 RX_{27}	17.3	X	299.71852	82.26748	310.48650	3.57399	0.1529152	0.29521285	2.2338082	20	9 15.9	19.2
173470 2000 RZ_{46}	16.7	X	44.97343	59.31497	296.45349	6.41118	0.1970275	0.30496526	2.1859277	20	—	—
173471 2000 RX_{57}	16.9	X	90.08094	232.48836	345.24544	6.83821	0.0333959	0.29180874	2.2511470	20	8 31.9	19.4
173472 2000 RS_{87}	14.8	X	169.24663	263.82843	342.70421	8.74562	0.1903725	0.21124774	2.7921667	20	12 21.1	19.5
173473 2000 RD_{90}	17.0	X	300.94549	94.07674	312.13361	4.71007	0.1441190	0.29751205	2.2222846	20	10 11.7	18.8
173474 2000 RH_{104}	15.9	X	24.14668	110.58563	255.35695	7.12047	0.2496836	0.30350393	2.1929387	20	—	—
173475 2000 SA_{1}	15.6	X	250.93416	67.75742	329.34217	23.21977	0.2970270	0.28548248	2.2842821	20	6 15.5	19.6
173476 2000 SZ_{27}	17.2	X	51.82797	17.01448	315.38124	4.02828	0.2027205	0.30498394	2.1858385	20	—	—
173477 2000 SG_{35}	15.4	X	149.01357	225.13688	125.05948	2.16797	0.1492453	0.17061664	3.2195002	20	1 31.3	20.5
173478 2000 SE_{38}	14.9	X	155.40341	40.93837	16.53340	9.43231	0.0722961	0.17851850	3.1237808	20	4 18.2	19.6
173479 2000 SB_{52}	15.0	X	13.10732	1.71347	197.74953	9.35439	0.0091581	0.17992253	3.1075087	20	4 14.4	19.2
173480 2000 SQ_{67}	15.1	X	253.53412	293.34942	22.02989	5.17330	0.1423586	0.18039863	3.1020388	20	3 24.9	19.8
173481 2000 SB_{73}	16.6	X	12.85893	310.91174	41.83421	4.28563	0.2172931	0.30064297	2.2068290	20	12 24.7	19.1
173482 2000 ST_{84}	15.4	X	172.39557	257.33926	90.86817	1.94341	0.2016318	0.17246782	3.1964212	20	2 21.4	20.7
173483 2000 SD_{86}	17.0	X	81.79491	249.92914	70.91230	5.26020	0.2180205	0.30683728	2.1770278	20	—	—
173484 2000 SW_{91}	15.1	X	242.54517	36.51241	297.22534	11.06968	0.1184275	0.18247763	3.0784324	20	3 31.2	20.1
173485 2000 SG_{109}	17.2	X	53.99916	330.08172	6.57268	3.08999	0.1996841	0.30488355	2.1863183	20	—	—
173486 2000 SK_{133}	16.5	X	270.63156	190.80722	256.41737	7.55620	0.0262073	0.29988747	2.2105338	20	11 4.0	19.1
173487 2000 SR_{134}	15.1	X	145.05640	83.88097	320.33605	15.59983	0.1129616	0.17545428	3.1600460	20	3 19.8	20.2
173488 2000 SO_{139}	15.2	X	146.79505	79.49580	346.86897	15.36534	0.2506165	0.17447252	3.1718893	20	4 26.2	20.9
173489 2000 SE_{173}	14.7	X	188.67239	34.85986	310.01578	21.56043	0.0855533	0.17486482	3.1671436	20	2 21.5	19.7
173490 2000 SP_{176}	16.8	X	345.63109	109.54732	253.63259	5.68690	0.1967958	0.29685802	2.2255474	20	11 17.7	18.3
173491 2000 SY_{185}	16.8	X	250.25933	268.38252	205.18131	3.32232	0.1801123	0.29724323	2.2236242	20	10 18.3	18.8
173492 2000 SZ_{187}	16.7	X	46.93673	190.52930	170.06012	6.08683	0.1763442	0.30566935	2.1825697	20	—	—
173493 2000 SW_{208}	15.2	X	161.87146	250.26751	118.44680	6.54188	0.1905316	0.17335045	3.1855620	20	3 8.0	20.5
173494 2000 SG_{250}	15.3	X	236.41353	186.96630	134.58138	6.40185	0.1826293	0.17950089	3.1123730	20	3 13.9	20.3
173495 2000 SW_{272}	17.2	X	353.23300	94.53900	219.26567	4.36875	0.1980785	0.29338740	2.2430644	20	9 9.2	18.6
173496 2000 SO_{284}	17.1	X	336.47593	70.35580	316.25578	4.80134	0.0989620	0.29955445	2.2121719	20	11 23.3	19.2
173497 2000 SQ_{301}	17.4	X	323.62636	81.03750	320.89570	3.29417	0.1842803	0.29825601	2.2185876	20	11 30.2	18.8
173498 2000 SH_{308}	14.6	X	222.42940	324.77603	345.43905	17.61309	0.1146003	0.17321852	3.1871793	20	2 22.4	19.6
173499 2000 SU_{309}	14.3	X	232.33364	71.48154	291.69878	20.09171	0.1221843	0.18105739	3.0945100	20	4 23.7	19.5
173500 2000 SL_{311}	14.4	X	202.91251	11.65790	343.56192	27.65558	0.1681949	0.17590541	3.1546408	20	3 16.9	19.8
173501 2000 SU_{311}	14.9	X	231.37161	30.40242	323.62906	24.07764	0.2116568	0.18131427	3.0915864	20	3 30.4	20.5
173502 2000 ST_{356}	16.7	X	342.68102	313.21831	42.97479	6.69547	0.2395982	0.29905814	2.2146187	20	11 7.4	17.6
173503 2000 TQ_{53}	15.3	X	252.78723	270.36189	31.94925	6.50606	0.1408236	0.17685068	3.1433897	20	3 10.7	20.2
173504 2000 TG_{55}	15.0	X	342.94750	162.87133	122.83366	11.40777	0.0979620	0.18628871	3.0363024	20	6 21.5	18.7
173505 2000 UH_{7}	16.6	X	307.17693	201.77167	209.26230	6.00500	0.1687126	0.29578129	2.2309453	20	11 4.9	18.1
173506 2000 UW_{22}	16.9	X	15.02333	231.43386	118.75735	4.03146	0.1873581	0.29926719	2.2135873	20	12 19.1	19.2
173507 2000 UC_{42}	16.2	X	47.05116	304.60030	48.67674	5.86593	0.1931412	0.30370551	2.1919683	20	—	—
173508 2000 UU_{43}	16.6	X	63.59894	351.43348	5.15269	1.84014	0.2198589	0.30650972	2.1785785	20	—	—
173509 2000 UK_{50}	16.1	X	327.18418	319.06294	53.11220	6.58626	0.2220753	0.29362511	2.2418537	20	10 21.7	17.1
173510 2000 UL_{59}	17.4	X	48.98956	11.99111	336.32056	4.13096	0.1525565	0.30405078	2.1903086	20	—	—
173511 2000 UE_{63}	16.3	X	56.09854	203.75718	239.08253	7.65195	0.2080018	0.26376725	2.4079944	20	1 12.2	18.2
173512 2000 UM_{63}	16.7	X	75.11450	62.57408	283.22233	1.74411	0.1768982	0.30715908	2.1755070	20	—	—
173513 2000 UR_{65}	14.9	X	199.85786	303.83639	6.77021	5.87626	0.0798717	0.16897092	3.2403710	20	2 1.6	19.9
173514 2000 UY_{71}	16.6	X	51.55972	352.87065	324.94430	2.57175	0.2007932	0.30029117	2.2085522	20	12 21.4	19.6
173515 2000 UY_{79}	16.7	X	329.96530	333.20589	37.69471	3.97050	0.1835116	0.29335108	2.2432495	20	10 22.5	18.0
173516 2000 UE_{84}	17.4	X	259.35193	354.90203	59.88098	1.13732	0.1704867	0.28957122	2.2627285	20	8 6.9	20.1
173517 2000 UH_{105}	16.5	X	301.09052	303.70074	98.91698	6.36234	0.0934526	0.29547486	2.2324874	20	10 16.8	18.7
173518 2000 UN_{107}	16.8	X	349.82373	232.23743	130.45689	5.13322	0.1583464	0.29666440	2.2265157	20	11 21.6	18.7
173519 2000 VW_{8}	16.9	X	4.35974	165.89914	146.53306	1.96917	0.1903158	0.29324145	2.2438086	20	10 4.9	18.6
173520 2000 VZ_{14}	16.6	X	249.11236	232.36187	193.80506	5.83820	0.2106970	0.28804288	2.2707254	20	7 31.7	19.6

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
173521 2000 VY_{27}	16.6	X	311.71273	195.94685	206.77597	8.36176	0.1986685	0.29441102	2.2378622	20	10 31.9	17.7
173522 2000 VK_{43}	16.8	X	308.86198	16.59003	19.62070	3.11137	0.2036887	0.29395846	2.2401585	20	10 10.9	17.8
173523 2000 VG_{48}	17.0	X	1.57143	47.79755	320.01881	1.16119	0.2249552	0.29839998	2.2178740	20	12 30.2	19.1
173524 2000 VX_{51}	15.0	X	206.89831	29.00695	4.03682	8.89927	0.0401620	0.17806209	3.1291166	20	5 13.5	19.7
173525 2000 VF_{53}	16.5	X	346.71507	59.48553	326.86024	4.43500	0.1498453	0.29813856	2.2191702	20	12 19.4	18.5
173526 2000 VX_{55}	16.3	X	9.22835	331.77345	32.32608	4.91996	0.1539842	0.29836277	2.2180583	20	12 24.4	18.7
173527 2000 VO_{60}	16.5	X	343.11228	115.15290	255.41945	3.69987	0.1811989	0.29527096	2.2335151	20	11 21.5	18.1
173528 2000 WV_{1}	17.2	X	306.67970	36.60119	81.96821	1.69871	0.0892077	0.30100262	2.2050708	20	—	—
173529 2000 WY_{3}	14.5	X	261.06097	26.90010	275.57966	15.08153	0.1523286	0.17731147	3.1379414	20	3 7.5	19.6
173530 2000 WF_{13}	16.9	X	282.99969	278.43847	61.92373	7.25260	0.2817878	0.28430314	2.2905948	20	5 5.7	19.8
173531 2000 WB_{29}	16.6	X	208.14006	332.00684	85.41104	11.53979	0.0817646	0.28096713	2.3086904	20	6 16.5	19.7
173532 2000 WW_{35}	16.5	X	250.54570	336.31738	107.26368	7.52805	0.1152473	0.28884258	2.2665323	20	9 18.3	19.2
173533 2000 WX_{42}	16.7	X	224.17078	276.57570	174.84728	3.09532	0.0837526	0.28751590	2.2734992	20	8 24.0	19.5
173534 2000 WY_{71}	16.9	X	270.45727	88.53292	13.11782	6.53426	0.0926159	0.29593290	2.2301832	20	11 15.4	19.2
173535 2000 WF_{76}	17.1	X	249.75949	18.26863	14.85433	2.96538	0.1438512	0.28478904	2.2879886	20	6 26.8	20.1
173536 2000 WX_{77}	16.7	X	286.71487	53.68644	28.31095	5.51151	0.1257800	0.29512705	2.2342411	20	11 11.9	18.6
173537 2000 WJ_{108}	16.6	X	317.71571	350.76197	22.47761	4.93530	0.1575548	0.29182801	2.2510479	20	9 26.1	18.2
173538 2000 WY_{116}	16.3	X	339.80303	320.06589	40.17024	6.82007	0.2032498	0.29212234	2.2495356	20	10 30.3	17.5
173539 2000 WD_{130}	16.5	X	295.46664	253.73335	72.03056	8.91685	0.2643533	0.28319606	2.2965606	20	5 5.3	19.2
173540 2000 WG_{132}	15.4	X	200.26812	10.49439	112.68833	24.93661	0.2022734	0.28681347	2.2772097	20	9 2.9	19.3
173541 2000 WS_{133}	16.6	X	263.31193	140.76244	294.60134	6.69649	0.0950838	0.29208199	2.2497428	20	9 21.6	19.2
173542 2000 WT_{163}	16.7	X	152.92108	21.05131	326.74730	0.55789	0.2065317	0.26736403	2.3863496	20	1 25.9	20.2
173543 2000 WP_{173}	14.4	X	190.56759	210.95510	180.77105	10.20296	0.2671659	0.12515507	3.9582548	20	4 27.2	21.1
173544 2000 WC_{179}	16.0	X	247.52319	257.01789	107.80245	23.98558	0.2577028	0.28213549	2.3023123	20	5 13.7	20.1
173545 2000 WF_{179}	16.4	X	334.33418	243.18002	126.89990	6.69794	0.2173996	0.29450578	2.2373821	20	11 8.6	17.8
173546 2000 XZ_{18}	16.2	X	235.34669	160.22610	337.86381	6.55847	0.1287851	0.29434446	2.2381995	20	11 5.5	19.0
173547 2000 XC_{28}	16.5	X	289.10930	321.00947	50.70962	8.71938	0.1660622	0.28512287	2.2862024	20	7 22.3	18.9
173548 2000 XH_{31}	16.5	X	316.90999	44.71532	20.82204	7.91194	0.0893679	0.29608862	2.2294013	20	12 15.6	18.8
173549 2000 XF_{47}	15.2	X	216.90173	78.05282	4.89448	22.75364	0.2871112	0.28228026	2.3015250	20	7 23.3	19.5
173550 2000 XJ_{52}	16.5	X	195.36540	66.95285	347.11484	6.88896	0.1092855	0.27633825	2.3344006	20	5 24.7	20.0
173551 2000 YH_{17}	16.5	X	354.98357	256.04408	93.55800	7.43332	0.1607156	0.29038695	2.2584891	20	11 10.5	18.5
173552 2000 YF_{51}	17.0	X	199.29894	101.56556	344.42507	1.87909	0.1762644	0.27988366	2.3146448	20	7 10.3	20.4
173553 2000 YY_{89}	17.2	X	179.12453	30.53753	114.74941	4.33674	0.1552613	0.28376558	2.2934868	20	9 10.2	20.6
173554 2000 YG_{92}	16.7	X	270.21361	218.49722	237.98605	3.09209	0.1287909	0.29214945	2.2493964	20	11 2.5	18.8
173555 2000 YY_{107}	16.6	X	294.24501	9.52165	51.81604	2.18467	0.0853633	0.29055841	2.2576004	20	10 28.9	18.5
173556 2000 YV_{125}	16.5	X	134.52663	136.23101	350.23831	7.51003	0.1404240	0.27411333	2.3470155	20	6 29.9	20.1
173557 2000 YU_{127}	16.3	X	252.15729	13.77134	24.26881	4.38178	0.2339847	0.28187274	2.3037429	20	6 24.2	19.5
173558 2000 YG_{128}	16.4	X	205.09261	44.44945	333.15935	6.35544	0.1322995	0.27089549	2.3655649	20	4 14.9	20.0
173559 2000 YV_{128}	16.8	X	139.09035	41.54744	92.87450	5.77603	0.0712018	0.27512710	2.3412464	20	7 10.7	19.8
173560 2000 YA_{129}	16.3	X	357.47772	114.25999	90.45771	8.03969	0.0859066	0.26407735	2.4061089	20	3 24.6	19.0
173561 2000 YV_{137}	18.3	X	145.28845	211.35551	137.23481	28.00129	0.3109357	0.56563227	1.4480379	20	—	—
173562 2001 AE_{4}	16.6	X	254.51759	277.64769	158.56372	4.96280	0.1645055	0.28652960	2.2787135	20	8 31.6	19.1
173563 2001 AG_{12}	16.3	X	60.46477	200.73914	275.29601	11.72446	0.1815811	0.26253255	2.4155384	20	3 3.9	18.9
173564 2001 AD_{22}	16.7	X	164.40014	80.08414	50.30934	4.10838	0.1242871	0.27989458	2.3145846	20	8 6.5	20.1
173565 2001 AN_{27}	16.6	X	146.37263	100.81160	52.85760	7.35774	0.2420750	0.27859556	2.3217739	20	8 22.9	20.6
173566 2001 AA_{40}	16.7	X	313.41270	318.18982	82.19546	6.76515	0.0987093	0.28954804	2.2628493	20	11 2.5	18.8
173567 2001 BY_{9}	16.7	X	287.35408	203.78737	173.66107	2.06503	0.1363066	0.28290751	2.2981219	20	7 30.4	18.8
173568 2001 BH_{13}	17.3	X	140.54638	224.90333	305.19619	1.23125	0.1846387	0.27965888	2.3158849	20	9 3.1	20.9
173569 2001 BL_{20}	16.6	X	256.56115	340.34369	102.36530	8.56747	0.0812012	0.28558196	2.2837516	20	10 2.5	19.3
173570 2001 BP_{23}	17.1	X	171.42218	9.13286	120.73476	6.19728	0.1069378	0.27983989	2.3148861	20	8 12.8	20.3
173571 2001 BU_{29}	16.7	X	197.41969	344.72272	126.84372	5.47050	0.0997296	0.28132830	2.3067141	20	8 17.8	19.9
173572 2001 BC_{34}	16.2	X	94.49085	359.84016	124.35082	4.87780	0.0914805	0.26587749	2.3952361	20	5 3.7	19.2
173573 2001 BA_{35}	16.7	X	153.67301	234.40345	301.13419	3.91189	0.2265680	0.28020354	2.3128829	20	9 20.1	20.6
173574 2001 BP_{35}	17.0	X	124.69471	319.25594	263.34746	3.91249	0.1971834	0.28417563	2.2912800	20	10 25.7	20.8
173575 2001 BS_{50}	16.3	X	148.26324	319.75204	130.97937	6.13767	0.0816043	0.26859207	2.3790702	20	5 24.1	19.6
173576 2001 BR_{55}	16.4	X	151.03071	19.32127	151.91752	10.71870	0.1679054	0.28122020	2.3073052	20	9 16.3	20.0
173577 2001 BB_{64}	15.8	X	151.22935	224.95346	213.55039	1.75330	0.1753063	0.26946226	2.3739455	20	5 15.6	19.4
173578 2001 BJ_{68}	16.4	X	184.12308	157.10744	36.10618	1.57342	0.1472155	0.28618410	2.2805471	20	11 15.8	19.7
173579 2001 BT_{73}	16.8	X	220.34582	257.14428	160.98146	2.79520	0.1462528	0.27812548	2.3243893	20	6 26.2	20.2
173580 2001 CD_{1}	16.4	X	184.60482	100.11148	0.69567	2.98630	0.1110182	0.27652413	2.3333543	20	7 18.3	19.8
173581 2001 CB_{7}	16.4	X	153.52703	100.81790	356.80226	6.41034	0.0786288	0.27135812	2.3628755	20	6 6.0	19.8
173582 2001 CG_{9}	16.5	X	79.42938	140.22765	2.67703	3.59879	0.1093613	0.26601547	2.3944078	20	5 8.3	19.4
173583 2001 CG_{10}	16.1	X	183.89020	267.47654	123.60142	7.18276	0.1476054	0.26905287	2.3763530	20	4 17.8	19.9
173584 2001 CD_{11}	16.4	X	247.54619	54.63854	338.79789	5.83732	0.1907348	0.27881372	2.3205626	20	6 17.9	19.8
173585 2001 CC_{14}	16.5	X	217.86947	72.52560	2.20883	5.25856	0.1076858	0.27879318	2.3206766	20	7 21.8	19.7
173586 2001 CS_{22}	17.0	X	212.64224	142.66052	328.16336	4.89992	0.1071470	0.28276837	2.2988757	20	9 2.1	20.0
173587 2001 CA_{24}	17.2	X	207.01057	259.47872	167.32326	2.62781	0.2139865	0.27798344	2.3251810	20	6 19.8	21.1
173588 2001 DK_{9}	16.7	X	175.07850	45.33003	28.24610	5.31936	0.0908849	0.27322814	2.3520819	20	5 29.7	20.1
173589 2001 DE_{11}	17.2	X	179.40100	59.09839	55.20582	1.60489	0.1670838	0.27721987	2.3294487	20	7 29.1	20.9
173590 2001 DU_{11}	16.9	X	183.25604	347.05225	118.37778	2.78348	0.1240711	0.27579935	2.3374404	20	7 21.9	20.2
173591 2001 DH_{24}	16.7	X	87.42448	67.05785	66.85133	3.78888	0.0985628	0.26645067	2.3917998	20	5 7.1	19.6
173592 2001 DQ_{26}	16.7	X	112.78316	171.26069	28.79170	3.16014	0.1880478	0.27665711	2.3326066	20	9 17.5	20.4
173593 2001 DK_{30}	16.4	X	166.36032	326.45311	138.94665	6.43753	0.0791409	0.27268031	2.3552311	20	7 3.0	19.7
173594 2001 DA_{33}	16.6	X	71.51188	160.72936	11.16823	4.73203	0.0851198	0.26740788	2.3860887	20	6 3.8	19.4
173595 2001 DL_{44}	14.6	X	119.50309	327.05946	339.23836	14.54317	0.1684618	0.24151805	2.5536987	20	—	—
173596 2001 DC_{48}	16.8	X	142.98495	249.89067	285.78597	3.13037	0.0555017	0.27791032	2.3255888	20	9 8.9	19.8
173597 2001 DD_{50}	16.9	X	150.73294	101.20219	40.81170	6.61704	0.1149471	0.27670074	2.3323613	20	8 8.5	20.4
173598 2001 DW_{50}	16.8	X	139.06576	31.12136	54.92526	6.44730	0.1742387	0.26782543	2.3836080	20	5 13.3	20.3
173599 2001 DF_{53}	17.1	X	231.98366	154.24565	288.62040	0.68194	0.2247737	0.28148601	2.3058524	20	8 3.5	20.4
173600 2001 DJ_{57}	16.6	X	197.30853	298.29245	107.36999	1.43860	0.2203736	0.27191533	2.3596464	20	5 15.1	20.5

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
173601 2001 DJ_{59}	16.9	X	130.44444	145.80250	351.69749	4.38405	0.1595888	0.27187662	2.3598704	20	7 11.8	20.4
173602 2001 DC_{66}	16.4	X	120.69803	212.48495	270.75951	1.62544	0.1466654	0.26952821	2.3735583	20	6 9.9	19.9
173603 2001 DF_{76}	16.8	X	235.91275	358.31772	152.68326	2.46115	0.1287982	0.28915040	2.2649234	20	11 26.9	19.5
173604 2001 DS_{101}	16.3	X	114.06677	87.14242	53.39885	6.52866	0.1253985	0.27097392	2.3651084	20	6 23.6	19.6
173605 2001 EM_{5}	16.6	X	32.04908	73.59071	87.66718	3.01890	0.1501642	0.26002428	2.4310475	20	3 21.8	18.8
173606 2001 EU_{8}	16.8	X	153.50785	41.02109	98.35292	1.98329	0.1570570	0.27496807	2.3421491	20	8 6.0	20.4
173607 2001 ER_{11}	16.0	X	82.83442	88.91894	112.68031	11.72054	0.1752198	0.26868597	2.3785159	20	8 18.3	19.3
173608 2001 EP_{12}	16.5	X	149.68310	65.10231	67.45056	6.92204	0.1009803	0.27332929	2.3515015	20	7 23.3	19.9
173609 2001 EC_{21}	16.4	X	245.21620	170.99348	323.39712	6.45219	0.0482072	0.28728978	2.2746920	20	11 27.4	19.1
173610 2001 FL_{3}	16.5	X	175.76498	144.62974	25.24797	4.00144	0.1740801	0.28056622	2.3108893	20	10 6.3	20.1
173611 2001 FJ_{9}	16.7	X	141.15811	215.31292	26.50966	2.55188	0.2473127	0.28378173	2.2933997	20	12 2.1	20.6
173612 2001 FV_{10}	16.0	X	353.10887	261.92214	353.39381	9.00726	0.1781268	0.26351082	2.4095563	20	5 19.6	18.2
173613 2001 FR_{17}	16.4	X	43.51813	264.46899	346.37035	2.32959	0.1904607	0.26921243	2.3754140	20	9 4.6	19.1
173614 2001 FN_{24}	15.2	X	34.17922	293.19217	340.51085	23.70585	0.1916972	0.27185905	2.3599720	20	9 17.1	18.0
173615 2001 FK_{27}	16.5	X	133.59808	188.87542	314.01231	5.24736	0.1709637	0.27140826	2.3625845	20	7 22.5	20.0
173616 2001 FO_{27}	16.4	X	131.33794	236.88512	334.97363	4.57516	0.1359563	0.27830664	2.3233805	20	10 15.6	20.0
173617 2001 FX_{35}	16.4	X	85.04497	286.82617	179.04970	4.77121	0.0694923	0.25998329	2.4313031	20	3 20.3	19.4
173618 2001 FL_{38}	16.6	X	93.98646	216.75411	333.06500	5.61357	0.2041463	0.27132059	2.3630934	20	8 16.8	20.1
173619 2001 FR_{41}	16.9	X	83.14499	213.77177	15.47270	2.89731	0.2076791	0.27322640	2.3520918	20	9 27.0	20.4
173620 2001 FE_{42}	16.7	X	41.12001	253.03653	317.85232	1.59711	0.1465127	0.26555336	2.3971848	20	6 23.5	19.0
173621 2001 FU_{48}	16.6	X	166.22376	28.96477	188.76194	1.71753	0.1831734	0.28271931	2.2991417	20	11 26.4	20.3
173622 2001 FT_{49}	16.9	X	120.08217	325.80244	192.36214	2.02488	0.1677338	0.27142309	2.3624984	20	7 27.9	20.5
173623 2001 FY_{51}	16.3	X	90.89712	219.46844	314.71737	4.89303	0.0553533	0.26813978	2.3817447	20	7 1.8	19.2
173624 2001 FA_{53}	17.1	X	225.29668	150.69947	324.97454	5.79713	0.2148381	0.28214486	2.3022613	20	9 9.6	20.3
173625 2001 FJ_{57}	16.3	X	84.05785	186.06197	28.02077	2.81075	0.1597421	0.27186240	2.3599526	20	9 3.1	19.5
173626 2001 FQ_{62}	16.3	X	66.32119	166.03465	53.14275	3.15217	0.1664041	0.27028570	2.3691215	20	8 20.3	19.2
173627 2001 FC_{66}	16.7	X	88.18969	80.44524	104.30030	2.39266	0.1247668	0.26933269	2.3747068	20	7 23.6	19.7
173628 2001 FF_{66}	16.8	X	76.98632	59.59698	106.23050	3.39821	0.1201847	0.26578207	2.3958094	20	6 10.2	19.5
173629 2001 FC_{69}	16.4	X	350.85319	173.61601	55.23559	3.29242	0.0900190	0.26043174	2.4285112	20	4 13.7	18.8
173630 2001 FK_{72}	16.5	X	139.65308	90.04400	49.01750	6.74369	0.1928029	0.27133169	2.3630289	20	7 25.7	20.3
173631 2001 FH_{87}	16.5	X	70.93605	81.86181	38.92831	13.90549	0.1645411	0.25939244	2.4349937	20	4 8.1	19.2
173632 2001 FT_{87}	16.8	X	334.15320	151.29746	103.50530	3.96906	0.1579663	0.26025289	2.4296236	20	4 15.5	19.1
173633 2001 FM_{92}	16.4	X	117.61912	57.44977	121.41972	6.01421	0.1615444	0.27379132	2.3488553	20	8 23.6	19.9
173634 2001 FB_{106}	16.5	X	172.37897	50.81013	41.11974	4.56295	0.1450571	0.27235097	2.3571294	20	6 21.8	20.0
173635 2001 FQ_{106}	16.9	X	117.01273	271.38089	276.55888	4.01529	0.1261523	0.27444574	2.3451199	20	8 29.4	20.2
173636 2001 FV_{107}	16.6	X	138.15797	162.73340	330.95920	7.59451	0.0797225	0.27158636	2.3615514	20	7 10.1	19.9
173637 2001 FS_{122}	16.6	X	359.99724	160.26422	78.37502	3.49522	0.1373185	0.26240638	2.4163126	20	5 13.6	18.6
173638 2001 FQ_{125}	16.8	X	80.45702	194.04634	6.38082	1.72388	0.1651942	0.27041742	2.3683521	20	8 10.9	19.8
173639 2001 FH_{133}	16.4	X	32.88569	159.39425	67.59363	3.86740	0.1163000	0.26507971	2.4000395	20	6 28.8	18.9
173640 2001 FK_{140}	16.8	X	130.31480	18.01286	132.76903	4.10601	0.0851342	0.27119311	2.3638338	20	7 23.2	19.9
173641 2001 FE_{142}	17.4	X	146.93774	272.89728	224.41894	1.49933	0.1531387	0.27236525	2.3570470	20	7 26.6	21.0
173642 2001 FK_{150}	16.4	X	86.02286	215.24509	327.66574	7.34057	0.1638948	0.26814593	2.3817083	20	7 24.8	19.6
173643 2001 FG_{154}	14.2	X	167.55644	109.02621	69.18981	3.86910	0.1407757	0.12582848	3.9441196	20	9 24.4	20.4
173644 2001 FC_{161}	16.2	X	65.16743	113.59452	76.08014	7.53257	0.1259973	0.26594787	2.3948135	20	6 28.1	19.0
173645 2001 FX_{163}	16.1	X	73.31413	110.47756	343.31202	12.59433	0.1830542	0.25852116	2.4404616	20	3 3.2	18.4
173646 2001 FM_{170}	16.5	X	64.40703	35.16262	187.74690	2.88456	0.1519192	0.26888823	2.3773230	20	8 18.0	19.5
173647 2001 FD_{171}	15.7	X	103.31972	147.46758	78.95737	8.68033	0.2052700	0.27595311	2.3365721	20	10 16.5	19.5
173648 2001 FS_{171}	16.2	X	8.87324	29.56359	132.65217	13.18478	0.1915953	0.25526551	2.4611682	20	1 29.9	18.4
173649 Jeffreymoore	16.4	X	130.42504	331.54503	336.60843	3.65297	0.1656727	0.23947469	2.5682047	20	—	—
173650 2001 FO_{186}	16.7	X	66.33527	61.86750	132.25718	5.20380	0.0977239	0.26808881	2.3820466	20	7 1.6	19.4
173651 2001 FZ_{186}	16.2	X	209.93772	128.62028	316.71573	6.32976	0.0699170	0.27426332	2.3461597	20	7 29.4	19.4
173652 2001 FN_{193}	16.3	X	351.45077	112.72998	122.57340	7.16886	0.0749124	0.26348304	2.4097257	20	4 27.8	19.0
173653 2001 GY_{2}	16.0	X	150.83577	350.73275	153.83182	24.71516	0.2115779	0.27356726	2.3501377	20	8 9.8	20.0
173654 2001 HC_{2}	16.0	X	331.62786	202.20234	37.54449	5.12503	0.1920099	0.25628372	2.4546450	20	3 14.4	18.5
173655 2001 HX_{12}	16.0	X	10.82239	67.50998	190.67869	2.26572	0.1759556	0.26330443	2.4108153	20	7 10.8	17.8
173656 2001 HD_{13}	16.5	X	22.77310	195.96447	5.29715	0.96789	0.1293944	0.25990374	2.4317991	20	4 30.6	18.9
173657 2001 HN_{14}	17.0	X	20.95598	204.84226	26.57428	3.70896	0.0844521	0.26521060	2.3992498	20	6 9.5	19.6
173658 2001 HX_{26}	16.2	X	4.48053	145.78714	70.43847	3.94112	0.1434696	0.25815517	2.4427677	20	4 18.4	18.4
173659 2001 HC_{38}	16.1	X	53.90738	80.01814	94.13870	10.44118	0.1418374	0.25973138	2.4328749	20	5 22.6	18.8
173660 2001 HD_{53}	16.4	X	120.32926	35.34339	160.98133	3.14176	0.1341743	0.27242083	2.3567265	20	9 15.7	19.9
173661 2001 HR_{61}	16.7	X	343.82625	158.02420	65.32999	4.42013	0.1131196	0.25641086	2.4538336	20	3 23.8	19.2
173662 2001 HT_{63}	16.4	X	11.65941	205.55952	5.06626	1.93899	0.1561926	0.25885455	2.4383658	20	4 22.6	18.3
173663 2001 HW_{63}	16.8	X	49.45343	6.58915	193.60993	0.99400	0.1262447	0.26307403	2.4122227	20	6 18.4	19.4
173664 2001 JU_{2}	19.5	X	2.18047	227.27736	100.75950	4.01511	0.2688384	0.52724496	1.5174967	20	—	—
173665 2001 KM_{3}	16.7	X	19.06613	336.24932	260.14291	1.32207	0.1689754	0.26164511	2.4209973	20	6 22.7	18.6
173666 2001 KN_{3}	16.6	X	4.92055	174.51760	80.63718	3.19665	0.1818653	0.26159880	2.4212830	20	6 21.9	18.2
173667 2001 KZ_{14}	16.2	X	334.60085	137.17991	124.61138	3.34302	0.1636671	0.25800935	2.4436880	20	4 25.9	18.5
173668 2001 KU_{38}	15.9	X	204.81523	201.38325	88.69733	12.78886	0.2076694	0.24090221	2.5580490	20	1 3.9	20.2
173669 2001 KU_{52}	16.3	X	66.74787	289.07283	280.64267	4.30356	0.2244788	0.26744713	2.3858553	20	8 13.1	19.4
173670 2001 LR_{17}	15.8	X	109.26785	16.65452	282.67547	12.01250	0.1715102	0.22413008	2.6841243	20	—	—
173671 2001 MV_{15}	15.6	X	124.64576	1.51507	273.46236	17.63144	0.2557730	0.22855283	2.6493844	20	12 21.6	20.3
173672 2001 NY_{8}	15.9	X	144.44753	216.38280	92.39780	5.57035	0.1475708	0.23090134	2.6313892	20	—	—
173673 2001 NQ_{17}	15.4	X	300.96077	302.17902	103.42553	10.00047	0.1993168	0.21189043	2.7865178	20	9 20.9	18.5
173674 2001 OC_{2}	15.9	X	119.47573	223.53530	53.23180	5.76080	0.1248927	0.22293424	2.6937143	20	12 15.5	20.2
173675 2001 OZ_{7}	15.4	X	157.85759	3.01495	299.25890	12.03989	0.2415719	0.23025153	2.6363376	20	—	—
173676 2001 OQ_{11}	15.4	X	267.86154	21.30573	4.52464	9.60045	0.1471784	0.20432100	2.8549207	20	7 7.8	19.5
173677 2001 OV_{18}	16.9	X	61.42360	350.05795	301.67576	18.65955	0.0654020	0.37371128	1.9088798	20	11 26.3	19.5
173678 2001 OM_{29}	15.1	X	354.66205	215.60707	111.39907	13.88709	0.2283514	0.21002778	2.8029686	20	9 26.2	18.0
173679 2001 OH_{39}	15.3	X	200.53555	261.48563	116.54596	9.88376	0.3247790	0.19026359	2.9938653	20	4 18.4	21.0
173680 2001 OZ_{45}	15.8	X	334.39883	22.83202	340.18119	3.55047	0.2073557	0.21083651	2.7957962	20	9 23.3	18.3

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
173681 2001 OU_{50}	16.1	X	41.56993	237.25272	71.37269	8.85074	0.2194249	0.21358802	2.7717334	20	11 14.4	19.9
173682 2001 OX_{61}	15.6	X	60.74676	345.90270	345.85789	4.66536	0.1554742	0.21988008	2.7186009	20	12 26.3	19.7
173683 2001 OB_{63}	15.9	X	216.21049	335.70378	281.65923	3.01294	0.0748787	0.23317991	2.6142190	20	—	—
173684 2001 OP_{100}	15.6	X	179.43202	310.49492	336.96278	13.42556	0.0849739	0.23153524	2.6265841	20	—	—
173685 2001 OP_{106}	15.4	X	223.75894	48.40046	308.97136	10.59140	0.2766856	0.19167522	2.9791479	20	4 1.8	20.8
173686 2001 OP_{110}	15.8	X	218.30764	294.67222	324.19950	12.02096	0.1313234	0.23504406	2.6003783	20	—	—
173687 2001 OY_{112}	15.6	X	26.48237	45.54383	278.30901	5.43004	0.0429714	0.21471218	2.7620504	20	10 15.1	19.4
173688 2001 PM_{5}	15.8	X	54.78304	227.49791	103.76003	9.80990	0.1580105	0.21832908	2.7314609	20	12 19.3	19.7
173689 2001 PK_{9}	18.3	X	33.05611	313.87045	272.99424	10.41946	0.3947772	0.41507305	1.7798621	20	9 2.4	20.1
173690 2001 PL_{16}	15.9	X	20.26363	327.68276	42.11080	6.05052	0.1500073	0.21861791	2.7290546	20	12 23.5	19.4
173691 2001 PM_{19}	15.7	X	132.84020	172.25824	112.16808	14.90073	0.1682565	0.22560012	2.6724515	20	—	—
173692 2001 PS_{20}	15.3	X	359.68898	256.60784	63.83284	9.98163	0.1696598	0.20940906	2.8084869	20	9 20.3	18.4
173693 2001 PY_{37}	15.3	X	159.65850	292.58083	87.63979	11.36578	0.2007183	0.18616376	3.0376608	20	3 22.8	20.6
173694 2001 PS_{38}	15.5	X	171.56488	317.24492	53.46273	12.19989	0.1689032	0.18717216	3.0267406	20	3 20.5	20.6
173695 2001 PB_{65}	15.4	X	17.03452	286.73811	143.10945	22.40089	0.0571253	0.22757164	2.6569943	20	—	—
173696 2001 QN	16.8	X	161.35301	220.42865	324.71556	19.50365	0.0321393	0.37024420	1.9207782	20	10 23.2	19.5
173697 2001 QL_{5}	15.6	X	276.92543	227.21151	137.39545	9.07440	0.2280070	0.20152396	2.8812764	20	6 8.9	19.8
173698 2001 QR_{16}	16.0	X	77.52750	192.73702	131.61162	10.68202	0.2464362	0.22040329	2.7142968	20	—	—
173699 2001 QR_{34}	15.7	X	329.32618	77.73835	298.48819	8.77199	0.1495089	0.21303220	2.7765524	20	9 28.6	18.8
173700 2001 QC_{36}	16.0	X	42.09100	212.81177	133.21366	4.22312	0.1746038	0.21922004	2.7240550	20	12 25.2	19.9
173701 2001 QC_{43}	15.8	X	348.71039	62.64271	321.13710	12.06870	0.2155270	0.21447212	2.7641111	20	11 25.4	18.8
173702 2001 QN_{46}	15.5	X	336.83877	48.26300	314.75814	8.80826	0.1027793	0.21094562	2.7948320	20	9 24.3	18.9
173703 2001 QY_{50}	15.1	X	102.32018	76.28676	338.38906	23.67326	0.3609360	0.17883989	3.1200373	20	3 16.7	20.2
173704 2001 QG_{51}	15.9	X	200.57851	288.00596	357.70410	4.26398	0.2724503	0.23596347	2.5936191	20	—	—
173705 2001 QB_{61}	16.3	X	252.72984	114.09082	352.24345	20.45293	0.0851932	0.37070396	1.9191897	20	11 4.4	18.5
173706 2001 QQ_{66}	15.6	X	176.40990	321.85257	318.77115	11.09990	0.1786112	0.22928629	2.6437313	20	—	—
173707 2001 QL_{94}	15.8	X	342.79196	35.66231	336.47369	3.35938	0.1120288	0.20998965	2.8033078	20	10 20.2	18.9
173708 2001 QS_{94}	15.3	X	156.47427	240.19514	353.06951	17.05873	0.1063821	0.21688252	2.7435930	20	11 23.0	19.9
173709 2001 QU_{106}	14.8	X	91.37019	113.77342	239.93643	24.66422	0.2990671	0.17317474	3.1877165	20	—	—
173710 2001 QU_{121}	15.9	X	350.43682	17.57061	350.79640	6.36506	0.1079031	0.21365135	2.7711856	20	10 27.6	19.3
173711 2001 QR_{124}	15.7	X	340.06490	275.48766	96.38209	3.95295	0.0964593	0.21230601	2.7828803	20	10 18.7	18.9
173712 2001 QD_{130}	14.7	X	141.99752	77.78111	311.30525	21.05329	0.1923421	0.18417495	3.0594898	20	3 3.2	19.9
173713 2001 QC_{135}	15.5	X	172.83024	29.56155	324.52429	12.58694	0.3314334	0.18320493	3.0702797	20	2 28.7	21.3
173714 2001 QR_{139}	14.3	X	117.67973	62.42426	0.18093	21.03975	0.3441551	0.17737458	3.1371970	20	4 7.3	19.7
173715 2001 QD_{144}	16.7	X	277.32210	20.55111	337.07173	1.21964	0.0976338	0.19942526	2.9014556	20	6 18.5	20.7
173716 2001 QY_{148}	16.0	X	226.24980	160.32981	90.42385	3.92444	0.0962888	0.23436261	2.6054165	20	—	—
173717 2001 QC_{152}	14.9	X	146.98684	76.43053	286.04577	24.84520	0.2631433	0.17827226	3.1266567	20	2 10.4	20.5
173718 2001 QA_{153}	16.3	X	282.43255	11.24387	355.55250	6.22872	0.1203938	0.20095977	2.8866666	20	7 5.3	20.2
173719 2001 QX_{177}	15.6	X	315.46323	238.43507	138.30128	8.69529	0.2076735	0.20891110	2.8129480	20	9 2.3	18.3
173720 2001 QZ_{182}	15.1	X	295.60873	337.87434	94.10707	10.97703	0.1911483	0.21167535	2.7884051	20	10 20.1	18.3
173721 2001 QM_{188}	16.0	X	37.40326	187.71098	149.39757	4.45864	0.0970844	0.21699162	2.7426732	20	11 27.7	19.6
173722 2001 QK_{193}	15.2	X	159.90857	62.37680	303.96496	15.14812	0.2408460	0.18239123	3.0794045	20	2 27.1	20.7
173723 2001 QE_{195}	15.2	X	116.19642	72.25605	324.73249	10.20873	0.1837473	0.17767714	3.1336345	20	2 24.2	19.9
173724 2001 QQ_{200}	15.5	X	217.43722	57.64128	320.22362	13.96150	0.2437606	0.19015178	2.9950388	20	4 21.2	20.9
173725 2001 QE_{204}	15.8	X	54.38850	357.42708	260.60553	6.22645	0.0977413	0.20864430	2.8153455	20	9 3.1	19.7
173726 2001 QJ_{209}	15.6	X	283.34788	2.52472	317.52676	11.04777	0.0439759	0.19758513	2.9194421	20	5 12.4	19.8
173727 2001 QS_{210}	15.5	X	82.79105	224.15861	307.77921	8.93203	0.0564970	0.19703968	2.9248275	20	6 15.2	19.6
173728 2001 QP_{213}	15.8	X	101.60235	339.71026	326.77677	5.17420	0.0857756	0.22025926	2.7154799	20	—	—
173729 2001 QU_{216}	15.7	X	15.64242	303.94377	14.71604	3.96894	0.0991917	0.20948148	2.8078396	20	10 1.7	19.0
173730 2001 QW_{218}	15.9	X	153.47644	316.31343	347.39850	3.30837	0.1589548	0.22858339	2.6491483	20	—	—
173731 2001 QK_{223}	16.1	X	101.48382	203.70575	128.22556	6.79884	0.0562757	0.22559672	2.6724784	20	—	—
173732 2001 QV_{224}	15.7	X	231.34639	292.15960	298.72141	12.23492	0.1263623	0.23285321	2.6166636	20	—	—
173733 2001 QH_{238}	15.3	X	178.93744	355.42709	1.80839	6.28613	0.1183604	0.18444924	3.0564559	20	3 4.9	20.0
173734 2001 QT_{241}	15.3	X	286.77124	239.53782	146.32710	3.20399	0.0427289	0.20344018	2.8631552	20	8 16.9	19.1
173735 2001 QT_{270}	15.5	X	337.80503	136.64405	319.10792	21.54323	0.0359484	0.22714177	2.6603455	20	—	—
173736 2001 QJ_{273}	15.8	X	45.17031	285.31913	41.54978	5.65511	0.1223590	0.21613365	2.7499267	20	11 26.4	19.6
173737 2001 QM_{274}	15.9	X	45.55214	199.50784	104.47413	7.30850	0.0830788	0.21418693	2.7665641	20	10 26.8	19.7
173738 2001 QJ_{278}	15.1	X	154.92691	158.09193	116.99087	16.18240	0.2898465	0.22628711	2.6670398	20	—	—
173739 2001 QZ_{286}	16.4	X	50.78582	88.81635	230.97206	2.46724	0.1937637	0.21561199	2.7543605	20	12 4.7	20.4
173740 2001 QX_{287}	14.9	X	253.65432	345.55843	329.98841	10.89172	0.1196479	0.19123408	2.9837277	20	3 22.1	19.4
173741 2001 QL_{295}	15.0	X	171.81726	14.85404	16.70644	13.35951	0.1517355	0.18506042	3.0497227	20	4 7.5	20.0
173742 2001 QJ_{328}	14.9	X	195.59100	234.83592	120.46861	13.63812	0.2918643	0.18491096	3.0513659	20	3 21.4	20.6
173743 2001 QS_{328}	15.0	X	121.98363	307.09083	115.63721	14.15891	0.1043749	0.18233527	3.0800345	20	3 29.6	19.8
173744 2001 RP_{21}	16.3	X	115.82115	137.88531	156.88278	7.98433	0.1991954	0.22285633	2.6943420	20	—	—
173745 2001 RD_{24}	15.7	X	59.38100	296.80103	0.44645	3.86445	0.0530886	0.21322155	2.7749084	20	10 26.8	19.6
173746 2001 RH_{24}	15.8	X	302.94707	4.13375	354.20946	4.68901	0.1311876	0.20357172	2.8619218	20	7 23.8	19.2
173747 2001 RL_{30}	15.4	X	220.42382	259.29510	134.93038	4.31738	0.0968409	0.19594739	2.9356869	20	5 29.8	19.9
173748 2001 RW_{30}	15.8	X	341.25970	204.88821	152.59059	1.68998	0.0920736	0.20989965	2.8041091	20	9 28.8	18.9
173749 2001 RC_{36}	15.4	X	346.44193	32.07715	235.20696	4.06071	0.0478512	0.19841365	2.9113093	20	6 3.7	19.1
173750 2001 RB_{43}	15.5	X	130.98057	346.39179	280.10476	10.01221	0.1188342	0.21990998	2.7183545	20	12 13.9	19.8
173751 2001 RE_{46}	15.7	X	20.02693	31.62780	321.47280	3.38963	0.0800396	0.21329507	2.7742707	20	11 19.4	19.2
173752 2001 RB_{51}	15.9	X	293.20932	235.03797	331.19132	6.81202	0.1473238	0.23315913	2.6143743	20	—	—
173753 2001 RJ_{82}	15.6	X	258.92918	256.23044	322.62807	13.82563	0.0539531	0.22948280	2.6422219	20	—	—
173754 2001 RQ_{96}	15.2	X	67.42688	132.99560	335.15713	9.03351	0.1527953	0.18412376	3.0600569	20	3 15.9	19.1
173755 2001 RW_{97}	15.4	X	137.78537	48.87503	1.03773	7.05015	0.1162070	0.18309480	3.0715108	20	3 25.7	20.0
173756 2001 RM_{100}	15.3	X	200.61952	11.71719	353.16471	10.11750	0.1275063	0.19029924	2.9934914	20	3 30.8	20.2
173757 2001 RE_{104}	15.5	X	247.09954	317.76675	162.47203	9.69886	0.1063177	0.21307786	2.7761558	20	10 20.9	19.3
173758 2001 RF_{105}	15.9	X	15.29258	125.39021	149.21475	9.73546	0.1048326	0.20477670	2.8506837	20	7 31.1	19.2
173759 2001 RG_{106}	15.7	X	69.65374	218.98996	0.01178	2.25978	0.0466921	0.20330236	2.8644491	20	7 29.5	19.7
173760 2001 RG_{113}	16.2	X	24.92108	238.60597	107.64947	1.67039	0.0798497	0.21401106	2.7680796	20	11 18.9	19.6

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
173761 2001 RD_{117}	16.1	X	115.95993	91.31038	174.56473	2.04189	0.0162269	0.21554986	2.7548897	20	11 23.1	19.9
173762 2001 RC_{121}	15.6	X	332.96859	277.47726	77.62703	3.35553	0.0961550	0.20700131	2.8302230	20	9 12.6	18.9
173763 2001 RY_{122}	15.8	X	254.03681	252.63289	153.88038	2.63036	0.0575855	0.20180199	2.8786294	20	7 28.4	19.9
173764 2001 RF_{123}	15.8	X	28.52729	318.58142	3.45313	5.66251	0.0556170	0.21086153	2.7955750	20	10 17.9	19.6
173765 2001 RA_{135}	15.0	X	181.58275	334.51177	24.99791	12.26677	0.1726330	0.18528707	3.0472351	20	3 14.3	20.1
173766 2001 RV_{137}	15.6	X	250.12675	193.90433	351.03640	12.80534	0.0987681	0.22373177	2.6873090	20	—	—
173767 2001 RC_{138}	15.3	X	141.10345	275.56194	157.45672	10.52985	0.0905407	0.18941113	3.0028414	20	4 27.3	19.9
173768 2001 RB_{143}	15.0	X	178.71479	190.72621	222.13121	10.12040	0.0889408	0.19128070	2.9832429	20	5 8.9	19.6
173769 2001 RC_{143}	15.9	X	290.19134	76.24571	302.06591	7.07730	0.1828118	0.20218627	2.8749807	20	7 21.7	19.3
173770 2001 RQ_{149}	15.8	X	233.13137	134.97160	336.31751	3.97879	0.0698274	0.20914295	2.8108687	20	9 22.9	19.7
173771 2001 RF_{152}	15.4	X	216.81533	228.26396	68.68763	8.04142	0.2345459	0.18407807	3.0605632	20	1 28.2	20.8
173772 2001 RW_{152}	15.1	X	205.16894	272.56964	103.56227	12.71847	0.3200341	0.19032757	2.9931943	20	4 20.6	20.8
173773 2001 RF_{154}	15.3	X	164.64052	123.72556	296.29804	9.20276	0.1064249	0.19139481	2.9820570	20	4 30.1	20.2
173774 2001 SY_{11}	15.7	X	140.82298	203.81439	29.81134	4.71671	0.0214177	0.21443944	2.7643918	20	11 11.6	19.5
173775 2001 SZ_{15}	15.8	X	304.15449	209.52835	161.62867	2.34049	0.0902325	0.20384678	2.8593467	20	8 16.3	19.4
173776 2001 SE_{19}	15.4	X	215.19384	268.69966	126.84859	2.89502	0.1861447	0.19297749	2.9657300	20	5 20.5	20.4
173777 2001 SF_{19}	15.6	X	206.48939	218.29063	212.39074	1.16119	0.0567605	0.19785648	2.9167723	20	7 1.7	19.7
173778 2001 SK_{22}	15.7	X	132.49064	208.97577	2.14482	7.77215	0.1577926	0.20967929	2.8060734	20	10 8.4	20.1
173779 2001 SC_{32}	15.7	X	151.19361	53.79343	24.18469	8.61923	0.2438443	0.18661174	3.0327975	20	5 17.4	21.0
173780 2001 SV_{32}	15.6	X	48.37355	230.18391	13.47171	5.92859	0.0184812	0.19923666	2.9032864	20	7 30.5	19.6
173781 2001 SB_{61}	15.5	X	206.53198	303.51830	26.71958	4.20990	0.2078916	0.18470691	3.0536127	20	2 27.2	20.7
173782 2001 SZ_{76}	15.8	X	281.96370	74.81595	316.57365	5.09232	0.0690429	0.20294466	2.8678139	20	8 13.6	19.5
173783 2001 SL_{77}	15.5	X	130.30989	157.90254	251.79667	4.02461	0.1536224	0.18131652	3.0915609	20	3 20.0	20.4
173784 2001 SO_{77}	15.1	X	149.07879	23.35925	348.60326	9.33140	0.1064806	0.18022631	3.1040158	20	2 22.4	19.7
173785 2001 SQ_{82}	15.5	X	148.99804	303.07145	305.92294	4.54851	0.0130785	0.21901569	2.7257492	20	12 12.2	19.3
173786 2001 SC_{84}	15.8	X	83.16437	345.05993	284.77165	3.30989	0.0279740	0.21230406	2.7828973	20	10 17.5	19.8
173787 2001 SF_{85}	15.8	X	93.06285	294.38082	326.77985	5.61535	0.0245598	0.21211978	2.7845089	20	10 17.3	19.8
173788 2001 SR_{90}	15.8	X	338.91909	153.76028	349.75167	12.12083	0.0958496	0.22886128	2.6470034	20	—	—
173789 2001 SM_{98}	15.6	X	63.94559	323.88375	325.49278	7.16774	0.2044003	0.21269926	2.7794492	20	11 9.8	19.8
173790 2001 SO_{113}	15.7	X	155.15824	282.93743	328.89070	3.97249	0.1096131	0.21829668	2.7317312	20	12 19.2	19.9
173791 2001 SS_{122}	14.9	X	110.86278	82.73352	317.79748	12.54395	0.2870015	0.17955092	3.1117949	20	3 3.2	19.8
173792 2001 SY_{133}	15.2	X	89.74684	265.29618	194.17373	15.20137	0.2090391	0.18162018	3.0881140	20	4 15.4	19.5
173793 2001 SB_{135}	15.4	X	63.40353	309.44663	336.31767	2.38226	0.0561936	0.20991116	2.8040066	20	10 17.3	19.4
173794 2001 SB_{138}	16.3	X	189.68468	33.04823	351.44778	0.95031	0.2201427	0.18803910	3.0174305	20	4 14.7	21.5
173795 2001 SH_{141}	15.6	X	146.82869	204.27974	210.09472	0.58088	0.1880689	0.18425456	3.0586085	20	4 14.5	20.5
173796 2001 SD_{160}	15.1	X	235.67699	355.52360	2.40819	10.04964	0.1055382	0.19141820	2.9818141	20	4 26.1	19.7
173797 2001 SO_{166}	15.4	X	87.65350	68.00253	0.06935	11.87214	0.1570684	0.17870434	3.1216149	20	2 28.9	19.7
173798 2001 SA_{191}	16.3	X	300.72153	273.38408	152.30286	2.53302	0.0570660	0.21215622	2.7841900	20	10 29.4	19.7
173799 2001 SF_{202}	15.9	X	322.10673	8.86734	0.31353	1.56817	0.0819627	0.20656718	2.8341870	20	9 12.7	19.3
173800 2001 SS_{218}	15.7	X	333.50910	290.59958	30.53533	2.52389	0.1260210	0.20205363	2.8762388	20	7 24.4	18.9
173801 2001 SE_{225}	16.1	X	35.40806	159.55132	139.00388	2.72682	0.0419531	0.20642565	2.8354823	20	9 26.4	19.9
173802 2001 SN_{228}	15.4	X	215.84389	26.69368	24.04299	12.23265	0.0518509	0.19457689	2.9494557	20	6 16.2	19.9
173803 2001 SO_{229}	15.4	X	187.58473	289.18624	118.31093	2.83539	0.1107543	0.18969786	2.9998147	20	5 11.9	20.0
173804 2001 SM_{233}	15.9	X	314.40320	269.75967	80.99815	3.26774	0.0891073	0.20075852	2.8885954	20	8 5.5	19.5
173805 2001 SO_{233}	16.0	X	156.79004	350.46728	72.30033	3.59944	0.2593462	0.18522069	3.0479632	20	5 6.6	21.3
173806 2001 SO_{237}	16.3	X	278.12839	221.44545	127.75358	2.83627	0.1027149	0.19681265	2.9270763	20	6 7.9	20.4
173807 2001 SG_{238}	16.2	X	246.20726	215.23952	169.64334	2.32892	0.0844990	0.19607957	2.9343674	20	6 16.7	20.5
173808 2001 SH_{239}	16.2	X	81.64467	268.45030	20.57406	4.91325	0.0989357	0.21288263	2.7778528	20	11 17.8	20.2
173809 2001 SJ_{241}	16.0	X	141.28088	240.04230	18.71375	9.73818	0.0963104	0.21599534	2.7511005	20	12 12.6	20.4
173810 2001 SW_{256}	15.8	X	296.54049	292.14901	97.84185	3.04023	0.0889876	0.20212186	2.8755915	20	8 31.8	19.3
173811 2001 SQ_{270}	15.5	X	162.87370	239.98097	149.19205	1.91100	0.3204534	0.18257448	3.0773436	20	4 4.2	21.0
173812 2001 SO_{277}	14.5	X	99.53811	196.59402	234.62798	20.50389	0.0771811	0.17791598	3.1308295	20	2 25.1	19.3
173813 2001 SP_{283}	16.4	X	84.30718	268.71872	2.64652	4.16023	0.0318958	0.20948691	2.8077911	20	10 21.5	20.3
173814 2001 SR_{292}	15.8	X	142.63235	315.62395	318.00944	9.00988	0.1389074	0.22210973	2.7003765	20	—	—
173815 2001 SG_{298}	15.9	X	253.30630	192.02348	221.13630	1.22311	0.0584487	0.20265941	2.8705043	20	8 5.1	19.9
173816 2001 SV_{301}	15.0	X	169.61594	284.85926	341.94617	10.72823	0.1483047	0.17006959	3.2264005	20	—	—
173817 2001 SU_{305}	15.9	X	172.60797	268.52184	342.00289	4.28104	0.1163651	0.21976996	2.7195090	20	—	—
173818 2001 SR_{315}	14.5	X	92.40746	91.75321	347.03582	15.21547	0.2330532	0.17533205	3.1615145	20	3 23.6	19.0
173819 2001 SD_{324}	15.8	X	174.32059	93.87231	278.35225	4.48570	0.1238465	0.18456573	3.0551697	20	3 15.0	20.7
173820 2001 SJ_{328}	16.2	X	35.86685	6.45166	315.57767	3.24312	0.1182670	0.21527296	2.7572516	20	11 6.9	19.9
173821 2001 SY_{334}	15.7	X	314.53283	228.58160	169.77318	5.88537	0.0743907	0.21210241	2.7846609	20	10 13.0	19.0
173822 2001 SJ_{335}	15.6	X	269.21682	116.16995	316.98099	11.28989	0.0786136	0.21024109	2.8010723	20	9 15.3	19.5
173823 2001 SO_{342}	16.0	X	237.94846	170.67679	157.81827	2.02779	0.1128721	0.18820397	3.0156680	20	3 26.6	20.6
173824 2001 SU_{344}	14.8	X	156.71934	234.95728	132.88963	18.05736	0.2358232	0.18175417	3.0865961	20	3 5.4	20.1
173825 2001 SL_{345}	15.0	X	115.12696	111.03015	308.29299	13.27043	0.2459877	0.18089083	3.0964092	20	3 21.5	20.1
173826 2001 SX_{348}	15.1	X	155.57821	278.04280	105.56147	17.77927	0.2859286	0.18171427	3.0870478	20	3 30.1	20.8
173827 2001 TT_{17}	15.1	X	216.55402	25.79655	348.84460	9.51119	0.1668169	0.18952281	3.0016616	20	4 23.1	20.1
173828 2001 TX_{21}	15.6	X	214.03464	282.03637	129.67960	9.55495	0.2059574	0.19267136	2.9688706	20	6 7.7	20.7
173829 2001 TJ_{34}	15.0	X	137.89247	18.69891	20.39785	11.49238	0.1101709	0.17760639	3.1344666	20	3 16.3	19.8
173830 2001 TO_{60}	15.2	X	72.37137	261.37265	200.99199	12.55136	0.2846242	0.17601430	3.1533396	20	4 7.5	19.3
173831 2001 TV_{64}	15.8	X	170.50318	283.82771	119.53299	1.91990	0.2115116	0.18504673	3.0498731	20	4 22.9	20.9
173832 2001 TO_{81}	15.2	X	132.59811	187.77167	234.80794	8.77905	0.1803542	0.18354527	3.0664832	20	4 8.8	20.2
173833 2001 TW_{82}	16.0	X	150.72460	140.21258	287.78370	2.83705	0.1963670	0.18623529	3.0368830	20	5 3.6	21.0
173834 2001 TE_{87}	15.2	X	213.32531	110.76291	247.29386	4.75105	0.0516498	0.18761014	3.0220282	20	4 7.4	19.7
173835 2001 TC_{91}	14.9	X	319.05079	202.60386	1.85523	8.80642	0.0220408	0.17966078	3.1105261	20	2 13.9	19.2
173836 2001 TV_{91}	15.6	X	111.89005	261.47410	9.39190	9.00478	0.1522447	0.21441427	2.7646082	20	11 29.6	20.1
173837 2001 TP_{96}	15.2	X	139.04259	41.39682	351.06244	4.85477	0.1512568	0.17968106	3.1102921	20	3 10.1	20.1
173838 2001 TD_{100}	14.7	X	331.60095	11.62657	15.81396	15.92708	0.2001014	0.15492302	3.4334080	20	10 8.1	18.2
173839 2001 TH_{100}	15.3	X	128.90716	189.72312	9.76827	10.64178	0.0551383	0.20193142	2.8773992	20	9 17.7	19.6
173840 2001 TS_{100}	15.9	X	188.77698	263.52269	334.54758	4.08318	0.0610194	0.21900608	2.7258290	20	—	—

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
173841 2001 TU_{108}	15.3	X	267.14614	56.41487	314.66135	5.27401	0.1514195	0.19624149	2.9327530	20	6 14.9	19.5
173842 2001 TM_{118}	15.2	X	119.71216	97.61441	322.83050	15.02325	0.2387437	0.17987018	3.1081116	20	3 26.1	20.3
173843 2001 TN_{118}	16.0	X	137.35770	134.02960	296.29116	12.78453	0.2861291	0.18287621	3.0739578	20	4 27.2	21.6
173844 2001 TK_{119}	14.8	X	120.36851	57.72857	313.91049	14.83300	0.1306128	0.17531766	3.1616875	20	1 25.9	19.4
173845 2001 TP_{123}	14.9	X	134.04224	74.28615	298.74780	9.83888	0.0893916	0.17834174	3.1258446	20	2 3.7	19.5
173846 2001 TX_{125}	15.4	X	348.44875	41.83815	299.43252	8.17881	0.1399274	0.20490996	2.8494475	20	9 14.4	18.7
173847 2001 TA_{134}	14.7	X	120.56864	323.58948	103.69566	12.21864	0.1531067	0.18038221	3.1022271	20	4 8.2	19.6
173848 2001 TC_{134}	15.3	X	159.71369	339.01908	57.84685	18.40277	0.2092644	0.18302245	3.0723202	20	4 13.3	20.7
173849 2001 TY_{139}	15.3	X	265.42872	336.63140	23.89555	11.53155	0.1089275	0.19768694	2.9184397	20	6 2.9	19.6
173850 2001 TK_{140}	15.7	X	33.62725	262.90114	93.55056	6.46240	0.0604053	0.21582389	2.7525573	20	12 10.8	19.3
173851 2001 TK_{143}	15.2	X	33.98827	55.00695	54.50919	8.89535	0.0392265	0.17676241	3.1444361	20	1 24.5	19.5
173852 2001 TC_{150}	15.6	X	193.41494	346.58115	52.97689	11.21454	0.1039368	0.18867326	3.0106653	20	5 7.8	20.3
173853 2001 TY_{154}	15.1	X	133.46220	323.10425	74.29302	10.71505	0.1350018	0.17965075	3.1106419	20	3 14.4	20.0
173854 2001 TM_{157}	16.2	X	319.14724	191.56827	158.94666	2.52681	0.0670351	0.19871091	2.9084052	20	8 13.0	19.8
173855 2001 TO_{169}	15.4	X	192.60454	128.69495	273.46881	8.93138	0.1074805	0.18752783	3.0229124	20	5 7.8	20.3
173856 2001 TZ_{170}	15.6	X	271.31839	89.39979	308.09892	7.60962	0.0191338	0.20126975	2.8837020	20	8 13.6	19.5
173857 2001 TH_{172}	16.2	X	271.72684	299.09702	83.57983	2.92858	0.1353987	0.19800483	2.9153153	20	7 8.6	20.3
173858 2001 TA_{175}	16.0	X	131.47132	231.93619	33.81335	6.68117	0.0724395	0.21546433	2.7556188	20	12 11.3	20.1
173859 2001 TL_{182}	15.4	X	176.88868	23.22267	7.75108	9.14654	0.1329652	0.18458509	3.0549561	20	4 9.9	20.4
173860 2001 TP_{182}	15.3	X	154.48329	35.39782	341.47062	6.53984	0.2689585	0.18065027	3.0991575	20	3 12.3	20.6
173861 2001 TF_{194}	15.0	X	119.47721	109.17971	281.56151	7.67347	0.0965542	0.17493360	3.1663133	20	2 8.9	19.7
173862 2001 TB_{196}	15.3	X	141.01401	275.22713	140.90285	15.69921	0.2518635	0.18068240	3.0987901	20	4 21.3	20.8
173863 2001 TR_{204}	15.7	X	312.84077	251.87337	66.15668	10.79911	0.1858790	0.19926446	2.9030164	20	6 3.7	19.0
173864 2001 TA_{206}	14.7	X	115.50221	311.91178	91.59807	18.09650	0.1851669	0.17764944	3.1339603	20	3 11.4	19.7
173865 2001 TS_{206}	15.0	X	148.61850	230.90442	100.68636	14.21610	0.3443698	0.17769306	3.1334474	20	1 23.6	20.6
173866 2001 TY_{206}	15.3	X	136.82263	300.70908	106.59380	11.93774	0.0555443	0.18147910	3.0897142	20	3 21.3	20.0
173867 2001 TE_{211}	15.3	X	77.00386	108.22699	289.09418	9.01271	0.0662012	0.17415714	3.1757174	20	—	—
173868 2001 TM_{212}	15.6	X	137.88319	89.22434	351.76417	14.15052	0.1899370	0.18403599	3.0610297	20	5 3.0	20.8
173869 2001 TV_{216}	15.3	X	185.07636	147.73820	243.57929	9.87434	0.0934854	0.19048523	2.9915425	20	4 16.5	20.0
173870 2001 TZ_{220}	14.8	X	292.32786	218.48102	8.11107	17.69222	0.2620545	0.23314408	2.6144868	20	—	—
173871 2001 TW_{235}	15.1	X	179.53335	229.55668	153.96372	10.84147	0.0950120	0.18393136	3.0621904	20	4 6.9	19.9
173872 Andrewwest	15.8	X	91.33361	127.41834	342.00718	2.45231	0.1040100	0.18574082	3.0422703	20	4 12.8	19.9
173873 2001 TQ_{256}	16.5	X	58.56795	268.61363	58.72466	6.27959	0.2114568	0.21667902	2.7453106	20	12 23.9	20.7
173874 2001 UO_{10}	14.6	X	189.33949	277.40294	75.36794	22.50714	0.1173893	0.17836249	3.1256022	20	3 21.3	20.0
173875 2001 UQ_{14}	16.0	X	206.14172	238.49989	131.61141	3.34857	0.2451066	0.18625006	3.0367225	20	4 11.7	21.2
173876 2001 UW_{14}	15.7	X	128.46322	329.84423	111.73150	1.21967	0.2415274	0.18032017	3.1029385	20	5 5.4	20.8
173877 2001 UY_{24}	14.6	X	71.35802	259.17902	235.21462	23.08619	0.3313674	0.17810133	3.1286569	20	5 23.8	18.9
173878 2001 UN_{38}	16.3	X	216.33245	276.07229	131.65536	0.23660	0.0911121	0.19318641	2.9635915	20	6 10.9	20.6
173879 2001 UR_{42}	15.3	X	193.21725	248.52008	31.41079	16.25288	0.2000899	0.17459878	3.1703600	20	—	—
173880 2001 UQ_{44}	15.2	X	248.18072	321.53502	43.71893	11.43380	0.0890443	0.19189210	2.9769028	20	5 22.7	19.5
173881 2001 UY_{45}	15.4	X	90.31007	9.24774	89.03509	4.65109	0.2005326	0.17836132	3.1256158	20	4 14.8	19.8
173882 2001 UU_{48}	15.0	X	141.20380	37.33531	60.10798	14.33154	0.1530265	0.18507825	3.0495268	20	5 28.4	19.9
173883 2001 UB_{55}	15.4	X	284.23043	288.13612	92.00290	3.51901	0.1105910	0.19942966	2.9014129	20	7 26.9	19.2
173884 2001 UA_{56}	16.1	X	324.42556	352.49991	3.79696	1.71264	0.0854441	0.20353431	2.8622724	20	8 29.4	19.3
173885 2001 UA_{61}	15.7	X	213.91622	193.78620	223.31461	1.21047	0.0530380	0.19451401	2.9500913	20	6 23.2	19.9
173886 2001 UZ_{64}	14.6	X	160.41295	145.99833	265.29327	4.90848	0.2221818	0.18328163	3.0694231	20	4 22.4	19.8
173887 2001 UB_{73}	14.9	X	110.50349	0.56618	52.35891	16.25158	0.1835720	0.17718143	3.1394766	20	3 17.9	19.8
173888 2001 UC_{82}	16.0	X	208.55583	314.59374	86.45337	2.58884	0.2109678	0.18952600	3.0016279	20	5 19.9	21.1
173889 2001 UW_{82}	15.5	X	302.46774	314.22951	57.01929	2.97684	0.0718815	0.19968956	2.8988949	20	8 17.2	19.2
173890 2001 UM_{90}	16.5	X	247.05428	260.53728	154.19690	2.20057	0.0742129	0.19674984	2.9276992	20	7 27.6	20.7
173891 2001 UU_{91}	15.1	X	166.77657	254.25016	94.31666	8.75284	0.1964933	0.17909514	3.1170721	20	2 18.4	20.4
173892 2001 UE_{98}	15.2	X	191.13618	283.85509	52.52203	10.20810	0.0824349	0.17971078	3.1099492	20	2 24.7	20.1
173893 2001 UB_{103}	15.5	X	164.50721	18.63529	42.88953	12.84296	0.0695954	0.18744364	3.0238176	20	5 3.7	19.9
173894 2001 UD_{107}	15.7	X	350.14730	201.81235	84.75150	3.34502	0.0643449	0.19453976	2.9498310	20	7 5.0	19.4
173895 2001 UC_{115}	15.5	X	260.77215	292.42631	69.40953	3.49346	0.0998022	0.19258835	2.9697237	20	6 2.4	19.6
173896 2001 UM_{116}	16.0	X	259.48691	278.95252	94.31323	3.24881	0.1521096	0.19361015	2.9592657	20	6 8.7	20.4
173897 2001 UD_{119}	15.2	X	121.51281	250.27409	210.62564	7.20095	0.2573457	0.18119865	3.0929014	20	5 24.1	20.3
173898 2001 UN_{141}	15.7	X	127.81235	243.54884	212.94342	4.18520	0.1465204	0.18450486	3.0558416	20	5 14.6	20.3
173899 2001 UG_{144}	16.0	X	212.32794	267.01639	137.57193	2.63547	0.1572051	0.19040178	2.9924166	20	5 30.2	20.9
173900 2001 UG_{149}	15.4	X	100.21240	290.35113	89.59053	2.27146	0.1898401	0.17137409	3.2100067	20	1 20.6	19.9
173901 2001 UR_{160}	15.2	X	65.89642	92.24378	57.94200	16.67753	0.1809322	0.17882522	3.1202080	20	5 14.4	19.2
173902 2001 UN_{163}	15.2	X	248.18913	262.72750	61.85048	8.57966	0.0906426	0.18404281	3.0609541	20	4 7.1	19.8
173903 2001 UH_{179}	14.8	X	152.59124	35.28445	324.19662	10.54696	0.0787281	0.17849710	3.1240305	20	2 8.2	19.5
173904 2001 UX_{183}	15.4	X	167.91611	354.22439	74.84511	13.22511	0.1566319	0.18656315	3.0333240	20	5 20.8	20.4
173905 2001 UZ_{205}	15.4	X	112.37105	73.58679	34.38937	10.20141	0.0979595	0.18309078	3.0715558	20	5 5.4	19.9
173906 2001 UD_{225}	15.1	X	118.03122	35.18113	27.03465	14.71433	0.2870862	0.17502830	3.1651712	20	4 8.9	20.3
173907 2001 VK_{2}	14.9	X	119.54943	359.85787	52.12959	18.91799	0.1727011	0.17647433	3.1478572	20	3 26.1	20.0
173908 2001 VW_{10}	15.4	X	155.98072	48.83720	30.94935	12.33982	0.1010988	0.18670462	3.0317916	20	5 16.6	20.2
173909 2001 VC_{17}	14.7	X	71.06264	136.85181	4.97142	17.21113	0.1205409	0.18008691	3.1056174	20	4 24.9	19.0
173910 2001 VF_{31}	15.0	X	109.39492	22.47582	68.83925	9.72077	0.0700320	0.17856128	3.1232819	20	4 12.9	19.5
173911 2001 VS_{31}	15.1	X	79.27407	56.07197	67.95589	17.16407	0.2121912	0.17643298	3.1483491	20	5 6.9	19.5
173912 2001 VT_{36}	15.9	X	132.98612	3.95618	64.11366	2.14948	0.1925481	0.17876453	3.1209141	20	4 19.6	20.9
173913 2001 VA_{42}	15.2	X	138.10649	329.05012	59.31028	10.11759	0.0871088	0.17482648	3.1676066	20	3 3.7	20.1
173914 2001 VA_{48}	14.9	X	211.90841	295.42672	86.43949	11.18943	0.1473552	0.18490447	3.0514372	20	5 5.7	19.9
173915 2001 VN_{49}	14.9	X	235.92773	79.13869	300.34320	8.25467	0.0888224	0.19220700	2.9736504	20	5 27.0	19.4
173916 2001 VY_{55}	15.6	X	137.01179	176.07606	267.33868	8.65103	0.1832852	0.18327484	3.0694989	20	5 8.7	20.7
173917 2001 VE_{56}	15.7	X	85.66446	68.11833	28.35208	13.55043	0.2824118	0.17598888	3.1536433	20	4 16.7	20.2
173918 2001 VT_{56}	15.8	X	282.77298	243.74828	79.18143	3.80321	0.0868632	0.19086921	2.9875290	20	5 13.5	19.8
173919 2001 VR_{58}	15.1	X	134.96508	18.81109	19.56175	12.89771	0.1430876	0.17838858	3.1252974	20	3 16.0	19.9
173920 2001 VS_{58}	15.6	X	94.19612	88.67927	359.29624	7.77868	0.1787722	0.17737746	3.1371631	20	3 31.6	20.2

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
173921 2001 VZ_{58}	15.0	X	176.44497	94.34773	248.31444	10.15110	0.0966114	0.17749454	3.1357834	20	2 9.3	20.1
173922 2001 VC_{59}	15.5	X	132.57231	6.97573	354.60382	4.46986	0.1891780	0.17477222	3.1682622	20	2 2.2	20.4
173923 2001 VN_{70}	15.1	X	165.62969	55.54224	34.12232	9.49799	0.0266305	0.18765428	3.0215543	20	6 6.7	19.5
173924 2001 VP_{70}	15.7	X	146.25744	11.69457	43.40554	0.11381	0.1892867	0.18005049	3.1060361	20	4 15.1	20.7
173925 2001 VQ_{84}	14.9	X	139.19868	53.79255	335.92206	9.01029	0.0887800	0.17869648	3.1217063	20	2 29.7	19.6
173926 2001 VR_{89}	14.9	X	285.69582	87.52849	239.43553	11.80288	0.0837091	0.19089741	2.9872348	20	5 22.5	18.8
173927 2001 VD_{90}	15.1	X	212.87415	305.62292	105.78941	11.18976	0.0928638	0.19047657	2.9916331	20	6 12.6	19.6
173928 2001 VV_{92}	15.4	X	117.82328	276.14243	168.83883	11.41140	0.1289057	0.17940761	3.1134517	20	4 20.6	20.1
173929 2001 VH_{93}	15.4	X	188.96929	241.37911	117.79679	15.29373	0.2421711	0.18189963	3.0849503	20	3 22.1	21.0
173930 2001 VV_{95}	14.5	X	28.61681	306.88982	211.61808	25.57594	0.2704187	0.17317691	3.1876898	20	3 27.9	17.8
173931 2001 VJ_{104}	15.0	X	245.65525	87.40248	259.67076	9.29052	0.0439704	0.18625161	3.0367056	20	5 1.8	19.4
173932 2001 VD_{105}	15.4	X	104.58715	38.04849	38.60497	5.61116	0.1692065	0.17673546	3.1447558	20	3 31.0	20.0
173933 2001 VS_{114}	15.2	X	178.00172	76.24592	272.75478	5.10513	0.1663420	0.17747800	3.1359782	20	2 22.4	20.4
173934 2001 VC_{120}	14.8	X	74.04809	82.08602	71.00135	16.51361	0.1721766	0.17832250	3.1260695	20	5 27.9	19.1
173935 2001 VA_{125}	15.2	X	185.68396	83.48469	296.56647	7.76095	0.1693666	0.18168703	3.0873564	20	4 2.7	20.4
173936 Yuribo	14.7	X	86.47971	342.81665	103.32052	16.13468	0.0823396	0.17851971	3.1237668	20	3 13.8	19.3
173937 2001 WK_{9}	15.5	X	114.89370	226.46981	218.28465	8.73391	0.2422508	0.17844908	3.1245909	20	4 26.9	20.4
173938 2001 WJ_{10}	15.1	X	216.33420	326.39408	67.25977	11.74869	0.1246603	0.18783702	3.0195943	20	5 22.5	19.7
173939 2001 WH_{12}	15.3	X	118.40054	28.61037	76.83823	11.19351	0.0827149	0.18262850	3.0767368	20	5 10.8	19.9
173940 2001 WD_{39}	15.0	X	123.81158	240.84725	208.65982	8.53560	0.2325410	0.17921553	3.1156760	20	5 10.5	20.1
173941 2001 WN_{51}	15.5	X	323.81430	314.47322	327.06536	1.18179	0.0547336	0.19063382	2.9899878	20	5 19.6	19.5
173942 2001 WW_{56}	16.1	X	205.44542	109.27707	254.73018	0.56176	0.1894553	0.18550312	3.0448688	20	4 3.7	21.1
173943 2001 WC_{62}	15.1	X	328.93771	295.42901	239.69669	8.89569	0.0619085	0.17137536	3.2099908	20	1 13.8	19.5
173944 2001 WO_{63}	16.1	X	179.05592	351.82263	15.67363	1.26775	0.1967089	0.18093384	3.0959185	20	3 18.3	21.3
173945 2001 WY_{65}	16.1	X	96.88379	209.06486	293.04530	1.15047	0.0401633	0.18545050	3.0454447	20	5 22.8	20.2
173946 2001 WT_{74}	15.6	X	102.00482	124.89132	57.46333	11.53326	0.0819449	0.19256674	2.9699459	20	7 29.3	20.1
173947 2001 WZ_{76}	15.6	X	283.69044	56.71738	247.70291	1.09381	0.1320863	0.18759420	3.0221993	20	4 13.6	19.7
173948 2001 WW_{77}	16.1	X	215.27017	141.29482	213.79416	1.21336	0.1202096	0.18421954	3.0589960	20	4 4.3	20.8
173949 2001 WH_{95}	14.9	X	178.15611	263.12223	111.30540	11.19178	0.1127646	0.18092208	3.0960526	20	3 28.5	19.9
173950 2001 WC_{96}	15.8	X	200.84464	254.96943	108.24213	5.52345	0.2406811	0.18494912	3.0509462	20	4 1.2	21.2
173951 2001 WO_{96}	15.8	X	154.74307	134.57418	199.39990	0.65456	0.1393174	0.17231278	3.1983382	20	1 16.9	20.8
173952 2001 XJ_{7}	15.1	X	134.29873	186.68399	250.13324	9.34044	0.0815542	0.17956816	3.1115957	20	4 18.5	19.9
173953 2001 XL_{11}	15.2	X	178.58922	68.60084	297.59230	14.43497	0.2548534	0.18164544	3.0878277	20	3 10.4	20.9
173954 2001 XP_{11}	15.0	X	89.76513	145.73234	307.59881	15.08208	0.1073061	0.17643232	3.1483568	20	3 16.0	19.6
173955 2001 XU_{11}	15.2	X	97.15492	162.40415	284.97262	16.39708	0.1925256	0.17630038	3.1499275	20	3 28.4	20.1
173956 2001 XA_{14}	15.1	X	191.84640	18.33888	340.34363	8.29673	0.0910351	0.17700995	3.1415038	20	3 16.6	20.0
173957 2001 XQ_{14}	15.2	X	194.68701	63.23666	337.55720	7.84797	0.1255161	0.18413962	3.0598811	20	5 6.8	20.2
173958 2001 XR_{20}	14.6	X	133.09208	105.58572	291.47448	22.33312	0.2685547	0.17505439	3.1648566	20	3 7.8	20.3
173959 2001 XE_{23}	15.1	X	65.52427	105.15028	0.39432	4.87229	0.1390380	0.17090311	3.2159015	20	3 12.1	19.1
173960 2001 XG_{32}	16.3	X	116.25241	131.11214	327.54599	0.16402	0.1296816	0.18121927	3.0926668	20	5 3.0	20.8
173961 2001 XJ_{34}	14.8	X	168.56773	72.47989	320.65380	10.15405	0.1556253	0.18111401	3.0938649	20	4 2.3	19.9
173962 2001 XR_{43}	15.1	X	54.39498	68.30644	62.70938	16.36365	0.1309237	0.17228736	3.1986529	20	4 3.8	19.4
173963 2001 XR_{60}	15.5	X	153.35174	323.53875	76.81472	10.58424	0.1372436	0.17940899	3.1134358	20	4 6.1	20.5
173964 2001 XF_{69}	15.3	X	134.95272	180.39555	289.16262	15.00819	0.1770511	0.18388011	3.0627594	20	6 8.9	20.4
173965 2001 XC_{71}	15.1	X	102.23129	13.33234	108.45881	10.31397	0.1192856	0.18189144	3.0850429	20	5 17.8	19.7
173966 2001 XJ_{76}	15.5	X	139.83978	328.94935	92.21284	7.62851	0.1559055	0.18058445	3.0999105	20	4 17.6	20.5
173967 2001 XE_{78}	15.8	X	95.53973	349.23409	109.41099	3.32550	0.1393011	0.17730463	3.1380221	20	4 12.5	20.2
173968 2001 XD_{82}	14.9	X	69.81315	50.34552	67.03065	15.90579	0.0925928	0.17505584	3.1648392	20	4 3.2	19.4
173969 2001 XF_{82}	14.6	X	200.63579	288.74490	84.33028	17.50856	0.1171505	0.18259418	3.0771223	20	4 20.5	19.7
173970 2001 XL_{83}	14.9	X	139.25444	323.39401	86.72441	18.76693	0.1496797	0.17785457	3.1315501	20	4 10.0	20.1
173971 2001 XP_{91}	15.2	X	273.26432	257.70754	59.34933	9.76122	0.0388462	0.18563373	3.0434403	20	5 1.9	19.4
173972 2001 XR_{111}	15.3	X	128.75786	303.32014	121.57494	10.46549	0.1386810	0.17738846	3.1370333	20	4 10.9	20.3
173973 2001 XL_{122}	15.6	X	142.22628	74.02668	68.76494	12.00439	0.0569630	0.19151995	2.9807579	20	7 21.7	20.1
173974 2001 XV_{127}	15.5	X	186.67301	174.72358	195.02095	1.86934	0.1677768	0.18150667	3.0894013	20	3 26.3	20.6
173975 2001 XL_{131}	15.6	X	51.59132	99.02385	77.55667	17.15307	0.1990155	0.17933766	3.1142613	20	5 30.8	19.5
173976 2001 XG_{132}	15.2	X	235.79502	263.09693	80.24814	2.32660	0.1851661	0.18531149	3.0469675	20	4 6.6	20.1
173977 2001 XU_{133}	15.2	X	281.60262	208.86587	74.45981	14.30457	0.2300139	0.23516499	2.5994867	20	3 7.1	19.4
173978 2001 XE_{135}	15.3	X	28.93252	89.85238	80.49049	16.63367	0.0781147	0.17678488	3.1441696	20	4 10.7	19.6
173979 2001 XK_{135}	15.1	X	97.34461	32.94382	86.56953	11.38248	0.1025476	0.17978495	3.1090938	20	5 7.4	19.6
173980 2001 XY_{135}	15.7	X	122.10201	226.51716	165.61175	2.15033	0.1104640	0.17299204	3.1899605	20	2 17.4	20.4
173981 2001 XK_{139}	15.1	X	94.26640	43.34155	79.96731	10.23796	0.0439190	0.18000866	3.1065173	20	4 29.9	19.6
173982 2001 XM_{140}	16.0	X	138.38615	317.08194	130.76538	2.18141	0.1743748	0.18121338	3.0927338	20	5 16.9	21.0
173983 2001 XB_{142}	16.2	X	155.43007	304.89138	140.22744	2.01732	0.1346113	0.18422273	3.0589608	20	5 26.9	21.1
173984 2001 XS_{148}	15.7	X	108.58818	340.28709	113.64743	5.90487	0.1997879	0.17718705	3.1394102	20	4 29.8	20.6
173985 2001 XB_{157}	14.6	X	100.92444	107.51093	299.06642	15.29519	0.0903501	0.17041170	3.2220809	20	2 5.6	19.2
173986 2001 XL_{158}	15.7	X	148.26685	262.69188	118.22610	2.43104	0.1819968	0.17486133	3.1671857	20	3 8.7	20.8
173987 2001 XK_{162}	16.1	X	106.20760	272.44018	173.50605	0.85532	0.1593041	0.17607035	3.1526703	20	4 10.5	20.8
173988 2001 XT_{163}	15.4	X	60.61208	287.36193	170.31752	3.02639	0.0858878	0.17051689	3.2207556	20	2 16.9	19.6
173989 2001 XB_{164}	15.2	X	131.26844	146.84658	251.76138	9.17442	0.2353510	0.17544025	3.1602145	20	3 13.4	20.5
173990 2001 XG_{170}	15.8	X	195.13907	293.21819	99.17557	2.43317	0.0645282	0.18257711	3.0773142	20	5 1.9	20.3
173991 2001 XR_{170}	15.6	X	145.84736	262.19073	131.33326	0.26777	0.1848239	0.17661290	3.1462105	20	3 20.5	20.7
173992 2001 XM_{178}	15.2	X	125.68943	285.48173	110.43728	16.13858	0.1821908	0.17188023	3.2037020	20	3 10.2	20.4
173993 2001 XG_{198}	14.8	X	317.85188	91.04065	122.79683	6.30052	0.0565233	0.16811405	3.2513723	20	2 19.2	19.3
173994 2001 XS_{200}	15.2	X	173.86550	165.98547	269.87439	13.05033	0.1070283	0.18590465	3.0404828	20	6 1.2	19.9
173995 2001 XV_{204}	15.5	X	219.56860	268.61295	106.64062	10.46069	0.1258838	0.18588568	3.0406897	20	5 6.5	20.4
173996 2001 XT_{205}	15.1	X	125.34633	234.68140	200.81660	4.95972	0.1209886	0.17871613	3.1214775	20	4 13.7	19.7
173997 2001 XJ_{207}	15.1	X	141.51811	221.90971	170.35001	5.97835	0.1849747	0.17650366	3.1475084	20	3 15.3	20.1
173998 2001 XX_{208}	15.6	X	199.35875	270.00028	153.09361	5.51783	0.0905667	0.18860171	3.0114268	20	6 12.6	20.2
173999 2001 XQ_{222}	15.7	X	157.22241	149.93033	253.17833	2.96980	0.1192996	0.18154944	3.0889160	20	4 5.4	20.5
174000 2001 XE_{233}	15.4	X	163.24412	317.83600	60.11946	4.74296	0.1253547	0.17753561	3.1352998	20	3 16.5	20.3

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
174001 2001 XJ_{235}	15.3	X	91.28964	42.40802	73.43202	10.57400	0.0600083	0.17839034	3.1252769	20	4 19.9	19.8
174002 2001 XV_{246}	15.6	X	86.52942	69.87964	62.61153	10.47334	0.2006038	0.17818197	3.1277129	20	5 21.1	19.9
174003 2001 XF_{249}	15.9	X	195.73754	331.01448	46.45563	0.13275	0.1620136	0.17872497	3.1213746	20	4 12.4	20.9
174004 2001 XC_{261}	15.3	X	187.65413	212.72449	198.00543	8.86669	0.0724142	0.18599749	3.0394709	20	5 16.7	19.9
174005 2001 XU_{262}	16.5	X	223.32214	207.52859	142.34759	0.98183	0.3077885	0.18739241	3.0243686	20	3 28.4	22.0
174006 2001 YT_{7}	14.8	X	34.93697	183.82426	277.50321	10.30427	0.0727606	0.16888441	3.2414775	20	1 15.2	19.0
174007 2001 YW_{7}	14.8	X	201.01765	90.68944	278.68353	9.95975	0.1764417	0.18334883	3.0686731	20	4 2.1	20.1
174008 2001 YW_{8}	15.6	X	45.22508	59.82398	79.26249	5.69987	0.1045830	0.17322803	3.1870627	20	3 22.6	19.7
174009 2001 YV_{9}	14.6	X	41.17854	260.96002	276.02017	15.01004	0.1417113	0.17810921	3.1285646	20	5 1.1	18.6
174010 2001 YC_{10}	15.3	X	38.17860	1.44528	353.18058	3.89135	0.1134354	0.20910758	2.8111857	20	12 19.9	19.1
174011 2001 YT_{15}	15.0	X	191.72541	273.21209	83.81222	12.95442	0.2390754	0.17999757	3.1066450	20	3 22.8	20.6
174012 2001 YL_{22}	15.7	X	110.74105	351.41153	77.67433	2.52544	0.1971651	0.17536452	3.1611243	20	3 31.6	20.5
174013 2001 YQ_{36}	15.6	X	101.14776	166.37079	306.21737	4.04137	0.1330022	0.17862997	3.1224812	20	5 2.3	20.1
174014 2001 YS_{43}	15.8	X	124.38225	32.45389	63.46565	4.56071	0.1169702	0.17991130	3.1076379	20	5 7.7	20.5
174015 2001 YN_{57}	15.9	X	186.31932	343.90639	47.10448	5.63154	0.1697177	0.18221021	3.0814437	20	4 20.9	21.1
174016 2001 YW_{84}	14.7	X	121.57946	118.08238	291.61496	7.63246	0.0394944	0.16980949	3.2296942	20	2 26.4	19.4
174017 2001 YJ_{93}	15.9	X	185.28445	192.90589	265.70927	1.35015	0.0575480	0.19538561	2.9413114	20	7 12.9	20.1
174018 2001 YD_{105}	14.6	X	171.13916	249.38084	117.97524	17.52574	0.2494766	0.17556283	3.1587432	20	3 19.4	20.3
174019 2001 YU_{109}	14.6	X	43.59274	259.87046	294.14240	10.10387	0.1959390	0.17554956	3.1589025	20	6 8.4	18.5
174020 2001 YE_{122}	14.7	X	32.53063	103.77918	58.32642	26.24364	0.2740371	0.17293093	3.1907119	20	4 25.3	18.2
174021 2001 YE_{123}	15.0	X	48.02085	111.28172	41.65907	10.53923	0.1724198	0.17508488	3.1644893	20	4 19.9	18.8
174022 2001 YP_{124}	15.9	X	156.26658	96.38323	302.60841	6.04860	0.2692463	0.17982691	3.1086102	20	4 5.6	21.4
174023 2001 YT_{132}	15.0	X	122.49449	143.64076	282.23498	15.78322	0.1476029	0.17733370	3.1376792	20	3 24.5	20.1
174024 2001 YB_{134}	15.1	X	42.01527	85.20810	61.39525	15.16327	0.2131827	0.17316633	3.1878196	20	4 12.2	18.9
174025 2001 YV_{137}	15.4	X	172.60508	357.91229	40.71985	13.59915	0.1598882	0.17900962	3.1180648	20	4 19.1	20.5
174026 2001 YD_{141}	16.0	X	208.17361	279.78917	85.33849	2.91760	0.2294674	0.18551581	3.0447299	20	4 7.7	21.3
174027 2001 YZ_{145}	15.2	X	48.13276	77.64705	32.79787	15.40478	0.1822843	0.17201554	3.2020216	20	3 4.1	19.2
174028 2001 YM_{150}	15.5	X	91.14004	293.20518	173.88219	10.07726	0.2039083	0.17644882	3.1481605	20	4 27.4	20.1
174029 2001 YF_{154}	14.9	X	13.10136	111.39548	85.44063	21.14893	0.2662135	0.17095650	3.2152320	20	4 28.3	18.3
174030 2001 YX_{154}	15.4	X	149.09701	99.59700	354.37863	10.14162	0.1090123	0.18040431	3.1019737	20	5 27.4	20.4
174031 2002 AR_{27}	14.5	X	79.58092	260.89875	321.81843	21.40935	0.1754915	0.18597935	3.0396686	20	8 27.7	19.1
174032 2002 AH_{36}	15.6	X	137.30783	0.45382	93.68841	4.29157	0.1515862	0.18234942	3.0798753	20	5 21.9	20.4
174033 2002 AW_{42}	15.6	X	281.07316	149.24421	132.76383	3.66538	0.0173879	0.17489743	3.1667499	20	4 1.5	20.0
174034 2002 AQ_{47}	15.0	X	150.65458	289.96004	120.12706	26.50968	0.0767092	0.17475136	3.1685144	20	4 17.2	20.3
174035 2002 AP_{86}	15.1	X	350.15418	118.45358	140.13713	10.40137	0.0427789	0.18010229	3.1054406	20	5 30.9	19.4
174036 2002 AP_{110}	14.8	X	56.59521	103.41228	115.45161	17.60696	0.2529410	0.17985487	3.1082879	20	8 11.4	19.0
174037 2002 AY_{111}	14.9	X	17.02653	212.97651	323.66473	5.12258	0.0890778	0.16947607	3.2339289	20	3 21.7	19.1
174038 2002 AD_{116}	14.6	X	227.26541	191.18053	117.06258	19.90011	0.0977606	0.16911476	3.2385334	20	2 26.9	19.8
174039 2002 AQ_{123}	14.7	X	89.84682	348.25718	127.80647	20.59160	0.1448461	0.17249339	3.1961053	20	5 4.9	19.7
174040 2002 AY_{132}	15.1	X	73.06300	42.07020	86.09520	10.35449	0.0505284	0.17417502	3.1755001	20	4 12.0	19.6
174041 2002 AX_{135}	14.3	X	327.14012	106.03804	113.82636	22.30319	0.2365906	0.16879862	3.2425756	20	2 16.1	18.5
174042 2002 AD_{138}	15.0	X	322.24602	16.72523	281.89748	11.68328	0.0542594	0.18397231	3.0617360	20	6 9.5	19.2
174043 2002 AZ_{169}	15.0	X	207.44230	251.53322	104.60777	14.92784	0.0421938	0.17507306	3.1646317	20	4 8.9	19.9
174044 2002 AY_{171}	15.1	X	68.27016	57.69624	323.17076	9.28549	0.1345936	0.15859797	3.3801629	20	—	—
174045 2002 AU_{182}	15.0	X	103.14715	39.54233	53.85947	6.30217	0.1521858	0.17432979	3.1736204	20	4 16.8	19.6
174046 2002 BU_{8}	15.4	X	74.69002	31.24395	124.26796	12.04481	0.1480020	0.17395256	3.1782069	20	5 30.4	20.0
174047 2002 BW_{12}	14.4	X	313.75122	119.63078	319.61530	9.28160	0.0352023	0.14894447	3.5246809	20	11 16.7	19.5
174048 2002 BP_{17}	15.5	X	40.93884	206.79181	295.23498	4.56727	0.0906705	0.16954137	3.2330984	20	3 13.7	19.6
174049 2002 BQ_{23}	14.8	X	57.47928	130.60390	15.50173	13.46307	0.1486908	0.17281966	3.1920814	20	4 19.2	19.0
174050 2002 CC_{19}	17.5	X	175.52191	20.12349	134.74626	50.06122	0.1134110	0.67683622	1.2847353	20	—	—
174051 2002 CW_{19}	15.3	X	140.70678	87.03274	344.41244	8.78130	0.0842054	0.17450680	3.1714739	20	4 18.3	20.2
174052 2002 CB_{34}	14.8	X	171.10214	258.14353	114.16273	22.23940	0.0853558	0.17125588	3.2114837	20	3 21.7	20.1
174053 2002 CF_{54}	14.3	X	280.18629	244.78303	322.05033	14.11214	0.0895410	0.15580642	3.4204177	20	—	—
174054 2002 CC_{57}	16.7	X	284.18944	285.88559	156.95992	5.34536	0.0783200	0.30271650	2.1967400	20	11 18.3	18.8
174055 2002 CE_{75}	16.9	X	112.21092	250.45490	21.37463	2.20157	0.1527442	0.30337801	2.1935455	20	12 18.6	20.1
174056 2002 CW_{104}	16.6	X	125.70559	221.81199	2.13220	7.11471	0.0587020	0.29676717	2.2260016	20	10 26.5	19.6
174057 2002 CG_{127}	15.2	X	145.26052	275.62913	153.21610	5.99752	0.1536490	0.17567289	3.1574238	20	4 30.4	20.3
174058 2002 CD_{160}	15.2	X	69.56662	28.20800	104.72570	16.54985	0.1812596	0.17256467	3.1952250	20	5 4.3	19.7
174059 2002 CJ_{163}	14.4	X	231.06745	209.18733	118.73057	16.88625	0.0774278	0.17072722	3.2181098	20	3 29.1	19.5
174060 2002 CL_{245}	14.3	X	338.00304	310.51417	323.80209	26.58541	0.2369358	0.17631912	3.1497043	20	4 30.7	18.5
174061 2002 CU_{258}	14.9	X	323.78408	124.86862	145.23059	16.44844	0.0666938	0.17651900	3.1473261	20	5 9.6	19.4
174062 2002 CL_{302}	15.8	X	110.52541	4.52917	151.78746	2.48888	0.1096926	0.18120398	3.0928408	20	7 5.5	20.4
174063 2002 CV_{306}	15.7	X	348.12718	72.60717	143.65723	9.26583	0.0948195	0.17005231	3.2266191	20	4 1.8	19.8
174064 2002 DM_{15}	14.8	X	227.30281	192.49481	156.94792	18.76631	0.1057894	0.17276277	3.1927821	20	4 15.4	19.9
174065 2002 EH_{4}	15.2	X	13.31965	198.08305	4.98348	0.25868	0.0868060	0.16917389	3.2377787	20	4 20.7	19.4
174066 2002 EH_{34}	16.5	X	23.10550	211.07731	42.79939	3.93552	0.1689435	0.28400083	2.2922201	20	8 3.7	18.5
174067 2002 ER_{53}	17.8	X	237.47496	326.97340	247.45076	0.58498	0.0713431	0.31199657	2.1529611	20	—	—
174068 2002 EG_{71}	16.0	X	352.37709	298.46548	347.10663	6.61616	0.1161929	0.28288373	2.2982507	20	7 15.8	18.1
174069 2002 EJ_{71}	16.7	X	19.08717	48.93230	209.23937	4.47426	0.1235086	0.28280575	2.2986732	20	7 22.9	18.8
174070 2002 EV_{82}	16.9	X	305.12518	322.52929	324.21024	1.81492	0.2012397	0.27544428	2.3394488	20	4 1.3	19.4
174071 2002 ER_{99}	16.4	X	203.03694	44.86667	63.56602	6.66801	0.0664318	0.29433167	2.2382644	20	8 27.9	19.4
174072 2002 EA_{111}	16.4	X	23.06796	127.13261	136.86265	6.26459	0.1521624	0.28464285	2.2887720	20	8 15.9	18.4
174073 2002 EA_{129}	17.2	X	184.96476	73.12117	136.23480	2.91772	0.0690743	0.30248956	2.1978386	20	12 20.7	19.8
174074 2002 EO_{133}	14.2	X	32.57735	294.19460	357.66209	4.23216	0.2145380	0.12542754	3.9525203	20	9 23.1	19.1
174075 2002 EF_{153}	16.8	X	124.90795	311.12007	263.01969	6.79276	0.1308801	0.29445362	2.2376464	20	10 13.2	20.2
174076 2002 FH_{1}	17.4	X	28.03200	247.65354	129.46702	3.01678	0.2248080	0.30961779	2.1639743	20	—	—
174077 2002 FP_{21}	13.6	X	34.27260	251.13644	33.78097	5.32766	0.1424917	0.12498514	3.9618418	20	9 9.7	18.7
174078 2002 GB_{15}	16.9	X	206.64844	145.70633	12.13318	5.33455	0.0836361	0.29926025	2.2136215	20	11 3.8	19.7
174079 2002 GG_{35}	16.9	X	275.48753	134.00166	119.60967	2.31165	0.1477060	0.26494115	2.4008762	20	1 22.1	20.1
174080 2002 GY_{36}	14.9	X	30.27906	243.10724	30.86594	10.94408	0.1071161	0.17941497	3.1133666	20	8 27.0	19.0

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
174081 2002 GU_{37}	17.3	X	237.55521	186.69035	11.21521	4.78396	0.1001421	0.30689676	2.1767465	20	—	—
174082 2002 GX_{44}	16.3	X	32.65266	145.36589	214.12482	6.38998	0.1435141	0.29978862	2.2110198	20	—	—
174083 2002 GF_{63}	16.0	X	309.54964	193.75939	171.21714	5.31617	0.1766976	0.28645523	2.2791079	20	8 17.2	17.8
174084 2002 GX_{71}	16.8	X	1.86399	158.36394	108.82837	1.72892	0.2091120	0.27960205	2.3161987	20	7 9.1	18.2
174085 2002 GU_{98}	16.4	X	22.42366	30.98090	304.23832	1.12935	0.1629220	0.29589954	2.2303509	20	12 3.4	18.9
174086 2002 GO_{107}	16.3	X	125.86849	173.56156	100.56938	6.04309	0.2283284	0.29895623	2.2151219	20	—	—
174087 2002 GT_{110}	16.7	X	91.70092	221.83254	60.54046	7.97610	0.1572085	0.29544704	2.2326276	20	12 10.8	20.0
174088 2002 GE_{130}	16.7	X	253.05135	159.52031	211.64815	6.60464	0.1412536	0.28096976	2.3086760	20	5 31.5	19.7
174089 2002 GX_{137}	14.1	X	82.03082	301.86089	302.81069	5.24834	0.1634594	0.12463812	3.9691922	20	9 19.3	19.9
174090 2002 GY_{142}	16.9	X	98.80954	289.14678	208.98035	3.49529	0.0469332	0.27660417	2.3329042	20	5 20.5	19.8
174091 2002 GU_{148}	17.6	X	208.93813	310.21834	298.84953	1.03317	0.1166281	0.30968559	2.1636585	20	—	—
174092 2002 GV_{150}	17.0	X	236.56848	77.79640	147.58191	3.62919	0.0339232	0.31079572	2.1585032	20	—	—
174093 2002 GA_{160}	16.8	X	112.46833	150.55129	75.84488	7.32248	0.0707911	0.29342711	2.2428620	20	10 19.3	19.8
174094 2002 GU_{181}	17.4	X	309.64154	72.98971	8.04344	5.81973	0.1062353	0.30263711	2.1971241	20	12 30.8	19.3
174095 2002 HB_{5}	16.9	X	162.44414	103.93693	131.44168	6.47697	0.1345575	0.29979348	2.2109959	20	12 21.6	20.0
174096 2002 JJ_{12}	16.6	X	148.65060	10.63863	176.36850	5.31114	0.1169449	0.29204822	2.2499162	20	10 5.2	19.8
174097 2002 JJ_{15}	17.3	X	197.99619	128.26529	111.65573	4.39560	0.1793457	0.30445775	2.1883563	20	—	—
174098 2002 JO_{15}	16.7	X	12.09788	211.84320	82.38159	6.63062	0.1711035	0.28236062	2.3010884	20	9 19.1	18.9
174099 2002 JT_{19}	16.4	X	282.89687	330.35306	98.60715	7.94174	0.0364842	0.29190946	2.2506291	20	10 29.8	19.0
174100 2002 JH_{24}	16.7	X	12.57330	199.69825	74.67427	6.69167	0.0311537	0.28170184	2.3046745	20	7 29.7	19.4
174101 2002 JH_{27}	16.9	X	271.25052	305.03617	195.17495	5.33245	0.0736916	0.30240898	2.1982290	20	—	—
174102 2002 JS_{37}	16.9	X	152.69821	319.21826	271.18719	4.51098	0.1174431	0.29652481	2.2272144	20	12 5.1	20.1
174103 2002 JA_{38}	16.4	X	268.76095	206.90186	93.97789	6.49991	0.1595223	0.26679481	2.3897426	20	3 17.1	19.8
174104 2002 JP_{45}	17.0	X	40.29174	60.74310	234.62806	5.91880	0.1942724	0.28725328	2.2748847	20	11 5.1	19.8
174105 2002 JJ_{51}	17.2	X	37.88853	211.17033	17.24431	2.52105	0.1331609	0.27807447	2.3246735	20	7 14.3	19.4
174106 2002 JS_{53}	16.9	X	32.99805	241.76744	54.49750	3.14398	0.1647219	0.28647499	2.2790030	20	10 23.7	19.4
174107 2002 JZ_{53}	17.1	X	340.76778	332.55392	285.92167	1.41727	0.1114173	0.27430394	2.3459280	20	5 5.9	19.3
174108 2002 JX_{60}	16.7	X	262.02461	21.14703	40.37418	7.44517	0.0828644	0.28745054	2.2738438	20	9 8.7	19.3
174109 2002 JG_{62}	17.3	X	126.70217	124.52427	127.83270	3.20182	0.1811706	0.29439200	2.2379586	20	12 6.4	20.9
174110 2002 JE_{65}	16.4	X	245.14481	169.52178	113.00099	2.43700	0.1735993	0.26031925	2.4292108	20	1 27.0	20.2
174111 2002 JE_{72}	15.9	X	353.13367	92.77431	135.41040	7.42877	0.0571284	0.27180964	2.3602580	20	4 20.6	18.6
174112 2002 JS_{82}	16.2	X	253.47838	294.97862	34.76183	4.78271	0.1510889	0.27099134	2.3650071	20	4 5.1	19.5
174113 2002 JU_{82}	17.2	X	12.67239	29.11773	216.20878	3.42641	0.1375723	0.27765501	2.3270143	20	6 20.9	19.1
174114 2002 JY_{91}	14.8	X	99.92737	0.82203	236.05219	2.60159	0.1608192	0.12490976	3.9634356	20	9 29.3	20.7
174115 2002 JJ_{93}	16.9	X	135.17392	124.37751	77.93603	0.73143	0.1378394	0.29007696	2.2600978	20	10 10.9	20.1
174116 2002 JT_{104}	16.8	X	77.44276	124.23913	85.60661	5.93945	0.1315346	0.28170987	2.3046307	20	8 18.4	19.8
174117 2002 JR_{105}	17.1	X	115.96805	67.64968	187.69596	1.83108	0.1036251	0.29234556	2.2483904	20	11 28.8	20.1
174118 2002 JA_{127}	17.0	X	11.42622	182.09367	120.35247	6.80663	0.1819084	0.28315798	2.2967665	20	10 2.2	19.1
174119 2002 JA_{135}	16.9	X	222.38820	283.45352	30.98838	1.97066	0.1737401	0.26278019	2.4140206	20	2 15.0	20.7
174120 2002 JC_{146}	15.7	X	220.75194	199.19725	140.29869	16.74585	0.2465981	0.26282344	2.4137558	20	3 15.6	20.0
174121 2002 KM_{4}	14.6	X	114.29715	160.80964	73.33416	3.04260	0.1796343	0.12561769	3.9485306	20	10 12.9	20.7
174122 2002 KH_{13}	17.4	X	207.50050	127.36477	88.56621	2.39410	0.0910150	0.30184372	2.2009725	20	—	—
174123 2002 LG_{2}	15.4	X	38.92977	273.76191	83.19892	15.07164	0.2119502	0.23403905	2.6078174	20	—	—
174124 2002 LF_{8}	16.6	X	324.36304	192.92871	115.56260	5.34026	0.2386434	0.27448611	2.3448900	20	6 5.5	18.3
174125 2002 LA_{12}	16.2	X	30.05114	123.31642	108.43319	11.07728	0.2179656	0.27555457	2.3388245	20	7 18.7	18.2
174126 2002 LS_{17}	16.8	X	13.33397	197.97819	88.21700	7.21083	0.1044020	0.28013691	2.3132496	20	8 28.3	19.2
174127 2002 LB_{19}	16.1	X	231.33323	207.06320	111.66459	6.14681	0.2129566	0.26068256	2.4269532	20	2 27.9	20.1
174128 2002 LQ_{19}	16.7	X	44.83185	151.42737	85.79718	3.02469	0.1872035	0.27910175	2.3189658	20	8 19.5	19.1
174129 2002 LZ_{23}	16.3	X	149.92535	333.35350	280.49613	5.89063	0.1621902	0.29508171	2.2344699	20	12 29.5	19.5
174130 2002 LL_{27}	16.8	X	84.72612	145.44363	98.02839	8.86917	0.1757229	0.28294655	2.2979105	20	10 19.5	20.3
174131 2002 LT_{43}	16.4	X	55.29759	107.63239	217.51815	9.02676	0.2752689	0.23181884	2.6244415	20	12 27.3	20.6
174132 2002 MB_{2}	16.2	X	255.69491	174.69536	140.80405	1.80411	0.1739970	0.26213043	2.4180081	20	3 18.0	19.8
174133 2002 NX_{10}	16.6	X	292.54887	146.66035	129.81140	2.99702	0.1884488	0.26363924	2.4087738	20	3 6.4	19.7
174134 2002 NE_{11}	16.1	X	78.69348	68.07272	278.37712	2.35851	0.1715572	0.23829034	2.5767073	20	—	—
174135 2002 NT_{12}	16.2	X	99.67872	247.44376	115.88703	13.91114	0.2262052	0.24235872	2.5477899	20	—	—
174136 2002 NR_{15}	16.3	X	225.43459	15.89934	335.90997	6.20931	0.1477437	0.26202699	2.4186445	20	4 2.3	20.0
174137 2002 NE_{22}	16.0	X	183.48436	231.31175	138.22653	6.01414	0.2017413	0.25568644	2.4584663	20	3 21.7	20.1
174138 2002 NQ_{25}	15.7	X	24.03573	55.60658	302.92544	13.45723	0.3134737	0.22742175	2.6581616	20	—	—
174139 2002 NH_{41}	15.8	X	332.53238	44.81554	321.94919	10.73974	0.2459868	0.22250020	2.6972163	20	9 22.7	18.0
174140 2002 NK_{50}	16.2	X	72.78738	72.46627	317.73645	2.52303	0.2264726	0.24273794	2.5451357	20	—	—
174141 2002 NO_{52}	16.9	X	312.50542	188.46233	102.09425	3.77546	0.2036030	0.26721831	2.3872171	20	4 21.5	19.4
174142 2002 NP_{56}	16.0	X	42.27364	186.95827	170.50407	4.73739	0.3552094	0.22995009	2.6386411	20	—	—
174143 2002 NX_{61}	15.7	X	332.10798	49.51703	331.84156	7.23980	0.2336719	0.22418214	2.6837087	20	10 17.6	18.1
174144 2002 NT_{65}	17.6	X	81.92572	305.83682	297.32022	2.01657	0.1102091	0.28072497	2.3100180	20	10 2.9	20.7
174145 2002 OU_{1}	16.1	X	19.68004	98.81586	263.38622	10.19540	0.2054756	0.22854524	2.6494431	20	12 24.1	19.4
174146 2002 OD_{11}	16.4	X	25.84837	113.18949	264.54351	2.19232	0.1802129	0.23183342	2.6243314	20	—	—
174147 2002 OP_{11}	16.9	X	328.64954	30.06106	198.96375	1.66706	0.1292484	0.26128120	2.4232447	20	2 29.5	19.7
174148 2002 OT_{11}	15.7	X	85.87771	125.50764	210.89472	13.52530	0.1144288	0.23775708	2.5805587	20	—	—
174149 2002 OH_{22}	16.6	X	196.63509	64.67848	284.14193	4.68526	0.0804666	0.25564414	2.4587374	20	3 2.0	20.1
174150 2002 PD	16.5	X	121.33435	217.45811	106.42424	2.70663	0.3044391	0.24024803	2.5626905	20	—	—
174151 2002 PQ_{24}	16.5	X	348.73185	324.32742	310.37015	6.00086	0.0994203	0.26961609	2.3730425	20	6 17.9	18.9
174152 2002 PB_{39}	17.1	X	69.75913	61.55497	181.13010	3.16022	0.1400085	0.27803970	2.3248673	20	9 21.9	20.0
174153 2002 PO_{46}	16.6	X	63.02196	55.99039	320.48235	3.51307	0.2926098	0.23398919	2.6081877	20	—	—
174154 2002 PP_{46}	16.4	X	109.61277	38.92047	312.01232	4.01724	0.3234861	0.23864911	2.5741242	20	1 3.9	19.7
174155 2002 PH_{47}	15.1	X	46.12867	25.81383	299.23919	12.34272	0.2494076	0.22788040	2.6545937	20	12 15.9	19.1
174156 2002 PX_{47}	15.7	X	88.88815	354.40533	291.82306	11.28028	0.1677020	0.22952829	2.6418728	20	12 1.5	20.0
174157 2002 PR_{61}	15.9	X	159.31394	342.03817	277.72388	11.92586	0.1281250	0.23720943	2.5845290	20	—	—
174158 2002 PM_{62}	17.1	X	70.57248	121.89891	135.58564	6.20016	0.1435205	0.28061777	2.3106062	20	10 16.8	20.3
174159 2002 PO_{64}	15.6	X	284.66970	71.10116	293.45156	8.08673	0.1790678	0.21552455	2.7551054	20	6 26.1	19.2
174160 2002 PA_{66}	16.5	X	142.08212	116.02865	284.01656	7.43197	0.1335716	0.25569308	2.4584237	20	3 10.5	20.3

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
174161 2002 PU_{66}	16.1	X	34.75607	305.15622	139.71613	13.36644	0.0270857	0.24745550	2.5126846	20	—	—
174162 2002 PE_{67}	16.9	X	316.05817	176.68295	146.31283	1.09331	0.2203788	0.27101926	2.3648447	20	6 13.4	18.7
174163 2002 PK_{69}	15.7	X	343.89990	143.75571	270.19687	11.07694	0.1841040	0.22812751	2.6526764	20	—	—
174164 2002 PD_{71}	15.8	X	282.12578	135.33235	274.71043	12.27077	0.2209565	0.21746351	2.7387042	20	8 12.0	19.4
174165 2002 PH_{73}	16.2	X	309.35953	26.05273	265.16094	6.03408	0.0780518	0.26459715	2.4029567	20	5 5.1	19.0
174166 2002 PO_{77}	15.3	X	39.78890	235.25630	113.52540	13.01570	0.2814107	0.22930154	2.6436141	20	—	—
174167 2002 PC_{81}	17.4	X	59.30676	251.51201	16.52162	2.61831	0.1516759	0.28044067	2.3115789	20	10 15.5	20.4
174168 2002 PD_{84}	16.3	X	80.47834	150.34604	140.70770	7.52014	0.1303707	0.28456194	2.2892058	20	12 8.2	19.6
174169 2002 PP_{88}	16.9	X	67.67309	300.31014	68.69656	3.84348	0.1834025	0.23556873	2.5965157	20	—	—
174170 2002 PE_{90}	15.1	X	78.73488	25.86350	277.91975	14.52645	0.1230313	0.23108405	2.6300019	20	12 9.9	19.0
174171 2002 PX_{90}	15.6	X	48.05490	105.33971	243.63541	10.24241	0.2180702	0.22947088	2.6423134	20	—	—
174172 2002 PA_{91}	15.6	X	337.80702	53.81080	294.21677	13.26974	0.2113672	0.21800483	2.7341687	20	9 2.9	18.3
174173 2002 PL_{97}	16.0	X	38.48602	257.49976	115.72390	9.12707	0.3231217	0.23076333	2.6324382	20	—	—
174174 2002 PO_{97}	15.8	X	218.04501	217.51629	128.04397	7.75718	0.2538598	0.25660611	2.4525887	20	3 20.5	20.1
174175 2002 PY_{97}	15.4	X	26.41534	319.99405	358.86264	13.53621	0.1807738	0.22432282	2.6825865	20	10 28.1	18.8
174176 2002 PU_{109}	16.7	X	4.32057	128.99771	274.69211	10.85132	0.2966998	0.22934350	2.6432917	20	—	—
174177 2002 PH_{116}	15.3	X	296.16456	88.07747	287.44198	22.69579	0.2613699	0.21641962	2.7475037	20	7 14.1	18.4
174178 2002 PK_{120}	16.1	X	340.59027	87.54152	296.41587	7.24656	0.3034842	0.22305108	2.6927736	20	11 22.5	18.1
174179 2002 PB_{126}	15.9	X	121.74672	174.08478	119.14725	5.48041	0.2172875	0.23739028	2.5832162	20	—	—
174180 2002 PL_{130}	16.0	X	101.55176	19.68832	349.03962	14.73895	0.1467237	0.24214109	2.5493163	20	—	—
174181 2002 PR_{133}	17.0	X	276.03272	339.17892	325.08794	3.63458	0.0873827	0.26191540	2.4193314	20	4 4.1	20.1
174182 2002 PJ_{136}	15.3	X	316.64984	113.67958	320.77424	11.72993	0.2360097	0.22879059	2.6475486	20	12 4.9	17.7
174183 2002 PA_{138}	16.8	X	342.55854	120.62427	234.68737	1.58215	0.1545793	0.22168606	2.7038159	20	10 1.6	19.4
174184 2002 PB_{142}	15.5	X	9.09035	113.19621	312.76120	25.77704	0.2142677	0.23346730	2.6120732	20	—	—
174185 2002 PP_{155}	16.4	X	56.04758	271.63306	125.43544	3.23316	0.2143399	0.23861601	2.5743623	20	—	—
174186 2002 PY_{157}	16.8	X	128.25369	278.38322	329.94164	4.60345	0.0969063	0.28737935	2.2742193	20	11 30.5	20.0
174187 2002 PP_{164}	16.3	X	323.92628	130.60845	255.33780	3.49851	0.1913049	0.22186731	2.7023432	20	10 6.4	18.9
174188 2002 QM_{1}	17.0	X	43.02257	133.19153	110.59455	6.38819	0.2011534	0.27472042	2.3435565	20	8 29.3	19.6
174189 2002 QL_{3}	16.6	X	301.96074	51.25660	235.82384	2.80874	0.0984442	0.26270953	2.4144534	20	4 15.3	19.4
174190 2002 QK_{4}	16.0	X	358.88949	65.67420	319.66786	12.17739	0.1685395	0.22784913	2.6548366	20	12 17.8	19.2
174191 2002 QL_{9}	16.5	X	330.51108	177.52687	100.44674	8.40117	0.1110736	0.26549906	2.3975116	20	5 20.4	19.1
174192 2002 QM_{12}	16.5	X	342.51520	358.93829	204.05587	6.36689	0.0479379	0.25593575	2.4568695	20	2 24.8	19.5
174193 2002 QQ_{17}	16.7	X	2.51257	283.43493	330.88306	4.18106	0.0928284	0.26863686	2.3788058	20	6 11.7	19.0
174194 2002 QW_{19}	15.3	X	284.21920	84.65873	304.20386	8.11844	0.2233761	0.21456164	2.7633422	20	7 21.6	18.6
174195 2002 QW_{30}	16.8	X	337.12742	150.25697	113.35030	3.12361	0.1405365	0.26594848	2.3948098	20	5 6.0	19.0
174196 2002 QX_{30}	16.3	X	302.87349	301.60429	51.05082	2.56966	0.0787191	0.21568962	2.7536995	20	7 23.3	19.6
174197 2002 QN_{36}	15.8	X	181.33232	62.80864	303.99096	0.69914	0.1102330	0.19807493	2.9146274	20	3 15.9	20.3
174198 2002 QS_{41}	16.4	X	217.58512	218.80911	120.05144	4.98920	0.1415020	0.25736055	2.4477933	20	3 14.3	20.1
174199 2002 QS_{43}	16.1	X	236.29401	272.65201	31.30860	5.39375	0.1903050	0.25612582	2.4556538	20	2 15.9	20.1
174200 2002 QF_{46}	16.0	X	46.91774	219.52317	86.49867	7.06443	0.3182041	0.22799976	2.6536672	20	12 2.1	19.9
174201 2002 QO_{48}	16.7	X	21.57570	76.73034	332.99606	10.60369	0.2040012	0.23434382	2.6055558	20	—	—
174202 2002 QQ_{49}	16.9	X	103.51727	354.33932	343.92787	2.18308	0.0891160	0.23948100	2.5681596	20	—	—
174203 2002 QY_{50}	15.9	X	309.81978	165.67025	324.57174	11.11676	0.0173770	0.23725805	2.5841759	20	—	—
174204 2002 QM_{63}	17.1	X	352.72580	340.70731	29.57088	2.54982	0.2021388	0.22486122	2.6783028	20	11 18.6	19.6
174205 2002 QW_{63}	16.2	X	88.57239	39.10943	338.81438	14.45314	0.1634421	0.24090832	2.5580058	20	—	—
174206 2002 QB_{68}	17.1	X	210.29105	93.76451	175.25691	1.88063	0.1199010	0.24616268	2.5214744	20	—	—
174207 2002 QF_{69}	17.0	X	47.18767	187.62758	45.21492	2.73836	0.1844628	0.27287433	2.3541146	20	8 15.5	19.6
174208 2002 QF_{76}	16.4	X	81.02349	279.59719	105.92943	9.11534	0.1463918	0.24049356	2.5609460	20	—	—
174209 2002 QX_{79}	16.4	X	222.16956	12.19208	307.47523	5.68963	0.1243553	0.25689749	2.4507338	20	2 21.1	20.0
174210 2002 QH_{81}	16.5	X	116.03973	38.87236	330.05624	12.69622	0.0866753	0.24567127	2.5248358	20	—	—
174211 2002 QH_{92}	16.8	X	307.76521	214.18767	101.44098	4.57199	0.2026836	0.26849087	2.3796680	20	5 20.5	19.4
174212 2002 QD_{95}	16.7	X	53.78415	311.06249	49.75838	3.12651	0.1002628	0.23405403	2.6077061	20	—	—
174213 2002 QO_{104}	17.0	X	278.10951	71.91193	232.75077	1.24556	0.0621674	0.26234895	2.4166652	20	4 12.5	19.9
174214 2002 QC_{105}	16.9	X	99.25474	140.42978	1.40693	1.39374	0.1238223	0.26255308	2.4154125	20	6 6.6	20.1
174215 2002 QE_{117}	16.5	X	112.49599	266.74870	203.83254	4.45127	0.0977456	0.26048859	2.4281579	20	5 8.4	19.7
174216 2002 QO_{122}	16.5	X	332.10277	74.65407	353.64484	3.63965	0.0408947	0.23344585	2.6122332	20	12 21.5	19.7
174217 2002 RE_{2}	15.5	X	21.11337	33.47896	349.35007	14.33465	0.1090596	0.22951719	2.6419579	20	—	—
174218 2002 RK_{2}	16.3	X	75.18340	218.69596	172.33868	12.30622	0.1624898	0.23857487	2.5746582	20	—	—
174219 2002 RB_{12}	16.5	X	15.76914	130.92577	274.57648	1.25500	0.1894959	0.23044337	2.6348743	20	—	—
174220 2002 RW_{16}	16.5	X	39.53730	356.46938	344.54063	2.76922	0.1510930	0.22778152	2.6553619	20	12 14.5	20.1
174221 2002 RK_{19}	16.6	X	82.84464	312.75047	72.35800	2.25485	0.2131723	0.23833281	2.5764012	20	—	—
174222 2002 RE_{24}	15.9	X	349.42334	79.62604	336.74857	9.38647	0.2419812	0.22816223	2.6524073	20	—	—
174223 2002 RZ_{29}	16.8	X	221.35916	88.29927	214.85001	5.91869	0.1629085	0.25177182	2.4838840	20	1 30.1	21.0
174224 2002 RK_{30}	16.4	X	22.39976	104.07940	288.22927	4.49103	0.1413929	0.23123981	2.6288208	20	—	—
174225 2002 RO_{33}	15.6	X	266.43386	156.45722	228.56842	3.50200	0.0850149	0.21262571	2.7800901	20	7 12.4	19.3
174226 2002 RQ_{33}	15.8	X	322.78407	94.14558	325.04307	7.37161	0.1886147	0.22488743	2.6780947	20	11 23.6	18.4
174227 2002 RX_{42}	16.6	X	109.31050	234.09131	128.87782	5.16247	0.1529016	0.24131729	2.5551148	20	—	—
174228 2002 RN_{45}	16.7	X	75.26854	279.45780	82.43150	3.34996	0.1809659	0.23542585	2.5975662	20	—	—
174229 2002 RX_{49}	16.0	X	27.92755	282.13091	149.99191	5.65142	0.2675579	0.23430912	2.6058130	20	—	—
174230 2002 RY_{66}	16.0	X	43.97678	32.30747	335.23498	16.66245	0.1927963	0.23018665	2.6368330	20	—	—
174231 2002 RL_{72}	16.3	X	60.30945	339.78622	359.46742	2.54809	0.0995113	0.23135226	2.6279689	20	12 31.0	20.0
174232 2002 RH_{73}	16.6	X	153.04712	178.36895	170.26973	5.71795	0.1097909	0.24661631	2.5183815	20	1 19.2	20.3
174233 2002 RH_{82}	15.0	X	270.07795	63.38965	354.38992	14.83786	0.2756560	0.21377367	2.7701284	20	8 7.1	19.0
174234 2002 RD_{84}	15.8	X	346.16506	162.23783	189.15873	4.81980	0.1721477	0.21960265	2.7208901	20	10 4.4	18.4
174235 2002 RA_{92}	16.4	X	94.74933	205.81642	169.20767	4.18288	0.1638942	0.24065068	2.5598311	20	—	—
174236 2002 RO_{117}	16.1	X	51.89988	1.42054	31.14927	10.07209	0.1322133	0.23437499	2.6053248	20	—	—
174237 2002 RQ_{122}	15.7	X	332.87905	291.14531	76.89068	10.54448	0.1440582	0.21985980	2.7187681	20	10 7.4	18.7
174238 2002 RV_{122}	15.9	X	311.96582	259.61921	115.61255	9.77875	0.1670319	0.21708405	2.7418947	20	8 31.9	18.8
174239 2002 RQ_{124}	16.0	X	337.55627	347.52661	95.19618	9.79828	0.0538160	0.23312266	2.6146470	20	—	—
174240 2002 RR_{130}	16.2	X	71.03219	101.16542	328.53904	12.37471	0.1663967	0.24169422	2.5524576	20	1 27.9	18.9

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
174241 2002 RE_{145}	15.6	X	2.62882	184.42335	0.21496	8.67722	0.1205774	0.25283126	2.4769403	20	2 29.4	18.2
174242 2002 RC_{148}	16.5	X	116.41239	332.08472	63.00908	1.87189	0.1115674	0.24568115	2.5247681	20	2 6.2	19.8
174243 2002 RC_{149}	15.7	X	324.31006	153.19799	249.75889	11.05507	0.1032701	0.22395053	2.6855588	20	11 3.1	18.8
174244 2002 RM_{154}	17.6	X	160.60374	139.29363	201.43157	2.43345	0.1607096	0.24612120	2.5217577	20	1 22.4	21.3
174245 2002 RK_{155}	16.0	X	353.22785	82.84556	220.81643	1.78928	0.0728321	0.21503955	2.7592464	20	8 3.6	19.3
174246 2002 RN_{158}	16.0	X	96.10480	314.13393	332.88702	5.41990	0.1680943	0.28518688	2.2858603	20	12 19.8	19.5
174247 2002 RG_{170}	16.2	X	115.35022	82.91715	283.20468	3.96278	0.0733907	0.24374495	2.5381209	20	—	—
174248 2002 RL_{172}	15.8	X	33.41359	274.37464	133.78143	11.81609	0.1952943	0.23431868	2.6057422	20	—	—
174249 2002 RU_{174}	16.5	X	40.57774	151.15112	273.60450	4.44559	0.0929655	0.23881361	2.5729421	20	—	—
174250 2002 RU_{177}	16.7	X	127.39574	35.35198	316.75838	4.41767	0.0851253	0.24160710	2.5530712	20	—	—
174251 2002 RR_{184}	15.8	X	112.07228	79.48689	207.29293	13.70829	0.0716640	0.23062765	2.6334706	20	12 19.5	19.9
174252 2002 RN_{186}	15.8	X	43.04984	46.36680	237.85666	8.41791	0.0777448	0.21898797	2.7259793	20	9 20.4	19.5
174253 2002 RN_{189}	16.7	X	59.35297	97.75347	232.36239	3.16369	0.1119450	0.22950530	2.6420492	20	12 19.5	20.3
174254 2002 RK_{199}	16.1	X	327.62745	91.51724	357.51205	11.16056	0.1651038	0.22947601	2.6422741	20	—	—
174255 2002 RP_{200}	16.0	X	91.67528	355.97898	72.86701	7.18316	0.1320916	0.24664444	2.5181900	20	2 23.3	19.1
174256 2002 RS_{200}	16.1	X	174.68323	217.08671	112.03454	6.78331	0.1278269	0.24682473	2.5169636	20	1 20.3	19.9
174257 2002 RM_{211}	16.6	X	174.09493	302.44543	26.88936	3.13377	0.1499234	0.24428149	2.5344030	20	1 22.4	20.4
174258 2002 RE_{216}	15.9	X	333.29571	19.42521	20.56715	8.82089	0.2505651	0.22377051	2.6869989	20	11 21.7	18.1
174259 2002 RF_{219}	16.4	X	15.94964	285.71874	357.53993	6.75954	0.1010792	0.27312777	2.3526580	20	8 25.2	18.8
174260 2002 RR_{224}	15.9	X	336.25855	342.10343	61.87067	9.87117	0.2616591	0.22377101	2.6869948	20	12 8.5	17.9
174261 2002 RB_{227}	17.0	X	35.69323	121.92028	247.68218	2.27338	0.1916489	0.23002845	2.6380419	20	—	—
174262 2002 RC_{231}	15.8	X	55.49608	297.57241	39.07199	13.02667	0.0791090	0.22938760	2.6429529	20	12 17.5	19.6
174263 2002 RJ_{238}	16.9	X	92.43941	7.18646	221.36459	1.55477	0.1630648	0.27745444	2.3281356	20	10 1.0	20.2
174264 2002 RB_{239}	15.9	X	345.96503	244.79805	177.18743	9.52222	0.1140349	0.23067649	2.6330988	20	—	—
174265 2002 RM_{239}	16.5	X	14.74881	235.19359	329.75474	6.02979	0.0694833	0.25978646	2.4325309	20	4 16.2	19.3
174266 2002 RW_{239}	16.9	X	104.88721	103.78563	144.24284	5.71514	0.1363896	0.28275399	2.2989537	20	11 9.3	20.3
174267 2002 RS_{254}	16.6	X	254.30293	347.97846	205.77209	2.37393	0.0972973	0.23877272	2.5732357	20	—	—
174268 2002 RF_{263}	15.5	X	67.05138	239.30708	115.52207	16.43357	0.1799599	0.22976086	2.6400897	20	—	—
174269 2002 RL_{274}	17.0	X	4.27618	75.85083	352.00996	3.42151	0.2260940	0.23331900	2.6131799	20	—	—
174270 2002 SU_{8}	16.2	X	340.20319	274.25882	128.59625	2.95859	0.2489452	0.22315275	2.6919555	20	12 15.5	18.5
174271 2002 SV_{8}	16.1	X	294.07776	30.36656	34.42657	4.63321	0.0592868	0.22040064	2.7143186	20	10 19.4	19.3
174272 2002 SK_{10}	16.1	X	349.61930	85.30818	20.83820	14.84999	0.0649453	0.23481468	2.6020715	20	—	—
174273 2002 SL_{10}	15.8	X	120.27917	43.44611	185.89064	8.84019	0.0259696	0.21976658	2.7195369	20	10 15.1	19.6
174274 2002 SH_{11}	16.3	X	60.34500	6.01715	69.25018	2.53131	0.0448878	0.24141168	2.5544488	20	1 3.3	19.2
174275 2002 SX_{15}	16.5	X	124.16383	17.21546	307.27073	11.23151	0.2411455	0.23765950	2.5812650	20	—	—
174276 2002 SX_{16}	16.7	X	329.90910	82.10513	358.52297	3.03223	0.1894713	0.22629957	2.6669420	20	—	—
174277 2002 SH_{17}	17.0	X	3.44532	55.41779	209.49730	1.63358	0.2025775	0.26699683	2.3885370	20	7 7.1	18.6
174278 2002 SB_{22}	15.7	X	94.49782	285.88612	17.50833	12.04363	0.0590023	0.22878551	2.6475878	20	12 19.4	19.7
174279 2002 SE_{27}	16.3	X	79.55482	261.03586	107.27343	4.87240	0.1676885	0.23471511	2.6028073	20	—	—
174280 2002 SL_{27}	16.1	X	41.21303	306.11210	96.10223	15.26862	0.2139571	0.23274089	2.6175054	20	—	—
174281 Lonský	15.9	X	8.63357	350.79277	89.15799	8.06923	0.0827412	0.23282414	2.6168814	20	—	—
174282 2002 SA_{32}	16.0	X	355.40655	224.40187	140.77696	6.58439	0.0581170	0.22194378	2.7017224	20	11 3.1	19.4
174283 2002 SS_{32}	16.4	X	65.51631	127.84203	242.53463	1.77250	0.2941967	0.23319141	2.6141330	20	—	—
174284 2002 SK_{33}	16.6	X	52.25618	36.02743	350.67958	3.34742	0.2064004	0.23255185	2.6189237	20	—	—
174285 2002 SL_{35}	16.1	X	347.39510	288.41698	134.93656	2.93812	0.1972426	0.22636729	2.6664100	20	—	—
174286 2002 SO_{36}	16.1	X	53.19533	207.73362	147.87446	3.84662	0.1371456	0.22881447	2.6473644	20	—	—
174287 2002 SX_{37}	15.7	X	156.95091	221.85149	79.00733	9.78945	0.3618266	0.23998364	2.5645724	20	—	—
174288 2002 SL_{38}	16.2	X	82.18991	247.93582	41.40593	2.67627	0.0698833	0.22556238	2.6727496	20	11 18.8	19.8
174289 2002 SV_{46}	15.5	X	334.95996	173.30297	212.37650	9.23826	0.2522072	0.21881001	2.7274571	20	11 4.5	17.6
174290 2002 SX_{46}	15.5	X	90.24575	290.80612	42.37861	13.00386	0.1804373	0.23051503	2.6343282	20	—	—
174291 2002 SA_{48}	15.8	X	49.21194	147.39875	186.36783	5.76050	0.0669413	0.22635224	2.6665282	20	12 5.9	19.5
174292 2002 SG_{50}	15.5	X	329.44897	260.84741	64.61423	2.61757	0.2156950	0.21286056	2.7780448	20	7 15.6	18.0
174293 2002 SW_{52}	15.6	X	64.54422	305.28810	58.35731	12.34766	0.1791072	0.23297235	2.6157715	20	—	—
174294 2002 SP_{56}	16.4	X	118.44978	277.83235	75.54814	6.19573	0.1752606	0.24038464	2.5617195	20	—	—
174295 2002 SG_{57}	15.9	X	4.72761	326.46139	122.78289	7.93396	0.2979775	0.23190246	2.6238105	20	—	—
174296 2002 TA_{4}	16.2	X	100.26693	306.23090	42.09155	6.24492	0.0975542	0.23465109	2.6032807	20	—	—
174297 2002 TV_{12}	15.5	X	327.75470	92.01636	33.95693	8.39263	0.0352203	0.23674987	2.5878725	20	—	—
174298 2002 TK_{15}	16.7	X	80.21360	228.28368	150.24764	5.16461	0.2284433	0.23696877	2.5862786	20	—	—
174299 2002 TQ_{19}	16.5	X	356.71611	145.67590	43.88607	3.24442	0.0750576	0.25046390	2.4925237	20	3 1.0	19.4
174300 2002 TR_{21}	16.0	X	46.95590	348.47436	43.85340	5.31869	0.1002350	0.23236091	2.6203583	20	—	—
174301 2002 TJ_{24}	16.1	X	85.35366	311.72538	20.18260	5.65925	0.1289148	0.23097930	2.6307970	20	—	—
174302 2002 TZ_{27}	16.3	X	292.10568	167.13135	209.23313	4.43545	0.1674344	0.21177858	2.7874988	20	7 23.8	19.7
174303 2002 TZ_{42}	15.5	X	234.16837	253.37166	213.38877	12.20617	0.1130936	0.21391644	2.7688958	20	9 10.4	19.6
174304 2002 TE_{45}	16.0	X	44.73717	347.50590	44.85508	3.82884	0.1120226	0.23055050	2.6340580	20	—	—
174305 2002 TQ_{56}	16.6	X	147.34602	295.69265	15.92295	5.01496	0.1522397	0.23936192	2.5690113	20	—	—
174306 2002 TU_{61}	16.2	X	7.76418	76.87582	334.24124	11.40411	0.1403888	0.22922685	2.6441884	20	—	—
174307 2002 TY_{61}	16.1	X	338.44980	119.87391	306.41043	7.81201	0.0660422	0.22755054	2.6571585	20	12 28.5	19.3
174308 2002 TS_{63}	16.8	X	113.82700	27.50875	305.83932	0.53532	0.1450249	0.23502252	2.6005371	20	—	—
174309 2002 TX_{65}	16.7	X	74.28690	13.48291	359.49873	1.40402	0.0868884	0.23344069	2.6122717	20	—	—
174310 2002 TL_{70}	15.5	X	341.61975	194.08184	261.73009	12.74528	0.0620412	0.23505510	2.6002969	20	—	—
174311 2002 TS_{72}	15.8	X	9.00629	70.76907	270.17239	3.99272	0.1623110	0.22032250	2.7149603	20	10 30.4	18.8
174312 2002 TF_{73}	15.5	X	293.72430	135.68098	277.27274	6.09893	0.0980627	0.21700235	2.7425829	20	9 23.9	19.0
174313 2002 TM_{75}	15.8	X	76.01892	191.48150	96.48527	6.57196	0.2642005	0.22760274	2.6567522	20	12 1.1	20.1
174314 2002 TF_{77}	16.2	X	20.35247	43.11244	359.46880	5.04821	0.2040719	0.22893635	2.6464247	20	—	—
174315 2002 TA_{86}	16.0	X	353.79232	157.83215	238.25536	2.89063	0.2237981	0.22471702	2.6794484	20	12 30.2	18.7
174316 2002 TS_{87}	16.8	X	18.39653	64.73594	357.75270	3.51831	0.1348445	0.23211042	2.6222432	20	—	—
174317 2002 TM_{91}	15.0	X	275.97934	23.43822	3.00941	7.96918	0.2337866	0.21024979	2.8009950	20	7 5.8	19.0
174318 2002 TK_{94}	16.0	X	161.19981	75.09502	8.99875	18.16402	0.1593404	0.20193481	2.8773670	20	5 26.4	21.0
174319 2002 TJ_{97}	17.0	X	134.71512	303.71654	58.23101	1.29616	0.0573876	0.24312822	2.5424112	20	1 9.7	20.4
174320 2002 TT_{109}	15.8	X	286.42180	268.46975	131.29671	9.68824	0.3131401	0.21339671	2.7733897	20	7 24.1	19.2

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
174321 2002 TP_{110}	15.6	X	328.68289	272.93678	138.63854	13.03473	0.2023152	0.22229740	2.6988565	20	11 30.6	18.4
174322 2002 TG_{115}	16.5	X	334.70462	123.67304	280.19510	6.83677	0.2374787	0.22236642	2.6982980	20	12 1.5	18.7
174323 2002 TV_{118}	15.5	X	304.31982	187.16123	237.20759	9.35250	0.2246889	0.21950215	2.7217206	20	10 15.9	18.2
174324 2002 TN_{120}	16.0	X	337.86672	126.86975	264.15531	7.92203	0.1260914	0.22112643	2.7083759	20	11 10.3	19.0
174325 2002 TS_{121}	16.1	X	22.23451	64.87953	323.19298	5.71293	0.1546192	0.22727315	2.6593202	20	—	—
174326 2002 TD_{122}	16.2	X	267.92379	198.19868	227.26901	12.23438	0.2012914	0.21648120	2.7469827	20	8 15.4	20.2
174327 2002 TO_{122}	15.0	X	191.11384	94.04467	244.51706	10.90200	0.0666250	0.19426383	2.9526236	20	2 15.8	19.7
174328 2002 TC_{132}	16.2	X	260.44614	354.97939	322.46966	5.75929	0.0997514	0.25651426	2.4531741	20	3 30.9	19.8
174329 2002 TV_{136}	15.8	X	81.05579	82.77586	318.01650	8.17702	0.1617503	0.23803827	2.5785261	20	1 3.8	18.6
174330 2002 TW_{136}	16.0	X	126.83876	27.86540	291.65057	7.38770	0.1882829	0.23586208	2.5943624	20	—	—
174331 2002 TR_{138}	15.3	X	17.27433	163.00158	252.60887	13.21170	0.0975985	0.22957207	2.6415369	20	—	—
174332 2002 TD_{140}	16.7	X	77.37630	123.18186	262.43443	0.71398	0.1001506	0.23711560	2.5852108	20	—	—
174333 2002 TN_{143}	16.4	X	40.80044	324.39820	78.03802	8.60781	0.1873693	0.23235832	2.6203777	20	—	—
174334 2002 TH_{160}	15.4	X	228.44831	26.26192	82.82076	13.91136	0.1119762	0.21411491	2.7671845	20	9 18.3	19.7
174335 2002 TK_{171}	15.8	X	1.49508	81.80123	327.29982	11.36174	0.1792572	0.22710659	2.6606203	20	—	—
174336 2002 TS_{171}	15.4	X	89.53546	46.65311	255.34444	11.78430	0.1475165	0.23009794	2.6375107	20	12 19.9	19.4
174337 2002 TC_{177}	14.8	X	297.59165	239.99563	147.74213	13.57665	0.2600759	0.21314713	2.7755542	20	8 3.2	17.9
174338 2002 TO_{180}	15.8	X	359.67874	58.94898	305.30528	11.23966	0.2104328	0.22015180	2.7163635	20	11 20.8	18.9
174339 2002 TE_{191}	15.6	X	18.92935	59.02161	306.31341	10.34275	0.2057034	0.22322306	2.6913902	20	12 26.6	19.1
174340 2002 TP_{193}	16.1	X	357.72762	302.97021	45.03033	4.86493	0.1249175	0.21975657	2.7196195	20	10 18.4	19.0
174341 2002 TA_{204}	16.2	X	144.43475	247.47408	71.81546	7.91928	0.1419953	0.23851307	2.5751030	20	—	—
174342 2002 TY_{209}	15.9	X	93.06077	247.97623	124.71858	8.31375	0.1378725	0.23709866	2.5853340	20	—	—
174343 2002 TX_{211}	15.7	X	347.39278	330.25256	64.81093	14.33956	0.0940227	0.22584351	2.6705311	20	12 1.7	18.8
174344 2002 TS_{216}	16.2	X	116.16494	232.89196	99.87759	12.72879	0.1778611	0.23799229	2.5788581	20	—	—
174345 2002 TA_{225}	16.0	X	293.11807	24.29892	40.80115	9.12397	0.2051375	0.21699994	2.7426031	20	10 2.4	18.9
174346 2002 TY_{231}	15.5	X	10.24343	156.47828	297.00923	13.06081	0.1169191	0.23559988	2.5962868	20	—	—
174347 2002 TJ_{232}	16.5	X	12.34625	107.17699	300.15471	11.13598	0.1406384	0.22925363	2.6439825	20	—	—
174348 2002 TQ_{241}	15.8	X	336.25488	343.22531	121.38291	14.03475	0.1326623	0.22822542	2.6519177	20	—	—
174349 2002 TB_{242}	15.7	X	83.95200	273.60910	85.96469	8.96958	0.2199258	0.23370290	2.6103174	20	—	—
174350 2002 TC_{243}	15.6	X	33.29232	266.68438	104.85648	13.30465	0.1222925	0.22475774	2.6791248	20	—	—
174351 2002 TP_{249}	16.1	X	290.72191	38.58729	51.29214	5.35020	0.2070803	0.21961343	2.7208011	20	10 30.7	18.7
174352 2002 TU_{255}	15.9	X	51.24293	144.58706	232.10567	1.23587	0.0964911	0.22850150	2.6497812	20	—	—
174353 2002 TT_{257}	15.6	X	309.21506	353.72018	60.30934	6.54517	0.1282715	0.21812375	2.7331748	20	10 24.2	18.6
174354 2002 TL_{261}	15.0	X	308.92382	193.62299	228.39625	8.96612	0.1978357	0.21517179	2.7581158	20	10 25.5	17.7
174355 2002 TS_{276}	16.4	X	126.30986	6.00085	346.46617	2.34668	0.1898104	0.23954113	2.5677298	20	1 6.4	19.9
174356 2002 TS_{279}	15.4	X	70.33212	352.76551	358.17578	14.61899	0.1153201	0.22956857	2.6415637	20	—	—
174357 2002 TA_{282}	15.2	X	346.79608	121.32648	235.25216	7.97673	0.1713325	0.21767096	2.7369638	20	10 10.2	18.0
174358 2002 TU_{287}	15.6	X	289.27178	204.56274	249.24321	11.57145	0.2050079	0.21853485	2.7297460	20	10 30.6	18.6
174359 2002 TO_{292}	15.6	X	264.71122	338.37928	30.98906	15.70981	0.1449414	0.20474696	2.8509597	20	6 7.9	19.9
174360 2002 TX_{295}	15.7	X	0.43346	78.58411	310.86142	8.89645	0.2267144	0.22254180	2.6968802	20	—	—
174361 Rickwhite	16.0	X	10.82116	44.09643	113.41637	11.90563	0.2052256	0.24090093	2.5580581	20	1 30.7	18.2
174362 Bethwillman	15.8	X	230.94790	331.80219	185.99687	11.51974	0.1170720	0.22597623	2.6694854	20	11 17.8	19.6
174363 Donyork	16.1	X	61.84895	203.54510	60.43669	10.45366	0.0949756	0.21677451	2.7445043	20	9 30.5	20.0
174364 Zakamska	15.9	X	345.46545	235.21746	82.85669	12.55299	0.0966810	0.21179270	2.7873749	20	8 16.0	19.3
174365 Zibetti	16.4	X	296.03773	335.31089	109.99109	11.59352	0.0491240	0.22078306	2.7111833	20	11 22.2	20.0
174366 2002 TD_{376}	15.4	X	113.55646	303.32586	9.52055	13.26838	0.1108087	0.23108506	2.6299943	20	—	—
174367 2002 UK_{3}	15.8	X	140.47642	200.99725	124.48983	15.38462	0.3029359	0.23837971	2.5760632	20	—	—
174368 2002 UR_{9}	14.2	X	57.32845	348.63411	65.49024	28.23757	0.1502089	0.17495568	3.1660470	20	—	—
174369 2002 UD_{11}	16.0	X	134.68149	47.28813	300.84747	3.50976	0.0417126	0.23713513	2.5850689	20	—	—
174370 2002 UA_{17}	16.1	X	37.16357	207.20172	153.45037	9.50001	0.2199367	0.22461386	2.6802688	20	—	—
174371 2002 UZ_{31}	16.4	X	329.36743	87.30585	357.01561	12.44541	0.1442571	0.22541247	2.6739344	20	—	—
174372 2002 UV_{34}	16.3	X	74.02186	244.30239	147.53125	3.13521	0.0854311	0.23465362	2.6032620	20	—	—
174373 2002 UW_{36}	15.6	X	195.65591	220.24067	115.85649	2.56344	0.1058218	0.24465107	2.5318500	20	2 18.4	19.4
174374 2002 UU_{37}	16.2	X	92.85032	138.28304	245.73610	2.12037	0.0732210	0.23650422	2.5896642	20	—	—
174375 2002 UC_{42}	16.4	X	28.15389	242.78638	211.25087	6.22915	0.0758269	0.23758275	2.5818209	20	—	—
174376 2002 UU_{44}	16.2	X	113.37958	232.10660	131.48538	8.22952	0.2108388	0.23892817	2.5721195	20	1 7.6	19.6
174377 2002 UO_{45}	16.1	X	258.41030	127.53904	282.52625	3.04365	0.0986164	0.20942539	2.8083409	20	8 2.1	19.9
174378 2002 UJ_{49}	16.2	X	347.25852	305.71761	95.38701	12.78928	0.2008106	0.22167849	2.7038775	20	12 20.9	18.8
174379 2002 UT_{49}	15.7	X	346.28340	62.81064	350.94036	8.04378	0.2433420	0.22134861	2.7065632	20	—	—
174380 2002 VX_{6}	15.7	X	328.80989	28.77648	312.23229	3.48318	0.0815553	0.21004708	2.8027968	20	8 15.6	19.1
174381 2002 VE_{7}	16.5	X	339.39592	158.04921	260.12488	0.99434	0.2004917	0.22265725	2.6959478	20	12 29.6	18.9
174382 2002 VE_{8}	16.2	X	317.38118	69.65986	327.52990	6.04955	0.1727412	0.21754643	2.7380082	20	10 7.6	19.1
174383 2002 VG_{8}	16.5	X	55.61156	115.16369	281.65072	4.42550	0.1412220	0.23287988	2.6164638	20	—	—
174384 2002 VP_{8}	15.9	X	9.89358	72.87503	26.04516	15.35156	0.0835222	0.23381369	2.6094927	20	—	—
174385 2002 VR_{10}	16.1	X	105.96025	22.08771	324.95433	3.75780	0.0300587	0.23197542	2.6232604	20	—	—
174386 2002 VP_{11}	16.5	X	34.84894	34.72736	350.84826	2.02248	0.1877621	0.22702310	2.6612725	20	—	—
174387 2002 VP_{12}	16.1	X	346.76150	98.49478	306.81293	3.02587	0.0814340	0.22273247	2.6953409	20	12 12.5	19.3
174388 2002 VV_{12}	16.4	X	29.99446	2.81977	14.20163	2.98841	0.1119632	0.22550795	2.6731797	20	—	—
174389 2002 VF_{18}	16.8	X	65.26723	211.87414	178.47406	2.42914	0.1100632	0.23297141	2.6157785	20	—	—
174390 2002 VX_{19}	16.5	X	288.48150	230.74242	190.47540	0.62205	0.1914715	0.21415508	2.7668384	20	9 16.5	19.7
174391 2002 VG_{22}	16.2	X	12.53218	356.44972	24.39733	2.54858	0.1149993	0.22335456	2.6903338	20	12 23.2	19.5
174392 2002 VE_{26}	16.3	X	27.11097	107.56496	240.31249	2.68855	0.2324335	0.22204615	2.7008920	20	12 18.2	19.7
174393 2002 VO_{31}	15.3	X	127.69067	225.61282	66.51124	16.05788	0.2471702	0.22851253	2.6496959	20	—	—
174394 2002 VU_{33}	15.5	X	354.69202	327.69888	70.97671	15.39926	0.1037029	0.22050752	2.7134414	20	12 16.8	18.9
174395 2002 VU_{39}	15.7	X	27.90643	300.42234	171.74318	8.15168	0.1311303	0.23598987	2.5934257	20	1 3.5	18.5
174396 2002 VU_{40}	16.2	X	248.34721	253.25887	277.08103	4.23940	0.0462427	0.22515047	2.6760084	20	—	—
174397 2002 VX_{44}	15.8	X	22.20450	292.55546	54.00623	12.06911	0.2093632	0.22318259	2.6917156	20	12 5.6	19.2
174398 2002 VO_{52}	16.3	X	155.76550	235.23669	77.34842	6.43580	0.1708105	0.23880062	2.5730353	20	—	—
174399 2002 VU_{54}	15.9	X	252.39095	295.20073	132.97761	4.54540	0.0966443	0.21141597	2.7906852	20	8 19.8	19.6
174400 2002 VX_{58}	15.7	X	63.21337	222.00100	127.97589	6.17695	0.3059502	0.22750386	2.6575220	20	—	—

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
174401 2002 VJ_{62}	15.2	X	251.63854	231.69105	47.58594	14.78620	0.1369501	0.24463529	2.5319589	20	2 7.9	19.4
174402 2002 VU_{71}	15.7	X	235.40525	194.82289	79.10285	7.02652	0.1164958	0.24215697	2.5492048	20	1 12.7	19.5
174403 2002 VF_{72}	16.5	X	29.81532	240.82853	133.79352	3.52826	0.1169233	0.22508498	2.6765275	20	—	—
174404 2002 VM_{72}	16.0	X	270.48018	318.46974	92.96739	4.25423	0.0598137	0.21076863	2.7963964	20	8 28.8	19.8
174405 2002 VV_{73}	16.1	X	12.21464	330.67428	70.78322	3.97420	0.0891745	0.22684624	2.6626556	20	—	—
174406 2002 VL_{75}	16.5	X	87.88034	265.39554	98.51935	4.10383	0.1885013	0.23310042	2.6148133	20	—	—
174407 2002 VW_{75}	16.1	X	39.20990	312.39163	87.91752	5.29980	0.1057643	0.23123973	2.6288214	20	—	—
174408 2002 VG_{76}	15.9	X	265.33124	354.66306	124.04892	5.81993	0.0611912	0.21975286	2.7196501	20	11 19.4	19.4
174409 2002 VM_{79}	15.8	X	43.22453	136.67349	223.76887	12.05023	0.0799703	0.22358429	2.6884906	20	12 30.8	19.6
174410 2002 VT_{80}	16.5	X	22.92170	167.50509	186.34486	5.13672	0.2976717	0.22218692	2.6997511	20	12 29.7	20.1
174411 2002 VP_{86}	15.9	X	184.01190	28.05832	287.29016	4.21566	0.1764669	0.24199602	2.5503350	20	1 15.4	19.9
174412 2002 VU_{101}	15.7	X	268.28197	207.47071	235.03985	7.18955	0.3206348	0.21137691	2.7910290	20	8 21.6	19.7
174413 2002 VC_{107}	15.1	X	241.60226	151.12991	38.95561	17.15018	0.2282074	0.22490514	2.6779541	20	12 21.9	18.9
174414 2002 VL_{111}	15.6	X	22.66722	303.87551	79.87249	16.74400	0.0519120	0.22426003	2.6830873	20	12 31.4	19.2
174415 2002 VS_{111}	15.7	X	314.01041	233.21720	267.52770	9.26554	0.2440550	0.22741185	2.6582388	20	—	—
174416 2002 VQ_{112}	15.9	X	49.85021	77.72846	260.59274	4.53908	0.2165216	0.22412166	2.6841915	20	12 30.5	19.8
174417 2002 VF_{114}	15.5	X	261.23303	195.68034	254.57793	5.71712	0.1772535	0.21283245	2.7782894	20	9 13.9	19.4
174418 2002 VZ_{121}	15.6	X	339.12074	39.03849	320.92487	8.18971	0.1790919	0.21578013	2.7529295	20	9 27.1	18.5
174419 2002 VS_{129}	16.6	X	337.22025	85.66163	2.87563	2.84083	0.0644719	0.22762459	2.6565822	20	—	—
174420 2002 VU_{139}	15.4	X	200.34276	298.26793	242.62927	11.78150	0.1369748	0.21521723	2.7577276	20	11 5.2	19.7
174421 2002 WS_{1}	16.2	X	23.80996	315.23240	97.61030	3.14059	0.0645652	0.22773015	2.6557613	20	—	—
174422 2002 WW_{1}	15.9	X	275.47106	1.53365	75.67400	4.01368	0.0498491	0.21430104	2.7655820	20	10 10.9	19.4
174423 2002 WS_{7}	16.0	X	6.16115	293.95740	68.77062	5.87232	0.1288572	0.21850930	2.7299588	20	11 20.9	19.1
174424 2002 WY_{13}	15.3	X	156.06122	210.08113	98.50415	10.21331	0.1232376	0.23307054	2.6150367	20	—	—
174425 2002 WF_{15}	15.5	X	100.00260	242.31351	137.51601	5.66970	0.0925195	0.23483411	2.6019279	20	—	—
174426 2002 WO_{18}	15.6	X	30.62867	282.22980	93.34190	15.02388	0.1374131	0.22528468	2.6749456	20	—	—
174427 2002 WL_{19}	16.2	X	338.65215	194.61247	112.39150	3.13256	0.0529788	0.20446561	2.8535744	20	7 16.1	19.8
174428 2002 XS	15.6	X	245.67024	276.53639	88.53992	7.03408	0.0926632	0.19968220	2.8989661	20	5 21.6	19.8
174429 2002 XZ_{7}	15.4	X	199.83525	301.19174	67.99631	12.09091	0.1130935	0.19379709	2.9573624	20	4 11.5	20.2
174430 2002 XO_{11}	15.7	X	15.56457	102.38173	294.43590	9.13365	0.0942221	0.22465057	2.6799768	20	—	—
174431 2002 XA_{12}	15.2	X	68.87231	49.05766	273.46268	16.24008	0.1905405	0.22379166	2.6868296	20	12 27.4	19.2
174432 2002 XG_{13}	15.5	X	242.68948	294.01856	59.41225	5.91320	0.1039503	0.19756513	2.9196392	20	5 2.0	19.7
174433 2002 XN_{16}	15.2	X	326.54526	12.51806	346.05975	9.60872	0.2134896	0.21334480	2.7738395	20	8 30.8	17.5
174434 2002 XK_{22}	15.6	X	218.77436	146.98799	30.03209	6.90164	0.0817611	0.21833255	2.7314320	20	11 27.4	19.4
174435 2002 XU_{27}	15.9	X	43.59592	310.70360	67.48116	3.86297	0.1033268	0.22549610	2.6732733	20	—	—
174436 2002 XJ_{30}	15.2	X	92.47656	320.05296	18.74812	12.68106	0.1780343	0.22897132	2.6461552	20	—	—
174437 2002 XK_{30}	15.4	X	334.40788	64.23699	338.99373	8.68725	0.2028090	0.21889272	2.7267699	20	11 23.4	18.1
174438 2002 XW_{30}	14.9	X	26.19937	142.72385	261.45679	12.48620	0.1108273	0.17081323	3.2170295	20	—	—
174439 2002 XF_{39}	15.7	X	210.96533	27.04204	260.47213	3.58867	0.1349935	0.23845921	2.5754907	20	1 5.4	19.7
174440 2002 XQ_{39}	14.5	X	233.32063	18.41409	284.67307	21.07512	0.0429229	0.18181071	3.0859561	20	2 16.3	19.4
174441 2002 XV_{40}	14.9	X	341.14308	330.28759	52.84282	36.36944	0.1993680	0.22044225	2.7139770	20	11 13.2	17.4
174442 2002 XE_{43}	15.6	X	157.96807	135.68750	67.06923	8.80146	0.1527599	0.21148714	2.7900591	20	10 25.1	20.2
174443 2002 XP_{43}	16.3	X	47.07377	55.27777	88.54595	6.68926	0.1117001	0.24323661	2.5416559	20	3 25.6	19.1
174444 2002 XH_{59}	15.1	X	42.74995	63.59404	68.70267	18.14837	0.1187283	0.23733365	2.5836272	20	3 10.6	18.4
174445 2002 XA_{60}	17.0	X	279.45990	94.03119	256.13919	17.01007	0.0924499	0.37050832	1.9198652	20	6 15.6	18.5
174446 2002 XS_{64}	15.9	X	270.13469	157.76619	327.17864	4.37957	0.1250797	0.21575007	2.7531852	20	11 21.5	19.3
174447 2002 XO_{67}	15.6	X	211.46642	260.54297	157.63430	8.63934	0.1685207	0.20140671	2.8823945	20	6 14.8	20.4
174448 2002 XN_{68}	15.3	X	277.32634	339.82761	166.15020	13.57941	0.2156892	0.22262486	2.6962093	20	12 22.5	18.4
174449 2002 XC_{75}	15.4	X	84.52778	278.41663	67.47901	11.57539	0.1716499	0.22669457	2.6638431	20	—	—
174450 2002 XO_{75}	15.7	X	333.18688	135.64578	295.76043	8.22267	0.1251287	0.21979027	2.7193414	20	12 28.7	18.6
174451 2002 XH_{77}	15.3	X	218.15037	98.37573	60.47792	8.97340	0.1340039	0.21367702	2.7709637	20	10 30.8	19.3
174452 2002 XJ_{77}	15.2	X	121.30742	180.84286	279.65796	11.12196	0.0380314	0.19134822	2.9825410	20	4 26.1	19.6
174453 2002 XQ_{79}	15.0	X	132.75396	14.09223	86.09140	16.51241	0.2113411	0.19019036	2.9946337	20	5 30.5	20.0
174454 2002 XJ_{82}	15.1	X	24.64431	202.75546	325.24912	9.37225	0.1069018	0.18145656	3.0899700	20	3 20.0	19.0
174455 2002 XC_{84}	15.8	X	180.51894	307.48392	186.34952	11.68061	0.3286623	0.19906221	2.9049824	20	8 12.4	21.3
174456 2002 XT_{87}	15.4	X	226.37983	65.79274	326.85364	11.45217	0.1960184	0.20121571	2.8842183	20	5 22.8	20.3
174457 2002 XG_{108}	16.0	X	303.66813	149.53130	329.90495	4.37110	0.1136297	0.22355604	2.6887171	20	—	—
174458 2002 XU_{109}	15.7	X	353.29302	331.65817	17.88649	5.26805	0.1688474	0.21494915	2.7600200	20	10 14.4	18.5
174459 2002 YL_{4}	15.4	X	256.48720	145.25867	332.29403	10.82285	0.1723598	0.21178710	2.7874241	20	10 11.8	19.3
174460 2002 YQ_{9}	15.6	X	160.69783	291.00658	142.74806	2.92009	0.1556177	0.19181488	2.9777016	20	5 19.2	20.5
174461 2002 YO_{11}	16.5	X	49.88550	247.56070	265.55104	18.03260	0.0792244	0.35577977	1.9724918	20	3 9.8	18.8
174462 2002 YB_{16}	15.7	X	224.25684	230.15104	265.38688	8.25784	0.1022014	0.21285843	2.7780634	20	10 6.6	19.9
174463 2002 YV_{18}	15.4	X	335.86680	206.53735	164.35809	2.12225	0.2339696	0.21418865	2.7665493	20	10 12.1	17.5
174464 2002 YM_{22}	15.2	X	36.51668	48.06371	271.11546	11.16204	0.0822175	0.21139049	2.7909095	20	10 26.6	19.1
174465 2002 YK_{32}	14.8	X	359.22639	41.23189	294.99653	15.62855	0.2640728	0.22032849	2.7149111	20	10 11.1	17.7
174466 Zucker	15.6	X	56.46677	141.39523	34.22164	15.39457	0.2439119	0.18319070	3.0704387	20	6 9.8	19.7
174467 2002 YP_{36}	15.0	X	299.93716	321.92393	0.98541	9.78564	0.0137786	0.19107720	2.9853607	20	6 14.6	19.3
174468 2003 AP_{1}	14.7	X	29.11733	31.36209	128.19480	17.09690	0.0720608	0.18124587	3.0923642	20	3 23.9	18.9
174469 2003 AP_{6}	15.2	X	50.63462	85.92163	112.89324	3.33354	0.1926554	0.18626443	3.0365663	20	6 26.4	19.0
174470 2003 AY_{7}	16.4	X	19.52917	39.65485	304.73538	20.45836	0.0593219	0.37745980	1.8962208	20	12 21.1	18.5
174471 2003 AM_{12}	15.7	X	328.00910	272.39514	144.00277	9.95612	0.1727115	0.21644555	2.7472843	20	12 1.5	18.6
174472 2003 AX_{12}	14.1	X	2.92823	30.28174	119.15222	28.45856	0.1292365	0.17575233	3.1564723	20	1 25.1	17.8
174473 2003 AX_{16}	15.9	X	99.25160	152.81124	270.40751	4.02480	0.1448210	0.18073109	3.0982335	20	3 1.5	20.4
174474 2003 AR_{17}	14.9	X	226.02198	229.11034	343.33952	15.13500	0.1710344	0.21667712	2.7453266	20	—	—
174475 2003 AY_{19}	15.4	X	47.09938	279.63898	87.33452	13.67529	0.1722258	0.22249285	2.6972757	20	—	—
174476 2003 AJ_{21}	15.7	X	304.84328	307.51450	91.53283	8.15532	0.1313479	0.20922442	2.8101390	20	9 26.3	19.1
174477 2003 AP_{24}	16.1	X	283.94429	190.22944	249.21847	2.09920	0.2439224	0.21367892	2.7709473	20	9 24.4	19.3
174478 2003 AN_{27}	16.2	X	89.35115	38.35604	89.53157	3.54238	0.1856921	0.18552393	3.0446410	20	5 16.9	20.5
174479 2003 AZ_{34}	14.7	X	197.27569	305.44892	104.24217	13.09139	0.0472712	0.19465631	2.9486534	20	5 28.2	19.1
174480 2003 AH_{40}	15.1	X	23.69472	333.52962	159.82882	8.23495	0.0835703	0.17497173	3.1658534	20	2 6.6	19.2

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
174481 2003 AO_{56}	15.1	X	114.04444	69.30770	317.05330	14.10007	0.0734640	0.17523205	3.1627172	20	1 28.9	19.6
174482 2003 AJ_{59}	14.9	X	18.28836	43.33124	111.33152	9.40210	0.2236595	0.17468694	3.1692933	20	3 1.5	18.1
174483 2003 AP_{59}	14.4	X	312.17349	249.99986	334.63293	15.33802	0.1721005	0.17222763	3.1993923	20	2 9.8	18.8
174484 2003 AG_{68}	15.6	X	224.19021	325.84396	68.31633	13.80724	0.1174999	0.19441510	2.9510919	20	5 31.1	19.9
174485 2003 AU_{68}	15.5	X	321.80485	285.94209	99.55365	13.73917	0.1347604	0.20933585	2.8091417	20	10 10.8	18.9
174486 2003 AU_{78}	15.3	X	56.00644	57.24864	75.48649	11.29673	0.1326663	0.17997113	3.1069492	20	4 5.3	19.4
174487 2003 AH_{94}	15.3	X	154.66680	23.31686	73.96171	11.30191	0.0690083	0.18858342	3.0116214	20	6 6.6	19.8
174488 2003 BX_{1}	15.6	X	137.42173	91.36985	302.60011	14.74364	0.2478114	0.18264169	3.0765887	20	3 10.9	21.0
174489 2003 BV_{10}	15.0	X	109.78872	76.95228	125.22506	17.76076	0.1072596	0.19653879	2.9297948	20	9 5.1	19.5
174490 2003 BV_{11}	14.3	X	348.90326	297.96570	317.20809	20.95923	0.1357721	0.18530515	3.0470370	20	5 10.5	18.5
174491 2003 BB_{12}	14.9	X	106.88582	160.42239	320.70150	10.76342	0.0822707	0.18480214	3.0525636	20	5 10.7	19.6
174492 2003 BF_{13}	15.2	X	66.45346	228.84631	260.97056	9.11162	0.0691149	0.18181170	3.0859449	20	3 28.6	19.6
174493 2003 BT_{15}	15.0	X	57.88135	83.40089	116.81883	12.75814	0.1232343	0.18651631	3.0338318	20	6 28.6	19.1
174494 2003 BY_{16}	14.9	X	136.42015	118.19943	346.55617	13.97562	0.0388566	0.18599872	3.0394576	20	5 19.4	19.6
174495 2003 BZ_{16}	15.1	X	27.68768	116.03043	355.56158	12.27273	0.1274644	0.17071403	3.2182756	20	1 22.7	19.1
174496 2003 BW_{19}	14.8	X	55.07492	327.39570	122.42677	19.54286	0.0909595	0.17231922	3.1982585	20	1 31.6	19.0
174497 2003 BG_{22}	15.3	X	33.06052	286.48729	119.52687	15.01408	0.2540925	0.23034004	2.6356622	20	—	—
174498 2003 BK_{38}	15.8	X	145.53719	125.17978	316.14114	10.07418	0.2127010	0.18854001	3.0120837	20	5 14.0	21.0
174499 2003 BY_{38}	14.8	X	159.43406	61.55943	298.33162	12.35852	0.1898799	0.17878908	3.1206284	20	2 18.8	20.1
174500 2003 BN_{42}	15.0	X	26.97209	188.07190	294.29144	9.10506	0.1581128	0.17266972	3.1939290	20	1 30.5	18.7
174501 2003 BZ_{43}	15.2	X	130.79777	318.62781	108.17183	10.90798	0.1038397	0.18139618	3.0906556	20	4 12.3	20.0
174502 2003 BQ_{51}	14.9	X	55.72310	101.03704	137.08509	5.26523	0.2100481	0.19211847	2.9745639	20	8 29.1	18.8
174503 2003 BH_{53}	15.5	X	121.63771	269.94639	134.03542	14.92868	0.2953891	0.18086011	3.0967598	20	3 25.1	20.7
174504 2003 BD_{55}	15.5	X	164.66601	334.72666	101.40464	6.42810	0.0237797	0.18853339	3.0121542	20	5 21.8	19.8
174505 2003 BU_{55}	14.3	X	270.06318	314.11113	319.44120	14.80180	0.2517877	0.17316001	3.1878972	20	2 9.9	19.5
174506 2003 BK_{58}	15.5	X	103.96247	211.62763	311.62330	9.19236	0.0210952	0.19080976	2.9881495	20	6 26.6	19.8
174507 2003 BN_{63}	16.0	X	104.75299	12.67191	166.23341	1.39620	0.1927984	0.19151548	2.9808042	20	8 5.9	20.7
174508 2003 BS_{63}	16.0	X	154.36582	57.19983	5.97646	9.26578	0.2780316	0.18784063	3.0195556	20	5 2.8	21.4
174509 2003 BU_{64}	15.6	X	114.82703	338.01531	94.57469	2.88992	0.1664665	0.18205622	3.0831811	20	4 5.4	20.2
174510 2003 BR_{68}	16.0	X	9.79582	93.02228	137.98217	2.15108	0.0666850	0.18564665	3.0432992	20	5 21.6	19.8
174511 2003 BH_{77}	15.4	X	110.60545	290.23875	117.77257	17.14156	0.2399303	0.17927432	3.1149949	20	3 15.5	20.4
174512 2003 BC_{78}	15.0	X	131.54761	67.81963	353.30459	10.49962	0.0848764	0.18026203	3.1036057	20	3 28.2	19.6
174513 2003 BO_{81}	15.2	X	93.89294	177.79647	312.94579	10.13351	0.1135606	0.18373718	3.0643476	20	5 12.0	19.7
174514 2003 BZ_{91}	15.1	X	323.41979	155.62418	78.32494	11.84243	0.1429495	0.17566514	3.1575168	20	3 15.6	19.4
174515 Pamelaivezic	15.7	X	128.06641	100.43301	6.35360	6.73772	0.1489439	0.18552187	3.0446635	20	5 25.8	20.5
174516 2003 CV_{7}	15.4	X	90.05405	134.54746	353.32077	8.55866	0.1255884	0.18178676	3.0862271	20	5 5.6	19.9
174517 2003 CK_{8}	15.6	X	95.58053	104.71519	37.90936	5.42544	0.1518433	0.18445393	3.0564041	20	6 6.0	20.1
174518 2003 CB_{18}	15.7	X	164.66208	118.56551	318.52839	8.14537	0.1212636	0.18911383	3.0059876	20	5 23.3	20.5
174519 2003 CV_{25}	15.6	X	198.94085	72.03973	326.67162	10.18450	0.0560488	0.18714301	3.0270550	20	5 9.6	20.3
174520 2003 DY_{3}	15.2	X	130.01297	67.40773	342.60632	16.63222	0.1452795	0.17730858	3.1379755	20	3 18.0	20.1
174521 2003 DQ_{14}	15.0	X	77.20324	27.52139	117.77839	11.81617	0.2406465	0.18107844	3.0942701	20	6 2.8	19.5
174522 2003 DD_{17}	15.8	X	151.27636	139.05266	342.95412	2.82279	0.1362853	0.19126576	2.9833982	20	7 7.7	20.6
174523 2003 DE_{17}	15.2	X	324.68773	262.01450	335.42606	7.51005	0.0566562	0.17804428	3.1293253	20	3 23.6	19.4
174524 2003 DO_{19}	15.1	X	147.66370	119.53250	328.16477	9.17735	0.0580822	0.18503257	3.0500287	20	5 14.1	19.8
174525 2003 DZ_{19}	15.2	X	23.78866	21.76196	170.31190	5.28103	0.0448979	0.18034549	3.1026481	20	4 21.3	19.3
174526 2003 DK_{20}	15.4	X	15.50520	75.26831	166.95364	2.03592	0.1822437	0.18487042	3.0518119	20	6 21.8	18.5
174527 2003 EZ_{6}	15.2	X	311.50510	271.96213	326.49878	12.66062	0.1100325	0.17409042	3.1765288	20	2 29.8	19.6
174528 2003 EL_{15}	15.1	X	5.22327	297.23253	315.15218	10.08591	0.0131424	0.18597537	3.0397119	20	6 10.1	19.4
174529 2003 EF_{21}	15.1	X	13.61594	65.78421	171.60704	9.14799	0.1693457	0.18212139	3.0824455	20	6 10.9	18.6
174530 2003 EA_{25}	15.6	X	18.06421	105.67294	90.89226	4.99389	0.2080297	0.17699545	3.1416754	20	4 26.8	18.8
174531 2003 EW_{27}	14.6	X	349.26073	61.49089	166.13737	13.61799	0.1677455	0.17587934	3.1549526	20	4 12.6	18.3
174532 2003 EA_{29}	14.9	X	53.26668	15.31114	152.32030	5.52548	0.0712420	0.17890224	3.1193123	20	5 4.5	19.0
174533 2003 EU_{29}	14.8	X	31.71097	52.19117	177.29244	10.99676	0.1476604	0.18185125	3.0854974	20	6 29.6	18.8
174534 2003 EY_{32}	15.0	X	322.87311	61.85892	164.59838	9.83946	0.0308760	0.17395287	3.1782031	20	3 13.8	19.2
174535 2003 EF_{37}	14.9	X	45.97121	68.65923	116.84157	20.87421	0.1590756	0.18050845	3.1007805	20	6 1.3	19.1
174536 2003 EB_{41}	14.7	X	251.16023	179.91730	136.54553	22.60460	0.0643534	0.17696216	3.1420695	20	4 7.3	19.6
174537 2003 EW_{43}	15.3	X	120.34745	15.56390	153.66575	6.23643	0.1560343	0.18958057	3.0010518	20	8 5.4	20.1
174538 2003 ED_{47}	14.8	X	124.08278	355.91631	132.21599	19.72869	0.2292086	0.18503556	3.0499959	20	6 26.8	20.1
174539 2003 EH_{57}	15.3	X	39.48140	98.56768	94.00392	12.77336	0.2112292	0.17850399	3.1239501	20	6 3.3	18.9
174540 2003 EM_{60}	15.4	X	67.81282	61.44914	122.55318	12.22645	0.2220113	0.18240688	3.0792284	20	7 5.8	19.7
174541 2003 EZ_{61}	15.2	X	94.81416	286.50766	195.58578	9.42506	0.0635302	0.18075865	3.0979185	20	4 29.6	19.6
174542 2003 FE	13.9	X	332.45764	99.46286	132.46887	26.62528	0.1445273	0.17403529	3.1771997	20	3 27.3	18.3
174543 2003 FF_{10}	16.0	X	12.74025	47.17362	153.80503	2.67456	0.0302818	0.17792153	3.1307643	20	4 16.8	20.2
174544 2003 FL_{26}	15.6	X	60.86760	353.97326	152.02277	3.78676	0.1735375	0.17733504	3.1376633	20	5 1.2	19.5
174545 2003 FD_{51}	15.5	X	64.70460	79.66800	90.00641	2.52806	0.0760819	0.18256855	3.0774103	20	5 22.0	19.5
174546 2003 FL_{55}	15.2	X	359.67410	251.06697	338.56367	10.16634	0.0837555	0.18053681	3.1004558	20	4 29.1	19.3
174547 2003 FF_{62}	15.3	X	59.75579	68.77858	59.10849	6.45759	0.1240490	0.17433926	3.1735055	20	3 31.9	19.5
174548 2003 FT_{66}	15.2	X	271.44514	233.67815	69.71984	8.18673	0.0232790	0.17623970	3.1506504	20	4 16.8	19.7
174549 2003 FN_{67}	15.3	X	201.56888	279.44105	153.58810	9.87447	0.0582865	0.18614702	3.0378430	20	6 28.6	20.0
174550 2003 FT_{71}	15.6	X	334.78715	130.67455	98.65613	3.40444	0.1552502	0.17330498	3.1861192	20	3 21.0	19.5
174551 2003 FH_{75}	15.0	X	71.86709	113.25933	7.97581	19.33737	0.1884117	0.17468269	3.1693447	20	4 12.1	19.2
174552 2003 FP_{83}	14.2	X	70.13423	91.02080	55.85992	25.61303	0.2134785	0.17494878	3.1661302	20	5 19.6	18.5
174553 2003 FR_{85}	14.9	X	5.60972	198.91465	2.91149	8.92468	0.2125315	0.17265266	3.1941394	20	4 3.7	18.1
174554 2003 FB_{86}	15.3	X	54.60201	339.32315	215.67737	8.97396	0.2064657	0.18160799	3.0882521	20	6 28.4	19.4
174555 2003 FO_{89}	15.5	X	139.36145	131.28889	345.41121	10.18044	0.1139855	0.18414101	3.0598657	20	6 17.3	20.4
174556 2003 FT_{95}	15.2	X	147.37994	137.31463	339.33320	11.75616	0.1017852	0.18595301	3.0399556	20	6 25.9	20.1
174557 2003 FR_{98}	15.4	X	27.02367	149.98374	51.81801	5.18846	0.1631563	0.17837856	3.1254145	20	5 16.2	18.9
174558 2003 FB_{99}	14.7	X	343.81819	133.49237	54.10122	5.94118	0.0826085	0.17007856	3.2262871	20	2 20.4	19.0
174559 2003 FZ_{100}	15.2	X	83.76725	111.92569	3.28403	6.99491	0.1205008	0.17635856	3.1492346	20	4 12.8	19.5
174560 2003 FM_{101}	15.0	X	52.38433	253.39559	322.55322	10.53586	0.0592738	0.18636800	3.0354412	20	7 3.5	19.1

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
174561 2003 FG_{130}	14.8	X	38.04700	317.43772	193.17593	11.10509	0.0718600	0.17218666	3.1998999	20	3 19.6	19.1
174562 2003 GQ_{5}	15.4	X	93.43893	285.12209	209.81866	6.64065	0.1042493	0.17902398	3.1178980	20	5 19.5	19.9
174563 2003 GL_{12}	14.6	X	142.72604	62.26385	4.97952	17.30595	0.1859991	0.18001544	3.1064393	20	4 20.9	19.9
174564 2003 GE_{16}	14.9	X	37.29072	150.58717	42.90615	11.74108	0.0549111	0.17991917	3.1075474	20	5 10.7	19.1
174565 2003 HC	15.1	X	3.40531	30.22396	188.64973	10.51702	0.1494916	0.17608505	3.1524949	20	4 26.5	18.7
174566 2003 KT_{16}	16.4	X	335.74391	228.89366	68.74731	7.70773	0.1222717	0.29338043	2.2430999	20	6 28.9	18.3
174567 Varda	3.4	X	275.20466	180.07521	184.15030	21.51136	0.1431540	0.00314784	46.1099017	20	6 14.3	20.1
174568 2003 NO_{12}	17.1	X	190.54404	74.51810	260.24380	1.57434	0.1831721	0.26760047	2.3849437	20	2 10.4	21.0
174569 2003 NQ_{12}	17.4	X	16.18112	354.47333	309.34538	2.19182	0.2022360	0.29461658	2.2368212	20	10 14.4	19.5
174570 2003 OH_{1}	16.2	X	298.73405	19.18688	294.09140	12.66127	0.1985839	0.28391938	2.2926584	20	4 24.9	19.2
174571 2003 OV_{12}	16.2	X	287.42685	23.70046	287.91216	7.00734	0.2614277	0.27833701	2.3232115	20	3 30.7	19.7
174572 2003 OH_{22}	16.4	X	228.13783	22.65994	353.73940	5.55040	0.2687893	0.27329473	2.3516998	20	4 29.1	20.5
174573 2003 OM_{22}	16.2	X	247.26964	201.25002	171.18242	4.37944	0.2783271	0.27740442	2.3284154	20	5 12.5	19.9
174574 2003 OW_{22}	15.8	X	232.86712	340.34025	357.95146	8.28302	0.1489552	0.27026674	2.3692323	20	3 24.5	19.3
174575 2003 OA_{27}	16.6	X	247.24549	175.41313	186.28660	4.95160	0.2054783	0.27978857	2.3151692	20	5 5.0	20.0
174576 2003 OA_{29}	16.7	X	283.32647	91.02268	337.36907	6.05339	0.1541457	0.29443550	2.2377381	20	10 8.8	18.6
174577 2003 OH_{31}	16.2	X	317.96577	156.83994	203.05123	4.97013	0.2542310	0.28813855	2.2702228	20	8 19.0	17.2
174578 2003 PQ_{5}	16.5	X	307.51805	141.20004	203.81139	3.93774	0.2105508	0.28691438	2.2766757	20	7 3.8	18.4
174579 2003 QM_{17}	17.0	X	290.04319	195.16816	135.37856	5.83318	0.1925352	0.28247246	2.3004810	20	5 16.5	19.7
174580 2003 QR_{18}	16.5	X	266.66294	301.48333	353.55491	7.27234	0.2129154	0.27410902	2.3470400	20	2 27.9	20.1
174581 2003 QX_{22}	16.7	X	204.79612	172.88823	213.11834	4.29441	0.2346022	0.27345967	2.3507540	20	4 25.8	20.6
174582 2003 QC_{25}	16.7	X	199.08093	207.70212	192.27493	5.62416	0.2408305	0.27476742	2.3432892	20	5 9.6	20.7
174583 2003 QO_{30}	17.1	X	354.43253	47.85523	345.98035	7.21116	0.0920529	0.30148650	2.2027108	20	—	—
174584 2003 QH_{34}	16.5	X	240.27955	76.37317	326.31224	7.12603	0.1868115	0.28322903	2.2963824	20	6 23.5	19.8
174585 2003 QN_{37}	16.8	X	258.30124	51.59363	297.63078	1.44359	0.2343970	0.27876010	2.3208602	20	4 25.1	20.2
174586 2003 QQ_{39}	17.3	X	218.92599	66.01066	284.27610	0.09791	0.2779714	0.27216039	2.3582297	20	3 22.5	21.2
174587 2003 QF_{42}	16.6	X	254.59159	153.54070	213.48690	1.70019	0.2340295	0.27756991	2.3274898	20	5 15.8	20.0
174588 2003 QM_{42}	16.5	X	231.87864	2.49579	4.97365	6.42300	0.2609175	0.27459527	2.3442685	20	4 21.7	20.4
174589 2003 QY_{45}	16.7	X	276.02754	358.70455	7.58280	2.60942	0.1836553	0.28300959	2.2975693	20	6 16.9	19.5
174590 2003 QD_{46}	16.9	X	223.47699	358.16228	344.52376	3.43784	0.1377665	0.27243719	2.3566321	20	3 21.3	20.6
174591 2003 QL_{46}	16.8	X	208.42664	207.10304	147.39749	7.33201	0.1833958	0.27116036	2.3640242	20	3 23.4	20.6
174592 2003 QR_{53}	17.0	X	308.22481	285.36999	9.74158	3.08148	0.2398306	0.28135147	2.3065874	20	4 11.4	19.2
174593 2003 QB_{56}	16.7	X	0.98356	210.85583	137.38755	5.09707	0.1954226	0.29500446	2.2348600	20	11 25.7	18.8
174594 2003 QH_{56}	16.4	X	213.04618	356.98607	14.71027	5.95311	0.2521591	0.27320676	2.3522045	20	4 13.5	20.3
174595 2003 QK_{59}	16.5	X	44.66300	306.92088	9.51535	6.83521	0.2103273	0.29837868	2.2179795	20	12 12.3	19.6
174596 2003 QC_{65}	16.8	X	282.52672	317.39695	73.29872	8.74772	0.1443721	0.28714185	2.2754732	20	8 15.3	19.3
174597 2003 QD_{67}	17.1	X	0.14146	175.45355	108.80579	5.48015	0.1438206	0.28618384	2.2805485	20	7 31.5	18.7
174598 2003 QR_{67}	16.6	X	331.91853	5.47194	309.22619	6.79635	0.1311552	0.28733037	2.2744777	20	7 19.4	18.5
174599 2003 QM_{70}	15.4	X	224.51329	63.37890	9.86431	22.66178	0.3238071	0.27492057	2.3424189	20	7 10.4	19.9
174600 2003 QH_{76}	17.1	X	298.36061	32.21152	293.14248	3.71698	0.1678270	0.28264449	2.2995474	20	5 23.3	19.5
174601 2003 QA_{78}	16.1	X	301.68866	129.84774	229.23755	4.20683	0.1848302	0.28387578	2.2928932	20	7 18.9	18.3
174602 2003 QM_{107}	16.4	X	48.63952	316.24480	34.45374	9.52766	0.2336808	0.24410256	2.5356414	20	—	—
174603 2003 QN_{111}	15.8	X	246.24563	286.33173	150.52656	22.74429	0.2153304	0.28574929	2.2828600	20	8 12.5	18.8
174604 2003 QO_{111}	16.8	X	52.56058	214.90857	68.83644	6.73633	0.2138847	0.29586897	2.2305045	20	11 9.9	19.7
174605 2003 RT_{5}	16.0	X	192.47032	327.42563	68.96032	6.15005	0.2630189	0.26800772	2.3825271	20	4 30.3	20.3
174606 2003 RP_{21}	16.4	X	341.54754	107.53828	208.94596	6.40406	0.1498375	0.28811472	2.2703479	20	8 9.8	18.2
174607 2003 RE_{27}	16.3	X	287.99777	290.12680	69.04383	6.19500	0.2107145	0.28293527	2.2979716	20	6 19.8	18.9
174608 2003 SY_{5}	16.5	X	225.03983	36.52841	337.46951	2.61922	0.1789056	0.27434520	2.3456928	20	4 29.5	20.2
174609 2003 SZ_{25}	16.9	X	281.00366	285.03681	111.45588	1.18921	0.0660812	0.28760644	2.2730221	20	8 31.3	19.1
174610 2003 SB_{36}	16.6	X	293.67431	349.22442	45.58322	7.47208	0.1231681	0.28811235	2.2703604	20	9 15.9	18.8
174611 2003 SV_{36}	16.6	X	306.35687	192.58542	157.82955	1.64962	0.2246410	0.28515846	2.2860122	20	7 7.9	18.5
174612 2003 SM_{39}	16.9	X	158.65426	8.76648	4.12667	7.18925	0.2116685	0.26322804	2.4112817	20	3 4.2	20.7
174613 2003 SH_{41}	16.4	X	204.70473	29.78107	12.70668	10.08759	0.2107519	0.27331832	2.3515645	20	5 14.4	20.4
174614 2003 SQ_{43}	17.5	X	59.91780	54.65846	327.89593	4.83533	0.1007453	0.30953269	2.1643710	20	—	—
174615 2003 SO_{44}	16.2	X	216.28938	62.45795	321.41888	5.74195	0.1206817	0.27454880	2.3445330	20	5 5.8	19.7
174616 2003 SQ_{51}	16.8	X	256.65402	313.17480	138.12107	6.00057	0.0766286	0.29093694	2.2556418	20	10 14.7	19.3
174617 2003 SX_{51}	16.6	X	193.16553	296.75137	80.42055	2.50097	0.1987678	0.26934565	2.3746306	20	4 6.8	20.5
174618 2003 SC_{52}	16.8	X	292.49975	220.75056	163.64280	4.82990	0.1264548	0.28639886	2.2794069	20	8 21.9	18.9
174619 2003 SH_{64}	16.7	X	242.93531	259.54445	160.22621	5.56767	0.1445843	0.28267096	2.2994039	20	7 24.8	19.7
174620 2003 SB_{66}	16.3	X	235.67170	267.75583	51.63459	8.13115	0.1923523	0.26994050	2.3711408	20	3 5.8	20.2
174621 2003 SX_{66}	16.2	X	312.19776	308.64971	35.57559	8.80138	0.1522741	0.28328815	2.2960629	20	7 26.4	18.4
174622 2003 SN_{67}	16.4	X	285.39470	322.11381	56.09225	5.31170	0.1824173	0.28339060	2.2955095	20	7 21.8	18.7
174623 2003 SC_{74}	17.1	X	228.59138	158.98052	334.70184	6.45054	0.0764712	0.29414444	2.2392141	20	10 29.0	19.8
174624 2003 SY_{74}	17.0	X	317.61329	59.52521	337.17461	3.88586	0.1001119	0.29281040	2.2460102	20	11 1.1	19.0
174625 2003 ST_{76}	16.8	X	312.27436	19.48712	323.13489	2.62963	0.1779238	0.28456857	2.2891703	20	7 16.9	18.6
174626 2003 SN_{77}	16.3	X	211.82437	92.24758	309.35856	6.79622	0.0990557	0.27647115	2.3336524	20	5 27.4	19.7
174627 2003 SQ_{79}	17.2	X	94.61979	12.67415	332.84931	7.65286	0.1292239	0.30850423	2.1691786	20	—	—
174628 2003 ST_{91}	16.6	X	54.20719	87.26615	322.93018	5.86631	0.1270142	0.25320152	2.4745250	20	—	—
174629 2003 SD_{92}	16.9	X	267.07871	301.54105	173.31653	3.57641	0.0947731	0.29747179	2.2224851	20	12 2.2	19.0
174630 2003 SJ_{93}	16.4	X	284.85825	52.69499	354.41175	5.01009	0.1372543	0.28666887	2.2779754	20	9 11.9	18.4
174631 2003 SD_{108}	16.9	X	6.69064	349.69543	326.07075	5.62469	0.0862334	0.28810627	2.2703923	20	9 24.1	19.3
174632 2003 SK_{110}	16.8	X	236.02341	186.05550	201.63226	5.92089	0.2444293	0.27627677	2.3347469	20	5 24.6	20.5
174633 2003 SM_{110}	16.7	X	273.21526	99.22584	228.13259	4.04168	0.2534106	0.27613277	2.3355585	20	4 9.3	20.2
174634 2003 SC_{111}	16.4	X	288.44952	236.37810	150.06465	4.79964	0.1966916	0.28321803	2.2964418	20	8 4.8	18.6
174635 2003 SZ_{124}	16.7	X	259.72120	345.50064	49.03821	8.05795	0.1205520	0.28091171	2.3089941	20	7 17.3	19.7
174636 2003 SU_{125}	16.9	X	196.66016	217.72640	138.45532	1.78198	0.2053345	0.26748992	2.3856008	20	3 14.2	20.7
174637 2003 SK_{137}	16.8	X	286.63577	138.30027	239.57955	0.98634	0.1811760	0.28328344	2.2960883	20	7 22.0	18.9
174638 2003 SG_{138}	16.1	X	188.34355	353.41156	35.65873	10.79512	0.2111649	0.26936516	2.3745160	20	4 17.4	20.0
174639 2003 SA_{139}	17.0	X	17.93376	44.02604	320.14745	3.60886	0.1523211	0.29718015	2.2239389	20	—	—
174640 2003 SN_{141}	17.5	X	202.25802	271.34218	146.81045	2.34560	0.1926275	0.27417007	2.3466916	20	6 5.4	21.2

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
174641 2003 SU_{141}	15.5	X	172.04048	98.43522	13.74188	9.25504	0.0735602	0.21794203	2.7346939	20	7 18.9	19.7
174642 2003 SL_{142}	16.3	X	183.05265	281.69427	92.86674	3.08112	0.1954520	0.26641160	2.3920337	20	3 26.5	20.2
174643 2003 SF_{145}	16.1	X	343.04358	27.95648	329.31967	7.90465	0.2093870	0.29085625	2.2560590	20	10 28.4	17.8
174644 2003 SD_{155}	16.6	X	214.28900	150.69568	243.35963	1.66819	0.2020047	0.27428947	2.3460106	20	5 15.2	20.3
174645 2003 SH_{161}	16.5	X	178.42239	313.25319	85.49851	3.21294	0.2084265	0.26984495	2.3717006	20	4 21.5	20.3
174646 2003 SO_{164}	17.2	X	206.28102	66.98125	324.54848	0.83362	0.1926537	0.27217506	2.3581450	20	5 4.9	20.9
174647 2003 SX_{167}	16.0	X	347.91171	65.59271	9.03530	7.47100	0.0827385	0.24719202	2.5144697	20	—	—
174648 2003 SO_{169}	15.5	X	342.82244	7.64921	11.39647	22.82408	0.0229523	0.23589290	2.5941364	20	10 25.2	19.1
174649 2003 SA_{173}	17.3	X	246.00418	198.84028	139.14104	2.95967	0.2218359	0.27447271	2.3449663	20	4 2.1	20.9
174650 2003 SK_{181}	17.0	X	217.74377	82.57842	224.01802	4.04939	0.2083551	0.26535635	2.3983712	20	1 29.8	21.1
174651 2003 SJ_{189}	16.7	X	233.33623	12.84352	348.68987	2.08695	0.2240373	0.27308581	2.3528991	20	4 18.6	20.6
174652 2003 SJ_{190}	16.1	X	224.07742	300.60680	71.69958	7.92069	0.1271877	0.27289871	2.3539743	20	5 2.8	19.5
174653 2003 SC_{191}	16.5	X	279.32482	209.72541	250.90347	6.11537	0.0183612	0.29814061	2.2191601	20	12 7.9	18.7
174654 2003 SL_{192}	16.3	X	358.51576	323.38678	15.01352	9.68147	0.1344535	0.28969118	2.2621038	20	10 22.1	18.3
174655 2003 SZ_{194}	16.1	X	256.23264	39.96397	15.25260	7.07853	0.0957411	0.28161667	2.3051391	20	8 17.5	18.9
174656 2003 SD_{195}	16.8	X	269.57219	103.50439	268.96578	3.61453	0.1544226	0.28019003	2.3129572	20	6 21.7	19.4
174657 2003 ST_{199}	16.2	X	206.75009	73.83217	326.58363	4.59010	0.1979788	0.27188636	2.3598140	20	5 15.4	20.1
174658 2003 SH_{204}	16.1	X	166.71185	0.72715	34.24441	7.12601	0.2545313	0.26432111	2.4046294	20	4 8.7	20.2
174659 2003 SV_{207}	16.4	X	139.42398	301.78851	195.41700	10.86413	0.1246289	0.27559727	2.3385829	20	7 15.8	20.1
174660 2003 SW_{209}	16.6	X	161.64457	188.44141	334.56242	4.99991	0.0917779	0.28727186	2.2747866	20	9 15.4	19.8
174661 2003 SM_{210}	17.1	X	245.38257	29.86828	25.81849	5.33652	0.1454627	0.28224603	2.3017112	20	7 24.7	20.1
174662 2003 SZ_{213}	16.9	X	197.90260	270.16122	68.50451	3.23291	0.2330772	0.26378459	2.4078888	20	2 24.5	21.0
174663 2003 SY_{216}	16.8	X	154.96147	250.46364	193.29992	4.59758	0.2030153	0.26921125	2.3754209	20	5 27.8	20.7
174664 2003 SR_{220}	16.7	X	179.86517	355.91907	67.48882	2.44787	0.1711100	0.26914756	2.3757957	20	5 22.7	20.3
174665 2003 SC_{225}	16.6	X	219.43772	91.42882	32.24813	7.44891	0.0193239	0.28875833	2.2669731	20	10 14.2	19.2
174666 2003 SR_{230}	16.9	X	229.99139	218.28349	143.69524	6.60201	0.1557550	0.27499227	2.3420117	20	4 23.9	20.4
174667 2003 SN_{232}	16.7	X	236.10145	238.86625	84.65272	2.43860	0.1978649	0.26925799	2.3751460	20	3 8.1	20.5
174668 2003 SQ_{233}	16.7	X	189.49571	221.13829	109.06706	3.69659	0.2321006	0.26351479	2.4095321	20	2 7.1	20.8
174669 2003 SY_{246}	17.2	X	143.24664	297.56578	30.77129	3.20030	0.1705680	0.31413783	2.1431664	20	—	—
174670 2003 SA_{249}	16.5	X	152.23577	225.98884	200.59479	7.71054	0.1010946	0.26845653	2.3798709	20	4 26.5	19.8
174671 2003 SW_{251}	16.3	X	237.26643	340.06302	56.39210	3.11585	0.2091539	0.27533351	2.3400762	20	6 8.6	19.9
174672 2003 SB_{252}	16.1	X	306.40785	146.68174	212.38602	1.61585	0.2621878	0.28282369	2.2985759	20	7 15.1	17.8
174673 2003 SO_{255}	17.1	X	123.61426	79.29355	323.14997	0.86849	0.1932710	0.25941713	2.4348392	20	3 3.8	20.4
174674 2003 SD_{260}	16.6	X	240.29343	305.88482	34.75789	4.67952	0.1721291	0.27089234	2.3655833	20	4 3.8	20.1
174675 2003 SB_{270}	16.3	X	277.37196	260.72011	59.64336	12.41697	0.1898400	0.27590907	2.3368208	20	4 18.3	19.5
174676 2003 SE_{284}	16.9	X	306.13128	77.25314	327.73561	6.57142	0.0566723	0.29303544	2.2448601	20	10 23.1	19.3
174677 2003 SA_{297}	16.2	X	51.18343	67.25406	291.06609	8.49225	0.1680179	0.24301885	2.5431740	20	—	—
174678 2003 SB_{303}	16.8	X	226.03021	215.70249	251.16336	4.96642	0.0434658	0.28805381	2.2706680	20	9 21.7	19.6
174679 2003 SD_{303}	16.6	X	251.73191	64.64614	338.37371	6.97678	0.1107370	0.28134931	2.3065993	20	7 20.1	19.4
174680 2003 SC_{304}	15.4	X	27.80776	324.97999	307.75936	11.20327	0.1628972	0.22620177	2.6677106	20	8 26.7	18.6
174681 2003 SO_{309}	16.7	X	196.58189	91.53994	353.11341	8.33256	0.1289438	0.27939735	2.3173299	20	7 9.6	20.3
174682 2003 SJ_{311}	17.5	X	81.79055	287.34646	46.03694	2.57206	0.1344051	0.30463721	2.1874967	20	—	—
174683 2003 TD_{7}	16.3	X	262.10735	281.46346	66.97138	12.22949	0.2578843	0.27784254	2.3259670	20	4 29.5	19.9
174684 2003 TL_{9}	16.7	X	32.67929	279.37519	51.45913	3.43642	0.1319251	0.29663162	2.2266797	20	12 6.5	19.4
174685 2003 TL_{20}	16.4	X	173.90928	193.52317	248.47371	8.88628	0.1692650	0.27348686	2.3505983	20	6 10.4	19.9
174686 2003 TM_{37}	16.6	X	155.18136	170.66431	276.91732	6.66384	0.0712464	0.27254966	2.3559837	20	5 25.0	19.8
174687 2003 UV_{9}	16.8	X	293.03129	214.46817	206.86517	1.32845	0.0647071	0.28906221	2.2653840	20	10 27.8	19.2
174688 2003 UR_{14}	16.5	X	278.15241	246.98128	121.54627	7.74719	0.1342552	0.27942537	2.3171750	20	7 1.9	19.1
174689 2003 UM_{15}	16.5	X	273.51797	115.32574	234.45794	2.84126	0.1911787	0.27696283	2.3308897	20	5 19.6	19.6
174690 2003 UG_{19}	16.5	X	139.78519	309.30810	84.43105	3.57302	0.2041014	0.25975897	2.4327025	20	3 12.7	20.1
174691 2003 US_{22}	16.8	X	5.81566	254.25764	153.03405	3.94717	0.1724924	0.29955665	2.2121611	20	—	—
174692 2003 UY_{25}	17.2	X	131.11578	204.83357	101.69907	3.28782	0.1751980	0.30745323	2.1741192	20	—	—
174693 2003 UW_{27}	16.7	X	337.82329	259.12429	109.24693	6.52128	0.1404706	0.29007945	2.2600848	20	11 3.5	18.7
174694 2003 UP_{40}	16.5	X	196.48596	50.18978	0.70415	1.10827	0.1799869	0.27124654	2.3635234	20	5 21.4	20.1
174695 2003 UG_{47}	16.6	X	349.42408	214.88690	139.38213	7.19111	0.1412100	0.29009544	2.2600018	20	11 4.7	18.7
174696 2003 UW_{53}	16.6	X	327.52098	43.66227	292.26723	5.31764	0.1378084	0.28343817	2.2952526	20	8 11.8	18.4
174697 2003 UC_{58}	16.8	X	253.65374	162.41088	306.97577	5.02400	0.0757139	0.29240494	2.2480859	20	10 31.5	19.3
174698 2003 UV_{60}	16.1	X	356.41011	166.29362	113.12518	7.31066	0.1899600	0.28290416	2.2981401	20	7 15.7	17.5
174699 2003 UY_{64}	15.4	X	304.67522	137.89360	187.72881	31.10075	0.0976514	0.21879831	2.7275543	20	6 14.2	19.6
174700 2003 UJ_{68}	16.4	X	144.67960	250.72197	218.00266	3.59916	0.1618367	0.26989044	2.3714340	20	6 17.1	20.1
174701 2003 UV_{77}	17.0	X	291.23187	17.07528	343.77878	5.79224	0.1967635	0.28200100	2.3030442	20	7 1.4	19.4
174702 2003 UX_{81}	16.4	X	213.55856	117.38818	35.83480	8.17859	0.0575569	0.29350235	2.2424787	20	11 9.7	19.0
174703 2003 UR_{91}	17.0	X	231.70943	7.04046	154.79632	3.24623	0.1366031	0.29567222	2.2314939	20	12 6.4	19.6
174704 2003 UW_{97}	17.0	X	176.43389	245.36711	196.74815	3.08166	0.1473820	0.27272175	2.3549925	20	6 13.1	20.5
174705 2003 UG_{100}	16.6	X	344.97239	213.15010	129.94761	5.90745	0.1522109	0.28708359	2.2757810	20	10 8.9	18.5
174706 2003 US_{102}	17.0	X	117.18565	249.12519	180.84229	4.92167	0.1927325	0.26161659	2.4211732	20	4 1.8	20.2
174707 2003 UP_{103}	16.7	X	176.07688	231.45759	96.45479	5.64556	0.2472268	0.25927178	2.4357491	20	1 26.1	20.8
174708 2003 UA_{104}	16.2	X	326.16641	128.13639	325.10398	11.54241	0.2266165	0.23890603	2.5722784	20	—	—
174709 2003 UK_{112}	16.4	X	157.17220	343.64260	94.73387	4.66275	0.1349364	0.26933001	2.3747226	20	5 19.9	20.0
174710 2003 UX_{113}	16.1	X	134.81050	272.22227	109.37590	7.99625	0.1252272	0.25786201	2.4446187	20	2 12.1	19.4
174711 2003 UK_{117}	16.8	X	296.72543	213.02620	135.19902	2.49051	0.2296829	0.28169817	2.3046945	20	6 14.5	19.1
174712 2003 UQ_{129}	16.7	X	97.19866	341.00683	309.85961	6.59879	0.1352054	0.29793233	2.2201942	20	12 27.2	19.9
174713 2003 UA_{133}	16.0	X	113.82964	174.92727	270.27055	5.07355	0.0432831	0.26181766	2.4199334	20	3 24.6	19.1
174714 2003 UU_{136}	16.6	X	168.11713	161.80327	33.50406	6.79966	0.0483963	0.29258614	2.2471577	20	11 9.5	19.3
174715 2003 UM_{142}	16.3	X	211.02796	81.56131	306.38317	5.17923	0.2057140	0.27123352	2.3635991	20	5 2.3	20.2
174716 2003 UV_{142}	16.5	X	247.28490	147.68145	243.61061	6.31133	0.1101015	0.27735475	2.3286934	20	6 25.0	19.5
174717 2003 UU_{144}	16.7	X	271.46310	111.67516	294.05533	5.35747	0.1122000	0.28276550	2.2988913	20	8 19.1	19.1
174718 2003 UD_{146}	16.5	X	254.87475	305.25822	62.00713	7.68737	0.1173176	0.27485190	2.3428090	20	5 30.7	19.7
174719 2003 UP_{149}	17.0	X	135.85202	346.92565	73.91337	4.91891	0.1777395	0.26430082	2.4047525	20	4 9.8	20.6
174720 2003 UD_{151}	17.3	X	199.39053	50.58371	24.87549	2.91396	0.1841268	0.27584364	2.3371902	20	6 25.6	21.0

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
174721 2003 UF_{151}	16.5	X	259.58785	219.11369	160.04509	3.24985	0.1789215	0.27797495	2.3252283	20	6 14.3	19.5
174722 2003 UB_{158}	17.0	X	128.91959	123.74223	9.53147	2.86216	0.1255005	0.27066225	2.3669237	20	7 1.2	20.3
174723 2003 UG_{159}	16.8	X	73.83756	278.49201	191.99747	2.79760	0.1533136	0.25808403	2.4432165	20	3 22.8	19.2
174724 2003 UZ_{160}	17.0	X	189.67718	90.46042	8.26498	1.71996	0.0837528	0.27771298	2.3266904	20	7 22.3	20.1
174725 2003 UL_{162}	16.5	X	235.97937	209.39388	114.16153	3.57556	0.1746525	0.26773234	2.3841605	20	3 9.7	20.3
174726 2003 UX_{162}	17.0	X	236.90707	276.18545	113.03173	2.28451	0.1385554	0.27582545	2.3372930	20	6 6.2	20.3
174727 2003 UU_{168}	17.0	X	206.26996	352.18676	30.80354	1.82590	0.1889970	0.26964667	2.3728630	20	4 24.4	20.7
174728 2003 UB_{181}	17.0	X	187.97794	331.67645	83.25162	2.23379	0.1832775	0.27025249	2.3693156	20	5 19.4	20.9
174729 2003 UB_{182}	16.7	X	227.23802	336.43290	92.33498	5.97940	0.1220317	0.27891377	2.3200076	20	7 22.2	19.7
174730 2003 UJ_{182}	17.5	X	157.89707	216.48664	103.22708	1.41604	0.2613619	0.25604163	2.4561921	20	1 2.4	21.2
174731 2003 UH_{183}	16.8	X	57.62080	250.96401	59.24523	3.75845	0.1908004	0.29632452	2.2282179	20	12 15.8	20.0
174732 2003 UN_{187}	16.2	X	326.21366	324.41845	355.54787	5.93639	0.2361649	0.28227001	2.3015808	20	7 2.4	17.7
174733 2003 UH_{188}	16.7	X	259.30788	4.55070	13.65902	6.59743	0.1325043	0.27710476	2.3300937	20	6 18.9	19.9
174734 2003 UO_{190}	16.1	X	350.18804	245.45018	26.50460	5.82200	0.0416120	0.27491998	2.3424222	20	6 17.1	18.8
174735 2003 UV_{195}	16.9	X	134.02964	300.62739	111.15105	2.29424	0.1877198	0.26071195	2.4267708	20	3 27.4	20.5
174736 2003 UB_{210}	16.3	X	127.58996	189.68849	30.67642	5.24479	0.0402820	0.28814004	2.2702149	20	10 24.1	19.2
174737 2003 UR_{213}	16.7	X	143.25969	134.90190	18.56990	4.40582	0.1456985	0.27896034	2.3197494	20	8 15.9	20.2
174738 2003 UZ_{217}	16.4	X	209.08857	234.19931	134.70836	2.94490	0.1702480	0.26924561	2.3752188	20	4 10.9	20.2
174739 2003 UX_{222}	16.7	X	224.95116	5.66020	18.86507	6.80924	0.1325952	0.27139907	2.3626378	20	5 16.1	20.2
174740 2003 UY_{228}	15.6	X	302.17374	320.49424	16.41106	5.12921	0.1688873	0.21955974	2.7212446	20	6 15.5	18.9
174741 2003 UR_{230}	17.1	X	250.48180	48.97352	353.98501	2.30141	0.1492672	0.27862485	2.3216111	20	7 11.0	20.0
174742 2003 UP_{231}	17.3	X	135.63453	148.57975	4.21852	2.21745	0.0562234	0.27895428	2.3197830	20	8 1.1	20.2
174743 2003 UA_{235}	16.2	X	311.51835	53.96660	59.58446	17.71371	0.1823261	0.23665667	2.5885520	20	—	—
174744 2003 UA_{237}	16.5	X	178.75785	103.89112	357.25417	5.83227	0.1445744	0.27467383	2.3438215	20	7 11.9	20.1
174745 2003 UH_{241}	16.5	X	348.34494	300.43754	71.32472	5.32593	0.1583116	0.29457634	2.2370248	20	11 30.4	18.3
174746 2003 UE_{242}	16.4	X	95.80591	166.83385	48.18061	7.61056	0.0156498	0.28226782	2.3015927	20	9 5.3	19.3
174747 2003 UE_{253}	16.4	X	332.51902	279.52657	62.71291	2.05293	0.2210343	0.28525835	2.2854785	20	9 6.5	17.5
174748 2003 UX_{264}	16.2	X	117.57244	23.46699	79.10576	9.07314	0.1610705	0.26348720	2.4097003	20	5 12.9	19.6
174749 2003 UC_{265}	16.6	X	242.87746	249.07693	151.62508	5.57736	0.0947767	0.27669490	2.3323942	20	7 4.8	19.6
174750 2003 UR_{275}	17.1	X	13.59055	319.51089	33.62123	1.92137	0.1710722	0.29337548	2.2431252	20	12 16.6	19.6
174751 2003 UQ_{276}	16.3	X	3.36807	65.64353	267.79054	4.86851	0.2058906	0.29025920	2.2591517	20	11 4.8	18.4
174752 2003 UN_{281}	16.1	X	327.65336	296.67200	125.24600	5.73952	0.2549397	0.23419818	2.6066359	20	12 19.9	17.9
174753 2003 UH_{282}	16.3	X	300.35882	210.99388	110.10014	6.06869	0.0829244	0.27434092	2.3457172	20	6 5.5	18.9
174754 2003 UA_{283}	16.6	X	351.20700	224.06119	108.39478	7.45727	0.2196359	0.28679943	2.2772840	20	10 15.9	18.3
174755 2003 UN_{297}	17.0	X	210.83469	145.46176	9.30770	6.30044	0.1260258	0.29077554	2.2564764	20	10 28.1	19.8
174756 2003 VN	16.3	X	354.72366	234.64801	97.91859	8.29770	0.2807148	0.28790004	2.2714764	20	11 4.5	18.0
174757 2003 VK_2	16.5	X	3.17920	59.41083	274.85966	3.92220	0.1262116	0.28854428	2.2680941	20	10 22.5	18.7
174758 2003 VX_2	17.0	X	193.15372	310.20466	148.52121	2.23122	0.0717583	0.27692803	2.3310850	20	7 26.5	20.1
174759 2003 VT_4	16.5	X	98.28881	203.36328	39.47498	6.98562	0.0709001	0.28638774	2.2794659	20	10 20.9	19.4
174760 2003 VP_9	16.6	X	271.39786	174.44341	206.51044	1.50321	0.2323404	0.27908813	2.3190413	20	6 23.8	19.4
174761 2003 VX_{11}	16.3	X	182.80697	69.31138	264.36401	14.74686	0.2556652	0.26040066	2.4287044	20	2 1.5	20.7
174762 2003 WV_6	16.6	X	181.61867	211.59391	285.26148	3.67710	0.0682387	0.28168204	2.3047825	20	9 2.7	19.7
174763 2003 WY_9	16.7	X	137.72869	185.23387	320.96700	6.26971	0.0496123	0.27505001	2.3416839	20	7 24.8	19.7
174764 2003 WK_{25}	16.8	X	122.56617	332.86621	272.46151	5.94964	0.0998706	0.29198033	2.2502649	20	11 21.6	20.0
174765 2003 WZ_{25}	15.3	X	309.46786	121.41475	301.22846	27.92360	0.2414259	0.22901631	2.6458087	20	10 8.7	18.6
174766 2003 WZ_{27}	16.9	X	112.26169	339.11272	318.33829	3.75857	0.1945523	0.30083581	2.2058858	20	—	—
174767 2003 WR_{28}	17.0	X	135.52962	233.53397	288.32431	2.14160	0.1028097	0.27683243	2.3316216	20	8 14.8	20.3
174768 2003 WK_{36}	17.0	X	97.92859	126.69466	22.08986	3.01102	0.0594440	0.26785487	2.3834334	20	6 4.8	20.0
174769 2003 WK_{43}	16.6	X	45.53345	144.01971	42.32716	4.31061	0.0638621	0.26868799	2.3785039	20	5 12.2	19.0
174770 2003 WS_{44}	16.4	X	149.69390	318.72652	128.98794	8.42601	0.2048017	0.26761261	2.3848716	20	5 29.4	20.4
174771 2003 WC_{45}	16.2	X	107.26418	179.23208	264.56599	5.71579	0.0881221	0.25944926	2.4346382	20	3 20.6	19.5
174772 2003 WP_{49}	16.8	X	343.93732	60.45630	308.00596	5.07960	0.0215949	0.28978678	2.2616063	20	10 28.7	19.4
174773 2003 WF_{53}	17.4	X	68.08715	95.81794	41.57163	2.02188	0.1439099	0.26192653	2.4192628	20	4 19.9	20.1
174774 2003 WN_{55}	16.8	X	48.21236	17.23284	313.12018	2.89084	0.1362525	0.29355950	2.2421877	20	12 25.2	19.8
174775 2003 WB_{56}	16.2	X	62.65374	104.95430	352.88730	3.48818	0.0577968	0.25400082	2.4693310	20	2 5.3	19.0
174776 2003 WS_{62}	16.3	X	142.56029	2.63394	75.68212	6.92644	0.0729496	0.26486772	2.4013199	20	4 30.0	19.6
174777 2003 WB_{64}	16.2	X	62.72043	293.82717	239.13907	10.50457	0.2046939	0.26354306	2.4093598	20	6 13.1	18.9
174778 2003 WO_{80}	16.1	X	328.84728	157.71367	265.77442	8.64086	0.0534978	0.23391609	2.6087311	20	12 11.3	19.2
174779 2003 WV_{82}	15.7	X	299.90591	171.18363	263.68174	11.83692	0.1301062	0.23528927	2.5985713	20	11 5.9	18.7
174780 2003 WC_{92}	16.3	X	312.66272	281.92693	199.64752	8.35052	0.1146741	0.23887013	2.5725361	20	—	—
174781 2003 WT_{92}	16.5	X	153.23479	339.45024	274.26003	5.92593	0.1358713	0.29725881	2.2235466	20	—	—
174782 2003 WD_{95}	17.3	X	100.82907	50.15225	54.22120	2.10144	0.1504430	0.26094074	2.4253521	20	4 22.3	20.2
174783 2003 WY_{96}	16.8	X	150.88420	288.81137	152.87994	1.72827	0.0958865	0.26726715	2.3869262	20	5 14.8	20.1
174784 2003 WN_{98}	15.5	X	112.96083	236.93286	273.86902	20.68865	0.3287363	0.26890058	2.3772502	20	7 20.1	19.7
174785 2003 WS_{106}	15.9	X	355.15550	334.98464	60.18816	14.87563	0.1267768	0.23385661	2.6091734	20	12 19.5	19.0
174786 2003 WB_{111}	16.3	X	20.46150	345.40381	281.70288	5.75882	0.0943535	0.27719338	2.3295971	20	8 4.3	18.7
174787 2003 WE_{120}	16.9	X	238.52242	100.17148	302.49415	4.23010	0.2121177	0.27506017	2.3416263	20	6 18.2	20.5
174788 2003 WN_{120}	16.4	X	256.89585	321.60671	40.63910	3.80568	0.2612096	0.27406479	2.3472925	20	5 8.5	20.0
174789 2003 WN_{121}	16.1	X	121.09414	127.79996	320.60679	5.53476	0.0959378	0.26017469	2.4301105	20	4 15.2	19.4
174790 2003 WZ_{123}	16.3	X	171.99045	194.49690	289.27305	5.54864	0.1140780	0.27346924	2.3506992	20	8 2.8	19.7
174791 2003 WX_{126}	16.4	X	330.43960	60.09627	304.71813	3.58554	0.2663251	0.28551916	2.2840865	20	10 12.0	17.3
174792 2003 WO_{133}	16.7	X	185.04519	66.66420	74.57214	7.17361	0.0437030	0.28147905	2.3058904	20	9 21.2	19.7
174793 2003 WU_{136}	16.1	X	263.13377	270.46636	80.40444	5.93561	0.2638179	0.27415577	2.3467732	20	5 1.5	19.5
174794 2003 WM_{139}	14.8	X	44.64019	202.08113	256.79700	7.80021	0.0862561	0.18938198	3.0031495	20	1 22.0	18.6
174795 2003 WN_{145}	16.8	X	234.57102	349.44607	80.48929	5.24932	0.1054501	0.27853319	2.3221205	20	8 5.2	19.8
174796 2003 WC_{146}	16.8	X	88.56392	244.54326	99.48503	3.82997	0.2251999	0.24530366	2.5273576	20	—	—
174797 2003 WL_{146}	16.0	X	114.51587	342.15253	107.03260	12.50984	0.1946318	0.26332273	2.4107036	20	4 29.7	19.7
174798 2003 WQ_{147}	16.7	X	127.50109	19.98775	117.11870	7.60763	0.0398475	0.27101211	2.3648862	20	6 26.4	19.8
174799 2003 WX_{156}	16.7	X	278.47656	316.38078	98.58512	5.16309	0.1186498	0.28517694	2.2859134	20	9 18.3	19.0
174800 2003 WV_{159}	17.4	X	90.03588	94.61459	75.92045	2.19282	0.1280963	0.26880235	2.3778293	20	7 6.2	20.5

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
174801 Etscorn	16.8	*X*	216.27540	167.49609	253.76023	4.19465	0.1906244	0.27351578	2.3504325	20	6 22.4	20.3
174802 2003 WV_{168}	16.2	*X*	284.74865	102.04118	152.54830	6.77415	0.0970768	0.26017231	2.4301253	20	2 8.9	19.5
174803 2003 WN_{171}	16.6	*X*	352.02080	202.74703	138.32586	6.57781	0.1643104	0.28672698	2.2776676	20	10 22.3	18.6
174804 2003 WJ_{192}	16.6	*X*	252.39469	34.89434	323.82863	5.48048	0.1263375	0.27108772	2.3644465	20	5 12.8	19.9
174805 2003 WN_{192}	16.1	*X*	248.40192	45.94906	339.57099	12.02225	0.1589845	0.27649678	2.3335082	20	6 11.1	19.6
174806 2003 XL	17.1	*X*	5.80398	207.08216	317.60512	10.96621	0.5717681	0.24667134	2.5180070	20	—	—
174807 2003 XR_{2}	16.8	*X*	263.74232	239.96429	141.58651	3.39033	0.1775293	0.27705080	2.3303963	20	6 23.0	19.7
174808 2003 XF_{4}	16.3	*X*	133.59281	335.27608	113.33053	6.01456	0.1271250	0.26373695	2.4081788	20	5 8.9	19.8
174809 2003 XN_{9}	15.5	*X*	46.35327	352.00827	359.79877	12.85474	0.2112160	0.23634790	2.5908059	20	—	—
174810 2003 XZ_{9}	15.3	*X*	210.39966	29.18216	8.72296	14.57430	0.2261889	0.20946237	2.8080104	20	5 11.9	20.3
174811 2003 XD_{12}	16.4	*X*	86.27397	342.62330	143.52092	3.93781	0.1246029	0.26049907	2.4280927	20	4 30.0	19.4
174812 2003 XR_{12}	15.6	*X*	131.24181	316.86550	35.41419	13.79160	0.1158349	0.24648340	2.5192867	20	—	—
174813 2003 XB_{19}	16.9	*X*	208.16457	265.83908	120.51518	2.48705	0.1180574	0.26838205	2.3803112	20	5 4.1	20.3
174814 2003 XG_{21}	16.5	*X*	165.51908	172.42137	333.28175	5.42656	0.1292910	0.27349111	2.3505739	20	8 26.0	20.0
174815 2003 YM_{3}	15.3	*X*	238.74350	202.39130	34.90359	15.89478	0.0588644	0.23968248	2.5667202	20	—	—
174816 2003 YX_{12}	16.2	*X*	155.50427	152.16559	337.47446	5.08518	0.1186122	0.26939067	2.3743661	20	7 25.7	19.7
174817 2003 YJ_{13}	14.7	*X*	330.75291	194.50936	300.03540	21.69446	0.0352931	0.17881760	3.1202966	20	—	—
174818 2003 YH_{14}	16.4	*X*	157.99222	83.74222	57.44119	8.45992	0.0839962	0.27559120	2.3386172	20	8 16.1	19.8
174819 2003 YE_{17}	16.2	*X*	63.76932	88.40024	42.49771	2.59675	0.1287522	0.25360036	2.4719298	20	4 2.2	18.7
174820 2003 YV_{20}	17.0	*X*	53.03182	177.00180	344.92603	1.07669	0.1252170	0.25609212	2.4558692	20	4 27.4	19.6
174821 2003 YW_{20}	16.5	*X*	89.15202	142.68677	10.04221	1.35518	0.1234173	0.26078213	2.4263354	20	6 8.6	19.7
174822 2003 YW_{28}	17.3	*X*	125.06636	10.26044	116.31272	2.18994	0.1328815	0.26661872	2.3907947	20	6 18.0	20.8
174823 2003 YV_{33}	15.3	*X*	232.77582	114.34106	213.02320	12.61982	0.2158471	0.20532915	2.8455680	20	3 8.8	20.3
174824 2003 YA_{36}	16.9	*X*	208.99037	63.67507	319.85766	6.59465	0.2437641	0.26545289	2.3977896	20	4 22.9	21.1
174825 2003 YT_{36}	15.9	*X*	88.70516	24.06055	323.33417	4.05758	0.2520579	0.23890030	2.5723195	20	—	—
174826 2003 YO_{43}	16.1	*X*	358.00630	177.50991	281.88712	3.15561	0.2410530	0.23855441	2.5748054	20	—	—
174827 2003 YV_{46}	16.3	*X*	53.97081	142.82286	77.65951	6.88193	0.0754001	0.27118418	2.3638857	20	7 19.1	19.1
174828 2003 YN_{58}	16.0	*X*	80.11942	28.43487	101.99668	9.51739	0.1539116	0.25799302	2.4437911	20	5 4.6	19.1
174829 2003 YT_{66}	15.7	*X*	282.98710	179.39844	319.86461	10.96965	0.0946993	0.22741258	2.6582331	20	—	—
174830 2003 YY_{79}	16.3	*X*	220.43030	56.33476	316.65881	5.75194	0.1621437	0.26467416	2.4024905	20	4 23.3	20.1
174831 2003 YC_{82}	16.9	*X*	224.17150	101.83472	327.61316	3.68768	0.0982821	0.27226754	2.3576109	20	7 21.8	19.9
174832 2003 YV_{82}	15.9	*X*	334.78269	328.51542	112.71664	6.91873	0.0279903	0.22963123	2.6410832	20	—	—
174833 2003 YW_{83}	16.8	*X*	106.78688	124.60706	34.68142	1.70157	0.1228607	0.26919780	2.3755001	20	7 10.9	19.9
174834 2003 YE_{88}	16.3	*X*	324.23297	214.08198	241.00032	7.90845	0.1377756	0.23492833	2.6012322	20	—	—
174835 2003 YQ_{103}	16.0	*X*	216.10697	185.03322	215.76191	5.32359	0.0947861	0.21149369	2.7900015	20	6 2.1	20.1
174836 2003 YP_{105}	16.0	*X*	12.89357	295.52991	176.39948	4.39661	0.0992824	0.24540140	2.5266865	20	—	—
174837 2003 YP_{112}	16.1	*X*	240.06604	51.76696	316.59234	6.14749	0.1338459	0.26742850	2.3859660	20	5 10.4	19.7
174838 2003 YV_{115}	16.5	*X*	116.38698	153.20981	302.16889	5.64443	0.0752300	0.25793208	2.4441760	20	4 15.8	19.8
174839 2003 YP_{120}	16.2	*X*	180.38993	336.40647	28.84440	6.61995	0.1642265	0.25614666	2.4555206	20	3 13.1	20.1
174840 2003 YO_{129}	15.4	*X*	11.57862	320.71865	81.04521	11.34714	0.2315386	0.23254882	2.6189464	20	—	—
174841 2003 YD_{133}	15.5	*X*	138.91178	204.55504	341.57303	7.28366	0.1566504	0.21184517	2.7869147	20	9 14.4	20.0
174842 2003 YJ_{145}	15.8	*X*	279.41123	155.94096	24.97243	8.13388	0.1389339	0.23524840	2.5988722	20	—	—
174843 2003 YD_{146}	15.7	*X*	154.56959	299.33724	48.87273	10.92919	0.1762365	0.24713199	2.5148769	20	1 31.0	19.7
174844 2003 YL_{147}	15.5	*X*	11.09939	58.80918	8.03082	10.29730	0.0850848	0.23872479	2.5735802	20	—	—
174845 2003 YC_{149}	15.8	*X*	232.25976	170.55529	83.77686	28.17968	0.0218468	0.24238410	2.5476121	20	—	—
174846 2003 YE_{153}	15.1	*X*	355.89069	7.64105	122.01917	29.93229	0.0321216	0.23650722	2.5896423	20	—	—
174847 2003 YM_{154}	15.2	*X*	280.87564	159.25614	68.28196	14.08440	0.1174896	0.24200561	2.5502676	20	1 1.8	19.0
174848 2003 YH_{155}	16.0	*X*	53.63265	19.25542	45.53109	13.70786	0.1676056	0.24226120	2.5484736	20	—	—
174849 2003 YL_{155}	16.5	*X*	80.82378	357.26534	112.52166	3.95512	0.1337838	0.25540845	2.4602498	20	4 1.4	19.4
174850 2003 YT_{155}	15.5	*X*	257.67623	285.71704	245.97054	10.55470	0.1392841	0.23023588	2.6364571	20	—	—
174851 2003 YX_{164}	16.9	*X*	113.66901	223.10007	277.28588	1.32722	0.1142979	0.26679586	2.3897364	20	6 21.6	20.0
174852 2003 YG_{167}	16.1	*X*	324.23183	206.41256	122.12384	4.64129	0.0999897	0.20953464	2.8073647	20	7 20.3	19.2
174853 2003 YS_{168}	15.6	*X*	333.94331	298.70184	60.71042	8.38182	0.1454477	0.22285782	2.6943300	20	9 26.1	18.5
174854 2003 YW_{173}	16.6	*X*	15.41726	232.38941	70.39298	7.56775	0.1399952	0.28182396	2.3040087	20	10 3.6	19.0
174855 2003 YS_{180}	16.0	*X*	9.21539	203.56862	36.68743	9.45876	0.2044911	0.25925471	2.4358560	20	6 6.6	17.9
174856 2004 AS_{2}	15.7	*X*	277.96124	117.06101	121.97985	13.40794	0.1409202	0.24474478	2.5312037	20	1 10.0	19.5
174857 2004 AW_{3}	16.2	*X*	9.44147	89.77036	123.99055	3.40551	0.1295678	0.25552586	2.4594961	20	4 25.5	18.5
174858 2004 AM_{4}	16.2	*X*	93.42495	65.70118	311.38425	3.33120	0.2118862	0.24315804	2.5422034	20	—	—
174859 2004 AS_{7}	16.6	*X*	334.57815	231.99955	249.43720	4.20268	0.2061879	0.23616902	2.5921140	20	—	—
174860 2004 AC_{8}	16.2	*X*	2.33090	196.82523	202.30822	6.47836	0.2644525	0.23170568	2.6252959	20	—	—
174861 2004 AY_{21}	16.4	*X*	53.05145	1.26176	309.33719	3.68642	0.0966981	0.22208649	2.7005649	20	11 12.7	20.1
174862 2004 BD_{2}	16.1	*X*	108.88183	350.76686	21.31800	4.48843	0.1421662	0.24581830	2.5238289	20	1 1.8	19.3
174863 2004 BA_{15}	17.0	*X*	166.46227	321.94554	115.01898	2.22191	0.1606373	0.26276546	2.4141108	20	5 27.9	20.8
174864 2004 BV_{15}	17.0	*X*	103.95315	125.30643	11.02477	2.01819	0.1564579	0.25988245	2.4319319	20	6 9.3	20.4
174865 2004 BS_{16}	16.4	*X*	86.48551	116.69065	14.18618	7.25684	0.1544326	0.25723578	2.4485847	20	5 8.2	19.6
174866 2004 BG_{18}	15.8	*X*	15.75780	335.04768	45.12547	14.98438	0.0089437	0.22509328	2.6764617	20	12 10.6	19.5
174867 2004 BZ_{20}	16.8	*X*	50.88339	39.85923	138.87411	3.41708	0.1137407	0.25743299	2.4473341	20	5 18.6	19.5
174868 2004 BH_{25}	15.6	*X*	345.84321	220.34470	124.22046	11.08551	0.1713972	0.21802279	2.7340185	20	9 28.4	18.5
174869 2004 BX_{38}	15.6	*X*	331.66724	265.46229	109.56885	15.01911	0.1740571	0.22249176	2.6972846	20	10 18.5	18.6
174870 2004 BG_{39}	16.8	*X*	56.10496	33.90913	135.64914	3.21034	0.1153374	0.25810323	2.4430954	20	5 14.0	19.4
174871 2004 BE_{42}	16.1	*X*	38.04137	317.92900	115.73368	8.87816	0.1744119	0.23916493	2.5704217	20	—	—
174872 2004 BP_{42}	15.5	*X*	261.82122	138.12025	63.60543	14.04166	0.0853232	0.23641693	2.5903016	20	—	—
174873 2004 BL_{43}	16.6	*X*	112.12789	153.79288	333.82377	6.00466	0.1001304	0.25859169	2.4400178	20	5 29.9	20.1
174874 2004 BQ_{47}	15.1	*X*	296.74684	280.28323	289.37789	7.80022	0.0871147	0.18383192	3.0632946	20	1 11.7	19.5
174875 2004 BQ_{50}	16.1	*X*	80.80214	43.96363	129.08524	6.42332	0.0117525	0.26204368	2.4185418	20	6 8.7	19.2
174876 2004 BW_{50}	16.7	*X*	98.77306	307.32578	131.03189	5.01104	0.1747374	0.25172905	2.4841653	20	3 21.4	19.9
174877 2004 BU_{52}	16.5	*X*	180.97717	256.24010	126.16084	3.12036	0.2195848	0.25846280	2.4408290	20	4 4.1	20.5
174878 2004 BV_{53}	16.5	*X*	348.39379	74.71758	321.25940	3.96836	0.1122321	0.22656832	2.6648326	20	12 6.5	19.7
174879 2004 BP_{54}	15.7	*X*	188.66473	125.26036	73.07491	2.65373	0.0375496	0.22296198	2.6934909	20	11 25.9	19.5
174880 2004 BM_{55}	16.7	*X*	67.99122	228.70796	318.38495	1.55316	0.1176018	0.26014867	2.4302725	20	6 27.0	19.6

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
174881 2004 BU_{58}	17.9	X	107.49577	171.79533	120.17803	57.23371	0.5571225	0.70194578	1.2539118	20	—	—
174882 2004 BV_{65}	16.1	X	23.31864	201.81745	105.71860	7.54073	0.0433349	0.21588673	2.7520231	20	9 26.2	19.8
174883 2004 BH_{72}	16.3	X	340.72920	198.20372	233.37418	3.48581	0.2345141	0.23187431	2.6240229	20	—	—
174884 2004 BC_{74}	15.5	X	172.55239	20.08209	310.65851	14.30195	0.0983598	0.24253504	2.5465550	20	1 19.7	19.3
174885 2004 BJ_{76}	16.5	X	162.16203	55.07521	139.35038	2.69252	0.2054384	0.27634942	2.3343377	20	10 23.8	20.3
174886 2004 BW_{83}	15.7	X	321.74926	252.49245	313.82187	14.12797	0.2350245	0.24062835	2.5599896	20	1 9.3	19.1
174887 2004 BL_{84}	15.8	X	5.14022	294.84191	202.59629	11.65504	0.2214255	0.24267915	2.5455467	20	—	—
174888 2004 BP_{89}	15.4	X	244.00280	210.37798	305.45485	15.07022	0.0586429	0.22384585	2.6863959	20	12 7.6	19.2
174889 2004 BA_{90}	15.6	X	344.20553	136.98337	301.90632	13.45697	0.0945388	0.22899370	2.6459829	20	—	—
174890 2004 BH_{91}	15.6	X	185.08562	302.02985	312.54900	9.32404	0.1343786	0.22913297	2.6449106	20	—	—
174891 2004 BJ_{92}	15.3	X	321.48017	302.73849	274.47023	9.77097	0.1553443	0.18524324	3.0477158	20	2 7.9	19.4
174892 2004 BT_{96}	16.7	X	347.63519	290.21181	226.21027	0.82846	0.0217066	0.24286241	2.5442660	20	1 8.3	19.9
174893 2004 BW_{101}	15.8	X	258.49093	316.73808	251.96672	2.93389	0.1255392	0.23383795	2.6093122	20	—	—
174894 2004 BM_{102}	15.5	X	200.79536	66.70014	123.91986	15.59879	0.1671302	0.21419958	2.7664552	20	11 20.4	20.1
174895 2004 BS_{104}	16.0	X	138.21215	66.43929	286.82889	14.21074	0.0269873	0.24179726	2.5517324	20	—	—
174896 2004 BT_{106}	16.5	X	26.67064	100.14241	327.11724	12.35416	0.1675179	0.23709723	2.5853444	20	—	—
174897 2004 BF_{109}	16.1	X	52.27675	292.00004	116.18129	18.80255	0.1968715	0.23800275	2.5787826	20	—	—
174898 2004 BL_{111}	15.8	X	262.49522	41.45263	112.49573	14.96792	0.0611758	0.22549199	2.6733057	20	12 30.8	19.2
174899 2004 BT_{113}	15.8	X	104.80375	278.30204	97.65499	15.35615	0.1348835	0.24292123	2.5438553	20	—	—
174900 2004 BL_{117}	15.9	X	293.67139	103.47024	92.74360	13.03308	0.1055028	0.23843458	2.5756680	20	—	—
174901 2004 BE_{118}	16.0	X	306.51951	286.95162	235.33475	5.36028	0.1022525	0.23593752	2.5938093	20	—	—
174902 2004 BO_{118}	16.5	X	295.01644	101.91820	49.69193	7.10996	0.1755149	0.23075895	2.6324715	20	—	—
174903 2004 BL_{119}	16.5	X	285.18692	286.57072	193.25063	1.69984	0.1556418	0.22727985	2.6592679	20	12 9.9	19.2
174904 2004 BP_{122}	16.6	X	54.93599	61.24444	18.70881	1.18865	0.0886662	0.23871848	2.5736255	20	1 4.9	19.4
174905 2004 BJ_{127}	16.8	X	95.00913	242.29461	106.54440	5.80084	0.0896468	0.23581435	2.5947124	20	—	—
174906 2004 BS_{127}	16.7	X	164.08106	315.16782	338.80833	2.16164	0.1134756	0.23644242	2.5901155	20	—	—
174907 2004 BS_{133}	16.2	X	143.41185	44.77014	22.44927	5.26120	0.0885095	0.25806881	2.4433126	20	4 15.6	19.5
174908 2004 BP_{134}	15.8	X	31.82697	217.34450	91.85936	6.94143	0.0562268	0.21617701	2.7495590	20	10 11.8	19.4
174909 2004 BE_{147}	15.7	X	12.12613	53.22938	325.32303	13.64717	0.1156690	0.22481634	2.6786593	20	12 21.0	19.3
174910 2004 BO_{151}	15.7	X	140.32937	41.40307	286.18896	13.79655	0.0744441	0.23877083	2.5732494	20	—	—
174911 2004 BG_{153}	16.1	X	161.61448	28.76965	286.17193	4.95460	0.1702612	0.24099159	2.5574165	20	—	—
174912 2004 BD_{155}	16.8	X	85.80397	143.11038	234.79724	1.26810	0.2051665	0.24130343	2.5552127	20	—	—
174913 2004 BM_{156}	16.6	X	85.05768	31.69615	312.67355	11.28071	0.2058291	0.23360572	2.6110413	20	—	—
174914 2004 CP_{1}	14.8	X	243.14189	55.56117	308.31487	12.76103	0.2083260	0.20295894	2.8676794	20	4 29.3	19.7
174915 2004 CQ_{1}	16.2	X	281.68703	244.57924	285.56339	3.14183	0.1483786	0.23245897	2.6196213	20	—	—
174916 2004 CG_{4}	16.2	X	333.80658	56.04042	41.44341	3.92572	0.1057023	0.23206852	2.6225587	20	—	—
174917 2004 CN_{6}	15.8	X	260.32541	93.33115	89.06106	15.22013	0.1717935	0.22995267	2.6386214	20	—	—
174918 2004 CJ_{13}	16.4	X	55.81372	261.91049	145.83680	11.29949	0.0585576	0.23574853	2.5951953	20	—	—
174919 2004 CV_{20}	17.1	X	24.95971	59.19680	54.63199	2.14479	0.0240629	0.24282389	2.5445350	20	1 3.5	20.1
174920 2004 CE_{22}	16.5	X	273.54793	299.85820	219.80102	2.95398	0.1025679	0.22897526	2.6461249	20	—	—
174921 2004 CJ_{22}	16.4	X	356.69420	81.63920	67.96146	4.84799	0.1390220	0.24136768	2.5547592	20	—	—
174922 2004 CB_{28}	16.7	X	65.07708	38.70541	58.03149	2.01435	0.0641672	0.24756921	2.5119152	20	2 9.1	19.7
174923 2004 CF_{33}	16.9	X	74.89528	280.27043	115.81796	4.82788	0.2072366	0.24203656	2.5500502	20	—	—
174924 2004 CO_{33}	16.5	X	18.98354	282.76281	102.48732	4.90979	0.0986548	0.22869042	2.6483217	20	—	—
174925 2004 CE_{36}	15.7	X	299.21796	20.08186	65.21992	11.22664	0.0993257	0.22313597	2.6920905	20	11 21.2	18.7
174926 2004 CJ_{37}	16.1	X	261.77500	288.57521	295.63686	5.05953	0.1038409	0.23644688	2.5900829	20	—	—
174927 2004 CX_{37}	16.3	X	283.40377	162.80136	27.02174	8.10226	0.1492625	0.23421792	2.6064895	20	—	—
174928 2004 CM_{45}	16.1	X	61.68060	268.36478	118.37505	12.47255	0.2115447	0.23686741	2.5870164	20	—	—
174929 2004 CZ_{50}	14.9	X	169.46796	11.88386	322.63606	13.51805	0.2198584	0.24058960	2.5602644	20	1 29.9	19.2
174930 2004 CP_{52}	15.8	X	49.92414	90.98131	119.97448	2.87530	0.1060658	0.19763210	2.9189796	20	6 28.9	19.6
174931 2004 CV_{54}	16.6	X	272.23585	169.75069	39.07206	3.73017	0.1216792	0.23498704	2.6007989	20	—	—
174932 2004 CC_{59}	16.7	X	341.54374	85.03169	102.15887	9.41685	0.1784747	0.24470296	2.5314920	20	1 19.4	19.5
174933 2004 CE_{61}	16.4	X	349.30383	5.11856	92.50979	7.76727	0.0921010	0.23450271	2.6043787	20	—	—
174934 2004 CP_{62}	15.8	X	179.71905	219.77910	103.60394	15.93733	0.1159930	0.24039266	2.5616625	20	1 18.5	19.7
174935 2004 CT_{62}	15.5	X	28.89691	184.18567	63.74196	9.76247	0.1699701	0.19940449	2.9016571	20	7 27.9	19.0
174936 2004 CU_{62}	15.6	X	137.13441	152.89594	111.24573	15.13288	0.0705177	0.22227561	2.6990328	20	12 18.5	19.6
174937 2004 CP_{64}	16.4	X	108.98396	282.15173	124.57331	15.19179	0.1042544	0.24612871	2.5217065	20	2 11.0	19.6
174938 2004 CM_{65}	16.6	X	314.12674	86.71056	118.29965	11.75222	0.1290426	0.24299649	2.5433300	20	1 11.1	20.0
174939 2004 CW_{68}	16.1	X	138.42672	174.33898	25.07529	3.62635	0.0609357	0.21370002	2.7707649	20	9 28.9	20.0
174940 2004 CE_{70}	14.9	X	48.62475	4.89391	112.06407	11.97578	0.0625429	0.18383762	3.0632313	20	2 23.3	19.0
174941 2004 CL_{70}	16.5	X	312.87591	148.72124	339.51799	7.17579	0.0936936	0.23234332	2.6204905	20	—	—
174942 2004 CS_{75}	16.6	X	79.47587	257.81117	188.44138	2.22708	0.0739334	0.24696962	2.5159791	20	2 15.9	19.6
174943 2004 CN_{79}	16.1	X	300.70734	0.64519	101.06600	4.72660	0.0675026	0.22452257	2.6809953	20	12 17.1	19.1
174944 2004 CH_{80}	15.7	X	129.91976	157.62179	44.13963	4.47456	0.0365730	0.21077354	2.7963529	20	9 21.8	19.6
174945 2004 CX_{82}	16.1	X	354.94964	8.24410	349.44243	3.62428	0.0394655	0.21649169	2.7468940	20	10 17.1	19.7
174946 2004 CF_{85}	15.2	X	337.32557	308.18763	296.10010	9.55741	0.1479862	0.19223861	2.9733244	20	4 5.5	18.9
174947 2004 CR_{85}	16.2	X	176.91142	132.07642	124.45536	3.46644	0.0869948	0.22742251	2.6581557	20	—	—
174948 2004 CZ_{89}	15.0	X	123.20587	1.30371	311.94840	12.44900	0.1872492	0.22930643	2.6435766	20	—	—
174949 2004 CB_{99}	15.6	X	180.81500	202.18449	333.19051	11.38736	0.0870837	0.21439626	2.7647630	20	10 8.9	19.9
174950 2004 CS_{104}	15.6	X	328.95835	182.29970	317.12009	8.77550	0.1058753	0.23397581	2.6082872	20	—	—
174951 2004 CG_{107}	16.2	X	243.80337	235.18005	333.12027	6.02002	0.2323681	0.22773137	2.6557518	20	—	—
174952 2004 CN_{109}	15.7	X	251.23284	159.69388	65.78127	14.96363	0.1242535	0.23608057	2.5927614	20	—	—
174953 2004 CR_{109}	15.9	X	295.41896	60.34276	71.94040	15.06312	0.0796518	0.22927083	2.6438502	20	—	—
174954 2004 CB_{113}	16.4	X	56.05608	13.21832	47.61697	4.85532	0.1753949	0.24238008	2.5476402	20	—	—
174955 2004 CP_{116}	16.2	X	111.08653	212.96293	140.55789	10.42852	0.1088307	0.23783733	2.5799782	20	—	—
174956 2004 CQ_{126}	16.4	X	13.63365	187.68345	196.83897	3.75283	0.1003122	0.22482704	2.6785743	20	12 27.5	19.7
174957 2004 CJ_{129}	16.3	X	231.69862	71.68707	15.19498	1.80416	0.0415948	0.21019662	2.8014674	20	8 26.0	20.2
174958 2004 CS_{130}	15.8	X	270.32995	241.11494	14.79473	12.75270	0.1443126	0.24344040	2.5402372	20	1 27.2	19.8
174959 2004 DB_{2}	15.6	X	320.99709	85.17894	354.57205	11.16169	0.0729830	0.22384187	2.6864278	20	12 18.3	19.0
174960 2004 DK_{3}	16.3	X	331.12591	111.65715	305.34338	2.49848	0.1061623	0.22273383	2.6953298	20	12 4.9	19.4

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
174961 2004 DJ_4	14.7	X	260.36199	153.60698	85.01871	15.12967	0.1200857	0.17309987	3.1886356	20	1 4.2	19.6
174962 2004 DP_4	15.9	X	200.71482	122.99154	12.46727	3.41854	0.0369402	0.21343090	2.7730936	20	9 20.5	19.7
174963 2004 DJ_7	16.2	X	101.54049	285.26836	32.40649	3.93738	0.0834212	0.22756779	2.6570243	20	—	—
174964 2004 DN_{14}	16.1	X	324.71020	275.99901	198.80555	6.23439	0.2990486	0.23146323	2.6271289	20	—	—
174965 2004 DH_{16}	15.3	X	123.37170	340.19461	156.05482	6.28824	0.0777682	0.19641643	2.9310114	20	6 21.9	19.6
174966 2004 DN_{17}	15.8	X	208.35701	328.45619	297.96020	12.55528	0.0921852	0.23457907	2.6038135	20	—	—
174967 2004 DD_{19}	16.0	X	346.86379	73.69148	52.08881	8.23367	0.1692634	0.23586271	2.5943577	20	—	—
174968 2004 DA_{29}	15.8	X	256.89386	152.79421	136.72476	7.16376	0.0780355	0.24637687	2.5200129	20	2 26.6	19.3
174969 2004 DT_{29}	16.5	X	28.60390	2.04026	123.26913	3.60035	0.0448325	0.24383011	2.5375298	20	1 23.0	19.3
174970 2004 DK_{30}	16.2	X	45.89723	283.98186	125.87514	6.02447	0.3230205	0.23865987	2.5740469	20	—	—
174971 2004 DA_{34}	15.9	X	307.82779	33.75716	356.90218	7.89696	0.0478303	0.21326990	2.7744890	20	9 22.9	19.4
174972 2004 DE_{34}	16.2	X	320.24776	41.02269	85.51642	3.22632	0.1603169	0.22973962	2.6402524	20	—	—
174973 2004 DO_{38}	16.7	X	282.73914	128.38983	1.10732	2.83808	0.1770143	0.22541770	2.6738931	20	12 15.4	19.6
174974 2004 DB_{43}	16.3	X	98.33718	278.68384	48.13148	2.95520	0.0794665	0.22793799	2.6541466	20	—	—
174975 2004 DP_{44}	16.3	X	182.93875	179.50746	313.62169	2.61157	0.0418870	0.20889972	2.8130502	20	8 25.1	20.3
174976 2004 DA_{46}	16.0	X	37.48484	42.11486	228.33435	5.47265	0.2040481	0.26595894	2.3947471	20	9 23.1	18.8
174977 2004 DT_{49}	15.9	X	123.29795	120.10990	115.77596	5.86807	0.0448046	0.21440939	2.7646502	20	10 28.9	19.9
174978 2004 DZ_{50}	17.0	X	303.60223	100.40472	119.98206	2.51781	0.0620471	0.24296906	2.5435214	20	1 27.5	20.3
174979 2004 DP_{52}	16.0	X	3.38012	176.72010	304.13375	2.84683	0.0475623	0.23693859	2.5864982	20	—	—
174980 2004 DG_{58}	16.3	X	257.62082	129.26912	88.87756	2.72492	0.0433805	0.23519078	2.5992967	20	—	—
174981 2004 DO_{60}	16.4	X	11.99244	106.38391	152.14917	3.47415	0.1567385	0.25867906	2.4394684	20	7 11.6	18.5
174982 2004 DY_{74}	16.5	X	343.01848	228.09422	165.79107	2.62901	0.0915047	0.22064899	2.7122815	20	11 22.7	19.7
174983 2004 EK_2	16.1	X	235.95061	98.35613	124.96372	6.53081	0.1560299	0.22709251	2.6607302	20	—	—
174984 2004 EE_5	16.4	X	244.65693	352.55799	102.58414	2.99751	0.1956241	0.21419073	2.7665314	20	9 1.8	20.4
174985 2004 EV_5	15.7	X	151.72256	186.66764	12.22653	12.20310	0.0934743	0.21153796	2.7896122	20	10 11.2	19.9
174986 2004 EV_6	15.6	X	278.53631	230.13243	29.99201	2.00827	0.1627809	0.17966685	3.1104562	20	2 11.9	20.1
174987 2004 EK_8	15.6	X	196.25990	141.14912	357.40232	12.41691	0.1248211	0.20973808	2.8055490	20	9 12.4	19.9
174988 2004 EU_{13}	16.1	X	286.05753	110.14638	39.39144	6.95858	0.0789236	0.22720717	2.6598350	20	—	—
174989 2004 ET_{17}	16.0	X	176.87454	133.62318	115.25636	9.55077	0.2361559	0.21932648	2.7231737	20	12 28.7	20.5
174990 2004 EB_{20}	15.6	X	186.12185	129.14176	61.52805	7.97115	0.0799837	0.21480385	2.7612645	20	11 9.0	19.6
174991 2004 EW_{28}	16.9	X	345.91121	342.67359	140.13980	1.02908	0.1396300	0.23412464	2.6071817	20	—	—
174992 2004 EU_{33}	15.7	X	39.11954	259.88163	109.87388	7.08718	0.0411407	0.22214203	2.7001148	20	—	—
174993 2004 ED_{35}	16.4	X	276.72887	75.26681	138.30601	5.09972	0.2218433	0.23226156	2.6211054	20	—	—
174994 2004 EW_{35}	15.6	X	326.36676	250.62506	275.25557	8.21135	0.0669274	0.23777021	2.5804637	20	—	—
174995 2004 EM_{39}	16.3	X	310.24710	128.24786	344.21950	4.80281	0.1412795	0.22679539	2.6630535	20	—	—
174996 2004 EF_{58}	16.0	X	244.41620	97.39376	111.16499	3.01521	0.0227695	0.22914187	2.6448421	20	—	—
174997 2004 EH_{58}	16.2	X	249.45453	79.49930	138.09605	5.62716	0.0873710	0.23062030	2.6335265	20	—	—
174998 2004 EF_{62}	16.2	X	256.37209	80.88270	353.30970	3.90196	0.0861873	0.20958692	2.8068978	20	9 3.4	20.0
174999 2004 EZ_{62}	15.9	X	219.29042	179.97619	242.99931	1.29229	0.0697207	0.20216772	2.8751566	20	7 5.8	20.1
175000 2004 ED_{64}	15.5	X	98.08144	161.90582	98.17315	10.52755	0.1203776	0.21371716	2.7706168	20	11 7.0	19.8
175001 2004 EZ_{64}	15.3	X	53.89813	338.48158	64.10966	14.08037	0.1827329	0.23401710	2.6079804	20	—	—
175002 2004 EP_{68}	15.9	X	309.41629	141.50173	343.26705	12.42096	0.1174680	0.22898333	2.6460628	20	—	—
175003 2004 EN_{69}	16.3	X	144.12844	221.39524	1.81010	3.49341	0.0384392	0.21471785	2.7620017	20	11 2.4	20.3
175004 2004 ER_{71}	15.8	X	337.21019	40.09408	354.01517	6.06457	0.0592054	0.21605323	2.7506091	20	11 8.3	19.2
175005 2004 EA_{73}	15.8	X	351.29863	357.52314	28.99117	6.32747	0.0134474	0.21751827	2.7382445	20	11 16.8	19.6
175006 2004 EJ_{73}	16.6	X	235.05290	10.07183	183.14045	1.99812	0.0272846	0.22379002	2.6868427	20	—	—
175007 2004 ET_{79}	15.3	X	270.00657	310.43656	125.56259	12.57681	0.1256587	0.21246038	2.7815321	20	9 22.9	19.0
175008 2004 EU_{80}	16.3	X	346.42397	28.86566	89.48603	4.50455	0.0895040	0.23376364	2.6098652	20	—	—
175009 2004 EL_{81}	15.2	X	146.34036	103.46390	94.23815	10.52356	0.1431941	0.20932710	2.8092199	20	10 10.9	19.9
175010 2004 EK_{86}	16.1	X	295.84872	302.79498	131.35850	5.78779	0.0912910	0.21699760	2.7426229	20	11 1.9	19.4
175011 2004 EX_{94}	16.0	X	271.64854	105.74432	52.48972	14.20136	0.1582473	0.22481053	2.6787053	20	—	—
175012 2004 EO_{114}	16.3	X	4.58480	262.05346	133.30206	8.52653	0.1270615	0.22319758	2.6915951	20	—	—
175013 2004 EC_{116}	15.0	X	339.47081	251.99827	21.30577	10.61182	0.0811520	0.19004536	2.9961568	20	5 27.7	18.9
175014 2004 FG_9	15.6	X	171.87455	63.00968	132.13158	5.56878	0.0500951	0.21272610	2.7792153	20	11 1.8	19.6
175015 2004 FL_{11}	15.6	X	100.44204	356.25652	289.37047	4.55897	0.2144601	0.21348307	2.7726418	20	12 11.8	20.2
175016 2004 FU_{14}	15.4	X	193.16097	143.63627	7.46577	7.82526	0.1605558	0.21021027	2.8013461	20	9 22.2	19.8
175017 Záboří	15.5	X	174.66151	123.13344	104.78970	10.18019	0.1024974	0.21892281	2.7265202	20	12 11.3	19.6
175018 2004 FC_{20}	15.2	X	338.44378	3.97662	209.58860	4.26332	0.1391513	0.18364686	3.0653522	20	3 3.8	18.9
175019 2004 FN_{24}	15.6	X	65.77913	289.85173	322.97728	14.00565	0.1238469	0.20322628	2.8651639	20	9 12.8	19.7
175020 2004 FK_{26}	16.3	X	97.10655	233.86303	7.86199	3.49555	0.0426538	0.20880758	2.8138777	20	10 1.6	20.2
175021 2004 FO_{26}	15.7	X	318.13281	358.65410	28.71706	1.89136	0.0801945	0.21106032	2.7938193	20	10 2.3	19.0
175022 2004 FM_{27}	15.6	X	19.15053	270.89092	185.69509	16.13074	0.1076761	0.17337759	3.1852296	20	—	—
175023 2004 FU_{27}	15.5	X	253.03212	35.70582	243.79564	1.53004	0.0884680	0.17907535	3.1173018	20	2 14.8	20.1
175024 2004 FU_{29}	15.4	X	14.60886	50.69182	151.58106	9.78731	0.1709172	0.18393044	3.0622007	20	4 26.9	18.8
175025 2004 FE_{33}	15.9	X	280.01331	129.89983	334.18889	12.28497	0.1292368	0.21967383	2.7203023	20	11 5.2	19.5
175026 2004 FB_{34}	15.5	X	349.35130	139.10010	222.96394	4.59829	0.0629362	0.21330480	2.7741863	20	10 15.9	19.0
175027 2004 FW_{35}	15.9	X	127.34615	108.87068	79.15081	2.89485	0.1765035	0.20413401	2.8566639	20	9 8.6	20.5
175028 2004 FG_{39}	16.1	X	309.95651	280.07164	129.33486	3.08694	0.0283056	0.21317494	2.7753128	20	10 23.7	19.7
175029 2004 FJ_{39}	16.4	X	74.18345	281.56067	146.01430	4.10290	0.0812059	0.23804078	2.5785079	20	1 16.9	19.4
175030 2004 FN_{40}	16.0	X	314.30383	71.21682	344.02293	11.49699	0.0945029	0.21905924	2.7253880	20	10 29.4	19.4
175031 2004 FF_{44}	15.4	X	60.46939	229.59875	348.68179	4.94654	0.0838067	0.19697290	2.9254885	20	7 21.8	19.3
175032 2004 FC_{45}	16.1	X	212.94005	122.66399	140.08034	7.72535	0.2103405	0.22668195	2.6639419	20	—	—
175033 2004 FD_{48}	15.0	X	333.90113	34.18716	333.54744	13.24231	0.2010639	0.21407064	2.7675660	20	9 25.3	17.8
175034 2004 FH_{49}	15.9	X	131.28110	21.34340	235.16803	2.17116	0.0238429	0.21753970	2.7380647	20	11 30.2	19.6
175035 2004 FM_{55}	15.8	X	37.83828	306.42515	18.69740	3.49598	0.0283025	0.21470369	2.7621232	20	10 31.9	19.4
175036 2004 FO_{56}	15.9	X	68.23128	21.92811	140.58799	2.34242	0.0748944	0.18941924	3.0027557	20	5 17.6	19.9
175037 2004 FO_{58}	15.5	X	290.66589	120.19896	134.28153	1.99096	0.0600212	0.18196156	3.0842503	20	3 2.8	19.6
175038 2004 FR_{62}	15.7	X	205.79967	113.94825	45.20586	4.33738	0.0342302	0.21334262	2.7738585	20	10 27.1	19.6
175039 2004 FP_{67}	16.6	X	197.77340	101.44130	142.93024	3.91737	0.1028237	0.22467158	2.6798097	20	—	—
175040 2004 FZ_{67}	16.1	X	352.52729	22.08878	116.48879	5.45576	0.2080032	0.23531496	2.5983822	20	—	—

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
175041 2004 FF_{70}	16.3	X	238.52418	271.43348	213.01089	1.89081	0.1320844	0.21340813	2.7732908	20	10 9.0	20.0
175042 2004 FM_{74}	16.5	X	233.06709	286.84089	328.16398	1.90010	0.0735878	0.23336640	2.6128261	20	—	—
175043 2004 FZ_{80}	15.1	X	274.08371	117.44876	105.36452	6.95060	0.1059994	0.17140508	3.2096198	20	1 1.7	20.0
175044 2004 FF_{81}	16.2	X	147.30986	94.73252	127.25666	5.79388	0.1020191	0.21219244	2.7838732	20	11 7.1	20.5
175045 2004 FE_{82}	15.6	X	112.86929	201.75916	67.43413	7.89286	0.0998536	0.21658669	2.7460906	20	11 28.2	19.6
175046 Corporon	16.2	X	243.81390	91.71225	140.16799	10.87156	0.1318991	0.23093288	2.6311495	20	—	—
175047 2004 FK_{93}	15.6	X	246.57378	132.03106	6.48701	8.96486	0.1270989	0.21622840	2.7491233	20	11 4.8	19.5
175048 2004 FV_{94}	14.8	X	351.46527	166.36920	83.31658	11.90821	0.0562316	0.19288303	2.9666982	20	5 20.3	18.7
175049 2004 FK_{100}	15.9	X	239.53649	344.03549	2.51999	5.68521	0.1192069	0.18931648	3.0038421	20	4 16.8	20.5
175050 2004 FA_{102}	15.5	X	242.08602	215.37278	326.39438	9.47938	0.2192795	0.22158191	2.7046632	20	12 13.8	19.3
175051 2004 FT_{108}	16.0	X	132.96868	236.24455	43.97120	3.16585	0.1395459	0.21686906	2.7437065	20	12 31.5	20.4
175052 2004 FH_{109}	15.8	X	158.03693	129.05126	35.54388	2.46679	0.0295617	0.20556862	2.8433577	20	9 6.2	19.9
175053 2004 FO_{116}	15.7	X	188.57914	78.58929	125.67585	10.01947	0.0663070	0.21635559	2.7480458	20	12 1.1	19.8
175054 2004 FN_{118}	16.1	X	188.64688	57.49160	114.01974	2.99237	0.1503891	0.21125288	2.7921213	20	10 14.3	20.5
175055 2004 FR_{122}	15.8	X	302.23454	240.65355	243.52684	13.21008	0.1858195	0.22549465	2.6732847	20	—	—
175056 2004 FX_{130}	15.7	X	201.05742	43.30892	124.97714	13.61207	0.0738499	0.21341964	2.7731911	20	11 2.9	20.0
175057 2004 FT_{134}	16.1	X	303.17849	293.11075	225.60411	8.82813	0.2485095	0.23062156	2.6335169	20	—	—
175058 2004 FQ_{140}	15.5	X	213.77064	162.80076	321.06199	7.74116	0.0955444	0.20915937	2.8107216	20	9 11.6	19.7
175059 2004 FV_{149}	15.6	X	228.57547	253.54281	289.60982	11.73353	0.0507263	0.22530102	2.6748162	20	12 24.8	19.3
175060 2004 FC_{158}	16.1	X	228.81520	57.11726	290.95270	1.57415	0.0062260	0.18847389	3.0127881	20	4 17.5	20.3
175061 2004 FH_{160}	16.2	X	7.98901	38.14434	83.28637	12.54026	0.1387049	0.23776337	2.5805132	20	—	—
175062 2004 GJ	15.2	X	204.60886	109.32634	110.49673	14.98559	0.1413812	0.22042826	2.7140918	20	12 28.5	19.1
175063 2004 GS_{1}	15.9	X	348.98107	162.01581	23.73869	0.32436	0.1140791	0.17886897	3.1196992	20	2 18.7	19.8
175064 2004 GP_{13}	14.9	X	103.93151	266.01123	237.32570	11.43319	0.0422441	0.19163051	2.9796113	20	6 2.9	19.0
175065 2004 GA_{15}	14.8	X	202.62188	9.95504	271.48964	15.80045	0.0953850	0.16823213	3.2498507	20	—	—
175066 2004 GY_{21}	16.3	X	196.77841	332.75275	138.61237	2.72764	0.0031658	0.20364056	2.8612767	20	8 16.5	20.2
175067 2004 GT_{23}	15.8	X	80.67163	221.27995	21.32616	8.60975	0.0424683	0.20363744	2.8613059	20	9 14.6	19.8
175068 2004 GF_{27}	15.2	X	121.61284	66.20219	146.42012	15.79841	0.0959783	0.20531834	2.8456679	20	10 1.1	19.7
175069 2004 GU_{28}	15.7	X	169.40446	6.72257	100.67246	11.24279	0.0514640	0.19609755	2.9341880	20	7 6.1	20.0
175070 2004 GJ_{32}	15.1	X	7.27330	319.35979	276.60979	10.16543	0.1093033	0.19122726	2.9837986	20	5 23.6	18.7
175071 2004 GC_{35}	15.8	X	146.97675	317.48099	265.87100	6.59516	0.1626084	0.21124671	2.7921757	20	11 4.6	20.5
175072 2004 GB_{36}	16.1	X	214.08406	187.28698	345.93848	8.01374	0.2049494	0.21562506	2.7542492	20	10 31.9	20.5
175073 2004 GO_{37}	15.5	X	225.95916	184.33176	320.44843	8.26748	0.0682161	0.21293054	2.7774361	20	10 24.6	19.6
175074 2004 GD_{40}	16.0	X	181.56199	121.15729	89.00473	4.16464	0.0825195	0.21591447	2.7517875	20	11 27.4	19.9
175075 2004 GR_{40}	16.1	X	353.74124	17.40677	170.66440	1.23188	0.0969391	0.17981873	3.1087044	20	2 29.9	20.1
175076 2004 GZ_{40}	15.5	X	299.17621	270.46178	290.27706	12.94870	0.1345346	0.23466308	2.6031920	20	—	—
175077 2004 GS_{43}	16.3	X	349.31639	165.35113	341.41768	1.98125	0.0810906	0.23419598	2.6066522	20	—	—
175078 2004 GJ_{56}	16.2	X	160.54617	231.74099	329.04855	2.78091	0.0330298	0.21034584	2.8001423	20	10 23.5	20.2
175079 2004 GC_{59}	16.2	X	107.53904	88.85495	176.39686	3.44089	0.1510462	0.20968222	2.8060472	20	11 20.8	20.6
175080 2004 GA_{66}	16.5	X	236.05736	77.92712	36.07346	4.11589	0.0507805	0.20970017	2.8058872	20	10 4.8	20.4
175081 2004 GQ_{68}	15.8	X	143.16210	104.12965	129.81034	5.29101	0.0181306	0.21156583	2.7893672	20	11 16.6	19.8
175082 2004 GO_{76}	15.8	X	290.59872	64.96561	89.95588	14.66719	0.1663875	0.22639965	2.6661560	20	—	—
175083 2004 GD_{81}	16.8	X	220.41270	340.28719	246.10455	1.89687	0.0341172	0.22765542	2.6563424	20	—	—
175084 2004 GP_{86}	16.7	X	143.68671	79.03238	118.50229	2.91503	0.0536292	0.20653824	2.8344517	20	10 2.1	20.8
175085 2004 HZ_{15}	14.7	X	210.55794	191.79362	107.40441	15.17466	0.1349820	0.16901036	3.2398669	20	1 28.0	19.9
175086 2004 HH_{22}	15.9	X	299.91508	126.55542	185.90661	1.81583	0.0741068	0.18958145	3.0010425	20	5 24.7	19.8
175087 2004 HO_{26}	15.6	X	152.73450	109.00974	93.47855	5.55371	0.0125224	0.21000182	2.8031995	20	10 20.4	19.5
175088 2004 HK_{37}	15.4	X	301.58124	185.94060	115.90287	11.95460	0.1752346	0.18639401	3.0351588	20	5 2.9	19.6
175089 2004 HY_{47}	16.2	X	9.51069	179.85975	327.35362	7.12907	0.1433481	0.23744628	2.5828100	20	1 19.9	18.9
175090 2004 HN_{52}	15.5	X	46.00641	129.71885	95.70563	13.64687	0.0855333	0.19139028	2.9821041	20	7 9.4	19.4
175091 2004 HB_{53}	14.6	X	209.54764	186.76154	103.68646	20.62424	0.0526937	0.17211152	3.2008311	20	1 17.2	19.4
175092 2004 HJ_{55}	15.7	X	161.15556	105.86934	124.34016	12.61452	0.0604864	0.21626816	2.7487864	20	12 3.4	19.9
175093 2004 HP_{55}	15.7	X	171.86086	114.10779	117.98554	10.57313	0.0854537	0.21680994	2.7442052	20	12 14.3	19.9
175094 2004 HK_{66}	15.2	X	255.87645	188.96569	133.71146	12.90375	0.0438436	0.18099990	3.0951651	20	4 20.9	19.9
175095 2004 JC_{1}	15.4	X	304.84203	215.14045	73.90327	2.36686	0.2785481	0.18276559	3.0751980	20	4 1.3	19.4
175096 2004 JJ_{3}	16.0	X	308.17010	205.28196	78.23599	2.74639	0.0957388	0.18490883	3.0513892	20	4 26.1	20.0
175097 2004 JG_{17}	15.2	X	300.19896	240.41211	24.48869	12.29927	0.0674822	0.18009329	3.1055440	20	3 28.8	19.5
175098 2004 JF_{18}	15.4	X	54.13866	83.36452	20.58133	15.58287	0.0650903	0.23593564	2.5938231	20	2 11.3	18.9
175099 2004 JF_{21}	16.1	X	182.49615	24.53661	72.77974	2.11470	0.0718068	0.19426755	2.9525859	20	7 7.9	20.6
175100 2004 JZ_{35}	15.4	X	345.51002	355.56682	173.41381	6.01472	0.1148809	0.17360007	3.1825076	20	1 23.2	19.4
175101 2004 JA_{40}	14.5	X	339.21510	274.59814	146.38340	10.49376	0.0642576	0.15193985	3.4782029	20	12 3.2	19.3
175102 2004 JP_{42}	15.5	X	294.21222	148.37422	80.81069	6.38024	0.1312551	0.17236674	3.1976707	20	1 29.0	20.1
175103 2004 JB_{56}	15.2	X	214.14403	251.77113	79.68493	12.59241	0.0886523	0.17623855	3.1506642	20	3 14.7	20.3
175104 2004 KC_{6}	15.8	X	56.66198	167.61478	87.40655	3.04950	0.0881674	0.19697895	2.9254286	20	9 4.2	19.7
175105 2004 KC_{9}	15.3	X	285.36157	201.47964	115.62568	6.68025	0.1674937	0.18204210	3.0833406	20	4 30.0	19.7
175106 2004 KJ_{11}	15.7	X	358.99265	215.64177	53.41917	5.72512	0.0747320	0.18891969	3.0080466	20	6 24.6	19.5
175107 2004 KB_{16}	15.5	X	215.20706	54.76826	131.49806	10.66163	0.2087527	0.21440028	2.7647284	20	11 23.0	19.9
175108 2004 LX_{10}	15.9	X	357.75129	2.50479	250.30806	4.45320	0.1466585	0.18639099	3.0351916	20	5 31.0	19.0
175109 Sharickaer	15.1	X	17.45812	277.77247	287.67949	18.43859	0.1767066	0.17798342	3.1300386	20	4 27.3	19.0
175110 2004 NF_{9}	15.3	X	315.59230	324.59023	292.34430	3.40205	0.1945957	0.17538297	3.1609025	20	3 17.3	19.4
175111 2004 NR_{18}	16.0	X	358.38027	69.81215	179.70317	4.27742	0.2696520	0.18266816	3.0762915	20	5 27.0	18.6
175112 2004 PP_{32}	15.1	X	349.13303	295.23244	349.43219	7.13233	0.1213575	0.17877339	3.1208109	20	6 29.6	19.0
175113 2004 PF_{115}	4.3	X	168.91348	87.14401	84.45607	13.34636	0.0622648	0.00401928	39.1775645	20	9 9.9	20.5
175114 2004 QQ	16.6	X	254.71056	31.41500	288.12730	5.72563	0.6638539	0.29222898	2.2489883	20	2 19.9	21.8
175115 2004 RH_{157}	13.7	X	97.09438	316.01232	281.06386	7.92941	0.1023109	0.12474082	3.9670133	20	9 17.5	19.7
175116 2004 RL_{252}	16.7	X	326.27827	58.89111	265.79868	18.01103	0.0832716	0.36325444	1.9453396	20	7 28.0	18.5
175117 2004 SE_{2}	14.0	X	80.43054	26.02259	224.80416	0.89783	0.0318347	0.12239731	4.0174899	20	9 9.5	19.5
175118 2004 TU_{214}	16.4	X	235.23620	113.16310	233.84807	5.37914	0.2086741	0.28760848	2.2730113	20	4 1.1	19.9
175119 2004 UE_{9}	16.6	X	5.43893	86.21285	270.63671	18.74080	0.0673976	0.37273180	1.9122225	20	12 16.3	18.3
175120 2004 XJ_{2}	16.8	X	249.06056	355.11818	34.84046	8.59248	0.1866686	0.29419881	2.2389382	20	6 14.8	19.9

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
175121 2004 XX_{30}	16.6	X	229.13709	336.00904	109.77945	24.98044	0.1170949	0.36112616	1.9529753	20	9 3.6	19.2
175122 2004 XM_{168}	16.9	X	233.64508	342.26300	66.72706	23.44882	0.0867139	0.35957455	1.9585895	20	7 9.8	19.4
175123 2004 YY_{21}	16.9	X	315.88178	268.05906	113.38297	5.87712	0.1672167	0.29801577	2.2197798	20	10 10.3	18.4
175124 2005 AB_{10}	15.3	X	123.15144	236.64344	286.91204	23.13240	0.2379754	0.28549382	2.2842216	20	8 5.6	19.3
175125 2005 AA_{35}	17.0	X	104.84138	12.93126	225.35178	3.76821	0.0557511	0.29726236	2.2235288	20	10 22.0	19.7
175126 2005 AM_{44}	16.4	X	267.37925	108.71881	120.71929	6.27059	0.1493852	0.25591061	2.4570304	20	—	—
175127 2005 AH_{56}	17.3	X	189.65056	97.52905	100.29386	5.57523	0.0953899	0.30408828	2.1901285	20	12 8.3	19.9
175128 2005 AW_{71}	16.9	X	344.31544	262.28715	107.77756	3.96098	0.1580903	0.30030159	2.2085011	20	11 22.9	18.7
175129 2005 BJ_{19}	12.4	X	81.24392	41.42907	112.27650	20.60137	0.0228756	0.08347295	5.1852798	20	5 23.1	19.5
175130 2005 CR_{4}	17.1	X	282.11632	264.90465	129.74437	4.36343	0.1272276	0.29081696	2.2562622	20	8 21.1	19.1
175131 2005 CK_{11}	16.6	X	359.83230	134.54459	104.41086	2.91778	0.1254030	0.27159860	2.3614805	20	5 13.9	18.6
175132 2005 CG_{16}	15.0	X	95.48458	353.73649	308.35294	11.56208	0.2604096	0.23856131	2.5747558	20	—	—
175133 2005 CV_{49}	16.6	X	79.02102	271.71328	300.41913	3.92452	0.0902020	0.28162478	2.3050949	20	8 14.4	19.4
175134 2005 CM_{56}	17.4	X	91.95824	256.06576	353.09973	4.04464	0.1437521	0.28873383	2.2671014	20	10 26.5	20.7
175135 2005 CF_{71}	17.0	X	127.14594	184.04079	100.79082	4.09736	0.1516999	0.30314452	2.1946717	20	—	—
175136 2005 DY_{1}	16.1	X	327.47159	125.21912	325.28721	15.77823	0.1576063	0.24323469	2.5416692	20	—	—
175137 2005 EP_{6}	16.7	X	120.29864	123.54048	30.14484	0.82325	0.1269137	0.27803810	2.3248763	20	7 19.9	20.1
175138 2005 ET_{7}	16.1	X	237.03165	309.45526	2.47860	5.26262	0.1585875	0.25803782	2.4435082	20	2 26.7	19.9
175139 2005 EM_{9}	17.3	X	84.51495	318.43111	222.99112	2.42564	0.1173596	0.27612604	2.3355965	20	7 12.6	20.1
175140 2005 EM_{10}	15.7	X	33.45926	294.26670	329.56363	7.40794	0.1645725	0.21373861	2.7704314	20	8 25.3	18.9
175141 2005 ES_{13}	16.9	X	200.76712	109.31349	9.00275	7.22070	0.1012160	0.28764106	2.2728397	20	9 2.3	19.9
175142 2005 EG_{14}	16.9	X	89.78665	242.57353	27.63222	5.75383	0.1592956	0.29000384	2.2604776	20	11 22.1	20.3
175143 2005 EG_{15}	16.3	X	131.14253	195.56176	350.86367	11.47123	0.0776449	0.28562182	2.2835392	20	9 12.8	19.3
175144 2005 EX_{16}	17.5	X	159.25355	245.21442	2.60221	1.78721	0.1706700	0.29794855	2.2201136	20	12 31.0	20.7
175145 2005 EU_{20}	16.5	X	128.77635	338.18120	146.05732	5.61882	0.0705813	0.27568870	2.3380659	20	6 13.6	19.6
175146 2005 ES_{24}	16.8	X	134.12013	218.27220	22.87486	7.34460	0.1014976	0.29384312	2.2407446	20	11 28.1	20.0
175147 2005 EN_{25}	16.4	X	110.71738	287.22347	144.96634	6.67632	0.1055778	0.26342036	2.4101079	20	3 16.8	19.4
175148 2005 EY_{30}	16.9	X	219.35488	197.29387	210.65153	2.32451	0.1664066	0.28019032	2.3129556	20	6 9.9	20.5
175149 2005 EW_{32}	17.3	X	77.42277	344.04514	199.99456	2.56973	0.1386860	0.27535250	2.3399686	20	7 9.9	20.3
175150 2005 EZ_{32}	17.4	X	341.09120	223.02006	0.62543	1.80501	0.1554944	0.26321538	2.4113590	20	3 10.4	19.8
175151 2005 EO_{34}	16.8	X	88.41616	332.52561	301.54229	4.72741	0.0461328	0.29337344	2.2431356	20	11 16.9	19.8
175152 Marthafarkas	16.5	X	303.76936	28.05684	292.31679	6.31457	0.1294078	0.27532725	2.3401117	20	5 31.9	18.9
175153 2005 EL_{38}	16.6	X	144.91286	297.05866	322.09213	5.78642	0.1837310	0.29940382	2.2129138	20	12 31.8	20.0
175154 2005 EH_{47}	17.0	X	37.41608	260.21971	327.50157	2.11078	0.1297611	0.27336595	2.3512913	20	7 11.1	19.2
175155 2005 EX_{54}	16.8	X	246.80230	158.23185	170.87453	2.32970	0.1885607	0.26571644	2.3962039	20	3 24.8	20.4
175156 2005 EU_{60}	17.3	X	217.55464	331.59130	196.19922	3.10779	0.1351111	0.29724792	2.2236009	20	11 25.6	20.1
175157 2005 EC_{61}	17.1	X	336.01575	174.37710	247.93169	3.99670	0.0591659	0.30094476	2.2053534	20	—	—
175158 2005 EM_{66}	16.3	X	309.90614	190.14112	79.52520	11.31488	0.2277920	0.26257840	2.4152572	20	3 19.9	19.5
175159 2005 EE_{68}	17.0	X	176.39575	209.88637	304.97820	5.54671	0.0846256	0.28789641	2.2714955	20	9 19.9	20.1
175160 2005 ES_{68}	16.9	X	78.10047	241.61228	300.31670	4.07967	0.0988142	0.27392437	2.3480946	20	7 1.9	19.6
175161 2005 ES_{71}	16.3	X	321.51705	161.66456	95.20785	6.75078	0.0970737	0.26808114	2.3820920	20	4 6.8	19.0
175162 2005 EX_{79}	16.4	X	167.61520	115.09308	139.08140	4.19140	0.1532274	0.23522291	2.5990600	20	—	—
175163 2005 EM_{86}	16.8	X	86.89383	21.64943	133.48402	7.32849	0.0429335	0.27244922	2.3565627	20	5 28.8	19.8
175164 2005 EN_{86}	17.1	X	68.26744	162.37094	81.93466	2.75042	0.1742123	0.28033268	2.3121725	20	9 28.9	20.1
175165 2005 EO_{86}	16.6	X	105.93766	233.95295	34.43893	4.78843	0.1312920	0.29161934	2.2521216	20	12 4.9	20.0
175166 Adirondack	16.4	X	183.12661	348.38696	285.93712	5.72359	0.2061372	0.24245440	2.5471196	20	—	—
175167 2005 EB_{102}	16.6	X	156.49949	148.20584	105.20105	6.35201	0.1640483	0.29694950	2.2250903	20	—	—
175168 2005 EQ_{118}	16.5	X	174.51830	272.35582	277.77367	4.27207	0.2816295	0.29251454	2.2475244	20	10 24.2	20.4
175169 2005 ES_{119}	16.3	X	169.84639	269.29388	304.58060	7.78826	0.1255792	0.29420469	2.2389084	20	11 29.9	19.5
175170 2005 EG_{129}	17.5	X	244.24830	92.00864	38.88299	1.26648	0.0684275	0.29732055	2.2232387	20	11 21.9	19.8
175171 2005 EN_{136}	17.0	X	104.31909	239.71718	28.03340	3.28013	0.1274998	0.29181966	2.2510908	20	12 2.5	20.3
175172 2005 EU_{138}	17.6	X	111.47505	102.79941	144.10819	1.18347	0.1845206	0.28639773	2.2794129	20	11 15.1	21.2
175173 2005 EJ_{139}	15.3	X	296.81181	154.32971	27.15566	9.18023	0.0394799	0.18026065	3.1036215	20	—	—
175174 2005 EA_{141}	16.9	X	234.26360	167.81332	255.53574	6.16587	0.0764058	0.28586523	2.2822427	20	7 27.6	19.9
175175 2005 EP_{142}	16.7	X	358.12856	237.39981	67.61013	5.04358	0.0884342	0.27787864	2.3257656	20	8 26.9	19.1
175176 2005 EU_{144}	15.9	X	275.46437	275.55469	39.52846	2.55320	0.0558105	0.20310656	2.8662897	20	4 27.5	19.9
175177 2005 EQ_{153}	16.0	X	195.86381	160.86806	76.64961	18.59822	0.1421903	0.23872415	2.5735848	20	—	—
175178 2005 EQ_{154}	17.2	X	230.39083	76.29899	35.46228	2.22908	0.1510548	0.29006453	2.2601623	20	9 22.1	20.0
175179 2005 EC_{160}	16.6	X	248.97614	218.13065	177.27004	7.20605	0.0998726	0.27885496	2.3203338	20	7 4.3	19.7
175180 2005 EZ_{161}	17.1	X	147.73306	186.59783	24.65953	3.15505	0.1396156	0.28892273	2.2661131	20	11 2.9	20.5
175181 2005 ET_{162}	16.1	X	10.24771	245.01646	45.29047	1.81123	0.2130789	0.21227291	2.7831696	20	8 28.8	18.9
175182 2005 EE_{176}	17.0	X	34.01985	5.90466	197.76162	1.53987	0.1716724	0.26823131	2.3812029	20	6 2.2	18.9
175183 2005 EO_{176}	16.2	X	103.11072	278.38164	356.17039	1.44439	0.1956179	0.22517116	2.6758445	20	12 1.8	20.6
175184 2005 EJ_{177}	16.8	X	241.13082	323.66137	24.93111	1.88410	0.1678296	0.26370350	2.4083824	20	4 14.6	20.3
175185 2005 ED_{202}	15.6	X	296.50078	153.13682	86.64817	14.60528	0.1727195	0.25933718	2.4353396	20	1 27.2	19.1
175186 2005 EC_{211}	16.9	X	213.06737	30.44942	215.90813	3.32284	0.1730504	0.24196557	2.5505489	20	—	—
175187 2005 EC_{214}	17.4	X	93.26336	263.05152	275.74572	3.82771	0.1692385	0.27579634	2.3374575	20	7 27.0	20.6
175188 2005 EL_{216}	17.7	X	123.53684	113.69988	14.40920	1.33625	0.1231496	0.27266318	2.3553298	20	6 17.4	21.0
175189 2005 EC_{224}	18.3	X	357.27001	78.94482	169.37458	2.62408	0.3867349	0.33401107	2.0572898	20	4 20.9	17.4
175190 2005 EX_{233}	16.7	X	35.17003	151.77906	101.44452	7.65764	0.0976748	0.27705724	2.3303602	20	8 12.4	19.2
175191 2005 EL_{241}	16.8	X	98.87493	132.41185	112.33082	6.95419	0.0599077	0.29012339	2.2598566	20	10 26.5	19.8
175192 2005 EM_{242}	16.3	X	55.38675	217.51759	56.05756	8.72032	0.1943112	0.28391700	2.2926713	20	10 26.9	19.4
175193 2005 EK_{243}	16.4	X	96.87913	107.48469	69.20423	7.88112	0.0563567	0.27760269	2.3273066	20	7 14.9	19.3
175194 2005 EL_{268}	15.6	X	147.98974	8.87731	1.68876	15.20499	0.1823236	0.25338945	2.4733013	20	2 22.5	19.5
175195 2005 EG_{270}	16.6	X	148.07275	76.14966	85.74187	7.37249	0.0501877	0.28148659	2.3058493	20	9 1.9	19.7
175196 2005 EM_{276}	15.5	X	69.01453	275.81770	72.49888	15.21314	0.1056925	0.23674281	2.5879240	20	—	—
175197 2005 ED_{288}	16.8	X	101.78664	318.42996	309.31296	2.49767	0.1306921	0.29075816	2.2565664	20	11 29.9	20.0
175198 2005 EQ_{290}	17.3	X	350.45342	204.77966	269.87120	2.49154	0.0375716	0.31327805	2.1470858	20	—	—
175199 2005 ER_{305}	17.6	X	227.03612	311.40193	159.87989	3.71216	0.1109177	0.28894171	2.2660139	20	9 22.6	20.3
175200 2005 EV_{315}	16.6	X	264.60231	196.61262	125.53942	2.21049	0.1945838	0.26428602	2.4048422	20	4 2.9	20.0

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
175201 2005 EZ_{323}	15.7	X	140.34531	7.47734	261.62364	11.37864	0.2164023	0.23074062	2.6326109	20	12 26.1	20.3
175202 2005 FV_{1}	17.6	X	138.07343	131.27325	76.92642	2.06707	0.1805466	0.28613091	2.2808297	20	10 21.4	21.1
175203 2005 FS_{4}	16.5	X	333.09450	327.63617	306.26545	5.95010	0.1146697	0.26863978	2.3787885	20	5 13.8	19.0
175204 2005 FT_{5}	15.4	X	68.44952	118.37627	129.81094	10.08757	0.1048839	0.21398392	2.7683136	20	9 17.0	19.3
175205 2005 GP_{2}	16.8	X	90.13982	182.82800	123.93487	2.78189	0.0861869	0.29412551	2.2393102	20	—	—
175206 2005 GS_{7}	15.1	X	215.15518	32.02630	287.32933	10.78601	0.0030490	0.19449306	2.9503032	20	2 20.8	19.5
175207 2005 GR_{13}	15.4	X	267.14366	90.66220	151.05237	11.09782	0.0759698	0.18379810	3.0636704	20	1 16.9	20.0
175208 Vorbourg	16.6	X	144.91520	65.17317	161.61954	2.00495	0.1022125	0.29092970	2.2556793	20	11 22.4	19.7
175209 2005 GD_{28}	17.2	X	191.39123	234.93547	261.01692	2.34778	0.1435341	0.28529211	2.2852982	20	9 8.2	20.4
175210 2005 GE_{28}	16.8	X	216.84929	297.88806	243.23650	2.64254	0.0815173	0.29636002	2.2280399	20	12 20.7	19.3
175211 2005 GR_{28}	16.1	X	172.61403	22.46106	1.77867	4.31533	0.1386676	0.25950858	2.4342672	20	3 25.7	19.7
175212 2005 GD_{30}	16.7	X	175.88285	115.43295	73.11242	5.95203	0.0740900	0.29065171	2.2571173	20	11 9.4	19.6
175213 2005 GS_{32}	16.7	X	203.89888	143.41700	38.11295	5.53529	0.0802050	0.29381699	2.2408775	20	12 2.6	19.5
175214 2005 GN_{33}	16.5	X	207.37783	229.71165	306.26871	4.34284	0.0873485	0.29542176	2.2327550	20	11 28.9	19.2
175215 2005 GT_{38}	16.9	X	239.77521	186.48858	39.44597	2.02639	0.1425095	0.24332348	2.5410509	20	—	—
175216 2005 GR_{51}	16.6	X	166.36491	25.78026	164.40628	7.19456	0.0674529	0.28783066	2.2718414	20	11 1.2	19.6
175217 2005 GA_{59}	16.3	X	49.71045	81.62614	93.30799	11.19422	0.1780982	0.26463656	2.4027181	20	5 22.5	18.7
175218 2005 GX_{62}	16.1	X	209.17966	155.71226	96.67266	7.37289	0.1632296	0.24376207	2.5380020	20	—	—
175219 2005 GY_{64}	16.0	X	102.66462	267.34316	66.33935	12.65647	0.0681886	0.24011648	2.5636264	20	—	—
175220 2005 GM_{77}	16.7	X	199.38152	350.19578	107.50375	6.69349	0.0478561	0.27995642	2.3142437	20	8 5.4	19.7
175221 2005 GF_{80}	16.8	X	143.90660	138.23972	142.69511	4.39530	0.0904313	0.29766042	2.2215461	20	—	—
175222 2005 GZ_{80}	16.8	X	124.00548	19.42560	243.64257	2.61634	0.0470208	0.22590320	2.6700607	20	12 2.2	20.6
175223 2005 GA_{102}	16.8	X	11.89444	141.11653	95.05904	3.26446	0.1342368	0.26697840	2.3886470	20	6 3.8	18.8
175224 2005 GN_{104}	17.1	X	137.57439	172.60344	355.16611	4.12289	0.0786263	0.27991240	2.3144864	20	8 25.9	20.3
175225 2005 GE_{111}	16.4	X	293.99327	175.76952	107.65788	8.56824	0.2265430	0.25799945	2.4437505	20	3 15.7	19.8
175226 2005 GS_{111}	17.3	X	246.27912	206.92276	207.32285	5.83880	0.0796052	0.27789607	2.3256683	20	7 29.8	20.4
175227 2005 GL_{112}	15.8	X	68.96330	219.26119	102.88211	14.73436	0.0398634	0.22905659	2.6454985	20	12 13.0	19.5
175228 2005 GO_{121}	16.5	X	297.38949	184.43971	60.92391	3.16555	0.1313136	0.25368736	2.4713646	20	2 10.5	19.9
175229 2005 GJ_{126}	16.5	X	88.65110	82.88269	112.06932	5.32098	0.1158828	0.27546192	2.3393489	20	8 7.4	19.6
175230 2005 GA_{131}	15.8	X	41.66167	272.22708	27.59717	5.54509	0.0678305	0.21704595	2.7422156	20	10 11.6	19.3
175231 2005 GL_{150}	16.6	X	26.38679	187.13316	69.19562	7.34481	0.1668956	0.27037288	2.3686122	20	8 13.7	19.0
175232 2005 GE_{152}	16.9	X	189.71015	259.73028	225.34895	3.15607	0.0894139	0.28176063	2.3043539	20	8 25.9	20.1
175233 2005 GP_{162}	15.9	X	153.19649	165.42126	82.86277	9.34791	0.1745761	0.22808914	2.6529739	20	12 13.0	20.3
175234 2005 GG_{164}	17.0	X	285.65687	256.10764	25.08017	7.15168	0.0891090	0.25815938	2.4427411	20	3 20.2	20.2
175235 2005 GU_{165}	17.2	X	84.53955	106.96076	36.20315	1.12579	0.1181375	0.26686063	2.3893497	20	5 18.6	20.1
175236 2005 GF_{179}	16.5	X	131.61393	50.44332	143.05245	9.96039	0.1239031	0.28224448	2.3017196	20	9 27.1	20.0
175237 2005 GC_{182}	16.4	X	148.06904	319.91940	288.13807	2.36046	0.2159144	0.22713642	2.6603873	20	12 7.4	20.8
175238 Nguyenhien	16.9	X	250.71452	138.53500	145.68296	1.74654	0.1763405	0.25932783	2.4353981	20	2 2.8	20.6
175239 2005 GA_{213}	16.4	X	199.78583	179.04309	93.41280	3.62045	0.0269685	0.24532504	2.5272108	20	—	—
175240 2005 GC_{215}	16.1	X	198.92198	316.26035	290.66081	3.28192	0.1373310	0.23607440	2.5928066	20	—	—
175241 2005 HQ	16.7	X	97.93073	45.25308	326.99745	2.75143	0.2045880	0.24114194	2.5563533	20	—	—
175242 2005 HP_{3}	15.7	X	200.94497	350.75397	229.61438	13.38766	0.2132066	0.23116094	2.6294187	20	12 19.1	19.9
175243 2005 JQ_{14}	16.3	X	122.40630	56.14438	118.92465	12.87869	0.1162505	0.27538186	2.3398023	20	8 21.5	19.7
175244 2005 JC_{15}	16.9	X	345.78819	148.30812	125.64467	3.56347	0.1832277	0.26594971	2.3948025	20	6 6.6	18.7
175245 2005 JZ_{15}	17.1	X	174.97705	132.57696	194.80977	2.02135	0.1034398	0.24415273	2.5352940	20	1 16.5	20.8
175246 2005 JS_{17}	16.5	X	180.33707	352.25296	106.41867	7.87307	0.0627857	0.27166386	2.3611023	20	7 10.9	19.5
175247 2005 JS_{21}	17.5	X	106.62027	242.81933	336.36440	0.55862	0.1315927	0.27985496	2.3148030	20	10 1.6	20.7
175248 2005 JF_{26}	16.9	X	166.43978	18.26567	162.61079	5.05481	0.1778409	0.28550066	2.2841852	20	10 12.9	20.4
175249 2005 JE_{28}	16.8	X	357.68965	89.74757	164.74652	3.34628	0.1682595	0.26499161	2.4005714	20	6 3.3	18.6
175250 2005 JS_{29}	15.5	X	72.68696	186.45913	76.67204	10.39414	0.0968522	0.21412102	2.7671318	20	10 12.5	19.5
175251 2005 JQ_{30}	16.5	X	74.43346	317.57522	308.49390	6.07921	0.1112776	0.28265112	2.2995114	20	10 23.3	19.7
175252 2005 JE_{48}	16.2	X	17.13213	307.44252	90.16342	11.04252	0.0928308	0.22844951	2.6501832	20	—	—
175253 2005 JF_{51}	16.6	X	58.26806	266.89588	101.41851	3.81865	0.1214439	0.23119415	2.6291669	20	—	—
175254 2005 JO_{51}	15.6	X	199.23245	230.13706	79.11541	6.08983	0.1271521	0.17993793	3.1073314	20	1 28.7	20.6
175255 2005 JH_{64}	16.9	X	102.14925	97.44148	143.75425	7.36962	0.0844134	0.28243776	2.3006694	20	10 25.9	20.1
175256 2005 JH_{67}	15.2	X	212.21712	225.16183	84.90429	17.95625	0.2013591	0.18113081	3.0936737	20	2 11.7	20.7
175257 2005 JD_{82}	15.6	X	91.63900	207.17497	97.06014	15.21970	0.1489123	0.22416771	2.6838239	20	12 24.1	19.8
175258 2005 JL_{83}	17.3	X	102.83067	23.41942	110.07732	2.15669	0.1310063	0.26580649	2.3956626	20	6 1.1	20.3
175259 Offenberger	15.5	X	137.97431	273.87063	87.42076	10.74807	0.2427802	0.17601037	3.1533865	20	2 13.1	20.8
175260 2005 JS_{93}	16.7	X	342.61303	276.91057	301.78809	1.33579	0.1424372	0.25621426	2.4550887	20	3 7.9	19.2
175261 2005 JY_{100}	15.8	X	299.80570	342.79987	154.19222	15.57920	0.0369967	0.23570807	2.5954923	20	—	—
175262 2005 JE_{102}	16.1	X	77.02231	238.89920	111.36288	10.13482	0.0802148	0.22893189	2.6464591	20	—	—
175263 2005 JG_{112}	16.5	X	7.26330	140.54375	96.20354	11.93864	0.0608443	0.26281022	2.4138367	20	5 26.4	19.2
175264 2005 JK_{112}	16.7	X	354.29051	117.16769	112.33523	8.11300	0.2089943	0.26042344	2.4285628	20	4 15.3	18.7
175265 2005 JU_{114}	16.9	X	11.31842	302.04882	151.47257	0.87358	0.1337777	0.24275836	2.5449930	20	—	—
175266 2005 JY_{127}	15.8	X	197.95223	202.12980	70.42488	13.27823	0.1370291	0.23710347	2.5852990	20	—	—
175267 2005 JF_{136}	15.8	X	163.47722	121.22553	99.79664	8.11905	0.0292700	0.22635688	2.6664917	20	11 27.2	19.5
175268 2005 JP_{140}	15.9	X	118.85976	221.31293	105.21020	11.94008	0.1596326	0.23140272	2.6275868	20	—	—
175269 2005 JU_{144}	17.1	X	348.85045	149.05378	96.89568	2.30036	0.1492578	0.26100600	2.4249478	20	5 1.1	19.1
175270 2005 JL_{145}	16.9	X	54.15657	118.81207	89.38999	3.26330	0.1280455	0.26759958	2.3849490	20	7 9.0	19.6
175271 2005 JY_{145}	16.9	X	105.21579	230.39158	283.52753	2.96403	0.0895785	0.26885448	2.3775219	20	6 26.9	20.0
175272 2005 JP_{157}	15.7	X	217.53685	316.11725	4.17986	1.69091	0.1788386	0.18343270	3.0677376	20	2 24.1	20.7
175273 2005 JN_{158}	17.2	X	192.78888	88.08873	127.77781	6.79671	0.0888848	0.29483199	2.2357315	20	—	—
175274 2005 JA_{159}	17.0	X	138.19656	63.37887	90.87879	4.37899	0.0767662	0.27781988	2.3260935	20	8 7.9	20.2
175275 2005 JE_{178}	16.3	X	32.65284	232.52800	79.96774	5.87563	0.1770320	0.21340641	2.7733057	20	11 1.8	19.8
175276 2005 JD_{179}	15.7	X	342.05889	253.18206	85.06443	7.46821	0.0592859	0.21131395	2.7915834	20	9 6.9	19.3
175277 2005 JB_{180}	15.8	X	154.15475	217.17635	133.16971	30.73247	0.1294687	0.24286083	2.5442770	20	1 26.1	19.6
175278 2005 KM_{3}	16.4	X	347.45880	248.01806	130.40590	2.36409	0.0828090	0.22137877	2.7063174	20	11 8.8	19.5
175279 2005 KL_{6}	16.2	X	229.35526	345.99307	220.87571	2.98308	0.1731099	0.23475474	2.6025144	20	—	—
175280 2005 KZ_{6}	16.3	X	336.16208	219.69808	42.51165	6.59852	0.1015044	0.26138603	2.4225968	20	5 5.2	18.7

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
175281 Kolonics	15.7	X	218.46365	229.54376	134.21747	10.81638	0.1068416	0.19209913	2.9747636	20	4 22.8	20.5
175282 Benhida	16.0	X	123.23912	180.55978	103.88968	8.76642	0.1925244	0.22325851	2.6911053	20	12 29.6	20.4
175283 2005 LJ	16.3	X	73.13262	183.90635	156.59182	6.27783	0.0614145	0.22601710	2.6691636	20	—	—
175284 2005 LP_{2}	16.3	X	310.77695	104.89367	167.79419	6.91729	0.1245923	0.25749835	2.4469199	20	4 6.7	19.1
175285 2005 LX_{3}	16.2	X	105.99266	141.81777	177.75017	2.13581	0.1693310	0.22650033	2.6653658	20	—	—
175286 2005 LL_{9}	17.2	X	45.76714	25.61293	172.40459	2.51049	0.1334512	0.26441325	2.4040707	20	6 10.1	19.6
175287 2005 LM_{11}	15.8	X	252.22130	204.51789	277.36375	6.00111	0.0805154	0.21406368	2.7676259	20	10 28.8	19.5
175288 2005 LD_{12}	17.0	X	112.68704	89.31792	122.64210	3.15107	0.1104921	0.27955875	2.3164379	20	9 28.8	20.2
175289 2005 LX_{20}	15.9	X	312.89295	344.50275	89.02331	15.75195	0.2606133	0.22574886	2.6712775	20	11 26.1	18.0
175290 2005 LK_{21}	17.3	X	10.62979	359.95258	206.20715	0.76374	0.1403454	0.26003837	2.4309597	20	4 13.7	19.3
175291 2005 LF_{22}	16.7	X	177.62905	178.40624	146.88553	3.90252	0.1504235	0.24247695	2.5469617	20	1 19.9	20.7
175292 2005 LY_{22}	15.4	X	172.78347	244.81300	94.81662	2.98921	0.1870391	0.17070758	3.2183568	20	2 11.7	20.6
175293 2005 LD_{23}	15.7	X	227.71697	201.37598	292.46347	8.08866	0.0971268	0.21234488	2.7825407	20	10 8.6	19.8
175294 2005 LR_{26}	16.5	X	305.93562	357.86109	113.67953	5.78874	0.0788723	0.22191982	2.7019169	20	—	—
175295 2005 LW_{27}	15.9	X	192.26610	198.42141	135.67476	5.85282	0.1529611	0.18180679	3.0860004	20	2 19.4	21.0
175296 2005 LG_{30}	15.8	X	188.80913	64.72426	276.40632	3.16772	0.2448909	0.17319644	3.1874502	20	2 24.5	21.4
175297 2005 LL_{35}	16.8	X	224.46267	55.91719	197.91257	1.68948	0.1676541	0.23474680	2.6025731	20	—	—
175298 2005 LK_{37}	16.4	X	192.56629	10.39664	258.84087	3.05522	0.0706964	0.23705824	2.5856278	20	—	—
175299 2005 LR_{42}	16.9	X	132.62206	334.72017	196.63872	2.31330	0.1678571	0.27764084	2.3270934	20	8 27.2	20.6
175300 2005 LD_{44}	14.5	X	200.74965	69.19776	246.86032	25.56804	0.1619506	0.17847808	3.1242526	20	1 27.1	20.1
175301 2005 LC_{47}	14.9	X	206.98642	71.59656	302.96087	21.79254	0.1091278	0.18064975	3.0991634	20	4 8.7	20.3
175302 2005 LU_{48}	17.0	X	70.25578	296.14919	213.86376	3.42153	0.0673344	0.26072802	2.4266711	20	4 29.3	19.9
175303 2005 LL_{50}	16.8	X	3.47071	158.39850	92.44512	1.23182	0.0962964	0.26392642	2.4070261	20	6 8.4	19.2
175304 2005 MC_{3}	15.2	X	244.56249	210.12660	126.34838	17.11657	0.2286626	0.18182394	3.0858064	20	4 8.7	20.5
175305 2005 MM_{3}	15.9	X	144.26811	211.94407	127.83921	13.71513	0.1362980	0.23678876	2.5875892	20	1 4.1	19.7
175306 2005 MC_{6}	15.9	X	71.29770	176.07310	129.24784	9.89606	0.1335497	0.21837318	2.7310932	20	12 4.2	20.1
175307 2005 MR_{6}	16.3	X	146.57029	187.88912	98.44007	3.03473	0.0362447	0.22442629	2.6817620	20	—	—
175308 2005 ME_{7}	16.8	X	4.40178	148.69591	87.66600	2.38337	0.1470674	0.26186667	2.4196315	20	5 19.3	18.9
175309 2005 MK_{7}	16.9	X	132.53864	11.24416	125.56845	1.92317	0.1298890	0.26891042	2.3771922	20	7 9.9	20.5
175310 2005 MA_{10}	15.2	X	96.50588	278.03493	312.20536	12.99825	0.1317463	0.20398085	2.8580936	20	9 19.3	19.7
175311 2005 MO_{10}	15.8	X	198.29680	280.04077	233.06133	13.63964	0.0491133	0.21732310	2.7398837	20	10 5.6	19.9
175312 2005 MW_{11}	16.0	X	268.23184	171.35624	151.16723	0.34647	0.1410013	0.18478946	3.0527032	20	4 17.4	20.5
175313 2005 MF_{15}	15.2	X	209.23351	94.31136	204.67471	1.84719	0.1446429	0.16982882	3.2294492	20	1 25.2	20.4
175314 2005 MN_{15}	16.0	X	122.90110	0.35414	292.15400	5.09908	0.0504321	0.21836002	2.7312029	20	—	—
175315 2005 ME_{19}	16.9	X	286.70539	346.35311	153.26331	4.37044	0.0936879	0.29680677	2.2258036	20	—	—
175316 2005 MO_{24}	15.8	X	219.37908	58.94245	126.36338	12.74002	0.0647824	0.21803652	2.7339038	20	12 13.4	19.8
175317 2005 MT_{24}	16.4	X	7.61946	330.38431	247.58093	2.47501	0.3184316	0.25566363	2.4586125	20	4 23.4	17.0
175318 2005 MF_{26}	16.1	X	66.51440	229.72470	133.66863	4.96750	0.1107463	0.22800274	2.6536440	20	—	—
175319 2005 ML_{32}	15.3	X	265.15276	270.80074	56.21950	7.90351	0.1249287	0.18463065	3.0544534	20	4 23.1	19.7
175320 2005 MC_{35}	15.7	X	208.06756	278.69070	123.32713	10.92888	0.1101210	0.18681580	3.0305885	20	5 27.5	20.6
175321 2005 MQ_{35}	16.1	X	86.51819	321.13084	311.99030	2.63771	0.0603560	0.20976013	2.8053524	20	10 29.7	20.0
175322 2005 MV_{37}	16.3	X	337.88464	107.92869	217.20818	1.20571	0.0156985	0.19746603	2.9206160	20	8 8.5	20.3
175323 2005 MZ_{37}	15.4	X	296.11633	198.81799	135.12108	8.66309	0.0667664	0.19104476	2.9856986	20	6 18.1	19.5
175324 2005 MR_{39}	15.4	X	229.57964	24.82600	294.58924	7.90782	0.1029884	0.17657168	3.1467000	20	3 5.1	20.3
175325 2005 NP_{3}	15.3	X	147.95964	274.53326	140.37510	5.88504	0.0616190	0.17769715	3.1333993	20	4 9.7	20.0
175326 2005 NC_{5}	15.7	X	160.26172	0.14373	124.39061	9.42156	0.0194597	0.19481711	2.9470307	20	7 16.5	19.9
175327 2005 NK_{6}	16.1	X	128.08176	354.67139	263.80375	3.33397	0.0965609	0.21628971	2.7486038	20	11 30.2	20.2
175328 2005 NL_{16}	15.3	X	246.86928	169.31172	93.16442	6.34430	0.1765853	0.17296713	3.1902667	20	1 15.1	20.4
175329 2005 NQ_{24}	15.7	X	354.13029	3.43681	293.53725	8.61273	0.0686044	0.19615022	2.9336628	20	7 24.9	19.3
175330 2005 NX_{32}	15.8	X	71.12143	321.75921	292.98851	4.58295	0.1303829	0.20546421	2.8443209	20	9 25.5	19.9
175331 2005 NW_{33}	16.1	X	206.58318	102.36931	313.09873	1.18728	0.0356567	0.18977207	2.9990326	20	6 13.5	20.3
175332 2005 NB_{35}	16.8	X	220.51202	106.35853	106.29797	5.07080	0.0546532	0.22375586	2.6871161	20	—	—
175333 2005 NQ_{36}	15.9	X	211.29910	24.52554	119.25458	4.72294	0.0407928	0.20963667	2.8064537	20	10 14.9	19.9
175334 2005 NZ_{37}	15.5	X	148.18253	290.86856	137.85782	10.82886	0.0746037	0.18001418	3.1064538	20	4 29.6	20.3
175335 2005 NL_{39}	15.0	X	302.78749	341.40162	338.21458	9.48520	0.1009012	0.19225648	2.9731402	20	6 1.3	19.0
175336 2005 NU_{40}	16.1	X	280.26400	94.92409	271.21236	4.08112	0.0746624	0.19519110	2.9432650	20	7 7.1	20.1
175337 2005 NZ_{45}	16.1	X	284.63487	154.85285	156.59486	2.26339	0.0407815	0.18536216	3.0464121	20	5 8.3	20.3
175338 2005 NA_{59}	15.6	X	231.82237	277.34268	117.05602	6.29901	0.1015419	0.18961556	3.0006826	20	6 10.7	20.0
175339 2005 NC_{67}	16.2	X	262.11463	326.19843	285.61308	5.16240	0.1874823	0.23981343	2.5657857	20	1 6.8	20.2
175340 2005 NX_{70}	16.3	X	11.40066	85.52541	121.19470	6.23018	0.1396214	0.25882946	2.4385233	20	4 19.9	18.6
175341 2005 NK_{74}	16.2	X	87.20795	113.37177	124.05211	3.08216	0.0266142	0.20379175	2.8598614	20	9 12.2	20.1
175342 2005 NS_{80}	16.2	X	3.66504	102.07821	180.46694	10.26150	0.1552471	0.26368641	2.4084865	20	7 30.9	18.5
175343 2005 NU_{87}	16.3	X	297.09282	127.68500	246.11348	0.95639	0.0201617	0.20011411	2.8947934	20	8 17.2	20.3
175344 2005 NJ_{91}	16.6	X	273.53867	296.68980	284.35779	3.17458	0.2305872	0.23809705	2.5781017	20	—	—
175345 2005 NP_{108}	16.0	X	306.93036	62.67638	278.41805	0.83383	0.0622492	0.19606489	2.9345138	20	7 13.5	19.7
175346 2005 NK_{122}	15.1	X	355.74000	331.49195	300.42321	8.92338	0.0451504	0.19042145	2.9922104	20	6 23.9	19.0
175347 2005 NV_{122}	15.2	X	78.36145	149.78215	314.72706	8.47274	0.0544683	0.17500020	3.1655100	20	3 12.5	19.6
175348 2005 OO_{2}	14.1	X	205.58717	50.40922	265.00791	21.69833	0.1129229	0.17038437	3.2224254	20	2 2.1	19.5
175349 2005 OA_{6}	15.5	X	31.64574	147.19723	125.27347	4.67271	0.0780215	0.19599950	2.9351665	20	8 20.6	19.1
175350 2005 OM_{7}	14.3	X	289.72128	99.05848	263.46253	4.40156	0.2486824	0.12344649	3.9946943	20	6 16.7	19.8
175351 2005 OR_{7}	13.9	X	300.62471	26.96609	319.24090	7.91236	0.2491019	0.12607725	3.9389298	20	6 10.9	19.1
175352 2005 OO_{8}	15.2	X	199.99049	94.97009	296.22728	14.62471	0.0734479	0.18285261	3.0742223	20	4 29.4	20.2
175353 2005 OH_{11}	15.6	X	133.27862	100.32858	126.39402	8.76426	0.1469330	0.20945981	2.8080332	20	11 1.1	20.2
175354 2005 OS_{15}	14.9	X	75.05411	210.31556	282.40237	20.60137	0.0621264	0.17974917	3.1095063	20	4 6.3	19.7
175355 2005 PR_{19}	14.5	X	292.49090	225.29631	122.87497	1.83442	0.2960221	0.12302559	4.0038004	20	5 27.3	20.0
175356 2005 QK	15.0	X	113.80888	156.87687	330.82674	16.38717	0.1395361	0.18126800	3.0921125	20	6 5.0	20.0
175357 2005 QB_{1}	15.7	X	106.82621	171.27257	151.77010	14.76375	0.0896969	0.21938087	2.7227235	20	—	—
175358 2005 QT_{26}	15.3	X	299.85262	238.99579	36.76418	5.47507	0.1297772	0.17680435	3.1439389	20	4 1.0	19.5
175359 2005 QB_{53}	16.0	X	27.70870	329.67220	207.86992	1.08939	0.0083995	0.17607658	3.1525960	20	4 5.2	20.3
175360 2005 QN_{57}	15.3	X	268.33837	1.66866	282.66919	4.46583	0.1047150	0.17524257	3.1625906	20	3 5.1	20.0

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
175361 2005 QM_{61}	15.4	X	38.83916	259.80165	306.72387	8.71735	0.0480966	0.18355915	3.0663286	20	5 28.8	19.7
175362 2005 QD_{101}	15.7	X	331.38934	355.31902	256.78459	3.79770	0.0997733	0.18049441	3.1009413	20	4 16.7	19.7
175363 2005 QX_{114}	15.1	X	330.67415	119.75946	133.64078	1.74576	0.1319352	0.17794088	3.1305374	20	4 16.0	18.9
175364 2005 QY_{122}	16.2	X	358.57992	89.47485	185.87760	1.47025	0.0734293	0.18861445	3.0112911	20	7 2.4	19.9
175365 Carsac	15.0	X	348.14017	106.43378	352.05425	9.36855	0.0207030	0.15172662	3.4814610	20	—	—
175366 2005 QQ_{147}	14.9	X	238.86694	265.10516	44.13124	9.37471	0.0345439	0.17412625	3.1760930	20	3 16.1	19.6
175367 2005 QF_{165}	15.0	X	281.96594	227.85204	79.63334	6.42083	0.1187953	0.17846238	3.1244357	20	4 20.6	19.5
175368 2005 RD_{16}	16.1	X	40.75932	14.12432	188.75975	1.10977	0.1080726	0.18341417	3.0679442	20	6 4.0	19.9
175369 2005 RX_{27}	15.6	X	328.74866	338.19206	299.63911	3.34596	0.1228414	0.18517635	3.0484498	20	5 14.3	19.3
175370 2005 SH_{116}	15.3	X	341.00024	303.83760	328.83617	3.74633	0.2025194	0.18430426	3.0580586	20	5 21.3	18.4
175371 2005 SP_{165}	14.7	X	318.76028	311.09104	21.67685	3.84245	0.1324063	0.12121915	4.0434793	20	7 8.2	19.9
175372 2005 SM_{201}	15.1	X	204.40887	42.24088	90.97137	1.64881	0.1735898	0.12522619	3.9567561	20	9 2.4	21.3
175373 2005 SR_{223}	16.0	X	330.77320	212.95188	29.38502	0.72975	0.1124732	0.17406992	3.1767782	20	4 3.7	19.9
175374 2005 SX_{243}	16.0	X	41.10357	287.72900	298.07731	1.58519	0.0283676	0.18744506	3.0238023	20	6 25.5	20.1
175375 2005 TY_{18}	15.5	X	353.50010	289.45628	291.25782	1.34238	0.1562319	0.17509783	3.1643332	20	4 8.1	19.2
175376 2005 TT_{71}	15.4	X	257.12436	236.59991	75.81494	7.28842	0.2119999	0.17800185	3.1298225	20	3 21.3	20.5
175377 2005 TA_{108}	15.2	X	323.81737	304.40540	288.80466	5.12142	0.1414158	0.17189718	3.2034913	20	3 6.8	19.4
175378 2005 UN_{114}	14.8	X	123.65008	52.39874	69.30139	17.23225	0.0869762	0.17134579	3.2103602	20	6 3.8	19.5
175379 2005 UE_{495}	14.9	X	263.17191	180.79868	137.68725	11.20018	0.1979466	0.17720435	3.1392058	20	4 4.7	19.9
175380 2006 HE_{103}	16.5	X	355.91126	204.08695	92.89061	11.19253	0.2182181	0.28786377	2.2716672	20	8 25.9	18.1
175381 2006 HA_{122}	16.0	X	11.75189	176.06354	103.52407	8.58492	0.1617496	0.21812353	2.7331767	20	8 11.2	18.9
175382 2006 JM_{15}	17.0	X	162.79945	261.25919	62.10783	3.66995	0.1850676	0.25869744	2.4393528	20	1 4.6	20.6
175383 2006 JQ_{44}	16.2	X	76.24655	248.56704	84.46023	12.72450	0.2704636	0.23887452	2.5725046	20	—	—
175384 2006 KF_{79}	16.7	X	257.84506	168.94517	139.42228	2.95608	0.2028510	0.26385298	2.4074727	20	3 8.6	20.4
175385 2006 KA_{101}	16.5	X	196.50861	253.73766	123.32358	3.23727	0.1874800	0.26256870	2.4153167	20	4 10.2	20.5
175386 2006 LN_{4}	15.7	X	23.32221	35.63630	276.23831	12.43023	0.2051852	0.21896871	2.7261391	20	10 16.1	19.2
175387 2006 LF_{7}	16.0	X	236.65535	7.25840	315.21268	6.69785	0.2142284	0.26245677	2.4160033	20	3 3.8	19.9
175388 2006 LR_{7}	15.6	X	102.42259	357.22854	0.15429	13.74579	0.2670927	0.24086442	2.5583166	20	—	—
175389 2006 MQ_{3}	16.4	X	227.16764	196.19018	141.16406	2.02069	0.2049030	0.26090134	2.4255962	20	3 17.0	20.3
175390 2006 MN_{6}	15.9	X	275.71038	274.93456	114.78382	8.97998	0.1467182	0.21037238	2.7999068	20	7 22.5	19.4
175391 2006 MP_{9}	16.3	X	195.45658	95.45796	221.39603	2.33949	0.2433760	0.25358116	2.4720546	20	1 26.8	20.6
175392 2006 MH_{14}	15.5	X	300.55955	349.36951	19.97313	14.19894	0.2425723	0.20955430	2.8071890	20	7 21.2	19.0
175393 2006 MM_{14}	15.0	X	7.81930	25.87677	315.32373	14.37268	0.2357043	0.21687139	2.7436868	20	11 2.4	18.3
175394 2006 MD_{15}	14.6	X	99.90193	242.83447	102.51177	18.80722	0.2098777	0.16962503	3.2320352	20	—	—
175395 2006 NY	15.4	X	92.63060	323.13939	49.51382	18.16343	0.1950725	0.24038862	2.5616912	20	—	—
175396 2006 OH_{2}	15.1	X	332.86262	32.58538	322.47719	17.17135	0.2265511	0.21288184	2.7778597	20	9 2.6	17.6
175397 2006 OS_{6}	15.6	X	133.08612	298.62805	11.76527	11.01518	0.1488752	0.23044879	2.6348330	20	—	—
175398 2006 OJ_{7}	15.6	X	335.17997	81.28142	312.31907	12.10535	0.2348594	0.21858051	2.7293659	20	11 10.6	18.2
175399 2006 OM_{7}	16.8	X	298.71111	298.70519	314.07145	1.62711	0.1763333	0.26270494	2.4144816	20	2 12.7	19.8
175400 2006 OT_{7}	16.9	X	241.81599	67.73468	267.52161	3.58466	0.2485070	0.26522247	2.3991782	20	3 21.6	21.1
175401 2006 OA_{9}	16.8	X	219.69941	31.26395	303.29802	1.29723	0.1824451	0.26011714	2.4304689	20	3 6.9	20.7
175402 2006 OL_{10}	16.9	X	359.45449	25.50617	284.07954	6.33697	0.1476859	0.28326036	2.2962131	20	9 5.9	19.0
175403 2006 OA_{11}	16.7	X	234.60102	323.05484	9.96725	1.36242	0.2088758	0.26231786	2.4168562	20	3 17.4	20.6
175404 2006 OV_{11}	15.6	X	309.82538	76.39606	288.40134	5.94176	0.0948138	0.21078131	2.7962842	20	8 15.3	19.0
175405 2006 OL_{12}	17.1	X	339.06245	25.98038	295.56849	4.65328	0.1835863	0.28240253	2.3008607	20	8 13.5	18.5
175406 2006 OL_{14}	17.3	X	27.99348	177.63455	116.42707	3.02488	0.1693450	0.28739711	2.2741256	20	10 14.9	19.7
175407 2006 OH_{16}	15.7	X	254.97354	334.11354	309.18581	5.68835	0.1546996	0.18786876	3.0192541	20	2 14.2	20.4
175408 2006 OZ_{16}	16.6	X	114.37007	240.99338	137.25344	7.36576	0.1845622	0.24526401	2.5276300	20	1 22.5	19.8
175409 2006 OS_{18}	15.8	X	52.81162	287.18556	84.85466	13.86492	0.2876366	0.23223832	2.6212803	20	—	—
175410 Tsayweanshun	16.5	X	324.58900	19.23597	324.37156	8.99908	0.1434687	0.28209835	2.3025144	20	8 19.0	18.0
175411 Yilan	16.4	X	284.93172	137.99577	115.74039	1.84170	0.1688641	0.26103315	2.4247796	20	1 30.6	19.9
175412 2006 PA_{9}	16.6	X	206.54930	104.18699	223.01279	1.42433	0.2192195	0.25581774	2.4576249	20	2 16.0	20.8
175413 2006 PH_{9}	16.9	X	215.09290	56.65671	307.51157	1.56469	0.1871972	0.26288804	2.4133603	20	4 8.0	20.8
175414 2006 PF_{11}	16.7	X	343.27671	276.53985	334.51532	2.16183	0.1779053	0.27114850	2.3640931	20	4 21.1	18.5
175415 2006 PS_{12}	16.6	X	226.02654	171.93284	165.31677	2.54029	0.2037779	0.26045980	2.4283368	20	3 15.6	20.5
175416 2006 PA_{14}	16.5	X	288.18283	308.88292	31.28498	7.57770	0.1232118	0.27425854	2.3461869	20	6 5.7	19.3
175417 2006 PU_{14}	16.3	X	290.97542	293.39054	335.07687	4.64316	0.1541295	0.26414273	2.4057118	20	2 26.8	19.5
175418 2006 PP_{15}	15.5	X	164.05966	229.46147	62.61878	2.09385	0.1362446	0.17026275	3.2239598	20	—	—
175419 Albiesachs	15.7	X	195.02294	146.30791	163.93830	5.59914	0.1290899	0.17798054	3.1300723	20	1 24.4	20.7
175420 2006 PT_{20}	16.3	X	73.59277	42.38075	265.46606	2.22861	0.0858053	0.22778837	2.6553087	20	12 4.5	20.1
175421 2006 PB_{22}	16.6	X	337.96074	165.79138	80.08725	3.15957	0.1769639	0.26947658	2.3738615	20	4 4.9	18.7
175422 2006 PY_{23}	16.9	X	301.55750	288.80440	46.05957	2.62345	0.1521017	0.27638828	2.3341188	20	6 16.1	19.3
175423 2006 PO_{26}	16.9	X	295.56243	241.90098	82.64625	3.32859	0.2178682	0.27252322	2.3561361	20	5 10.5	19.7
175424 2006 PY_{29}	16.6	X	232.95902	279.36691	77.55089	7.01100	0.1265484	0.26701713	2.3884160	20	4 22.9	20.1
175425 2006 PF_{30}	15.7	X	40.16860	344.49751	354.12051	3.48701	0.2522834	0.22008375	2.7169234	20	12 24.5	19.6
175426 2006 PC_{32}	16.1	X	339.27831	229.21751	153.13105	6.53622	0.0384278	0.22212880	2.7002220	20	11 1.0	19.6
175427 2006 QN_{3}	16.0	X	326.48764	133.81312	217.24686	0.63410	0.2674959	0.20986683	2.8044015	20	8 11.1	18.1
175428 2006 QW_{8}	15.4	X	191.04870	10.58613	332.62267	8.24821	0.0587708	0.18173419	3.0868222	20	2 26.9	20.0
175429 2006 QC_{10}	15.1	X	170.89796	41.43535	338.75055	16.36228	0.2004782	0.18189224	3.0850338	20	3 21.6	20.5
175430 2006 QU_{16}	16.0	X	224.65478	238.94035	89.58618	2.36968	0.1983549	0.25940997	2.4348840	20	3 5.0	19.9
175431 2006 QS_{20}	17.1	X	31.93730	335.54314	325.56631	6.00509	0.1921269	0.28633338	2.2797544	20	10 29.8	19.8
175432 2006 QP_{25}	16.6	X	47.75747	231.96724	140.07067	1.44472	0.1500437	0.22761627	2.6566470	20	—	—
175433 2006 QS_{25}	15.2	X	120.45145	13.51833	24.45789	5.44825	0.1927056	0.17360570	3.1824388	20	3 4.9	20.0
175434 2006 QV_{26}	16.7	X	163.38376	193.72666	126.61631	6.19157	0.1901904	0.24249496	2.5468355	20	1 3.8	20.6
175435 2006 QV_{29}	16.3	X	253.52236	259.65352	58.81848	3.43628	0.1651274	0.26150736	2.4218474	20	3 21.6	20.0
175436 2006 QW_{29}	16.4	X	217.78152	303.32346	17.52685	3.55971	0.2348162	0.25804975	2.4434329	20	2 18.7	20.6
175437 Zsivótzky	15.9	X	300.83653	225.58564	152.39399	8.72219	0.2364788	0.20975269	2.8054187	20	7 29.7	19.2
175438 2006 QX_{31}	16.2	X	221.71230	66.29371	292.84792	5.35884	0.1680572	0.26250441	2.4157110	20	4 6.5	20.1
175439 2006 QJ_{32}	15.7	X	172.44774	56.20068	329.72709	16.10700	0.2594571	0.18269989	3.0759353	20	3 28.7	21.4
175440 2006 QR_{32}	14.8	X	120.46954	62.07109	344.57708	17.54233	0.2107935	0.17446716	3.1719543	20	3 13.1	19.7

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
175441 2006 QH_{41}	15.2	X	157.31755	212.75000	123.82403	9.11462	0.1672546	0.17577799	3.1561651	20	1 23.9	20.1
175442 2006 QU_{43}	16.1	X	19.97861	265.62781	92.51645	5.03803	0.1866449	0.22481199	2.6786938	20	12 15.6	19.5
175443 2006 QR_{45}	16.3	X	345.23869	164.81249	141.54884	3.00294	0.2301717	0.27613660	2.3355369	20	8 3.3	17.4
175444 2006 QY_{47}	15.8	X	263.26692	351.47210	344.18389	22.77081	0.0724021	0.26622215	2.3931684	20	4 21.1	19.5
175445 2006 QO_{48}	16.1	X	109.98849	330.31374	352.98527	9.31199	0.2357824	0.23182914	2.6243637	20	—	—
175446 2006 QJ_{49}	16.1	X	243.66943	253.88295	47.38203	6.89805	0.1520558	0.25697484	2.4502420	20	2 22.4	19.9
175447 2006 QP_{49}	16.2	X	265.46199	165.21978	198.62279	6.53074	0.1421691	0.27196523	2.3593577	20	6 5.9	19.3
175448 2006 QY_{50}	16.0	X	35.79360	301.01536	34.25030	3.57652	0.2138032	0.22009006	2.7168715	20	12 9.7	19.6
175449 2006 QG_{58}	15.9	X	100.11583	50.34040	276.91049	10.97532	0.1789729	0.23264257	2.6182428	20	—	—
175450 Phillipklu	16.9	X	238.41899	183.33976	101.54522	6.49490	0.0748683	0.25181926	2.4835720	20	1 30.4	20.5
175451 Linchisheng	15.4	X	188.30068	224.41954	68.75432	6.27351	0.1211910	0.17225313	3.1990766	20	—	—
175452 Chenggong	16.8	X	44.53414	208.42991	111.54608	7.11286	0.1771276	0.29100606	2.2552846	20	12 12.4	19.8
175453 2006 QU_{61}	14.6	X	106.23899	91.69956	326.58439	24.62834	0.2884196	0.17373780	3.1808255	20	3 13.6	19.8
175454 2006 QY_{62}	16.5	X	270.86345	346.71572	315.84255	5.56575	0.1297137	0.26300731	2.4126306	20	3 19.7	20.0
175455 2006 QG_{84}	16.0	X	58.46554	122.60256	134.76676	3.27004	0.0321579	0.21143795	2.7904918	20	9 2.2	19.7
175456 2006 QD_{85}	16.8	X	95.75049	151.71211	332.20352	4.61115	0.1732620	0.26142735	2.4223415	20	5 13.9	20.0
175457 2006 QO_{85}	16.7	X	22.50910	71.60973	153.59884	3.37403	0.1769251	0.27320845	2.3521949	20	6 13.5	18.5
175458 2006 QF_{90}	16.5	X	288.22794	58.34623	301.97179	6.55766	0.1348089	0.27732443	2.3288631	20	7 6.2	19.0
175459 2006 QH_{92}	16.6	X	265.69446	50.96078	298.06013	3.29144	0.0678494	0.27179636	2.3603349	20	5 26.5	19.5
175460 2006 QV_{93}	15.2	X	250.38631	118.13554	242.83391	5.15111	0.3152885	0.12478744	3.9660251	20	4 29.4	21.7
175461 2006 QE_{96}	15.6	X	9.80384	83.82062	27.06419	13.95288	0.0370787	0.24236441	2.5477500	20	—	—
175462 2006 QC_{99}	16.4	X	248.02902	331.96541	17.14337	6.66022	0.1400858	0.26570226	2.3962891	20	4 24.1	19.8
175463 2006 QA_{101}	14.8	X	162.41605	21.06936	351.53989	18.60526	0.2117110	0.17704410	3.1410999	20	3 11.6	20.2
175464 2006 QS_{111}	15.2	X	244.29142	0.26258	303.67960	7.88698	0.0847082	0.18448214	3.0560925	20	3 3.1	19.8
175465 2006 QT_{114}	15.8	X	350.36617	178.74869	206.94271	7.28976	0.3073421	0.21815593	2.7329060	20	12 19.8	18.3
175466 2006 QA_{116}	15.7	X	158.13470	92.48642	321.44976	15.43891	0.2072333	0.18481741	3.0523955	20	4 16.9	21.1
175467 2006 QE_{122}	17.1	X	150.24658	357.21868	290.12956	5.15454	0.1245291	0.30719581	2.1753335	20	—	—
175468 2006 QM_{122}	15.5	X	209.39033	293.10396	331.59403	14.45865	0.0667917	0.24039331	2.5616579	20	—	—
175469 2006 QD_{127}	14.5	X	121.90230	42.37842	0.62073	20.40985	0.2450922	0.17726924	3.1384398	20	3 16.7	19.5
175470 2006 QY_{133}	16.4	X	99.66243	43.51214	57.50017	3.61781	0.1086974	0.25651404	2.4531755	20	4 10.9	19.6
175471 2006 QA_{138}	13.0	X	14.55218	199.47923	171.46094	4.40650	0.0374298	0.08306050	5.2024312	20	11 3.8	19.7
175472 2006 QO_{138}	16.2	X	230.14716	250.95657	56.54709	6.82914	0.2016338	0.25691627	2.4506144	20	2 15.1	20.3
175473 2006 QU_{148}	16.8	X	137.67609	219.10011	133.11683	4.75476	0.1675064	0.24242563	2.5473211	20	1 14.8	20.4
175474 2006 QC_{149}	16.1	X	1.64811	306.65997	20.71540	5.07501	0.1604701	0.21186369	2.7867523	20	9 28.3	18.9
175475 2006 QA_{166}	15.3	X	192.75655	112.84683	203.56597	9.33308	0.0971848	0.17579557	3.1559547	20	1 27.5	20.4
175476 Macheret	16.1	X	125.78685	3.05410	326.97301	5.66977	0.1266172	0.23546905	2.5972485	20	—	—
175477 2006 RG_{6}	16.1	X	359.39376	312.39935	24.39298	3.85639	0.0954746	0.20977465	2.8052229	20	9 30.6	19.3
175478 2006 RN_{7}	16.6	X	151.68178	198.09869	136.32564	9.68141	0.2563387	0.24337062	2.5407228	20	1 15.4	20.7
175479 2006 RK_{16}	15.7	X	136.97363	0.30207	315.48741	12.32071	0.1941928	0.23685991	2.5870709	20	—	—
175480 2006 RE_{23}	15.8	X	277.07830	39.15827	355.71200	8.20267	0.1219358	0.20525308	2.8462711	20	8 6.4	19.6
175481 2006 RK_{26}	15.6	X	332.90739	262.25192	110.98595	6.19055	0.0363506	0.21329967	2.7742308	20	10 10.1	19.2
175482 2006 RT_{26}	16.0	X	37.80347	342.34977	25.26706	4.67172	0.1254018	0.22323959	2.6912574	20	—	—
175483 2006 RU_{26}	15.2	X	142.86369	276.58549	118.41604	12.43432	0.2219039	0.17749074	3.1358281	20	3 27.1	20.5
175484 2006 RV_{30}	15.2	X	191.39139	45.81458	313.68611	10.29589	0.1625223	0.18270784	3.0758461	20	3 14.3	20.4
175485 2006 RE_{31}	15.9	X	329.27028	142.56680	234.41320	2.73582	0.1823277	0.21164825	2.7886430	20	10 2.9	18.6
175486 2006 RE_{35}	16.1	X	25.94430	63.24467	286.36110	7.72617	0.1304549	0.21944004	2.7222341	20	12 2.3	19.6
175487 2006 RW_{35}	15.0	X	177.59652	337.62604	7.88081	5.26608	0.1235984	0.17579889	3.1559150	20	2 20.5	20.1
175488 2006 RG_{39}	14.9	X	94.61421	78.04765	359.01117	15.68756	0.0727926	0.17417414	3.1755109	20	3 7.8	19.3
175489 2006 RF_{40}	16.6	X	355.75646	207.54910	80.12655	3.77687	0.1565501	0.27474783	2.3434006	20	7 26.8	18.4
175490 2006 RL_{45}	16.3	X	296.38384	79.58065	169.74028	6.22589	0.0697314	0.25246615	2.4793277	20	2 21.4	19.3
175491 2006 RQ_{46}	17.3	X	52.17074	66.47307	135.72156	1.81537	0.1251950	0.26541587	2.3980126	20	6 25.9	19.9
175492 2006 RX_{47}	15.5	X	356.68839	351.96509	41.56181	10.37754	0.1906131	0.22058314	2.7128212	20	12 25.1	18.6
175493 2006 RD_{50}	16.1	X	255.37175	347.51835	359.93191	1.83011	0.0975945	0.19043997	2.9920165	20	5 8.4	20.5
175494 2006 RA_{52}	16.0	X	269.46828	102.37486	29.29405	3.61883	0.0453635	0.21984064	2.7189260	20	12 11.5	19.5
175495 2006 RC_{64}	16.2	X	310.86096	151.83983	239.96371	2.73386	0.1021001	0.21221443	2.7836809	20	9 23.6	19.5
175496 2006 RE_{64}	15.6	X	129.32244	205.36280	165.38007	2.13587	0.1835154	0.17271581	3.1933607	20	2 7.9	20.6
175497 2006 RH_{64}	15.9	X	236.52698	19.51622	33.87167	2.44185	0.0548926	0.20164503	2.8801230	20	7 16.5	20.0
175498 2006 RZ_{68}	16.2	X	330.58460	52.13033	342.46025	3.48168	0.0931136	0.21557838	2.7546467	20	10 31.2	19.4
175499 2006 RJ_{78}	16.4	X	203.02966	239.61300	32.33468	4.50897	0.1036594	0.24026760	2.5625514	20	—	—
175500 2006 RA_{81}	16.4	X	97.47512	331.16104	30.60127	1.53802	0.0851817	0.23530545	2.5984521	20	—	—
175501 2006 RF_{82}	16.1	X	278.15894	217.26602	206.49369	2.62473	0.1088552	0.20897198	2.8124016	20	9 14.8	19.7
175502 2006 RU_{95}	15.7	X	146.51451	195.05247	195.93439	2.25524	0.0840798	0.17539309	3.1607810	20	3 9.7	20.5
175503 2006 RU_{97}	16.3	X	331.96425	141.37820	305.26892	1.16256	0.0534385	0.22366686	2.6878289	20	—	—
175504 2006 RE_{101}	15.8	X	104.94165	45.72481	295.37472	7.61218	0.0837907	0.23153300	2.6266011	20	—	—
175505 2006 RQ_{104}	16.1	X	120.75005	125.62614	104.82530	9.20802	0.0923183	0.21108064	2.7936401	20	10 23.3	20.4
175506 2006 SO_{2}	16.2	X	256.52391	142.82755	261.31543	0.95290	0.0654736	0.20261822	2.8708933	20	7 27.6	20.2
175507 2006 SO_{8}	16.3	X	312.90170	207.92602	118.78278	7.58350	0.1556074	0.27122437	2.3636522	20	6 24.2	18.5
175508 2006 SO_{11}	16.9	X	283.49117	256.60935	87.15777	3.38538	0.1838921	0.26969134	2.3726010	20	5 26.1	19.7
175509 2006 SK_{14}	17.1	X	27.99271	28.12952	268.38848	3.93679	0.1359509	0.28343363	2.2952771	20	10 7.9	19.7
175510 2006 SX_{18}	16.4	X	47.51542	218.32246	154.83084	3.41911	0.1296967	0.22570788	2.6716008	20	—	—
175511 2006 SP_{20}	15.9	X	341.30838	42.72469	354.66940	6.38175	0.1265191	0.21595209	2.7514679	20	11 23.1	19.1
175512 2006 SH_{23}	15.6	X	48.67742	208.08605	138.54496	14.27817	0.1811385	0.22318364	2.6917071	20	—	—
175513 2006 SS_{26}	16.2	X	15.10059	335.04105	16.94724	5.16572	0.0817781	0.21835571	2.7312389	20	11 12.3	19.6
175514 2006 SW_{35}	15.6	X	6.85519	268.31555	88.48345	7.30760	0.0489108	0.21632854	2.7482748	20	11 6.1	19.2
175515 2006 SL_{39}	16.3	X	9.62196	38.55613	324.31445	4.52791	0.2315015	0.21657763	2.7461673	20	12 10.5	19.4
175516 2006 SS_{41}	16.8	X	284.20804	275.59542	16.90171	6.62212	0.0999008	0.26053427	2.4278740	20	3 30.2	20.0
175517 2006 SZ_{47}	15.9	X	317.37774	262.04929	90.73778	3.15420	0.0765767	0.20546924	2.8442745	20	8 14.8	19.4
175518 2006 SY_{50}	15.6	X	185.99116	80.69162	297.89960	7.71456	0.1586602	0.18429041	3.0582117	20	4 1.1	20.7
175519 2006 SR_{54}	17.0	X	169.95216	223.06125	56.28107	5.11052	0.2337091	0.30948716	2.1645832	20	—	—
175520 2006 SZ_{57}	14.7	X	136.28899	281.01814	128.97524	16.75887	0.2459965	0.17674463	3.1446470	20	4 11.2	20.2

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
175521 2006 SY_{60}	15.5	X	218.13120	336.14041	72.53573	9.78515	0.0646537	0.19292182	2.9663005	20	6 15.9	19.9
175522 2006 SQ_{62}	16.6	X	358.35500	210.75696	60.29735	7.02047	0.0746312	0.26927013	2.3750746	20	6 30.3	19.0
175523 2006 SE_{70}	17.0	X	24.17658	113.36917	141.74358	1.77925	0.1507558	0.27117356	2.3639475	20	8 1.2	19.0
175524 2006 SM_{72}	16.2	X	9.81207	281.29602	49.40013	4.32661	0.1000178	0.20954693	2.8072549	20	10 10.1	19.5
175525 2006 SP_{72}	15.1	X	103.84618	43.96202	48.06153	5.14720	0.0974973	0.17644906	3.1481577	20	4 8.4	19.6
175526 2006 SG_{73}	16.3	X	279.94289	271.97439	124.03128	2.12394	0.0477053	0.20209128	2.8758816	20	8 20.6	20.0
175527 2006 SN_{89}	15.0	X	343.25630	170.15880	17.36699	11.06769	0.0998463	0.17277876	3.1925851	20	2 19.3	19.2
175528 2006 SQ_{90}	16.5	X	223.69399	159.64276	278.20121	0.94775	0.0280817	0.19905805	2.9050228	20	8 3.8	20.5
175529 2006 ST_{116}	15.8	X	55.75429	104.97014	27.27373	8.47398	0.1824193	0.17244838	3.1966614	20	4 6.7	19.7
175530 2006 SH_{120}	14.8	X	142.83668	5.39356	26.31021	22.01156	0.0697735	0.17601480	3.1533336	20	3 15.5	19.7
175531 2006 SJ_{120}	16.4	X	164.55071	242.42375	73.42987	5.67868	0.1474754	0.24042045	2.5614651	20	—	—
175532 2006 SK_{122}	15.8	X	173.77307	11.17708	303.96481	12.98603	0.1726743	0.24071842	2.5593509	20	1 7.3	19.9
175533 2006 SE_{124}	16.0	X	28.33700	277.77559	78.16204	7.42139	0.0582421	0.22058542	2.7128025	20	12 4.1	19.6
175534 2006 SR_{126}	15.8	X	271.07104	200.96416	81.72524	10.72329	0.2336695	0.25762559	2.4461141	20	2 19.2	19.8
175535 2006 SR_{142}	17.5	X	317.61695	169.82168	111.89899	2.28704	0.1720522	0.26818610	2.3814705	20	4 21.9	19.8
175536 2006 ST_{167}	15.9	X	261.11024	196.63888	230.79257	2.62995	0.1496464	0.20600111	2.8393766	20	8 19.9	19.7
175537 2006 SZ_{173}	16.3	X	35.76738	131.32915	211.44540	1.01844	0.0797857	0.22265500	2.6959660	20	11 30.6	19.8
175538 2006 SO_{193}	15.9	X	309.79677	348.08697	78.62214	6.37334	0.0391125	0.21961378	2.7207982	20	11 15.5	19.4
175539 2006 SY_{201}	16.4	X	59.93396	275.19355	17.85196	4.55142	0.0494204	0.21179322	2.7873704	20	10 21.9	20.1
175540 2006 SU_{202}	16.7	X	44.53416	253.75753	327.80804	3.41647	0.0412257	0.26991688	2.3712792	20	6 29.8	19.5
175541 2006 SP_{212}	15.9	X	63.35692	39.56964	305.83428	4.19036	0.1784938	0.22348107	2.6893184	20	—	—
175542 2006 SO_{218}	15.3	X	167.40657	45.11401	349.63707	9.66234	0.1191876	0.18282271	3.0745575	20	4 3.8	20.2
175543 2006 ST_{218}	16.4	X	128.67229	311.59411	343.36713	6.41899	0.1079779	0.29811527	2.2192858	20	—	—
175544 2006 SS_{243}	16.1	X	210.65207	146.28256	33.91259	5.81041	0.0076919	0.22079159	2.7111135	20	12 2.3	19.8
175545 2006 ST_{253}	16.9	X	270.89132	190.02467	39.74109	2.38866	0.1063960	0.24419354	2.5350115	20	—	—
175546 2006 SQ_{271}	15.2	X	50.05049	162.04938	338.79912	7.41117	0.0370440	0.17658886	3.1464960	20	3 19.9	19.6
175547 2006 SS_{280}	15.8	X	65.22669	209.30731	112.58472	4.90166	0.2284771	0.22080762	2.7109822	20	12 26.5	20.1
175548 Sudzius	16.3	X	88.35893	124.90536	229.00309	1.28958	0.0689692	0.22886929	2.6469416	20	—	—
175549 2006 SO_{290}	16.4	X	223.64683	311.70190	298.57744	1.56826	0.1119628	0.23614433	2.5922947	20	—	—
175550 2006 SW_{300}	15.3	X	28.75515	237.90510	76.79343	13.61604	0.1135486	0.21198622	2.7856783	20	10 24.5	19.0
175551 2006 SW_{303}	16.6	X	11.32288	259.45710	160.97147	2.86214	0.0395646	0.22697835	2.6616223	20	—	—
175552 2006 SO_{323}	16.0	X	184.45073	126.98038	50.49846	5.30334	0.0518118	0.21315751	2.7754642	20	10 23.7	20.0
175553 2006 SB_{325}	15.3	X	109.76913	107.96216	29.69475	8.85478	0.0493971	0.18823378	3.0153496	20	6 2.2	19.6
175554 2006 SA_{329}	16.7	X	246.51445	106.12771	155.29826	2.91528	0.0825228	0.24329662	2.5412379	20	1 9.5	20.5
175555 2006 SZ_{331}	15.6	X	108.18774	93.23204	24.64130	11.00707	0.0375637	0.18178438	3.0862541	20	5 4.0	20.0
175556 2006 SO_{352}	15.1	X	79.14271	117.17653	350.11957	10.37549	0.0471236	0.17689823	3.1428263	20	3 18.0	19.4
175557 2006 SH_{353}	15.1	X	284.07910	195.46935	114.61602	4.80500	0.1073037	0.18931297	3.0038793	20	4 27.2	19.3
175558 2006 SN_{353}	15.8	X	46.55411	279.96059	82.64941	5.60220	0.0433169	0.22229862	2.6988466	20	—	—
175559 2006 SX_{356}	15.4	X	256.49492	268.63989	52.22627	10.20774	0.0816770	0.18368287	3.0649516	20	4 12.5	19.9
175560 2006 SZ_{359}	16.3	X	90.07652	175.54930	166.66993	4.83731	0.0940476	0.22812230	2.6527168	20	—	—
175561 2006 SX_{366}	15.4	X	331.76055	238.88786	111.21073	16.03621	0.1613650	0.20514537	2.8472673	20	9 4.3	18.6
175562 Ajsingh	15.6	X	60.38555	163.25152	64.97875	13.01394	0.0451281	0.19747927	2.9204854	20	7 31.2	19.8
175563 Amyrose	15.5	X	140.56184	186.30813	82.98426	15.57848	0.1571215	0.22301418	2.6930705	20	12 25.9	20.0
175564 2006 SK_{393}	15.1	X	223.51773	359.02678	357.22622	12.04265	0.1787690	0.18552460	3.0446337	20	4 7.6	20.2
175565 2006 TV	15.0	X	71.18864	79.16922	318.92231	27.81853	0.1798654	0.23465676	2.6032388	20	—	—
175566 Papplaci	15.8	X	217.97486	305.84139	137.51419	6.66556	0.0348235	0.20031767	2.8928320	20	8 3.2	19.8
175567 2006 TM_{10}	17.1	X	124.65170	245.21745	326.87773	4.16623	0.0669356	0.28230043	2.3014154	20	10 7.2	20.3
175568 2006 TT_{17}	16.1	X	357.40732	198.95896	95.15162	3.05346	0.0648120	0.19825431	2.9128690	20	7 27.3	19.8
175569 2006 TL_{19}	15.9	X	216.12915	153.77299	228.83038	3.46835	0.0977609	0.18600936	3.0393416	20	5 9.9	20.6
175570 2006 TO_{19}	16.2	X	18.74080	304.33909	346.03864	1.35381	0.0358904	0.20022219	2.8937516	20	8 21.0	19.9
175571 2006 TQ_{25}	15.4	X	262.43298	254.05458	16.06094	2.11731	0.0497376	0.17335613	3.1854925	20	2 20.1	20.1
175572 2006 TB_{42}	16.0	X	280.33089	39.94821	331.41325	0.80994	0.0770959	0.19528464	2.9423252	20	7 14.0	19.9
175573 2006 TK_{50}	15.7	X	172.06481	232.08373	119.79303	6.27011	0.1992941	0.17387011	3.1792116	20	2 25.8	21.0
175574 2006 TV_{54}	14.6	X	103.01669	60.96716	50.86768	22.86979	0.0729558	0.17933948	3.1142402	20	4 30.4	19.1
175575 2006 TW_{61}	16.0	X	322.57254	332.41402	47.66610	5.36534	0.1258568	0.21285375	2.7781041	20	9 29.9	19.0
175576 2006 TJ_{62}	15.4	X	206.19517	289.23468	99.99001	10.97670	0.1093885	0.18900024	3.0071920	20	5 10.8	20.2
175577 2006 TK_{75}	15.6	X	227.70085	212.29369	143.04378	6.30000	0.0709215	0.18385457	3.0630431	20	4 23.1	20.2
175578 2006 TU_{76}	14.9	X	267.03770	310.99238	347.33100	10.76681	0.0713981	0.18009775	3.1054928	20	3 24.2	19.4
175579 2006 TQ_{84}	16.1	X	167.71693	321.30549	316.43946	3.76347	0.1474138	0.22966161	2.6408503	20	—	—
175580 2006 TN_{90}	16.0	X	11.32946	261.37803	27.18255	5.97901	0.0958043	0.19756635	2.9196272	20	8 15.0	19.6
175581 2006 TR_{93}	16.1	X	187.01111	184.09194	253.37623	2.67636	0.0551787	0.18984915	2.9982208	20	6 17.8	20.6
175582 2006 TK_{94}	16.8	X	139.26031	187.61427	25.78784	6.48711	0.1092002	0.28521399	2.2857155	20	10 27.8	20.2
175583 Pingtung	15.2	X	150.37056	3.57493	56.70054	11.47872	0.0894740	0.17773852	3.1329131	20	4 21.6	20.0
175584 2006 TP_{99}	16.4	X	205.68169	182.39620	59.21350	2.46975	0.0803027	0.22977907	2.6399503	20	—	—
175585 2006 TW_{100}	16.1	X	220.60344	252.30162	14.00426	5.24152	0.1486504	0.23827005	2.5768536	20	—	—
175586 Tsou	15.4	X	162.93466	304.09535	90.87385	3.89103	0.0216089	0.17595257	3.1540771	20	3 30.4	20.0
175587 2006 TB_{109}	16.6	X	234.49531	113.39264	110.09759	3.40428	0.1630280	0.22997742	2.6384321	20	—	—
175588 Kathrynsmith	15.9	X	118.38295	184.25790	90.34625	10.53455	0.0683899	0.21901749	2.7257343	20	12 9.9	19.8
175589 2006 UD	15.9	X	207.07736	321.96432	100.45449	2.79685	0.1079358	0.19484487	2.9467507	20	6 18.6	20.5
175590 2006 UE_5	17.1	X	5.48098	333.71871	329.03832	2.63623	0.1633964	0.27729419	2.3290324	20	9 11.7	19.0
175591 2006 UU_{23}	15.9	X	113.09073	191.84778	329.61477	2.15123	0.0832715	0.19183371	2.9775068	20	7 12.9	20.2
175592 2006 UH_{30}	16.5	X	275.22140	108.27983	306.79200	1.11724	0.0598687	0.20469297	2.8514610	20	9 6.1	20.3
175593 2006 UM_{36}	16.5	X	333.66066	156.38893	1.91218	2.66479	0.0936114	0.23402716	2.6079056	20	—	—
175594 2006 UZ_{36}	15.3	X	140.45342	257.41505	58.84415	15.01640	0.0882086	0.22741592	2.6582070	20	—	—
175595 2006 UY_{44}	16.8	X	195.48616	75.13667	192.93310	2.40821	0.0957463	0.23001479	2.6381463	20	—	—
175596 2006 UM_{56}	15.7	X	331.36115	1.74298	283.51070	8.27008	0.1710860	0.19969577	2.8988349	20	5 23.3	18.9
175597 2006 UF_{81}	15.7	X	53.54690	318.48887	176.17479	1.69168	0.0759769	0.17219390	3.1998101	20	3 23.1	19.7
175598 2006 UP_{86}	16.1	X	64.90574	245.77993	16.39204	2.04102	0.0234216	0.20123208	2.8840618	20	9 14.2	20.0
175599 2006 UT_{106}	15.0	X	2.42536	140.25018	60.42983	11.03498	0.0598878	0.17628369	3.1501262	20	4 6.1	19.2
175600 2006 UW_{176}	15.8	X	226.17474	9.13968	82.49660	7.60118	0.0085961	0.20361498	2.8615164	20	8 31.9	19.8

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
175601 2006 UV_{182}	15.5	X	276.17197	69.87425	87.35559	12.41610	0.1349480	0.22042464	2.7141215	20	—	—
175602 2006 UR_{187}	15.4	X	214.43709	9.92561	265.45035	11.78701	0.0688557	0.24043126	2.5613883	20	—	—
175603 2006 UN_{191}	15.3	X	316.85407	1.93287	306.21183	9.03193	0.0708753	0.19275644	2.9679970	20	6 12.5	19.2
175604 2006 UL_{228}	15.1	X	270.02294	30.81820	348.08249	7.93713	0.0073860	0.19500399	2.9451475	20	7 22.6	19.2
175605 2006 UH_{230}	15.8	X	318.75329	302.58180	4.86558	2.01838	0.0788909	0.19483333	2.9468671	20	6 13.4	19.5
175606 2006 UJ_{230}	16.9	X	47.01649	312.77582	283.63412	1.86448	0.1350268	0.27026510	2.3692419	20	8 9.6	19.4
175607 2006 UD_{275}	15.7	X	133.44080	28.37003	271.51784	3.23971	0.1588001	0.22968954	2.6406362	20	—	—
175608 2006 VB_{4}	16.0	X	274.34759	83.83576	338.42831	0.95130	0.0428227	0.20269848	2.8701354	20	9 16.8	19.9
175609 2006 VM_{11}	15.9	X	154.46441	340.70579	27.19440	0.42697	0.1824289	0.17103425	3.2142575	20	2 27.7	21.1
175610 2006 VT_{19}	15.6	X	337.73474	285.15140	347.60723	1.65796	0.0603066	0.18577747	3.0418703	20	5 27.9	19.6
175611 2006 VF_{31}	15.4	X	176.73157	316.41628	38.14166	5.01126	0.1869486	0.17165158	3.2065463	20	3 3.9	20.7
175612 2006 VY_{82}	15.8	X	95.68978	272.85212	298.83219	0.93662	0.0397708	0.19639225	2.9312520	20	8 20.1	19.7
175613 Shikoku–karst	15.3	X	193.50034	136.93869	283.31890	9.09752	0.0261219	0.18720352	3.0264027	20	6 3.9	19.7
175614 2006 VC_{144}	15.3	X	281.07752	50.61832	296.89336	9.57037	0.1110618	0.19230842	2.9726049	20	6 7.8	19.5
175615 2006 VN_{154}	16.1	X	196.05968	123.63290	160.10479	4.23396	0.1806147	0.23647780	2.5898571	20	—	—
175616 2006 WV_{33}	16.0	X	290.44151	150.89352	128.41377	3.39226	0.1449043	0.17866106	3.1221189	20	3 22.2	20.3
175617 2006 WA_{36}	15.9	X	353.03029	16.52762	176.86349	5.72832	0.0822611	0.16922160	3.2371701	20	3 8.7	20.1
175618 2006 WQ_{47}	16.0	X	192.79832	45.15592	310.42669	2.33868	0.0171654	0.17020178	3.2247296	20	3 14.9	20.6
175619 2006 WO_{53}	15.9	X	80.22205	328.82296	155.11287	14.22630	0.1392567	0.24387461	2.5372212	20	4 24.5	19.3
175620 2006 WE_{99}	14.4	X	10.98024	223.91135	75.90860	7.47702	0.1252322	0.12490276	3.9635836	20	8 22.9	19.4
175621 2006 WX_{125}	14.7	X	205.67356	239.55759	91.98130	16.90162	0.1829399	0.17280177	3.1923017	20	3 5.2	20.3
175622 2006 XX_{4}	14.7	X	41.64842	272.82093	116.44523	29.13923	0.3691548	0.23179955	2.6245871	20	—	—
175623 2006 YR_{14}	15.4	X	317.20274	86.70047	291.39572	13.62164	0.1619134	0.20453270	2.8529504	20	9 2.6	18.8
175624 2006 YM_{47}	15.8	X	333.06381	237.23886	70.01936	2.55435	0.0743313	0.19029853	2.9934988	20	7 5.9	19.6
175625 2007 OK_{7}	15.3	X	265.16124	81.43707	311.79252	12.82789	0.2159726	0.21720023	2.7409169	20	7 4.7	19.3
175626 2007 PK_{25}	14.9	X	139.60899	203.99025	192.71440	19.08315	0.3792851	0.18414723	3.0597969	20	3 30.9	20.5
175627 2007 RE_{81}	16.0	X	94.32340	339.32610	300.82487	14.56179	0.0910744	0.23855484	2.5748023	20	11 23.6	20.0
175628 2007 RW_{275}	15.7	X	187.24015	224.34295	191.23331	6.01242	0.0369048	0.20895154	2.8125851	20	5 22.3	19.7
175629 Lambertini	16.0	X	306.34981	123.33798	235.75635	6.67240	0.3035947	0.22003921	2.7172901	20	7 1.2	18.8
175630 2007 TQ_{41}	16.1	X	79.62017	97.50248	145.23402	1.31813	0.0470103	0.21712341	2.7415633	20	9 13.2	19.8
175631 2007 TD_{47}	15.6	X	184.95958	77.10708	219.90412	9.77119	0.0394154	0.17785023	3.1316011	20	—	—
175632 2007 TG_{85}	16.1	X	16.21858	288.91835	70.25899	3.24989	0.1887214	0.23266337	2.6180868	20	12 13.9	19.2
175633 Yaoan	15.1	X	358.88238	9.65120	118.52203	6.52442	0.0364418	0.17263488	3.1943587	20	—	—
175634 2007 TV_{216}	15.4	X	169.47086	302.27486	38.99674	12.91319	0.1169910	0.18181499	3.0859076	20	2 10.9	20.4
175635 2007 TO_{279}	15.6	X	91.07688	65.35108	328.19588	1.75374	0.1003912	0.17638828	3.1488809	20	1 12.2	19.7
175636 Zvyagel	15.1	X	140.44112	81.62624	341.11424	11.15087	0.0692768	0.19316293	2.9638316	20	4 4.3	19.6
175637 2007 US_{25}	17.3	X	163.04059	35.49069	203.83583	1.14166	0.0585183	0.31234397	2.1513643	20	—	—
175638 2007 UF_{47}	15.9	X	22.91179	55.61840	223.96606	5.17405	0.0295351	0.21445198	2.7642841	20	8 10.9	19.5
175639 2007 UC_{51}	17.1	X	218.60279	256.32401	112.70950	6.86626	0.1962047	0.27606574	2.3359365	20	4 20.5	21.0
175640 2007 UZ_{104}	16.9	X	208.18009	237.23884	184.98784	2.60035	0.1483594	0.28071797	2.3100564	20	6 18.7	20.4
175641 2007 VD_{32}	15.9	X	52.89764	234.01147	357.42835	5.43156	0.0080030	0.20882856	2.8136892	20	7 18.9	19.8
175642 2007 VB_{76}	17.3	X	54.70958	299.58762	178.58037	2.04131	0.1742555	0.25870222	2.4393228	20	3 2.6	19.3
175643 2007 VF_{165}	17.6	X	183.59708	200.00541	208.05861	1.86330	0.2095569	0.27423915	2.3462975	20	5 6.5	21.4
175644 2007 VK_{166}	16.4	X	315.81199	220.90597	213.33874	2.19951	0.0815305	0.22785196	2.6548146	20	12 4.7	19.5
175645 2007 VG_{263}	16.4	X	353.61760	185.70974	38.83142	5.84907	0.0711765	0.26952919	2.3735525	20	4 12.7	18.7
175646 2007 VQ_{290}	16.1	X	4.15244	278.10274	71.62165	4.70822	0.1018672	0.22179458	2.7029340	20	10 29.8	19.2
175647 4091 P–L	16.5	X	45.00800	142.39586	224.21556	2.82784	0.2557581	0.23322684	2.6138683	20	—	—
175648 4326 P–L	17.1	X	63.16233	50.69056	277.46360	2.46467	0.2666937	0.23300575	2.6155215	20	—	—
175649 6233 P–L	17.1	X	318.04031	51.95253	341.85625	6.39122	0.1749453	0.29636702	2.2280049	20	10 29.1	18.6
175650 1408 T–2	17.0	X	168.51645	50.11599	339.94661	4.92930	0.2171103	0.26451856	2.4034326	20	3 31.0	21.1
175651 3094 T–2	15.6	X	228.37657	259.88502	36.63512	3.00525	0.2105414	0.24281311	2.5446104	20	1 30.8	20.0
175652 3257 T–2	17.3	X	174.60661	2.05386	40.06058	3.02548	0.1943519	0.26539563	2.3981345	20	4 21.2	21.0
175653 1014 T–3	16.0	X	36.29847	8.62966	346.64409	11.54102	0.1864359	0.23242582	2.6198704	20	—	—
175654 2130 T–3	16.8	X	330.58388	167.64102	232.56506	4.58442	0.1590309	0.29971549	2.2113794	20	12 11.7	18.4
175655 3306 T–3	17.8	X	328.97933	274.44166	107.22777	0.73539	0.2406024	0.29863499	2.2167102	20	11 16.2	18.8
175656 3397 T–3	16.6	X	217.88379	296.74498	46.83731	3.92918	0.1705818	0.26680165	2.3897018	20	3 18.6	20.4
175657 3426 T–3	17.7	X	188.91283	6.46060	22.64700	2.59700	0.2272498	0.26706404	2.3881363	20	4 17.0	21.7
175658 3578 T–3	16.5	X	47.19534	15.50406	24.53607	5.23915	0.1740504	0.23522300	2.5990593	20	—	—
175659 1981 EP_{23}	15.2	X	17.12210	230.36457	354.56636	15.51361	0.1462438	0.17958347	3.1114188	20	5 23.5	19.1
175660 1981 QC_{3}	16.1	X	152.46142	203.26417	144.66401	6.40529	0.3174552	0.24002310	2.5642913	20	2 5.8	20.5
175661 1989 SC_{14}	16.0	X	24.26531	114.52323	278.72745	10.23741	0.2025737	0.22790192	2.6544266	20	—	—
175662 1993 BB_{10}	17.0	X	149.03120	77.42573	44.50429	1.72559	0.1361096	0.26652065	2.3913812	20	7 8.0	20.6
175663 1993 FD_{48}	16.7	X	75.87651	159.65874	17.60570	2.36008	0.1414035	0.26085938	2.4258564	20	6 28.4	19.8
175664 1993 KK_{1}	15.3	X	344.97720	175.79137	111.85439	4.62071	0.1694862	0.18566215	3.0431298	20	6 23.9	18.5
175665 1993 MJ	17.4	X	53.78543	85.06977	247.16306	5.11003	0.1810623	0.29988537	2.2105442	20	—	—
175666 1993 TS_{9}	16.6	X	293.38591	128.38804	268.36670	3.57902	0.0935736	0.21576103	2.7530919	20	9 3.2	20.0
175667 1993 TX_{24}	16.0	X	59.75343	183.33271	181.98891	4.80514	0.2271965	0.22708655	2.6607768	20	—	—
175668 1994 AZ_{9}	15.9	X	55.29045	191.46675	47.51215	2.67171	0.0187508	0.20404049	2.8575366	20	8 1.9	19.7
175669 1994 LT_{3}	16.6	X	68.78999	162.34498	65.30364	3.22206	0.0824057	0.27062923	2.3671162	20	8 22.5	19.5
175670 1994 PN_{32}	15.0	X	199.38311	39.95131	324.61356	15.61328	0.1929646	0.17651541	3.1473688	20	3 24.3	20.5
175671 1994 SV_{6}	16.0	X	11.35196	244.28906	30.14293	3.88256	0.2250112	0.18630279	3.0361495	20	8 5.3	19.0
175672 1994 UN_{7}	15.7	X	201.54212	84.86988	249.55491	4.31765	0.2669974	0.17303605	3.1894196	20	2 25.1	21.4
175673 1994 UY_{10}	15.4	X	104.44624	187.14652	294.72926	3.59429	0.0299772	0.17422555	3.1748861	20	5 4.3	19.9
175674 1994 WP_{6}	16.6	X	20.12444	321.24779	108.80508	6.76272	0.2817972	0.23473301	2.6026750	20	—	—
175675 1995 CJ_{4}	16.3	X	294.14652	172.99331	243.99783	1.46971	0.0819129	0.21891082	2.7266197	20	10 5.3	19.7
175676 1995 DK_{8}	16.4	X	97.53607	145.25078	157.83581	5.55375	0.0997510	0.21967534	2.7202898	20	12 24.0	20.6
175677 1995 EV_{4}	15.9	X	47.52769	43.90722	356.21871	12.49968	0.1284194	0.22672943	2.6635700	20	—	—
175678 1995 FA_{4}	16.3	X	127.32935	249.13608	11.09432	5.25898	0.0212847	0.21907367	2.7252683	20	11 29.2	20.1
175679 1995 GE_{1}	16.2	X	282.29438	56.89117	71.66573	3.80442	0.0361916	0.22019021	2.7160476	20	12 26.3	19.8
175680 1995 GU_{1}	15.9	X	269.28088	4.99201	174.85132	12.51771	0.0872969	0.22389764	2.6859816	20	—	—

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
175681 1995 GU_2	16.0	X	16.40792	87.43546	28.49665	13.88760	0.2089620	0.23082916	2.6319377	20	—	—
175682 1995 MC_5	17.2	X	177.49523	32.51518	194.85275	8.69989	0.0707045	0.29385021	2.2407086	20	—	—
175683 1995 OK_{13}	17.2	X	189.27219	221.98314	146.96307	1.78786	0.1932104	0.26271037	2.4144483	20	3 23.9	21.0
175684 1995 QC_{16}	16.5	X	193.94288	172.69224	295.99300	10.08093	0.1212524	0.27504369	2.3417198	20	8 5.4	19.9
175685 1995 SB_6	16.9	X	231.56531	14.71385	349.16338	2.80229	0.1383553	0.26617209	2.3934685	20	4 26.0	20.4
175686 1995 SE_{11}	17.2	X	49.05885	213.82997	14.13390	6.61436	0.0615505	0.26911931	2.3759619	20	7 21.4	20.0
175687 1995 SV_{12}	16.1	X	356.48501	141.37240	175.06097	3.08907	0.0647734	0.19551696	2.9399939	20	8 23.9	19.8
175688 1995 SF_{13}	16.2	X	273.01945	189.79244	171.55141	1.17933	0.0937652	0.19047111	2.9916903	20	6 18.1	20.4
175689 1995 SX_{17}	15.9	X	106.51314	89.91524	18.75949	16.10474	0.2078376	0.17984100	3.1084478	20	5 9.7	20.9
175690 1995 SX_{34}	16.0	X	25.29206	286.51650	6.52052	1.59027	0.0852144	0.19457361	2.9494888	20	9 7.9	19.8
175691 1995 SM_{38}	16.9	X	313.13134	315.87801	347.00061	6.45700	0.1395735	0.26983407	2.3717643	20	5 17.9	19.6
175692 1995 SH_{40}	17.3	X	261.54205	357.40992	9.44129	1.40447	0.1915028	0.26990609	2.3713423	20	5 28.1	20.6
175693 1995 SZ_{41}	16.3	X	121.35014	311.24256	158.24046	3.73857	0.0816308	0.18338625	3.0682556	20	5 17.8	20.8
175694 1995 ST_{51}	16.2	X	279.81938	303.11997	13.79083	4.57921	0.0735465	0.18508348	3.0494693	20	5 2.4	20.4
175695 1995 TU_7	16.7	X	211.23937	145.74774	241.88148	1.64267	0.1663151	0.26337344	2.4103942	20	5 5.8	20.4
175696 1995 TS_8	17.5	X	73.92399	162.16189	16.35430	2.84668	0.1342068	0.26504217	2.4002661	20	6 26.4	20.4
175697 1995 UG_2	16.9	X	216.27361	325.43994	30.35541	2.14363	0.1892963	0.26204084	2.4185593	20	3 30.8	20.9
175698 1995 UQ_8	15.2	X	186.07763	241.28775	158.28256	15.56448	0.1759159	0.18140249	3.0905840	20	5 4.2	20.6
175699 1995 UK_{12}	16.9	X	285.62503	353.11876	344.50967	0.91334	0.2011704	0.26858779	2.3790955	20	5 16.8	19.8
175700 1995 UM_{18}	15.4	X	315.81373	337.23358	6.09177	10.50438	0.1092179	0.19229968	2.9726950	20	7 28.4	19.2
175701 1995 UO_{40}	15.7	X	180.79851	161.80686	205.35041	5.72488	0.2429316	0.18055010	3.1003036	20	3 18.8	21.2
175702 1995 UB_{58}	17.2	X	32.32716	249.96508	320.62684	0.92692	0.1190109	0.26491005	2.4010641	20	6 2.2	19.4
175703 1995 UC_{69}	17.1	X	72.65810	296.88795	260.74779	0.28622	0.1124546	0.26707510	2.3880703	20	7 18.6	20.1
175704 1995 VS_6	16.7	X	62.45933	109.03810	67.06973	2.05443	0.1270822	0.26008636	2.4306607	20	6 3.8	19.4
175705 1995 WW_{40}	15.9	X	161.43242	98.42618	4.09869	0.59421	0.0554411	0.18496051	3.0508209	20	6 20.4	20.2
175706 1996 FG_3	18.4	X	15.70802	24.05111	299.68023	1.99121	0.3497120	0.91108965	1.0538092	20	—	—
175707 1996 QA_1	15.7	X	22.64419	211.63629	148.18267	8.79875	0.2355479	0.21219009	2.7838937	20	12 25.4	19.4
175708 1996 RF_1	17.4	X	271.37111	231.47026	158.87223	4.85530	0.1597037	0.28343922	2.2952470	20	7 19.4	20.2
175709 1996 RQ_6	16.7	X	201.90006	176.12906	225.19973	0.55986	0.2295403	0.19330754	2.9623533	20	5 13.9	21.7
175710 1996 SK_7	14.6	X	208.15638	297.97550	20.94563	16.52319	0.2530924	0.22785027	2.6548277	20	2 17.7	19.6
175711 1996 TW_{42}	15.6	X	143.26413	268.22299	337.56746	14.94845	0.0979861	0.21294893	2.7772762	20	11 26.1	20.2
175712 1996 TP_{54}	17.5	X	293.51273	156.02022	202.07872	0.68983	0.2124060	0.28229863	2.3014252	20	6 27.4	19.8
175713 1996 VX_{11}	15.5	X	249.03189	8.98249	12.99072	10.81501	0.0513306	0.19338474	2.9615649	20	6 20.3	19.9
175714 1996 VJ_{35}	16.7	X	118.01686	332.16074	301.38210	5.55723	0.1468551	0.29441186	2.2378580	20	12 24.7	20.1
175715 1996 XR_3	17.0	X	134.04185	230.56692	341.45971	5.48156	0.1079302	0.28491185	2.2873311	20	10 18.9	20.3
175716 1996 XW_{24}	15.7	X	256.79817	8.95083	37.08412	13.11636	0.0959055	0.19606890	2.9344739	20	7 30.1	20.1
175717 1997 CX_5	18.2	X	248.45060	162.46638	312.78829	19.28059	0.1206625	0.45050741	1.6852646	20	12 27.9	18.9
175718 Wuzhengyi	16.8	X	154.51654	132.04533	359.37815	2.28546	0.1451859	0.27043295	2.3682614	20	7 27.2	20.4
175719 1997 ED_4	15.3	X	151.22292	269.20225	176.12844	13.63570	0.1835371	0.17870679	3.1215863	20	5 27.3	20.6
175720 1997 EB_{12}	15.8	X	168.29774	119.85620	281.44835	4.67777	0.2347253	0.18156118	3.0887829	20	4 16.8	21.2
175721 1997 GU	16.7	X	107.14123	227.78369	12.24089	1.60993	0.2066056	0.27156074	2.3617000	20	10 31.9	20.4
175722 1997 GP_1	14.9	X	28.20764	71.19230	159.52754	18.13405	0.0758263	0.18001412	3.1064545	20	6 19.6	19.3
175723 1997 GC_{10}	17.0	X	50.54688	59.45738	179.93466	4.85262	0.1836356	0.26511620	2.3998193	20	8 26.6	19.9
175724 1997 GN_{25}	16.9	X	226.49520	211.31887	183.51940	5.38412	0.0694564	0.26445961	2.4037898	20	6 9.1	20.3
175725 1997 NZ_5	16.2	X	106.79639	209.40000	165.51490	2.41685	0.1896221	0.23393625	2.6085813	20	1 11.4	19.6
175726 Borda	16.1	X	172.20191	143.77753	186.37450	3.31305	0.1959910	0.23712263	2.5851597	20	1 23.7	20.3
175727 1997 SA_{13}	16.6	X	302.14749	319.97772	172.78384	12.94180	0.1100946	0.22610861	2.6684433	20	—	—
175728 1998 BT_5	17.5	X	338.67260	265.05630	126.13237	6.82970	0.1262905	0.29581169	2.2307924	20	12 8.8	19.5
175729 1998 BB_{10}	20.3	X	260.89329	259.21318	124.30012	11.53565	0.4245986	0.68722648	1.2717531	20	5 24.5	21.2
175730 Gramastetten	17.1	X	317.21768	336.50846	183.98068	1.21396	0.0655725	0.30510649	2.1852531	20	—	—
175731 1998 DW_{36}	17.0	X	47.39625	97.98023	117.78771	2.23920	0.1782048	0.27536702	2.3398863	20	7 18.6	19.5
175732 1998 EW_8	17.0	X	161.89067	234.67464	7.06388	4.82743	0.1264202	0.29397508	2.2400740	20	12 28.7	20.1
175733 1998 FD_{88}	16.2	X	328.16509	105.78305	25.21818	6.11013	0.0625362	0.30235558	2.1984878	20	—	—
175734 1998 FA_{122}	16.0	X	84.06174	32.46127	171.17539	12.18794	0.2729289	0.18972831	2.9994937	20	8 23.5	20.7
175735 1998 HA_1	17.0	X	274.09654	194.13837	127.05559	4.55358	0.2208723	0.26773669	2.3841347	20	4 9.8	20.5
175736 1998 HJ_6	17.0	X	116.45988	40.66183	178.33246	5.51751	0.1226134	0.28305466	2.2973254	20	10 12.7	20.2
175737 1998 HO_{15}	14.7	X	280.88502	138.63061	164.84976	16.24453	0.0789823	0.17657806	3.1466243	20	4 21.2	19.3
175738 1998 HR_{66}	14.9	X	325.15979	120.20411	187.20494	11.49345	0.1450222	0.18462178	3.0545513	20	6 16.5	18.8
175739 1998 JL_4	16.7	X	118.07385	66.04973	173.41296	3.94886	0.1535940	0.28364858	2.2941174	20	11 11.1	20.2
175740 1998 KR_{10}	15.7	X	126.92412	310.96058	151.77611	10.53602	0.0550294	0.17922604	3.1155542	20	5 14.9	20.4
175741 1998 MQ_{24}	16.3	X	301.15545	44.34008	304.28033	5.87269	0.1427168	0.26880330	2.3778237	20	7 8.8	18.8
175742 1998 MF_{47}	16.6	X	53.33892	352.86584	277.78611	4.48086	0.1790809	0.27491200	2.3424676	20	10 12.4	19.7
175743 1998 OS_1	16.4	X	44.47754	333.80172	299.69366	4.49246	0.1443108	0.27274784	2.3548424	20	9 28.5	19.2
175744 1998 QK_{47}	16.1	X	85.71669	139.58583	168.91835	4.12979	0.2066160	0.23453200	2.6041618	20	12 29.2	20.3
175745 1998 QM_{49}	15.5	X	296.19664	340.94526	358.78366	6.39542	0.1383822	0.26363851	2.4087782	20	6 16.0	18.3
175746 1998 QJ_{61}	16.8	X	112.98489	38.20177	325.51134	17.93596	0.3085700	0.24279780	2.5447173	20	1 24.1	20.5
175747 1998 QK_{78}	15.5	X	353.04383	144.23370	214.93979	7.28214	0.1554664	0.22702462	2.6612607	20	10 29.9	18.1
175748 1998 QO_{88}	15.9	X	107.96623	98.71483	285.44523	10.23170	0.2161080	0.24363497	2.5388846	20	1 25.9	19.2
175749 1998 QN_{90}	15.6	X	14.55552	69.89544	250.37280	11.80640	0.2750515	0.22629088	2.6670102	20	10 30.1	18.5
175750 1998 RY_{21}	17.0	X	329.75796	77.14505	204.89836	0.89813	0.1811422	0.26161386	2.4211901	20	5 13.6	19.0
175751 1998 RN_{26}	16.3	X	109.55793	238.42978	155.60399	11.74258	0.2914377	0.24447544	2.5330624	20	2 20.9	20.0
175752 1998 RL_{47}	16.0	X	255.62092	59.66880	271.39157	3.67390	0.0941768	0.25669846	2.4520004	20	4 13.9	19.4
175753 1998 RT_{47}	15.7	X	320.46765	349.35435	329.48514	8.08481	0.1560088	0.26381719	2.4076905	20	6 27.1	18.1
175754 1998 RH_{48}	16.9	X	115.90879	123.38694	243.83367	2.29094	0.2461467	0.24250981	2.5467316	20	1 19.3	20.4
175755 1998 RX_{56}	16.5	X	26.34416	101.31193	192.92295	4.69126	0.2150473	0.27036668	2.3686484	20	10 15.5	19.0
175756 1998 RR_{58}	16.9	X	233.63149	17.49677	333.00137	2.28183	0.2288823	0.25615521	2.4554660	20	4 5.3	20.9
175757 1998 SX_{10}	16.7	X	24.62535	15.43013	27.83739	4.54932	0.2753736	0.23210796	2.6222617	20	—	—
175758 1998 SH_{21}	16.7	X	96.94767	191.42544	28.20305	2.63884	0.1614535	0.26704330	2.3882599	20	9 23.8	20.2
175759 1998 SL_{32}	17.1	X	342.96398	79.78882	173.63189	2.51239	0.1518283	0.26102927	2.4248036	20	4 30.2	19.4
175760 1998 SG_{39}	16.8	X	123.18513	206.71786	357.91249	2.85019	0.1650874	0.27039021	2.3685110	20	9 29.9	20.3

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
175761 1998 SH_{48}	17.3	X	46.80096	69.34681	359.49307	2.06885	0.1948073	0.23737044	2.5833602	20	—	—
175762 1998 SS_{101}	16.0	X	129.62494	337.18782	2.58871	5.82378	0.2194908	0.24123052	2.5557275	20	—	—
175763 1998 TQ_{36}	17.3	X	100.60926	307.12574	54.11629	3.15806	0.2520952	0.23792207	2.5793656	20	—	—
175764 1998 US_{3}	16.6	X	114.89416	199.86318	175.05696	6.46140	0.3485521	0.24362373	2.5389627	20	2 8.8	20.5
175765 1998 UR_{40}	16.4	X	15.03767	200.91488	236.97203	3.93198	0.2283568	0.23386016	2.6091471	20	—	—
175766 1998 VW_{18}	16.3	X	13.77177	193.40801	254.54176	3.54198	0.2739289	0.23355539	2.6114164	20	—	—
175767 1998 VO_{28}	16.0	X	23.83496	336.04246	61.97484	6.56735	0.3374951	0.23126821	2.6286056	20	—	—
175768 1998 VB_{33}	16.5	X	347.91106	18.87912	55.52977	4.95550	0.2606614	0.22884871	2.6471004	20	—	—
175769 1998 VF_{55}	15.7	X	107.07762	186.65889	211.38978	4.48796	0.1073143	0.24055827	2.5604866	20	1 26.9	19.0
175770 1998 WG_{38}	16.3	X	241.09066	32.09910	219.35697	1.99587	0.1291803	0.23995538	2.5647737	20	—	—
175771 1998 XO_{2}	16.2	X	68.53976	153.71978	249.18657	2.83360	0.1589634	0.23490095	2.6014343	20	—	—
175772 1998 XU_{8}	16.1	X	344.20845	31.08082	72.62112	6.24075	0.1615138	0.23024644	2.6363765	20	—	—
175773 1998 XY_{17}	16.1	X	15.28974	282.35524	79.27161	6.96900	0.0422938	0.22416647	2.6838338	20	11 23.2	19.6
175774 1999 AQ_{22}	15.4	X	287.44993	91.84207	81.81182	15.75141	0.3085232	0.22402112	2.6849946	20	—	—
175775 1999 BW_{10}	15.9	X	307.79386	13.71959	136.84233	8.07618	0.2499627	0.22474493	2.6792266	20	—	—
175776 1999 CY_{92}	15.8	X	250.38153	215.10096	340.14627	12.44142	0.1373036	0.22276916	2.6950449	20	—	—
175777 1999 CH_{93}	16.0	X	324.08130	155.81305	2.13571	3.19043	0.1195754	0.22832332	2.6511595	20	—	—
175778 1999 CF_{101}	15.2	X	293.46574	212.95352	354.61439	8.22851	0.1394838	0.22801974	2.6535122	20	—	—
175779 1999 CU_{140}	16.1	X	99.32891	319.28194	86.27553	4.83912	0.1098090	0.24049856	2.5609104	20	1 29.1	19.3
175780 1999 CV_{151}	16.7	X	300.15052	251.77951	305.81905	1.02368	0.0942167	0.23025514	2.6363101	20	—	—
175781 1999 FT_{1}	16.3	X	251.90167	286.93653	177.76081	4.86393	0.1251532	0.21182656	2.7870779	20	10 1.8	20.0
175782 1999 FJ_{62}	15.8	X	235.25868	9.60365	176.89913	14.06945	0.1060112	0.21752019	2.7382284	20	12 26.5	19.8
175783 1999 HD_{7}	17.7	X	144.09157	100.19561	210.37967	2.58175	0.1242123	0.30927500	2.1655731	20	—	—
175784 1999 JX_{66}	15.5	X	215.56800	68.62411	180.09870	8.07555	0.1750007	0.21818136	2.7326937	20	—	—
175785 1999 NR_{31}	16.7	X	154.56014	356.63520	297.39142	5.13905	0.1632056	0.30308043	2.1949811	20	—	—
175786 1999 PT_{3}	16.4	X	197.30957	340.20827	310.73833	9.06729	0.3647470	0.30920139	2.1659168	20	—	—
175787 1999 QL	16.9	X	191.39807	84.87100	300.87900	5.42089	0.1363936	0.26890235	2.3772397	20	4 11.9	20.6
175788 1999 RJ_{41}	16.9	X	72.92523	34.89079	8.88948	24.76289	0.1336661	0.39551962	1.8380502	20	—	—
175789 1999 RG_{58}	17.0	X	197.68863	182.37122	165.03361	2.68163	0.2057949	0.26471556	2.4022400	20	3 4.0	20.8
175790 1999 RV_{58}	16.3	X	283.08167	79.61834	318.61871	11.55101	0.1771182	0.28059276	2.3107435	20	8 16.6	18.7
175791 1999 RM_{68}	16.8	X	261.87239	209.14647	148.78107	7.13573	0.1114972	0.27393346	2.3480427	20	5 29.5	20.0
175792 1999 RV_{79}	17.1	X	250.12045	54.11067	344.02572	6.88425	0.2032080	0.27519768	2.3408461	20	6 26.2	20.5
175793 1999 RY_{80}	16.5	X	147.98580	269.76247	343.89097	4.28537	0.1627234	0.29484204	2.2356807	20	12 27.7	19.8
175794 1999 RU_{104}	14.8	X	261.84371	2.02983	315.12071	11.61687	0.1947500	0.17526171	3.1623603	20	3 23.9	19.9
175795 1999 RO_{123}	16.4	X	321.66862	112.67381	236.92632	7.46464	0.1392039	0.28004955	2.3137306	20	8 18.3	18.7
175796 1999 RO_{131}	16.4	X	358.74489	104.26941	250.18134	6.53053	0.1237801	0.28668968	2.2778651	20	11 14.5	18.7
175797 1999 RO_{132}	16.4	X	199.01145	80.96613	260.98637	4.15270	0.2165250	0.26429362	2.4047961	20	2 25.7	20.5
175798 1999 RK_{137}	16.6	X	232.92360	203.97519	173.27277	5.62505	0.2399040	0.27170370	2.3608715	20	5 9.5	20.5
175799 1999 RT_{147}	16.4	X	259.06395	84.72347	267.45847	3.52016	0.2514320	0.27283019	2.3543685	20	4 27.6	20.0
175800 1999 RE_{148}	16.5	X	259.36247	79.60707	317.18263	6.49427	0.1464907	0.27740974	2.3283856	20	7 14.9	19.4
175801 1999 RR_{148}	16.8	X	117.52204	161.83292	175.46357	4.40514	0.1682388	0.30048124	2.2076208	20	—	—
175802 1999 RT_{149}	14.9	X	345.16913	307.75273	337.64208	15.63623	0.2019840	0.18362049	3.0656457	20	6 20.1	18.4
175803 1999 RB_{155}	14.5	X	255.18668	353.52119	334.53763	16.80835	0.1387994	0.17501278	3.1653582	20	4 3.0	19.5
175804 1999 RG_{155}	16.4	X	53.62904	6.14707	316.73150	6.24806	0.1512706	0.29028614	2.2590119	20	12 22.8	19.5
175805 1999 RQ_{155}	16.4	X	254.24416	135.91070	234.56823	3.78982	0.1956577	0.27356197	2.3501680	20	5 24.5	19.6
175806 1999 RE_{165}	14.9	X	236.77141	1.96253	337.84785	14.99645	0.1388707	0.17326860	3.1865652	20	3 31.5	20.2
175807 1999 RP_{165}	15.1	X	232.08298	340.04346	341.74013	5.21983	0.1848607	0.17160114	3.2071746	20	3 8.8	20.4
175808 1999 RT_{175}	17.1	X	228.93543	181.40585	199.32904	3.31923	0.2195016	0.27074308	2.3664526	20	5 10.9	21.0
175809 1999 RU_{182}	16.8	X	339.58478	22.46496	346.47584	7.03274	0.1470315	0.28427249	2.2907595	20	10 31.1	18.8
175810 1999 RA_{187}	16.8	X	51.72921	328.71759	344.48186	4.06059	0.1664376	0.28878304	2.2668438	20	12 8.8	19.8
175811 1999 RS_{193}	15.8	X	190.93949	202.38711	213.37365	4.33310	0.2252187	0.26874696	2.3781560	20	5 22.7	19.7
175812 1999 RG_{201}	14.5	X	322.82937	297.16121	333.78036	23.62564	0.1749299	0.17641651	3.1485450	20	4 6.3	18.9
175813 1999 RU_{207}	16.4	X	28.89985	38.14424	281.89300	5.15803	0.1874519	0.28549167	2.2842331	20	11 21.9	19.1
175814 1999 RC_{210}	14.7	X	236.20384	116.64115	355.86569	23.55096	0.2147129	0.27949184	2.3168076	20	9 18.8	17.5
175815 1999 RC_{214}	17.1	X	147.40839	108.13733	153.57275	8.37163	0.2073311	0.29844443	2.2176537	20	—	—
175816 1999 RZ_{230}	16.9	X	284.25435	285.94916	66.95970	6.62433	0.3042530	0.27535883	2.3399327	20	5 20.7	20.1
175817 1999 RV_{236}	14.8	X	295.03040	148.33698	152.24960	15.44373	0.2573426	0.17756852	3.1349123	20	4 9.9	19.4
175818 1999 SZ	16.8	X	210.77390	237.27772	174.13586	6.00865	0.1118858	0.27088555	2.3656228	20	6 9.6	20.4
175819 1999 TN_{18}	17.0	X	185.57403	39.03952	0.66618	2.35631	0.1927512	0.26518060	2.3994307	20	4 26.9	20.9
175820 1999 TS_{25}	16.6	X	217.21373	5.13073	16.61410	7.12018	0.1675889	0.26741343	2.3860557	20	5 2.3	20.3
175821 1999 TB_{31}	16.6	X	205.64817	48.07935	306.25001	1.39902	0.2458240	0.26444686	2.4038670	20	3 18.1	20.8
175822 1999 TZ_{36}	16.3	X	234.97770	217.13211	160.96682	12.69221	0.2728865	0.26913487	2.3758703	20	5 11.9	20.5
175823 1999 TA_{45}	16.6	X	43.80870	299.82585	4.02485	6.25846	0.1934644	0.28467247	2.2886132	20	11 18.7	19.6
175824 1999 TN_{51}	16.8	X	154.78388	49.11413	268.67249	2.80337	0.1259338	0.25234452	2.4801244	20	—	—
175825 1999 TR_{56}	16.6	X	153.83879	112.07761	32.98769	2.55598	0.1516981	0.27266759	2.3553044	20	8 14.3	20.2
175826 1999 TF_{61}	16.3	X	153.32804	107.51166	335.93092	3.13537	0.2077395	0.26659947	2.3909098	20	5 24.6	20.2
175827 1999 TS_{72}	17.3	X	35.37736	224.70512	80.40387	3.97222	0.1927388	0.28141106	2.3062618	20	11 11.8	20.0
175828 1999 TA_{95}	16.0	X	44.88673	308.97773	56.29830	8.65355	0.2035187	0.24396200	2.5366152	20	—	—
175829 1999 TW_{98}	16.9	X	270.77346	198.19245	140.91947	5.85400	0.2693196	0.27175970	2.3605472	20	4 23.9	20.4
175830 1999 TH_{103}	16.6	X	250.97186	130.13805	262.38148	4.15417	0.1426265	0.27357637	2.3500855	20	6 26.9	19.7
175831 1999 TK_{117}	16.9	X	259.53208	56.39240	327.87813	2.18867	0.1770567	0.27396069	2.3478871	20	6 21.4	19.8
175832 1999 TL_{119}	16.8	X	286.86731	336.69899	11.02195	3.81160	0.1919493	0.27434447	2.3456970	20	6 3.4	19.5
175833 1999 TZ_{120}	16.7	X	357.48318	291.91205	16.54664	4.86974	0.1800482	0.27953620	2.3165624	20	9 8.9	18.3
175834 1999 TC_{129}	17.1	X	145.76812	14.74922	346.60697	2.96170	0.1903290	0.25766079	2.4458913	20	2 4.9	20.7
175835 1999 TB_{134}	17.1	X	197.61577	204.61676	235.38628	0.66587	0.1474553	0.27123041	2.3636171	20	7 1.4	20.5
175836 1999 TZ_{135}	16.6	X	175.95600	102.93998	356.76904	3.87246	0.1977575	0.26942539	2.3741621	20	7 5.8	20.5
175837 1999 TF_{138}	16.7	X	44.47048	282.56617	11.80327	6.47325	0.1929237	0.28371046	2.2937838	20	11 6.7	19.8
175838 1999 TN_{149}	16.9	X	79.44826	347.59954	334.88855	3.06549	0.2013736	0.29195603	2.2503898	20	—	—
175839 1999 TA_{178}	16.5	X	159.59072	199.73218	203.02972	4.50395	0.1011285	0.26147488	2.4220479	20	4 2.4	19.8
175840 1999 TJ_{185}	16.6	X	80.15581	327.18398	312.86169	6.46730	0.1232000	0.28559329	2.2836912	20	11 20.4	19.9

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
175841 1999 TR_{192}	15.9	X	313.06489	358.22363	335.70307	6.57772	0.1515615	0.27440644	2.3453438	20	7 8.2	18.2
175842 1999 TA_{200}	16.6	X	136.85694	295.88062	229.88866	5.44987	0.0646101	0.27468752	2.3437436	20	8 17.6	19.9
175843 1999 TH_{205}	16.6	X	244.37133	29.97692	24.74275	7.43736	0.1136473	0.27311225	2.3527472	20	7 26.9	19.8
175844 1999 TC_{216}	16.8	X	158.24745	319.27289	90.96864	2.87441	0.2032755	0.26224060	2.4173309	20	4 18.6	20.7
175845 1999 TF_{234}	16.3	X	299.96186	34.57042	324.87946	6.99766	0.1379335	0.27692665	2.3310927	20	7 25.9	18.6
175846 1999 TO_{285}	16.9	X	248.34680	224.06041	125.21266	2.98985	0.2277461	0.26857399	2.3791770	20	4 18.6	20.7
175847 1999 TF_{293}	16.3	X	223.49373	68.24037	333.38508	4.87355	0.1083614	0.26936729	2.3745035	20	6 10.0	19.6
175848 1999 TG_{295}	16.5	X	187.28108	134.38440	295.31732	4.79960	0.2174424	0.26986333	2.3715928	20	6 5.8	20.5
175849 1999 TA_{302}	16.5	X	223.40306	25.00750	35.36783	7.78822	0.0933955	0.27087741	2.3656701	20	7 9.1	19.9
175850 1999 TG_{321}	16.6	X	215.89840	226.99655	224.82870	7.37235	0.0568945	0.27565341	2.3382654	20	8 13.1	19.8
175851 1999 UF_{5}	16.9	X	301.66467	66.87560	336.37023	19.23404	0.1873709	0.37435672	1.9066850	20	10 21.9	18.2
175852 1999 UQ_{14}	16.5	X	0.30107	23.61580	61.10800	7.31213	0.2529303	0.24365277	2.5387610	20	—	—
175853 1999 UL_{27}	16.4	X	103.76886	277.61338	4.62529	7.91015	0.1255107	0.29122502	2.2541541	20	12 20.5	19.8
175854 1999 UX_{43}	16.4	X	160.62035	66.54155	359.97111	5.98706	0.0948227	0.26398208	2.4066878	20	5 2.9	19.8
175855 1999 UV_{47}	15.9	X	66.95467	333.31688	357.00539	8.19197	0.1594464	0.29027076	2.2590917	20	—	—
175856 1999 UQ_{56}	16.1	X	308.83489	49.58418	323.25898	6.37089	0.1324415	0.27869661	2.3212126	20	9 1.7	18.1
175857 1999 UZ_{59}	16.3	X	231.10684	22.50881	7.74910	6.78593	0.1150185	0.26938789	2.3743825	20	6 1.7	19.7
175858 1999 VL	16.5	X	199.50443	334.17409	66.76869	2.39169	0.1874172	0.26648785	2.3915774	20	5 11.7	20.1
175859 1999 VE_{3}	17.3	X	181.11076	281.77296	148.08512	1.55781	0.1590342	0.26561925	2.3967884	20	6 1.5	20.9
175860 1999 VH_{16}	16.9	X	144.81135	131.24322	344.55113	2.66781	0.1594259	0.26722324	2.3871877	20	6 26.6	20.6
175861 1999 VW_{37}	15.7	X	354.12140	189.53346	248.74968	6.74762	0.1519774	0.24075171	2.5591150	20	—	—
175862 1999 VC_{41}	16.8	X	18.06123	160.65196	220.09782	7.73741	0.1561674	0.24059474	2.5602279	20	—	—
175863 1999 VA_{65}	16.6	X	139.87200	248.02807	223.71271	1.21959	0.1494920	0.26477588	2.4018752	20	6 15.4	20.2
175864 1999 VC_{65}	16.6	X	299.66759	132.66468	223.25185	3.54298	0.1375597	0.27416792	2.3467039	20	7 17.3	19.0
175865 1999 VW_{65}	16.1	X	21.26391	286.85993	153.32366	1.07713	0.1222151	0.24590328	2.5232474	20	—	—
175866 1999 VV_{69}	16.8	X	207.60379	354.45116	45.15273	8.11827	0.0911214	0.26670570	2.3902749	20	5 20.7	20.3
175867 1999 VW_{86}	16.2	X	213.47725	239.09166	151.20425	11.61867	0.1437702	0.26638155	2.3922136	20	5 16.2	20.1
175868 1999 VH_{91}	16.8	X	21.52133	286.70306	33.54276	8.17363	0.1499088	0.28285186	2.2984234	20	11 4.9	19.3
175869 1999 VD_{123}	16.1	X	22.38089	172.68014	214.09551	4.69665	0.1228819	0.24013404	2.5635014	20	—	—
175870 1999 VU_{124}	17.1	X	61.84587	14.47314	179.06421	2.53105	0.0909344	0.26533799	2.3984818	20	6 22.7	19.8
175871 1999 VV_{125}	17.3	X	223.26620	345.42047	54.93253	2.32005	0.1846250	0.26878677	2.3779212	20	6 1.9	20.8
175872 1999 VN_{132}	17.1	X	162.78429	248.80031	187.55542	2.45282	0.1893460	0.26351025	2.4095598	20	5 24.5	20.9
175873 1999 VL_{136}	16.3	X	8.12046	322.78955	50.98169	13.09669	0.1854999	0.23708251	2.5854514	20	12 21.1	19.4
175874 1999 VQ_{139}	17.5	X	100.29069	275.68401	323.16958	1.76901	0.0770190	0.28059467	2.3107330	20	10 15.8	20.7
175875 1999 VG_{148}	16.2	X	187.53209	341.99220	62.11174	7.94561	0.1204807	0.26446284	2.4037702	20	5 6.1	19.8
175876 1999 VS_{153}	17.1	X	81.05057	69.85412	174.75904	2.29376	0.1298175	0.27598195	2.3364093	20	10 6.9	20.3
175877 1999 VC_{168}	16.6	X	99.37749	105.45067	26.91601	2.68608	0.1426965	0.26076767	2.4264251	20	5 27.1	19.8
175878 1999 VZ_{168}	17.0	X	219.63833	358.13619	42.51272	3.24686	0.2074624	0.26750758	2.3854958	20	5 28.1	20.9
175879 1999 VQ_{182}	17.0	X	48.39382	324.86134	62.41735	4.18037	0.2252521	0.24378027	2.5378757	20	—	—
175880 1999 VD_{185}	16.6	X	157.00770	248.10851	199.05693	3.34812	0.1531801	0.26352061	2.4094966	20	5 31.8	20.2
175881 1999 VJ_{188}	16.8	X	223.40052	277.01429	105.13374	3.30855	0.2090717	0.26697446	2.3886705	20	5 8.9	20.7
175882 1999 VG_{191}	16.3	X	185.36384	18.69633	61.47615	8.35482	0.0876137	0.26583391	2.3954979	20	6 20.0	19.7
175883 1999 VP_{200}	15.5	X	37.01934	270.90237	127.05348	15.60266	0.1138449	0.24321585	2.5418005	20	—	—
175884 1999 VJ_{202}	16.6	X	204.41630	62.04238	332.80787	6.54744	0.1217453	0.26719836	2.3873359	20	5 7.7	20.3
175885 1999 VE_{211}	16.9	X	252.96970	143.24680	198.98007	3.31519	0.1222052	0.26542760	2.3979419	20	4 24.1	20.1
175886 1999 VV_{212}	16.7	X	29.55856	273.59763	75.53944	1.89487	0.1467771	0.23686704	2.5870191	20	12 14.0	20.0
175887 1999 WL_{8}	16.7	X	187.57399	36.45669	27.53395	6.79539	0.1075087	0.26655524	2.3911743	20	5 30.3	20.3
175888 1999 WQ_{14}	16.7	X	96.81840	71.45195	65.21673	2.25491	0.1206272	0.26194518	2.4191480	20	5 26.9	19.8
175889 1999 WJ_{16}	17.4	X	194.91898	214.12118	180.34718	0.98158	0.1636749	0.26453797	2.4033150	20	4 29.6	21.3
175890 1999 XB_{5}	16.4	X	191.88753	285.09382	112.27943	3.33870	0.1798766	0.26386403	2.4074055	20	5 1.5	20.2
175891 1999 XG_{43}	16.5	X	24.12161	157.62086	261.64861	1.55351	0.2370279	0.24382281	2.5375805	20	—	—
175892 1999 XJ_{47}	16.6	X	140.23090	189.08316	259.55980	3.78861	0.1798698	0.26142615	2.4223489	20	5 17.9	20.4
175893 1999 XN_{51}	16.5	X	339.00606	19.33232	62.09191	5.23679	0.2200159	0.23914775	2.5705448	20	—	—
175894 1999 XK_{54}	16.9	X	156.18970	299.33197	132.78981	1.76985	0.1704917	0.26182151	2.4199097	20	5 12.3	20.5
175895 1999 XJ_{122}	16.3	X	167.31701	138.66099	287.64446	9.59416	0.1665922	0.26376445	2.4080114	20	5 12.4	20.2
175896 1999 XN_{134}	16.3	X	312.41517	51.04339	53.07732	13.47862	0.2059328	0.23490804	2.6013820	20	—	—
175897 1999 XG_{139}	15.8	X	356.80880	352.24393	82.48750	4.94765	0.2006322	0.23802580	2.5786161	20	—	—
175898 1999 XL_{185}	16.6	X	134.97610	132.84944	318.25280	6.13971	0.2021475	0.26022897	2.4297725	20	5 16.3	20.5
175899 1999 XW_{205}	15.8	X	358.88010	105.86057	311.61435	21.77336	0.0935151	0.23549134	2.5970845	20	—	—
175900 1999 XM_{217}	16.3	X	206.50756	233.99047	105.18411	15.26514	0.2789242	0.25519167	2.4616429	20	3 6.9	20.9
175901 1999 XT_{230}	17.7	X	157.58868	215.38188	204.28019	1.62084	0.2099873	0.26049105	2.4281426	20	4 29.2	21.7
175902 1999 YP_{3}	16.0	X	176.98677	29.27618	123.51670	24.04594	0.0654236	0.36775562	1.9294336	20	10 16.8	18.8
175903 1999 YL_{5}	16.5	X	190.26721	352.97698	57.08880	3.21461	0.1945888	0.26289620	2.4133103	20	5 14.9	20.4
175904 1999 YX_{7}	17.4	X	233.16091	143.69512	229.59178	0.60552	0.1834701	0.26537332	2.3982689	20	5 7.4	21.1
175905 1999 YD_{23}	16.7	X	24.02940	350.97945	90.20147	7.10008	0.2309751	0.24483693	2.5305685	20	—	—
175906 1999 YG_{27}	17.1	X	175.54088	71.87487	142.33010	3.04469	0.1551790	0.28194548	2.3033466	20	12 3.0	20.5
175907 2000 AR_{36}	17.0	X	86.04710	176.00424	321.19420	0.94467	0.1537039	0.25633781	2.4542998	20	5 18.1	20.1
175908 2000 AK_{43}	16.4	X	225.88824	139.59938	294.43199	19.32804	0.0607241	0.36328906	1.9452160	20	8 7.0	18.6
175909 2000 AE_{61}	14.9	X	255.97853	101.73967	118.90806	32.19795	0.1201794	0.23867283	2.5739537	20	—	—
175910 2000 AQ_{154}	16.4	X	211.86515	355.05897	40.27044	9.56748	0.2750264	0.26737686	2.3862732	20	5 11.0	20.4
175911 2000 AT_{250}	17.4	X	168.74722	61.12819	334.04601	0.08013	0.2187670	0.25968543	2.4331618	20	4 8.3	21.5
175912 2000 AU_{251}	16.9	X	170.45582	323.21807	95.96672	3.20558	0.1702189	0.26130546	2.4230947	20	5 9.4	20.8
175913 2000 BM_{32}	16.3	X	231.28045	40.68116	130.03376	2.94556	0.1350768	0.22986112	2.6393220	20	12 1.4	19.8
175914 2000 BC_{39}	17.0	X	40.94974	149.78599	298.20302	2.94307	0.1252581	0.24381871	2.5376090	20	—	—
175915 2000 CA_{41}	15.4	X	322.27649	175.00860	337.41648	26.42944	0.1897165	0.23664448	2.5886408	20	—	—
175916 2000 CQ_{48}	16.4	X	86.24354	301.14580	176.09263	8.92903	0.1773302	0.25141626	2.4862253	20	4 27.0	19.5
175917 2000 CX_{67}	16.7	X	94.01824	50.54635	158.80716	1.43011	0.1266145	0.26347684	2.4097635	20	9 2.2	20.0
175918 2000 CE_{102}	16.2	X	42.99895	269.94794	257.95322	5.50895	0.1127418	0.25137887	2.4864718	20	4 15.3	18.9
175919 2000 CL_{112}	15.9	X	200.13483	284.97962	248.38336	7.72764	0.1649378	0.22340537	2.6899259	20	10 24.9	20.2
175920 Francisnimmo	16.6	X	138.99993	208.17872	143.88228	7.32399	0.1764007	0.24243213	2.5472756	20	1 16.8	20.3

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
175921 2000 DM_{1}	18.3	X	159.03116	306.69503	342.78007	20.70027	0.4839835	0.61526429	1.3690782	20	—	—
175922 2000 DY_{12}	16.8	X	340.24076	13.87763	164.35052	4.70184	0.0756148	0.24079888	2.5587808	20	1 19.7	20.0
175923 2000 DW_{16}	16.3	X	78.14017	69.91296	338.20069	28.71419	0.1280062	0.24078003	2.5589143	20	1 12.9	19.9
175924 2000 DK_{38}	16.6	X	255.15636	56.41753	161.56318	5.08921	0.0903580	0.23637305	2.5906222	20	—	—
175925 2000 DU_{40}	17.3	X	31.68245	156.65596	319.83341	2.25966	0.1871293	0.24371872	2.5383029	20	1 15.2	19.3
175926 2000 DV_{47}	16.7	X	339.96594	20.51241	157.33094	8.36810	0.1161917	0.24275545	2.5450133	20	1 12.7	19.7
175927 2000 DW_{54}	16.5	X	323.44904	236.95570	345.62615	4.25227	0.1093079	0.24548396	2.5261199	20	2 19.4	19.6
175928 2000 DE_{79}	16.7	X	30.78509	326.11329	348.72019	19.05173	0.0620378	0.36614175	1.9350991	20	11 6.7	19.2
175929 2000 DB_{88}	15.1	X	157.04518	11.24388	13.54828	2.64100	0.0391709	0.24728814	2.5138181	20	3 4.1	18.3
175930 2000 DM_{91}	16.7	X	140.61950	185.10939	168.03202	4.52485	0.1490103	0.23979742	2.5658999	20	1 16.9	20.4
175931 2000 DD_{105}	16.5	X	22.10660	335.71938	138.39989	4.07533	0.1469879	0.24169492	2.5524527	20	—	—
175932 2000 DT_{117}	16.5	X	26.30934	122.36187	345.05491	2.58881	0.0709103	0.24012358	2.5635759	20	—	—
175933 2000 EA_{10}	16.6	X	299.19415	249.80702	343.05392	4.56309	0.1187288	0.24270011	2.5454002	20	1 30.6	20.1
175934 2000 ES_{26}	16.6	X	294.32497	295.73842	179.64788	23.47311	0.1048777	0.37395868	1.9080378	20	—	—
175935 2000 EX_{52}	17.2	X	12.61847	167.37137	340.51511	1.12201	0.0797275	0.24320196	2.5418973	20	1 28.3	20.1
175936 2000 EJ_{73}	15.1	X	224.43887	144.51297	339.90211	1.95258	0.1402895	0.12561817	3.9485205	20	9 12.1	21.0
175937 2000 EN_{118}	15.7	X	11.15948	80.39851	35.24425	9.31320	0.1131774	0.24086986	2.5582780	20	—	—
175938 2000 EE_{119}	16.6	X	350.91660	158.52732	19.18432	12.34492	0.2099514	0.24430381	2.5342486	20	1 21.2	19.5
175939 2000 EF_{128}	16.7	X	356.55896	330.14292	162.43413	12.36284	0.1846154	0.23920457	2.5701378	20	—	—
175940 2000 EY_{200}	16.7	X	297.91587	78.73981	323.60892	18.07076	0.1064755	0.36619918	1.9348968	20	10 10.8	18.6
175941 2000 FN_{27}	15.8	X	285.05244	116.20866	9.38455	13.24221	0.2031873	0.22799397	2.6537121	20	12 9.7	18.7
175942 2000 FC_{38}	16.5	X	240.87571	121.47221	119.54881	4.45509	0.2245427	0.23231226	2.6207241	20	—	—
175943 2000 GE_{1}	15.9	X	358.83123	129.26723	156.77971	24.16381	0.3362129	0.34795096	2.0019690	20	9 23.7	16.6
175944 2000 GH_{4}	16.8	X	241.04799	11.26765	171.17095	21.39525	0.0606825	0.37293206	1.9115378	20	—	—
175945 2000 GC_{13}	15.7	X	346.30992	163.96698	13.16405	13.14763	0.1296001	0.24156608	2.5533602	20	1 25.7	18.9
175946 2000 GG_{16}	15.9	X	78.90587	265.79599	345.43109	2.90051	0.0661119	0.21378942	2.7699924	20	9 24.8	19.8
175947 2000 GL_{20}	16.6	X	258.43910	59.51815	189.56419	6.09467	0.1253977	0.23678201	2.5876384	20	1 4.3	20.6
175948 2000 GR_{25}	16.5	X	234.85945	42.00997	200.65357	3.43062	0.0857697	0.23292557	2.6161216	20	—	—
175949 2000 GF_{93}	15.7	X	186.05106	97.51300	98.63372	9.98006	0.1130204	0.22092844	2.7099938	20	11 16.0	19.9
175950 2000 GJ_{105}	16.0	X	243.71079	193.58789	73.09703	5.68495	0.2043905	0.23460557	2.6036174	20	1 8.6	20.4
175951 2000 GL_{141}	15.9	X	10.46486	59.00084	128.74940	8.23788	0.1264720	0.24463333	2.5319724	20	3 22.0	18.5
175952 2000 GS_{166}	15.7	X	141.26808	241.36909	25.48492	14.30954	0.0669590	0.22203802	2.7009579	20	12 24.6	20.0
175953 2000 GQ_{182}	16.3	X	357.52726	38.37844	133.71214	6.91648	0.1831564	0.23985644	2.5654790	20	1 26.2	18.8
175954 2000 GE_{186}	16.3	X	286.93213	147.62647	80.35519	5.54119	0.1718454	0.23643452	2.5901731	20	1 3.9	20.0
175955 2000 HS_{19}	16.0	X	48.13194	231.52550	142.74186	6.77246	0.0379114	0.22228898	2.6989247	20	—	—
175956 2000 HC_{59}	16.5	X	299.43613	229.17920	8.80366	4.23754	0.2266199	0.23891740	2.5721968	20	1 23.6	20.1
175957 2000 HQ_{59}	16.4	X	243.81405	351.90634	237.33406	4.41355	0.1806399	0.23044660	2.6348497	20	—	—
175958 2000 HZ_{78}	15.6	X	190.54934	173.05837	95.09122	15.22676	0.2220393	0.22768169	2.6561380	20	—	—
175959 2000 HS_{84}	15.8	X	328.47962	65.57426	144.05616	6.15288	0.1241419	0.23936110	2.5690171	20	2 7.2	18.9
175960 2000 HD_{85}	15.9	X	129.80298	141.94722	120.35774	10.89237	0.1914137	0.21862324	2.7290103	20	12 9.9	20.6
175961 2000 JK_{1}	15.1	X	220.39211	113.78588	176.13940	28.85793	0.3474642	0.22890807	2.6466427	20	1 14.2	20.6
175962 2000 JR_{42}	15.7	X	1.64630	13.82327	42.72506	15.14394	0.0781860	0.22291394	2.6938778	20	—	—
175963 2000 JF_{67}	16.7	X	267.11120	129.24538	37.46821	3.71296	0.0724595	0.22647998	2.6655255	20	—	—
175964 2000 JD_{79}	15.2	X	162.80048	291.81528	266.64454	11.89261	0.1406373	0.21961203	2.7208126	20	10 18.7	19.7
175965 2000 JR_{81}	16.4	X	289.66410	244.84794	37.01496	3.32334	0.1380023	0.24380942	2.5376734	20	3 19.5	19.8
175966 2000 KB_{49}	16.2	X	9.16452	330.37940	154.71745	4.88222	0.2236771	0.23488635	2.6015421	20	—	—
175967 2000 KL_{54}	15.4	X	146.95785	141.33447	126.83677	14.34679	0.1766087	0.21943310	2.7222914	20	12 29.8	20.0
175968 2000 LB_{13}	15.5	X	250.13083	107.27650	178.58018	4.92991	0.2159015	0.23325546	2.6136545	20	2 3.4	19.8
175969 2000 LQ_{22}	16.0	X	143.91011	49.33967	224.65733	10.62833	0.1344130	0.21940508	2.7225233	20	—	—
175970 2000 LM_{24}	15.5	X	107.78697	134.00894	169.91602	13.06808	0.2861994	0.21465549	2.7625367	20	—	—
175971 2000 LW_{34}	16.1	X	204.13977	144.77935	104.92787	14.05308	0.2043810	0.22843411	2.6503023	20	—	—
175972 2000 LX_{37}	16.0	X	35.37914	227.17528	103.85411	7.09711	0.0208928	0.21390320	2.7690101	20	11 7.3	19.8
175973 2000 NB_{13}	16.7	X	102.21729	161.43572	175.22310	3.68613	0.1658187	0.31417931	2.1429777	20	—	—
175974 2000 NC_{13}	14.6	X	176.26453	236.35531	142.07259	23.04145	0.2570019	0.17888179	3.1195500	20	4 4.5	20.4
175975 2000 OB_{4}	16.5	X	60.99350	56.42730	265.54806	4.80825	0.1729406	0.30708599	2.1758522	20	—	—
175976 2000 OJ_{38}	14.9	X	126.73971	136.74720	241.27444	9.37246	0.3069314	0.17206487	3.2014096	20	2 21.8	20.3
175977 2000 OO_{41}	15.4	X	253.36728	88.33517	166.57882	17.69747	0.2769552	0.22839239	2.6506251	20	—	—
175978 2000 PL_{10}	15.3	X	230.52135	248.85506	20.31612	10.03697	0.1816658	0.22407057	2.6845995	20	1 3.3	19.9
175979 2000 PH_{26}	14.4	X	232.65216	49.88010	305.88369	21.36895	0.2030138	0.18238177	3.0795111	20	4 4.6	19.9
175980 2000 QV_{6}	15.5	X	127.11204	128.43604	147.11942	21.09834	0.2275128	0.21274243	2.7790731	20	12 23.0	20.7
175981 2000 QO_{29}	14.7	X	91.63789	289.02128	355.52227	14.40073	0.1397561	0.20512330	2.8474715	20	11 22.0	19.4
175982 2000 QS_{40}	15.1	X	214.30200	18.10097	329.73582	9.53939	0.1408834	0.18173263	3.0868400	20	3 22.1	20.1
175983 2000 QN_{43}	17.0	X	335.85585	198.41082	163.92163	3.79453	0.1995915	0.29856743	2.2170446	20	10 27.3	18.3
175984 2000 QN_{48}	16.8	X	300.21650	237.62505	156.92131	4.31908	0.1537130	0.29712302	2.2242239	20	9 23.5	18.4
175985 2000 QE_{52}	15.5	X	256.76160	40.76217	332.24974	8.76839	0.2625041	0.18828979	3.0147516	20	5 20.9	20.5
175986 2000 QN_{71}	15.3	X	289.62474	41.87254	321.88524	9.02744	0.1061962	0.19254037	2.9702170	20	7 13.7	19.2
175987 2000 QF_{74}	15.4	X	290.81260	205.04308	167.98939	11.15758	0.1430186	0.19290891	2.9664329	20	7 19.4	19.5
175988 2000 QL_{79}	14.8	X	179.60803	226.05335	171.87232	23.51179	0.1992183	0.17927513	3.1149854	20	4 26.6	20.3
175989 2000 QG_{94}	14.9	X	131.96670	108.27354	322.90723	15.23432	0.2282232	0.17683929	3.1435247	20	4 17.3	20.4
175990 2000 QQ_{119}	14.7	X	169.12066	48.37856	335.10991	18.52296	0.2192411	0.17597793	3.1537741	20	3 22.9	20.2
175991 2000 QN_{131}	14.4	X	129.01718	80.02362	2.38269	25.07545	0.2109887	0.17502746	3.1651813	20	4 23.9	19.8
175992 2000 QC_{134}	15.3	X	289.93237	220.89818	139.65455	10.39424	0.2116776	0.19245194	2.9711268	20	6 22.4	19.3
175993 2000 QB_{145}	15.3	X	218.99530	221.34198	160.77743	18.15028	0.2660580	0.18231576	3.0802543	20	5 7.4	20.9
175994 2000 QM_{155}	14.9	X	174.50921	86.08480	279.54703	8.50599	0.2434447	0.17717062	3.1396043	20	3 9.7	20.5
175995 2000 QO_{155}	15.6	X	216.22950	104.02343	184.39481	12.70623	0.2543017	0.22572785	2.6714433	20	1 10.8	20.6
175996 2000 QK_{156}	15.4	X	286.81522	170.00263	196.29470	10.30615	0.1589225	0.19230401	2.9726503	20	7 2.2	19.5
175997 2000 QZ_{159}	15.1	X	294.56573	49.36398	294.54838	13.38989	0.2056076	0.19240791	2.9715801	20	6 7.2	19.1
175998 2000 QN_{168}	17.3	X	49.94398	122.78756	233.77162	3.15017	0.1870682	0.30766832	2.1731058	20	—	—
175999 2000 QW_{173}	15.0	X	167.27628	102.46026	279.81734	6.94748	0.2499598	0.17738199	3.1371096	20	3 24.2	20.5
176000 2000 QL_{213}	14.9	X	320.80914	288.00202	359.85387	15.59830	0.0531224	0.18671444	3.0316852	20	5 18.8	19.3