

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
68001 2000 XS ₃₃	14.8	X	227.42711	301.49065	31.50585	7.14616	0.1422689	0.27074967	2.3664142	20	3 16.0	18.4
68002 2000 XK ₃₄	13.5	X	111.43288	234.21641	328.00618	15.82674	0.2598713	0.17850700	3.1239150	20	9 9.7	18.8
68003 2000 XJ ₃₅	14.9	X	162.25857	173.54005	327.85087	14.01841	0.0538668	0.23030949	2.6358953	20	8 14.4	18.6
68004 2000 XD ₃₈	15.2	X	129.82321	359.70201	14.03083	14.49418	0.1084362	0.25870024	2.4393353	20	1 28.7	18.7
68005 2000 XQ ₄₇	15.6	X	339.91414	79.95740	287.07208	9.07756	0.0535908	0.29349042	2.2425395	20	10 21.6	18.2
68006 2000 XR ₄₈	15.5	X	50.20099	321.59738	2.94717	10.02712	0.1123005	0.29539400	2.2328948	20	12 16.5	18.6
68007 2000 XD ₅₂	15.3	X	195.20608	14.93298	340.47021	5.80432	0.1290421	0.26991008	2.3713190	20	3 9.9	18.9
68008 2000 XB ₅₄	15.8	X	333.19832	237.80300	112.98156	6.47410	0.1861134	0.29285202	2.2457973	20	9 29.1	17.3
68009 2000 YD ₄	15.2	X	39.80823	113.83650	283.89735	4.40598	0.1137765	0.30290331	2.1958367	20	—	—
68010 2000 YL ₆	15.8	X	7.50472	41.28127	310.56725	5.15026	0.2049031	0.29486046	2.2355876	20	12 11.6	18.1
68011 2000 YK ₇	15.3	X	59.48029	83.53101	310.49054	5.40774	0.1181230	0.25558366	2.4591253	20	—	—
68012 2000 YQ ₇	14.4	X	281.68227	233.75112	87.64634	18.54618	0.12729413	0.22493694	2.6777017	20	5 3.5	18.4
68013 2000 YT ₇	14.9	X	124.18961	246.12100	102.64375	14.24549	0.1501279	0.20923850	2.8100130	20	—	—
68014 2000 YF ₁₀	12.9	X	14.95198	341.48872	305.26146	20.67251	0.1085796	0.17350382	3.1836845	20	8 4.9	17.3
68015 2000 YR ₁₀	16.0	X	175.17777	246.34848	135.13400	4.64742	0.1815452	0.27183377	2.3601183	20	3 27.6	19.7
68016 2000 YW ₁₀	14.7	X	20.00078	320.68037	296.68736	13.78038	0.0728190	0.22728089	2.6592598	20	7 14.7	17.8
68017 2000 YX ₁₀	15.4	X	16.32228	90.55871	293.25041	10.68330	0.1267122	0.24713486	2.5148575	20	—	—
68018 2000 YQ ₁₂	16.1	X	170.18862	104.20531	299.12090	3.30053	0.1797221	0.27192629	2.3595829	20	4 16.2	19.9
68019 2000 YS ₁₅	15.5	X	102.51164	59.05539	1.48967	4.17893	0.1881430	0.26311502	2.4119722	20	3 2.1	18.3
68020 2000 YJ ₁₇	15.4	X	330.93630	70.31051	326.21691	4.88900	0.1936148	0.29366016	2.2416753	20	12 7.6	17.0
68021 Taiki	15.8	X	186.60475	295.51163	115.49126	2.85772	0.2125614	0.27577539	2.3375759	20	5 13.5	19.6
68022 2000 YP ₁₈	14.6	X	192.47614	194.42156	305.95932	5.49404	0.2682731	0.23092030	2.6312451	20	9 2.1	19.2
68023 2000 YW ₁₈	13.3	X	107.84524	199.44125	326.66957	21.72110	0.0529422	0.16916132	3.2379390	20	7 13.0	18.2
68024 2000 YY ₁₉	15.3	X	204.97792	89.22494	313.32808	5.43027	0.2139418	0.27683648	2.3315989	20	5 15.8	19.2
68025 2000 YV ₂₁	14.7	X	120.91594	106.17693	303.63602	7.13622	0.1673511	0.26503126	2.4003320	20	3 3.7	18.0
68026 2000 YU ₂₄	14.0	X	47.34966	104.71649	104.04303	2.99895	0.1452247	0.17150582	3.2083628	20	6 26.7	18.1
68027 2000 YN ₂₆	15.1	X	144.00993	205.66073	183.90303	10.09865	0.1960462	0.21884609	2.7271573	20	3 11.1	19.6
68028 2000 YD ₂₈	15.5	X	213.74021	146.09130	197.63261	13.41200	0.2090239	0.22375803	2.6870987	20	3 13.3	20.1
68029 2000 YG ₂₈	14.7	X	106.35667	61.53675	168.92290	16.86684	0.1655650	0.18014746	3.1049214	20	10 8.1	19.7
68030 2000 YL ₂₈	14.7	X	347.06267	56.38086	143.59399	16.17474	0.2327391	0.21557686	2.7546597	20	2 13.1	17.3
68031 2000 YK ₂₉	18.1	X	319.40054	31.82060	123.64946	15.17377	0.1285286	0.61036399	1.3763961	20	—	—
68032 2000 YV ₃₀	14.6	X	338.42791	214.64707	313.70359	14.17481	0.0819168	0.20554370	2.8435876	20	1 13.1	18.3
68033 2000 YQ ₃₂	15.6	X	313.62535	219.70711	141.62467	4.64428	0.2076023	0.28588438	2.2821408	20	8 17.9	17.1
68034 2000 YV ₃₃	15.6	X	95.82094	199.20825	199.00475	4.44418	0.1809523	0.25917140	2.4363780	20	1 19.8	18.4
68035 2000 YB ₃₄	14.8	X	158.85914	328.34221	137.52576	13.76955	0.1181606	0.22336880	2.6902195	20	6 25.5	19.1
68036 2000 YH ₃₅	14.4	X	299.93210	126.19628	278.42328	12.75026	0.1005990	0.23996563	2.5647007	20	9 22.1	17.7
68037 2000 YU ₃₅	15.5	X	252.94134	93.23406	243.39824	5.32591	0.0666889	0.27340254	2.3510815	20	4 21.2	18.5
68038 2000 YP ₃₉	15.0	X	97.96338	234.50958	289.35581	8.67505	0.0801028	0.22500195	2.6771859	20	6 28.7	18.7
68039 2000 YQ ₃₉	14.7	X	303.99284	129.92225	118.94547	13.99055	0.0529174	0.21510371	2.7586978	20	3 14.6	18.6
68040 2000 YW ₄₁	15.7	X	251.57431	234.12189	108.29051	5.50915	0.1737777	0.27550101	2.3391276	20	4 19.0	19.2
68041 2000 YE ₄₂	15.7	X	315.80554	63.72418	275.09741	4.35081	0.2145302	0.28434483	2.2903710	20	7 11.8	17.1
68042 2000 YR ₄₂	15.5	X	66.50911	112.87704	260.40735	2.34336	0.1455710	0.25322883	2.4743471	20	—	—
68043 2000 YT ₄₂	15.9	X	226.24070	306.51753	108.75053	5.89829	0.1092908	0.28033355	2.3121677	20	7 2.9	18.9
68044 2000 YX ₄₂	15.5	X	174.02789	208.95212	149.81701	5.25249	0.1805808	0.26616615	2.3935041	20	2 26.1	19.2
68045 2000 YN ₄₄	14.6	X	43.54009	339.11465	282.08665	13.31826	0.0711162	0.23111230	2.6297876	20	8 19.2	18.1
68046 2000 YP ₄₅	15.3	X	159.14624	201.54218	175.31174	2.74544	0.2366164	0.26741606	2.3860400	20	3 9.1	19.2
68047 2000 YK ₄₇	15.3	X	71.35201	252.57084	164.21294	2.08523	0.1486212	0.25842524	2.4410655	20	—	—
68048 2000 YE ₄₈	15.7	X	98.20604	214.99267	150.07828	3.00473	0.2140611	0.25627691	2.4546886	20	—	—
68049 2000 YK ₄₉	15.3	X	127.17574	80.41178	285.42914	6.69631	0.1830552	0.26002815	2.4310234	20	1 19.3	18.6
68050 2000 YR ₅₀	14.4	X	255.52338	52.40708	281.23611	11.09586	0.1967345	0.27266509	2.3553187	20	3 31.7	18.3
68051 2000 YU ₅₁	15.7	X	260.19802	41.87214	299.70659	3.16512	0.2661796	0.27703716	2.3304728	20	4 12.8	19.3
68052 2000 YD ₅₂	15.8	X	133.51294	71.37319	279.84770	0.54907	0.1853961	0.25923444	2.4359830	20	1 8.9	19.2
68053 2000 YJ ₅₃	15.8	X	184.00968	319.19601	95.99530	3.30376	0.2103560	0.27502038	2.3418521	20	5 16.5	19.6
68054 2000 YQ ₅₄	15.6	X	89.00839	311.48169	102.50388	3.58943	0.1681802	0.26076340	2.4264516	20	1 30.6	18.3
68055 2000 YF ₅₆	15.6	X	302.70858	236.51017	113.28686	7.28107	0.1712994	0.28294913	2.2978966	20	7 9.2	17.8
68056 2000 YM ₅₆	15.9	X	95.31601	185.42271	191.63930	2.52844	0.1878650	0.25775308	2.4453075	20	—	—
68057 2000 YL ₆₀	14.0	X	90.35060	306.37677	290.57965	15.41901	0.2125781	0.17960501	3.1111700	20	9 24.2	19.2
68058 2000 YV ₆₀	15.5	X	196.28826	222.39048	162.75192	2.51846	0.2299589	0.27300960	2.3529922	20	4 18.7	19.5
68059 2000 YC ₆₁	13.9	X	105.76801	293.53642	289.56366	14.90042	0.1286589	0.18090011	3.0963033	20	9 15.1	19.0
68060 2000 YT ₆₂	13.9	X	115.19263	80.50050	121.64132	17.75862	0.0874683	0.17955083	3.1117959	20	9 8.0	18.8
68061 2000 YF ₆₃	16.3	X	172.83713	112.37043	306.36143	1.16497	0.2159647	0.27289596	2.3539901	20	5 10.5	20.3
68062 2000 YT ₆₄	15.5	X	243.41422	154.59642	150.37910	2.92648	0.1091546	0.21522669	2.7576467	20	3 1.7	19.8
68063 2000 YJ ₆₆	15.5	X	225.77153	50.30509	308.86449	5.72178	0.4578922	0.27670737	2.3323241	20	3 29.4	20.4
68064 2000 YU ₆₇	14.9	X	77.16351	294.68627	175.55690	6.98410	0.1287909	0.26186618	2.4196345	20	3 24.1	17.4
68065 2000 YG ₆₈	15.0	X	213.38323	329.64654	143.16817	4.14342	0.2231151	0.23128489	2.6284791	20	8 21.2	19.1
68066 2000 YE ₇₁	16.0	X	147.48273	305.22590	142.56604	2.88321	0.1898312	0.27450208	2.3447990	20	5 25.4	19.6
68067 2000 YM ₇₂	14.6	X	195.35253	239.38075	268.70665	20.86325	0.0624812	0.23907959	2.5710334	20	9 19.4	18.8
68068 2000 YF ₇₃	15.2	X	206.04930	168.71918	259.46982	8.93197	0.0718066	0.28062526	2.3105651	20	6 29.4	18.4
68069 2000 YN ₇₃	15.5	X	171.12429	74.24783	248.20607	2.66799	0.0961460	0.26211435	2.4181070	20	1 3.2	18.7
68070 2000 YR ₇₃	13.9	X	92.04219	90.18674	82.45588	16.36683	0.0478516	0.17683445	3.1435820	20	6 25.7	18.3
68071 2000 YV ₈₀	15.5	X	287.61295	101.20516	230.79157	3.92947	0.2271671	0.28232353	2.3012899	20	5 7.1	18.3
68072 2000 YV ₈₄	15.9	X	148.03772	258.25394	134.50196	4.59630	0.1902761	0.26842026	2.3800853	20	3 17.2	19.5
68073 2000 YZ ₈₄	15.4	X	142.97976	237.78446	128.79237	7.26720	0.2046429	0.26453955	2.4033055	20	2 9.1	19.0
68074 2000 YH ₈₅	15.9	X										

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
68081 2000 YQ ₉₇	15.8	X	203.95978	15.43103	97.32527	1.22149	0.1045969	0.23125980	2.6286693	20	8 21.6	19.5
68082 2000 YF ₁₀₁	15.4	X	238.34168	284.57463	122.69331	9.96766	0.1604369	0.28330112	2.2959928	20	6 30.4	18.5
68083 2000 YH ₁₀₁	15.5	X	227.86847	217.89507	152.08851	7.73716	0.1596881	0.27753846	2.3276657	20	5 2.1	19.1
68084 2000 YY ₁₀₂	14.7	X	126.52330	348.52950	142.95261	14.94598	0.0554971	0.22243370	2.6977539	20	6 19.1	18.8
68085 2000 YH ₁₀₄	12.8	X	114.53992	246.82712	338.89234	25.18551	0.2364587	0.17614891	3.1517330	20	9 30.7	18.4
68086 2000 YX ₁₀₄	14.5	X	230.38348	334.70358	128.38422	13.29811	0.2574293	0.23191820	2.6236918	20	8 22.9	18.6
68087 2000 YP ₁₀₅	13.5	X	257.42894	0.84221	4.90960	12.43123	0.0554164	0.21780855	2.7358111	20	6 7.8	17.5
68088 2000 YC ₁₀₇	15.5	X	233.00006	298.08582	78.74872	6.77404	0.1325690	0.27782811	2.3260476	20	5 17.2	18.8
68089 2000 YS ₁₀₈	15.6	X	210.86910	62.56254	345.05701	2.48452	0.1554760	0.27758818	2.3273877	20	5 31.8	19.0
68090 2000 YN ₁₀₉	15.6	X	212.51260	328.46604	156.83599	8.06852	0.1411513	0.23528822	2.5985790	20	9 13.6	19.4
68091 2000 YR ₁₀₉	15.6	X	184.15739	35.76284	306.05480	6.81956	0.1127555	0.26370609	2.4083666	20	2 10.5	19.3
68092 2000 YP ₁₀₉	15.6	X	192.66562	297.04517	69.99177	3.24314	0.2205899	0.27056416	2.3674957	20	3 25.3	19.5
68093 2000 YC ₁₁₀	15.7	X	285.37087	326.31260	78.77606	5.47438	0.1515697	0.28727391	2.2747758	20	9 10.8	17.8
68094 2000 YU ₁₁₀	15.5	X	202.11092	305.66573	65.90798	3.97749	0.2522992	0.27288511	2.3540526	20	4 7.1	19.6
68095 2000 YJ ₁₁₂	15.2	X	292.66383	9.24251	338.42666	5.09121	0.1588653	0.28002402	2.3138713	20	6 19.5	17.8
68096 2000 YW ₁₁₃	15.5	X	198.18330	65.17371	299.85039	5.00765	0.1284334	0.27205046	2.3588649	20	3 23.0	19.5
68097 2000 YJ ₁₁₅	15.0	X	270.11605	333.76821	101.01927	8.41046	0.0952601	0.23704506	2.5857237	20	10 8.5	18.3
68098 2000 YR ₁₁₆	14.1	X	160.37715	41.51630	120.44431	17.70553	0.0648793	0.17951790	3.1121764	20	9 5.9	18.9
68099 2000 YX ₁₁₈	14.4	X	67.11643	177.57728	311.59334	11.42683	0.0699598	0.21496404	2.7598925	20	3 24.2	18.1
68100 2000 YV ₁₂₀	16.0	X	338.98094	276.42855	51.83283	4.41587	0.1514570	0.28799520	2.2709760	20	8 30.6	17.7
68101 2000 YK ₁₂₁	15.2	X	271.38482	206.96236	150.06394	23.65097	0.1728609	0.28521750	2.2856967	20	6 4.4	18.7
68102 2000 YZ ₁₂₁	15.3	X	354.84790	211.85076	195.41636	13.15699	0.1539196	0.24584814	2.5236247	20	—	—
68103 2000 YM ₁₂₂	14.6	X	236.48178	281.62306	192.94517	12.16554	0.1393308	0.23958483	2.5674175	20	9 26.2	18.2
68104 2000 YU ₁₂₅	14.4	X	201.19850	219.15158	345.49051	10.81927	0.0757140	0.19222940	2.9734194	20	12 5.8	19.0
68105 2000 YV ₁₂₆	14.2	X	319.43849	321.49791	327.40595	10.91789	0.1556629	0.21996273	2.7179199	20	5 4.5	17.6
68106 2000 YK ₁₂₈	15.1	X	229.74039	16.32757	346.06226	5.27780	0.2161204	0.27337375	2.3512466	20	4 15.8	18.9
68107 2000 YG ₁₃₂	15.4	X	260.57108	88.94649	355.23822	3.67022	0.0882796	0.23618740	2.5919796	20	9 25.2	18.7
68108 2000 YN ₁₃₂	13.6	X	313.65673	86.34753	315.27415	14.39115	0.1268069	0.23324064	2.6137652	20	10 7.6	16.9
68109 Naomipasachoff	14.9	X	132.40096	170.93146	119.00210	8.73039	0.1020862	0.25372738	2.4711048	20	—	—
68110 2000 YL ₁₃₅	16.2	X	304.58156	255.59187	151.05617	5.48811	0.1877498	0.29337995	2.2431024	20	10 22.9	17.6
68111 2000 YT ₁₃₉	15.3	X	302.01228	245.93389	122.11554	11.62417	0.0708568	0.23018052	2.6368798	20	8 15.8	18.5
68112 2000 YC ₁₄₃	12.7	X	269.20581	23.88224	48.89715	5.05379	0.0827006	0.08229432	5.2346721	20	9 4.9	19.6
68113 2000 YE ₁₄₃	15.8	X	124.09506	90.49566	244.70554	4.41703	0.0806983	0.25659278	2.4526736	20	—	—
68114 Deákferenc	15.5	X	230.74751	45.21952	286.16355	3.59829	0.2488739	0.27190380	2.3597131	20	3 7.9	19.6
68115 2001 AA ₂	15.7	X	348.44292	326.55183	40.51726	4.84745	0.1629154	0.29151924	2.2526371	20	11 22.3	17.6
68116 2001 AZ ₃	15.7	X	211.03244	186.64769	209.56870	3.35802	0.1344085	0.27557029	2.3387355	20	5 18.8	19.2
68117 2001 AF ₅	14.6	X	125.77302	285.76662	157.56169	4.56573	0.0747134	0.21678483	2.7444172	20	4 18.3	18.5
68118 2001 AO ₅	14.9	X	297.10891	153.83153	245.67160	3.26341	0.1329006	0.23584069	2.5945192	20	9 11.4	17.7
68119 2001 AX ₅	15.6	X	144.52940	170.09216	225.69777	4.47269	0.2428133	0.26846504	2.3798206	20	3 18.9	19.5
68120 2001 AT ₁₀	15.7	X	214.70680	207.20013	160.26906	4.10501	0.1808497	0.27213665	2.3583668	20	4 13.8	19.4
68121 2001 AS ₁₁	15.6	X	331.28769	142.18401	243.86669	4.82116	0.1871545	0.24004625	2.5641264	20	10 30.3	17.7
68122 2001 AY ₁₁	15.7	X	349.77353	245.40052	184.44972	2.74991	0.1120507	0.24735725	2.5133499	20	—	—
68123 2001 AU ₁₂	15.5	X	265.26753	294.46395	153.68647	4.87124	0.1454647	0.23757107	2.5819056	20	9 30.3	18.5
68124 2001 AF ₁₅	15.0	X	350.83708	6.50772	141.39339	15.67496	0.0855215	0.20478235	2.8506312	20	1 2.8	18.8
68125 2001 AO ₁₅	14.7	X	71.25827	4.99754	150.11236	5.71635	0.0564964	0.21692333	2.7432489	20	5 9.9	18.4
68126 2001 AY ₁₅	15.3	X	1.21874	226.58651	167.51233	2.55557	0.2171729	0.24583157	2.5237381	20	—	—
68127 2001 AZ ₁₅	14.9	X	264.72491	102.49641	274.54166	4.06101	0.2588915	0.28136656	2.3065050	20	6 5.9	18.1
68128 2001 AC ₁₇	14.6	X	269.79424	264.33789	312.64433	13.01520	0.1831880	0.23016042	2.6370333	20	7 19.3	18.2
68129 2001 AH ₁₇	14.3	X	114.49933	83.68099	320.27751	11.51487	0.2362316	0.26130046	2.4231257	20	2 27.7	17.7
68130 2001 AO ₁₇	12.8	X	342.47311	10.44172	319.38515	13.07843	0.1852552	0.22600484	2.6692601	20	8 23.8	15.2
68131 2001 AR ₁₇	13.9	X	226.34057	256.08724	314.11387	8.96679	0.0537249	0.19189609	2.9768615	20	—	—
68132 2001 AG ₁₈	13.7	X	153.23863	203.10977	347.29344	14.40409	0.1187397	0.17787681	3.1312890	20	9 26.3	18.8
68133 2001 AQ ₁₈	13.5	X	352.08548	34.49524	249.53118	13.16837	0.0445017	0.23338888	2.6126583	20	11 17.2	17.0
68134 2001 AT ₁₈	14.2	X	303.97148	119.71781	279.55413	26.60169	0.2388201	0.28642192	2.2792846	20	8 24.9	16.7
68135 2001 AJ ₂₀	15.6	X	136.19122	3.31808	354.50358	3.62315	0.2667943	0.26187017	2.4196100	20	1 29.9	19.3
68136 2001 AZ ₂₀	15.1	X	107.36266	226.82791	149.40384	6.72064	0.0780464	0.25909356	2.4368659	20	—	—
68137 2001 AF ₂₄	14.2	X	100.61779	93.32563	125.36921	17.07612	0.0584268	0.17999515	3.1066728	20	9 8.8	18.9
68138 2001 AU ₂₄	13.8	X	24.99621	106.38386	162.23510	9.22943	0.2642763	0.17441759	3.1725553	20	8 26.8	17.3
68139 2001 AV ₂₄	15.4	X	260.80116	173.93648	248.13268	6.35032	0.0891505	0.28455120	2.2892634	20	8 29.1	18.1
68140 2001 AA ₂₇	15.3	X	32.45216	330.37137	3.15362	6.29707	0.1842575	0.29377887	2.2410713	20	12 16.7	18.3
68141 2001 AX ₂₉	15.6	X	229.25885	313.26319	63.17357	7.26328	0.1645142	0.27758715	2.3273935	20	5 9.7	19.1
68142 2001 AX ₃₁	14.7	X	270.58853	30.52705	60.92769	5.61773	0.0748693	0.29108780	2.2548624	20	11 4.5	17.1
68143 2001 AK ₃₆	15.3	X	150.49416	357.09963	353.99159	6.45384	0.1842710	0.26036485	2.4289271	20	1 28.1	19.0
68144 Mizser	15.2	X	271.45866	211.65902	104.21713	4.10999	0.0575047	0.21986659	2.7187121	20	4 24.2	18.9
68145 2001 AF ₄₄	14.5	X	263.52818	65.28283	349.85770	22.00978	0.1978513	0.28540736	2.2846829	20	8 16.8	17.5
68146 2001 AJ ₄₄	15.1	X	215.37259	42.91637	359.73326	21.19477	0.2711948	0.27737310	2.3285907	20	5 15.6	19.6
68147 2001 AW ₄₄	13.1	X	92.59925	292.69583	329.45299	15.48734	0.2095381	0.18037792	3.1022762	20	10 27.0	18.4
68148 2001 AG ₄₅	13.3	X	155.96125	222.15332	330.80887	17.66648	0.1804303	0.18101936	3.0949433	20	9 27.9	18.8
68149 2001 AM ₄₅	15.4	X	348.99453	313.88668	18.40675	4.14163	0.2042763	0.28854041	2.2681144	20	10 3.7	16.8
68150 2001 AC ₄₉	15.6	X	146.90332	280.60044	60.20190	7.10847	0.1390640	0.26077057	2.4264071	20	1 5.0	19.0
68151 2001 AO ₄₉	15.7	X	174.17235	262.07003	179.24554	4.86300	0.0958631	0.22348031	2.6893245	20	6 9.2	19.9
68152 2001 BO	14.6	X	258.93690	310.73595	117.31549	15.49567	0.0685689	0.23163220	2.6258511	20	9 8.6	18.3
68153 2001 BV	15.2	X	202.36150	75.86175	355.04550	7.37748	0.0885901	0.27524378	2.3405848	20	6 28.4	18.6
68154 2001 BD ₁	14.6	X	154.82608									

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
68161 2001 BQ ₂₁	15.1	X	168.70145	203.00122	85.82303	12.80151	0.2157542	0.25814101	2.4428570	20	—	—
68162 2001 BY ₂₁	15.8	X	289.63715	156.10685	214.08170	1.72030	0.1356343	0.28513808	2.2861211	20	7 23.4	18.0
68163 2001 BJ ₂₂	15.5	X	341.13950	296.68966	69.79728	8.26725	0.2309378	0.29175110	2.2514435	20	11 18.2	16.8
68164 2001 BD ₂₆	14.9	X	27.75127	9.03902	134.92842	7.87306	0.0694862	0.20970028	2.8058861	20	2 22.3	18.2
68165 2001 BH ₂₈	15.1	X	174.65983	147.54368	290.07220	2.81449	0.0550360	0.22138833	2.7062395	20	6 3.8	18.9
68166 2001 BM ₂₈	15.0	X	281.78019	288.56687	130.17959	17.98818	0.1733060	0.23588744	2.5941764	20	9 13.3	18.2
68167 2001 BV ₂₈	15.0	X	165.71391	272.80463	142.93263	6.74028	0.0472789	0.21703554	2.7423033	20	4 28.5	19.0
68168 2001 BN ₃₀	15.2	X	124.91535	259.40017	153.40926	9.52844	0.2695518	0.26558148	2.3970156	20	3 29.1	18.9
68169 2001 BB ₃₂	15.2	X	180.97279	303.84869	140.33363	13.64954	0.1007013	0.22282101	2.6946268	20	6 20.8	19.5
68170 2001 BS ₃₂	15.3	X	297.36825	295.89137	146.81055	9.50929	0.2604331	0.24134364	2.5549289	20	11 6.5	17.5
68171 2001 BL ₃₃	14.0	X	205.31160	217.19482	320.43661	10.32646	0.1025552	0.18605486	3.0388461	20	11 1.5	18.8
68172 2001 BE ₃₄	13.9	X	247.06713	182.94305	331.11640	9.31212	0.0302918	0.18864737	3.0109407	20	12 3.9	18.3
68173 2001 BG ₃₇	15.5	X	199.76691	244.74129	146.95992	4.86251	0.0795252	0.22060640	2.7126305	20	5 5.6	19.5
68174 2001 BI ₃₉	14.7	X	175.65373	332.29331	256.11853	5.33322	0.0905730	0.19001075	2.9965206	20	12 7.2	19.0
68175 2001 BL ₄₅	14.8	X	350.38948	151.61396	265.52880	4.21958	0.2481175	0.24536546	2.5269332	20	—	—
68176 2001 BK ₄₆	14.8	X	89.05990	286.74780	220.43918	8.45644	0.1382231	0.21876304	2.7278475	20	6 3.3	18.5
68177 2001 BJ ₄₆	13.9	X	270.02687	51.72016	264.37608	12.72961	0.2264058	0.21771599	2.7365864	20	3 23.9	18.4
68178 2001 BJ ₄₇	14.1	X	292.27184	25.53432	265.13625	14.18116	0.1802813	0.21572958	2.7533595	20	3 21.8	18.4
68179 2001 BO ₄₇	13.9	X	359.40372	324.70908	319.04649	9.76365	0.1086703	0.17023812	3.2242708	20	7 16.3	17.9
68180 2001 BB ₄₈	13.7	X	184.51577	44.70505	332.37072	8.39697	0.1764238	0.21264381	2.7799323	20	3 28.7	18.4
68181 2001 BK ₄₉	14.2	X	358.77260	15.97343	325.18823	12.47119	0.1823690	0.23092037	2.6312446	20	10 11.7	17.1
68182 2001 BS ₄₉	14.6	X	51.97123	64.71927	269.60452	12.62571	0.1857952	0.23999462	2.5644941	20	12 27.6	18.2
68183 2001 BL ₅₀	15.7	X	150.68841	203.48373	178.48870	9.75153	0.2907799	0.26573064	2.3961185	20	3 11.8	19.9
68184 2001 BO ₅₀	15.3	X	208.64213	186.29093	181.63612	9.60383	0.2302202	0.27077743	2.3662524	20	4 7.5	19.3
68185 2001 BX ₅₀	14.4	X	38.02956	349.03207	2.58890	14.09900	0.1807667	0.23871028	2.5736845	20	—	—
68186 2001 BZ ₅₁	15.6	X	292.94225	183.90361	121.15406	3.18005	0.0707420	0.22026910	2.7153990	20	5 5.8	19.1
68187 2001 BY ₅₃	14.7	X	291.67456	185.22585	143.24942	16.42523	0.1328210	0.22388925	2.6860487	20	5 29.2	18.5
68188 2001 BZ ₅₇	15.7	X	164.84157	154.44371	300.38050	2.92523	0.0487878	0.22250506	2.6971771	20	6 14.9	19.5
68189 2001 BC ₅₈	15.4	X	89.96921	229.98321	140.88429	9.04491	0.1965160	0.25349593	2.4726087	20	—	—
68190 2001 BC ₅₈	14.3	X	140.17037	281.44845	300.11361	5.61925	0.0186307	0.18532565	3.0468122	20	10 19.5	18.7
68191 2001 BG ₆₀	13.3	X	171.84439	283.71027	337.43549	9.79025	0.0730140	0.18989611	2.9977265	20	—	—
68192 2001 BV ₆₁	13.9	X	57.54220	339.95073	341.88323	14.54819	0.1101608	0.23592546	2.5938977	20	12 6.3	17.9
68193 2001 BA ₆₂	14.6	X	159.73536	54.75170	168.21471	11.53772	0.0598267	0.18722785	3.0261404	20	11 17.7	19.3
68194 2001 BF ₆₄	15.7	X	226.16531	244.21543	161.52228	9.66924	0.1890768	0.27668418	2.3324544	20	6 12.8	19.4
68195 2001 BT ₆₄	14.6	X	130.24133	54.96819	338.98565	10.78736	0.0739509	0.20567601	2.8423679	20	2 21.6	18.5
68196 2001 BP ₆₅	13.9	X	181.06299	324.25014	277.34064	9.24082	0.0708104	0.19128647	2.9831829	20	12 29.8	18.2
68197 2001 BU ₆₅	13.6	X	70.69433	303.80533	306.43425	16.83716	0.1499170	0.17543801	3.1602414	20	9 11.9	18.4
68198 2001 BP ₇₁	14.6	X	159.43983	227.47330	334.87382	2.98930	0.0598040	0.18447838	3.0561341	20	10 19.5	19.1
68199 2001 BL ₇₄	15.7	X	338.80008	109.60411	323.87764	6.95547	0.1943213	0.24488796	2.5302170	20	—	—
68200 2001 BQ ₇₆	14.7	X	71.42451	334.64156	292.15614	1.24855	0.0565984	0.18086122	3.0967471	20	9 28.9	18.9
68201 2001 BP ₇₇	15.3	X	351.24253	151.94342	247.38543	6.27227	0.1694625	0.24366697	2.5386623	20	12 28.9	17.9
68202 2001 BM ₇₈	14.7	X	120.89625	19.12134	260.90531	10.05798	0.0845314	0.19051193	2.9912630	20	12 13.4	19.3
68203 2001 BC ₈₀	15.8	X	176.81514	262.88862	126.81957	1.88801	0.1888793	0.26672846	2.3901389	20	4 8.0	19.7
68204 2001 BR ₈₀	15.0	X	347.65171	68.86823	152.00636	9.49187	0.0835070	0.21513643	2.7584180	20	4 3.5	18.4
68205 2001 CS	14.3	X	271.54636	253.04683	123.07439	28.24118	0.2452567	0.23325105	2.6136874	20	6 19.2	18.4
68206 2001 CX ₂	13.8	X	150.84228	243.24083	346.23204	12.32736	0.1301883	0.18436621	3.0573735	20	11 8.3	18.9
68207 2001 CE ₃	14.4	X	69.15237	164.66075	137.20457	11.47983	0.0560369	0.18432275	3.0578541	20	11 13.3	18.9
68208 2001 CX ₃	15.2	X	344.76666	329.65356	96.40374	6.30858	0.2098132	0.24513042	2.5285482	20	—	—
68209 2001 CV ₆	14.6	X	269.45924	298.56051	346.02552	8.34033	0.1317487	0.20992050	2.8039234	20	3 2.6	18.5
68210 2001 CQ ₇	14.2	X	112.44850	210.65920	345.21712	9.95617	0.0862456	0.17533266	3.1615072	20	8 24.9	18.9
68211 2001 CH ₁₂	14.5	X	79.89245	166.07996	122.36987	10.85619	0.0442007	0.18559447	3.0438694	20	11 8.7	19.0
68212 2001 CM ₁₃	13.5	X	86.75879	113.78156	119.38894	12.32302	0.1654680	0.17580600	3.1585302	20	9 23.9	18.4
68213 2001 CA ₂₂	15.7	X	186.16456	3.67426	67.26960	2.74442	0.1004011	0.22371794	2.6874198	20	6 8.0	19.8
68214 2001 CF ₂₃	14.7	X	222.50223	246.87474	306.69113	8.54829	0.1217995	0.19314007	2.9640654	20	12 27.3	18.8
68215 2001 CK ₂₅	16.1	X	208.83632	291.28003	99.65117	3.23153	0.2088616	0.27267903	2.3552385	20	5 7.2	19.9
68216 2001 CV ₂₆	16.5	X	341.73037	48.74099	18.14832	17.99345	0.3265396	0.65014432	1.3196625	20	—	—
68217 2001 CX ₂₆	13.9	X	37.04449	128.56677	127.20420	15.19042	0.0525594	0.16998823	3.2274298	20	7 30.8	18.1
68218 Nealgalt	14.9	X	76.57873	305.56667	355.06417	2.77903	0.1107732	0.18630123	3.0361664	20	11 22.9	19.4
68219 2001 CJ ₃₈	13.6	X	41.94429	256.85744	327.73877	25.06999	0.2592728	0.17229322	3.1985803	20	8 2.2	17.7
68220 2001 CT ₃₈	14.0	X	103.67502	49.71542	332.25930	20.25688	0.2287825	0.25911011	2.4367621	20	1 23.9	17.2
68221 2001 CP ₄₇	15.7	X	185.83427	48.67060	9.24049	6.06734	0.1101640	0.27324470	2.3519868	20	5 19.7	19.3
68222 2001 CQ ₄₇	14.2	X	177.81643	333.95415	336.89222	12.31451	0.0722680	0.20453367	2.8529413	20	1 5.7	18.6
68223 2001 DJ	13.7	X	352.72758	309.54231	342.36261	21.48036	0.0592496	0.17021817	3.2245227	20	7 21.8	18.3
68224 2001 DG ₁₁	14.2	X	230.32706	321.89524	138.58284	12.34114	0.0458663	0.17990943	3.1076595	20	9 8.3	18.7
68225 2001 DV ₁₂	14.2	X	74.74331	111.03634	174.99476	13.19183	0.1646004	0.18111555	3.0938474	20	11 12.2	19.0
68226 2001 DM ₁₈	15.3	X	184.10354	6.66405	67.33974	7.23906	0.1796012	0.27244192	2.3566048	20	6 9.1	19.1
68227 2001 DZ ₂₀	13.8	X	107.07707	256.37274	27.08722	10.25397	0.1753613	0.18221407	3.0814002	20	12 6.2	19.0
68228 2001 DD ₂₂	14.1	X	305.55582	343.59747	27.58670	16.58330	0.1947460	0.22684177	2.6626906	20	8 17.4	17.3
68229 2001 DL ₃₀	16.3	X	351.09125	128.81020	78.34487	1.43893	0.1544642	0.25983352	2.4322372	20	3 5.9	18.5
68230 2001 DT ₃₂	14.3	X	25.67768	309.98234	349.71739	12.45648	0.0414765	0.17735097	3.1374754	20	9 9.7	18.4
68231 2001 DO ₃₃	13.8	X	315.96098	343.31031	6.33972	13.37987	0.1890256	0.22535280	2.6744065	20	8 2.8	16.8
68232 2001 DM ₃₅	14.3	X	286.08054	325.18211	316.26089	8.50212	0.1309307	0.21253423	2.7808878	20	3 13.8	18.2
68233 2001 DY ₃₅	15.8	X	192.45559	214.10622	183.88452	0.45325	0.2291092	0.27198952	2.3592173	20	5 1.0	19.5
68234 2001 DM ₃₈	14.5	X	153.35301	348.93884	296.71785							

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
68241 2001 DT ₅₉	15.9 ^m	X	119.66197	318.15877	131.03257	6.57358	0.1945176	0.27001293	2.3707168	20	5 2.0	19.4
68242 2001 DW ₅₉	15.4	X	255.63635	82.72759	312.43982	6.41622	0.1013160	0.28002165	2.3138843	20	7 14.6	18.2
68243 2001 DO ₆₀	15.4	X	235.30599	188.74873	136.35209	5.24576	0.0646142	0.21292506	2.7774838	20	3 23.1	19.4
68244 2001 DM ₆₈	14.0	X	109.22003	325.98046	344.20530	11.32148	0.1472606	0.18868019	3.0105916	20	—	—
68245 2001 DQ ₆₈	14.5	X	112.02701	268.87120	287.09433	0.71403	0.1148779	0.17408890	3.1765473	20	8 25.5	19.3
68246 2001 DS ₇₀	16.2	X	204.21420	278.01237	350.64899	4.28356	0.1717357	0.29702303	2.2247231	20	—	—
68247 2001 DV ₇₀	13.3	X	98.44095	80.28889	160.65246	3.21422	0.1373533	0.12487072	3.9642616	20	10 1.8	19.1
68248 2001 DY ₇₁	13.9	X	29.25051	319.64841	334.88062	8.18656	0.0743011	0.17474383	3.1686054	20	9 9.8	18.0
68249 2001 DZ ₇₃	15.9	X	12.95921	41.90987	209.51969	2.66948	0.1675340	0.26860417	2.3789987	20	7 3.9	17.8
68250 2001 DT ₇₅	14.6	X	324.59394	187.40093	165.52082	15.16664	0.1073255	0.22798075	2.6538147	20	8 25.7	17.6
68251 2001 DT ₇₅	14.7	X	78.94640	185.11357	171.40576	11.32035	0.1073448	0.19317433	2.9637150	20	—	—
68252 2001 DP ₈₉	14.4	X	79.97988	344.76213	164.75222	14.18123	0.1382370	0.21814598	2.7329891	20	5 27.9	18.3
68253 2001 DV ₉₇	14.4	X	105.68969	204.51583	127.49396	11.39078	0.1117191	0.19286997	2.9668321	20	—	—
68254 2001 DP ₉₇	14.8	X	156.73032	252.75177	354.92802	9.03960	0.0321501	0.18943517	3.0025872	20	12 11.5	19.3
68255 2001 DP ₉₉	15.7	X	115.00365	332.94470	218.59702	6.63914	0.2052020	0.22423502	2.6832867	20	9 1.3	20.1
68256 2001 DE ₁₀₀	15.7	X	59.87455	61.39677	205.88820	4.57026	0.2176381	0.27603663	2.3361007	20	10 23.5	18.9
68257 2001 DH ₁₀₀	13.7	X	313.53103	41.06211	318.47648	20.73651	0.0690097	0.17464715	3.1697746	20	8 13.4	17.8
68258 2001 DD ₁₀₃	13.9	X	46.12749	303.53071	14.20955	15.34494	0.1745190	0.23465540	2.6032488	20	11 23.7	17.7
68259 2001 DC ₁₀₄	14.7	X	78.66965	317.03443	355.69316	1.75478	0.1092424	0.18770300	3.0210314	20	12 10.1	19.1
68260 2001 DV ₁₀₇	14.1	X	19.15392	33.92005	182.11701	21.02156	0.0958993	0.17807575	3.1289565	20	9 14.2	18.7
68261 2001 EU	14.3	X	76.17267	134.08014	76.49150	5.71902	0.0324763	0.16862241	3.2448343	20	7 22.7	18.8
68262 2001 EW ₉	14.3	X	110.48715	286.14026	146.98235	12.67751	0.1872828	0.20639220	2.8357886	20	4 4.7	18.6
68263 2001 EW ₁₂	15.8	X	184.18274	240.19641	127.72859	3.61407	0.2152194	0.26696768	2.3887109	20	3 19.4	19.8
68264 2001 EQ ₁₃	14.2	X	263.26394	273.06856	184.11879	10.42445	0.2386024	0.23957451	2.5674913	20	9 23.2	17.4
68265 2001 EK ₁₄	14.5	X	357.89227	262.73503	123.44774	13.44074	0.1984059	0.23680108	2.5874995	20	12 25.1	17.4
68266 2001 ES ₁₄	14.4	X	168.84905	324.24541	138.96069	16.94418	0.0550668	0.16897307	3.2403435	20	6 29.9	19.5
68267 2001 EA ₁₆	16.8	X	33.14515	317.40051	8.01648	38.82362	0.4274470	0.53134776	1.5096750	20	—	—
68268 2001 EX ₁₈	13.8	X	112.43739	312.85458	308.11729	10.18585	0.1210964	0.18404921	3.0608831	20	11 10.6	18.7
68269 2001 EY ₁₉	14.8	X	58.14475	4.23703	351.80800	9.22638	0.0399326	0.18991237	2.9975554	20	12 31.9	19.2
68270 2001 EA ₂₁	14.5	X	5.03362	187.76062	205.40019	8.24900	0.0583425	0.18754039	3.0227774	20	12 11.5	18.6
68271 2001 EB ₂₁	14.2	X	211.12345	267.62425	195.06394	11.29926	0.0363340	0.17534379	3.1613733	20	8 14.4	19.0
68272 2001 EG ₂₄	14.7	X	357.33322	171.53726	274.00856	1.36727	0.0769821	0.19363335	2.9590294	20	—	—
68273 2001 EQ ₂₆	13.2	X	350.65565	1.20146	340.87593	23.66589	0.2386255	0.17589568	3.1545717	20	9 16.7	16.4
68274 2001 FJ ₂	14.3	X	234.68280	0.97650	179.96571	12.02607	0.1627133	0.19006700	2.9959293	20	12 6.2	18.9
68275 2001 FE ₃	16.2	X	1.16793	109.04105	141.95443	2.78637	0.1840908	0.26450274	2.4035284	20	6 5.8	17.9
68276 2001 FG ₃	14.2	X	147.89931	145.03204	170.41859	10.52770	0.0909943	0.19266400	2.9689463	20	—	—
68277 2001 FQ ₃	15.7	X	347.13766	216.99660	28.65682	6.96781	0.0875075	0.26139169	2.4225618	20	4 30.4	18.4
68278 2001 FC ₇	18.4	X	271.52832	234.46021	99.11432	2.62054	0.1145650	0.57288281	1.4357942	20	4 22.0	18.2
68279 2001 FD ₈	16.0	X	2.15640	129.08933	168.28647	2.71182	0.1683257	0.27043100	2.3682729	20	8 26.2	18.0
68280 2001 FR ₈	13.1	X	224.84670	75.54765	17.01704	13.17541	0.1666291	0.22331516	2.6906502	20	8 16.9	17.4
68281 2001 FZ ₁₁	15.7	X	328.69611	103.09009	87.84977	3.62270	0.1270742	0.25281318	2.4770584	20	1 11.1	18.8
68282 2001 FR ₁₄	14.4	X	245.43499	268.61368	185.27466	8.98093	0.0466838	0.17729763	3.1381047	20	9 15.0	18.9
68283 2001 FE ₁₇	13.9	X	140.30447	351.22880	180.21636	5.27279	0.1071924	0.17244144	3.1967472	20	8 22.9	18.9
68284 2001 FJ ₁₇	13.9	X	314.20887	207.85438	189.57548	32.37609	0.1670333	0.22966379	2.6408336	20	10 8.7	16.3
68285 2001 FQ ₁₈	13.9	X	0.63553	124.43797	201.68419	12.60693	0.1635957	0.17118488	3.2123717	20	9 12.5	17.7
68286 2001 FP ₂₂	13.3	X	343.32389	194.87712	184.54791	13.50429	0.0543012	0.17593879	3.1542417	20	10 24.3	17.5
68287 2001 FL ₂₄	13.1	X	113.27807	292.48682	290.84314	11.36575	0.1463005	0.12388507	3.9852607	20	9 20.2	19.3
68288 2001 FH ₂₆	14.8	X	176.93684	309.18064	196.09465	7.75402	0.1528289	0.22513746	2.6761115	20	8 29.8	19.1
68289 2001 FM ₂₆	14.0	X	234.26448	238.18756	198.81583	21.53826	0.0439762	0.22358605	2.6884766	20	8 11.2	18.1
68290 2001 FT ₃₃	15.1	X	318.70620	278.38723	169.65676	18.31762	0.2490319	0.24311459	2.5425063	20	—	—
68291 2001 FM ₃₆	14.4	X	221.28732	108.12083	343.72578	8.82318	0.0458463	0.17431737	3.1737712	20	8 16.6	19.0
68292 2001 FS ₃₇	14.7	X	242.51043	315.99545	193.40622	8.39197	0.0540378	0.18619260	3.0373472	20	11 21.3	19.0
68293 2001 FF ₄₉	14.1	X	236.55369	72.59201	351.08175	12.41568	0.1609832	0.22269791	2.6956197	20	7 21.3	18.3
68294 2001 FN ₄₉	13.4	X	117.49658	329.66729	354.96629	14.07960	0.0601665	0.18827383	3.0149220	20	—	—
68295 2001 FY ₅₂	14.0	X	329.79417	134.92591	189.00311	22.02672	0.0709353	0.16928112	3.2364112	20	7 18.4	18.7
68296 2001 FN ₇₅	15.1	X	186.89323	240.89405	33.71034	11.45339	0.1072219	0.24241814	2.5473736	20	—	—
68297 2001 FH ₇₈	13.8	X	5.15049	140.57303	191.10511	14.75407	0.0619096	0.17106214	3.2139081	20	9 21.3	18.0
68298 2001 FC ₈₀	15.2	X	196.70572	7.85158	248.43919	7.74322	0.1472921	0.24040460	2.5615777	20	—	—
68299 2001 FH ₈₂	13.8	X	253.45621	176.94286	193.66866	37.72478	0.2178784	0.21763613	2.7325558	20	5 21.0	18.6
68300 2001 FD ₉₅	13.4	X	83.41732	86.44426	165.81471	22.90445	0.1286312	0.17375241	3.1806471	20	10 6.9	18.2
68301 2001 FZ ₉₅	15.2	X	50.68019	215.72302	81.44844	8.26035	0.1242363	0.27793638	2.3254434	20	11 11.1	18.2
68302 2001 FH ₉₆	14.6	X	264.63133	266.07269	159.11859	18.07141	0.0263687	0.17454318	3.1710332	20	9 6.9	19.1
68303 2001 FB ₉₇	14.3	X	131.85768	265.52740	24.75319	25.82521	0.2848541	0.23415831	2.6069318	20	—	—
68304 2001 FO ₉₇	13.6	X	36.96060	245.71884	90.47059	10.25742	0.1385759	0.17803288	3.1294588	20	11 23.8	17.9
68305 2001 FK ₁₀₃	13.8	X	45.20678	335.79906	312.19366	10.14347	0.1729782	0.17629931	3.1499402	20	10 3.7	18.2
68306 2001 FU ₁₀₃	14.3	X	235.69919	72.93097	268.79493	5.18512	0.0757693	0.21267167	2.7796895	20	4 8.3	18.5
68307 2001 FL ₁₀₄	14.7	X	227.27479	334.25569	36.70366	7.39086	0.1642818	0.21516884	2.7581410	20	5 1.2	18.9
68308 2001 FF ₁₀₆	14.7	X	322.74621	327.42109	20.18568	11.16731	0.2275703	0.22548659	2.6733484	20	8 9.7	17.3
68309 2001 FM ₁₀₇	16.9	X	239.01404	218.86049	10.73853	5.34427	0.1021592	0.29723067	2.2236869	20	—	—
68310 2001 FH ₁₁₂	14.9	X	179.23509	219.18629	8.63165	12.02777	0.0688872	0.23425248	2.6062331	20	12 20.8	18.9
68311 2001 FN ₁₁₂	14.6	X	105.81370	116.06399	161.33283	10.07771	0.0649188	0.18301417	3.0724128	20	11 24.3	19.3
68312 2001 FF ₁₁₇	14.3	X	4.99030	32.23209	248.16765	10.69702	0.0235663	0.17045462	3.2215400	20	7 14.0	18.8
68313 2001 FK ₁₁₈	14.2	X	279.44537	157.40249	273.05403	9.65808	0.1004502	0.18211383	3.0825309	20	9 17.7	18.6
68314 2001 FD ₁₂₀	14.6	X	154.69827	336.80637	140.05471							

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
68321 2001 FF ₁₆₉	14.4	X	201.57662	103.77113	105.71769	11.48980	0.0711725	0.18290701	3.0736128	20	12 12.9	19.0
68322 2001 FN ₁₇₅	14.1	X	243.66968	286.70241	127.54125	11.60832	0.1837063	0.22242659	2.6978114	20	7 10.3	18.1
68323 2001 FZ ₁₈₀	15.1	X	233.22269	180.09226	164.73823	16.41508	0.2112914	0.21244508	2.7816657	20	4 4.7	19.8
68324 2001 FX ₁₈₂	15.0	X	18.52132	54.71588	340.85513	0.86892	0.0863215	0.18772702	3.0207737	20	—	—
68325 Begues	14.2	X	237.70558	28.49657	133.01300	16.89713	0.1709091	0.18527231	3.0473970	20	11 18.5	19.0
68326 2001 HD ₂₁	16.6	X	126.52843	3.50362	214.18186	2.12646	0.1057854	0.27670385	2.3323439	20	10 19.0	19.8
68327 2001 HW ₃₅	13.8	X	238.96797	178.72288	56.77052	10.06523	0.0530372	0.19007793	2.9958146	20	—	—
68328 2001 HS ₄₄	14.2	X	218.08176	30.46920	28.44336	13.94753	0.1376887	0.21618023	2.7495317	20	6 23.3	18.7
68329 2001 HV ₄₈	14.5	X	321.17541	13.76404	247.27250	14.85562	0.2160776	0.25752251	2.4467669	20	3 12.8	17.6
68330 2001 HW ₄₈	13.6	X	236.40447	117.61254	333.92070	13.75754	0.1381301	0.22547353	2.6734517	20	8 26.2	17.4
68331 2001 HM ₅₈	13.8	X	6.53562	100.26164	225.01656	21.55208	0.0280885	0.17514617	3.1637509	20	9 7.5	18.6
68332 2001 KO	14.7	X	45.21565	200.31297	60.44679	10.18869	0.0974580	0.21670008	2.7451326	20	9 4.2	18.4
68333 2001 KA ₇	15.6	X	307.68856	87.72857	86.45802	2.29323	0.0044045	0.29304107	2.2448314	20	—	—
68334 2001 KG ₉	15.4	X	127.31224	298.81643	277.54190	5.14613	0.1275747	0.27681236	2.3317343	20	10 16.4	19.0
68335 2001 KQ ₉	15.8	X	186.78389	202.11257	133.97803	3.56631	0.2027518	0.29656532	2.2270116	20	2 7.4	19.3
68336 2001 KH ₁₈	15.2	X	129.00839	213.41250	101.47493	6.64052	0.3466895	0.23367750	2.6105066	20	—	—
68337 2001 KU ₂₀	15.5	X	119.38065	77.82947	255.37761	9.77966	0.1365862	0.28797712	2.2710711	20	—	—
68338 2001 KD ₂₃	15.9	X	36.06571	243.84856	346.75665	1.08710	0.1364602	0.26295011	2.4129805	20	7 13.3	18.2
68339 2001 KR ₂₄	14.9	X	33.95017	54.43682	270.27111	7.89882	0.2588379	0.21997058	2.7178552	20	11 30.7	18.5
68340 2001 KP ₂₆	15.4	X	61.62075	91.15787	253.54541	1.08093	0.2149040	0.22673855	2.6634986	20	—	—
68341 2001 KL ₄₅	14.4	X	230.18347	111.19787	108.58354	12.76261	0.1281349	0.18466322	3.0540943	20	—	—
68342 2001 KF ₄₆	15.5	X	143.81304	112.26129	131.40971	6.95664	0.0745059	0.27962792	2.3160558	20	12 12.0	18.7
68343 2001 KB ₄₇	14.9	X	247.12731	38.29415	233.21566	15.26956	0.2146136	0.24317777	2.5420659	20	1 11.8	19.5
68344 2001 KG ₅₁	15.5	X	193.60121	329.99520	265.85955	6.39444	0.1356674	0.28713409	2.2755142	20	—	—
68345 2001 KP ₆₅	14.5	X	338.90503	241.51563	98.75233	14.03112	0.0889614	0.21930221	2.7233745	20	9 8.5	18.0
68346 2001 KZ ₆₆	16.8	X	1.78679	140.23949	219.38792	16.69352	0.4164888	0.53255601	1.5073908	20	—	—
68347 2001 KB ₆₇	19.9	X	121.13530	243.75004	245.90162	17.12413	0.3801956	1.04427446	0.9621873	20	7 28.7	20.4
68348 2001 LO ₇	14.2	X	274.46744	181.63432	236.25161	25.34862	0.8407623	0.31141765	2.1556284	20	6 5.4	18.8
68349 2001 LD ₁₇	14.6	X	253.41280	301.80075	250.22427	12.80225	0.1165510	0.23080011	2.6321585	20	—	—
68350 2001 MK ₃	15.9	X	117.73818	328.46716	128.86011	29.56727	0.2476379	0.45684577	1.6696405	20	5 23.3	18.7
68351 2001 MS ₄	15.0	X	159.00564	43.99879	337.36900	9.70393	0.1160517	0.24216959	2.5491163	20	3 7.3	18.8
68352 2001 MH ₆	14.3	X	81.47438	120.19963	239.23428	7.69592	0.2106300	0.17229237	3.1985909	20	—	—
68353 2001 MS ₁₀	14.2	X	217.19481	5.53518	318.32428	7.86616	0.0086595	0.19217106	2.9740212	20	3 2.3	18.3
68354 2001 MN ₂₇	14.3	X	99.34827	217.35638	152.89904	8.97252	0.0970208	0.17676853	3.1443636	20	—	—
68355 2001 NZ	14.7	X	357.48159	313.16556	99.52394	14.02120	0.1716878	0.22243023	2.6977820	20	—	—
68356 2001 NH ₁₂	16.0	X	316.80403	290.81429	319.72921	5.75297	0.1606724	0.30201074	2.2001610	20	3 1.0	18.5
68357 2001 NY ₁₈	15.0	X	333.51002	336.76502	259.63368	11.40044	0.0868701	0.24645459	2.5194831	20	3 20.8	18.4
68358 2001 NT ₁₉	14.9	X	131.56917	138.67649	238.41758	10.28091	0.1329454	0.23602170	2.5931925	20	2 1.1	18.7
68359 2001 OZ ₁₃	17.8	X	209.17051	29.16717	99.23235	9.85767	0.1743767	0.52731770	1.5173572	20	11 7.9	18.0
68360 2001 OK ₂₄	14.9	X	333.17390	218.24944	175.75568	4.81003	0.1268121	0.21580511	2.7527170	20	11 7.4	17.8
68361 2001 OJ ₃₂	15.2	X	112.98234	308.10383	335.51492	13.78734	0.0767516	0.22387042	2.6861994	20	12 15.9	19.5
68362 2001 OP ₃₈	14.8	X	117.35417	79.76550	2.59425	14.98110	0.0963103	0.24390160	2.5370340	20	4 3.8	18.2
68363 2001 OR ₄₉	13.3	X	314.50218	210.00116	274.77097	8.51400	0.0724642	0.17362855	3.1821596	20	—	—
68364 2001 OA ₆₀	15.6	X	173.49435	156.41599	231.21515	1.67376	0.1798079	0.24439658	2.5336073	20	4 1.9	19.6
68365 2001 OQ ₆₁	16.4	X	99.78935	299.59095	99.26111	5.79344	0.1420647	0.28609576	2.2810165	20	1 16.4	18.7
68366 2001 OF ₆₇	15.8	X	161.35157	230.85862	174.37174	4.62756	0.2047199	0.23886409	2.5725795	20	4 15.8	20.0
68367 2001 ON ₈₈	14.6	X	79.92820	240.75669	178.03384	3.22408	0.1778973	0.18096264	3.0955900	20	2 6.3	18.6
68368 2001 ON ₁₀₂	15.8	X	149.55099	324.76521	251.94458	5.12733	0.0691099	0.26937533	2.3744562	20	11 10.3	19.0
68369 2001 OT ₁₀₅	14.3	X	130.38235	250.45456	159.13680	12.35054	0.1163220	0.18687734	3.0299232	20	3 19.2	18.8
68370 2001 OM ₁₀₇	14.1	X	100.71736	50.07089	326.11701	15.66983	0.2306964	0.17572142	3.1568425	20	1 24.2	18.6
68371 2001 OO ₁₀₇	15.8	X	214.84712	14.05169	357.97548	3.16117	0.2148102	0.24242172	2.5473485	20	4 17.4	20.1
68372 2001 PM ₉	18.8	X	111.89469	322.23169	253.03100	8.10105	0.4157006	0.47885366	1.6180832	20	10 29.0	21.5
68373 2001 PP ₁₃	15.9	X	177.66153	234.70383	142.22987	5.93947	0.1692913	0.29347783	2.2426036	20	3 22.3	19.3
68374 2001 PM ₁₄	13.3	X	119.17799	204.96808	146.76872	10.00892	0.1878841	0.12375749	3.9879991	20	1 13.9	19.3
68375 2001 PZ ₂₂	15.4	X	130.01143	71.48109	346.05669	9.62442	0.1579236	0.24012231	2.5635849	20	3 25.4	19.2
68376 2001 PC ₂₃	15.1	X	72.68752	174.32597	123.61761	12.53232	0.0916875	0.21732277	2.7398864	20	11 23.4	19.2
68377 2001 PD ₂₇	16.5	X	152.04206	174.59922	168.91329	4.62146	0.1999174	0.28524997	2.2855232	20	1 15.9	19.8
68378 2001 PK ₃₇	14.9	X	125.15700	340.15545	41.55385	15.19795	0.1620253	0.23413527	2.6071028	20	2 14.6	18.9
68379 2001 PN ₄₂	14.4	X	170.49471	0.71643	50.83477	11.07314	0.1119580	0.19209060	2.9748516	20	4 30.3	19.1
68380 2001 PZ ₆₁	15.2	X	153.45895	280.53650	328.00468	2.78912	0.0498708	0.22057030	2.7129265	20	12 16.0	19.2
68381 2001 PA ₆₃	14.1	X	143.64993	314.22169	140.04049	10.61022	0.1082468	0.19128270	2.9832221	20	5 27.1	18.8
68382 2001 QK ₁₀	14.5	X	315.51104	58.46089	150.93408	3.26405	0.0426463	0.18605458	3.0388491	20	2 8.9	18.7
68383 2001 QW ₁₀	16.4	X	131.25820	272.90225	151.47834	6.54716	0.0777945	0.29358132	2.2420766	20	3 26.1	19.1
68384 2001 QS ₁₂	14.1	X	143.20835	251.72620	339.58302	11.88422	0.1259997	0.21713647	2.7414534	20	11 8.4	18.6
68385 2001 QM ₂₄	14.9	X	292.12856	212.96839	143.47082	2.89576	0.0828500	0.20103208	2.8859744	20	7 9.8	18.8
68386 2001 QJ ₃₁	15.6	X	149.22464	212.13585	151.76987	2.39810	0.1427287	0.23129347	2.6284142	20	2 9.0	19.6
68387 2001 QF ₃₂	16.5	X	52.32945	175.15012	173.93276	23.90454	0.1037430	0.37484604	1.9050254	20	—	—
68388 2001 QX ₄₂	15.6	X	101.65504	259.48837	116.08982	1.79679	0.1262245	0.23121224	2.6290297	20	—	—
68389 2001 QE ₄₄	15.4	X	3.32099	234.82316	143.08742	3.03370	0.0840597	0.21763315	2.7372808	20	11 30.9	18.7
68390 2001 QZ ₄₆	16.1	X	125.24197	74.55615	98.73499	3.58684	0.2343774	0.23632632	2.5909637	20	3 14.9	20.0
68391 2001 QO ₅₅	15.0	X	63.66079	256.78471	111.28874	6.87957	0.0347870	0.22364000	2.6880441	20	—	—
68392 2001 QW ₅₇	14.7	X	297.14649	261.89378	108.57775	3.17489	0.0653302	0.20556803	2.8433631	20	8 8.9	18.4
68393 2001 QT ₆₅	15.6	X	355.79003	258.71884	174.19778	11.87347	0.1859453	0.21981935	2.7191016	20	—	—
68394 2001 QZ ₆₈	15.3	X	319.78229	169.12393	254.14286	5.29490	0.0786894	0.26746853	2.3857279	20	12	

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
68401 2001 QX ₉₂	16.2	X	279.52024	101.36938	70.71485	8.33004	0.0399867	0.27996100	2.3142185	20	—	—
68402 2001 QM ₉₈	13.4	X	137.83490	40.64009	294.89100	7.72165	0.1867826	0.12595135	3.9415542	20	1 13.3	19.4
68403 2001 QH ₁₀₅	16.2	X	254.30889	180.39588	63.04843	6.50365	0.0775004	0.28627134	2.2800838	20	—	—
68404 2001 QX ₁₀₈	14.4	X	70.07810	170.61991	204.83321	11.84022	0.3142925	0.22479322	2.6788429	20	—	—
68405 2001 QN ₁₂₅	15.4	X	69.05031	226.63675	134.75190	10.22841	0.0957591	0.22260984	2.6963306	20	—	—
68406 2001 QU ₁₃₀	15.8	X	332.60134	157.51610	203.08430	5.94956	0.1354404	0.26142787	2.4223383	20	9 28.2	17.8
68407 2001 QN ₁₃₁	15.6	X	309.99513	125.76116	265.32341	4.64977	0.1256198	0.26131925	2.4230095	20	9 28.1	17.9
68408 2001 QH ₁₃₇	15.1	X	247.65104	36.70705	276.14719	7.55630	0.1242074	0.23925668	2.5697645	20	3 8.1	19.1
68409 2001 QS ₁₄₈	15.0	X	357.56023	314.55674	39.91419	9.07768	0.1809117	0.21031685	2.8003995	20	10 30.1	17.8
68410 Nichols	15.3	X	56.02299	129.01785	275.68466	4.85952	0.0769098	0.22466582	2.6798555	20	—	—
68411 2001 QE ₁₈₈	14.9	X	29.74244	310.66834	242.40685	7.69030	0.1519368	0.24368032	2.5385696	20	5 4.3	17.3
68412 2001 QL ₁₈₈	15.9	X	129.62527	261.75083	152.57711	5.09999	0.1792239	0.23917959	2.5703167	20	3 26.9	19.7
68413 2001 QB ₁₉₆	14.9	X	164.67112	102.03308	338.50937	11.58290	0.0487276	0.19788060	2.9165353	20	5 23.9	19.4
68414 2001 QZ ₂₁₉	14.2	X	103.11752	359.61616	291.63343	14.96211	0.2731999	0.26945550	2.3739852	20	—	—
68415 2001 QG ₂₂₀	14.9	X	284.88072	19.46972	274.55408	14.14150	0.1115479	0.24135733	2.5548322	20	3 24.3	18.7
68416 2001 QQ ₂₂₀	15.2	X	30.85924	114.45435	264.45097	7.92862	0.2093803	0.21969655	2.7201147	20	—	—
68417 2001 QD ₂₃₈	15.6	X	334.13156	195.83334	180.34218	7.10865	0.0861876	0.26183422	2.4198314	20	10 25.9	18.2
68418 2001 QN ₂₄₄	16.0	X	156.29889	196.08748	8.03375	8.40747	0.0737092	0.26357357	2.4091739	20	10 29.8	19.4
68419 2001 QE ₂₅₆	14.9	X	319.48914	310.57141	136.80886	5.70754	0.1386093	0.21571884	2.7534509	20	12 24.8	17.9
68420 2001 QO ₂₅₈	14.5	X	160.23056	53.17708	249.06446	6.03349	0.0986118	0.17469543	3.1691906	20	—	—
68421 2001 QY ₂₇₀	15.8	X	268.77493	119.14583	335.48528	7.44687	0.0920432	0.26874214	2.3781845	20	10 24.6	18.7
68422 2001 QJ ₂₉₆	14.4	X	263.90157	183.37019	197.13751	1.73762	0.1321573	0.19614677	2.9336971	20	6 25.9	18.5
68423 2001 QD ₃₁₅	16.0	X	216.00166	305.36105	167.42290	1.77530	0.1990343	0.26095857	2.4252416	20	8 27.8	19.8
68424 2001 QO ₃₂₇	15.9	X	62.15218	279.27113	170.42743	6.27753	0.0718968	0.28809968	2.2704270	20	1 16.5	18.3
68425 2001 QS ₃₂₉	15.6	X	74.40085	120.03901	274.72373	7.23708	0.0901934	0.28220285	2.3019459	20	—	—
68426 2001 RE	14.6	X	238.75916	299.64069	158.38112	16.09714	0.2163838	0.20279322	2.8692415	20	8 24.7	19.0
68427 2001 RK ₆	15.2	X	206.46844	113.07982	252.37032	1.04059	0.1034123	0.18835941	3.0140087	20	4 8.3	19.9
68428 2001 RA ₂₁	14.8	X	324.99288	122.07950	332.90015	2.88405	0.0484789	0.16905070	3.2393514	20	12 27.3	19.0
68429 2001 RW ₂₄	15.1	X	92.32275	52.73173	314.65835	1.19848	0.1466021	0.17447101	3.1719077	20	—	—
68430 2001 RB ₃₇	16.3	X	72.55711	242.71970	184.28602	5.36431	0.1423680	0.28459537	2.2890266	20	1 9.6	18.5
68431 2001 RH ₄₈	15.6	X	62.58911	111.55028	27.21940	6.53151	0.0965091	0.28978109	2.2616359	20	4 3.7	17.7
68432 2001 RX ₅₇	14.4	X	3.99553	346.26074	134.20121	6.32603	0.1364455	0.17548507	3.1596764	20	—	—
68433 2001 RN ₆₉	15.4	X	72.76122	105.13417	240.28503	3.25014	0.0974290	0.21839455	2.7309151	20	—	—
68434 2001 RZ ₇₆	14.7	X	157.94967	218.67615	102.34957	5.41505	0.1492947	0.22484544	2.6784281	20	—	—
68435 2001 RF ₈₁	15.8	X	323.54340	189.64787	327.25408	4.33721	0.0808978	0.27954748	2.3165001	20	—	—
68436 2001 RC ₈₅	15.6	X	281.20488	243.81218	229.13006	6.81638	0.1125489	0.21591749	2.7517618	20	11 25.8	19.0
68437 2001 RJ ₈₇	16.1	X	129.78573	48.03838	359.08047	3.99239	0.1433505	0.23467624	2.6030947	20	3 13.3	19.7
68438 2001 RQ ₉₉	16.2	X	303.18004	85.31430	344.29268	1.94004	0.1576517	0.26561215	2.3968311	20	11 14.1	18.3
68439 2001 RB ₁₀₄	14.3	X	196.38705	17.09992	95.20455	5.41353	0.0227423	0.20424130	2.8556634	20	8 17.4	18.4
68440 2001 RN ₁₀₇	14.9	X	131.53432	120.85186	352.41822	1.31424	0.0417317	0.19546836	2.9404812	20	5 28.8	19.1
68441 2001 RJ ₁₁₄	15.5	X	39.71379	245.35119	137.33815	9.06739	0.1139109	0.22015075	2.7163721	20	—	—
68442 2001 RO ₁₃₂	15.1	X	73.11905	22.52774	135.42352	8.07572	0.1297811	0.24463686	2.5319480	20	5 27.6	18.4
68443 2001 RP ₁₃₃	16.2	X	274.09421	300.62804	158.79144	7.73573	0.0355782	0.26531812	2.3986015	20	11 20.7	19.2
68444 2001 RH ₁₄₂	11.5	X	354.60198	88.05303	123.39993	30.05554	0.0273313	0.08279583	5.2135122	20	4 22.6	18.7
68445 2001 RF ₁₄₇	14.2	X	251.98656	3.71411	238.90735	13.88766	0.0753856	0.18019080	3.1044236	20	1 1.5	19.1
68446 2001 RN ₁₄₈	15.7	X	351.68999	300.85132	121.11708	7.14925	0.1099835	0.27236520	2.3570473	20	—	—
68447 2001 RP ₁₄₈	14.3	X	66.36303	291.55550	110.65763	11.01449	0.2328198	0.17515098	3.1636930	20	1 5.9	17.9
68448 Sidneywolff	15.4	X	166.01066	249.49867	89.45838	9.20821	0.2384831	0.28484853	2.2876701	20	1 28.8	19.1
68449 2001 SP ₂₀	15.5	X	105.84962	236.44067	170.36884	4.38817	0.1611129	0.23031675	2.6358399	20	2 15.9	19.0
68450 2001 SN ₂₆	16.1	X	320.68721	112.92674	173.42277	3.41087	0.0676196	0.24730751	2.5136869	20	5 20.4	19.1
68451 2001 SZ ₃₁	14.5	X	341.27365	67.79284	92.82861	2.13342	0.1351422	0.17576871	3.1562762	20	1 5.0	18.4
68452 2001 SA ₃₆	14.7	X	300.09794	203.10584	136.64689	2.96413	0.0686581	0.19771951	2.9181193	20	6 30.8	18.4
68453 2001 SK ₃₆	15.1	X	195.69081	327.90465	47.80892	2.08184	0.1004443	0.18745469	3.0236987	20	4 11.0	19.6
68454 2001 SS ₄₆	15.6	X	220.81323	268.31330	62.59465	3.29752	0.0600254	0.23850537	2.5751583	20	3 12.0	19.2
68455 2001 SH ₄₇	16.4	X	49.26900	307.01063	131.82173	4.82055	0.0800222	0.27999239	2.3140455	20	—	—
68456 2001 SJ ₅₇	14.6	X	191.97513	210.92088	166.44969	10.13436	0.0791822	0.18575888	3.0420731	20	4 11.2	19.3
68457 2001 SC ₆₃	14.6	X	129.03964	337.09404	80.27959	2.72963	0.1494845	0.18129739	3.0917783	20	3 30.7	19.4
68458 2001 SQ ₆₉	15.9	X	108.08244	153.07293	181.46536	7.00982	0.1301291	0.27246761	2.3564567	20	—	—
68459 2001 SY ₈₀	15.8	X	329.12174	122.84439	307.08941	4.12490	0.1429546	0.21738757	2.7393419	20	12 19.3	18.6
68460 2001 SS ₁₀₄	15.7	X	249.03367	263.49035	233.64775	5.82932	0.0566333	0.26559651	2.3969252	20	12 1.4	18.5
68461 2001 SO ₁₀₇	13.8	X	275.52004	329.61727	357.83270	10.42273	0.1051398	0.18921784	3.0048860	20	5 3.0	18.2
68462 2001 SW ₁₀₈	14.4	X	228.78314	317.13531	22.47368	14.81064	0.2091111	0.23752479	2.5822409	20	3 25.3	18.7
68463 2001 SQ ₁₂₀	16.0	X	72.35319	99.10644	346.10652	14.72240	0.1315610	0.23214942	2.6219494	20	2 18.2	19.1
68464 2001 SW ₁₂₈	15.6	X	355.21168	345.60562	241.12373	3.05038	0.0207737	0.24380972	2.5376713	20	4 20.9	18.9
68465 2001 SZ ₁₃₁	16.0	X	189.10306	297.72030	205.06715	1.40884	0.1325236	0.25788538	2.4444711	20	9 13.5	19.6
68466 2001 SC ₁₅₀	15.5	X	32.61549	20.88690	284.78379	2.95516	0.1659569	0.26178711	2.4201217	20	10 29.1	18.3
68467 2001 SW ₁₆₀	15.0	X	50.47362	251.41124	211.53004	21.29271	0.0920966	0.22895066	2.6463144	20	1 24.5	18.7
68468 2001 SZ ₂₂₄	16.5	X	314.27147	53.39515	61.54453	2.76791	0.1717937	0.26986782	2.3715665	20	—	—
68469 2001 SC ₂₅₃	14.8	X	126.50163	236.01940	190.41714	10.15802	0.0519529	0.18204453	3.0833131	20	3 26.5	19.2
68470 2001 SP ₂₆₆	15.7	X	341.42170	99.94293	343.79270	0.66263	0.0439574	0.21592685	2.7516823	20	—	—
68471 2001 ST ₂₇₆	14.7	X	126.67491	66.02748	241.47848	7.31694	0.1361118	0.21902708	2.7256547	20	—	—
68472 2001 SL ₂₈₂	14.3	X	116.31119	358.39930	294.38221	8.44738	0.2626591	0.21679175	2.7443587	20	—	—
68473 2001 SC ₂₈₉	14.6	X	164.78811	268.33386	102.42463	6.73729	0.1902673	0.18187993	3.0851730	20	3 13.0	19.8
68474 2001 SL ₃₂₈	16.3	X	284.29513	302.33211	159.33404	6.83805	0.1651255	0.26888936	2.3773163	20	11	

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
68481 2001 TQ ₉₅	15.6	X	319.36979	316.33082	308.47107	3.70026	0.1444610	0.24283772	2.5444385	20	4 3.4	18.5
68482 2001 TA ₁₁₀	15.6	X	103.44464	97.16149	270.01707	2.87001	0.1435334	0.27726750	2.3291819	20	—	—
68483 2001 TG ₁₂₉	15.6	X	197.69659	349.56021	207.85362	1.62486	0.1580668	0.26420541	2.4053313	20	11 30.7	19.0
68484 2001 TB ₁₄₁	16.0	X	64.69944	32.88533	33.30473	9.19903	0.1096146	0.28137439	2.3064622	20	—	—
68485 2001 TD ₁₄₄	16.4	X	305.88504	178.33899	79.20796	4.41221	0.1660301	0.29432630	2.2382916	20	2 28.2	19.1
68486 2001 TM ₁₆₉	15.5	X	147.26269	344.05271	350.88568	7.93240	0.1376518	0.27672119	2.3322465	20	—	—
68487 2001 TM ₁₇₅	15.2	X	329.53411	316.96892	200.73474	12.25418	0.1154995	0.22820573	2.6520702	20	—	—
68488 2001 TK ₂₀₉	15.1	X	202.56493	83.32547	288.92176	8.43756	0.0779110	0.18708496	3.0276811	20	4 9.7	19.9
68489 2001 TS ₂₁₂	15.7	X	58.58065	86.84677	356.64962	3.92105	0.0620356	0.22669157	2.6638666	20	1 16.6	18.9
68490 2001 TH ₂₃₉	15.7	X	250.02437	67.04150	70.84932	11.61089	0.1677520	0.26414830	2.4056780	20	11 17.5	18.4
68491 2001 UF ₄	16.5	X	337.81577	84.45197	54.42686	3.96569	0.0267865	0.27481632	2.3430112	20	—	—
68492 2001 UH ₄	15.4	X	329.10497	185.32359	187.02177	1.75308	0.1046995	0.20313812	2.8659928	20	9 26.9	18.8
68493 2001 US ₉	15.1	X	31.49436	274.30932	124.02845	3.63025	0.0739341	0.21612533	2.7499973	20	—	—
68494 2001 UT ₉	15.5	X	303.43713	36.81389	82.29585	3.63068	0.1348212	0.26524107	2.3990660	20	—	—
68495 2001 UF ₂₁	14.6	X	209.97285	284.36713	255.50105	7.84021	0.0986137	0.21537519	2.7563790	20	11 18.7	18.5
68496 2001 UD ₃₃	14.1	X	89.46504	341.23198	61.43499	10.94006	0.2071329	0.22600170	2.6692848	20	1 31.2	17.5
68497 2001 UZ ₃₃	14.5	X	334.93966	301.88208	122.29728	9.38794	0.1498464	0.15892194	3.3755676	20	12 3.9	18.6
68498 2001 UV ₃₄	14.5	X	262.04133	228.06514	99.93388	10.50483	0.0815980	0.18843197	3.0132350	20	4 28.9	19.0
68499 2001 UM ₃₆	15.0	X	124.35063	333.37287	61.33255	15.42376	0.1313623	0.23071479	2.6328074	20	2 27.2	19.1
68500 2001 UP ₄₅	15.0	X	331.15692	260.06115	74.65183	2.97746	0.0357357	0.19872487	2.9082690	20	8 12.9	18.7
68501 2001 UE ₅₃	15.9	X	232.23349	283.71263	198.68807	13.05218	0.1851482	0.25435596	2.4670319	20	9 26.8	19.5
68502 2001 US ₆₆	15.5	X	190.64197	235.81698	332.43921	6.33431	0.0517143	0.26507740	2.4000535	20	12 19.0	18.7
68503 2001 UK ₁₁₈	15.0	X	155.31957	294.45712	220.68647	8.55947	0.0291350	0.19706437	2.9245832	20	8 16.2	19.4
68504 2001 UK ₁₁₉	15.7	X	143.89720	99.54722	126.49694	2.24749	0.0642317	0.27370070	2.3493737	20	—	—
68505 2001 UM ₁₂₀	16.3	X	319.41839	112.45110	214.48840	3.53580	0.1392128	0.28882637	2.2666171	20	2 22.2	18.6
68506 2001 UW ₁₂₁	15.9	X	277.47705	358.86597	98.59882	3.70430	0.1559408	0.25860870	2.4399109	20	11 5.5	18.4
68507 2001 US ₁₂₂	14.5	X	114.16295	239.96816	223.58725	7.14967	0.1157670	0.18136070	3.0910587	20	5 5.2	19.0
68508 2001 UZ ₁₃₄	15.5	X	338.38245	351.93634	74.07055	3.87521	0.1892572	0.26135654	2.4227790	20	—	—
68509 2001 UA ₁₃₅	15.6	X	306.94229	315.55992	325.00500	2.25013	0.1131315	0.23895161	2.5719513	20	4 12.5	18.6
68510 2001 UX ₁₅₄	15.6	X	82.85734	321.07982	214.38726	9.06175	0.1000146	0.29306905	2.2446885	20	6 28.9	18.5
68511 2001 UH ₁₆₁	16.3	X	206.16591	243.08483	207.02784	7.71582	0.0919754	0.24661688	2.5183776	20	7 24.6	20.1
68512 2001 UV ₁₆₁	15.2	X	244.17069	206.20018	107.87417	2.22335	0.1967562	0.23586402	2.5943482	20	3 5.9	19.3
68513 2001 UL ₁₆₇	14.6	X	213.63746	349.35802	284.80421	11.79048	0.1952107	0.27861591	2.3216608	20	—	—
68514 2001 UV ₁₇₇	15.4	X	347.66589	39.21743	40.29853	2.97380	0.0282325	0.21411053	2.7672222	20	—	—
68515 2001 UZ ₁₈₃	14.4	X	142.17090	244.41978	130.14389	11.18362	0.1148560	0.17691245	3.1426579	20	2 19.2	19.2
68516 2001 UD ₁₈₈	15.5	X	227.31881	274.88173	140.12773	7.77399	0.0760253	0.19293802	2.9661345	20	7 3.8	19.9
68517 2001 UC ₂₁₄	13.5	X	168.04758	214.84543	98.70788	20.09953	0.1557546	0.17538374	3.1608933	20	1 6.4	18.5
68518 2001 VM ₁₄	15.3	X	202.08787	205.12572	172.07246	5.69120	0.0397168	0.25673208	2.4517863	20	10 26.8	18.7
68519 2001 VW ₁₅	11.7	X	346.98343	118.82233	116.31025	22.72452	0.0149447	0.08104247	5.2884401	20	5 8.1	18.9
68520 2001 VT ₁₉	15.1	X	341.10792	225.79905	43.51156	6.00385	0.1431899	0.24361277	2.5390389	20	5 21.4	17.4
68521 2001 VA ₂₅	15.5	X	78.91712	272.17437	353.58810	1.42775	0.0125276	0.20183412	2.8783238	20	10 4.5	19.5
68522 2001 VO ₂₈	15.3	X	151.83416	62.27279	55.15598	5.09458	0.1410428	0.24101978	2.5572170	20	7 4.3	19.3
68523 2001 VR ₂₈	15.7	X	341.96572	307.98023	248.86670	6.58422	0.0821630	0.28170530	2.3046556	20	2 6.3	18.4
68524 2001 VZ ₃₁	15.8	X	289.37358	158.85504	34.29030	2.81970	0.1536225	0.27155302	2.3617448	20	—	—
68525 2001 VE ₃₃	15.6	X	120.78266	178.27976	305.38736	2.53269	0.0740287	0.23767059	2.5811847	20	6 1.9	19.1
68526 2001 VC ₄₄	14.7	X	233.87268	261.62745	60.42149	8.40933	0.2013951	0.23379391	2.6096399	20	3 9.9	19.1
68527 2001 VO ₅₉	15.5	X	99.40310	119.92347	28.11605	6.83283	0.0909647	0.29339553	2.2430230	20	6 10.5	18.3
68528 2001 VC ₆₀	14.5	X	286.32796	282.10366	26.38421	10.24596	0.0846318	0.18831499	3.0144827	20	4 28.1	19.7
68529 2001 VP ₆₃	15.6	X	174.19069	332.97088	347.89755	2.53316	0.0888081	0.22609430	2.6685559	20	1 10.1	18.6
68530 2001 VQ ₆₉	15.0	X	212.59593	20.31980	313.05507	9.22363	0.2060535	0.28806251	2.2706223	20	2 24.3	18.7
68531 2001 VQ ₉₁	15.4	X	337.35530	42.16836	111.84981	10.86226	0.1568557	0.22132662	2.7067426	20	—	—
68532 2001 UV ₉₂	14.7	X	102.88647	291.74468	111.89548	15.04539	0.1128926	0.22603323	2.6690366	20	2 3.5	18.2
68533 2001 VT ₉₄	14.9	X	132.28999	190.20880	130.29027	14.35223	0.1631771	0.21894856	2.7263064	20	—	—
68534 2001 VT ₉₅	15.0	X	185.45363	142.10065	118.45001	14.09066	0.1543747	0.21843686	2.7305624	20	—	—
68535 2001 VP ₉₇	15.2	X	60.95680	178.51871	188.21917	11.81499	0.1380515	0.26680115	2.3897048	20	—	—
68536 2001 VU ₁₁₅	15.5	X	239.56691	48.85568	269.85470	5.81457	0.1480647	0.28798544	2.2710273	20	3 2.3	18.9
68537 2001 VC ₁₂₃	15.6	X	261.17645	181.53800	294.58755	18.18452	0.0872432	0.36183489	1.9504243	20	12 17.8	17.2
68538 2001 VN ₁₂₅	15.2	X	192.67462	351.41792	237.92520	4.16929	0.1069054	0.21389946	2.7690423	20	12 29.1	19.2
68539 2001 WL ₂	15.9	X	150.44107	65.03147	115.44182	6.12574	0.0832550	0.29910330	2.2143958	20	10 2.4	18.9
68540 2001 WR ₉	14.7	X	308.60667	206.66953	106.78790	9.88237	0.0798211	0.18970341	2.9997562	20	6 7.5	18.7
68541 2001 WE ₄₀	15.8	X	243.14837	152.98393	220.22895	6.89392	0.1585602	0.29480911	2.2358472	20	5 20.2	19.0
68542 2001 WE ₉₉	15.9	X	24.47597	316.14176	255.33381	1.57621	0.1412509	0.23838525	2.5760234	20	5 21.9	18.2
68543 2001 WQ ₁₀₁	16.1	X	133.66593	177.71465	77.14014	1.54849	0.1519612	0.26193770	2.4191941	20	12 9.9	19.8
68544 2001 XO ₁₈	14.4	X	36.32623	115.30821	73.16367	15.30544	0.1406737	0.17737007	3.1372502	20	5 15.0	18.2
68545 2001 XQ ₂₃	14.3	X	117.95877	100.89258	77.62643	14.32770	0.1028437	0.24017026	2.5632437	20	8 20.3	18.3
68546 2001 XF ₂₆	15.0	X	124.45081	249.26691	304.49317	23.57307	0.2088536	0.24068028	2.5596212	20	9 4.4	19.7
68547 2001 XW ₂₉	15.1	X	319.04443	185.36605	274.48631	19.07104	0.1032866	0.36686683	1.9325486	20	—	—
68548 2001 XR ₃₁	16.5	X	199.32834	24.68984	302.05028	22.72010	0.4365969	0.44203585	1.7067283	20	1 30.5	19.6
68549 2001 XD ₅₂	15.6	X	86.11609	146.91171	96.20916	3.54606	0.0909640	0.30484225	2.1865158	20	10 12.6	18.3
68550 2001 XA ₅₄	16.1	X	315.75436	22.13105	175.29883	2.15715	0.1492936	0.27584794	2.3371660	20	—	—
68551 2001 XH ₅₇	14.2	X	198.87997	209.48687	82.63613	14.59646	0.1801552	0.22279232	2.6948582	20	1 3.1	18.7
68552 2001 XQ ₆₄	14.8	X	231.75396	306.71370	282.41442	11.24012	0.2255997	0.26248161	2.4158509	20	—	—
68553 2001 XF ₆₈	15.0	X	27.70757	71.84524	329.07779	18.20801	0.1089402	0.36737064	1.9307813	20	—	—
68554 2001 XY ₈₁	15.8	X	301.39433	353.12681	208.61827	4.11882	0.0706138	0.27600537	2.336			

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
68561 2001 XM ₁₅₆	15.8	X	326.93717	293.64476	206.61262	1.66048	0.1512949	0.21474711	2.7617509	20	—	—
68562 2001 XE ₁₉₅	15.4	X	28.02861	214.06855	166.37021	2.33449	0.1814136	0.26082336	2.4260796	20	—	—
68563 2001 XO ₂₀₆	16.0	X	171.44189	288.98710	179.21134	3.14316	0.1017434	0.29575744	2.2310652	20	7 13.5	19.1
68564 2001 XF ₂₁₃	14.9	X	122.60290	355.09303	124.31578	14.75253	0.1440589	0.23390999	2.6087764	20	6 8.9	19.0
68565 2001 XV ₂₃₉	14.8	X	243.27277	127.95437	95.59448	13.77461	0.1501706	0.21243208	2.7817792	20	—	—
68566 2001 XT ₂₄₃	16.0	X	77.92596	290.69350	265.80980	5.69220	0.1310846	0.28843742	2.2686542	20	7 27.5	18.9
68567 2001 XB ₂₄₈	16.0	X	220.02412	339.28312	273.06430	4.04663	0.1964904	0.26752096	2.3854162	20	—	—
68568 2001 XV ₂₅₉	15.5	X	157.76705	271.04995	127.14263	5.51631	0.0395826	0.23421197	2.6065336	20	3 25.3	19.1
68569 2001 YE ₃	14.9	X	226.69330	252.46951	280.63886	22.05742	0.2931138	0.31016539	2.1614266	20	11 21.7	18.0
68570 2001 YQ ₄	16.4	X	187.63729	84.58062	126.28132	23.29653	0.0639274	0.36766142	1.9297631	20	—	—
68571 2001 YR ₁₀	15.0	X	175.54460	253.12726	67.62481	10.62157	0.2433313	0.27491425	2.3424548	20	1 15.7	18.9
68572 2001 YQ ₁₉	15.8	X	338.65561	312.18878	284.29697	5.73548	0.1739926	0.27972804	2.3155032	20	3 15.9	18.1
68573 2001 YX ₂₄	15.8	X	90.24386	149.92790	43.39672	1.30905	0.1202127	0.24297346	2.5434907	20	8 4.7	19.3
68574 2001 YQ ₂₇	15.6	X	350.35274	347.97605	271.45120	3.77238	0.1027158	0.23963981	2.5670248	20	5 27.3	18.3
68575 2001 YO ₄₃	15.1	X	113.12500	62.83078	285.47281	5.33301	0.1440937	0.27130783	2.3631675	20	—	—
68576 2001 YC ₅₃	15.8	X	340.26523	164.13751	74.05895	7.43181	0.1416221	0.28516117	2.2859977	20	4 3.6	18.0
68577 2001 YM ₅₉	15.4	X	134.37587	112.79726	68.05609	5.90128	0.1508999	0.24483439	2.5305860	20	9 10.6	19.4
68578 2001 YP ₇₅	15.4	X	139.57842	161.78406	91.34368	13.32914	0.1553500	0.25666774	2.4521961	20	12 12.7	19.3
68579 2001 YB ₈₃	14.1	X	33.61289	91.52302	96.58432	19.35494	0.2110806	0.17352304	3.1834494	20	5 21.5	17.9
68580 2001 YG ₉₁	15.1	X	165.64829	59.92907	104.08699	11.47240	0.0499741	0.24571650	2.5245259	20	9 24.3	18.8
68581 2001 YG ₁₁₈	15.4	X	260.90428	215.61020	82.79603	2.61902	0.0329942	0.22634525	2.6665831	20	3 21.6	19.1
68582 2001 YS ₁₁₈	14.8	X	274.34842	116.93638	113.49280	9.92648	0.1077888	0.21598914	2.7511532	20	1 3.7	18.7
68583 2001 YD ₁₅₀	15.3	X	14.80921	341.83924	198.24065	11.48406	0.1294206	0.22927396	2.6403724	20	3 15.4	18.1
68584 2002 AT ₃	15.1	X	180.02861	292.62349	130.26289	15.53164	0.0687285	0.23272890	2.6175953	20	5 26.5	19.2
68585 2002 AY ₆	15.1	X	217.16946	326.54853	264.34031	13.53087	0.2181926	0.25919170	2.4362507	20	—	—
68586 2002 AC ₈	16.3	X	198.81542	43.12836	189.90128	4.89315	0.0742396	0.31419501	2.1429064	20	—	—
68587 2002 AD ₁₀	15.0	X	98.06231	82.80170	114.57117	5.09469	0.1241753	0.23543507	2.5974983	20	8 19.9	18.6
68588 2002 AF ₁₀	15.4	X	268.33254	155.57087	57.87186	3.70743	0.1417038	0.26328370	2.4109419	20	—	—
68589 2002 AG ₁₀	15.7	X	345.53412	149.73254	45.94530	3.39212	0.0986004	0.27105249	2.3646514	20	2 14.6	18.2
68590 2002 AZ ₁₇	15.7	X	17.32077	281.21530	149.76049	23.95645	0.1167392	0.37175685	1.9155643	20	—	—
68591 2002 AO ₂₄	15.1	X	332.19144	8.83237	262.88250	12.31963	0.1310150	0.23265376	2.6181589	20	5 8.2	18.2
68592 2002 AS ₂₇	15.2	X	36.42337	37.49685	84.18870	14.86881	0.0444372	0.22025715	2.7154973	20	2 6.1	18.8
68593 2002 AT ₂₈	16.2	X	6.98252	256.87075	116.80413	24.04795	0.1167224	0.36119941	1.9527112	20	—	—
68594 2002 AJ ₃₇	14.4	X	217.70816	191.20247	115.99420	14.66842	0.1712342	0.22491846	2.6778484	20	2 6.4	18.8
68595 2002 AN ₃₇	15.3	X	48.21859	42.62685	260.61908	6.05314	0.1400441	0.25558121	2.4591410	20	11 10.6	18.5
68596 2002 AW ₃₈	15.4	X	157.82106	120.52950	163.62900	4.75229	0.0798042	0.20891258	2.8129347	20	—	—
68597 2002 AX ₄₂	15.7	X	35.94787	112.50012	136.91304	5.87070	0.1362146	0.23900600	2.5715611	20	8 7.8	18.7
68598 2002 AY ₅₀	15.8	X	290.34207	80.65748	126.10482	2.93818	0.1519859	0.26796423	2.3827848	20	—	—
68599 2002 AU ₆₂	15.4	X	303.22126	47.83665	178.92234	2.29736	0.1584206	0.27052408	2.3677296	20	1 16.2	18.5
68600 2002 AS ₆₄	15.8	X	5.72458	60.05642	158.72744	6.29598	0.1726895	0.27902025	2.3194174	20	4 23.7	17.5
68601 2002 AD ₆₆	15.5	X	294.71960	85.48916	177.51833	4.39913	0.1258106	0.22215721	2.6999918	20	2 19.8	19.5
68602 2002 AB ₈₂	14.9	X	82.64884	26.61419	119.78416	14.49618	0.1424248	0.23187717	2.6240014	20	5 28.9	18.6
68603 2002 AR ₈₆	14.8	X	355.74933	351.03330	260.82829	8.08823	0.2053474	0.23083245	2.6319127	20	5 23.0	16.9
68604 2002 AJ ₁₀₀	15.8	X	349.63371	160.87444	93.73100	6.28595	0.1323666	0.28484265	2.2877016	20	5 17.9	17.7
68605 2002 AQ ₁₁₂	14.0	X	35.08803	121.06366	119.78681	16.12896	0.2230294	0.17965175	3.1106304	20	8 2.0	17.6
68606 2002 AT ₁₁₂	15.1	X	7.76585	120.37624	116.74325	12.93821	0.2262763	0.22794135	2.6541205	20	6 3.2	17.4
68607 2002 AP ₁₁₆	15.7	X	349.67999	242.68024	315.37223	2.03944	0.1505651	0.27477076	2.3432702	20	2 15.4	17.8
68608 2002 AM ₁₁₇	14.4	X	293.93537	311.06827	314.17209	23.03629	0.2431945	0.27430005	2.3459502	20	2 10.7	17.9
68609 2002 AT ₁₁₈	15.7	X	348.43398	164.75357	115.81719	8.18474	0.0750532	0.28720097	2.2751609	20	6 28.0	18.0
68610 2002 AD ₁₂₂	15.1	X	309.09499	161.35013	120.38672	14.69821	0.2375788	0.22645925	2.6656881	20	4 6.4	18.7
68611 2002 AG ₁₂₂	15.1	X	93.07839	104.06655	105.07443	5.60098	0.1276374	0.23784437	2.5799273	20	8 31.4	18.8
68612 2002 AM ₁₂₅	15.5	X	245.53454	143.84732	64.78302	3.17227	0.1539365	0.25791595	2.4442779	20	—	—
68613 2002 AH ₁₃₁	15.5	X	103.50027	179.29544	154.77898	24.18919	0.0548031	0.36711003	1.9316950	20	—	—
68614 2002 AL ₁₃₆	16.1	X	208.16098	148.09663	208.61860	2.89565	0.0713612	0.22997201	2.6388473	20	3 28.6	20.0
68615 2002 AC ₁₄₈	14.4	X	307.23083	312.51274	336.17216	14.05066	0.0944274	0.17998451	3.1067952	20	4 24.1	18.8
68616 2002 AO ₁₅₂	15.8	X	242.34671	103.79691	127.25843	3.12022	0.1418721	0.26248257	2.4158450	20	—	—
68617 2002 AL ₁₅₉	16.0	X	200.99703	29.96911	219.61600	0.62542	0.1468185	0.26007511	2.4307307	20	—	—
68618 2002 AK ₁₆₄	16.6	X	135.14070	16.52183	233.48010	1.89821	0.1530548	0.30307775	2.1949940	20	12 12.7	19.9
68619 2002 AS ₁₆₆	16.5	X	245.92149	277.05362	276.79211	3.37893	0.0768855	0.31215848	2.1522165	20	—	—
68620 2002 AL ₁₇₈	15.6	X	52.43058	148.73980	109.47486	5.45630	0.1905446	0.23744137	2.5828456	20	9 25.5	19.0
68621 2002 AK ₁₈₉	15.1	X	110.83033	344.82776	218.11307	11.02143	0.1825458	0.23952902	2.5678164	20	9 10.5	19.3
68622 2002 BQ	15.6	X	15.21185	19.55691	150.47175	5.89857	0.0685586	0.27393694	2.3480228	20	2 27.9	18.1
68623 2002 BL ₈	14.1	X	190.96757	328.20796	117.74627	14.51095	0.1142576	0.23575419	2.5951538	20	7 2.9	18.0
68624 2002 BS ₈	15.8	X	345.47803	231.32255	341.93212	4.69072	0.1448215	0.27581164	2.3373710	20	3 2.3	17.7
68625 2002 BW ₁₁	16.3	X	307.08302	94.32010	135.17023	1.21019	0.1759716	0.27249112	2.3563211	20	1 22.1	19.1
68626 2002 BK ₁₆	15.4	X	39.45245	99.30758	163.14683	7.79224	0.1725542	0.23549236	2.5970771	20	9 6.8	18.5
68627 2002 BF ₁₇	15.6	X	288.06828	308.98353	313.78078	7.05218	0.1164174	0.27367296	2.3495325	20	2 18.8	18.8
68628 2002 BU ₁₇	16.0	X	302.00615	294.48129	291.67258	1.55093	0.1536042	0.27240753	2.3568032	20	1 14.8	19.0
68629 2002 BZ ₁₇	15.6	X	121.61162	101.85588	126.24040	6.59782	0.1948422	0.24441730	2.5334641	20	10 28.8	19.8
68630 2002 BU ₂₅	14.6	X	135.70145	252.82217	312.54192	13.19334	0.1570680	0.24112460	2.5564759	20	10 2.1	19.0
68631 2002 BW ₂₈	14.3	X	173.95977	312.23027	113.93719	17.32947	0.0763365	0.17412986	3.1760492	20	5 25.1	19.4
68632 2002 CN ₇	16.3	X	77.35818	97.84887	332.90039	22.64136	0.0918746	0.38017446	1.8871833	20	—	—
68633 2002 CY ₁₃	16.0	X	306.30226	229.87816	4.80902	2.64640	0.1234154	0.27108758	2.3644473	20	2 5.9	18.9
68634 2002 CY ₁₄	16.1	X	204.81669	263.02798	334.23657	1.52328	0.1664993	0.25791365	2.4442924</			

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
68641 2002 CR ₄₃	15.5	X	302.09704	287.73024	339.23079	9.61010	0.2105259	0.27759000	2.3273776	20	2 28.9	18.5
68642 2002 CH ₄₅	15.8	X	244.56686	171.66129	149.17978	7.27863	0.2384835	0.27777470	2.3263458	20	3 8.9	19.6
68643 2002 CZ ₄₉	15.3	X	267.89616	26.13025	236.24314	5.66335	0.2259191	0.27030261	2.3690227	20	1 16.7	19.1
68644 2002 CX ₅₀	15.9	X	190.64369	107.47445	157.11527	0.48948	0.1714934	0.25916390	2.4364250	20	—	—
68645 2002 CQ ₅₂	14.6	X	359.82703	12.87838	163.89216	27.00961	0.1630441	0.26870559	2.3784001	20	1 31.9	17.4
68646 2002 CN ₅₃	15.4	X	261.39157	51.23760	180.56575	2.67791	0.1354352	0.26457063	2.4031172	20	—	—
68647 2002 CG ₅₄	16.0	X	155.55412	317.75300	312.77611	1.48727	0.1072907	0.25528847	2.4610206	20	—	—
68648 2002 CT ₅₅	15.1	X	207.23442	30.23950	261.88412	2.38090	0.0705378	0.26559108	2.3969578	20	1 2.4	18.2
68649 2002 CZ ₅₇	16.1	X	283.55041	275.42918	308.15043	2.35947	0.1473107	0.26578944	2.3957651	20	—	—
68650 2002 CP ₅₉	15.8	X	92.08755	109.29460	158.93849	10.99224	0.2399080	0.24145175	2.5541662	20	11 23.0	20.2
68651 2002 CS ₆₀	15.5	X	225.70467	214.69526	46.02850	7.98523	0.0872783	0.21303304	2.7765451	20	—	—
68652 2002 CU ₇₄	15.8	X	215.71552	141.69034	137.28059	5.41851	0.2107237	0.26538451	2.3982015	20	—	—
68653 2002 CL ₇₈	16.1	X	273.81298	255.23736	20.13884	2.29355	0.1885846	0.27339956	2.3510986	20	2 12.4	19.4
68654 2002 CR ₇₈	15.8	X	210.31655	128.87767	132.89918	9.15261	0.1556874	0.26184938	2.4197380	20	—	—
68655 2002 CS ₇₈	16.3	X	294.00836	329.53963	331.47009	5.83375	0.1228471	0.28108971	2.3080192	20	4 1.8	19.1
68656 2002 CU ₇₈	15.6	X	173.40959	129.13889	132.91999	2.75733	0.1381928	0.25655349	2.4529240	20	—	—
68657 2002 CW ₈₇	16.0	X	271.75809	321.97917	337.26245	1.82246	0.117281	0.27794213	2.3254114	20	3 7.7	19.4
68658 2002 CN ₈₉	16.3	X	235.40306	164.42817	97.48496	3.28372	0.1818627	0.26492146	2.4009952	20	—	—
68659 2002 CH ₉₁	15.9	X	225.15343	263.46383	26.00121	2.72223	0.1721145	0.26776476	2.3839681	20	1 17.5	19.7
68660 2002 CZ ₉₁	16.2	X	357.73517	313.85684	335.90520	6.80064	0.1226429	0.28789732	2.2714907	20	8 4.1	18.1
68661 2002 CR ₉₃	16.4	X	321.92276	157.28674	88.89616	2.58270	0.0817917	0.27686509	2.3314383	20	3 21.9	19.1
68662 2002 CP ₉₄	15.3	X	232.21503	235.14183	86.35434	3.14110	0.0914739	0.22102218	2.7092275	20	3 12.4	19.3
68663 2002 CM ₉₉	15.7	X	288.16400	151.12999	73.71110	2.39432	0.1359564	0.26684635	2.3894349	20	—	—
68664 2002 CN ₁₀₀	15.8	X	34.21474	160.03920	136.05316	2.55885	0.1263846	0.23962639	2.5671207	20	10 9.9	18.8
68665 2002 CM ₁₀₁	15.5	X	176.47783	215.47534	80.87984	3.43614	0.1280545	0.26078802	2.4262988	20	—	—
68666 2002 CN ₁₀₄	14.8	X	4.78006	66.71948	149.58364	13.33880	0.0803175	0.27728678	2.3290739	20	4 23.1	17.5
68667 2002 CJ ₁₀₇	15.4	X	208.25156	194.07293	83.65059	3.19591	0.1926208	0.26009818	2.4305870	20	—	—
68668 2002 CA ₁₀₉	16.0	X	76.06829	45.79866	131.97820	4.31070	0.1216081	0.28148924	2.3058348	20	6 26.7	18.7
68669 2002 CJ ₁₀₉	16.2	X	285.90684	169.70594	84.62347	3.36274	0.0915547	0.27183234	2.3601266	20	2 10.9	19.4
68670 2002 CV ₁₁₀	15.5	X	277.83484	111.32598	152.36045	11.93400	0.1197962	0.21606118	2.7505416	20	2 15.2	19.4
68671 2002 CC ₁₁₂	14.3	X	112.21786	247.01488	162.40077	9.29960	0.1717605	0.21538583	2.7562882	20	3 1.6	18.3
68672 2002 CS ₁₁₄	14.0	X	349.82137	85.26012	137.90004	18.54023	0.0698881	0.16793929	3.2536276	20	4 18.5	18.6
68673 2002 CD ₁₁₅	16.1	X	230.79394	19.37122	267.71357	2.03170	0.1740953	0.26924497	2.3752226	20	1 18.4	19.9
68674 2002 CV ₁₁₇	15.9	X	324.44621	31.59279	266.29073	0.65295	0.1470745	0.28270046	2.2992439	20	6 1.9	17.7
68675 2002 CJ ₁₂₃	16.4	X	12.24396	11.38615	256.16235	2.78596	0.1199392	0.28787572	2.2716043	20	7 25.5	18.4
68676 2002 CZ ₁₂₅	15.8	X	218.06125	279.89146	137.90332	1.91566	0.1335998	0.25946080	2.4345659	20	—	—
68677 2002 CW ₁₃₃	15.0	X	159.75426	142.71276	167.27564	10.01726	0.2032353	0.25803280	2.4435399	20	—	—
68678 2002 CL ₁₃₄	16.0	X	192.29351	304.39588	338.16612	3.90815	0.0276172	0.26169780	2.4206723	20	—	—
68679 2002 CP ₁₃₄	14.2	X	219.06973	314.90855	354.76945	7.77924	0.3029429	0.21063559	2.7975738	20	2 9.9	19.4
68680 2002 CV ₁₃₄	14.0	X	75.45345	52.21323	187.06740	23.44914	0.1531483	0.18001715	3.1064196	20	9 11.5	18.6
68681 2002 CE ₁₃₈	16.1	X	311.69585	84.24427	174.39128	6.95335	0.0871171	0.27899385	2.3195637	20	3 21.9	18.9
68682 2002 CR ₁₄₀	15.5	X	327.29704	82.73870	147.24017	15.24574	0.0847930	0.22425682	2.6831128	20	3 14.2	18.9
68683 2002 CX ₁₄₁	15.5	X	108.30401	41.74427	203.26633	6.53351	0.2234551	0.24227029	2.5484099	20	11 5.9	19.8
68684 2002 CC ₁₄₂	15.3	X	260.61274	358.59842	315.83673	23.14769	0.1569864	0.27765503	2.3270141	20	3 9.8	19.2
68685 2002 CK ₁₄₂	15.5	X	17.35255	321.23641	211.86277	4.88497	0.1750309	0.27203484	2.3589552	20	3 1.7	17.5
68686 2002 CL ₁₄₅	15.9	X	112.28242	290.86111	320.40367	4.64895	0.1442510	0.24363295	2.5388987	20	11 11.0	19.9
68687 2002 CV ₁₄₅	15.8	X	8.03831	60.97283	194.77929	4.59475	0.1344451	0.22932217	2.6434556	20	6 25.2	18.6
68688 2002 CX ₁₄₅	16.2	X	238.06655	109.14306	157.57053	2.50424	0.1709205	0.26519255	2.3993587	20	—	—
68689 2002 CZ ₁₅₀	16.1	X	351.90861	173.08891	80.47482	7.75540	0.0698467	0.28318817	2.2966033	20	5 23.4	18.3
68690 2002 CD ₁₆₄	15.2	X	196.74658	132.29129	102.01892	16.14987	0.1047741	0.20518779	2.8468748	20	—	—
68691 2002 CO ₁₆₅	15.2	X	330.43768	216.73784	81.65498	5.14468	0.1789304	0.23223436	2.6213101	20	6 10.4	17.4
68692 2002 CV ₁₆₇	15.1	X	353.45675	114.85902	127.03404	13.00787	0.1196940	0.22591788	2.6699450	20	5 12.5	18.3
68693 2002 CX ₁₆₈	15.3	X	153.84529	174.18406	105.01956	5.27653	0.1685034	0.24595642	2.5228839	20	11 11.7	19.3
68694 2002 CG ₁₆₉	15.0	X	33.77440	162.81226	46.30747	5.68425	0.1136234	0.23558528	2.5963941	20	8 30.9	18.1
68695 2002 CB ₁₇₁	15.3	X	94.93730	183.45668	76.43432	5.54055	0.1460799	0.24200869	2.5502460	20	11 7.6	19.1
68696 2002 CX ₁₇₃	13.8	X	330.33147	129.45211	146.76540	20.44670	0.1689770	0.171114081	3.2129231	20	5 17.3	18.1
68697 2002 CR ₁₇₆	16.1	X	270.44738	191.07866	80.99412	1.36507	0.1885947	0.27509477	2.3414299	20	2 4.2	19.5
68698 2002 CG ₁₈₃	14.8	X	345.23196	251.96530	57.87134	0.49873	0.1602474	0.18493226	3.0511316	20	7 26.8	18.1
68699 2002 CY ₁₉₂	15.7	X	90.08687	205.30998	117.46645	8.43188	0.1445937	0.25558309	2.4591289	20	—	—
68700 2002 CN ₁₉₈	15.9	X	306.82046	179.13126	124.60020	2.47359	0.1280059	0.23042745	2.6349957	20	5 14.7	19.0
68701 2002 CJ ₂₀₀	16.4	X	227.84010	171.72155	112.44556	3.41893	0.1819682	0.26806447	2.3821908	20	1 12.6	20.0
68702 2002 CU ₂₁₅	16.2	X	229.82822	185.49576	123.87868	3.56789	0.1714428	0.27128186	2.3633183	20	2 14.4	19.8
68703 2002 CO ₂₁₉	16.1	X	258.51288	92.10469	146.18629	6.59591	0.0842548	0.26415145	2.4056589	20	—	—
68704 2002 CY ₂₁₉	15.5	X	188.39829	156.89812	150.23610	3.57904	0.1218538	0.26317049	2.4116332	20	1 3.8	19.0
68705 2002 CM ₂₂₁	15.5	X	220.49835	290.60951	19.62428	6.91058	0.1240175	0.26804040	2.3823334	20	2 10.6	19.2
68706 2002 CX ₂₃₄	14.4	X	304.26302	98.65029	198.91836	17.37072	0.2660441	0.16283327	3.3212937	20	4 13.8	18.7
68707 2002 CX ₂₃₅	14.5	X	330.84769	345.68676	277.58196	22.98129	0.1617501	0.27996943	2.3141721	20	4 4.1	17.6
68708 2002 CC ₂₄₂	15.8	X	223.95458	111.77608	211.09417	2.38147	0.1764499	0.27186427	2.3599418	20	2 24.1	19.5
68709 2002 CE ₂₄₄	15.8	X	258.60241	223.37774	335.21220	3.76319	0.1627410	0.25756743	2.4464823	20	—	—
68710 2002 CN ₂₄₄	15.9	X	59.36653	318.53620	174.73231	2.04714	0.1037890	0.27406055	2.3473167	20	3 22.7	18.0
68711 2002 CV ₂₄₄	15.2	X	66.52435	42.20014	175.16327	22.14401	0.0776238	0.23088578	2.6315073	20	7 26.7	19.1
68712 2002 CO ₂₄₉	15.8	X	286.16589	74.33993	209.17760	4.38176	0.1548921	0.27484704	2.3428366	20	3 9.2	19.0
68713 2002 CX ₂₅₃	15.0	X	304.58602	185.89749	123.42996	12.99879	0.1459592	0.23120477	2.6290864	20	5 19.9	18.5
68714 2002 CS ₂₅₉	15.8	X	261.70697	192.97319	112.23917	12.08660	0.1943866	0.27735565				

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
68721 2002 DC ₆	14.8	X	358.76286	319.84388	293.55623	11.94903	0.1125704	0.22684386	2.6626742	20	6 2.5	17.8
68722 2002 DF ₆	15.0	X	189.22181	208.49446	4.25748	2.68127	0.0934967	0.19116279	2.9844695	20	12 2.1	19.5
68723 2002 DH ₁₀	15.3	X	217.00365	129.84452	168.56853	10.28212	0.0957124	0.21472735	2.7619203	20	1 26.2	19.6
68724 2002 DH ₁₂	16.0	X	201.90941	106.48697	171.23164	22.45610	0.0550785	0.37368122	1.9089822	20	—	—
68725 2002 ED ₃	12.3	X	201.97545	131.36319	25.80853	13.06484	0.1059093	0.08320916	5.1962331	20	9 29.1	19.6
68726 2002 EZ ₅	14.3	X	117.45817	81.30294	141.21924	5.51752	0.1786356	0.18510369	3.0492475	20	10 9.9	19.2
68727 2002 EH ₆	15.8	X	229.48997	128.33597	149.15311	2.78957	0.1731909	0.26425325	2.4050410	20	1 6.3	19.6
68728 2002 EP ₆	16.6	X	352.90802	200.11008	347.28207	0.21288	0.1408388	0.27036947	2.3686321	20	2 8.0	18.9
68729 2002 EG ₁₂	15.6	X	356.74460	192.50293	132.36230	4.81099	0.2249953	0.29069993	2.2568677	20	10 16.2	17.2
68730 2002 Strazys	16.2	X	15.56262	89.57918	92.95274	1.23885	0.1999148	0.21880868	2.7274681	20	3 24.9	18.5
68731 2002 ES ₁₆	14.6	X	11.27356	23.56186	111.01720	24.65811	0.1589626	0.27456860	2.3444203	20	—	—
68732 2002 EF ₂₁	15.9	X	325.59527	183.30864	53.59633	6.54175	0.0782968	0.27463972	2.3440155	20	3 17.2	18.6
68733 2002 EF ₂₅	14.3	X	18.88489	16.30360	191.68754	15.86205	0.1510778	0.17235003	3.1978774	20	5 11.2	18.2
68734 2002 ET ₂₆	15.8	X	263.27612	3.86803	310.30010	5.98593	0.1234313	0.27661619	2.3328366	20	3 25.2	19.1
68735 2002 ET ₂₆	14.4	X	248.06988	20.87012	208.45730	4.97382	0.2045656	0.20492054	2.8493495	20	—	—
68736 2002 EQ ₂₈	15.5	X	327.70477	146.60221	144.50625	5.07641	0.1825272	0.22705678	2.6610093	20	5 25.5	18.2
68737 2002 EU ₂₈	16.2	X	288.57804	188.21466	148.08655	6.31511	0.1908534	0.28392271	2.2926405	20	5 22.9	18.9
68738 2002 EJ ₃₅	15.0	X	343.48985	198.23954	70.02661	0.83356	0.3098685	0.16907389	3.2390552	20	5 10.3	18.0
68739 2002 EK ₃₈	15.9	X	242.87650	165.70275	146.36995	4.56950	0.2084656	0.22099500	2.7094497	20	3 2.4	20.2
68740 2002 EY ₃₈	16.5	X	250.45780	167.94404	140.13448	3.33573	0.1759787	0.27521670	2.3407383	20	3 2.3	19.9
68741 2002 EM ₄₀	13.9	X	14.06284	48.55895	194.83660	10.53358	0.1534427	0.17110484	3.2133733	20	6 17.8	17.8
68742 2002 EO ₄₁	15.4	X	261.01951	75.51778	179.52188	8.87420	0.1926644	0.21252462	2.7809716	20	1 11.5	20.1
68743 2002 EY ₄₂	16.1	X	89.20624	316.99831	287.46525	2.54334	0.1220979	0.23862704	2.5742829	20	10 7.9	20.0
68744 2002 EV ₄₃	15.6	X	346.51767	341.71840	350.85048	2.64139	0.1992731	0.28985454	2.2612538	20	9 26.7	17.0
68745 2002 EP ₄₅	15.9	X	290.86487	1.54300	86.60599	5.64232	0.0524861	0.30332297	2.1938109	20	12 7.7	17.8
68746 2002 EM ₄₆	16.2	X	70.70715	341.91407	314.09941	2.78672	0.1426418	0.24348389	2.5399348	20	11 25.6	20.0
68747 2002 EL ₄₉	16.2	X	193.04333	13.52974	286.71473	0.51850	0.1839347	0.26365075	2.4087037	20	1 2.9	19.9
68748 2002 EE ₅₇	16.0	X	33.48079	99.12151	171.29284	13.51545	0.1526681	0.23513312	2.5997216	20	9 4.3	19.0
68749 2002 EJ ₆₃	15.8	X	228.12419	125.36106	191.86142	1.99804	0.2185897	0.26996202	2.3710148	20	2 19.9	19.9
68750 2002 EM ₆₈	15.9	X	291.49560	169.41934	176.02437	8.62223	0.1501664	0.28459887	2.2890078	20	6 16.2	18.6
68751 2002 ES ₆₉	14.5	X	44.53255	124.90394	189.33831	14.10845	0.2147738	0.18562314	3.0435561	20	11 19.2	18.9
68752 2002 EF ₇₀	15.8	X	196.26690	283.73931	356.20417	6.07481	0.0768101	0.25965344	2.4336117	20	—	—
68753 2002 EY ₇₄	15.4	X	189.07115	303.64608	231.60206	1.61502	0.0480933	0.24253693	2.5465417	20	10 30.7	18.8
68754 2002 EM ₇₅	15.5	X	118.15642	321.15133	293.85405	8.95253	0.2032056	0.24577972	2.5240930	20	11 23.5	19.9
68755 2002 EN ₇₉	15.6	X	243.19681	351.68154	276.61639	5.46736	0.0851704	0.26397384	2.4067379	20	1 11.2	19.1
68756 2002 EW ₈₃	15.8	X	224.22600	207.21794	117.16461	3.39528	0.1825204	0.27059457	2.3673183	20	2 28.1	19.6
68757 2002 EH ₈₆	15.0	X	237.11814	132.48811	154.47001	2.38810	0.1731498	0.20982749	2.8047519	20	1 30.3	19.7
68758 2002 EB ₈₇	15.7	X	30.02957	48.60468	131.86224	2.77711	0.1619499	0.27421556	2.3464321	20	4 15.9	17.5
68759 2002 EH ₈₇	15.2	X	101.50629	166.55977	170.05409	6.24482	0.1579691	0.25421980	2.4679128	20	—	—
68760 2002 EL ₈₇	15.5	X	132.16354	170.34917	163.86363	8.06991	0.1435267	0.25817399	2.4426490	20	—	—
68761 2002 ES ₈₉	15.9	X	59.64516	333.56693	301.72645	6.77624	0.0918754	0.29424702	2.2386937	20	10 16.1	18.9
68762 2002 EE ₉₄	14.2	X	335.80927	161.08641	157.14856	17.71937	0.1969119	0.17954821	3.1118262	20	7 15.8	17.8
68763 2002 ED ₉₆	15.2	X	284.37092	61.91243	201.28052	9.07205	0.1848401	0.21470186	2.7621389	20	2 16.1	19.3
68764 2002 EY ₉₈	15.6	X	161.86943	299.24773	334.04855	6.10896	0.0672167	0.25382154	2.4704936	20	—	—
68765 2002 EE ₉₉	15.1	X	329.19082	111.11384	211.41662	3.74198	0.1633220	0.28310610	2.2970471	20	7 21.7	16.8
68766 2002 EN ₁₀₂	12.6	X	95.01174	64.82781	201.94991	11.31310	0.0349982	0.08278899	5.2137993	20	10 9.2	19.5
68767 2002 ES ₁₀₄	15.5	X	154.05954	159.42313	165.16265	14.45155	0.2585453	0.26264367	2.4148570	20	1 3.4	19.6
68768 2002 EC ₁₀₆	15.2	X	299.62737	182.12348	86.40077	9.36159	0.0968024	0.21924078	2.7238833	20	3 27.7	18.9
68769 2002 ER ₁₁₀	15.1	X	308.62638	102.02715	148.02848	11.91934	0.0812806	0.21794023	2.7347090	20	3 15.1	18.7
68770 2002 EJ ₁₃₁	16.4	X	165.03016	144.79215	170.12077	1.39783	0.1917598	0.25982096	2.4323156	20	—	—
68771 2002 EW ₁₃₈	16.8	X	341.01996	175.63100	163.06269	5.15752	0.1835371	0.29102031	2.2552110	20	9 23.6	18.1
68772 2002 EB ₁₄₇	15.7	X	264.26321	34.80494	257.20300	4.73638	0.1935288	0.27106825	2.3645597	20	2 20.5	19.5
68773 2002 EB ₁₅₃	14.9	X	315.98421	61.84370	188.78849	25.70081	0.2740206	0.21793057	2.7347898	20	2 19.5	18.9
68774 2002 EG ₁₅₃	15.2	X	39.74085	350.59304	312.85701	12.56766	0.1635082	0.23989463	2.5652067	20	10 25.9	18.8
68775 2002 EH ₁₅₄	14.9	X	279.97582	157.76965	174.06382	9.93244	0.1785417	0.22985638	2.6393582	20	5 8.6	18.6
68776 2002 EZ ₁₅₄	15.5	X	75.22923	214.14203	81.05925	5.84880	0.1740799	0.24452874	2.5326943	20	12 3.4	19.3
68777 2002 FD ₁	15.3	X	238.89083	309.11168	8.91462	8.38416	0.2270364	0.26861955	2.3789079	20	3 3.3	19.2
68778 2002 FO ₂	14.6	X	137.73837	158.12520	185.19581	7.97429	0.2490095	0.25840553	2.4411896	20	1 10.1	18.4
68779 2002 Schoninger	15.4	X	54.53362	45.24433	170.43024	5.02688	0.1450668	0.22842021	2.6504098	20	7 19.5	18.8
68780 2002 FQ ₃	15.7	X	70.54019	186.14203	187.26651	3.45015	0.0609139	0.25504077	2.4626138	20	—	—
68781 2002 FN ₇	14.8	X	66.67671	356.74489	207.22407	17.54137	0.1308021	0.22673776	2.6635048	20	7 15.0	18.7
68782 2002 FW ₇	15.1	X	262.87819	358.34357	305.77526	6.59216	0.1141059	0.27329963	2.3516717	20	3 12.7	18.3
68783 2002 FZ ₉	15.5	X	311.61018	4.83329	240.47844	3.77388	0.0329844	0.27136211	2.3628523	20	3 9.9	18.5
68784 2002 FK ₁₀	15.9	X	283.91397	295.34450	295.55263	5.71670	0.0938407	0.26590752	2.3950558	20	1 8.6	19.2
68785 2002 FS ₁₁	14.6	X	116.10957	33.57913	193.18054	10.58287	0.1099519	0.18356191	3.0662978	20	10 7.0	19.4
68786 2002 FA ₁₃	15.3	X	284.69815	112.92997	172.86000	8.25104	0.1842607	0.21648516	2.7469442	20	3 13.4	19.0
68787 2002 FJ ₁₃	15.1	X	263.05310	155.46435	167.99379	7.48886	0.1373633	0.27429581	2.3459744	20	4 9.8	18.4
68788 2002 FU ₁₃	12.7	X	203.69244	77.62942	82.65125	6.45657	0.0402358	0.08141695	5.2722114	20	10 7.8	19.9
68789 2002 FD ₁₇	15.0	X	92.40365	339.16292	150.71407	7.64213	0.1030418	0.21854856	2.7296319	20	5 12.5	18.8
68790 2002 FL ₂₈	14.0	X	285.68939	189.12999	115.12719	16.67301	0.1556579	0.17190691	3.2033704	20	4 21.6	18.9
68791 2002 FR ₃₀	14.4	X	295.19517	218.35670	59.07196	11.87016	0.0472961	0.16912397	3.2384158	20	4 12.6	19.0
68792 2002 FY ₃₀	15.0	X	359.35162	51.12677	147.57366	9.87435	0.0611837	0.21364296	2.7712582	20	3 23.9	18.5
68793 2002 GR ₄	15.2	X	67.05887	184.79082	188.95170	23.95454	0.1938451	0.30747238	2.1740289	20	—	—
68794 2002 GZ ₆	14.8	X	228.09164	359.04977	138.77989	19.57448	0.					

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
68801 2002 GR ₂₀	15.3	X	220.04517	326.23271	13.59356	7.52830	0.1295669	0.26774819	2.3840665	20	3 16.9	18.8
68802 2002 GK ₂₁	14.4	X	2.62753	259.26235	37.53131	1.09188	0.1765454	0.17250399	3.1959743	20	8 11.4	17.8
68803 2002 GT ₂₅	14.7	X	98.12088	300.28769	310.94670	6.65053	0.2545935	0.18337589	3.0683711	20	10 27.2	20.0
68804 2002 GG ₂₆	15.5	X	155.10567	186.15218	283.74943	5.83886	0.1111265	0.28127615	2.3069992	20	6 27.7	18.8
68805 2002 GW ₃₈	14.8	X	177.01510	110.44786	186.03672	8.09653	0.1561498	0.20097969	2.8864759	20	—	—
68806 2002 GR ₄₀	15.9	X	339.25564	341.82230	336.64389	6.35714	0.1158558	0.28572611	2.2829834	20	8 11.8	17.7
68807 2002 GJ ₄₃	16.0	X	53.50103	151.64723	198.76992	3.29672	0.2078414	0.30130632	2.2035888	20	—	—
68808 2002 GR ₅₀	15.3	X	49.68857	9.37650	223.07797	11.90661	0.1192405	0.22974201	2.6402342	20	7 28.3	18.9
68809 2002 GB ₅₄	14.6	X	62.90095	328.89354	216.29327	8.03273	0.1521505	0.18313049	3.0711117	20	10 21.7	19.1
68810 2002 GO ₅₄	15.7	X	182.44682	342.34921	273.10060	5.18198	0.0885998	0.25345522	2.4728734	20	—	—
68811 2002 GD ₅₅	15.4	X	233.81293	347.30577	325.97472	6.38810	0.1195876	0.26934221	2.3746509	20	2 24.4	18.8
68812 2002 GB ₅₆	14.6	X	354.44545	116.44721	196.34002	1.23259	0.2247748	0.17285002	3.1917076	20	8 18.5	17.8
68813 2002 GR ₆₄	15.0	X	64.67693	132.74275	200.43180	10.46709	0.0645598	0.19015415	2.9950139	20	12 14.4	19.4
68814 2002 GB ₆₆	15.3	X	226.52766	180.02777	174.23379	5.75088	0.2003643	0.27245643	2.3565211	20	4 6.5	19.0
68815 2002 GB ₆₇	15.9	X	70.80191	256.29067	22.93424	3.12278	0.0720606	0.23884934	2.5726854	20	10 26.2	19.4
68816 2002 GF ₆₇	16.0	X	98.48367	177.68994	167.51179	0.74563	0.0401229	0.25360840	2.4718776	20	—	—
68817 2002 GV ₇₀	15.2	X	333.27771	198.27606	189.50817	12.88016	0.1694029	0.23993703	2.5649045	20	11 8.8	17.7
68818 2002 GH ₇₁	14.4	X	10.86084	190.02325	177.44472	17.18268	0.2072641	0.24403312	2.5361223	20	12 23.5	17.8
68819 2002 GO ₇₁	16.2	X	190.23856	121.25776	122.73375	4.43181	0.0389576	0.25300479	2.4758076	20	—	—
68820 2002 GB ₇₂	15.5	X	286.76526	113.38080	180.78914	12.13884	0.1751283	0.21845105	2.7304441	20	3 28.0	19.3
68821 2002 GM ₇₃	14.7	X	19.79879	86.56379	180.31127	17.88359	0.1407815	0.17383593	3.1796283	20	7 26.5	18.9
68822 2002 GD ₇₆	15.0	X	321.16793	187.67469	201.84001	12.22020	0.2359186	0.24174689	2.5520869	20	10 11.6	16.7
68823 2002 GZ ₈₀	15.7	X	26.09375	206.53987	101.40542	3.88605	0.1053012	0.23630121	2.5911472	20	10 7.4	18.9
68824 2002 GB ₈₁	15.5	X	239.97002	216.24098	158.86253	6.66105	0.1461141	0.27956203	2.3164197	20	5 21.8	18.8
68825 2002 GH ₈₁	15.7	X	303.05945	214.89746	136.86609	5.21811	0.1846071	0.28385562	2.2930017	20	7 10.5	17.6
68826 2002 GP ₈₂	14.9	X	124.47699	136.72149	145.76098	7.24933	0.1566640	0.19089832	2.9872253	20	12 22.3	19.9
68827 2002 GB ₈₅	15.5	X	216.97907	321.72615	172.40735	12.94064	0.1055020	0.24035071	2.5619606	20	10 5.6	19.1
68828 2002 GA ₈₆	15.2	X	199.16566	122.19134	154.08505	6.46073	0.2320243	0.20345117	2.8630521	20	—	—
68829 2002 GE ₈₈	15.4	X	34.51792	91.38038	159.62787	8.92007	0.0228686	0.22808561	2.6530013	20	7 20.7	18.9
68830 2002 GF ₈₈	15.2	X	220.45076	213.06054	132.67783	7.53497	0.0453641	0.21607207	2.7504492	20	4 3.7	19.2
68831 2002 GG ₈₉	14.4	X	348.14706	70.45873	123.96202	15.26539	0.1467997	0.21402446	2.7679640	20	2 21.8	17.6
68832 2002 GW ₉₁	14.8	X	342.99609	145.37918	223.77379	15.19270	0.2290504	0.24148801	2.5539105	20	11 5.5	16.8
68833 2002 GL ₉₈	15.5	X	182.98101	99.27309	230.92124	4.06779	0.1846583	0.26588885	2.3951679	20	1 28.8	19.4
68834 2002 GU ₁₀₄	14.1	X	311.84046	250.45425	102.33425	12.42367	0.0857789	0.17388506	3.1790293	20	8 2.3	18.2
68835 2002 GC ₁₀₅	14.8	X	357.42562	156.71462	166.94654	18.61702	0.2499267	0.23445757	2.6047130	20	10 2.5	17.0
68836 2002 GU ₁₀₅	15.1	X	87.89145	227.68586	146.08243	13.05954	0.2147536	0.25728208	2.4482909	20	—	—
68837 2002 GO ₁₀₉	15.0	X	280.66196	248.53272	160.27207	15.44560	0.0897918	0.23617544	2.5920670	20	9 6.3	18.2
68838 2002 GL ₁₁₅	15.9	X	253.60219	220.48803	144.66188	7.73311	0.1157879	0.28030336	2.3123337	20	5 28.5	19.1
68839 2002 GJ ₁₁₆	15.5	X	94.40913	243.95532	112.17439	7.60114	0.1996010	0.25302183	2.4756964	20	—	—
68840 2002 GB ₁₁₈	16.2	X	13.60091	223.05607	148.01599	6.16031	0.0898864	0.26067809	2.4269809	20	—	—
68841 2002 GJ ₁₁₈	15.1	X	321.19303	179.07286	147.99578	15.51122	0.0934797	0.23060497	2.6336432	20	7 14.7	18.3
68842 2002 GM ₁₂₂	15.6	X	152.98954	181.61474	168.69070	6.59521	0.1505308	0.26222175	2.4174467	20	1 23.1	19.1
68843 2002 GJ ₁₂₇	15.8	X	253.15744	145.32081	213.43221	4.31717	0.2166764	0.27991368	2.3144793	20	5 5.2	19.1
68844 2002 GL ₁₃₂	15.7	X	25.93965	349.81105	13.67823	2.66643	0.1812512	0.24429257	2.5343264	20	—	—
68845 2002 GU ₁₃₇	15.3	X	149.13723	315.76097	305.97537	3.33213	0.1287443	0.19232741	2.9724092	20	12 19.8	20.0
68846 2002 GV ₁₄₄	16.2	X	266.06881	199.71265	122.91001	3.29586	0.1746712	0.27521295	2.3407596	20	4 7.4	19.5
68847 2002 GK ₁₅₅	15.4	X	139.60696	204.49444	140.28836	7.09287	0.1582878	0.26027653	2.4294766	20	1 3.7	18.7
68848 2002 GU ₁₅₈	15.4	X	82.92006	206.50548	189.73982	13.08899	0.1251128	0.25748005	2.4470358	20	—	—
68849 2002 GH ₁₆₁	14.6	X	94.40623	224.74110	99.58635	10.89497	0.0782439	0.19239276	2.9661884	20	—	—
68850 2002 GK ₁₆₅	15.3	X	270.67952	290.53626	171.47416	3.12962	0.0793786	0.24245243	2.5471334	20	11 6.9	18.5
68851 2002 HV	14.2	X	191.30053	354.77112	181.67244	12.23205	0.2444826	0.18732672	3.0250755	20	10 14.2	19.4
68852 2002 HO ₃	15.0	X	266.11922	177.57708	108.67291	10.36154	0.1320094	0.21281253	2.7784628	20	3 4.0	19.2
68853 Vaimaca	14.8	X	48.10394	243.53037	324.60628	12.20061	0.2386017	0.22438826	2.6820649	20	7 17.7	18.0
68854 2002 HS ₉	14.9	X	255.57929	75.44554	196.91171	7.60580	0.1638552	0.20939029	2.8086547	20	1 28.6	19.5
68855 2002 HS ₁₂	15.6	X	39.71867	140.09116	156.48424	7.99440	0.2174287	0.23570871	2.5954876	20	11 2.3	19.0
68856 2002 HL ₁₅	14.5	X	89.27555	195.88455	125.77207	11.42660	0.1383244	0.19190902	2.9767278	20	—	—
68857 2002 JF	15.9	X	88.80205	317.09165	190.81879	6.87525	0.0993528	0.27785329	2.3259071	20	5 29.6	18.8
68858 2002 JW	14.1	X	87.14262	239.96279	83.61427	11.52713	0.1113745	0.18882988	3.0090004	20	—	—
68859 2002 JZ	14.7	X	54.98215	136.90635	138.84561	11.46341	0.0671755	0.17750868	3.1356169	20	9 24.5	19.1
68860 2002 JF ₂	14.9	X	144.21257	35.44712	145.44588	14.34392	0.0961304	0.23554867	2.5966631	20	9 17.4	18.9
68861 2002 JQ ₃	14.1	X	30.00552	49.12788	118.99379	16.92343	0.1144624	0.17474689	3.1685683	20	8 7.4	18.6
68862 2002 JU ₅	15.3	X	317.19531	231.57795	252.83159	12.75983	0.0554040	0.23723235	2.5843626	20	10 6.3	18.5
68863 2002 JS ₆	14.5	X	337.86236	229.78125	120.13796	9.96548	0.0368942	0.17623782	3.1506729	20	9 10.7	18.8
68864 2002 JW ₉	14.4	X	340.49148	223.11027	137.81021	23.18785	0.0903037	0.17923318	3.1154714	20	10 2.2	18.7
68865 2002 JR ₁₄	15.2	X	344.07643	179.50694	99.86293	5.46207	0.0610876	0.22551210	2.6731469	20	6 16.7	18.4
68866 2002 JG ₁₅	14.5	X	30.40713	120.34651	200.50860	9.76643	0.0892834	0.18023231	3.1039469	20	10 19.2	18.4
68867 2002 JE ₁₆	14.2	X	138.53192	246.37175	232.44506	21.22572	0.0515051	0.22432503	2.6825690	20	6 13.6	18.2
68868 2002 JY ₂₂	14.8	X	130.14334	65.01527	151.16574	1.48924	0.1993511	0.18338424	3.0682780	20	10 12.5	19.9
68869 2002 JL ₂₅	15.5	X	215.35683	265.33987	88.55608	7.55491	0.1534676	0.26814534	2.3817118	20	4 1.1	19.3
68870 2002 JU ₂₆	14.8	X	308.27192	129.80104	196.13059	13.46909	0.2119295	0.22218492	2.6997673	20	6 4.2	18.1
68871 2002 JC ₃₅	15.1	X	201.51146	37.88667	107.25192	4.39475	0.1679695	0.23812805	2.5778779	20	9 26.8	19.2
68872 2002 JP ₃₆	14.7	X	41.49540	31.15758	168.26794	9.14662	0.1581851	0.22099058	2.7094858	20	6 8.7	17.9
68873 2002 JC ₃₇	14.7	X	96.96832	86.78207	146.10379	16.35036	0.0683262	0.23443469	2.6048825	20	9 30.9	18.5
68874 2002 JZ ₃₇	14.7	X	159.15330	334.12590	246.29584	8.19469	0.1071434	0.18717327</				

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
68881 2002 JH ₅₄	15.1	X	43.04860	345.16079	277.45578	0.84635	0.1110839	0.17492694	3.1663937	20	8 25.1	19.3
68882 2002 JM ₆₀	14.9	X	57.40533	77.41772	156.63347	5.35332	0.1248852	0.17392512	3.1785412	20	8 9.8	19.1
68883 2002 JQ ₆₀	15.2	X	80.63918	29.81040	264.70243	8.84671	0.1823758	0.23874954	2.5734023	20	12 7.2	19.0
68884 2002 JZ ₆₂	14.7	X	179.38464	82.72634	192.04379	8.80779	0.0698728	0.19521461	2.9430288	20	—	—
68885 2002 JY ₇₀	15.3	X	245.82538	181.51233	189.99825	6.18697	0.1424195	0.27857769	2.3218732	20	5 23.6	18.5
68886 2002 JX ₇₁	14.8	X	270.64295	228.26895	111.65306	9.38145	0.2326896	0.21808497	2.7334988	20	5 2.7	19.0
68887 2002 JP ₇₂	14.7	X	41.13401	129.31082	160.24321	9.04843	0.0405505	0.17742860	3.1365602	20	9 17.8	19.1
68888 2002 JM ₇₃	14.1	X	330.91789	156.42692	147.87068	14.83827	0.1174258	0.17344409	3.1844154	20	8 13.9	18.2
68889 2002 JT ₇₃	14.1	X	358.44207	105.59593	206.30120	19.43444	0.1092387	0.17215743	3.2002620	20	8 14.4	18.5
68890 2002 JF ₇₆	15.7	X	61.49148	48.21911	212.35732	14.28073	0.0705636	0.23490116	2.6014328	20	9 15.2	19.4
68891 2002 JS ₇₉	14.9	X	104.30883	242.37877	23.79616	0.83093	0.1255150	0.18597059	3.0397640	20	11 12.5	19.6
68892 2002 JV ₈₁	15.7	X	167.28599	345.92504	36.89600	3.18866	0.1612717	0.26984755	2.3716853	20	3 20.5	19.4
68893 2002 JE ₈₄	15.1	X	150.48579	118.16665	186.73425	1.61715	0.0609248	0.19801326	2.9152326	20	—	—
68894 2002 JH ₈₄	16.5	X	28.18370	302.00672	211.18942	1.51699	0.0904845	0.26806464	2.3821898	20	2 25.1	18.8
68895 2002 JR ₈₄	15.4	X	120.06175	161.43590	237.59769	5.78442	0.1360569	0.26296280	2.4129029	20	2 13.7	18.6
68896 2002 JN ₈₅	14.0	X	293.56877	138.84337	225.01843	10.29582	0.0992661	0.17288905	3.1912272	20	7 15.3	18.4
68897 2002 JY ₈₅	14.4	X	256.57834	319.19114	353.32386	7.61088	0.1253488	0.21338023	2.7735325	20	3 14.6	18.7
68898 2002 JV ₈₉	16.0	X	36.82012	160.84753	342.15933	2.53697	0.1109506	0.26869756	2.3784475	20	2 27.0	18.2
68899 2002 JL ₉₅	15.2	X	60.46592	298.50870	14.31106	1.06211	0.1619824	0.18144711	3.0900774	20	11 25.7	19.8
68900 2002 JC ₉₈	13.8	X	236.60034	137.06553	140.18634	12.98909	0.0866093	0.15048729	3.5005490	20	1 30.2	19.2
68901 2002 JO ₁₀₀	15.1	X	78.26263	49.12163	150.82787	13.59053	0.1166316	0.22799474	2.6537061	20	7 26.3	18.8
68902 2002 JD ₁₀₁	14.6	X	225.79884	290.13486	158.80035	22.10704	0.0531997	0.23091914	2.6312539	20	8 20.3	18.2
68903 2002 JG ₁₀₁	14.6	X	10.03025	130.63584	143.29073	22.86568	0.1717734	0.16953755	3.2331470	20	7 17.1	19.0
68904 2002 JU ₁₀₃	14.7	X	53.72120	239.56983	102.42579	2.96259	0.2190515	0.18348762	3.0671254	20	12 30.4	19.2
68905 2002 JZ ₁₀₄	15.6	X	304.56591	169.31821	157.84689	4.34494	0.1712466	0.28056928	2.3108724	20	6 6.9	18.0
68906 2002 JO ₁₀₇	15.3	X	292.17467	315.33235	309.04297	11.21396	0.1498595	0.21740020	2.7392358	20	2 25.6	19.2
68907 2002 JW ₁₁₀	14.3	X	33.10325	71.17344	266.30076	9.63625	0.1121787	0.18197523	3.0840958	20	11 14.4	18.5
68908 2002 JN ₁₁₇	14.3	X	28.28750	242.92151	129.79381	11.32133	0.1295004	0.18745254	3.0237218	20	12 26.7	18.5
68909 2002 JB ₁₁₉	15.3	X	299.64675	190.61050	112.13264	15.19221	0.1861723	0.22047648	2.7136961	20	4 30.1	19.1
68910 2002 JN ₁₂₀	15.2	X	211.66818	215.90373	128.13366	15.32243	0.1174225	0.21402535	2.6779563	20	3 21.8	19.7
68911 2002 JS ₁₂₀	14.5	X	68.03434	137.29131	126.25043	13.16702	0.1161514	0.17954541	3.1118585	20	10 4.9	19.1
68912 2002 JE ₁₂₂	14.3	X	289.12731	297.43066	259.06433	13.69568	0.0920660	0.20485267	2.8499788	20	—	—
68913 2002 JB ₁₂₉	15.7	X	343.35074	202.01320	131.78699	2.29522	0.0834781	0.23047665	2.6346207	20	9 2.7	18.6
68914 2002 JR ₁₃₂	16.1	X	102.71152	301.27308	215.10220	1.30075	0.0339152	0.22495346	2.6775706	20	6 17.8	19.7
68915 2002 KQ ₈	14.5	X	37.78995	200.21129	147.34171	12.10672	0.1390611	0.18368514	3.0649263	20	12 9.9	18.9
68916 2002 KV ₉	15.0	X	77.42758	122.21463	140.95395	4.33527	0.0664057	0.18034745	3.1026256	20	10 5.3	19.4
68917 2002 KW ₉	15.2	X	318.72514	185.08579	51.45089	6.23910	0.0631537	0.21427251	2.7619190	20	3 15.3	18.8
68918 2002 KZ ₉	15.3	X	272.91895	165.13973	125.25883	6.47716	0.1352944	0.28196261	2.3032533	20	7 6.1	18.1
68919 2002 LL ₃	14.1	X	346.45255	204.11102	166.59344	22.23267	0.0569968	0.17855144	3.1233967	20	10 20.4	18.5
68920 2002 LT ₃	15.1	X	296.70687	184.36367	171.16853	14.57937	0.0896167	0.22542831	2.6738092	20	7 14.6	18.7
68921 2002 LQ ₆	14.5	X	343.06161	189.97560	151.50725	9.42466	0.1686651	0.17203631	3.2017639	20	9 3.6	17.9
68922 2002 LW ₁₂	13.0	X	275.73877	65.71750	247.50153	17.38797	0.0461202	0.15811605	3.3870276	20	4 26.4	18.0
68923 2002 LV ₄₀	14.1	X	45.70134	127.54400	223.34689	16.04232	0.2291934	0.18054499	3.1003621	20	12 30.7	18.8
68924 2002 LT ₄₇	13.9	X	0.47308	159.81370	160.76366	15.00139	0.1210423	0.17064075	3.2191969	20	9 4.8	17.8
68925 2002 LP ₄₉	15.2	X	33.77547	42.19233	234.13934	14.05823	0.1225459	0.23117283	2.6293285	20	9 1.7	18.7
68926 2002 ME ₃	14.2	X	330.14904	162.37674	206.05274	19.17837	0.1770707	0.17398752	3.1777812	20	9 10.4	18.0
68927 2002 NB ₂₈	13.8	X	137.55493	25.87854	312.92190	9.00330	0.0795621	0.18500378	3.0503452	20	—	—
68928 2002 NG ₃₃	13.9	X	141.70339	104.44919	283.01376	8.28451	0.0954520	0.19080743	2.9881739	20	2 25.9	18.5
68929 2002 OB ₄	14.6	X	80.54873	116.12106	298.41630	11.36877	0.1546171	0.23863837	2.5742014	20	1 19.5	17.5
68930 2002 OD ₄	14.6	X	39.47976	165.09414	224.01310	13.78476	0.2120413	0.22899477	2.6459746	20	—	—
68931 2002 OJ ₈	15.4	X	25.46830	129.20769	285.17957	1.96107	0.0598599	0.23980410	2.5658523	20	—	—
68932 2002 OK ₁₃	13.9	X	47.07262	169.48304	277.78435	8.98709	0.2420378	0.18391484	3.0623739	20	—	—
68933 2002 OM ₂₀	14.0	X	57.80200	218.48120	157.37606	7.93569	0.2492623	0.12714655	3.9168145	20	—	—
68934 2002 PA ₁₅	13.4	X	230.72595	296.50073	159.46565	6.68791	0.0928593	0.16864385	3.2445592	20	8 24.7	19.2
68935 2002 PE ₃₂	15.0	X	223.42614	154.02246	272.20153	3.09828	0.0682730	0.21472081	2.7619764	20	7 15.6	18.9
68936 2002 PM ₄₆	15.1	X	28.74384	147.42127	175.11700	11.91032	0.1983895	0.22376197	2.6870673	20	11 15.8	18.6
68937 2002 PQ ₄₉	14.5	X	248.78994	115.31093	314.99456	10.83753	0.2089953	0.20893756	2.8127105	20	8 2.5	18.6
68938 2002 PU ₄₉	16.0	X	263.74361	321.38469	20.73726	2.67050	0.2048458	0.26086108	2.4258458	20	4 25.7	19.5
68939 2002 PM ₁₀₂	14.6	X	89.35827	204.03813	229.69815	11.36360	0.0507524	0.19698730	2.9253460	20	2 13.1	18.8
68940 2002 PB ₁₁₆	13.6	X	70.30339	81.48923	236.29217	11.92529	0.0460327	0.17246935	3.1964023	20	11 26.4	18.2
68941 2002 PX ₁₂₄	15.5	X	315.17737	218.49184	162.24364	9.49829	0.2234233	0.21976569	2.7195442	20	9 6.9	18.0
68942 2002 PY ₁₂₅	15.0	X	154.46269	299.40180	79.09156	3.09209	0.0706659	0.19775133	2.9178062	20	3 2.0	19.2
68943 2002 PZ ₁₂₆	15.3	X	313.73096	39.57274	1.51901	12.36187	0.0540720	0.27880648	2.3206028	20	10 25.4	18.0
68944 2002 PQ ₁₃₀	14.1	X	139.59684	253.02651	209.37401	23.08583	0.3203578	0.25657370	2.4527952	20	6 11.3	18.9
68945 2002 PF ₁₃₂	14.1	X	353.41881	99.77713	306.38176	3.93927	0.1497424	0.17822992	3.1271519	20	12 16.8	17.9
68946 2002 PX ₁₃₈	15.1	X	253.68501	243.56348	89.23958	9.43793	0.2927100	0.26026180	2.4295682	20	4 1.4	19.3
68947 Brunofunk	15.7	X	325.62716	338.06958	321.69466	2.92018	0.0782847	0.21393225	2.7687594	20	6 14.1	19.0
68948 Mikeoates	15.8	X	323.03656	245.07468	40.51800	1.20900	0.0362107	0.21109067	2.7935515	20	5 25.8	19.4
68949 2002 QN ₆	15.5	X	271.97632	274.94605	302.07180	11.30726	0.1584303	0.24621200	2.5211377	20	—	—
68950 2002 QF ₁₅	16.4	X	43.53039	255.54037	236.43166	25.15224	0.3443286	0.90685462	1.0570875	20	—	—
68951 2002 QH ₂₇	16.3	X	357.82050	190.22670	58.68642	2.03920	0.1206627	0.26645584	2.3917689	20	5 25.1	18.4
68952 2002 QC ₂₉	15.0	X	234.28540	148.00388	352.37058	8.49903	0.0747598	0.23020889	2.6366632	20	11 1.5	18.7
68953 2002 RS	14.4	X	345.62773	277.17330	153.02777	0.37978	0.1670766	0.17259782	3.1948160	20	—	—
68954 2002 RB ₃	15.4	X	216.35858	351.73116	21.89514							

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
68961 2002 RE ₅₀	15.7	X	112.11568	164.09629	129.38140	2.05860	0.1408151	0.23208214	2.6224561	20	12 31.0	19.8
68962 2002 RC ₅₂	15.3	X	23.50238	309.35149	51.59345	5.01591	0.1063449	0.22615061	2.6681130	20	12 11.9	18.7
68963 2002 RO ₆₃	15.6	X	29.90914	308.86944	53.61005	7.51668	0.1624109	0.28044585	2.3115504	20	—	—
68964 2002 RV ₇₅	15.6	X	21.49124	187.12705	197.18723	2.06672	0.0524007	0.23105016	2.6302591	20	—	—
68965 2002 RH ₈₈	14.7	X	189.45790	30.54314	331.47546	1.16580	0.1053785	0.19594577	2.9357031	20	3 18.1	19.3
68966 2002 RA ₉₄	16.3	X	268.85883	138.61407	157.05670	2.90138	0.1449377	0.31142358	2.1556010	20	3 4.5	19.0
68967 2002 RN ₉₅	14.7	X	4.12953	165.84396	195.27357	5.00836	0.0721980	0.22247709	2.6974031	20	11 10.2	17.9
68968 2002 RS ₁₀₁	15.8	X	81.44332	1.33333	36.45706	4.60565	0.2767824	0.23712715	2.5851269	20	1 19.3	18.5
68969 2002 RW ₁₀₁	15.6	X	79.57690	232.97024	203.74941	3.79213	0.2448375	0.24007075	2.5639520	20	3 1.2	18.6
68970 2002 RK ₁₀₂	15.3	X	8.84066	9.47298	17.33677	5.16681	0.1764357	0.22395377	2.6855329	20	—	—
68971 2002 RK ₁₀₄	16.2	X	354.48641	181.15289	197.63643	3.59515	0.1551071	0.27756526	2.3275158	20	12 15.6	18.6
68972 2002 RJ ₁₀₆	15.2	X	171.55293	163.84428	189.86341	6.38627	0.2446834	0.24572216	2.5244872	20	2 20.9	19.7
68973 2002 RW ₁₀₆	14.4	X	292.69934	346.26340	54.06710	10.34040	0.1572629	0.21197046	2.7858163	20	9 5.6	17.9
68974 2002 RO ₁₀₇	15.7	X	166.73537	187.71477	167.46236	2.25053	0.2611611	0.24547078	2.5262104	20	2 21.0	19.8
68975 2002 RU ₁₀₇	14.8	X	24.68746	351.22608	44.21594	2.65834	0.2016242	0.17121106	3.2120441	20	—	—
68976 2002 RJ ₁₁₆	16.7	X	273.53380	229.95859	102.06147	1.92155	0.2697788	0.26219970	2.4175822	20	4 16.3	20.2
68977 2002 RJ ₁₂₇	14.9	X	322.74188	216.80876	235.84439	13.20942	0.0803988	0.23331708	2.6131943	20	—	—
68978 2002 RN ₁₃₃	16.0	X	132.58506	224.32394	82.10626	6.68048	0.1090255	0.29261217	2.2470244	20	—	—
68979 2002 RJ ₁₇₃	14.9	X	18.30201	239.96062	139.32176	13.78158	0.1866125	0.22737709	2.6585097	20	—	—
68980 2002 RP ₁₈₁	14.2	X	6.31865	341.63389	99.61146	2.72139	0.0801344	0.17590561	3.1546384	20	—	—
68981 2002 SO ₂₇	15.4	X	73.46375	262.17594	128.00221	5.37302	0.1610316	0.23607825	2.5927784	20	—	—
68982 2002 SR ₂₉	15.1	X	156.27764	29.58617	34.02852	6.60483	0.1133872	0.25579744	2.4577550	20	4 27.4	18.7
68983 2002 SB ₄₀	15.6	X	223.67329	340.21121	27.71797	11.87089	0.1505339	0.25830278	2.4418370	20	4 22.9	19.2
68984 2002 SF ₅₇	14.2	X	30.98205	1.16452	60.66481	11.43757	0.1377425	0.17730077	3.1380676	20	—	—
68985 2002 TK ₁₀	14.5	X	43.93590	27.49004	70.47907	0.44967	0.1472699	0.17839020	3.1252785	20	—	—
68986 2002 TN ₂₈	15.2	X	157.06068	11.91426	54.19728	2.83563	0.1055947	0.19745552	2.9207196	20	5 3.3	19.6
68987 2002 TT ₃₂	14.8	X	157.75242	245.30319	158.64244	2.82967	0.0764162	0.19428555	2.9524036	20	4 5.6	19.2
68988 2002 TU ₃₄	14.4	X	333.73167	332.64092	169.84217	1.44954	0.1275878	0.18074105	3.0981197	20	—	—
68989 2002 TP ₃₉	15.4	X	27.81715	210.77152	205.29675	1.68627	0.2003460	0.22860857	2.6489537	20	—	—
68990 2002 TY ₄₄	14.8	X	82.84677	328.94735	130.92544	1.99366	0.1434798	0.18870755	3.0103006	20	3 28.1	18.8
68991 2002 TK ₄₅	14.4	X	93.16815	184.57280	219.47736	8.76961	0.0799474	0.18368588	3.0649181	20	1 20.9	18.8
68992 2002 TF ₅₄	14.3	X	200.44813	51.15312	66.68050	15.94332	0.0995129	0.20629286	2.8366990	20	8 29.9	18.9
68993 2002 TF ₇₂	14.8	X	277.65736	158.47756	325.67407	8.25950	0.1598742	0.22363949	2.6880482	20	11 29.3	18.0
68994 2002 TK ₉₁	15.3	X	280.04212	155.21563	231.08909	7.44995	0.2241743	0.26695662	2.3887769	20	7 13.1	18.2
68995 2002 TF ₁₁₂	14.0	X	341.46901	80.78621	20.93342	12.07308	0.1473325	0.17871703	3.1214670	20	—	—
68996 2002 TN ₁₃₅	15.5	X	89.39991	192.72795	111.46551	8.30397	0.1274043	0.28270513	2.2992186	20	—	—
68997 2002 TE ₁₃₆	13.7	X	201.99533	30.30182	337.75730	11.47727	0.0748407	0.19631780	2.9319931	20	4 3.2	18.2
68998 2002 TC ₁₅₇	14.1	X	309.38349	329.46722	146.33677	17.73289	0.0879289	0.17280906	3.1922118	20	12 31.5	18.4
68999 2002 TQ ₁₅₇	15.0	X	123.75052	234.11556	108.81457	10.30506	0.2303805	0.23898550	2.5717081	20	—	—
69000 2002 TL ₁₇₃	14.9	X	59.98956	301.68125	47.04432	9.70805	0.0587900	0.22979661	2.6398159	20	—	—
69001 2002 TM ₁₇₃	14.0	X	146.41412	271.05160	48.38083	12.49928	0.1334720	0.18422939	3.0588870	20	—	—
69002 2002 TX ₁₈₁	15.2	X	207.28035	177.96660	196.55894	1.46585	0.1057545	0.19692465	2.9259664	20	4 20.3	19.8
69003 2002 TK ₁₉₆	14.0	X	17.01354	195.96134	259.55009	31.87459	0.1475681	0.22813746	2.6525993	20	—	—
69004 2002 TJ ₁₉₈	14.0	X	231.75739	177.42089	23.03215	15.25609	0.2245442	0.17540604	3.1606254	20	12 11.9	19.0
69005 2002 TZ ₂₀₇	14.9	X	159.37605	114.94919	7.43797	6.13336	0.2286369	0.20097097	2.8865594	20	7 19.2	20.0
69006 2002 TS ₂₁₂	15.0	X	7.81639	222.88286	139.86361	14.97476	0.1086352	0.22404551	2.6847996	20	11 26.1	18.6
69007 2002 TN ₂₁₇	14.6	X	339.46322	53.30782	58.00427	1.26703	0.1203250	0.17578633	3.1560653	20	—	—
69008 2002 TV ₂₄₀	14.9	X	63.88441	264.52377	99.24519	10.94267	0.1365582	0.23003189	2.6380155	20	—	—
69009 2002 TJ ₂₅₀	14.9	X	194.48075	300.41129	140.86903	2.76013	0.0314330	0.20289333	2.8682975	20	7 2.8	18.9
69010 2002 TD ₂₅₆	15.5	X	134.34089	356.93235	214.48645	7.40119	0.0661685	0.27345764	2.3507657	20	10 17.7	18.8
69011 2002 TF ₂₅₉	14.6	X	107.06454	220.31071	197.38602	6.97023	0.1284219	0.18596485	3.0398265	20	3 1.4	19.1
69012 2002 TC ₂₈₄	16.1	X	320.05598	112.33876	354.95845	7.20335	0.0680619	0.28328140	2.2960993	20	—	—
69013 2002 TP ₂₉₀	14.3	X	129.73442	154.81050	260.42515	9.27387	0.1065340	0.19066284	2.9896886	20	3 17.7	18.9
69014 2002 UD ₁	12.9	X	285.57871	286.18773	199.68697	16.56314	0.1268905	0.17228154	3.1987248	20	12 5.4	17.2
69015 2002 UE ₂₆	15.7	X	44.49882	283.56138	181.77432	10.28111	0.1536776	0.23939458	2.5687776	20	1 23.4	18.4
69016 2002 UX ₃₂	15.4	X	142.12856	1.33539	327.55256	4.17308	0.2033452	0.29500306	2.2348671	20	—	—
69017 2002 UK ₄₉	14.4	X	190.59080	201.97991	87.59179	16.54124	0.1707153	0.23802406	2.5786287	20	—	—
69018 2002 VH ₂₄	14.0	X	26.65810	36.87489	305.66767	7.54778	0.2251235	0.22151253	2.7052278	20	12 9.3	17.5
69019 2002 VA ₃₅	14.6	X	235.57454	136.14603	244.24188	5.50222	0.1661632	0.25414059	2.4684255	20	5 20.8	18.4
69020 2002 VU ₅₁	14.4	X	142.69646	176.67224	133.19088	6.21487	0.2436930	0.17987005	3.1081131	20	—	—
69021 2002 VR ₅₃	14.4	X	202.81864	79.84230	188.64640	16.56212	0.0445845	0.17881191	3.1203628	20	—	—
69022 2002 VS ₆₂	15.7	X	56.48278	255.63544	6.23157	2.29908	0.1767178	0.26746109	2.3857722	20	10 5.1	18.8
69023 2002 VY ₆₃	16.6	X	73.50772	58.45727	16.24364	5.49410	0.1287144	0.29503743	2.2346935	20	1 21.5	18.7
69024 2002 VH ₇₀	15.3	X	342.36797	337.96174	95.66597	4.82570	0.0674911	0.22654237	2.6650360	20	—	—
69025 2002 VS ₈₄	15.0	X	117.17590	204.31261	178.95166	5.05963	0.3058481	0.23560276	2.5962657	20	2 17.2	19.0
69026 2002 VL ₉₃	14.5	X	31.21693	229.00537	265.76429	6.71293	0.1390664	0.23845852	2.5754957	20	2 8.1	17.2
69027 2002 VW ₉₅	16.4	X	61.99916	101.37915	1.23348	6.88305	0.1239711	0.29691561	2.2252596	20	2 11.4	18.3
69028 2002 VG ₁₀₉	14.9	X	105.57146	54.19202	304.35287	3.13951	0.1730091	0.23231929	2.6206712	20	—	—
69029 2002 VT ₁₁₉	15.0	X	17.02155	36.73158	53.13893	13.59006	0.1398841	0.22898793	2.6460273	20	—	—
69030 2002 WD ₉	14.9	X	114.32133	272.79912	85.73611	15.79225	0.1463819	0.24007055	2.5639534	20	—	—
69031 2002 WX ₁₆	15.6	X	210.36733	265.41623	153.73507	8.00392	0.2254402	0.25672721	2.4518173	20	6 12.7	19.8
69032 2002 WG ₁₇	14.0	X	54.86310	265.06891	94.99962	29.89497	0.2088012	0.16955477	3.2329280	20	—	—
69033 2002 XA ₂	16.6	X	292.66280	328.64365	147.09197	2.56408	0.1401143	0.27726546	2.3291933	20	—	—
69034 2002 XE ₁₅	15.5	X	47.09903	354.80931	304.59295	10.92540	0.1955900	0.27635038	2.3343323	20	11 13.9	18.9
69035 2002 XR ₃₀	14.5	X	342.18575	16.92070	4.94143	12.29175						

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
69041 2002 XF ₄₉	16.2	X	291.23343	150.93066	107.99346	0.95862	0.0918891	0.30037240	2.2081540	20	2 19.1	18.9
69042 2002 XY ₅₁	15.8	X	178.33107	282.54087	252.99467	6.02146	0.0574182	0.26752989	2.3853632	20	10 19.9	19.0
69043 2002 XJ ₅₅	16.7	X	128.58517	223.50346	173.99458	3.54983	0.1188298	0.29738474	2.2229188	20	2 17.3	19.4
69044 2002 XP ₅₇	15.8	X	98.29152	270.14037	119.78705	3.30826	0.2351967	0.23275527	2.6173976	20	1 27.1	19.0
69045 2002 XN ₅₉	14.0	X	97.10053	72.02523	294.41988	21.04144	0.3348082	0.28381349	2.2932287	20	1 1.5	16.3
69046 2002 XV ₆₁	15.0	X	349.54315	123.53761	253.92443	4.76255	0.2025652	0.26937770	2.3744423	20	12 9.3	16.9
69047 2002 XM ₆₈	14.8	X	57.69687	314.45227	115.54797	14.32711	0.1407005	0.23614967	2.5922556	20	—	—
69048 2002 XR ₇₀	15.6	X	72.38703	239.99410	56.37147	3.10902	0.1251644	0.27194423	2.3594792	20	12 2.0	18.9
69049 2002 XP ₇₆	15.2	X	41.63181	74.51218	80.68282	15.85059	0.0322065	0.24178194	2.5518402	20	3 31.8	18.8
69050 2002 XE ₇₈	14.8	X	234.76478	5.68359	285.28470	10.93556	0.1457849	0.24295191	2.5436411	20	1 28.9	18.9
69051 2002 XT ₇₉	14.2	X	183.11393	253.28120	86.76855	19.30070	0.0894524	0.18058647	3.0998873	20	2 22.4	19.3
69052 2002 XC ₈₂	14.1	X	238.42350	100.52039	114.84427	15.08252	0.1573989	0.22632956	2.6667064	20	—	—
69053 2002 YJ ₃	15.7	X	335.43448	136.39455	3.49601	4.33812	0.1908276	0.22582003	2.6707162	20	—	—
69054 2002 YP ₆	14.3	X	131.70111	298.16535	101.53231	12.12211	0.1020192	0.18081786	3.0972422	20	3 11.2	19.1
69055 2002 YE ₇	14.9	X	63.29016	63.06079	102.04355	6.17066	0.1314686	0.18486415	3.0518090	20	5 23.1	18.9
69056 2002 YE ₈	15.4	X	219.73236	6.37500	123.96801	12.20261	0.1736170	0.26128996	2.4231905	20	10 2.1	19.1
69057 2002 YA ₁₃	15.4	X	90.56999	11.70559	115.50748	7.56307	0.1515602	0.24530274	2.5272539	20	5 13.6	18.8
69058 2002 YV ₁₄	16.1	X	344.14967	298.03948	108.66422	8.01474	0.1044235	0.27232340	2.3572885	20	12 28.9	18.4
69059 2002 YL ₁₈	15.7	X	7.91372	89.40464	279.90382	3.16661	0.0623799	0.27301719	2.3532934	20	12 7.5	18.2
69060 2002 YO ₂₀	15.3	X	68.28285	283.61644	130.87474	0.50328	0.1335551	0.18200479	3.0837619	20	3 14.9	19.2
69061 2002 YN ₂₈	15.4	X	27.94339	50.58224	96.81275	7.91760	0.1741476	0.17830424	3.1262829	20	3 9.9	18.9
69062 2002 YF ₂₉	15.2	X	143.90725	338.76052	296.14367	11.73471	0.1894493	0.27342458	2.3509552	20	—	—
69063 2002 YG ₃₂	15.5	X	272.16086	194.48071	137.17234	13.41428	0.2894626	0.26024100	2.4296976	20	4 16.8	19.4
69064 2003 AZ ₇	14.4	X	252.36095	306.99587	335.75379	24.12573	0.1968324	0.28329183	2.2960430	20	2 5.1	18.2
69065 2003 AY ₁₁	14.6	X	24.61846	26.36969	153.23159	13.56001	0.0856426	0.18193524	3.0845477	20	4 10.8	18.6
69066 2003 AY ₂₈	16.6	X	38.40972	107.46005	306.01379	0.97416	0.1997219	0.28258232	2.2998847	20	—	—
69067 2003 AJ ₃₀	16.3	X	259.90277	309.13574	181.39217	0.98179	0.1372659	0.26911296	2.3759993	20	11 27.6	18.6
69068 2003 AO ₃₂	15.1	X	1.77624	59.27286	319.07454	7.05819	0.1260541	0.27209588	2.3586024	20	12 20.5	17.7
69069 2003 AR ₃₇	14.5	X	165.18784	261.61489	133.72356	14.23858	0.2313331	0.24493466	2.5298953	20	4 12.3	19.0
69070 2003 AK ₃₈	15.3	X	339.70737	130.47253	250.85150	5.64127	0.1204998	0.26721422	2.3872414	20	11 14.0	17.6
69071 2003 AR ₃₉	15.2	X	16.68370	251.61450	226.99411	5.66612	0.1173720	0.17225330	3.1990744	20	1 8.8	19.2
69072 2003 AG ₄₁	15.4	X	162.39208	272.45971	141.06013	22.21063	0.0620866	0.24185095	2.5513548	20	4 26.7	19.5
69073 2003 AB ₄₃	15.5	X	84.54918	152.55996	301.32556	10.75738	0.2193275	0.23945194	2.5683674	20	3 22.7	18.9
69074 2003 AC ₄₃	15.1	X	309.42390	305.30410	41.59218	6.65284	0.1343172	0.26001198	2.4311242	20	7 23.9	17.6
69075 2003 AZ ₅₂	15.6	X	224.82591	297.49290	91.23180	10.91863	0.2165740	0.27944978	2.3170400	20	—	—
69076 2003 AC ₅₃	15.7	X	79.18340	245.90361	36.54227	8.03296	0.1393711	0.27674342	2.3321216	20	—	—
69077 2003 AR ₅₃	17.0	X	343.32111	121.32367	24.18731	3.71349	0.0993953	0.28465336	2.2887157	20	—	—
69078 2003 AO ₅₅	16.1	X	49.28606	320.72389	89.72831	5.93219	0.1520470	0.28287833	2.2982800	20	—	—
69079 2003 AS ₆₀	16.4	X	190.18889	188.50272	7.04160	2.27608	0.1467996	0.26731749	2.3866265	20	11 21.4	19.8
69080 2003 AA ₆₂	14.4	X	144.80993	205.17177	131.58952	34.05422	0.1966291	0.22888053	2.6468550	20	1 10.8	18.8
69081 2003 AY ₆₄	14.1	X	0.79809	254.34199	66.85082	14.65643	0.2934395	0.26374780	2.4081128	20	10 27.4	16.2
69082 2003 AX ₇₅	15.3	X	181.47215	350.27582	353.91712	8.47507	0.1737312	0.29673446	2.2261652	20	2 13.6	18.7
69083 2003 AX ₇₇	13.8	X	8.77689	145.31075	345.91976	18.64954	0.1086554	0.17187063	3.2038212	20	1 19.2	18.1
69084 2003 BB ₇	16.2	X	265.48959	248.84970	207.19140	1.73467	0.1678107	0.26477463	2.4018828	20	10 11.9	18.7
69085 2003 BE ₂	16.2	X	34.35074	291.51005	134.52160	4.52214	0.1099924	0.28192732	2.3034455	20	—	—
69086 2003 BU ₆	14.3	X	11.63225	55.21736	102.51447	11.54233	0.0577443	0.18316769	3.0706959	20	2 22.8	18.4
69087 2003 BQ ₁₁	14.5	X	358.21946	108.82521	116.99371	8.89668	0.0146134	0.18411234	3.0601834	20	5 1.6	18.8
69088 2003 BS ₁₇	14.6	X	287.17328	314.36680	309.00841	13.93577	0.1063473	0.23474093	2.6026164	20	2 21.8	18.2
69089 2003 BN ₁₈	16.1	X	166.09268	268.01338	334.22824	0.66671	0.1460429	0.26788411	2.3832600	20	12 26.2	19.8
69090 2003 BH ₂₀	15.6	X	289.67030	334.73231	87.58149	8.09194	0.0637471	0.26259467	2.4151574	20	10 21.7	18.4
69091 2003 BE ₂₅	15.0	X	67.43459	296.62047	166.26580	16.51833	0.1959499	0.17673871	3.1447172	20	3 19.8	19.0
69092 2003 BQ ₂₅	15.0	X	95.30984	265.27123	152.44356	13.71941	0.1496817	0.23838138	2.5760512	20	2 13.4	18.1
69093 2003 BM ₄₈	14.8	X	328.45617	66.18105	120.87263	2.43396	0.1121555	0.17012537	3.2256952	20	1 23.3	18.9
69094 2003 BA ₄₉	15.3	X	103.95067	23.98567	156.25693	5.76330	0.0552522	0.19213583	2.9743847	20	7 21.8	19.5
69095 2003 BE ₅₃	16.1	X	326.14680	284.53633	148.17618	2.91947	0.1415186	0.27176079	2.3605408	20	—	—
69096 2003 BG ₅₄	14.9	X	206.28679	295.87048	294.71130	11.85935	0.0629475	0.21765478	2.7370994	20	—	—
69097 2003 BR ₅₄	15.3	X	141.32915	131.80171	150.55936	7.39151	0.0582378	0.21608419	2.7503464	20	—	—
69098 2003 BZ ₅₉	16.4	X	128.40857	8.36766	53.91529	5.19820	0.0906332	0.29285601	2.2457769	20	3 22.1	19.2
69099 2003 BA ₆₃	15.0	X	44.75579	91.53951	130.25206	13.69794	0.2523961	0.24012569	2.5635609	20	8 2.3	17.8
69100 2003 BM ₆₈	15.0	X	4.24016	330.00285	167.72457	17.83228	0.0400433	0.22556967	2.6726920	20	1 7.5	18.8
69101 2003 BJ ₇₂	14.9	X	76.01205	137.83641	341.85548	11.01326	0.1576787	0.18096932	3.0955138	20	4 10.4	19.2
69102 2003 BB ₇₃	14.6	X	14.27627	65.16533	137.71564	10.52916	0.0700315	0.17988205	3.1079749	20	4 25.3	18.7
69103 2003 BG ₈₀	14.1	X	341.48030	245.88160	357.69819	17.58269	0.1327270	0.17900674	3.1180982	20	4 13.5	18.0
69104 2003 BG ₈₄	16.0	X	95.53062	31.85018	87.32231	5.81578	0.1220710	0.29481426	2.2358212	20	5 1.8	18.6
69105 2003 BR ₈₈	14.1	X	349.63774	198.76934	68.57716	11.20231	0.0645137	0.18549927	3.0449109	20	6 7.3	18.0
69106 2003 CC ₃	16.3	X	252.63358	85.22938	149.86261	6.64159	0.0672683	0.28150875	2.3057282	20	—	—
69107 2003 CG ₈	14.7	X	277.84982	217.36073	119.42754	8.90821	0.2107451	0.24152360	2.5536595	20	5 8.6	18.4
69108 2003 CH ₈	14.2	X	189.04724	215.33015	159.22540	22.52606	0.0966787	0.17641825	3.1485243	20	4 7.0	19.3
69109 2003 CM ₈	17.0	X	264.84661	346.99868	155.45291	2.68888	0.1216829	0.26843836	2.3799783	20	12 24.7	19.5
69110 2003 CK ₁₀	15.6	X	241.11882	189.20316	131.73775	24.46701	0.1609079	0.26894771	2.3769725	20	—	—
69111 2003 CE ₁₇	16.1	X	300.81946	15.46283	88.67713	6.22320	0.0748833	0.26841989	2.3800875	20	—	—
69112 2003 DO ₄	15.1	X	327.80446	130.60189	141.02691	14.82379	0.0964923	0.24350956	2.5397562	20	5 12.0	18.4
69113 2003 DG ₁₀	15.6	X	191.48833	146.95150	129.37129	6.10738	0.1684411	0.27344972	2.3508110	20	—	—
69114 2003 DV ₁₇	13.7	X	90.90076	308.92968	133.44037	22.70994	0.0705770	0.17310822	3.1885330	20	3 1	

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
69121 2003 <i>EJ</i> ₂₆	15.8	X	163.19498	218.19923	73.04814	3.22074	0.2040684	0.27090802	2.3654920	20	—	—
69122 2003 <i>EZ</i> ₃₀	14.8	X	134.80078	283.08371	159.78203	8.69237	0.0227846	0.18008841	3.1056002	20	4 25.5	19.3
69123 2003 <i>EP</i> ₃₉	15.0	X	266.02765	203.45143	65.43629	14.20748	0.1223190	0.22753323	2.6572933	20	2 12.8	19.2
69124 2003 <i>EQ</i> ₃₉	14.3	X	183.29652	27.44622	24.46261	24.50851	0.0673232	0.18353386	3.0666102	20	5 5.7	19.1
69125 2003 <i>EK</i> ₄₃	16.2	X	156.25660	237.50923	75.04153	6.39453	0.2413006	0.26982871	2.3717957	20	—	—
69126 2003 <i>EC</i> ₆₀	14.5	X	121.30748	336.07118	167.06432	18.84392	0.1094007	0.18561995	3.0435910	20	6 30.9	19.4
69127 2003 <i>FK</i> ₁₂	14.3	X	246.72415	91.58972	211.46535	9.88443	0.0271291	0.17070945	3.2183332	20	3 11.9	19.1
69128 2003 <i>FR</i> ₁₆	14.7	X	87.35066	35.81353	141.97608	16.48869	0.1272927	0.18511643	3.0491075	20	7 8.4	19.3
69129 2003 <i>FG</i> ₂₁	15.0	X	172.14091	221.24312	61.95328	8.24599	0.1002454	0.21010442	2.8022868	20	—	—
69130 2003 <i>FC</i> ₃₉	15.5	X	165.96754	244.57119	48.30694	9.54604	0.2266576	0.26933776	2.3746770	20	—	—
69131 2003 <i>FP</i> ₄₇	16.0	X	164.46371	63.30543	215.46551	2.76512	0.1197799	0.26733330	2.3865324	20	—	—
69132 2003 <i>FG</i> ₄₉	15.7	X	292.40261	127.89353	141.34042	4.81079	0.2600220	0.22488513	2.6781130	20	2 20.2	19.7
69133 2003 <i>FK</i> ₅₄	13.9	X	277.73974	116.96267	148.09071	18.92594	0.1010310	0.16941538	3.2347012	20	2 25.4	18.5
69134 2003 <i>FJ</i> ₇₀	14.6	X	355.47715	216.54400	44.04653	8.13202	0.1025652	0.18180413	3.0860305	20	6 6.2	18.4
69135 2003 <i>FP</i> ₇₄	15.4	X	107.74106	156.91346	105.57145	7.34393	0.1303594	0.25530431	2.4609188	20	11 24.9	19.2
69136 2003 <i>FE</i> ₈₅	14.3	X	148.86696	146.34973	321.24833	11.05820	0.1661473	0.18618819	3.0373951	20	6 18.9	19.4
69137 2003 <i>FS</i> ₈₇	15.9	X	276.68935	319.19072	291.17076	6.30379	0.0858728	0.28141744	2.3062270	20	1 23.2	18.8
69138 2003 <i>FY</i> ₉₀	13.9	X	358.19792	226.59673	333.34395	14.27877	0.1293716	0.17259490	3.1948519	20	3 17.7	17.9
69139 2003 <i>FH</i> ₉₁	15.3	X	146.64990	199.66121	209.28701	21.30939	0.0284972	0.23012713	2.6372877	20	3 19.0	19.2
69140 2003 <i>FB</i> ₁₀₀	14.8	X	156.60014	98.92326	36.51353	10.66572	0.0572292	0.19010641	2.9955153	20	7 30.7	19.4
69141 2003 <i>FT</i> ₁₁₂	14.6	X	290.42255	39.46201	159.32008	9.67631	0.1275713	0.21515114	2.7582923	20	—	—
69142 2003 <i>FL</i> ₁₁₅	15.6	X	57.75276	15.74476	171.06791	22.79983	0.0515584	0.35807646	1.9640485	20	6 3.7	18.2
69143 2003 <i>FN</i> ₁₁₅	14.2	X	280.33579	134.88960	203.09603	12.81734	0.1855903	0.24148944	2.5539004	20	5 14.4	17.7
69144 2003 <i>FO</i> ₁₁₅	15.7	X	160.90985	258.20493	325.57905	2.81929	0.1235124	0.25789653	2.4444006	20	11 27.0	19.3
69145 2003 <i>FF</i> ₁₁₉	15.1	X	68.29093	216.16673	28.74415	11.62189	0.0470261	0.19035325	2.9929251	20	9 3.5	19.4
69146 2003 <i>FV</i> ₁₂₁	15.5	X	199.62421	150.53401	42.14429	7.00337	0.0735171	0.25950837	2.4342684	20	12 4.8	18.9
69147 2003 <i>GR</i> ₁	14.6	X	119.82486	225.52316	153.43650	9.29732	0.0647533	0.27601414	2.3362276	20	1 6.8	17.5
69148 2003 <i>GH</i> ₈	14.9	X	202.07003	56.19009	18.39465	9.19216	0.1057342	0.18695752	3.0290569	20	6 29.0	19.8
69149 2003 <i>GQ</i> ₁₂	14.7	X	48.91486	211.87110	179.49335	9.24141	0.2852890	0.21653909	2.7464931	20	—	—
69150 2003 <i>GZ</i> ₁₅	15.2	X	193.73672	89.87991	27.25000	8.07519	0.0284555	0.19099492	2.9862180	20	8 20.6	19.5
69151 2003 <i>GZ</i> ₄₁	14.9	X	302.27785	193.37060	80.27504	13.21723	0.2126672	0.23259140	2.6186269	20	3 21.4	18.6
69152 2003 <i>GL</i> ₅₀	15.1	X	200.72226	161.61332	105.14397	14.06759	0.1182674	0.21496803	2.7598584	20	—	—
69153 2003 <i>GH</i> ₂₂	16.0	X	138.60297	91.73496	151.41433	6.62435	0.1003142	0.25597448	2.4566216	20	11 30.9	19.7
69154 2003 <i>HZ</i> ₅₀	14.5	X	35.84170	92.59205	189.99591	8.20338	0.1814105	0.18374527	3.0642576	20	9 20.8	18.3
69155 2003 <i>HL</i> ₅₂	14.6	X	311.70713	40.05719	206.48444	18.62970	0.0719405	0.16825661	3.2495356	20	3 15.7	19.2
69156 2003 <i>JH</i> ₁	14.9	X	312.48980	214.24525	170.79284	9.13186	0.2244135	0.25285910	2.4767585	20	9 15.5	16.8
69157 2003 <i>JZ</i> ₃	14.6	X	174.68965	254.54422	355.17667	14.48710	0.1145101	0.20511065	2.8475885	20	—	—
69158 2003 <i>JR</i> ₁₃	15.2	X	12.75498	50.93449	187.81685	12.89070	0.1433507	0.17701548	3.1414384	20	6 9.3	19.1
69159 lvanking	15.6	X	330.92558	155.16743	103.19519	14.55590	0.2270741	0.22902584	2.6457353	20	4 13.3	18.7
69160 2029 <i>P-L</i>	15.8	X	231.19100	95.19940	291.66178	1.19795	0.2173491	0.27549171	2.3391803	20	5 20.2	19.6
69161 2203 <i>P-L</i>	15.8	X	193.66493	310.50337	209.51075	6.13893	0.0449045	0.28010404	2.3134306	20	10 23.7	18.7
69162 2736 <i>P-L</i>	15.6	X	314.13471	149.11949	176.95382	4.34163	0.0689343	0.21070360	2.7969717	20	7 3.4	19.1
69163 2744 <i>P-L</i>	15.4	X	180.61492	125.23166	180.73237	20.18341	0.0727706	0.18738641	3.0244332	20	1 2.3	20.3
69164 3031 <i>P-L</i>	14.2	X	318.77048	103.23164	305.50153	11.38025	0.1485228	0.18095180	3.0957137	20	10 14.8	18.1
69165 3044 <i>P-L</i>	16.0	X	326.53361	79.01015	296.49367	7.80428	0.1146430	0.29604342	2.2296281	20	10 14.1	18.2
69166 3075 <i>P-L</i>	15.2	X	3.96526	59.39013	310.06688	7.73088	0.2453421	0.18124672	3.0923545	20	11 29.4	18.7
69167 3082 <i>P-L</i>	14.4	X	298.18591	72.16616	309.70939	8.61716	0.0548323	0.22885526	2.6470498	20	8 27.2	17.8
69168 3515 <i>P-L</i>	14.5	X	311.51077	146.60880	279.04309	10.19523	0.1941581	0.18108599	3.0941841	20	10 22.6	18.1
69169 4066 <i>P-L</i>	16.3	X	301.46373	47.21328	359.09484	4.32905	0.1755511	0.29591117	2.2302924	20	10 11.6	17.7
69170 4199 <i>P-L</i>	16.3	X	318.09149	84.71729	350.51642	6.38150	0.1032809	0.26516188	2.3995436	20	12 22.6	18.8
69171 4230 <i>P-L</i>	15.7	X	340.12276	97.77230	198.87679	12.26784	0.2633700	0.22850650	2.6497425	20	6 21.1	18.0
69172 4283 <i>P-L</i>	15.2	X	258.52004	181.93844	197.86860	15.88802	0.1518122	0.17735426	3.1374366	20	6 15.3	20.1
69173 4304 <i>P-L</i>	16.2	X	240.05164	77.15953	247.82133	2.58440	0.1931418	0.25749066	2.4469686	20	3 12.0	20.0
69174 4514 <i>P-L</i>	15.5	X	60.83278	281.38782	143.79506	2.68599	0.0524331	0.20351635	2.8624408	20	—	—
69175 4550 <i>P-L</i>	16.5	X	302.69107	53.69272	12.28233	4.12960	0.1527656	0.29681059	2.2257845	20	11 18.6	18.0
69176 4602 <i>P-L</i>	14.1	X	351.32604	253.96730	150.01344	0.93561	0.1775187	0.18235756	3.0797836	20	12 14.8	17.6
69177 4618 <i>P-L</i>	16.2	X	174.20249	244.22945	171.00352	2.04834	0.2058995	0.27400217	2.3476502	20	5 7.9	20.1
69178 4729 <i>P-L</i>	16.5	X	253.60701	131.51504	157.37601	2.95638	0.1669643	0.27336144	2.3513172	20	2 10.2	20.2
69179 4756 <i>P-L</i>	15.6	X	252.76243	64.57593	175.92090	5.80303	0.2084138	0.27102803	2.3647936	20	—	—
69180 4770 <i>P-L</i>	14.5	X	87.20228	250.77807	17.65484	9.29395	0.1004579	0.18221448	3.0813956	20	10 24.5	19.1
69181 4821 <i>P-L</i>	15.7	X	263.20172	246.76946	139.52261	3.30091	0.1131494	0.22734448	2.6587639	20	7 6.7	19.3
69182 4850 <i>P-L</i>	15.2	X	57.81642	232.28223	185.79890	13.36355	0.1592001	0.23563627	2.5960195	20	—	—
69183 6638 <i>P-L</i>	15.7	X	262.59967	267.53549	39.96552	3.77018	0.2102758	0.22528135	2.6749719	20	3 15.1	19.8
69184 6705 <i>P-L</i>	15.4	X	126.74531	75.98169	22.77444	7.20494	0.1657979	0.27377211	2.3489652	20	5 14.8	18.8
69185 6739 <i>P-L</i>	16.3	X	92.56838	158.31611	171.70035	6.44281	0.1281470	0.28389549	2.2927870	20	—	—
69186 6783 <i>P-L</i>	15.4	X	359.67452	357.81055	24.06476	5.43792	0.1642522	0.21538235	2.7563179	20	12 8.6	18.5
69187 1178 <i>T-1</i>	14.7	X	262.04021	73.34299	345.76651	5.40348	0.1898269	0.22890875	2.6466374	20	8 8.7	18.4
69188 1258 <i>T-1</i>	16.0	X	1.88586	35.49414	193.05285	6.19881	0.2337155	0.28231347	2.3013446	20	4 26.2	17.0
69189 1263 <i>T-1</i>	14.9	X	76.11099	64.94995	1.59027	10.35806	0.2235801	0.25975227	2.4327444	20	2 8.3	17.4
69190 2027 <i>T-1</i>	13.8	X	87.02534	315.84074	359.04740	15.15508	0.1727019	0.17046516	3.2214072	20	12 24.1	19.1
69191 2143 <i>T-1</i>	16.0	X	341.11647	159.28294	51.25500	3.02640	0.1553175	0.26074900	2.4265409	20	2 22.1	18.4
69192 3172 <i>T-1</i>	14.4	X	331.08261	53.61928	355.73255	13.03554	0.2058199	0.23216985	2.6217956	20	11 29.7	17.0
69193 3326 <i>T-1</i>	16.3	X	62.28235	290.34883	186.39386	5.01913	0.0820602	0.30062747	2.2069048	20	2 24.0	1

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
69201 1323 T-2	16.0	X	167.78041	144.84547	174.39583	7.12467	0.1238613	0.26116990	2.4239331	20	—	—
69202 2026 T-2	15.8	X	126.64029	243.59078	202.34628	6.04730	0.1125380	0.28599095	2.2815738	20	4 22.8	18.6
69203 2088 T-2	16.0	X	281.38574	223.64892	208.65471	4.19716	0.1307140	0.29415485	2.2391613	20	10 17.3	18.1
69204 2139 T-2	16.4	X	4.96221	276.36195	168.12743	3.27287	0.1258210	0.27864123	2.3215202	20	—	—
69205 2156 T-2	15.6	X	59.26843	248.97942	180.12314	7.71943	0.1465142	0.25985641	2.4320944	20	—	—
69206 2167 T-2	16.4	X	5.28653	101.03522	191.90742	5.56636	0.1974971	0.29278271	2.2461518	20	9 2.4	18.0
69207 3004 T-2	16.1	X	90.46146	275.91486	137.53077	1.75120	0.1892758	0.26105790	2.4246263	20	2 3.7	18.6
69208 3078 T-2	15.3	X	224.28545	284.82521	8.18693	11.98180	0.1181324	0.22095909	2.7097432	20	1 31.3	19.7
69209 3300 T-2	15.2	X	113.95872	218.34067	38.38409	7.48410	0.0759375	0.27553315	2.3389457	20	11 22.9	18.5
69210 3356 T-2	14.6	X	290.76429	83.50808	13.22847	4.69892	0.3078973	0.23195701	2.6233992	20	10 26.6	16.9
69211 4098 T-2	16.4	X	321.22400	281.54512	122.84704	3.09957	0.1991755	0.29496356	2.2350666	20	11 29.9	17.6
69212 4287 T-2	16.6	X	345.77931	210.21398	153.05556	5.58341	0.1995366	0.27360592	2.3499163	20	11 12.9	18.5
69213 4616 T-2	14.7	X	334.56487	197.46914	171.31435	10.19484	0.0066458	0.18883102	3.0089883	20	9 30.3	18.8
69214 5067 T-2	14.3	X	160.09360	317.74971	171.79099	13.05980	0.0740312	0.17300066	3.1898545	20	—	—
69215 5099 T-2	15.4	X	23.19850	174.16501	282.57791	7.12927	0.1380009	0.23783975	2.5799607	20	—	—
69216 1108 T-3	14.2	X	357.11388	69.32872	257.60222	10.22116	0.1553453	0.18231937	3.0802136	20	9 5.6	18.0
69217 2135 T-3	14.7	X	356.65881	178.35909	219.05729	6.99683	0.0604369	0.18586480	3.0409173	20	12 5.2	18.8
69218 2330 T-3	15.5	X	210.02828	53.10269	248.60085	1.45622	0.2133713	0.26437392	2.4043091	20	1 18.9	19.6
69219 2364 T-3	15.2	X	229.42674	252.18881	1.33001	8.60142	0.1123181	0.21517440	2.7580935	20	—	—
69220 3030 T-3	15.0	X	37.10078	304.90482	22.81068	1.45191	0.1803627	0.18483440	3.0522084	20	11 19.1	19.0
69221 3528 T-3	15.7	X	265.24627	140.38159	209.12009	4.51989	0.0634494	0.22348975	2.6892488	20	5 28.6	19.4
69222 4210 T-3	13.7	X	102.06268	251.27079	171.69244	11.61575	0.1275895	0.14705942	3.5547370	20	3 7.1	18.8
69223 4331 T-3	16.0	X	100.10871	290.37331	132.18079	3.03466	0.1540953	0.26285580	2.4135577	20	2 24.9	18.8
69224 4388 T-3	15.3	X	260.71034	204.81878	179.86094	6.18033	0.1489880	0.22325258	2.6911530	20	5 6.5	19.3
69225 5043 T-3	14.5	X	3.03795	124.31107	135.23315	17.05692	0.1131700	0.18090600	3.0962361	20	8 9.9	18.4
69226 5129 T-3	15.7	X	18.01528	259.34158	119.40986	6.95427	0.2301729	0.27853899	2.3220882	20	—	—
69227 5139 T-3	15.4	X	342.82983	313.40016	154.57531	11.13306	0.1457368	0.23445048	2.6047655	20	—	—
69228 Kameronberg	16.5	X	29.75599	290.09272	184.70748	22.06183	0.0698119	0.37722287	1.8970147	20	—	—
69229 5188 T-3	14.5	X	248.66493	226.13821	166.19362	16.99409	0.2130528	0.17762758	3.1342174	20	6 14.8	19.7
69230 Hermes	17.5	X	258.72022	92.83286	34.13554	6.06656	0.6244788	0.46307688	1.6546291	20	10 1.6	17.3
69231 Alettajacobs	15.2	X	49.29856	55.18975	170.33864	31.64884	0.2625272	0.22912557	2.6449675	20	8 13.4	18.9
69232 1978 UJ ₄	16.3	X	235.07797	127.38484	236.54208	4.65901	0.2420402	0.27547042	2.3393008	20	4 21.8	20.0
69233 1978 UL ₆	16.3	X	241.58980	147.68908	239.27307	1.74148	0.1695878	0.27662964	2.3327610	20	6 4.8	19.6
69234 1978 VO ₂	14.0	X	256.12586	213.58147	243.90358	7.01201	0.1013260	0.23283537	2.6167973	20	10 1.7	17.5
69235 1978 VS ₃	16.0	X	129.85662	220.28981	237.42276	5.23459	0.1710503	0.27120081	2.3637891	20	5 18.9	19.5
69236 1978 VF ₅	15.3	X	97.46891	65.81577	66.95816	7.37838	0.0734229	0.27139640	2.3626533	20	5 15.5	18.1
69237 1978 VR ₆	15.7	X	225.59175	288.61399	53.83368	6.65368	0.1765095	0.27180649	2.3602762	20	3 24.9	19.4
69238 1978 VZ ₈	15.3	X	306.18403	355.15981	58.95015	3.80034	0.1247148	0.23323893	2.6137780	20	10 22.2	18.0
69239 1978 XT	15.7	X	29.25414	147.07281	236.91959	4.22066	0.3762399	0.23830402	2.5766087	20	—	—
69240 1979 MZ ₁	15.1	X	246.03267	211.02804	136.52662	5.76867	0.0789577	0.21258461	2.7804484	20	5 2.0	19.1
69241 1979 MX ₃	16.6	X	14.45890	92.76014	249.69670	3.06095	0.2190006	0.29238232	2.2482019	20	12 10.7	18.9
69242 1979 MA ₇	14.9	X	295.46109	53.70153	239.44957	3.38225	0.0318354	0.21263059	2.7800476	20	4 27.7	18.7
69243 1979 MU ₇	16.4	X	24.76253	66.99991	245.80520	4.51394	0.2355205	0.29168125	2.2518029	20	11 16.0	19.0
69244 1979 MP ₈	15.3	X	267.88220	315.61441	279.25521	3.87667	0.1372278	0.25585986	2.4573553	20	—	—
69245 Persiceto	14.3	X	176.43426	244.23756	353.02549	15.92701	0.1737699	0.24188956	2.5510833	20	12 23.4	18.7
69246 1981 EZ ₄	15.4	X	135.12565	295.46309	313.08586	9.40096	0.0623106	0.24019172	2.5630910	20	11 28.2	19.2
69247 1981 ED ₁₀	14.4	X	118.09114	232.16914	318.28680	2.30955	0.1745247	0.28551175	2.2841260	20	9 8.5	19.7
69248 1981 EA ₁₉	14.7	X	35.74935	45.99722	7.22189	2.59214	0.1598405	0.24662796	2.5183022	20	—	—
69249 1981 EH ₂₇	14.3	X	225.39988	165.40515	358.01756	13.83723	0.0999421	0.24101759	2.5572325	20	11 16.9	18.1
69250 1981 EK ₃₂	16.3	X	342.30126	51.16145	243.37380	5.64944	0.0326777	0.28323593	2.2963451	20	7 8.7	18.9
69251 1981 ER ₃₃	16.6	X	92.62005	357.20774	205.37952	5.02903	0.1021845	0.28442626	2.2899338	20	8 19.4	19.6
69252 1981 EC ₃₅	15.7	X	33.76725	118.00863	158.28121	5.66656	0.1564185	0.28473165	2.2882961	20	9 24.5	18.1
69253 1981 EX ₃₅	16.1	X	61.98057	8.34377	242.50635	6.67463	0.0914244	0.28514549	2.2860815	20	9 13.3	19.0
69254 1981 EW ₃₇	15.8	X	108.33478	318.39641	303.82507	4.34807	0.0660568	0.23930463	2.5694212	20	11 15.8	19.6
69255 1981 ER ₄₀	16.0	X	84.39602	211.50757	312.18567	1.36938	0.1178269	0.25656222	2.4528684	20	6 16.8	19.1
69256 1981 EF ₄₆	16.2	X	13.83503	306.28452	321.16749	4.09093	0.1416332	0.28276961	2.2988690	20	8 1.1	18.0
69257 1981 ER ₄₇	14.4	X	90.74346	344.98215	36.12103	2.47368	0.1750316	0.24709891	2.5151014	20	—	—
69258 1981 UJ ₂₂	15.0	X	303.67552	332.05583	75.05402	5.39260	0.2503167	0.17383163	3.1796807	20	9 10.6	18.6
69259 Savostyanov	14.6	X	33.33253	59.48903	331.44490	3.96414	0.2893988	0.23913455	2.5706395	20	—	—
69260 Tonyjudt	15.0	X	9.58124	274.78415	99.39390	2.17834	0.3839859	0.23581811	2.5946849	20	—	—
69261 Philaret	14.1	X	180.95805	52.42156	74.02084	11.80669	0.2616615	0.22506535	2.6766831	20	8 12.7	19.0
69262 1986 PV ₆	14.9	X	28.96123	46.19799	314.65269	4.62424	0.1722990	0.29556069	2.2320552	20	—	—
69263 Big Ben	15.5	X	210.56542	226.83452	233.72691	1.98860	0.1822898	0.28188018	2.3037023	20	8 8.7	19.1
69264 Nebra	15.9	X	223.37410	192.76573	130.50456	2.76511	0.2125899	0.26639232	2.3921491	20	2 25.0	19.8
69265 1988 RF ₆	16.0	X	216.35756	246.30145	116.71596	2.33478	0.2001823	0.26848773	2.3796866	20	4 8.9	19.9
69266 1988 RJ ₆	15.3	X	196.48210	70.62264	326.15141	4.18893	0.2402574	0.26841330	2.3801264	20	4 30.9	19.5
69267 1988 RO ₆	14.3	X	234.84533	32.66221	349.85080	6.19952	0.1348463	0.27207718	2.3587105	20	5 24.1	17.7
69268 1988 SD ₂	15.7	X	282.18790	245.10315	38.01984	9.80397	0.2140262	0.26927032	2.3750735	20	3 3.5	19.2
69269 1988 VA ₁	15.7	X	169.98344	126.12650	266.54958	10.17781	0.2691819	0.26438897	2.4042179	20	4 3.3	20.1
69270 1989 BB	13.5	X	133.83570	169.33184	321.96883	9.38574	0.1528785	0.26359240	2.4090591	20	7 6.7	17.2
69271 1989 GK ₂	14.8	X	93.06830	244.91797	8.44748	5.58320	0.0636926	0.23368322	2.6104639	20	10 17.1	18.5
69272 1989 SC ₂	15.6	X	232.47848	337.48492	27.38502	12.53422	0.1961310	0.27753057	2.3276835	20	4 23.6	19.1
69273 1989 TN ₁	14.6	X	242.04583	57.46978	341.77141	11.11166	0.2344721	0.21629024	2.7485967	20	6 13.5	19.2
69274 1989 UZ ₁	15.3	X	345.29170	122.38921	237.23681	9.06304	0.3201056	0.28669679	2.2778275	20	11 30.9	16.5
69275 Wiesenthal	14.6	X	217.73040	282.19129	89.53591	8.73390	0.2368452	0.21049737	2.7987983	20	4 23.9	19.5
69276 1989 YH ₈	15.5	X	147.55455	323.01343	125.49818	9.10903	0.					

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
69281 1990 SG ₆	15.4	X	349.97822	357.38051	43.36648	5.38575	0.1700168	0.23406624	2.6076154	20	12 25.6	18.2
69282 1990 SV ₆	13.9	X	350.85198	27.18302	16.69835	14.97304	0.1131165	0.23456421	2.6039235	20	12 23.9	17.3
69283 1990 ST ₇	14.8	X	325.72975	351.96087	58.80318	3.97665	0.1696480	0.23286215	2.6165967	20	11 22.2	17.2
69284 1990 SB ₉	16.1	X	98.37747	274.51073	93.01058	3.42872	0.1694636	0.30831392	2.1700711	20	—	—
69285 1990 ST ₁₄	14.8	X	282.35815	343.03157	50.54250	6.80371	0.2355765	0.22612213	2.6683370	20	7 25.9	18.2
69286 von Liebig	15.6	X	291.78681	203.60266	212.24140	11.24566	0.2065618	0.22866337	2.6485305	20	9 11.3	18.6
69287 Güntherreichhorn	16.7	X	353.34172	63.98394	349.67086	5.07742	0.1334165	0.30100291	2.2050693	20	—	—
69288 Berlioz	15.3	X	342.90522	67.16213	345.16320	2.42646	0.2421022	0.23360085	2.6110775	20	—	—
69289 1990 UJ ₂	16.5	X	104.94485	42.61027	247.34086	2.38909	0.1695251	0.30170558	2.2016443	20	—	—
69290 1990 UQ ₄	16.0	X	349.68177	261.24720	125.99287	3.59361	0.1714000	0.29823263	2.2187035	20	12 29.5	17.9
69291 1990 WG ₁	14.0	X	229.64273	5.01193	68.89466	22.87548	0.0382470	0.22298651	2.6932933	20	8 15.2	18.2
69292 1990 WH ₂	13.9	X	84.33589	196.35199	87.03105	14.61848	0.1460234	0.23058576	2.6337895	20	11 25.1	18.0
69293 1991 GW ₁₀	14.8	X	232.26600	185.45321	14.87785	10.94902	0.1128127	0.19068880	2.9894131	20	—	—
69294 1991 PU ₉	13.1	X	68.12121	112.51080	146.78270	25.96638	0.3084818	0.17571906	3.1568708	20	10 24.8	18.4
69295 Stecklum	14.2	X	319.22056	46.37518	355.33552	14.07548	0.1946215	0.17032206	3.2232113	20	10 3.6	17.8
69296 1992 BM ₄	15.4	X	233.75259	75.93002	29.71467	2.83958	0.0581333	0.22975119	2.6401638	20	9 22.8	18.9
69297 1992 DT ₈	14.6	X	312.28910	269.14350	329.26555	13.69113	0.1398582	0.21094777	2.7948130	20	2 23.2	18.1
69298 1992 DR ₉	16.2	X	207.86366	318.76028	246.25584	1.98175	0.1073468	0.26806243	2.3822029	20	12 29.2	19.1
69299 1992 EW ₆	15.2	X	295.97755	272.35030	139.19450	11.96335	0.1926509	0.22935009	2.6432410	20	9 22.9	18.0
69300 1992 EJ ₇	15.3	X	74.63766	39.93576	113.71093	5.76651	0.0620901	0.21583712	2.7524449	20	5 13.4	18.9
69301 1992 ES ₈	14.7	X	297.28984	220.82373	61.04058	5.76217	0.1062922	0.17982239	3.1086623	20	4 9.3	19.0
69302 1992 EZ ₁₀	13.4	X	212.39315	354.13410	165.15621	3.84634	0.1325374	0.12487357	3.9642013	20	10 12.1	19.4
69303 1992 EM ₁₃	14.8	X	13.08124	210.55870	333.96751	10.33023	0.1256133	0.21243245	2.7817759	20	3 19.5	18.0
69304 1992 EA ₁₄	15.9	X	14.04768	126.59385	307.03977	3.15759	0.0895235	0.30780095	2.1724814	20	—	—
69305 1992 EJ ₁₄	15.0	X	227.04312	13.89666	301.12866	3.02497	0.0560025	0.24584196	2.5236669	20	2 24.7	18.5
69306 1992 EN ₂₉	15.4	X	28.31473	279.30284	253.27476	3.95282	0.0908909	0.21317835	2.7752833	20	3 29.7	18.8
69307 1992 ON	16.1	X	157.23678	288.69606	341.68677	25.82436	0.2030373	0.36626240	1.9346741	20	—	—
69308 1992 PK ₁	15.2	X	333.35728	66.35666	314.03344	6.73736	0.1461301	0.28565434	2.2833658	20	11 5.7	17.3
69309 1992 PL ₁	16.2	X	272.86978	187.19630	185.39219	1.19419	0.2428012	0.27828705	2.3234895	20	6 12.2	19.0
69310 1992 PQ ₁	15.8	X	358.73970	335.77884	307.45209	4.84863	0.1594519	0.28078732	2.3096760	20	7 26.4	17.5
69311 Russ	15.4	X	213.53797	305.22693	29.42087	22.65501	0.3338113	0.26953182	2.3735371	20	3 10.9	20.2
69312 Rogerbacon	15.2	X	339.56019	303.44093	1.35786	7.19147	0.1229451	0.27818592	2.3240526	20	7 20.7	17.3
69313 1992 SW ₁₈	16.3	X	207.21765	137.14506	187.38828	7.25929	0.1423861	0.26796971	2.3827524	20	2 10.9	20.2
69314 1992 SW ₂₁	15.8	X	326.64165	265.46459	11.81980	6.98499	0.1119723	0.27514577	2.3411406	20	5 7.1	18.3
69315 1992 UR ₂	13.9	X	238.07040	49.70980	46.54879	23.19036	0.2455122	0.27835518	2.3231104	20	9 9.9	17.7
69316 1993 FP ₈	15.4	X	259.92652	145.11241	36.40540	5.87707	0.0934724	0.24349669	2.5398457	20	—	—
69317 1993 FB ₂₀	15.0	X	299.87007	19.78872	52.61201	8.63274	0.1582705	0.23773892	2.5806901	20	11 3.9	17.5
69318 1993 FQ ₂₀	14.6	X	333.03513	317.77333	134.43608	4.21548	0.1898177	0.24358056	2.5392627	20	—	—
69319 1993 FA ₂₉	14.7	X	152.24754	238.24916	353.60435	12.47161	0.1369437	0.23637382	2.5906166	20	11 21.2	19.0
69320 1993 FJ ₃₀	14.7	X	22.62890	31.73391	195.18370	16.24758	0.2534299	0.22212638	2.7002416	20	6 23.8	17.5
69321 1993 FH ₃₄	15.1	X	272.76022	52.43350	39.72852	5.88653	0.0244185	0.23536736	2.5979965	20	11 1.3	18.4
69322 1993 FX ₄₁	15.2	X	312.87774	90.07772	185.82505	13.25331	0.2024449	0.21944845	2.7221645	20	4 4.1	18.4
69323 1993 FZ ₄₁	14.1	X	215.57376	129.24855	6.62737	13.95964	0.1095070	0.23507452	2.6001537	20	10 2.7	17.8
69324 1993 FY ₄₆	16.0	X	22.11732	257.09070	23.40216	1.64615	0.2039878	0.22731926	2.6589606	20	9 7.9	18.9
69325 1993 FP ₄₈	15.4	X	85.91446	25.54030	243.73125	0.92326	0.0837143	0.23399499	2.6081446	20	11 1.1	19.0
69326 1993 FU ₄₉	14.9	X	294.24762	210.30280	237.09956	1.57517	0.0672080	0.23832849	2.5764323	20	11 22.2	17.9
69327 1993 FJ ₆₀	15.9	X	90.10987	47.49290	191.09436	2.39518	0.1021529	0.23105322	2.6302359	20	9 29.3	19.5
69328 1993 FY ₈₀	15.6	X	25.23374	235.22950	123.53963	1.69688	0.0765969	0.23774195	2.5806682	20	12 10.6	18.8
69329 1993 GH ₁	14.7	X	124.27560	137.49959	39.71458	15.85869	0.1189056	0.22822347	2.6519328	20	8 28.9	19.0
69330 1993 HO ₂	15.7	X	257.17102	108.80732	67.71277	4.40995	0.1280219	0.24222269	2.5487437	20	—	—
69331 1993 LE ₁	14.8	X	223.14051	144.58105	345.70458	13.07852	0.1021917	0.23265710	2.6181338	20	10 1.5	18.6
69332 1993 LJ ₁	14.3	X	96.95864	210.55439	321.08977	12.72317	0.1885256	0.22420687	2.6835114	20	7 23.5	18.3
69333 1993 OU ₈	14.7	X	183.65094	317.39376	123.14367	6.96092	0.0896755	0.21619157	2.7494356	20	6 18.3	18.9
69334 1993 PT ₁	17.3	X	274.57857	52.91197	151.50334	2.81991	0.1384822	0.27444568	2.3451203	20	—	—
69335 1993 RT ₆	15.3	X	127.83212	133.19581	249.64864	1.10318	0.0837316	0.19945262	2.9011903	20	2 6.0	19.4
69336 1993 SJ	16.8	X	347.94044	325.11624	2.77924	7.08576	0.1705217	0.29067079	2.2570185	20	9 20.0	18.2
69337 1993 SQ ₅	15.7	X	322.06898	162.88935	357.47231	3.41043	0.10198570	0.30738919	2.1744211	20	—	—
69338 1993 TM ₆	15.7	X	50.20862	225.07226	347.17739	3.36929	0.1295876	0.28336376	2.2956544	20	7 10.5	18.0
69339 1993 TF ₁₁	16.2	X	268.57806	186.70936	233.37308	3.30807	0.1495113	0.28919657	2.2646823	20	8 30.4	18.5
69340 1993 TA ₁₅	15.9	X	1.63549	76.02028	30.72785	5.05289	0.1163901	0.30405480	2.1902893	20	—	—
69341 1993 TD ₁₈	15.1	X	98.45923	13.14330	29.15284	8.51225	0.0965801	0.19729516	2.9223020	20	1 31.0	19.2
69342 1993 TT ₁₉	14.7	X	276.58999	80.34438	51.39202	2.62024	0.0288129	0.18782318	3.0197426	20	12 14.7	18.9
69343 1993 TO ₂₉	16.4	X	323.65301	203.75904	183.50505	6.28134	0.1157419	0.29272835	2.2464298	20	11 2.0	18.3
69344 1993 TH ₃₀	15.9	X	276.42831	52.95301	54.96717	7.49379	0.0552578	0.29571619	2.2312727	20	12 9.8	18.1
69345 1993 TE ₃₁	16.7	X	262.28038	215.40775	168.96888	3.90934	0.1669401	0.28599060	2.2815757	20	6 26.9	19.6
69346 1993 TV ₃₂	16.4	X	5.21484	261.44531	103.54447	3.01591	0.1515053	0.29525165	2.2336125	20	12 18.3	18.5
69347 1993 TM ₄₁	14.6	X	291.84327	259.16565	190.42081	12.42719	0.1089555	0.18423362	3.0588402	20	11 5.6	18.6
69348 1993 UH ₈	16.3	X	228.14564	313.36091	135.20423	6.07164	0.0623334	0.28783311	2.2718286	20	8 30.2	18.9
69349 1993 VU	15.0	X	167.92683	256.09373	214.26410	22.73697	0.2632348	0.28087471	2.3091969	20	7 7.5	19.6
69350 1993 YP	15.4	X	209.13744	229.03940	149.49863	26.54834	0.1175442	0.38884039	1.8590389	20	4 27.1	18.4
69351 1994 AE ₃	16.2	X	39.39176	228.42386	332.12725	2.40749	0.1098086	0.27348035	2.3506356	20	5 28.9	18.6
69352 1994 AR ₅	16.5	X	322.41368	145.17238	83.42196	1.56930	0.1629805	0.26752783	2.3853754	20	2 14.1	19.1
69353 1994 AE ₉	15.8	X	215.78986	18.45049	286.60753	1.62657	0.2077751	0.26643430	2.3918979	20	1 27.4	19.8
69354 1994 CZ ₂	15.8	X	259.97106	96.23141	232.80061	4.56818	0.2581644	0.27279658	2.3545619	20	3 28.7	19.6
69355 1994 CM ₁₂	16.3	X	119.71658	98.88720	7							

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
69361 1994 PA ₁₃	15.8 ^m	X	355.71368	32.63814	291.07457	1.32824	0.0907277	0.22796626	2.6539272	20	9 7.9	18.9
69362 1994 PX ₁₃	15.1	X	331.07490	225.94609	179.89437	3.51440	0.1483102	0.23226380	2.6210886	20	11 25.5	17.8
69363 1994 PK ₁₄	15.3	X	287.49097	63.78721	318.96799	7.02768	0.1798019	0.22492658	2.6777839	20	7 26.8	18.5
69364 1994 PU ₃₀	15.7	X	330.55557	129.31889	189.75705	8.07301	0.1518079	0.22494300	2.6776536	20	7 13.4	18.6
69365 1994 QF	15.4	X	241.38235	77.72225	331.32446	11.33160	0.2630629	0.22181335	2.7027814	20	6 23.9	19.9
69366 1994 RF ₆	15.9	X	163.30557	260.10619	192.82656	4.22486	0.0910025	0.21762778	2.7373258	20	6 12.1	20.0
69367 1994 SD	15.4	X	351.39159	130.21437	201.69747	12.76946	0.1759941	0.22658952	2.6646664	20	9 15.2	18.1
69368 1994 SE ₈	15.7	X	91.12403	184.49010	1.25938	2.36850	0.0899164	0.22047464	2.7137111	20	7 20.9	19.3
69369 1994 SP ₉	15.1	X	6.69570	15.96121	184.37315	13.75279	0.1259865	0.21346727	2.7727785	20	4 3.2	18.0
69370 1994 SF ₁₁	15.0	X	177.29996	63.48396	14.88810	14.14556	0.0246427	0.21804796	2.7338081	20	6 5.2	19.1
69371 1994 TA ₁	13.7	X	257.37387	329.46445	18.58453	36.65191	0.1849259	0.21764718	2.7371631	20	4 20.4	18.2
69372 1994 UA ₆	14.7	X	176.47424	9.59039	26.41409	8.61677	0.2270517	0.21181357	2.7871919	20	4 17.5	19.5
69373 1994 UL ₆	15.5	X	59.43421	229.96739	262.57241	3.33478	0.0550411	0.20911297	2.8111374	20	3 20.7	19.3
69374 1994 UH ₇	14.6	X	190.33797	195.58851	231.81676	8.22695	0.1235617	0.21587839	2.7520940	20	6 7.5	19.0
69375 1994 VG ₁	15.1	X	231.84271	175.75025	212.73590	8.89657	0.1738114	0.21595336	2.7514570	20	5 27.8	19.5
69376 1994 WR ₁	14.4	X	190.34694	16.20644	67.22079	9.80804	0.1300179	0.21336250	2.7736862	20	6 27.4	18.8
69377 1994 WJ ₃	14.1	X	237.35634	335.87101	86.76259	14.48011	0.2001768	0.21790129	2.7350348	20	7 7.5	18.4
69378 1994 WA ₈	15.3	X	182.86339	215.84937	193.99078	7.50724	0.2240770	0.21237523	2.7822755	20	5 10.3	20.2
69379 1994 WC ₁₃	15.7	X	249.09643	112.17804	217.24559	2.65002	0.2016610	0.21414601	2.7669165	20	3 28.5	20.2
69380 1994 YK ₂	14.4	X	85.35564	69.66539	74.22288	7.62295	0.1394882	0.20620017	2.8375490	20	5 25.5	18.2
69381 1995 BH	15.0	X	196.71037	189.39198	302.87176	1.91761	0.2794344	0.21618801	2.7494658	20	8 26.2	19.9
69382 1995 BQ ₈	14.5	X	20.75693	338.74736	94.88974	3.16666	0.0504159	0.19090581	2.9871471	20	—	—
69383 1995 BK ₁₃	16.1	X	319.60729	36.13940	40.10363	1.33529	0.0262355	0.30099789	2.2050939	20	—	—
69384 1995 CQ ₃	15.3	X	227.53978	302.91319	179.74486	2.51422	0.0547517	0.17965987	3.1105367	20	9 29.4	19.6
69385 1995 DH ₆	16.1	X	342.39046	273.33834	353.44420	5.18096	0.1186229	0.28091549	2.3089733	20	5 20.3	18.4
69386 1995 DL ₆	16.3	X	336.15427	114.43630	152.55522	4.80318	0.1453354	0.27992191	2.3144339	20	5 8.8	18.4
69387 1995 DN ₇	14.2	X	83.38586	248.19699	6.55185	5.88345	0.0832328	0.17368738	3.1814410	20	10 1.4	18.7
69388 1995 ER ₅	14.8	X	297.44360	295.11816	162.30558	10.30595	0.0840090	0.18213126	3.0823341	20	11 26.1	19.0
69389 1995 FD ₄	16.6	X	280.91080	241.15210	33.92338	2.77802	0.2222882	0.27389017	2.3482901	20	2 15.9	20.0
69390 1995 FH ₅	16.1	X	7.64310	326.35604	359.46580	22.80925	0.2283009	0.28992137	2.2609063	20	10 25.6	18.6
69391 1995 FF ₆	15.1	X	325.23610	305.42397	162.99630	14.41441	0.0910018	0.18618168	3.0374659	20	—	—
69392 1995 FV ₇	16.1	X	22.85092	236.33441	39.93031	7.91649	0.0927428	0.28514704	2.2860732	20	8 29.9	18.6
69393 1995 FY ₇	15.5	X	333.70330	248.15420	60.19149	6.27536	0.1534234	0.28263518	2.2995979	20	7 10.6	17.3
69394 1995 FA ₈	14.2	X	271.20477	300.35088	135.64522	7.62744	0.0735882	0.17524083	3.1626116	20	9 24.4	18.6
69395 1995 FO ₁₂	14.8	X	359.44600	187.65800	190.18169	5.05424	0.1297132	0.17731488	3.1379012	20	11 19.4	18.6
69396 1995 FN ₁₇	16.2	X	11.14240	230.18176	119.80709	4.65886	0.1279871	0.29089768	2.2558448	20	12 1.6	18.6
69397 1995 FO ₁₇	16.4	X	332.78444	159.84266	128.21955	4.45974	0.1646411	0.27883913	3.3204216	20	6 2.1	18.2
69398 1995 FH ₁₉	14.9	X	12.37371	316.98729	88.55949	2.50629	0.1454826	0.18499349	3.0540582	20	—	—
69399 1995 GD ₄	14.4	X	340.72140	332.38532	40.98229	9.53934	0.0754877	0.17411959	3.1761740	20	10 13.3	18.4
69400 1995 OO ₂	15.6	X	6.09933	294.27544	244.18715	6.35219	0.0768510	0.26449633	2.4035673	20	2 22.1	18.3
69401 1995 QV ₃	14.5	X	269.83780	318.51182	61.72530	27.02375	0.2720706	0.27317887	2.3523647	20	6 10.7	17.9
69402 1995 SM ₁₀	16.2	X	123.13668	95.38984	179.21977	14.89756	0.1390590	0.24608172	2.5220275	20	12 21.3	20.5
69403 1995 SR ₁₃	16.0	X	242.41739	229.47503	355.09518	2.25604	0.1260981	0.25318522	2.4746312	20	—	—
69404 1995 SS ₃₀	15.9	X	58.21104	129.04430	349.18631	9.85846	0.1861763	0.25875055	2.4390191	20	3 11.5	18.2
69405 1995 SW ₄₈	15.4	X	150.86030	146.15497	238.38781	24.82339	0.0851393	0.37750747	1.8960612	20	1 31.4	18.3
69406 1995 SX ₄₈	14.5	X	70.76224	308.82264	299.31431	21.99551	0.0227107	0.39358022	1.8440833	20	9 15.7	17.0
69407 1995 SZ ₈₃	15.8	X	134.23421	250.02617	6.11291	1.79844	0.0638547	0.24411860	2.5355303	20	12 8.8	19.3
69408 1995 TT ₈	16.6	X	118.56916	283.93026	20.96751	1.86247	0.0851618	0.24583953	2.5236836	20	—	—
69409 1995 UQ	15.1	X	247.92838	294.39422	328.84719	8.28929	0.1852385	0.25767134	2.4458246	20	1 6.9	19.1
69410 1995 UB ₃	15.9	X	105.19145	66.41028	326.53913	18.22144	0.0946028	0.37277002	1.9120918	20	—	—
69411 1995 UR ₈	16.0	X	48.05040	287.57867	32.49306	4.69956	0.2380217	0.24110282	2.5566299	20	12 12.3	19.7
69412 1995 UJ ₃₇	15.6	X	351.56139	343.59888	69.86168	6.30700	0.1020829	0.24146457	2.5540758	20	—	—
69413 1995 VA	15.1	X	1.68468	185.96384	226.38365	14.45407	0.0920421	0.24151172	2.5537433	20	—	—
69414 1995 VY ₁₁	15.8	X	35.43618	236.14883	99.24700	4.72481	0.0773820	0.23852696	2.5750030	20	11 24.8	19.2
69415 1995 WA ₁₃	15.7	X	30.85973	300.39124	111.03159	4.83576	0.0430544	0.24399469	2.5363886	20	—	—
69416 1995 WX ₁₆	15.2	X	30.71215	355.11316	235.79570	5.94510	0.1693734	0.22534102	2.6744997	20	7 5.1	18.1
69417 1995 WV ₃₅	13.7	X	73.61776	118.82857	264.18300	0.65217	0.2292285	0.12570308	3.9467422	20	1 4.1	18.7
69418 1995 WX ₄₂	13.8	X	8.66432	317.30218	96.89361	14.72374	0.1382197	0.24110113	2.5566418	20	—	—
69419 1995 XH ₃	15.7	X	227.68555	317.94809	184.74684	4.55323	0.0828567	0.23439906	2.6051465	20	10 30.9	19.1
69420 1995 YA ₁	14.9	X	301.96789	15.27019	105.61567	13.20498	0.2552790	0.23672872	2.5880267	20	—	—
69421 Keizosaji	16.1	X	338.75939	343.52971	78.65685	5.29066	0.2837212	0.23777006	2.5804648	20	—	—
69422 1995 YO ₇	14.6	X	346.97533	176.22990	237.34718	12.55155	0.1588960	0.23910259	2.5708685	20	—	—
69423 1996 AA ₂	14.5	X	334.12887	59.30889	80.23911	16.47904	0.0667148	0.24593917	2.5230019	20	—	—
69424 1996 AG ₆	14.9	X	246.42985	6.45848	336.22386	4.58012	0.1024760	0.21529291	2.7570812	20	4 19.3	19.1
69425 1996 BC	15.3	X	258.36579	311.55854	118.47732	5.40460	0.0815077	0.22581280	2.6707732	20	9 4.7	18.8
69426 1996 BW ₆	15.4	X	123.59416	52.50446	75.20329	3.00893	0.0178359	0.21663858	2.7456521	20	6 4.4	19.1
69427 1996 BJ ₁₀	15.3	X	354.55607	64.36467	193.61443	5.70056	0.0640012	0.21474121	2.7618014	20	6 3.5	18.7
69428 1996 EA ₃	15.0	X	64.66740	139.29192	28.89458	7.19075	0.1398926	0.21087982	2.7954134	20	5 27.7	18.6
69429 1996 EB ₈	14											

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
69441 1996 PG ₈	15.6	X	129.73165	289.23676	299.63505	3.66792	0.1152057	0.29566825	2.2315139	20	11 7.9	18.7
69442 1996 RA ₁₃	15.8	X	300.28096	277.32618	165.81185	5.89972	0.1116144	0.29349013	2.2425409	20	12 12.5	17.8
69443 1996 RB ₁₆	15.8	X	50.03677	38.18911	181.45816	4.22399	0.2116798	0.28337360	2.2956013	20	8 3.5	18.3
69444 1996 RN ₁₇	15.9	X	115.74619	166.29011	358.61913	6.59040	0.0391815	0.28198175	2.3031490	20	7 22.9	18.8
69445 1996 RZ ₂₀	15.5	X	24.74178	1.95591	349.00207	7.77573	0.0690453	0.29362140	2.2418725	20	12 12.3	18.3
69446 1996 SL ₄	15.7	X	298.48967	269.96422	14.32029	6.99229	0.1329532	0.27633944	2.3343939	20	3 31.6	18.6
69447 1996 SG ₈	16.4	X	317.74341	295.30841	28.25071	0.44756	0.2520503	0.28269455	2.2992759	20	6 12.4	17.8
69448 1996 TQ	15.8	X	162.62347	356.68735	86.78081	3.06923	0.1797515	0.27420069	2.3465169	20	6 2.0	19.4
69449 1996 TD ₂	15.4	X	322.42431	287.39311	30.35775	5.38305	0.0819216	0.28186592	2.3037800	20	7 9.3	17.8
69450 1996 TL ₃	16.6	X	216.55492	233.30485	166.95070	2.23797	0.2120651	0.27732215	2.3288759	20	5 25.3	20.3
69451 1996 TD ₅	16.0	X	5.75349	201.81265	16.89389	4.30047	0.0812931	0.27471834	2.3435683	20	4 22.5	18.2
69452 1996 TL ₅	15.5	X	149.48686	25.14453	124.34229	5.81289	0.1303513	0.28049478	2.3112816	20	8 15.7	18.9
69453 1996 TG ₁₁	15.6	X	2.72610	106.34388	211.26268	9.30849	0.2561657	0.28748431	2.2736658	20	10 19.2	17.1
69454 1996 TE ₂₈	15.7	X	190.33731	3.90711	94.88935	4.66786	0.0763687	0.27997937	2.3141172	20	7 23.8	18.7
69455 1996 TB ₃₃	15.8	X	359.97661	174.48537	239.33564	5.31964	0.0143824	0.29732641	2.2232095	20	—	—
69456 1996 TO ₃₃	15.9	X	218.07834	193.81432	209.07750	5.35854	0.1575785	0.27736639	2.3286283	20	6 2.7	19.3
69457 1996 TP ₃₆	15.6	X	46.24269	342.91326	320.83977	4.79522	0.1601629	0.29174467	2.2514765	20	11 18.7	18.5
69458 1996 TQ ₅₄	15.9	X	322.52399	185.85329	201.79750	1.92271	0.0592285	0.28800635	2.2709174	20	10 27.3	18.3
69459 1996 TX ₆₂	16.0	X	223.33250	88.69427	21.42484	4.89822	0.0607622	0.28764506	2.2728186	20	9 23.8	18.7
69460 Christibarnard	15.8	X	27.28381	40.01487	238.38950	5.92672	0.1478449	0.28508153	2.2864234	20	9 10.9	18.2
69461 1996 UA ₃	16.0	X	274.89685	275.85880	66.31438	8.22965	0.1439571	0.27786031	2.3258679	20	5 18.4	18.9
69462 1996 UB ₄	16.3	X	307.77656	189.89222	190.70262	6.25097	0.1124892	0.28639812	2.2794108	20	9 15.9	18.4
69463 1996 VZ ₁	16.1	X	193.27927	354.45581	28.63078	2.58643	0.2248899	0.27134799	2.3629343	20	4 13.1	19.9
69464 1996 VV ₄	15.6	X	209.31827	142.20550	270.05735	1.62955	0.2196659	0.27463158	2.3440618	20	6 2.5	19.3
69465 1996 VR ₅	14.9	X	86.22210	282.37571	176.31269	2.03136	0.1807768	0.26409281	2.4060150	20	3 29.8	17.7
69466 1996 VZ ₅	15.0	X	84.23099	61.71944	74.70014	22.13901	0.3272658	0.26505039	2.4002165	20	6 9.1	18.4
69467 1996 VA ₁₄	15.6	X	228.11635	259.31860	54.49600	4.06330	0.1805600	0.26895731	2.3769159	20	2 19.6	19.5
69468 1996 VO ₁₅	16.1	X	296.77295	60.73317	179.42276	1.06954	0.1472731	0.26652037	2.3913828	20	1 28.3	19.3
69469 Krumbenowe	16.1	X	282.93124	300.05437	49.07543	4.22472	0.1741476	0.28018261	2.3129980	20	6 2.9	18.7
69470 1996 XH	16.0	X	120.40753	284.28341	144.03739	2.24896	0.1559774	0.26552121	2.3973783	20	3 29.7	19.3
69471 1996 XM ₁	15.5	X	6.10254	46.03246	93.44896	3.40672	0.1372760	0.25658289	2.4527366	20	—	—
69472 1996 XN ₁	16.1	X	215.56532	330.50260	84.69152	3.77937	0.2139474	0.27412588	2.3469438	20	6 12.3	19.7
69473 1996 XO ₁	14.9	X	56.80475	192.22703	284.26548	5.16989	0.0796121	0.26075865	2.4264810	20	2 19.9	17.7
69474 1996 XA ₃	15.4	X	260.44780	145.15871	270.98995	7.83490	0.1760479	0.27995620	2.3142449	20	8 5.3	18.3
69475 1996 XE ₉	15.6	X	188.41314	161.98471	262.71582	5.47911	0.1783456	0.27224417	2.3577458	20	6 1.1	19.2
69476 1996 XF ₁₀	16.3	X	302.89972	153.07660	179.60170	3.19209	0.1061253	0.27783021	2.3260359	20	6 22.9	18.7
69477 1996 XS ₁₃	16.4	X	94.96987	44.02104	45.86723	1.82433	0.1491470	0.26197858	2.4189424	20	3 25.6	19.2
69478 1996 XO ₁₅	15.6	X	75.83308	204.01638	290.56630	0.56330	0.1292877	0.26417046	2.4055435	20	4 25.1	18.3
69479 1996 XH ₁₆	17.0	X	111.99169	159.10218	292.32234	0.55189	0.1479368	0.26722921	2.3871522	20	4 17.3	20.2
69480 1996 XL ₁₉	16.3	X	147.92615	127.78659	312.00946	0.65135	0.1521256	0.26803248	2.3823803	20	5 12.1	19.7
69481 1996 XU ₁₉	15.0	X	64.66863	239.19544	247.66623	1.19093	0.1566414	0.26217628	2.4177262	20	3 30.9	17.6
69482 1996 XC ₂₆	15.8	X	143.01836	148.99311	289.88062	1.22972	0.1955646	0.26761270	2.3848710	20	5 8.9	19.6
69483 1996 XA ₃₁	16.2	X	94.00692	302.96276	133.23217	4.64389	0.2377166	0.26152374	2.4217462	20	3 20.7	19.2
69484 1996 YR ₁	15.3	X	51.41395	165.08250	304.44592	6.33874	0.0880574	0.25687826	2.4508561	20	2 4.3	17.8
69485 1997 AD	14.0	X	248.37452	237.45714	294.27073	11.89572	0.1533711	0.24500603	2.5294040	20	12 27.1	16.9
69486 1997 AM ₁	15.8	X	78.70733	330.15524	79.04528	4.07054	0.1762516	0.25609507	2.4558504	20	1 8.3	18.2
69487 1997 AZ ₂	14.3	X	242.26225	39.56506	329.76367	9.26609	0.2342320	0.27169447	2.3609250	20	5 2.7	18.2
69488 1997 AV ₃	15.9	X	209.35996	234.08029	189.24039	2.49681	0.2109696	0.27522396	2.3406971	20	6 17.5	19.7
69489 1997 AB ₄	15.5	X	208.71660	77.29830	320.97996	2.67109	0.2150547	0.27010274	2.3701912	20	5 14.4	19.4
69490 1997 AE ₅	14.5	X	119.73066	54.82509	309.90926	13.19259	0.1457591	0.25526864	2.4611480	20	1 6.4	17.7
69491 1997 AZ ₅	15.2	X	274.90440	158.39163	275.07421	5.70254	0.0931816	0.28480163	2.2879212	20	10 7.4	17.9
69492 1997 AG ₇	16.5	X	106.90972	248.82535	198.20590	2.86350	0.2274758	0.26271473	2.4144215	20	4 16.8	19.8
69493 1997 AO ₁₂	15.5	X	206.82357	235.00028	110.22667	21.00021	0.1528020	0.26416518	2.4055756	20	3 17.4	19.7
69494 1997 AF ₁₅	14.4	X	349.30739	94.93864	57.63400	7.53219	0.1264580	0.25451137	2.4660276	20	—	—
69495 1997 AY ₁₇	15.6	X	257.30746	54.77467	21.32055	3.18466	0.2249451	0.27902248	2.3194050	20	8 25.8	18.4
69496 Zaoryuzan	16.0	X	103.22240	322.37312	120.10331	0.98073	0.1539915	0.26230054	2.4169626	20	3 27.1	19.0
69497 1997 BK ₂	15.8	X	284.93659	125.38154	345.12076	3.76752	0.1762560	0.24253541	2.5465524	20	11 27.9	18.2
69498 1997 CM ₁	14.9	X	133.85035	182.10899	13.58839	5.45708	0.1594421	0.23114048	2.6295739	20	9 25.1	19.1
69499 1997 CV ₄	15.2	X	114.51540	92.02626	316.61387	13.21953	0.2049380	0.25952376	2.4341722	20	2 28.5	18.6
69500 Ginobartali	16.2	X	69.95311	269.65894	194.34955	2.35903	0.1477282	0.25904873	2.4371471	20	3 5.7	18.7
69501 1997 CK ₁₁	15.9	X	67.45875	190.69309	52.41845	0.31062	0.0542644	0.23202626	2.6228772	20	8 31.6	19.2
69502 1997 CK ₁₂	16.3	X	71.91047	94.59146	341.20657	1.88780	0.1805017	0.25597166	2.4566396	20	2 4.1	18.6
69503 1997 CF ₁₆	15.9	X	16.77215	227.44979	147.65894	9.59740	0.1267523	0.24123412	2.5557020	20	12 28.7	19.2
69504 1997 CG ₂₀	15.1	X	152.98293	176.88157	343.61912	11.18097	0.1118468	0.22983735	2.6395039	20	8 29.4	19.0
69505 1997 CX ₂₁	15.6	X	22.92648	230.61857	252.96503	4.74292	0.1959337	0.25518382	2.4616934	20	1 1.2	17.7
69506 1997 CF ₂₆	14.5	X	268.54855	79.15991	52.55816	5.43023	0.1814900	0.24127386	2.5554214	20	11 27.8	17.1
69507 1997 CQ ₂₇	16.1	X	184.23000	14.60819	56.26412	2.79289	0.2182868	0.26936663	2.3745074	20	6 4.9	20.0
69508 1997 ET ₂	14.6	X	142.70382	4.26749	165.79750	13.79768	0.1397439	0.22823775	2.6518222	20	8 30.1	18.7
69509 1997 ES ₄	15.7	X	159.46811	163.14131	3.24307	5.37107	0.1409014	0.22996918	2.6384951	20	9 12.2	19.8
69510 1997 EN ₅	15.6	X	304.58997	24.21667	6.81157	2.02616	0.0899105	0.23127345	2.6285659	20	9 18.4	18.4
69511 1997 ER ₃₃	15.5	X	48.42557	33.87202	85.46644	3.55655	0.1438911	0.25761332	2.4461918	20	2 19.8	17.8
69512 1997 EZ ₃₈	15.6	X	95.98796	147.47190	320.50349	6.00273	0.1718742	0.26238888	2.4164200	20	4 20.6	18.9
69513 1997 EP ₃₉	15.0	X	253.09469	146.02709	323.38464	7.55304	0.0399407	0.23776273	2.5805178	20	10 22.9	18.5
69514 1997 EQ ₄₆	15.0	X	236.07975	119.12440	2.38369	13.56896	0.2585164	0.23525799	2.5988016	20	9 20.	

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
69521 1997 GY ₂	15.9 ^m	X	240.38460	187.63386	141.95255	1.01465	0.1455383	0.21441106	2.7646358	20	3 25.9	20.1
69522 1997 GY ₆	15.5	X	333.18633	270.36661	34.59038	14.23266	0.0420210	0.21964834	2.7205127	20	7 7.9	19.3
69523 1997 GH ₇	15.1	X	160.06724	66.14592	83.60753	3.22649	0.0392345	0.22465225	2.6799634	20	8 22.7	18.8
69524 1997 GM ₇	13.7	X	343.38138	29.70596	44.58342	18.42037	0.1522216	0.23861414	2.5743757	20	—	—
69525 1997 GF ₉	15.0	X	217.74298	283.34894	203.07432	13.34492	0.1024366	0.23190106	2.6238211	20	9 21.8	18.8
69526 1997 GN ₉	15.0	X	48.55908	301.08827	4.73923	15.07272	0.0899986	0.23057963	2.6338362	20	10 28.8	18.6
69527 1997 GU ₁₀	16.4	X	302.06322	271.96721	193.64864	3.28121	0.2126889	0.24105301	2.5569821	20	12 24.8	18.5
69528 1997 GV ₁₀	16.1	X	53.52440	280.98807	190.54116	2.00027	0.1596656	0.25401770	2.4692216	20	2 18.1	18.4
69529 1997 GJ ₁₂	16.3	X	286.91258	124.70598	24.38321	5.73654	0.1707460	0.24279459	2.5447398	20	—	—
69530 1997 GN ₁₃	16.2	X	279.91245	113.34252	10.90203	8.77384	0.1147898	0.23900186	2.5715908	20	12 14.4	19.3
69531 1997 GV ₁₃	16.4	X	189.42410	325.77144	221.13061	3.17953	0.1084531	0.23452745	2.6041955	20	11 8.1	20.0
69532 1997 GC ₁₇	15.7	X	232.93793	163.44931	1.46374	5.18735	0.0871433	0.23731665	2.5837505	20	12 3.3	19.2
69533 1997 GT ₁₇	14.4	X	247.45069	5.17267	16.38537	15.31935	0.0669989	0.22142231	2.7059627	20	6 14.8	18.5
69534 1997 GG ₂₀	15.0	X	1.00471	13.63693	9.08351	8.64565	0.0936184	0.23549623	2.5970486	20	12 7.9	18.2
69535 1997 GN ₂₃	14.8	X	323.43122	126.27205	23.46538	6.59348	0.1417651	0.24501525	2.5293405	20	—	—
69536 1997 GN ₂₄	14.2	X	357.84878	6.41916	40.84362	15.54824	0.0748200	0.23574201	2.5952432	20	—	—
69537 1997 GZ ₃₂	15.5	X	350.05571	298.43528	292.13494	1.41331	0.1802991	0.21439700	2.7647566	20	4 9.3	18.4
69538 1997 GH ₃₆	13.5	X	151.75195	102.70892	37.36853	13.62249	0.1032736	0.22278887	2.6948859	20	8 5.5	17.9
69539 1997 GO ₄₀	15.8	X	215.07511	104.99248	61.98368	3.92018	0.1351384	0.23419876	2.6066316	20	11 8.5	19.4
69540 1997 HA ₁	15.1	X	193.66684	97.39898	51.34269	16.18857	0.1384088	0.23087746	2.6315706	20	9 30.9	19.4
69541 1997 HZ ₉	14.9	X	300.85973	140.75198	138.44430	2.53037	0.1442447	0.17042661	3.2218930	20	4 4.6	19.2
69542 1997 HL ₁₀	15.2	X	234.44164	260.72480	188.13830	2.20405	0.0590640	0.22623722	2.6674320	20	8 30.3	18.7
69543 1997 JZ ₂	15.9	X	275.69953	70.02074	255.78647	2.42606	0.0990767	0.21904259	2.7255261	20	5 4.3	19.5
69544 1997 JV ₉	15.1	X	275.93195	244.43198	149.42547	10.42477	0.0882479	0.22236783	2.6982866	20	8 6.9	18.7
69545 1997 JF ₁₀	15.2	X	268.64528	285.55996	203.28458	2.52699	0.1410802	0.23541951	2.5976128	20	11 29.1	18.0
69546 1997 JO ₁₃	14.6	X	24.99064	234.05650	56.10932	16.20083	0.0639122	0.22346808	2.6894226	20	9 15.0	18.3
69547 1997 KU ₁	15.6	X	183.46198	314.64953	186.72054	14.50791	0.1209840	0.22510815	2.6763438	20	9 1.2	19.8
69548 1997 LA ₃	14.2	X	11.72670	325.91078	71.32411	18.11790	0.1696735	0.23354208	2.6115156	20	—	—
69549 1997 LC ₄	14.8	X	357.99463	34.54191	78.23696	23.70724	0.0782585	0.36956757	1.9231219	20	—	—
69550 1997 LA ₆	14.2	X	201.17148	299.02482	102.28982	16.75869	0.1790001	0.21338641	2.7734789	20	5 19.8	19.0
69551 1997 MY ₂	14.7	X	88.77839	289.44540	0.73247	3.05672	0.0958525	0.18345298	3.0675115	20	11 21.3	19.3
69552 1997 MT ₄	14.3	X	169.66529	174.95171	99.78560	15.01950	0.1097305	0.19161342	2.9797885	20	—	—
69553 1997 QS ₂	13.9	X	301.01343	12.20357	71.67973	6.47297	0.1714515	0.17736790	3.1372758	20	11 3.9	17.6
69554 1997 SZ ₄	13.9	X	45.51450	322.15505	8.16493	21.29907	0.0743967	0.17502898	3.1651630	20	11 8.1	18.6
69555 1997 SQ ₉	14.7	X	309.91828	117.05428	356.54545	12.92018	0.0887454	0.18052540	3.1005864	20	—	—
69556 1997 SA ₃₁	14.0	X	24.18348	132.43220	203.83623	18.55530	0.0934398	0.17194689	3.2028739	20	10 29.3	18.2
69557 1997 SY ₃₁	14.2	X	23.92021	344.40753	348.05726	9.10773	0.0752170	0.17477941	3.1681753	20	10 18.3	18.6
69558 1997 TA ₂₆	14.2	X	256.67007	88.57741	23.63116	18.22007	0.1503768	0.17236436	3.1977001	20	10 9.0	18.5
69559 1997 UG ₅	13.9	X	294.22560	27.03675	29.73480	18.35695	0.1844244	0.16909101	3.2388366	20	9 21.4	18.1
69560 1997 UW ₁₄	13.8	X	349.69940	351.85151	49.96831	6.52829	0.1129107	0.17499532	3.1655688	20	11 30.8	17.7
69561 1997 YD ₂	15.5	X	308.69051	246.06804	286.55057	4.37167	0.0629831	0.30893461	2.1671635	20	—	—
69562 1997 YU ₆	15.2	X	26.96704	61.94795	109.28212	7.10901	0.0402713	0.27393061	2.3480590	20	3 23.3	17.9
69563 1997 YP ₁₀	15.8	X	263.92447	153.39283	3.18816	5.09880	0.0634489	0.30094727	2.2053411	20	—	—
69564 1997 YA ₁₈	16.5	X	311.24752	307.83743	318.27396	5.38743	0.2002836	0.27483736	2.3428916	20	3 11.2	19.4
69565 1998 AZ ₄	15.8	X	220.33458	217.18321	271.61450	7.06164	0.0747648	0.29370755	2.2414341	20	10 10.2	18.6
69566 1998 BX ₈	13.1	X	5.24616	269.96290	129.82963	3.79810	0.2590447	0.12495177	3.9625471	20	12 23.1	17.6
69567 1998 BC ₈	15.6	X	72.46196	223.62663	342.51605	3.07074	0.1833272	0.27932440	2.3177333	20	8 12.4	18.4
69568 1998 BK ₁₂	15.1	X	302.72799	105.32450	106.77011	6.78694	0.0690685	0.26751388	2.3854584	20	1 10.2	18.2
69569 1998 BU ₁₂	15.7	X	172.13346	5.72604	114.19403	7.34315	0.0535955	0.28559916	2.2836599	20	8 1.3	18.5
69570 1998 BT ₂₄	14.4	X	107.68713	262.27597	357.69586	5.40168	0.0986361	0.29142071	2.2531448	20	11 23.8	17.6
69571 1998 BJ ₂₅	15.4	X	226.27170	72.12868	58.20509	2.57739	0.1036697	0.29166392	2.2518921	20	10 20.1	17.9
69572 1998 BY ₂₅	14.7	X	206.37696	121.85847	91.73455	7.11732	0.0580267	0.29836923	2.2180263	20	—	—
69573 1998 BQ ₂₆	15.8	X	22.16219	167.01220	91.28880	7.71167	0.1609277	0.28159108	2.3052788	20	8 7.8	17.9
69574 1998 BR ₃₅	15.9	X	294.11719	123.59773	131.76650	6.82959	0.0887285	0.26909046	2.3761318	20	2 23.4	18.8
69575 1998 BT ₃₆	16.6	X	351.65301	243.79594	302.34552	0.73804	0.1272244	0.27009253	2.3702510	20	2 5.7	18.9
69576 1998 BQ ₄₆	16.1	X	357.62775	283.92353	325.81140	2.91179	0.1054641	0.27747869	2.3279999	20	5 25.3	18.2
69577 1998 CE ₅	15.6	X	312.99771	243.49803	347.28540	2.18060	0.1183834	0.26781933	2.3836442	20	2 10.6	18.6
69578 1998 DC ₈	15.9	X	26.96468	343.81004	200.26581	4.10645	0.0675830	0.27173372	2.3606976	20	4 8.1	18.4
69579 1998 DQ ₁	16.7	X	140.46844	51.34346	120.84769	2.08978	0.1334722	0.28614495	2.2807551	20	9 6.4	20.1
69580 1998 DR ₇	15.2	X	223.36025	30.50279	55.99124	4.07286	0.1603267	0.28505910	2.2865434	20	8 8.4	18.5
69581 1998 DX ₈	16.2	X	317.94346	218.38499	81.00907	1.34510	0.1111006	0.27734548	2.3287453	20	5 28.2	18.6
69582 1998 DM ₁₀	15.3	X	101.37810	245.42778	192.84566	6.42468	0.1034802	0.27081082	2.3660579	20	3 8.2	18.2
69583 1998 DP ₁₀	15.6	X	317.53606	289.35245	203.36204	2.97998	0.0718738	0.30165322	2.2018991	20	—	—
69584 1998 DZ ₁₀	15.5	X	76.98623	298.90750	359.94867	7.03789	0.1243047	0.29350092	2.2424860	20	12 14.1	18.8
69585 1998 DN ₃₅	15.4	X	213.80282	181.32475	347.88968	0.94258	0.1200328	0.29394618	2.2402208	20	11 23.4	18.2
69586 1998 DE ₃₆	15.6	X	166.66991	194.17279	20.92958	5.43069	0.1168482	0.29165387	2.2519438	20	11 28.3	18.7
69587 1998 EZ ₁	15.6	X	8.29335	290.19366	182.40043	3.50154	0.0094934	0.25745565	2.4471904	20	—	—
69588 1998 EF ₄	16.3	X	226.03644	83.10413	10.00313	6.01722	0.0721086	0.28480808	2.2878867	20	9 1.9	19.1
69589 1998 EM ₇	16.1	X	200.56270	115.88178	354.64942	4.37939	0.1612720	0.28593986	2.2818456	20	8 15.8	19.5
69590 1998 EL ₈	14.9	X	264.39124	215.06947	224.41613	5.60124	0.1340454	0.29030718	2.2589027	20	9 24.6	17.4
69591 1998 EV ₁₃	15.2	X	98.56517	138.91784	39.41122	3.26596	0.1450296	0.27863275	2.3215673	20	7 31.8	18.3
69592 1998 EO ₁₄	15.5	X	18.56512	71.32334	84.50747	3.16802	0.1022451	0.26657920	2.3910310	20	2 14.0	17.8
69593 1998 EN ₂₁	15.4	X	178.20269	6.92894	114.53302	7.58445	0.0614304	0.28694011	2.2765396	20	8 11.7	18.3
69594 Ulfherka	15.8	X	15.91641	177.15069	46.47098	3.31479	0.1415408	0.27360351	2.3499301	20	5 22.5	17.6

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
69601 1998 <i>FB</i> ₂₇	15.9	X	20.39635	183.04492	326.56925	4.56085	0.1497117	0.26676872	2.3898984	20	2 5.3	17.8
69602 1998 <i>FE</i> ₂₈	15.8	X	120.24072	298.48837	188.05691	4.07372	0.0863390	0.27627888	2.3347350	20	6 7.7	18.9
69603 1998 <i>FD</i> ₂₉	15.7	X	100.95497	43.31767	162.63896	1.79726	0.1490468	0.28187049	2.3037551	20	9 9.9	18.8
69604 1998 <i>FH</i> ₃₅	15.8	X	208.70180	255.24559	181.37100	3.56738	0.1172790	0.28099600	2.3085323	20	7 10.6	19.0
69605 1998 <i>FA</i> ₃₈	16.0	X	338.80340	153.83019	3.79873	0.31849	0.1557338	0.26237853	2.4164836	20	—	—
69606 1998 <i>FX</i> ₄₀	15.7	X	342.42207	76.28836	168.45382	5.29647	0.1236224	0.27101015	2.3648976	20	4 18.9	18.0
69607 1998 <i>FZ</i> ₄₁	15.8	X	31.54984	333.88555	238.56205	1.65932	0.1670402	0.27334159	2.3514310	20	6 10.6	17.6
69608 1998 <i>FJ</i> ₄₂	15.3	X	37.90175	304.36913	254.14340	2.22444	0.1781077	0.27279567	2.3545671	20	6 2.8	17.2
69609 1998 <i>FQ</i> ₄₂	15.7	X	307.18565	146.83623	327.14181	3.11857	0.0787653	0.29715634	2.2240577	20	—	—
69610 1998 <i>FD</i> ₄₃	15.7	X	324.07901	31.02829	192.21317	2.65615	0.1320000	0.26626718	2.3928986	20	2 12.9	18.3
69611 1998 <i>FP</i> ₄₆	16.2	X	278.31151	104.93098	9.43232	4.16170	0.0763479	0.29360968	2.2419322	20	12 20.5	18.4
69612 1998 <i>FW</i> ₄₆	16.0	X	240.50483	302.65124	186.95711	3.78154	0.0939831	0.29086108	2.2560340	20	11 9.8	18.4
69613 1998 <i>FK</i> ₄₇	14.6	X	332.83240	315.34300	352.35326	7.36706	0.1267907	0.27708298	2.3302158	20	7 10.0	16.8
69614 1998 <i>FK</i> ₄₈	15.5	X	243.85589	280.19487	209.39299	4.83147	0.1347747	0.29162612	2.2520867	20	11 7.7	17.7
69615 1998 <i>FF</i> ₄₉	16.2	X	90.58608	166.09051	329.18081	2.02093	0.1636723	0.27331877	2.3515619	20	5 22.6	19.0
69616 1998 <i>FY</i> ₄₉	15.5	X	32.57264	129.99091	2.35339	6.59262	0.0711362	0.26501198	2.4004484	20	2 6.2	18.1
69617 1998 <i>FZ</i> ₅₂	15.3	X	144.65448	118.64940	14.86059	5.88916	0.1040841	0.27914278	2.3187385	20	7 19.6	18.7
69618 1998 <i>FY</i> ₅₂	15.3	X	198.23317	109.36036	8.70502	5.68567	0.1460851	0.28454674	2.2892874	20	8 25.4	18.6
69619 1998 <i>FM</i> ₅₃	15.6	X	222.26685	233.09608	192.46905	6.63944	0.0760422	0.28008219	2.3135509	20	7 14.9	18.8
69620 1998 <i>FP</i> ₅₃	15.6	X	265.34345	280.23501	197.00590	6.53265	0.2323480	0.29398007	2.2400487	20	11 10.1	17.4
69621 1998 <i>FA</i> ₅₄	15.5	X	19.64256	325.73128	256.35580	2.04258	0.1580962	0.27237298	2.3570025	20	5 29.9	17.5
69622 1998 <i>FS</i> ₅₄	15.6	X	161.78410	84.92774	2.90323	6.03103	0.0688638	0.27541524	2.3396132	20	6 1.8	18.8
69623 1998 <i>FM</i> ₅₅	15.5	X	192.60211	358.45846	142.37217	3.73553	0.0849439	0.28586062	2.2822673	20	9 23.9	18.5
69624 1998 <i>FN</i> ₅₇	15.6	X	161.37333	313.24958	195.36674	5.58042	0.1142288	0.28271359	2.2991727	20	8 24.8	19.0
69625 1998 <i>FG</i> ₅₈	14.7	X	292.31672	312.51163	6.76256	7.11251	0.1212596	0.27226785	2.3576092	20	5 2.4	17.5
69626 1998 <i>FM</i> ₅₉	15.6	X	65.67953	36.80337	102.57086	3.43541	0.1067428	0.26998846	2.3708600	20	4 14.1	18.1
69627 1998 <i>FC</i> ₆₂	15.5	X	269.02376	44.34517	204.65257	9.43495	0.1401061	0.26120579	2.4237111	20	1 9.2	19.3
69628 1998 <i>FD</i> ₆₂	14.9	X	346.80026	284.78829	348.83743	6.21712	0.0962091	0.27399888	2.3476690	20	6 11.9	17.3
69629 1998 <i>FS</i> ₆₂	15.3	X	270.26708	47.65114	200.15329	6.07685	0.1152792	0.26134951	2.4228225	20	1 11.8	19.0
69630 1998 <i>FA</i> ₆₃	15.9	X	97.42915	170.53685	6.52950	5.45433	0.0988886	0.27730391	2.3289780	20	7 23.1	18.9
69631 1998 <i>FF</i> ₆₃	15.8	X	109.46899	82.08671	181.58461	12.83805	0.1671231	0.24285726	2.5443020	20	11 27.8	20.1
69632 1998 <i>FN</i> ₆₄	16.0	X	150.03597	136.58662	14.29524	6.87447	0.0812769	0.28096477	2.3087034	20	8 19.6	19.2
69633 1998 <i>FM</i> ₆₅	15.9	X	133.36855	15.85895	224.21635	4.26596	0.2058346	0.24283367	2.5444668	20	11 19.2	20.1
69634 1998 <i>FH</i> ₆₈	15.9	X	33.69813	156.42462	11.82902	2.73138	0.1211505	0.26847914	2.3797373	20	3 30.9	18.2
69635 1998 <i>FJ</i> ₆₈	15.5	X	117.85617	100.87546	28.63813	0.33610	0.1914830	0.27543647	2.3394930	20	6 19.9	19.0
69636 1998 <i>FE</i> ₇₁	15.7	X	158.95584	170.16989	348.17492	3.42950	0.1020220	0.28263539	2.2995968	20	9 6.4	19.0
69637 1998 <i>FN</i> ₇₁	15.3	X	325.76604	179.43772	16.02146	9.24573	0.1533069	0.26242113	2.4162221	20	1 8.4	18.4
69638 1998 <i>FU</i> ₇₁	16.2	X	305.38532	277.04298	336.43228	2.38480	0.1205182	0.26722207	2.3871947	20	3 1.1	19.2
69639 1998 <i>FR</i> ₇₅	14.9	X	179.14749	35.22544	43.86942	7.42064	0.0737406	0.27602079	2.3361901	20	6 11.2	18.1
69640 1998 <i>FP</i> ₇₆	15.0	X	181.20963	21.75055	130.36847	4.72711	0.0599975	0.28474254	2.2882378	20	9 28.3	17.9
69641 1998 <i>FQ</i> ₇₇	15.4	X	268.87920	355.62769	46.25371	7.03692	0.1374102	0.28185182	2.3038569	20	8 9.8	18.1
69642 1998 <i>FX</i> ₇₇	15.6	X	296.79891	16.55732	100.01223	4.87249	0.1151427	0.29541572	2.2327854	20	—	—
69643 1998 <i>FY</i> ₇₇	15.4	X	270.68800	17.86511	109.36252	5.20716	0.0950617	0.29316473	2.2442001	20	12 24.7	17.6
69644 1998 <i>FT</i> ₇₈	15.6	X	298.10981	270.04928	158.97101	7.00381	0.1513613	0.28938641	2.2636918	20	11 14.6	17.5
69645 1998 <i>FM</i> ₇₉	15.7	X	332.66072	192.15781	34.90515	9.38554	0.1824189	0.26615268	2.3935848	20	2 29.7	18.4
69646 1998 <i>FV</i> ₇₉	15.4	X	312.45921	38.15407	61.26489	6.04316	0.0934056	0.29468503	2.2364747	20	—	—
69647 1998 <i>FO</i> ₈₄	15.5	X	164.60592	116.53984	48.11236	7.86896	0.0565444	0.28651552	2.2787881	20	9 27.1	18.6
69648 1998 <i>FW</i> ₈₇	16.0	X	326.65648	30.37792	59.81660	4.30370	0.1288823	0.29846673	2.2175432	20	—	—
69649 1998 <i>FK</i> ₉₈	15.7	X	213.87855	211.24580	281.15743	5.33276	0.1152798	0.28835483	2.2690874	20	9 30.7	18.7
69650 1998 <i>FT</i> ₉₉	15.8	X	2.22271	217.76618	327.48393	6.52760	0.0622288	0.26726796	2.3869214	20	2 28.6	18.5
69651 1998 <i>FW</i> ₉₉	15.4	X	357.15559	279.31103	248.50360	5.02405	0.1524836	0.26488831	2.4011955	20	1 16.5	17.8
69652 1998 <i>FJ</i> ₁₀₁	15.7	X	271.91374	220.05048	171.72784	6.88657	0.1236531	0.25500331	2.4628550	20	—	—
69653 1998 <i>FT</i> ₁₀₁	14.9	X	129.36527	243.12997	292.84300	3.63419	0.0731996	0.28184403	2.3038993	20	8 25.1	18.0
69654 1998 <i>FR</i> ₁₀₂	15.6	X	3.32833	292.66682	247.00299	5.95138	0.2213705	0.26654733	2.3912216	20	2 4.4	17.6
69655 1998 <i>FD</i> ₁₀₆	15.9	X	314.02117	297.36526	335.81869	6.19243	0.0896630	0.27030719	2.3689960	20	4 12.5	18.6
69656 1998 <i>FV</i> ₁₀₈	15.8	X	146.83215	192.04802	286.85408	4.42984	0.1040141	0.27719831	2.3295695	20	6 30.3	18.9
69657 1998 <i>FX</i> ₁₀₈	15.1	X	41.56698	30.48460	239.44771	5.29626	0.0849660	0.28050253	2.3112390	20	9 10.1	17.8
69658 1998 <i>FC</i> ₁₁₄	15.2	X	115.90482	268.82546	236.17301	6.42024	0.1564446	0.27637032	2.3342200	20	7 4.7	18.6
69659 1998 <i>FE</i> ₁₁₆	15.5	X	40.45777	213.03353	329.05779	5.16007	0.0852078	0.27073464	2.3665018	20	4 27.3	18.1
69660 1998 <i>FP</i> ₁₁₇	15.2	X	114.67522	18.00589	232.63637	10.50332	0.1488129	0.24089417	2.5581059	20	11 13.9	19.2
69661 1998 <i>FZ</i> ₁₁₇	15.9	X	234.00631	284.12301	290.39567	3.61077	0.1348469	0.25260666	2.4784083	20	—	—
69662 1998 <i>FR</i> ₁₁₈	15.5	X	43.00248	223.62121	302.58663	3.23008	0.1712916	0.26948404	2.3738176	20	4 19.0	17.7
69663 1998 <i>FM</i> ₁₁₉	16.3	X	280.60750	22.91431	212.76883	8.74913	0.1749644	0.26093426	2.4253922	20	1 1.7	20.2
69664 1998 <i>FN</i> ₁₂₂	15.7	X	249.11136	57.33668	194.02439	5.08640	0.1317609	0.25882513	2.4385505	20	—	—
69665 1998 <i>FQ</i> ₁₂₂	14.8	X	351.19547	283.32939	23.52157	10.61982	0.1728663	0.23185865	2.6241411	20	8 22.8	16.7
69666 1998 <i>FC</i> ₁₂₃	15.5	X	90.13980	213.84945	60.36151	4.86970	0.1168918	0.24201122	2.5502282	20	11 16.9	19.3
69667 1998 <i>FL</i> ₁₃₁	16.5	X	353.75022	258.32940	318.47780	0.82049	0.1317506	0.26842613	2.3800506	20	3 25.8	18.6
69668 1998 <i>FD</i> ₁₃₃	16.3	X	81.04404	198.37985	323.43791	0.29802	0.1601191	0.27564679	2.3383028	20	6 16.7	19.1
69669 1998 <i>FF</i> ₁₃₇	16.5	X	296.30875	6.55316	221.21691	1.99981	0.1712988	0.26236200	2.4165851	20	1 9.3	19.9
69670 1998 <i>FM</i> ₁₄₁	16.5	X	210.02226	22.97686	245.25357	2.20280	0.1525989	0.25622580	2.4550150	20	—	—
69671 1998 <i>GY</i> ₃	15.1	X	84.16407	157.75330	117.32303	13.54194	0.2478760	0.24110068	2.5566449	20	11 26.1	19.5
69672 1998 <i>GX</i> ₇	15.0	X	135.93348	325.35118								

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
69681 1998 <i>HN</i> ₁₇	15.4	X	98.74428	236.93922	304.08723	3.21634	0.1546874	0.27836203	2.3230723	20	8 4.4	18.6
69682 1998 <i>HA</i> ₁₉	15.9	X	347.41882	343.76215	231.41497	2.43639	0.1353235	0.26743565	2.3859235	20	3 10.0	18.3
69683 1998 <i>HK</i> ₂₁	16.2	X	334.68082	344.73173	202.22956	2.13882	0.1282543	0.26327170	2.4110151	20	1 11.5	19.1
69684 1998 <i>HA</i> ₂₂	15.6	X	113.98066	45.00716	221.46265	4.58094	0.2140322	0.24308543	2.5427096	20	12 5.2	19.9
69685 1998 <i>HD</i> ₂₂	15.4	X	63.39459	240.25014	14.55403	13.77720	0.1733315	0.23584485	2.5944887	20	9 30.4	18.9
69686 1998 <i>HR</i> ₂₃	16.0	X	270.70895	4.17268	217.24214	1.59797	0.1541641	0.25597336	2.4566288	20	—	—
69687 1998 <i>HK</i> ₂₄	15.7	X	340.61665	212.30892	179.81485	14.07772	0.1962711	0.24009003	2.5638147	20	12 2.9	18.4
69688 1998 <i>HD</i> ₂₅	16.0	X	122.45633	277.03153	173.10425	6.01864	0.1929814	0.27219168	2.3580489	20	5 4.9	19.4
69689 1998 <i>HV</i> ₂₈	16.0	X	219.89859	161.51265	174.42710	6.56948	0.1434220	0.26597608	2.3946442	20	3 9.8	19.7
69690 1998 <i>HL</i> ₃₀	15.1	X	250.30512	66.26897	63.89941	5.43092	0.1121162	0.29133886	2.2535668	20	11 21.9	17.4
69691 1998 <i>HQ</i> ₃₂	15.8	X	270.10683	352.05854	192.70266	4.59592	0.1279455	0.25459628	2.4654792	20	—	—
69692 1998 <i>HZ</i> ₃₂	16.2	X	86.13640	310.59769	227.76885	1.76561	0.1453782	0.27575550	2.3376882	20	7 14.7	19.2
69693 1998 <i>HX</i> ₃₃	15.5	X	108.86844	66.71637	208.56508	13.48242	0.0847993	0.24430820	2.5342183	20	12 6.4	19.4
69694 1998 <i>HQ</i> ₃₅	15.5	X	132.52075	94.46819	184.77797	12.40550	0.1133687	0.24737958	2.5131986	20	—	—
69695 1998 <i>HL</i> ₃₆	14.6	X	163.84924	62.08767	34.31980	9.25501	0.2521696	0.27784466	2.3259552	20	6 20.8	18.7
69696 1998 <i>HA</i> ₃₈	15.5	X	342.95448	131.77844	359.13487	6.33694	0.0779929	0.25708284	2.4495557	20	—	—
69697 1998 <i>HH</i> ₃₉	15.8	X	312.04444	342.14636	204.53636	4.48651	0.1393609	0.25972668	2.4329042	20	—	—
69698 1998 <i>HW</i> ₄₃	15.6	X	134.95838	232.50621	31.54608	13.70240	0.1210801	0.24566726	2.5248633	20	12 18.2	19.7
69699 1998 <i>HS</i> ₄₅	15.7	X	73.39416	221.39925	240.31203	6.01739	0.0766525	0.26463861	2.4027057	20	2 23.3	18.5
69700 1998 <i>HL</i> ₄₆	15.9	X	9.60631	14.85621	169.16013	2.41717	0.1518332	0.26664036	2.3906503	20	3 6.2	17.8
69701 1998 <i>HP</i> ₄₉	15.8	X	136.69491	148.04245	237.16254	20.18305	0.1104926	0.43860861	1.7156075	20	1 8.8	17.4
69702 1998 <i>HP</i> ₅₇	14.8	X	60.54834	162.12832	30.64137	9.20912	0.1497630	0.27351896	2.3504143	20	6 30.5	17.6
69703 1998 <i>HQ</i> ₆₃	14.9	X	289.28856	217.79475	73.19222	4.60330	0.1815496	0.22198625	2.7013779	20	3 27.7	18.6
69704 1998 <i>HS</i> ₆₉	15.3	X	78.18669	87.71188	24.59697	6.82011	0.0613681	0.26587931	2.3952252	20	3 19.4	18.1
69705 1998 <i>HH</i> ₇₀	15.5	X	113.13346	250.05386	199.59897	7.34435	0.1041505	0.26793128	2.3829802	20	4 10.4	18.6
69706 1998 <i>HJ</i> ₇₇	15.4	X	101.99391	128.30799	25.93960	5.23606	0.1566118	0.27460371	2.3442205	20	7 2.8	18.6
69707 1998 <i>HP</i> ₇₉	15.8	X	85.51930	322.09913	332.64147	2.98145	0.1390034	0.24183513	2.5514661	20	12 8.9	19.6
69708 1998 <i>HK</i> ₈₅	15.2	X	24.88730	180.51155	18.28259	2.84894	0.1144650	0.26928483	2.3749882	20	4 29.1	17.5
69709 1998 <i>HH</i> ₈₇	15.4	X	144.28101	89.03584	244.32636	5.00065	0.1642051	0.25347242	2.4727616	20	—	—
69710 1998 <i>HR</i> ₈₈	15.8	X	211.85225	267.79519	228.62825	2.47563	0.0865609	0.28530383	2.2852356	20	10 9.6	18.6
69711 1998 <i>HA</i> ₈₉	15.2	X	117.16186	254.64222	36.86755	12.63387	0.1659077	0.24492704	2.5299478	20	—	—
69712 1998 <i>HV</i> ₉₀	15.3	X	342.74295	104.90356	70.91870	7.17655	0.0750644	0.26140375	2.4224873	20	1 18.1	18.2
69713 1998 <i>HH</i> ₉₈	15.2	X	20.75147	280.51717	287.87461	4.16844	0.0960912	0.26919095	2.3755404	20	5 3.9	17.6
69714 1998 <i>HR</i> ₉₈	15.0	X	357.18327	177.63605	41.06015	8.50041	0.1340596	0.26745263	2.3858225	20	4 7.6	17.2
69715 1998 <i>HG</i> ₁₀₄	14.8	X	57.74841	225.77766	54.36940	16.62856	0.1955832	0.23726685	2.5841121	20	10 31.6	18.5
69716 1998 <i>HG</i> ₁₀₅	15.3	X	97.90342	85.19728	91.94070	5.58977	0.1069361	0.27651119	2.3334271	20	7 23.8	18.3
69717 1998 <i>HH</i> ₁₀₈	15.4	X	77.73759	198.60316	78.86241	9.71673	0.1512490	0.23952894	2.5678169	20	11 12.8	19.2
69718 1998 <i>HH</i> ₁₁₆	15.4	X	95.84850	102.71503	179.78115	11.30444	0.2619669	0.24049025	2.5609694	20	12 12.0	20.0
69719 1998 <i>HY</i> ₁₁₉	15.4	X	292.41516	54.53753	159.14809	9.93441	0.0738024	0.25888978	2.4381445	20	—	—
69720 1998 <i>HW</i> ₁₂₀	15.3	X	219.21220	290.09757	109.77969	8.79750	0.0178157	0.27273141	2.3549369	20	6 12.5	18.2
69721 1998 <i>HJ</i> ₁₂₅	15.0	X	113.59561	60.56777	179.56579	12.26299	0.1564599	0.23867579	2.5739324	20	11 2.5	19.2
69722 1998 <i>HO</i> ₁₂₇	15.7	X	184.47101	261.72342	204.29688	6.40171	0.0645578	0.27929537	2.3178939	20	7 24.8	18.9
69723 1998 <i>HV</i> ₁₂₉	15.9	X	135.07699	145.38917	14.34349	2.30998	0.1714554	0.28087363	2.3092028	20	8 16.3	19.5
69724 1998 <i>HF</i> ₁₃₃	15.9	X	2.39638	21.05048	161.30394	6.63969	0.0938578	0.26656835	2.3910959	20	2 22.9	18.2
69725 1998 <i>HA</i> ₁₃₇	15.6	X	276.71243	284.24778	135.92143	6.93122	0.0815324	0.28533250	2.2850825	20	9 28.8	18.0
69726 1998 <i>HR</i> ₁₄₄	15.3	X	135.11455	254.28725	216.87684	5.06469	0.0809214	0.27238200	2.3569504	20	6 4.0	18.4
69727 1998 <i>HD</i> ₁₄₅	15.1	X	89.34993	124.84063	140.42910	8.10930	0.1244316	0.23903402	2.5713602	20	11 7.9	19.0
69728 1998 <i>HG</i> ₁₄₅	15.7	X	173.15940	181.10916	94.62374	5.91437	0.0746939	0.25087878	2.4897750	20	—	—
69729 1998 <i>HE</i> ₁₄₉	14.7	X	327.05419	232.72243	42.50455	12.21373	0.1780712	0.22292910	2.6937557	20	4 30.3	17.7
69730 1998 <i>HF</i> ₁₄₉	15.5	X	93.71630	25.16932	239.17966	11.69685	0.1794800	0.23791806	2.5793945	20	11 12.2	19.6
69731 1998 <i>HP</i> ₁₅₂	15.9	X	250.89763	95.44622	328.44353	2.44528	0.1351293	0.28154913	2.3055078	20	8 12.9	18.6
69732 1998 <i>JE</i>	14.5	X	330.54687	238.07919	99.76152	3.79921	0.0908577	0.27880666	2.3206018	20	8 25.6	16.7
69733 1998 <i>JS</i> ₂	14.6	X	350.02662	77.39706	92.43193	7.77606	0.1965410	0.26178967	2.4201060	20	1 1.9	17.2
69734 1998 <i>KF</i> ₁	15.2	X	324.73906	336.21684	208.14681	2.29480	0.1163547	0.25929399	2.4356100	20	—	—
69735 1998 <i>KB</i> ₇	15.0	X	8.08657	341.37157	211.23756	6.14428	0.0559547	0.26429934	2.4047614	20	3 19.4	17.8
69736 1998 <i>KT</i> ₇	15.5	X	14.37995	241.80612	63.57202	13.56102	0.2814157	0.23092479	2.6312110	20	10 19.5	18.4
69737 1998 <i>KS</i> ₁₂	15.9	X	307.12259	326.88675	263.36871	2.26332	0.1332539	0.26239091	2.4164076	20	1 30.5	19.1
69738 1998 <i>KL</i> ₁₆	15.4	X	83.50007	213.51364	59.51802	10.30987	0.1981168	0.23805815	2.5783825	20	11 15.7	19.5
69739 1998 <i>KX</i> ₁₉	15.4	X	116.19449	24.56044	202.10892	12.88014	0.1036390	0.23793347	2.5792832	20	10 13.9	19.2
69740 1998 <i>KK</i> ₂₆	15.0	X	112.19906	319.60608	281.49769	12.33823	0.1451720	0.23419037	2.6066939	20	10 25.3	19.4
69741 1998 <i>KR</i> ₄₃	14.4	X	57.56330	177.82719	70.64778	25.03276	0.1445267	0.27663003	2.3327588	20	10 2.2	18.1
69742 1998 <i>KD</i> ₄₄	14.7	X	287.14737	346.16251	249.77865	5.73283	0.0680745	0.25839051	2.4412842	20	1 21.9	18.1
69743 1998 <i>KG</i> ₅₃	15.2	X	9.65358	88.40856	185.40225	14.83841	0.1529703	0.22763283	2.6565181	20	7 24.3	18.3
69744 1998 <i>KM</i> ₅₆	15.7	X	59.98240	61.06772	184.41081	5.96618	0.2007016	0.23283859	2.6167731	20	9 15.6	19.3
69745 1998 <i>KR</i> ₅₇	15.6	X	121.68347	150.71877	111.00191	6.81284	0.1377410	0.24211840	2.5494755	20	12 4.6	19.7
69746 1998 <i>KC</i> ₅₈	15.1	X	74.52307	106.38309	151.50463	9.73232	0.1773784	0.23325230	2.6136781	20	10 18.9	19.1
69747 1998 <i>KD</i> ₅₈	15.1	X	17.15854	195.89310	218.58449	15.08684	0.1132456	0.24399556	2.5363826	20	—	—
69748 1998 <i>KG</i> ₅₉	15.2	X	168.47860	113.30739	109.41764	15.09165	0.1355998	0.24476171	2.5310869	20	12 3.6	19.3
69749 1998 <i>MZ</i> ₁	14.9	X	302.59760	169.08904	92.45076	9.16657	0.3026293	0.21539523	2.7562080	20	2 19.9	19.0
69750 1998 <i>MA</i> ₅	15.4	X	332.25863	66.73153	292.42223	4.23737	0.0619998	0.22820968	2.6520396	20	9 16.9	18.7
69751 1998 <i>MV</i> ₁₇	15.6	X	97.44940	31.43330	156.06944	4.31953	0.1423242	0.23065301	2.6332775	20	8 6.2	19.5
69752 1998 <i>ME</i> ₃₂	14.9	X	60.76829	18.32038	317.14230	3.						

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
69761 1998 QM ₄	14.5	X	46.23818	261.45869	48.55229	15.62901	0.1598356	0.23037861	2.6353681	20	11 14.9	18.1
69762 1998 QS ₅	14.6	X	253.75120	57.25036	337.81235	6.68750	0.2278062	0.21749025	2.7384797	20	6 21.3	18.8
69763 1998 QH ₉	15.0	X	296.31317	163.36930	156.46582	15.59195	0.2459570	0.21871084	2.7282815	20	5 6.3	18.9
69764 1998 QS ₁₀	14.6	X	39.76588	132.18727	142.64859	12.20986	0.1730336	0.22728273	2.6592455	20	9 26.7	18.0
69765 1998 QN ₁₂	14.6	X	319.37566	163.73046	197.35367	4.68218	0.2362441	0.22382481	2.6865643	20	8 13.9	17.0
69766 1998 QZ ₁₉	14.9	X	266.05175	161.16380	188.89374	5.07714	0.0724368	0.21663130	2.7457136	20	5 29.4	18.7
69767 1998 QA ₂₀	14.0	X	322.06469	81.05823	304.31910	11.39735	0.2164178	0.22596706	2.6695576	20	9 25.3	16.7
69768 1998 QF ₂₄	14.7	X	233.39971	95.23959	297.22144	6.74400	0.1427605	0.21615982	2.7497048	20	6 5.2	18.9
69769 1998 QM ₂₄	15.3	X	199.24498	207.49746	170.28459	7.95467	0.2395126	0.20996022	2.8035698	20	4 15.1	20.2
69770 1998 QN ₂₆	14.5	X	354.00375	51.14953	328.50853	9.61636	0.2444661	0.23109739	2.6299007	20	12 13.1	17.3
69771 1998 QT ₃₂	14.4	X	158.20431	141.11736	232.28863	1.06714	0.0821076	0.20526359	2.8461739	20	2 27.1	18.6
69772 1998 QU ₃₂	14.5	X	325.75453	300.77167	329.08347	12.30525	0.1368839	0.21558011	2.7546320	20	4 19.7	18.1
69773 1998 QT ₃₄	14.9	X	323.94351	9.75071	44.80630	4.51353	0.2184582	0.22951608	2.6419665	20	11 23.5	17.0
69774 1998 QN ₄₁	14.3	X	3.30854	168.49138	334.77744	1.57728	0.0196689	0.20199550	2.8767906	20	1 20.1	18.2
69775 1998 QK ₄₆	14.2	X	7.16268	187.38472	156.24028	14.49221	0.2347253	0.18166088	3.0876527	20	11 5.4	17.8
69776 1998 QB ₄₉	14.5	X	41.95211	103.45841	158.92887	16.65825	0.1450292	0.22345789	2.6895044	20	9 4.3	17.8
69777 1998 QJ ₄₉	14.1	X	355.30230	87.27196	155.92831	25.23574	0.1131229	0.21488960	2.7605299	20	5 19.7	17.9
69778 1998 QM ₅₃	14.0	X	6.25931	73.54675	342.35929	9.27733	0.0858007	0.18777298	3.0202807	20	—	—
69779 1998 QZ ₅₃	15.2	X	277.42764	278.49603	19.71409	8.27196	0.2738374	0.21332799	2.7739853	20	3 13.0	19.5
69780 1998 QG ₅₅	14.7	X	245.36755	59.84059	347.60870	9.91795	0.3382765	0.21500941	2.7595043	20	6 17.4	19.6
69781 1998 QL ₅₉	15.0	X	357.33681	238.58285	359.65863	7.75641	0.2112678	0.21459572	2.7630496	20	5 2.8	17.5
69782 1998 QF ₆₀	14.7	X	200.05054	131.42505	150.00514	2.54206	0.0424615	0.19788943	2.9164485	20	—	—
69783 1998 QC ₆₇	14.6	X	268.84533	86.19917	215.94715	11.97419	0.1398005	0.21223943	2.7834623	20	3 19.1	18.9
69784 1998 QP ₇₀	14.7	X	319.31371	139.48077	219.17454	12.01622	0.1855103	0.22289592	2.6940230	20	8 12.2	17.7
69785 1998 QU ₇₁	14.5	X	357.08095	146.75262	274.24886	9.59063	0.1759408	0.23406380	2.6076335	20	—	—
69786 1998 QS ₇₇	14.5	X	58.13968	111.69647	285.23935	9.04435	0.0877537	0.19326173	2.9628214	20	—	—
69787 1998 QH ₈₀	15.1	X	304.80304	118.57715	194.70950	13.17739	0.3298643	0.21917130	2.7244589	20	4 22.2	18.5
69788 1998 QJ ₈₅	14.9	X	314.24010	127.77334	286.54540	11.10325	0.2368484	0.22672602	2.6635967	20	10 22.1	17.4
69789 1998 QS ₈₇	14.3	X	39.98416	67.74881	219.71157	15.45226	0.2864796	0.22737496	2.6585263	20	10 27.4	17.9
69790 1998 QM ₈₈	14.9	X	94.82984	203.73412	224.37403	10.46950	0.2653180	0.20074375	2.8887372	20	3 15.5	19.1
69791 1998 QG ₈₉	14.5	X	42.02219	75.26181	277.19351	12.78975	0.1479670	0.23177337	2.6247848	20	—	—
69792 1998 QS ₉₆	14.9	X	199.51428	33.24712	269.12490	7.22314	0.2984042	0.20270876	2.8700384	20	1 18.1	20.2
69793 1998 QY ₉₆	14.4	X	45.82003	107.99817	291.75737	11.49726	0.0542763	0.19242227	2.9714322	20	—	—
69794 1998 QM ₁₀₄	14.7	X	84.51678	10.20417	11.27960	16.79899	0.0849501	0.19481323	2.9470698	20	—	—
69795 1998 RA ₃	14.9	X	100.49928	239.02886	177.60135	1.92362	0.0740241	0.20130989	2.8833186	20	2 13.0	18.7
69796 1998 RV ₅	14.3	X	4.97406	34.49616	34.93450	11.03875	0.1293159	0.18937078	3.0032679	20	—	—
69797 1998 RF ₆	14.5	X	281.61022	193.41009	166.23719	6.30797	0.0457900	0.21878299	2.7276817	20	7 5.4	18.2
69798 1998 RU ₁₁	14.5	X	332.99039	246.07824	182.35380	9.46342	0.1027832	0.18484874	3.0520505	20	12 11.9	18.4
69799 1998 RD ₁₂	15.6	X	272.08316	194.63040	151.54804	0.97007	0.1081742	0.21813194	2.7331064	20	5 26.1	19.3
69800 1998 RD ₁₃	14.5	X	132.80930	169.68609	179.87511	1.84897	0.0689674	0.19637599	2.9314138	20	1 1.4	18.8
69801 1998 RS ₁₄	15.1	X	9.21576	58.90748	4.18767	8.97145	0.1435721	0.18864979	3.0109150	20	—	—
69802 1998 RX ₁₅	14.9	X	166.13783	64.69929	297.78190	0.95278	0.0822748	0.20322208	2.8652034	20	2 22.7	19.1
69803 1998 RL ₂₀	13.8	X	172.35760	321.02715	102.15953	7.45976	0.0584968	0.21470918	2.7620761	20	5 15.8	17.9
69804 1998 RV ₂₂	14.9	X	270.87814	159.90887	150.88181	9.53077	0.1452695	0.21294638	2.7772984	20	4 6.4	19.0
69805 1998 RF ₂₃	14.9	X	234.25520	265.75905	123.28434	6.24652	0.1133258	0.21590894	2.7518344	20	6 5.9	19.0
69806 1998 RC ₂₄	15.0	X	198.27933	251.23233	172.63026	4.06516	0.1014696	0.21531232	2.7569156	20	6 12.1	19.2
69807 1998 RE ₂₄	15.0	X	187.63732	33.61426	1.22923	3.97463	0.1114210	0.21100560	2.7943024	20	4 23.8	19.3
69808 1998 RO ₂₉	15.3	X	244.68558	338.23117	359.07669	12.82542	0.1529790	0.21187517	2.7866516	20	4 5.2	19.7
69809 1998 RM ₃₃	14.6	X	322.18816	271.59432	34.34977	5.19802	0.1500151	0.21835978	2.7312049	20	6 8.3	17.7
69810 1998 RF ₄₂	14.8	X	197.71218	249.29908	195.38702	7.61901	0.2568949	0.21378591	2.7700227	20	6 30.7	19.7
69811 1998 RC ₄₇	14.9	X	106.29555	212.94837	192.96721	16.54743	0.0869291	0.20051705	2.8909141	20	2 5.6	19.2
69812 1998 RV ₄₇	14.8	X	95.12500	137.22407	205.39903	9.28782	0.0681880	0.19185433	2.9772935	20	—	—
69813 1998 RB ₅₀	14.8	X	204.49177	337.93405	43.42510	4.12445	0.1052493	0.21037218	2.7999086	20	4 25.5	19.1
69814 1998 RD ₅₀	14.0	X	340.68032	238.16271	6.00712	12.75038	0.0882068	0.21171846	2.7880265	20	4 17.6	17.5
69815 1998 RC ₅₄	14.4	X	322.71304	78.15594	324.85278	7.95303	0.1173378	0.18133506	3.0913501	20	10 18.1	18.2
69816 1998 RS ₅₇	14.1	X	352.21557	226.47008	14.01294	9.14233	0.1008509	0.21256936	2.7805813	20	5 1.7	17.3
69817 1998 RB ₅₈	15.1	X	132.46119	239.30760	161.34001	2.65690	0.0054123	0.20373860	2.8603588	20	2 23.0	18.9
69818 1998 RP ₆₁	14.6	X	221.36141	79.72459	348.33079	7.58506	0.3125571	0.21365402	2.7711625	20	6 26.7	19.6
69819 1998 RK ₆₂	14.7	X	226.17408	197.76099	175.20760	13.54760	0.1866597	0.21163634	2.7887477	20	5 4.3	19.4
69820 1998 RR ₆₃	14.7	X	214.99466	271.58597	147.08202	6.36738	0.0403562	0.21561714	2.7543166	20	6 28.3	18.7
69821 1998 RA ₆₅	14.9	X	142.85292	181.69526	183.08338	1.86285	0.0687575	0.20002282	2.8956741	20	1 30.2	19.2
69822 1998 RD ₆₅	14.4	X	55.19226	77.38366	292.98560	0.97460	0.0727715	0.18950485	3.0018512	20	—	—
69823 1998 RQ ₆₈	14.6	X	154.63764	32.39948	339.53913	1.42460	0.0942700	0.20207778	2.8760096	20	2 23.4	18.8
69824 1998 RO ₇₀	14.6	X	200.41027	36.49926	32.84477	9.39949	0.1472827	0.21366843	2.7710380	20	6 18.3	19.2
69825 1998 RU ₇₁	14.9	X	106.60847	357.99089	39.84323	2.70157	0.1140300	0.19894327	2.9061401	20	2 4.7	18.8
69826 1998 RE ₇₂	14.4	X	146.27966	123.78933	175.53119	10.40790	0.0670113	0.19264358	2.9691561	20	—	—
69827 1998 RR ₇₂	14.2	X	133.60302	237.63967	146.65328	2.64754	0.1110865	0.20065359	2.8896024	20	2 17.8	18.5
69828 1998 RX ₇₃	14.8	X	10.98298	164.24525	224.59298	6.46175	0.2189247	0.18484649	3.0520753	20	—	—
69829 1998 RS ₇₄	14.3	X	207.69934	71.35831	354.43487	8.81467	0.1464385	0.21326325	2.7745667	20	6 21.7	18.8
69830 1998 RA ₇₅	14.5	X	311.60060	81.14391	4.00408	11.28950	0.1481779	0.22886571	2.6469693	20	12 10.0	17.4
69831 1998 RO ₇₅	14.6	X	212.95773	292.25593	25.47870	6.15768	0.0625251	0.20310124	2.8663398	20	2 20.4	18.9
69832 1998 RA ₇₆	15.4	X	242.04755	305.62837	78.65864	2.23377	0.1509201	0.21416264	2.7667733	20	6 3.5	19.5
69833 1998 RO ₇₆	14.6	X	78.19236	286.12105	20.35694	11.20777	0.1161823	0.18555867	3.0442610	20	11 30.4	19.3
69834 1998 RH ₇₇	14.0	X	351.91705	291.78563	159.98788	9.85010	0.0816815					

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
69841 1998 SA ₁₂	14.7	X	276.57685	278.98711	205.75200	8.27027	0.1520030	0.18189427	3.0850109	20	11 20.4	18.6
69842 1998 SE ₂₀	14.9	X	30.33037	211.04690	176.99044	8.42519	0.1099792	0.18901195	3.0070678	20	—	—
69843 1998 SL ₂₂	15.0	X	123.62331	112.97641	248.68461	0.92916	0.0829550	0.19771988	2.9181156	20	1 7.0	19.1
69844 1998 SY ₂₂	14.7	X	113.61424	135.66220	207.06951	10.24760	0.1068257	0.19192297	2.9765836	20	—	—
69845 1998 SU ₂₆	13.5	X	299.75560	143.13208	307.71512	16.65161	0.1220677	0.17628514	3.1501090	20	11 8.4	17.8
69846 1998 SO ₃₂	15.2	X	163.80504	289.41633	165.77963	5.96880	0.0558376	0.21537848	2.7563509	20	6 14.7	19.3
69847 1998 SD ₃₅	16.7	X	238.55457	68.55519	178.52008	20.25253	0.0409678	0.37881763	1.8916869	20	—	—
69848 1998 SQ ₃₅	13.4	X	216.64602	156.84106	39.36749	15.96721	0.0940382	0.18343614	3.0676993	20	12 7.8	18.0
69849 1998 SZ ₃₈	16.0	X	213.10015	77.43154	220.47569	0.82502	0.2120042	0.20346105	2.8629594	20	1 23.1	20.8
69850 1998 SN ₄₀	14.6	X	240.93258	302.08758	5.40887	6.61616	0.0459487	0.20608266	2.8386275	20	3 9.2	18.7
69851 1998 SY ₄₅	14.4	X	243.32499	212.82378	207.75161	10.21851	0.0586085	0.17070762	3.2183562	20	7 28.0	19.3
69852 1998 SH ₅₁	15.4	X	73.31826	34.40601	236.12614	0.13948	0.1602456	0.17856805	3.1232030	20	10 19.7	19.9
69853 1998 SP ₅₃	14.0	X	180.50450	56.58377	308.78919	4.56735	0.1373847	0.20557961	2.8432564	20	3 12.1	18.5
69854 1998 SS ₅₄	13.5	X	255.20335	143.38465	1.25770	15.91485	0.0338204	0.18653574	3.0336212	20	11 28.7	18.0
69855 1998 SX ₅₅	14.4	X	348.33889	112.11588	352.04130	13.41355	0.1696638	0.23664991	2.5886012	20	—	—
69856 1998 SZ ₅₆	14.8	X	64.71588	288.21997	123.48248	3.06068	0.0773228	0.19595988	2.9355621	20	—	—
69857 1998 SE ₅₇	14.4	X	121.80687	14.63281	38.97060	2.51027	0.0651786	0.20352014	2.8624052	20	3 6.3	18.4
69858 1998 SM ₅₇	14.2	X	73.42332	336.53811	107.91984	3.08479	0.0916112	0.20071386	2.8890240	20	2 15.8	17.9
69859 1998 SQ ₅₇	14.3	X	281.55460	6.51635	84.71814	3.28456	0.1460425	0.18195099	3.0838714	20	10 17.8	18.3
69860 1998 SE ₅₇	14.9	X	207.62024	259.04732	117.19281	3.70943	0.10714569	0.20973672	2.8055612	20	4 25.1	19.0
69861 1998 SP ₅₈	14.4	X	115.66644	155.29586	174.68969	9.42962	0.0721265	0.19237564	2.9719124	20	—	—
69862 1998 SB ₅₉	14.7	X	53.23537	201.29569	167.68449	4.21058	0.1351771	0.18857841	3.0116747	20	—	—
69863 1998 SD ₅₉	14.3	X	111.78121	207.20369	164.15775	2.27415	0.0973635	0.19628939	2.9322759	20	1 6.7	18.3
69864 1998 SG ₅₉	14.9	X	196.28800	226.64908	180.07418	10.53702	0.1434608	0.21038055	2.7998342	20	5 19.6	19.5
69865 1998 SO ₆₀	15.0	X	182.01792	206.59922	128.54276	2.35710	0.1272480	0.20187045	2.8779785	20	2 8.7	19.6
69866 1998 ST ₆₀	14.3	X	177.32713	273.49596	71.48523	3.06092	0.0719688	0.20197720	2.8769643	20	2 14.4	18.5
69867 1998 SA ₆₁	14.2	X	108.71116	358.75930	42.59390	2.69016	0.0693860	0.19985783	2.8972676	20	2 5.4	18.1
69868 1998 SU ₆₁	14.2	X	23.25424	5.95468	339.68130	10.38878	0.0992054	0.18218175	3.0817646	20	11 6.5	18.5
69869 Haining	14.3	X	302.59320	61.83753	12.02951	12.43616	0.1544700	0.18079233	3.0975337	20	10 23.0	18.0
69870 Fizeau	13.7	X	256.49003	282.03605	187.54585	21.57756	0.2882593	0.17669892	3.1451893	20	9 13.9	18.5
69871 1998 SW ₆₄	14.7	X	16.62361	165.95283	167.46278	8.98902	0.1478024	0.17902610	3.1178735	20	10 24.6	18.6
69872 1998 SY ₇₀	14.2	X	272.13196	328.25526	180.85714	9.27982	0.0327132	0.18678910	3.0308773	20	12 29.1	18.5
69873 1998 SB ₇₁	13.2	X	176.72022	233.86146	33.96248	10.69352	0.0495705	0.19061890	2.9901438	20	—	—
69874 1998 SQ ₇₃	14.1	X	94.59562	241.78671	33.34203	14.59414	0.1090797	0.18213281	3.0823167	20	11 9.5	18.8
69875 1998 SB ₇₄	15.0	X	302.88538	310.79581	129.42128	3.58549	0.1586457	0.18118171	3.0930942	20	11 4.6	18.6
69876 1998 SV ₇₄	14.2	X	304.39194	15.47213	54.30708	5.97586	0.1419775	0.18023735	3.1038890	20	10 25.7	17.9
69877 1998 SU ₇₉	15.1	X	54.89521	6.03463	20.16335	2.11963	0.1095527	0.19160304	2.9798961	20	—	—
69878 1998 SJ ₈₁	15.3	X	189.31816	13.15206	29.04235	3.01623	0.0818732	0.21050019	2.7987733	20	5 5.6	19.5
69879 1998 SN ₈₁	14.9	X	262.48343	309.07227	8.28803	2.76748	0.0814615	0.21045037	2.7992150	20	4 9.9	19.0
69880 1998 SO ₈₁	14.4	X	119.38797	252.85233	163.19710	2.31312	0.0610745	0.20337857	2.8637335	20	3 4.9	18.3
69881 1998 SL ₉₁	14.3	X	18.77079	98.28084	343.31966	10.95017	0.0704720	0.19238722	2.9717931	20	—	—
69882 1998 SP ₉₂	14.1	X	70.05716	269.97238	5.58574	16.27360	0.1866616	0.18155534	3.0888491	20	10 21.6	18.8
69883 1998 SK ₉₈	14.6	X	327.10206	217.97121	181.95988	11.12150	0.0458900	0.18149670	3.0895144	20	10 28.7	18.7
69884 1998 SF ₉₉	14.5	X	338.29562	85.07507	7.13182	16.39305	0.1424092	0.18783468	3.0196194	20	—	—
69885 1998 SD ₁₀₀	13.5	X	115.55177	168.83762	0.34312	22.34409	0.0352756	0.16997859	3.2275520	20	7 27.5	18.5
69886 1998 SH ₁₀₀	13.9	X	201.52475	266.94073	345.48763	9.53622	0.0585116	0.19257296	2.9698819	20	—	—
69887 1998 SJ ₁₀₀	14.4	X	167.93510	187.86738	353.28092	12.85999	0.0965721	0.22380577	2.6867166	20	10 5.4	18.6
69888 1998 SB ₁₀₂	15.0	X	81.07529	223.25341	186.61207	10.15875	0.1330227	0.19629537	2.9322164	20	1 17.6	18.9
69889 1998 SU ₁₁₀	16.2	X	215.24455	206.07901	226.42906	1.92009	0.1062710	0.26047038	2.4282710	20	7 12.8	19.5
69890 1998 SZ ₁₁₀	15.8	X	110.73254	66.53491	268.08190	1.56424	0.1719256	0.23787525	2.5797040	20	—	—
69891 1998 SF ₁₁₂	14.7	X	163.56447	215.61005	101.76429	3.14455	0.0970947	0.19684025	2.9268027	20	—	—
69892 1998 SF ₁₁₄	13.5	X	91.76321	310.31231	37.73260	9.90955	0.0853217	0.19097301	2.9864463	20	—	—
69893 1998 SL ₁₁₈	15.2	X	19.40071	56.43569	0.16547	1.36447	0.2446297	0.18814959	3.0162491	20	—	—
69894 1998 ST ₁₂₅	14.1	X	353.56280	64.99666	30.76490	11.24241	0.0820584	0.19028761	2.9936133	20	—	—
69895 1998 SA ₁₂₆	14.5	X	44.07697	291.08613	102.80869	4.82531	0.0960046	0.18991915	2.9974840	20	—	—
69896 1998 SE ₁₃₀	14.0	X	195.05451	98.91977	191.11809	1.87606	0.0440342	0.19589033	2.9362569	20	—	—
69897 1998 SN ₁₃₁	14.0	X	190.36282	119.49493	340.10194	6.89890	0.0776487	0.21441281	2.7646208	20	7 21.9	18.1
69898 1998 SX ₁₃₄	14.3	X	262.15450	350.86314	25.65022	9.75373	0.1684059	0.21489935	2.7604463	20	6 12.8	18.4
69899 1998 SZ ₁₃₇	13.8	X	332.68314	41.18354	24.72840	12.66782	0.1189649	0.18351173	3.0668568	20	12 5.2	17.7
69900 1998 SN ₁₃₈	14.4	X	279.29016	100.44398	13.81287	4.19798	0.2163854	0.18120006	3.0928854	20	10 30.9	18.2
69901 1998 SA ₁₄₁	14.8	X	126.43503	327.67016	5.47920	1.56781	0.0865538	0.19246336	2.9710093	20	—	—
69902 1998 SS ₁₄₁	14.6	X	347.54521	255.05843	180.21250	9.76532	0.0663839	0.18662084	3.0326989	20	—	—
69903 1998 SU ₁₄₂	14.5	X	27.84882	7.33868	17.00097	11.39843	0.1249293	0.18563495	3.0434270	20	—	—
69904 1998 SH ₁₄₃	13.8	X	102.27398	129.08251	87.07662	6.39553	0.1096326	0.17460491	3.1702858	20	9 11.9	18.6
69905 1998 SA ₁₄₆	14.5	X	287.90969	270.89934	204.38796	8.90757	0.0471528	0.18368872	3.0648865	20	12 7.1	18.7
69906 1998 SU ₁₄₆	13.9	X	320.66947	232.21372	195.50119	10.73060	0.0547530	0.18197347	3.0841158	20	11 22.7	18.0
69907 1998 SW ₁₄₆	14.7	X	24.63317	310.92298	57.63106	2.28819	0.1902183	0.18346487	3.0673790	20	12 24.0	18.7
69908 1998 SU ₁₅₃	14.8	X	129.76322	52.41715	59.15791	5.20753	0.0232491	0.21148373	2.7900891	20	5 22.5	18.5
69909 1998 SS ₁₅₄	15.2	X	162.31712	113.85742	203.10405	15.53177	0.2249421	0.19746022	2.9206733	20	1 5.1	20.3
69910 1998 SE ₁₅₅	15.3	X	339.84497	356.31102	55.26521	0.70583	0.2067091	0.18317149	3.0706534	20	12 5.7	18.5
69911 1998 SF ₁₅₅	14.2	X	9.53456	7.42115	18.89680	12.34972	0.0494043	0.18474684	3.0531727	20	12 4.7	18.5
69912 1998 SE ₁₅₆	15.0	X	140.45771	334.65669	22.65947	2.01414	0.0372336	0.19779365	2.9173899	20	1 16.1	19.1
69913 1998 SF ₁₅₇	13.9	X	338.10121	10.00540	16.57466	16.40011	0.0948862	0.18035865	3.1024972	20	10 22.7	17.8
69914 1998 ST ₁₅₈	14.5	X	338.19116	61.72799	4.62680	7.18245	0.1650928	0.18491532	3.0513179	20	12 20.1	18.0
69915 1998 SU ₁₆₅												

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
69921 1998 <i>TM</i> ₁₉	14.6	X	355.64766	222.51946	244.74280	7.66266	0.0509618	0.19109659	2.9851587	20	—	—
69922 1998 <i>TF</i> ₂₀	13.6	X	29.56509	227.48855	30.10835	14.34242	0.0976633	0.16993002	3.2281668	20	8 2.2	18.0
69923 1998 <i>TR</i> ₂₂	15.4	X	356.58980	242.16689	233.07932	1.86874	0.1523732	0.19000186	2.9966140	20	—	—
69924 1998 <i>TX</i> ₂₂	14.6	X	338.64199	33.46357	41.08537	10.35619	0.1205237	0.18362490	3.0655966	20	12 28.4	18.4
69925 1998 <i>TU</i> ₃₀	13.1	X	237.57372	100.15987	30.93466	11.40571	0.1243836	0.17724588	3.1387155	20	10 13.4	17.7
69926 1998 <i>TZ</i> ₃₁	15.1	X	178.94293	112.92160	286.29813	3.80892	0.1866134	0.20612947	2.8381978	20	4 21.4	19.8
69927 1998 <i>TN</i> ₃₂	14.3	X	7.29358	176.93658	220.66476	11.11564	0.1579793	0.18425508	3.0586027	20	12 29.5	18.2
69928 1998 <i>TY</i> ₃₂	14.3	X	201.76141	56.77503	37.91457	9.37261	0.1214454	0.21382683	2.7966693	20	7 26.7	18.7
69929 1998 <i>TA</i> ₃₃	14.9	X	344.42013	238.02037	162.53358	1.27209	0.1667366	0.18138355	3.0607992	20	11 26.9	18.4
69930 1998 <i>TQ</i> ₃₃	13.1	X	123.50044	136.87437	42.01356	14.61773	0.1432559	0.21434589	2.7651961	20	8 29.9	17.7
69931 1998 <i>UA</i>	14.0	X	63.92669	329.67056	225.51351	34.37643	0.1471193	0.21523191	2.7576022	20	6 26.5	18.3
69932 1998 <i>UK</i>	14.9	X	105.37194	59.03708	219.28752	12.12951	0.1432749	0.18410859	3.0602249	20	11 29.2	19.8
69933 1998 <i>UA</i> ₇	13.4	X	353.59116	271.46754	92.95379	22.75775	0.0612080	0.17595078	3.1540985	20	10 29.9	18.0
69934 1998 <i>US</i> ₁₃	15.1	X	89.69803	348.08588	60.69500	3.04852	0.1119854	0.19537638	2.9414039	20	1 28.0	19.0
69935 1998 <i>UA</i> ₁₇	15.6	X	207.51161	31.86710	179.37757	22.09827	0.0441981	0.36551956	1.9372944	20	—	—
69936 1998 <i>UD</i> ₁₇	14.1	X	289.70298	202.48169	266.24625	8.27932	0.0546535	0.18365898	3.0652173	20	11 29.9	18.1
69937 1998 <i>UZ</i> ₂₁	14.3	X	346.82416	256.69212	53.43228	10.05527	0.1543199	0.21919700	2.7242459	20	8 8.2	17.3
69938 1998 <i>US</i> ₂₃	14.9	X	203.63597	335.10990	51.82876	10.31308	0.1350135	0.20900497	2.8121057	20	5 1.4	19.2
69939 1998 <i>UQ</i> ₂₅	13.8	X	150.32930	176.23017	124.13304	6.00088	0.1190661	0.19066828	2.9896275	20	—	—
69940 1998 <i>UD</i> ₂₆	14.4	X	133.43019	105.04404	62.49076	13.98094	0.1478999	0.21378634	2.7700190	20	8 24.3	19.1
69941 1998 <i>UL</i> ₃₀	13.9	X	71.28399	234.67244	92.88941	12.14958	0.0686137	0.18284156	3.0743462	20	12 14.4	18.4
69942 1998 <i>UC</i> ₃₁	14.0	X	231.92434	61.87751	5.89976	9.10400	0.1979602	0.21369746	2.7707870	20	7 16.0	18.5
69943 1998 <i>UE</i> ₃₄	13.9	X	338.40592	172.14466	245.60233	9.42950	0.0381551	0.18389063	3.0626426	20	12 3.5	18.0
69944 1998 <i>UM</i> ₃₅	14.8	X	262.11063	55.75692	230.52646	2.05751	0.1875312	0.20558214	2.8432330	20	2 19.6	19.4
69945 1998 <i>UD</i> ₃₈	14.5	X	264.23641	304.51097	53.32298	9.93753	0.1921442	0.21369935	2.7707707	20	5 20.7	18.7
69946 1998 <i>UU</i> ₄₀	15.3	X	214.23308	91.01482	266.66557	1.05287	0.1725679	0.20698706	2.8303529	20	4 2.8	19.8
69947 1998 <i>UZ</i> ₄₄	14.2	X	176.90555	328.10364	188.52138	9.33984	0.0569479	0.17456530	3.1707654	20	9 11.6	18.9
69948 1998 <i>VD</i> ₂	14.6	X	15.40700	207.04402	237.55574	1.31965	0.1358594	0.18850584	3.0124477	20	—	—
69949 1998 <i>VN</i> ₄	14.0	X	266.32621	41.11171	47.33504	10.28881	0.0696172	0.17589750	3.1547354	20	10 5.7	18.4
69950 1998 <i>VW</i> ₄	14.1	X	268.89881	70.41910	350.16017	8.29599	0.2176986	0.17019014	3.2248768	20	8 10.9	18.6
69951 1998 <i>VK</i> ₆	15.0	X	219.60356	122.73008	314.05888	4.67146	0.1990391	0.21265799	2.7798087	20	7 13.7	19.4
69952 1998 <i>VW</i> ₁₂	14.6	X	324.38677	263.96346	135.21910	1.98301	0.1860140	0.17845154	3.1245622	20	10 17.2	18.0
69953 1998 <i>VO</i> ₁₇	14.7	X	252.41991	182.00659	232.60975	8.47087	0.1630726	0.21483254	2.7610187	20	7 9.1	18.9
69954 1998 <i>VC</i> ₁₉	14.5	X	63.57550	176.23376	193.18660	2.82380	0.1054530	0.18763473	3.0217642	20	—	—
69955 1998 <i>VK</i> ₂₁	13.8	X	207.50199	93.83865	35.14373	11.13802	0.1625724	0.17293794	3.1906257	20	9 9.4	19.0
69956 1998 <i>VP</i> ₂₆	14.0	X	11.19687	9.04895	32.06413	9.77491	0.0995685	0.18394947	3.0619895	20	—	—
69957 1998 <i>VM</i> ₂₉	14.5	X	220.63736	205.34498	238.82616	12.09145	0.1379568	0.21359018	2.7717147	20	7 24.9	19.0
69958 1998 <i>VP</i> ₂₉	14.5	X	319.34670	126.57971	261.38414	5.75665	0.1327693	0.17517055	3.1634574	20	9 21.1	18.4
69959 1998 <i>VM</i> ₃₁	14.0	X	53.33776	307.73092	64.70308	17.51095	0.2195012	0.18490988	3.0513777	20	—	—
69960 1998 <i>VM</i> ₃₁	14.2	X	260.45428	202.04856	238.59932	6.53118	0.0408145	0.17603965	3.1530369	20	9 15.7	18.8
69961 1998 Millosevich	15.9	X	337.14957	229.69120	263.16216	17.87287	0.0686442	0.37150605	1.9164263	20	—	—
69962 1998 <i>VX</i> ₃₄	14.5	X	216.35403	209.14699	221.57058	8.36641	0.2747335	0.21122069	2.7924051	20	6 27.1	19.5
69963 1998 <i>VP</i> ₃₅	14.0	X	237.46574	17.62973	68.42167	10.09832	0.1312019	0.21481150	2.7611990	20	8 24.7	18.1
69964 1998 <i>VM</i> ₃₆	14.1	X	347.51088	133.12334	242.78158	10.42275	0.0794797	0.17522270	3.1354518	20	10 23.1	18.2
69965 1998 <i>VN</i> ₄₀	15.2	X	107.46294	298.42642	89.50475	3.18460	0.1225824	0.19438352	2.9514114	20	1 26.2	19.2
69966 1998 <i>VF</i> ₄₆	14.2	X	256.50751	205.33696	276.51247	12.75531	0.1368648	0.22402023	2.6850017	20	10 25.7	18.0
69967 1998 <i>VS</i> ₄₉	14.8	X	283.33168	259.37658	235.53147	7.60503	0.0487560	0.18413402	3.0599432	20	12 24.0	19.0
69968 1998 <i>VX</i> ₅₁	14.3	X	337.74237	324.44853	80.95054	17.40821	0.0962780	0.18018395	3.1045022	20	11 21.3	18.2
69969 1998 <i>VX</i> ₅₄	13.6	X	357.98796	159.80910	261.49792	21.60937	0.1637852	0.18395357	3.0619440	20	—	—
69970 1998 <i>VW</i>	14.0	X	247.38989	0.67980	66.47708	11.77705	0.0976608	0.16751627	3.2591027	20	8 11.8	18.9
69971 1998 Tanzi	13.2	X	90.72941	195.23076	298.28504	11.23786	0.2837183	0.19858322	2.9096518	20	6 6.4	17.7
69972 1998 <i>WJ</i> ₂	13.9	X	275.98088	203.17272	276.66694	10.36357	0.0851028	0.17923263	3.1154778	20	11 19.6	18.1
69973 1998 <i>WO</i> ₄	15.5	X	271.63129	353.26089	190.24273	22.94209	0.0140348	0.36947505	1.9234429	20	—	—
69974 1998 <i>WJ</i> ₅	14.0	X	250.44914	319.90545	175.01702	24.25621	0.1469518	0.17512419	3.1640157	20	10 31.5	18.8
69975 1998 <i>WU</i> ₅	14.6	X	233.35781	149.28569	242.87277	12.75822	0.1966952	0.21202565	2.7853329	20	5 31.3	18.9
69976 1998 <i>WD</i> ₆	14.2	X	6.57491	65.56727	14.20480	4.49030	0.1807493	0.18645628	3.0344830	20	—	—
69977 1998 Saurodonati	14.4	X	247.42961	183.97727	310.52076	4.38891	0.1688090	0.17505631	3.1648335	20	10 18.9	19.0
69978 1998 <i>WL</i> ₁₀	14.3	X	314.89172	254.21856	187.42224	4.37623	0.1416085	0.18072752	3.0982743	20	11 27.6	17.8
69979 1998 <i>WJ</i> ₁₄	15.0	X	324.15516	250.65208	189.69474	0.64511	0.1486180	0.18139335	3.0906878	20	12 11.5	18.4
69980 1998 <i>WP</i> ₁₅	13.0	X	238.72538	19.48285	73.88725	17.15190	0.0561596	0.17232779	3.1981525	20	9 14.6	17.9
69981 1998 <i>WE</i> ₁₆	14.4	X	226.80656	17.28221	80.00838	6.14442	0.0936768	0.17078402	3.2173963	20	8 25.2	19.2
69982 1998 <i>WY</i> ₁₆	14.5	X	37.18279	160.80244	231.01585	7.79210	0.1087237	0.18521001	3.0480804	20	—	—
69983 1998 <i>WO</i> ₁₇	13.7	X	237.91971	224.19865	244.23896	20.75359	0.1162666	0.17334233	3.1856615	20	9 5.9	18.9
69984 1998 <i>WG</i> ₁₈	14.1	X	3.56323	56.46806	39.23920	10.31562	0.0966369	0.18736019	3.0247153	20	—	—
69985 1998 <i>WV</i> ₂₂	14.3	X	302.28816	347.39272	67.69119	10.44579	0.0620618	0.1759187	3.1559990	20	10 13.9	18.6
69986 1998 <i>WW</i> ₂₄	8.0	X	50.43382	145.08751	234.02969	13.95393	0.2242845	0.00400870	39.2464772	20	12 24.6	23.5
69987 1998 <i>WA</i> ₂₅	7.1	X	95.18113	203.64513	136.43061	1.04602	0.0236593	0.00357986	42.3212757	20	12 10.6	23.4
69988 1998 <i>WA</i> ₃₁	7.4	X	47.06333	309.21805	20.68280	9.45215	0.4310379	0.00240987	55.0985759	20	11 27.2	24.1
69989 1998 <i>WK</i> ₃₁	14.2	X	37.99329	121.72812	234.37885	9.89263	0.1653036	0.18228267	3.0806271	20	12 21.7	18.5
69990 1998 <i>WU</i> ₃₁	8.1	X	53.89097	140.18308	237.22538	6.59144	0.1858144	0.00403921	39.0485749	20	12 23.2	23.6
69991 1998 <i>WP</i> ₃₂	14.5	X	324.64881	290.29479	57.72371	4.87836	0.1446972	0.17132391	3.2106334	20	8 11.4	18.3
69992 1998 <i>WC</i> ₃₃	13.5	X	353.35523	314.35728	72.03155	15.06930	0.1449315	0.17906939	3.1			

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
70001 1998 XB ₇	14.6 ^m	X	126.97888	4.87190	230.57534	9.93201	0.0585683	0.17631400	3.1497652	20	10 23.2	19.3
70002 1998 XY ₉	14.7	X	333.39430	312.19657	80.87608	2.37949	0.1872986	0.17802455	3.1295564	20	10 26.8	18.0
70003 1998 XV ₁₂	14.0	X	166.71417	343.17723	111.96883	6.80221	0.0927858	0.16151139	3.3393911	20	6 17.7	19.2
70004 1998 XF ₂₆	14.7	X	224.36777	349.04919	135.75089	1.60152	0.1070196	0.17405861	3.1769159	20	9 21.9	19.4
70005 1998 XN ₂₈	12.5	X	11.95085	244.99697	52.38121	10.24554	0.0888379	0.16956765	3.2327644	20	8 26.4	16.8
70006 1998 XZ ₃₂	13.8	X	105.17506	116.42917	4.43982	9.96957	0.1608279	0.20095512	2.8867112	20	5 19.1	18.2
70007 1998 XX ₄₀	13.5	X	299.59053	124.42326	295.40901	12.93288	0.0953162	0.17376538	3.1804888	20	9 30.2	17.9
70008 1998 XA ₅₃	12.7	X	342.51065	307.32186	100.22351	22.89526	0.0890120	0.17582432	3.1556107	20	12 1.6	16.9
70009 1998 XM ₅₃	12.9	X	321.81334	144.94712	287.79678	20.44291	0.1544088	0.17681608	3.1437997	20	11 24.4	16.9
70010 1998 XO ₆₄	13.9	X	328.78890	119.75391	263.71249	8.60784	0.2140236	0.17549002	3.1596169	20	9 26.5	17.4
70011 1998 XQ ₆₈	14.4	X	47.18546	104.90009	296.43227	11.09995	0.1800757	0.18692323	3.0294273	20	—	—
70012 1998 XC ₇₈	14.2	X	317.51220	222.56877	191.32233	12.47552	0.1881999	0.17717441	3.1395596	20	10 23.5	17.6
70013 1998 XZ ₈₁	13.7	X	357.40569	284.81188	185.03822	10.85850	0.1343178	0.18647251	3.0343069	20	—	—
70014 1998 YL ₃	14.2	X	252.26448	68.39917	9.48659	0.99329	0.1216071	0.16801138	3.2526968	20	8 24.0	18.9
70015 1998 YT ₅	14.5	X	302.77462	66.82951	45.87465	2.05603	0.2302881	0.17794704	3.1304651	20	12 7.1	17.5
70016 1998 YJ ₆	13.8	X	306.81608	244.85202	208.90205	25.79819	0.2148490	0.17758908	3.1346704	20	11 21.8	17.4
70017 1998 YL ₉	14.2	X	311.06558	196.88904	266.93501	10.79314	0.1355383	0.17796680	3.1302334	20	12 18.3	17.7
70018 1998 YP ₉	14.3	X	307.84704	242.72213	170.68919	4.76206	0.1204566	0.17571135	3.1569630	20	10 10.9	18.1
70019 1998 YE ₁₂	13.4	X	166.53981	263.70714	99.81897	11.24069	0.1298562	0.19246849	2.9709565	20	3 3.6	18.2
70020 1998 YR ₂₉	13.6	X	277.37230	117.76079	358.66359	14.18051	0.1055023	0.17282788	3.1919801	20	11 9.3	18.0
70021 1999 AB	13.8	X	265.23002	154.45199	292.14749	21.30855	0.0623947	0.17330110	3.1861668	20	9 15.8	18.8
70022 1999 AF ₇	13.3	X	284.80153	161.24695	285.66971	12.79355	0.0298640	0.17037958	3.2224859	20	10 22.7	18.0
70023 1999 AT ₁₃	14.3	X	327.18274	273.46455	114.82124	11.28520	0.0788771	0.17020900	3.2246385	20	10 14.7	18.6
70024 1999 AB ₂₂	16.6	X	58.62333	29.61935	7.92016	19.98887	0.1000358	0.36829793	1.9275391	20	—	—
70025 1999 BH ₂	16.0	X	42.70901	273.45641	159.51570	23.35028	0.1073552	0.37156608	1.9162199	20	—	—
70026 1999 BO ₃	13.3	X	339.19398	49.49846	64.38271	19.25907	0.2320255	0.18058710	3.0998801	20	—	—
70027 1999 BM ₁₅	12.6	X	286.45239	69.96116	359.72991	24.74735	0.1870511	0.16891517	3.2410839	20	9 19.1	16.6
70028 1999 BM ₁₇	13.9	X	324.61969	40.56496	13.98170	13.11364	0.1126617	0.17519939	3.1631102	20	11 4.1	17.9
70029 1999 CB	13.2	X	295.07924	359.64141	104.87839	12.28267	0.1633738	0.17390713	3.1787604	20	11 22.2	17.2
70030 Margaretmiller	15.0	X	284.72768	177.04417	319.97071	17.03096	0.0858137	0.36118819	1.9527517	20	—	—
70031 1999 CF ₆	16.0	X	44.60877	324.63913	123.33187	24.71603	0.0896013	0.37074897	1.9190343	20	—	—
70032 1999 CZ ₁₃	13.2	X	348.57181	129.84947	51.38663	10.29790	0.3096422	0.14734608	3.5501252	20	1 29.9	17.1
70033 1999 CO ₂₀	14.1	X	319.38990	342.93331	74.47001	6.21765	0.1747036	0.17368518	3.1814679	20	11 1.2	17.6
70034 1999 CY ₃₅	13.7	X	70.44011	334.04771	83.71121	11.98217	0.1509809	0.18574610	3.0422127	20	1 19.4	17.5
70035 1999 CO ₄₇	13.8	X	340.31924	99.10578	336.78146	9.01852	0.2225610	0.17644676	3.1481851	20	—	—
70036 1999 CZ ₄₈	13.9	X	55.24682	80.65798	356.03834	10.73495	0.1702415	0.18518867	3.0483145	20	1 23.9	17.5
70037 1999 CF ₆₄	14.0	X	314.38446	199.16849	238.40468	12.68503	0.2137846	0.17441966	3.1725301	20	11 13.7	17.3
70038 1999 CX ₈₀	13.4	X	35.73092	153.28821	288.78136	8.80274	0.2560371	0.18414158	3.0598594	20	—	—
70039 1999 CL ₈₅	13.4	X	36.91433	302.38783	69.94004	14.92888	0.2714088	0.17963436	3.1108312	20	—	—
70040 1999 CY ₉₇	14.0	X	16.85666	74.67825	0.60728	8.78860	0.0620521	0.17855323	3.1233758	20	—	—
70041 1999 CY ₁₁₇	13.6	X	326.82122	215.82742	288.97546	9.43831	0.1717772	0.17924174	3.1153723	20	—	—
70042 1999 CZ ₁₂₂	13.6	X	325.28839	108.90828	18.92539	14.91495	0.1891444	0.18011252	3.1053230	20	—	—
70043 1999 CJ ₁₂₇	14.2	X	5.92794	35.57534	76.28331	13.32633	0.1711487	0.18193983	3.0844959	20	—	—
70044 1999 DD ₂	17.0	X	154.75791	311.78772	326.56714	5.84803	0.2010508	0.31205265	2.1527031	20	—	—
70045 1999 DA ₅	13.6	X	302.35801	258.67684	267.31642	21.21691	0.2931138	0.17860920	3.1227233	20	—	—
70046 1999 EN ₃	17.1	X	183.70656	249.82099	35.34818	0.91583	0.1718421	0.31688978	2.1307405	20	—	—
70047 1999 FL ₁₀	15.2	X	199.63486	72.36299	192.09959	7.63504	0.2569322	0.21824509	2.7321616	20	—	—
70048 1999 FV ₃₉	13.6	X	339.47452	76.58812	348.38529	9.92400	0.2095019	0.17400143	3.1776118	20	12 19.5	17.1
70049 1999 GV ₃₅	15.7	X	286.09050	304.58025	241.53819	3.88928	0.0780465	0.31509705	2.1388147	20	—	—
70050 1999 GG ₄₄	13.1	X	290.17017	77.00211	64.70503	11.52353	0.0925235	0.17112515	3.2131190	20	—	—
70051 1999 GD ₄₆	15.4	X	326.84263	226.13834	71.87914	10.37306	0.1899941	0.28483169	2.2877602	20	5 31.9	16.8
70052 1999 GS ₆₀	16.2	X	134.27913	64.17176	193.17088	1.05713	0.1825845	0.30288705	2.1959153	20	12 20.2	19.5
70053 1999 HO ₁	15.6	X	30.39689	260.87536	23.83803	22.08033	0.2591092	0.29049541	2.2579268	20	10 18.7	17.9
70054 1999 HZ ₁₀	16.1	X	4.25149	249.03714	24.01565	3.43488	0.2326310	0.28600755	2.2814855	20	8 1.9	17.3
70055 1999 JN ₆	14.8	X	215.99051	148.26448	219.21204	24.04454	0.2997139	0.27497123	2.3421311	20	4 7.5	19.2
70056 1999 JJ ₈	15.1	X	342.24975	89.04864	209.20874	21.00693	0.2988853	0.28273296	2.2990677	20	6 28.9	16.8
70057 1999 JJ ₁₁	16.6	X	43.73013	67.58742	272.55606	2.11719	0.1194563	0.29944701	2.2127010	20	—	—
70058 1999 JF ₁₃	15.6	X	147.00561	106.01698	227.15219	3.82428	0.1477061	0.31072739	2.1588196	20	—	—
70059 1999 JD ₂₁	16.1	X	156.72265	202.94349	36.41955	2.39766	0.1206212	0.30314156	2.1946860	20	12 22.2	19.1
70060 1999 JU ₂₇	15.6	X	165.84360	192.06259	55.67115	6.51042	0.1130584	0.30475991	2.1869096	20	—	—
70061 1999 JO ₂₉	16.3	X	69.83713	242.39900	45.68696	5.34984	0.1500641	0.29672942	2.2261904	20	11 25.6	19.4
70062 1999 JH ₄₀	15.5	X	309.87262	250.69581	67.61066	3.88830	0.1845274	0.28317959	2.2966496	20	5 30.6	17.8
70063 1999 JT ₄₃	15.1	X	256.32790	330.16479	10.19311	6.43734	0.1794480	0.27887730	2.3202099	20	4 16.7	18.5
70064 1999 JA ₄₄	16.3	X	55.56644	278.14166	2.77792	4.89488	0.1903288	0.29248081	2.2476971	20	11 3.4	19.3
70065 1999 JM ₄₄	16.2	X	62.92421	0.44996	255.94425	3.52827	0.1144672	0.29169520	2.2517311	20	9 28.7	18.9
70066 1999 JC ₄₅	14.9	X	262.45875	269.88207	54.72938	7.51271	0.1550166	0.27815314	2.3242352	20	4 9.3	18.2
70067 1999 JE ₄₆	15.8	X	301.23063	184.66279	101.01892	4.58519	0.2141052	0.27806657	2.3247175	20	3 26.5	18.6
70068 1999 JC ₄₈	16.5	X	56.38843	243.90386	30.16801	6.70510	0.1963701	0.29187921	2.2507846	20	10 28.0	19.2
70069 1999 JT ₄₉	15.5	X	67.59185	225.45150	68.34018	6.72043	0.1404026	0.29593002	2.2301977	20	11 30.0	18.4
70070 1999 JX ₅₀	16.0	X	124.35444	205.07875	90.93467	4.59239	0.1250408	0.30364837	2.1922433	20	—	—
70071 1999 JG ₅₁	16.3	X	172.80578	94.29345	197.99484	3.52429	0.2381734	0.26154583	2.4216099	20	—	—
70072 1999 JO ₅₂	15.8	X	324.39436	259.05667	49.97312	7.60768	0.1332447	0.28399549	2.2922488	20	6 21.9	17.8
70073 1999 JN ₅₄	15.5	X	303.68443	241.10731	21.95362	4.98677	0.2110974	0.27601610	2.3362166	20	2 27.8	18.5
70074 1999 JY ₅₄	15.0	X	346.72276	233.12070	51.81423	6.44348	0.1321255	0.28403583	2.2920318	20	6 30.7	16.9
70075 1999 JK ₅₆	16.4	X	358.72769</									

ELEMENTS AND OPPOSITION DATES IN 2020

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
70081 1999 JX ₆₁	15.2	X	68.75823	55.33598	264.82834	6.40985	0.1943873	0.29721906	2.2237448	20	—	—
70082 1999 JC ₆₃	16.1	X	105.55657	39.37195	218.78063	3.23634	0.1618271	0.29633045	2.2281882	20	11 24.4	19.5
70083 1999 JA ₆₄	16.1	X	164.06272	60.11962	186.77811	4.94583	0.1990275	0.30270375	2.1968017	20	—	—
70084 1999 JJ ₆₅	15.2	X	262.36511	100.18385	200.45269	22.20089	0.1682383	0.27707219	2.3302764	20	2 29.3	19.1
70085 1999 JD ₆₈	15.4	X	4.98070	189.64466	84.94542	7.24111	0.0965433	0.28756963	2.2732160	20	7 22.1	17.5
70086 1999 JV ₆₉	15.8	X	129.32231	111.32100	125.95891	5.24865	0.0798330	0.29953456	2.2122698	20	11 22.1	18.8
70087 1999 JO ₇₀	15.7	X	123.60613	178.33120	76.04125	6.44556	0.1036797	0.30022046	2.2088990	20	12 6.8	18.9
70088 1999 JF ₇₂	16.0	X	220.39639	89.22310	130.01771	4.53211	0.0944835	0.30893741	2.1671504	20	—	—
70089 1999 JV ₇₅	15.7	X	131.14504	227.18131	12.76169	3.48754	0.1400600	0.30031124	2.2084538	20	11 24.9	19.0
70090 1999 JN ₇₆	15.4	X	334.43811	143.15472	108.61461	7.15916	0.1756358	0.27902229	2.3194060	20	4 8.9	17.6
70091 1999 JN ₉₃	15.2	X	63.13442	169.60863	168.58717	8.46007	0.2104561	0.29991291	2.2104088	20	—	—
70092 1999 JH ₁₀₅	16.2	X	345.11538	199.82819	111.66625	6.55395	0.1297477	0.28716528	2.2753494	20	8 13.5	18.0
70093 1999 JP ₁₀₆	16.5	X	15.21109	226.71422	61.78855	2.88720	0.2596806	0.28809971	2.2704268	20	9 30.9	18.3
70094 1999 JS ₁₀₆	15.8	X	21.67726	227.47558	69.97917	4.14815	0.1397964	0.29170405	2.2516856	20	10 6.0	18.1
70095 1999 JH ₁₁₈	15.3	X	4.12959	272.55593	88.04828	7.01854	0.1844108	0.29504932	2.2346335	20	12 15.8	17.6
70096 1999 JC ₁₂₀	15.6	X	113.76437	112.95220	218.65608	5.58685	0.0564290	0.30668560	2.1777455	20	—	—
70097 1999 JR ₁₂₀	16.2	X	284.14026	39.62523	239.90221	1.89060	0.2044348	0.27474847	2.3433970	20	2 24.7	19.5
70098 1999 JR ₁₂₀	15.9	X	220.90237	94.96530	74.55686	5.66172	0.0941121	0.30171266	2.2016099	20	12 9.6	18.2
70099 1999 JG ₁₂₁	16.0	X	12.16620	82.08368	187.30891	5.13923	0.1368217	0.28524431	2.2855535	20	7 29.3	18.1
70100 1999 JG ₁₂₁	15.9	X	50.97222	342.51095	230.75321	5.84330	0.1324388	0.28470136	2.2884584	20	7 11.9	18.3
70101 1999 JD ₁₂₂	15.7	X	30.96813	167.06543	81.92885	5.18241	0.1257230	0.28555106	2.2839164	20	8 3.7	17.9
70102 1999 JE ₁₂₃	16.4	X	187.25085	180.44657	81.40701	3.87078	0.1232557	0.30748121	2.1739873	20	—	—
70103 1999 JI ₁₃₁	16.7	X	331.38891	166.37967	88.66263	1.85008	0.2193696	0.27848506	2.3223880	20	3 28.1	18.7
70104 1999 JG ₁₃₈	12.2	X	301.58137	89.52590	47.68556	22.96694	0.0891418	0.17458084	3.1705772	20	—	—
70105 1999 KE ₇	16.3	X	116.93248	41.15618	176.68745	4.96745	0.1326790	0.29535619	2.2330854	20	10 13.5	19.4
70106 1999 KH ₁₀	15.9	X	329.96895	235.40711	87.26896	6.03980	0.1829574	0.28559042	2.2837065	20	7 25.2	17.4
70107 1999 KS ₁₁	15.8	X	15.22676	189.41198	56.14783	4.68816	0.1328707	0.28356435	2.2945717	20	6 26.8	17.8
70108 1999 KO ₁₂	15.7	X	66.05652	263.02987	48.76873	5.52852	0.2007656	0.29608010	2.2294440	20	12 27.1	19.0
70109 1999 KN ₁₇	15.6	X	12.84329	261.25435	77.94149	7.14372	0.1405703	0.29447545	2.2375358	20	11 21.8	17.9
70110 1999 LK	15.5	X	259.21585	184.41401	107.23983	13.15311	0.2963944	0.26962154	2.3730105	20	2 12.4	19.6
70111 1999 LM ₇	15.8	X	221.58957	199.43338	129.62534	7.92141	0.3177204	0.26700840	2.3884680	20	2 29.1	20.3
70112 1999 LP ₉	16.5	X	358.29027	110.08844	173.97030	5.49512	0.1663920	0.28460755	2.2889612	20	7 26.1	18.2
70113 1999 LY ₉	16.0	X	36.54422	150.58316	187.32261	6.78206	0.1618175	0.29548386	2.2324421	20	12 24.9	19.0
70114 1999 LA ₁₃	15.3	X	1.98067	192.43372	135.55127	7.05383	0.1939353	0.28880543	2.2667266	20	10 27.3	17.4
70115 1999 LP ₂₀	15.7	X	241.01264	208.69630	79.44188	6.78248	0.1496792	0.26976274	2.3721824	20	1 31.7	19.4
70116 1999 LQ ₂₃	15.8	X	27.12299	244.83982	85.50822	3.33292	0.2253113	0.29214264	2.2494314	20	12 11.9	18.5
70117 1999 LB ₂₄	15.5	X	85.41195	92.61193	217.62624	4.87540	0.2180883	0.29757589	2.2219668	20	—	—
70118 1999 LM ₂₅	15.7	X	25.14834	119.32431	151.78203	3.47588	0.1383666	0.28628638	2.2800039	20	8 28.9	18.0
70119 1999 LU ₂₈	16.8	X	135.85777	13.74701	234.88442	1.99941	0.0288504	0.30018963	2.2090502	20	12 14.9	19.5
70120 1999 LL ₃₄	15.4	X	82.88694	160.94094	96.30606	5.36259	0.1104714	0.29046700	2.2580741	20	10 28.2	18.4
70121 1999 LY ₃₄	15.4	X	328.01406	191.12665	70.60738	4.96057	0.1368401	0.27631142	2.3345517	20	4 16.3	17.7
70122 1999 MX ₁	15.9	X	332.67074	115.42004	184.43499	4.05037	0.1460535	0.28009719	2.3134683	20	6 23.0	17.8
70123 1999 ME ₁	15.8	X	322.73372	76.43515	213.77819	6.12690	0.1092950	0.27702409	2.3305461	20	5 23.4	18.0
70124 1999 NY	16.3	X	185.49253	254.46608	85.87867	2.24685	0.1810816	0.26462223	2.4028048	20	2 14.4	20.1
70125 1999 NZ	15.5	X	224.76655	228.69534	153.15192	10.49476	0.1700033	0.27365133	2.3496563	20	5 14.4	19.3
70126 1999 NT ₂	14.7	X	8.50254	122.61383	124.34938	25.20751	0.1974147	0.27986776	2.3147325	20	6 23.4	16.8
70127 1999 NC ₄	15.4	X	311.91225	140.51646	134.99164	7.06665	0.2336232	0.27490001	2.3425357	20	3 24.6	18.0
70128 1999 NF ₄	15.7	X	51.62964	328.90709	321.52645	3.41428	0.2229517	0.24174028	2.5521334	20	11 6.6	19.4
70129 1999 ND ₆	16.3	X	256.52459	181.12789	151.67966	2.90779	0.2217330	0.27243209	2.3566615	20	4 5.2	19.8
70130 1999 NO ₆	16.3	X	264.50396	94.10174	232.48676	1.72087	0.1781064	0.27301262	2.3533196	20	4 8.5	19.7
70131 1999 NQ ₆	16.0	X	99.87658	225.73744	151.24004	2.53475	0.1955020	0.25611898	2.4556975	20	1 1.0	18.8
70132 1999 NV ₆	15.7	X	221.20260	64.70433	245.48868	0.49094	0.1801842	0.26571364	2.3962207	20	2 7.5	19.6
70133 1999 NC ₇	14.7	X	35.03989	257.45107	295.68644	12.67187	0.0688453	0.27400225	2.3476497	20	4 29.9	17.7
70134 1999 NQ ₇	15.3	X	183.04472	120.39554	289.11425	6.04119	0.1166910	0.27179125	2.3603645	20	5 5.1	18.9
70135 1999 NP ₉	15.7	X	249.65815	127.66737	272.59448	2.97020	0.2220658	0.27704237	2.3304435	20	6 25.8	19.0
70136 1999 NY ₉	14.8	X	278.77743	311.09829	134.43216	10.08818	0.1516049	0.28837142	2.2690004	20	11 2.6	17.1
70137 1999 NJ ₁₀	15.1	X	30.77105	312.67661	318.37007	6.15625	0.0986234	0.28310617	2.2970467	20	8 29.9	17.4
70138 1999 NW ₁₀	14.8	X	131.55065	250.97424	299.30729	6.52661	0.0503358	0.28492246	2.2872744	20	9 13.9	17.9
70139 1999 NK ₁₁	14.7	X	328.93708	171.33206	121.77139	3.45637	0.1439066	0.27732400	2.3288655	20	6 4.4	16.7
70140 1999 NX ₁₅	15.8	X	354.79578	146.56436	117.61766	8.38046	0.1650288	0.28004582	2.3137512	20	6 13.6	17.5
70141 1999 NE ₁₈	15.5	X	260.57856	156.54776	91.40851	13.80474	0.1671244	0.26609775	2.3939142	20	—	—
70142 1999 NP ₁₈	16.0	X	282.14247	312.08481	9.76563	2.45795	0.2331517	0.27546607	2.3393254	20	4 15.1	19.1
70143 1999 NO ₁₉	15.7	X	243.11477	108.74683	197.56536	1.87191	0.2141905	0.26909823	2.3760860	20	2 19.4	19.7
70144 1999 NH ₂₀	16.3	X	237.78603	193.00791	112.27630	6.78973	0.1862452	0.26824168	2.3811415	20	2 17.1	20.1
70145 1999 NW ₂₀	15.4	X	2.60348	182.63386	90.94545	6.51181	0.0746458	0.28130342	2.3068501	20	7 13.2	17.6
70146 1999 NX ₂₃	15.5	X	337.85794	158.54519	109.93058	10.62304	0.1489068	0.27785274	2.3259110	20	5 16.7	17.7
70147 1999 NP ₂₅	15.7	X	218.48202	268.31054	38.75123	2.81285	0.2169045	0.26569182	2.3963519	20	2 2.1	19.6
70148 1999 NT ₂₆	16.2	X	249.21555	212.86699	149.21331	2.77861	0.2190359	0.27472025	2.3435574	20	5 6.3	19.7
70149 1999 NL ₃₀	14.4	X	311.19283	313.30982	9.27632	1.43553	0.2332784	0.18461439	3.0546329	20	5 30.7	18.1
70150 1999 NS ₃₁	16.2	X	19.60323	172.83382	120.16675	7.31504	0.1616321	0.28527143	2.3379086	20	9 29.8	18.5
70151 1999 NL ₃₂	15.3	X	329.27086	125.47834	121.47006	3.36287	0.1979449	0.27468089	2.3437813	20	3 16.5	17.5
70152 1999 NX ₃₃	15.3	X	26.47473	190.92745	77.41819	7.53160	0.0864168	0.28376139	2.2935093	20	8 21.8	17.8
70153 1999 NO ₃₄	15.9	X	261.02500	243.28929	127.31690	7.39792	0.2203919	0.27684960	2.3315252	20	5 30.7	19.3
70154 1999 NX ₃₄	16.1	X	316.93482	13.71816	244.12568	1.44449	0.1872311	0.274059				

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
70161 1999 NU ₄₅	16.0 ^m	X	350.27287	52.75884	222.41130	4.96266	0.2022221	0.28129126	2.3069166	20	6 19.9	17.5
70162 1999 NV ₄₆	15.0	X	138.62054	108.55272	178.95538	3.89604	0.1615685	0.30198754	2.2002736	20	—	—
70163 1999 NW ₄₆	15.5	X	57.58161	163.58990	146.86651	7.45936	0.0683766	0.29432273	2.2383097	20	12 2.9	18.4
70164 1999 NO ₄₇	16.1	X	299.81612	145.11791	144.61241	6.59760	0.1721547	0.27526010	2.3404922	20	4 6.2	18.9
70165 1999 NT ₄₉	14.9	X	341.68313	22.03184	260.43286	4.31429	0.1109294	0.27863197	2.3215716	20	6 16.1	17.0
70166 1999 NQ ₅₀	14.9	X	106.42484	43.66175	256.11302	4.87094	0.2139375	0.29846768	2.2175385	20	—	—
70167 1999 NN ₅₃	15.1	X	356.58193	123.91689	228.82173	10.80873	0.2848145	0.23897038	2.5718166	20	11 19.6	17.2
70168 1999 NG ₆₁	15.3	X	64.00852	96.99757	188.43324	7.20627	0.1818007	0.29079870	2.2563566	20	11 20.0	18.5
70169 1999 NX ₆₄	16.1	X	224.81850	357.78853	350.55159	2.21379	0.1863072	0.26936648	2.3745082	20	3 27.9	19.9
70170 1999 OD ₁	16.0	X	144.93989	236.90481	110.53045	3.40292	0.2236823	0.25876276	2.4389423	20	1 20.6	19.7
70171 1999 OL ₂	14.2	X	188.42617	140.26649	314.73088	23.52189	0.2801081	0.26936927	2.3744918	20	7 12.6	18.6
70172 1999 OQ ₄	15.6	X	128.21846	104.88905	161.89521	1.51088	0.1924200	0.29743942	2.2226463	20	12 25.4	19.2
70173 1999 OB ₅	15.7	X	175.96614	152.67245	129.44981	2.97293	0.1989887	0.25677038	2.4515426	20	—	—
70174 1999 PJ ₃	15.7	X	311.19888	256.41979	8.00678	2.60654	0.1882371	0.27146457	2.3622578	20	3 13.5	18.2
70175 1999 PU ₄	15.3	X	299.68606	290.96855	125.46096	5.09931	0.1435554	0.28428175	2.2907097	20	10 27.7	17.3
70176 1999 PO ₆	16.3	X	234.89472	27.51929	285.17482	2.33184	0.1860425	0.26759433	2.3849802	20	2 21.4	20.0
70177 1999 PC ₈	16.0	X	170.71973	332.91292	303.94392	1.59280	0.1876343	0.25508428	2.4623338	20	—	—
70178 1999 QC	15.5	X	312.28699	142.39479	141.39425	10.00671	0.2405886	0.27458187	2.3443448	20	4 6.2	18.2
70179 Beppechiara	15.7	X	345.86776	177.71469	228.71063	5.23128	0.3132127	0.23851466	2.5750915	20	—	—
70180 1999 QM ₂	15.3	X	85.12926	78.77603	355.16305	4.46472	0.1610076	0.25869990	2.4393374	20	2 20.8	18.1
70181 1999 RA ₁	15.1	X	44.85946	270.91492	305.86127	5.84332	0.0731859	0.27473382	2.3434803	20	6 28.2	17.7
70182 1999 RS ₁	15.2	X	322.98888	104.80139	340.98250	3.87466	0.1230761	0.29073276	2.2566978	20	—	—
70183 1999 RA ₃	15.2	X	130.74937	238.37458	190.99025	2.40669	0.1580739	0.26204467	2.4185357	20	4 11.6	18.4
70184 1999 RU ₃	14.6	X	244.41293	13.43125	195.76818	7.00307	0.0910324	0.30293997	2.1956595	20	—	—
70185 1999 RJ ₉	15.8	X	187.26278	131.94777	352.24004	3.19112	0.1743574	0.27826892	2.3235904	20	8 18.8	19.5
70186 1999 RE ₁₀	14.9	X	238.62910	345.94220	121.76889	6.55981	0.0699134	0.28737195	2.2742583	20	10 12.7	17.6
70187 1999 RY ₁₀	14.3	X	276.05191	77.74809	326.94365	6.42438	0.1779858	0.28084775	2.3093447	20	8 15.3	16.7
70188 1999 RE ₁₁	15.8	X	184.22965	286.08344	79.70852	2.40582	0.1949798	0.26494500	2.4008530	20	3 16.4	19.7
70189 1999 RR ₁₁	15.1	X	280.88138	71.38243	183.78747	8.71689	0.2439535	0.26778449	2.3838510	20	1 17.9	19.0
70190 1999 RW ₁₁	16.2	X	241.22771	123.43235	154.61165	2.28367	0.1276447	0.26403119	2.4063893	20	1 19.3	19.9
70191 1999 RY ₁₁	15.9	X	179.25124	50.95812	355.79825	1.76266	0.2115071	0.26797155	2.3827415	20	4 30.6	20.0
70192 1999 RE ₁₂	16.0	X	216.82610	51.45583	257.45334	1.62545	0.2135792	0.26355158	2.4093079	20	2 1.8	19.9
70193 1999 RY ₁₃	15.9	X	184.28586	267.00499	136.99691	2.89277	0.1952077	0.26803081	2.3823902	20	5 2.9	19.7
70194 1999 RW ₁₄	15.9	X	231.43671	94.71350	174.95050	2.51134	0.1599263	0.26074051	2.4265936	20	—	—
70195 1999 RU ₁₅	15.8	X	230.34439	226.23612	167.97339	2.26878	0.2138096	0.27253389	2.3560746	20	5 30.0	19.6
70196 1999 RB ₁₆	16.3	X	207.13535	128.85196	180.84123	5.33327	0.1483639	0.26158162	2.4213890	20	1 24.9	20.1
70197 1999 RS ₁₈	15.8	X	171.50292	172.89359	174.42282	15.79017	0.2129286	0.26024776	2.4296556	20	2 9.8	20.0
70198 1999 RW ₂₁	15.9	X	357.42274	207.84619	152.96152	5.94359	0.3083795	0.23777775	2.5804092	20	12 7.8	18.3
70199 1999 RL ₂₂	15.0	X	318.39611	47.43579	359.52933	8.06658	0.0841187	0.28575289	2.2828408	20	11 14.6	17.4
70200 1999 RO ₂₂	15.6	X	0.74289	129.33841	247.05946	4.49878	0.0668162	0.24037067	2.5618187	20	11 28.5	18.5
70201 1999 RR ₂₃	14.9	X	216.30339	75.75204	15.61873	7.14042	0.1635743	0.27624347	2.3349345	20	8 7.4	18.4
70202 1999 RR ₂₄	14.4	X	262.14011	284.52407	317.36135	6.49099	0.0813963	0.25813931	2.4428678	20	—	—
70203 1999 RE ₂₅	14.9	X	95.15387	196.01085	274.34140	1.81488	0.1222689	0.26325116	2.4111405	20	4 17.2	17.9
70204 1999 RD ₂₆	15.3	X	87.91880	327.89787	129.72796	3.24411	0.1565606	0.25983045	2.4322564	20	3 28.5	18.2
70205 1999 RE ₂₆	13.5	X	142.46457	207.94487	6.58354	32.52432	0.2146621	0.23901290	2.5715116	20	10 15.8	18.2
70206 1999 RT ₃₁	15.9	X	198.80272	28.56293	262.63900	0.31421	0.1863056	0.25816041	2.4427346	20	—	—
70207 Davidunlap	15.1	X	160.42678	51.76213	7.84660	7.05676	0.0967446	0.26665979	2.3905492	20	4 23.7	18.5
70208 1999 RX ₃₃	15.7	X	314.69506	81.32672	187.33365	22.98038	0.2537487	0.27416411	2.3467256	20	3 10.9	18.7
70209 1999 RL ₃₄	14.3	X	224.47089	285.59054	187.71529	11.86009	0.1761800	0.23152377	2.6266709	20	9 3.9	18.4
70210 1999 RA ₃₇	16.4	X	170.75303	1.87906	346.41889	1.80903	0.1819994	0.26030918	2.4292734	20	2 11.0	20.0
70211 1999 RZ ₃₇	15.5	X	336.51919	250.72519	183.75023	5.44346	0.2170973	0.24117486	2.5561207	20	—	—
70212 1999 RA ₃₈	14.8	X	147.50089	30.54405	38.76536	3.10829	0.1444211	0.26394348	2.4069224	20	4 27.7	18.4
70213 1999 RB ₄₀	15.0	X	99.81818	269.38436	16.24658	14.44279	0.2167847	0.24204735	2.5499744	20	12 14.4	19.5
70214 1999 RU ₄₀	15.0	X	303.95137	158.04014	163.82694	17.20469	0.1876559	0.22759206	2.6568354	20	5 28.8	18.6
70215 1999 RV ₄₀	14.3	X	13.17006	210.00693	357.10789	23.78079	0.2033606	0.26933236	2.3747088	20	4 8.6	16.4
70216 1999 RH ₄₂	13.9	X	320.02067	114.71292	3.46905	9.58536	0.0767368	0.18931872	3.0038185	20	—	—
70217 1999 RM ₄₂	14.6	X	287.64052	73.81812	46.57905	14.53998	0.1421255	0.23988295	2.5652899	20	12 19.4	17.4
70218 1999 RY ₄₂	15.4	X	10.44567	174.11136	165.42569	13.43390	0.1830468	0.23896851	2.5718300	20	11 13.1	18.5
70219 1999 RB ₄₄	14.0	X	29.23285	17.62201	39.27042	11.23665	0.1720047	0.24415211	2.5352983	20	—	—
70220 1999 RF ₄₄	15.5	X	279.22988	267.45184	137.71371	15.51957	0.1330141	0.23144922	2.6272349	20	8 23.2	18.6
70221 1999 RZ ₄₄	15.9	X	173.78311	164.91921	195.88478	1.46365	0.2334228	0.26261640	2.4150242	20	3 1.5	20.0
70222 1999 RN ₄₆	15.1	X	55.91840	339.23347	322.14444	15.69375	0.1828109	0.24366300	2.5386899	20	11 16.9	19.1
70223 1999 RV ₄₇	16.1	X	256.98725	247.54039	131.47073	7.68164	0.2175150	0.27626879	2.3347918	20	6 6.7	19.5
70224 1999 RZ ₄₉	15.8	X	201.57797	88.08142	259.30042	2.32849	0.2404644	0.26571664	2.3962027	20	3 5.9	19.9
70225 1999 RG ₅₀	15.9	X	204.54838	55.60849	168.06748	2.32982	0.2060095	0.26409051	2.4060289	20	2 9.3	20.0
70226 1999 RN ₅₀	15.2	X	237.95668	344.49388	338.60855	9.98818	0.2455138	0.26854926	2.3793230	20	3 4.9	19.1
70227 1999 RV ₅₀	15.6	X	258.03640	184.84525	110.38621	5.71164	0.2235400	0.26891856	2.3771442	20	2 20.2	19.5
70228 1999 RY ₅₁	15.6	X	160.22783	236.31804	165.67747	1.39193	0.1800975	0.26612483	2.3937518	20	4 7.6	19.3
70229 1999 RO ₅₄	15.4	X	343.31475	227.25702	134.69815	4.31124	0.1947864	0.23806979	2.5782985	20	10 23.6	17.6
70230 1999 RH ₅₆	15.5	X	305.82838	159.19070	115.33715	3.11005	0.2091442	0.27280747	2.3544992	20	3 17.5	18.3
70231 1999 RP ₅₈	15.9	X	260.95225	311.11563	317.69590	5.72486	0.1219594	0.26471437	2.4022473	20	1 28.8	19.4
70232 1999 RG ₆₀	15.3	X	9.90480	25.16436	292.86150	3.53921	0.1673877	0.23811739	2.5779549	20	10 3.9	18.1
70233 1999 RA ₆₁	15.9	X	218.08573	81.47642	324.37354	8.45197	0.0433757	0.27498471	2.3420546	20	6 16.1	19.1
70234 1999 RV ₆₁	15.7	X	276.55899	236.97714	206.31926	4.77518	0.1191122	0.28633632	2.2797388	20		

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
70241 1999 RE ₇₃	15.4	X	190.34676	256.87379	221.26415	3.86780	0.1655782	0.27796117	2.3253052	20	8 11.9	19.0
70242 1999 RN ₇₄	15.6	X	122.79822	197.30386	134.94377	5.55522	0.1215591	0.25243903	2.4795053	20	—	—
70243 1999 RH ₇₅	16.2	X	127.62024	113.93359	331.36731	0.78598	0.1498715	0.26518560	2.3994006	20	4 27.6	19.6
70244 1999 RL ₇₅	16.1	X	317.41277	281.05126	329.06604	4.03865	0.1597994	0.26924337	2.3752320	20	3 6.5	18.8
70245 1999 RW ₈₁	15.3	X	86.46803	168.29079	319.41064	5.69706	0.1186757	0.26577491	2.3958524	20	4 26.7	18.3
70246 1999 RQ ₈₂	14.2	X	359.99330	227.38363	335.67686	12.35136	0.1745500	0.26695672	2.3887763	20	3 10.7	16.4
70247 1999 RR ₈₂	15.9	X	69.50970	61.20498	206.31665	6.29250	0.2589662	0.23966841	2.5668206	20	11 2.0	19.8
70248 1999 RS ₈₂	15.7	X	224.90156	260.13313	201.38231	6.26984	0.0585654	0.28101927	2.3084049	20	9 10.1	18.5
70249 1999 RJ ₈₃	15.6	X	246.45075	300.92411	33.69721	2.67049	0.2225862	0.26916432	2.3756970	20	3 28.9	19.4
70250 1999 RF ₈₄	15.9	X	90.94291	137.64516	178.76264	1.86335	0.1001999	0.24595435	2.5228981	20	—	—
70251 1999 RK ₈₄	15.3	X	43.11758	290.89781	196.91786	5.97815	0.0646548	0.26049101	2.4281428	20	2 12.9	18.0
70252 1999 RZ ₈₅	15.1	X	71.73575	271.12003	142.79244	6.32196	0.1500967	0.25353231	2.4723721	20	—	—
70253 1999 RE ₈₆	14.5	X	160.01801	263.09208	135.66748	6.87508	0.1056087	0.26402247	2.4064423	20	4 1.0	18.0
70254 1999 RG ₈₈	15.4	X	7.04339	309.45470	4.76128	7.98264	0.1870397	0.23503576	2.6004395	20	9 27.3	18.0
70255 1999 RN ₈₈	15.5	X	336.25631	116.52956	324.83604	2.96944	0.2324716	0.24280622	2.5446585	20	—	—
70256 1999 RX ₈₈	15.3	X	164.06919	161.75065	283.83100	1.48741	0.1724604	0.26850738	2.3795705	20	6 5.7	19.0
70257 1999 RZ ₈₉	15.4	X	229.25991	99.21026	180.70798	6.18056	0.1575410	0.26010612	2.4305376	20	1 9.3	19.4
70258 1999 RL ₈₉	14.8	X	329.53021	180.36799	3.79937	2.53782	0.1157145	0.25846579	2.4408102	20	1 3.9	17.6
70259 1999 RA ₉₀	16.2	X	200.10460	150.18099	139.00630	4.86130	0.1825768	0.25792866	2.4441976	20	—	—
70260 1999 RO ₉₁	15.3	X	89.18162	283.07890	130.52856	1.65028	0.2236395	0.25471391	2.4647201	20	2 8.9	18.1
70261 1999 RU ₉₁	16.1	X	235.53450	104.06523	178.39499	1.98958	0.2220405	0.26212761	2.4180255	20	1 16.2	20.1
70262 1999 RP ₉₂	15.0	X	241.24420	53.77957	8.24428	5.87275	0.1532164	0.27582139	2.3373159	20	7 27.1	18.2
70263 1999 RM ₉₃	15.6	X	32.64252	278.25550	14.31823	9.35303	0.1389267	0.23537411	2.5979468	20	10 3.2	18.7
70264 1999 RP ₉₃	15.8	X	196.93762	233.14083	65.65478	3.39488	0.1646225	0.25802849	2.4435671	20	1 4.8	19.6
70265 1999 RX ₉₄	15.0	X	21.08808	255.07402	1.31789	4.73267	0.1781668	0.27707491	2.3302611	20	8 4.3	17.0
70266 1999 RU ₉₅	14.9	X	109.53454	173.46078	19.71740	12.70129	0.0812760	0.27811557	2.3244445	20	9 1.4	18.2
70267 1999 RT ₉₆	15.3	X	153.52383	132.20012	342.78147	6.80510	0.0546542	0.27340637	2.3510596	20	7 1.1	18.5
70268 1999 RG ₉₇	15.8	X	138.44022	164.41923	302.58017	1.52157	0.1698093	0.26776296	2.3839787	20	6 8.9	19.5
70269 1999 RR ₉₇	15.8	X	199.29231	194.50953	196.42475	0.58571	0.0877112	0.26789037	2.3832228	20	4 30.6	19.3
70270 1999 RZ ₁₀₂	15.1	X	233.64704	90.02530	297.87735	7.26696	0.2329845	0.27242315	2.3567130	20	5 21.5	18.9
70271 1999 RO ₁₀₅	14.6	X	315.13545	358.76281	256.13244	5.43562	0.0897932	0.26647079	2.3916795	20	3 19.1	17.6
70272 1999 RG ₁₀₇	15.6	X	62.86957	133.38829	305.75103	1.79082	0.1612096	0.25423655	2.4678043	20	1 20.4	18.0
70273 1999 RF ₁₀₉	15.0	X	99.82201	3.77662	288.99171	9.04492	0.0895926	0.24427237	2.5344661	20	12 18.6	18.6
70274 1999 RG ₁₀₉	16.1	X	282.68683	75.62188	197.38041	9.38735	0.1235238	0.26671655	2.3902101	20	2 24.1	19.4
70275 1999 RJ ₁₀₉	15.2	X	264.24647	12.75061	329.11439	9.04228	0.1961761	0.27148026	2.3621667	20	4 22.5	18.7
70276 1999 RT ₁₀₉	15.7	X	345.08381	345.09835	340.34549	11.99257	0.2019509	0.23261575	2.6184441	20	8 28.1	17.9
70277 1999 RV ₁₀₉	15.1	X	277.10368	308.67579	312.89764	5.94015	0.1038562	0.26255065	2.4154274	20	2 7.9	18.4
70278 1999 RK ₁₁₀	14.3	X	56.13780	43.13430	301.17542	12.19769	0.0496764	0.24201867	2.5501759	20	12 29.5	17.7
70279 1999 RY ₁₁₀	14.3	X	153.56701	180.57045	331.95178	9.25628	0.1653139	0.22648105	2.6655171	20	8 19.8	18.5
70280 1999 RA ₁₁₁	14.6	X	197.90697	144.06837	1.61943	29.23871	0.0797790	0.23207729	2.6224927	20	9 26.9	18.5
70281 1999 RB ₁₁₁	14.6	X	65.97658	285.66261	220.56533	8.28716	0.1478975	0.26442694	2.4039878	20	4 29.7	17.2
70282 1999 RW ₁₁₁	14.8	X	3.61533	7.17930	232.80210	8.85648	0.2102128	0.27785012	2.3259247	20	5 23.5	15.9
70283 1999 RK ₁₁₃	16.0	X	212.77975	149.57300	188.35479	12.98285	0.2260713	0.26661645	2.3908083	20	3 2.4	20.1
70284 1999 RQ ₁₁₄	15.3	X	125.33229	131.74838	330.64758	0.79732	0.1457913	0.26797965	2.3826935	20	5 17.5	18.7
70285 1999 RZ ₁₁₆	16.1	X	258.50986	20.04363	327.86442	8.52466	0.1845984	0.27353790	2.3503058	20	4 25.9	19.7
70286 1999 RA ₁₁₈	15.6	X	2.26835	51.22979	284.27463	6.24625	0.1487449	0.28597662	2.2816500	20	10 24.3	17.9
70287 1999 RH ₁₁₈	16.1	X	175.55039	132.84490	183.35369	2.99723	0.1937259	0.25948640	2.4344058	20	1 7.5	20.0
70288 1999 RS ₁₁₈	15.3	X	258.73954	93.10122	209.39961	5.75902	0.1354803	0.26906950	2.3762552	20	3 5.2	18.7
70289 1999 RW ₁₁₈	15.8	X	274.87676	87.97892	270.20098	6.58927	0.1624118	0.27639987	2.3340536	20	6 6.8	18.7
70290 1999 RZ ₁₁₈	15.5	X	237.58712	132.93778	200.06300	12.23771	0.1367751	0.26928005	2.3750163	20	3 22.5	19.0
70291 1999 RY ₁₂₀	15.7	X	282.75066	69.84496	283.32296	5.38239	0.2632657	0.27642457	2.3339145	20	5 24.4	18.6
70292 1999 RK ₁₂₃	15.1	X	52.02524	329.63454	219.02250	6.04515	0.0494090	0.27156675	2.3616651	20	5 24.9	17.7
70293 1999 RL ₁₂₄	15.4	X	260.51176	307.55907	304.11678	8.59429	0.2269847	0.26194884	2.4191255	20	—	—
70294 1999 RT ₁₂₅	15.0	X	70.13586	178.64790	310.40784	5.86553	0.1864633	0.26629981	2.3927031	20	3 27.9	17.9
70295 1999 RM ₁₂₇	15.3	X	116.50363	143.87868	264.31813	6.74618	0.1531909	0.26069602	2.4268696	20	2 23.3	18.6
70296 1999 RZ ₁₂₇	14.9	X	168.08013	178.81648	299.93484	3.59849	0.0882866	0.27807787	2.3246546	20	7 24.1	18.1
70297 1999 RG ₁₂₉	15.8	X	225.25692	220.35019	172.05970	2.22689	0.2217031	0.27244707	2.3565751	20	5 22.4	19.4
70298 1999 RJ ₁₂₉	16.3	X	148.93232	215.72508	154.74962	2.89397	0.2264484	0.26037013	2.4288942	20	2 21.4	19.9
70299 1999 RM ₁₂₉	15.4	X	254.36872	35.52479	340.19523	4.98750	0.2211010	0.27470538	2.3436420	20	5 27.4	18.9
70300 1999 RX ₁₃₀	15.7	X	307.19220	3.77702	281.95395	5.71162	0.1771259	0.27359216	2.3499951	20	4 4.6	18.5
70301 1999 RZ ₁₃₀	15.3	X	190.25542	151.61483	263.31742	6.15742	0.0996591	0.27185884	2.3599732	20	5 21.9	18.6
70302 1999 RD ₁₃₁	15.3	X	245.34460	72.99232	238.13446	5.65761	0.1294060	0.26754770	2.3852573	20	3 1.9	19.0
70303 1999 RX ₁₃₁	15.4	X	194.32403	88.10053	257.74449	5.02963	0.1472444	0.26417113	2.4055394	20	2 24.9	19.2
70304 1999 RE ₁₃₃	15.7	X	337.89189	6.84397	265.89987	5.79486	0.2380116	0.27667275	2.3325186	20	5 5.2	17.3
70305 1999 RQ ₁₃₃	15.6	X	205.88532	39.84607	251.41399	5.93079	0.1585558	0.26016673	2.4301601	20	1 2.5	19.4
70306 1999 RL ₁₃₄	15.3	X	187.96295	163.22802	305.64437	7.32055	0.0671160	0.27869842	2.3212026	20	8 3.6	18.3
70307 1999 RV ₁₃₄	15.5	X	135.13883	182.10827	208.18458	2.54441	0.1830139	0.26068751	2.4269225	20	2 27.6	19.1
70308 1999 RO ₁₃₅	14.8	X	14.55184	0.06692	345.77089	13.35775	0.1885850	0.24043179	2.5613845	20	11 21.5	18.1
70309 1999 RL ₁₃₆	15.4	X	255.82232	170.61108	148.46795	7.16292	0.1576535	0.26970555	2.3725177	20	3 25.2	18.8
70310 1999 RW ₁₃₆	15.5	X	207.36338	28.05790	330.16068	6.34832	0.1401091	0.26719719	2.3873428	20	3 23.9	19.1
70311 1999 RG ₁₃₇	14.9	X	236.75389	118.70669	327.32042	6.51398	0.1664924	0.28055361	2.3109585	20	8 20.7	17.8
70312 1999 RM ₁₃₇	15.5	X	257.66946	104.50932	176.08380	4.57197	0.2289102	0.26674243	2.3900555	20	1 30.4	19.5
70313 1999 RK ₁₃₈	15.7	X	246.71249	282.74704	23.44369	2.69346	0.1753043	0.26726033	2.3869668	20	2 26.6	19.4
70314 1999 RN ₁₃₈	14.8											

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
70321 1999 RC ₁₄₉	15.6	X	241.00009	17.39183	339.40783	5.54462	0.1325867	0.27149300	2.3620928	20	4 26.7	19.1
70322 1999 RU ₁₅₀	16.2	X	228.40236	208.35169	95.64503	2.35622	0.1886117	0.26462349	2.4027972	20	2 6.8	20.1
70323 1999 RW ₁₅₂	15.8	X	345.53813	119.00903	189.61770	6.65485	0.1167650	0.27967023	2.3158222	20	8 4.2	18.0
70324 1999 RK ₁₅₃	16.1	X	355.07593	68.80195	180.46263	6.02345	0.0894838	0.27310656	2.3527799	20	5 22.4	18.4
70325 1999 RT ₁₅₆	16.4	X	111.40764	170.45753	195.99043	2.46853	0.1850221	0.25436390	2.4669806	20	1 1.9	19.5
70326 1999 RS ₁₅₈	16.0	X	192.38567	189.89371	135.71285	1.99687	0.1327801	0.26130466	2.4230997	20	1 31.5	19.8
70327 1999 RQ ₁₆₀	15.3	X	70.37114	2.54180	54.37638	3.16223	0.1641667	0.25445335	2.4664024	20	1 2.8	17.5
70328 1999 RH ₁₆₁	15.6	X	26.90930	343.43525	254.07177	3.06831	0.2103811	0.27844356	2.3226188	20	7 19.4	17.6
70329 1999 RY ₁₆₃	15.5	X	218.16281	187.10260	237.00289	1.36817	0.2074608	0.27374916	2.3490965	20	6 26.8	19.2
70330 1999 RS ₁₆₅	15.3	X	181.57979	285.10644	172.79297	1.83861	0.1819217	0.27314603	2.3525532	20	7 8.2	19.1
70331 1999 RW ₁₆₅	16.5	X	51.08369	177.25746	156.67831	3.30815	0.1061076	0.24319118	2.5419725	20	12 17.3	19.9
70332 1999 RF ₁₆₆	15.5	X	142.72605	269.46717	152.20391	8.52956	0.0893354	0.26552311	2.3973669	20	4 10.2	18.9
70333 1999 RA ₁₆₈	14.6	X	339.77079	11.27384	3.91056	4.96009	0.1665200	0.28533822	2.2850520	20	11 14.7	16.5
70334 1999 RT ₁₆₈	15.6	X	248.35411	70.66169	169.56369	2.38154	0.1325191	0.25819930	2.4424893	20	—	—
70335 1999 RC ₁₆₉	15.6	X	176.74596	146.38344	183.75981	2.82474	0.1879749	0.25940558	2.4349114	20	1 24.8	19.4
70336 1999 RO ₁₆₉	15.1	X	7.43631	225.19935	319.43335	6.35592	0.0433379	0.26472011	2.4022125	20	3 7.2	17.9
70337 1999 RE ₁₇₀	15.4	X	214.49652	80.26111	186.05546	2.74771	0.1743526	0.25772300	2.4454977	20	—	—
70338 1999 RL ₁₇₀	15.1	X	169.78253	216.52654	349.95463	10.70949	0.1356268	0.24261379	2.5460039	20	11 7.8	19.2
70339 1999 RQ ₁₇₀	14.9	X	181.82561	110.49664	348.98559	5.43817	0.1643901	0.27365350	2.3496439	20	7 12.2	18.6
70340 1999 RF ₁₇₃	16.2	X	255.64346	267.03735	72.47167	5.85316	0.1395694	0.27085282	2.3658134	20	4 22.9	19.4
70341 1999 RJ ₁₇₄	14.9	X	24.53231	289.30594	358.20340	13.18182	0.0828261	0.23399265	2.6081620	20	9 7.0	18.1
70342 1999 RA ₁₇₅	15.7	X	272.42033	122.19350	145.93906	2.72524	0.2087334	0.26612969	2.3937227	20	1 30.8	19.5
70343 1999 RH ₁₇₆	15.9	X	211.66548	101.46482	196.39145	4.75831	0.1845070	0.26070614	2.4268068	20	1 15.2	19.9
70344 1999 RL ₁₇₆	15.7	X	8.53679	195.20016	193.05991	4.24784	0.1304404	0.24274369	2.5450955	20	—	—
70345 1999 RF ₁₇₇	15.3	X	269.71463	94.80583	177.93313	4.68962	0.1826504	0.26570610	2.3962660	20	2 4.5	18.9
70346 1999 RO ₁₇₇	15.7	X	195.62078	207.04027	164.32894	4.58822	0.1654435	0.26571534	2.3962105	20	4 1.6	19.4
70347 1999 RA ₁₇₈	15.2	X	77.60507	144.31434	161.59658	11.28920	0.2059100	0.24421143	2.5348877	20	12 21.5	19.4
70348 1999 RE ₁₇₉	15.1	X	323.07725	305.87291	57.55496	4.64448	0.1110109	0.23435765	2.6054533	20	9 12.3	17.9
70349 1999 RV ₁₈₀	15.6	X	228.38518	348.85111	89.37969	3.42048	0.1994494	0.27624710	2.3349141	20	7 27.6	19.0
70350 1999 RE ₁₈₁	14.5	X	24.93592	127.72458	11.29360	8.78217	0.2021593	0.25854637	2.4403030	20	2 2.5	16.5
70351 1999 RM ₁₈₂	15.9	X	187.27093	101.63895	324.56799	1.72362	0.1887682	0.26959463	2.3731684	20	6 1.7	19.6
70352 1999 RV ₁₈₂	15.5	X	12.13766	211.80985	334.50407	1.96713	0.1283625	0.26525068	2.3990081	20	3 15.9	17.6
70353 1999 RB ₁₈₃	15.9	X	193.06724	230.53754	166.15124	4.56029	0.1885960	0.26749015	2.3855994	20	5 1.6	19.7
70354 1999 RM ₁₈₃	15.1	X	196.78583	8.10231	3.42723	6.54359	0.1339620	0.26594950	2.3948038	20	4 1.3	18.6
70355 1999 RC ₁₈₅	15.6	X	270.02597	147.13946	129.65555	7.37381	0.1649819	0.26602747	2.3943358	20	2 13.3	19.0
70356 1999 RP ₁₈₅	16.2	X	168.51893	127.56872	303.01985	1.44269	0.1605167	0.26862123	2.3788980	20	5 20.7	20.0
70357 1999 RM ₁₈₆	15.8	X	68.16675	336.07916	11.70214	3.94223	0.0603184	0.24693874	2.5161889	20	—	—
70358 1999 RN ₁₈₆	15.9	X	252.22941	195.26620	141.38789	3.79723	0.0923687	0.27004288	2.3705415	20	4 20.3	19.2
70359 1999 RD ₁₈₇	16.0	X	30.40736	355.93083	352.77214	1.75922	0.1485596	0.24172754	2.5522231	20	12 16.0	19.4
70360 1999 RV ₁₈₈	15.5	X	344.22924	268.85241	165.47762	14.23512	0.1458831	0.24459192	2.5322582	20	—	—
70361 1999 RK ₁₈₉	15.1	X	163.67704	125.27247	346.58785	4.24140	0.1776339	0.27199190	2.3592035	20	7 10.8	18.8
70362 1999 RF ₁₉₁	15.0	X	337.92871	5.15545	30.20467	5.79601	0.2545249	0.23951944	2.5678848	20	12 5.7	17.0
70363 1999 RJ ₁₉₃	15.5	X	176.29645	298.18992	74.97938	8.39366	0.0421716	0.26339839	2.4102419	20	3 15.2	18.9
70364 1999 RN ₁₉₄	15.2	X	212.68186	184.31804	251.02975	3.45276	0.1963645	0.27314671	2.3525493	20	7 6.9	18.9
70365 1999 RF ₁₉₈	15.6	X	306.25085	39.19446	260.39828	7.04599	0.1926790	0.27458419	2.3443315	20	4 21.6	18.2
70366 1999 RQ ₁₉₈	15.7	X	239.81489	178.05678	212.92747	4.82478	0.1230813	0.27343504	2.3508952	20	6 13.8	18.9
70367 1999 RH ₁₉₉	14.5	X	202.92807	61.58624	223.99126	13.59734	0.1715208	0.25851797	2.4404817	20	—	—
70368 1999 RN ₂₀₂	15.9	X	146.64819	77.09048	265.21471	5.61020	0.1432968	0.25538759	2.4603838	20	1 7.2	19.4
70369 1999 RL ₂₀₅	14.7	X	349.17584	156.83044	258.47173	10.58829	0.1148510	0.24223928	2.5486273	20	—	—
70370 1999 RS ₂₀₅	14.5	X	214.59047	77.59440	278.65366	7.43991	0.1781366	0.21836997	2.7311199	20	3 28.3	19.2
70371 1999 RB ₂₀₆	15.6	X	327.99973	98.36468	299.57834	6.23945	0.1036722	0.28517876	2.2859037	20	11 20.6	17.8
70372 1999 RN ₂₀₇	14.6	X	166.12383	263.98894	326.32974	11.35343	0.2241713	0.24442106	2.5334381	20	12 1.5	19.1
70373 1999 RY ₂₀₇	15.2	X	45.82845	182.10936	208.65337	13.88658	0.2639443	0.24614591	2.5215890	20	—	—
70374 1999 RD ₂₁₀	15.1	X	142.76964	74.87898	321.01150	6.07385	0.2296431	0.25941630	2.4348444	20	3 16.4	19.0
70375 1999 RM ₂₁₀	15.3	X	240.44641	61.99490	272.96581	5.58761	0.1631855	0.26661585	2.3908119	20	3 24.6	19.0
70376 1999 RB ₂₁₁	15.2	X	289.68583	24.58556	240.91344	7.74748	0.2275067	0.26574160	2.3960526	20	2 8.6	18.9
70377 1999 RE ₂₁₁	14.6	X	315.00094	283.79392	348.32305	15.05681	0.3268285	0.22349758	2.6891859	20	3 11.2	18.1
70378 1999 RG ₂₁₁	15.4	X	170.23200	317.97608	343.62226	9.56461	0.2372942	0.25447501	2.4662625	20	—	—
70379 1999 RL ₂₁₂	14.1	X	266.93709	330.01181	268.93397	12.66478	0.1807505	0.25882405	2.4385573	20	—	—
70380 1999 RQ ₂₁₂	14.4	X	181.81886	231.52887	316.29899	12.27175	0.1077942	0.23722863	2.5843895	20	10 26.9	18.6
70381 1999 RZ ₂₁₃	15.9	X	335.49669	95.40088	154.89573	3.43108	0.1579364	0.27423873	2.3462999	20	4 8.8	18.1
70382 1999 RK ₂₁₄	15.4	X	132.21177	283.56738	73.17938	5.79389	0.1627654	0.25533463	2.4607240	20	1 12.7	18.7
70383 1999 RK ₂₁₈	15.1	X	87.49488	224.72104	244.80178	4.53624	0.1835831	0.26230375	2.4169429	20	4 14.7	18.0
70384 1999 RS ₂₁₉	15.8	X	274.43535	328.47832	38.12874	7.02499	0.1374782	0.27532359	2.3401324	20	6 22.6	18.6
70385 1999 RU ₂₁₉	15.9	X	218.39210	263.94545	81.49012	4.82111	0.2609403	0.26617431	2.3934551	20	3 19.6	20.1
70386 1999 RO ₂₂₀	15.7	X	239.11801	22.73846	275.00350	6.00312	0.1256005	0.26453381	2.4033402	20	2 9.0	19.4
70387 1999 RW ₂₂₁	16.2	X	16.55554	308.71407	318.84187	2.12824	0.1530740	0.28133068	2.3067011	20	8 8.0	18.2
70388 1999 RD ₂₂₄	14.6	X	273.35124	345.07045	39.37320	6.68852	0.1129504	0.27801954	2.3249797	20	7 24.3	17.3
70389 1999 RS ₂₂₅	15.2	X	102.95946	93.95350	202.84788	6.28931	0.0467243	0.29524532	2.2336444	20	—	—
70390 1999 RY ₂₂₇	15.7	X	333.47434	287.42681	146.49509	0.55126	0.1176595	0.24236481	2.5477472	20	—	—
70391 1999 RP ₂₃₀	15.6	X	73.09038	154.68265	151.17975	13.07977	0.1862620	0.24290750	2.5439511	20	12 16.2	19.8
70392 1999 RS ₂₃₀	15.5	X	37.24292	301.89062	79.75573	8.44101	0.1092438	0.29312236	2.2444163	20	—	—
70393 1999 RC ₂₃₇	15.6	X	235.03433	209.33066	85.65006	6.64792	0.1295692	0.26218909	2.4176474	20	2 5.2	19.3
70394 1999 RP ₂₃₇	14.9	X	126.47125									

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
70401 Davidbishop	15.3	X	139.08714	150.11052	118.66122	8.41664	0.1960610	0.24668187	2.5179353	20	12 28.1	19.4
70402 1999 RJ ₂₄₂	15.6	X	98.17386	261.18603	354.59952	3.09463	0.0488026	0.23915785	2.5704724	20	10 25.7	19.2
70403 1999 RK ₂₄₄	16.2	X	178.30679	97.82656	307.97818	0.73287	0.1816091	0.26924032	2.3752500	20	4 28.3	20.0
70404 1999 RR ₂₄₅	15.8	X	292.12586	265.96293	40.49446	4.80126	0.1767449	0.27315146	2.3525220	20	4 16.4	18.6
70405 1999 RQ ₂₄₈	16.0	X	315.84091	355.19007	354.95607	3.15914	0.1727357	0.28130564	2.3068379	20	8 8.4	17.8
70406 1999 RT ₂₅₂	15.4	X	271.45221	71.98240	264.88234	6.00451	0.1368842	0.27166999	2.3610668	20	5 5.6	18.5
70407 1999 SE ₁	15.6	X	311.04803	343.05008	75.20343	3.21139	0.1905858	0.23714852	2.5849716	20	11 3.5	17.8
70408 1999 SH ₁	15.6	X	154.16552	174.18723	191.83653	9.06614	0.2370609	0.25953365	2.4341104	20	2 19.3	19.7
70409 Srnin	15.1	X	126.99790	337.48984	112.01739	7.41299	0.0656854	0.26557686	2.3970434	20	4 26.4	18.3
70410 1999 SE ₃	13.6	X	312.84972	51.87603	248.62787	23.95196	0.2291697	0.27465283	2.3439409	20	4 27.1	16.4
70411 1999 SF ₃	13.2	X	147.49773	136.24991	290.87566	23.23192	0.2910152	0.26298946	2.4127398	20	4 26.6	17.9
70412 1999 SM ₄	15.4	X	49.02946	320.06947	6.58010	15.16778	0.1513536	0.24072181	2.5593269	20	12 8.3	19.3
70413 1999 SJ ₅	15.8	X	191.42803	309.32594	66.38997	1.89787	0.2430624	0.26557578	2.3970499	20	4 3.5	19.8
70414 1999 SF ₆	15.1	X	223.89299	341.92670	37.36798	7.21029	0.1127710	0.27017531	2.3697668	20	5 10.3	18.6
70415 1999 SJ ₁₁	14.3	X	170.88841	36.39350	92.03146	6.24162	0.0628071	0.22607352	2.6687194	20	8 7.5	18.2
70416 1999 ST ₁₁	14.8	X	312.03800	286.51253	57.27201	7.40863	0.1417901	0.27567513	2.3381426	20	7 24.7	17.0
70417 1999 SV ₁₁	15.4	X	42.25527	295.43103	84.64438	5.16082	0.2377698	0.24384494	2.5374270	20	—	—
70418 Kholopov	15.3	X	7.40185	104.95512	60.42885	3.84690	0.1149865	0.25916349	2.4364276	20	2 8.9	17.8
70419 1999 SQ ₁₂	15.5	X	251.94169	26.39668	324.72589	6.70223	0.1286505	0.27344184	2.3508562	20	4 30.4	19.0
70420 1999 SM ₁₃	15.6	X	33.77881	194.35037	187.47413	7.27942	0.1401202	0.24478964	2.5308944	20	—	—
70421 1999 SY ₁₄	15.3	X	304.20896	327.80675	257.84580	7.35541	0.0491744	0.26045161	2.4283877	20	1 31.6	18.6
70422 1999 SB ₁₆	14.6	X	295.47039	269.71298	218.52744	11.81706	0.1268123	0.24448287	2.5330111	20	—	—
70423 1999 SS ₁₈	15.2	X	278.92923	229.55724	91.36176	7.46608	0.1353930	0.27173429	2.3606943	20	4 28.0	18.3
70424 1999 SA ₂₀	15.3	X	36.05905	249.26659	125.20400	7.24889	0.1881705	0.24432302	2.5341158	20	—	—
70425 1999 SJ ₂₆	14.9	X	326.67533	316.00904	70.03295	10.10420	0.1944294	0.23653501	2.5894394	20	10 24.1	17.2
70426 1999 TN	15.3	X	196.41138	183.56990	209.11429	7.12106	0.1988930	0.26613813	2.3936721	20	4 28.4	19.3
70427 1999 TB ₁	15.3	X	231.95169	179.72477	208.55854	4.72416	0.2359968	0.27022431	2.3694803	20	5 22.2	19.0
70428 1999 TP ₁	15.5	X	140.14094	190.39975	216.37712	1.89156	0.1857715	0.25980126	2.4324386	20	3 25.4	19.1
70429 1999 TY ₁	14.6	X	31.91533	338.01064	50.57305	15.23441	0.3127613	0.24240423	2.5474710	20	—	—
70430 1999 TM ₂	15.3	X	328.59666	329.95640	100.27987	12.08323	0.1524434	0.24094494	2.5577466	20	12 28.5	17.6
70431 1999 TD ₃	15.3	X	46.60327	263.20866	207.26226	4.24801	0.1563229	0.25521980	2.4614620	20	2 1.1	17.5
70432 1999 TO ₃	15.6	X	208.10934	59.62984	276.43124	0.96706	0.1714710	0.26210971	2.4181356	20	2 27.8	19.5
70433 1999 TS ₃	15.8	X	358.06877	337.72619	323.06684	0.77535	0.0951277	0.22946133	2.6423867	20	8 10.9	18.6
70434 1999 TL ₄	15.1	X	158.10828	50.92585	15.21040	5.96584	0.1047458	0.26436142	2.4043850	20	4 30.8	18.7
70435 1999 TU ₄	14.7	X	347.36597	297.60412	17.35357	15.87635	0.1956559	0.23127062	2.6285873	20	8 24.7	17.3
70436 1999 TT ₅	15.0	X	138.52314	185.70014	220.30229	5.14236	0.2011190	0.25923993	2.4359486	20	3 23.2	18.7
70437 1999 TK ₆	16.0	X	347.19031	194.23213	198.92994	3.78224	0.2177550	0.23820914	2.5772929	20	12 18.2	18.4
70438 1999 TX ₆	14.2	X	235.21625	50.72235	24.05423	13.52838	0.1703573	0.22687771	2.6624093	20	8 4.5	18.4
70439 1999 TE ₇	15.0	X	254.63966	39.32418	47.97127	4.76280	0.0371626	0.23288439	2.6164301	20	9 30.8	18.3
70440 1999 TV ₇	15.3	X	253.65827	284.47864	46.87172	9.89353	0.2903460	0.26941459	2.3742256	20	3 29.2	19.3
70441 1999 TH ₈	15.4	X	229.21991	139.38143	279.13219	3.95637	0.2111592	0.27169084	2.3609460	20	6 29.9	19.1
70442 1999 TR ₉	14.9	X	260.61026	22.34649	18.93318	2.54670	0.2463457	0.27433225	2.3457666	20	7 6.9	18.1
70443 1999 TV ₉	14.7	X	277.71489	257.92646	199.81704	21.46412	0.0388663	0.23779838	2.5802599	20	11 15.8	18.2
70444 Genovali	15.3	X	225.61850	119.05178	15.59427	11.89842	0.1303022	0.23308247	2.6149475	20	10 10.2	18.8
70445 1999 TR ₁₃	13.9	X	272.64675	88.22107	13.79459	13.89584	0.1385419	0.23567121	2.5957630	20	10 26.6	17.1
70446 Pugh	15.3	X	288.90146	264.96077	135.53760	3.03923	0.1033056	0.23005892	2.6378089	20	9 4.9	18.4
70447 1999 TG ₁₄	14.8	X	243.70147	306.53327	42.11761	7.31521	0.1320722	0.26764886	2.3846562	20	4 21.3	18.0
70448 1999 TS ₁₅	15.2	X	57.45840	253.87758	38.08278	3.54888	0.1268718	0.23471011	2.6028442	20	11 2.3	18.7
70449 Gruebel	15.3	X	152.67961	156.64539	323.31572	1.63024	0.1469016	0.27160861	2.3614225	20	7 9.7	19.0
70450 1999 TL ₁₈	15.0	X	286.22705	306.25303	47.37939	7.58240	0.1374051	0.27374842	2.3491007	20	6 21.2	17.7
70451 1999 TQ ₁₈	15.4	X	23.37615	300.28112	16.52410	4.23894	0.2203871	0.23619322	2.5919370	20	11 3.3	18.4
70452 1999 TH ₁₉	15.2	X	26.57423	315.96161	30.66024	15.02400	0.1965976	0.23830148	2.5766270	20	12 12.4	18.7
70453 1999 TS ₁₉	14.3	X	110.73281	310.89012	102.47514	25.34977	0.2694266	0.25708541	2.4495394	20	3 26.1	18.5
70454 1999 TX ₁₉	16.0	X	350.65683	66.45823	8.45695	1.93868	0.1161509	0.24332970	2.5410076	20	—	—
70455 1999 TM ₂₀	15.4	X	10.44220	295.29233	6.28905	3.77703	0.1495098	0.23237300	2.6202674	20	9 10.2	18.0
70456 1999 TZ ₂₀	15.3	X	13.79797	0.31857	315.43511	2.51100	0.1381145	0.23342725	2.6123720	20	10 3.1	18.2
70457 1999 TU ₂₃	16.1	X	168.61261	122.46879	179.31922	5.92047	0.1267430	0.25353662	2.4723441	20	—	—
70458 1999 TR ₂₅	15.3	X	93.79156	101.54701	14.58859	4.04183	0.1185967	0.26135786	2.4227709	20	4 23.1	18.2
70459 1999 TX ₂₅	14.9	X	282.24279	225.08380	209.34601	21.40928	0.0500769	0.23419514	2.6066585	20	10 18.2	18.0
70460 1999 TQ ₂₆	14.6	X	244.88006	135.47200	323.00300	1.12771	0.0477528	0.23203952	2.6227773	20	9 28.5	17.9
70461 1999 TG ₂₇	15.2	X	261.20999	9.22790	30.17282	10.12615	0.1619819	0.22590917	2.6700136	20	7 16.9	19.1
70462 1999 TZ ₂₇	14.3	X	111.15175	84.89636	41.42288	12.37401	0.2644653	0.21202701	2.7853210	20	6 13.8	18.9
70463 1999 TL ₂₉	16.1	X	34.24012	12.41157	321.06646	1.34824	0.1485652	0.23962309	2.5671442	20	11 30.6	19.3
70464 1999 TP ₂₉	15.6	X	47.06528	156.28422	212.06822	1.61156	0.1190636	0.24478400	2.5309333	20	—	—
70465 1999 TS ₃₀	15.5	X	355.22718	31.74577	265.80732	1.30371	0.0968915	0.22904269	2.6456055	20	7 31.8	18.3
70466 1999 TU ₃₀	15.9	X	155.70495	70.37723	338.62146	1.76584	0.1751305	0.26267145	2.4146868	20	4 11.1	19.5
70467 1999 TG ₃₁	14.8	X	301.57049	350.78221	11.67019	14.20979	0.1647597	0.22946802	2.6423354	20	7 29.3	18.1
70468 1999 TU ₃₁	15.5	X	187.93143	208.62216	233.28491	1.72653	0.0595639	0.22327958	2.6909361	20	6 25.3	19.4
70469 1999 TN ₃₂	15.4	X	258.08061	10.40924	14.39927	5.43400	0.2058660	0.27308187	2.3529217	20	6 15.8	18.7
70470 1999 TS ₃₂	15.6	X	35.03456	130.42786	193.63577	8.49894	0.1742199	0.23900147	2.5715936	20	11 24.7	19.0
70471 1999 TA ₃₃	15.4	X	246.43785	183.66966	210.46215	4.82972	0.0570517	0.22572705	2.6714496	20	7 3.2	19.1
70472 1999 TG ₃₃	13.8	X	46.18266	194.01635	12.03190	12.92295	0.2076901	0.22248617	2.6973297	20	7 5.5	17.2
70473 1999 TQ ₃₃	14.6	X	221.28357	261.09780	213.67744	3.19109	0.1182091	0.23127497	2.6285543	20	9 9.7	18.3
70474 1999 TH ₃₅	14.2	X	178.56900	138.21825	3.24623	24.19637	0.2717308	0.27603662	2.3361008	20	9 5.7	18.5
70475 19												

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
70481 1999 TX ₄₃	15.0	X	41.99725	185.53766	2.14166	9.11953	0.0847234	0.21813416	2.7330879	20	5 9.5	18.5
70482 1999 TW ₄₄	16.5	X	56.92834	96.57272	238.76393	3.00712	0.1114895	0.24123803	2.5556745	20	12 25.8	20.1
70483 1999 TD ₄₆	15.8	X	77.75885	73.16016	31.70918	3.07016	0.1515076	0.25911777	2.4367142	20	3 21.9	18.6
70484 1999 TT ₄₉	14.8	X	255.90344	266.96940	187.77255	14.21397	0.0343973	0.23549884	2.5970294	20	10 12.4	18.1
70485 1999 TC ₅₂	16.1	X	100.42102	326.03189	250.44153	3.11081	0.0775047	0.22999699	2.6382824	20	9 8.1	19.8
70486 1999 TV ₅₂	15.5	X	189.70172	189.79502	158.89605	3.41976	0.1989930	0.26469238	2.4023803	20	2 27.9	19.5
70487 1999 TZ ₅₂	15.7	X	122.06337	61.71986	149.10268	4.75362	0.0802584	0.28713972	2.2754844	20	10 7.4	18.8
70488 1999 TC ₅₃	14.8	X	79.36918	309.39155	259.86433	3.08331	0.1849674	0.22651011	2.6652891	20	8 18.3	18.7
70489 1999 TC ₅₄	15.6	X	124.52584	219.33391	308.51726	1.60700	0.0363861	0.22660109	2.6688173	20	8 1.2	19.1
70490 1999 TT ₅₅	14.9	X	58.37533	210.23050	24.02374	14.23140	0.1302756	0.22719039	2.6599659	20	8 25.8	18.6
70491 1999 TH ₅₈	15.6	X	0.43413	96.14362	160.22352	2.52327	0.2494339	0.22113632	2.7082952	20	6 13.1	17.5
70492 1999 TO ₆₀	16.5	X	279.71541	342.94380	258.34274	0.96170	0.1695193	0.26209008	2.4182563	20	1 9.1	20.1
70493 1999 TC ₆₅	16.7	X	113.33906	192.49664	267.66572	0.39425	0.1451731	0.26479978	2.4017307	20	4 30.7	20.0
70494 1999 TV ₆₆	15.7	X	255.42536	118.95241	277.26753	1.44536	0.0628139	0.22599044	2.6693735	20	7 17.6	19.3
70495 1999 TY ₆₈	14.9	X	357.62886	198.94254	16.82426	12.48133	0.1138251	0.21622736	2.7491322	20	4 7.7	18.0
70496 1999 TQ ₇₂	15.5	X	166.34025	251.23846	151.53729	2.66808	0.0946806	0.21332454	2.7740152	20	4 13.5	19.6
70497 1999 TR ₈₆	15.8	X	34.23871	79.80163	158.83337	4.39801	0.1532583	0.28015147	2.3131695	20	7 25.9	18.0
70498 1999 TN ₉₁	15.6	X	172.40159	303.62485	152.98497	5.88173	0.1049124	0.27117539	2.3639369	20	6 28.0	19.1
70499 1999 TN ₉₃	15.1	X	90.09886	10.36494	104.10040	3.65649	0.1493132	0.26186466	2.4196439	20	4 23.0	18.0
70500 1999 TR ₉₅	15.8	X	184.70928	256.45148	58.79240	5.42994	0.2070889	0.25772736	2.4454702	20	1 16.4	19.8
70501 1999 TZ ₉₅	14.9	X	325.88928	234.62164	180.65696	14.51938	0.1827224	0.23793007	2.5793078	20	12 3.7	17.6
70502 1999 TB ₉₇	15.4	X	5.96719	224.27669	117.44088	8.77698	0.1544875	0.23627386	2.5913472	20	11 2.6	18.4
70503 1999 TN ₉₈	15.2	X	155.12410	286.16048	147.55907	8.09811	0.0689702	0.26587384	2.3952580	20	5 9.5	18.6
70504 1999 TR ₉₉	14.9	X	251.95362	278.11280	181.08844	21.79149	0.0644554	0.23377961	2.6097464	20	10 8.6	18.3
70505 1999 TZ ₉₉	15.1	X	300.47016	261.48442	143.86375	7.57575	0.0861751	0.23359394	2.6111290	20	10 5.3	18.2
70506 1999 TX ₁₀₁	14.1	X	163.13702	66.18688	61.45299	17.02239	0.1466850	0.22362249	2.6881844	20	7 31.5	18.7
70507 1999 TP ₁₀₂	15.4	X	60.23619	229.31283	143.89529	15.68986	0.1624938	0.24512928	2.5285561	20	—	—
70508 1999 TC ₁₀₃	15.2	X	31.81849	246.79054	93.72707	14.43127	0.2014471	0.23830225	2.5766215	20	12 14.9	18.6
70509 1999 TD ₁₀₃	15.0	X	234.90913	301.09297	99.94029	16.03962	0.1342604	0.22263040	2.6961646	20	6 19.9	19.1
70510 1999 TK ₁₀₃	15.5	X	120.11106	120.64935	331.40727	6.10910	0.0936969	0.26325973	2.4110882	20	4 18.4	18.9
70511 1999 TL ₁₀₃	15.3	X	147.79676	200.25142	244.62364	4.40566	0.1929307	0.26473556	2.4021190	20	5 21.4	18.9
70512 1999 TM ₁₀₃	15.0	X	304.74492	319.52316	341.40470	6.51150	0.1250616	0.27084923	2.3658342	20	5 2.6	17.7
70513 1999 TC ₁₀₄	14.7	X	248.98512	354.75383	346.94504	5.70958	0.1436003	0.26793404	2.3829638	20	4 13.9	18.1
70514 1999 TO ₁₀₄	15.0	X	344.24415	259.28027	337.73380	6.16104	0.0742731	0.26658782	2.3909794	20	4 11.3	17.6
70515 1999 TO ₁₀₅	14.8	X	225.79988	6.22937	21.95892	17.45288	0.1516868	0.22057548	2.7128840	20	5 17.5	19.3
70516 1999 TQ ₁₀₅	14.7	X	133.67447	46.17890	8.81537	7.71611	0.0664910	0.25902156	2.4373175	20	3 17.3	17.9
70517 1999 TU ₁₀₅	15.0	X	64.99156	337.16186	31.33284	16.34688	0.2034175	0.24548189	2.5261341	20	—	—
70518 1999 TS ₁₀₇	15.7	X	243.25833	177.30927	236.56595	7.09869	0.1417183	0.27649375	2.3335252	20	7 16.0	18.9
70519 1999 TD ₁₀₈	15.4	X	168.17245	63.87210	294.22269	5.20602	0.1240495	0.26070041	2.4268424	20	2 15.1	19.0
70520 1999 TR ₁₀₈	15.2	X	330.26439	209.76154	231.09684	5.30324	0.2335337	0.24159205	2.5531772	20	—	—
70521 1999 TF ₁₀₉	15.6	X	300.90953	44.77731	226.21315	9.06310	0.0995193	0.26875861	2.3780873	20	3 18.8	18.7
70522 1999 TE ₁₁₀	15.5	X	232.22035	303.77806	334.96434	8.31421	0.2502825	0.26160940	2.4212176	20	1 10.4	19.8
70523 1999 TL ₁₁₀	15.8	X	204.38907	172.88842	213.32870	5.28808	0.0681422	0.26835262	2.3804852	20	4 30.9	19.2
70524 1999 TH ₁₁₂	16.2	X	220.21357	354.32653	355.04965	1.72896	0.1653340	0.26607345	2.3940599	20	3 26.3	19.9
70525 1999 TW ₁₁₂	15.6	X	54.29909	99.98687	213.99920	14.13452	0.1582231	0.24043409	2.5613682	20	12 2.4	19.3
70526 1999 TG ₁₁₃	16.2	X	52.63992	13.72404	312.69845	3.42297	0.2839535	0.24241773	2.5473765	20	12 30.3	20.1
70527 1999 TQ ₁₁₅	15.4	X	92.73868	358.36034	304.45247	3.51429	0.1842959	0.24428284	2.5343937	20	12 29.3	19.4
70528 1999 TF ₁₁₆	14.8	X	139.37254	219.40886	215.16476	4.69613	0.0818607	0.26433855	2.4045236	20	4 19.7	18.1
70529 1999 TR ₁₁₆	16.2	X	204.55483	324.75251	16.99818	2.32832	0.2326793	0.26338975	2.4102946	20	3 3.5	20.2
70530 1999 TP ₁₁₇	16.0	X	129.16306	91.65235	331.52609	6.13118	0.1009818	0.26138426	2.4226077	20	3 23.6	19.2
70531 1999 TT ₁₁₉	14.7	X	20.89340	304.92508	5.91641	14.40940	0.1099091	0.23428640	2.6059815	20	10 4.1	17.8
70532 1999 TZ ₁₂₀	16.0	X	52.81735	50.10794	337.70868	2.18089	0.1722231	0.24677562	2.5172975	20	—	—
70533 1999 TD ₁₂₁	15.1	X	106.44453	275.26077	185.75695	6.94938	0.0902370	0.26287609	2.4134334	20	4 16.5	18.1
70534 1999 TR ₁₂₁	15.8	X	38.31047	139.72883	168.08107	3.67250	0.2649975	0.23820673	2.5731102	20	11 18.2	19.2
70535 1999 TU ₁₂₁	14.7	X	138.75953	68.70223	12.90036	6.97154	0.1294490	0.26403890	2.4063425	20	5 1.5	18.1
70536 1999 TV ₁₂₁	14.6	X	258.39555	193.81192	341.29577	5.41293	0.1141023	0.24534126	2.5270994	20	—	—
70537 1999 TB ₁₂₂	15.9	X	326.12598	162.50170	279.39427	2.34687	0.1316947	0.24105670	2.5569559	20	—	—
70538 1999 TD ₁₂₂	14.2	X	83.89224	270.46737	0.14325	6.73252	0.1817957	0.23819130	2.5774215	20	11 9.1	18.2
70539 1999 TR ₁₂₂	15.2	X	301.40363	300.31613	129.57598	3.00758	0.1305990	0.23661947	2.5888233	20	11 5.7	18.0
70540 1999 TS ₁₂₂	15.8	X	46.78226	279.59635	29.80684	10.04166	0.2173672	0.23888275	2.5724455	20	11 23.1	19.5
70541 1999 TW ₁₂₂	15.6	X	312.60884	254.01466	198.47471	13.79676	0.1786649	0.23983595	2.5656251	20	12 27.7	18.3
70542 1999 TK ₁₂₃	15.5	X	168.03773	253.26539	113.44430	3.35228	0.2066446	0.26007327	2.4307422	20	3 4.4	19.3
70543 1999 TQ ₁₂₆	15.5	X	159.31805	117.43127	191.67861	8.44206	0.2390585	0.25388420	2.4700871	20	—	—
70544 1999 TV ₁₂₆	15.2	X	19.58548	210.50993	293.49579	2.99213	0.0765673	0.25696260	2.4503198	20	1 31.0	18.0
70545 1999 TL ₁₂₇	15.5	X	125.93420	189.28185	191.96157	7.27880	0.1575163	0.25556845	2.4592229	20	2 2.3	18.9
70546 1999 TB ₁₂₈	14.8	X	161.40078	275.44497	210.11736	9.50557	0.1682266	0.22485610	2.6783434	20	7 21.0	19.3
70547 1999 TR ₁₃₁	15.0	X	299.72137	209.68728	341.58556	1.70853	0.1459899	0.25487968	2.4636513	20	—	—
70548 1999 TF ₁₃₄	15.3	X	233.17650	195.88877	257.08023	1.82953	0.1783148	0.22957983	2.6414774	20	8 18.8	19.4
70549 1999 TM ₁₃₅	15.5	X	44.85047	296.67406	352.71788	3.61609	0.0769807	0.23403113	2.6078762	20	10 5.2	18.9
70550 1999 TN ₁₃₈	15.6	X	39.05717	58.29305	255.85460	1.49755	0.0820874	0.23601278	2.5932578	20	10 31.8	18.8
70551 1999 TR ₁₃₈	15.1	X	227.53265	3.01268	206.74191	12.94826	0.1065578	0.24596173	2.5228477	20	—	—
70552 1999 TF ₁₃₉	15.3	X	57.60705	176.02716	308.38890	0.78129	0.0660525	0.21072076	2.7968199	20	3 10.2	18.9
70553 1999 TK ₁₃₉	15.0	X	169.93078	318.14396	214.66863	4.29480	0.1073551	0.23188322	2.6239557	20	9 29.8	18.9
70554 1999 TS ₁₃₉	15.8	X	2									

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
70561 1999 TU ₁₄₃	15.8 ^m	X	177.50705	184.68510	272.11616	3.84133	0.0983335	0.27178804	2.3603831	20	7 4.1	19.1
70562 1999 TB ₁₄₅	15.5	X	296.75671	140.83908	239.68187	2.94737	0.0929324	0.23118426	2.6292419	20	8 19.5	18.5
70563 1999 TH ₁₄₇	15.1	X	310.42607	41.67596	41.14746	5.89404	0.1668959	0.23913274	2.5706524	20	12 9.1	17.4
70564 1999 TP ₁₄₇	14.9	X	231.27370	74.56831	33.51766	14.09874	0.0486063	0.23320403	2.6140387	20	9 29.1	18.5
70565 1999 TC ₁₅₀	15.3	X	279.51200	334.02318	145.97600	4.85751	0.1535408	0.23926321	2.5697178	20	12 5.2	18.1
70566 1999 TB ₁₅₁	15.5	X	344.68256	269.93708	14.28230	12.88567	0.2509628	0.22753393	2.6572878	20	6 12.4	17.8
70567 1999 TK ₁₅₁	15.1	X	107.91045	212.67276	56.83649	8.54747	0.0468153	0.23873215	2.5735273	20	11 24.1	18.7
70568 1999 TA ₁₅₃	15.0	X	176.34406	245.63693	191.94079	13.72556	0.2622631	0.21911639	2.7249140	20	6 7.2	19.7
70569 1999 TU ₁₅₃	15.8	X	336.82706	263.71200	144.51504	4.43175	0.1047642	0.23886469	2.5725752	20	12 8.4	18.6
70570 1999 TW ₁₅₄	14.7	X	282.07171	328.41661	128.42359	2.99079	0.0752065	0.23633156	2.5909253	20	11 16.1	17.9
70571 1999 TQ ₁₅₆	14.6	X	146.28392	247.73036	285.17616	13.34142	0.1046353	0.22881579	2.6473542	20	8 30.4	18.9
70572 1999 TA ₁₅₇	15.8	X	130.73032	101.05226	345.26085	5.03654	0.0705561	0.26539755	2.3981229	20	4 21.7	18.9
70573 1999 TD ₁₆₁	15.6	X	154.13759	341.36151	259.81939	2.56517	0.0834387	0.24266916	2.5456166	20	12 11.2	19.3
70574 1999 TR ₁₆₁	15.6	X	90.29671	124.04710	139.94339	3.03162	0.0855670	0.23649631	2.5897219	20	11 1.4	19.2
70575 1999 TZ ₁₆₁	15.0	X	12.89200	43.76265	103.73651	3.79852	0.1458916	0.25473671	2.4645731	20	1 21.1	17.4
70576 1999 TP ₁₆₂	15.8	X	34.94978	47.85156	236.31853	4.80357	0.2236671	0.23527282	2.5986924	20	10 6.7	19.0
70577 1999 TK ₁₆₃	15.1	X	215.42934	53.74129	140.68148	4.94804	0.1218052	0.24152752	2.5536319	20	12 16.6	18.7
70578 1999 TF ₁₆₄	15.3	X	297.59477	192.07027	184.26287	13.38810	0.0871832	0.22807797	2.6530605	20	8 13.7	18.7
70579 1999 TM ₁₆₄	15.7	X	181.42717	0.77788	226.05773	10.19407	0.0129400	0.24325482	2.5415290	20	12 29.4	19.2
70580 1999 TN ₁₆₄	15.1	X	96.75834	280.40248	221.43198	8.70167	0.2446841	0.21594122	2.7515602	20	6 18.7	19.4
70581 1999 TJ ₁₆₅	15.4	X	248.60912	346.61017	344.97137	8.01195	0.1893999	0.26798535	2.3826597	20	3 27.2	19.1
70582 1999 TR ₁₆₅	15.3	X	53.27206	285.24588	268.77332	5.85360	0.1314440	0.26977884	2.3720880	20	6 16.6	17.8
70583 1999 TA ₁₆₈	14.8	X	299.04270	31.03189	214.91510	7.29331	0.2026020	0.26505673	2.4001782	20	1 28.9	18.3
70584 1999 TJ ₁₆₈	15.0	X	108.64944	4.46145	226.79262	5.89456	0.1135763	0.23502022	2.6005541	20	10 10.8	18.9
70585 1999 TA ₁₇₀	15.4	X	17.36703	171.65491	11.66541	2.14950	0.1352241	0.26186169	2.4196622	20	3 22.9	17.3
70586 1999 TE ₁₇₀	15.2	X	102.16585	130.48012	12.92083	8.32491	0.0117794	0.22043464	2.7140395	20	5 25.0	19.0
70587 1999 TF ₁₇₀	15.1	X	314.59270	305.31817	5.48064	5.33708	0.0508522	0.22388685	2.6860679	20	6 15.4	18.5
70588 1999 TA ₁₇₃	15.4	X	234.37775	313.10136	96.03999	4.23837	0.0765606	0.22350962	2.6890894	20	7 6.1	19.2
70589 1999 TO ₁₇₃	15.8	X	57.04209	358.85846	301.25476	3.04498	0.1780085	0.23780330	2.5802243	20	11 18.8	19.4
70590 1999 TY ₁₇₃	15.8	X	352.56641	264.99697	99.32472	2.36307	0.1736800	0.23483670	2.6019088	20	11 6.4	18.6
70591 1999 TU ₁₇₅	15.5	X	60.02584	120.08608	14.20776	7.19354	0.1317940	0.25835311	2.4415198	20	3 31.3	18.1
70592 1999 TD ₁₇₇	15.2	X	169.11003	12.84264	35.52710	3.87778	0.0944730	0.21501518	2.7594549	20	4 22.4	19.2
70593 1999 TD ₁₇₈	14.5	X	55.52054	64.16123	213.39863	13.92898	0.0582870	0.22987786	2.6391938	20	9 28.4	18.0
70594 1999 TH ₁₇₈	15.2	X	18.91869	253.04058	276.60473	5.66693	0.0856767	0.21200852	2.7854830	20	3 9.3	18.7
70595 1999 TR ₁₈₀	13.9	X	343.74554	42.54159	109.44204	3.94501	0.1147609	0.20201568	2.8765990	20	—	—
70596 1999 TV ₁₈₀	15.8	X	50.03042	183.97435	179.43808	5.48090	0.1950231	0.24207995	2.5497455	20	—	—
70597 1999 TE ₁₈₂	14.9	X	173.95159	148.01658	0.57516	17.50453	0.1947227	0.23018112	2.6368752	20	9 5.8	19.4
70598 1999 TP ₁₈₅	15.2	X	82.56431	338.47770	326.71611	13.89007	0.2532513	0.24311758	2.5424854	20	12 29.2	19.7
70599 1999 TC ₁₈₆	13.9	X	298.16554	163.14347	336.04837	16.13455	0.1416562	0.19656206	2.9295635	20	—	—
70600 1999 TC ₁₈₇	15.0	X	219.19492	176.63213	276.41661	10.64755	0.1451166	0.22731038	2.6590298	20	8 4.9	19.2
70601 1999 TM ₁₈₇	15.4	X	12.86666	207.44085	300.71972	5.15196	0.0564306	0.25602908	2.4562723	20	1 27.5	18.2
70602 1999 TD ₁₈₈	14.4	X	166.69314	272.94141	297.18240	11.02096	0.0923181	0.23759259	2.5817496	20	11 11.5	18.5
70603 1999 TA ₁₈₉	14.9	X	70.89851	4.59918	254.66027	14.52747	0.0901064	0.23223203	2.6213276	20	9 24.9	18.9
70604 1999 TA ₁₉₀	14.8	X	5.95323	19.26790	274.11650	11.13694	0.1483588	0.22888378	2.6468299	20	8 13.5	17.7
70605 1999 TN ₁₉₁	15.6	X	11.69724	90.75513	246.92445	10.67569	0.1934508	0.23569331	2.5956007	20	11 8.6	18.4
70606 1999 TC ₁₉₅	15.5	X	161.97837	38.98663	24.64590	5.60324	0.0303988	0.21579254	2.7528239	20	4 29.9	19.4
70607 1999 TU ₁₉₅	14.6	X	246.65423	262.56297	272.52056	8.78287	0.1533147	0.23995575	2.5647711	20	12 26.7	17.8
70608 1999 TC ₁₉₇	15.4	X	296.02557	318.12856	32.90106	6.76832	0.0205570	0.22348532	2.6892843	20	7 20.2	19.0
70609 1999 TF ₁₉₈	15.6	X	307.07645	13.61262	330.91213	3.39259	0.2244617	0.22665850	2.6641257	20	6 26.7	18.5
70610 1999 TH ₁₉₈	14.8	X	2.66493	331.17854	36.93923	22.76373	0.0669634	0.23469457	2.6029592	20	11 14.5	18.2
70611 1999 TB ₁₉₉	15.5	X	77.19693	349.05587	356.17376	3.57530	0.1510142	0.24415727	2.5352625	20	—	—
70612 1999 TH ₂₀₀	15.4	X	303.86753	65.83141	22.30919	13.04186	0.1178897	0.23655419	2.5892995	20	12 2.3	18.4
70613 1999 TG ₂₀₁	16.1	X	351.85926	125.09890	264.02915	2.10278	0.0708810	0.24133213	2.5550101	20	12 3.1	19.1
70614 1999 TF ₂₀₄	15.2	X	150.30583	81.63412	350.47781	4.18187	0.0837419	0.21439060	2.7648117	20	4 30.0	19.4
70615 1999 TZ ₂₀₄	15.1	X	161.07958	164.14196	302.76920	2.75003	0.0538660	0.22090661	2.7101723	20	6 26.7	19.0
70616 1999 TD ₂₀₅	16.2	X	86.91848	304.89956	17.89389	4.00535	0.2474448	0.24417512	2.5351390	20	—	—
70617 1999 TN ₂₀₉	14.4	X	70.48431	197.51465	301.07625	13.71854	0.0929709	0.21128853	2.7918073	20	4 12.7	18.3
70618 1999 TP ₂₀₉	14.6	X	12.11557	323.07166	307.98660	13.30621	0.0857050	0.22290609	2.6939411	20	7 22.6	17.6
70619 1999 TY ₂₁₁	15.4	X	39.27185	140.82913	20.40490	9.57087	0.1437963	0.25915752	2.4364650	20	4 3.9	17.5
70620 1999 TF ₂₁₃	15.2	X	65.01167	151.12249	354.99806	6.17856	0.0663338	0.26420423	2.4053385	20	4 13.2	17.9
70621 1999 TC ₂₁₄	15.5	X	152.01760	284.34343	175.60084	3.99684	0.1750330	0.21914809	2.7246513	20	6 12.9	19.9
70622 1999 TO ₂₁₅	15.2	X	239.81185	307.20706	119.54475	2.80601	0.0780946	0.22747047	2.6577821	20	8 5.8	18.9
70623 1999 TP ₂₁₅	14.2	X	308.52669	80.06041	54.07169	6.48044	0.0411874	0.24586346	2.5235198	20	—	—
70624 1999 TS ₂₁₅	15.8	X	31.07926	161.03564	166.82301	4.11917	0.2806630	0.23872127	2.5736055	20	12 9.4	19.2
70625 1999 TA ₂₁₆	15.0	X	147.45681	355.46428	192.29010	13.24452	0.0899982	0.23156246	2.6263783	20	9 25.5	19.0
70626 1999 TL ₂₁₆	15.3	X	188.64890	334.60752	77.36902	4.58378	0.0632488	0.21912773	2.7248201	20	5 18.4	19.3
70627 1999 TU ₂₁₆	15.9	X	351.76732	28.05227	12.86398	5.41114	0.1262706	0.23866136	2.5740362	20	12 24.8	18.9
70628 1999 TE ₂₁₇	14.3	X	89.18431	123.53515	44.31406	4.41064	0.0393878	0.22076526	2.7113290	20	6 15.8	17.9
70629 1999 TC ₂₁₈	16.2	X	55.38349	161.93407	189.37124	5.29411	0.2131429	0.24189769	2.5510261	20	—	—
70630 1999 TJ ₂₁₉	15.0	X	121.54672	159.03882	329.21012	6.84612	0.0792475	0.26864920	2.3787329	20	6 9.8	18.4
70631 1999 TY ₂₁₉	14.9	X	44.94333	284.37964	350.22602	12.96730	0.1893348	0.23414980	2.6069949	20	9 30.7	18.2
70632 1999 TN ₂₂₀	15.0	X	9.04154	297.45073	347.46697	10.65724	0.1814799	0.23010635	2.6374464	20	8 18.9	17.6
70633 1999 TG ₂₂₃	15.1	X	174.47291	96.31843	23.00169	13.44689	0.0505787	0.22381024	2.6866808	20	8 3.9	19.2

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
70641 1999 <i>TS</i> ₂₄₀	15.4	X	298.90412	342.28294	94.24736	8.51128	0.0693307	0.23672676	2.5880409	20	11 16.4	18.6
70642 1999 <i>TD</i> ₂₄₂	15.4	X	348.28295	292.76168	166.90689	13.44501	0.0962888	0.24439844	2.5335944	20	—	—
70643 1999 <i>TE</i> ₂₄₂	14.8	X	337.34727	358.99191	77.70557	15.18526	0.0467057	0.24103322	2.5571220	20	—	—
70644 1999 <i>TU</i> ₂₄₂	15.1	X	28.52151	214.24054	145.90243	8.36327	0.0675498	0.23825785	2.5769415	20	12 16.1	18.6
70645 1999 <i>TE</i> ₂₄₃	15.5	X	40.58544	220.81872	169.51290	11.68116	0.2166281	0.24347274	2.5400123	20	—	—
70646 1999 <i>TE</i> ₂₄₄	15.8	X	194.02092	280.72164	10.07099	5.97727	0.1216790	0.25595508	2.4567458	20	—	—
70647 1999 <i>TN</i> ₂₄₄	15.5	X	139.96442	141.60044	13.07961	7.98654	0.0558857	0.27596266	2.3365182	20	8 11.7	18.7
70648 1999 <i>TY</i> ₂₄₅	15.2	X	74.98162	180.66983	159.39960	14.21819	0.1769030	0.24275695	2.5450028	20	—	—
70649 1999 <i>TB</i> ₂₄₆	15.1	X	204.16173	273.79029	172.28451	7.51250	0.2120460	0.22206026	2.7007776	20	7 9.7	19.8
70650 1999 <i>TM</i> ₂₄₇	15.1	X	87.16221	331.92144	97.88912	4.87498	0.1039868	0.25398809	2.4694135	20	2 10.3	18.0
70651 1999 <i>TV</i> ₂₄₈	15.1	X	339.37521	175.74536	205.63218	11.56654	0.1746299	0.23396779	2.6083468	20	11 9.3	17.5
70652 1999 <i>TB</i> ₂₄₉	14.8	X	98.34053	207.64759	210.85345	14.87254	0.1294794	0.20527068	2.8461084	20	2 15.6	19.0
70653 1999 <i>TP</i> ₂₅₄	14.1	X	91.27233	150.38119	80.21718	14.63240	0.0634546	0.23076331	2.6324383	20	9 24.4	18.1
70654 1999 <i>TR</i> ₂₅₅	15.6	X	194.33070	7.39556	188.03699	2.74804	0.1088783	0.24329671	2.5412373	20	11 26.0	19.3
70655 1999 <i>TR</i> ₂₅₆	15.3	X	303.50347	211.30253	5.35737	6.43542	0.1139298	0.25953184	2.4341217	20	1 13.5	18.5
70656 1999 <i>TF</i> ₂₅₇	15.6	X	205.12111	310.96613	304.81665	5.11658	0.1350719	0.25427102	2.4675813	20	—	—
70657 1999 <i>TF</i> ₂₅₈	15.6	X	189.62361	195.30206	25.89713	4.59335	0.105667	0.24336202	2.5407827	20	—	—
70658 1999 <i>TZ</i> ₂₆₀	15.9	X	261.55839	151.93020	159.52675	2.68739	0.2243760	0.27090064	2.3655349	20	3 13.1	19.3
70659 1999 <i>TZ</i> ₂₆₅	15.2	X	108.96189	15.48750	247.84205	11.96471	0.2428254	0.24369318	2.5384803	20	11 28.6	19.4
70660 1999 <i>TV</i> ₂₇₀	15.2	X	186.09676	141.10445	274.99394	8.53852	0.0693126	0.21953402	2.7214572	20	5 19.1	19.3
70661 1999 <i>TS</i> ₂₇₄	16.2	X	220.30032	121.88611	189.12994	1.97317	0.1911407	0.26515836	2.3995649	20	2 7.2	20.2
70662 1999 <i>TR</i> ₂₈₂	15.3	X	45.73536	121.10759	159.81530	4.68369	0.1275408	0.23290292	2.6162913	20	10 4.8	18.6
70663 1999 <i>TG</i> ₂₈₄	15.1	X	155.48140	279.28382	177.75964	8.53232	0.1160610	0.21829454	2.7317491	20	6 10.5	19.4
70664 1999 <i>TE</i> ₂₈₆	16.2	X	209.56030	352.41892	311.47494	6.26037	0.1078612	0.25928260	2.4356813	20	1 21.7	19.9
70665 1999 <i>TF</i> ₂₈₆	15.8	X	106.69905	140.69787	267.73599	5.38086	0.0590879	0.25727828	2.4483150	20	1 30.0	19.0
70666 1999 <i>TW</i> ₂₈₆	15.1	X	170.10338	241.73671	212.16189	21.00174	0.0588266	0.22214255	2.7001105	20	6 18.3	19.4
70667 1999 <i>TJ</i> ₂₈₇	15.5	X	1.07171	188.13763	294.48928	3.15978	0.1047901	0.25116476	2.4878847	20	—	—
70668 1999 <i>TB</i> ₂₈₈	15.5	X	104.78405	252.18399	52.38468	5.81903	0.1653560	0.24405842	2.5359471	20	—	—
70669 1999 <i>TT</i> ₂₉₀	15.4	X	352.19033	206.89412	143.67312	4.89169	0.1424495	0.23227006	2.6210414	20	10 18.2	18.1
70670 1999 <i>TT</i> ₂₉₀	14.3	X	83.41655	59.39050	95.02324	8.95752	0.1790594	0.21335209	2.7737764	20	6 14.3	18.1
70671 1999 <i>TC</i> ₂₉₁	15.7	X	4.13592	232.27520	172.03496	9.82006	0.1615061	0.23886402	2.5725800	20	—	—
70672 1999 <i>TM</i> ₂₉₃	15.0	X	307.50376	167.95406	337.65532	4.59349	0.2164353	0.24279149	2.5447614	20	—	—
70673 1999 <i>TR</i> ₃₁₂	14.6	X	276.64845	4.16918	72.51865	16.01087	0.0558332	0.23526390	2.5987581	20	10 21.0	18.1
70674 1999 <i>TD</i> ₃₂₀	15.6	X	113.47293	129.03627	317.92570	5.79870	0.0585588	0.26175355	2.4203286	20	3 28.9	18.8
70675 1999 <i>TY</i> ₃₂₁	14.3	X	138.54711	218.86117	8.54536	15.03530	0.0798135	0.23425044	2.6062482	20	11 1.4	18.3
70676 1999 <i>UM</i>	16.0	X	105.55300	91.76416	5.30974	2.48024	0.1455194	0.26076368	2.4264498	20	4 16.7	19.2
70677 1999 <i>UU</i>	15.1	X	16.89071	146.04754	214.07390	14.21826	0.1960792	0.23752631	2.5822299	20	12 18.1	18.5
70678 1999 <i>UB</i> ₂	15.3	X	227.25613	277.83475	88.90626	6.59746	0.0892484	0.21931647	2.7232565	20	5 3.8	19.3
70679 <i>Urzdil</i>	16.3	X	296.79835	155.93546	222.38710	4.77623	0.2133872	0.23064170	2.6333636	20	7 28.3	19.3
70680 1999 <i>UN</i> ₄	13.8	X	298.17871	74.28452	23.96363	14.50888	0.1498516	0.23737872	2.5833001	20	12 4.2	16.7
70681 1999 <i>US</i> ₄	14.9	X	22.80103	149.79636	114.86155	3.45091	0.0289009	0.22636050	2.6664634	20	7 24.6	18.2
70682 1999 <i>UN</i> ₈	14.7	X	18.96208	277.61143	41.23872	13.18080	0.1487762	0.23284623	2.6167159	20	10 21.1	17.7
70683 1999 <i>UT</i> ₈	14.1	X	167.20868	279.79437	228.58228	23.52847	0.2167869	0.22416310	2.6838607	20	8 16.7	19.3
70684 1999 <i>UD</i> ₉	14.6	X	300.10305	265.78431	45.81393	7.81890	0.0667597	0.21998032	2.7177750	20	5 23.4	18.0
70685 1999 <i>UR</i> ₁₂	14.3	X	292.58116	36.40545	13.47130	15.11744	0.1666411	0.23355068	2.6114515	20	9 19.3	17.1
70686 1999 <i>UK</i> ₁₄	15.7	X	304.58479	302.60504	175.36788	4.63868	0.1913205	0.24032840	2.5621191	20	—	—
70687 1999 <i>UE</i> ₁₅	15.8	X	44.01884	295.76236	46.07087	6.43969	0.2612531	0.24090891	2.5580016	20	—	—
70688 1999 <i>UZ</i> ₁₅	15.2	X	276.32913	241.56833	89.03514	2.35716	0.0871291	0.22080973	2.7109650	20	5 14.3	18.7
70689 1999 <i>UU</i> ₁₆	15.4	X	269.64858	78.95352	29.98723	6.39764	0.1631985	0.23487656	2.6016144	20	10 30.3	18.3
70690 1999 <i>UF</i> ₁₇	14.7	X	220.15619	280.87840	227.69966	12.79306	0.0973520	0.23448132	2.6045371	20	10 25.3	18.4
70691 1999 <i>UH</i> ₁₈	15.4	X	216.79227	286.55622	42.48449	7.03617	0.1476358	0.26278668	2.4139808	20	3 2.1	19.2
70692 1999 <i>UY</i> ₁₉	15.7	X	10.46777	178.73566	190.77282	13.16738	0.1350632	0.24090233	2.5580482	20	12 13.8	19.0
70693 1999 <i>UR</i> ₂₃	14.7	X	253.81009	111.82758	331.75302	6.50652	0.0781750	0.28096295	2.3087133	20	9 21.9	17.4
70694 1999 <i>US</i> ₂₃	14.8	X	113.36098	220.01907	234.45024	5.55365	0.0817929	0.26381630	2.4076959	20	4 12.9	17.9
70695 1999 <i>UL</i> ₂₅	14.8	X	259.52192	232.80770	257.56679	3.02228	0.0698460	0.24066833	2.5597060	20	11 28.6	17.8
70696 1999 <i>UA</i> ₂₆	14.9	X	43.41177	267.97022	12.67655	12.93845	0.0414128	0.23160391	2.6260649	20	9 19.3	18.3
70697 1999 <i>UR</i> ₂₆	14.7	X	300.23104	272.25428	15.38605	12.56643	0.1667131	0.22036505	2.7146108	20	4 6.2	18.2
70698 1999 <i>UU</i> ₂₆	15.1	X	26.26959	311.27484	17.10029	15.47225	0.1013862	0.23585459	2.5944173	20	11 1.2	18.4
70699 1999 <i>US</i> ₂₇	15.6	X	1.69575	1.25783	207.83869	2.11705	0.1168679	0.26706500	2.3881305	20	3 30.8	18.0
70700 1999 <i>UQ</i> ₂₈	15.0	X	195.31308	323.80526	30.90441	8.40418	0.0240214	0.26212809	2.4180225	20	3 12.6	18.2
70701 1999 <i>UT</i> ₃₄	15.9	X	335.91686	275.37316	206.68661	2.89861	0.1297151	0.24573273	2.5244148	20	—	—
70702 1999 <i>UQ</i> ₃₆	15.8	X	9.87248	172.07610	324.14490	2.82621	0.1526713	0.25611214	2.4557413	20	—	—
70703 1999 <i>UO</i> ₃₈	14.3	X	118.42678	213.36826	334.88209	6.47646	0.0453096	0.27644534	2.3337976	20	8 27.2	17.3
70704 1999 <i>UG</i> ₃₉	15.0	X	61.22371	128.87586	242.39186	13.52952	0.0593896	0.24436812	2.5338040	20	—	—
70705 1999 <i>UK</i> ₄₀	15.7	X	35.12100	84.28465	215.62142	13.85146	0.1343667	0.23434120	2.6055752	20	10 14.2	19.0
70706 1999 <i>UM</i> ₄₁	15.7	X	179.04892	126.02902	351.75082	3.89853	0.0253074	0.22641738	2.6660167	20	8 3.8	19.3
70707 1999 <i>UC</i> ₄₂	14.9	X	181.11115	219.08030	251.85524	6.55373	0.0264690	0.22666804	2.6640509	20	7 25.3	18.7
70708 1999 <i>UR</i> ₄₃	14.5	X	221.88530	253.79577	235.85945	23.29076	0.2891022	0.22983662	2.6395095	20	9 3.5	19.4
70709 1999 <i>UB</i> ₄₄	14.7	X	86.29616	227.11156	281.34021	3.77594	0.1014353	0.21598459	2.7511918	20	5 26.0	18.4
70710 <i>Chuckfellows</i>	15.1	X	293.10993	157.79717	319.84725	4.00898	0.0523291	0.24009336	2.5637910	20	—	—
70711 <i>Arlinbartels</i>	15.5	X	162.00568	314.84745	112.43635	3.16601	0.1908072	0.26370916	2.4083480	20	5 12.7	19.3
70712 <i>DanielJoanna</i>	16.0	X	283.53436	21.54444	2.44309	12.06610	0.1924485	0.22789100	2.6545114	20</		

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
70721 1999 VD	15.9 ^m	X	29.61456	192.92720	159.98607	5.34730	0.1037139	0.23787361	2.5797159	20	12 13.3	19.3
70722 1999 VY	15.9	X	326.25946	50.72684	18.43475	7.55413	0.2009739	0.23913296	2.5706508	20	12 25.3	18.3
70723 1999 VK ₁	15.1	X	351.55848	14.83471	49.88136	4.19594	0.0719147	0.24129559	2.5552680	20	—	—
70724 1999 VS ₁	15.1	X	229.99066	164.63993	227.70243	7.24947	0.1733942	0.22047657	2.7136953	20	5 30.5	19.5
70725 1999 VH ₂	14.5	X	339.22617	77.87613	319.76940	2.74617	0.1670964	0.23613215	2.5923838	20	12 1.1	17.0
70726 1999 VS ₂	15.4	X	55.08192	254.07657	37.53277	14.34855	0.1959135	0.23393339	2.6086025	20	11 7.2	19.0
70727 1999 VX ₃	14.9	X	93.09327	354.35130	220.86031	12.75158	0.0951388	0.22446463	2.6814566	20	8 26.7	19.0
70728 Gal-Edd	15.1	X	201.09984	283.66807	97.90966	3.15371	0.2328530	0.26593055	2.3949175	20	4 19.1	19.2
70729 1999 VU ₄	14.7	X	267.96125	275.17104	40.06063	5.61201	0.0415302	0.21682913	2.7440434	20	4 20.0	18.5
70730 1999 VN ₅	14.9	X	336.09545	181.72828	226.50097	7.25949	0.1900121	0.23645260	2.5900411	20	12 13.2	17.3
70731 1999 VA ₆	14.9	X	180.53053	224.38601	229.75122	12.51883	0.2251100	0.21818510	2.7326624	20	6 28.9	19.8
70732 1999 VG ₆	15.1	X	30.43170	142.42401	234.38132	2.96223	0.2769514	0.24037522	2.5617864	20	—	—
70733 1999 VV ₆	15.1	X	176.02514	296.43220	68.51782	3.37164	0.2098994	0.25909554	2.4368535	20	3 9.8	19.2
70734 1999 VS ₈	15.2	X	358.21066	277.92637	120.45002	13.58225	0.2114415	0.23798630	2.5789014	20	—	—
70735 1999 VZ ₈	14.2	X	355.49881	348.15582	84.07722	13.44223	0.2352150	0.24302985	2.5430973	20	—	—
70736 1999 VM ₁₀	14.5	X	274.01977	9.58239	85.24759	8.42763	0.2902665	0.23114499	2.6295397	20	10 1.2	17.7
70737 Stenflo	15.3	X	287.28427	137.10272	220.86031	4.75850	0.2221060	0.22885529	2.6470496	20	7 24.7	18.5
70738 1999 VF ₁₁	15.4	X	354.67650	114.54322	221.96904	13.61117	0.2037424	0.23229235	2.6208738	20	10 3.3	18.0
70739 1999 VN ₁₇	15.7	X	30.61095	291.86170	284.68357	1.88188	0.1603208	0.22013728	2.7164830	20	6 12.8	18.5
70740 1999 VG ₁₈	15.8	X	293.57264	74.01785	287.94666	1.55814	0.1493313	0.22726014	2.6594216	20	7 11.3	18.7
70741 1999 VO ₁₈	14.9	X	216.31904	116.73616	305.16435	1.65484	0.0490849	0.22344332	2.6896213	20	7 3.9	18.6
70742 1999 VF ₁₉	15.5	X	270.44299	211.71985	233.48943	3.35669	0.1453868	0.23091966	2.6312500	20	9 30.0	18.6
70743 1999 VG ₁₉	14.7	X	138.63138	206.42133	229.68671	9.84662	0.1307059	0.21140445	2.7907866	20	4 27.2	19.0
70744 Maffucci	14.8	X	152.57458	144.44901	255.67261	10.51298	0.1601974	0.26093293	2.4254004	20	3 22.4	18.7
70745 Aleserpi	14.5	X	3.00286	325.58779	71.71345	10.44943	0.0595838	0.23841701	2.5757946	20	12 27.7	17.7
70746 1999 VQ ₂₂	13.9	X	333.07096	222.87088	234.71704	11.90719	0.1458668	0.24264230	2.5458044	20	—	—
70747 1999 VT ₂₂	13.9	X	240.57791	117.49434	328.54561	8.52496	0.1419705	0.22795368	2.6540248	20	8 23.3	17.6
70748 1999 VV ₂₂	13.7	X	94.41928	316.85009	221.34374	36.24734	0.1333989	0.21585081	2.7523285	20	7 8.7	18.5
70749 1999 VS ₂₃	14.9	X	7.94457	316.76267	121.89688	4.21383	0.1841273	0.24440430	2.5335540	20	—	—
70750 1999 VJ ₂₄	13.7	X	116.72258	352.92865	48.71447	10.36546	0.2054143	0.25555025	2.4593396	20	3 2.8	17.3
70751 1999 VZ ₂₄	13.7	X	160.33625	15.96071	77.03035	10.42659	0.1366251	0.21534310	2.7566528	20	6 10.2	17.8
70752 1999 VB ₂₅	14.6	X	254.75624	306.88388	90.71785	13.91606	0.1689388	0.22250317	2.6971923	20	7 3.0	18.4
70753 1999 VL ₂₆	15.2	X	312.41625	326.73111	73.46165	3.10972	0.1225751	0.23174413	2.6250055	20	10 13.7	17.9
70754 1999 VO ₂₆	14.5	X	245.47124	332.93513	61.15626	3.72319	0.0960577	0.22166954	2.7039503	20	6 27.1	18.3
70755 1999 VB ₂₇	15.2	X	198.00410	268.52826	226.39918	1.44234	0.1477326	0.22637197	2.6663733	20	9 7.9	19.5
70756 1999 VV ₂₈	14.4	X	310.88651	235.71714	237.44937	7.44524	0.0782170	0.24029611	2.5623486	20	—	—
70757 1999 VL ₂₉	14.3	X	141.06526	138.71273	55.93072	9.88514	0.0690369	0.22856535	2.6492877	20	10 2.1	18.3
70758 1999 VB ₃₀	14.8	X	147.43050	290.77023	22.78369	2.91321	0.1467097	0.22211960	2.7002965	20	8 13.0	19.1
70759 1999 VP ₃₀	14.7	X	272.31748	95.33496	233.91304	15.43365	0.1697485	0.21898180	2.7260304	20	4 23.6	18.7
70760 1999 VJ ₃₁	14.6	X	250.04691	287.28201	63.84518	10.55166	0.1527930	0.26619769	2.3933150	20	5 1.2	18.0
70761 1999 VP ₃₂	15.2	X	213.05773	242.70358	238.91053	13.19052	0.0388705	0.22849791	2.6498089	20	9 13.2	19.2
70762 1999 VZ ₃₂	14.7	X	41.29078	304.91768	239.91744	6.78468	0.1565918	0.21212948	2.7844240	20	5 16.7	17.8
70763 1999 VA ₃₃	14.8	X	285.25027	271.31427	228.97119	0.81814	0.1543905	0.19102069	2.9859494	20	12 24.9	18.4
70764 1999 VH ₃₃	15.3	X	318.30359	97.77214	240.16088	11.87035	0.1922033	0.22626541	2.6672104	20	7 11.2	18.2
70765 1999 VK ₃₃	15.4	X	248.80525	47.74884	63.67433	1.44932	0.2331182	0.22998836	2.6383484	20	9 23.9	19.1
70766 1999 VO ₃₃	15.1	X	208.26839	272.64652	211.48156	2.62845	0.0296935	0.22806720	2.6531441	20	9 16.5	18.8
70767 1999 VP ₃₃	14.3	X	235.89237	307.20502	238.16198	12.37391	0.0687169	0.19115227	2.9845790	20	12 23.8	18.6
70768 1999 VS ₃₅	14.1	X	77.16433	233.90641	67.42104	15.51140	0.1025122	0.23522031	2.5990792	20	12 3.4	17.8
70769 1999 VL ₃₆	14.6	X	147.93720	197.34766	237.68486	3.07828	0.1054129	0.21275840	2.7789341	20	5 3.9	18.7
70770 1999 VN ₃₆	14.6	X	322.69830	64.20518	59.48171	7.64295	0.3015310	0.23917295	2.5703643	20	—	—
70771 1999 VA ₃₇	13.6	X	238.81915	116.35949	67.89695	17.72707	0.1050154	0.23774172	2.5806699	20	—	—
70772 1999 VV ₃₇	15.4	X	20.47880	14.87160	57.90385	5.86875	0.2263880	0.24337092	2.5407207	20	—	—
70773 1999 VK ₃₇	14.8	X	125.32506	233.11810	240.53982	3.97533	0.1152708	0.21343532	2.7730553	20	5 29.9	19.0
70774 1999 VS ₃₇	13.8	X	170.82282	110.75637	72.57427	4.83991	0.1190111	0.18036176	3.1024615	20	10 9.9	18.7
70775 1999 VO ₃₈	15.2	X	26.71286	329.41522	70.89316	5.13917	0.1181789	0.24151689	2.5537069	20	—	—
70776 1999 VH ₃₉	14.8	X	198.13079	230.37715	255.90278	2.61854	0.0188211	0.22680068	2.6630122	20	9 6.8	18.5
70777 1999 VG ₄₀	14.3	X	176.14250	129.09714	182.31291	1.73105	0.0904128	0.19575667	2.9375933	20	1 4.9	18.7
70778 1999 VH ₄₀	14.5	X	235.56534	109.08306	16.76861	2.65831	0.0279194	0.23340206	2.6125599	20	10 25.6	18.0
70779 1999 VT ₄₁	15.0	X	10.97021	276.13248	35.00958	15.01898	0.0888131	0.23254330	2.6189879	20	9 23.8	18.3
70780 1999 VD ₄₃	15.1	X	149.92412	345.61064	88.18236	3.94336	0.0501154	0.21413239	2.7670339	20	5 1.9	19.0
70781 Donnelly	15.4	X	241.07949	68.09661	10.89736	3.21337	0.1289339	0.22907569	2.6453514	20	8 17.8	19.2
70782 Vincefliott	15.2	X	340.84781	325.67678	35.71636	2.91941	0.1263554	0.23437098	2.6053545	20	10 10.3	17.7
70783 Kenwilliams	14.8	X	301.47500	51.39565	352.74266	3.56421	0.1314734	0.23280669	2.6170122	20	9 26.9	17.7
70784 1999 VO ₄₅	15.5	X	213.32101	270.04629	0.90840	4.30539	0.1029255	0.25281063	2.4770750	20	—	—
70785 1999 VW ₄₆	14.7	X	97.73333	324.87852	218.72566	23.60076	0.1960171	0.26993239	2.3711884	20	8 2.5	18.8
70786 1999 VY ₄₆	14.4	X	27.00718	275.29308	43.62413	19.39775	0.1456690	0.23459987	2.6036596	20	11 1.3	17.5
70787 1999 VE ₄₇	14.4	X	36.65479	332.27339	50.94469	14.50736	0.1617635	0.24253955	2.5465234	20	—	—
70788 1999 VQ ₄₇	14.4	X	12.87212	331.91041	350.94453	8.92264	0.1225742	0.23269944	2.6178162	20	10 7.9	17.5
70789 1999 VF ₄₉	14.5	X	224.14889	205.99745	236.85502	13.94912	0.0783313	0.22569822	2.6716771	20	8 1.8	18.6
70790 1999 VS ₄₉	15.3	X	198.80105	114.15940	281.21181	4.79478	0.1057744	0.21686084	2.7437759	20	5 5.4	19.6
70791 1999 VX ₄₉	15.8	X	328.56423	142.92428	277.76549	1.11428	0.1464273	0.23684014	2.5872150	20	12 12.7	18.3
70792 1999 VK ₅₀	15.3	X	216.85717	121.40701	23.48383	3.99152	0.0997743	0.23126868	2.6286020	20	10 16.9	19.1
70793 1999 VU ₅₀	14.1	X	155.84171	54.64531	45.26213	8.58640	0.0527151	0.21772923	2.7364755	20	6 10.1	18.0
70794 1999 VX ₅₁	14.4	X	182.09744	212.64641	42.87981	6.61844	0.1264198	0.24427422	2.5344533	20	—	—
70795 1999 VF ₅₃	14.7	X										

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
70801 1999 VF ₆₁	15.4	X	202.78591	319.70201	57.00796	3.20918	0.2111893	0.26463269	2.4027415	20	4 14.1	19.3
70802 1999 VV ₆₁	15.0	X	356.41153	282.71997	226.97962	4.32815	0.0654484	0.20468297	2.8515538	20	1 13.9	18.6
70803 1999 VH ₆₂	14.9	X	144.23525	233.69157	223.05941	4.03905	0.0823950	0.21700749	2.7425395	20	5 26.5	18.9
70804 1999 VL ₆₂	15.9	X	228.50468	198.79522	210.75028	2.00931	0.1797740	0.22254025	2.6968927	20	6 19.1	20.2
70805 1999 VV ₆₂	15.5	X	274.53319	352.38811	52.88546	10.87071	0.1772036	0.22813097	2.6526496	20	8 12.5	19.1
70806 1999 VD ₆₄	14.7	X	277.86282	45.42095	49.75837	13.21381	0.1642697	0.23389096	2.6089180	20	10 27.2	17.7
70807 1999 VK ₆₄	15.1	X	279.29151	278.94490	52.74767	11.24260	0.0394406	0.21954472	2.7213687	20	5 25.7	18.7
70808 1999 VF ₆₆	15.3	X	196.16902	5.82619	53.26663	10.42005	0.1860981	0.21889483	2.7267525	20	5 30.9	20.0
70809 1999 VJ ₆₈	15.6	X	27.96632	129.53666	226.28909	5.51858	0.1431946	0.23745083	2.5827771	20	12 20.1	18.9
70810 1999 VM ₆₈	14.7	X	326.16651	283.77969	59.21243	13.04765	0.2248530	0.22851721	2.6496598	20	8 11.9	17.3
70811 1999 VO ₆₈	14.5	X	323.56693	277.51839	67.05366	10.48705	0.1454290	0.22683402	2.6627512	20	8 14.3	17.5
70812 1999 VB ₆₉	15.4	X	11.04356	89.30238	220.63792	11.00249	0.1771437	0.23170808	2.6252778	20	9 22.8	18.3
70813 1999 VR ₆₉	15.0	X	312.59993	342.26056	44.12639	9.03531	0.1691274	0.23162683	2.6258917	20	9 23.3	17.6
70814 1999 VT ₇₁	15.6	X	17.61971	164.02830	198.81525	1.99852	0.1252215	0.23688482	2.5868896	20	12 12.4	18.7
70815 1999 VR ₇₂	14.8	X	351.38625	330.93143	59.83037	9.75710	0.1865719	0.23729140	2.5839338	20	12 17.1	17.4
70816 1999 VY ₇₃	15.6	X	23.09753	182.46157	185.98776	5.90254	0.0656867	0.24075496	2.5590920	20	12 19.4	18.9
70817 1999 VK ₇₅	15.9	X	207.53139	114.12672	211.19563	3.46709	0.1025323	0.20946812	2.8079590	20	2 18.7	20.3
70818 1999 VJ ₇₇	15.1	X	280.56101	133.99904	7.80632	4.54895	0.2252427	0.23841007	2.5758445	20	12 28.2	17.4
70819 1999 VM ₇₇	14.8	X	153.28247	8.43585	244.48673	14.24835	0.0752079	0.23965815	2.5668939	20	12 23.5	18.6
70820 1999 VS ₇₉	15.5	X	358.31900	126.40415	312.17728	1.97095	0.0566342	0.24389381	2.5370880	20	—	—
70821 1999 VX ₇₉	15.6	X	110.88775	78.54184	346.23588	2.22359	0.0781389	0.25713475	2.4492260	20	3 1.9	18.8
70822 1999 VZ ₇₉	15.0	X	3.29734	240.66837	31.53184	13.50413	0.1564105	0.22467810	2.6797579	20	7 14.9	18.0
70823 1999 VH ₈₁	14.9	X	161.62524	261.06314	137.25042	4.52110	0.1038044	0.21064213	2.7975158	20	4 4.5	19.1
70824 1999 VL ₈₁	14.8	X	317.99641	284.68997	213.23916	12.34543	0.2314864	0.23986388	2.5654259	20	—	—
70825 1999 VZ ₈₁	15.0	X	213.80144	29.00540	312.17730	5.55608	0.0915275	0.22371774	2.6874214	20	6 27.0	19.0
70826 1999 VA ₈₂	15.3	X	26.09423	147.16671	176.93479	2.11127	0.0538955	0.23554639	2.5966799	20	10 23.7	18.5
70827 1999 VN ₈₂	15.6	X	280.21722	253.61428	207.30516	12.66439	0.1205065	0.23699830	2.5860638	20	11 13.7	18.6
70828 1999 VV ₈₅	15.9	X	339.62570	39.47706	28.36747	6.42015	0.2666443	0.23934371	2.5691416	20	—	—
70829 1999 VX ₈₆	14.3	X	300.32394	23.17867	129.73345	13.69146	0.0976992	0.24406306	2.5359149	20	—	—
70830 1999 VZ ₈₆	14.4	X	174.67542	26.71204	134.11268	15.29266	0.0269211	0.22914585	2.6448114	20	9 28.9	18.3
70831 1999 VG ₈₉	15.3	X	316.75254	156.16433	226.13959	11.81397	0.1217658	0.23087750	2.6315703	20	9 19.6	18.3
70832 1999 VM ₉₀	15.3	X	344.82247	112.54881	211.84354	13.69346	0.1327619	0.23035588	2.6355414	20	8 17.1	18.4
70833 1999 VP ₉₀	15.3	X	101.98773	259.73022	207.62818	5.76657	0.1541249	0.26092830	2.4254292	20	4 28.4	18.5
70834 1999 VU ₉₀	15.1	X	307.36549	9.37493	40.25978	5.07873	0.1460089	0.23435008	2.6055094	20	10 16.4	17.8
70835 1999 VY ₉₀	15.6	X	298.35915	46.06390	41.44040	12.86807	0.0532580	0.23777169	2.5804530	20	11 27.1	18.7
70836 1999 VW ₉₁	15.7	X	20.22307	175.17181	202.38880	11.46682	0.0747082	0.24225424	2.5485224	20	12 27.9	19.2
70837 1999 VX ₉₁	16.1	X	80.42389	305.77211	19.33475	14.52774	0.1914878	0.24517740	2.5282252	20	—	—
70838 1999 VA ₉₄	15.9	X	43.15038	262.08434	44.42346	3.88459	0.1957929	0.23740273	2.5831259	20	11 13.7	19.3
70839 1999 VR ₉₅	15.3	X	235.61955	163.95095	38.44172	4.26248	0.1019892	0.24553128	2.5257954	20	—	—
70840 1999 VO ₉₆	15.5	X	82.57840	183.32139	54.50255	3.43509	0.0382016	0.22958544	2.6414344	20	9 12.5	19.0
70841 1999 VS ₉₆	15.0	X	90.78058	254.61748	44.08342	11.29107	0.1287570	0.24039286	2.5616611	20	12 17.2	19.0
70842 1999 VX ₉₆	15.0	X	160.12701	328.28700	217.60494	3.51172	0.0515946	0.23212150	2.6221597	20	10 7.7	18.8
70843 1999 VD ₉₉	16.0	X	18.83390	165.55386	165.88798	0.60994	0.1560227	0.23469093	2.6029861	20	11 6.6	19.1
70844 1999 VM ₁₀₅	15.7	X	267.92207	286.28261	50.41507	4.04650	0.0779050	0.21833460	2.7314149	20	5 12.3	19.3
70845 1999 VO ₁₀₆	15.9	X	10.03313	86.74105	228.02244	2.49639	0.0980511	0.22909952	2.6451680	20	9 19.6	18.9
70846 1999 VK ₁₀₈	15.7	X	107.09244	20.10140	216.37158	2.88971	0.0525463	0.22971153	2.6404676	20	10 10.7	19.3
70847 1999 VM ₁₁₂	15.3	X	42.58917	90.82850	280.42122	1.08346	0.1476007	0.23985204	2.5655104	20	—	—
70848 1999 VO ₁₁₂	14.4	X	230.08323	135.37741	52.21065	1.25104	0.0594804	0.18949755	3.0019284	20	12 21.3	18.6
70849 1999 VP ₁₁₂	14.7	X	78.71818	2.76849	64.71207	2.98611	0.0583492	0.20227099	2.8741779	20	1 28.2	18.5
70850 Schur	14.6	X	195.91013	113.00593	294.16144	4.09701	0.0451517	0.21679936	2.7442945	20	5 19.6	18.6
70851 1999 VW ₁₁₃	15.5	X	145.46146	23.20399	343.06046	7.38349	0.1161766	0.25637577	2.4540575	20	2 3.9	18.9
70852 1999 VY ₁₁₃	15.4	X	352.47124	155.49416	244.67948	12.45985	0.1478356	0.23964009	2.5670229	20	12 26.8	18.4
70853 1999 VN ₁₁₄	15.2	X	36.91468	64.23789	285.64284	8.45054	0.0993650	0.23985902	2.5654606	20	12 18.4	18.5
70854 1999 VP ₁₁₅	15.8	X	277.81886	234.81666	83.89148	3.04785	0.0696234	0.21749993	2.7383984	20	5 3.5	19.4
70855 1999 VS ₁₁₇	16.3	X	53.91550	264.61953	30.19880	3.44817	0.0650798	0.23627446	2.5913428	20	10 23.9	19.7
70856 1999 VD ₁₂₁	15.1	X	304.21851	248.39572	31.76434	14.51052	0.1879345	0.21961036	2.7208264	20	4 2.6	18.6
70857 1999 VH ₁₂₂	15.3	X	118.16115	66.16802	75.80379	5.32537	0.0366987	0.21846247	2.7303490	20	6 18.7	19.1
70858 1999 VL ₁₂₆	15.7	X	266.30792	5.35019	68.39955	1.09014	0.0931124	0.23289055	2.6163839	20	9 18.8	18.8
70859 1999 VM ₁₃₀	15.0	X	294.85171	259.90260	37.34423	7.44495	0.0705754	0.21780654	2.7358279	20	4 26.9	18.6
70860 1999 VW ₁₃₃	15.1	X	207.63068	162.82204	238.17007	4.81514	0.0308580	0.21894289	2.7263534	20	5 27.5	18.9
70861 1999 VN ₁₃₄	15.4	X	179.35577	287.42713	273.32166	0.79421	0.0338830	0.23607474	2.5928041	20	11 20.7	18.9
70862 1999 VJ ₁₃₉	15.2	X	165.58067	257.51617	356.96622	4.09343	0.0982312	0.24419129	2.5350271	20	—	—
70863 1999 VX ₁₄₃	15.3	X	275.99634	104.77840	238.52767	7.05955	0.1120202	0.22188310	2.7022150	20	5 26.7	18.9
70864 1999 VB ₁₄₆	15.2	X	248.09371	24.90721	70.21223	3.05033	0.0773212	0.27980880	2.3150576	20	10 3.9	17.9
70865 1999 VP ₁₄₇	15.7	X	286.64959	205.15316	294.33497	2.33445	0.2207958	0.24116742	2.5561733	20	—	—
70866 1999 VM ₁₄₉	15.2	X	184.53986	186.79727	197.48215	4.07256	0.0841303	0.21283373	2.7782783	20	4 8.3	19.4
70867 1999 VA ₁₅₀	15.2	X	283.64194	130.69579	239.83341	2.95358	0.1010600	0.22578795	2.6709692	20	7 15.1	18.6
70868 1999 VL ₁₅₁	15.4	X	43.91411	300.59703	275.67499	2.23440	0.0774432	0.21816175	2.7328574	20	6 23.9	18.7
70869 1999 VR ₁₅₄	16.1	X	284.22655	217.61987	56.89890	2.70555	0.2086540	0.21447198	2.7641122	20	2 26.4	20.2
70870 1999 VL ₁₅₆	14.9	X	312.09370	228.73533	52.56590	9.58000	0.1259424	0.21693929	2.7431143	20	4 23.8	18.2
70871 1999 VS ₁₅₆	15.3	X	317.24754	269.31568	21.10365	1.97918	0.0641240	0.21766791	2.7369894	20	5 20.4	18.8
70872 1999 VP ₁₅₇	15.1	X	144.99079	227.34706	318.40937	8.26255	0.0874168	0.26560819	2.3968549	20	5 12.7	18.3
70873 1999 VJ ₁₅₈	15.2	X	146.20916	9.72666	245.31275	1.33111	0.0578977	0.20509558	2.8477281	20	1 23.1	19.2
70874 1999 VR ₁₅₉	14.7	X	247.36092									

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
70881 1999 VO ₁₆₂	14.8 ^m	X	29.55033	281.24459	269.00313	3.81572	0.0942267	0.21407068	2.7675656	20	4 25.9	18.1
70882 1999 VP ₁₆₂	15.3	X	292.99776	295.45977	38.71199	13.71916	0.1484368	0.22328416	2.6908992	20	5 29.5	18.9
70883 1999 VX ₁₆₂	16.0	X	56.93134	346.15268	351.64310	2.10714	0.1767340	0.24081573	2.5586614	20	—	—
70884 1999 VF ₁₆₃	15.9	X	285.01033	337.47048	33.58152	6.74712	0.2383559	0.22703415	2.6611862	20	6 25.9	19.4
70885 1999 VS ₁₆₃	15.8	X	359.66507	46.48191	310.72670	0.81425	0.1433202	0.23494254	2.6011273	20	11 8.4	18.4
70886 1999 VY ₁₆₃	15.1	X	299.05522	334.28301	350.29293	1.38170	0.0916260	0.22211625	2.7003237	20	6 5.7	18.5
70887 1999 VZ ₁₆₆	15.3	X	225.99868	270.86111	42.47796	8.53413	0.1782713	0.21097994	2.7945289	20	2 24.5	20.0
70888 1999 VA ₁₆₇	15.4	X	334.97240	88.31388	253.98964	4.19856	0.0987633	0.22806870	2.6531324	20	8 27.9	18.5
70889 1999 VB ₁₆₇	14.8	X	76.24018	164.06806	44.42877	10.31259	0.0717584	0.22078734	2.7111483	20	8 1.6	18.6
70890 1999 VC ₁₆₇	15.0	X	170.60521	339.45209	23.58271	2.88422	0.2008882	0.25754851	2.4466022	20	3 1.8	19.0
70891 1999 VD ₁₆₈	15.4	X	190.73798	323.64592	247.27506	14.10649	0.0444338	0.23710199	2.5853097	20	12 16.2	19.1
70892 1999 VE ₁₆₈	15.2	X	208.59563	327.62584	53.35605	10.11038	0.1736186	0.21612730	2.7499806	20	4 27.7	19.7
70893 1999 VF ₁₆₉	15.3	X	155.02741	72.77955	42.37825	6.41190	0.0338233	0.21879323	2.7275965	20	6 29.6	19.3
70894 1999 VG ₁₇₀	15.0	X	215.59310	86.18180	280.87916	4.97851	0.0212967	0.21310763	2.7758972	20	4 21.4	18.9
70895 1999 VH ₁₇₂	15.3	X	113.55974	49.03173	11.69294	2.43428	0.0506183	0.20597559	2.8396112	20	3 2.5	19.1
70896 1999 VI ₁₇₂	15.0	X	101.88802	279.67855	50.63614	4.20583	0.1951370	0.24286408	2.5442544	20	—	—
70897 1999 VJ ₁₇₄	13.1	X	147.13957	356.54407	37.02588	13.70105	0.1963834	0.20519515	2.8468068	20	3 25.7	17.8
70898 1999 VK ₁₇₆	14.9	X	241.74748	245.12139	213.15992	13.20149	0.1742212	0.23282601	2.6168674	20	9 1.7	18.9
70899 1999 VL ₁₇₆	14.8	X	51.10078	206.41770	235.76544	7.02327	0.0915794	0.25430300	2.4673744	20	—	—
70900 1999 VM ₁₇₇	14.9	X	154.63516	23.23455	205.58427	21.54159	0.0225829	0.23610474	2.5925845	20	11 27.9	18.7
70901 1999 VN ₁₇₈	15.6	X	129.94062	244.56425	95.64908	5.38717	0.1328529	0.25151152	2.4855974	20	—	—
70902 1999 VO ₁₇₈	15.5	X	142.57300	1.08809	68.27936	11.27335	0.1697432	0.26185746	2.4196882	20	4 28.1	19.3
70903 1999 VP ₁₇₉	14.7	X	335.43935	334.95624	92.70358	13.95516	0.1451301	0.23890359	2.5722960	20	—	—
70904 1999 VQ ₁₈₄	15.9	X	217.79937	199.11544	187.11634	2.90483	0.1484920	0.21902258	2.7256920	20	5 12.9	20.1
70905 1999 VR ₁₈₅	14.6	X	338.51667	326.37579	188.26608	4.11700	0.1200494	0.19996932	2.8961906	20	—	—
70906 1999 VS ₁₈₅	15.7	X	302.29110	75.10819	84.01765	3.87103	0.1152994	0.24441169	2.5335028	20	—	—
70907 1999 VT ₁₈₆	15.4	X	230.72399	264.68011	75.31417	5.22919	0.0812958	0.21469320	2.7622132	20	4 4.9	19.5
70908 1999 VU ₁₈₆	14.8	X	81.53337	121.51953	78.34468	3.34811	0.0653905	0.22226481	2.6991203	20	7 23.9	18.4
70909 1999 VV ₁₈₆	14.7	X	101.15364	159.01981	59.79465	14.93473	0.0738486	0.22842003	2.6504112	20	9 22.0	18.8
70910 1999 VW ₁₈₆	15.8	X	283.70634	37.20100	94.85705	3.87104	0.1148793	0.23961916	2.5671723	20	—	—
70911 1999 VX ₁₈₆	15.4	X	240.25872	271.50860	154.26014	3.70652	0.0788691	0.22586132	2.6703907	20	8 4.1	19.1
70912 1999 VY ₁₈₇	15.8	X	345.92943	277.98286	183.22871	3.48050	0.2109720	0.24278148	2.5448314	20	—	—
70913 1999 VZ ₁₈₇	15.5	X	168.80486	309.10344	128.14617	3.04063	0.0565592	0.21746462	2.7386948	20	5 28.4	19.5
70914 1999 VA ₁₉₄	15.6	X	309.88678	53.32895	33.53099	8.66146	0.1090045	0.23723138	2.5843696	20	12 13.6	18.5
70915 1999 VB ₁₉₄	15.5	X	320.68767	334.28550	128.16093	8.67787	0.1197254	0.23980531	2.5658436	20	—	—
70916 1999 VC ₁₉₅	15.9	X	54.84667	293.87247	57.32612	5.98835	0.1153681	0.24220175	2.5488906	20	—	—
70917 1999 VD ₁₉₅	14.9	X	245.55827	278.87764	47.97983	5.84844	0.0721772	0.21642757	2.7474364	20	4 5.1	18.8
70918 1999 VE ₁₉₅	15.2	X	69.42881	182.54192	314.59746	5.65338	0.0669445	0.26396124	2.4068145	20	4 6.0	18.1
70919 1999 VF ₁₉₆	15.8	X	199.02813	117.08020	228.88653	5.22374	0.1301380	0.26186887	2.4196180	20	2 29.7	19.7
70920 1999 VG ₁₉₆	14.8	X	326.91767	294.19553	108.89358	14.02836	0.1417287	0.23506933	2.6001919	20	11 18.6	17.7
70921 1999 VH ₁₉₆	15.0	X	170.98186	296.64921	124.90296	12.18659	0.1228121	0.21544259	2.7558041	20	5 15.8	19.5
70922 1999 VI ₁₉₆	15.5	X	329.40958	302.36755	152.36950	10.31405	0.1398943	0.23974297	2.5662884	20	—	—
70923 1999 VJ ₁₉₇	15.0	X	267.05625	242.81917	186.43236	13.56565	0.0867192	0.23069634	2.6329478	20	9 12.2	18.4
70924 1999 VK ₂₀₅	16.0	X	235.52233	212.58211	203.17081	1.46047	0.0380293	0.22213338	2.7001849	20	7 20.9	19.5
70925 1999 VL ₂₀₅	14.5	X	181.00491	334.33924	183.22635	12.45287	0.1257829	0.22748517	2.6576676	20	9 21.1	18.5
70926 1999 VM ₂₀₈	15.6	X	272.60320	243.81734	174.21608	2.96710	0.0525627	0.22841686	2.6504357	20	9 10.9	18.9
70927 1999 VN ₂₁₀	15.3	X	326.96669	31.72569	294.26362	3.69733	0.1197047	0.22580309	2.6708498	20	7 21.2	18.0
70928 1999 VO ₂₁₁	15.8	X	287.47863	51.69571	228.48765	3.44989	0.0280227	0.21408834	2.7674134	20	3 31.1	19.7
70929 1999 VP ₂₁₆	15.6	X	92.97895	292.47555	10.58124	6.34258	0.2104039	0.24203275	2.5500770	20	12 31.2	19.9
70930 1999 VQ ₂₁₈	16.1	X	133.88985	71.59504	190.60403	9.64101	0.1599436	0.24547299	2.5261952	20	12 16.2	20.4
70931 1999 VR ₂₁₉	15.3	X	320.37755	205.64360	200.53043	12.82017	0.1345327	0.23410637	2.6073174	20	11 6.4	18.0
70932 1999 VS ₂₂₃	14.8	X	86.51756	294.49986	196.41944	8.79302	0.0996834	0.21277672	2.7787745	20	5 4.5	18.5
70933 1999 VT ₂₂₃	15.8	X	85.05547	140.49302	188.76649	8.80156	0.2120424	0.24361621	2.5390150	20	—	—
70934 1999 VU ₂₂₅	16.1	X	342.27325	186.15923	186.5638	12.32464	0.1801154	0.23332212	2.6131566	20	11 3.9	18.6
70935 1999 VV ₂₂₅	14.7	X	7.91733	97.69805	274.42645	10.05592	0.1811170	0.23508306	2.6000906	20	12 18.4	17.5
70936 Kámen	14.6	X	232.64721	319.72907	54.07943	5.95846	0.0930053	0.21651191	2.7467230	20	5 16.4	18.6
70937 1999 WT ₂	16.0	X	221.45055	40.14842	350.44002	1.43841	0.2276260	0.21862550	2.7289914	20	5 16.1	20.6
70938 1999 WZ ₃	14.0	X	57.51898	252.71375	205.87570	1.42278	0.0533722	0.20261880	2.8708878	20	2 5.6	17.7
70939 1999 XA ₅	15.9	X	304.95893	25.28082	36.34929	9.98458	0.1016421	0.23623752	2.5916129	20	10 31.8	18.7
70940 1999 XB ₅	15.0	X	29.79805	91.28196	39.29430	6.72092	0.0919694	0.25591572	2.4569977	20	2 1.2	17.7
70941 1999 XC ₆	15.5	X	297.05795	282.58402	136.92795	2.61637	0.1090873	0.23205868	2.6226329	20	10 15.2	18.4
70942 Vandanashiva	15.3	X	332.67277	255.30236	159.85140	4.22257	0.2386402	0.23603880	2.5930673	20	12 21.1	17.5
70943 1999 XD ₉	15.5	X	224.71935	181.37902	206.76269	5.74989	0.0344968	0.21836746	2.7311409	20	6 1.1	19.3
70944 1999 XE ₉	14.6	X	271.27226	188.28420	271.01192	12.34273	0.1063831	0.22976283	2.6400747	20	10 22.9	18.1
70945 1999 XF ₁₀	14.2	X	343.79427	253.74659	254.16899	16.59805	0.2352536	0.19591526	2.9360078	20	—	—
70946 1999 XG ₁₀	14.6	X	273.73768	63.62195	77.57339	3.81057	0.1795577	0.23357365	2.6112802	20	12 18.1	17.1
70947 1999 XH ₁₁	15.6	X	33.80702	337.82410	34.56177	15.34073	0.1578693	0.24283931	2.5444274	20	—	—
70948 1999 XI ₁₆	15.6	X	80.50087	268.51654	31.82139	15.44170	0.2464950	0.24272424	2.5452315	20	12 18.0	20.0
70949 1999 XJ ₁₇	15.7	X	194.40189	325.28523	229.72643	5.03469	0.0777107	0.23678657	2.5876051	20	11 27.3	19.2
70950 1999 XK ₁₈	16.2	X	32.43732	216.38443	60.09664	2.22227	0.1376588	0.22830823	2.6512764	20	9 9.9	19.2
70951 1999 XL ₂₂	15.6	X	311.60329	40.90911	231.26422	4.77334	0.0666599	0.21488306	2.7605859	20	4 16.6	19.2
70952 1999 XM ₂₂	15.6	X	36.45817	117.31084	192.43619	1.81657	0.1948301	0.23335014	2.6129475	20	11 8.9	18.8
70953 1999 XN ₂₂	14.8	X	61.98224	296.58234	94.17135	18.37442	0.2279258	0.24605998	2.5221759	20	—	—
70954 1999 XO ₂₂	14.3	X	135.28465	91.28415	116.61780	2.48898						

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
70961 1999 XY ₇	14.7	X	160.60941	339.28075	39.35506	12.46587	0.1837123	0.26038936	2.4287747	20	3 15.8	18.7
70962 1999 XL ₉	15.6	X	222.00152	129.53642	250.38857	6.99482	0.1853969	0.21727635	2.7402766	20	5 5.4	20.1
70963 1999 XT ₁₀	15.1	X	276.79972	228.52619	264.06515	10.64387	0.1210469	0.23833839	2.5763610	20	12 20.6	17.8
70964 1999 XK ₁₂	14.4	X	44.57369	262.70790	112.76357	13.43338	0.1963871	0.23872824	2.5735554	20	—	—
70965 1999 XC ₁₃	15.3	X	321.05150	265.30983	188.87652	8.71692	0.0774403	0.23993088	2.5649483	20	—	—
70966 1999 XD ₁₈	14.6	X	320.12923	18.25299	32.44501	15.89015	0.0909158	0.23792173	2.5793680	20	11 9.5	17.5
70967 1999 XG ₁₈	15.3	X	208.19767	15.07379	45.49285	5.46328	0.1890027	0.27047981	2.3679879	20	6 13.5	19.0
70968 1999 XA ₂₀	13.9	X	338.61134	184.69259	46.95405	13.91186	0.1093103	0.21621734	2.7492171	20	4 4.0	17.3
70969 1999 XA ₂₀	14.5	X	222.71617	99.66841	52.67520	13.10910	0.1144589	0.23502058	2.6005515	20	11 2.8	18.1
70970 1999 XH ₂₀	13.9	X	161.01164	86.94895	57.56386	9.17987	0.0523848	0.22631555	2.6668164	20	8 20.1	17.9
70971 1999 XL ₂₀	15.0	X	133.85992	24.54661	93.43888	3.32632	0.1371810	0.26567586	2.3964479	20	6 16.5	18.5
70972 1999 XM ₂₀	14.9	X	348.82744	173.20371	64.56658	7.35350	0.0626616	0.26475071	2.4020274	20	4 26.2	17.5
70973 1999 XY ₂₀	14.4	X	233.76786	347.75730	48.72675	7.80490	0.1303266	0.27126171	2.3634353	20	6 12.5	17.7
70974 1999 XE ₂₃	15.4	X	325.99008	346.39107	34.46506	4.44490	0.2556828	0.23385772	2.6091652	20	10 8.6	16.9
70975 1999 XJ ₂₃	15.1	X	55.00286	156.31460	233.18875	11.79822	0.1419203	0.24664396	2.5181933	20	—	—
70976 1999 XS ₂₃	14.8	X	185.28208	11.22472	82.67984	4.34355	0.0539145	0.22180315	2.7028643	20	7 8.5	18.7
70977 1999 XM ₂₃	14.8	X	356.57708	178.48742	229.05215	9.44135	0.1158930	0.24003743	2.5641893	20	—	—
70978 1999 XP ₂₄	15.2	X	266.96863	33.77821	76.81504	5.28166	0.1921348	0.23344779	2.6122187	20	10 25.9	18.3
70979 1999 XU ₂₄	14.6	X	3.19714	347.76499	67.31492	10.26765	0.0224752	0.24089513	2.5580991	20	—	—
70980 1999 XA ₂₅	13.7	X	35.15264	52.32111	60.81520	10.25578	0.0789559	0.251170781	2.4843051	20	1 16.4	16.6
70981 1999 XE ₂₅	14.5	X	116.25465	340.69566	159.92253	2.70533	0.0118198	0.21878947	2.7276278	20	6 11.5	18.1
70982 1999 XJ ₂₅	14.4	X	324.36724	352.58383	62.53042	16.04143	0.1322092	0.23559048	2.5963559	20	11 25.6	17.1
70983 1999 XB ₂₇	14.9	X	207.06820	239.31823	69.09066	7.27989	0.0424547	0.20654451	2.8343944	20	2 2.1	19.1
70984 1999 XW ₂₇	15.7	X	342.03912	335.89460	97.70754	6.76761	0.2898783	0.23913501	2.5706361	20	—	—
70985 1999 XA ₂₈	15.2	X	270.55951	218.17812	253.10539	4.72567	0.1576770	0.23480225	2.6021633	20	11 4.3	18.3
70986 1999 XR ₂₈	15.1	X	209.21093	16.63957	102.85328	4.49702	0.0540814	0.22710505	2.6606323	20	9 11.8	18.8
70987 1999 XA ₂₉	15.3	X	211.42777	233.25444	105.74844	4.73534	0.0679929	0.21033292	2.8002570	20	3 14.4	19.4
70988 1999 XU ₂₉	14.4	X	74.01575	57.43252	97.02578	14.28647	0.0784445	0.21214575	2.7842816	20	5 18.5	18.3
70989 1999 XT ₃₂	15.0	X	69.28273	209.10408	294.19558	6.77486	0.2580340	0.20410049	2.8569766	20	5 19.8	18.8
70990 1999 XA ₃₃	14.3	X	295.22432	235.41347	293.14312	10.81160	0.2083299	0.18827800	3.0148775	20	—	—
70991 1999 XG ₃₃	14.0	X	349.38015	198.10017	280.28459	5.75900	0.2511331	0.23955630	2.5676214	20	—	—
70992 1999 XU ₃₄	14.0	X	351.97675	130.52151	298.96304	21.39800	0.0555183	0.23320116	2.6140602	20	—	—
70993 1999 XH ₃₄	14.7	X	343.54755	130.00042	302.90137	4.09844	0.2368295	0.23460503	2.6036215	20	—	—
70994 1999 XL ₃₅	14.6	X	348.05874	334.91443	87.08493	15.49321	0.1838114	0.23730713	2.5838196	20	—	—
70995 Mikemorton	14.9	X	358.60271	100.43866	175.28508	6.27357	0.0126278	0.21859313	2.7292608	20	7 3.0	18.6
70996 1999 XY ₃₅	14.1	X	273.57558	296.31970	85.85329	18.29971	0.1105420	0.22061272	2.7125787	20	7 15.8	17.8
70997 1999 XE ₃₆	14.8	X	71.12267	258.70056	219.17261	4.07198	0.2171642	0.20414545	2.8565571	20	4 12.8	18.2
70998 1999 XH ₃₆	13.6	X	37.54976	356.80620	66.21746	10.23476	0.0574822	0.19331722	2.9622544	20	—	—
70999 1999 XW ₃₆	14.6	X	168.56077	30.84019	6.39137	8.74563	0.1093945	0.26035259	2.4290033	20	4 4.9	18.1
71000 Hughdowns	14.2	X	257.19866	323.09075	93.34253	13.03176	0.1842202	0.22592741	2.6698699	20	7 30.9	18.0
71001 Natspasoc	13.7	X	307.64355	298.39684	126.07305	15.44929	0.0858004	0.23366470	2.6106018	20	11 15.7	17.1
71002 1999 XO ₃₇	14.3	X	237.88797	229.69131	107.64584	17.77594	0.2195736	0.21527623	2.7572236	20	4 4.9	19.2
71003 1999 XD ₃₈	15.1	X	121.76896	211.69098	178.85270	1.94815	0.0765674	0.20361555	2.8615110	20	2 6.8	19.1
71004 1999 XF ₃₈	14.7	X	26.54224	113.90932	324.81032	4.15657	0.1550609	0.24482289	2.5306653	20	—	—
71005 1999 XN ₄₁	15.4	X	203.39712	271.99178	133.24575	3.41890	0.0477143	0.21726553	2.7403677	20	5 27.6	19.3
71006 1999 XQ ₄₂	16.0	X	313.82209	72.86883	6.75237	1.30284	0.1593322	0.23655047	2.5893267	20	12 11.0	18.4
71007 1999 XA ₄₃	15.3	X	109.11867	2.39531	258.54822	3.88628	0.0818471	0.23478717	2.6022747	20	11 16.1	19.2
71008 1999 XS ₄₃	14.7	X	230.18898	281.50687	258.46874	6.13790	0.1934148	0.23651220	2.5896060	20	12 4.5	18.3
71009 1999 XY ₄₄	14.9	X	81.57071	220.45517	56.99414	14.52533	0.1813164	0.23460255	2.6036398	20	11 16.9	19.0
71010 1999 XD ₄₅	14.7	X	230.27545	20.46838	62.27491	7.20501	0.0761207	0.27362722	2.3497944	20	8 23.8	17.8
71011 1999 XE ₄₅	15.3	X	268.48133	260.05834	67.16301	6.08660	0.0688620	0.21718648	2.7410325	20	5 3.1	19.0
71012 1999 XH ₄₉	15.4	X	274.06118	162.25187	285.66422	2.10606	0.0804830	0.23177798	2.6247499	20	10 19.3	18.5
71013 1999 XG ₅₀	15.5	X	315.20785	135.89848	231.01364	1.67600	0.1269951	0.22818539	2.6522278	20	8 27.8	18.5
71014 1999 XW ₅₂	15.2	X	228.40531	259.35360	62.59189	6.16047	0.2340064	0.21240403	2.7820240	20	3 4.1	20.0
71015 1999 XM ₅₅	14.8	X	67.64919	75.37860	66.76845	4.00416	0.0321515	0.21094981	2.7947950	20	4 13.9	18.4
71016 1999 XR ₅₅	14.8	X	158.03690	264.15938	255.9512	10.41724	0.1429427	0.22358297	2.6885012	20	8 26.9	19.4
71017 1999 XW ₅₅	15.6	X	198.12298	50.11031	334.89567	0.45134	0.0859546	0.21408570	2.7674361	20	4 23.3	19.6
71018 1999 XC ₅₇	14.6	X	304.37777	23.79042	120.77047	2.42111	0.1678819	0.19298647	2.9656380	20	—	—
71019 1999 XK ₅₇	15.3	X	314.73047	168.61497	210.02789	2.31426	0.1085379	0.22895850	2.6462540	20	9 14.9	18.3
71020 1999 XW ₅₈	15.2	X	38.47497	72.88679	253.36107	6.46263	0.1338606	0.23401897	2.6079665	20	11 23.3	18.6
71021 1999 XY ₅₈	15.1	X	103.15208	285.50722	252.57155	13.29635	0.0403081	0.21976469	2.7195525	20	7 15.4	19.0
71022 1999 XD ₅₉	14.7	X	252.78307	60.16251	70.58030	16.07408	0.0924606	0.23317139	2.6142827	20	11 17.0	18.0
71023 1999 XT ₆₀	15.0	X	137.32771	269.27992	238.18735	8.76177	0.2074481	0.21770274	2.7366975	20	7 27.6	19.8
71024 1999 XU ₆₀	15.3	X	267.93791	107.82013	224.93595	3.67649	0.1087543	0.21693357	2.7431626	20	5 2.7	19.0
71025 1999 XZ ₆₀	15.1	X	336.35100	113.76084	239.35944	10.22696	0.2017589	0.22981405	2.6396823	20	9 12.7	17.7
71026 1999 XD ₆₂	15.1	X	53.97637	266.82773	70.99528	12.10700	0.1198091	0.23805910	2.5783756	20	12 25.5	18.8
71027 1999 XS ₆₂	15.5	X	215.10464	154.40907	224.97511	3.74487	0.1118287	0.21606816	2.7504823	20	5 3.1	19.6
71028 1999 XJ ₆₆	15.4	X	264.62667	359.10600	74.00198	8.20764	0.1044159	0.22782420	2.6550303	20	9 17.3	19.0
71029 1999 XS ₆₆	15.2	X	249.83073	151.12963	253.15504	3.17083	0.0752822	0.22201329	2.7011585	20	7 18.5	19.0
71030 1999 XM ₆₇	14.7	X	297.80950	98.25378	248.58148	11.39127	0.2087805	0.22365469	2.6879264	20	6 16.0	17.9
71031 1999 XE ₆₈	14.8	X	77.21902	301.66954	136.23896	2.89456	0.0419213	0.20327151	2.8647389	20	2 5.2	18.5
71032 1999 XE ₇₀	15.2	X	341.73758	73.59571	238.53569	2.92423	0.0742399	0.22222662	2.6994295	20	7 28.1	18.5
71033 1999 XU ₇₀	14.7	X	138.92332	201.39402	195.30964	1.65505	0.0781063	0.20661311	2.8337669	20	3 4.9	18.7
71034 1999 XK ₇₁	15.0	X	344.35700	256.19129	177.38774	1.66767	0.1195826	0.23826503	2.57688			

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
71041 1999 XQ ₇₄	14.4	X	155.25366	195.35834	91.94870	12.12800	0.0783048	0.19302506	2.9652427	20	—	—
71042 1999 XN ₇₇	14.8	X	33.38966	242.53091	94.13938	14.07433	0.2679480	0.23463587	2.6033933	20	12 20.1	18.3
71043 1999 XB ₇₈	14.9	X	293.24481	160.74793	256.66536	4.30658	0.2414829	0.23057271	2.6338889	20	9 12.0	17.6
71044 1999 XT ₈₁	14.7	X	71.61495	352.08524	105.97503	3.15808	0.0856677	0.20389646	2.8588822	20	2 29.8	18.4
71045 1999 XY ₈₄	15.1	X	200.13389	180.08820	221.78232	1.39444	0.2098840	0.21453509	2.7635702	20	5 13.5	19.7
71046 1999 XC ₈₅	13.8	X	264.61570	3.50004	112.65645	12.75795	0.0384256	0.18219249	3.0816436	20	11 12.9	18.3
71047 1999 XC ₈₆	14.7	X	63.80299	115.00765	272.72363	2.85716	0.2439836	0.24307863	2.5427570	20	—	—
71048 1999 XA ₈₇	14.2	X	278.98910	113.50916	277.81620	12.03266	0.2096117	0.22277300	2.6950139	20	7 18.3	17.8
71049 1999 XG ₈₈	14.4	X	149.05945	134.96984	237.20922	1.08068	0.0814901	0.20277367	2.8694259	20	2 15.9	18.6
71050 1999 XY ₈₈	14.1	X	297.34540	352.39494	98.39505	10.96946	0.0189736	0.18370701	3.0646830	20	11 23.5	18.4
71051 1999 XN ₈₉	15.0	X	74.72843	256.03114	147.40834	2.55563	0.1063522	0.19668857	2.9283072	20	—	—
71052 1999 XP ₉₁	14.7	X	217.99157	301.85975	100.45345	2.96668	0.0921727	0.21457416	2.7632346	20	6 6.2	18.8
71053 1999 XB ₉₃	15.1	X	37.18955	280.68737	164.75603	2.38942	0.0915655	0.19610575	2.9341067	20	—	—
71054 1999 XU ₉₃	14.8	X	222.66319	0.38469	102.05784	12.30745	0.1745254	0.22214438	2.7000957	20	8 23.9	19.1
71055 1999 XV ₉₃	14.8	X	240.81675	295.29529	101.43013	10.44943	0.2094638	0.21814324	2.7330120	20	6 12.8	19.1
71056 1999 XY ₉₅	14.8	X	204.15648	38.36130	23.93786	5.09252	0.1531290	0.21671226	2.7450298	20	6 12.9	19.2
71057 1999 XE ₉₆	13.8	X	302.34891	147.80773	261.42346	8.25348	0.0589737	0.23068260	2.6330523	20	10 8.7	17.1
71058 1999 XL ₉₆	14.9	X	242.68798	26.28755	66.63679	12.60200	0.1432542	0.22684907	2.6626334	20	9 11.2	18.9
71059 1999 XP ₉₆	14.3	X	104.73918	68.43845	69.86185	10.00256	0.1043146	0.21338605	2.7734821	20	6 5.6	18.2
71060 1999 XL ₉₈	14.4	X	336.09022	9.78097	107.39966	2.61331	0.0866897	0.18943817	3.0025556	20	—	—
71061 1999 XS ₉₈	13.6	X	240.36454	278.64434	270.17768	9.96921	0.0584870	0.18971116	2.9996745	20	—	—
71062 1999 XO ₉₉	14.6	X	22.74498	324.26564	76.26190	4.95551	0.1407601	0.23901221	2.5715165	20	—	—
71063 1999 XH ₁₀₁	13.5	X	133.62228	180.85537	86.41417	10.94956	0.0564827	0.18433410	3.0577285	20	12 9.8	18.0
71064 1999 XX ₁₀₃	14.8	X	202.71680	50.11284	40.79390	12.18634	0.1220331	0.22262342	2.6962210	20	7 23.6	19.1
71065 1999 XY ₁₀₅	15.5	X	351.13752	272.98762	143.60828	4.89563	0.2854298	0.23707188	2.5855286	20	—	—
71066 1999 XL ₁₀₆	14.4	X	356.20985	179.02030	238.67586	14.03570	0.0941963	0.24161134	2.5530413	20	—	—
71067 1999 XX ₁₀₈	15.3	X	295.54527	167.17242	221.66345	10.41413	0.0356850	0.22858692	2.6491210	20	9 2.1	18.9
71068 1999 XY ₁₀₉	14.7	X	109.30467	214.93981	129.18080	3.25073	0.0967495	0.24657077	2.5186915	20	—	—
71069 1999 XB ₁₁₀	15.3	X	7.69231	275.05703	118.26175	3.65277	0.1533399	0.23909519	2.5709216	20	—	—
71070 1999 XA ₁₁₂	14.9	X	182.62576	194.26596	330.69115	1.03189	0.0869462	0.18054588	3.1003519	20	9 28.3	19.5
71071 1999 XH ₁₁₂	14.7	X	261.86381	44.94648	62.83286	14.40451	0.1548833	0.23058587	2.6337886	20	10 23.3	18.1
71072 1999 XL ₁₁₂	13.9	X	203.09043	80.79973	71.90546	12.74609	0.1077679	0.17822358	3.1272260	20	10 9.5	18.9
71073 1999 XE ₁₁₃	14.9	X	246.50600	33.03021	15.31510	22.18105	0.0574332	0.22447907	2.6813416	20	8 2.3	19.1
71074 1999 XR ₁₁₅	14.6	X	287.59375	137.13525	252.41044	14.23801	0.0875591	0.22854802	2.6494216	20	8 12.6	18.3
71075 1999 XB ₁₁₇	14.7	X	213.57054	346.91276	47.69741	14.10538	0.1842165	0.21886674	2.7269858	20	5 15.9	19.2
71076 1999 XV ₁₁₇	14.6	X	93.71528	16.38860	253.24837	13.28421	0.1219602	0.23457917	2.6038128	20	11 12.9	18.6
71077 1999 XZ ₁₁₇	16.0	X	137.92169	330.08950	42.88389	6.50335	0.2389375	0.25512194	2.4620914	20	2 19.1	19.9
71078 1999 XF ₁₁₈	15.2	X	204.79090	303.96168	251.30977	11.79987	0.1142531	0.23685562	2.5871022	20	12 5.0	18.9
71079 1999 XO ₁₁₈	15.2	X	107.16441	47.44733	275.82309	3.89100	0.1796804	0.24452963	2.5326882	20	—	—
71080 1999 XD ₁₁₉	15.2	X	7.90873	80.93090	273.83010	6.32560	0.2075238	0.23563127	2.5960562	20	11 28.7	18.0
71081 1999 XL ₁₁₉	14.8	X	349.25592	280.16291	31.78974	8.84966	0.0958709	0.22601760	2.6691596	20	8 15.8	18.0
71082 1999 XV ₁₂₀	14.9	X	4.32737	75.82827	263.49776	8.54680	0.1092460	0.23174045	2.6250333	20	10 13.7	18.1
71083 1999 XO ₁₂₁	14.9	X	100.68057	255.54230	53.95206	12.65847	0.1964236	0.24127069	2.5554439	20	—	—
71084 1999 XQ ₁₂₁	14.8	X	195.74598	9.99819	20.61734	3.53430	0.0884213	0.21473975	2.7618140	20	4 27.5	19.0
71085 1999 XX ₁₂₂	15.4	X	247.96563	52.48690	334.40534	5.1829	0.0399926	0.22159212	2.7045801	20	6 28.8	19.2
71086 1999 XT ₁₂₅	15.2	X	173.98068	98.73680	47.57698	12.60230	0.2388217	0.22317509	2.6917759	20	9 3.8	20.1
71087 1999 XV ₁₂₇	14.0	X	142.73564	254.17276	281.58160	15.44121	0.1041086	0.17338649	3.1851206	20	8 24.5	19.2
71088 1999 XK ₁₂₉	14.8	X	235.16965	67.82055	357.67494	7.22932	0.0147906	0.22306293	2.6926782	20	8 8.8	18.5
71089 1999 XH ₁₃₂	14.2	X	20.32504	314.31803	65.26629	13.60754	0.1650911	0.23667669	2.5884060	20	—	—
71090 1999 XW ₁₃₂	14.3	X	63.23195	59.07563	325.53563	8.82323	0.0692931	0.19334820	2.9619380	20	—	—
71091 1999 XN ₁₃₃	14.1	X	38.82578	210.16685	50.04958	13.20486	0.1193855	0.21903520	2.7255874	20	8 30.4	17.8
71092 1999 XO ₁₃₃	14.3	X	350.69197	170.49899	320.03886	12.97569	0.0826049	0.19560456	2.9391160	20	—	—
71093 1999 XW ₁₃₃	13.8	X	267.25307	118.53778	16.48487	10.66491	0.0754962	0.18490923	3.0513848	20	11 28.1	18.0
71094 1999 XZ ₁₃₃	15.0	X	331.94073	338.24742	48.96828	14.02955	0.0726262	0.22805698	2.6532233	20	10 29.6	18.1
71095 1999 XM ₁₃₄	14.4	X	307.20205	70.18828	50.16406	13.73962	0.1439396	0.23532567	2.5983033	20	—	—
71096 1999 XR ₁₃₆	13.5	X	350.51844	87.01725	315.97361	11.73369	0.2714150	0.23283045	2.6168341	20	—	—
71097 1999 XQ ₁₃₇	14.4	X	248.31788	143.90846	283.28581	12.80294	0.1949393	0.22222006	2.6994826	20	7 28.8	18.5
71098 1999 XV ₁₃₇	13.3	X	23.23502	161.38824	50.14303	17.92794	0.1418947	0.21494166	2.7600841	20	5 18.7	16.3
71099 1999 XQ ₁₃₈	14.9	X	179.31082	274.51267	89.50721	3.09442	0.1014248	0.20507501	2.8479185	20	3 11.6	19.4
71100 1999 XV ₁₃₉	14.2	X	30.78981	276.67176	108.16425	10.81802	0.0495846	0.18705824	3.0279695	20	—	—
71101 1999 XY ₁₄₀	15.6	X	136.81521	221.50424	115.42937	2.37692	0.1134254	0.19487406	2.9464565	20	—	—
71102 1999 XH ₁₄₄	14.0	X	254.58880	342.90586	61.98178	14.98438	0.1903374	0.22118041	2.7079352	20	7 10.3	18.1
71103 1999 XN ₁₄₄	14.6	X	294.74965	123.65384	49.72558	5.69055	0.1866075	0.24191211	2.5509247	20	—	—
71104 1999 XA ₁₄₅	15.8	X	106.99052	20.26863	230.56104	3.49271	0.2181895	0.23480353	2.6021538	20	11 9.8	20.0
71105 1999 XP ₁₅₁	14.7	X	302.08066	61.62241	312.28898	2.59096	0.2291028	0.22421663	2.6834335	20	7 30.1	17.2
71106 1999 XS ₁₅₁	14.8	X	356.59889	39.17771	314.25651	3.88646	0.1456728	0.17875025	3.1210803	20	10 12.9	18.5
71107 1999 XT ₁₅₁	14.8	X	260.92569	169.53448	300.68588	7.84285	0.0628136	0.18020751	3.1042317	20	10 19.8	19.2
71108 1999 XL ₁₅₃	14.0	X	195.72439	178.39519	61.99729	11.63173	0.0501302	0.19254983	2.9701197	20	—	—
71109 1999 XN ₁₅₃	13.8	X	212.78320	152.50241	258.16274	8.21538	0.1755801	0.21609749	2.7502335	20	6 5.7	18.2
71110 1999 XZ ₁₅₄	15.2	X	235.37456	276.18763	242.32250	12.05615	0.2052542	0.23174115	2.6250280	20	11 10.2	18.8
71111 1999 XO ₁₅₅	14.4	X	51.63311	53.95665	234.09888	9.37831	0.0599606	0.17999189	3.1067103	20	9 28.5	18.8
71112 1999 XP ₁₅₅	14.5	X	242.45266	189.29482	243.81099	14.35478	0.0714175	0.22420670	2.6835127	20	8 11.4	18.5
71113 1999 XV ₁₅₅	15.1	X	355.57046	170.64803	108.80172	6.35521	0.0199517	0.21865763	2.7287241	20	7 4.5	18.6
71114 1999 XY ₁₅₅	14.9	X	169.13713	218.05443	202.84271	4.31802	0.0608959					

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
71121 1999 XY ₁₆₃	14.0	X	132.06357	213.64930	285.75512	3.38008	0.0727621	0.21970347	2.7200576	20	7 6.4	17.9
71122 1999 XC ₁₆₅	14.4	X	154.06410	98.73292	350.83606	7.12729	0.2056228	0.21044034	2.7993039	20	6 1.4	19.2
71123 1999 XM ₁₆₈	15.0	X	357.68164	122.35735	257.87712	13.95241	0.1373609	0.23591030	2.5940088	20	12 6.7	18.0
71124 1999 XR ₁₇₃	14.3	X	291.20177	104.81084	297.97531	11.39356	0.1830745	0.22565438	2.6720231	20	8 24.8	17.5
71125 1999 XY ₁₇₃	14.5	X	211.10434	113.39815	324.21319	8.44049	0.1526694	0.21803243	2.7339379	20	7 11.0	18.8
71126 1999 XU ₁₇₄	14.4	X	203.78702	55.51582	86.08445	13.91277	0.1256447	0.22370306	2.6875389	20	10 2.2	18.7
71127 1999 XX ₁₇₅	13.6	X	265.27470	298.36440	50.55678	9.74853	0.1834918	0.21450174	2.7638566	20	5 10.7	17.8
71128 1999 XO ₁₇₆	13.6	X	171.15102	169.86642	5.21416	8.89202	0.0632954	0.17528997	3.1620204	20	9 28.9	18.2
71129 1999 XQ ₁₇₆	14.1	X	4.43591	267.31588	78.74061	15.61574	0.0760948	0.22540382	2.6740029	20	10 28.8	17.6
71130 1999 XX ₁₇₆	14.2	X	121.69498	124.09193	297.36160	34.13726	0.2473446	0.20518048	2.8469425	20	3 12.7	19.4
71131 1999 XY ₁₇₆	14.9	X	269.84826	29.98538	76.70650	12.52534	0.2075500	0.22869865	2.6482582	20	10 25.1	18.2
71132 1999 XB ₁₇₇	14.4	X	207.43567	5.07258	47.59674	10.51345	0.0922987	0.21323458	2.7747954	20	6 6.4	18.7
71133 1999 XQ ₁₇₇	14.6	X	76.42927	90.28855	77.49650	8.22099	0.1493936	0.20933621	2.8091384	20	6 15.4	18.3
71134 1999 XR ₁₇₇	14.4	X	327.29056	68.97821	86.66956	12.15774	0.0663960	0.19438530	2.9513934	20	—	—
71135 1999 XM ₁₇₈	13.4	X	80.75550	279.28794	87.22606	12.65018	0.0282556	0.19034921	2.9929675	20	—	—
71136 1999 XV ₁₇₈	14.2	X	114.74484	179.76532	79.87346	16.13511	0.0615381	0.17923555	3.1154440	20	11 13.6	18.9
71137 1999 XB ₁₇₉	14.3	X	133.49863	179.93415	28.73726	3.68409	0.1015438	0.17558193	3.1585142	20	10 1.9	19.1
71138 1999 XY ₁₇₉	15.1	X	242.84932	25.69034	29.20172	5.65790	0.1585735	0.22018894	2.7160581	20	7 14.6	19.1
71139 1999 XB ₁₈₀	13.9	X	279.05241	29.39788	76.97851	12.06284	0.0791497	0.18184939	3.0855185	20	11 12.4	18.0
71140 1999 XK ₁₈₀	14.0	X	211.87697	338.71758	77.05106	15.24715	0.1116267	0.21325556	2.7746134	20	6 14.8	18.2
71141 1999 XX ₁₈₀	14.7	X	349.49283	75.53059	26.66462	13.31008	0.1316200	0.24318571	2.5420106	20	—	—
71142 1999 XP ₁₈₁	14.4	X	135.40399	165.21773	28.76352	12.89919	0.1213112	0.22604737	2.6689252	20	9 26.0	18.6
71143 1999 XR ₁₈₁	13.6	X	46.48865	283.44759	33.90956	14.48805	0.2100825	0.23537346	2.5979516	20	11 30.2	17.4
71144 1999 XW ₁₈₂	15.1	X	314.58260	24.79847	357.46221	8.77181	0.2435571	0.23024371	2.6363974	20	9 9.1	17.0
71145 1999 XA ₁₈₃	13.5	X	74.68643	315.94072	45.80489	15.28618	0.1335887	0.24283405	2.5444641	20	—	—
71146 1999 XQ ₁₈₃	14.5	X	98.49155	135.16454	17.16554	9.28941	0.0891959	0.21440819	2.7646605	20	6 13.6	18.5
71147 1999 XZ ₁₈₃	14.6	X	218.37279	182.55076	294.58413	13.37603	0.0857217	0.22651184	2.6652755	20	9 6.8	18.7
71148 1999 XV ₁₈₄	14.6	X	49.79144	348.49291	301.88860	13.03846	0.1433280	0.23071264	2.6328238	20	10 16.4	18.5
71149 1999 XE ₁₈₆	13.6	X	9.65581	235.56615	45.47104	13.35036	0.1569311	0.22216403	2.6999365	20	8 14.4	16.8
71150 1999 XV ₁₈₆	14.4	X	35.10567	242.12422	26.33068	9.20787	0.1064733	0.22360921	2.6882909	20	8 31.6	17.8
71151 1999 XZ ₁₈₈	14.9	X	117.93797	128.89857	352.03894	8.68644	0.1042968	0.21288480	2.7778339	20	5 27.6	19.1
71152 1999 XM ₁₈₉	15.1	X	158.36627	104.70112	341.32153	4.59996	0.1077318	0.21431615	2.7654519	20	5 28.3	19.4
71153 1999 XR ₁₉₀	14.6	X	292.60157	279.11530	60.89865	12.53926	0.1953548	0.22082856	2.7108109	20	5 31.2	17.9
71154 1999 XJ ₁₉₂	14.1	X	237.75842	309.76698	47.06353	8.00615	0.1000471	0.21396621	2.7684664	20	4 30.3	18.3
71155 1999 XP ₁₉₃	14.0	X	8.94391	307.40806	69.16442	15.59648	0.1987269	0.23516619	2.5994779	20	12 27.9	17.1
71156 1999 XA ₁₉₄	15.0	X	272.69886	358.84983	20.71478	5.87719	0.1101314	0.22099077	2.7094842	20	7 11.9	18.6
71157 1999 XD ₁₉₄	14.2	X	346.58414	11.90539	52.48991	11.20126	0.0937439	0.18821780	3.0155203	20	12 27.2	18.1
71158 1999 XQ ₁₉₄	13.7	X	159.23616	185.17676	64.32354	11.66809	0.0748679	0.18644391	3.0346172	20	12 14.7	18.4
71159 1999 XK ₁₉₅	13.9	X	282.51514	63.53468	27.13481	10.05339	0.0804988	0.18268769	3.0760722	20	10 25.3	18.0
71160 1999 XS ₁₉₅	14.1	X	203.87839	124.01895	64.44831	15.39347	0.0658688	0.23176657	2.6248361	20	11 29.8	17.6
71161 1999 XJ ₁₉₅	14.7	X	204.63303	66.23360	329.18498	8.63461	0.1736954	0.21474648	2.7617563	20	5 7.1	19.4
71162 1999 XX ₁₉₇	13.6	X	296.93112	31.69250	51.08390	12.07901	0.0849659	0.18294039	3.0732388	20	11 5.8	17.6
71163 1999 XU ₁₉₉	15.3	X	268.47314	130.19564	350.24619	7.52536	0.1228897	0.23252087	2.6191563	20	11 16.4	18.7
71164 1999 XF ₂₀₂	14.9	X	71.33800	25.85313	41.46362	8.94247	0.0821719	0.19948662	2.9008607	20	1 22.9	18.8
71165 1999 XJ ₂₀₂	14.1	X	278.76743	163.94844	110.14528	10.46643	0.0970732	0.18420989	3.0591029	20	11 14.1	18.4
71166 1999 XL ₂₀₃	13.6	X	57.06777	187.16704	82.56833	18.93987	0.0993800	0.17430529	3.1739178	20	10 1.5	18.4
71167 1999 XZ ₂₀₃	14.8	X	81.57993	110.62051	60.60989	15.02873	0.1166958	0.21096344	2.7946746	20	6 20.9	18.7
71168 1999 XQ ₂₀₄	14.6	X	192.65096	133.11706	323.66385	13.00116	0.1529032	0.21776641	2.7361640	20	7 18.4	19.1
71169 1999 XV ₂₀₄	14.9	X	291.85778	95.29446	351.62022	9.90855	0.1579557	0.23063534	2.6334120	20	11 2.3	17.9
71170 1999 XE ₂₀₆	14.2	X	273.18662	76.95875	53.25406	11.24326	0.0758394	0.18376971	3.0639859	20	12 1.1	18.3
71171 1999 XG ₂₀₆	13.9	X	284.73100	27.43207	62.01807	12.55124	0.1109964	0.18100705	3.0950837	20	10 26.9	18.0
71172 1999 XK ₂₀₆	14.0	X	302.95068	38.00960	34.42338	11.17199	0.0412497	0.18064421	3.0992268	20	11 2.9	18.2
71173 1999 XA ₂₀₉	15.1	X	226.83775	57.24965	343.55460	8.74123	0.2013216	0.21938299	2.7227060	20	6 3.2	19.6
71174 1999 XO ₂₁₀	13.7	X	66.63138	6.42495	50.94772	15.61293	0.0718330	0.19773125	2.9180038	20	—	—
71175 1999 XS ₂₁₂	15.2	X	331.53666	288.22832	169.12397	9.29474	0.1539289	0.24009221	2.5637992	20	—	—
71176 1999 XT ₂₁₂	15.2	X	320.53621	242.20138	118.47361	6.84649	0.1559777	0.22850875	2.6497251	20	8 29.4	17.8
71177 1999 XA ₂₁₃	15.2	X	162.11399	292.55628	155.63335	8.47993	0.1683682	0.21539400	2.7562185	20	6 8.0	19.9
71178 1999 XB ₂₁₃	14.7	X	328.49061	295.18382	129.25698	8.11163	0.1865424	0.23562540	2.5960994	20	12 20.7	17.1
71179 1999 XM ₂₁₃	15.2	X	316.10979	229.53182	196.84455	8.47569	0.0784831	0.23361001	2.6110093	20	11 27.2	18.3
71180 1999 XG ₂₁₄	14.1	X	182.81804	141.84662	105.65809	11.56245	0.0632188	0.19116917	2.9844031	20	—	—
71181 1999 XA ₂₁₅	14.4	X	5.83762	291.63678	116.53787	13.08127	0.1218260	0.18824789	3.0151990	20	—	—
71182 1999 XB ₂₁₅	15.0	X	224.06668	235.13818	152.66194	4.84229	0.0870882	0.21434883	2.7651709	20	5 26.6	19.1
71183 1999 XO ₂₁₅	15.2	X	125.40085	322.66269	165.59869	7.61300	0.1960655	0.21152815	2.7896985	20	6 24.8	19.8
71184 1999 XJ ₂₁₇	15.8	X	209.84632	67.32390	335.60107	0.24668	0.3057796	0.21653811	2.7465013	20	5 19.0	20.9
71185 1999 XS ₂₂₀	14.9	X	243.35225	315.24655	75.51405	15.85177	0.0292169	0.22184392	2.7025332	20	6 28.4	18.7
71186 1999 XX ₂₂₂	14.3	X	234.27353	167.17797	333.11301	10.49844	0.0578247	0.18091629	3.0961187	20	10 23.9	18.9
71187 1999 XG ₂₂₄	14.9	X	193.94496	100.06333	293.96022	1.21261	0.0850306	0.21070014	2.7970023	20	4 30.1	19.2
71188 1999 XH ₂₂₄	14.6	X	228.30425	219.26220	104.53481	10.08192	0.2201246	0.20666117	2.8333276	20	3 8.0	19.5
71189 1999 XL ₂₂₉	15.0	X	272.56615	14.89753	2.99419	11.76162	0.1871967	0.22520738	2.6755576	20	6 27.1	18.9
71190 1999 XO ₂₂₉	14.4	X	82.26075	108.12573	358.80084	8.77537	0.1276631	0.20904279	2.8117665	20	3 30.3	18.1
71191 1999 XX ₂₂₉	14.6	X	165.64494	126.81579	346.33154	7.94958	0.1470661	0.21957805	2.7210933	20	7 12.9	19.0
71192 1999 XC ₂₃₀	14.2	X	114.90281	44.93595	30.86198	14.24486	0.1320199	0.20946307	2.8080041	20	4 4.9	18.2
71193 1999 XG ₂₃₁	13.0	X	314.14308	7.60731	73.08432	19.66748	0.1497468	0.18148135	3.0896886	20		

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
71201 1999 <i>XL</i> ₂₃₉	14.8	X	329.44213	33.96552	279.04032	13.80899	0.1518134	0.22434395	2.6824181	20	7 3.3	17.4
71202 1999 <i>XJ</i> ₂₄₁	14.8	X	292.34187	36.83044	15.82232	16.20432	0.1790191	0.22580639	2.6708237	20	9 20.2	17.8
71203 1999 <i>XK</i> ₂₄₂	14.9	X	264.91894	46.18578	16.63542	10.47574	0.0837326	0.22366761	2.6878229	20	9 5.6	18.5
71204 1999 <i>XQ</i> ₂₄₂	14.1	X	214.86727	123.38811	36.66038	14.19728	0.2072100	0.22671373	2.6636930	20	10 22.3	18.2
71205 1999 <i>XD</i> ₂₄₄	15.8	X	228.71146	146.74369	202.06163	7.97960	0.3339820	0.21714146	2.7414114	20	3 27.2	20.9
71206 1999 <i>XK</i> ₂₄₄	15.0	X	238.35914	257.11591	170.19105	15.17962	0.0935521	0.22337417	2.6901764	20	7 30.8	19.0
71207 1999 <i>XB</i> ₂₄₅	14.8	X	261.66244	288.89280	122.70646	14.94418	0.1135884	0.22324282	2.6912314	20	8 8.8	18.5
71208 1999 <i>XO</i> ₂₄₈	14.8	X	29.85464	95.36544	129.29598	12.60184	0.1697788	0.23078733	2.6322557	20	11 1.5	18.0
71209 1999 <i>XX</i> ₂₄₈	15.0	X	284.93786	270.84073	105.13677	15.76302	0.1274244	0.22365917	2.6878906	20	7 21.3	18.3
71210 1999 <i>XE</i> ₂₅₆	15.1	X	190.56082	209.29671	197.37397	5.64763	0.0576256	0.21422466	2.7662392	20	5 14.2	19.1
71211 1999 <i>XO</i> ₂₅₇	14.9	X	311.28982	12.79753	69.54843	10.15681	0.0962426	0.23419584	2.6066532	20	12 9.6	17.7
71212 1999 <i>XX</i> ₂₅₇	14.4	X	209.09483	69.77423	58.40572	12.90551	0.1511098	0.22260423	2.6963759	20	9 17.8	18.8
71213 1999 <i>XA</i> ₂₅₉	14.9	X	84.54075	96.59910	211.95518	4.54063	0.1434552	0.23827409	2.5768244	20	12 24.5	18.9
71214 1999 <i>XE</i> ₂₆₁	14.1	X	158.14795	155.31765	344.62516	18.90277	0.1164149	0.16949378	3.2337036	20	8 9.0	19.3
71215 1999 <i>XY</i> ₂₆₁	13.9	X	74.56597	90.27649	324.00425	27.27834	0.1453181	0.23531743	2.5983640	20	12 28.1	18.2
71216 1999 <i>YP</i> ₁	15.5	X	268.20086	283.84564	151.44846	13.24394	0.2432410	0.22941795	2.6427198	20	8 29.7	18.7
71217 1999 <i>YQ</i> ₁	15.6	X	46.96310	205.46967	195.46405	16.93791	0.1934209	0.24444861	2.5332477	20	—	—
71218 1999 <i>YF</i> ₅	14.0	X	160.48946	89.82351	93.49846	16.93211	0.0693494	0.17599860	3.1535271	20	10 6.6	19.1
71219 1999 <i>YK</i> ₆	14.3	X	153.70350	218.96031	25.12400	15.30042	0.0588344	0.23526544	2.5987468	20	12 11.3	18.3
71220 1999 <i>YY</i> ₈	15.7	X	236.42962	283.15813	342.48984	3.34567	0.1335655	0.24554623	2.5259299	20	1 2.4	19.5
71221 1999 <i>YL</i> ₉	15.1	X	159.29514	150.15015	305.22211	7.11922	0.1891930	0.21198764	2.7856659	20	6 13.8	19.8
71222 1999 <i>YQ</i> ₉	14.2	X	304.13722	108.72469	338.59640	10.57878	0.1371872	0.18290272	3.0736608	20	11 12.9	18.1
71223 1999 <i>YF</i> ₁₀	16.1	X	193.36935	21.02928	105.99312	4.24333	0.0949550	0.22526805	2.6750772	20	8 29.7	20.0
71224 1999 <i>YW</i> ₁₂	15.2	X	346.42773	41.81055	260.44220	11.41273	0.1563242	0.22244009	2.6977022	20	7 19.2	18.1
71225 1999 <i>YU</i> ₁₃	13.6	X	250.73162	48.14293	100.72969	3.90838	0.1252571	0.18186699	3.0853194	20	11 19.5	17.8
71226 1999 <i>YG</i> ₁₄	15.2	X	282.45534	38.85853	132.98911	0.44360	0.1216139	0.18770254	3.0210364	20	—	—
71227 1999 <i>YO</i> ₁₅	15.4	X	257.89438	247.73010	190.48842	2.73978	0.0640660	0.22835951	2.6508795	20	9 15.8	18.9
71228 1999 <i>YP</i> ₁₅	15.2	X	10.02374	26.32949	134.06877	2.76523	0.0476357	0.20574087	2.8417705	20	2 17.8	18.9
71229 1999 <i>YD</i> ₁₇	14.3	X	21.83409	171.58122	136.78382	5.43024	0.1674687	0.17232534	3.1981829	20	10 1.4	18.2
71230 1999 <i>YR</i> ₁₇	13.2	X	298.91426	32.98452	33.86035	17.63302	0.2020719	0.17805540	3.1291950	20	10 8.4	16.9
71231 1999 <i>YY</i> ₂₂	15.4	X	204.46100	122.97869	291.92173	8.06342	0.1481876	0.21505063	2.7591516	20	6 4.2	19.8
71232 1999 <i>YH</i> ₂₆	14.2	X	327.34984	345.25326	190.48842	13.75749	0.1773178	0.22721165	2.6598000	20	10 17.7	16.8
71233 2000 <i>AC</i>	14.9	X	328.79800	274.93573	121.87401	6.72370	0.3103465	0.23117059	2.6293455	20	11 16.6	16.4
71234 2000 <i>AE</i> ₂	14.2	X	311.12099	167.59811	28.13679	6.12195	0.1050125	0.24346374	2.5400749	20	—	—
71235 2000 <i>AD</i> ₃	14.2	X	310.45408	93.39714	95.88648	8.14472	0.1234780	0.19744285	2.9208446	20	—	—
71236 2000 <i>AC</i> ₅	14.4	X	167.54307	95.34437	90.41045	5.01674	0.0802862	0.17632513	3.1496327	20	10 10.2	19.2
71237 2000 <i>AJ</i> ₇	14.5	X	282.35397	20.84051	338.46972	4.58438	0.0375705	0.21976739	2.7195302	20	7 2.9	18.0
71238 2000 <i>AL</i> ₇	15.2	X	25.72450	41.77429	351.18231	5.00884	0.2520206	0.24010307	2.5637219	20	—	—
71239 2000 <i>AM</i> ₇	13.9	X	300.38912	220.20082	59.88357	10.20056	0.1153624	0.21089607	2.7952697	20	4 9.7	17.7
71240 2000 <i>AU</i> ₇	14.6	X	358.38364	333.61441	72.88693	14.84674	0.0839420	0.23582030	2.5946688	20	—	—
71241 2000 <i>AG</i> ₈	15.3	X	346.63360	64.39948	331.18372	6.66561	0.1947757	0.23397349	2.6083044	20	12 15.3	18.0
71242 2000 <i>AQ</i> ₈	16.0	X	239.30817	39.58866	28.10480	4.63481	0.2283850	0.22319389	2.6916248	20	7 19.5	20.3
71243 2000 <i>AK</i> ₉	15.1	X	323.91675	320.82991	69.69228	7.16493	0.1968873	0.22993096	2.6387875	20	10 21.0	17.4
71244 2000 <i>AM</i> ₉	14.6	X	15.59825	281.14259	79.76401	14.49369	0.1517399	0.23246467	2.6195785	20	12 9.8	17.6
71245 2000 <i>AE</i> ₁₀	14.4	X	351.18531	268.71661	53.79161	15.71410	0.1151883	0.22723952	2.6595825	20	9 10.5	17.7
71246 2000 <i>AB</i> ₁₁	15.3	X	248.00128	159.39737	291.35930	7.06812	0.2818372	0.22727940	2.6592715	20	8 17.8	19.5
71247 2000 <i>AJ</i> ₁₁	15.2	X	153.23467	234.54096	295.61060	2.84076	0.1503784	0.22340654	2.6899164	20	9 8.4	19.4
71248 2000 <i>AJ</i> ₁₃	15.0	X	221.81596	24.90115	1.99857	3.45783	0.0944705	0.21612894	2.7499667	20	5 20.2	19.2
71249 2000 <i>AK</i> ₁₄	14.8	X	275.45663	301.15864	79.95498	13.38988	0.1716121	0.22298315	2.6933204	20	7 7.1	18.4
71250 2000 <i>AS</i> ₁₄	15.2	X	78.31830	3.49933	3.04677	1.59673	0.1996596	0.24366071	2.5387058	20	—	—
71251 2000 <i>AH</i> ₁₅	14.7	X	222.57916	79.49319	293.67449	4.20836	0.0829788	0.21403415	2.7678805	20	5 3.8	18.8
71252 2000 <i>AR</i> ₁₅	14.5	X	276.23963	249.42343	287.41670	9.15703	0.0398640	0.19290930	2.9664288	20	—	—
71253 2000 <i>AT</i> ₁₅	15.0	X	227.70440	335.89412	73.62416	3.86789	0.0759604	0.21860971	2.7291228	20	6 28.3	19.0
71254 2000 <i>AV</i> ₁₅	14.5	X	304.38304	71.76231	276.60214	12.99804	0.1495009	0.22237468	2.6982312	20	7 8.6	17.7
71255 2000 <i>AU</i> ₁₆	14.4	X	224.92114	344.98275	94.53968	18.36068	0.0700859	0.22133973	2.7066357	20	8 7.3	18.4
71256 2000 <i>AV</i> ₁₆	14.0	X	136.59101	26.33882	274.67312	5.50755	0.0837966	0.19118225	2.9842670	20	—	—
71257 2000 <i>AV</i> ₁₇	15.0	X	160.77824	28.81895	35.72879	1.88466	0.1952854	0.21204629	2.7851522	20	5 8.2	19.7
71258 2000 <i>AO</i> ₂₀	15.2	X	182.63144	67.52615	42.78115	3.89656	0.1248259	0.21911172	2.7249528	20	7 25.6	19.5
71259 2000 <i>AX</i> ₂₂	14.7	X	280.87833	144.77959	344.79625	1.22219	0.1102917	0.18625201	3.0367012	20	12 8.3	18.4
71260 2000 <i>AB</i> ₂₃	14.9	X	259.77073	302.68010	79.55878	6.08264	0.1707771	0.22006248	2.7170985	20	6 18.4	18.9
71261 2000 <i>AC</i> ₂₃	14.7	X	243.07974	305.27796	81.60037	8.27996	0.0814820	0.21708945	2.7418492	20	6 16.2	18.6
71262 2000 <i>AR</i> ₂₃	14.8	X	163.25829	24.40671	67.72929	5.26636	0.0373731	0.21392436	2.7688274	20	6 8.9	18.8
71263 2000 <i>AN</i> ₂₅	14.0	X	321.02729	158.60960	78.50722	10.04784	0.1296041	0.20440290	2.8541580	20	3 13.6	17.8
71264 2000 <i>AT</i> ₂₇	14.6	X	247.72619	183.96456	318.31442	6.99203	0.1149139	0.18255770	3.0775323	20	11 5.9	19.1
71265 2000 <i>AW</i> ₂₇	15.1	X	207.61023	351.35035	59.56518	3.37114	0.1013167	0.21486506	2.7607400	20	6 4.9	19.2
71266 2000 <i>AC</i> ₂₈	15.0	X	177.45667	249.20281	97.71653	3.17716	0.0813962	0.20213659	2.8754518	20	2 17.1	19.3
71267 2000 <i>AL</i> ₂₉	14.5	X	323.91104	74.34426	16.17865	1.69379	0.1384282	0.18700161	3.0285807	20	12 26.2	18.0
71268 2000 <i>AF</i> ₃₀	14.4	X	84.54236	312.39950	84.70677	3.10162	0.0967477	0.19603323	2.9348298	20	1 3.6	18.1
71269 2000 <i>AK</i> ₃₁	14.6	X	282.91829	333.61389	76.29652	2.56538	0.2124944	0.22525520	2.6751789	20	8 21.9	17.6
71270 2000 <i>AZ</i> ₃₁	14.7	X	185.44412	99.37283	327.76395	8.31614	0.1357038	0.21338437	2.7734966	20	5 31.7	19.2
71271 2000 <i>AB</i> ₃₂	13.7	X	182.82740	216.72177	312.25348	17.19743	0.1413512	0.17577858	3.1561581	20	9 21.9	19.1
71272 2000 <i>AY</i> ₃₃	14.1	X	196.81276	232.95306								

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
71281 2000 AD ₄₇	14.7 ^m	X	172.60093	8.63289	109.80490	10.55811	0.0960128	0.21539556	2.7562052	20	7 25.3	18.9
71282 2000 Holuby	13.9	X	331.79084	305.65147	128.54710	12.27755	0.1145543	0.18376103	3.0640824	20	12 17.9	17.7
71283 2000 AB ₅₀	14.4	X	352.35464	163.23156	285.02385	9.05712	0.0682998	0.19007347	2.9958614	20	—	—
71284 2000 AE ₅₀	14.7	X	244.52767	5.23237	120.18602	2.60840	0.1478670	0.18037636	3.1022941	20	10 11.6	19.1
71285 2000 AB ₅₁	15.0	X	287.19964	55.85706	12.03712	3.13880	0.1072080	0.22779347	2.6552690	20	10 8.6	17.9
71286 2000 AX ₅₁	15.1	X	124.04862	81.87385	2.15463	5.98840	0.0982211	0.26126863	2.4233224	20	4 14.6	18.3
71287 2000 AM ₅₂	15.1	X	186.38474	1.79936	38.93610	10.46281	0.1764875	0.21647369	2.7470463	20	4 30.7	19.7
71288 2000 AD ₅₃	14.7	X	46.56837	103.88197	260.29837	11.96995	0.1983276	0.24087961	2.5582090	20	—	—
71289 2000 AZ ₅₃	14.2	X	23.75156	79.83929	303.33355	8.63945	0.0725671	0.18527994	3.0473134	20	12 25.2	18.4
71290 2000 AP ₅₄	14.9	X	235.41473	109.87675	314.82195	4.01392	0.1504538	0.21935204	2.7229621	20	7 19.2	19.0
71291 2000 AS ₅₆	14.8	X	74.42349	356.12013	110.48933	12.11359	0.1581582	0.20225863	2.8742950	20	3 31.5	18.7
71292 2000 AO ₅₇	15.4	X	324.35061	307.96726	115.57920	4.81678	0.1796001	0.23165767	2.6256586	20	12 8.6	17.7
71293 2000 AX ₅₈	14.8	X	269.54766	113.97603	325.01019	4.86770	0.1738408	0.22569646	2.6716910	20	9 14.6	18.2
71294 2000 AB ₅₉	15.1	X	14.78857	90.63897	314.78586	12.01289	0.2017045	0.23641721	2.5902996	20	—	—
71295 2000 AG ₅₉	14.1	X	326.59383	300.18094	114.52643	13.00683	0.0945709	0.18118092	3.0931032	20	11 17.3	18.2
71296 2000 AH ₆₀	15.3	X	263.99683	100.37617	309.63620	3.83655	0.1593423	0.22070475	2.7118246	20	8 1.7	18.8
71297 2000 AF ₆₂	14.0	X	316.26050	341.52171	122.93622	14.60260	0.1121286	0.23344782	2.6122185	20	—	—
71298 2000 AH ₆₂	14.2	X	18.37807	248.47887	127.37566	4.24548	0.1090651	0.18210655	3.0826130	20	12 12.9	18.2
71299 2000 AY ₆₂	13.7	X	303.94819	1.19239	97.16649	7.95235	0.1242376	0.18337840	3.0683432	20	12 2.9	17.4
71300 2000 AB ₆₅	14.3	X	250.97233	165.13899	312.80061	12.37889	0.1141968	0.22597023	2.6695326	20	10 14.7	18.2
71301 2000 AY ₆₅	14.4	X	318.69755	346.87326	107.23665	12.51826	0.1020130	0.18384227	3.0631796	20	12 21.7	18.2
71302 2000 AO ₆₆	14.1	X	17.93883	39.53899	356.83259	9.34604	0.0971092	0.18411106	3.0601976	20	—	—
71303 2000 AZ ₆₇	14.8	X	167.59171	286.70499	107.89551	3.72480	0.0678936	0.20441939	2.8540045	20	4 4.8	19.0
71304 2000 AE ₆₈	14.1	X	154.07214	30.79471	113.39805	9.52994	0.1308300	0.21447782	2.7640621	20	8 8.9	18.5
71305 2000 AG ₆₈	14.4	X	60.61942	243.40335	77.07761	16.23557	0.1300907	0.23724946	2.5842383	20	12 12.6	18.0
71306 2000 AS ₆₉	14.2	X	124.77995	94.01462	98.85715	13.64857	0.1139451	0.22315048	2.6919738	20	9 15.3	18.5
71307 2000 AO ₇₀	15.5	X	214.45528	261.23375	127.85834	5.69860	0.1258051	0.21615333	2.7497598	20	5 15.8	19.8
71308 2000 AU ₇₀	15.0	X	268.50760	183.72351	193.93419	4.54048	0.0928204	0.22117212	2.7080029	20	7 4.5	18.7
71309 2000 AS ₇₁	14.3	X	262.19332	359.44732	93.19083	14.99630	0.0828924	0.23007863	2.6376583	20	10 17.5	18.0
71310 2000 AJ ₇₄	15.2	X	71.15453	165.71425	188.04748	4.68432	0.2229185	0.24144935	2.5541831	20	—	—
71311 2000 AO ₇₅	15.1	X	14.01550	249.03139	140.13109	5.42517	0.3185883	0.23865513	2.5740809	20	—	—
71312 2000 AT ₇₅	14.5	X	0.53557	300.71460	107.16877	14.18103	0.1829073	0.23744600	2.5828121	20	—	—
71313 2000 AS ₇₆	14.6	X	243.70069	17.06060	102.34490	8.04215	0.0553876	0.18123428	3.0924961	20	10 18.7	19.1
71314 2000 AW ₇₆	14.3	X	116.50794	297.09385	121.39374	3.06080	0.0464696	0.20449746	2.8532781	20	3 3.2	18.1
71315 2000 AM ₇₇	14.8	X	18.99469	278.70177	126.70449	6.85503	0.2857464	0.24046230	2.5611679	20	—	—
71316 2000 AA ₇₈	15.5	X	131.30176	309.00469	128.94698	5.26461	0.1680682	0.25737918	2.4476751	20	4 26.8	19.2
71317 2000 AY ₇₈	14.2	X	201.88927	180.28836	232.63758	6.81909	0.1284236	0.21539063	2.7562473	20	5 31.6	18.4
71318 2000 AO ₈₁	15.1	X	193.56095	236.00901	151.80151	3.41245	0.0803261	0.21164424	2.7886783	20	4 23.7	19.2
71319 2000 AQ ₈₂	15.0	X	288.08788	219.35988	213.15628	0.55955	0.1236233	0.18074881	3.0980309	20	10 4.7	19.0
71320 2000 AV ₈₂	14.0	X	57.01576	197.16027	117.75857	16.58004	0.1826327	0.18210733	3.0826042	20	12 1.2	18.7
71321 2000 AB ₈₃	14.5	X	197.19232	321.79626	167.45752	5.05517	0.1318330	0.17485711	3.1672367	20	8 27.5	19.6
71322 2000 AP ₈₃	14.6	X	87.08236	303.19922	112.01697	3.15001	0.0507697	0.19874957	2.9080280	20	1 22.9	18.3
71323 2000 AF ₈₄	15.0	X	193.03314	190.54891	218.98025	3.67728	0.0676787	0.21231389	2.7828114	20	5 19.9	19.2
71324 2000 AJ ₈₄	14.3	X	251.72737	323.41106	202.26765	4.02299	0.0412836	0.18605389	3.0388567	20	12 22.8	18.5
71325 2000 AN ₈₄	14.9	X	290.53609	241.95969	118.18542	16.26087	0.2738573	0.22143725	2.7058409	20	6 14.8	18.5
71326 2000 AU ₈₄	13.8	X	45.24193	47.52457	277.93686	7.91623	0.0857315	0.18025535	3.1036824	20	11 10.7	18.2
71327 2000 AA ₈₅	14.4	X	237.49777	8.63409	132.41006	1.97126	0.1238451	0.18027194	3.1034920	20	10 25.3	18.9
71328 2000 AH ₈₅	14.4	X	86.62996	37.40902	119.88885	8.82770	0.1533686	0.20894958	2.8126026	20	6 16.1	18.4
71329 2000 AH ₈₆	14.0	X	212.64044	290.96423	238.03082	0.55526	0.1774584	0.17906534	3.1174179	20	10 25.8	19.0
71330 2000 AZ ₈₆	13.8	X	128.44818	71.18929	127.34809	9.69343	0.1211780	0.17183299	3.2042890	20	9 17.8	18.9
71331 2000 AY ₈₉	14.8	X	100.91715	216.72112	204.98398	4.13227	0.1094193	0.20210769	2.8757259	20	2 23.8	18.7
71332 2000 AQ ₉₀	14.4	X	89.14493	251.30312	122.92752	11.19816	0.1193473	0.19309834	2.9644925	20	—	—
71333 2000 AW ₉₁	13.6	X	149.54376	285.95886	296.30152	6.38064	0.1923348	0.17507605	3.1645056	20	10 30.9	19.0
71334 2000 AP ₉₄	14.0	X	335.92262	168.72876	313.41811	9.75146	0.0458123	0.19200738	2.9757111	20	—	—
71335 2000 AK ₉₆	13.9	X	294.04866	317.17556	134.35327	18.08901	0.2035815	0.18129677	3.0917853	20	11 4.5	17.9
71336 2000 AE ₉₉	14.9	X	244.51469	270.92148	165.51366	3.75907	0.1725068	0.22762911	2.6565471	20	8 10.7	18.6
71337 2000 AG ₉₉	15.0	X	201.29942	279.17946	105.97468	3.42252	0.1946726	0.26530943	2.3986539	20	4 24.3	18.9
71338 2000 AK ₉₉	14.6	X	245.26861	30.90616	69.91554	13.90864	0.1259333	0.23064533	2.6333360	20	9 28.8	18.5
71339 2000 AR ₉₉	14.5	X	189.91887	192.07828	160.95822	5.28300	0.0324627	0.25854792	2.4402933	20	2 29.5	17.8
71340 2000 AW ₉₉	14.8	X	77.54509	4.16626	81.39112	8.08718	0.1165939	0.25423013	2.4678459	20	2 21.5	17.7
71341 2000 AD ₁₀₁	14.6	X	149.02692	328.24820	120.62739	7.12394	0.0928719	0.26373835	2.4081703	20	5 23.6	18.1
71342 2000 AJ ₁₀₂	14.9	X	297.08148	2.62804	93.67246	9.76258	0.0768709	0.23589515	2.5941199	20	12 7.9	18.8
71343 2000 AV ₁₀₂	14.1	X	70.23602	70.28184	100.32156	8.65629	0.1542082	0.21336789	2.7736394	20	6 12.2	17.6
71344 2000 AF ₁₀₃	15.4	X	11.49270	195.39133	154.96507	4.41415	0.1534192	0.23386051	2.6091444	20	11 21.2	18.4
71345 2000 AH ₁₀₄	15.3	X	268.88840	171.79646	122.75544	7.17522	0.2447672	0.22398716	2.6852660	20	6 21.9	19.1
71346 2000 AV ₁₀₄	14.4	X	244.22970	228.63890	97.44213	18.60437	0.1562677	0.21322732	2.7748584	20	4 3.1	19.1
71347 2000 AH ₁₀₅	14.7	X	260.17646	217.66373	110.22746	17.22117	0.1853951	0.21484877	2.7608796	20	4 17.0	19.3
71348 2000 AL ₁₀₇	14.2	X	308.96728	328.30674	115.74832	16.68720	0.0558909	0.18496013	3.0508250	20	11 30.3	18.4
71349 2000 AP ₁₀₇	13.6	X	54.85743	305.84680	123.10954	14.17371	0.0763302	0.19720476	2.9231950	20	—	—
71350 2000 AF ₁₀₈	15.0	X	83.52058	213.95907	181.12666	1.85019	0.1048876	0.19689091	2.9263006	20	—	—
71351 2000 AJ ₁₀₈	15.1	X	283.65043	147.19074	230.35751	2.20107	0.1155593	0.22124954	2.7073712	20	7 22.3	18.4
71352 2000 AH ₁₀₉	14.1	X	148.95654	281.62473	254.30698	4.10839	0.0741384	0.17508299	3.1645120	20	9 4.3	19.0
71353 2000 AT ₁₁₀	14.9	X	308.97652	243.73079	125.33625	15.13098	0.1300487	0.22388225	2.6861047	20	8 21.6	17.9
71354 2000 AO ₁₁₁	14.6	X	298.13100	235.65756	131.99065	14.706						

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
71361 2000 AP ₁₂₉	14.1	X	191.07824	91.86261	137.89658	10.79828	0.0562088	0.18333555	3.0688213	20	12 26.4	18.8
71362 2000 AB ₁₃₃	14.3	X	30.21891	142.42902	322.03124	16.41366	0.1027799	0.19568918	2.9382687	20	1 11.3	18.0
71363 2000 AK ₁₃₄	14.9	X	227.18072	234.66092	317.76483	5.52947	0.0560989	0.18657663	3.0331779	20	12 23.7	19.2
71364 2000 AW ₁₃₄	14.3	X	263.12510	313.96496	75.37974	9.22603	0.0880509	0.21944628	2.7221825	20	7 15.2	18.0
71365 2000 AY ₁₃₄	14.5	X	210.21702	218.31163	333.36227	6.44533	0.1294804	0.18304614	3.0720551	20	11 22.7	19.3
71366 2000 AU ₁₃₅	14.5	X	178.93413	25.33034	306.46056	11.79825	0.0722747	0.19941724	2.9015335	20	1 30.2	18.9
71367 2000 AO ₁₃₇	14.1	X	342.44211	96.63230	358.77283	11.38751	0.2368800	0.23444529	2.6048040	20	—	—
71368 2000 AX ₁₃₇	13.9	X	256.98247	107.54092	66.60218	4.94848	0.1909108	0.18085674	3.0967983	20	12 17.4	17.9
71369 2000 AJ ₁₃₉	14.1	X	241.69619	325.30166	83.79975	12.89767	0.1799165	0.22464490	2.6800219	20	7 2.1	18.1
71370 2000 AK ₁₃₉	15.3	X	116.55654	332.82102	93.02696	9.78562	0.1972547	0.25777977	2.4451387	20	4 1.6	19.0
71371 2000 AR ₁₃₉	14.5	X	18.89210	302.31864	89.49014	14.05242	0.1716274	0.24149404	2.5538680	20	—	—
71372 2000 AS ₁₃₉	14.3	X	159.02666	175.81166	125.40039	6.73250	0.0374931	0.24786867	2.5098915	20	—	—
71373 2000 AQ ₁₄₀	14.8	X	211.56553	102.86120	119.74435	1.50360	0.2391744	0.23452222	2.6042343	20	12 30.6	18.6
71374 2000 AJ ₁₄₁	15.1	X	220.32308	261.41530	189.13699	6.13703	0.2064734	0.21937363	2.7227834	20	7 29.4	19.6
71375 2000 AT ₁₄₁	13.8	X	267.20935	269.64296	168.06527	10.25676	0.0785616	0.17495865	3.1660111	20	9 18.6	18.0
71376 2000 AP ₁₄₃	14.7	X	14.17147	118.51598	291.87155	18.85335	0.0482994	0.18465117	3.0542272	20	—	—
71377 2000 AO ₁₄₅	14.0	X	206.83891	81.96108	124.68372	12.24043	0.0802845	0.18379821	3.0636692	20	12 14.9	18.7
71378 2000 AP ₁₄₅	14.5	X	337.74331	212.53004	286.06665	11.95033	0.0479575	0.19085470	2.9876804	20	—	—
71379 2000 AA ₁₄₆	14.7	X	183.90249	60.74657	347.74963	4.92484	0.1773306	0.26600854	2.3944494	20	5 5.4	18.6
71380 2000 AC ₁₄₈	14.3	X	232.38770	237.08051	288.66044	7.75254	0.0937355	0.18215305	3.0820883	20	11 20.3	18.8
71381 2000 AD ₁₄₉	14.3	X	142.85749	311.81925	177.55137	6.54910	0.0893580	0.26508822	2.3999881	20	7 7.8	17.8
71382 2000 AT ₁₄₉	14.7	X	173.70050	230.50372	200.92615	7.61101	0.2104999	0.21370124	2.7707543	20	5 28.7	19.5
71383 2000 AH ₁₅₁	14.8	X	236.82508	301.40499	118.75549	14.18895	0.1749205	0.21992840	2.7182027	20	7 11.7	18.8
71384 2000 AQ ₁₅₁	15.0	X	178.31611	305.66917	86.27971	6.93892	0.1185480	0.26441163	2.4040806	20	4 12.9	18.6
71385 2000 AR ₁₅₁	14.9	X	231.68712	281.67954	66.54410	7.28416	0.1166556	0.26663252	3.3907123	20	4 11.3	18.4
71386 2000 AE ₁₅₃	14.3	X	135.77554	300.46187	273.80065	4.26787	0.1319816	0.17415916	3.1756929	20	10 9.1	19.4
71387 2000 AD ₁₅₄	14.5	X	342.34366	250.60376	80.05994	13.88374	0.1965727	0.22469647	2.6796118	20	9 4.4	17.3
71388 2000 AT ₁₅₄	15.1	X	244.76127	345.41739	34.32788	2.98908	0.0812824	0.21970904	2.7200117	20	6 8.6	19.0
71389 2000 AQ ₁₅₆	15.1	X	250.85015	90.01126	332.80470	4.49550	0.0864642	0.22466484	2.6798633	20	8 13.6	18.7
71390 2000 AB ₁₆₁	14.3	X	81.17143	285.14478	97.84854	11.12799	0.0766430	0.19214705	2.9742690	20	—	—
71391 2000 AK ₁₆₁	14.5	X	316.89788	193.46045	316.95497	14.03779	0.1275693	0.19039186	2.9925205	20	—	—
71392 2000 AV ₁₆₂	15.0	X	308.98836	1.39355	75.14647	13.40137	0.1404357	0.23681498	2.5873981	20	11 28.5	17.4
71393 2000 AA ₁₆₃	14.9	X	178.06046	285.14684	109.59472	11.58238	0.0903804	0.26001353	2.4311145	20	4 18.2	18.6
71394 2000 AX ₁₆₃	15.0	X	264.41393	216.26728	170.64629	2.11142	0.1770212	0.21915095	2.7246276	20	6 29.3	18.9
71395 2000 AA ₁₆₄	14.3	X	50.98672	132.66625	252.99028	8.23056	0.0799435	0.18875750	3.0097695	20	—	—
71396 2000 AV ₁₆₆	14.2	X	136.27945	146.66211	240.22675	11.64884	0.1116502	0.20172805	2.8793328	20	2 18.5	18.8
71397 2000 AJ ₁₆₇	13.9	X	102.19325	343.43073	240.44278	10.86651	0.0598747	0.17209609	3.2010224	20	9 7.3	18.8
71398 2000 AV ₁₆₈	14.8	X	283.00092	331.62993	104.54153	15.83851	0.0777668	0.23185880	2.6241399	20	10 26.6	18.4
71399 2000 AZ ₁₆₈	15.2	X	346.40464	327.35827	158.69105	7.06338	0.2090924	0.24362719	2.5389387	20	—	—
71400 2000 AF ₁₆₉	14.6	X	132.03830	355.02732	114.66561	14.47531	0.0876957	0.21445169	2.7642866	20	6 1.7	18.8
71401 2000 AL ₁₇₀	15.1	X	175.38756	280.60013	152.70083	9.20132	0.1907850	0.21588022	2.7520785	20	6 2.1	19.8
71402 2000 AM ₁₇₀	14.7	X	284.32161	143.73252	222.67806	14.31800	0.1474389	0.22290117	2.6939807	20	6 30.9	18.4
71403 2000 AO ₁₇₀	14.2	X	277.21916	256.46554	116.57433	13.96024	0.2154043	0.22379966	2.6867656	20	6 22.4	17.8
71404 2000 AP ₁₇₂	14.7	X	194.76944	297.21700	126.36110	10.61601	0.1824564	0.21690625	2.7433928	20	6 6.9	19.4
71405 2000 AG ₁₇₃	14.7	X	189.51081	227.78498	221.96016	8.74368	0.1241724	0.21801484	2.7340850	20	7 3.8	19.1
71406 2000 AK ₁₇₃	14.7	X	290.76508	293.24225	129.09693	12.16508	0.1803018	0.22966915	2.6407925	20	10 2.5	17.7
71407 2000 AP ₁₇₅	14.5	X	6.68179	246.95463	123.65298	15.09325	0.1453300	0.23309970	2.6148186	20	12 10.9	17.8
71408 2000 AT ₁₇₅	14.8	X	4.17106	255.19149	197.00634	9.55388	0.0707687	0.19341569	2.9612489	20	—	—
71409 2000 AT ₁₇₈	15.0	X	41.63753	118.93911	251.09662	11.66651	0.2723235	0.23828075	2.5767764	20	—	—
71410 2000 AG ₁₇₉	14.3	X	346.81261	191.12366	213.37308	7.63517	0.1810263	0.23375109	2.6099586	20	12 25.9	17.1
71411 2000 AM ₁₈₀	14.6	X	345.00690	308.54214	151.95819	10.69060	0.0493247	0.19007434	2.9958522	20	—	—
71412 2000 AF ₁₈₁	14.8	X	221.02054	247.65699	170.83978	9.03459	0.1752823	0.21755146	2.7379659	20	6 23.4	19.3
71413 2000 AQ ₁₈₅	14.1	X	217.27808	288.23613	185.83329	12.92722	0.1509285	0.22848639	2.6498980	20	8 30.5	18.2
71414 2000 AO ₁₈₅	14.1	X	201.93184	41.46262	103.45188	12.87982	0.1341851	0.23052534	2.6324497	20	10 3.4	18.3
71415 2000 AD ₁₈₇	14.7	X	300.40277	343.71341	111.99600	15.71258	0.0888571	0.23664925	2.5886061	20	12 13.3	17.8
71416 2000 AY ₁₈₇	15.1	X	208.80353	324.55914	126.19230	14.29538	0.1327820	0.22222632	2.6994320	20	7 25.8	19.2
71417 2000 AE ₁₈₈	14.7	X	222.38858	289.37514	123.62772	13.43209	0.3312429	0.22105585	2.7089524	20	6 9.7	19.8
71418 2000 AU ₁₉₀	14.8	X	346.34869	327.12400	140.85448	13.98715	0.2257209	0.24040490	2.5615755	20	—	—
71419 2000 AH ₁₉₁	14.6	X	229.73040	230.96335	157.65093	13.71104	0.1862934	0.21668847	2.7452307	20	5 27.1	19.2
71420 2000 AP ₁₉₁	14.6	X	260.87479	190.29485	235.71572	13.23519	0.1602985	0.22464410	2.6800283	20	8 13.2	18.6
71421 2000 AJ ₁₉₂	14.9	X	275.38540	275.73820	150.31450	12.98276	0.1676944	0.22617636	2.6679104	20	9 9.6	18.1
71422 2000 AE ₁₉₅	15.0	X	218.17114	207.95256	222.11675	8.41546	0.1528830	0.21696341	2.7429110	20	7 5.8	19.4
71423 2000 AT ₁₉₅	15.4	X	209.11979	253.79971	164.75779	9.43275	0.2138652	0.21566137	2.7539400	20	6 11.2	20.2
71424 2000 AB ₁₉₇	14.4	X	350.08211	149.58033	256.37243	10.79987	0.1516312	0.18394294	3.0620619	20	12 13.1	17.9
71425 2000 AC ₁₉₇	13.7	X	344.85663	73.94559	263.76690	14.61374	0.0743295	0.17144685	3.2090984	20	8 24.1	18.2
71426 2000 AJ ₁₉₈	13.9	X	272.99235	171.09495	255.39652	8.09428	0.0679521	0.17402389	3.1773384	20	9 8.6	18.4
71427 2000 AE ₁₉₉	14.2	X	310.07074	323.07226	99.91443	15.39046	0.1655887	0.23623506	2.5916309	20	11 14.9	17.0
71428 2000 AZ ₁₉₉	14.8	X	168.29881	255.00735	163.30397	13.08613	0.2022637	0.21602585	2.7508415	20	5 10.6	19.6
71429 2000 AZ ₂₀₀	14.4	X	19.20658	223.35943	146.06893	20.79901	0.3002775	0.23724172	2.5842945	20	—	—
71430 2000 AN ₂₀₁	14.0	X	253.88353	276.86700	183.12072	15.96948	0.1152335	0.17853546	3.1235830	20	9 9.6	18.6
71431 2000 AC ₂₀₂	15.4	X	282.07830	327.01751	116.36980	13.80420	0.1388065	0.23324649	2.6137215	20	10 26.0	18.7
71432 2000 AO ₂₀₂	14.5	X	278.94384	189.09584	220.66870	11.26456	0.1738986	0.22465871	2.6799121	20	8 15.7	18.1
71433 2000 AE ₂₀₃	13.5	X	79.14816	229.83198	274.23755	12.78428	0.0666561	0.20275628	2.8695899	20	5 2.8	17.5

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
71441 2000 AR ₂₂₆	15.1	X	212.70450	276.77083	107.82737	5.27233	0.0801198	0.21206701	2.7849708	20	5 10.9	19.3
71442 2000 AA ₂₃₀	14.6	X	229.21571	264.32594	99.39081	9.76445	0.1235497	0.21042115	2.7994741	20	5 1.4	19.0
71443 2000 AG ₂₃₀	14.1	X	182.30901	173.52856	333.41646	13.60290	0.0841831	0.17268949	3.1936853	20	9 4.2	19.0
71444 2000 AH ₂₃₀	14.1	X	225.16757	78.63181	68.01309	6.87311	0.1091583	0.17810453	3.1286194	20	10 21.3	18.7
71445 Marc	15.4	X	317.56254	326.83920	159.14919	6.27101	0.1575032	0.23895554	2.5719231	20	—	—
71446 2000 AP ₂₃₇	13.4	X	130.39029	228.60060	154.07368	13.41642	0.1928868	0.19776876	2.9176347	20	2 21.4	17.7
71447 2000 AY ₂₃₉	15.0	X	101.13201	185.36781	212.12249	1.32703	0.1036960	0.19664292	2.9287604	20	1 26.2	18.9
71448 2000 AM ₂₄₁	15.3	X	269.21304	239.63823	153.29803	8.07697	0.2445048	0.22320332	2.6915489	20	7 3.4	19.1
71449 2000 AJ ₂₄₂	13.9	X	190.58102	322.50077	179.95380	14.54597	0.1880373	0.17241708	3.1970483	20	9 2.3	19.3
71450 2000 AV ₂₄₂	14.6	X	37.10362	243.82678	210.41207	9.06939	0.0572705	0.19317692	2.9636885	20	1 3.9	18.6
71451 2000 AD ₂₄₃	14.0	X	323.41712	237.99966	265.96843	10.53698	0.1187049	0.23732577	2.5836843	20	—	—
71452 2000 AQ ₂₄₃	14.0	X	286.88577	331.87684	128.59256	18.37219	0.1758546	0.17947975	3.1126174	20	11 7.9	18.2
71453 2000 AW ₂₄₄	15.3	X	275.13118	198.73101	250.06939	7.00837	0.2134545	0.22714195	2.6603441	20	9 28.3	18.5
71454 2000 AC ₂₄₅	14.2	X	317.00326	282.51185	182.99284	15.14998	0.0689376	0.23971127	2.5665146	20	—	—
71455 2000 AD ₂₄₅	15.5	X	329.47703	340.17264	142.43827	14.44767	0.2250354	0.24142406	2.5543614	20	—	—
71456 2000 AQ ₂₄₇	14.1	X	131.78981	172.42376	44.99187	9.68531	0.0469929	0.17486800	3.1671052	20	10 9.9	18.8
71457 2000 AV ₂₄₇	14.2	X	282.95373	309.72595	50.82977	12.20850	0.1860570	0.21727934	3.17202515	20	6 15.6	17.9
71458 2000 BU	14.8	X	293.53831	335.67503	154.32272	6.63176	0.1400285	0.18621828	3.0370680	20	12 25.2	18.5
71459 2000 BJ ₂	14.8	X	110.73313	159.31875	1.39676	26.86328	0.1676350	0.21431724	2.7654426	20	7 31.2	19.6
71460 2000 BA ₃	14.4	X	181.86705	152.70474	115.87625	4.33318	0.1568521	0.18676247	3.0311655	20	—	—
71461 Chowmeeyee	14.3	X	2.92722	79.16192	332.57469	10.59307	0.0309588	0.18206544	3.0830771	20	12 27.9	18.6
71462 2000 BP ₄	14.5	X	199.30709	142.60374	343.71322	12.74746	0.1167252	0.22310031	2.6923774	20	9 1.6	18.5
71463 2000 BQ ₄	15.1	X	288.50440	17.02307	12.97449	10.32612	0.0960090	0.22389648	2.6859909	20	8 24.5	18.5
71464 2000 BB ₇	13.8	X	208.20424	134.39876	32.32133	16.82231	0.0542380	0.17891628	3.1191492	20	10 29.7	18.2
71465 2000 BX ₇	14.4	X	211.42799	200.25532	329.97502	9.45217	0.0153967	0.18163764	3.0879160	20	11 8.8	18.9
71466 2000 BB ₁₀	15.1	X	358.09294	196.27483	135.64746	2.31567	0.1605542	0.17235978	3.1977568	20	9 19.3	18.6
71467 2000 BE ₁₃	15.0	X	129.35047	212.61729	340.02408	2.65007	0.1228642	0.26572899	2.3961285	20	9 18.2	18.3
71468 2000 BY ₁₃	14.6	X	41.96789	310.85948	101.86796	11.40814	0.1144139	0.19179506	2.9779068	20	—	—
71469 2000 BQ ₁₄	13.5	X	268.70678	59.68113	77.77894	17.33162	0.2808362	0.18058268	3.0999307	20	11 9.7	17.7
71470 2000 BV ₁₄	13.4	X	228.65677	78.34111	52.42724	10.88034	0.0421861	0.17529742	3.1619309	20	10 14.9	18.0
71471 2000 BN ₁₅	14.2	X	167.35792	177.22594	55.45883	18.25321	0.1429393	0.18128734	3.0918926	20	11 28.9	19.2
71472 2000 BO ₁₅	13.2	X	61.96951	309.57256	67.76460	15.76039	0.0791874	0.18914181	3.0056912	20	—	—
71473 2000 BG ₁₆	14.5	X	195.34535	203.84572	287.24235	12.30081	0.1258676	0.22605864	2.6688365	20	8 27.8	18.9
71474 2000 BY ₁₆	14.1	X	156.45040	92.40379	81.92654	6.89176	0.0850462	0.17406767	3.1768056	20	9 15.9	19.1
71475 2000 BF ₁₇	15.0	X	204.20182	61.26371	337.95214	4.75850	0.0886503	0.21223364	2.7835129	20	5 16.6	19.3
71476 2000 BG ₁₇	14.5	X	75.97433	236.68459	116.38348	11.13276	0.0251860	0.18746246	3.0236151	20	—	—
71477 2000 BD ₂₄	14.2	X	85.67752	285.08375	56.55061	10.74722	0.0408763	0.18541124	3.0458745	20	—	—
71478 2000 BN ₂₄	14.2	X	299.21350	84.70181	69.53170	11.76804	0.0431743	0.18819309	3.0157843	20	—	—
71479 2000 BL ₂₆	14.6	X	160.23157	83.42906	89.72553	0.25335	0.1311695	0.17142750	3.2093400	20	9 14.8	19.7
71480 Roberthatt	14.5	X	54.91316	142.47376	356.91986	8.01198	0.1525509	0.20127568	2.8836453	20	4 5.2	17.9
71481 2000 BY ₂₉	14.1	X	331.58658	341.58164	112.34552	9.43337	0.0522277	0.18656497	3.0333043	20	—	—
71482 Jennamarie	14.0	X	96.06911	109.90258	109.44803	13.63902	0.0308142	0.17271123	3.1934172	20	8 30.8	18.7
71483 Dickgottfried	14.6	X	97.25795	237.72467	126.33420	10.26515	0.2143596	0.19226665	2.9730354	20	—	—
71484 2000 BE ₃₄	14.3	X	347.64251	277.85249	131.56653	10.43994	0.1041843	0.18180671	3.0860013	20	12 10.6	18.2
71485 2000 BM ₃₄	14.3	X	34.83826	270.75376	116.98697	10.20767	0.0806524	0.18484848	3.0520534	20	—	—
71486 2000 BE ₃₈	14.9	X	77.62528	227.90943	121.79198	1.82228	0.0685826	0.18705282	3.0280279	20	—	—
71487 2000 BE ₄₆	14.8	X	45.27742	220.66425	132.87810	0.73240	0.2201658	0.18227136	3.0807545	20	—	—
71488 2000 BR ₄₉	14.5	X	300.59451	81.22441	324.17116	14.22206	0.1258091	0.22797813	2.6538351	20	9 20.6	17.7
71489 Dynamocamp	13.9	X	190.40524	25.40358	178.46051	0.78343	0.1299442	0.17623162	3.1507468	20	11 18.2	18.7
71490 2000 CY ₇	14.3	X	185.14043	300.53763	5.50218	9.54718	0.0689319	0.19306916	2.9647912	20	1 8.8	18.9
71491 2000 CO ₁₀	14.1	X	101.51439	196.99331	131.43440	11.10810	0.0899966	0.18721517	3.0262771	20	—	—
71492 2000 CT ₁₂	14.5	X	5.75201	242.85841	175.23656	7.35108	0.0611974	0.18641847	3.0348933	20	—	—
71493 2000 CF ₁₃	14.3	X	128.13322	65.35133	293.90368	9.37381	0.1436665	0.19567443	2.9384164	20	1 17.2	18.6
71494 2000 CH ₁₄	14.4	X	279.02086	81.73706	266.62838	7.50408	0.1703766	0.21442781	2.7644919	20	5 28.1	18.2
71495 2000 CL ₁₄	14.1	X	301.32166	163.71472	274.09859	6.88742	0.0279169	0.17972983	3.1097295	20	11 7.2	18.3
71496 2000 CB ₁₈	15.1	X	286.31214	246.75632	159.45466	4.81489	0.2296713	0.22432468	2.6825717	20	8 17.3	18.3
71497 2000 CL ₁₈	13.9	X	20.41912	133.57250	186.47118	4.82833	0.1406003	0.17396373	3.1780708	20	10 9.3	17.7
71498 2000 CH ₂₀	14.2	X	65.40762	249.29746	142.59812	10.65119	0.1112870	0.19093044	2.9868902	20	—	—
71499 2000 CV ₂₀	15.3	X	72.83707	197.01115	227.91254	0.90590	0.0935103	0.19582786	2.9368813	20	1 21.4	19.1
71500 2000 CM ₂₃	15.2	X	41.98051	248.53303	191.90704	4.78864	0.0945958	0.19319565	2.9634970	20	—	—
71501 2000 CQ ₂₃	14.0	X	193.39908	202.74330	287.83954	5.73411	0.0859030	0.17134935	3.2103157	20	8 25.9	19.0
71502 2000 CT ₂₅	14.3	X	185.97343	247.19304	277.20612	3.32721	0.1242972	0.17367312	3.1816151	20	9 26.9	19.4
71503 2000 CR ₂₆	13.9	X	345.10948	182.08912	315.52301	11.16505	0.1402920	0.19162860	2.9796311	20	—	—
71504 2000 CT ₂₈	14.4	X	25.36976	143.34110	312.75322	11.26745	0.0923635	0.19202548	2.9755242	20	—	—
71505 2000 CD ₃₀	13.9	X	196.61619	47.73877	161.22776	5.50002	0.1113866	0.17899743	3.1182064	20	12 2.7	18.7
71506 2000 CS ₃₀	14.6	X	228.88884	338.07835	149.60361	11.25629	0.0837366	0.17648789	3.1476960	20	10 6.0	19.3
71507 2000 CP ₃₄	14.9	X	299.41457	30.02741	62.65040	1.75399	0.1088742	0.17828197	3.1265432	20	11 17.7	18.6
71508 2000 CL ₃₅	14.1	X	151.18157	299.92393	156.31740	5.65903	0.0351412	0.16136890	3.3413565	20	5 31.5	19.0
71509 2000 CT ₃₇	14.5	X	207.92030	57.96608	113.01872	2.41230	0.0323064	0.17894174	3.1188533	20	11 7.6	18.9
71510 2000 CW ₄₉	15.0	X	350.50285	299.56931	198.31300	6.06090	0.0968681	0.24005110	2.5640919	20	—	—
71511 2000 CF ₅₁	13.4	X	141.07884	290.64663	300.70205	7.58684	0.0963540	0.17358768	3.1826591	20	11 1.1	18.5
71512 2000 CL ₅₁	14.6	X	164.48302	172.52831	300.16375	7.10403	0.1717577	0.21188070	2.7866031	20	7 10.0	19.0
71513 2000 CD ₅₅	14.6	X	287.21593	243.21029	289.27157	8.42072	0.0242964	0.19023061	2.9942113	20	—	—
71514 2000 CG ₅₅	14.1	X	219.42274	62.13624	26.19811	5.98201	0.0817121	0.16817964	3.2505269	20	8 6.4	19.0
71515 2000 CL ₅₅	14.9	X	69.07763	270.46342	1							

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
71521 2000 CT ₇₀	13.8 ^m	X	256.42124	208.65407	322.20366	14.48984	0.0441523	0.18142132	3.0903701	20	—	—
71522 2000 CV ₇₂	14.6	X	210.92811	310.37025	290.81278	8.91262	0.0596873	0.18919391	3.0051393	20	—	—
71523 2000 CO ₇₆	14.3	X	325.37517	273.06569	145.43105	11.87226	0.0799859	0.17790007	3.1310162	20	11 18.7	18.5
71524 2000 CM ₇₈	13.8	X	267.89436	259.22076	144.54186	1.85960	0.1574063	0.16812813	3.2511909	20	7 25.6	18.4
71525 2000 CL ₇₉	15.6	X	351.43087	206.91049	192.90527	0.49402	0.1283004	0.18091591	3.0961231	20	12 4.6	19.3
71526 2000 CO ₈₁	14.3	X	262.17012	26.20981	146.50328	0.77493	0.1694351	0.18367985	3.0649851	20	12 26.6	18.4
71527 2000 CD ₈₂	14.5	X	175.28988	151.66817	54.85942	1.62635	0.1503861	0.17559827	3.1583183	20	11 6.4	19.7
71528 2000 CY ₈₄	13.8	X	267.62748	173.47383	344.69048	11.14274	0.1880885	0.18267998	3.0761588	20	12 12.5	18.0
71529 2000 CZ ₈₄	14.4	X	307.52332	312.85101	109.49782	6.04013	0.1341600	0.17782357	3.1319140	20	10 23.1	18.2
71530 2000 CQ ₈₇	14.5	X	14.37877	24.40123	354.99886	1.77095	0.0786748	0.18027013	3.1035128	20	12 6.9	18.7
71531 2000 CL ₈₉	14.2	X	10.48218	40.79592	17.61334	6.93088	0.1823544	0.18501758	3.0501934	20	—	—
71532 2000 CB ₉₁	14.2	X	214.62995	199.90294	355.66894	0.20820	0.1307378	0.17867933	3.1219061	20	12 2.4	18.9
71533 2000 CL ₉₁	14.0	X	281.76146	151.84034	0.69826	3.93765	0.1026060	0.18308698	3.0715983	20	—	—
71534 2000 CF ₉₄	13.4	X	89.46582	271.40869	351.84576	21.47659	0.0407131	0.17008013	3.2262672	20	10 6.2	18.3
71535 2000 CY ₉₃	14.5	X	162.30562	39.81981	137.39814	4.07887	0.1322379	0.17133161	3.2105372	20	9 22.7	19.6
71536 2000 CF ₉₄	13.8	X	342.62063	169.68710	354.18853	8.91605	0.0461213	0.19075816	2.9886884	20	1 20.5	17.9
71537 2000 CE ₉₉	14.7	X	7.63454	269.45459	142.08650	3.75813	0.0791538	0.18420758	3.0591285	20	—	—
71538 Robertfried	14.9	X	13.88023	259.73602	223.30658	12.61778	0.1303035	0.24359328	2.5391743	20	—	—
71539 VanZandt	14.2	X	317.38358	147.86761	279.77057	10.54372	0.0624543	0.17818230	3.1277091	20	11 13.6	18.5
71540 2000 CN ₁₁₃	14.7	X	65.91101	203.80470	128.71955	2.27371	0.0720708	0.18132020	3.0915191	20	12 14.0	19.2
71541 2000 CK ₁₁₅	14.9	X	126.97768	28.67890	165.84948	0.85014	0.0971482	0.17045720	3.2215075	20	9 6.7	19.9
71542 2000 CR ₁₁₆	14.1	X	356.22699	302.31639	103.24130	11.49564	0.1195186	0.18185963	3.0854026	20	12 19.2	17.9
71543 2000 CM ₁₂₀	14.0	X	316.60623	126.96754	264.81032	5.66168	0.1837706	0.17381519	3.1798812	20	9 16.6	17.8
71544 2000 CD ₁₂₃	15.1	X	138.73782	334.85888	87.26238	2.71069	0.0976401	0.20457829	2.8525265	20	4 9.1	19.4
71545 2000 CK ₁₂₄	14.4	X	188.50721	281.66888	343.61002	8.51328	0.0675352	0.18696978	3.0289244	20	—	—
71546 2000 DK ₂	14.6	X	257.49535	77.85297	96.52495	2.18029	0.1276662	0.18242120	3.0790673	20	12 27.9	18.5
71547 2000 DB ₃	12.9	X	15.73481	335.99139	15.34554	16.11454	0.0598793	0.17228534	3.1986779	20	10 28.0	17.2
71548 2000 DY ₃	13.5	X	46.41861	290.90821	352.57199	12.04290	0.0187965	0.17088312	3.2161524	20	9 12.7	17.9
71549 2000 DF ₆	13.7	X	328.98936	92.89072	2.52584	8.76595	0.0901710	0.18504085	3.0499377	20	—	—
71550 2000 DG ₆	14.2	X	263.25364	32.94693	26.67004	6.82214	0.0807257	0.17141901	3.2094459	20	8 23.4	18.7
71551 2000 DW ₆	14.6	X	56.46771	333.85505	20.09881	11.38949	0.0628784	0.18229276	3.0805135	20	12 27.8	19.1
71552 2000 DR ₇	14.6	X	22.36362	142.58379	180.33242	0.94113	0.1727421	0.17377325	3.1803928	20	10 20.1	18.4
71553 2000 DD ₈	14.6	X	233.80347	297.14550	131.98527	2.40252	0.1002223	0.16836740	3.2481099	20	7 25.3	19.4
71554 2000 DV ₁₁	15.9	X	171.84476	282.88084	174.16697	6.00842	0.1036512	0.25724820	2.4485059	20	6 27.4	19.6
71555 2000 DY ₁₅	14.0	X	229.98997	33.62835	56.98544	2.26948	0.1869085	0.16935760	3.2354369	20	8 8.7	19.2
71556 Page	14.5	X	1.37519	159.99139	278.20763	9.45776	0.0961785	0.18621957	3.0370539	20	—	—
71557 2000 DZ ₁₉	14.4	X	100.06801	213.58243	142.72162	11.54849	0.0757574	0.18869847	3.0103972	20	—	—
71558 2000 DH ₂₁	13.9	X	356.94028	190.91592	153.88050	3.59390	0.0854592	0.17303271	3.1894606	20	9 29.9	17.8
71559 2000 DU ₂₂	14.7	X	126.43644	2.88057	345.18609	1.62628	0.2200636	0.19192248	2.9765887	20	1 12.0	19.1
71560 2000 DU ₂₃	14.9	X	103.99748	220.30972	145.87646	13.06913	0.0214794	0.18966290	3.0001833	20	—	—
71561 2000 DU ₂₅	14.6	X	15.80352	337.93252	43.47821	0.62399	0.1969573	0.18226682	3.0808057	20	12 28.2	18.3
71562 2000 DV ₂₅	15.6	X	309.93556	19.46872	129.57893	1.12427	0.0436777	0.18777593	3.0202492	20	—	—
71563 2000 DT ₂₆	14.7	X	280.04954	84.37110	50.46572	1.01813	0.0395483	0.18205276	3.0832201	20	12 20.4	18.8
71564 2000 DG ₂₈	14.5	X	336.19504	20.42539	3.61166	0.35094	0.1454707	0.17618184	3.1513402	20	10 18.5	17.9
71565 2000 DB ₂₉	14.4	X	26.02308	50.20259	335.14638	8.94139	0.1048514	0.18256518	3.0774482	20	—	—
71566 2000 DU ₃₄	14.3	X	184.46405	192.31635	348.01579	2.03795	0.1024581	0.17463384	3.1699357	20	10 21.9	18.8
71567 2000 DV ₃₄	14.4	X	217.85534	88.91917	150.73776	9.79539	0.0281957	0.18634817	3.0356566	20	—	—
71568 2000 DS ₃₉	14.5	X	31.52353	198.10304	177.85929	5.15580	0.1711021	0.18174438	3.0867069	20	—	—
71569 2000 DG ₄₀	16.2	X	210.73338	269.36930	302.58838	1.79245	0.1832269	0.27697359	2.3308293	20	—	—
71570 2000 DR ₄₀	14.3	X	183.11509	66.32916	161.78412	10.16325	0.0508608	0.17954536	3.1118591	20	12 15.9	19.1
71571 2000 DM ₄₂	15.1	X	327.73207	333.63508	135.48859	1.97235	0.1522950	0.18567521	3.0429870	20	—	—
71572 2000 DM ₄₂	13.5	X	307.79928	54.92826	340.30804	25.67003	0.2670069	0.17461845	3.1701219	20	8 29.5	16.8
71573 2000 DO ₄₃	14.7	X	310.08758	11.71446	115.59827	1.84482	0.0780324	0.18441844	3.0567962	20	—	—
71574 2000 DJ ₄₉	14.0	X	26.71316	168.15549	152.52810	24.05852	0.1628688	0.17110012	3.2134325	20	10 27.9	18.5
71575 2000 DC ₅₀	14.6	X	350.69506	271.40352	110.23893	1.76547	0.1980718	0.17755054	3.1351240	20	11 15.1	18.0
71576 2000 DH ₅₃	14.0	X	95.25956	10.74561	326.64820	7.24675	0.0391793	0.18260782	3.0769691	20	—	—
71577 2000 DU ₅₅	14.2	X	348.51673	210.08584	143.39572	1.62495	0.1629461	0.17057396	3.2200372	20	9 30.1	17.7
71578 2000 DO ₅₇	15.3	X	33.85998	199.86761	229.81959	1.65310	0.2231310	0.19065995	2.9897146	20	—	—
71579 2000 DO ₅₈	14.4	X	76.95784	201.31245	173.98147	10.63475	0.1213120	0.18609256	3.0384356	20	—	—
71580 2000 DH ₅₉	14.8	X	54.14013	253.50031	165.45237	10.74547	0.1047041	0.18966343	3.0001778	20	—	—
71581 2000 DG ₆₀	14.3	X	72.76831	219.73466	161.87093	9.15821	0.1031335	0.18638798	3.0352242	20	—	—
71582 2000 DD ₆₁	14.0	X	280.03006	266.41719	151.48166	5.80462	0.1463028	0.17202098	3.2019541	20	8 31.0	18.1
71583 2000 DW ₆₁	14.5	X	336.77525	251.97676	167.06243	6.18906	0.1677316	0.18046030	3.1013320	20	12 7.4	18.0
71584 2000 DD ₆₂	14.6	X	216.02741	321.96661	143.53687	1.12978	0.1507745	0.16997352	3.2276161	20	8 15.7	19.7
71585 2000 DS ₆₄	14.2	X	272.81252	132.23060	290.02239	1.27112	0.1113482	0.17082443	3.2168889	20	8 31.1	18.5
71586 2000 DV ₆₆	14.7	X	347.21024	104.81080	301.01134	0.24927	0.1763199	0.18024022	3.1038651	20	12 8.9	18.0
71587 2000 DX ₆₆	15.5	X	259.28245	342.34362	160.64076	3.27322	0.1383010	0.17938911	3.1136658	20	11 20.7	19.7
71588 2000 DK ₆₈	14.4	X	302.90614	100.02236	354.46627	4.76912	0.1347009	0.17976737	3.1092965	20	11 22.2	18.2
71589 2000 DF ₆₉	14.4	X	258.95105	284.53408	178.09003	5.76544	0.1526726	0.17510993	3.1641874	20	9 28.3	18.6
71590 2000 DN ₇₁	14.7	X	1.18211	193.08545	217.36701	0.41979	0.1314669	0.18086354	3.0967206	20	—	—
71591 2000 DP ₇₁	13.9	X	227.48656	267.41241	185.08341	1.41139	0.1578728	0.16920920	3.2373282	20	8 10.1	18.8
71592 2000 DM ₇₆	14.3	X	239.46808	253.93290	208.90006	1.94810	0.2066000	0.17372548	3.1809758	20	8 29.6	19.1
71593 2000 DP ₇₇	14.6	X	260.60659	40.39030	27.64687	2.02208	0.1575520	0.17051329	3.2208011	20	8 17.5	19.3
71594 2000 DT ₇₇	14.2	X	311.79396	275.95178	160.00995	10.79906	0.1496443	0.17856539	3.1232340	20	11 16.0	18.0
71595 2000 DW ₇₇	14.6	X	267.49751</									

ELEMENTS AND OPPOSITION DATES IN 2020

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
71601 2000 DJ ₉₃	14.2	X	21.76675	42.38593	336.63806	10.40145	0.0842294	0.18159906	3.0883533	20	12 17.6	18.5
71602 2000 DO ₉₅	14.6	X	236.68156	357.69083	70.96968	3.10601	0.0998296	0.16780954	3.2553045	20	7 28.8	19.5
71603 2000 DU ₉₈	14.1	X	284.66376	305.99073	92.14896	5.82932	0.1437362	0.17062533	3.2193909	20	8 13.7	18.4
71604 2000 DZ ₉₉	14.5	X	117.97711	354.89109	23.35633	9.39489	0.0765167	0.19266601	2.9689256	20	1 23.2	18.8
71605 2000 DJ ₁₀₁	14.5	X	109.92551	275.11970	50.97668	6.02980	0.0134583	0.18315198	3.0708714	20	—	—
71606 2000 DY ₁₀₁	14.3	X	332.78254	256.57283	119.85519	7.06828	0.0790075	0.17232486	3.1981888	20	10 6.2	18.5
71607 2000 DO ₁₀₂	14.0	X	284.04840	351.03804	56.59981	5.36776	0.1343511	0.17093256	3.2155321	20	8 27.6	18.3
71608 2000 DN ₁₀₅	13.9	X	325.87164	305.99637	70.28080	5.16737	0.1242678	0.17068441	3.2186480	20	9 22.5	17.8
71609 2000 DH ₁₀₆	14.3	X	267.61351	45.50455	77.53918	5.95631	0.1342487	0.17812500	3.1283797	20	11 7.9	18.4
71610 2000 DT ₁₀₇	14.4	X	251.43606	20.26169	48.55561	4.91457	0.0769317	0.17099252	3.2147804	20	8 20.1	19.0
71611 2000 EA ₇	14.5	X	289.56594	52.61585	28.51284	4.59266	0.1507808	0.17435237	3.1733464	20	10 13.5	18.5
71612 2000 EH ₁₂	13.6	X	315.83327	16.67757	3.85391	14.94436	0.2531003	0.17402863	3.1772807	20	8 30.9	17.0
71613 2000 ET ₁₂	14.3	X	175.82927	83.49113	56.95465	10.51747	0.0431465	0.16798661	3.2530166	20	8 27.6	19.3
71614 2000 EF ₁₈	14.7	X	325.74451	298.10630	112.60084	14.42148	0.1770216	0.17869667	3.1217042	20	11 10.1	18.4
71615 2000 EM ₂₀	14.3	X	268.50788	144.45818	271.67516	12.02671	0.1501029	0.21957398	2.7211270	20	8 12.3	18.1
71616 2000 EG ₂₈	14.3	X	264.41901	350.28586	95.21046	11.50659	0.0363781	0.17299162	3.1899656	20	10 6.1	18.9
71617 2000 EM ₂₈	13.6	X	70.92691	17.48853	49.21094	11.09281	0.1007977	0.19308222	2.9646575	20	1 25.5	17.6
71618 2000 EO ₂₈	14.5	X	229.90319	36.46612	73.52958	10.26626	0.0293402	0.17065940	3.2189624	20	9 24.1	19.2
71619 2000 ES ₃₅	14.2	X	318.56923	225.34034	199.21430	6.31546	0.1809610	0.17858520	3.1230030	20	11 9.4	17.5
71620 2000 EE ₄₀	14.2	X	290.00574	128.49305	351.47182	4.73879	0.1073973	0.17863831	3.1223840	20	12 7.3	18.1
71621 2000 EC ₄₇	14.3	X	271.29950	121.51489	8.28197	5.22286	0.0948227	0.17651796	3.1473385	20	11 23.7	18.6
71622 2000 EZ ₄₇	14.0	X	350.44250	128.27645	355.36240	1.42450	0.0867471	0.18596183	3.0398594	20	—	—
71623 2000 ET ₅₃	14.5	X	45.01281	334.65187	2.97631	0.82944	0.1861393	0.17852760	3.1236747	20	12 10.4	18.8
71624 2000 EK ₅₇	13.8	X	331.48715	136.24595	349.93484	10.38951	0.0276974	0.18455274	3.0553131	20	—	—
71625 2000 EM ₆₃	14.9	X	320.38251	359.38528	95.19849	1.74665	0.1826458	0.18137507	3.0908954	20	12 22.9	18.2
71626 2000 ER ₆₆	14.0	X	183.02261	329.48147	63.91857	2.88344	0.0840037	0.20059357	2.8901788	20	4 19.4	18.4
71627 2000 EY ₆₆	14.3	X	186.76723	240.32664	180.82531	16.91170	0.1099541	0.15637390	3.4121376	20	5 29.2	19.9
71628 2000 EJ ₆₉	14.0	X	261.36688	119.80934	356.74395	5.05265	0.1435983	0.17472883	3.1687867	20	10 18.1	18.3
71629 2000 EH ₇₀	14.5	X	271.00963	52.11011	31.16905	5.00217	0.1169382	0.17158450	3.2073819	20	9 25.4	18.9
71630 2000 EN ₇₅	13.9	X	237.21508	290.27659	202.89860	19.62529	0.2216109	0.17327761	3.1864548	20	9 30.4	18.8
71631 2000 EX ₇₅	14.0	X	308.51725	13.82490	353.04985	14.66177	0.1903656	0.21828598	2.7318204	20	8 12.3	17.0
71632 2000 ER ₇₆	13.7	X	40.37632	66.91974	26.19176	10.01371	0.0306408	0.19166020	2.9793036	20	1 9.3	17.9
71633 2000 EK ₇₇	14.8	X	346.50451	335.75783	124.09737	12.50573	0.0739174	0.18569455	3.0427758	20	—	—
71634 2000 EK ₈₀	14.0	X	227.62800	73.00403	22.84611	5.22689	0.1041297	0.16991320	3.2283799	20	8 22.4	18.8
71635 2000 EA ₈₃	13.9	X	330.58452	348.80862	44.51340	10.07858	0.0786005	0.17381230	3.1799165	20	10 22.9	17.9
71636 2000 EF ₈₃	14.4	X	75.48517	20.03812	38.66228	10.23319	0.0765759	0.19153224	2.9806304	20	1 18.5	18.5
71637 2000 ER ₈₃	13.9	X	278.60974	126.65728	10.38987	18.58252	0.0651412	0.22885125	2.6470807	20	—	—
71638 2000 EL ₉₀	13.7	X	265.30402	268.37408	187.51534	25.28277	0.2297104	0.17574355	3.1565775	20	9 14.9	18.3
71639 2000 EC ₉₂	14.0	X	4.32786	281.41070	200.42036	8.35813	0.1689073	0.18982412	2.9984844	20	—	—
71640 2000 EF ₉₄	14.5	X	348.11385	175.02163	279.64047	8.00708	0.1132350	0.18401874	3.0612209	20	—	—
71641 2000 ER ₉₆	14.4	X	223.94353	6.74183	52.13277	8.37471	0.1893357	0.21078037	2.7962926	20	6 25.3	18.9
71642 2000 EG ₁₀₃	14.6	X	354.97385	245.16753	171.91222	6.12057	0.2622831	0.18333458	3.0688320	20	—	—
71643 2000 EJ ₁₀₃	13.8	X	293.70922	37.72436	63.25226	19.65168	0.2057816	0.18053210	3.1005097	20	11 11.7	17.4
71644 2000 EJ ₁₀₅	14.0	X	8.08315	93.71014	51.79432	13.56772	0.1101304	0.19176751	2.9781920	20	1 30.5	17.9
71645 2000 EX ₁₀₉	14.0	X	295.04915	267.38103	223.18401	9.31358	0.0633216	0.18130196	3.0917264	20	12 31.7	18.2
71646 2000 EO ₁₁₀	14.1	X	276.34432	90.84955	29.71825	7.45047	0.1774446	0.17846490	3.1244063	20	11 8.5	18.0
71647 2000 EW ₁₁₀	15.0	X	141.49977	342.16007	106.95701	6.54515	0.2274440	0.20565379	2.8425727	20	5 24.9	19.8
71648 2000 EC ₁₁₂	15.0	X	181.55997	212.72621	231.02624	9.87428	0.2003193	0.21161530	2.7889325	20	6 18.2	19.8
71649 2000 EL ₁₁₂	14.6	X	213.35847	243.61449	209.73611	4.40188	0.0877019	0.16758350	3.2582310	20	8 1.7	19.5
71650 2000 ER ₁₁₃	14.8	X	264.11956	168.75976	303.49270	1.22008	0.1521429	0.17599072	3.1536212	20	10 16.1	19.2
71651 2000 EC ₁₁₈	13.9	X	319.52034	308.26297	103.52328	15.26203	0.0949199	0.17770407	3.1333180	20	11 4.2	18.1
71652 2000 EH ₁₁₈	14.2	X	19.19153	350.17308	51.03184	11.39312	0.1197831	0.18457593	3.0550572	20	—	—
71653 2000 EQ ₁₁₈	13.8	X	321.86008	143.05568	23.02361	10.67447	0.0635087	0.19115946	2.9845041	20	—	—
71654 2000 EY ₁₁₉	15.3	X	348.61949	94.86275	22.25831	9.08357	0.1751575	0.23811522	2.5779705	20	—	—
71655 2000 EF ₁₂₁	13.4	X	178.54860	205.77930	10.15463	10.34323	0.1660758	0.17710182	3.1404173	20	11 16.7	18.7
71656 2000 ET ₁₂₁	13.8	X	334.73537	77.34085	74.36321	11.07949	0.0561173	0.19125407	2.9835198	20	—	—
71657 2000 EP ₁₂₂	15.6	X	299.33476	316.40137	244.98304	5.64222	0.0557663	0.28927525	2.2642717	20	—	—
71658 2000 EQ ₁₂₂	14.3	X	332.29657	248.70715	169.88558	14.03084	0.1357286	0.18044120	3.1015509	20	11 29.5	18.2
71659 2000 EC ₁₂₈	14.6	X	284.32864	350.13966	138.02196	6.03343	0.1071857	0.17971378	3.1099146	20	12 10.9	18.6
71660 2000 EJ ₁₃₀	13.9	X	50.96086	141.23841	160.86260	14.07851	0.0349627	0.17031996	3.2232379	20	10 16.5	18.5
71661 2000 EP ₁₃₀	14.3	X	112.38651	209.39781	22.89939	4.99245	0.0647728	0.16892749	3.2409263	20	10 4.7	19.1
71662 2000 EV ₁₃₂	14.9	X	254.81659	324.91679	159.61861	2.48864	0.1278718	0.17571245	3.1569499	20	10 24.3	19.3
71663 2000 EY ₁₃₈	14.2	X	258.74598	62.78552	68.20780	15.98582	0.1024852	0.17543439	3.1602849	20	11 11.7	18.6
71664 2000 EE ₁₃₉	13.7	X	227.76296	84.30039	85.63113	14.10641	0.1537529	0.17547701	3.1597731	20	11 16.1	18.6
71665 2000 EB ₁₄₃	13.7	X	31.28663	7.76875	302.97700	20.50311	0.0169075	0.17074224	3.2179212	20	9 15.0	18.6
71666 2000 EK ₁₄₈	13.4	X	113.29905	310.92656	23.15484	9.02077	0.0787166	0.17977032	3.1092625	20	—	—
71667 2000 EP ₁₅₀	14.2	X	239.88668	234.55527	313.55854	0.39804	0.1101933	0.18014042	3.1050023	20	12 24.4	18.6
71668 2000 EA ₁₅₂	14.4	X	354.79254	225.06025	246.90392	12.07368	0.0490784	0.18727775	3.0256029	20	—	—
71669 2000 EH ₁₅₇	14.1	X	281.42748	350.49455	107.88527	15.24183	0.1576518	0.17484927	3.1673314	20	10 29.3	18.5
71670 2000 EP ₁₅₇	14.6	X	309.36492	138.17886	324.83029	13.19306	0.2052259	0.22919653	2.6444216	20	—	—
71671 2000 EM ₁₆₆	13.7	X	6.08820	305.32476	104.10789	12.75305	0.1437253	0.18385925	3.0629910	20	—	—
71672 2000 ER ₁₆₆	14.1	X	195.05977	346.43338	55.16125	10.56984	0.1995845	0.20962174	2.8065869	20	5 9.7	18.9
71673 2000 EZ ₁₆₆	13.9	X	84.70861	350.93920	12.12194	10.81863	0.1055414	0.18739259	3.0243667	20	—	—
71674 2000 EJ ₁₆₇	14.5	X	315.97493	73.40047	15.26408	10.82810	0.02729					

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
71681 2000 FZ ₁	14.2	X	331.75629	3.58878	31.72410	1.33769	0.1658865	0.17078456	3.2173896	20	10 23.8	17.8
71682 2000 FU ₁₁	14.5	X	222.06260	29.78152	33.37898	14.01022	0.1789221	0.21437620	2.7649355	20	6 30.2	19.1
71683 2000 FE ₁₂	14.1	X	201.87630	68.10674	77.90417	13.11035	0.0892662	0.22036878	2.7145801	20	10 8.0	18.3
71684 2000 FY ₁₅	14.2	X	213.98697	79.35218	80.18846	6.55403	0.1181536	0.17408304	3.1766186	20	10 23.5	19.0
71685 2000 FX ₂₁	13.9	X	332.68420	304.61165	76.31886	12.30210	0.0211474	0.16941014	3.2347679	20	10 14.7	18.5
71686 2000 FU ₃₀	14.2	X	260.26935	335.13231	148.95779	5.52739	0.1148761	0.17440002	3.1727684	20	11 2.3	18.6
71687 2000 FY ₃₁	14.3	X	95.98972	3.08561	55.76376	14.98019	0.0697365	0.19283133	2.9672284	20	2 17.9	18.7
71688 2000 FX ₃₂	13.8	X	58.61059	256.19700	39.96399	22.31066	0.0547707	0.16910453	3.2386640	20	10 21.7	18.4
71689 2000 FD ₃₄	13.7	X	259.87768	336.58835	133.43999	17.96627	0.1429783	0.17407801	3.1766798	20	10 16.3	18.4
71690 2000 FO ₃₅	15.3	X	164.63271	308.50129	159.87000	6.92322	0.2860571	0.20996588	2.8035194	20	7 5.2	20.5
71691 2000 FH ₃₇	13.9	X	296.05150	262.18961	165.66513	10.53387	0.1678858	0.17216550	3.2001620	20	10 5.4	17.8
71692 2000 FB ₄₃	14.5	X	331.47246	104.63950	15.63112	10.31191	0.1453343	0.18516665	3.0485562	20	—	—
71693 2000 FK ₄₃	13.9	X	324.56745	265.18388	162.12373	16.95724	0.1063740	0.17607298	3.1526390	20	11 27.5	18.1
71694 2000 FN ₄₄	14.2	X	166.78380	63.89780	92.57818	3.82517	0.1569983	0.16707094	3.2648916	20	9 1.9	19.5
71695 2000 FO ₄₄	14.0	X	163.56728	161.34430	48.73017	5.49674	0.1221425	0.17156299	3.2076500	20	10 31.6	19.0
71696 2000 FE ₄₈	14.3	X	163.67941	263.73702	146.94979	3.00549	0.1866862	0.19964264	2.8993492	20	4 25.2	19.1
71697 2000 FO ₅₅	15.0	X	357.53383	45.16896	75.41303	6.40079	0.1869043	0.18794363	3.0184522	20	—	—
71698 2000 FW ₅₅	14.0	X	249.13927	354.40969	131.18810	22.77988	0.0608260	0.17209050	3.2010918	20	11 4.3	19.0
71699 2000 GU ₁₇	14.8	X	3.37407	40.94402	43.07008	3.61037	0.2130105	0.18521978	3.0479732	20	—	—
71700 2000 GO ₁₉	14.7	X	300.35885	277.82814	205.25879	7.75010	0.1718243	0.18056505	3.1001324	20	12 22.7	18.3
71701 2000 GR ₁₉	13.3	X	52.34252	120.09474	248.91545	0.63499	0.1230081	0.12955425	3.8681348	20	—	—
71702 2000 GT ₁₉	14.4	X	36.63109	60.25951	359.07704	1.51885	0.1642419	0.18467277	3.0539890	20	—	—
71703 2000 GW ₂₂	14.4	X	356.62855	257.29214	183.17380	9.50171	0.0890180	0.18101004	3.0950496	20	—	—
71704 2000 GL ₃₄	14.1	X	273.43031	259.44830	207.43925	1.18331	0.1469313	0.17421211	3.1750494	20	10 22.8	18.3
71705 2000 GV ₃₄	14.9	X	333.03882	266.91722	202.10326	4.73172	0.1358832	0.18195081	3.0843718	20	—	—
71706 2000 GY ₃₈	14.7	X	212.80905	82.60394	25.31768	7.38827	0.2331141	0.21579634	2.7527916	20	8 15.7	19.3
71707 2000 GZ ₅₆	14.7	X	306.20379	114.35820	7.82521	0.99707	0.1443363	0.17922201	3.1156009	20	—	—
71708 2000 GT ₇₇	15.1	X	271.40954	21.06803	236.92170	0.44343	0.1143460	0.18888987	3.0083632	20	2 5.5	19.5
71709 2000 GX ₈₀	14.6	X	318.58536	267.61740	207.60760	14.80274	0.2276181	0.18193152	3.0845898	20	—	—
71710 2000 GX ₈₃	14.0	X	284.27362	9.02534	117.41722	15.33438	0.1303701	0.22799404	2.6537116	20	12 21.5	17.1
71711 2000 GU ₈₃	14.2	X	255.48226	335.56505	152.08055	15.17243	0.1093563	0.17567342	3.1574175	20	11 4.3	18.8
71712 2000 GK ₉₅	15.0	X	331.43051	290.69959	223.87498	9.55434	0.2836889	0.18744809	3.0237697	20	—	—
71713 2000 GN ₉₈	13.9	X	59.55021	12.60580	207.82200	17.72872	0.0820230	0.15733568	3.3982180	20	7 15.2	18.9
71714 2000 GZ ₁₀₀	15.5	X	211.25381	116.39129	342.27760	6.21567	0.0825260	0.26227498	2.4171196	20	8 16.9	18.8
71715 2000 GE ₁₀₈	13.8	X	251.45863	100.95147	42.81079	17.51292	0.1486818	0.17414111	3.1759124	20	11 7.9	18.1
71716 2000 GX ₁₁₂	14.3	X	305.62283	42.51982	81.31148	2.15912	0.1350848	0.18210521	3.0826281	20	—	—
71717 2000 GP ₁₁₅	14.1	X	123.20362	217.78059	102.93147	2.71648	0.1688083	0.17792895	3.1306773	20	—	—
71718 2000 GV ₁₂₄	13.4	X	336.86225	30.07182	73.25825	18.12839	0.1862355	0.17951557	3.1122033	20	—	—
71719 2000 GT ₁₃₇	14.6	X	241.77043	174.68741	278.12591	13.53285	0.1485529	0.21956321	2.7212159	20	8 25.2	18.8
71720 2000 GK ₁₆₇	14.5	X	268.21927	156.70940	309.15523	11.88554	0.1451260	0.22430736	2.6827098	20	10 18.2	18.1
71721 2000 GL ₁₆₇	14.3	X	343.39530	144.53363	319.95677	13.63670	0.2013077	0.18629915	3.0361890	20	—	—
71722 2000 GB ₁₆₉	14.1	X	342.67792	14.89563	57.10791	20.63002	0.1401570	0.17665068	3.1457618	20	12 29.3	18.1
71723 2000 GS ₁₇₁	14.8	X	274.11188	325.11758	216.91349	4.12753	0.1664912	0.18388895	3.0626612	20	—	—
71724 2000 GB ₁₈₆	14.2	X	40.77107	328.97331	192.84925	9.87003	0.0392776	0.14757444	3.5464619	20	4 7.1	19.0
71725 2000 HN ₉	14.4	X	272.01268	65.82100	84.40282	2.21657	0.1376231	0.17649572	3.1476028	20	12 15.1	18.5
71726 2000 HQ ₂₄	13.5	X	251.29745	93.92288	41.60337	13.67787	0.1599215	0.17235461	3.1978207	20	10 28.5	17.9
71727 2000 HB ₂₅	13.2	X	340.14729	232.72007	224.73481	17.00727	0.1415737	0.17920220	3.1158305	20	—	—
71728 2000 HE ₆₄	14.2	X	332.38240	192.66692	285.28720	6.37657	0.2477523	0.18418674	3.0593592	20	—	—
71729 2000 HD ₉₁	13.6	X	25.79471	32.76033	33.13221	17.47077	0.2095429	0.17930601	3.1146278	20	—	—
71730 2000 JY ₃	16.5	X	70.17498	152.88876	201.99709	20.99282	0.0978798	0.36749153	1.9303579	20	—	—
71731 2000 JO ₃₅	13.5	X	341.57163	9.12438	44.14068	1.10665	0.2131362	0.17088955	3.2160716	20	12 7.2	16.6
71732 2000 JU ₃₇	15.5	X	303.72171	12.22797	260.43823	1.63051	0.2099585	0.24082383	2.5586111	20	3 12.8	18.6
71733 2000 JQ ₄₇	13.6	X	260.10776	228.20325	248.49769	17.89658	0.2218724	0.17222981	3.1993653	20	9 30.2	18.5
71734 2000 LX ₉	15.6	X	119.03055	75.84933	265.62083	19.33567	0.0870806	0.36777812	1.9293549	20	—	—
71735 2000 MJ ₁	15.2	X	156.37014	67.67395	279.42238	17.43480	0.0845432	0.37331449	1.9102321	20	—	—
71736 2000 OB ₅₄	16.2	X	324.82929	229.63111	307.89768	19.51491	0.0670335	0.37573195	1.9020297	20	—	—
71737 2000 PV ₆	15.3	X	278.74282	211.45856	278.12678	17.72684	0.0810662	0.35935092	1.9594020	20	—	—
71738 2000 PW ₁₈	14.8	X	156.81855	238.23437	124.59365	3.02218	0.2192684	0.17530520	3.1618372	20	2 26.2	20.1
71739 2000 QG ₂₅	16.2	X	188.13608	32.45544	165.19505	23.02329	0.0213048	0.35434393	1.9778168	20	12 30.9	18.9
71740 2000 QV ₂₅	16.0	X	280.88517	222.47971	21.61629	21.28138	0.0269964	0.37505955	1.9043023	20	1 17.5	18.6
71741 2000 QF ₃₄	15.7	X	44.26646	54.31519	342.41780	18.16976	0.1321321	0.36288029	1.9466765	20	—	—
71742 2000 QU ₃₅	16.6	X	33.19645	41.55871	315.96827	18.09866	0.0635047	0.35850913	1.9624679	20	—	—
71743 2000 QO ₁₁₇	15.4	X	181.53275	272.03313	345.52806	19.20829	0.0534423	0.36375024	1.9435715	20	—	—
71744 2000 QP ₁₄₇	16.6	X	313.05838	289.11939	173.92745	23.11900	0.0881490	0.35922604	1.9598561	20	—	—
71745 2000 QG ₁₈₀	15.9	X	201.45516	233.75178	345.97477	18.71272	0.0650250	0.36116659	1.9528295	20	—	—
71746 2000 QZ ₁₈₀	15.4	X	247.55127	77.82755	35.08608	7.71721	0.1197981	0.29077231	2.2564931	20	10 22.6	17.8
71747 2000 QU ₁₈₁	16.1	X	21.29298	90.33304	298.42747	4.00673	0.1628812	0.30053129	2.2073757	20	—	—
71748 2000 QD ₁₈₂	14.8	X	255.02412	106.05276	10.76501	4.35722	0.0681833	0.29619684	2.2288582	20	11 16.8	17.3
71749 2000 QU ₁₈₄	15.4	X	86.08402	0.41419	17.51247	3.70607	0.1694991	0.31496397	2.1394171	20	—	—
71750 2000 RV ₃	16.2	X	47.20994	17.49195	358.27852	5.12527	0.2007927	0.30745364	2.1741172	20	—	—
71751 2000 RS ₁₀	15.1	X	177.51508	7.13812	95.63580	7.56717	0.0634164	0.28024777	2.3126395	20	7 13.9	18.1
71752 2000 RL ₁₁	15.8	X	97.14702	238.27106	120.78218	4.93780	0.0464660	0.30729458	2.1748674	20	—	—
71753 2000 RR ₃₉	15.1	X	160.07499	61.80789	74.97150	6.21842	0.1373196	0.28139441	2.3063528	20	8 11.2	18.6
71754 2000 RO ₄₅	14.4	X	278.51330	337.50619	336.47693	7.42320	0.1272233	0.28162802	2.3050772	20	4 11.7	17.4
71755 2000 RD ₅₁	16.0	X	114.78859	14.95990	1.							

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
71761 2000 RJ ₁₀₀	15.9 ^m	X	73.22791 ^o	116.28615 ^o	215.82123 ^o	20.50234 ^o	0.0673915 ^o	0.35684465 ^o	1.9685657	20	—	—
71762 2000 RZ ₁₀₃	15.9	X	230.56908	71.50026	337.68795	7.41663	0.0931995	0.28550954	2.2841378	20	7 2.9	18.9
71763 2000 SF ₃	16.0	X	24.65328	34.34137	19.70508	19.43058	0.1170594	0.36076210	1.9542890	20	—	—
71764 2000 SG ₃	15.9	X	326.24676	62.67915	32.23976	21.20444	0.0922440	0.35777431	1.9651541	20	—	—
71765 2000 SU ₄	14.9	X	27.18035	78.76671	17.28677	21.44210	0.0615441	0.36722420	1.9312946	20	—	—
71766 2000 SD ₂₂	14.6	X	133.30364	319.04359	55.78440	5.24816	0.1660631	0.17202847	3.2018612	20	2 17.3	19.6
71767 2000 SM ₂₄	15.4	X	90.40183	182.99361	229.13325	20.43134	0.1269395	0.36874176	1.9259921	20	—	—
71768 2000 SM ₅₉	16.2	X	291.11173	229.27355	305.38863	2.07379	0.0378863	0.31451195	2.1414665	20	—	—
71769 2000 SU ₅₉	16.8	X	166.49379	294.42885	331.14752	2.48643	0.0462918	0.31054661	2.1596574	20	—	—
71770 2000 SL ₇₅	15.5	X	49.85049	180.43331	124.27122	4.39563	0.1484556	0.29982017	2.2108646	20	11 27.0	18.3
71771 2000 SR ₇₅	16.4	X	77.40431	230.09790	74.61627	5.31402	0.0858521	0.30265068	2.1970585	20	12 21.6	19.2
71772 2000 SG ₁₀₅	15.6	X	126.38600	108.95771	66.18937	4.14672	0.1008537	0.28899740	2.2657227	20	8 26.4	18.7
71773 2000 SO ₁₀₆	15.0	X	51.10123	173.69520	356.97607	9.67449	0.1345875	0.27890183	2.3200739	20	5 3.7	17.4
71774 2000 SA ₁₂₁	16.3	X	38.90060	207.93596	128.62508	3.91038	0.0580459	0.30038141	2.2081099	20	12 12.9	18.9
71775 2000 SB ₁₂₂	17.3	X	97.83860	177.05203	174.09114	4.79644	0.1699376	0.31135669	2.1559098	20	—	—
71776 2000 SJ ₁₂₃	15.9	X	331.47195	352.47300	125.86500	4.98471	0.0919214	0.30830616	2.1701075	20	—	—
71777 2000 SM ₁₂₈	15.6	X	113.14792	18.25466	149.75097	5.85845	0.0964079	0.28448303	2.1806291	20	7 27.9	18.7
71778 2000 SP ₁₂₈	16.2	X	36.69810	242.57568	60.98974	8.22426	0.1800331	0.29726205	2.2235304	20	11 12.8	18.8
71779 2000 SJ ₁₂₉	16.3	X	266.91998	301.09206	234.68074	19.19230	0.0641578	0.35946955	1.9589709	20	—	—
71780 2000 SM ₁₄₅	16.6	X	326.87216	267.79846	210.56072	3.33044	0.0919751	0.30884048	2.1676038	20	—	—
71781 2000 SZ ₁₄₅	16.4	X	165.93123	297.75737	342.98379	2.65723	0.0955009	0.31179624	2.1538831	20	—	—
71782 2000 SC ₁₆₀	15.7	X	114.09430	226.65090	335.30619	25.10694	0.1542836	0.29434672	2.2381881	20	9 12.8	19.2
71783 Iżeryna	16.7	X	183.63918	296.20674	287.27946	2.12126	0.1164988	0.30702880	2.1761223	20	—	—
71784 2000 SG ₁₇₁	14.8	X	87.56168	176.86764	19.92309	8.36100	0.1146416	0.28520784	2.2857483	20	8 12.4	17.9
71785 2000 SY ₁₇₇	15.1	X	50.56790	208.03819	350.98388	7.27205	0.1168118	0.28041740	2.3117067	20	6 17.2	17.7
71786 2000 SH ₁₇₈	15.9	X	281.11454	134.29962	334.57218	5.53908	0.0927294	0.29928630	2.2134930	20	12 18.0	17.9
71787 2000 SJ ₁₈₀	16.4	X	12.30388	147.72655	263.77275	5.53544	0.0544328	0.30593759	2.1812937	20	—	—
71788 2000 ST ₁₈₀	15.8	X	284.25647	166.47866	208.99094	7.62282	0.0538854	0.28545418	2.2844331	20	8 2.6	18.5
71789 2000 SQ ₁₈₈	16.5	X	94.60711	327.33784	346.59391	1.56398	0.1573207	0.30627248	2.1797034	20	—	—
71790 2000 SB ₁₉₃	16.4	X	294.80063	13.94067	115.40592	0.77782	0.0785864	0.30601723	2.1809153	20	—	—
71791 2000 SE ₁₉₈	16.3	X	231.01905	98.81413	107.86719	5.76130	0.0467454	0.31084857	2.1582586	20	—	—
71792 2000 SD ₂₁₁	15.6	X	321.94544	200.18934	116.32540	5.78508	0.1370536	0.28895346	2.2659524	20	6 29.5	17.6
71793 2000 SN ₂₂₇	16.4	X	331.53238	244.63749	128.67837	6.74575	0.1314415	0.29514675	2.2341417	20	10 30.5	18.3
71794 2000 ST ₂₂₇	13.9	X	104.68704	118.81896	64.36348	13.10769	0.1121745	0.22670439	2.6637662	20	8 10.2	18.0
71795 2000 SB ₂₃₀	16.1	X	238.97007	81.69699	235.58477	2.14433	0.0935136	0.29370023	2.2414713	20	10 3.7	18.6
71796 2000 SU ₂₃₀	16.6	X	91.81550	333.84814	36.34654	3.17055	0.0961113	0.31159233	2.1548227	20	—	—
71797 2000 SY ₂₃₉	16.8	X	93.16873	313.01441	17.10567	3.94564	0.1738061	0.30858176	2.1688152	20	—	—
71798 2000 SD ₂₄₀	16.1	X	193.84361	332.21532	201.41069	21.54812	0.0526024	0.35400334	1.9790851	20	11 28.6	18.6
71799 2000 SE ₂₆₀	16.3	X	218.06918	43.54735	94.41262	6.57163	0.0129600	0.29631608	2.2282602	20	11 5.7	19.0
71800 2000 SM ₂₆₄	15.0	X	282.21757	317.86773	340.07025	0.43046	0.0763629	0.18099415	3.0952308	20	4 12.2	19.2
71801 2000 SZ ₂₆₅	16.3	X	131.90302	216.85213	73.09305	5.29810	0.0497496	0.30740841	2.1743305	20	—	—
71802 2000 SO ₂₇₂	16.8	X	65.93477	301.29340	354.63875	2.54255	0.1193836	0.30055615	2.2072539	20	11 29.1	19.6
71803 2000 SF ₂₇₅	14.9	X	171.72271	126.47635	53.96062	6.41227	0.0918167	0.29430473	2.2384010	20	10 24.0	17.9
71804 2000 SG ₂₇₈	16.6	X	145.22609	276.71077	26.24246	3.13745	0.1606210	0.31149106	2.1552897	20	—	—
71805 2000 SG ₂₉₅	15.8	X	338.87785	28.39137	350.80084	6.60552	0.1663738	0.29551435	2.2322886	20	11 22.3	17.7
71806 2000 SF ₂₉₆	14.7	X	84.22044	263.66140	243.08758	21.77214	0.0227401	0.27161447	2.3613885	20	6 8.4	17.8
71807 2000 SF ₃₀₁	15.9	X	247.37481	216.49814	305.96353	3.44766	0.0909354	0.30457869	2.1877769	20	—	—
71808 2000 SX ₃₀₆	15.4	X	114.75026	238.85127	288.08237	2.64021	0.1173285	0.28542037	2.2846135	20	7 30.8	18.3
71809 2000 SJ ₃₁₉	15.3	X	162.31385	136.97187	339.73969	10.30220	0.1455372	0.28214373	2.3022675	20	7 17.8	18.9
71810 2000 TJ ₃₁₅	16.5	X	79.97215	239.53590	18.17602	3.50938	0.0130547	0.29488901	2.2354433	20	10 11.5	19.0
71811 2000 TG ₂₈	16.4	X	101.03600	262.86600	350.55422	5.82458	0.1260678	0.29958407	2.2120260	20	11 10.4	19.6
71812 2000 TT ₆₇	15.9	X	176.46487	259.39499	317.38247	1.28816	0.1214919	0.30221040	2.1991918	20	12 13.9	18.9
71813 2000 UZ	16.1	X	237.69639	149.26701	194.10780	3.21831	0.1804155	0.27855517	2.3219983	20	4 2.8	19.5
71814 2000 UU ₂	15.7	X	79.72109	276.14342	222.22264	3.09793	0.1070074	0.27324668	2.3519755	20	5 2.7	18.2
71815 2000 UB ₅	15.7	X	65.92479	177.43458	43.89781	4.66097	0.0374235	0.28469329	2.2885016	20	8 3.3	18.4
71816 2000 UY ₇	15.5	X	29.67335	297.65858	202.55910	5.70645	0.0383985	0.26904540	2.3763970	20	2 7.3	18.4
71817 2000 UR ₁₂	15.5	X	128.84416	105.05877	10.00048	6.72560	0.0588894	0.27977504	2.3152438	20	5 28.2	18.6
71818 2000 UH ₁₉	15.6	X	27.23852	237.10264	220.45111	23.56804	0.0907988	0.36815510	1.9280376	20	—	—
71819 2000 UJ ₁₉	16.6	X	100.04036	275.26578	73.23452	6.13950	0.1909911	0.31091230	2.1579636	20	—	—
71820 2000 UF ₂₄	15.8	X	116.74265	1.93801	93.11169	4.67312	0.1693486	0.27328306	2.3517668	20	5 2.4	19.0
71821 2000 UR ₃₄	16.1	X	224.54457	237.78318	235.70188	3.89668	0.1222022	0.29195141	2.2504136	20	9 18.6	18.9
71822 2000 UZ ₃₅	15.1	X	95.16357	91.09634	52.20080	3.21964	0.1796611	0.27644296	2.3338111	20	6 11.6	18.0
71823 2000 UG ₃₆	16.2	X	315.17958	55.77721	42.57894	3.66945	0.1133474	0.30212462	2.1996081	20	—	—
71824 2000 UA ₄₁	15.4	X	43.20072	324.66006	245.53878	5.08840	0.0953493	0.28019542	2.3129275	20	6 18.4	17.8
71825 2000 UW ₄₁	15.3	X	111.37893	72.06868	45.99790	7.35004	0.0560453	0.27655446	2.3331837	20	5 10.0	18.3
71826 2000 UX ₄₃	15.6	X	184.73745	271.34588	258.73865	4.20508	0.0341040	0.29433480	2.2382485	20	10 28.6	18.2
71827 2000 UD ₄₆	16.0	X	131.03273	30.49217	970.80738	2.44103	0.1470471	0.30775778	2.1726846	20	—	—
71828 2000 UE ₅₃	16.1	X	190.17438	211.89061	95.16927	0.46052	0.1773302	0.31745021	2.1282320	20	1 1.1	19.3
71829 2000 UK ₅₃	15.3	X	82.62689	109.17633	69.29031	7.07814	0.0426673	0.28112629	2.3078190	20	6 23.9	18.0
71830 2000 UL ₅₆	16.0	X	357.24621	225.03614	88.88488	4.81058	0.1484212	0.29043281	2.2582513	20	9 17.6	17.9
71831 2000 UN ₅₆	15.8	X	19.28202	237.27208	177.25718	4.17298	0.0856618	0.30523965	2.1846175	20	—	—
71832 2000 UQ ₆₃	14.6	X	124.23847	208.11409	14.71678	7.05407	0.1592723	0.29493818	2.2351948	20	10 26.2	18.1
71833 2000 UJ ₆₅	16.3	X	215.49558	261.80159	322.83274	3.51699	0.0531267	0.30885610	2.1675307	20	—	—
71834 2000 UL ₆₅	16.2	X	15.33574	279.11233	5.73717	6.83138	0.1123473	0.29074127	2.2566537	20	8 31.4	18.3
71835 2000 UJ<												

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
71841 2000 UY ₇₇	16.3	X	356.56432	281.55903	43.54039	5.27209	0.1912344	0.29312586	2.2443984	20	10 10.1	17.8
71842 2000 UG ₈₀	15.8	X	336.54872	342.86084	47.95116	5.96483	0.1563792	0.29599010	2.2298959	20	12 6.4	17.7
71843 2000 UL ₈₀	16.0	X	195.80003	213.48673	30.97822	3.45859	0.0832685	0.30689032	2.1767769	20	—	—
71844 2000 UB ₈₁	15.8	X	264.76740	270.78215	55.07835	6.98918	0.1786811	0.27829792	2.3234290	20	4 10.4	19.2
71845 2000 UN ₉₃	15.3	X	354.00035	293.94707	240.69895	9.72512	0.0897838	0.26875620	2.3781015	20	1 25.8	18.1
71846 2000 UM ₉₆	15.7	X	117.96371	216.86445	264.35179	5.85764	0.0544478	0.27790325	2.3256283	20	5 23.0	18.5
71847 2000 UU ₉₇	15.6	X	228.69649	305.64233	1.23643	6.42442	0.1090891	0.27117942	2.3639134	20	2 13.9	19.0
71848 2000 UJ ₁₀₀	15.7	X	148.97612	98.34211	337.78684	4.07176	0.1442934	0.27511189	2.3413328	20	5 6.3	19.2
71849 2000 UB ₁₀₂	15.7	X	39.79767	214.96110	296.10522	4.27107	0.0272954	0.27090085	2.3655337	20	3 10.3	18.3
71850 2000 UJ ₁₀₃	15.1	X	326.43797	306.88866	349.46335	5.68334	0.1208995	0.28202510	2.3029130	20	6 6.0	17.4
71851 2000 UN ₁₀₄	15.6	X	83.25013	273.72913	323.83744	5.10452	0.0287185	0.28860548	2.2677735	20	9 16.6	18.4
71852 2000 UJ ₁₀₅	15.3	X	52.40353	80.11830	97.88711	7.25161	0.0518048	0.27872393	2.3210610	20	5 11.8	17.9
71853 2000 UE ₁₀₉	16.1	X	168.51297	315.75743	143.04830	5.09641	0.1335487	0.28096616	2.3086958	20	6 27.3	19.6
71854 2000 UF ₁₀₉	16.5	X	322.57164	289.78112	139.41135	5.07996	0.1094510	0.29927908	2.2135286	20	—	—
71855 2000 UF ₁₁₀	15.4	X	163.12891	282.87821	273.30540	11.61473	0.0818486	0.24463505	2.5319605	20	10 21.6	19.3
71856 2000 VV ₄	16.3	X	153.06593	279.70751	205.34416	5.17908	0.1327031	0.28188344	2.3036845	20	7 15.6	19.8
71857 2000 VY ₁₀	16.4	X	145.80949	288.17347	33.87663	2.10048	0.1508650	0.31343846	2.1463532	20	—	—
71858 2000 VM ₁₂	16.6	X	346.01208	300.29793	69.67944	5.13375	0.0295780	0.29560526	2.2318309	20	11 8.7	18.9
71859 2000 VR ₁₄	15.9	X	65.55417	210.07166	89.62792	5.01269	0.1895324	0.29918980	2.2139690	20	12 11.1	19.0
71860 2000 VD ₁₈	15.8	X	203.40751	28.45896	179.20182	4.99912	0.0733736	0.30118766	2.2041675	20	—	—
71861 2000 VP ₁₈	16.3	X	302.97976	170.34640	213.53595	6.56049	0.1156885	0.29073719	2.2566748	20	9 10.6	18.4
71862 2000 VO ₂₃	15.4	X	261.21919	242.52820	231.68298	4.61405	0.1238928	0.29618628	2.2289111	20	11 15.9	17.6
71863 2000 VE ₂₆	16.0	X	33.15476	350.19372	237.02546	5.40216	0.0591824	0.28125986	2.3070883	20	6 22.3	18.4
71864 2000 VV ₂₆	15.7	X	72.01595	276.18297	226.80702	2.15989	0.0934519	0.27272480	2.3549750	20	4 25.0	18.2
71865 2000 VE ₂₇	15.3	X	92.83972	22.19931	92.05655	7.49189	0.0608394	0.27224309	2.3577521	20	4 13.9	18.2
71866 2000 VN ₂₇	16.0	X	268.66049	317.10334	75.69816	6.33552	0.1571492	0.28698780	2.2762874	20	7 21.5	18.6
71867 2000 VX ₂₈	15.9	X	140.12838	306.59936	196.78918	5.14286	0.0967322	0.28134087	2.3066454	20	7 24.7	19.2
71868 2000 VX ₃₀	14.9	X	42.84252	51.99552	204.75516	5.48001	0.1725596	0.28506399	2.2865172	20	9 9.5	17.4
71869 2000 VF ₃₂	15.8	X	5.08414	326.08233	63.50335	6.29160	0.0310815	0.29908534	2.2144844	20	—	—
71870 2000 VZ ₃₂	16.0	X	130.07072	194.63296	163.53786	1.18088	0.0932159	0.31306715	2.1480500	20	—	—
71871 2000 VD ₃₇	15.5	X	54.05602	238.09823	211.80995	3.30767	0.1450722	0.25925558	2.4358506	20	1 15.3	17.7
71872 2000 VB ₄₂	15.9	X	106.81003	276.96914	284.55440	2.36535	0.1150648	0.28855517	2.2680370	20	9 6.8	19.1
71873 2000 VV ₄₆	16.1	X	285.28799	124.24759	336.72416	4.09112	0.1609507	0.29641985	2.2277401	20	12 6.9	17.9
71874 2000 VM ₄₇	14.7	X	49.79444	220.24148	21.30526	7.33943	0.0811886	0.28361954	2.2942740	20	8 18.1	17.4
71875 2000 VT ₄₈	16.1	X	236.10504	56.43111	25.80410	1.15242	0.1907822	0.28704838	2.2759671	20	8 12.5	19.1
71876 2000 VK ₄₉	15.8	X	324.43491	337.29093	54.14820	5.67458	0.1383091	0.29434326	2.2382056	20	11 10.6	17.4
71877 2000 VT ₄₉	15.6	X	236.81255	26.57396	52.54139	6.73578	0.0658013	0.28682151	2.2771671	20	8 30.8	18.4
71878 2000 VA ₅₀	15.8	X	7.05333	301.18689	54.26861	4.10339	0.1952533	0.29659497	2.2268632	20	12 15.0	18.1
71879 2000 VS ₅₀	15.8	X	142.54647	256.40372	252.71329	6.24187	0.1476879	0.28163816	2.3050219	20	8 5.5	19.4
71880 2000 VR ₅₁	16.5	X	196.77396	291.48046	356.65113	5.80705	0.0931497	0.31471732	2.1405348	20	—	—
71881 2000 VG ₅₂	15.5	X	214.48053	283.32195	356.98574	6.44086	0.1089857	0.26541348	2.3980270	20	—	—
71882 2000 VR ₅₃	15.2	X	315.60568	231.34236	30.07490	7.87062	0.0861947	0.27583777	2.3372234	20	4 2.7	17.7
71883 2000 VO ₅₆	16.1	X	171.23621	93.14273	24.98712	6.20744	0.1133719	0.28256452	2.2999813	20	7 29.0	19.5
71884 2000 VK ₅₉	14.9	X	104.65276	86.85321	21.35405	10.97968	0.2777966	0.26825663	2.3810531	20	5 15.5	18.5
71885 Denning	15.7	X	199.01514	221.89709	231.44395	5.89231	0.1148278	0.28348848	2.2949810	20	7 21.9	19.0
71886 2000 WH	15.8	X	165.89123	348.71411	170.20463	0.55512	0.1122511	0.28597038	2.2816832	20	9 14.8	19.1
71887 2000 WW	15.2	X	130.20179	183.87139	42.95120	5.87621	0.1025682	0.29323368	2.2438482	20	11 6.6	18.4
71888 2000 WN ₅	15.6	X	172.35370	200.16962	342.65793	5.77732	0.0962533	0.29242919	2.2479617	20	10 23.4	18.8
71889 2000 WT ₅	16.0	X	51.13271	75.70575	316.05410	5.57392	0.1168347	0.30671851	2.1775897	20	—	—
71890 2000 WK ₆	16.7	X	80.90555	281.95063	87.05320	2.92156	0.1180663	0.30701021	2.1762102	20	—	—
71891 2000 WV ₆	15.6	X	260.78552	123.66593	324.31501	5.75480	0.1592300	0.29027895	2.2590492	20	9 26.6	18.2
71892 2000 WY ₆	15.7	X	163.56294	114.28198	344.34919	6.34191	0.0580976	0.27778422	2.3262926	20	6 20.1	18.8
71893 2000 WM ₇	16.0	X	329.03435	280.15022	13.80500	8.00126	0.1558342	0.28283701	2.2985038	20	6 1.9	18.1
71894 2000 WS ₉	15.1	X	131.38271	7.44845	100.86899	5.89668	0.1587230	0.27290705	2.3539264	20	6 3.3	18.5
71895 2000 WM ₁₁	15.8	X	281.55447	208.39213	264.76165	4.73336	0.1038178	0.29505843	2.2345875	20	12 23.0	17.8
71896 2000 WN ₁₁	16.7	X	204.49416	138.30270	166.20883	1.76159	0.2212261	0.26217837	2.4177133	20	1 18.3	20.8
71897 2000 WQ ₁₄	15.3	X	78.71520	203.88755	37.37367	6.47291	0.1539478	0.28786187	2.2716772	20	10 5.7	18.4
71898 2000 WU ₁₄	16.0	X	78.54364	216.88240	274.22099	5.83578	0.1168078	0.27074342	2.3664505	20	4 19.4	18.9
71899 2000 WA ₁₆	16.3	X	63.21029	256.38360	56.87949	5.58440	0.1683085	0.29949543	2.2124625	20	12 23.9	19.5
71900 2000 WU ₁₈	14.9	X	354.45012	349.76745	254.60758	6.28016	0.0666929	0.27559756	2.3385813	20	5 12.1	17.2
71901 2000 WS ₂₃	15.0	X	304.96749	92.62558	159.96872	6.99436	0.0926198	0.27132964	2.3630408	20	3 3.5	17.6
71902 2000 WB ₂₅	15.5	X	292.43290	32.96491	30.82668	4.57206	0.1454458	0.29060048	2.2573826	20	10 23.2	17.3
71903 2000 WO ₂₅	15.4	X	326.68411	116.78208	66.14629	7.18357	0.0807843	0.26266837	2.4147056	20	1 2.7	18.3
71904 2000 WB ₂₇	15.9	X	82.72864	254.35084	269.56959	3.96898	0.0696342	0.27708871	2.3301837	20	6 7.1	18.7
71905 2000 WF ₂₇	14.7	X	113.49968	218.05543	298.33827	9.92163	0.1703092	0.22260623	2.6963598	20	7 17.3	18.9
71906 2000 WP ₃₀	16.2	X	290.91441	319.33181	113.32578	5.67022	0.0911342	0.29493117	2.2352302	20	11 11.9	18.3
71907 2000 WN ₃₂	15.2	X	253.35601	72.02052	179.88201	6.77038	0.1286998	0.26352615	2.4094629	20	—	—
71908 2000 WC ₃₇	14.9	X	162.19810	58.55730	128.97681	6.86654	0.1271749	0.28874158	2.2670608	20	10 21.8	18.3
71909 2000 WV ₃₉	16.5	X	188.70417	253.08155	193.36959	6.05607	0.0586023	0.28148686	2.3058478	20	7 3.9	19.6
71910 2000 WJ ₄₁	16.0	X	186.31774	339.77873	155.11833	6.50950	0.1855195	0.28284839	2.2984421	20	8 31.1	19.4
71911 2000 WK ₄₃	16.4	X	215.98774	4.75998	190.99617	4.10923	0.0631267	0.30053945	2.2073357	20	—	—
71912 2000 WQ ₄₃	15.4	X	224.42795	184.66109	62.75287	10.58915	0.2155362	0.25817914	2.4426165	20	—	—
71913 2000 WF ₄₅	16.2	X	266.03636	275.99081	86.29296	5.67292	0.0723836	0.28273207	2.2990725	20	6 15.3	18.9
71914 2000 WO ₄₅	15.9	X	317.91012	287.58867	112.44135	3.75781	0.0296197	0.29449678	2.2374277	20	11 9	

ELEMENTS AND OPPOSITION DATES IN 2020

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
71921 2000 WY ₅₄	15.5	X	202.98476	8.64158	79.35228	6.51036	0.1363774	0.27906076	2.3191928	20	7 19.8	19.0
71922 2000 WV ₅₅	15.0	X	220.19912	113.52290	53.63481	5.38396	0.2401524	0.23777545	2.5804258	20	11 2.7	18.9
71923 2000 WB ₅₆	15.3	X	55.53463	38.67262	67.09386	5.47938	0.0839149	0.25930356	2.4355501	20	2 7.8	18.0
71924 2000 WE ₅₆	15.4	X	73.47992	31.05736	40.08834	3.09664	0.1103466	0.25847108	2.4407768	20	1 21.4	18.1
71925 2000 WQ ₅₆	16.2	X	126.71514	309.47786	52.06832	4.82012	0.1164298	0.31420035	2.1428821	20	—	—
71926 2000 WN ₅₉	16.3	X	29.88178	249.13292	152.64334	1.80908	0.2018228	0.30408270	2.1901553	20	—	—
71927 2000 WQ ₅₉	15.7	X	114.14271	355.78401	107.14204	3.11163	0.1544017	0.27106483	2.3645796	20	5 7.7	18.9
71928 2000 WB ₆₁	15.2	X	139.50204	330.38425	221.92091	4.94921	0.1000252	0.28610324	2.2809768	20	9 29.4	18.4
71929 2000 WD ₆₁	15.4	X	155.76979	16.83455	105.12470	8.76406	0.1356236	0.27726525	2.3291945	20	7 15.5	18.8
71930 2000 WM ₆₁	15.3	X	102.02233	228.26271	239.16261	2.89631	0.1592944	0.26831057	2.3807339	20	4 28.2	18.4
71931 2000 WN ₆₁	16.0	X	253.26046	336.10451	96.16512	5.15907	0.1646481	0.28601975	2.2814207	20	8 26.2	18.8
71932 2000 WO ₆₁	16.1	X	156.05308	194.86729	247.43715	4.25510	0.1974636	0.27346430	2.3507275	20	5 25.9	19.8
71933 2000 WV ₆₁	15.9	X	172.43692	180.50786	261.58527	1.20559	0.2065136	0.27497440	2.3421131	20	6 9.4	19.8
71934 2000 WA ₆₃	15.5	X	172.73666	6.59407	320.42323	2.18601	0.1886897	0.26594028	2.3948591	20	1 17.6	19.2
71935 2000 WF ₆₃	15.8	X	10.76837	340.77720	51.66625	22.54929	0.0829917	0.35526504	1.9743966	20	—	—
71936 2000 WV ₆₇	14.2	X	156.99838	120.46353	38.48257	13.65665	0.0946875	0.23189206	2.6238890	20	9 7.1	18.4
71937 2000 WT ₇₀	15.8	X	149.35832	207.28193	319.97160	5.93329	0.1208247	0.28786369	2.2716677	20	9 6.8	19.2
71938 2000 WO ₇₃	15.6	X	85.04851	159.00450	19.17432	6.20594	0.1280780	0.27979560	2.3151304	20	7 12.3	18.6
71939 2000 WZ ₇₄	16.1	X	343.29792	63.57651	6.41808	2.77038	0.1003812	0.30211151	2.1996717	20	—	—
71940 2000 WC ₇₈	16.1	X	88.36468	164.84140	352.94652	3.34102	0.0940015	0.27701349	2.3306055	20	6 10.0	18.9
71941 2000 WS ₈₀	15.9	X	133.84399	177.71130	35.25909	4.69678	0.0673880	0.29175489	2.2514240	20	10 23.0	18.8
71942 2000 WU ₈₂	16.3	X	230.37452	20.73236	19.88506	3.21577	0.1260123	0.28184346	2.3039024	20	6 15.4	19.5
71943 2000 WQ ₈₅	16.3	X	37.95129	5.56732	39.28807	2.66879	0.1459242	0.30573448	2.1822597	20	—	—
71944 2000 WB ₈₇	16.1	X	219.13499	53.46156	61.85210	7.91802	0.0876354	0.28840675	2.2688151	20	9 25.2	19.1
71945 2000 WQ ₈₇	15.1	X	225.26149	180.27967	283.07504	12.09502	0.0951481	0.23484642	2.6018370	20	8 28.7	19.1
71946 2000 WS ₈₇	16.0	X	213.99886	24.67488	63.32935	7.03809	0.0722265	0.28128081	2.3069737	20	8 10.2	19.1
71947 2000 WV ₈₇	15.2	X	139.31440	32.97156	58.65934	6.40894	0.0873081	0.27123025	2.3636180	20	5 13.6	18.3
71948 2000 WR ₈₈	15.5	X	174.77438	83.41485	37.76089	5.17638	0.0881043	0.27836187	2.3230732	20	8 6.5	18.8
71949 2000 WT ₉₁	16.1	X	71.30467	222.64117	12.56251	1.73751	0.0584734	0.28547078	2.2843445	20	9 2.8	18.8
71950 2000 WN ₉₈	15.1	X	216.97558	355.80914	87.05454	7.15921	0.0801581	0.28268135	2.2993475	20	8 4.7	18.1
71951 2000 WY ₉₉	15.5	X	164.44278	78.97868	69.05339	4.10764	0.0810536	0.28426687	2.2907897	20	9 1.3	18.6
71952 2000 WV ₁₀₀	15.1	X	229.28288	271.21821	88.81951	5.31034	0.1433983	0.27466616	2.3438651	20	4 21.2	18.6
71953 2000 WO ₁₀₁	15.3	X	139.89381	189.50121	269.98654	9.17038	0.1684614	0.27319928	2.3522475	20	5 31.1	18.8
71954 2000 WV ₁₀₄	16.0	X	32.86075	160.36854	103.46477	7.98618	0.0970255	0.28001387	2.3139272	20	8 26.1	18.5
71955 2000 WD ₁₀₇	16.5	X	350.95555	80.51966	215.04764	0.98215	0.0467262	0.28422807	2.2909981	20	7 25.5	18.9
71956 2000 WH ₁₀₇	15.4	X	111.96521	319.53859	226.63007	12.62421	0.1281442	0.23136100	2.6279027	20	8 14.3	19.6
71957 2000 WO ₁₀₉	15.8	X	150.74925	25.22193	45.40384	7.31556	0.0690746	0.27421889	2.3464131	20	4 27.3	18.9
71958 2000 WR ₁₁₀	16.4	X	288.93370	79.87220	291.62710	3.94706	0.1545673	0.28698956	2.2762781	20	7 21.4	18.4
71959 2000 WP ₁₁₂	16.3	X	288.32865	303.23102	11.09208	3.96049	0.1468931	0.27933676	2.3176650	20	4 25.2	19.0
71960 2000 WV ₁₁₄	15.6	X	231.82189	38.48149	31.82423	5.39957	0.0975954	0.28457358	2.2891434	20	8 4.6	18.6
71961 2000 WO ₁₁₅	16.6	X	225.40270	100.63624	358.31479	2.54928	0.0751627	0.28708452	2.2757761	20	9 7.5	19.5
71962 2000 WF ₁₁₆	15.2	X	332.73495	144.02249	24.07596	2.62104	0.1453446	0.25874955	2.4390254	20	—	—
71963 2000 WJ ₁₁₆	14.8	X	50.29760	214.41642	22.22344	3.64526	0.1084932	0.28083682	2.3094046	20	8 13.9	17.3
71964 2000 WQ ₁₁₇	15.5	X	325.27088	308.64780	53.77762	7.54127	0.1404162	0.28910797	2.2651450	20	9 28.2	17.4
71965 2000 WE ₁₁₈	15.4	X	354.58053	82.54189	47.84124	6.56064	0.1104971	0.25667275	2.4521641	20	—	—
71966 2000 WP ₁₁₈	14.7	X	163.72446	237.85111	72.54133	15.40854	0.2118800	0.25783447	2.4447928	20	—	—
71967 2000 WA ₁₂₀	15.8	X	186.01751	12.80195	52.61054	5.01498	0.1309814	0.27646646	2.3336788	20	5 31.1	19.1
71968 2000 WE ₁₂₀	16.1	X	152.93977	184.58757	289.22268	6.17574	0.1204038	0.27803878	2.3248725	20	6 30.9	19.3
71969 2000 WQ ₁₂₃	15.7	X	350.62458	84.39729	70.54076	3.87700	0.1123311	0.25883126	2.4385120	20	—	—
71970 2000 WM ₁₂₃	16.0	X	242.44964	192.92570	132.15873	1.05862	0.1133814	0.27262718	2.3555371	20	3 20.9	19.4
71971 Lindaketcham	15.6	X	25.52092	132.00690	11.13391	7.21532	0.1709182	0.26227990	2.4170894	20	2 9.5	17.7
71972 2000 WQ ₁₂₆	15.7	X	158.88118	305.80629	233.46619	6.94895	0.1336897	0.28880209	2.2667441	20	10 1.8	19.1
71973 2000 WZ ₁₂₇	16.4	X	18.64485	219.94938	74.27701	6.18844	0.1543484	0.29084895	2.2560967	20	9 29.8	18.6
71974 2000 WB ₁₃₁	15.6	X	183.62537	343.66265	233.63669	6.04532	0.0883734	0.29943736	2.2127485	20	12 26.0	18.5
71975 2000 WG ₁₃₃	15.2	X	50.94959	163.93625	10.57536	13.51921	0.1057774	0.27581084	2.3373756	20	5 4.3	17.8
71976 2000 WD ₁₃₆	16.3	X	46.82590	25.71396	268.48290	4.87263	0.1536429	0.29497391	2.2350143	20	11 6.5	19.2
71977 2000 WS ₁₃₇	15.5	X	106.91684	108.00051	323.37310	3.98550	0.1700753	0.26546537	2.3977145	20	3 17.1	18.6
71978 2000 WJ ₁₄₃	16.4	X	204.90649	262.48619	156.84265	8.01801	0.1263080	0.28048615	2.3113290	20	6 13.3	19.9
71979 2000 WN ₁₄₃	15.0	X	321.95438	241.21633	298.58287	13.10489	0.1378691	0.25609721	2.4558367	20	—	—
71980 2000 WU ₁₅₂	16.1	X	107.74410	332.19612	358.80330	6.90954	0.2275738	0.31016216	2.1614416	20	—	—
71981 2000 WB ₁₅₃	16.4	X	316.97482	143.78662	251.74478	5.60558	0.0118026	0.29233404	2.2484494	20	10 28.9	18.9
71982 2000 WY ₁₅₅	15.6	X	193.72320	240.04192	299.00688	7.22240	0.0434534	0.29555658	2.2320759	20	11 20.6	18.4
71983 2000 WG ₁₅₇	15.3	X	26.36102	100.63101	33.88462	6.51841	0.0749389	0.26086903	2.4257965	20	1 31.0	18.1
71984 2000 WM ₁₅₇	15.4	X	24.58695	355.38900	1.14853	7.10339	0.2055094	0.29537134	2.2330090	20	—	—
71985 2000 WY ₁₅₈	16.2	X	196.15270	303.48000	136.42931	7.12222	0.2001417	0.27811117	2.3244690	20	6 27.8	20.0
71986 2000 WL ₁₅₉	15.6	X	297.77862	341.76549	43.30652	7.30040	0.1177259	0.28747762	2.2737010	20	9 8.8	17.8
71987 2000 WU ₁₆₀	15.6	X	144.51336	329.69502	165.90464	7.30474	0.0439754	0.28254155	2.3001059	20	7 16.7	18.7
71988 2000 WQ ₁₆₃	15.1	X	106.50720	180.21113	60.10430	7.41848	0.1548457	0.29262919	2.2469373	20	11 2.7	18.4
71989 2000 WF ₁₆₇	16.0	X	359.38281	311.05251	86.04521	6.11257	0.0639157	0.30076708	2.2062219	20	—	—
71990 2000 WQ ₁₆₇	15.8	X	123.15702	60.97715	103.34382	5.09836	0.0980817	0.28318395	2.2966261	20	8 5.5	18.9
71991 2000 WR ₁₆₈	15.5	X	307.85009	245.41419	229.70184	4.77254	0.1283231	0.29753621	2.2221643	20	—	—
71992 2000 WF ₁₆₉	15.4	X	182.84632	250.81275	174.22198	4.70013	0.1377118	0.27455296	2.3445093	20	5 28.6	19.0
71993 2000 WG ₁₇₃	15.9	X	117.47944	300.98998	104.65892	3.25292	0.2047453	0.26340484	2.4102026	20	3 3.8	19.1
71994 2000 WU ₁₇₆	15.1	X	286.67034	142.41471	85.11833	7.17757	0.1815483	0.265128				