ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
96001 2004 NY_{22}	16.5	*X*	45.97556	148.47789	175.13037	4.69455	0.2044725	0.25657800	2.4527678	20	12 14.4	20.0
96002 2004 ND_{23}	16.5	*X*	208.44356	125.77008	160.68347	5.77966	0.1019032	0.28048880	2.3113144	20	—	—
96003 2004 NT_{24}	16.7	*X*	263.51808	196.19148	154.27933	7.23765	0.1690770	0.29670663	2.2263044	20	5 13.1	19.7
96004 2004 NH_{25}	14.8	*X*	198.74751	229.52373	152.47960	15.57176	0.2210686	0.22414757	2.6839847	20	4 22.4	19.6
96005 2004 NZ_{26}	16.0	*X*	68.14690	211.82821	143.54025	7.29959	0.1354333	0.26682263	2.3895765	20	—	—
96006 2004 NE_{27}	17.5	*X*	199.93569	144.85180	163.61680	1.72183	0.2817853	0.28409993	2.2916870	20	1 18.6	21.6
96007 2004 ON_{3}	16.0	*X*	75.05409	215.09251	119.19746	3.21621	0.2255425	0.26422190	2.4052313	20	—	—
96008 2004 OA_{5}	14.7	*X*	294.47434	309.92869	320.61326	7.23109	0.2221002	0.17152324	3.2081455	20	3 3.4	19.2
96009 2004 OB_{6}	15.8	*X*	63.23587	32.90364	328.21459	9.26651	0.2943880	0.26580165	2.3956917	20	—	—
96010 2004 PY_{2}	16.2	*X*	54.62969	118.37840	323.09640	13.75869	0.0256323	0.28058897	2.3107643	20	—	—
96011 2004 PD_{6}	16.3	*X*	132.51991	211.34643	170.30242	9.56888	0.2893220	0.27871368	2.3211179	20	2 23.7	19.8
96012 2004 PP_{6}	17.1	*X*	225.59219	225.53837	146.74706	6.62648	0.1951087	0.29467600	2.2365204	20	4 29.8	20.7
96013 2004 PB_{7}	16.5	*X*	119.57276	93.04199	249.92582	1.34414	0.2030452	0.27223810	2.3577809	20	—	—
96014 2004 PD_{7}	16.2	*X*	35.48667	189.41530	152.56111	3.14674	0.1878118	0.25768310	2.4457502	20	12 23.5	19.5
96015 2004 PO_{7}	16.5	*X*	190.68896	163.63216	204.02509	1.37923	0.2107809	0.22518964	2.6756981	20	3 24.9	21.0
96016 2004 PP_{7}	16.6	*X*	82.89690	45.05346	295.89464	1.73439	0.1991646	0.26560151	2.3968950	20	—	—
96017 2004 PA_{9}	16.3	*X*	150.46519	203.46423	140.27366	7.82519	0.1335927	0.27716116	2.3297776	20	1 8.7	19.5
96018 2004 PG_{9}	16.3	*X*	158.68159	163.06001	165.28337	7.09098	0.1499681	0.27652104	2.3333717	20	—	—
96019 2004 PK_{9}	15.5	*X*	147.73276	223.47318	160.51239	13.60252	0.2468500	0.21835706	2.7312276	20	3 13.4	20.0
96020 2004 PL_{9}	15.3	*X*	328.45606	190.05025	175.62970	9.58245	0.1541522	0.18501836	3.0501848	20	9 10.5	18.6
96021 2004 PD_{12}	15.9	*X*	184.80054	220.42217	140.95597	0.63412	0.3052155	0.22334415	2.6904174	20	3 14.9	20.8
96022 2004 PZ_{13}	16.2	*X*	173.33251	318.46766	344.62058	5.02746	0.1984525	0.27695776	2.3309182	20	—	—
96023 2004 PW_{17}	16.8	*X*	192.55184	174.11693	75.06053	1.78970	0.1694386	0.27293686	2.3537550	20	—	—
96024 2004 PD_{19}	16.2	*X*	38.24748	142.78162	161.35802	2.24079	0.1049896	0.25204680	2.4820771	20	10 25.3	19.3
96025 2004 PN_{19}	16.0	*X*	206.87733	272.03901	355.37530	5.88958	0.1302952	0.27627032	2.3347832	20	—	—
96026 2004 PO_{27}	15.4	*X*	334.41309	275.20355	21.82737	8.01176	0.2221728	0.18012403	3.1051907	20	6 9.3	18.8
96027 2004 PB_{29}	17.2	*X*	120.78840	194.79240	164.49189	2.58622	0.2333197	0.27344215	2.3508545	20	1 8.3	20.2
96028 2004 PD_{30}	14.5	*X*	276.00512	186.93696	157.41827	9.50057	0.0975588	0.17450175	3.1715351	20	6 1.1	19.1
96029 2004 PK_{31}	15.5	*X*	168.44425	328.71772	323.82615	7.18703	0.2616356	0.21288755	2.7778100	20	—	—
96030 2004 PZ_{31}	16.1	*X*	72.34785	264.73341	138.69302	7.16758	0.1060906	0.27322725	2.3520870	20	—	—
96031 2004 PG_{33}	16.1	*X*	139.47030	218.67059	125.97071	6.44750	0.0879124	0.21385690	2.7694096	20	1 2.5	19.9
96032 2004 PN_{35}	16.0	*X*	159.24299	311.61167	25.39668	2.09103	0.1151139	0.21528248	2.7571703	20	1 17.9	20.1
96033 2004 PE_{36}	16.4	*X*	129.26457	31.83746	336.68176	2.23233	0.1499279	0.27692888	2.3310802	20	1 18.9	19.4
96034 2004 PW_{42}	16.3	*X*	105.76792	260.45482	57.15723	5.45038	0.2407478	0.26761888	2.3848343	20	—	—
96035 2004 PB_{54}	16.2	*X*	145.38734	346.51119	260.89280	1.74755	0.1563306	0.26357187	2.4091842	20	12 11.6	19.9
96036 2004 PP_{57}	16.0	*X*	164.98566	74.25954	250.17702	1.83661	0.2211768	0.21585633	2.7522815	20	1 15.3	20.5
96037 2004 PQ_{65}	16.1	*X*	111.83327	139.08004	188.77370	4.84610	0.1313963	0.26767376	2.3845084	20	—	—
96038 2004 PY_{67}	15.5	*X*	153.80099	181.00814	168.46120	12.77565	0.1341796	0.21702703	2.7423749	20	1 26.6	19.8
96039 2004 PN_{79}	16.0	*X*	91.75145	64.42325	228.94240	3.17188	0.1917794	0.26123174	2.4235506	20	12 20.5	19.8
96040 2004 PO_{82}	15.4	*X*	342.07514	272.39420	124.02123	3.33553	0.1993565	0.19187045	2.9771267	20	11 23.3	18.4
96041 2004 PR_{90}	16.0	*X*	219.62469	207.84815	155.33785	6.17338	0.1583646	0.28942219	2.2635052	20	4 13.8	19.4
96042 2004 PZ_{90}	15.7	*X*	199.65835	202.49598	148.36844	1.92698	0.2365452	0.22070891	2.7117905	20	3 12.9	20.3
96043 2004 PC_{93}	15.1	*X*	298.93462	259.48835	91.25786	9.78422	0.1688189	0.18031279	3.1030232	20	6 28.4	19.1
96044 2004 PU_{95}	15.1	*X*	355.26112	251.43697	97.03238	10.77068	0.0695117	0.19112182	2.9848959	20	10 9.7	19.1
96045 2004 PX_{97}	14.3	*X*	286.64158	295.56656	84.85359	11.72274	0.0840206	0.18261835	3.0768508	20	8 4.1	18.5
96046 2004 PW_{99}	16.3	*X*	332.17038	190.72433	156.36687	13.58345	0.1955201	0.24362207	2.5389742	20	9 2.2	18.2
96047 2004 QW_{6}	14.9	*X*	335.13846	201.86283	113.77305	13.00178	0.0719136	0.18044206	3.1015411	20	7 19.9	18.9
96048 2004 QU_{9}	16.5	*X*	317.71959	140.88148	109.65984	7.14119	0.0479117	0.29161121	2.2521635	20	3 28.0	19.1
96049 2004 QF_{11}	14.8	*X*	342.53796	220.88485	111.34669	10.71619	0.1113279	0.18372975	3.0644302	20	8 25.3	18.5
96050 2004 QM_{14}	15.4	*X*	64.76739	83.76420	245.45102	8.24595	0.0326130	0.19757419	2.9195499	20	12 7.2	19.3
96051 2115 *P–L*	15.1	*X*	25.86607	69.85702	218.42538	4.92590	0.1563175	0.18048831	3.1010112	20	9 7.3	19.0
96052 2134 *P–L*	15.7	*X*	124.11553	84.57520	335.10817	3.04669	0.1725391	0.22221991	2.6994839	20	3 26.0	19.7
96053 2156 *P–L*	14.8	*X*	326.78019	164.49811	193.38722	12.69094	0.1400961	0.17950269	3.1123522	20	8 24.8	18.6
96054 2189 *P–L*	14.2	*X*	56.13381	231.17694	6.64437	17.50285	0.0771336	0.17849088	3.1241031	20	8 14.7	18.7
96055 2596 *P–L*	14.8	*X*	225.51605	359.65399	67.11392	1.84670	0.1955970	0.17532781	3.1615654	20	7 5.3	19.9
96056 2704 *P–L*	14.4	*X*	335.80186	72.92144	186.14575	19.72006	0.1314512	0.17634079	3.1494462	20	5 3.8	18.4
96057 2711 *P–L*	16.0	*X*	0.54358	325.08266	156.85290	2.85441	0.1176821	0.26892721	2.3770932	20	—	—
96058 2831 *P–L*	14.9	*X*	327.73227	271.84013	51.09249	2.57583	0.1277884	0.17871879	3.1214465	20	7 14.1	18.6
96059 3030 *P–L*	14.6	*X*	236.48402	162.76779	257.83289	9.87882	0.1608114	0.17620195	3.1511004	20	7 10.2	19.5
96060 3103 *P–L*	14.6	*X*	314.39182	139.90855	240.26634	9.56161	0.0838262	0.17999346	3.1066923	20	9 6.1	18.8
96061 4222 *P–L*	15.5	*X*	125.05881	352.69193	333.21849	5.44156	0.0682811	0.20220946	2.8747610	20	—	—
96062 4558 *P–L*	15.4	*X*	234.61573	60.96962	12.91189	4.34237	0.1423163	0.17700817	3.1415250	20	7 29.4	20.3
96063 4627 *P–L*	16.6	*X*	89.96443	326.54927	39.34822	2.00484	0.1972976	0.26837518	2.3803518	20	—	—
96064 4772 *P–L*	15.3	*X*	79.47936	356.44300	4.53803	2.38366	0.1515682	0.20158421	2.8807023	20	—	—
96065 4785 *P–L*	15.9	*X*	262.53945	241.26166	165.08735	1.18797	0.1658990	0.17718335	3.1394540	20	7 21.7	20.3
96066 4799 *P–L*	15.6	*X*	159.63744	41.79817	8.71112	14.62654	0.1233340	0.22387336	2.6861759	20	4 13.4	19.7
96067 4810 *P–L*	14.5	*X*	256.59550	99.75909	4.69834	12.10232	0.1245612	0.18089371	3.0963763	20	10 1.6	18.8
96068 4819 *P–L*	14.3	*X*	247.81174	108.63767	169.79622	9.63509	0.1274266	0.15783174	3.3910940	20	2 6.5	19.6
96069 6060 *P–L*	15.2	*X*	288.51001	44.90963	342.40848	3.80439	0.1446908	0.24513551	2.5285132	20	8 12.0	17.9
96070 6078 *P–L*	15.7	*X*	217.28246	190.15051	190.69605	14.23375	0.2593077	0.22535352	2.6744007	20	5 1.4	20.4
96071 6127 *P–L*	15.3	*X*	339.97445	4.16806	357.59928	10.00199	0.1786460	0.24688531	2.5165519	20	10 11.9	17.5
96072 6222 *P–L*	17.4	*X*	4.60381	110.47479	235.72707	1.21900	0.1779985	0.31356269	2.1457863	20	11 29.9	19.2
96073 6677 *P–L*	16.1	*X*	239.89683	350.31605	19.73428	4.34468	0.1132161	0.29220899	2.2490908	20	5 15.6	19.1
96074 6709 *P–L*	16.8	*X*	76.86997	326.69400	44.95130	3.15877	0.2306221	0.26805333	2.3822568	20	—	—
96075 6736 *P–L*	15.5	*X*	255.32866	26.85715	37.01703	5.08202	0.1141743	0.24528781	2.5274665	20	8 20.9	18.8
96076 6825 *P–L*	16.6	*X*	265.23867	281.21035	35.90787	3.97460	0.2367427	0.29174526	2.2514735	20	3 22.2	19.8
96077 6840 *P–L*	16.3	*X*	310.71647	253.59928	103.38931	2.63568	0.1346762	0.24526781	2.5276039	20	8 7.7	19.0
96078 6857 *P–L*	16.3	*X*	333.34225	150.01335	1.40663	1.68681	0.0794295	0.26970022	2.3725490	20	—	—
96079 7583 *P–L*	16.1	*X*	200.86815	302.57846	108.44618	2.86624	0.0735918	0.29189296	2.2507140	20	5 30.6	19.2
96080 7649 *P–L*	16.6	*X*	274.09897	194.81916	133.26162	3.02723	0.2919468	0.29258753	2.2471506	20	4 8.2	19.9

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
96081 9079 *P–L*	16.4	*X*	112.24369	64.01772	295.75613	2.10377	0.1868571	0.26934261	2.3746485	20	—	—
96082 9606 *P–L*	15.0	*X*	332.94825	311.57606	60.58888	2.70900	0.1856434	0.18027214	3.1034897	20	9 28.1	18.1
96083 1242 *T–1*	16.3	*X*	345.13098	160.42200	8.99922	1.78762	0.1742730	0.27910388	2.3189540	20	—	—
96084 2225 *T–1*	15.7	*X*	103.75727	43.20039	23.95763	8.43695	0.1293112	0.28078512	2.3096880	20	3 4.2	18.5
96085 2256 *T–1*	15.6	*X*	103.85148	68.55450	17.73237	9.57218	0.2024036	0.28237457	2.3010126	20	4 7.3	18.5
96086 Toscanos	13.6	*X*	34.96006	116.22857	194.31606	4.94639	0.1208339	0.12470992	3.9676685	20	10 6.4	18.9
96087 1035 *T–2*	15.6	*X*	105.56579	245.80039	186.34870	23.38359	0.2172999	0.28364565	2.2941332	20	3 22.7	18.3
96088 1074 *T–2*	15.5	*X*	195.88967	226.45249	191.55377	11.43488	0.1660930	0.22509371	2.6764583	20	5 31.9	20.0
96089 1127 *T–2*	15.6	*X*	248.96450	263.12224	358.35065	5.36439	0.0358336	0.22005305	2.7171761	20	1 21.1	19.5
96090 1185 *T–2*	16.0	*X*	231.81308	315.46023	9.79491	7.84235	0.1764604	0.28663712	2.2781436	20	3 6.9	19.5
96091 1267 *T–2*	15.3	*X*	42.78207	350.56231	355.57287	9.53012	0.1023611	0.19165787	2.9793277	20	12 8.1	19.6
96092 2036 *T–2*	15.5	*X*	32.77139	347.22330	338.40932	4.96865	0.2081790	0.19053294	2.9910431	20	11 14.8	19.5
96093 2063 *T–2*	15.3	*X*	196.82171	42.91214	1.77497	4.56336	0.1024137	0.22470601	2.6795360	20	5 15.2	19.4
96094 2089 *T–2*	16.6	*X*	141.78877	212.19727	196.33212	6.36519	0.1529863	0.28482282	2.2878078	20	3 24.3	19.7
96095 2095 *T–2*	15.9	*X*	152.61989	57.49491	318.58855	1.11591	0.1013377	0.22069875	2.7118737	20	2 24.8	19.8
96096 2111 *T–2*	16.4	*X*	214.86655	136.21578	186.13855	5.70274	0.1516341	0.28526440	2.2854462	20	2 13.9	19.9
96097 2122 *T–2*	16.9	*X*	166.56167	197.09533	191.55093	1.45957	0.2012794	0.28532113	2.2851432	20	3 27.1	20.5
96098 2143 *T–2*	14.8	*X*	96.59237	270.98530	2.33968	11.68572	0.1152020	0.19117562	2.9843359	20	11 9.6	19.5
96099 2193 *T–2*	15.5	*X*	51.88925	101.81912	188.34006	2.18409	0.2055670	0.19029490	2.9935369	20	10 27.7	19.8
96100 2263 *T–2*	15.6	*X*	299.48115	267.65192	201.38739	4.84738	0.1559548	0.25499931	2.4628807	20	—	—
96101 3006 *T–2*	16.5	*X*	34.01587	193.12406	175.00334	13.39015	0.2878761	0.25541656	2.4601977	20	—	—
96102 3054 *T–2*	16.5	*X*	137.41017	16.99578	14.87038	8.58991	0.1087293	0.28409659	2.2917050	20	2 25.2	19.5
96103 3132 *T–2*	15.3	*X*	220.79336	294.97105	53.86255	4.20479	0.0960336	0.22369133	2.6876329	20	4 2.8	19.2
96104 3189 *T–2*	16.3	*X*	322.63952	18.47691	27.13057	6.30980	0.1491512	0.25317385	2.4747053	20	11 13.5	18.6
96105 3225 *T–2*	16.4	*X*	211.37923	280.28684	53.31734	4.27291	0.1197522	0.28564488	2.2834162	20	2 28.7	19.8
96106 3313 *T–2*	16.1	*X*	238.07803	191.57837	156.46568	6.32456	0.1878846	0.28808794	2.2704886	20	4 10.2	19.6
96107 4109 *T–2*	16.2	*X*	325.39844	259.02246	158.75431	7.84689	0.1265653	0.25400967	2.4692736	20	12 8.8	18.8
96108 4167 *T–2*	15.8	*X*	240.03502	282.40788	16.46785	11.12839	0.2364872	0.22262731	2.6961895	20	2 15.9	20.5
96109 4192 *T–2*	15.4	*X*	139.49394	305.86079	157.09167	3.64960	0.2042799	0.22363803	2.6880599	20	6 7.2	19.8
96110 4224 *T–2*	17.2	*X*	215.44021	199.11815	145.04506	4.23098	0.1719609	0.28637047	2.2795575	20	3 15.0	20.6
96111 4243 *T–2*	15.6	*X*	134.89055	354.58471	39.22492	5.43025	0.1006248	0.22052739	2.7132784	20	2 29.9	19.6
96112 5063 *T–2*	15.0	*X*	167.40999	178.87853	232.72622	7.00984	0.1275900	0.28660320	2.2783234	20	4 22.2	18.2
96113 5083 *T–2*	15.3	*X*	181.89229	52.27038	337.91506	13.60525	0.1208240	0.22312946	2.6921429	20	4 7.0	19.7
96114 5088 *T–2*	15.0	*X*	284.45942	296.08798	335.15528	15.18862	0.1445696	0.22314906	2.6919852	20	2 27.9	18.9
96115 5139 *T–2*	14.7	*X*	35.99730	340.59995	328.21671	9.12731	0.0951462	0.18947816	3.0021331	20	10 9.6	18.8
96116 5412 *T–2*	15.2	*X*	30.31721	77.37737	275.36278	8.94148	0.1243834	0.19111392	2.9849783	20	12 4.4	19.2
96117 5458 *T–2*	15.8	*X*	291.56552	309.83978	305.05812	6.12748	0.0908121	0.28558848	2.2837169	20	2 14.7	18.6
96118 1087 *T–3*	15.6	*X*	30.95111	277.46547	314.89562	6.04434	0.1323655	0.29362684	2.2418448	20	7 8.7	17.7
96119 1091 *T–3*	14.5	*X*	278.08227	159.99432	249.02743	9.28112	0.0703751	0.18103738	3.0947380	20	8 24.3	18.9
96120 1114 *T–3*	16.3	*X*	59.11677	98.85542	262.19838	5.48898	0.1337703	0.25723925	2.4485627	20	—	—
96121 1127 *T–3*	15.1	*X*	270.71886	346.95113	288.36217	8.67332	0.1809108	0.21996408	2.7179087	20	2 12.3	19.3
96122 1141 *T–3*	14.7	*X*	358.19928	60.48038	268.73252	7.57786	0.1320430	0.18233866	3.0799964	20	9 10.6	18.5
96123 1184 *T–3*	14.8	*X*	252.51066	223.74751	220.62498	13.81823	0.2448442	0.18007767	3.1057236	20	8 12.0	19.8
96124 2058 *T–3*	14.5	*X*	110.46658	269.37011	264.80356	4.33785	0.1274034	0.17777022	3.1325406	20	7 28.7	19.3
96125 2152 *T–3*	15.2	*X*	346.96634	105.92480	213.97851	15.28066	0.1511473	0.18135630	3.0911087	20	8 7.2	19.1
96126 2174 *T–3*	15.3	*X*	117.92403	85.11107	10.27622	12.84787	0.1616082	0.21963621	2.7206129	20	4 29.5	19.5
96127 2202 *T–3*	15.0	*X*	211.14472	226.86946	221.83944	8.94028	0.0614604	0.17862593	3.1225283	20	7 26.1	19.8
96128 2220 *T–3*	15.5	*X*	312.47111	150.69967	227.76776	4.64861	0.1505625	0.18128631	3.0919043	20	8 27.9	19.3
96129 2248 *T–3*	14.9	*X*	297.42487	112.19407	224.73477	10.22944	0.0649624	0.17838176	3.1253770	20	6 22.5	19.2
96130 2269 *T–3*	14.9	*X*	276.75225	169.86705	225.01012	9.35146	0.0829688	0.17973132	3.1097123	20	8 3.4	19.3
96131 2276 *T–3*	15.0	*X*	72.55401	60.65409	314.42387	3.22780	0.1658608	0.25870017	2.4393357	20	—	—
96132 2354 *T–3*	15.2	*X*	309.88002	8.58059	353.89111	4.65895	0.2332483	0.18045455	3.1013980	20	7 24.1	18.7
96133 2488 *T–3*	15.6	*X*	206.05000	38.60719	259.55107	4.47786	0.0443429	0.21634085	2.7481707	20	1 15.4	19.5
96134 3027 *T–3*	15.2	*X*	292.40493	339.01510	26.73016	2.49409	0.1485481	0.17925566	3.1152110	20	7 12.2	19.2
96135 3054 *T–3*	15.1	*X*	304.95376	7.55414	27.28354	5.65527	0.1567478	0.18136132	3.0910517	20	9 9.9	18.7
96136 3209 *T–3*	14.4	*X*	7.02355	299.99943	21.77556	11.23910	0.1758842	0.18284171	3.0743445	20	9 27.4	17.9
96137 3252 *T–3*	16.6	*X*	131.28138	245.75433	209.09018	0.23190	0.1845162	0.28943157	2.2634563	20	5 17.6	19.9
96138 3277 *T–3*	15.8	*X*	149.59606	338.25572	38.92106	2.28182	0.1108105	0.21765389	2.7371069	20	2 25.3	19.8
96139 3324 *T–3*	15.3	*X*	299.26554	181.72536	190.83751	10.69807	0.1690681	0.18004381	3.1061130	20	7 25.7	19.4
96140 3339 *T–3*	15.2	*X*	242.45706	270.83522	39.16107	4.37892	0.1957898	0.22054955	2.7130966	20	3 1.9	19.7
96141 3359 *T–3*	16.7	*X*	346.39990	219.36502	206.86336	0.54624	0.1656036	0.25583873	2.4574905	20	—	—
96142 3425 *T–3*	15.1	*X*	307.11104	172.56734	197.25597	17.93921	0.2135874	0.18052004	3.1006478	20	7 26.6	19.2
96143 3434 *T–3*	15.9	*X*	105.47838	236.85940	209.97836	2.96012	0.1664548	0.21833716	2.7313935	20	4 8.8	19.8
96144 3466 *T–3*	15.1	*X*	345.81064	328.66913	55.20205	1.25944	0.1899485	0.18375789	3.0641172	20	11 9.4	18.2
96145 3808 *T–3*	14.2	*X*	179.13308	112.38649	24.79741	22.98461	0.1710937	0.17959342	3.1113039	20	9 1.0	19.7
96146 3834 *T–3*	15.9	*X*	293.82215	33.93332	64.30556	3.21970	0.1577533	0.25437629	2.4669005	20	12 4.7	18.2
96147 3851 *T–3*	15.1	*X*	229.34228	242.33765	198.33385	8.90434	0.0885173	0.17907122	3.1173497	20	8 3.3	19.9
96148 3991 *T–3*	14.4	*X*	4.41287	298.94897	32.67170	12.81755	0.2422255	0.18339894	3.0681140	20	10 13.7	17.5
96149 4125 *T–3*	15.2	*X*	190.23839	326.40040	33.85937	9.94010	0.3018595	0.22003090	2.7173584	20	3 20.6	20.3
96150 4158 *T–3*	16.9	*X*	219.65921	172.65197	169.28543	6.57035	0.1338667	0.28975757	2.2617583	20	3 16.3	20.1
96151 4239 *T–3*	15.7	*X*	190.47041	203.01171	162.29216	7.64330	0.1023133	0.21969220	2.7201507	20	3 22.8	19.8
96152 4358 *T–3*	14.5	*X*	21.24796	263.27430	59.58450	10.33704	0.1232675	0.18344227	3.0676309	20	10 17.3	18.5
96153 4651 *T–3*	15.0	*X*	350.67798	103.41784	184.02635	11.88758	0.1346829	0.17980781	3.1088303	20	7 4.1	18.9
96154 5121 *T–3*	14.6	*X*	308.68957	326.20954	71.86295	11.68408	0.0749066	0.18253477	3.0777899	20	10 3.3	18.8
96155 1973 *HA*	14.5	*X*	140.07535	110.04063	50.06977	23.47771	0.3974494	0.21685513	2.7438240	20	9 4.6	20.3
96156 1974 *CB*	15.6	*X*	150.23143	165.31565	327.88502	5.18634	0.1560912	0.28532847	2.2851041	20	7 26.5	19.1
96157 1978 UV_4	16.1	*X*	162.63536	116.84200	234.51603	1.51611	0.2088841	0.27000459	2.3707656	20	2 7.4	19.8
96158 1978 UE_8	15.2	*X*	335.66127	71.31111	14.19564	10.90432	0.2262566	0.19079283	2.9883263	20	—	—
96159 1978 VR_3	16.7	*X*	144.75810	168.65159	230.51458	1.51181	0.1864961	0.26966160	2.3727755	20	3 19.5	20.3
96160 1978 VW_7	16.4	*X*	131.61836	143.50483	271.61140	1.31349	0.2187685	0.26955071	2.3734262	20	3 29.9	20.0

ELEMENTS AND OPPOSITION DATES IN 2020

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Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
96161 1978 VS_9	16.4	X	101.19085	170.38660	230.29900	0.44844	0.1730844	0.26665145	2.3905991	20	1 29.5	19.2
96162 1979 MN_7	14.8	X	339.02612	248.59689	150.34474	6.54887	0.2259300	0.24485985	2.5304106	20	12 14.1	17.0
96163 1981 DJ_1	15.9	X	21.68525	280.14016	274.22064	5.76002	0.0745224	0.27886481	2.3202792	20	4 10.9	18.5
96164 1981 EH_6	16.0	X	53.15987	235.25855	262.64888	4.09184	0.3575995	0.20326689	2.8647822	20	5 4.9	19.0
96165 1981 EL_{14}	14.7	X	122.55702	48.80807	347.09500	11.64258	0.0373246	0.19973020	2.8985017	20	2 12.8	18.8
96166 1981 EW_{15}	15.2	X	5.83028	153.56429	343.00410	10.66104	0.2734460	0.19952683	2.9004709	20	—	—
96167 1981 EG_{20}	14.3	X	192.06944	323.91634	342.96291	6.91801	0.1605615	0.19719396	2.9233017	20	1 18.6	19.1
96168 1981 ER_{23}	16.0	X	272.33880	6.67295	91.21816	1.71094	0.1026034	0.24072738	2.5592874	20	10 30.9	18.9
96169 1981 EW_{23}	16.3	X	258.63753	328.04807	285.68778	1.54753	0.1795154	0.27355309	2.3502188	20	1 2.0	19.7
96170 1981 EE_{29}	16.1	X	115.80298	168.73451	301.35218	4.55193	0.0857883	0.28055000	2.3109783	20	5 7.3	19.1
96171 1981 ET_{32}	14.7	X	104.15991	53.81568	277.21551	9.62225	0.0940504	0.19294499	2.9660631	20	—	—
96172 1981 EN_{34}	15.9	X	263.76258	8.35076	252.40503	5.97967	0.0856949	0.27502163	2.3418450	20	1 21.6	19.3
96173 1981 ED_{36}	15.4	X	233.70853	340.91353	330.37297	6.32834	0.1256319	0.27621725	2.3350823	20	2 21.3	18.6
96174 1981 EF_{38}	17.0	X	67.01676	9.05650	233.78907	4.50477	0.1573872	0.28464729	2.2887482	20	9 20.1	20.0
96175 1981 EY_{43}	15.6	X	280.52818	179.67495	270.44380	3.94327	0.1695069	0.24114702	2.5563175	20	10 21.2	18.3
96176 1981 EZ_{44}	15.9	X	231.37008	118.12826	207.62723	6.38727	0.1252102	0.27742927	2.3282763	20	3 6.4	19.4
96177 1984 BC	16.0	X	197.14935	43.69589	129.43459	21.34667	0.5331495	0.15089715	3.4942075	20	10 5.5	23.1
96178 Rochambeau	15.3	X	307.89683	232.83666	156.71509	2.79801	0.3515762	0.23743454	2.5828952	20	8 14.8	17.2
96179 1988 DX_4	16.0	X	201.42557	343.38747	186.12014	12.30473	0.2249648	0.23166975	2.6255674	20	10 20.7	20.2
96180 1988 SR_2	13.6	X	106.69845	222.78115	23.82816	2.14963	0.1314835	0.12466338	3.9686559	20	10 15.0	19.6
96181 1988 VW_2	15.8	X	277.88687	170.09207	248.12075	2.33220	0.2997922	0.24303997	2.5430267	20	8 10.6	18.7
96182 1989 RT_1	15.7	X	132.48871	350.43343	357.64435	13.29329	0.2933919	0.26805828	2.3822275	20	1 19.6	19.5
96183 1989 UG_2	14.5	X	208.50708	340.88475	45.80747	26.85491	0.2728822	0.27635347	2.3343149	20	4 30.7	18.7
96184 1990 QH_3	14.7	X	263.80551	356.12503	341.49638	17.24323	0.2878647	0.22326077	2.6910872	20	4 5.7	19.3
96185 1990 RJ_7	15.1	X	215.53758	92.38806	1.30589	7.22790	0.2919594	0.22529220	2.6748860	20	7 26.9	19.8
96186 1990 SF_8	15.5	X	235.51125	14.19099	34.10415	5.47253	0.1891153	0.29029235	2.2589797	20	6 25.5	18.8
96187 1990 UH_4	14.1	X	63.08037	348.25014	56.30113	17.73767	0.2106733	0.20591576	2.8401612	20	—	—
96188 1991 GC	15.2	X	121.46090	46.91294	183.06554	23.45801	0.2441687	0.28389497	2.2927899	20	11 6.0	19.4
96189 Pygmalion	16.4	X	312.85086	293.11093	287.24765	13.99631	0.3072221	0.40121719	1.8206076	20	—	—
96190 1991 PD_{19}	15.8	X	10.38993	254.45767	104.23946	0.73950	0.2077052	0.24335500	2.5408315	20	12 10.9	18.6
96191 1991 TK_9	15.4	X	108.71086	322.16908	213.69875	3.68185	0.0098438	0.23097205	2.6308521	20	7 18.5	19.0
96192 Calgary	15.9	X	82.27302	286.78615	44.91042	7.62187	0.1438503	0.27844659	2.3226019	20	—	—
96193 Edmonton	16.5	X	333.44663	228.91329	172.31685	4.70695	0.1437867	0.23890866	2.5722596	20	11 25.8	19.1
96194 1991 VF_6	14.6	X	275.62428	317.19774	68.78424	18.70215	0.2697750	0.23181883	2.6244416	20	6 27.7	18.4
96195 1992 AW_2	15.9	X	263.64667	305.26544	97.71728	5.32438	0.0535247	0.29643980	2.2276402	20	8 18.1	18.4
96196 1992 EQ_4	16.0	X	138.20070	354.06965	125.00623	4.82797	0.0425598	0.28909479	2.2652138	20	6 15.9	18.8
96197 1992 EF_6	15.9	X	92.62660	125.36431	103.95506	5.06118	0.1991210	0.22315319	2.6919521	20	10 2.0	20.1
96198 1992 EF_{13}	15.7	X	156.14193	17.29031	192.41784	2.72467	0.1792185	0.22801049	2.6535839	20	10 31.2	20.0
96199 1992 EY_{24}	16.0	X	207.01659	115.48609	96.43288	3.96994	0.1214142	0.30297818	2.1954749	20	—	—
96200 Oschin	15.4	X	54.52182	18.74409	281.60070	4.34071	0.2051904	0.17907163	3.1173449	20	11 8.4	19.8
96201 1992 RK_3	15.5	X	76.94103	349.17753	338.30123	1.75596	0.2694289	0.18354742	3.0664592	20	—	—
96202 1992 RR_7	16.3	X	184.32948	244.21356	85.94857	2.88947	0.2006780	0.26570933	2.3962466	20	2 1.6	20.1
96203 1992 SH_3	16.6	X	147.53392	211.33205	153.24207	3.06687	0.2135520	0.26466277	2.4025595	20	2 11.1	20.1
96204 1992 SN_5	15.2	X	230.70709	237.98070	359.09541	9.02064	0.1721543	0.26262881	2.4149481	20	—	—
96205 Ararat	16.3	X	133.20131	33.09254	337.31446	2.53079	0.1901442	0.26304627	2.4123924	20	2 2.3	19.5
96206 Eschenberg	14.8	X	59.14192	350.97713	8.84385	3.51080	0.1498754	0.18344888	3.0675572	20	—	—
96207 1993 FK_4	16.0	X	259.79707	30.18682	171.78757	7.22832	0.1644941	0.24511151	2.5286783	20	—	—
96208 1993 FY_6	15.5	X	107.65973	227.70689	63.09872	3.54509	0.1481077	0.31015048	2.1614959	20	—	—
96209 1993 FA_9	16.0	X	252.94516	347.86165	129.88066	4.82663	0.2184618	0.23869028	2.5738282	20	10 12.6	19.3
96210 1993 FR_{14}	15.2	X	205.72950	251.53555	108.31436	5.96882	0.1757626	0.21941166	2.7224688	20	3 31.8	19.8
96211 1993 FU_{23}	15.5	X	275.07741	20.43890	205.61236	6.31711	0.0828933	0.21174407	2.7878017	20	1 1.9	19.7
96212 1993 FK_{27}	16.0	X	39.23203	70.91686	242.31641	3.28230	0.1745034	0.30521622	2.1847294	20	11 29.4	18.5
96213 1993 FZ_{30}	16.1	X	56.09308	312.07104	40.85800	2.84652	0.1746923	0.31143371	2.1555543	20	—	—
96214 1993 FB_{42}	15.6	X	280.70272	84.01139	10.28967	4.75672	0.2457283	0.23954658	2.5676909	20	10 15.8	18.3
96215 1993 QR_9	16.1	X	215.13467	336.27526	49.72463	2.76700	0.1054192	0.28350664	2.2948831	20	5 10.5	19.4
96216 1993 RM_1	15.0	X	35.21234	94.93900	316.01437	1.46356	0.0762745	0.19326301	2.9628083	20	—	—
96217 Gronchi	15.4	X	249.77486	30.12498	311.43353	4.03163	0.2013233	0.28303360	2.2974393	20	4 8.2	19.0
96218 1993 RZ_{14}	16.9	X	222.10262	116.96169	1.24520	19.13313	0.0781706	0.36604455	1.9354417	20	10 9.1	18.8
96219 1993 SH_5	15.1	X	18.19109	316.03447	40.84499	0.81978	0.2410004	0.18610853	3.0382618	20	12 8.8	18.7
96220 1993 SY_{13}	14.8	X	327.54921	8.70830	13.92170	4.40283	0.1816373	0.18214070	3.0822276	20	10 1.2	17.9
96221 1993 TC_2	15.3	X	165.95121	3.38719	20.25010	3.42186	0.1974138	0.27584887	2.3371607	20	3 21.4	19.1
96222 1993 TU_9	15.2	X	189.64641	216.30138	283.04735	3.16865	0.1564908	0.17779976	3.1321936	20	8 30.8	20.2
96223 1993 TG_{14}	15.8	X	168.40793	243.82600	181.30204	5.44106	0.1052664	0.28046804	2.3114285	20	5 13.1	19.1
96224 1993 TY_{17}	16.2	X	135.33259	248.47706	160.01796	3.65356	0.1205352	0.27552149	2.3390117	20	3 15.2	19.2
96225 1993 TP_{18}	14.9	X	19.92876	210.19495	122.64795	1.64245	0.1576494	0.18330264	3.0691886	20	10 29.6	18.6
96226 1993 TS_{18}	16.3	X	127.61189	270.30669	43.78369	2.35782	0.1842278	0.26732945	2.3865553	20	—	—
96227 1993 TS_{22}	15.1	X	27.25523	40.73403	31.06527	10.78516	0.0925923	0.19246913	2.9709499	20	—	—
96228 1993 TV_{25}	16.4	X	126.25670	328.99781	66.82751	2.38629	0.1726940	0.27321746	2.3521431	20	2 24.6	19.5
96229 1993 TE_{30}	16.6	X	125.70964	251.95027	126.40887	2.25043	0.1954396	0.27173703	2.3606784	20	2 3.3	19.6
96230 1993 TZ_{35}	15.7	X	104.36801	223.43183	191.16706	5.71131	0.1009521	0.27280163	2.3545328	20	2 7.8	18.6
96231 1993 TF_{39}	16.1	X	168.93078	206.89725	140.53025	4.94988	0.1514092	0.27343542	2.3508930	20	2 4.3	19.5
96232 1993 TU_{39}	16.5	X	105.62407	45.22911	70.64252	4.48632	0.1803375	0.27742042	2.3283259	20	5 17.9	19.6
96233 1993 TA_{41}	16.1	X	131.72176	10.85738	50.56229	4.28084	0.0736630	0.27658477	2.3330133	20	3 23.7	19.0
96234 1993 UG	16.2	X	287.56532	48.70833	28.62138	20.71426	0.1859287	0.36687188	1.9325308	20	11 23.8	17.3
96235 1993 UB_5	16.1	X	278.68922	232.12861	98.48045	5.98958	0.1773205	0.28354888	2.2946552	20	5 3.5	19.0
96236 1993 UL_7	15.1	X	336.22505	246.67517	172.75826	9.83358	0.0480959	0.18532553	3.0468136	20	12 4.6	19.3
96237 1993 VL_1	14.5	X	60.09615	304.26206	85.30160	22.94148	0.2002908	0.19258279	2.9697808	20	—	—
96238 1994 AF_4	16.1	X	177.30154	311.09145	79.49878	3.37449	0.2305160	0.27394925	2.3479525	20	4 10.9	20.1
96239 1994 AC_7	14.6	X	324.31556	285.25916	112.83731	8.83345	0.1317281	0.17677825	3.1442482	20	10 21.1	18.4
96240 1994 AE_7	16.1	X	291.80305	136.69176	112.52917	4.10818	0.1665986	0.26695366	2.3887945	20	2 1.3	19.2

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Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
96241 1994 AG_7	16.7	X	86.16386	276.74541	108.54684	2.29634	0.1940505	0.26347472	2.4097764	20	—	—
96242 1994 AB_{17}	16.2	X	265.17053	33.43797	282.96361	0.91659	0.0461318	0.23521278	2.5991346	20	4 15.2	19.6
96243 1994 CF_6	14.9	X	214.83629	26.06669	146.18566	11.76878	0.1448033	0.17440748	3.1726779	20	11 7.0	19.9
96244 1994 CA_{16}	15.3	X	298.08431	251.06646	350.03797	7.80389	0.2170782	0.26255193	2.4154195	20	1 24.8	18.7
96245 1994 CA_{18}	15.9	X	27.92232	70.41500	79.68714	3.45954	0.1053901	0.26474060	2.4020886	20	2 23.4	18.2
96246 1994 JZ_5	14.8	X	139.65509	351.35432	54.50742	7.26995	0.2122420	0.22272914	2.6953677	20	3 31.8	19.2
96247 1994 PT_3	15.5	X	140.14725	63.42302	324.19721	5.04162	0.0587771	0.21156893	2.7893400	20	2 21.5	19.3
96248 1994 PX_6	15.6	X	165.94300	129.34492	152.76815	14.14024	0.1547485	0.24304023	2.5430249	20	—	—
96249 1994 PD_{22}	17.4	X	289.10728	310.51999	70.01053	0.96240	0.1742843	0.30153013	2.2024983	20	8 3.9	19.2
96250 1994 PE_{25}	15.2	X	163.90148	47.67540	339.36444	4.61929	0.1281045	0.21354199	2.7721317	20	3 22.3	19.4
96251 1994 RL_{26}	15.7	X	95.24998	210.13871	222.14835	3.60163	0.0522603	0.21069837	2.7970180	20	2 20.4	19.6
96252 1994 WB_6	15.7	X	56.26541	260.01896	61.22403	5.08841	0.1433041	0.30734508	2.1746291	20	12 26.3	18.7
96253 1995 BY_1	15.7	X	39.99132	259.53606	302.34043	5.75850	0.0421299	0.28494126	2.2871737	20	5 22.6	18.2
96254 Hoyo	16.3	X	118.22992	29.97114	140.55024	3.47642	0.1138404	0.28604534	2.2812846	20	8 8.9	19.5
96255 1995 ES_6	15.3	X	221.26098	156.97432	0.39516	0.95502	0.1335445	0.18002651	3.1063120	20	10 24.9	20.0
96256 1995 HS_2	15.9	X	144.82417	183.13656	90.36752	3.66286	0.1659753	0.25614237	2.4555480	20	—	—
96257 1995 JE	16.1	X	36.15898	113.53804	337.79126	5.85191	0.0563821	0.26468939	2.4023984	20	—	—
96258 1995 KQ_4	16.7	X	107.76740	175.41867	130.36859	0.50494	0.1629478	0.25488291	2.4636305	20	—	—
96259 1995 MV_1	15.5	X	143.37054	191.93566	146.54535	7.33949	0.1897938	0.26031568	2.4292330	20	1 3.7	19.0
96260 1995 MW_3	14.5	X	249.21526	335.56825	101.66691	13.58778	0.1033792	0.16807124	3.2519245	20	8 25.6	19.3
96261 1995 OA_4	16.2	X	345.88981	203.06373	318.90735	1.91953	0.1227905	0.25857887	2.4400985	20	—	—
96262 1995 PF	15.2	X	341.78350	80.79431	278.38474	11.71733	0.2142155	0.23899787	2.5716194	20	10 7.7	17.8
96263 1995 SE_2	15.3	X	258.74195	55.64447	339.59958	12.37056	0.1779108	0.23093421	2.6311394	20	7 6.3	19.2
96264 1995 SF_{17}	15.4	X	330.24999	241.84532	171.61166	4.55986	0.2238907	0.24058969	2.5602638	20	12 13.6	17.5
96265 1995 SX_{23}	16.2	X	131.94760	149.65003	154.17865	3.34137	0.0433855	0.24785678	2.5099719	20	—	—
96266 1995 SB_{33}	15.9	X	7.99067	210.89213	167.31231	5.04400	0.1488259	0.24296089	2.5435785	20	12 23.9	18.9
96267 1995 SK_{48}	14.6	X	204.19160	141.56414	31.01705	6.00463	0.2012241	0.23957050	2.5675199	20	10 28.4	18.4
96268 Tomcarr	15.2	X	347.59054	74.59448	255.68588	4.40159	0.2737062	0.23701826	2.5859186	20	9 13.9	16.9
96269 1995 SA_{67}	16.6	X	296.29529	289.89709	168.47279	4.33149	0.1792675	0.24195204	2.5506441	20	12 4.4	19.0
96270 1995 SY_{68}	15.7	X	105.06569	232.23880	5.31861	4.51310	0.0868094	0.23912935	2.5706767	20	10 13.9	19.4
96271 1995 SH_{79}	14.9	X	196.76342	169.71058	340.01430	14.85335	0.0601762	0.23975216	2.5662228	20	9 29.8	18.6
96272 1995 SZ_{88}	15.8	X	79.74884	301.64572	211.36704	2.93009	0.0395735	0.22233918	2.6985184	20	5 14.4	19.2
96273 1995 UD_{15}	15.9	X	231.14275	302.14493	348.60458	2.06548	0.1586980	0.25632741	2.4543662	20	1 25.8	19.7
96274 1995 UB_{32}	15.7	X	34.82384	242.95158	109.52208	3.54812	0.1831209	0.24136554	2.5547743	20	12 31.3	19.1
96275 1995 UG_{66}	16.1	X	349.07028	241.20627	350.65537	2.52881	0.1144343	0.22122159	2.7075992	20	4 14.3	19.1
96276 1995 VG_{11}	14.9	X	178.90423	86.62030	64.37645	9.03520	0.1574187	0.23129679	2.6283890	20	9 15.2	19.2
96277 1995 WN_4	15.5	X	323.47925	286.21146	114.14077	4.50847	0.1787403	0.23513395	2.5997155	20	11 4.9	17.9
96278 1995 WN_{19}	15.6	X	22.33235	177.74863	71.93678	14.81716	0.1287190	0.22515353	2.6759842	20	7 13.7	18.7
96279 1995 WE_{20}	15.3	X	132.16430	70.29493	73.08423	14.38511	0.0909290	0.22376115	2.6870738	20	7 14.1	19.4
96280 1995 WZ_{31}	15.3	X	64.48550	317.16770	282.99821	5.00353	0.1593829	0.21954298	2.7213830	20	9 4.5	19.1
96281 1995 WC_{37}	15.8	X	217.33592	293.22013	127.23820	10.20300	0.1859406	0.22061640	2.7125485	20	6 22.2	20.2
96282 1995 WX_{38}	15.3	X	22.71165	154.53737	28.59791	9.27197	0.0497488	0.21871883	2.7282150	20	4 5.5	18.6
96283 1995 YQ_5	16.3	X	306.95971	271.53463	105.19089	2.77492	0.1051204	0.23139435	2.6276502	20	9 1.4	19.2
96284 1995 YY_9	15.7	X	353.19084	57.78309	252.14820	3.23979	0.0518961	0.22300765	2.6931231	20	8 11.9	19.0
96285 1995 YG_{23}	14.8	X	103.42853	353.26318	106.90978	12.46844	0.2703816	0.21315183	2.7755135	20	5 11.4	19.3
96286 1996 AE_{13}	15.4	X	177.52510	13.43704	32.23435	4.69917	0.0703212	0.21270056	2.7794378	20	4 27.2	19.5
96287 1996 BW_8	15.5	X	212.55400	98.27088	284.77785	7.23100	0.1880166	0.21747171	2.7386353	20	4 29.1	20.2
96288 1996 GD_6	16.1	X	15.17983	219.65449	53.20479	5.92683	0.1478306	0.29414789	2.2391966	20	8 18.6	18.1
96289 1996 HZ_{12}	14.1	X	58.22782	205.03139	42.77778	20.32920	0.1174521	0.17294587	3.1905282	20	9 8.9	18.9
96290 1996 HZ_{17}	14.9	X	158.62753	106.64489	54.61098	6.96263	0.0593586	0.29828914	2.2184233	20	9 16.7	17.9
96291 1996 HQ_{20}	16.3	X	298.66321	231.76753	209.73884	3.85323	0.0774449	0.30500906	2.1857185	20	12 11.0	18.2
96292 1996 HR_{20}	14.5	X	220.83818	273.90861	217.72770	10.20879	0.0444742	0.17909743	3.1170455	20	10 1.5	19.0
96293 1996 HV_{22}	16.0	X	340.29451	244.34355	65.71752	4.85513	0.1660244	0.29185204	2.2509243	20	7 31.9	17.5
96294 1996 JE_2	14.1	X	176.33005	110.52091	108.07726	17.57708	0.1865909	0.18193809	3.0845156	20	11 24.9	19.4
96295 1996 JF_7	12.5	X	342.40619	111.27242	132.29846	4.10964	0.0917088	0.08218299	5.2393982	20	5 1.0	19.0
96296 1996 OK_1	14.2	X	23.64101	15.08909	317.72177	20.98372	0.0487167	0.17008034	3.2262646	20	10 5.5	19.1
96297 1996 RY_{25}	15.6	X	312.19637	22.76112	354.81636	12.04179	0.1533190	0.24528870	2.5274603	20	9 10.0	17.9
96298 1996 RE_{26}	15.7	X	74.58562	82.88656	341.25407	24.90135	0.0879857	0.39066092	1.8532588	20	—	—
96299 1996 SO	16.4	X	149.23945	38.27922	13.80906	5.63416	0.2125326	0.27119455	2.3638255	20	4 11.3	19.9
96300 1996 SC_8	16.3	X	62.91331	346.40356	19.31573	2.64292	0.2215225	0.25616010	2.4554347	20	—	—
96301 1996 TK_{30}	15.5	X	91.27335	296.33702	213.39504	5.52668	0.1213276	0.18820356	3.0156724	20	6 6.7	19.8
96302 1996 TL_{39}	15.7	X	124.64336	342.66286	56.42962	3.29989	0.1972068	0.26730497	2.3867010	20	3 2.3	19.0
96303 1996 UM_5	16.8	X	71.04212	267.45596	89.39157	1.85735	0.2351199	0.25746205	2.4471499	20	—	—
96304 1996 VH_{16}	16.2	X	25.06797	236.73932	52.75453	10.44216	0.1408323	0.28361742	2.2942854	20	10 1.6	18.7
96305 1996 VC_{36}	15.5	X	14.54406	122.04526	278.18430	5.46671	0.1452368	0.25326606	2.4741046	20	—	—
96306 1996 WO_2	15.7	X	110.39292	275.76838	73.89074	8.69277	0.1521936	0.25651265	2.4531844	20	—	—
96307 1996 XT_2	14.6	X	293.84099	316.78796	82.73811	31.81790	0.2818673	0.24101896	2.5572228	20	8 26.4	18.0
96308 1996 XX_{22}	15.6	X	286.95416	72.97503	157.08603	6.81394	0.0718993	0.26239428	2.4163869	20	1 13.6	18.8
96309 1996 XG_{23}	15.9	X	302.45885	62.98726	172.62239	7.25928	0.0646794	0.26493728	2.4008996	20	2 9.7	19.1
96310 1996 XA_{26}	15.9	X	313.45834	246.00673	81.82976	13.10794	0.3228948	0.24145241	2.5541615	20	5 27.8	18.5
96311 1996 XW_{27}	15.9	X	3.64792	211.65266	146.96798	2.25237	0.1799575	0.24130327	2.5552138	20	11 25.3	18.6
96312 1996 XS_{35}	16.6	X	30.95152	217.51976	266.16567	1.32416	0.1420691	0.26063254	2.4272637	20	1 19.7	18.8
96313 1997 AL_3	15.1	X	170.90545	130.07017	112.07316	11.29413	0.2071872	0.24322429	2.5417417	20	12 22.2	19.3
96314 1997 AL_6	14.7	X	218.85314	137.54551	286.56874	21.36459	0.0440638	0.23177615	2.6247638	20	7 10.6	18.1
96315 1997 AP_{10}	17.0	X	20.91374	356.26439	293.05348	6.65282	0.6434502	0.56874087	1.4427567	20	12 30.1	19.6
96316 1997 AA_{21}	15.9	X	278.87804	116.00674	230.47764	1.68567	0.1181804	0.22764209	2.6564461	20	6 2.9	19.3
96317 1997 BW_2	15.4	X	231.59408	358.08051	127.23731	14.14922	0.1031725	0.23720870	2.5845343	20	10 16.2	19.2
96318 1997 CN_1	15.2	X	256.03543	54.37521	46.50844	4.57048	0.1757352	0.23763244	2.5814610	20	9 30.1	18.4
96319 1997 CL_5	15.5	X	49.29394	73.70522	130.97801	2.65185	0.2800934	0.22160006	2.7045155	20	7 19.1	18.7
96320 1997 CV_{15}	15.5	X	202.27301	27.96128	329.92245	3.64426	0.1105308	0.21831004	2.7316198	20	3 23.3	19.6

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
96321 1997 CW_{16}	15.2	X	239.53112	260.69256	137.13117	17.68356	0.1531018	0.22969725	2.6405771	20	6 20.2	19.4
96322 1997 CN_{20}	15.8	X	88.92329	315.29474	348.09486	21.15891	0.0413178	0.36596563	1.9357199	20	—	—
96323 1997 CE_{26}	16.1	X	159.85663	134.14325	144.35885	23.81315	0.0691748	0.37087286	1.9186070	20	—	—
96324 1997 EV_2	15.0	X	48.00839	13.30184	162.30627	13.96304	0.1484075	0.21761831	2.7374052	20	5 17.9	18.5
96325 1997 EG_7	15.9	X	321.37643	65.11972	317.26138	15.96394	0.2142110	0.23593056	2.5938603	20	9 19.8	18.4
96326 1997 EN_{11}	14.6	X	82.42285	16.67314	113.73927	13.25773	0.1662214	0.21911030	2.7249646	20	5 12.3	18.5
96327 Ullmann	15.4	X	64.70445	124.32273	180.69096	22.82181	0.0775451	0.36122703	1.9526117	20	12 20.5	18.4
96328 1997 GC	15.8	X	146.38873	209.40796	7.12355	4.26217	0.2426635	0.23094584	2.6310512	20	10 29.9	20.3
96329 1997 GY_8	16.1	X	262.18958	290.60793	213.15876	1.92215	0.1185352	0.23910815	2.5708286	20	12 13.3	19.1
96330 1997 GW_9	15.7	X	65.31110	308.33736	192.10482	1.81165	0.0359571	0.21472313	2.7619565	20	4 7.4	19.3
96331 1997 GC_{21}	15.6	X	90.53295	146.21591	5.03742	4.83905	0.0967503	0.21922876	2.7239828	20	6 3.2	19.3
96332 1997 GQ_{34}	15.0	X	151.65766	12.17561	20.23873	12.90107	0.0973921	0.21175776	2.7876815	20	3 18.9	19.2
96333 1997 GL_{36}	15.8	X	120.70078	342.60116	228.19767	1.48990	0.1382028	0.22679935	2.6630226	20	9 28.7	19.8
96334 1997 HH_3	15.6	X	230.63251	87.55909	45.30706	21.84501	0.0578090	0.35936364	1.9593558	20	11 19.1	17.4
96335 1997 JW_9	14.8	X	62.64658	141.11859	136.96514	10.36948	0.1102777	0.18309229	3.0715388	20	10 14.9	19.3
96336 1997 KT_3	14.6	X	358.76176	205.09407	145.59542	13.86299	0.1599569	0.18139412	3.0906791	20	10 22.0	18.4
96337 1997 LG_2	12.6	X	212.24402	240.28851	103.63133	6.86264	0.0451348	0.08101921	5.2894524	20	4 1.5	19.8
96338 1997 LF_5	15.1	X	345.64003	282.85942	129.34608	10.68921	0.1059200	0.18940187	3.0029393	20	12 13.2	18.9
96339 1997 MD_5	16.0	X	128.93511	222.13266	123.04123	4.17175	0.1276748	0.32266782	2.1052271	20	—	—
96340 1997 NV_4	15.3	X	112.20338	107.38350	123.63794	12.25250	0.1591001	0.22620585	2.6676786	20	10 22.6	19.7
96341 1997 OX_1	16.1	X	341.77720	148.79582	172.46793	5.67366	0.2386579	0.30098711	2.2051465	20	8 28.2	17.0
96342 1997 PF_2	16.8	X	258.57378	316.56428	32.98555	2.66888	0.2167952	0.29125324	2.2540084	20	4 27.8	20.1
96343 1997 RS_1	14.6	X	94.69750	239.60155	151.43036	8.60087	0.1027925	0.18884828	3.0088049	20	1 11.1	18.8
96344 Scottweaver	16.5	X	332.58080	74.14130	238.51472	3.07872	0.1635209	0.29946608	2.2126070	20	7 14.9	17.9
96345 1997 RF_5	14.2	X	91.27570	314.89000	340.54097	16.81696	0.1695807	0.17956164	3.1116710	20	12 4.3	19.4
96346 1997 SC_{10}	16.0	X	229.08689	39.20581	44.70982	5.05885	0.1227493	0.29545729	2.2325759	20	8 18.3	18.9
96347 1997 SS_{16}	15.2	X	229.05355	30.06208	252.13643	1.13441	0.0772619	0.19299291	2.9655720	20	1 23.8	19.6
96348 Toshiyukimariko	15.5	X	71.47565	344.89419	343.26306	0.89692	0.1700584	0.30888388	2.1674007	20	—	—
96349 1997 US_7	16.3	X	216.07079	1.77333	82.41005	1.63758	0.1011150	0.29211639	2.2495661	20	8 2.5	19.1
96350 1997 UA_{15}	15.6	X	260.99165	339.32469	52.96774	2.95570	0.1847845	0.29265934	2.2467830	20	7 4.6	18.3
96351 1997 UA_{18}	16.1	X	119.05073	275.64126	56.74718	7.34438	0.1941614	0.27001049	2.3707310	20	—	—
96352 1997 VH_2	15.8	X	248.98473	340.74120	24.70401	4.54515	0.1923057	0.28836734	2.2690218	20	5 11.1	18.9
96353 1997 VF_3	15.9	X	245.76683	275.00537	72.48577	5.56847	0.1960319	0.28582586	2.2824523	20	4 16.7	19.3
96354 1997 VO_3	16.2	X	133.65326	3.34483	82.00503	2.68392	0.1920991	0.28062713	2.3105548	20	5 8.7	19.7
96355 1997 VR_6	16.5	X	314.38129	337.66481	65.07137	4.86528	0.1654010	0.30028069	2.2086036	20	11 10.3	17.8
96356 1997 VH_8	15.9	X	259.72800	285.56412	47.86110	4.85235	0.1715248	0.28711610	2.2756092	20	4 13.9	19.0
96357 1997 WE_5	16.6	X	220.81498	323.99981	212.92660	2.96678	0.0988773	0.30317770	2.1945116	20	12 19.6	18.9
96358 1997 WK_5	16.0	X	348.90796	168.32187	85.25694	3.15525	0.2144277	0.28664790	2.2780865	20	5 6.2	17.3
96359 1997 WP_{10}	17.4	X	144.11979	81.13664	27.85981	3.01512	0.1004614	0.28649642	2.2788894	20	6 13.0	20.5
96360 1997 WW_{10}	15.8	X	47.93992	38.85427	38.46455	5.39313	0.0168280	0.22853408	2.6495294	20	—	—
96361 1997 WG_{12}	15.6	X	272.92715	180.08971	344.45587	2.06447	0.1217280	0.25829502	2.4418859	20	—	—
96362 1997 WH_{13}	16.2	X	152.83157	138.11493	302.25699	5.33364	0.1509100	0.27970459	2.3156326	20	5 16.4	19.7
96363 1997 WD_{16}	16.1	X	1.63990	158.48896	213.16747	3.82021	0.1515703	0.30238450	2.1983476	20	12 24.3	18.4
96364 1997 WD_{18}	15.8	X	128.71956	97.62114	323.48231	3.10542	0.1064894	0.27954967	2.3164880	20	3 20.4	18.9
96365 1997 WY_{25}	15.7	X	23.45347	37.12555	80.91543	6.05328	0.1195155	0.26730998	2.3866712	20	—	—
96366 1997 WS_{37}	15.9	X	66.87971	26.98661	124.71293	3.24430	0.1668075	0.27937847	2.3174343	20	5 13.5	18.2
96367 1997 WK_{53}	16.0	X	88.79738	34.75143	56.07778	6.37311	0.1287250	0.27522108	2.3407135	20	3 16.2	18.7
96368 1997 XH_2	15.9	X	20.86496	92.12105	47.25110	2.96652	0.1484051	0.27119834	2.3638035	20	1 20.9	18.0
96369 1997 XM_2	15.6	X	235.49567	300.90455	66.64958	7.15320	0.2055969	0.28569379	2.2831556	20	5 1.5	19.0
96370 1997 XS_5	16.2	X	276.93890	338.92348	349.06223	5.84225	0.1990312	0.28767822	2.2726439	20	4 19.5	19.4
96371 1997 XC_8	16.2	X	62.79043	147.06109	296.59888	3.53666	0.1325091	0.26827393	2.3809507	20	1 20.1	18.5
96372 1997 YP_4	16.3	X	13.56540	174.50043	300.16157	3.48685	0.1922188	0.26546396	2.3977230	20	—	—
96373 1997 YH_7	15.2	X	208.07100	74.23540	327.78697	2.66485	0.1323875	0.28377429	2.2934398	20	5 22.3	18.5
96374 1997 YZ_{13}	15.9	X	144.32945	265.34912	117.82156	6.20954	0.1780307	0.27206560	2.3587774	20	2 29.2	19.4
96375 1997 YS_{17}	16.0	X	90.59043	143.88103	323.07072	2.86286	0.0724026	0.27437061	2.3455480	20	3 27.6	18.8
96376 1998 AY	16.1	X	35.78792	45.36920	96.55421	4.26405	0.2123093	0.26966305	2.3727670	20	3 1.8	17.7
96377 1998 AU_6	15.8	X	16.05447	81.82630	105.76293	13.25045	0.1439302	0.27225301	2.3576948	20	4 2.9	18.2
96378 1998 BA	15.5	X	232.72797	129.33128	284.48862	5.76879	0.2056567	0.28787611	2.2716023	20	6 28.3	18.9
96379 1998 BH	15.7	X	15.17898	19.08922	93.13790	7.47928	0.0577248	0.26582998	2.3955215	20	—	—
96380 1998 BG_1	16.3	X	189.88967	356.92168	80.30939	6.39683	0.1275536	0.28340013	2.2954580	20	6 20.6	19.5
96381 1998 BS_5	16.3	X	66.56327	112.25021	126.86682	5.96746	0.1282630	0.28439830	2.2900839	20	9 14.4	19.2
96382 1998 BW_7	16.6	X	121.64207	38.00308	53.27981	6.85933	0.1834336	0.27761317	2.3272481	20	5 3.3	19.8
96383 1998 BJ_{15}	15.4	X	146.32380	121.65175	278.49603	12.63858	0.1451957	0.27379734	2.3488209	20	3 11.5	19.2
96384 1998 BG_{17}	15.9	X	52.95520	130.05392	133.09550	6.01511	0.1342802	0.28420572	2.2911183	20	10 1.4	18.7
96385 1998 BC_{25}	15.0	X	139.30123	52.97596	349.16862	6.55452	0.1194469	0.27145556	2.3623100	20	3 11.1	18.3
96386 1998 BO_{41}	15.6	X	20.75101	244.46610	324.19980	10.89608	0.2070684	0.27466735	2.3438583	20	5 8.1	17.6
96387 1998 BW_{41}	15.9	X	118.04579	228.73923	174.10595	5.73817	0.1827098	0.27164475	2.3612130	20	2 23.6	18.9
96388 1998 BD_{42}	16.0	X	89.03547	89.73837	89.43891	6.86621	0.2141250	0.28038964	2.3118594	20	7 30.5	19.2
96389 1998 BA_{48}	15.1	X	179.54731	295.04425	317.56469	8.03840	0.1062123	0.21169748	2.7882107	20	—	—
96390 1998 CQ_1	15.6	X	298.34089	110.83027	48.19804	10.90721	0.1072736	0.25932908	2.4353903	20	—	—
96391 1998 CZ_1	14.3	X	68.45303	139.68585	94.80626	13.41983	0.1131907	0.23416122	2.6069102	20	9 5.4	18.0
96392 1998 DH	14.8	X	131.82897	328.65891	351.30540	7.92725	0.2059605	0.25883828	2.4384679	20	—	—
96393 1998 DF_1	16.4	X	52.45484	190.11239	223.85181	4.21519	0.0847612	0.26179927	2.4200468	20	—	—
96394 1998 DC_{12}	15.8	X	112.44606	292.16322	87.42363	2.33409	0.1987218	0.26218333	2.4176829	20	1 21.9	18.9
96395 1998 DF_{12}	16.2	X	75.47522	343.38829	114.04211	3.12466	0.1979552	0.26847638	2.3797536	20	3 14.8	18.5
96396 1998 DQ_{12}	15.9	X	19.07725	343.79576	152.29489	1.33081	0.1344836	0.26722071	2.3872028	20	1 13.4	17.9
96397 1998 DT_{13}	16.0	X	42.17510	110.73500	13.55047	2.59226	0.1552874	0.26612840	2.3937304	20	2 13.1	17.9
96398 1998 DX_{13}	16.4	X	306.98157	125.46634	27.18962	2.62412	0.1556201	0.25690720	2.4506720	20	—	—
96399 1998 DE_{15}	15.5	X	33.41288	254.43984	189.29563	2.45763	0.1107440	0.26169221	2.4207068	20	—	—
96400 1998 DK_{15}	15.8	X	110.49121	57.65330	49.96885	2.85082	0.1661206	0.27442461	2.3452403	20	5 10.1	19.0

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Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
96401 1998 DX_{15}	15.6	X	111.08773	352.28855	141.51077	23.83072	0.2447508	0.27639696	2.3340700	20	6 26.6	19.6
96402 1998 DE_{18}	16.0	X	237.50624	229.94593	24.43647	6.19566	0.0863250	0.25944635	2.4346564	20	—	—
96403 1998 DT_{22}	16.1	X	206.97316	345.34768	317.50475	6.19804	0.1163552	0.26617335	2.3934609	20	1 17.3	19.7
96404 1998 DB_{28}	16.3	X	163.72024	240.80218	224.25794	4.26299	0.1648229	0.28214792	2.3022447	20	6 30.9	19.8
96405 1998 ES	15.5	X	157.16520	227.30472	189.63366	5.00416	0.2229348	0.27511485	2.3413160	20	4 26.3	19.3
96406 1998 EW_{7}	16.1	X	8.30939	281.19342	198.38141	4.48501	0.1513924	0.26298475	2.4127686	20	—	—
96407 1998 EU_{8}	16.7	X	24.85000	176.76871	335.37068	1.00126	0.1098976	0.26718393	2.3874219	20	2 18.5	19.0
96408 1998 EV_{9}	16.1	X	66.38632	319.70731	164.57701	3.48465	0.1475989	0.26977925	2.3720856	20	3 29.2	18.5
96409 1998 EW_{10}	14.8	X	312.20946	262.02809	12.26101	12.85996	0.1756145	0.22655419	2.6649434	20	4 3.5	17.9
96410 1998 ER_{12}	16.1	X	114.24040	27.28453	127.68377	3.11185	0.1489786	0.27845773	2.3225400	20	7 16.6	19.4
96411 1998 EM_{13}	15.6	X	306.90713	42.42059	130.47078	4.40535	0.1485069	0.25942848	2.4347681	20	—	—
96412 1998 EC_{14}	15.5	X	44.98359	104.95033	20.00879	4.74529	0.1412599	0.26702990	2.3883398	20	2 19.9	17.7
96413 1998 ET_{14}	15.8	X	72.12662	208.45710	33.41443	4.21238	0.1609754	0.28141314	2.3062505	20	9 28.3	18.8
96414 1998 EZ_{19}	16.1	X	92.38910	160.18853	332.72164	6.00845	0.1114005	0.27470878	2.3436227	20	5 11.5	19.0
96415 1998 FX_{4}	16.3	X	108.06368	283.79991	168.09976	2.56396	0.1400853	0.27065596	2.3669604	20	4 12.8	19.2
96416 1998 FD_{5}	15.3	X	82.49041	187.07406	9.43116	24.16342	0.1546100	0.27693467	2.3310477	20	8 20.1	19.0
96417 1998 FK_{6}	15.9	X	23.58176	68.70336	54.20524	3.11525	0.1468975	0.26340241	2.4102174	20	1 3.2	17.9
96418 1998 FC_{11}	15.5	X	150.07659	171.53163	53.58912	13.99286	0.2151585	0.24164095	2.5528327	20	11 14.5	19.9
96419 1998 FN_{16}	15.4	X	118.16786	284.47816	156.26633	6.78173	0.1886947	0.27325557	2.3519244	20	4 17.9	18.7
96420 1998 FL_{18}	15.3	X	4.06033	313.97364	176.41675	2.02425	0.1440050	0.26343119	2.4100419	20	—	—
96421 1998 FJ_{30}	16.2	X	48.90555	282.03416	264.47469	1.44247	0.1619170	0.27345437	2.3507844	20	6 2.4	18.3
96422 1998 FO_{30}	15.9	X	321.14766	275.42576	232.06837	1.31876	0.1567010	0.25900837	2.4374003	20	—	—
96423 1998 FK_{31}	15.8	X	339.54663	158.46317	8.10621	12.47761	0.0974195	0.26295556	2.4129472	20	—	—
96424 1998 FX_{32}	15.7	X	284.52476	205.74510	6.78366	2.29039	0.1883960	0.26020983	2.4298917	20	—	—
96425 1998 FB_{35}	16.0	X	304.07674	8.87116	178.64406	3.16027	0.1751753	0.26020753	2.4299060	20	—	—
96426 1998 FE_{37}	16.0	X	340.47216	249.27104	253.44483	1.66606	0.1048633	0.26135719	2.4227750	20	—	—
96427 1998 FP_{42}	15.6	X	347.58792	293.96532	195.97288	6.56152	0.1702522	0.26031692	2.4292252	20	—	—
96428 1998 FB_{43}	16.1	X	59.52385	145.77901	345.12408	4.41144	0.1152201	0.26886778	2.3774435	20	3 20.7	18.6
96429 1998 FN_{52}	15.3	X	115.73518	187.63515	16.09919	4.89693	0.2223948	0.23787381	2.5797144	20	9 22.7	19.5
96430 1998 FL_{55}	15.8	X	15.73386	347.04415	165.92103	6.76974	0.0791805	0.26513739	2.3996914	20	2 3.7	18.3
96431 1998 FW_{57}	15.8	X	275.84081	283.56761	265.70105	1.54424	0.1317430	0.25622303	2.4550327	20	—	—
96432 1998 FY_{58}	15.8	X	135.56974	171.33940	16.92141	7.32925	0.1599182	0.23907607	2.5710586	20	9 19.2	19.8
96433 1998 FH_{59}	15.9	X	275.31640	239.21789	29.81581	6.72362	0.1063010	0.26502246	2.4003851	20	2 18.3	19.3
96434 1998 FR_{63}	15.6	X	25.87520	326.69939	142.70808	3.46643	0.1776181	0.26239676	2.4163717	20	—	—
96435 1998 FT_{63}	16.1	X	81.23082	51.73591	129.61463	2.89956	0.1536501	0.27595740	2.3365479	20	7 13.9	19.0
96436 1998 FS_{72}	15.6	X	273.37138	106.38431	68.83623	7.17139	0.0740564	0.25389220	2.4700352	20	—	—
96437 1998 FR_{77}	15.2	X	71.52332	8.37138	87.04634	4.00146	0.1810601	0.26587866	2.3952291	20	3 3.1	17.5
96438 1998 FQ_{78}	15.7	X	51.85148	94.84307	23.92124	21.68634	0.2936872	0.26739151	2.3861861	20	3 24.4	17.6
96439 1998 FB_{79}	14.8	X	285.17507	154.09786	153.98788	13.49517	0.1743276	0.22436540	2.6822472	20	4 16.4	18.7
96440 1998 FD_{79}	14.9	X	116.16703	110.20315	35.58625	16.91434	0.1033374	0.23114674	2.6295264	20	6 29.4	19.0
96441 1998 FL_{79}	15.8	X	329.04821	107.04763	149.53182	6.56654	0.0950254	0.26906922	2.3762568	20	4 17.7	18.4
96442 1998 FY_{90}	15.2	X	114.91661	295.19904	99.92792	6.33549	0.2030034	0.26568443	2.3963964	20	2 16.0	18.3
96443 1998 FA_{106}	15.4	X	339.09197	151.51348	298.80807	4.61086	0.1457937	0.25409198	2.4687403	20	—	—
96444 1998 FR_{106}	15.3	X	132.47753	147.10976	346.18187	8.60696	0.1324321	0.27730446	2.3289750	20	7 7.3	18.8
96445 1998 FM_{115}	15.4	X	59.35935	158.20554	350.09779	6.74627	0.1919616	0.26935314	2.3745866	20	4 25.7	17.8
96446 1998 FS_{122}	15.7	X	21.17147	66.90738	67.22373	3.58510	0.1221453	0.26360424	2.4089870	20	1 17.1	18.0
96447 1998 FH_{135}	16.2	X	335.01002	353.53778	242.75276	2.22985	0.1791067	0.26982910	2.3717934	20	3 11.9	18.7
96448 1998 FS_{135}	15.4	X	84.49973	193.94619	21.70417	12.31417	0.1048789	0.23551493	2.5969111	20	8 30.3	19.2
96449 1998 GA_{1}	15.5	X	209.63587	106.28935	68.64488	2.68638	0.0821498	0.24664888	2.5181598	20	11 21.1	18.8
96450 1998 GS_{6}	14.8	X	141.63591	101.55608	84.27684	13.18843	0.2080568	0.23966188	2.5668673	20	9 28.3	19.4
96451 1998 GW_{7}	15.0	X	350.90547	158.35069	78.16549	15.12819	0.1341823	0.22539454	2.6740763	20	4 29.9	18.1
96452 1998 GF_{9}	13.8	X	285.00414	291.75172	83.35691	15.21736	0.1399130	0.23405259	2.6077168	20	7 19.6	17.2
96453 1998 GP_{9}	14.4	X	173.37174	128.11301	70.79728	16.16119	0.0376402	0.24366011	2.5387100	20	11 15.3	18.0
96454 1998 HR	15.7	X	108.38814	62.03721	71.45254	5.28226	0.1280272	0.27337839	2.3512200	20	6 7.3	18.9
96455 1998 HQ_{21}	16.6	X	356.97674	211.51921	313.56077	1.56166	0.1445765	0.26394184	2.4069324	20	1 14.9	18.9
96456 1998 HS_{22}	15.0	X	75.17868	194.68798	29.74803	12.03766	0.1153361	0.23481210	2.6020906	20	9 1.2	18.7
96457 1998 HC_{24}	14.9	X	219.57619	22.67578	114.58477	4.05301	0.0936322	0.24082460	2.5585986	20	10 14.7	18.4
96458 1998 HV_{24}	15.8	X	229.97518	89.30042	65.39303	3.10284	0.0763900	0.24689042	2.5165171	20	11 21.2	19.0
96459 1998 HK_{34}	15.5	X	310.54584	117.70550	61.81336	2.89236	0.1521941	0.25920086	2.4361934	20	—	—
96460 1998 HJ_{36}	15.2	X	85.17060	194.68161	30.36304	9.86350	0.0788797	0.23574655	2.5952099	20	9 8.1	18.9
96461 1998 HS_{36}	16.6	X	19.00182	201.42095	27.45132	4.23843	0.2769359	0.27167960	2.3610111	20	6 26.2	17.9
96462 1998 HP_{44}	15.4	X	17.99959	149.75628	34.67929	3.39886	0.1408985	0.26773065	2.3841705	20	3 26.2	17.3
96463 1998 HW_{51}	15.7	X	29.08779	116.62611	53.13281	5.81961	0.1682945	0.26733055	2.3865488	20	3 29.9	17.6
96464 1998 HN_{54}	16.3	X	329.67502	206.13388	305.85714	3.08132	0.1470595	0.25843806	2.4409847	20	—	—
96465 1998 HX_{69}	16.2	X	341.63492	98.60105	75.46637	0.17095	0.1626235	0.26188941	2.4194914	20	—	—
96466 1998 HG_{72}	15.3	X	146.42567	128.24822	75.73179	4.85054	0.1656660	0.24049284	2.5609511	20	10 19.0	19.4
96467 1998 HE_{80}	15.9	X	282.42408	229.01920	6.82490	2.06643	0.1719617	0.26002840	2.4310219	20	1 5.5	19.4
96468 1998 HQ_{81}	16.0	X	353.99595	65.48702	140.52881	1.69421	0.1258475	0.26631023	2.3926407	20	3 11.7	18.4
96469 1998 HQ_{99}	14.7	X	55.71121	188.23252	49.54946	14.99585	0.1166357	0.23164206	2.6257766	20	8 26.2	18.4
96470 1998 HR_{102}	16.1	X	287.05919	274.65767	350.78024	1.45331	0.1729279	0.26207445	2.4183524	20	2 16.4	19.4
96471 1998 HM_{104}	14.9	X	106.78901	164.41984	94.35692	10.07564	0.0867607	0.24211075	2.5495293	20	11 15.7	18.7
96472 1998 HV_{107}	15.0	X	114.61684	69.19644	58.49896	9.89317	0.1459322	0.27366217	2.3495943	20	6 8.3	18.3
96473 1998 HG_{118}	15.0	X	305.08745	206.94156	79.06809	15.95978	0.0759328	0.22431760	2.6826282	20	5 1.3	18.6
96474 1998 HE_{119}	15.9	X	76.19918	112.86577	82.89001	7.72931	0.2013420	0.27550818	2.3390870	20	8 6.3	19.1
96475 1998 HL_{126}	15.1	X	331.19711	305.96455	225.07405	21.52425	0.2945482	0.25996930	2.4313903	20	—	—
96476 1998 HE_{127}	15.9	X	58.59421	178.79281	354.77818	5.65384	0.0915375	0.27182562	2.3601655	20	5 16.8	18.6
96477 1998 HA_{128}	16.3	X	43.57640	150.84427	4.52535	1.34692	0.1209195	0.26824988	2.3810930	20	3 30.0	18.6
96478 1998 HH_{129}	15.7	X	13.95538	105.60868	355.86488	6.03914	0.0865874	0.25860595	2.4399282	20	—	—
96479 1998 HS_{132}	15.7	X	156.27880	79.38235	72.44547	4.08645	0.1701925	0.28309881	2.2970865	20	8 27.4	19.3
96480 1998 HN_{139}	15.3	X	23.09444	245.57106	106.50117	6.12209	0.1893289	0.28716824	2.2753338	20	12 29.3	17.9

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Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
96481 1998 HX_{140}	15.7	X	348.87360	22.03318	177.71921	10.67987	0.1227426	0.26527741	2.3988469	20	2 20.3	18.4
96482 1998 HP_{144}	15.1	X	167.20844	135.90904	36.24956	5.96838	0.1881514	0.23997129	2.5646603	20	9 27.8	19.4
96483 1998 HS_{144}	15.3	X	127.45533	315.44264	221.05638	13.75143	0.0184525	0.23386872	2.6090833	20	8 10.2	19.1
96484 1998 HJ_{146}	14.5	X	89.31794	122.25843	43.24598	10.93526	0.1263503	0.27326640	2.3518623	20	6 27.8	17.7
96485 1998 HE_{147}	14.5	X	155.08435	48.90617	85.66521	13.76976	0.1223990	0.23302572	2.6153721	20	7 30.6	18.7
96486 1998 HZ_{148}	15.1	X	109.06083	337.15005	235.60355	12.27531	0.1218192	0.23474185	2.6026096	20	9 14.5	19.3
96487 1998 JU_{1}	14.0	X	111.35254	274.14016	208.79442	20.87457	0.3929313	0.27437603	2.3455171	20	6 20.8	18.5
96488 1998 JO_{3}	14.2	X	240.73045	24.22510	77.33321	15.41109	0.1151896	0.23786983	2.5797432	20	9 27.8	18.0
96489 1998 KN_{6}	15.0	X	129.48166	184.39858	82.67751	30.90488	0.1414423	0.24197798	2.5504618	20	12 16.8	19.1
96490 1998 KQ_{7}	15.3	X	349.77064	340.69244	214.12833	8.93506	0.1654199	0.26331693	2.4107390	20	2 7.3	18.0
96491 1998 KX_{7}	14.9	X	43.00991	125.55927	73.24582	12.58783	0.1418746	0.22521183	2.6755223	20	6 6.6	17.9
96492 1998 KL_{9}	15.6	X	202.56872	296.76097	215.08322	11.34144	0.2462580	0.24029333	2.5623684	20	9 25.6	20.0
96493 1998 KN_{10}	15.5	X	276.50432	153.42912	193.47943	14.30134	0.0574869	0.22645983	2.6656836	20	6 10.2	19.3
96494 1998 KE_{24}	15.7	X	121.33994	138.46953	58.14719	13.45234	0.1749929	0.23553302	2.5967782	20	9 22.6	20.1
96495 1998 KH_{28}	15.2	X	198.36912	181.27142	19.74878	2.89211	0.1047929	0.24481028	2.5307522	20	12 7.4	18.6
96496 1998 KT_{33}	15.8	X	291.90375	196.12255	68.66812	3.68643	0.1896023	0.26225771	2.4172257	20	2 20.3	19.2
96497 1998 KD_{37}	16.4	X	295.50696	16.24906	234.73428	1.40388	0.1848231	0.26139154	2.4225627	20	2 5.1	19.7
96498 1998 KJ_{40}	14.9	X	72.75285	181.03477	79.43160	16.01591	0.0855755	0.23477188	2.6023877	20	10 14.5	18.8
96499 1998 KE_{55}	15.8	X	290.37192	70.93629	156.13617	6.54272	0.1702616	0.25809814	2.4431275	20	1 2.7	19.3
96500 1998 KN_{57}	15.6	X	128.50645	115.45392	84.93172	3.30500	0.2022473	0.23731516	2.5837613	20	9 29.3	19.8
96501 1998 KU_{57}	15.8	X	5.57927	50.50890	168.31984	4.20997	0.0846132	0.26812438	2.3818360	20	4 24.9	18.1
96502 1998 KU_{58}	14.8	X	70.73869	95.94239	106.56854	18.01908	0.1420128	0.23078541	2.6322703	20	7 25.5	18.3
96503 1998 MC_{3}	15.6	X	218.66181	311.47779	174.19585	5.00404	0.2089460	0.23962103	2.5671590	20	9 13.1	19.5
96504 1998 ML_{15}	15.6	X	271.75055	76.33058	79.78075	4.60273	0.0289751	0.24745646	2.5126781	20	—	—
96505 1998 MH_{20}	15.0	X	125.91591	232.22152	71.45641	3.07652	0.2470360	0.24347547	2.5399933	20	—	—
96506 Oberösterreich	15.0	X	57.07389	165.20992	122.05184	16.15820	0.1658796	0.23166375	2.6256127	20	11 7.4	19.1
96507 1998 QX_{1}	14.5	X	145.64956	78.46196	307.14108	6.04461	0.3344002	0.20338658	2.8636583	20	3 16.5	19.7
96508 1998 QJ_{30}	15.8	X	145.54289	354.58274	227.56026	5.70495	0.1879508	0.23359656	2.6111095	20	11 6.2	20.2
96509 1998 QE_{41}	14.7	X	40.03303	341.43586	319.79121	4.73058	0.1562217	0.18250050	3.0781752	20	10 15.1	18.9
96510 1998 QL_{55}	14.8	X	314.06161	349.41008	17.17439	0.88199	0.1842067	0.17344514	3.1844025	20	8 11.9	18.3
96511 1998 QG_{57}	15.9	X	210.21819	33.94574	181.31239	4.84868	0.2044625	0.23821455	2.5772538	20	12 25.0	19.8
96512 1998 QE_{67}	15.0	X	249.31769	39.83994	288.34232	14.71007	0.2113064	0.21237064	2.7823156	20	3 18.9	19.9
96513 1998 QW_{83}	14.4	X	40.98032	61.97812	270.89288	13.13563	0.2129553	0.18542416	3.0457330	20	12 5.2	18.7
96514 1998 QC_{84}	14.2	X	23.07515	63.73141	282.46300	12.63804	0.2788927	0.18388742	3.0626782	20	12 7.7	18.1
96515 1998 QT_{85}	14.6	X	299.76852	105.35731	315.35857	14.60928	0.0622476	0.18231364	3.0802782	20	10 5.9	19.0
96516 1998 QU_{95}	14.6	X	62.62252	125.36471	209.53328	12.07383	0.1033498	0.18813843	3.0163683	20	12 18.1	19.1
96517 1998 QG_{99}	14.7	X	284.88877	11.24756	4.85179	7.06925	0.2035010	0.17285166	3.1916874	20	7 6.9	19.1
96518 1998 RO_{3}	16.1	X	70.44671	347.64923	350.50822	18.77028	0.0607374	0.37106379	1.9179487	20	—	—
96519 1998 RB_{5}	15.0	X	218.26903	50.76621	330.98536	2.57994	0.1714613	0.21212937	2.7844249	20	5 5.1	19.5
96520 1998 RH_{6}	15.1	X	353.08820	328.67776	32.06790	1.19461	0.1737939	0.18186558	3.0853354	20	10 21.3	18.4
96521 1998 RF_{9}	15.1	X	342.23400	271.45732	190.77967	0.21976	0.0491214	0.19399151	2.9553861	20	—	—
96522 1998 RK_{23}	14.9	X	11.12564	276.97836	42.49171	1.83711	0.1562901	0.18061263	3.0995880	20	9 26.9	18.6
96523 1998 RC_{26}	14.8	X	331.97094	173.06428	144.42029	9.89471	0.1656016	0.22107187	2.7088215	20	7 13.4	17.6
96524 1998 RY_{28}	15.1	X	234.80254	12.79869	7.54088	7.81767	0.1276721	0.21469268	2.7622176	20	5 21.9	19.3
96525 1998 RE_{37}	14.6	X	357.49632	119.53177	288.18886	5.14705	0.2154724	0.18618222	3.0374600	20	—	—
96526 1998 RU_{40}	15.0	X	6.92124	322.08950	84.70071	2.82087	0.2666344	0.18719972	3.0264436	20	—	—
96527 1998 RQ_{45}	14.3	X	295.31157	227.85725	178.58572	27.35726	0.1700905	0.17781517	3.1320127	20	9 3.1	18.4
96528 1998 RP_{49}	15.1	X	302.83976	300.07394	113.25469	2.26494	0.1707435	0.17989709	3.1078016	20	9 28.0	18.6
96529 1998 RR_{49}	14.9	X	230.93779	255.15304	53.71772	2.76204	0.0501351	0.20555392	2.8434933	20	2 28.4	19.0
96530 1998 RE_{54}	14.7	X	60.28966	267.04586	342.90042	10.82356	0.1623978	0.22300354	2.6931562	20	9 14.2	18.4
96531 1998 RL_{68}	15.0	X	114.03225	355.08267	359.91800	13.02906	0.1675068	0.19510886	2.9440921	20	1 1.2	19.4
96532 1998 RH_{69}	15.2	X	41.00758	36.65319	24.08325	1.01259	0.3071328	0.19168418	2.9790551	20	—	—
96533 1998 RH_{72}	15.0	X	57.48541	193.00946	134.24538	2.68097	0.1304535	0.18509030	3.0493945	20	12 6.8	19.5
96534 1998 RO_{79}	15.0	X	2.88310	343.76140	41.11683	6.34557	0.1407662	0.18375544	3.0641445	20	12 5.0	18.8
96535 1998 SC_{5}	15.8	X	314.14934	188.43298	249.08080	19.21599	0.0682736	0.36734160	1.9308831	20	—	—
96536 1998 SO_{10}	15.4	X	124.60833	22.42887	199.57561	41.45469	0.7784026	0.28311893	2.2969777	20	11 1.7	21.3
96537 1998 SF_{12}	15.5	X	108.33978	247.96758	129.16179	0.85580	0.0907684	0.19444050	2.9508348	20	1 9.2	19.6
96538 1998 SN_{24}	15.4	X	224.77615	257.03238	94.78895	3.78195	0.1209124	0.20991382	2.8039829	20	4 10.3	19.8
96539 1998 SW_{27}	14.6	X	304.70725	131.68450	283.15163	15.60028	0.1901897	0.17800625	3.1297709	20	9 19.5	18.6
96540 1998 SC_{29}	15.0	X	14.48092	330.00741	29.38374	6.39600	0.0830765	0.18242083	3.0790714	20	11 12.8	19.0
96541 1998 SR_{31}	15.1	X	53.70349	60.16912	227.25637	0.52229	0.1149067	0.18271155	3.0758044	20	10 11.8	19.3
96542 1998 SA_{44}	15.0	X	336.34904	330.04456	12.21933	1.69188	0.2029663	0.17695746	3.1421251	20	8 21.8	18.1
96543 1998 SE_{48}	15.0	X	239.78319	273.57677	18.40935	13.98984	0.0904741	0.20185621	2.8781139	20	2 19.9	19.5
96544 1998 SK_{52}	14.6	X	329.77963	331.59470	11.09680	0.04200	0.1680648	0.17560015	3.1582958	20	8 10.1	17.9
96545 1998 SQ_{53}	14.5	X	352.80622	22.56592	342.19728	12.96956	0.1829742	0.18101804	3.0949583	20	10 20.5	18.1
96546 1998 SO_{55}	15.1	X	208.36778	15.99252	357.23964	2.73634	0.0919996	0.20966390	2.8062107	20	4 18.9	19.4
96547 1998 SB_{57}	14.7	X	68.19205	279.02284	4.00421	16.30422	0.2325702	0.18391706	3.0623492	20	11 2.1	19.6
96548 1998 SX_{59}	14.3	X	2.12019	274.22239	57.31281	5.30934	0.2673546	0.17891612	3.1191510	20	10 10.8	17.3
96549 1998 SE_{63}	14.7	X	322.12383	137.52869	209.42701	8.59973	0.0890549	0.17506417	3.1647387	20	8 5.7	18.9
96550 1998 SH_{68}	15.0	X	162.63565	90.10089	289.98703	13.63104	0.1698097	0.20497445	2.8488498	20	3 9.5	19.9
96551 1998 SL_{100}	14.8	X	248.79729	353.27078	341.99739	7.61112	0.1232106	0.20973115	2.8056108	20	4 9.7	19.2
96552 1998 SE_{113}	14.1	X	37.34912	252.98402	52.17333	8.36069	0.2015449	0.18093092	3.0959518	20	10 26.6	18.2
96553 1998 SS_{114}	15.0	X	132.00610	300.34738	72.70542	3.14764	0.0934285	0.19880980	2.9074407	20	2 1.5	19.1
96554 1998 SD_{119}	14.3	X	300.37201	61.22786	15.99623	14.76035	0.1476050	0.18092468	3.0960230	20	10 24.3	18.1
96555 1998 SN_{121}	14.5	X	296.14925	118.77373	288.52418	3.70671	0.1371363	0.17646747	3.1479388	20	9 9.8	18.4
96556 1998 ST_{126}	14.4	X	48.61020	259.33343	42.89949	11.18775	0.1896732	0.18157339	3.0886444	20	11 3.5	18.7
96557 1998 SC_{127}	14.6	X	282.96817	260.11403	126.89062	6.20755	0.1485231	0.17231781	3.1982760	20	7 25.6	18.9
96558 1998 SP_{127}	15.8	X	337.94814	272.42015	153.24843	6.28590	0.0763538	0.27586633	2.3370621	20	—	—
96559 1998 SF_{129}	14.6	X	302.04005	79.24377	21.97555	21.47060	0.3005606	0.18191653	3.0847592	20	11 5.9	17.9
96560 1998 SF_{133}	15.0	X	275.40754	99.89970	301.31959	1.94285	0.1859274	0.17172033	3.2056904	20	7 28.1	19.5

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
96561 1998 SB_{135}	14.7	X	346.42293	263.32122	138.43549	3.23410	0.1634131	0.18265226	3.0764700	20	12 2.6	18.2
96562 1998 SZ_{138}	15.8	X	72.18879	53.72861	228.25281	4.99858	0.3021452	0.31972381	2.1181306	20	12 6.7	19.4
96563 1998 SB_{154}	15.6	X	304.35226	161.75061	137.53821	4.42236	0.0669003	0.21275137	2.7789953	20	5 15.2	19.2
96564 1998 SN_{156}	15.0	X	202.09087	316.50716	0.19765	1.98289	0.1583790	0.20183232	2.8783410	20	2 5.9	19.7
96565 1998 SB_{157}	15.4	X	291.16434	301.45745	25.60511	3.82193	0.0942716	0.21360023	2.7716278	20	5 27.6	19.1
96566 1998 TC_{2}	14.5	X	205.83734	117.05029	347.75479	4.49321	0.1213920	0.17122147	3.2119140	20	8 8.1	19.6
96567 1998 TE_{18}	14.4	X	315.09828	207.08530	223.06653	16.77768	0.1669764	0.18144530	3.0900978	20	11 11.3	17.7
96568 1998 TS_{19}	15.1	X	358.82730	217.54150	200.70551	1.38724	0.1866382	0.18545040	3.0454458	20	—	—
96569 1998 TO_{31}	14.9	X	287.29212	57.35582	19.00840	7.57552	0.2028701	0.17867990	3.1218994	20	9 27.9	18.9
96570 1998 TJ_{32}	14.5	X	322.85237	169.01097	235.50391	4.49300	0.1535868	0.17917946	3.1160941	20	10 21.3	18.0
96571 1998 UN_{11}	15.2	X	321.23915	273.63951	198.37255	4.10785	0.1580336	0.18533421	3.0467184	20	—	—
96572 1998 UN_{16}	13.6	X	311.89350	58.58981	53.17628	14.58884	0.1893069	0.18313132	3.0711024	20	12 29.2	17.0
96573 1998 UJ_{19}	15.8	X	137.82392	226.44139	29.65999	22.24055	0.0574342	0.36702528	1.9319923	20	—	—
96574 1998 UJ_{23}	14.3	X	346.93826	92.58066	291.10794	15.17709	0.2316897	0.18004068	3.1061490	20	11 8.9	17.7
96575 1998 UY_{28}	14.6	X	254.01539	304.40048	127.83309	6.46857	0.1301280	0.17206447	3.2014146	20	8 18.7	19.3
96576 1998 UH_{35}	14.4	X	222.11814	229.89203	220.78744	14.17389	0.0684645	0.17204669	3.2016352	20	8 6.6	19.4
96577 1998 UC_{42}	15.5	X	306.42553	246.64968	168.27827	3.55878	0.2202149	0.17805660	3.1291809	20	9 29.2	18.7
96578 1998 VT_{2}	15.0	X	131.50808	351.29139	43.49042	2.59899	0.0865225	0.19811862	2.9141989	20	2 26.8	19.2
96579 1998 VP_{7}	14.6	X	342.19531	23.67395	55.39506	11.35506	0.2074855	0.18572552	3.0424375	20	—	—
96580 1998 VY_{8}	14.3	X	4.99300	192.92774	229.68955	16.56907	0.1860121	0.18629665	3.0362162	20	—	—
96581 1998 VJ_{16}	14.3	X	8.87834	287.12007	57.60254	14.54683	0.2204499	0.17903040	3.1178235	20	11 5.1	17.8
96582 1998 VF_{25}	14.6	X	66.45379	308.59215	62.04410	5.20430	0.1653597	0.18823867	3.0152973	20	—	—
96583 1998 VG_{34}	14.7	X	92.31270	205.11266	108.72551	13.12859	0.2436403	0.18423008	3.0588794	20	—	—
96584 1998 VG_{53}	14.8	X	333.80165	92.25966	327.18292	8.98245	0.3020379	0.18191991	3.0847210	20	12 6.9	17.5
96585 1998 WY_{2}	15.2	X	328.21971	97.82690	64.36075	3.58305	0.1276985	0.19091069	2.9870962	20	—	—
96586 1998 WE_{14}	15.0	X	14.84254	309.44839	63.47678	2.98839	0.1808606	0.18086750	3.0966754	20	12 13.4	18.8
96587 1998 WK_{15}	14.8	X	329.41844	267.64654	136.62909	3.79832	0.2239357	0.17864554	3.1222997	20	11 3.5	17.9
96588 1998 WR_{20}	14.2	X	280.39858	343.86788	76.45267	11.71735	0.1953674	0.17385569	3.1793873	20	9 1.9	18.6
96589 1998 WW_{22}	15.0	X	312.04445	334.45994	88.16263	2.89012	0.1762300	0.17819259	3.1275886	20	10 25.9	18.5
96590 1998 XB	16.2	X	134.82474	202.70882	75.71022	13.60475	0.3511702	1.13942893	0.9078440	20	—	—
96591 1998 XY	14.9	X	6.15699	221.93999	149.46563	1.00332	0.1735392	0.17993089	3.1074124	20	11 26.9	18.7
96592 1998 XC_{1}	14.6	X	344.21455	309.24058	77.45513	3.24742	0.1293337	0.17856699	3.1232154	20	11 6.0	18.3
96593 1998 XO_{20}	14.3	X	21.43696	246.87342	113.78845	10.71343	0.2301750	0.17533860	3.1614358	20	12 14.5	18.4
96594 1998 XA_{22}	14.4	X	260.36411	174.39487	287.97115	5.14378	0.1097235	0.17095684	3.2152277	20	10 2.2	19.0
96595 1998 XQ_{23}	14.8	X	278.85749	189.24394	245.44326	4.27884	0.1582221	0.17503505	3.1650898	20	9 16.1	19.1
96596 1998 XW_{26}	15.2	X	192.18624	124.60616	59.33407	23.44912	0.0539075	0.35807580	1.9640509	20	12 8.3	17.3
96597 1998 XU_{28}	14.6	X	281.19000	335.74724	64.26523	3.05172	0.1554128	0.17039377	3.2223070	20	8 8.9	19.0
96598 1998 XS_{41}	14.3	X	9.89570	201.52802	291.74415	11.90575	0.1851882	0.18896295	3.0075875	20	1 9.6	17.5
96599 1998 XP_{49}	14.4	X	279.59968	169.34507	308.74629	15.80819	0.1651380	0.17619107	3.1512301	20	11 6.7	18.9
96600 1998 XH_{74}	14.1	X	345.54881	26.47901	55.90056	17.16023	0.1717289	0.18098461	3.0953395	20	—	—
96601 1998 XD_{78}	14.6	X	289.06198	335.20753	120.16082	14.14746	0.2991310	0.17771477	3.1331922	20	10 15.8	18.5
96602 1998 YF_{9}	15.0	X	227.91409	328.79079	121.71289	2.14879	0.1171729	0.16968217	3.2313096	20	8 12.9	19.8
96603 1998 YH_{12}	14.3	X	252.50803	185.69235	289.07777	19.47626	0.0568048	0.17199457	3.2022818	20	10 7.9	19.3
96604 1998 YG_{19}	14.4	X	353.48467	97.42333	301.36498	3.93423	0.1507301	0.17642170	3.1484832	20	12 6.8	18.2
96605 1999 AS_{10}	15.0	X	149.51554	123.32655	227.45290	1.15868	0.1026055	0.19778941	2.9174316	20	1 24.7	19.3
96606 1999 AH_{13}	15.1	X	254.16989	18.04131	147.15573	2.49616	0.0897660	0.17535256	3.1612680	20	12 16.2	19.5
96607 1999 AT_{30}	14.2	X	129.66185	336.97945	130.49813	10.51816	0.1343335	0.15423176	3.4436593	20	5 30.8	19.7
96608 1999 AQ_{34}	13.8	X	277.78328	14.30679	145.42481	23.22185	0.0319010	0.17689858	3.1428222	20	—	—
96609 1999 AQ_{35}	13.8	X	288.34453	316.18384	142.89214	9.07915	0.1512762	0.12577471	3.9452437	20	10 26.8	19.1
96610 1999 BZ_{18}	14.0	X	17.84083	149.06834	307.18772	18.28040	0.1843038	0.18591025	3.0404217	20	—	—
96611 1999 BJ_{29}	16.2	X	83.48613	266.79525	321.98188	1.20391	0.1227781	0.29798942	2.2199106	20	9 19.7	18.9
96612 1999 CZ_{3}	15.5	X	116.82113	110.40709	142.35024	2.44525	0.0977601	0.30634736	2.1793482	20	11 29.1	18.4
96613 1999 CG_{5}	15.7	X	112.54079	195.93083	358.38491	3.67795	0.0419699	0.29956820	2.2121042	20	8 31.3	18.2
96614 1999 CL_{16}	14.2	X	304.93742	289.07123	150.84523	24.68235	0.2908657	0.17356087	3.1829868	20	10 25.9	17.9
96615 1999 CZ_{17}	14.2	X	269.93479	101.28109	341.46403	11.01330	0.1498871	0.17019589	3.2248041	20	9 15.3	18.7
96616 1999 CG_{20}	13.7	X	346.26631	1.32946	94.23356	18.26683	0.2233057	0.18074593	3.0980639	20	—	—
96617 1999 CC_{32}	14.3	X	305.88623	226.23790	22.98800	9.27620	0.2777929	0.28082082	2.3094923	20	2 3.9	17.6
96618 1999 CL_{102}	15.8	X	332.50120	182.26224	41.78783	4.88221	0.0969864	0.28148351	2.3058660	20	3 4.8	18.2
96619 1999 CA_{115}	15.9	X	68.76730	306.48668	277.51099	6.04615	0.0972678	0.29465452	2.2366291	20	8 18.0	18.7
96620 1999 CG_{116}	15.8	X	90.14328	255.96707	278.20515	4.05031	0.0510883	0.29189387	2.2507093	20	6 30.6	18.2
96621 1999 CV_{120}	14.4	X	274.97749	53.83974	57.35529	15.69260	0.1486695	0.17318361	3.1876077	20	11 1.9	18.6
96622 1999 DY	15.4	X	17.81596	212.55358	351.61295	6.54214	0.0608129	0.28337149	2.2956127	20	4 18.9	17.9
96623 Leani	16.0	X	227.04885	275.80678	23.98657	6.25410	0.1327119	0.27488974	2.3425940	20	2 2.5	19.6
96624 1999 EZ_{5}	16.1	X	255.84898	236.25081	10.97505	5.51954	0.1025414	0.27143273	2.3624424	20	—	—
96625 1999 FY_{1}	16.4	X	205.98525	349.91484	191.80035	0.81438	0.1318578	0.26006335	2.4308040	20	11 21.9	19.7
96626 1999 FQ_{9}	15.6	X	165.41553	77.39479	79.70054	2.59751	0.1368844	0.29806842	2.2195183	20	9 13.9	18.8
96627 1999 FW_{26}	15.9	X	162.41010	146.70308	47.14868	5.55658	0.0804598	0.30076311	2.2062413	20	11 1.1	18.7
96628 1999 FW_{27}	15.2	X	260.82714	241.12644	11.43379	3.98790	0.1184483	0.27275777	2.3547852	20	1 7.6	18.6
96629 1999 FA_{29}	15.2	X	178.90261	241.79151	24.22803	9.56481	0.2139746	0.26252336	2.4155948	20	—	—
96630 1999 FY_{30}	15.0	X	310.95708	214.84649	29.20919	5.74083	0.1423185	0.27789437	2.3256778	20	2 22.9	17.7
96631 1999 FP_{59}	18.0	X	98.57804	303.74565	19.68087	1.77130	0.2593242	0.44500892	1.6991181	20	—	—
96632 1999 GE_{1}	14.3	X	236.67853	268.38902	7.15052	13.42740	0.2038059	0.22577398	2.6710793	20	1 17.3	19.0
96633 1999 GZ_{1}	15.7	X	293.49796	51.37616	47.90817	7.41867	0.1109672	0.30629468	2.1795981	20	12 28.9	17.5
96634 1999 GF_{2}	15.6	X	271.27684	187.76521	57.26957	7.59697	0.0717255	0.27405242	2.3473632	20	1 14.1	18.8
96635 1999 GR_{4}	15.3	X	203.58673	196.76434	68.31882	7.24552	0.1109296	0.26571112	2.3962358	20	—	—
96636 1999 GG_{7}	15.5	X	314.20512	142.64440	80.29849	7.22826	0.1084348	0.27732669	2.3288504	20	2 3.2	18.3
96637 1999 GQ_{7}	15.7	X	194.03494	312.42581	161.98352	1.63065	0.0992900	0.29562043	2.2317545	20	8 18.2	18.8
96638 1999 GZ_{8}	16.0	X	30.97628	51.40059	154.73067	4.48502	0.1166756	0.28348699	2.2949891	20	5 24.6	18.1
96639 1999 GJ_{9}	15.3	X	198.03055	331.37920	282.53172	4.82191	0.2584629	0.26337560	2.4103810	20	—	—
96640 1999 GT_{18}	15.2	X	225.58407	168.18562	76.88588	1.79197	0.1648220	0.26670566	2.3902751	20	—	—

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Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
96641 1999 GG_{22}	15.4	X	43.60392	27.17767	177.77600	3.87455	0.1089235	0.28754583	2.2733414	20	6 13.6	17.6
96642 1999 GN_{25}	15.8	X	25.89060	205.96521	38.85888	6.02638	0.1330636	0.28849047	2.2683761	20	7 19.9	18.0
96643 1999 GY_{26}	16.1	X	131.98332	162.06491	76.63439	3.84835	0.1387503	0.25422670	2.4678681	20	11 17.8	19.8
96644 1999 GX_{30}	16.1	X	91.60434	207.99515	80.61166	5.04743	0.2183450	0.29971452	2.2113842	20	12 22.5	19.6
96645 1999 GB_{35}	15.9	X	326.91898	248.77489	324.43506	1.35244	0.1623495	0.27720146	2.3295518	20	1 28.4	18.5
96646 1999 GR_{35}	15.3	X	199.64471	0.38041	271.50570	1.97617	0.1503448	0.26617516	2.3934500	20	—	—
96647 1999 GX_{35}	16.4	X	43.06105	11.38971	218.59396	4.35144	0.1041627	0.28854086	2.2681120	20	7 19.8	18.9
96648 1999 GZ_{45}	15.9	X	243.79623	196.40660	74.64374	6.60330	0.1408934	0.27144276	2.3623843	20	1 12.3	19.4
96649 1999 GL_{59}	16.2	X	3.91730	173.18869	50.26621	7.48264	0.0553396	0.28398634	2.2922980	20	4 28.2	18.6
96650 1999 GX_{60}	16.0	X	55.49016	295.62429	207.92719	6.81795	0.0513833	0.28036426	2.3119988	20	3 22.6	18.5
96651 1999 GT_{62}	15.8	X	238.11180	188.81837	87.00362	8.93416	0.1539708	0.27273665	2.3549068	20	1 12.0	19.4
96652 1999 HA	16.2	X	70.32826	183.45620	11.68366	6.74314	0.0935739	0.28751136	2.2735231	20	7 11.1	18.9
96653 1999 HG_{9}	14.8	X	245.29914	34.70589	209.91776	5.76948	0.1177850	0.26920569	2.3754537	20	—	—
96654 1999 JM_{1}	15.9	X	269.13254	186.90872	57.25685	2.99434	0.1724756	0.27190375	2.3597134	20	—	—
96655 1999 JD_{2}	15.5	X	218.24219	191.16260	104.01529	5.56948	0.1397063	0.27117997	2.3639102	20	1 17.7	19.1
96656 1999 JJ_{2}	16.2	X	5.78885	78.69051	139.59075	4.22331	0.1638379	0.28219635	2.3019813	20	4 22.5	17.8
96657 1999 JY_{5}	14.8	X	296.76227	157.31787	85.75353	25.71693	0.1728709	0.27313743	2.3526026	20	1 30.3	18.4
96658 1999 JC_{6}	15.6	X	246.36423	52.92856	9.72827	7.14912	0.0253806	0.29166860	2.2518680	20	8 26.7	18.3
96659 1999 JO_{7}	15.6	X	225.05607	207.11019	135.48094	8.95127	0.2344700	0.27549788	2.3391453	20	3 21.9	19.6
96660 1999 JN_{9}	15.1	X	216.21135	285.44169	49.49976	8.24345	0.1454279	0.27637763	2.3341788	20	3 8.7	18.8
96661 1999 JT_{12}	14.7	X	243.76343	178.78224	81.27362	11.79494	0.1337498	0.26961218	2.3730654	20	—	—
96662 1999 JT_{13}	16.4	X	230.86253	81.24309	101.37320	6.09588	0.0728321	0.30508658	2.1853482	20	—	—
96663 1999 JZ_{14}	16.2	X	191.19625	74.96954	110.81267	7.17604	0.0979045	0.30076761	2.2062193	20	11 24.2	19.1
96664 1999 JG_{15}	15.1	X	201.79506	108.51577	226.69607	6.18994	0.1298487	0.27337845	2.3512197	20	2 17.5	18.8
96665 1999 JL_{22}	15.7	X	60.85333	162.71797	352.05709	3.51825	0.0774020	0.28098103	2.3086143	20	4 20.4	18.3
96666 1999 JH_{23}	15.9	X	196.09198	205.29737	61.72343	3.70967	0.1398392	0.26419855	2.4053730	20	—	—
96667 1999 JJ_{23}	15.3	X	193.98569	49.95880	210.31619	7.70982	0.1871779	0.26280602	2.4138624	20	—	—
96668 1999 JH_{24}	14.6	X	248.03843	281.96891	30.39026	6.87634	0.1493849	0.27581584	2.3373473	20	3 9.6	18.1
96669 1999 JS_{31}	16.1	X	239.60864	55.58717	174.62106	1.43297	0.1382139	0.26558636	2.3969862	20	—	—
96670 1999 JM_{32}	15.5	X	220.66045	169.09503	84.10562	3.65006	0.1396146	0.26536336	2.3983289	20	—	—
96671 1999 JD_{33}	15.7	X	162.86368	54.09911	217.55218	5.91907	0.1216126	0.25989953	2.4318254	20	—	—
96672 1999 JG_{36}	15.4	X	144.33716	328.73620	76.81767	7.51384	0.1013834	0.27584206	2.3371992	20	3 23.5	18.7
96673 1999 JO_{37}	15.5	X	323.23109	207.07240	349.42160	1.85980	0.1502941	0.27291793	2.3538638	20	1 3.3	18.2
96674 1999 JQ_{37}	15.2	X	275.31769	188.33837	31.19380	4.37674	0.1455693	0.26889005	2.3773122	20	—	—
96675 1999 JJ_{40}	15.9	X	189.44862	73.00909	180.92083	2.00490	0.1736136	0.26097496	2.4251401	20	—	—
96676 1999 JL_{40}	15.1	X	148.29928	209.11470	126.33059	2.11689	0.1982738	0.26422560	2.4052088	20	1 5.5	18.5
96677 1999 JR_{40}	15.7	X	222.83859	235.03407	80.53688	5.48001	0.1340469	0.27241174	2.3567789	20	2 18.3	19.3
96678 1999 JO_{41}	15.4	X	21.96213	123.42695	90.37727	5.12717	0.0585460	0.28190518	2.3035661	20	5 14.9	17.7
96679 1999 JW_{42}	15.8	X	125.25307	46.30209	238.00126	5.84555	0.2105279	0.30181679	2.2011034	20	—	—
96680 1999 JG_{43}	15.1	X	240.00441	198.12434	43.37505	7.41741	0.0738405	0.26644354	2.3918425	20	—	—
96681 1999 JZ_{46}	15.6	X	271.57017	335.25939	213.66171	5.24803	0.0530677	0.26427819	2.4048897	20	—	—
96682 1999 JQ_{48}	14.9	X	164.14463	318.43106	348.52264	2.31891	0.1686385	0.26269754	2.4145269	20	—	—
96683 1999 JO_{49}	15.4	X	246.18546	156.98933	67.28867	5.55116	0.1783009	0.26531519	2.3986192	20	—	—
96684 1999 JK_{50}	15.7	X	317.06939	130.14325	94.22570	7.23394	0.0874707	0.27453542	2.3446092	20	2 13.2	18.5
96685 1999 JQ_{50}	16.3	X	107.29201	157.23745	112.67990	4.81202	0.1505935	0.29845389	2.2176068	20	12 11.0	19.6
96686 1999 JP_{53}	14.9	X	165.68947	181.59113	202.63739	6.65503	0.1262688	0.27397579	2.3478008	20	3 15.7	18.3
96687 1999 JO_{64}	15.7	X	205.24676	25.50720	215.34169	0.49081	0.1473058	0.26088761	2.4256813	20	—	—
96688 1999 JY_{70}	15.8	X	214.45627	71.63707	162.86742	6.23921	0.0722520	0.26332025	2.4107187	20	—	—
96689 1999 JW_{71}	15.5	X	1.91428	125.47276	75.06855	6.25638	0.1065675	0.27870997	2.3211384	20	3 21.8	17.8
96690 1999 JA_{73}	15.9	X	122.23456	213.57074	91.32251	6.01964	0.1114560	0.25859873	2.4399736	20	—	—
96691 1999 JH_{73}	15.2	X	267.65213	139.91289	98.94049	6.49237	0.0420768	0.27036256	2.3686725	20	1 4.4	18.1
96692 1999 JJ_{73}	16.5	X	128.06379	172.60307	96.57870	6.22856	0.1701865	0.30139978	2.2031332	20	12 29.5	19.7
96693 1999 JO_{74}	15.4	X	28.68716	328.39917	188.27435	8.63854	0.0924172	0.22941251	2.6427616	20	3 7.1	18.4
96694 1999 JY_{74}	15.6	X	0.86071	172.55212	125.02084	14.48733	0.2672470	0.23877880	2.5731921	20	9 3.1	17.6
96695 1999 JJ_{76}	14.9	X	138.40622	205.53709	67.80301	7.11740	0.1038141	0.25631469	2.4544473	20	—	—
96696 1999 JG_{79}	15.1	X	284.63553	20.57585	185.73637	25.65967	0.1623937	0.26877780	2.3779741	20	—	—
96697 1999 JM_{79}	15.5	X	295.17952	337.07305	219.80368	4.57178	0.1127049	0.26882049	2.3777223	20	—	—
96698 1999 JA_{80}	15.3	X	11.54356	74.28759	92.79900	7.88890	0.0467690	0.27369913	2.3493827	20	2 21.7	18.0
96699 1999 JM_{93}	16.5	X	54.71915	137.04337	161.90223	6.84085	0.1420957	0.29504248	2.2346680	20	11 23.9	19.5
96700 1999 JP_{93}	15.1	X	155.95353	261.59223	156.10858	7.60927	0.0883298	0.27884713	2.3203773	20	4 19.3	18.4
96701 1999 JG_{105}	15.9	X	229.69166	238.20521	89.42447	8.38081	0.1393030	0.27507762	2.3415272	20	3 12.9	19.5
96702 1999 JT_{107}	16.0	X	167.27670	106.47828	181.33654	4.07177	0.1349355	0.26251181	2.4156656	20	—	—
96703 1999 JO_{111}	15.4	X	104.64626	297.83943	172.10435	5.51160	0.0936255	0.27945954	2.3169861	20	4 26.8	18.2
96704 1999 JQ_{111}	16.0	X	157.23349	55.95117	76.12378	10.93372	0.0079400	0.28829167	2.2694188	20	8 1.2	18.9
96705 1999 JB_{117}	15.8	X	279.26801	226.30059	7.39949	2.69167	0.1245269	0.27002355	2.3706546	20	1 2.9	19.0
96706 1999 JE_{119}	15.7	X	256.11955	186.24773	51.57751	1.88889	0.1528379	0.26747369	2.3856973	20	—	—
96707 1999 JQ_{119}	15.9	X	18.95820	187.00112	69.27494	7.90174	0.0874041	0.28520622	2.2857570	20	7 18.1	18.2
96708 1999 JU_{126}	15.7	X	169.66355	299.66833	359.83114	2.28157	0.1879596	0.26186018	2.4196715	20	—	—
96709 1999 JK_{127}	15.8	X	139.45547	52.10946	237.85271	5.67800	0.1092985	0.25731181	2.4481024	20	—	—
96710 1999 JN_{135}	16.3	X	162.09290	96.22431	144.07444	7.85930	0.1323525	0.30231763	2.1986718	20	12 28.0	19.4
96711 1999 JE_{138}	14.7	X	60.30020	48.49782	132.20361	11.70930	0.0591566	0.19014374	2.9951232	20	5 30.3	18.9
96712 1999 KH_{4}	16.3	X	12.82449	155.29638	63.68512	7.71377	0.1767106	0.28197598	2.3031805	20	5 10.2	17.9
96713 1999 KG_{5}	16.2	X	85.97071	237.98235	215.17011	2.01807	0.1276772	0.27517614	2.3409683	20	3 10.4	18.9
96714 1999 KH_{6}	15.6	X	179.89662	229.64298	85.68850	7.64880	0.1321325	0.26813157	2.3817934	20	1 5.8	19.1
96715 1999 KR_{7}	16.0	X	14.76985	178.05250	46.30868	8.45666	0.1956938	0.28407625	2.2918143	20	5 23.9	17.3
96716 1999 KD_{9}	15.5	X	251.96371	16.95737	243.62903	6.77846	0.0787736	0.27096015	2.3651886	20	1 9.6	18.9
96717 1999 KG_{9}	16.3	X	282.28813	57.37690	174.54520	2.57591	0.1408100	0.27143927	2.3624045	20	1 1.5	19.8
96718 1999 KU_{11}	15.6	X	304.12515	241.81958	302.62463	1.74183	0.1491783	0.26814254	2.3817284	20	—	—
96719 1999 KO_{17}	14.6	X	223.90585	247.89676	67.24771	13.79572	0.2202838	0.22391638	2.6858317	20	2 24.6	19.4
96720 1999 LP	14.5	X	327.84127	97.75833	119.71559	23.88237	0.2785159	0.27793648	2.3254429	20	1 16.4	17.2

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Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
96721 1999 LT	16.4	X	149.40083	118.47038	198.07819	24.12066	0.2098394	0.40075937	1.8219939	20	—	—
96722 1999 LO_{4}	15.7	X	2.07419	182.24797	98.11641	6.81939	0.2292604	0.28234207	2.3011891	20	8 8.7	17.1
96723 1999 LB_{16}	15.5	X	312.11034	132.61907	170.02792	14.05413	0.1840789	0.23177088	2.6248036	20	5 15.3	18.8
96724 1999 LY_{20}	14.9	X	276.83955	119.78944	78.78161	10.19694	0.1237870	0.26509489	2.3999479	20	—	—
96725 1999 LA_{30}	16.2	X	13.44869	91.02953	88.12621	3.36766	0.0085573	0.27584150	2.3372023	20	3 12.3	18.9
96726 1999 LA_{31}	16.1	X	261.81518	358.55138	146.59888	6.31606	0.0656991	0.25668922	2.4520592	20	12 26.8	19.2
96727 1999 LK_{31}	15.2	X	9.85740	167.84087	136.78455	23.82823	0.2215362	0.28598438	2.2816087	20	10 16.4	17.9
96728 1999 NF_{7}	14.9	X	277.39289	103.47247	279.47762	3.87784	0.2011714	0.23210315	2.6222979	20	7 7.9	18.3
96729 1999 NL_{21}	15.2	X	357.56124	299.30851	64.72120	5.56616	0.2321587	0.24179587	2.5517422	20	11 29.7	17.5
96730 1999 NL_{23}	15.3	X	304.19595	201.96655	125.24876	5.97122	0.2243909	0.23158692	2.6261933	20	5 28.4	18.4
96731 1999 NP_{27}	15.9	X	104.51784	18.49719	336.40078	1.28269	0.2017263	0.25483800	2.4639200	20	—	—
96732 1999 NQ_{27}	15.5	X	318.29437	19.50976	315.60897	2.01760	0.2002847	0.23390147	2.6088398	20	7 9.4	18.1
96733 1999 NO_{28}	15.9	X	56.95069	310.65214	317.37598	6.73789	0.1637258	0.28807933	2.2705339	20	10 12.1	18.9
96734 1999 NR_{42}	15.7	X	357.63384	300.18770	333.69821	5.07613	0.2065632	0.28037772	2.3119249	20	7 10.5	17.0
96735 1999 NV_{43}	15.1	X	309.73427	190.84782	111.72413	16.76116	0.2954269	0.23161508	2.6259805	20	4 27.3	18.6
96736 1999 NA_{48}	14.7	X	39.01341	100.96827	272.06427	12.71554	0.2052672	0.24862639	2.5047895	20	—	—
96737 1999 NJ_{48}	15.2	X	315.47170	44.02373	257.32024	10.80309	0.1856285	0.23076691	2.6324110	20	5 14.5	18.1
96738 1999 NQ_{55}	15.0	X	333.72440	111.75883	205.87237	12.12172	0.2116588	0.23278244	2.6171939	20	7 12.4	17.6
96739 1999 NE_{56}	15.0	X	305.11595	106.25350	269.79030	12.21614	0.1942161	0.23389938	2.6088554	20	8 9.7	17.9
96740 1999 NW_{56}	14.8	X	256.24146	114.52171	275.99642	11.13627	0.1848221	0.22838015	2.6507197	20	6 23.7	18.5
96741 1999 NY_{59}	15.0	X	307.61791	222.97969	183.78776	12.44207	0.1756434	0.24031873	2.5621878	20	10 11.9	17.3
96742 1999 ON	15.1	X	320.92571	76.98994	334.41854	4.84549	0.2810059	0.24089119	2.5581270	20	11 14.8	16.7
96743 1999 OC_{3}	14.7	X	356.08936	25.44288	318.60161	17.66127	0.2312200	0.23437176	2.6053488	20	10 13.6	17.6
96744 1999 OW_{3}	14.7	X	25.60292	35.69371	196.13163	34.94456	0.7800370	0.32574801	2.0919351	20	1 15.8*	16.3
96745 1999 PB	15.8	X	131.12108	339.41264	327.58517	3.68959	0.1844789	0.25321269	2.4744522	20	—	—
96746 1999 PK_{8}	15.7	X	46.35661	36.15628	249.50921	6.25795	0.1882253	0.24056138	2.5604646	20	10 19.4	19.1
96747 Crespodasilva	14.6	X	308.49278	58.23718	344.53323	13.16567	0.2028295	0.23621438	2.5917821	20	9 27.9	17.2
96748 1999 RE_{4}	14.9	X	323.57868	166.13418	164.64496	14.00987	0.1801867	0.23319703	2.6140910	20	7 14.9	17.7
96749 1999 RF_{4}	15.8	X	42.92243	22.93717	315.81855	13.67622	0.2611592	0.24401903	2.5362200	20	—	—
96750 1999 RK_{8}	15.1	X	97.39714	88.16462	339.95478	7.27856	0.0749109	0.26040712	2.4286642	20	2 16.9	18.0
96751 1999 RY_{12}	15.3	X	280.97482	68.22151	300.12061	4.10212	0.1818179	0.22952249	2.6419173	20	6 25.9	18.7
96752 1999 RO_{16}	16.1	X	301.98910	61.04360	346.09485	4.23415	0.1827654	0.23594102	2.5937836	20	9 26.5	18.7
96753 1999 RB_{17}	15.3	X	292.22062	64.51819	337.52999	21.69647	0.1142515	0.23455176	2.6040156	20	9 7.8	18.5
96754 1999 RF_{18}	15.6	X	218.79366	41.66785	322.51565	1.12871	0.1000360	0.22107494	2.7087964	20	4 17.8	19.7
96755 1999 RJ_{19}	14.9	X	344.17892	290.76654	338.33839	13.18581	0.0772848	0.22643648	2.6658668	20	5 29.2	18.4
96756 1999 RD_{20}	14.7	X	321.84339	62.01855	337.59293	10.77609	0.1940397	0.23706104	2.5856075	20	10 23.4	17.2
96757 1999 RG_{20}	15.6	X	67.90248	347.48739	328.82986	5.37710	0.2410830	0.24390720	2.5369951	20	12 28.1	19.6
96758 1999 RM_{21}	15.4	X	204.50366	214.18776	151.75275	5.42991	0.1284184	0.21861989	2.7290381	20	4 6.9	19.7
96759 1999 RE_{22}	15.6	X	325.75781	260.57293	154.04868	4.59195	0.1123629	0.23977214	2.5660802	20	11 29.4	18.3
96760 1999 RL_{23}	15.1	X	117.65183	28.86059	28.30163	4.93232	0.1348534	0.21231421	2.7828086	20	3 14.6	19.0
96761 1999 RZ_{25}	15.7	X	290.24688	23.59115	25.31052	3.69360	0.2052281	0.23283935	2.6167674	20	9 4.8	18.5
96762 1999 RW_{28}	15.0	X	38.82312	336.92393	343.69696	21.95194	0.0234759	0.23994230	2.5648669	20	10 20.5	18.8
96763 1999 RG_{30}	14.7	X	38.45593	350.68657	328.97141	21.50579	0.0506557	0.23902423	2.5714304	20	10 22.0	18.6
96764 1999 RY_{32}	15.6	X	6.12208	105.82918	298.63881	8.24476	0.1124166	0.24447634	2.5330562	20	—	—
96765 1999 RS_{34}	14.5	X	354.43213	134.90515	33.46737	12.87060	0.0650838	0.20928370	2.8096083	20	2 9.8	18.3
96766 1999 RA_{35}	15.2	X	14.53019	48.27098	285.71618	12.04687	0.2090613	0.23938840	2.5688218	20	11 9.4	18.3
96767 1999 RP_{40}	14.8	X	190.56117	286.02770	164.43169	22.11768	0.0388530	0.22788876	2.6545288	20	7 10.4	18.9
96768 1999 RH_{50}	15.6	X	255.26382	355.56660	304.91141	4.06505	0.2305365	0.26901733	2.3765623	20	2 21.2	19.3
96769 1999 RC_{51}	15.0	X	16.07056	173.18878	148.98572	16.04235	0.1993975	0.23932970	2.5692418	20	11 3.0	18.2
96770 1999 RF_{54}	15.0	X	256.65528	8.04811	348.39148	8.25741	0.2809163	0.22606874	2.6687571	20	4 27.2	19.5
96771 1999 RP_{56}	15.3	X	339.43438	308.28519	334.73737	10.88879	0.1581512	0.22999312	2.6383120	20	6 6.2	18.2
96772 1999 RL_{57}	15.8	X	321.44065	44.89550	16.16300	5.92978	0.0822271	0.24015343	2.5633634	20	11 27.9	18.7
96773 1999 RJ_{60}	15.4	X	305.90262	259.16283	130.07723	1.03648	0.1843515	0.23610777	2.5925623	20	9 8.4	17.6
96774 1999 RG_{68}	15.4	X	140.36628	202.20188	169.14131	6.23815	0.0663102	0.21199049	2.7856409	20	2 1.9	19.3
96775 1999 RL_{73}	15.1	X	336.00420	55.04661	329.41337	11.05449	0.2952566	0.23695573	2.5863735	20	11 11.9	17.1
96776 1999 RM_{78}	15.8	X	300.73884	295.84921	128.14715	1.79922	0.1818615	0.23812483	2.5779012	20	10 21.9	18.1
96777 1999 RB_{80}	16.1	X	78.81829	190.20231	149.81752	3.08870	0.0917106	0.24722376	2.5142546	20	—	—
96778 1999 RT_{81}	15.3	X	332.90931	62.83774	337.02430	9.07976	0.2280281	0.23840642	2.5758709	20	11 24.9	17.6
96779 1999 RX_{82}	15.7	X	274.18182	89.42304	197.22416	1.41558	0.1735728	0.22013972	2.7164629	20	3 3.6	19.6
96780 1999 RE_{83}	16.1	X	335.85513	254.41295	3.42625	2.03774	0.1832605	0.27274469	2.3548605	20	4 15.7	18.1
96781 1999 RM_{86}	16.3	X	313.54986	151.28002	126.09645	4.34464	0.2009710	0.27213468	2.3583782	20	4 4.3	18.8
96782 1999 RM_{95}	13.3	X	21.89386	175.18943	12.88266	18.15722	0.1028402	0.16980540	3.2297461	20	4 12.6	17.3
96783 1999 RS_{97}	14.6	X	153.59116	134.03103	2.49376	15.17921	0.0583160	0.22765322	2.6563595	20	8 2.6	18.7
96784 1999 RP_{101}	15.0	X	231.08701	113.79482	279.08449	11.21585	0.1509450	0.22594711	2.6697147	20	6 2.7	19.1
96785 1999 RL_{102}	14.5	X	329.71047	83.47967	311.01595	11.30458	0.1656460	0.23917295	2.5703642	20	11 2.9	17.3
96786 1999 RN_{103}	15.1	X	303.00788	63.34764	318.15397	12.51061	0.1696571	0.23351724	2.6117008	20	8 21.3	17.7
96787 1999 RX_{104}	15.1	X	53.38905	37.64797	307.05108	12.64372	0.1923267	0.24477579	2.5309899	20	—	—
96788 1999 RU_{105}	14.5	X	306.75372	114.03120	284.93420	12.99103	0.0948930	0.23578927	2.5948964	20	9 25.1	17.9
96789 1999 RB_{107}	15.3	X	175.51152	54.56957	11.50302	9.05589	0.1704603	0.22054189	2.7131595	20	5 20.0	19.9
96790 1999 RW_{109}	15.4	X	245.76851	63.57528	318.56910	13.03914	0.1700648	0.22419260	2.6836252	20	6 1.1	19.7
96791 1999 RL_{110}	14.8	X	191.95170	117.99457	291.83517	12.03127	0.1757064	0.21950856	2.7216676	20	5 14.4	19.5
96792 1999 RO_{110}	14.2	X	128.21827	223.36762	310.06615	11.32769	0.1370035	0.22694882	2.6618531	20	8 18.6	18.5
96793 1999 RV_{110}	14.2	X	76.75492	340.41995	341.67125	14.17409	0.0634856	0.24169250	2.5524697	20	12 28.3	18.0
96794 1999 RP_{120}	14.8	X	275.17032	24.82536	320.45799	13.23724	0.2531875	0.22765027	2.6563825	20	5 1.9	19.0
96795 1999 RY_{123}	14.8	X	233.77634	5.73698	301.46569	13.54163	0.0854085	0.21569911	2.7536188	20	2 20.5	19.2
96796 1999 RQ_{124}	15.3	X	281.89585	40.85752	318.48103	12.24455	0.1690263	0.22758161	2.6569167	20	6 17.1	19.0
96797 1999 RT_{124}	15.1	X	318.29270	91.47817	166.57270	15.03601	0.1078478	0.22247509	2.6974193	20	4 4.6	18.5
96798 1999 RH_{127}	16.2	X	337.94564	60.93456	317.40611	16.99098	0.2503962	0.23803189	2.5785721	20	10 28.7	18.7
96799 1999 RQ_{127}	15.6	X	33.98613	50.58758	237.22649	3.64533	0.2098772	0.23840248	2.5758992	20	10 9.0	18.6
96800 1999 RY_{127}	16.1	X	276.03545	208.42334	174.57582	5.21083	0.1842003	0.27850509	2.3222766	20	7 10.8	18.8

* The additional opposition: 10 19.2, $V = 18.4$

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
96801 1999 RC_{131}	15.0	X	349.57703	338.07355	308.31633	12.89604	0.1451621	0.23122603	2.6289252	20	7 6.9	17.7
96802 1999 RC_{134}	15.7	X	280.42372	327.90488	304.51479	7.63818	0.2217489	0.26887535	2.3773989	20	2 10.3	19.4
96803 1999 RH_{134}	15.5	X	242.45749	66.41787	297.85440	7.79794	0.0870363	0.22505349	2.6767771	20	5 13.9	19.4
96804 1999 RD_{137}	15.1	X	291.38707	36.06421	326.97578	10.06613	0.0813222	0.23127803	2.6285311	20	7 22.4	18.3
96805 1999 RR_{138}	15.1	X	2.00547	91.23170	309.78828	14.46597	0.1322107	0.24260148	2.5460900	20	—	—
96806 1999 RU_{142}	15.5	X	192.13921	240.11124	118.66286	5.32307	0.1244256	0.21610164	2.7501983	20	3 17.9	19.8
96807 1999 RK_{143}	15.8	X	34.50970	213.59013	162.15491	3.15486	0.1977149	0.24388580	2.5371436	20	—	—
96808 1999 RS_{148}	16.1	X	324.82954	331.11196	310.86987	1.36383	0.2131178	0.27553749	2.3389212	20	4 26.0	18.2
96809 1999 RV_{150}	15.3	X	63.80093	278.94247	26.92028	2.58681	0.1668463	0.24322126	2.5417629	20	12 3.4	19.0
96810 1999 RZ_{156}	15.5	X	214.43340	143.69644	221.16613	1.76061	0.0909872	0.22091806	2.7100787	20	4 14.8	19.5
96811 1999 RM_{157}	15.3	X	306.12569	327.67515	95.64766	3.41011	0.1947133	0.23881772	2.5729125	20	11 1.0	17.5
96812 1999 RZ_{161}	15.5	X	3.53291	60.22753	242.03727	6.77308	0.1946535	0.23451070	2.6043196	20	8 29.4	18.0
96813 1999 RP_{163}	15.0	X	9.09028	81.68157	191.82000	5.25548	0.2625659	0.28037188	2.3119570	20	8 16.8	16.5
96814 1999 RS_{163}	16.0	X	22.82827	81.42694	258.35312	1.68588	0.2294827	0.24028554	2.5624238	20	12 6.4	19.2
96815 1999 RN_{164}	15.6	X	63.39082	14.26925	335.08698	11.50617	0.1949929	0.24622856	2.5210247	20	—	—
96816 1999 RZ_{164}	14.8	X	231.59589	102.47442	336.18567	14.40308	0.0901331	0.23105555	2.6302182	20	8 12.6	18.5
96817 1999 RK_{166}	15.1	X	79.89936	41.65915	8.34791	6.43623	0.1299451	0.25530418	2.4609196	20	1 5.9	17.8
96818 1999 RW_{171}	16.0	X	336.26543	250.34363	148.36137	5.73901	0.2310674	0.23897678	2.5717707	20	12 5.8	18.2
96819 1999 RS_{175}	15.7	X	275.75080	62.19227	328.24080	5.29169	0.1625628	0.23014794	2.6371287	20	7 23.2	19.0
96820 1999 RY_{176}	15.8	X	94.31113	131.00863	191.39214	4.12859	0.0825390	0.24688733	2.5165381	20	—	—
96821 1999 RU_{180}	16.1	X	297.53213	204.03147	102.29946	3.25109	0.2035647	0.27329202	2.3517153	20	4 20.4	19.0
96822 1999 RY_{180}	13.4	X	306.36081	311.99323	359.18047	16.63027	0.2206212	0.18011362	3.1053103	20	5 3.1	17.6
96823 1999 RK_{181}	14.8	X	68.15628	74.59628	9.27064	5.72984	0.1200132	0.25717843	2.4489487	20	2 2.2	17.4
96824 1999 RA_{182}	15.7	X	171.93814	33.26048	348.41412	9.86883	0.0407163	0.26415279	2.4056508	20	3 15.2	18.8
96825 1999 RA_{185}	15.1	X	260.10954	175.92024	147.49352	13.85302	0.0839456	0.22158705	2.7046213	20	4 19.1	19.1
96826 1999 RQ_{185}	15.7	X	193.61714	178.93038	204.34334	1.60892	0.0940944	0.21988064	2.7185963	20	4 16.2	19.8
96827 1999 RE_{186}	15.7	X	325.89234	258.63627	151.16161	8.04815	0.1845526	0.23958369	2.5674257	20	11 26.6	18.2
96828 1999 RT_{187}	15.2	X	199.95284	302.95228	163.85433	13.96045	0.2283052	0.22845734	2.6501227	20	7 30.6	19.8
96829 1999 RW_{187}	15.8	X	313.25299	255.27987	199.38120	3.71644	0.1014178	0.24376119	2.5380081	20	—	—
96830 1999 RW_{189}	15.9	X	352.71874	359.26039	42.20386	5.43354	0.1068645	0.24297779	2.5434605	20	12 25.8	18.9
96831 1999 RU_{194}	14.9	X	218.10248	88.25749	240.78695	11.87399	0.1513887	0.21834129	2.7313591	20	2 27.1	19.6
96832 1999 RE_{195}	15.2	X	351.99432	66.87669	297.96491	12.30987	0.2063855	0.23867331	2.5739502	20	11 10.8	17.9
96833 1999 RL_{195}	14.8	X	244.89233	24.45474	289.34822	14.26338	0.2056210	0.22010427	2.7167546	20	2 28.3	19.6
96834 1999 RG_{199}	14.8	X	276.32318	38.94604	354.37015	12.96786	0.2666092	0.22846797	2.6500405	20	7 13.5	18.6
96835 1999 RZ_{199}	15.0	X	267.19106	114.54512	262.31338	11.52459	0.1605001	0.22750243	2.6575332	20	6 21.9	18.5
96836 1999 RU_{200}	15.2	X	322.28615	1.26807	328.30961	14.32634	0.1860231	0.23032360	2.6357877	20	7 14.5	18.0
96837 1999 RC_{202}	15.3	X	225.91280	114.12533	292.61094	10.42069	0.1870591	0.22426720	2.6830301	20	6 12.5	19.6
96838 1999 RQ_{202}	15.0	X	214.35697	41.92635	309.94795	8.23238	0.1711012	0.21803132	2.7339472	20	3 23.0	19.6
96839 1999 RW_{202}	15.2	X	218.65984	124.42028	310.09411	11.28562	0.1663577	0.22655916	2.6649044	20	7 13.8	19.3
96840 1999 RQ_{203}	14.9	X	187.83227	192.00821	276.95094	12.23785	0.1070030	0.22767468	2.6561926	20	7 26.7	19.1
96841 1999 RP_{205}	15.0	X	297.00000	180.42957	208.88662	16.93550	0.1787444	0.23191315	2.6237300	20	8 15.6	18.4
96842 1999 RH_{208}	14.8	X	286.52879	107.04333	318.69081	12.70271	0.2224366	0.23337782	2.6127408	20	9 12.6	17.8
96843 1999 RN_{209}	15.2	X	288.99909	226.98290	247.08146	12.23413	0.0970231	0.24096105	2.5576325	20	12 18.2	18.0
96844 1999 RO_{209}	14.8	X	252.17648	121.88965	325.42183	14.49217	0.0377889	0.23316566	2.6143255	20	9 19.4	18.4
96845 1999 RU_{209}	15.5	X	267.18250	109.83040	318.57208	10.80063	0.1728593	0.23125810	2.6286822	20	8 27.9	19.0
96846 1999 RC_{211}	13.9	X	306.45178	96.27892	337.83515	10.54823	0.1754180	0.23710002	2.5853241	20	11 12.8	16.6
96847 1999 RS_{211}	14.9	X	163.93466	87.85484	297.77636	7.18036	0.2247401	0.21327467	2.7744476	20	3 22.8	19.7
96848 1999 RL_{221}	15.0	X	8.63625	184.23859	147.48737	10.28357	0.2423629	0.23732235	2.5837091	20	11 8.4	17.9
96849 1999 RC_{224}	15.4	X	42.21281	265.10743	19.23490	9.42150	0.1987589	0.23809641	2.5781063	20	10 15.0	18.7
96850 1999 RR_{225}	15.6	X	116.93384	274.95931	166.50521	1.46853	0.1383903	0.21467503	2.7623690	20	4 12.4	19.4
96851 1999 RE_{229}	14.8	X	301.19904	18.29754	269.30339	15.85781	0.2119467	0.22582139	2.6707055	20	3 22.5	18.7
96852 1999 RW_{235}	15.5	X	83.81165	196.73997	106.94933	9.67326	0.2064035	0.24436914	2.5337970	20	12 24.1	19.6
96853 1999 RQ_{236}	15.0	X	190.36513	337.73396	66.78952	8.27827	0.2312583	0.21963554	2.7206184	20	5 9.5	19.8
96854 1999 RD_{238}	15.3	X	242.54501	12.60271	54.86521	12.63804	0.1698547	0.22821674	2.6519850	20	8 1.5	19.4
96855 1999 RK_{238}	15.8	X	308.72312	355.40075	57.57349	8.85820	0.1399262	0.23601370	2.5932511	20	10 26.2	18.5
96856 1999 RX_{238}	15.0	X	186.90955	55.82682	32.35723	14.64692	0.0786275	0.22457390	2.6805867	20	7 2.6	19.2
96857 1999 RQ_{242}	14.8	X	163.05780	286.80965	99.37647	5.68783	0.1278471	0.21539361	2.7562219	20	3 24.2	19.1
96858 1999 SY_{1}	14.5	X	219.34971	102.70605	277.83702	15.04129	0.1873601	0.22220873	2.6995744	20	4 30.6	19.3
96859 1999 SE_{2}	14.1	X	240.71112	73.78495	323.90940	25.71487	0.3073344	0.22529365	2.6748745	20	6 2.8	19.2
96860 1999 SG_{2}	14.4	X	30.69246	111.62713	51.21403	9.45996	0.0982150	0.25972591	2.4329090	20	3 22.3	17.1
96861 1999 SC_{6}	14.9	X	291.62346	346.28805	33.11621	12.35854	0.1306748	0.23168988	2.6254153	20	8 11.8	18.3
96862 1999 SE_{7}	14.9	X	309.05584	236.19488	47.13518	7.69202	0.2931377	0.22718191	2.6600322	20	3 26.7	18.3
96863 1999 SE_{8}	15.1	X	334.66239	283.91593	70.36441	6.61387	0.1431124	0.23568522	2.5956601	20	9 22.1	17.7
96864 1999 SK_{9}	14.4	X	282.69540	334.54750	91.08464	13.44386	0.2338839	0.23504919	2.6003404	20	9 17.5	17.6
96865 1999 SA_{10}	14.9	X	257.01986	2.67739	44.90586	14.82234	0.2427383	0.22742863	2.6581080	20	7 10.8	19.1
96866 1999 SV_{12}	14.2	X	267.58879	337.48382	93.31857	16.87175	0.2972364	0.23134760	2.6280041	20	8 18.8	18.0
96867 1999 SA_{13}	14.7	X	318.16619	244.02852	74.95205	15.69237	0.0972475	0.22757196	2.6569918	20	6 27.1	17.9
96868 1999 SH_{15}	15.4	X	275.56014	154.91275	266.89921	13.38590	0.1474781	0.23415410	2.6069630	20	8 30.0	18.9
96869 1999 SD_{19}	14.4	X	63.57198	350.57162	97.67915	10.78794	0.0675513	0.20876573	2.8142537	20	2 3.5	18.0
96870 1999 SB_{21}	15.6	X	280.31229	224.13873	350.75539	11.36181	0.1116970	0.25802638	2.4435805	20	—	—
96871 1999 ST_{21}	14.9	X	154.41645	204.91336	239.99580	13.51104	0.0339648	0.22286602	2.6942640	20	5 19.2	18.7
96872 1999 TC_{2}	14.5	X	244.61870	272.55005	87.01409	13.72007	0.2112508	0.22257335	2.6966253	20	5 4.6	18.9
96873 1999 TH_{4}	14.3	X	277.90806	167.89125	314.47846	14.19615	0.0970913	0.24169829	2.5524290	20	12 12.3	17.5
96874 1999 TF_{8}	15.1	X	235.75359	48.76434	303.32050	7.83392	0.2354777	0.21994173	2.7180929	20	4 7.1	19.9
96875 1999 TE_{10}	15.8	X	281.47035	171.10441	270.33100	2.74855	0.1874521	0.23632359	2.5909836	20	10 6.7	18.8
96876 Andreamanna	15.1	X	176.11664	84.58301	161.71962	4.67071	0.0106141	0.24263099	2.5458836	20	—	—
96877 1999 TF_{13}	14.4	X	197.55942	113.69258	52.58741	15.64517	0.0543198	0.23214921	2.6219510	20	10 29.9	18.0
96878 1999 TE_{16}	14.9	X	204.35918	73.12340	15.92992	12.63991	0.2424514	0.22373460	2.6872863	20	7 15.8	19.7
96879 1999 TG_{16}	15.7	X	182.98442	200.73484	210.41501	2.69158	0.1776810	0.21836861	2.7311313	20	5 10.9	20.3
96880 1999 TD_{18}	15.7	X	93.11989	240.71009	75.21803	4.26010	0.1763536	0.24451767	2.5327708	20	—	—

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Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
96881 1999 TD_{21}	14.9	X	202.41434	34.55177	349.81840	8.85239	0.2386844	0.21770440	2.7366835	20	4 20.3	19.9
96882 1999 TQ_{23}	15.9	X	158.66123	189.56363	69.44299	3.26353	0.1047545	0.24602748	2.5223981	20	—	—
96883 1999 TA_{24}	15.8	X	209.43221	125.64466	35.56654	3.76258	0.0384239	0.23841277	2.5758251	20	11 6.8	19.4
96884 1999 TP_{25}	15.5	X	4.51203	57.33556	11.90232	4.96347	0.0242474	0.24482635	2.5306414	20	—	—
96885 1999 TK_{26}	15.5	X	283.71267	132.36141	332.36296	1.22229	0.0831399	0.23747579	2.5825961	20	11 27.4	18.3
96886 1999 TT_{26}	16.0	X	298.34808	319.71053	17.55582	3.38118	0.2345223	0.22642280	2.6659742	20	5 29.5	19.3
96887 1999 TB_{32}	15.2	X	294.68969	17.27034	13.45118	12.72768	0.1217717	0.23103801	2.6303513	20	9 2.7	18.3
96888 1999 TH_{34}	15.6	X	38.40670	250.85729	70.62342	2.84200	0.1378794	0.23878526	2.5731456	20	11 19.2	18.8
96889 1999 TQ_{35}	14.5	X	215.32369	322.91736	7.94313	18.49392	0.2234993	0.21567961	2.7537847	20	3 6.9	19.3
96890 1999 TE_{36}	14.7	X	94.55012	28.42418	26.73297	6.91884	0.1252905	0.25656733	2.4528358	20	2 5.8	17.7
96891 1999 TC_{37}	14.1	X	119.90399	131.26510	53.49972	14.00501	0.0890808	0.22702886	2.6612275	20	8 30.5	18.3
96892 1999 TY_{38}	15.4	X	7.48292	21.12461	247.41764	9.47300	0.0542963	0.22618230	2.6678637	20	7 7.1	18.8
96893 1999 TM_{39}	15.2	X	287.51456	343.71367	109.91241	7.24372	0.0942402	0.23622786	2.5916836	20	11 19.3	18.2
96894 1999 TV_{40}	15.0	X	95.04988	280.07481	95.55323	3.50619	0.0774347	0.20410987	2.8568890	20	—	—
96895 1999 TY_{40}	15.2	X	177.70969	6.93645	49.56758	5.96758	0.1585574	0.21919083	2.7242971	20	5 12.3	19.5
96896 1999 TM_{43}	15.9	X	96.55954	211.76390	238.78851	0.81250	0.0432670	0.21507646	2.7589307	20	3 15.7	19.5
96897 1999 TJ_{56}	15.3	X	62.84204	210.35554	27.08893	4.07444	0.1609632	0.22846522	2.6500617	20	9 4.3	18.8
96898 1999 TV_{58}	15.3	X	0.30655	305.49825	144.14589	2.50765	0.0702710	0.19654074	2.9297754	20	—	—
96899 1999 TB_{59}	14.6	X	199.11001	54.20830	124.24189	2.92076	0.1092272	0.18636631	3.0354595	20	11 1.1	19.2
96900 1999 TC_{69}	15.8	X	106.17191	193.33817	294.96277	1.53367	0.1572090	0.26404872	2.4062828	20	6 1.1	18.9
96901 1999 TM_{70}	15.1	X	235.99714	279.89219	22.56281	4.60733	0.0490369	0.21197553	2.7857720	20	2 26.1	19.1
96902 1999 TH_{81}	15.6	X	311.30616	194.82971	69.99737	5.81307	0.0706386	0.21425926	2.7659414	20	4 9.5	19.2
96903 1999 TJ_{83}	15.1	X	13.65681	37.82483	184.99490	11.15233	0.1223064	0.17376560	3.1804861	20	5 20.3	19.1
96904 1999 TN_{95}	14.3	X	204.77959	316.11653	58.12388	8.32788	0.0853960	0.21830513	2.7316607	20	4 19.3	18.5
96905 1999 TT_{95}	15.0	X	187.60441	302.45504	63.27661	5.12967	0.1059115	0.21507908	2.7589083	20	3 22.2	19.3
96906 1999 TJ_{98}	14.7	X	34.71175	310.17933	71.70273	11.38596	0.1302550	0.19610389	2.9341248	20	—	—
96907 1999 TC_{99}	14.9	X	146.20605	232.54705	165.89322	12.84291	0.1396085	0.21240629	2.7820043	20	3 21.9	19.2
96908 1999 TP_{99}	15.0	X	281.60143	320.43783	53.50714	11.70603	0.1694473	0.22764027	2.6564603	20	7 7.1	18.6
96909 1999 TC_{101}	15.0	X	299.05906	290.49887	63.88504	13.29611	0.1887002	0.22826175	2.6516363	20	7 2.8	18.2
96910 1999 TX_{102}	14.2	X	203.65177	336.70899	147.62545	14.08068	0.1240442	0.22976425	2.6400638	20	9 4.3	18.2
96911 1999 TY_{102}	15.2	X	242.69075	245.92691	167.06582	14.22627	0.1968810	0.22549685	2.6732673	20	7 5.7	19.5
96912 1999 TB_{103}	14.7	X	108.72857	252.95500	118.85799	11.55841	0.1653658	0.20340061	2.8635265	20	1 12.0	18.5
96913 1999 TO_{103}	15.5	X	332.67951	53.14527	349.86518	8.35971	0.0484213	0.23824318	2.5770473	20	11 17.8	18.7
96914 1999 TP_{103}	16.3	X	319.86244	83.93819	309.17779	3.48660	0.2146100	0.23468321	2.6030432	20	10 10.7	18.4
96915 1999 TC_{105}	16.0	X	306.70784	63.74957	332.95711	4.83157	0.0295786	0.28181358	2.3040652	20	10 11.8	18.6
96916 1999 TL_{107}	15.5	X	318.79256	309.92802	286.86625	6.48616	0.0556197	0.26568689	2.3963815	20	3 4.3	18.4
96917 1999 TD_{113}	15.5	X	3.42454	56.03512	300.46975	3.99644	0.2671119	0.23797359	2.5789932	20	12 4.1	18.1
96918 1999 TJ_{113}	15.2	X	327.68011	163.77243	354.11965	14.85810	0.0934250	0.25302148	2.4756987	20	—	—
96919 1999 TU_{113}	15.2	X	193.06766	79.48720	356.81133	10.93335	0.1729473	0.22273432	2.6953259	20	6 19.9	19.9
96920 1999 TD_{116}	15.4	X	113.95738	76.35439	329.83122	2.76073	0.0964550	0.20990861	2.8040293	20	2 19.2	19.3
96921 1999 TN_{117}	15.2	X	34.91302	203.81169	274.30616	3.28093	0.0396948	0.25662313	2.4524802	20	1 19.8	18.1
96922 1999 TO_{118}	15.3	X	9.37459	15.02610	4.61764	14.67940	0.1057426	0.24049357	2.5609459	20	12 20.3	18.8
96923 1999 TM_{121}	15.0	X	336.26592	303.85597	135.05171	3.34066	0.0862645	0.24289138	2.5440637	20	—	—
96924 1999 TV_{122}	16.0	X	209.29312	53.07386	18.72470	7.03504	0.2463611	0.22278915	2.6948837	20	6 25.5	20.7
96925 1999 TX_{125}	15.4	X	179.25351	182.40621	225.43587	6.39011	0.1005201	0.21858115	2.7293606	20	5 2.2	19.4
96926 1999 TD_{126}	16.2	X	279.44073	31.43802	14.66895	3.16805	0.2038869	0.23061754	2.6335475	20	8 13.2	19.3
96927 1999 TX_{126}	15.3	X	250.87539	342.95963	4.45355	2.29494	0.0373419	0.22084732	2.7106574	20	5 9.7	19.1
96928 1999 TU_{128}	15.3	X	137.49454	205.81558	212.21004	3.44109	0.0729683	0.21699299	2.7426617	20	3 28.2	19.3
96929 1999 TW_{128}	15.8	X	253.19561	141.68136	310.69975	2.50108	0.1666384	0.23415676	2.6069433	20	9 12.9	19.3
96930 1999 TD_{129}	15.7	X	263.52472	334.25777	337.28302	2.03502	0.0317819	0.21950180	2.7217234	20	4 9.4	19.5
96931 1999 TR_{129}	15.9	X	260.98182	172.37675	297.92113	1.22742	0.1128049	0.23816603	2.5776039	20	10 27.5	19.2
96932 1999 TG_{130}	15.6	X	232.22594	117.47855	350.32769	5.76590	0.1859385	0.23263429	2.6183050	20	9 6.6	19.5
96933 1999 TV_{130}	16.2	X	349.80122	42.39567	338.15249	2.44546	0.0453630	0.23901953	2.5714640	20	11 14.7	19.4
96934 1999 TC_{132}	16.1	X	296.64087	296.72846	2.76889	6.24072	0.1386640	0.27058037	2.3674012	20	4 17.0	19.0
96935 1999 TJ_{135}	15.4	X	288.59525	254.03586	2.53954	4.59315	0.1259108	0.21470500	2.7621119	20	2 19.8	19.3
96936 1999 TW_{140}	14.8	X	73.87548	125.40187	15.83930	5.08633	0.0967186	0.21377731	2.7700970	20	4 28.1	18.4
96937 1999 TY_{140}	15.2	X	214.83237	180.38353	22.01131	6.00087	0.0775634	0.24160165	2.5531096	20	—	—
96938 1999 TQ_{146}	14.9	X	239.34311	343.04723	23.60717	6.60580	0.0635619	0.22180937	2.7028137	20	5 16.7	18.8
96939 1999 TW_{146}	15.7	X	180.57113	183.07355	171.25797	7.50956	0.1258393	0.26068385	2.4269452	20	2 23.5	19.3
96940 1999 TX_{149}	15.1	X	118.34664	251.25174	112.28350	3.36036	0.0891339	0.20505510	2.8481028	20	1 2.6	18.8
96941 1999 TF_{153}	14.7	X	36.45130	57.18192	72.64227	5.19547	0.0801186	0.20977764	2.8051963	20	2 18.8	18.2
96942 1999 TQ_{154}	15.9	X	27.56237	276.46521	83.74083	3.61798	0.1483037	0.23983239	2.5656505	20	12 26.7	19.3
96943 1999 TE_{157}	14.8	X	9.97103	5.98665	197.75280	9.48713	0.0617943	0.21867614	2.7285701	20	4 13.2	18.0
96944 1999 TK_{161}	16.3	X	24.11254	105.42833	249.39994	2.11898	0.0592640	0.23973930	2.5663146	20	12 1.7	19.5
96945 1999 TB_{163}	15.1	X	60.47441	352.69775	72.84255	3.06703	0.0120226	0.20470012	2.8513946	20	—	—
96946 1999 TT_{163}	14.7	X	41.20111	150.01464	102.19998	13.43981	0.1279868	0.22568493	2.6717819	20	8 21.1	18.1
96947 1999 TD_{167}	15.2	X	73.73255	326.54473	233.54124	7.91193	0.0767510	0.22547321	2.6734543	20	7 13.3	18.8
96948 1999 TB_{168}	15.0	X	315.32817	236.19195	238.26841	4.26195	0.1238424	0.24501812	2.5293208	20	—	—
96949 1999 TG_{170}	15.2	X	40.41406	188.32354	1.94014	4.89482	0.0952625	0.21823642	2.7322340	20	5 13.5	18.5
96950 1999 TU_{171}	16.2	X	254.95333	245.47811	151.03868	2.69558	0.2084345	0.22531738	2.6746867	20	6 26.8	20.2
96951 1999 TC_{173}	15.6	X	250.17351	121.05419	345.25333	4.25265	0.0787702	0.23413065	2.6071371	20	10 10.7	18.9
96952 1999 TP_{174}	14.9	X	201.61751	200.21714	81.67458	5.86519	0.0899495	0.25165058	2.4846817	20	—	—
96953 1999 TY_{175}	15.7	X	191.53663	1.55405	1.27906	3.72832	0.0850777	0.21322266	2.7748988	20	3 20.1	19.9
96954 1999 TU_{176}	14.3	X	218.14526	171.62547	31.37247	28.22368	0.1475458	0.24149033	2.5538941	20	12 23.4	18.4
96955 1999 TP_{177}	15.1	X	52.40412	326.72004	80.01796	3.36289	0.0832113	0.19892387	2.9063290	20	—	—
96956 1999 TS_{183}	15.3	X	61.69934	13.68658	290.68343	14.84793	0.1249491	0.23972514	2.5664157	20	11 21.9	19.2
96957 1999 TZ_{183}	15.2	X	280.66929	71.06242	295.89954	13.73459	0.1383179	0.22725949	2.6594267	20	7 1.5	18.6
96958 1999 TM_{184}	15.0	X	344.00493	37.03456	322.32341	13.26287	0.2146613	0.23502559	2.6005145	20	10 10.9	17.5
96959 1999 TT_{184}	14.8	X	278.77324	119.47385	312.01590	12.89177	0.1607968	0.23326513	2.6135822	20	9 16.6	18.2
96960 1999 TV_{184}	15.0	X	267.68480	42.94115	286.94087	13.38674	0.1237727	0.22140915	2.7060698	20	4 20.9	19.3

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Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
96961 1999 TZ_{184}	15.2	X	322.92550	31.29259	326.69175	14.47885	0.1079784	0.23143277	2.6273594	20	8 29.7	18.0
96962 1999 TK_{185}	14.7	X	215.03210	20.21819	274.30451	7.03452	0.1970926	0.21065681	2.7973859	20	1 19.5	19.5
96963 1999 TR_{186}	14.5	X	231.14868	192.41496	269.97819	12.70196	0.1327339	0.23039375	2.6352526	20	8 28.4	18.7
96964 1999 TF_{187}	14.4	X	188.15751	231.22516	261.36387	11.36950	0.1223433	0.22867123	2.6484698	20	8 22.7	18.7
96965 1999 TC_{188}	15.1	X	324.57443	52.35077	342.43648	12.91833	0.1705642	0.23498018	2.6008495	20	10 20.8	17.8
96966 1999 TG_{188}	15.0	X	335.39618	355.75434	346.06292	13.92708	0.2597933	0.23196282	2.6233554	20	8 30.2	16.6
96967 1999 TG_{189}	14.5	X	253.17366	91.18833	347.11088	12.45857	0.0811303	0.23025756	2.6362916	20	9 7.9	18.1
96968 1999 TP_{189}	14.8	X	113.81826	157.62986	293.99484	7.62932	0.1185815	0.21313435	2.7756652	20	4 15.1	18.9
96969 1999 TE_{190}	14.5	X	241.28537	63.89562	312.07053	8.99674	0.1015920	0.22150082	2.7053232	20	5 26.7	18.6
96970 1999 TO_{192}	15.2	X	344.72497	87.72145	274.08729	7.21982	0.0521999	0.23320200	2.6140539	20	10 9.1	18.5
96971 1999 TB_{193}	14.9	X	135.35771	119.10854	338.26984	8.10120	0.2570024	0.21440019	2.7647292	20	5 28.9	19.8
96972 1999 TE_{193}	14.3	X	107.96354	317.93011	253.51137	15.64408	0.0596798	0.18101346	3.0950105	20	8 27.6	19.2
96973 1999 TN_{193}	14.5	X	83.38259	245.96671	8.30845	13.37294	0.1199259	0.23236155	2.6203534	20	10 12.2	18.3
96974 1999 TL_{194}	15.3	X	195.45134	130.20366	286.20061	7.55620	0.1520444	0.21917462	2.7244314	20	5 28.0	19.8
96975 1999 TA_{197}	15.0	X	263.45435	107.04675	20.92785	14.58662	0.1313653	0.23568123	2.5956894	20	11 16.9	18.4
96976 1999 TG_{197}	14.9	X	147.87215	23.18244	20.55236	6.15461	0.0185304	0.21078984	2.7962088	20	3 19.4	18.8
96977 1999 TH_{197}	14.4	X	166.91668	110.55176	9.74713	12.80582	0.0589950	0.22232764	2.6986118	20	7 25.9	18.5
96978 1999 TW_{197}	14.7	X	244.21218	133.85338	21.72170	13.81714	0.1156436	0.23637718	2.5905920	20	11 29.2	18.2
96979 1999 TZ_{197}	15.0	X	88.24068	301.87584	21.18431	15.56116	0.0746308	0.24080693	2.5587237	20	—	—
96980 1999 TM_{198}	14.9	X	143.52806	221.79009	37.79595	15.93422	0.0694311	0.23861850	2.5743443	20	12 20.7	18.9
96981 1999 TB_{201}	15.4	X	247.84453	218.85286	176.90854	11.78402	0.1870065	0.22924776	2.6440276	20	6 20.9	19.6
96982 1999 TA_{209}	14.9	X	238.05903	38.01641	309.04804	14.83461	0.2058589	0.21913888	2.7247276	20	3 31.9	19.8
96983 1999 TH_{210}	15.2	X	307.18489	37.74400	320.30615	10.66315	0.2751322	0.22786012	2.6547513	20	7 9.9	18.1
96984 1999 TT_{211}	15.1	X	81.03630	234.95722	104.62023	4.25572	0.0155069	0.24317911	2.5420565	20	—	—
96985 1999 TT_{212}	15.0	X	98.03821	143.98164	349.42639	5.68717	0.1985169	0.21595806	2.7514171	20	6 2.9	19.1
96986 1999 TK_{213}	14.6	X	330.62094	17.95217	201.54627	16.21260	0.0486017	0.21530839	2.7569491	20	3 4.6	18.4
96987 1999 TS_{213}	15.4	X	214.48712	93.14750	20.61894	10.02582	0.0966003	0.23095383	2.6309905	20	9 8.1	19.2
96988 1999 TP_{214}	15.7	X	327.21610	143.88194	186.30239	3.74011	0.1631936	0.22915021	2.6447779	20	7 23.6	18.3
96989 1999 TA_{215}	14.8	X	88.69502	331.98376	75.73465	3.19696	0.0649315	0.20566994	2.8424238	20	1 16.6	18.5
96990 1999 TQ_{215}	15.4	X	191.65139	339.97930	117.10452	2.98984	0.2084241	0.22274360	2.6952511	20	7 13.7	19.9
96991 1999 TW_{216}	15.3	X	194.64182	103.12202	235.41407	5.59981	0.1305700	0.21141051	2.7907333	20	2 20.9	19.9
96992 1999 TM_{217}	16.3	X	116.35524	177.23988	160.41186	2.90826	0.1432681	0.29655522	2.2270621	20	—	—
96993 1999 TW_{219}	14.8	X	259.45685	134.22054	345.11691	13.09645	0.1181134	0.23749075	2.5824877	20	10 30.9	18.3
96994 1999 TB_{220}	15.0	X	315.44172	2.60133	238.07441	8.15757	0.0814739	0.21581254	2.7526538	20	3 6.3	18.8
96995 1999 TH_{220}	15.3	X	298.22286	69.98665	8.56852	15.53842	0.0316322	0.23785182	2.5798734	20	11 12.8	18.8
96996 1999 TY_{220}	14.9	X	220.91634	46.74422	262.01203	6.75951	0.2081689	0.21506067	2.7590657	20	2 7.4	19.7
96997 1999 TF_{225}	16.7	X	265.56972	256.17372	189.92733	4.17475	0.1800080	0.23517444	2.5994171	20	9 20.0	19.8
96998 1999 TX_{225}	15.8	X	48.23374	213.42461	352.05569	1.83835	0.1598110	0.26766927	2.3845351	20	6 30.5	18.1
96999 1999 TB_{230}	15.3	X	132.27722	194.34936	244.52076	8.08539	0.1389958	0.21550526	2.7552698	20	4 23.8	19.5
97000 1999 TB_{233}	14.8	X	314.33720	313.60609	116.09503	15.31890	0.0853524	0.23604405	2.5930288	20	12 2.1	18.0
97001 1999 TW_{238}	15.2	X	128.95632	3.43225	79.73337	6.12716	0.1347825	0.21463607	2.7627033	20	4 28.8	19.4
97002 1999 TX_{240}	15.3	X	112.11422	329.32533	95.12350	7.06334	0.0243036	0.21077214	2.7963654	20	3 3.6	19.2
97003 1999 TZ_{240}	15.4	X	193.24007	184.03112	163.07545	6.88120	0.0563044	0.21193584	2.7861197	20	3 2.3	19.2
97004 1999 TS_{241}	14.7	X	166.70750	44.93490	66.59425	11.21773	0.1342443	0.22177810	2.7030678	20	7 10.9	19.0
97005 1999 TT_{243}	15.1	X	85.61098	145.16748	230.92396	1.19502	0.0146199	0.20119771	2.8843903	20	—	—
97006 1999 TS_{246}	15.8	X	180.56143	147.76462	204.33734	3.35891	0.0618755	0.21399051	2.7682568	20	2 22.4	19.8
97007 1999 TU_{250}	15.4	X	268.63708	211.77636	248.74486	8.02156	0.0807972	0.23710287	2.5853034	20	10 28.9	18.6
97008 1999 TX_{251}	15.2	X	264.66789	11.43847	44.40416	13.86645	0.1409864	0.23008187	2.6376335	20	8 21.7	18.9
97009 1999 TN_{253}	16.0	X	112.23472	57.92545	349.79640	1.42071	0.1156953	0.21094405	2.7948459	20	2 21.7	19.7
97010 1999 TK_{256}	15.3	X	271.94738	85.14693	189.11689	5.89121	0.0261778	0.21555077	2.7548820	20	3 3.9	19.0
97011 1999 TS_{256}	15.8	X	277.08171	238.15081	185.50163	2.41396	0.0872504	0.23395572	2.6084365	20	9 21.0	18.9
97012 1999 TC_{260}	16.0	X	188.69980	4.75522	348.38614	2.17375	0.1977198	0.21253876	2.7808483	20	3 7.2	20.7
97013 1999 TJ_{260}	15.6	X	315.38105	297.45533	36.45197	0.43742	0.1822677	0.17956376	3.1116465	20	6 30.7	19.0
97014 1999 TV_{260}	15.1	X	307.55727	355.04753	22.84096	13.79168	0.1769723	0.23016265	2.6370164	20	9 1.6	18.0
97015 1999 TR_{262}	14.5	X	266.75042	138.10491	279.70259	14.30546	0.1295456	0.23014894	2.6371211	20	8 15.4	18.2
97016 1999 TS_{262}	14.1	X	321.71631	33.32620	327.18257	14.71887	0.1467874	0.23078310	2.6322878	20	8 28.7	16.9
97017 1999 TJ_{263}	15.5	X	154.96749	16.56345	212.29187	3.58542	0.1185239	0.23898729	2.5716953	20	11 25.3	19.5
97018 1999 TB_{271}	15.2	X	242.00981	330.46514	331.24427	7.14195	0.1421642	0.26222467	2.4174287	20	2 18.3	18.9
97019 1999 TW_{274}	16.1	X	274.90660	108.57693	321.78865	3.71824	0.1553061	0.23491138	2.6013573	20	9 15.5	19.3
97020 1999 TX_{278}	14.4	X	37.69837	34.60376	50.04157	16.67987	0.0526072	0.19953816	2.9003611	20	—	—
97021 1999 TJ_{279}	14.5	X	115.39725	268.43287	281.92192	14.13269	0.0371050	0.22770505	2.6559564	20	8 14.3	18.4
97022 1999 TT_{279}	14.7	X	271.87941	185.41029	128.90445	1.76304	0.1649858	0.17450567	3.1714876	20	4 9.6	19.5
97023 1999 TZ_{280}	15.4	X	292.70218	229.57664	162.90548	13.87792	0.1727335	0.23198171	2.6232130	20	8 18.3	18.5
97024 1999 TS_{283}	15.2	X	257.70058	293.11501	182.11272	9.30823	0.1327768	0.23453665	2.6041274	20	10 27.9	18.6
97025 1999 TK_{284}	15.2	X	252.09706	25.93858	63.94422	14.56981	0.1391656	0.23041121	2.6351195	20	9 21.7	19.0
97026 1999 TF_{287}	15.6	X	284.57177	59.34877	251.79450	4.34499	0.0530214	0.22094847	2.7098300	20	5 3.2	19.1
97027 1999 TJ_{289}	15.4	X	289.91599	314.73017	116.22441	4.82965	0.1011298	0.23349417	2.6118728	20	10 21.9	18.4
97028 1999 TA_{292}	15.0	X	159.20301	240.99342	265.91749	4.09895	0.1308337	0.22593145	2.6698381	20	8 15.6	19.3
97029 1999 TT_{323}	15.0	X	284.20975	47.70731	295.40517	12.03511	0.1602576	0.22422921	2.6833332	20	5 28.8	18.8
97030 1999 UA_{2}	15.5	X	12.48132	98.26437	228.37243	2.49422	0.2972749	0.23576008	2.5951106	20	11 13.2	18.2
97031 1999 UW_{2}	14.2	X	263.24197	121.04621	28.66415	14.27541	0.0931657	0.23916039	2.5704543	20	12 25.8	17.6
97032 1999 UL_{3}	14.8	X	152.73782	67.21141	2.03109	7.96325	0.2251095	0.21449802	2.7638886	20	5 6.1	19.6
97033 1999 UW_{3}	15.7	X	8.79708	259.62652	124.63970	2.27199	0.1689548	0.24047995	2.5610426	20	—	—
97034 1999 UK_{7}	14.7	X	319.14880	202.23849	336.89557	24.18540	0.2673110	0.39070772	1.8531108	20	—	—
97035 1999 UB_{8}	15.2	X	320.40465	303.39491	40.38365	2.70337	0.2403830	0.22905670	2.6454977	20	7 22.3	17.4
97036 1999 UR_{8}	14.9	X	215.86759	230.48215	246.41757	2.98497	0.0829227	0.22873746	2.6479585	20	9 9.6	18.6
97037 1999 US_{8}	14.9	X	187.37963	66.07885	40.48168	14.24086	0.1431854	0.22251258	2.6971163	20	7 28.3	19.5
97038 1999 UX_{14}	14.9	X	197.47471	113.67797	41.14835	12.74146	0.0989674	0.23257071	2.6187821	20	10 11.5	18.7
97039 1999 UB_{15}	15.5	X	8.35362	347.28833	49.71502	5.08037	0.0819935	0.24081396	2.5586739	20	—	—
97040 1999 UJ_{15}	14.3	X	144.54317	168.67682	46.61559	11.80487	0.1412067	0.23470540	2.6028791	20	10 29.7	18.3

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
97041 1999 UT_{15}	15.5	X	248.90972	237.99389	161.91450	5.01377	0.1418062	0.22481693	2.6786546	20	7 2.6	19.3
97042 1999 UM_{19}	15.5	X	142.93122	4.05971	202.50942	4.31821	0.1081895	0.18582211	3.0413831	20	10 9.2	20.1
97043 1999 UE_{24}	14.6	X	177.27668	79.36717	332.03432	6.13989	0.1962922	0.21707874	2.7419394	20	5 3.8	19.3
97044 1999 UL_{26}	15.3	X	238.93295	34.43476	353.63625	3.27052	0.2578581	0.22313320	2.6921128	20	5 25.3	19.8
97045 1999 UY_{29}	16.3	X	273.27045	37.10450	67.28983	1.69712	0.1014033	0.23761614	2.5815791	20	11 9.2	19.2
97046 1999 UF_{30}	16.0	X	348.54468	242.42193	45.74155	3.62986	0.0576403	0.22622654	2.6675159	20	7 6.9	19.2
97047 1999 UN_{35}	14.9	X	314.92891	284.74019	140.72587	10.43795	0.1641974	0.23560022	2.5962843	20	11 25.5	17.6
97048 1999 US_{42}	15.0	X	216.26495	216.63589	245.15510	11.00587	0.1605563	0.22751684	2.6574209	20	8 10.1	19.3
97049 1999 UK_{44}	15.0	X	293.34504	322.26840	34.43133	12.63819	0.1243812	0.22531395	2.6747139	20	7 8.9	18.6
97050 1999 UD_{45}	15.3	X	273.87498	52.42736	299.10682	10.71439	0.2052250	0.22528651	2.6749311	20	5 18.7	19.3
97051 1999 UO_{49}	14.9	X	294.80315	209.17395	247.39468	8.04491	0.1314499	0.24065259	2.5598176	20	12 1.5	17.5
97052 1999 UV_{49}	15.3	X	177.58146	7.66935	83.94932	6.36284	0.1321958	0.22049899	2.7135113	20	6 25.5	19.6
97053 1999 UY_{49}	15.7	X	321.41165	325.83787	115.62705	2.79444	0.0931683	0.23922688	2.5699780	20	12 27.2	18.3
97054 1999 UO_{50}	16.1	X	27.89245	215.01861	116.89456	4.62664	0.2569733	0.23750724	2.5823681	20	12 6.9	19.5
97055 1999 UE_{52}	15.4	X	235.20624	262.88588	182.14735	11.32336	0.1629477	0.22669614	2.6638307	20	8 10.7	19.4
97056 1999 UL_{52}	14.8	X	359.51322	245.16072	77.68524	15.97322	0.1249020	0.23040482	2.6351682	20	9 27.8	18.1
97057 1999 UY_{52}	15.1	X	289.07072	296.88583	88.52541	14.83331	0.1563841	0.22763253	2.6565205	20	8 8.9	18.5
97058 1999 UA_{59}	14.4	X	68.93478	232.80910	271.73371	11.79343	0.0581357	0.21365279	2.7711732	20	4 16.0	18.3
97059 1999 VU_{3}	15.0	X	73.45761	253.38752	92.96905	3.08443	0.1097436	0.19419345	2.9533369	20	—	—
97060 1999 VF_{4}	15.7	X	184.79648	285.41331	135.59873	3.80653	0.1720133	0.21958682	2.7210209	20	5 25.3	20.2
97061 1999 VE_{5}	14.4	X	269.44507	11.71486	60.05944	14.66249	0.1347881	0.23031378	2.6358626	20	9 22.2	18.0
97062 1999 VZ_{5}	13.6	X	341.31383	346.23981	80.27869	11.82561	0.0868106	0.19006879	2.9959105	20	12 22.1	17.3
97063 1999 VK_{14}	16.4	X	337.65755	67.50328	50.21253	24.50380	0.0978532	0.38664433	1.8660715	20	—	—
97064 1999 VF_{16}	15.4	X	165.64883	37.64877	325.45780	2.55306	0.0777277	0.21048146	2.7989393	20	2 21.9	19.4
97065 1999 VV_{20}	14.3	X	72.79344	38.66324	56.24327	15.88189	0.1119428	0.20500669	2.8485512	20	3 10.0	18.3
97066 1999 VC_{21}	15.5	X	203.42233	31.55382	79.02923	2.21363	0.1486570	0.22445457	2.6815367	20	8 14.6	19.6
97067 1999 VL_{21}	15.6	X	219.17653	231.52500	167.24830	3.54278	0.1923350	0.22121116	2.7076843	20	5 27.4	20.0
97068 1999 VT_{21}	15.9	X	281.49346	241.11293	105.06337	4.09359	0.2905224	0.22472552	2.6793809	20	5 12.2	19.6
97069 Stek	15.2	X	137.87788	333.49490	238.84817	8.64492	0.0627218	0.23358332	2.6112082	20	10 14.8	19.1
97070 1999 VK_{26}	14.1	X	25.73575	204.95029	62.12687	17.75536	0.1107671	0.17566454	3.1575239	20	8 11.9	18.5
97071 1999 VO_{27}	14.5	X	113.92357	51.68203	16.72402	7.19324	0.1202074	0.21051399	2.7986510	20	3 22.2	18.4
97072 1999 VU_{27}	16.1	X	17.34924	84.04914	241.44701	4.06834	0.1351282	0.28196093	2.3032624	20	11 3.4	18.6
97073 1999 VW_{28}	15.4	X	136.79788	78.60457	32.50393	2.06932	0.1950862	0.21534368	2.7566479	20	6 13.7	19.8
97074 1999 VR_{30}	14.8	X	308.47722	206.60812	215.61242	0.84776	0.0748747	0.18552250	3.0446566	20	10 28.0	18.4
97075 1999 VF_{32}	14.6	X	85.21626	245.10840	51.78015	12.11531	0.1111691	0.18911495	3.0059758	20	11 27.8	19.0
97076 1999 VT_{32}	15.4	X	94.04852	66.51759	55.19543	4.75787	0.0494074	0.21254881	2.7807606	20	4 24.3	19.1
97077 1999 VG_{33}	14.5	X	113.11882	339.68080	243.18087	9.30036	0.0533761	0.18078566	3.0976099	20	9 19.9	19.2
97078 1999 VS_{33}	15.7	X	356.40595	267.11956	117.06336	0.89525	0.1416402	0.23586523	2.5943392	20	12 10.6	18.5
97079 1999 VO_{36}	13.3	X	196.56808	52.21981	64.71189	13.59784	0.1473211	0.22316126	2.6918872	20	8 21.0	17.8
97080 1999 VZ_{36}	15.3	X	285.80898	317.82649	66.99232	3.83898	0.0752239	0.22490468	2.6779577	20	8 13.6	18.6
97081 1999 VW_{38}	15.4	X	330.48963	322.85032	48.77944	1.81926	0.0862073	0.23062304	2.6335057	20	10 4.9	18.4
97082 1999 VW_{39}	15.1	X	267.38824	318.37424	32.62619	12.18494	0.2022852	0.22444009	2.6816520	20	5 11.1	19.0
97083 1999 VS_{44}	15.9	X	322.30283	86.59713	301.53739	4.48925	0.2287048	0.23436688	2.6053849	20	10 7.3	18.1
97084 1999 VJ_{45}	15.0	X	167.88450	337.34202	19.80739	9.03813	0.1796125	0.21066061	2.7973522	20	2 26.6	19.6
97085 1999 VM_{47}	15.0	X	216.53463	77.65749	1.79952	21.87991	0.0945830	0.22491769	2.6778545	20	8 1.7	19.3
97086 1999 VH_{49}	15.3	X	217.04462	261.39542	15.25915	6.23612	0.1299459	0.25300023	2.4758374	20	—	—
97087 1999 VQ_{50}	14.7	X	52.22749	338.24104	45.10247	12.73246	0.0631764	0.19494499	2.9457417	20	—	—
97088 1999 VC_{54}	15.5	X	342.14246	316.96162	35.13857	5.34105	0.1084372	0.23235191	2.6204259	20	9 29.2	18.2
97089 1999 VY_{56}	15.3	X	39.42501	219.69671	175.72723	2.14876	0.1150887	0.19652323	2.9299494	20	—	—
97090 1999 VM_{57}	15.6	X	98.57082	155.15656	282.98836	0.76861	0.0484778	0.20969072	2.8059714	20	3 3.9	19.3
97091 1999 VF_{59}	15.5	X	237.82531	172.93954	227.78217	2.19133	0.0954797	0.22231646	2.6987023	20	6 26.5	19.4
97092 1999 VP_{59}	15.9	X	262.75444	61.84478	312.18624	0.70424	0.0882398	0.22291025	2.6939075	20	6 23.3	19.4
97093 1999 VQ_{59}	14.9	X	43.12207	101.14736	43.83541	10.48248	0.0825820	0.20938304	2.8087196	20	3 22.7	18.5
97094 1999 VZ_{59}	15.2	X	230.94630	172.85117	293.76040	0.41442	0.1195927	0.18207988	3.0829140	20	9 5.6	19.8
97095 1999 VA_{61}	14.9	X	71.88112	307.97497	50.68487	12.76847	0.0704660	0.19618646	2.9333014	20	—	—
97096 1999 VC_{61}	15.2	X	108.27809	301.94422	59.85375	2.72025	0.0886759	0.20157606	2.8807799	20	—	—
97097 1999 VD_{65}	15.7	X	160.55601	237.44377	221.95910	3.05223	0.1761313	0.21791173	2.7349474	20	6 19.7	20.3
97098 1999 VF_{66}	15.1	X	297.44307	333.37766	53.69243	16.19312	0.1227401	0.22904340	2.6456001	20	9 6.7	18.6
97099 1999 VN_{67}	15.7	X	117.21692	279.57980	196.59504	1.04811	0.2458328	0.21297075	2.7770865	20	6 6.5	20.2
97100 1999 VP_{67}	15.2	X	315.56854	103.77885	55.77285	10.65532	0.1513206	0.24583220	2.5237338	20	—	—
97101 1999 VU_{67}	13.9	X	130.74340	140.63323	57.64010	12.56323	0.1257352	0.22742477	2.6581381	20	9 29.4	18.2
97102 1999 VY_{69}	14.8	X	228.15302	138.89927	42.99944	12.05388	0.0808970	0.19151536	2.9808055	20	12 8.2	19.1
97103 1999 VB_{70}	15.5	X	274.28839	33.46686	49.60165	13.01105	0.0169607	0.23324203	2.6137548	20	10 25.5	18.9
97104 1999 VM_{71}	15.5	X	136.21790	308.41689	36.06409	2.40254	0.0741104	0.20301638	2.8671384	20	—	—
97105 1999 VP_{71}	15.4	X	154.30860	103.18310	52.23864	14.29099	0.0805038	0.22526133	2.6751303	20	8 30.3	19.7
97106 1999 VU_{71}	15.2	X	34.82194	353.33920	65.97824	2.76576	0.0798500	0.19714188	2.9238165	20	—	—
97107 1999 VC_{74}	16.0	X	270.66329	61.69517	221.11724	3.56401	0.0310541	0.21327824	2.7744167	20	3 12.4	19.7
97108 1999 VM_{78}	15.6	X	177.65341	163.53154	260.57891	3.92531	0.1025277	0.21875801	2.7278893	20	5 21.0	19.6
97109 1999 VD_{79}	15.6	X	237.64489	152.02740	279.66863	2.51955	0.0895922	0.22661568	2.6644613	20	8 7.2	19.4
97110 1999 VB_{82}	16.1	X	76.80266	298.45013	63.19734	1.50296	0.1219666	0.24701985	2.5156380	20	—	—
97111 1999 VJ_{83}	15.6	X	319.17333	206.77272	77.23490	4.03681	0.0806885	0.21831755	2.7315571	20	5 13.5	18.8
97112 1999 VW_{83}	15.2	X	241.84145	192.96712	258.84914	1.75688	0.0771089	0.23051285	2.6343448	20	9 10.3	18.7
97113 1999 VM_{86}	16.1	X	166.65924	241.82320	175.19015	9.92838	0.2716660	0.21454975	2.7634442	20	5 8.4	21.1
97114 1999 VK_{87}	15.5	X	176.51898	91.71165	15.46549	6.24661	0.2186599	0.22078490	2.7111683	20	7 14.7	20.2
97115 1999 VG_{90}	15.9	X	30.79415	300.07753	32.57282	4.48721	0.1787472	0.23820594	2.5773159	20	11 28.8	19.1
97116 1999 VJ_{90}	14.8	X	245.27858	79.77484	87.64877	1.23449	0.0686301	0.24199446	2.5503460	20	12 28.1	17.8
97117 1999 VJ_{94}	15.4	X	290.45420	21.62156	41.12049	2.28827	0.0743081	0.23425807	2.6061916	20	10 12.6	18.4
97118 1999 VS_{94}	15.3	X	123.93556	44.45555	25.72783	4.29892	0.0888872	0.21291663	2.7775571	20	3 31.4	19.3
97119 1999 VT_{94}	14.9	X	212.64656	169.31861	27.28609	6.28998	0.1032916	0.24179412	2.5517545	20	12 17.9	18.4
97120 1999 VX_{94}	15.7	X	200.13361	244.73533	221.44112	1.74088	0.1267809	0.22630328	2.6669128	20	8 5.8	19.8

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Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
97121 1999 VK_{97}	16.2	X	54.48553	109.14104	225.77253	3.03297	0.1257171	0.23965423	2.5669219	20	12 23.9	19.8
97122 1999 VM_{98}	15.2	X	122.34627	30.47094	272.19448	0.80685	0.0963704	0.19583033	2.9368567	20	—	—
97123 1999 VT_{98}	16.2	X	133.23510	234.59705	52.92730	2.48785	0.0205218	0.24203453	2.5500645	20	—	—
97124 1999 VD_{101}	14.9	X	127.32363	217.56572	45.39698	2.12975	0.0557051	0.18951612	3.0017322	20	11 28.5	19.2
97125 1999 VG_{102}	15.4	X	155.98856	161.15436	56.55010	14.08175	0.1254628	0.23436850	2.6053729	20	11 12.2	19.4
97126 1999 VR_{105}	14.9	X	50.51518	56.30966	237.93495	8.83228	0.0670955	0.18342798	3.0677902	20	10 6.9	19.3
97127 1999 VW_{107}	14.8	X	145.74793	96.38961	63.74467	4.91200	0.0637210	0.17588593	3.1548737	20	8 16.2	19.6
97128 1999 VH_{108}	15.6	X	121.55956	326.74375	233.76451	10.61759	0.1183252	0.22548608	2.6733525	20	9 11.3	19.9
97129 1999 VB_{110}	15.4	X	101.47249	67.13033	209.65403	1.29322	0.1234610	0.23602843	2.5931432	20	12 1.1	19.3
97130 1999 VN_{110}	14.9	X	113.03450	193.77085	54.36511	7.74283	0.1295375	0.18436121	3.0574288	20	10 31.9	19.6
97131 1999 VV_{111}	14.9	X	203.83805	98.94119	51.04760	4.00675	0.0402282	0.18209084	3.0827903	20	10 8.5	19.3
97132 1999 VQ_{114}	14.7	X	289.87097	105.09064	354.59020	11.85960	0.2214346	0.23642838	2.5902179	20	11 9.7	17.4
97133 1999 VF_{115}	15.2	X	206.89760	81.70929	352.48366	14.24398	0.0831552	0.22360839	2.6882974	20	7 9.1	19.4
97134 1999 VG_{115}	14.7	X	137.46479	227.95554	258.85472	13.23073	0.1160560	0.22056862	2.7129403	20	6 28.4	18.9
97135 1999 VJ_{115}	14.9	X	172.38061	269.62165	345.93049	13.56354	0.1792300	0.24595351	2.5229039	20	—	—
97136 1999 VW_{115}	16.1	X	193.35684	156.74769	161.46119	2.05905	0.0711180	0.20600090	2.8393786	20	1 28.1	20.4
97137 1999 VW_{121}	15.7	X	300.94912	24.40247	170.03008	2.09705	0.0092168	0.20261929	2.8708832	20	1 5.7	19.6
97138 1999 VX_{123}	14.5	X	192.77047	327.67398	225.17461	12.48942	0.1532033	0.18613086	3.0380188	20	11 7.4	19.1
97139 1999 VA_{130}	15.8	X	204.78167	28.34032	19.26787	4.70434	0.0644507	0.22022221	2.7157845	20	5 29.8	19.9
97140 1999 VX_{132}	16.2	X	38.99413	56.43147	210.32046	3.39336	0.2274365	0.28246850	2.3005025	20	9 28.4	18.7
97141 1999 VT_{133}	15.3	X	183.59694	289.02322	218.98171	11.63354	0.2226339	0.22749961	2.6575551	20	9 3.7	20.0
97142 1999 VJ_{141}	15.0	X	53.40325	322.82051	34.18355	4.90131	0.0961341	0.19341658	2.9612399	20	—	—
97143 1999 VW_{142}	16.1	X	267.14162	116.27859	13.34681	4.03806	0.0532754	0.23894887	2.5719710	20	12 9.7	19.3
97144 1999 VM_{143}	14.6	X	169.03777	135.74757	47.88984	25.68727	0.1709500	0.22927474	2.6438201	20	10 19.6	19.1
97145 1999 VX_{144}	13.4	X	25.17663	49.75065	313.78815	14.34319	0.1277632	0.24091503	2.5579583	20	12 26.7	16.9
97146 1999 VR_{147}	15.1	X	191.37907	285.99391	268.41178	3.75295	0.1139011	0.23883654	2.5727773	20	11 19.2	18.8
97147 1999 VY_{148}	15.5	X	218.05355	217.15877	96.67352	3.80539	0.0719187	0.20822513	2.8191226	20	2 18.9	19.7
97148 1999 VY_{151}	15.3	X	109.16252	199.95025	66.42083	6.97292	0.1257469	0.23632919	2.5909427	20	11 26.1	19.4
97149 1999 VM_{155}	15.1	X	32.14583	122.62454	19.40964	9.54567	0.1033009	0.20905395	2.8116665	20	3 1.8	18.5
97150 1999 VW_{156}	13.5	X	57.52751	167.76917	62.16946	14.51340	0.0948843	0.17308008	3.1888786	20	8 5.0	18.1
97151 1999 VA_{159}	16.1	X	319.94402	352.61964	7.64958	3.78813	0.3064402	0.23125018	2.6287422	20	8 8.4	18.0
97152 1999 VU_{160}	15.8	X	214.65474	112.10652	334.52757	1.85998	0.1022795	0.22451483	2.6810568	20	7 29.9	19.8
97153 1999 VR_{161}	15.7	X	160.56257	118.10639	271.38791	3.26324	0.0766556	0.21105220	2.7938910	20	3 18.1	19.9
97154 1999 VA_{162}	14.7	X	105.14321	139.85097	35.86038	13.69283	0.1709052	0.22025922	2.7154803	20	8 7.9	19.1
97155 1999 VE_{163}	14.8	X	167.83907	228.81006	37.40396	14.69296	0.1535491	0.24564326	2.5250277	20	—	—
97156 1999 VT_{163}	15.0	X	297.67406	121.60653	15.38130	2.08735	0.0537708	0.19517563	2.9434206	20	—	—
97157 1999 VP_{165}	15.2	X	271.30379	21.63167	40.74234	11.59892	0.0475193	0.22919072	2.6444663	20	9 21.9	18.7
97158 1999 VV_{166}	15.0	X	68.81327	228.40832	354.16428	2.81749	0.0384847	0.22288660	2.6940981	20	8 2.7	18.5
97159 1999 VP_{172}	14.4	X	8.48873	9.58500	67.76049	11.60243	0.0684490	0.19267154	2.9688688	20	—	—
97160 1999 VE_{182}	15.5	X	125.91007	120.46275	66.71426	4.77089	0.1315708	0.22441542	2.6818485	20	9 6.6	19.7
97161 1999 VV_{182}	15.3	X	229.59985	69.32616	43.73387	1.27265	0.1412414	0.18047884	3.1011196	20	9 10.1	19.8
97162 1999 VW_{184}	14.9	X	185.26172	139.82108	202.54662	16.98816	0.1257378	0.21106605	2.7937688	20	2 14.7	19.6
97163 1999 VO_{186}	13.8	X	197.08913	129.33087	65.61725	10.89429	0.1207993	0.18993069	2.9973626	20	11 17.8	18.3
97164 1999 VX_{186}	14.5	X	216.35244	194.95730	65.52339	11.54538	0.0688536	0.20184898	2.8781826	20	—	—
97165 1999 VG_{187}	15.3	X	100.42277	149.87085	156.09440	2.82188	0.0573786	0.24036232	2.5618780	20	—	—
97166 1999 VO_{187}	16.0	X	95.59013	31.82967	136.96310	2.85616	0.1191189	0.26642317	2.3919645	20	7 9.2	19.2
97167 1999 VG_{188}	15.2	X	166.84732	339.31810	125.42855	3.30206	0.1075710	0.21927247	2.7236208	20	7 1.2	19.2
97168 1999 VO_{188}	14.4	X	313.81659	22.90138	73.28328	12.34772	0.0816357	0.19057920	2.9905590	20	12 18.3	18.0
97169 1999 VZ_{192}	15.2	X	349.68624	82.49456	304.33987	4.87553	0.1062459	0.23834625	2.5763044	20	11 28.7	18.1
97170 1999 VP_{194}	15.2	X	225.51603	234.05958	134.32933	10.38935	0.2877794	0.21868705	2.7284794	20	4 23.8	20.2
97171 1999 VE_{195}	15.9	X	256.24819	296.72858	101.97844	3.23423	0.1127790	0.22590141	2.6700748	20	7 14.8	19.5
97172 1999 VM_{195}	15.7	X	349.06124	311.25921	63.82133	3.47125	0.1559521	0.23623139	2.5916577	20	11 17.1	18.1
97173 1999 VJ_{197}	14.9	X	90.45750	337.67119	87.26737	10.08095	0.2042640	0.20663972	2.8335237	20	3 5.2	18.8
97174 1999 VL_{199}	14.2	X	185.78886	73.80129	76.47460	12.33665	0.1293027	0.23100325	2.6306152	20	9 24.4	18.5
97175 1999 VT_{203}	14.9	X	334.47687	286.58338	68.48228	10.58281	0.2196779	0.23471674	2.6027952	20	9 26.2	17.2
97176 1999 VV_{210}	14.6	X	174.89528	319.41426	255.55940	9.58591	0.0468673	0.18921982	3.0048650	20	11 22.5	19.0
97177 1999 VG_{215}	15.6	X	30.78364	34.76113	315.89738	11.97584	0.1611837	0.23952371	2.5678543	20	12 21.2	19.1
97178 1999 VO_{216}	15.2	X	259.49089	47.69531	245.45091	8.85720	0.1547771	0.21387155	2.7692832	20	2 24.3	19.6
97179 1999 VF_{223}	14.8	X	232.79607	16.33274	97.61668	9.77566	0.0929692	0.18311099	3.0713297	20	9 25.3	19.4
97180 1999 VH_{224}	15.7	X	213.10746	223.28568	161.41702	7.76048	0.1553207	0.21690975	2.7433634	20	5 7.9	20.2
97181 1999 VV_{228}	15.5	X	356.72559	88.68665	304.35447	8.60834	0.0763894	0.23908638	2.5709847	20	12 15.7	18.7
97182 1999 WC	14.0	X	112.86374	303.15862	348.71459	13.00691	0.1643262	0.24141284	2.5544406	20	—	—
97183 1999 WR_1	14.6	X	58.37601	304.94780	49.21528	22.68287	0.0223032	0.24112962	2.5564404	20	—	—
97184 1999 WG_3	15.2	X	33.08359	2.51646	87.19463	3.19457	0.0484326	0.20004155	2.8954934	20	—	—
97185 1999 WR_4	14.3	X	41.87761	329.25108	57.95897	11.29444	0.0480015	0.19231136	2.9725746	20	—	—
97186 Tore	14.4	X	68.99516	222.97356	96.19721	12.37764	0.0778856	0.18825083	3.0151675	20	12 5.1	18.8
97187 1999 WL_{10}	14.8	X	20.04370	166.03409	34.04909	11.27907	0.0964780	0.21758848	2.7376554	20	4 24.8	17.8
97188 1999 WG_{12}	15.3	X	246.23997	329.28766	83.25315	6.16179	0.0314750	0.22236103	2.6983416	20	8 2.6	18.9
97189 1999 WV_{12}	15.5	X	162.85714	113.49366	185.29874	1.80462	0.1160089	0.19911981	2.9044221	20	—	—
97190 1999 WY_{14}	16.5	X	351.86484	71.98744	293.60584	0.54616	0.1334920	0.23667645	2.5884077	20	11 5.9	19.3
97191 1999 WD_{16}	15.8	X	356.31250	234.03870	80.92513	2.00116	0.1036379	0.22840946	2.6504930	20	8 29.9	18.6
97192 1999 WT_{16}	15.0	X	174.15001	3.10797	28.82310	9.94836	0.1687474	0.21575317	2.7531588	20	4 10.2	19.6
97193 1999 WV_{16}	16.3	X	291.91145	182.76832	218.20918	0.81141	0.1258889	0.23208601	2.6224270	20	9 6.5	19.4
97194 1999 WR_{20}	15.6	X	226.90930	89.58340	83.09091	4.71313	0.0946836	0.23593148	2.5938535	20	12 5.3	19.1
97195 1999 WC_{26}	15.2	X	274.82940	196.57158	77.13235	6.99263	0.1003267	0.21009537	2.8023673	20	3 2.1	19.3
97196 1999 XR_1	14.2	X	75.67397	93.15229	94.48394	25.54667	0.2555150	0.21106199	2.7938046	20	7 27.3	18.5
97197 1999 XB_3	14.9	X	336.59847	247.29717	173.12287	3.06475	0.0676413	0.18975639	2.9991978	20	12 7.2	18.6
97198 1999 XJ_3	15.1	X	115.42746	56.98919	98.28259	6.40796	0.1947722	0.21723568	2.7406186	20	7 19.9	19.5
97199 1999 XD_7	15.5	X	168.98809	78.38694	58.92435	13.57352	0.2057936	0.22147937	2.7054979	20	8 19.5	20.3
97200 1999 XK_8	14.9	X	267.70866	26.98825	87.07788	13.41419	0.1369537	0.23128914	2.6284470	20	11 11.3	18.2

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Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
97201 1999 XQ_{8}	14.7	X	212.50075	90.15144	261.66886	11.22359	0.2588941	0.21863426	2.7289186	20	3 17.5	19.8
97202 1999 XJ_{11}	15.2	X	171.56965	143.14792	281.77351	7.45585	0.0880480	0.21646985	2.7470787	20	5 14.2	19.4
97203 1999 XC_{15}	15.9	X	219.18477	43.02416	99.30199	27.60372	0.0686887	0.37260545	1.9126548	20	11 30.1	18.1
97204 1999 XC_{20}	14.9	X	156.45749	27.08160	58.00308	10.64359	0.1002159	0.21784995	2.7354645	20	5 25.3	19.0
97205 1999 XA_{22}	14.5	X	98.66590	282.31255	278.15574	8.29293	0.1376729	0.21366696	2.7710507	20	8 19.6	18.7
97206 1999 XE_{27}	15.2	X	49.69877	299.90572	57.35055	15.11959	0.1472545	0.24108867	2.5567299	20	—	—
97207 1999 XV_{30}	15.4	X	199.95167	303.14166	104.19176	3.16049	0.0790875	0.21736267	2.7395512	20	5 24.7	19.4
97208 1999 XK_{33}	16.3	X	129.89818	55.99203	112.47329	24.51197	0.0612275	0.36092591	1.9536976	20	8 30.2	19.0
97209 1999 XM_{36}	13.8	X	294.34318	11.03949	21.83515	15.02971	0.1206118	0.22966273	2.6408417	20	9 7.2	17.1
97210 1999 XX_{36}	14.9	X	196.73614	132.71642	286.86652	10.14142	0.2353885	0.21852216	2.7298518	20	5 31.1	19.7
97211 1999 XY_{36}	14.5	X	275.62257	40.65383	34.10539	14.80275	0.0722947	0.23099734	2.6306601	20	10 9.6	17.8
97212 1999 XT_{38}	14.9	X	64.51368	52.87807	49.81196	2.00140	0.0817580	0.20395422	2.8583424	20	2 24.9	18.4
97213 1999 XN_{40}	15.2	X	33.77664	34.56051	2.52164	1.58075	0.0928620	0.19517373	2.9434397	20	—	—
97214 1999 XW_{41}	16.3	X	207.03148	131.23944	265.98383	2.08120	0.2904775	0.21878040	2.7277032	20	5 10.4	21.3
97215 1999 XS_{45}	15.6	X	265.64338	353.82313	37.46973	3.51604	0.1213340	0.22452300	2.6809918	20	7 16.4	19.2
97216 1999 XW_{47}	15.5	X	185.76775	69.50670	66.38982	9.66805	0.2526067	0.22355153	2.6887533	20	8 28.9	20.4
97217 1999 XO_{48}	15.3	X	22.19783	153.74447	259.62644	1.06039	0.0886802	0.19437746	2.9514727	20	—	—
97218 1999 XS_{48}	15.4	X	188.13204	104.62834	325.65401	1.94381	0.1695435	0.21809316	2.7334304	20	6 7.8	19.9
97219 1999 XS_{49}	15.2	X	144.17339	186.69323	52.94390	2.34305	0.0945576	0.23495162	2.6010603	20	11 26.9	19.2
97220 1999 XW_{49}	14.9	X	86.24842	290.82939	59.24259	2.85064	0.0606016	0.19477779	2.9474272	20	—	—
97221 1999 XH_{50}	15.8	X	93.20855	249.87720	72.21620	4.22921	0.1719055	0.24194965	2.5506608	20	—	—
97222 1999 XK_{50}	14.4	X	24.69676	233.96468	69.13660	10.25012	0.1482309	0.18165694	3.0876974	20	10 1.8	18.4
97223 1999 XK_{51}	15.0	X	37.79314	93.61841	242.06128	1.30711	0.1061733	0.18704344	3.0281291	20	11 19.8	19.0
97224 1999 XG_{52}	15.6	X	263.21427	71.99280	309.58280	1.45835	0.1046573	0.22237714	2.6982113	20	7 1.7	19.1
97225 1999 XY_{53}	16.0	X	22.96463	156.86250	195.53525	2.53874	0.2408729	0.23701203	2.5859639	20	12 23.8	19.3
97226 1999 XC_{54}	14.1	X	146.02252	139.84787	71.86997	23.11857	0.0769000	0.18308304	3.0716423	20	10 27.7	19.1
97227 1999 XG_{54}	13.7	X	241.31451	106.49638	76.71315	11.63474	0.0518271	0.19160953	2.9798288	20	12 31.1	17.8
97228 1999 XW_{56}	14.4	X	292.23117	339.98906	74.62613	12.29243	0.0847123	0.18205522	3.0831924	20	9 30.1	18.7
97229 1999 XS_{57}	14.2	X	105.04740	171.43337	76.41822	16.96471	0.0435458	0.18265266	3.0764654	20	10 22.6	18.9
97230 1999 XE_{59}	15.2	X	255.27233	83.72346	253.17955	5.16050	0.1178228	0.21598427	2.7511945	20	4 20.6	19.4
97231 1999 XG_{60}	15.4	X	178.99839	90.69671	78.03934	13.75377	0.2090596	0.22619718	2.6677467	20	10 6.9	20.1
97232 1999 XO_{60}	15.3	X	200.52503	72.99419	80.06129	12.74830	0.1177576	0.22867455	2.6484442	20	10 13.4	19.5
97233 1999 XJ_{61}	15.3	X	136.18942	279.08109	240.03205	7.96175	0.2413620	0.21853895	2.7297119	20	8 11.1	20.1
97234 1999 XF_{62}	15.6	X	60.78167	201.02527	58.12306	5.80520	0.0603240	0.22681310	2.6629150	20	9 16.6	19.2
97235 1999 XO_{69}	14.5	X	200.80533	129.72968	79.36478	12.93292	0.0850166	0.23596344	2.5936193	20	12 20.7	18.1
97236 1999 XW_{75}	13.9	X	169.36247	284.70630	263.97133	24.38986	0.2163088	0.17812463	3.1283841	20	9 30.8	19.7
97237 1999 XT_{77}	14.3	X	183.08657	264.32629	234.73887	4.21120	0.1167368	0.17521702	3.1628980	20	8 25.0	19.4
97238 1999 XY_{79}	15.1	X	45.87611	84.45749	83.30731	8.14452	0.1068320	0.20928270	2.8096172	20	4 27.7	18.6
97239 1999 XP_{81}	15.3	X	71.70794	5.80268	108.79854	3.29781	0.1647325	0.20544096	2.8445355	20	4 3.3	18.8
97240 1999 XP_{84}	14.0	X	233.93027	63.13810	97.68676	11.45213	0.1956677	0.18208882	3.0828131	20	11 8.6	18.7
97241 1999 XR_{84}	15.0	X	135.45113	165.27139	281.73086	1.67179	0.1109197	0.20977859	2.8051878	20	5 6.0	19.2
97242 1999 XE_{88}	15.0	X	129.69174	174.92667	271.98382	7.87160	0.1394783	0.20955981	2.8071398	20	4 30.8	19.5
97243 1999 XG_{90}	14.7	X	307.79135	339.97875	97.48838	11.34100	0.0824505	0.18353732	3.0665717	20	11 17.6	18.7
97244 1999 XL_{90}	14.9	X	80.95606	284.90047	93.18656	8.92835	0.2706385	0.19663729	2.9288162	20	—	—
97245 1999 XW_{92}	14.9	X	3.46028	303.08307	140.44427	2.57084	0.1558597	0.19212283	2.9745189	20	—	—
97246 1999 XX_{93}	14.4	X	39.71851	292.75967	109.76039	14.60537	0.2451601	0.19263132	2.9692821	20	—	—
97247 1999 XC_{101}	14.8	X	340.39508	106.88916	289.62754	7.73762	0.1230379	0.18362106	3.0656393	20	11 10.4	18.5
97248 1999 XO_{106}	14.8	X	338.28308	119.89633	251.52783	12.90812	0.2162465	0.23461836	2.6035228	20	10 20.6	17.2
97249 1999 XT_{106}	14.8	X	156.40064	296.70318	235.41645	10.98692	0.1227798	0.22866606	2.6485098	20	9 10.8	19.1
97250 1999 XW_{107}	15.3	X	146.70256	119.15709	323.99079	2.17339	0.2328484	0.21459864	2.7630245	20	5 20.4	20.1
97251 1999 XX_{107}	15.8	X	226.61669	155.56175	252.01127	3.99465	0.2454790	0.22200090	2.7012590	20	6 9.7	20.4
97252 1999 XY_{107}	14.8	X	234.41235	47.49192	104.06520	2.53225	0.0119947	0.23700833	2.5859908	20	11 30.4	18.1
97253 1999 XT_{108}	15.4	X	306.15516	16.87877	4.60764	3.18229	0.1635171	0.22995032	2.6386393	20	8 30.3	17.9
97254 1999 XK_{112}	15.2	X	95.95898	152.30318	350.81157	6.41940	0.1348390	0.20970778	2.8058192	20	6 4.5	19.3
97255 1999 XS_{114}	13.8	X	100.92618	294.37148	4.27083	13.60129	0.1781316	0.24086751	2.5582947	20	12 31.8	18.2
97256 1999 XC_{115}	14.5	X	73.90631	13.91344	295.67595	13.96593	0.1249825	0.23885592	2.5726382	20	12 14.0	18.4
97257 1999 XE_{115}	14.9	X	145.36912	106.72160	77.47401	24.36272	0.0997130	0.36608220	1.9353090	20	10 23.2	17.9
97258 1999 XD_{116}	14.9	X	277.53860	99.40275	326.11231	5.48587	0.2449417	0.23042088	2.6350458	20	8 28.7	18.2
97259 1999 XF_{119}	15.9	X	171.37811	94.86921	347.85444	4.03565	0.1499899	0.21755049	2.7379741	20	6 7.7	20.4
97260 1999 XG_{119}	14.8	X	215.89947	69.11191	283.09482	6.47166	0.2382843	0.21566423	2.7539157	20	3 23.2	19.7
97261 1999 XT_{119}	14.9	X	119.87455	108.11771	7.87186	4.45670	0.1156602	0.21454136	2.7635163	20	5 25.8	19.0
97262 1999 XT_{121}	14.6	X	214.83276	163.40652	267.11216	12.50646	0.1541319	0.22251010	2.6971363	20	7 3.6	18.8
97263 1999 XC_{122}	15.1	X	315.23164	88.34029	322.51027	9.03550	0.0793584	0.23449107	2.6044649	20	10 30.2	18.3
97264 1999 XB_{125}	15.0	X	237.44334	52.38871	296.85802	8.35338	0.2313904	0.21814749	2.7329765	20	4 5.1	19.7
97265 1999 XM_{125}	14.4	X	321.08987	66.78622	37.06196	10.49255	0.0171937	0.19270406	2.9685347	20	—	—
97266 1999 XS_{126}	14.9	X	109.42642	41.45422	52.02757	13.55860	0.1160682	0.21013263	2.8020360	20	4 19.5	19.0
97267 1999 XC_{127}	15.1	X	138.52189	101.19482	307.90725	3.86962	0.1029743	0.20914880	2.8108163	20	3 20.9	19.4
97268 Serafinozani	15.3	X	4.33139	339.45811	12.89193	5.39982	0.2893459	0.23504377	2.6003804	20	12 2.2	18.0
97269 1999 XB_{130}	15.1	X	257.27313	348.12770	58.01981	13.98932	0.1487214	0.22364828	2.6879778	20	7 23.2	19.1
97270 1999 XK_{137}	14.6	X	161.47669	77.43099	80.29785	7.54487	0.1141609	0.17304957	3.1892535	20	8 31.9	19.7
97271 1999 XJ_{139}	15.4	X	221.07848	312.61528	29.68692	5.96360	0.0347048	0.21612037	2.7500393	20	3 29.7	19.3
97272 1999 XH_{140}	15.8	X	80.74052	277.22683	118.23341	3.11689	0.1176029	0.19581648	2.9369951	20	—	—
97273 1999 XZ_{140}	14.7	X	327.31923	127.80238	281.74290	8.22588	0.1181750	0.18255056	3.0776125	20	11 4.9	18.6
97274 1999 XG_{142}	13.8	X	272.88810	342.70997	77.61398	31.44095	0.1554886	0.22648113	2.6655165	20	9 17.8	18.0
97275 1999 XT_{142}	13.5	X	80.01861	215.51022	286.48914	30.05912	0.0443682	0.21037603	2.7998744	20	4 19.7	18.1
97276 1999 XC_{143}	14.3	X	68.98099	338.12286	85.38613	4.86476	0.1767374	0.25201592	2.4822798	20	1 12.2	16.5
97277 1999 XJ_{144}	13.9	X	250.61642	330.06301	66.14498	13.51942	0.1828209	0.21969206	2.7201518	20	6 23.9	18.0
97278 1999 XM_{144}	13.7	X	84.99693	99.33735	72.76832	16.00326	0.2108803	0.20996929	2.8034890	20	7 11.2	17.9
97279 1999 XT_{144}	14.2	X	230.65190	341.34580	104.43340	18.20145	0.0614606	0.17341628	3.1847559	20	8 19.9	19.0
97280 1999 XZ_{150}	14.4	X	261.65822	337.12176	64.18152	14.92147	0.2788462	0.22734264	2.6587782	20	7 1.2	18.5

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
97281 1999 XD_{151}	14.9	X	173.05636	332.77026	78.92787	11.06034	0.1805687	0.21700951	2.7425226	20	5 5.7	19.5
97282 1999 XQ_{152}	14.4	X	210.18238	328.75370	148.84181	6.08761	0.0571847	0.22820382	2.6520850	20	9 8.9	18.0
97283 1999 XH_{155}	14.7	X	197.31855	270.89258	207.94982	3.60985	0.1511585	0.17548891	3.1596303	20	8 13.2	19.8
97284 1999 XC_{159}	14.4	X	59.74673	11.64689	103.75790	10.53168	0.0681521	0.20388563	2.8589835	20	3 7.4	18.2
97285 1999 XE_{161}	14.5	X	337.01493	164.73040	322.56090	11.38353	0.0926317	0.19260300	2.9695731	20	—	—
97286 1999 XF_{162}	14.9	X	281.97904	61.33625	349.98320	13.89831	0.0535875	0.22608760	2.6686087	20	9 14.6	18.3
97287 1999 XP_{163}	14.9	X	119.06072	167.67352	110.12365	13.65537	0.1342915	0.18220074	3.0815505	20	12 11.2	19.9
97288 1999 XM_{164}	13.7	X	219.44462	75.41478	101.02216	17.54216	0.1895915	0.18002009	3.1063858	20	11 14.9	18.8
97289 1999 XR_{165}	16.1	X	159.45181	271.28619	298.89823	17.53973	0.0554898	0.37099752	1.9181771	20	12 7.7	18.4
97290 1999 XK_{167}	14.5	X	178.84433	134.26745	277.12532	9.14493	0.2564737	0.21523531	2.7575731	20	5 5.9	19.5
97291 1999 XL_{169}	14.4	X	199.77661	118.56512	16.78433	4.55717	0.1224589	0.17718617	3.1394206	20	9 8.9	19.2
97292 1999 XQ_{172}	14.5	X	208.48153	136.44860	73.44427	12.00726	0.0660490	0.18574335	3.0422427	20	12 20.9	18.9
97293 1999 XG_{175}	13.9	X	148.15082	72.34315	92.54227	19.35449	0.1121659	0.17079464	3.2172630	20	8 30.3	19.3
97294 1999 XW_{177}	14.4	X	204.91351	96.57161	84.09106	9.09494	0.0879486	0.18096109	3.0956077	20	11 11.8	19.1
97295 1999 XP_{178}	14.8	X	175.29520	98.81679	323.58792	8.15443	0.1573694	0.21217102	2.7840605	20	5 15.0	19.5
97296 1999 XS_{179}	14.5	X	245.02282	35.81491	40.79174	3.60780	0.1220813	0.17467482	3.1694399	20	8 15.8	19.2
97297 1999 XU_{180}	13.7	X	258.20322	6.95126	81.75660	14.49822	0.1774218	0.17637297	3.1490631	20	9 14.1	18.5
97298 1999 XA_{181}	15.0	X	100.23063	103.56842	2.11327	8.73891	0.1212630	0.21042649	2.7994268	20	4 18.7	19.0
97299 1999 XB_{181}	14.5	X	110.11381	122.48854	338.59218	7.36924	0.1925094	0.21069103	2.7970830	20	5 2.9	18.8
97300 1999 XM_{183}	15.1	X	135.79051	93.20631	346.20528	7.47688	0.2335142	0.21129360	2.7917626	20	5 4.6	19.8
97301 1999 XN_{186}	15.5	X	159.81053	56.57246	13.13740	5.02751	0.1470724	0.21325417	2.7746254	20	5 10.7	20.0
97302 1999 XS_{189}	15.4	X	271.89891	335.28642	15.24861	5.62000	0.0832169	0.21788250	2.7351920	20	6 3.3	19.1
97303 1999 XL_{190}	14.9	X	206.65319	106.81939	310.10452	6.81927	0.1458810	0.21758311	2.7377005	20	6 9.0	19.4
97304 1999 XQ_{190}	14.7	X	248.06377	48.57676	53.20547	10.39834	0.0555137	0.18019630	3.1043604	20	10 2.8	19.2
97305 1999 XU_{191}	15.1	X	238.28446	122.64308	17.12519	7.66882	0.1142974	0.18270862	3.0758373	20	10 24.4	19.6
97306 1999 XH_{192}	15.3	X	190.81112	78.39862	324.73071	5.28329	0.1710706	0.21420928	2.7663716	20	5 5.7	19.9
97307 1999 XL_{192}	13.7	X	356.57927	260.35817	61.33010	16.92461	0.1261848	0.17661199	3.1462212	20	9 11.1	17.8
97308 1999 XT_{192}	14.7	X	231.98438	86.93534	49.79829	12.96225	0.1133829	0.18140391	3.0905679	20	10 18.1	19.3
97309 1999 XG_{196}	14.4	X	98.83268	143.71877	45.28938	9.99804	0.2062569	0.21501498	2.7594566	20	8 20.7	18.9
97310 1999 XU_{197}	14.5	X	242.29834	100.01360	26.64657	9.58179	0.1853730	0.18061096	3.0996071	20	10 6.1	19.1
97311 1999 XB_{198}	14.1	X	318.00075	21.69791	63.27546	10.50159	0.0879038	0.23379711	2.6096161	20	12 23.9	17.1
97312 1999 XQ_{201}	15.2	X	152.88236	48.70734	359.77147	7.66490	0.1862112	0.20911903	2.8110830	20	4 10.0	19.9
97313 1999 XM_{206}	13.6	X	227.40319	42.75090	77.41903	19.37681	0.1154377	0.17660276	3.1463309	20	9 29.5	18.7
97314 1999 XV_{206}	14.9	X	79.78786	29.62067	72.44697	15.38719	0.1796742	0.20261293	2.8709433	20	4 7.7	18.9
97315 1999 XA_{211}	15.2	X	268.95133	73.09824	318.37542	13.29982	0.1152489	0.22186955	2.7023250	20	7 23.1	18.8
97316 1999 XC_{212}	14.6	X	47.38479	17.87218	346.10006	11.25434	0.1469352	0.18882778	3.0090227	20	—	—
97317 1999 XS_{213}	14.4	X	194.04330	295.61317	238.36533	14.69624	0.1972433	0.18046001	3.1013354	20	10 10.7	19.7
97318 1999 XW_{214}	15.1	X	247.23907	271.59088	122.31437	8.46605	0.2271518	0.22039528	2.7143626	20	6 13.8	19.4
97319 1999 XH_{215}	13.5	X	235.00619	325.78361	110.14837	22.84974	0.0154690	0.17346487	3.1841611	20	8 18.1	18.2
97320 1999 XM_{219}	15.4	X	224.79673	211.35232	102.74402	3.11963	0.0433773	0.20244244	2.8725549	20	2 28.5	19.6
97321 1999 XO_{220}	14.4	X	296.51473	344.51837	85.00770	14.00533	0.1452956	0.23476442	2.6024428	20	10 30.7	17.4
97322 1999 XQ_{231}	14.3	X	349.55724	38.36461	70.83049	14.10404	0.2373617	0.19099913	2.9861741	20	—	—
97323 1999 XU_{232}	15.6	X	134.79805	184.16175	31.01185	1.21384	0.1405966	0.17540517	3.1606358	20	10 11.8	20.6
97324 1999 XE_{235}	14.8	X	84.16302	247.64405	84.55514	10.95583	0.0584890	0.19281546	2.9673912	20	—	—
97325 1999 XM_{241}	15.2	X	234.46757	291.66220	93.85733	10.62618	0.0907873	0.21880764	2.7274767	20	6 4.1	19.1
97326 1999 XN_{241}	14.7	X	169.19291	330.83614	90.35241	13.98110	0.1044035	0.21427642	2.7657937	20	5 13.1	19.1
97327 1999 XZ_{241}	15.3	X	170.57960	146.44933	288.62678	8.09834	0.1200453	0.21647205	2.7470601	20	5 27.5	19.7
97328 1999 XJ_{242}	14.8	X	233.54379	65.72951	47.70115	12.77895	0.1735219	0.17771109	3.1332354	20	9 16.9	19.8
97329 1999 XO_{243}	13.3	X	152.72792	225.38112	326.86347	23.39554	0.1982570	0.17396857	3.1780119	20	9 20.8	19.0
97330 1999 XE_{245}	14.6	X	64.95891	119.93232	218.97429	14.55585	0.1395179	0.19057970	2.9905538	20	12 28.9	19.3
97331 1999 XV_{245}	14.9	X	17.66279	266.47610	118.91631	11.51525	0.1038926	0.18992217	2.9974522	20	12 25.3	18.9
97332 1999 XN_{249}	14.8	X	24.21076	294.35217	99.68004	11.83891	0.1123427	0.19218011	2.9739278	20	—	—
97333 1999 XW_{256}	13.8	X	71.28456	197.35814	58.50503	28.49006	0.1105125	0.17907667	3.1172864	20	10 10.0	18.8
97334 1999 XY_{256}	14.2	X	218.80357	146.74395	39.44019	10.45900	0.0323253	0.18890918	3.0081582	20	12 8.4	18.5
97335 1999 YF	16.6	X	288.50384	37.34631	104.98973	22.81689	0.0833157	0.38460261	1.8726699	20	—	—
97336 1999 YB_{1}	16.0	X	72.12735	225.34521	107.34809	7.86527	0.2582319	0.28710588	2.2756632	20	—	—
97337 1999 YA_{3}	14.7	X	246.97097	82.69929	310.85144	25.41071	0.2111529	0.22253262	2.6969543	20	6 17.1	19.3
97338 1999 YM_{12}	14.4	X	256.92036	177.31576	290.70314	5.08315	0.0854349	0.17979810	3.1089422	20	10 9.9	18.8
97339 1999 YN_{14}	14.7	X	349.06355	5.45285	4.85279	9.77240	0.1367994	0.18302374	3.0723058	20	10 21.9	18.3
97340 1999 YS_{27}	14.3	X	146.51434	242.70568	353.33343	14.83457	0.1858849	0.22773942	2.6556891	20	11 17.9	19.0
97341 2000 AU_{1}	14.9	X	61.09276	329.09175	122.56764	6.57331	0.1699993	0.19913730	2.9042521	20	2 17.3	18.2
97342 2000 AH_{4}	15.7	X	256.70778	82.52563	78.70796	23.11271	0.0883174	0.37359377	1.9092800	20	—	—
97343 2000 AW_{6}	15.0	X	29.35519	285.28983	52.20866	8.66431	0.0860739	0.23257452	2.6187536	20	11 18.2	18.1
97344 2000 AZ_{7}	14.1	X	16.46933	328.67779	81.68651	16.49965	0.0548283	0.18999024	2.9967362	20	—	—
97345 2000 AO_{8}	14.4	X	283.21900	324.74236	57.12485	6.53006	0.1721457	0.17417055	3.1755544	20	7 16.9	18.8
97346 2000 AF_{10}	13.8	X	121.51532	200.34379	47.53493	12.52100	0.1455888	0.23334001	2.6130230	20	11 15.0	18.0
97347 2000 AX_{11}	14.6	X	18.55388	17.89791	16.80790	1.07737	0.1305374	0.19071835	2.9891043	20	—	—
97348 2000 AB_{12}	15.0	X	86.28627	344.64239	344.40853	3.22525	0.2049171	0.24059612	2.5602182	20	—	—
97349 2000 AM_{14}	14.7	X	265.60193	30.14699	30.52363	1.20263	0.1483191	0.17743780	3.1364518	20	8 15.9	19.1
97350 2000 AT_{14}	14.6	X	0.39445	8.95473	57.70446	3.77842	0.1362556	0.19117445	2.9843482	20	—	—
97351 2000 AX_{18}	14.7	X	268.83079	174.04317	280.27800	11.51887	0.1250875	0.18318465	3.0705063	20	9 29.3	19.1
97352 2000 AL_{21}	14.3	X	335.60985	355.34161	89.81663	13.70767	0.0312543	0.18855029	3.0119742	20	—	—
97353 2000 AE_{23}	14.4	X	74.18180	313.37894	92.28527	13.12750	0.0531645	0.19651652	2.9300161	20	—	—
97354 2000 AZ_{24}	14.5	X	2.59443	111.67212	281.50435	7.51533	0.0619707	0.18516220	3.0486050	20	12 7.5	18.4
97355 2000 AX_{25}	14.4	X	1.76371	332.63355	92.51667	10.77465	0.0631969	0.18887906	3.0084780	20	—	—
97356 2000 AY_{27}	15.2	X	44.23776	111.73012	26.37050	2.14671	0.0118454	0.20238388	2.8731090	20	3 6.7	19.0
97357 2000 AA_{29}	14.2	X	224.29125	94.65961	93.25211	11.51885	0.0654186	0.18473752	3.0532753	20	12 13.5	18.6
97358 2000 AA_{30}	14.6	X	289.45075	231.24948	307.04155	9.11861	0.0544069	0.19201395	2.9756433	20	—	—
97359 2000 AC_{32}	14.2	X	187.39539	55.98290	91.23021	13.23451	0.0832249	0.17437049	3.1731266	20	9 18.0	19.3
97360 2000 AG_{32}	14.2	X	214.45956	144.80209	341.67812	4.99087	0.1186843	0.17575576	3.1564313	20	9 11.5	19.0

ELEMENTS AND OPPOSITION DATES IN 2020

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Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
97361 2000 AV_{32}	15.2	X	122.47615	19.81232	27.28491	2.06821	0.1645459	0.20296872	2.8675872	20	3 10.9	19.5
97362 2000 AR_{34}	14.2	X	242.25065	109.33719	315.41008	16.54516	0.1287920	0.17125038	3.2115524	20	7 27.8	19.0
97363 2000 AS_{36}	14.7	X	225.59525	128.79765	52.79803	0.93704	0.1974279	0.18283600	3.0744085	20	11 20.6	19.3
97364 2000 AZ_{42}	14.4	X	342.60775	46.80886	109.29330	17.74044	0.1791388	0.24514503	2.5284478	20	—	—
97365 2000 AB_{43}	14.0	X	104.67773	102.33506	107.05045	25.21946	0.2441858	0.21811599	2.7332397	20	9 29.9	19.1
97366 2000 AZ_{47}	14.9	X	93.60263	122.28624	118.05772	9.36868	0.2289715	0.21699814	2.7426183	20	10 19.9	19.5
97367 2000 AS_{51}	15.2	X	354.96415	45.14981	334.16447	6.91624	0.1813021	0.23736144	2.5834255	20	12 6.4	18.1
97368 2000 AG_{52}	14.8	X	231.45624	19.21394	37.44221	12.28482	0.1652729	0.22360924	2.6882907	20	7 3.2	19.1
97369 2000 AF_{55}	14.5	X	201.35521	29.51246	122.87715	2.17585	0.1257229	0.17629643	3.1499745	20	9 30.4	19.3
97370 2000 AF_{58}	14.3	X	207.63091	203.83224	303.42040	9.23709	0.0769354	0.17607636	3.1525986	20	9 28.9	19.1
97371 2000 AO_{58}	16.1	X	198.35602	75.84388	324.51028	4.03465	0.1384487	0.30805381	2.1712925	20	5 8.3	19.3
97372 2000 AB_{62}	15.2	X	2.31516	327.73694	101.64921	2.50338	0.2354363	0.18932268	3.0037765	20	—	—
97373 2000 AE_{63}	14.9	X	24.10997	104.58271	330.77227	9.60672	0.2250464	0.19262710	2.9693254	20	—	—
97374 2000 AS_{65}	14.5	X	283.71493	210.78102	356.30924	8.43552	0.1279680	0.19115927	2.9845061	20	—	—
97375 2000 AX_{66}	14.3	X	1.48070	134.38296	348.39363	10.34202	0.1252277	0.19245788	2.9710657	20	—	—
97376 2000 AF_{67}	14.8	X	149.57688	146.88131	45.93026	0.74760	0.1460462	0.17275592	3.1928665	20	9 28.8	19.8
97377 2000 AL_{67}	14.5	X	192.69287	331.43248	312.80051	8.53989	0.0562452	0.19102923	2.9858604	20	—	—
97378 2000 AN_{67}	14.7	X	78.84025	268.03946	120.70032	10.71105	0.0760764	0.19151220	2.9808383	20	—	—
97379 2000 AJ_{69}	14.7	X	105.58582	47.22720	91.57875	17.87294	0.1856697	0.21246892	2.7814576	20	6 17.8	18.9
97380 2000 AR_{69}	13.8	X	183.71520	73.86372	93.42484	17.11115	0.1907124	0.17900024	3.1181737	20	10 6.6	19.3
97381 2000 AO_{72}	15.1	X	50.35683	351.71907	100.30202	12.28666	0.1069355	0.20065273	2.8896107	20	1 23.9	18.5
97382 2000 AS_{72}	14.1	X	349.69360	164.16657	92.60212	12.93640	0.0782154	0.21598765	2.7511659	20	5 26.3	17.5
97383 2000 AJ_{76}	14.7	X	295.14758	327.26028	120.71887	10.59398	0.1559189	0.18475867	3.0530423	20	11 6.0	18.6
97384 2000 AF_{82}	14.7	X	287.50916	188.79680	247.72832	7.69471	0.0899607	0.18187845	3.0851898	20	10 10.9	18.8
97385 2000 AE_{85}	14.6	X	244.61326	175.26221	269.39811	3.99496	0.0951739	0.17487584	3.1670106	20	8 25.6	19.3
97386 2000 AQ_{86}	14.8	X	144.53488	107.85707	121.44393	14.52885	0.1273114	0.22609452	2.6685542	20	11 17.9	19.3
97387 2000 AY_{88}	14.1	X	16.11769	91.02090	286.49583	8.56578	0.0903272	0.18285530	3.0741922	20	12 9.2	18.1
97388 2000 AU_{90}	15.0	X	148.53769	354.69571	130.73593	10.37891	0.1085829	0.21354862	2.7720743	20	7 8.4	19.4
97389 2000 AZ_{96}	13.9	X	303.80560	141.60605	334.85247	15.19309	0.1676963	0.18337804	3.0683472	20	12 23.2	17.7
97390 2000 AD_{99}	15.6	X	252.20428	294.05768	126.34308	4.00499	0.2649092	0.22655934	2.6649029	20	7 17.9	19.7
97391 2000 AZ_{100}	15.1	X	7.50915	178.57546	184.38774	7.15336	0.2674447	0.23703274	2.5858133	20	12 20.1	18.1
97392 2000 AE_{101}	14.6	X	218.83717	331.85757	88.69760	13.83773	0.2505419	0.22159985	2.7045172	20	6 18.9	19.3
97393 2000 AK_{101}	15.2	X	191.17710	48.03565	82.51517	15.12285	0.0611273	0.22649058	2.6654423	20	9 9.6	19.4
97394 2000 AR_{102}	14.3	X	70.13063	41.56883	99.27523	14.42676	0.0746061	0.21106636	2.7937661	20	4 27.2	18.2
97395 2000 AT_{102}	15.0	X	210.59461	26.28119	96.09939	12.90177	0.1995133	0.22603226	2.6690442	20	9 6.3	19.5
97396 2000 AK_{103}	14.3	X	7.37190	295.75553	108.75876	11.87795	0.0496877	0.19080583	2.9881905	20	12 28.3	18.2
97397 2000 AG_{106}	14.3	X	210.70974	7.81929	112.61827	12.69191	0.0950041	0.17678312	3.1441905	20	9 6.9	19.2
97398 2000 AR_{108}	14.8	X	7.74994	107.51459	268.51690	8.52147	0.0818523	0.18383871	3.0632192	20	11 24.6	18.9
97399 2000 AR_{115}	13.5	X	92.18870	332.17036	276.42571	18.50357	0.1374823	0.17368817	3.1814313	20	9 30.9	18.7
97400 2000 AG_{124}	14.8	X	120.92177	353.89866	132.92256	8.91743	0.1629688	0.20979591	2.8050334	20	6 16.4	19.2
97401 2000 AK_{124}	13.8	X	44.57811	185.22975	131.14928	23.19138	0.0357994	0.17694585	3.1422624	20	11 1.9	18.7
97402 2000 AQ_{128}	14.7	X	207.42137	206.41852	287.23923	4.34667	0.1377274	0.17365436	3.1818442	20	9 9.7	19.7
97403 2000 AQ_{131}	14.7	X	333.82500	42.48309	41.04398	9.13470	0.0994216	0.18881700	3.0091372	20	—	—
97404 2000 AY_{131}	14.2	X	88.40612	160.06291	102.89059	17.11814	0.0406873	0.17834033	3.1258611	20	10 21.4	19.0
97405 2000 AW_{135}	14.9	X	19.45289	11.49389	87.96791	7.10458	0.0723685	0.19463275	2.9488913	20	—	—
97406 2000 AY_{135}	14.4	X	117.69122	145.39073	48.33187	2.03180	0.2737647	0.16802391	3.2525351	20	9 9.4	19.9
97407 2000 AU_{138}	15.0	X	283.53883	314.37297	141.68365	4.87307	0.1781330	0.23559033	2.5963570	20	11 5.3	17.8
97408 2000 AV_{138}	14.5	X	295.51897	5.77829	92.71534	11.56762	0.0857276	0.23848768	2.5752857	20	12 8.8	17.4
97409 2000 AT_{139}	14.5	X	263.86190	87.36398	79.86200	13.85639	0.1346529	0.24158498	2.5532270	20	—	—
97410 2000 AW_{148}	15.5	X	205.54314	244.73438	146.99622	8.67996	0.2962187	0.21697010	2.7428547	20	5 5.9	20.6
97411 2000 AT_{151}	14.8	X	228.60384	347.69840	51.90240	14.51554	0.1753684	0.22324288	2.6912310	20	6 5.2	19.1
97412 2000 AO_{153}	14.6	X	235.59135	168.80455	273.24976	21.28884	0.0435552	0.22802639	2.6534606	20	8 14.7	18.7
97413 2000 AZ_{153}	14.2	X	177.66319	223.17127	301.73159	8.64416	0.0488275	0.17868774	3.1218082	20	9 20.3	18.9
97414 2000 AF_{154}	15.0	X	197.61968	334.88989	58.17861	6.61964	0.0436966	0.21162527	2.7888449	20	5 5.1	18.9
97415 2000 AZ_{155}	16.4	X	148.46076	297.23466	281.11540	18.94540	0.0599561	0.37413309	1.9074447	20	12 5.4	18.7
97416 2000 AE_{161}	14.4	X	176.18708	105.13308	67.40695	7.83188	0.1218596	0.17506349	3.1647470	20	10 3.0	19.5
97417 2000 AT_{161}	14.6	X	210.18139	328.20433	29.59822	9.47285	0.2798819	0.21665796	2.7454884	20	3 29.9	19.6
97418 2000 AK_{162}	15.1	X	349.54305	150.01091	329.08779	4.80233	0.1253771	0.19103624	2.9857873	20	—	—
97419 2000 AU_{168}	14.7	X	254.46164	315.70943	99.86580	15.91973	0.0753737	0.22534420	2.6744745	20	8 12.8	18.5
97420 2000 AN_{169}	14.6	X	102.38561	261.62461	111.84545	14.00508	0.2428633	0.20112890	2.8850482	20	1 17.9	18.5
97421 2000 AK_{176}	15.6	X	153.92147	237.22425	201.85306	7.21529	0.2053500	0.21318365	2.7752373	20	5 21.6	20.2
97422 2000 AO_{185}	14.9	X	199.06165	287.13942	115.30368	10.29673	0.1791739	0.21904761	2.7254844	20	5 17.1	19.5
97423 2000 AE_{187}	14.5	X	342.77735	283.85667	149.89386	12.71269	0.1253882	0.23973252	2.5663629	20	—	—
97424 2000 AB_{191}	14.8	X	228.05219	307.51634	145.18929	13.34538	0.1741368	0.22305605	2.6927335	20	8 13.5	18.8
97425 2000 AP_{192}	14.7	X	191.88818	197.11582	196.18538	10.94669	0.2500958	0.21248637	2.7813053	20	4 27.3	19.6
97426 2000 AH_{194}	14.3	X	191.64101	321.72806	167.27625	15.00690	0.1196574	0.17245853	3.1965360	20	8 21.4	19.3
97427 2000 AK_{199}	14.4	X	356.15838	327.29721	97.71899	16.95835	0.0984364	0.24258727	2.5461894	20	—	—
97428 2000 AT_{199}	14.5	X	250.30932	331.26991	114.40131	15.84905	0.2260494	0.22934775	2.6432590	20	8 26.6	18.4
97429 2000 AT_{201}	16.8	X	285.78455	284.55753	140.12810	23.80765	0.1144219	0.37081099	1.9188203	20	11 20.2	18.9
97430 2000 AZ_{202}	14.7	X	241.59214	244.93792	230.33138	12.90021	0.2182629	0.17554735	3.1589290	20	9 10.5	19.8
97431 2000 AR_{204}	14.7	X	102.60107	272.40667	160.31858	15.41653	0.2738013	0.20429663	2.8551477	20	4 6.0	19.1
97432 2000 AG_{227}	14.5	X	196.90205	224.04510	322.93372	19.78074	0.0400000	0.17700628	3.1415472	20	11 3.8	19.5
97433 2000 AP_{230}	14.6	X	94.56232	189.26614	342.57911	9.74194	0.1105737	0.21040620	2.7996067	20	7 10.4	18.7
97434 2000 AU_{234}	14.4	X	164.40955	247.03855	274.10044	3.59268	0.1105111	0.17371336	3.1811237	20	9 2.8	19.4
97435 2000 AX_{235}	14.6	X	9.41341	324.82256	120.95838	12.61287	0.0847216	0.19072234	2.9890625	20	—	—
97436 2000 AB_{238}	14.6	X	215.79122	10.72403	94.21981	14.63012	0.1318343	0.22659584	2.6646168	20	8 25.9	18.8
97437 2000 AR_{238}	14.4	X	305.34800	125.41736	294.40356	12.59519	0.1378639	0.18058505	3.0999036	20	10 6.3	18.5
97438 2000 AH_{244}	15.0	X	237.36487	272.95124	142.13706	13.14893	0.1392276	0.22248732	2.6973205	20	7 9.5	19.2
97439 2000 AF_{248}	14.1	X	325.79263	99.83909	297.04938	14.12133	0.1558537	0.23351264	2.6117351	20	10 25.6	17.1
97440 2000 AW_{249}	15.1	X	1.79144	136.11941	303.04694	8.01118	0.0341800	0.18778709	3.0201295	20	—	—

ELEMENTS AND OPPOSITION DATES IN 2020

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Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
97441 2000 BH_2	14.6	X	153.58061	218.54825	337.09429	2.99157	0.1198725	0.17258118	3.1950214	20	10 4.3	19.7
97442 2000 BF_7	14.8	X	135.41789	199.91221	76.87751	11.35435	0.0211119	0.23598929	2.5934299	20	—	—
97443 2000 BD_{18}	14.7	X	241.65016	142.80517	9.60099	5.51262	0.1153012	0.18174575	3.0866913	20	11 11.9	19.1
97444 2000 BW_{20}	15.9	X	73.27416	196.01982	136.69191	8.55532	0.1838517	0.27967176	2.3158138	20	—	—
97445 2000 BK_{21}	14.9	X	27.37864	137.16146	308.03581	8.43659	0.0548627	0.19182203	2.9776277	20	—	—
97446 2000 BB_{27}	15.0	X	203.46228	321.43103	107.25980	4.63506	0.0409901	0.21228132	2.7830961	20	6 27.2	19.0
97447 2000 BM_{30}	13.7	X	63.22311	14.11248	321.59493	17.38505	0.1789600	0.18053648	3.1004595	20	12 29.9	18.6
97448 2000 BW_{33}	14.4	X	303.79628	118.37980	323.82248	8.87511	0.0634255	0.18045179	3.1014295	20	11 11.9	18.6
97449 2000 BE_{39}	15.4	X	327.47184	274.85768	278.20052	0.94710	0.0137555	0.19831841	2.9122413	20	2 5.8	19.4
97450 2000 BE_{49}	15.6	X	14.02523	232.88928	171.96644	0.24640	0.2531937	0.18895838	3.0076360	20	—	—
97451 2000 CA	14.4	X	261.31616	31.10174	89.66543	13.37029	0.1019924	0.17882072	3.1202603	20	11 5.3	18.9
97452 2000 CB_8	16.5	X	330.14439	293.89401	344.98693	16.89583	0.0848166	0.35414887	1.9785429	20	5 10.5	18.7
97453 2000 CG_9	14.4	X	192.43185	348.16841	121.22551	17.66023	0.0730691	0.17025432	3.2240663	20	8 1.9	19.2
97454 2000 CP_9	14.9	X	31.06321	282.44414	291.63289	6.74821	0.0733229	0.20934276	2.8090798	20	5 30.5	18.5
97455 2000 CL_{13}	14.3	X	197.08346	242.69399	214.42457	1.24790	0.1389176	0.16820001	3.2502645	20	7 18.8	19.6
97456 2000 CU_{13}	14.5	X	282.85483	181.48001	247.58161	5.49671	0.1782396	0.17835524	3.1256868	20	9 11.4	18.6
97457 2000 CV_{15}	14.7	X	292.86151	155.49732	260.91834	4.60311	0.0475041	0.17709646	3.1404807	20	9 27.4	19.1
97458 2000 CC_{18}	15.1	X	24.80040	128.18934	284.66469	7.12784	0.2028515	0.19015965	2.9949561	20	—	—
97459 2000 CP_{19}	14.6	X	44.28998	114.40770	281.47424	7.73411	0.0444699	0.18753947	3.0227873	20	—	—
97460 2000 CQ_{19}	14.7	X	206.01849	294.31615	281.92797	6.94734	0.0407857	0.18380841	3.0635558	20	12 28.7	18.9
97461 2000 CZ_{19}	13.9	X	33.17671	91.65129	275.58694	9.44454	0.1434466	0.18321095	3.0702125	20	12 26.8	18.1
97462 2000 CN_{22}	14.2	X	43.61824	81.30106	302.21228	9.76782	0.1578163	0.18694356	3.0292076	20	—	—
97463 2000 CU_{25}	14.9	X	30.32686	284.07422	148.38479	11.71021	0.2215351	0.19235167	2.9721592	20	—	—
97464 2000 CH_{26}	14.6	X	174.30328	266.18884	296.04444	3.87992	0.1093400	0.17605126	3.1528982	20	10 31.5	19.5
97465 2000 CX_{30}	15.4	X	81.41862	239.26279	179.95249	7.15966	0.2044815	0.19827839	2.9126332	20	2 9.4	19.2
97466 2000 CV_{31}	14.5	X	126.28104	330.54329	311.56812	8.62656	0.0605691	0.18085035	3.0968713	20	12 18.7	19.2
97467 2000 CH_{33}	14.8	X	234.50956	355.66945	141.19111	1.75840	0.1935462	0.17648173	3.1477692	20	10 7.8	19.7
97468 2000 CF_{37}	14.3	X	242.08652	251.43513	328.27005	3.61958	0.0683693	0.18497853	3.0506228	20	—	—
97469 2000 CT_{38}	14.5	X	291.49015	290.66956	128.68143	9.57678	0.0365126	0.17534747	3.1613291	20	10 6.6	18.9
97470 2000 CY_{39}	16.2	X	247.08681	318.09691	149.70404	23.23239	0.0592028	0.36898691	1.9251389	20	11 20.8	18.7
97471 2000 CS_{40}	14.8	X	220.07791	77.62882	134.33171	15.55750	0.1120710	0.18173018	3.0868677	20	12 30.6	19.4
97472 Hobby	15.6	X	221.84284	185.68913	323.32617	9.74959	0.1747232	0.17651605	3.1473611	20	10 6.6	20.7
97473 2000 CF_{46}	14.8	X	13.21981	162.45595	310.85045	9.30470	0.0246011	0.19146148	2.9813648	20	—	—
97474 2000 CX_{47}	14.3	X	337.88799	219.07729	303.26632	10.23015	0.0711848	0.19269251	2.9686533	20	1 7.6	18.2
97475 2000 CP_{50}	15.5	X	246.75040	309.47866	200.21908	1.78165	0.2170539	0.17920612	3.1157850	20	11 2.1	20.0
97476 2000 CS_{51}	14.5	X	234.63033	36.39490	168.37250	5.86945	0.2395231	0.18146085	3.0899213	20	12 21.6	19.2
97477 2000 CG_{52}	14.8	X	272.97180	231.28506	299.45040	3.68173	0.1809043	0.18397057	3.0617553	20	—	—
97478 2000 CP_{53}	13.9	X	44.42938	130.31912	330.72776	8.95288	0.0225151	0.19232118	2.9724734	20	1 23.9	17.9
97479 2000 CU_{56}	13.7	X	2.47922	30.45506	322.60897	16.17939	0.0904818	0.17468240	3.1693482	20	10 9.6	18.1
97480 2000 CV_{58}	16.3	X	55.34227	354.37454	351.01481	18.26351	0.0743245	0.37646990	1.8995433	20	—	—
97481 2000 CF_{61}	14.1	X	244.53984	318.87351	308.44603	10.00650	0.0659891	0.19230398	2.9726506	20	1 23.8	18.4
97482 2000 CC_{64}	14.2	X	240.86191	249.29638	334.05576	13.82695	0.2869142	0.18185538	3.0854507	20	—	—
97483 2000 CU_{64}	14.6	X	12.55071	51.75598	332.79827	9.32062	0.1437302	0.18312065	3.0712217	20	12 20.3	18.6
97484 2000 CC_{65}	15.2	X	261.37825	55.00651	107.23815	2.23264	0.1364476	0.18295272	3.0731008	20	12 17.2	19.1
97485 2000 CO_{66}	15.4	X	281.71769	224.02128	16.07184	5.61989	0.1772783	0.24150954	2.5537587	20	1 13.1	19.2
97486 2000 CS_{70}	14.2	X	54.38983	133.95115	323.57737	13.75656	0.0998982	0.19452125	2.9500181	20	2 6.9	17.8
97487 2000 CS_{71}	14.0	X	278.00763	126.65054	303.67676	8.97526	0.0537337	0.17249519	3.1960831	20	9 21.4	18.5
97488 2000 CG_{76}	14.2	X	144.06713	251.14150	333.14767	21.43693	0.1464744	0.17226720	3.1989024	20	10 19.4	19.8
97489 2000 CQ_{76}	14.3	X	230.69385	46.25118	57.12945	1.86064	0.1826050	0.17299713	3.1898979	20	8 25.7	19.3
97490 2000 CU_{78}	15.5	X	48.58998	146.60587	203.54509	1.74309	0.0855321	0.18076917	3.0977984	20	12 16.4	19.9
97491 2000 CX_{79}	16.6	X	235.60351	280.45566	161.15816	1.27662	0.1547292	0.26662066	2.3907831	20	8 13.3	19.8
97492 2000 CG_{81}	16.0	X	211.37022	301.61478	61.72560	0.97136	0.1281506	0.30248076	2.1978812	20	4 4.3	19.0
97493 2000 CU_{81}	15.2	X	209.08735	97.92516	41.32440	1.32444	0.1189957	0.17388433	3.1790383	20	9 22.1	20.0
97494 2000 CW_{81}	14.0	X	197.21788	66.09120	132.22002	6.04657	0.1781181	0.17737313	3.1372141	20	11 16.4	19.2
97495 2000 CL_{85}	14.6	X	248.20535	61.05480	111.44220	5.82485	0.1097596	0.18145102	3.0900330	20	12 16.4	19.0
97496 2000 CU_{86}	13.7	X	303.73044	112.75748	341.83433	21.43766	0.0712298	0.17967395	3.1103742	20	11 23.4	18.3
97497 2000 CQ_{88}	16.0	X	349.29315	185.43879	24.85181	4.19881	0.0739829	0.29614531	2.2291167	20	3 12.3	18.1
97498 2000 CX_{89}	14.4	X	238.26486	56.83461	110.03869	10.45052	0.1064680	0.18233600	3.0800263	20	11 30.1	18.8
97499 2000 CH_{90}	15.2	X	28.36201	315.01235	124.90412	2.70789	0.1030039	0.19095897	2.9865927	20	—	—
97500 2000 CY_{91}	14.7	X	346.71081	117.90782	346.92115	10.00745	0.1985331	0.18760339	3.0221006	20	—	—
97501 2000 CE_{92}	14.2	X	217.60370	110.52650	12.41862	4.49040	0.1525083	0.17205987	3.2014716	20	9 8.5	19.1
97502 2000 CL_{93}	14.7	X	302.68506	347.88898	150.88133	8.53270	0.2143164	0.18505992	3.0497282	20	—	—
97503 2000 CH_{94}	14.0	X	208.66330	195.38695	358.02659	10.52152	0.0382236	0.17648784	3.1476965	20	11 30.9	18.7
97504 2000 CO_{97}	14.6	X	250.14399	270.59968	168.22287	24.91136	0.2856507	0.17197068	3.2025784	20	7 31.9	19.9
97505 2000 CY_{99}	15.4	X	154.33643	194.66318	128.33819	2.44851	0.0970318	0.19135614	2.9824588	20	—	—
97506 2000 CJ_{100}	16.0	X	301.84429	77.85047	116.58820	0.97952	0.0862525	0.19282315	2.9673123	20	—	—
97507 2000 CV_{103}	14.9	X	50.80170	321.36980	276.34024	9.17394	0.1930596	0.20938801	2.8086751	20	8 16.5	18.7
97508 2000 CU_{110}	14.9	X	93.10307	80.64380	304.21672	8.96144	0.0167071	0.19200736	2.9757113	20	—	—
97509 2000 CC_{112}	14.8	X	339.27851	207.62891	252.37504	10.54118	0.1360972	0.18632291	3.0359308	20	—	—
97510 2000 CN_{112}	15.2	X	284.47520	45.47694	137.98741	3.13688	0.0303080	0.18935400	3.0034453	20	—	—
97511 2000 CH_{118}	15.5	X	354.12551	274.94955	136.58921	1.33634	0.1599553	0.18582483	3.0413534	20	12 28.5	18.9
97512 2000 CV_{118}	15.4	X	211.94203	51.88596	318.17916	1.15409	0.0803726	0.20422126	2.8558501	20	4 19.7	19.8
97513 2000 CD_{137}	15.3	X	231.78011	211.29171	111.37717	3.09912	0.0717518	0.20377689	2.8600004	20	3 15.9	19.5
97514 2000 DL_1	13.9	X	37.91390	119.03935	4.28056	35.35619	0.2725008	0.34395583	2.0174414	20	2 5.3	16.0
97515 2000 DW_3	16.1	X	116.44054	219.79166	43.17576	22.80415	0.0508574	0.37047745	1.9199719	20	12 25.0	18.7
97516 2000 DX_3	13.8	X	81.24885	158.87672	92.92573	22.42006	0.0545556	0.16958575	3.2325344	20	10 3.3	18.9
97517 2000 DV_5	15.6	X	321.71700	245.63601	111.72391	24.23648	0.1057415	0.36467151	1.9402968	20	10 13.8	17.8
97518 2000 DR_6	14.8	X	89.48060	323.78804	121.20191	3.78186	0.0797740	0.19881593	2.9073809	20	3 8.3	18.7
97519 2000 DM_{16}	14.3	X	242.41562	205.44639	9.59131	13.06613	0.1033451	0.18171432	3.0870473	20	—	—
97520 2000 DA_{18}	15.2	X	245.10223	40.15916	89.74347	1.03280	0.1464911	0.17823827	3.1270543	20	10 16.8	19.8

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
97521 2000 DF_{18}	15.0	X	342.68700	301.81309	145.83621	13.67997	0.1407147	0.23423850	2.6063367	20	—	—
97522 2000 DV_{19}	15.1	X	339.02558	31.00197	9.51374	1.24198	0.1883240	0.18106213	3.0944559	20	11 17.1	18.2
97523 2000 DW_{22}	14.7	X	351.24502	62.54689	336.58648	6.02280	0.2255492	0.18284368	3.0743224	20	12 13.3	18.0
97524 2000 DX_{22}	14.8	X	145.20765	339.73896	332.03728	9.43012	0.0659627	0.18756553	3.0225073	20	—	—
97525 2000 DP_{24}	14.8	X	357.55970	144.73830	334.40327	10.55955	0.0884993	0.19100516	2.9861113	20	—	—
97526 2000 DA_{25}	14.4	X	268.78400	78.44271	324.88617	7.28350	0.1260886	0.16946977	3.2340090	20	7 31.9	18.8
97527 2000 DL_{25}	14.9	X	232.30478	268.93436	292.69330	3.52758	0.1214075	0.18284322	3.0743275	20	12 30.8	19.2
97528 2000 DW_{25}	14.6	X	218.64521	309.79850	333.84667	10.10347	0.0695733	0.19277454	2.9678112	20	1 17.3	19.1
97529 2000 DL_{26}	14.4	X	105.27210	349.21801	330.22053	8.77506	0.0840168	0.18273622	3.0755275	20	—	—
97530 2000 DB_{28}	14.9	X	154.07160	81.96391	152.88249	1.65882	0.1365613	0.17603103	3.1531398	20	11 20.9	19.9
97531 2000 DD_{28}	14.8	X	51.72052	10.51671	330.61366	11.62959	0.0777606	0.17882702	3.1201870	20	12 6.6	19.4
97532 2000 DS_{28}	15.3	X	346.91053	194.84361	258.07671	0.55180	0.0670323	0.18586542	3.0409106	20	—	—
97533 2000 DW_{29}	15.6	X	336.72681	320.59717	225.20774	0.74689	0.0736794	0.19526625	2.9425098	20	2 2.3	19.3
97534 2000 DX_{32}	14.9	X	277.08960	270.53098	315.79712	1.56007	0.0481841	0.19229795	2.9727127	20	1 12.7	18.9
97535 2000 DY_{32}	15.0	X	219.65910	254.29989	329.72741	1.21280	0.1387569	0.18291169	3.0735603	20	—	—
97536 2000 DK_{34}	15.2	X	236.75227	11.81852	176.03906	1.45075	0.0808671	0.18174616	3.0866867	20	12 24.7	19.6
97537 2000 DC_{35}	14.9	X	296.91277	19.84326	113.42054	2.24597	0.0116429	0.18337665	3.0683627	20	—	—
97538 2000 DM_{35}	15.4	X	307.18375	312.14443	162.67112	3.40722	0.0890737	0.18316508	3.0707250	20	12 29.6	19.2
97539 2000 DF_{39}	14.6	X	141.79202	16.22373	193.18713	4.48756	0.1213793	0.17123253	3.2117757	20	10 10.4	19.6
97540 2000 DN_{41}	14.4	X	206.50995	127.81690	126.90526	2.09917	0.1752193	0.18411634	3.0601391	20	—	—
97541 2000 DV_{42}	13.8	X	342.19397	54.69184	339.66202	26.72277	0.1862782	0.17824435	3.1269831	20	10 29.7	17.9
97542 2000 DD_{43}	15.8	X	339.57689	130.15771	358.28765	2.59535	0.0777884	0.18850060	3.0125035	20	—	—
97543 2000 DE_{47}	15.1	X	31.58456	50.88190	336.12194	8.86539	0.1018590	0.18244774	3.0787686	20	—	—
97544 2000 DG_{47}	15.4	X	309.16241	304.96507	158.97125	2.37233	0.0912396	0.18175806	3.0865520	20	12 18.7	19.2
97545 2000 DL_{48}	14.8	X	354.47416	63.42246	342.54044	8.19770	0.1011712	0.18026734	3.1035448	20	12 13.9	18.9
97546 2000 DE_{52}	14.7	X	225.72827	111.03565	41.88655	1.45077	0.1090323	0.17609900	3.1523284	20	10 26.9	19.4
97547 2000 DL_{55}	15.2	X	351.51990	300.96753	122.78582	2.35122	0.1961672	0.18397990	3.0616517	20	—	—
97548 2000 DW_{55}	14.7	X	91.72090	33.74683	12.74132	1.48152	0.0194834	0.19171591	2.9787264	20	1 15.3	18.7
97549 2000 DM_{58}	15.4	X	65.39498	105.61645	326.61291	8.39867	0.1284584	0.19331241	2.9623035	20	1 25.9	19.0
97550 2000 DT_{59}	15.3	X	294.64368	45.79290	167.54382	1.37870	0.0228391	0.19224699	2.9732381	20	1 20.8	19.5
97551 2000 DO_{60}	14.9	X	229.90103	149.18247	348.21077	4.79800	0.1041568	0.17471674	3.1689329	20	10 11.7	19.5
97552 2000 DQ_{63}	14.1	X	101.91719	293.16538	333.43148	10.03356	0.0465032	0.17287235	3.1914327	20	10 28.2	18.9
97553 2000 DC_{64}	14.8	X	174.23130	350.65876	328.11838	8.37426	0.0077663	0.19009630	2.9956215	20	1 8.3	19.1
97554 2000 DB_{65}	15.5	X	343.77932	313.51177	172.42327	1.51865	0.1396702	0.18851556	3.0123441	20	—	—
97555 2000 DT_{68}	15.0	X	316.72510	111.95291	340.66924	9.93555	0.1821985	0.18195202	3.0843581	20	12 12.7	18.5
97556 2000 DK_{69}	14.7	X	273.37223	191.65125	340.75008	11.09272	0.0739971	0.18337493	3.0683819	20	—	—
97557 2000 DZ_{71}	14.5	X	304.41906	76.36248	356.03880	4.50743	0.1559704	0.17728165	3.1382933	20	10 24.4	18.3
97558 2000 DB_{73}	14.9	X	277.26808	9.89141	85.54682	0.63384	0.1742541	0.17689896	3.1428177	20	10 10.6	18.8
97559 2000 DW_{75}	16.3	X	92.93231	247.65991	153.19361	6.72529	0.1011634	0.28928751	2.2642077	20	—	—
97560 2000 DS_{76}	14.5	X	110.84212	129.20083	329.71019	4.75549	0.0624348	0.15312145	3.4602862	20	4 18.2	19.6
97561 2000 DQ_{77}	14.2	X	114.74358	242.77061	41.31888	1.41060	0.1621641	0.17461836	3.1701230	20	12 12.9	19.3
97562 2000 DM_{78}	14.6	X	134.54781	20.33498	343.48135	14.81821	0.0726278	0.19051798	2.9911997	20	1 26.1	19.1
97563 2000 DS_{82}	15.0	X	159.16536	50.89416	50.93172	4.45516	0.0531769	0.21038690	2.7997780	20	6 17.2	19.1
97564 2000 DM_{88}	15.0	X	5.06640	341.20167	129.35316	2.90244	0.1508021	0.18983382	2.9983822	20	—	—
97565 2000 DN_{91}	14.6	X	328.79170	185.51702	179.41225	1.17470	0.1122713	0.16955813	3.2328853	20	9 9.8	18.4
97566 2000 DG_{93}	14.5	X	234.64595	227.62197	336.98766	14.58561	0.0857102	0.18446400	3.0562929	20	—	—
97567 2000 DH_{93}	14.2	X	22.31389	80.81747	345.75069	8.55517	0.0871988	0.18835922	3.0140107	20	—	—
97568 2000 DZ_{94}	13.9	X	49.36711	58.10237	99.24392	4.73257	0.0632914	0.15429162	3.4427685	20	4 16.7	18.5
97569 2000 DJ_{102}	15.0	X	336.09212	314.15614	125.96018	10.53264	0.0499638	0.18131885	3.0915344	20	12 27.7	19.1
97570 2000 DM_{103}	14.8	X	21.86269	27.53123	40.80035	6.92908	0.0542958	0.18581039	3.0415110	20	—	—
97571 2000 DS_{103}	14.1	X	34.57717	301.82248	8.02598	11.74934	0.0998811	0.16962009	3.2320980	20	10 9.1	18.3
97572 2000 DU_{103}	14.3	X	298.08924	61.31016	6.44809	11.30682	0.0728161	0.17486760	3.1671101	20	10 15.9	18.6
97573 2000 DC_{108}	14.2	X	358.02731	259.89304	133.32139	16.44668	0.2799965	0.18297486	3.0728529	20	12 27.6	17.6
97574 2000 DA_{109}	15.4	X	3.39238	34.95898	120.84903	2.95086	0.0435826	0.19525061	2.9426670	20	2 4.6	19.2
97575 2000 DN_{109}	14.5	X	273.59679	199.28087	14.63173	10.12764	0.0432776	0.18995571	2.9970994	20	—	—
97576 2000 DK_{110}	14.3	X	209.65837	220.30869	349.08777	16.56978	0.1638072	0.17907449	3.1173118	20	12 8.1	19.4
97577 2000 DQ_{111}	15.3	X	4.14739	268.88194	145.91365	4.03319	0.2224196	0.18517220	3.0484953	20	—	—
97578 2000 DP_{116}	14.1	X	177.15197	55.37874	143.02370	20.12329	0.0503013	0.17863652	3.1224049	20	11 9.8	19.1
97579 2000 EX_{7}	14.7	X	252.66346	69.58661	46.90756	14.88155	0.1322038	0.17597765	3.1537775	20	10 14.9	19.2
97580 2000 EP_{8}	14.6	X	295.99324	318.58908	136.26014	2.45388	0.1302357	0.18050889	3.1007754	20	11 14.4	18.4
97581 2000 EL_{12}	14.8	X	76.95175	135.33602	97.27589	8.93850	0.1645590	0.21332100	2.7740459	20	9 16.6	18.9
97582 Hijikawa	14.9	X	304.77653	260.61606	157.12572	1.13995	0.1684525	0.17571171	3.1569588	20	10 5.7	18.6
97583 2000 EL_{16}	14.1	X	12.36766	73.34532	334.93179	8.56021	0.1146456	0.18216094	3.0819994	20	—	—
97584 2000 ET_{24}	14.6	X	291.13356	81.41431	1.46179	15.68266	0.2212190	0.17620758	3.1510333	20	10 5.6	18.5
97585 2000 EW_{25}	14.3	X	146.05332	120.66187	178.94600	5.12752	0.1441322	0.17887834	3.1195902	20	—	—
97586 2000 EQ_{26}	16.2	X	216.88617	99.12097	2.19480	19.53452	0.0783914	0.36081919	1.9540828	20	9 13.2	18.2
97587 2000 EN_{29}	14.8	X	8.56162	293.85463	141.57261	17.57755	0.0658869	0.18452002	3.0556742	20	—	—
97588 2000 EL_{33}	14.4	X	357.93388	275.39871	102.90399	6.20307	0.1566983	0.17646266	3.1479959	20	11 20.5	18.1
97589 2000 EM_{33}	15.0	X	260.73152	100.55037	103.02364	7.35893	0.0620548	0.18594466	3.0400466	20	—	—
97590 2000 EQ_{33}	15.8	X	21.04620	233.16215	83.74343	7.58422	0.0690481	0.26606156	2.3941313	20	10 18.4	18.7
97591 2000 EP_{34}	13.6	X	318.30303	332.39642	56.07341	15.11007	0.0191787	0.16955103	3.2329756	20	10 6.7	18.3
97592 2000 ER_{34}	14.0	X	171.04497	127.27500	133.56237	18.98456	0.1659151	0.17718266	3.1394621	20	—	—
97593 2000 EA_{36}	16.7	X	336.14063	63.01726	337.16825	2.12536	0.1809619	0.27431256	2.3458789	20	12 15.4	18.7
97594 2000 ET_{37}	14.0	X	297.07529	314.15423	177.14809	15.91497	0.1949847	0.18219891	3.0815711	20	12 25.9	17.8
97595 2000 EX_{37}	14.2	X	185.88862	183.38919	6.59919	4.45089	0.1127545	0.17268781	3.1937059	20	10 28.1	19.1
97596 2000 EM_{43}	14.9	X	311.84587	40.38490	100.00198	1.10029	0.1402051	0.18386207	3.0629597	20	—	—
97597 2000 EV_{50}	15.5	X	343.84133	236.38019	222.77020	3.35191	0.1700042	0.18645254	3.0345236	20	—	—
97598 2000 EZ_{51}	15.2	X	40.49820	200.54447	197.20139	0.85265	0.1536748	0.18487236	3.0517906	20	—	—
97599 2000 EH_{57}	13.9	X	74.89284	310.47872	352.82041	21.71026	0.0303301	0.17311052	3.1885048	20	11 2.7	18.8
97600 2000 EY_{65}	15.3	X	312.40186	46.12011	65.17627	1.65425	0.1428624	0.18132512	3.0914631	20	12 31.1	18.8

ELEMENTS AND OPPOSITION DATES IN 2020

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Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
97601 2000 EK_{67}	15.4	X	42.38471	331.60542	339.13429	3.39786	0.1145356	0.21648590	2.7469430	20	10 31.7	19.0
97602 2000 EM_{69}	14.2	X	322.23732	120.62094	5.52567	15.74761	0.1781810	0.18413431	3.0599400	20	—	—
97603 2000 EG_{76}	14.4	X	226.08940	255.12569	21.34055	10.09352	0.0714339	0.19142297	2.9817645	20	1 17.1	19.0
97604 2000 EA_{77}	14.5	X	314.10204	61.22931	36.00409	9.76131	0.0744056	0.18121274	3.0927411	20	12 17.1	18.5
97605 2000 EE_{77}	14.5	X	37.25480	270.42778	117.15291	11.44603	0.0725249	0.18159381	3.0884128	20	—	—
97606 2000 EM_{77}	14.5	X	20.26211	40.01126	348.17311	9.12582	0.0759553	0.18172052	3.0869770	20	12 26.4	18.8
97607 2000 ER_{77}	14.9	X	271.17592	152.49686	110.04719	3.87820	0.0533748	0.19616556	2.9335098	20	2 18.2	19.1
97608 2000 EW_{82}	14.2	X	261.50163	73.59687	57.88712	8.08657	0.1300145	0.17817749	3.1277653	20	11 10.2	18.4
97609 2000 EY_{85}	14.6	X	266.56637	33.08130	35.34540	5.52498	0.0277016	0.21634306	2.7481519	20	9 20.8	18.2
97610 2000 EG_{86}	14.1	X	184.03965	318.01959	272.91427	4.40863	0.1425719	0.17730732	3.1379903	20	12 12.5	19.1
97611 2000 EW_{86}	14.6	X	288.11711	206.08469	328.43475	9.26200	0.2050449	0.18511963	3.0490723	20	—	—
97612 2000 EH_{87}	14.2	X	354.10951	80.50875	344.59097	8.55546	0.0572208	0.17955694	3.1117254	20	—	—
97613 2000 EK_{87}	14.5	X	256.64715	187.13767	341.40132	7.63783	0.1064381	0.17979686	3.1089565	20	12 22.2	18.8
97614 2000 EF_{88}	14.3	X	305.85825	225.52471	271.57774	10.69055	0.1198874	0.18494667	3.0509731	20	—	—
97615 2000 EH_{99}	15.4	X	57.49505	23.90448	335.47226	2.14709	0.0917657	0.18008551	3.1056335	20	—	—
97616 2000 EU_{101}	15.6	X	159.93103	23.02318	227.12521	1.79990	0.0977941	0.17649430	3.1476197	20	12 14.2	20.5
97617 2000 EW_{104}	13.7	X	126.61658	220.55161	43.54072	14.77710	0.1682870	0.17165652	3.2064848	20	11 28.2	19.0
97618 2000 EH_{105}	14.8	X	250.80387	99.53251	118.97469	10.79571	0.2302919	0.18263123	3.0767061	20	—	—
97619 2000 EZ_{107}	14.7	X	248.14721	247.68220	273.03466	8.92950	0.0926124	0.17958011	3.1114577	20	12 3.6	19.1
97620 2000 EA_{108}	14.5	X	325.20484	199.83907	257.52090	8.46826	0.0759089	0.18244851	3.0787600	20	—	—
97621 2000 EE_{111}	14.5	X	274.02355	123.75021	49.18476	10.47030	0.1460454	0.18273855	3.0755014	20	—	—
97622 2000 EZ_{117}	14.7	X	320.26936	65.40331	0.96880	23.09161	0.1931762	0.18116364	3.0932999	20	11 3.4	18.5
97623 2000 EL_{118}	13.8	X	181.10249	131.58632	47.40273	11.59835	0.0836981	0.17402812	3.1772869	20	10 16.2	18.7
97624 2000 ES_{120}	14.3	X	254.76327	88.66832	353.30050	17.99026	0.1174608	0.17235868	3.1977704	20	9 4.7	18.9
97625 2000 EC_{121}	15.3	X	22.72570	188.65302	65.06081	4.41077	0.0322775	0.21076525	2.7964263	20	7 8.9	19.0
97626 2000 ED_{124}	14.6	X	132.55084	135.08415	149.19411	1.14378	0.1560867	0.17678414	3.1441784	20	12 28.3	19.6
97627 2000 EB_{128}	14.5	X	59.55772	146.57040	1.60315	27.80548	0.1029678	0.20026913	2.8932994	20	4 9.3	18.5
97628 2000 EW_{133}	16.0	X	247.10406	166.84576	78.24016	8.31213	0.0815752	0.28439737	2.2900889	20	—	—
97629 2000 EW_{135}	14.3	X	100.43499	145.00408	154.96361	15.70068	0.0571644	0.17434026	3.1734933	20	12 12.4	19.3
97630 2000 EC_{137}	15.0	X	277.54191	40.26215	95.87581	2.63989	0.1961856	0.17987971	3.1080018	20	11 28.7	18.7
97631 Kentrobinson	14.6	X	146.08381	215.74579	41.96014	9.05305	0.0503281	0.17881304	3.1203497	20	12 9.2	19.3
97632 2000 EL_{145}	14.6	X	266.78400	249.55422	308.44634	3.62113	0.1840242	0.18316307	3.0707475	20	—	—
97633 2000 EY_{151}	15.9	X	42.03475	265.79975	177.38591	6.54054	0.0667801	0.28893963	2.2660247	20	—	—
97634 2000 EQ_{154}	14.7	X	240.50679	34.57914	137.10973	6.33682	0.1396282	0.17685691	3.1433159	20	12 2.0	19.2
97635 2000 EB_{155}	14.6	X	177.86946	285.51628	335.39796	15.37993	0.2099160	0.17784258	3.1316908	20	—	—
97636 2000 EC_{155}	14.6	X	354.59325	194.60979	334.73131	10.61524	0.0992371	0.19305938	2.9648913	20	2 7.1	18.3
97637 Blennert	14.3	X	293.69678	82.40008	37.84387	14.91878	0.1658763	0.18374510	3.0642595	20	12 6.8	18.1
97638 2000 EO_{161}	14.9	X	173.18042	40.01454	247.75573	2.43972	0.0819828	0.18425772	3.0585735	20	—	—
97639 2000 EN_{163}	15.0	X	95.70235	354.48560	49.92387	1.23785	0.1271950	0.19271239	2.9684492	20	2 1.6	18.8
97640 2000 EN_{165}	14.9	X	222.35773	145.15280	10.30619	5.29943	0.1203110	0.17470479	3.1690774	20	10 23.7	19.7
97641 2000 EU_{169}	14.3	X	41.94081	326.31742	77.00165	13.24870	0.0127681	0.18335254	3.0686317	20	—	—
97642 2000 EF_{170}	14.1	X	284.36436	73.09894	9.76173	21.32083	0.1514365	0.17618964	3.1512471	20	10 6.5	18.2
97643 2000 EG_{170}	14.5	X	284.11848	124.95406	40.16580	10.59355	0.0453238	0.18437295	3.0572990	20	—	—
97644 2000 ET_{171}	14.1	X	257.58956	34.40610	84.65778	10.60422	0.0551661	0.17484974	3.1673257	20	11 3.0	18.6
97645 2000 EK_{183}	14.6	X	355.64467	48.86274	43.38371	11.48478	0.1499483	0.18673542	3.0314582	20	—	—
97646 2000 EK_{198}	14.2	X	196.25199	242.17338	329.27292	14.01130	0.0325020	0.17729403	3.1381472	20	12 10.5	19.0
97647 2000 EG_{201}	14.0	X	276.47752	11.21289	49.66939	4.46581	0.0516280	0.16791573	3.2539319	20	9 14.0	18.5
97648 2000 EU	16.4	X	175.72007	178.99033	28.60262	21.07748	0.0278267	0.37201212	1.9146879	20	—	—
97649 2000 FK_{1}	16.2	X	112.52725	168.51692	111.81924	24.77959	0.0492535	0.37083760	1.9187286	20	—	—
97650 2000 FN_{2}	14.5	X	167.49444	73.78273	184.66428	5.58010	0.1371989	0.17542592	3.1603865	20	12 28.7	19.6
97651 2000 FQ_{3}	14.2	X	60.70449	54.81566	139.34343	14.51841	0.0554694	0.20511512	2.8475472	20	6 16.4	18.2
97652 2000 FV_{7}	14.2	X	52.67196	341.37828	62.18810	15.31178	0.1259651	0.18499866	3.0504014	20	—	—
97653 2000 FH_{13}	13.9	X	35.13982	258.12676	17.05838	13.92626	0.0671614	0.16389821	3.3068912	20	8 29.3	18.5
97654 2000 FR_{17}	14.2	X	135.05224	144.40660	124.77045	10.30797	0.0547533	0.17523180	3.1627201	20	12 12.4	19.0
97655 2000 FZ_{17}	14.6	X	213.21254	132.26141	59.88555	12.32847	0.1416982	0.17640503	3.1486816	20	11 25.2	19.5
97656 2000 FS_{19}	15.1	X	221.73306	103.40023	136.44095	10.71062	0.2264441	0.18117988	3.0931150	20	—	—
97657 2000 FN_{20}	14.3	X	245.76877	79.71264	77.08729	6.41766	0.1603010	0.17748299	3.1359194	20	11 17.4	18.7
97658 2000 FC_{22}	14.8	X	47.10490	337.28935	138.45205	11.28144	0.0667338	0.19335532	2.9618653	20	2 16.2	18.6
97659 2000 FF_{22}	14.7	X	254.42705	49.80498	90.35010	7.08657	0.1050394	0.17628512	3.1501092	20	11 15.9	19.2
97660 2000 FC_{24}	14.3	X	259.79628	46.05737	113.53987	15.53575	0.1002224	0.17801410	3.1296789	20	12 17.1	18.6
97661 2000 FN_{24}	14.8	X	55.27119	183.36005	109.74764	12.53292	0.2481062	0.21356810	2.7719057	20	11 17.3	19.1
97662 2000 FD_{26}	14.5	X	197.31744	190.03082	32.07716	5.68757	0.0922651	0.17682936	3.1436423	20	12 18.7	19.2
97663 2000 FU_{29}	16.7	X	17.78782	96.39264	172.88588	3.82603	0.1585347	0.30358536	2.1925466	20	8 16.8	18.5
97664 2000 FK_{31}	15.4	X	192.40256	129.85884	120.70370	11.43488	0.0541850	0.27943100	2.3171438	20	—	—
97665 2000 FL_{32}	14.3	X	200.70714	119.98284	101.83835	3.19778	0.0892721	0.17738587	3.1370639	20	12 22.6	19.0
97666 2000 FJ_{33}	14.3	X	282.60202	105.09525	34.38828	6.74844	0.2307832	0.18080164	3.0974275	20	12 4.9	18.0
97667 2000 FZ_{37}	14.2	X	268.66328	68.74860	28.06663	25.34975	0.2186819	0.17395015	3.1782363	20	10 1.9	18.7
97668 2000 FG_{39}	14.7	X	183.12302	152.12571	104.68984	2.62669	0.1378082	0.17747632	3.1359979	20	—	—
97669 2000 FL_{40}	14.1	X	241.90533	58.12035	150.83692	9.76958	0.0263113	0.18086916	3.0966565	20	—	—
97670 2000 FN_{42}	16.2	X	175.43697	290.57573	215.70298	21.77197	0.1029581	0.35980545	1.9577514	20	9 11.6	19.1
97671 2000 FT_{46}	15.1	X	138.02923	196.90488	78.26012	8.77558	0.2173993	0.22218552	2.6997625	20	12 30.2	19.7
97672 2000 FW_{46}	14.7	X	220.26890	139.81768	62.35288	11.12532	0.1806175	0.17722619	3.1389480	20	12 9.4	19.5
97673 2000 FW_{47}	13.8	X	76.22704	341.19197	102.61625	11.06050	0.0452205	0.19127144	2.9833392	20	2 16.0	17.9
97674 2000 FJ_{50}	15.5	X	355.91788	230.29353	30.54076	6.58486	0.1016688	0.25293916	2.4762358	20	6 8.4	18.2
97675 2000 FG_{55}	15.1	X	185.13770	234.05920	6.99037	4.65585	0.1303733	0.17546509	3.1599162	20	12 25.7	20.2
97676 2000 FW_{56}	14.3	X	230.98299	345.29710	179.13828	21.49578	0.0616260	0.17401367	3.1774627	20	11 23.5	19.2
97677 2000 FE_{57}	14.3	X	213.83172	284.42446	330.83699	9.44348	0.1078943	0.18426224	3.0585235	20	—	—
97678 2000 GS_{1}	14.5	X	193.04384	214.44069	26.47148	5.45381	0.1107343	0.17566912	3.1574691	20	—	—
97679 2000 GG_{2}	16.6	X	340.04193	138.34580	196.33161	50.81062	0.1320486	0.50067588	1.5707182	20	11 10.0	18.2
97680 2000 GM_{7}	15.9	X	116.73123	118.34674	184.14414	4.83339	0.2316517	0.27181636	2.3602191	20	—	—

ELEMENTS AND OPPOSITION DATES IN 2020

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Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
97681 2000 GA_9	15.4	X	350.69198	22.51395	116.67134	1.63626	0.1509390	0.19008360	2.9957549	20	—	—
97682 2000 GC_{10}	14.7	X	265.99154	194.89294	19.60556	0.91081	0.0706132	0.18665951	3.0322800	20	—	—
97683 2000 GV_{12}	16.6	X	35.31551	124.13351	143.04538	1.74569	0.1805637	0.25718136	2.4489301	20	9 12.2	19.2
97684 2000 GZ_{16}	14.6	X	255.32930	301.55063	150.57882	1.41890	0.1225369	0.17045453	3.2215411	20	9 14.5	19.2
97685 2000 GD_{17}	14.6	X	5.12044	260.41026	175.11715	2.77710	0.0801359	0.18172241	3.0869557	20	—	—
97686 2000 GK_{20}	14.4	X	28.98665	84.38368	14.45918	10.11106	0.2246299	0.19046056	2.9918008	20	1 1.2	17.5
97687 2000 GN_{20}	15.0	X	268.30853	62.39942	39.88840	0.92720	0.1451694	0.17369398	3.1813604	20	10 10.6	19.2
97688 2000 GX_{22}	14.6	X	126.33583	69.11771	186.51598	11.33295	0.0668305	0.17113355	3.2130139	20	11 17.8	19.5
97689 2000 GE_{26}	14.8	X	231.57452	88.82749	22.23303	5.50924	0.1091988	0.16892158	3.2410020	20	9 13.4	19.6
97690 2000 GO_{28}	14.4	X	89.14990	310.19423	9.13372	9.25894	0.0693982	0.17422806	3.1748557	20	12 21.9	19.2
97691 2000 GL_{31}	14.7	X	224.09772	340.19626	180.51500	5.47562	0.1007487	0.17325187	3.1867703	20	11 4.9	19.4
97692 2000 GO_{36}	14.6	X	242.13701	50.32234	111.71842	1.30503	0.1406300	0.17782957	3.1318436	20	11 21.6	19.0
97693 2000 GX_{45}	14.4	X	185.84252	351.26438	199.53699	21.05902	0.0561431	0.17065736	3.2189881	20	11 3.4	19.3
97694 2000 GD_{46}	14.7	X	332.92254	43.46099	38.54230	5.45789	0.1567388	0.17827186	3.1266614	20	12 28.4	18.2
97695 2000 GK_{49}	14.1	X	245.48249	138.91672	350.00223	1.00147	0.1904630	0.17315683	3.1879363	20	10 8.8	18.6
97696 2000 GR_{50}	14.3	X	329.75616	92.17231	31.78757	7.91290	0.1223075	0.18266798	3.0762935	20	—	—
97697 2000 GF_{52}	14.5	X	294.39358	163.59649	21.89222	4.42401	0.2340308	0.18505302	3.0498040	20	—	—
97698 2000 GX_{52}	15.2	X	226.17455	147.96136	8.58017	5.62317	0.1360484	0.17262270	3.1945089	20	10 26.7	20.1
97699 2000 GP_{57}	16.6	X	17.54509	248.82940	15.02154	2.23396	0.2420347	0.30108632	2.2046621	20	8 24.3	18.0
97700 2000 GU_{62}	13.6	X	308.15987	262.21864	171.98349	3.06256	0.1998443	0.12481191	3.9655068	20	10 17.5	18.5
97701 2000 GR_{66}	16.4	X	104.45938	301.71452	358.62597	1.48066	0.1073514	0.31872969	2.1225326	20	—	—
97702 2000 GG_{67}	14.5	X	326.66749	2.91194	207.50005	6.52503	0.1982469	0.19102019	2.9859546	20	1 31.7	18.5
97703 2000 GS_{69}	16.5	X	115.84591	56.07808	208.91385	1.90778	0.1594470	0.31516554	2.1385048	20	12 15.7	19.8
97704 2000 GB_{76}	14.5	X	199.23047	192.54961	47.39297	4.22442	0.1304868	0.17606017	3.1527918	20	—	—
97705 2000 GM_{77}	14.8	X	236.50941	161.79841	145.02842	1.47238	0.2500044	0.18898469	3.0073568	20	2 19.9	20.1
97706 2000 GQ_{81}	14.9	X	181.99493	84.28509	163.26459	1.67705	0.1514075	0.17505636	3.1648329	20	12 28.6	19.9
97707 2000 GP_{83}	14.4	X	217.61106	142.37201	20.75590	9.54809	0.0507627	0.17463090	3.1699712	20	11 3.8	19.1
97708 2000 GZ_{84}	15.5	X	60.89647	169.55425	93.59910	13.55252	0.1046920	0.21148225	2.7901021	20	9 30.9	19.6
97709 2000 GE_{85}	15.1	X	287.78669	338.92824	117.66985	14.78226	0.0835506	0.22205947	2.7007840	20	11 23.5	18.7
97710 2000 GU_{85}	15.4	X	64.13972	351.95002	142.75940	13.12201	0.0856216	0.24590093	2.5232635	20	4 6.8	18.6
97711 2000 GD_{86}	14.5	X	259.95641	105.42574	105.99624	10.34067	0.0912022	0.18592310	3.0402816	20	—	—
97712 2000 GD_{87}	14.3	X	287.30574	54.49365	40.29077	19.34109	0.1103845	0.17382443	3.1797686	20	11 1.4	18.4
97713 2000 GS_{88}	14.2	X	252.06801	347.49159	135.80935	9.47472	0.0979907	0.17202802	3.2018667	20	10 25.9	18.8
97714 2000 GU_{90}	14.1	X	163.36382	141.82592	113.63103	6.46405	0.1506365	0.17363224	3.1821145	20	12 21.4	19.3
97715 2000 GN_{92}	14.8	X	221.87647	303.39893	198.76601	1.10096	0.1471250	0.17152657	3.2081041	20	10 5.0	19.7
97716 2000 GC_{100}	14.6	X	179.83223	4.38307	243.78246	4.68688	0.1455617	0.17560728	3.1582102	20	12 27.7	19.5
97717 2000 GX_{102}	14.0	X	94.04064	265.10325	46.83482	5.87701	0.1315949	0.17244309	3.1967268	20	12 23.6	19.0
97718 2000 GU_{107}	14.9	X	217.26224	230.01129	45.15709	10.99314	0.1011930	0.23290471	2.6162779	20	—	—
97719 2000 GW_{113}	13.5	X	252.73217	104.40516	2.12073	16.24708	0.1378405	0.17137800	3.2099579	20	9 26.5	18.2
97720 2000 GF_{115}	14.7	X	274.58075	185.75682	30.22965	9.22059	0.1706448	0.18654593	3.0335107	20	—	—
97721 2000 GU_{115}	14.3	X	291.50780	359.47924	116.91067	2.43256	0.1150801	0.17768996	3.1334838	20	12 4.9	18.3
97722 2000 GE_{128}	14.7	X	305.39488	60.35259	86.91312	10.52524	0.1830303	0.18069518	3.0986440	20	—	—
97723 2000 GD_{137}	14.1	X	219.28788	33.23057	151.01120	13.25725	0.1592739	0.17288754	3.1912458	20	11 23.1	19.2
97724 2000 GN_{138}	14.0	X	353.39602	101.55676	177.39596	14.61123	0.0631660	0.15486736	3.4342306	20	6 27.4	18.8
97725 2000 GB_{147}	18.7	X	113.43437	212.30036	311.76613	18.19258	0.3088401	0.40857587	1.7986814	20	8 14.7	21.5
97726 2000 GE_{161}	14.6	X	237.50142	73.42305	56.64556	13.45476	0.0941751	0.17118238	3.2124029	20	10 18.2	19.3
97727 2000 GG_{163}	14.0	X	285.10496	16.97975	103.74951	10.16393	0.1793375	0.17730385	3.1380313	20	11 24.7	17.9
97728 2000 GV_{165}	15.3	X	205.30425	128.87779	244.86248	1.19546	0.0397189	0.19846263	2.9108303	20	4 19.1	19.6
97729 2000 GF_{166}	14.6	X	102.06347	175.11249	124.63279	0.75739	0.1666908	0.17051023	3.2208396	20	12 19.4	19.7
97730 2000 GA_{169}	14.2	X	219.23646	54.79278	153.59575	27.42435	0.1166798	0.17575829	3.1564010	20	12 25.7	19.4
97731 2000 GO_{169}	14.9	X	191.02227	194.90058	357.01735	8.22530	0.1128301	0.17254752	3.1954368	20	11 2.7	20.0
97732 2000 GL_{171}	14.6	X	288.82033	117.70178	98.17664	5.87588	0.1286852	0.18658313	3.0331075	20	1 4.3	18.9
97733 2000 GA_{174}	14.5	X	269.64581	130.43557	336.39872	8.62468	0.1567016	0.17452083	3.1713040	20	10 12.7	18.9
97734 2000 HB_5	16.2	X	358.37604	36.06047	40.81511	21.31352	0.1196917	0.37420292	1.9072075	20	—	—
97735 2000 HD_{12}	16.3	X	134.18007	6.99590	252.99268	1.60757	0.0976438	0.31726686	2.1290519	20	12 29.4	19.0
97736 2000 HT_{21}	16.7	X	87.85458	25.80487	224.09358	3.54997	0.0876002	0.30977340	2.1632496	20	10 22.2	19.4
97737 2000 HX_{27}	16.0	X	143.37507	91.50493	58.09940	23.00598	0.0556266	0.35484313	1.9759613	20	8 27.1	19.0
97738 2000 HK_{28}	14.1	X	270.31382	47.74868	70.27129	27.74997	0.1829497	0.17570415	3.1570493	20	11 6.3	18.6
97739 2000 HP_{28}	15.3	X	11.61764	255.89247	71.92990	24.51452	0.0847962	0.35976175	1.9579100	20	11 16.2	17.3
97740 2000 HM_{30}	14.7	X	282.89424	79.83801	107.87117	14.77394	0.1141597	0.18244752	3.0787711	20	—	—
97741 2000 HP_{33}	16.6	X	223.78556	132.13974	149.70135	26.20943	0.0914211	0.38176300	1.8819446	20	—	—
97742 2000 HF_{34}	14.3	X	272.80623	117.97259	20.20759	16.48023	0.2119392	0.17715528	3.1397855	20	11 16.3	18.6
97743 2000 HQ_{42}	14.5	X	241.37577	245.93619	205.01628	13.32583	0.1715246	0.21464379	2.7626370	20	8 21.5	18.8
97744 2000 HL_{43}	14.7	X	160.64776	146.02884	124.95381	2.06439	0.2228386	0.17280739	3.1922325	20	—	—
97745 2000 HO_{43}	17.8	X	88.13302	33.46889	238.21495	1.11426	0.0406595	0.31257744	2.1502929	20	11 18.3	20.1
97746 2000 HQ_{52}	16.2	X	105.70167	190.33541	57.26346	4.04251	0.2028253	0.31086740	2.1581714	20	11 14.8	19.6
97747 2000 HC_{74}	14.0	X	244.46552	109.52569	123.15915	16.78291	0.1675575	0.18161983	3.0881179	20	—	—
97748 2000 HF_{79}	14.0	X	217.18882	57.08852	78.15269	20.62192	0.1480837	0.17092470	3.2156307	20	10 3.7	19.4
97749 2000 HS_{83}	14.5	X	332.08572	6.15936	85.26287	18.97706	0.1927922	0.18213712	3.0822681	20	—	—
97750 2000 HX_{83}	13.6	X	179.39850	141.44783	61.67524	22.90313	0.1131810	0.17296304	3.1903170	20	11 10.7	18.6
97751 2000 HF_{84}	14.7	X	279.18609	27.02411	100.07563	18.05486	0.1691564	0.17909301	3.1170968	20	11 27.5	18.8
97752 2000 HH_{86}	17.0	X	123.60083	198.20983	82.91648	6.10531	0.1552297	0.31702990	2.1301126	20	—	—
97753 2000 HY_{94}	14.1	X	350.13625	282.81426	133.29135	23.17231	0.0548261	0.17206732	3.2013792	20	12 18.3	18.7
97754 2000 HJ_{96}	15.5	X	234.80502	112.79091	194.47910	13.13936	0.1290432	0.23802068	2.5786531	20	2 17.9	19.7
97755 2000 HN_{99}	14.5	X	233.83197	233.59440	227.80483	16.47422	0.0959171	0.21443425	2.7644364	20	9 2.5	18.8
97756 2000 JY	16.0	X	286.20242	342.97741	90.01984	22.89520	0.0266842	0.36403690	1.9425511	20	11 30.9	17.9
97757 2000 JC_3	16.1	X	80.72161	174.15681	39.17939	21.91944	0.0557603	0.35741784	1.9664605	20	9 8.2	18.9
97758 2000 JY_5	14.4	X	268.73216	82.25392	59.70896	16.44916	0.2237447	0.17677718	3.1442609	20	11 18.5	18.3
97759 2000 JJ_{10}	15.6	X	274.35621	40.69594	61.62632	22.63542	0.0922400	0.36474911	1.9400216	20	12 16.5	17.1
97760 2000 JT_{12}	14.7	X	129.15365	230.32005	41.58418	5.65411	0.1207522	0.16976519	3.2302561	20	12 8.9	19.8

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
97761 2000 JE_{15}	14.5	X	305.61170	125.72350	71.17481	8.70685	0.1644507	0.18467304	3.0539861	20	—	—
97762 2000 JP_{20}	14.1	X	289.46593	248.63881	231.68025	16.53072	0.1657517	0.17705868	3.1409274	20	11 30.6	17.9
97763 2000 JO_{21}	14.7	X	255.70179	144.44870	6.52798	6.55827	0.1543462	0.17500682	3.1654302	20	11 20.1	19.1
97764 2000 JO_{22}	15.5	X	208.16074	71.79827	233.79895	11.94562	0.1825681	0.23370563	2.6102970	20	1 21.9	20.1
97765 2000 JN_{27}	14.1	X	206.67307	224.78992	235.52440	16.37720	0.1017984	0.20894248	2.8126663	20	7 31.2	18.7
97766 2000 JB_{30}	14.1	X	142.53671	257.87939	28.81382	15.97907	0.1339502	0.17256573	3.1952120	20	—	—
97767 2000 JB_{46}	15.5	X	273.11787	95.60634	189.88948	0.31625	0.1725450	0.19039992	2.9924361	20	3 4.3	19.9
97768 2000 JP_{69}	13.6	X	187.85269	141.47878	98.64409	18.32491	0.1773835	0.17959733	3.1112588	20	12 24.8	18.7
97769 2000 JS_{70}	14.2	X	329.31651	231.84567	261.74681	9.82821	0.0718642	0.18432559	3.0578226	20	—	—
97770 2000 JJ_{72}	14.6	X	351.57151	246.26816	114.86146	8.82809	0.2457584	0.20989359	2.8041631	20	11 7.8	17.3
97771 2000 JX_{72}	15.0	X	88.98595	208.84236	90.00023	9.33791	0.2022954	0.21515424	2.7582658	20	12 17.3	19.3
97772 2000 JZ_{79}	14.0	X	266.31257	69.98888	49.82374	23.27816	0.2400828	0.17477449	3.1682348	20	10 22.7	18.5
97773 2000 JY_{80}	14.4	X	280.32893	303.86984	267.45291	6.79825	0.0872832	0.18433493	3.0577194	20	—	—
97774 2000 KK_{1}	16.1	X	60.07269	215.76270	99.41671	24.82987	0.0465243	0.36623419	1.9347735	20	12 27.7	17.9
97775 2000 KN_{2}	14.1	X	290.89200	53.21647	107.74496	27.94414	0.1706867	0.17958077	3.1114501	20	—	—
97776 2000 KY_{10}	15.1	X	354.92425	351.16070	56.05605	12.25669	0.0934043	0.21965582	2.7204510	20	12 27.3	18.5
97777 2000 KG_{16}	14.7	X	129.04957	238.43236	53.04612	1.50458	0.1572053	0.16999451	3.2273504	20	—	—
97778 2000 KG_{41}	16.3	X	347.38920	211.62906	96.05497	3.99397	0.1955521	0.29933625	2.2132468	20	8 18.2	17.5
97779 2000 KA_{67}	15.4	X	143.54424	106.93414	121.14295	24.06145	0.0590997	0.36281540	1.9469086	20	12 14.9	18.1
97780 2000 KW_{67}	14.4	X	198.63311	125.99385	73.86398	18.81084	0.1633480	0.17403560	3.1771958	20	11 20.7	19.5
97781 2000 KE_{73}	15.6	X	127.68995	184.28509	121.01683	3.84578	0.1774490	0.31532657	2.1377767	20	—	—
97782 2000 KJ_{73}	15.9	X	67.87733	121.47563	128.58791	5.92279	0.1176920	0.30150130	2.2026386	20	10 3.2	18.6
97783 2000 KL_{76}	15.6	X	243.38156	231.49890	91.39151	10.50475	0.1874665	0.23861429	2.5743747	20	3 20.9	19.9
97784 2000 KK_{81}	15.8	X	262.65003	49.32442	102.53675	23.38867	0.0742087	0.36975332	1.9224778	20	—	—
97785 2000 NZ_{1}	16.1	X	181.09184	215.30454	343.68188	1.91823	0.1123114	0.31175819	2.1540584	20	11 28.3	18.7
97786 2000 NU_{2}	16.5	X	192.84583	78.55078	222.49775	2.42607	0.2430394	0.27428987	2.3460082	20	1 4.5	20.4
97787 2000 NH_{5}	15.6	X	150.13226	204.38663	116.83123	12.30012	0.2636533	0.26840896	2.3801521	20	—	—
97788 2000 NP_{5}	15.5	X	140.02001	116.27202	239.44387	6.68064	0.2725672	0.26952439	2.3735807	20	1 27.6	19.2
97789 2000 NY_{8}	14.8	X	274.08789	357.08371	333.79840	5.85069	0.2041442	0.28577464	2.2827250	20	4 18.9	18.1
97790 2000 NB_{9}	15.7	X	175.14932	355.24828	340.34488	1.87437	0.2379843	0.27221639	2.3579063	20	2 1.4	19.4
97791 2000 ND_{9}	15.5	X	351.59857	33.79800	298.72729	4.81897	0.1927025	0.29647378	2.2274699	20	10 7.3	17.2
97792 2000 NG_{10}	15.8	X	138.23864	0.49495	264.64304	3.32731	0.1273752	0.31244990	2.1508781	20	—	—
97793 2000 NJ_{13}	15.7	X	321.64775	59.02623	284.08067	6.58014	0.1646914	0.29528228	2.2334580	20	8 9.7	17.2
97794 2000 NG_{14}	15.8	X	39.22511	345.63118	298.07658	4.25236	0.1381166	0.30000101	2.2099761	20	10 9.6	18.3
97795 2000 NA_{15}	16.1	X	100.53424	203.66416	125.49919	4.53779	0.1924285	0.31305311	2.1481142	20	—	—
97796 2000 NT_{15}	15.7	X	270.95292	297.27238	23.66502	2.48236	0.1948629	0.28620168	2.2804537	20	4 5.9	18.8
97797 2000 NG_{17}	15.9	X	237.40123	337.32980	9.15862	4.54911	0.2038936	0.28396863	2.2923934	20	4 4.4	19.4
97798 2000 NL_{21}	15.7	X	332.27124	24.69750	277.75095	4.14834	0.1871381	0.29477088	2.2360405	20	6 23.1	16.9
97799 2000 NE_{23}	15.5	X	68.50976	327.63368	291.53261	4.95340	0.1429750	0.30144614	2.2029074	20	10 14.4	18.5
97800 2000 NO_{23}	15.6	X	266.17806	325.04808	99.75844	6.66740	0.1019486	0.29838625	2.2179420	20	9 18.6	18.0
97801 2000 NV_{27}	15.9	X	97.55333	39.57283	153.20335	5.36120	0.0920009	0.29660592	2.2268083	20	8 13.2	18.6
97802 2000 NJ_{28}	15.8	X	19.58730	60.05433	231.41897	4.26269	0.1943238	0.29982755	2.2108283	20	9 30.6	17.8
97803 2000 OQ_{6}	16.1	X	262.62762	96.78702	211.00013	3.07346	0.1940159	0.28499382	2.2868925	20	3 9.8	19.6
97804 2000 OA_{9}	15.3	X	193.73406	110.58338	264.56310	1.17502	0.2490494	0.27694326	2.3309995	20	4 2.8	19.2
97805 2000 OJ_{15}	15.8	X	126.42456	70.04659	117.61308	5.04079	0.0726575	0.30004542	2.2097580	20	9 12.5	18.6
97806 2000 OH_{18}	15.9	X	272.39342	355.71922	313.51443	4.92456	0.1794790	0.28572737	2.2829767	20	3 22.4	19.0
97807 2000 OR_{18}	16.3	X	6.23002	69.02378	297.64008	2.09594	0.1853952	0.30551421	2.1833085	20	12 31.1	18.5
97808 2000 OZ_{18}	16.0	X	288.35608	123.57353	263.42079	2.29245	0.0515161	0.29767238	2.2214865	20	8 30.6	18.2
97809 2000 OH_{30}	16.3	X	345.67384	77.33171	219.74763	4.05640	0.1583517	0.29490829	2.2353459	20	7 18.9	18.0
97810 2000 OM_{30}	16.4	X	79.62630	132.16510	190.14112	3.21454	0.2054231	0.31038322	2.1604152	20	—	—
97811 2000 OH_{33}	16.1	X	67.45641	352.24287	267.04570	6.52868	0.1244560	0.30228007	2.1988539	20	10 10.4	19.0
97812 2000 OH_{46}	16.1	X	192.69315	118.24826	212.87003	1.89523	0.2344669	0.27484577	2.3428438	20	2 8.4	20.1
97813 2000 OP_{46}	16.0	X	3.87164	169.54616	172.96621	5.17178	0.1440694	0.29931257	2.2133635	20	11 14.6	18.1
97814 2000 OY_{46}	15.7	X	352.60677	6.34257	344.84508	5.12142	0.2321569	0.29864901	2.2166408	20	11 18.6	17.4
97815 2000 OA_{48}	14.4	X	236.73174	307.36178	346.94814	24.48410	0.2500039	0.27665274	2.3326311	20	2 6.9	18.7
97816 2000 OW_{48}	15.7	X	43.77930	300.51247	11.02588	5.72016	0.2056734	0.30170829	2.2016311	20	12 4.8	18.7
97817 2000 OY_{48}	15.7	X	269.03558	310.14296	23.74394	4.88853	0.1906884	0.28499419	2.2868906	20	4 21.4	18.6
97818 2000 OQ_{49}	15.7	X	342.41223	251.20938	63.85280	5.31722	0.1987263	0.29297512	2.2451682	20	8 18.2	17.0
97819 2000 OR_{49}	15.5	X	266.43841	225.93413	142.52622	8.40291	0.1570126	0.28726963	2.2747984	20	6 12.2	18.4
97820 2000 OZ_{49}	16.1	X	304.75846	207.70833	164.40373	4.40407	0.1740186	0.29381071	2.2409094	20	8 20.8	17.6
97821 2000 OV_{50}	15.8	X	164.21626	306.11327	48.99513	6.39378	0.2361195	0.27182677	2.3601588	20	2 18.6	19.7
97822 2000 OG_{53}	15.7	X	223.67359	353.49389	298.69756	11.27439	0.2291755	0.27595719	2.3365491	20	1 17.5	19.6
97823 2000 OQ_{56}	15.9	X	260.64779	313.85272	348.17353	5.67124	0.1161064	0.28311292	2.2970102	20	3 9.3	19.1
97824 2000 OU_{57}	16.0	X	176.05892	206.68070	122.92249	8.41197	0.1320994	0.27452998	2.3446401	20	1 18.6	19.4
97825 2000 OK_{58}	16.3	X	146.95932	260.11559	101.69655	4.56840	0.1755860	0.27327408	2.3518183	20	2 3.4	19.6
97826 2000 OB_{59}	15.8	X	307.07487	355.78455	310.76030	6.25092	0.1351818	0.29017146	2.2596070	20	5 13.2	18.2
97827 2000 OB_{61}	15.6	X	193.85427	84.06142	265.56013	5.88395	0.1419706	0.27557530	2.3387072	20	2 27.6	19.3
97828 2000 OJ_{61}	15.3	X	156.94534	348.36494	32.61703	7.17416	0.1197641	0.27392483	2.3480920	20	3 6.4	18.7
97829 2000 PL_{1}	16.0	X	18.36602	200.00744	59.81849	4.64146	0.1697635	0.29425290	2.2386638	20	8 5.4	17.8
97830 2000 PA_{4}	16.2	X	0.26681	155.72397	211.87241	2.59472	0.1595558	0.30299187	2.1954088	20	12 18.0	18.2
97831 2000 PN_{5}	16.0	X	209.80287	135.99722	261.34798	1.96871	0.1209460	0.28647546	2.2790006	20	5 18.9	19.3
97832 2000 PQ_{5}	16.3	X	156.63514	111.00748	312.09153	1.58039	0.0108869	0.28354181	2.2946933	20	4 17.3	19.1
97833 2000 PF_{6}	16.0	X	301.49385	343.50847	46.68884	5.95520	0.1963527	0.29684005	2.2256373	20	9 16.0	17.6
97834 2000 PN_{6}	15.1	X	198.01282	280.65920	148.50960	22.83775	0.2856123	0.28210645	2.3024703	20	6 15.9	19.6
97835 2000 PF_{7}	15.7	X	219.88972	328.14239	0.76443	3.80286	0.2189105	0.27968389	2.3157468	20	2 28.1	19.6
97836 2000 PW_{8}	16.2	X	335.86782	30.16597	4.89811	2.58764	0.1346463	0.30395089	2.1907884	20	12 12.2	18.0
97837 2000 PX_{13}	16.5	X	205.79576	212.95779	141.16468	5.98180	0.1950076	0.28173062	2.3045175	20	3 19.7	20.3
97838 2000 PC_{18}	15.5	X	205.50744	302.52775	120.49329	5.72587	0.0564586	0.29109918	2.2548036	20	6 23.5	18.3
97839 2000 PQ_{19}	16.5	X	318.62120	221.82547	71.35827	4.40039	0.1955852	0.29009204	2.2600194	20	5 5.9	18.4
97840 2000 PS_{19}	16.1	X	147.08727	279.07913	88.05840	6.50682	0.1969301	0.27314189	2.3525770	20	2 13.8	19.6

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
97841 2000 PZ_{20}	16.4	X	293.76144	246.87940	145.22644	4.57934	0.1675962	0.29757857	2.2219534	20	9 2.8	18.1
97842 2000 PS_{22}	15.3	X	227.36963	5.17531	103.32152	5.31937	0.0725006	0.30230177	2.1987487	20	9 29.7	17.9
97843 2000 PA_{26}	14.7	X	25.43432	344.20787	332.85893	11.87036	0.1767661	0.24710087	2.5150881	20	10 28.1	17.9
97844 2000 PE_{27}	15.2	X	178.65197	26.67825	3.88490	5.87262	0.1720882	0.27808991	2.3245875	20	4 7.9	18.9
97845 2000 PG_{28}	14.3	X	212.19171	155.40881	130.53961	17.04621	0.1773948	0.22309392	2.6924288	20	1 7.1	18.9
97846 2000 PP_{28}	16.3	X	318.65431	341.21090	21.35938	3.69077	0.2322261	0.29476072	2.2360919	20	9 5.2	17.3
97847 2000 PV_{28}	15.3	X	289.10875	340.01159	79.15381	7.95639	0.1226145	0.30012571	2.2093639	20	10 18.9	17.3
97848 2000 QS_{3}	16.8	X	82.31512	228.92200	69.08546	0.82741	0.1297561	0.30618603	2.1801136	20	12 22.4	19.8
97849 2000 QJ_{4}	15.9	X	173.66201	67.52923	330.27214	1.76901	0.2198373	0.27880422	2.3206153	20	4 14.2	19.7
97850 2000 QT_{4}	16.4	X	314.29497	197.44656	179.61487	2.36482	0.1678863	0.29633698	2.2281554	20	9 23.8	17.8
97851 2000 QP_{5}	16.3	X	115.65502	3.40948	330.37326	5.93406	0.1135652	0.31380781	2.1446687	20	—	—
97852 2000 QH_{6}	16.0	X	310.84324	62.13065	307.58870	4.29373	0.1694927	0.29528082	2.2334654	20	8 30.9	17.5
97853 2000 QM_{8}	16.0	X	334.66377	50.60134	301.09851	2.83871	0.1038960	0.29690506	2.2253124	20	9 25.2	18.0
97854 2000 QZ_{8}	15.9	X	171.20183	188.42333	153.44060	6.01170	0.2023350	0.27376051	2.3490315	20	2 2.5	19.5
97855 2000 QV_{14}	15.8	X	219.07228	231.31790	122.65635	1.39824	0.1683681	0.28235575	2.3011148	20	3 30.9	19.4
97856 2000 QB_{18}	15.6	X	114.00739	106.89569	137.88339	2.25776	0.0647136	0.30401380	2.1904862	20	11 14.2	18.4
97857 2000 QJ_{20}	16.3	X	213.75312	344.24886	323.87330	4.00905	0.1615654	0.27558812	2.3386347	20	1 29.1	20.0
97858 2000 QH_{23}	16.1	X	154.10052	39.13244	278.37248	4.38681	0.1679364	0.26866463	2.3786418	20	—	—
97859 2000 QM_{26}	15.7	X	33.60224	68.50173	145.05056	5.38026	0.0739143	0.28820071	2.2698963	20	6 4.9	18.0
97860 2000 QR_{26}	15.8	X	281.05126	10.85783	305.97162	5.37984	0.1804621	0.28495732	2.2870878	20	4 11.2	18.8
97861 2000 QM_{27}	16.1	X	97.89349	200.10583	203.98841	0.79007	0.1894056	0.26908664	2.3761542	20	1 31.4	18.8
97862 2000 QT_{27}	16.0	X	281.41900	246.37107	137.19028	3.15324	0.1996663	0.29208549	2.2497248	20	7 19.1	18.4
97863 2000 QF_{28}	16.3	X	177.93360	330.52418	344.54514	5.72243	0.1673414	0.27113502	2.3641715	20	1 6.3	19.9
97864 2000 QS_{28}	16.2	X	165.70468	346.88119	350.37656	3.41311	0.2585409	0.27181979	2.3601993	20	1 28.6	20.1
97865 2000 QK_{29}	15.8	X	255.73551	290.81599	4.65146	4.02424	0.1717238	0.27974313	2.3154199	20	2 20.9	19.4
97866 2000 QM_{29}	15.9	X	156.88977	245.47647	50.37674	1.63861	0.1815661	0.26606290	2.3941232	20	—	—
97867 2000 QJ_{30}	15.9	X	100.93713	237.98287	121.56819	3.33805	0.2191500	0.26412354	2.4058284	20	—	—
97868 2000 QK_{30}	16.0	X	260.22519	259.99076	98.35976	3.82349	0.1683299	0.28633770	2.2797315	20	5 18.9	19.1
97869 2000 QS_{32}	15.5	X	3.98930	208.71426	58.85292	6.51637	0.1914459	0.29309257	2.2445684	20	7 17.3	17.0
97870 2000 QX_{32}	16.1	X	147.37121	221.02692	75.03682	6.90706	0.1091321	0.26476806	2.4019225	20	—	—
97871 2000 QG_{33}	15.7	X	186.14153	284.66756	97.13852	9.24252	0.2514443	0.27848729	2.3223756	20	4 10.4	19.9
97872 2000 QG_{35}	15.0	X	297.71683	232.48822	138.45234	5.57562	0.1949219	0.29320952	2.2439715	20	7 30.6	16.6
97873 2000 QN_{36}	15.7	X	337.81221	19.79877	317.85701	3.56662	0.1575883	0.29730702	2.2233062	20	9 11.2	17.1
97874 2000 QB_{38}	15.8	X	249.27282	11.91008	3.11233	0.36940	0.2325177	0.28804310	2.2707243	20	5 20.8	19.3
97875 2000 QL_{39}	16.8	X	156.48428	14.39319	314.89550	3.66677	0.0836947	0.32078237	2.1134682	20	—	—
97876 2000 QG_{41}	15.9	X	309.50759	134.30456	273.20031	2.06373	0.1309624	0.30087598	2.2056895	20	11 5.7	17.7
97877 2000 QO_{41}	16.6	X	172.49129	131.89904	181.80203	2.58248	0.1783501	0.27157714	2.3616049	20	—	—
97878 2000 QL_{43}	16.6	X	137.46391	97.73124	284.81469	1.29004	0.1461192	0.27369941	2.3493812	20	2 15.1	19.7
97879 2000 QW_{43}	16.6	X	129.13855	197.98343	160.55006	3.71292	0.1778226	0.26973228	2.3723610	20	1 10.0	19.8
97880 2000 QO_{45}	15.1	X	290.08282	83.33041	322.83983	3.24154	0.1028789	0.29805444	2.2195878	20	9 25.8	17.2
97881 2000 QR_{45}	16.3	X	167.90390	172.20879	189.17798	1.06462	0.1215413	0.27568588	2.3380818	20	2 18.3	19.7
97882 2000 QW_{45}	16.5	X	120.30142	213.74566	185.58710	2.54362	0.1649645	0.27290623	2.3539311	20	2 19.2	19.6
97883 2000 QT_{50}	15.8	X	235.05220	1.88753	347.88364	3.73317	0.1627372	0.28331568	2.2959141	20	4 8.4	19.3
97884 2000 QA_{51}	16.5	X	226.99163	275.79298	125.21068	1.89966	0.2242945	0.28665624	2.2780423	20	6 3.8	20.0
97885 2000 QY_{53}	16.1	X	163.77254	356.73039	354.99711	4.24542	0.1641554	0.27369915	2.3493826	20	2 6.9	19.6
97886 2000 QK_{54}	16.6	X	206.11279	25.57499	347.58916	6.06173	0.3229709	0.28065644	2.3103940	20	4 7.3	20.9
97887 2000 QP_{54}	16.2	X	141.03554	48.91875	171.55040	1.68444	0.0909920	0.30304783	2.1951385	20	11 12.4	19.1
97888 2000 QC_{56}	16.5	X	154.18965	215.98396	161.16272	2.78980	0.0839758	0.27659905	2.3329330	20	2 19.9	19.7
97889 2000 QO_{56}	15.9	X	1.66848	22.86186	212.75188	6.89735	0.1668133	0.28845308	2.2685721	20	5 10.5	17.5
97890 2000 QM_{58}	16.3	X	151.32036	298.39558	70.64767	5.10172	0.1584734	0.27422267	2.3463915	20	2 16.7	19.7
97891 2000 QY_{60}	16.2	X	338.39127	249.18450	135.15791	3.61907	0.0842164	0.30155073	2.2023980	20	11 24.8	18.3
97892 2000 QH_{63}	16.0	X	173.70953	13.05606	83.14376	7.57970	0.0426209	0.28797910	2.2710607	20	6 29.9	19.0
97893 2000 QV_{65}	12.2	X	260.44092	227.89997	93.50626	9.89260	0.1039884	0.08189221	5.2517936	20	4 20.9	19.4
97894 2000 QG_{68}	15.9	X	133.74801	217.52360	95.08520	7.22808	0.1375070	0.26404654	2.4062961	20	—	—
97895 2000 QY_{71}	16.1	X	111.47347	71.30782	248.26693	1.53217	0.1498215	0.26317677	2.4115948	20	—	—
97896 2000 QN_{72}	16.6	X	248.39022	92.16908	310.83729	2.97122	0.1742339	0.29036179	2.2586195	20	7 5.2	19.5
97897 2000 QT_{73}	16.6	X	150.61080	25.51907	281.44032	1.56662	0.1916172	0.26734385	2.3864697	20	—	—
97898 2000 QC_{74}	15.5	X	154.32097	134.88899	321.37001	6.91895	0.0791764	0.28578551	2.2826671	20	6 5.5	18.7
97899 2000 QO_{74}	16.3	X	184.60214	30.52391	288.17969	1.57102	0.2335012	0.27329035	2.3517249	20	1 19.0	20.2
97900 2000 QF_{75}	16.2	X	173.27434	57.76732	334.77712	4.96988	0.1501232	0.27917108	2.3185818	20	4 3.6	19.7
97901 2000 QT_{75}	16.3	X	228.59366	27.80857	331.18559	6.52573	0.1438620	0.28318190	2.2966372	20	4 13.3	19.7
97902 2000 QS_{76}	15.3	X	335.14450	352.87117	328.46731	4.40992	0.1562082	0.29384794	2.2407201	20	8 7.5	16.9
97903 2000 QM_{79}	15.5	X	113.02734	223.93677	188.46693	3.99516	0.0675338	0.27320925	2.3521903	20	2 12.0	18.3
97904 2000 QV_{79}	16.2	X	111.00170	33.95319	341.90695	0.69142	0.1932903	0.26757330	2.3851052	20	1 13.0	18.8
97905 2000 QY_{79}	15.9	X	35.13472	216.73820	184.73086	2.48145	0.1671864	0.25980913	2.4323894	20	—	—
97906 2000 QA_{80}	16.2	X	117.90548	81.41912	278.55041	0.67255	0.1391397	0.26706135	2.3881523	20	—	—
97907 2000 QF_{80}	15.8	X	309.20086	54.62941	321.79735	3.66900	0.2025117	0.24481088	2.5307480	20	8 24.8	18.0
97908 2000 QA_{81}	16.4	X	96.08088	194.33681	190.70894	2.71737	0.1485377	0.26763770	2.3847226	20	—	—
97909 2000 QY_{81}	16.6	X	347.50063	111.09792	294.51262	2.03854	0.0338723	0.30569173	2.1824632	20	—	—
97910 2000 QW_{82}	16.2	X	157.06337	51.83225	276.04839	1.45146	0.2092209	0.26933566	2.3746894	20	1 5.2	19.7
97911 2000 QE_{85}	15.9	X	174.37234	207.88008	200.44213	4.73515	0.1050655	0.28233321	2.3012373	20	4 26.1	19.1
97912 2000 QK_{88}	15.9	X	77.74673	196.81952	209.05944	6.91340	0.1106432	0.26803880	2.3823429	20	—	—
97913 2000 QW_{88}	16.3	X	227.51215	49.75100	316.29267	6.74679	0.1342533	0.28397754	2.2923454	20	4 21.8	19.7
97914 2000 QK_{90}	15.8	X	77.55142	7.17333	294.62381	3.29751	0.1818905	0.30625786	2.1797728	20	12 25.9	19.1
97915 2000 QX_{90}	15.9	X	207.81691	172.42834	279.09571	5.22849	0.1055982	0.29119539	2.2543070	20	7 31.6	18.9
97916 2000 QE_{91}	15.9	X	143.37919	164.01328	213.14690	4.29584	0.1577693	0.27269326	2.3551566	20	2 14.8	19.3
97917 2000 QB_{95}	16.4	X	259.71810	142.07080	337.91544	3.56542	0.0535804	0.30392921	2.1908926	20	12 3.4	18.7
97918 2000 QE_{95}	16.0	X	21.52301	168.15428	281.03200	1.88087	0.1603811	0.26410973	2.4059123	20	—	—
97919 2000 QB_{96}	15.3	X	168.96255	77.93607	357.68774	6.53802	0.0774673	0.28398861	2.2922858	20	5 24.1	18.5
97920 2000 QD_{96}	15.8	X	346.69936	260.03323	147.73479	5.03249	0.0992387	0.30477867	2.1868198	20	—	—

ELEMENTS AND OPPOSITION DATES IN 2020

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Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
97921 2000 QE_{96}	15.9	X	163.73414	333.88434	2.61066	5.02581	0.1837499	0.27129074	2.3632667	20	1 20.9	19.6
97922 2000 QF_{96}	15.8	X	304.62646	19.59481	6.15210	5.08238	0.2128443	0.24511638	2.5286448	20	8 30.3	17.9
97923 2000 QY_{96}	15.4	X	308.24623	359.48914	37.80233	3.86807	0.1431680	0.24762023	2.5115701	20	10 3.6	17.8
97924 2000 QJ_{97}	16.3	X	274.48169	288.23480	63.79342	2.23659	0.1550377	0.28801277	2.2708836	20	5 29.6	19.1
97925 2000 QL_{98}	15.3	X	219.85527	307.11295	9.94442	5.52448	0.1971235	0.27703015	2.3305121	20	2 15.4	19.1
97926 2000 QO_{99}	16.6	X	87.11245	256.15973	133.51133	6.03155	0.2303922	0.26504790	2.4002316	20	1 1.3	18.9
97927 2000 QA_{100}	15.8	X	145.04466	8.24180	43.61890	6.07398	0.1642533	0.27601171	2.3362414	20	4 5.2	19.2
97928 2000 QA_{101}	15.1	X	282.92939	276.03208	31.55130	7.83727	0.1426321	0.28420327	2.2911314	20	4 10.5	18.1
97929 2000 QB_{105}	15.3	X	137.57067	295.46836	69.94370	6.88512	0.1460227	0.26939751	2.3743259	20	1 26.6	18.6
97930 2000 QR_{105}	15.9	X	306.48133	261.15409	104.21298	8.16909	0.1554030	0.29275057	2.2463162	20	8 19.1	17.7
97931 2000 QL_{108}	16.0	X	219.03454	304.10851	117.03263	5.66422	0.1315902	0.28891377	2.2661599	20	6 30.6	19.0
97932 2000 QT_{108}	16.4	X	164.53493	213.52285	103.13910	2.50786	0.1531167	0.26984724	2.3716871	20	—	—
97933 2000 QW_{113}	15.9	X	182.79240	62.63076	9.16469	4.15963	0.2008740	0.28372540	2.2937033	20	6 4.5	19.6
97934 2000 QD_{114}	15.9	X	76.93672	204.84425	353.51989	7.34323	0.0459800	0.28967033	2.2622124	20	7 18.5	18.7
97935 2000 QJ_{115}	16.0	X	196.99928	216.15692	306.91324	4.92152	0.0403317	0.30264022	2.1971091	20	11 4.3	18.8
97936 2000 QS_{115}	16.5	X	211.08133	155.40712	202.61144	3.02603	0.1863947	0.28000222	2.3139914	20	3 27.2	20.2
97937 2000 QL_{116}	15.5	X	310.06964	318.44636	65.42175	3.52533	0.1718882	0.29595435	2.2300755	20	9 27.4	17.0
97938 2000 QO_{116}	16.3	X	229.22438	235.24163	84.19907	3.90389	0.1545580	0.27809908	2.3245364	20	2 27.7	19.9
97939 2000 QP_{116}	15.6	X	4.08583	231.55999	56.76298	3.32878	0.1644414	0.29329192	2.2435512	20	8 21.6	17.2
97940 2000 QW_{116}	16.3	X	97.17121	206.99294	99.78876	5.82223	0.2137044	0.30842731	2.1695392	20	—	—
97941 2000 QW_{117}	15.4	X	245.11904	243.22670	49.34196	5.17426	0.1751035	0.27857362	2.3218958	20	2 8.2	19.1
97942 2000 QC_{118}	16.4	X	264.42299	22.41673	303.62374	5.15505	0.1791397	0.28436772	2.2902480	20	4 4.5	19.7
97943 2000 QQ_{118}	16.1	X	303.08327	344.01315	294.81602	4.70203	0.1379915	0.28393913	2.2925521	20	3 25.8	18.8
97944 2000 QM_{119}	15.2	X	312.67311	19.14372	321.00478	8.51531	0.1320269	0.24160547	2.5530827	20	7 17.5	18.0
97945 2000 QN_{120}	15.5	X	164.14281	343.66292	337.84665	10.65889	0.0769817	0.26842528	2.3800556	20	—	—
97946 2000 QS_{122}	16.2	X	130.49945	62.65907	329.07308	5.06852	0.1885450	0.27112715	2.3642172	20	2 24.7	19.4
97947 2000 QC_{123}	16.0	X	167.54971	63.93583	315.54776	3.98647	0.2448591	0.27480096	2.3430985	20	3 17.8	20.0
97948 2000 QF_{124}	16.3	X	229.45528	113.41886	335.01091	4.40658	0.1270242	0.29212875	2.2495027	20	8 21.9	19.0
97949 2000 QN_{127}	16.0	X	326.28580	173.06694	175.06135	6.85249	0.2434834	0.29352475	2.2423646	20	8 27.2	17.0
97950 2000 QO_{127}	16.4	X	195.52789	333.47839	17.49718	2.84197	0.2243432	0.27556017	2.3387928	20	3 6.9	20.3
97951 2000 QU_{127}	15.4	X	162.67663	297.86997	17.18410	7.22360	0.1501971	0.26618849	2.3933701	20	—	—
97952 2000 QN_{128}	15.4	X	310.17655	171.61073	207.07501	6.49466	0.1547758	0.29567933	2.2314581	20	9 15.1	17.2
97953 2000 QR_{129}	15.9	X	63.42794	178.61119	176.50373	9.47313	0.2171527	0.25638584	2.4539932	20	—	—
97954 2000 QY_{130}	15.1	X	79.91783	225.24574	145.38574	13.06316	0.1426427	0.21599602	2.7510948	20	—	—
97955 2000 QB_{133}	16.0	X	200.69287	274.72064	95.27423	2.04757	0.1789125	0.28160921	2.3051798	20	4 3.6	19.5
97956 2000 QA_{135}	15.8	X	249.38976	304.44137	104.14411	4.85508	0.1533758	0.29225697	2.2488447	20	7 17.6	18.7
97957 2000 QB_{135}	16.3	X	28.44850	349.98172	10.15757	4.78145	0.1684412	0.30614094	2.1803277	20	—	—
97958 2000 QR_{137}	15.6	X	192.09760	100.32422	355.05332	3.05343	0.1001675	0.28827946	2.2694829	20	7 20.5	18.6
97959 2000 QM_{140}	15.9	X	232.90242	62.35511	357.35728	6.09133	0.1218302	0.28873176	2.2671122	20	7 18.1	19.0
97960 2000 QQ_{140}	15.8	X	72.54437	254.06769	148.49817	1.73406	0.1786433	0.26418890	2.4054316	20	—	—
97961 2000 QY_{140}	16.1	X	125.66679	160.92413	162.92790	6.36987	0.2266215	0.26417489	2.4055166	20	—	—
97962 2000 QC_{141}	14.5	X	120.25465	73.89901	5.57017	21.92337	0.0537053	0.22666178	2.6641000	20	3 30.8	18.2
97963 2000 QO_{141}	16.1	X	155.67699	205.25269	143.39554	6.90599	0.1336857	0.27031463	2.3689525	20	1 21.6	19.6
97964 2000 QD_{143}	16.1	X	280.06607	128.26077	122.62926	3.23190	0.1925268	0.27703739	2.3304715	20	1 17.1	19.5
97965 2000 QW_{143}	15.7	X	185.24121	160.17050	166.24761	14.30367	0.1366869	0.27137686	2.3627667	20	1 22.9	19.4
97966 2000 QN_{145}	15.4	X	189.51224	34.65169	19.05428	7.35102	0.0848136	0.28292459	2.2980294	20	5 18.1	18.7
97967 2000 QP_{146}	16.0	X	257.94405	22.66089	46.28074	5.65820	0.0996137	0.29367175	2.2416163	20	9 10.5	18.5
97968 2000 QT_{149}	16.3	X	190.80557	322.63405	307.57710	6.10957	0.1036059	0.26747484	2.3856905	20	—	—
97969 2000 QE_{150}	15.6	X	104.34455	191.66406	265.75648	5.42129	0.0691795	0.27693373	2.3310530	20	3 31.3	18.6
97970 2000 QO_{150}	15.7	X	312.21386	86.87181	290.09617	4.92615	0.1646630	0.29385498	2.2406844	20	9 14.5	17.4
97971 2000 QR_{150}	15.3	X	327.82425	11.03157	319.42075	4.74910	0.2375949	0.29190379	2.2506583	20	7 29.0	16.4
97972 2000 QV_{151}	15.9	X	103.70772	181.41294	330.26589	3.90502	0.0938731	0.28595051	2.2817889	20	6 22.9	18.7
97973 2000 QB_{165}	12.7	X	194.79278	199.33299	197.19147	14.06161	0.0570486	0.08369937	5.1759242	20	5 9.9	19.9
97974 2000 QD_{167}	16.4	X	208.51531	70.56597	224.55867	3.20897	0.1345799	0.27338657	2.3511731	20	1 7.4	20.0
97975 2000 QG_{168}	16.0	X	159.80363	118.68276	245.64061	3.68283	0.1895072	0.27367441	2.3495242	20	2 17.9	19.7
97976 2000 QL_{168}	15.9	X	245.37322	344.47478	306.24885	5.98823	0.1213562	0.27770712	2.3267231	20	2 6.7	19.3
97977 2000 QO_{169}	16.0	X	50.56221	253.69375	294.29256	5.93016	0.0491364	0.28484955	2.2876647	20	5 19.4	18.7
97978 2000 QS_{169}	15.5	X	193.94576	59.20651	315.47649	6.55758	0.1264966	0.27968786	2.3157249	20	3 30.0	19.1
97979 2000 QN_{170}	16.0	X	192.77510	193.23650	257.30178	2.16039	0.1083134	0.28870194	2.2672683	20	7 13.0	19.1
97980 2000 QQ_{170}	16.6	X	333.68617	208.91969	194.94712	4.77660	0.1097160	0.30249928	2.1977915	20	12 18.3	18.6
97981 2000 QH_{171}	15.9	X	78.12741	252.32816	304.73843	4.30386	0.0993962	0.29000680	2.2604623	20	7 25.2	18.5
97982 2000 QT_{171}	16.0	X	168.05808	58.27936	241.02080	1.68094	0.0871325	0.26695142	2.3888079	20	—	—
97983 2000 QH_{172}	15.5	X	246.58104	258.43636	224.88593	5.48843	0.0557163	0.30448142	2.1882429	20	11 18.8	17.6
97984 2000 QZ_{172}	16.2	X	221.48842	86.61759	286.23922	6.32890	0.1271845	0.28465549	2.2887042	20	4 25.7	19.6
97985 2000 QR_{173}	16.1	X	222.78080	231.23103	209.75358	6.29250	0.0542217	0.29432711	2.2382875	20	8 9.9	18.9
97986 2000 QH_{174}	16.0	X	31.14453	194.27818	198.94495	4.34772	0.1265306	0.26041989	2.4285849	20	—	—
97987 2000 QL_{175}	16.5	X	122.42648	153.02959	308.47064	4.62504	0.0301530	0.28252542	2.3001935	20	4 25.4	19.4
97988 2000 QN_{178}	16.2	X	185.99533	135.06243	199.67255	5.91673	0.1328887	0.27473878	2.3434520	20	2 2.2	19.7
97989 2000 QD_{186}	15.9	X	210.35557	314.06959	105.33378	6.27968	0.1536982	0.28816951	2.2700601	20	6 17.1	19.3
97990 2000 QG_{186}	15.5	X	32.60534	128.58872	85.01766	6.22782	0.0711929	0.28834151	2.2691573	20	6 2.3	17.6
97991 2000 QS_{186}	16.1	X	144.98422	297.25271	101.96275	3.25418	0.2339116	0.27566968	2.3381734	20	3 25.8	19.7
97992 2000 QL_{187}	15.6	X	248.25403	300.61156	20.77368	7.54225	0.1892981	0.28276253	2.2989074	20	3 16.9	19.1
97993 2000 QO_{187}	15.6	X	128.12406	234.14568	104.17817	7.74782	0.1421552	0.26752443	2.3853956	20	—	—
97994 2000 QV_{187}	15.9	X	3.73756	19.45413	17.55329	4.86688	0.1010876	0.30701118	2.1762056	20	—	—
97995 2000 QX_{187}	15.9	X	171.08892	245.53921	88.27871	3.47366	0.2266505	0.27295476	2.3536521	20	1 26.5	19.6
97996 2000 QG_{189}	15.7	X	31.48198	130.14838	85.10410	7.37116	0.0510569	0.28755706	2.2732823	20	5 31.9	17.9
97997 2000 QT_{189}	15.1	X	265.14677	348.02178	98.71122	6.75241	0.0956413	0.29998043	2.2100771	20	10 21.5	17.4
97998 2000 QY_{189}	16.0	X	292.19764	312.14809	109.88560	6.60152	0.0891744	0.30030666	2.2084763	20	10 31.7	18.1
97999 2000 QN_{190}	15.4	X	217.42431	234.01795	87.19087	7.09261	0.1495993	0.27803375	2.3249005	20	2 19.8	19.1
98000 2000 QZ_{197}	16.3	X	140.89051	190.89921	85.95602	1.98172	0.0516198	0.31137804	2.1558112	20	—	—

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Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
98001 2000 QS_{198}	16.5	X	113.98517	218.11718	123.53344	3.66195	0.2005359	0.26549076	2.3975616	20	—	—
98002 2000 QG_{199}	13.6	X	229.46006	169.16543	96.62316	4.81973	0.1595467	0.12374941	3.9881727	20	1 10.7	19.9
98003 2000 QH_{199}	15.7	X	188.95921	7.92961	19.79284	4.55667	0.1533179	0.28105073	2.3082326	20	4 14.2	19.1
98004 2000 QU_{202}	15.9	X	27.72468	238.65017	45.46140	4.25320	0.1898323	0.29770605	2.2213191	20	10 5.4	18.1
98005 2000 QV_{203}	16.2	X	110.41779	271.44560	28.26771	4.66207	0.0210761	0.30886121	2.1675068	20	—	—
98006 2000 QC_{205}	16.2	X	193.48164	140.67790	182.84242	1.67677	0.2267012	0.27431752	2.3458506	20	1 31.1	20.2
98007 2000 QR_{207}	16.1	X	135.16861	169.95705	174.45444	2.66546	0.1804506	0.26741419	2.3860511	20	—	—
98008 2000 QN_{208}	16.4	X	129.13250	213.27969	118.90650	4.04837	0.2145289	0.26532119	2.3985830	20	—	—
98009 2000 QC_{209}	16.3	X	264.74951	276.51168	207.59112	3.90478	0.0724678	0.30471511	2.1871239	20	12 16.4	18.6
98010 2000 QW_{210}	16.5	X	138.25488	82.39395	340.31073	1.67509	0.1955502	0.27581106	2.3373743	20	4 12.8	19.9
98011 2000 QZ_{212}	16.1	X	177.57022	262.35174	148.22932	6.13572	0.1033308	0.28182570	2.3039992	20	5 4.5	19.4
98012 2000 QK_{213}	16.2	X	279.72615	246.92399	145.72342	7.29098	0.0643986	0.29392813	2.2403126	20	8 24.3	18.5
98013 2000 QX_{214}	15.3	X	102.59330	60.15336	47.70237	4.03457	0.1698604	0.27776317	2.3264101	20	5 1.3	18.0
98014 2000 QD_{215}	16.2	X	279.70462	261.91807	147.01924	7.75133	0.0879569	0.29543892	2.2326685	20	9 16.6	18.5
98015 2000 QS_{215}	16.3	X	322.13813	59.18195	41.01494	4.08917	0.0339039	0.30887003	2.1674656	20	—	—
98016 2000 QA_{223}	16.0	X	278.83339	314.60483	56.99199	8.08553	0.1442480	0.29182267	2.2510754	20	7 7.3	18.6
98017 2000 QM_{224}	16.0	X	359.21240	94.03180	339.44958	2.77161	0.1584126	0.25802286	2.4436027	20	—	—
98018 2000 QT_{227}	15.6	X	18.55562	299.53061	173.92076	3.61241	0.0314549	0.26842447	2.3800604	20	—	—
98019 2000 QH_{228}	15.7	X	220.18799	233.53045	181.92283	5.98680	0.0758768	0.29025383	2.2591795	20	6 29.3	18.8
98020 2000 QL_{229}	16.7	X	221.61504	191.11127	94.20173	1.91218	0.1195915	0.27369457	2.3494088	20	1 8.3	20.2
98021 2000 QX_{243}	16.0	X	151.05390	275.01357	139.99579	2.44703	0.1002596	0.28203491	2.3028596	20	4 9.2	19.2
98022 2000 QC_{246}	16.3	X	177.37911	305.08603	110.86937	5.02107	0.2048487	0.28339838	2.2954675	20	5 12.5	20.0
98023 2000 QG_{251}	15.9	X	301.91795	250.48220	81.09782	7.94360	0.1597547	0.29093317	2.2556613	20	6 10.7	17.8
98024 2000 RP_{1}	15.8	X	118.46195	158.74645	175.84942	12.88460	0.2870575	0.26437953	2.4042751	20	—	—
98025 2000 RE_{2}	15.8	X	217.28606	137.21159	354.84191	6.67446	0.0387136	0.29751572	2.2222663	20	10 18.5	18.4
98026 2000 RS_{4}	15.9	X	168.88100	51.49334	7.88282	3.34420	0.1370124	0.27971211	2.3155911	20	5 4.8	19.3
98027 2000 RC_{5}	16.6	X	238.45418	15.22431	3.38327	5.80522	0.1806896	0.28415005	2.2914175	20	5 18.1	20.1
98028 2000 RJ_{5}	16.0	X	274.16696	357.57739	353.34681	7.95036	0.1371686	0.28611907	2.2808927	20	5 28.4	19.0
98029 2000 RE_{7}	16.1	X	221.95560	183.99978	183.78931	6.49019	0.1244440	0.27961035	2.3161529	20	4 23.7	19.4
98030 2000 RN_{7}	14.7	X	123.28369	310.10792	30.74899	8.65424	0.1527550	0.26250620	2.4157000	20	—	—
98031 2000 RU_{7}	15.2	X	208.98129	271.75227	77.01187	4.12564	0.2457921	0.27585334	2.3371355	20	3 15.9	19.2
98032 2000 RV_{7}	15.1	X	131.42679	190.44025	188.51666	14.49478	0.1672898	0.26720006	2.3873257	20	2 4.1	18.6
98033 2000 RG_{11}	15.7	X	257.87224	141.44309	215.68021	10.03736	0.1987963	0.28134827	2.3066049	20	5 10.4	19.0
98034 2000 RQ_{12}	15.6	X	275.04379	26.69542	51.20206	4.81034	0.2171996	0.24331998	2.5410753	20	9 21.3	18.4
98035 2000 RO_{18}	16.7	X	28.40974	124.35033	230.45377	4.07402	0.1665245	0.30423208	2.1894383	20	—	—
98036 2000 RG_{19}	14.6	X	199.65284	129.24650	247.09053	8.53170	0.0991745	0.18069079	3.0986941	20	4 13.2	19.5
98037 2000 RE_{20}	12.5	X	266.30211	12.28914	301.43763	7.40010	0.0642808	0.08195860	5.2489570	20	4 16.0	19.6
98038 2000 RZ_{20}	15.3	X	205.46202	159.45556	228.14624	4.99754	0.1372859	0.28217005	2.3021243	20	4 30.5	18.8
98039 2000 RC_{22}	15.0	X	165.84236	281.95593	181.48766	22.79226	0.2802657	0.28303948	2.2974075	20	6 30.9	19.6
98040 2000 RC_{23}	16.1	X	127.27262	89.45152	305.44065	2.06123	0.1574568	0.27134312	2.3629625	20	2 21.1	19.1
98041 2000 RE_{23}	15.4	X	255.39711	61.64887	339.67641	7.06043	0.0995819	0.29004602	2.2602585	20	7 25.4	18.1
98042 2000 RA_{24}	16.2	X	329.71760	182.64783	216.56058	3.39350	0.1104276	0.30006952	2.2096397	20	12 3.3	18.1
98043 2000 RQ_{24}	15.9	X	199.81865	25.90605	250.51438	6.00956	0.0831520	0.26858357	2.3791204	20	—	—
98044 2000 RU_{25}	15.6	X	89.62795	105.57454	322.49139	5.78926	0.1315592	0.27041979	2.3683383	20	2 11.8	18.0
98045 2000 RQ_{27}	16.3	X	136.02827	40.40890	218.75446	4.29397	0.1506617	0.30704957	2.1760242	20	12 25.7	19.6
98046 2000 RD_{29}	14.9	X	244.83435	33.17027	280.45691	6.35482	0.1382541	0.27942927	2.3171534	20	3 2.4	18.3
98047 2000 RC_{32}	15.6	X	317.06016	96.93817	269.49044	5.42800	0.1955423	0.24423525	2.5347229	20	8 24.7	17.9
98048 2000 RR_{32}	15.6	X	149.75668	140.94534	237.15135	6.30349	0.1252288	0.27237125	2.3570125	20	2 18.2	19.1
98049 2000 RS_{32}	15.6	X	270.85413	67.95459	227.03764	5.61118	0.1197132	0.27977567	2.3152404	20	3 9.3	18.9
98050 2000 RZ_{33}	16.2	X	40.75577	17.23735	336.09498	2.38440	0.1877119	0.30401583	2.1904764	20	—	—
98051 2000 RC_{34}	16.1	X	269.54254	59.37827	250.91345	5.67904	0.1318861	0.28254622	2.3000806	20	3 26.2	19.3
98052 2000 RX_{34}	15.9	X	146.92509	69.81756	339.05086	6.87260	0.0978013	0.27531643	2.3401730	20	3 24.3	19.1
98053 2000 RP_{35}	15.9	X	82.18458	57.09190	240.51314	3.93141	0.1332960	0.30379479	2.1915388	20	12 21.4	18.9
98054 2000 RS_{35}	16.1	X	117.83626	322.02064	329.01894	3.44331	0.1747331	0.30871935	2.1681708	20	—	—
98055 2000 RR_{38}	15.5	X	100.54861	313.49924	95.17836	3.25465	0.2291160	0.26561291	2.3968265	20	2 18.9	18.4
98056 2000 RR_{41}	15.6	X	149.75241	15.14671	272.89784	6.58919	0.2011139	0.26303096	2.4124860	20	—	—
98057 2000 RH_{44}	15.5	X	185.22903	25.97350	299.56591	5.97719	0.1254831	0.27043714	2.3682370	20	1 22.9	18.8
98058 2000 RH_{46}	15.8	X	337.97338	2.74206	348.89619	6.14400	0.2032262	0.29435584	2.2381418	20	10 8.4	17.0
98059 2000 RC_{47}	15.8	X	344.89286	318.80848	349.76341	5.95232	0.2264443	0.29174323	2.2514840	20	8 12.6	16.7
98060 2000 RF_{47}	15.4	X	46.75835	52.18685	345.31467	5.73414	0.1028226	0.25851573	2.4404958	20	—	—
98061 2000 RH_{47}	15.6	X	116.71603	58.39183	336.07832	2.52049	0.1487234	0.26777652	2.3838983	20	2 7.7	18.6
98062 2000 RW_{47}	16.3	X	317.51102	25.00518	318.62022	8.36227	0.1768721	0.29084064	2.2561397	20	8 1.5	17.7
98063 2000 RG_{48}	15.6	X	287.55625	106.84685	320.16476	6.41903	0.0715673	0.29512607	2.2342460	20	10 24.2	18.0
98064 2000 RY_{48}	15.4	X	78.95266	305.15095	294.90844	6.82978	0.0124376	0.29010714	2.2599410	20	9 9.9	18.1
98065 2000 RF_{51}	15.9	X	215.03917	47.81081	11.58686	5.07610	0.1551729	0.28338282	2.2955515	20	6 21.6	19.3
98066 2000 RH_{51}	15.0	X	132.30711	169.12452	212.27722	8.16956	0.1522741	0.26788677	2.3832441	20	2 6.6	18.4
98067 2000 RQ_{52}	15.1	X	350.50213	327.23669	57.53505	3.16945	0.2010120	0.24678305	2.5172470	20	12 13.0	17.5
98068 2000 RV_{52}	15.9	X	138.11059	219.97676	142.00844	3.10744	0.2141939	0.26513696	2.3996940	20	1 29.8	19.4
98069 2000 RX_{52}	16.0	X	283.68768	267.97083	121.56030	4.78335	0.2525922	0.23772118	2.5808185	20	7 18.1	19.2
98070 2000 RQ_{53}	16.0	X	169.11219	279.16441	108.22522	3.10455	0.2200752	0.27522527	2.3406897	20	3 30.9	19.9
98071 2000 RW_{54}	15.0	X	177.47305	122.69552	265.41038	9.56462	0.1916737	0.27514278	2.3411575	20	3 31.8	19.1
98072 2000 RC_{56}	15.8	X	95.48218	154.82452	317.86767	6.66754	0.0599370	0.27712077	2.3300040	20	4 7.1	18.7
98073 2000 RM_{56}	15.4	X	55.99554	114.39330	253.84134	6.89030	0.1337840	0.25605527	2.4561049	20	—	—
98074 2000 RT_{56}	15.8	X	13.97470	161.88863	270.01840	5.45288	0.1108295	0.25978630	2.4325319	20	—	—
98075 2000 RT_{62}	15.7	X	32.08913	10.69771	293.89980	3.76813	0.1691791	0.30309834	2.1948946	20	11 5.3	18.3
98076 2000 RY_{63}	15.4	X	44.76095	261.95883	208.18613	5.78919	0.1048145	0.26894435	2.3769922	20	1 21.8	18.0
98077 2000 RO_{64}	15.8	X	84.07024	269.00894	169.27752	6.50613	0.0866245	0.27193438	2.3595362	20	2 9.2	18.5
98078 2000 RZ_{65}	15.5	X	210.62612	335.62914	37.19091	6.21133	0.2122699	0.27927973	2.3179805	20	4 15.1	19.2
98079 2000 RY_{66}	16.2	X	109.09422	113.74565	265.74694	1.12178	0.2223919	0.26569843	2.3963122	20	1 19.9	19.1
98080 2000 RB_{67}	16.3	X	88.01003	10.71312	13.81812	2.55122	0.2447358	0.26297037	2.4128566	20	—	—

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Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
98081 2000 RF_{67}	14.7	X	240.36720	77.92587	15.04067	14.89349	0.0541971	0.24298090	2.5434388	20	9 20.1	18.0
98082 2000 RJ_{67}	15.5	X	195.75559	293.42393	50.47198	4.90949	0.1703302	0.27350840	2.3504748	20	2 28.4	19.3
98083 2000 RG_{68}	15.6	X	38.79210	254.62113	5.30383	5.54348	0.0766830	0.29611532	2.2292672	20	8 27.6	18.0
98084 2000 RC_{69}	16.3	X	138.74470	244.41137	109.95640	2.30196	0.1992583	0.26885242	2.3775341	20	1 18.9	19.7
98085 2000 RR_{70}	15.8	X	175.98214	15.08605	53.59469	5.46556	0.1616661	0.28132785	2.3067166	20	5 25.4	19.3
98086 2000 RW_{70}	15.0	X	232.41213	268.43071	37.17585	6.34123	0.1306205	0.27578588	2.3375166	20	2 15.6	18.5
98087 2000 RH_{71}	15.8	X	137.81903	207.98323	107.35998	4.76912	0.1388402	0.26364846	2.4087176	20	—	—
98088 2000 RS_{71}	15.7	X	78.51439	139.42330	219.45262	1.51935	0.2578623	0.25933419	2.4353583	20	—	—
98089 2000 RO_{72}	16.1	X	257.50944	353.31063	17.15376	4.85724	0.2093572	0.28477490	2.2880644	20	5 25.2	19.3
98090 2000 RE_{73}	16.3	X	266.66563	111.39597	234.91513	0.46591	0.1874771	0.28577677	2.2827136	20	5 6.4	19.3
98091 2000 RK_{73}	16.4	X	178.61504	42.74863	12.01300	5.23424	0.1859898	0.28011368	2.3133775	20	5 8.9	20.2
98092 2000 RT_{73}	16.0	X	313.62240	188.32118	201.00768	3.72998	0.2498341	0.24440910	2.5335207	20	9 19.1	17.6
98093 2000 RW_{73}	15.9	X	136.82750	31.42739	4.85081	2.21524	0.2142691	0.27078208	2.3662254	20	3 11.5	19.5
98094 2000 RG_{77}	15.6	X	60.54257	220.79598	124.43604	8.15680	0.1193599	0.25568809	2.4584557	20	—	—
98095 2000 RQ_{77}	16.3	X	23.87094	274.78678	179.51705	2.21703	0.1686650	0.26499086	2.4005759	20	—	—
98096 2000 RR_{77}	16.3	X	206.04599	195.41210	346.02931	3.49035	0.1053816	0.30539375	2.1838826	20	12 4.6	19.0
98097 2000 RA_{78}	16.1	X	45.32207	216.09662	209.01728	5.98746	0.1287938	0.26433964	2.4045170	20	—	—
98098 2000 RY_{82}	15.6	X	95.12801	209.36290	197.28339	8.90827	0.0744430	0.26870500	2.3784036	20	1 11.3	18.6
98099 2000 RF_{83}	14.7	X	327.15452	236.66033	330.06131	22.72680	0.2469766	0.27641231	2.3339836	20	1 12.7	17.9
98100 2000 RN_{83}	15.6	X	299.71454	171.88148	225.52052	5.17298	0.1945772	0.29519106	2.2339181	20	9 17.4	17.4
98101 2000 RM_{84}	16.3	X	346.83974	314.19475	199.63663	5.87801	0.0619561	0.27078611	2.3662019	20	—	—
98102 2000 RZ_{84}	15.4	X	279.81068	185.78790	28.14330	3.93753	0.0287723	0.22060037	2.7126799	20	—	—
98103 2000 RX_{86}	15.9	X	71.53439	137.73503	300.04548	5.87254	0.0855609	0.26976150	2.3721896	20	1 21.2	18.5
98104 2000 RK_{87}	16.1	X	166.28235	44.09352	4.46436	4.64460	0.1139421	0.27859521	2.3217758	20	4 16.6	19.4
98105 2000 RK_{90}	16.0	X	44.70223	303.68957	284.39602	4.33296	0.1004442	0.29027630	2.2590629	20	7 20.2	18.1
98106 2000 RK_{91}	15.6	X	296.24703	290.54738	334.53202	6.15328	0.1080128	0.27905990	2.3191976	20	3 4.5	18.3
98107 2000 RM_{91}	15.7	X	144.95871	65.82186	247.27371	6.01150	0.0960611	0.26408602	2.4060563	20	—	—
98108 2000 RP_{91}	16.0	X	142.13011	175.12005	239.78592	1.91133	0.2211265	0.27468219	2.3437739	20	4 8.7	19.7
98109 2000 RN_{92}	15.9	X	185.66060	100.26465	318.28823	7.01382	0.0959962	0.28091896	2.3089543	20	5 20.1	19.4
98110 2000 RR_{92}	16.3	X	49.26220	83.08857	248.89639	2.27142	0.0998922	0.30346976	2.1931033	20	12 26.4	19.1
98111 2000 RX_{93}	16.1	X	337.63926	189.43077	79.32899	3.79096	0.1386753	0.28752909	2.2734297	20	5 14.1	17.9
98112 2000 RG_{94}	16.2	X	93.54217	40.06992	301.67271	2.10752	0.2403843	0.26080619	2.4261861	20	—	—
98113 2000 RN_{94}	15.1	X	310.23268	181.06446	7.39367	6.92345	0.0786234	0.26769783	2.3843654	20	—	—
98114 2000 RQ_{95}	15.8	X	279.45779	293.01938	136.52490	5.68907	0.1883234	0.24542354	2.5265346	20	9 21.6	18.5
98115 2000 RF_{100}	16.3	X	209.81930	6.29716	246.90583	1.85281	0.0537458	0.26608115	2.3940138	20	—	—
98116 2000 RA_{103}	12.0	X	309.16018	321.09476	323.88107	14.54863	0.1291555	0.08313320	5.1993980	20	4 21.9	18.8
98117 2000 SP_{2}	15.0	X	194.88545	225.64136	63.82088	27.22906	0.3029263	0.27036489	2.3686589	20	—	—
98118 2000 SL_{3}	15.8	X	334.79287	234.67665	58.36487	8.29416	0.1534415	0.29118488	2.2543612	20	6 15.2	17.5
98119 2000 SA_{4}	15.8	X	29.04259	176.50584	61.81800	6.67180	0.0926247	0.28864603	2.2675611	20	7 8.2	18.1
98120 2000 SK_{5}	15.8	X	294.69510	333.61907	7.94704	6.62859	0.1338216	0.28799940	2.2709540	20	6 17.9	18.3
98121 2000 SB_{6}	15.3	X	170.78163	279.99391	109.96548	22.32061	0.2050630	0.27585892	2.3371040	20	4 13.5	19.7
98122 2000 SW_{11}	15.6	X	299.35234	34.75056	309.59474	4.61794	0.1686042	0.29387527	2.2405812	20	6 25.2	17.7
98123 2000 SG_{15}	16.2	X	177.22340	233.66329	280.94535	4.13217	0.0657878	0.29655713	2.2270526	20	9 23.5	19.2
98124 2000 SB_{20}	16.0	X	153.30883	153.57333	314.98730	5.59722	0.1260099	0.28286558	2.2983490	20	6 24.7	19.3
98125 2000 SB_{21}	15.9	X	98.33831	78.63406	254.62743	4.01862	0.2258179	0.26030496	2.4292996	20	—	—
98126 2000 SH_{23}	15.2	X	91.41720	142.49680	66.20269	6.94306	0.0819525	0.28764710	2.2728078	20	8 30.2	18.2
98127 Vilgusová	16.2	X	37.35290	128.67889	307.87301	3.86419	0.1822024	0.26134166	2.4228710	20	—	—
98128 2000 SS_{24}	15.1	X	202.82435	34.22310	287.42038	6.24775	0.1335503	0.27251540	2.3561812	20	2 3.2	18.6
98129 2000 SD_{25}	14.4	X	153.18473	137.12946	227.82521	23.10080	0.3093099	0.27075246	2.3663979	20	2 15.1	19.0
98130 2000 SD_{28}	15.7	X	302.00753	282.64716	285.50727	6.27657	0.0544708	0.27097316	2.3651128	20	1 5.6	18.6
98131 2000 SX_{30}	16.2	X	65.26199	54.93549	17.96835	2.61069	0.1592498	0.26776798	2.3839490	20	1 12.6	18.2
98132 2000 SD_{37}	16.3	X	253.71815	296.32252	149.33307	5.27961	0.0983350	0.29524666	2.2336376	20	9 27.9	18.8
98133 2000 SL_{38}	16.0	X	305.81572	288.08222	69.20843	3.00038	0.2298206	0.29205760	2.2498680	20	7 19.4	17.7
98134 2000 SM_{39}	15.7	X	320.32853	304.20719	74.80870	5.00909	0.1796596	0.29589581	2.2303696	20	10 15.4	17.1
98135 2000 SO_{40}	15.6	X	72.45827	18.64003	69.12974	7.13247	0.0897703	0.26953719	2.3735056	20	2 9.3	18.3
98136 2000 SP_{40}	16.2	X	292.36671	272.64357	108.93798	5.11418	0.1813158	0.29190556	2.2506492	20	8 10.3	18.0
98137 2000 SO_{41}	16.5	X	87.72228	236.72344	72.08298	1.98460	0.0152866	0.30512283	2.1851751	20	—	—
98138 2000 SW_{42}	15.9	X	353.17803	78.38159	334.88597	5.44488	0.0426556	0.30482243	2.1866105	20	—	—
98139 2000 SG_{53}	12.4	X	208.67982	177.55453	202.90099	6.96218	0.0679871	0.08177068	5.2569958	20	5 4.7	19.6
98140 2000 SK_{54}	16.7	X	176.91489	52.72289	236.69398	1.53819	0.2046692	0.26804401	2.3823120	20	—	—
98141 2000 SV_{57}	16.5	X	103.85191	15.87866	8.43692	1.21462	0.1931542	0.26696332	2.3887369	20	1 14.7	19.1
98142 2000 SX_{59}	16.0	X	18.13826	152.07187	313.77151	1.59690	0.1497423	0.26465649	2.4025975	20	—	—
98143 2000 SS_{60}	12.3	X	279.82768	284.47643	14.51481	3.18470	0.0268598	0.08039560	5.3167699	20	4 22.2	19.2
98144 2000 SR_{61}	15.7	X	294.89048	90.69204	156.28535	2.74450	0.1999794	0.27811778	2.3244322	20	1 26.2	18.9
98145 2000 SK_{64}	16.0	X	318.01820	140.88076	357.41300	2.53460	0.1503946	0.26091866	2.4254889	20	—	—
98146 2000 SM_{64}	15.4	X	300.46928	256.39581	278.03717	0.45195	0.1231535	0.26488514	2.4012146	20	—	—
98147 2000 SR_{64}	15.6	X	134.32492	335.28285	120.17016	3.74773	0.0796519	0.27974583	2.3154050	20	5 12.9	18.6
98148 2000 ST_{64}	16.2	X	219.17176	6.38999	66.10376	4.19458	0.1163362	0.28784053	2.2717895	20	7 19.0	19.4
98149 2000 SL_{65}	16.5	X	138.90810	268.86114	29.48415	2.69863	0.1611796	0.26263492	2.4149107	20	—	—
98150 2000 SO_{66}	16.5	X	166.20036	72.40451	194.21753	3.68028	0.0990758	0.31121478	2.1565651	20	—	—
98151 2000 SU_{66}	16.2	X	120.91247	198.84251	114.33650	3.49057	0.2031539	0.26185235	2.4197197	20	—	—
98152 2000 SW_{66}	16.0	X	9.89681	260.36576	43.55488	6.44479	0.1514042	0.29480576	2.2358641	20	9 28.3	18.0
98153 2000 SY_{68}	12.0	X	319.28460	250.07179	18.97819	5.32447	0.0325744	0.08046088	5.3138939	20	5 2.9	18.8
98154 2000 SE_{69}	15.7	X	227.11123	6.90782	11.65305	4.28163	0.1615539	0.28311328	2.2970083	20	5 8.5	19.2
98155 2000 SF_{70}	15.8	X	278.13297	231.49199	20.81995	7.15758	0.0785948	0.27393358	2.3480420	20	2 1.7	19.0
98156 2000 SO_{71}	15.9	X	161.11749	95.51924	34.50454	9.97833	0.0592150	0.28803640	2.2707595	20	8 5.6	19.1
98157 2000 SF_{73}	15.4	X	286.05342	353.40298	57.78257	3.86277	0.1634275	0.24372311	2.5382725	20	9 10.2	18.1
98158 2000 ST_{75}	15.2	X	285.16544	218.99288	58.21144	6.69647	0.1519573	0.27875824	2.3208705	20	3 4.8	18.3
98159 2000 SN_{76}	15.8	X	217.59540	296.95489	63.95052	5.60961	0.1684837	0.27939607	2.3173370	20	4 9.2	19.4
98160 2000 SP_{77}	16.3	X	60.43440	110.60383	354.70562	3.66536	0.2017640	0.27005472	2.3704722	20	2 26.6	18.2

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
98161 2000 SG_{78}	16.1	X	291.12770	352.09409	188.38991	2.36290	0.1313774	0.26501247	2.4004454	20	—	—
98162 2000 SP_{78}	16.1	X	68.94037	249.72392	82.09566	2.94886	0.1749172	0.25647307	2.4534368	20	—	—
98163 2000 SX_{82}	15.8	X	212.59769	242.09798	52.31986	7.22350	0.1058821	0.26999898	2.3707985	20	1 11.9	19.4
98164 2000 SR_{84}	15.8	X	319.06788	191.14616	29.17156	6.43708	0.0629750	0.27393347	2.3480427	20	2 15.2	18.6
98165 2000 SP_{85}	16.3	X	163.31695	309.44968	99.81475	3.53013	0.1848824	0.27644833	2.3337808	20	4 20.8	20.0
98166 2000 ST_{85}	15.9	X	201.35014	50.40810	50.15884	7.11106	0.0427238	0.28901723	2.2656191	20	8 16.2	18.8
98167 2000 SF_{86}	15.3	X	199.65307	272.13601	66.67312	7.33702	0.1509397	0.27426204	2.3461669	20	2 26.5	19.0
98168 2000 SV_{86}	15.4	X	219.88538	14.19272	61.39634	6.74756	0.1379981	0.28684080	2.2770650	20	7 22.5	18.6
98169 2000 SB_{87}	16.0	X	269.56274	31.14847	68.75914	7.72317	0.0711705	0.29800658	2.2198254	20	11 17.5	18.1
98170 2000 SJ_{87}	16.2	X	95.86981	328.79536	132.55207	5.38020	0.1813631	0.27210297	2.3585614	20	4 17.9	19.2
98171 2000 SD_{88}	14.5	X	4.76561	88.47352	66.76160	10.18114	0.1589702	0.26688257	2.3892187	20	1 13.1	16.8
98172 2000 SN_{92}	15.1	X	194.42520	288.59059	292.24082	11.05236	0.1149547	0.26038457	2.4288045	20	12 31.2	18.4
98173 2000 SO_{92}	15.4	X	145.73855	242.94490	286.23501	9.23589	0.0469529	0.29485658	2.2356072	20	9 1.9	18.4
98174 2000 SM_{93}	15.9	X	24.94978	291.16294	270.53470	7.77108	0.0768462	0.28271584	2.2991605	20	4 28.4	18.4
98175 2000 SU_{94}	16.0	X	42.30849	242.06132	243.44018	6.34058	0.0577795	0.27302408	2.3532537	20	2 5.2	18.7
98176 2000 SU_{95}	16.4	X	206.04352	212.50855	226.59846	4.21002	0.0400418	0.28886704	2.2664043	20	7 17.8	19.3
98177 2000 SX_{97}	16.1	X	41.44569	198.58937	242.31232	3.81712	0.1929683	0.26396133	2.4068139	20	—	—
98178 2000 SU_{99}	15.5	X	324.21638	214.45098	298.63512	2.55776	0.0702011	0.26472082	2.4022082	20	—	—
98179 2000 SA_{100}	15.7	X	57.46954	148.44363	263.64420	1.74065	0.1599087	0.26278383	2.4139983	20	—	—
98180 2000 SJ_{102}	16.4	X	106.46254	354.45947	312.18437	1.57108	0.2055069	0.25949456	2.4343548	20	—	—
98181 2000 SC_{103}	15.6	X	293.49997	6.58851	193.70805	6.29200	0.0620933	0.26783322	2.3835619	20	—	—
98182 2000 SR_{105}	16.6	X	167.30433	252.88968	226.19856	1.68042	0.1061110	0.28726608	2.2748171	20	7 23.6	19.7
98183 2000 SH_{106}	15.7	X	319.23405	184.10756	336.25808	0.80279	0.1066519	0.26450705	2.4035023	20	—	—
98184 2000 SY_{106}	15.7	X	157.24364	62.25341	205.15676	4.11907	0.1728680	0.26048128	2.4282033	20	—	—
98185 2000 SN_{108}	16.6	X	22.36755	160.81244	191.82954	6.58072	0.1067650	0.30154254	2.2024378	20	12 20.3	19.2
98186 2000 SE_{109}	16.2	X	77.82885	12.16492	36.40714	2.65825	0.0880430	0.26541580	2.3980130	20	—	—
98187 2000 SO_{109}	16.5	X	217.20492	201.91698	194.15142	3.30017	0.1049756	0.28328611	2.2960739	20	5 27.4	19.7
98188 2000 SA_{110}	16.5	X	80.18132	24.13213	355.12372	1.49763	0.1984231	0.26219135	2.4176336	20	—	—
98189 2000 SN_{110}	16.1	X	33.17909	264.32438	180.29190	0.78251	0.1607068	0.26265651	2.4147783	20	—	—
98190 2000 SL_{112}	16.1	X	56.77820	301.22303	202.85577	5.89314	0.0523013	0.27550038	2.3391312	20	3 26.7	18.7
98191 2000 SN_{113}	16.1	X	111.81483	337.17021	44.23910	2.89798	0.2259286	0.26676949	2.3898939	20	1 27.5	19.1
98192 2000 SM_{114}	16.0	X	61.76006	4.33935	79.25045	2.14478	0.1413682	0.26644846	2.3918131	20	1 19.9	18.2
98193 2000 SG_{115}	15.2	X	62.10041	282.99122	192.12063	9.56959	0.0638014	0.27157071	2.3616422	20	2 22.6	17.9
98194 2000 SG_{116}	16.8	X	55.47471	297.07625	45.37263	3.64256	0.1732956	0.30497382	2.1858868	20	—	—
98195 2000 SX_{116}	16.2	X	201.28605	248.00688	173.23123	7.35124	0.0755051	0.28344501	2.2952157	20	6 14.5	19.4
98196 2000 SZ_{116}	16.2	X	117.38343	278.63094	63.38587	3.29196	0.2042967	0.26343156	2.4100396	20	—	—
98197 2000 SQ_{117}	16.0	X	344.68796	245.56314	69.28992	3.71162	0.1905906	0.29206524	2.2498288	20	8 22.9	17.3
98198 2000 SJ_{118}	15.8	X	276.83589	8.20817	36.56083	5.03000	0.1322930	0.29171509	2.2516287	20	8 29.1	18.1
98199 2000 SQ_{119}	15.7	X	267.11059	15.56755	47.98076	7.15665	0.1155525	0.29250462	2.2475752	20	9 15.1	18.2
98200 2000 SN_{121}	15.9	X	325.50594	253.00200	76.52337	5.09579	0.1952510	0.29072660	2.2567297	20	7 25.7	17.3
98201 2000 SJ_{122}	14.6	X	117.29441	90.89682	72.22810	5.86999	0.0926044	0.28477244	2.2880776	20	7 27.9	17.7
98202 2000 SF_{123}	15.5	X	271.85217	203.09928	101.64335	4.28795	0.1724377	0.27998726	2.3140738	20	3 21.8	18.8
98203 2000 SM_{123}	15.1	X	224.52689	44.35964	60.84691	7.73197	0.1611014	0.29044682	2.2581787	20	9 8.0	18.2
98204 2000 SY_{124}	15.8	X	24.01557	218.58861	178.75733	9.90176	0.1573296	0.25500982	2.4628131	20	—	—
98205 2000 SG_{125}	14.9	X	320.44372	87.01531	78.36748	7.67876	0.0733359	0.26307182	2.4122362	20	—	—
98206 2000 SE_{126}	15.1	X	280.29520	349.13531	180.67694	9.37752	0.0345033	0.25790043	2.4443760	20	—	—
98207 2000 SQ_{126}	15.7	X	299.49328	281.00904	279.19412	1.36953	0.1485502	0.26779836	2.3837687	20	—	—
98208 2000 SZ_{126}	15.4	X	258.83742	199.59238	357.69302	0.84820	0.1245023	0.26141515	2.4224169	20	—	—
98209 2000 SK_{130}	15.1	X	233.12249	9.95504	270.63609	13.07224	0.0574244	0.22359028	2.6884426	20	1 20.6	19.2
98210 2000 SF_{133}	15.7	X	112.86347	19.61181	276.82993	9.00115	0.1210417	0.25916123	2.4364417	20	—	—
98211 2000 SX_{137}	15.8	X	77.69714	86.75223	321.02538	5.68247	0.1094334	0.26545850	2.3977558	20	—	—
98212 2000 SC_{138}	15.7	X	151.36274	193.37538	301.61917	5.07035	0.0998954	0.28691829	2.2766550	20	7 27.9	18.9
98213 2000 SV_{138}	16.2	X	287.84026	146.50892	214.51133	5.15525	0.1343849	0.28933847	2.2639418	20	7 6.0	18.7
98214 2000 SD_{140}	16.1	X	126.75479	99.25018	248.32461	3.41950	0.2195257	0.26584874	2.3954089	20	—	—
98215 2000 SM_{140}	16.3	X	259.01092	120.10068	226.32483	2.65028	0.2684469	0.28471651	2.2883772	20	4 18.7	19.9
98216 2000 SQ_{140}	15.8	X	104.38691	224.80033	252.95266	3.22449	0.1080307	0.27766190	2.3269757	20	5 7.6	18.7
98217 2000 SV_{141}	16.0	X	142.74591	240.46564	228.16022	4.45790	0.0846722	0.28186529	2.3037834	20	6 10.0	19.0
98218 2000 SG_{142}	15.3	X	201.65808	142.79105	296.78049	6.51303	0.0525998	0.28584737	2.2823377	20	7 12.6	18.1
98219 2000 SK_{142}	15.6	X	104.13038	65.13597	349.98439	6.07958	0.1047886	0.26945089	2.3740123	20	2 12.6	18.3
98220 2000 SC_{143}	15.7	X	295.74681	330.57360	345.05161	4.13427	0.1630625	0.28515183	2.2860476	20	5 4.2	18.3
98221 2000 SL_{143}	14.9	X	143.80959	283.02238	243.74414	12.58391	0.2335368	0.23897297	2.5717980	20	8 24.9	19.6
98222 2000 SL_{144}	16.3	X	118.10174	63.43273	355.20953	4.49695	0.1409779	0.27176948	2.3604905	20	3 10.8	19.4
98223 2000 SQ_{144}	15.8	X	73.95109	64.18310	339.84462	2.30094	0.1816237	0.26369292	2.4084468	20	—	—
98224 2000 ST_{144}	16.5	X	103.57142	309.75469	336.58474	3.62629	0.0920964	0.30415578	2.1898044	20	12 27.8	19.4
98225 2000 SU_{146}	15.7	X	127.40174	123.38267	349.94803	1.97326	0.0840250	0.28008789	2.3135195	20	5 27.9	18.8
98226 2000 SW_{146}	16.4	X	89.20372	213.60235	219.14824	1.99681	0.2040026	0.26837410	2.3803582	20	2 29.1	19.1
98227 2000 SO_{147}	16.1	X	64.50255	249.98290	211.12319	3.25323	0.1517736	0.26853133	2.3794289	20	2 18.9	18.5
98228 2000 SV_{147}	16.4	X	329.07656	328.72068	334.29516	1.79032	0.1325592	0.28770938	2.2724798	20	6 22.5	18.2
98229 2000 SE_{150}	16.3	X	166.84906	1.91139	326.65265	0.51738	0.1995628	0.26881853	2.3777339	20	1 14.4	19.8
98230 2000 SS_{150}	16.3	X	116.39849	4.47131	332.06684	1.48631	0.2270017	0.26275112	2.4141986	20	—	—
98231 2000 SG_{151}	15.0	X	238.58259	257.28343	23.98599	7.96921	0.1247274	0.27158640	2.3615512	20	1 22.4	18.6
98232 2000 SJ_{151}	15.9	X	220.08154	4.05858	21.94099	4.10689	0.1624209	0.28181035	2.3040829	20	5 11.5	19.2
98233 2000 SN_{151}	15.3	X	322.44721	303.50232	65.12774	1.19931	0.1596211	0.24397526	2.5365233	20	9 16.3	17.6
98234 2000 SA_{152}	15.5	X	309.95029	24.87490	28.97745	6.55765	0.1304415	0.29725432	2.2235690	20	11 15.1	17.3
98235 2000 SE_{153}	15.3	X	233.25902	40.76059	30.99552	1.25887	0.1879367	0.23718003	2.5847426	20	7 22.8	19.1
98236 2000 SK_{153}	16.7	X	231.95947	0.51452	58.70065	1.14846	0.1709778	0.28625370	2.2801774	20	7 8.6	20.0
98237 2000 SQ_{153}	15.9	X	44.43163	69.87664	39.44777	6.97722	0.0826336	0.26726396	2.3869452	20	1 23.7	18.5
98238 2000 SS_{154}	14.6	X	183.58386	68.48527	56.33861	5.99155	0.1412678	0.28730520	2.2746106	20	8 20.6	18.0
98239 2000 SH_{156}	15.9	X	115.42725	176.70899	19.44907	8.64692	0.0585068	0.29095239	2.2555620	20	9 9.7	18.8
98240 2000 SK_{158}	15.1	X	353.73023	303.24760	192.03243	5.61291	0.0764051	0.26333650	2.4106196	20	—	—

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	m		°	°	°	°		°				
98241 2000 SL_{158}	16.4	X	261.40004	228.96074	177.05948	3.44835	0.1613509	0.28890346	2.2662139	20	7 27.9	19.2
98242 2000 SS_{162}	15.8	X	129.92047	179.45225	324.94877	4.86908	0.0855718	0.28423999	2.2909341	20	7 15.6	18.8
98243 2000 SE_{166}	15.6	X	129.37904	191.79243	269.49540	5.76922	0.1072145	0.27914120	2.3187473	20	5 15.7	18.8
98244 2000 SH_{166}	16.1	X	93.08477	171.15438	298.46046	6.21696	0.0572855	0.27599895	2.3363134	20	3 29.9	19.1
98245 2000 SO_{166}	15.8	X	260.97119	151.70521	264.05092	4.73367	0.1576665	0.29102333	2.2551954	20	8 10.5	18.4
98246 2000 SY_{166}	15.6	X	25.53767	215.84932	214.48352	14.45385	0.0654423	0.26091099	2.4255364	20	—	—
98247 2000 SJ_{167}	15.6	X	189.46125	78.07372	222.84851	11.72819	0.2233182	0.26980004	2.3719637	20	—	—
98248 2000 SP_{167}	15.2	X	284.14528	34.05490	261.60001	5.17004	0.1216215	0.28078096	2.3097108	20	3 26.1	18.2
98249 2000 SH_{169}	16.1	X	202.31017	167.63583	279.03333	5.39273	0.1260790	0.28609704	2.2810097	20	7 17.0	19.4
98250 2000 SO_{169}	16.0	X	136.86859	105.64879	284.38139	1.79782	0.1749218	0.27064354	2.3670328	20	2 27.4	19.4
98251 2000 SQ_{169}	16.1	X	250.45839	159.54924	221.53997	4.25211	0.1429700	0.28538534	2.2848004	20	6 10.6	19.0
98252 2000 SY_{170}	15.3	X	75.11727	161.10980	216.13095	8.10546	0.0782977	0.25971414	2.4329825	20	—	—
98253 2000 SH_{174}	15.4	X	292.01471	340.36341	279.12316	9.44538	0.1451412	0.27706148	2.3303364	20	2 12.3	18.6
98254 2000 SU_{178}	15.9	X	293.71829	21.95397	316.92919	4.17703	0.1997444	0.28665324	2.2780582	20	5 30.5	18.5
98255 2000 SX_{180}	15.9	X	86.35342	319.59021	161.63094	1.48852	0.1822451	0.27830377	2.3233965	20	4 30.7	18.7
98256 2000 SD_{181}	14.6	X	279.59745	262.21585	104.20314	12.59584	0.1194345	0.19083878	2.9878465	20	6 29.7	18.8
98257 2000 SJ_{181}	15.8	X	147.73258	8.73658	56.35715	4.69964	0.0940628	0.28024731	2.3126421	20	4 18.7	19.0
98258 2000 SG_{182}	15.7	X	283.84850	328.34455	48.50148	6.49201	0.1967267	0.29199781	2.2501751	20	7 14.9	18.1
98259 2000 SH_{182}	15.9	X	111.07105	300.86336	78.16699	8.33972	0.1648807	0.26873331	2.3782365	20	1 13.2	18.7
98260 2000 SL_{182}	15.5	X	196.21442	189.69485	111.95733	7.81880	0.2193343	0.27301551	2.3533029	20	1 7.4	19.4
98261 2000 SA_{185}	16.1	X	56.55377	254.32049	158.84159	7.31186	0.1080529	0.26320871	2.4113998	20	—	—
98262 2000 SF_{185}	15.4	X	112.08779	332.94862	116.63529	6.92109	0.2037241	0.27334957	2.3513852	20	4 25.7	18.7
98263 2000 SR_{185}	15.9	X	109.36200	192.69424	103.79085	7.23525	0.1229551	0.25813866	2.4428718	20	—	—
98264 2000 SO_{187}	16.1	X	117.94158	109.01040	357.97986	4.63921	0.1101497	0.27833117	2.3232440	20	5 9.3	19.3
98265 2000 SX_{187}	15.9	X	139.61043	304.72919	115.05413	7.18003	0.1451752	0.27447845	2.3449336	20	4 10.1	19.4
98266 2000 SU_{189}	16.1	X	323.76514	103.13959	230.19499	5.94439	0.1732758	0.29107656	2.2549205	20	7 26.5	17.9
98267 2000 SN_{193}	15.9	X	169.67041	331.68916	90.57676	4.82766	0.1253468	0.28158234	2.3053265	20	5 11.3	19.2
98268 2000 SR_{196}	16.1	X	65.27703	111.37228	4.13167	5.62750	0.1780498	0.27309881	2.3528244	20	3 18.3	18.3
98269 2000 SL_{200}	16.4	X	195.32469	66.14883	4.89993	5.80964	0.1355503	0.28408384	2.2917735	20	6 17.6	19.9
98270 2000 SW_{203}	16.1	X	136.08529	257.57161	35.23767	3.74461	0.1703929	0.26106512	2.4245816	20	—	—
98271 2000 SY_{203}	16.1	X	120.36150	18.05769	120.90602	1.23828	0.1505241	0.28253582	2.3001370	20	7 1.8	19.2
98272 2000 SN_{205}	15.3	X	304.16471	270.30245	207.44032	5.56263	0.1002364	0.25494996	2.4631985	20	—	—
98273 2000 SG_{207}	16.3	X	242.09031	33.67841	12.65066	5.13389	0.0674380	0.28663195	2.2781710	20	7 18.4	19.2
98274 2000 SU_{207}	16.2	X	171.74135	225.37061	45.51184	2.72471	0.1735710	0.26220077	2.4175757	20	—	—
98275 2000 SB_{211}	15.9	X	261.10995	253.19231	112.92454	5.33240	0.1588436	0.28610675	2.2809581	20	6 1.3	18.8
98276 2000 SF_{211}	15.6	X	29.60693	63.24919	87.41176	7.01643	0.1003889	0.27216757	2.3581882	20	2 27.8	18.0
98277 2000 SM_{211}	15.3	X	30.50812	353.12055	126.28909	7.23427	0.0581988	0.26806816	2.3821689	20	1 12.5	17.8
98278 2000 SE_{212}	16.3	X	109.17818	219.19656	100.65730	5.87514	0.1456850	0.30986570	2.1628200	20	—	—
98279 2000 SK_{212}	15.3	X	95.37830	250.40908	118.27461	7.15746	0.1435681	0.26290110	2.4132803	20	—	—
98280 2000 SU_{213}	15.4	X	274.77026	342.04599	49.90697	18.20312	0.1777928	0.23959676	2.5673323	20	7 25.7	19.1
98281 2000 SZ_{216}	15.7	X	101.28461	291.28024	77.45985	7.62208	0.1383330	0.26354692	2.4093363	20	—	—
98282 2000 SY_{217}	15.4	X	338.38121	318.94486	96.94574	6.68723	0.1895425	0.25098920	2.4890447	20	—	—
98283 2000 SB_{218}	15.4	X	242.58751	148.40389	126.51746	7.29359	0.1498384	0.27130615	2.3631772	20	1 14.8	18.9
98284 2000 SG_{218}	15.2	X	102.95488	328.25759	102.82458	7.51644	0.0838616	0.27067603	2.3668434	20	3 2.0	18.1
98285 2000 SV_{220}	15.4	X	27.22674	329.80869	98.04638	6.94520	0.1026641	0.25988522	2.4319147	20	—	—
98286 2000 SR_{221}	15.6	X	260.52709	233.00984	144.47530	8.48101	0.1650646	0.28565913	2.2833403	20	6 15.8	18.7
98287 2000 SM_{222}	15.9	X	67.19229	270.64670	67.87721	15.07369	0.1696487	0.25500197	2.4628636	20	—	—
98288 2000 SY_{222}	16.0	X	50.54393	294.11456	213.41334	1.66014	0.1428827	0.27484191	2.3428658	20	4 1.9	17.9
98289 2000 SP_{226}	14.8	X	150.72562	58.85198	55.98209	22.56525	0.1818096	0.27958004	2.3163203	20	6 30.6	18.8
98290 2000 SE_{228}	15.7	X	253.89181	344.40850	209.34634	3.99015	0.1225494	0.25969344	2.4331118	20	—	—
98291 2000 SS_{229}	15.9	X	30.03150	238.35674	195.18675	2.50921	0.0406292	0.26104111	2.4247303	20	—	—
98292 2000 SC_{230}	16.2	X	336.69003	87.63604	24.69495	5.74322	0.1214428	0.25749573	2.4469365	20	—	—
98293 2000 SD_{230}	16.5	X	66.62832	303.12849	21.60488	2.80406	0.2059434	0.30451255	2.1880937	20	—	—
98294 2000 SO_{230}	16.3	X	95.78439	10.91649	17.63589	2.51209	0.2191735	0.26443293	2.4039515	20	1 13.4	18.8
98295 2000 SE_{231}	15.4	X	86.35492	54.98857	9.34448	6.27359	0.1071614	0.26672796	2.3901419	20	1 31.8	18.2
98296 2000 SC_{233}	15.3	X	123.33339	324.11720	205.89820	25.12421	0.2201366	0.28784989	2.2717403	20	8 14.3	19.5
98297 2000 SO_{233}	15.5	X	63.77602	40.79975	86.92260	7.42820	0.0700902	0.27589800	2.3368832	20	3 21.8	18.2
98298 2000 SO_{234}	15.8	X	112.19211	58.26113	122.78104	7.41010	0.0607400	0.29084776	2.2561029	20	8 12.5	18.5
98299 2000 SD_{235}	16.8	X	291.21630	48.02705	68.35364	0.87595	0.0622976	0.30666851	2.1778264	20	—	—
98300 2000 SE_{235}	16.2	X	356.38658	156.85997	17.25937	2.58462	0.0384061	0.27438676	2.3454560	20	2 6.9	18.9
98301 2000 SS_{237}	15.6	X	276.39555	286.96203	79.94368	6.32812	0.1882622	0.28831331	2.2693053	20	6 17.7	18.3
98302 2000 SX_{237}	15.0	X	22.16854	228.63072	78.91173	7.67062	0.2656414	0.29782467	2.2207292	20	11 13.4	17.4
98303 2000 SZ_{237}	15.4	X	85.92613	8.83142	90.76676	8.26405	0.0758788	0.27246933	2.3564468	20	3 17.3	18.3
98304 2000 SJ_{241}	16.2	X	133.39023	321.98475	304.97363	2.16259	0.0913553	0.30532475	2.1842116	20	—	—
98305 2000 SG_{243}	16.1	X	220.46890	280.20540	20.23646	6.36720	0.1206048	0.27490120	2.3425289	20	1 27.9	19.7
98306 2000 SP_{243}	16.7	X	19.24544	118.63176	308.98846	2.30811	0.0891287	0.26201221	2.4187354	20	—	—
98307 2000 SO_{251}	15.8	X	351.80974	176.46901	314.37697	1.79919	0.1513030	0.26439844	2.4041605	20	—	—
98308 2000 SY_{251}	16.1	X	127.17903	327.09426	109.56710	4.74677	0.1199656	0.27569963	2.3380041	20	4 14.4	19.2
98309 2000 SF_{254}	16.1	X	184.57009	327.23500	115.44449	4.05981	0.1018025	0.28481784	2.2878344	20	6 23.2	19.2
98310 2000 ST_{256}	16.4	X	215.43071	183.00695	347.89116	5.25086	0.0611796	0.30372847	2.1918578	20	12 9.1	18.9
98311 2000 SO_{257}	16.3	X	54.58215	263.22030	66.01718	2.70869	0.0173734	0.30248081	2.1978810	20	12 18.2	18.6
98312 2000 SK_{258}	15.6	X	22.05809	16.28408	125.09637	3.27581	0.1472288	0.26813601	2.3817670	20	1 26.4	17.6
98313 2000 SP_{258}	16.2	X	120.33909	325.24000	123.16849	5.70671	0.1899162	0.27422655	2.3463694	20	4 30.7	19.6
98314 2000 SA_{259}	15.9	X	350.23251	127.18095	79.73396	6.13028	0.0195713	0.27499377	2.3420032	20	3 19.1	18.7
98315 2000 SG_{261}	15.5	X	215.51482	211.19816	181.65979	5.48857	0.1650289	0.28058032	2.3108118	20	5 17.9	19.1
98316 2000 SQ_{261}	15.6	X	312.49650	24.82405	136.83739	6.65663	0.0856095	0.26192102	2.4192968	20	—	—
98317 2000 SR_{262}	15.7	X	164.83626	36.65991	72.86354	6.54007	0.1046007	0.28551052	2.2841326	20	7 8.3	19.0
98318 2000 SR_{263}	15.8	X	12.44376	277.17976	238.93696	1.45852	0.1468089	0.27146183	2.3622736	20	1 27.9	17.9
98319 2000 SQ_{265}	15.8	X	231.51313	240.54847	66.03967	7.24866	0.2357929	0.27645447	2.3337463	20	2 12.1	19.8
98320 2000 SA_{269}	15.3	X	202.94577	33.19062	55.66349	11.07608	0.1277450	0.23532076	2.5983395	20	7 20.3	19.4

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	m		°	°	°	°		°				
98321 2000 SS_{269}	15.0	X	309.93717	138.38378	74.43767	6.85940	0.0601207	0.26894998	2.3769591	20	1 22.9	17.9
98322 2000 SY_{269}	16.2	X	351.88167	202.42472	114.75387	5.63100	0.1881939	0.29224314	2.2489157	20	9 16.1	17.7
98323 2000 SB_{270}	15.6	X	181.26413	13.02889	57.28079	8.35009	0.1123096	0.28036424	2.3119990	20	6 1.6	18.8
98324 2000 SK_{271}	16.2	X	255.81223	86.49396	93.08545	3.42630	0.0998274	0.30663950	2.1779638	20	—	—
98325 2000 SR_{273}	15.0	X	276.18145	161.31611	43.76042	5.98269	0.1150376	0.26379579	2.4078207	20	—	—
98326 2000 SG_{274}	15.4	X	182.50847	276.34358	51.95544	4.63546	0.1391044	0.26953501	2.3735183	20	1 25.9	19.0
98327 2000 SN_{274}	16.2	X	309.07056	34.28020	36.54897	2.64184	0.0076992	0.29959428	2.2119758	20	12 9.4	18.6
98328 2000 SU_{276}	16.1	X	160.62464	63.05145	66.39529	4.72682	0.0739992	0.28678060	2.2773837	20	8 1.3	19.1
98329 2000 SB_{278}	16.0	X	178.03819	298.94886	16.26083	2.72603	0.1966159	0.26776581	2.3839619	20	1 8.5	19.8
98330 2000 SE_{286}	16.2	X	184.92056	357.09943	134.49445	3.22429	0.1022977	0.29047739	2.2580202	20	8 31.6	19.1
98331 2000 SL_{290}	16.1	X	54.88309	155.73320	309.31758	2.96547	0.2313516	0.26795968	2.3828119	20	2 17.2	17.8
98332 2000 SF_{294}	14.6	X	27.01308	206.86231	235.85169	22.64085	0.1419485	0.25883359	2.4384974	20	—	—
98333 2000 SC_{295}	15.8	X	189.89426	75.58604	315.61811	4.77334	0.3120360	0.27700679	2.3306431	20	4 18.2	20.2
98334 2000 SK_{295}	15.7	X	180.24434	37.62381	345.55962	5.84372	0.1820687	0.27380152	2.3487970	20	3 30.9	19.6
98335 2000 SP_{295}	14.5	X	219.90767	91.75051	18.98599	7.19422	0.1193318	0.28829560	2.2693982	20	9 13.2	17.4
98336 2000 SS_{295}	15.4	X	156.71491	155.10656	260.94169	6.28222	0.0979071	0.27331412	2.3515886	20	4 13.7	18.8
98337 2000 SX_{295}	15.3	X	122.61994	48.75450	303.21270	5.13837	0.1711528	0.26155656	2.4215437	20	—	—
98338 2000 SB_{296}	15.5	X	225.19770	3.50393	332.97628	6.19181	0.2554828	0.27532659	2.3401154	20	3 9.9	19.6
98339 2000 SG_{296}	15.4	X	153.67364	213.74116	247.80437	12.15600	0.1545978	0.27765574	2.3270101	20	6 15.9	19.0
98340 2000 SU_{296}	16.1	X	84.61036	200.52910	260.59114	6.04993	0.0805048	0.27421043	2.3464614	20	3 9.4	19.0
98341 2000 SF_{298}	15.9	X	246.64457	20.01831	234.98921	6.18007	0.0917047	0.27027010	2.3692126	20	—	—
98342 2000 SD_{299}	16.5	X	329.57788	124.98531	267.12625	3.36138	0.0770449	0.29897149	2.2150466	20	11 18.1	18.4
98343 2000 SR_{301}	16.3	X	198.55721	108.87968	347.08778	7.05264	0.0603697	0.28806134	2.2706284	20	8 2.5	19.2
98344 2000 SH_{302}	16.0	X	218.88410	326.27246	307.62278	2.28607	0.2052505	0.26936054	2.3745431	20	—	—
98345 2000 SQ_{304}	15.7	X	80.58784	164.60129	303.63652	4.54795	0.1848131	0.27172428	2.3607523	20	3 31.9	18.5
98346 2000 SW_{304}	16.1	X	199.87418	182.63594	340.36685	7.23722	0.0704559	0.29816207	2.2190536	20	11 1.9	19.0
98347 2000 SV_{306}	15.8	X	189.30983	25.98228	229.46408	6.98136	0.0806351	0.26043381	2.4284983	20	—	—
98348 2000 SM_{307}	15.9	X	124.90678	179.56111	280.24560	7.41211	0.1133689	0.27789748	2.3256605	20	5 7.8	19.2
98349 2000 ST_{309}	16.7	X	261.24512	319.91418	155.97738	2.38322	0.0973698	0.30034876	2.2082699	20	11 24.3	18.9
98350 2000 SL_{318}	16.0	X	138.57322	242.55521	86.01123	8.30022	0.2105696	0.26633054	2.3925190	20	—	—
98351 2000 SG_{323}	16.1	X	320.40585	356.48773	189.51120	2.04639	0.1311953	0.26835591	2.3804658	20	—	—
98352 2000 SX_{327}	15.4	X	165.41988	346.67324	69.35753	5.41434	0.1592759	0.27509144	2.3414488	20	4 30.2	19.1
98353 2000 SU_{328}	16.8	X	312.56545	39.14713	20.96654	6.25671	0.1060088	0.30171454	2.2016007	20	12 1.5	18.7
98354 2000 SM_{330}	15.9	X	118.38031	154.82488	25.68495	6.63948	0.1992149	0.28883895	2.2665512	20	8 31.9	19.4
98355 2000 SZ_{335}	15.3	X	243.77635	241.91405	323.35779	5.31353	0.0711188	0.26017746	2.4300932	20	—	—
98356 2000 SG_{336}	15.9	X	106.05249	93.43998	8.88318	5.43463	0.1652891	0.27350528	2.3504927	20	4 25.9	19.0
98357 2000 SS_{336}	15.5	X	353.17733	205.89027	28.14889	7.07092	0.1078078	0.27807504	2.3246704	20	4 21.7	17.4
98358 2000 SA_{337}	15.2	X	192.95661	344.08096	31.43104	7.36255	0.1298473	0.27508276	2.3414981	20	4 4.1	18.6
98359 2000 SN_{349}	15.1	X	283.26182	246.40777	159.93520	15.69571	0.1220480	0.24223142	2.5486825	20	9 2.5	18.0
98360 2000 SV_{354}	15.6	X	225.39163	2.16119	33.32957	11.47681	0.1450567	0.28600183	2.2815159	20	5 29.7	19.1
98361 2000 SG_{361}	12.4	X	308.65348	198.71423	95.93125	10.04492	0.1041637	0.08489168	5.1273459	20	5 14.5	19.0
98362 2000 SA_{363}	12.4	X	227.50228	82.04083	297.19602	25.67631	0.0171148	0.08565216	5.0969514	20	5 24.7	19.5
98363 2000 SL_{363}	16.6	X	2.54432	118.49840	327.08996	5.88123	0.1999154	0.25994940	2.4315143	20	—	—
98364 2000 SE_{364}	15.6	X	140.55878	303.30797	100.33356	7.23330	0.1007117	0.27620181	2.3351693	20	3 15.8	18.8
98365 2000 SK_{367}	15.7	X	80.28242	228.37682	272.69953	7.20166	0.1106312	0.27784817	2.3259356	20	5 5.9	18.5
98366 2000 TJ_{11}	16.5	X	123.68245	55.83613	41.40358	3.20504	0.1805734	0.27628575	2.3346963	20	5 12.3	19.7
98367 2000 TP_{16}	16.1	X	338.56886	314.52939	174.87299	1.35497	0.1436649	0.25987661	2.4319684	20	—	—
98368 2000 TU_{17}	16.8	X	244.54495	104.14651	12.00553	3.99843	0.0472354	0.29669516	2.2263618	20	11 3.5	19.3
98369 2000 TA_{18}	15.8	X	282.42770	39.63932	202.01298	6.21289	0.0613907	0.27027434	2.3691879	20	1 22.3	18.9
98370 2000 TW_{18}	16.6	X	158.84069	56.26890	59.09281	2.11238	0.1379350	0.28324526	2.2962947	20	7 10.1	19.9
98371 2000 TL_{19}	15.9	X	208.77020	227.05693	90.62753	8.06447	0.1320276	0.27498703	2.3420414	20	2 6.8	19.5
98372 2000 TO_{19}	15.9	X	145.79643	309.66346	67.85723	7.31301	0.1282251	0.27214751	2.3583041	20	2 19.8	19.3
98373 2000 TC_{20}	15.6	X	235.86823	356.00909	66.27861	10.76268	0.0668618	0.28958823	2.2626399	20	8 4.6	18.6
98374 2000 TD_{23}	16.8	X	172.73740	245.43267	234.45618	0.17566	0.1052665	0.28779489	2.2720296	20	7 31.3	19.8
98375 2000 TU_{25}	16.1	X	243.69847	318.44602	259.57580	0.35404	0.1188578	0.26399269	2.4066233	20	—	—
98376 2000 TN_{26}	15.8	X	260.17615	196.15268	57.47617	5.85930	0.2020004	0.27363823	2.3497313	20	1 2.1	19.5
98377 2000 TV_{26}	15.3	X	304.83895	108.72865	63.17903	6.17968	0.1705162	0.26072723	2.4266760	20	—	—
98378 2000 TY_{27}	16.0	X	324.93322	237.54617	296.28255	2.31615	0.1054166	0.26630403	2.3926778	20	—	—
98379 2000 TN_{33}	14.7	X	324.21134	35.82008	271.75374	24.17224	0.1663512	0.28609058	2.2810441	20	6 15.9	16.6
98380 2000 TR_{35}	16.4	X	147.06144	251.62736	239.59284	1.87124	0.0309937	0.28630674	2.2798958	20	7 14.1	19.2
98381 2000 TP_{37}	15.6	X	266.36980	302.20234	61.13480	4.96021	0.1884329	0.28851606	2.2682420	20	5 29.7	18.6
98382 2000 TP_{38}	15.8	X	64.88943	257.33238	86.81324	6.54105	0.1632664	0.30842811	2.1695354	20	—	—
98383 2000 TL_{39}	15.8	X	292.92733	341.59704	52.30119	7.72424	0.1671948	0.29458781	2.2369668	20	9 8.2	17.8
98384 2000 TG_{42}	16.1	X	67.01006	349.12404	115.01205	7.55620	0.0703587	0.27309700	2.3528347	20	2 19.8	18.7
98385 2000 TN_{52}	15.6	X	304.78097	130.82090	50.46033	3.78948	0.1127245	0.26466482	2.4025471	20	—	—
98386 2000 TR_{55}	15.2	X	282.60918	263.78044	75.35669	14.58616	0.1265473	0.23404944	2.6077401	20	5 28.4	18.6
98387 2000 TU_{55}	15.6	X	303.11125	47.98465	91.17706	10.20137	0.1753703	0.25444039	2.4664862	20	—	—
98388 2000 TM_{58}	15.7	X	48.35035	267.13595	122.64786	3.75670	0.0280345	0.25812991	2.4429270	20	—	—
98389 2000 TP_{58}	16.1	X	109.15979	326.42472	113.09420	3.30155	0.1395653	0.27168231	2.3609954	20	3 29.1	19.1
98390 2000 TC_{62}	15.9	X	177.77233	316.03583	101.52136	8.70140	0.1938896	0.27959914	2.3162148	20	5 15.7	19.7
98391 2000 TL_{62}	15.7	X	275.74955	302.95739	227.41437	4.25429	0.0503788	0.25916376	2.4364259	20	—	—
98392 2000 UC	15.9	X	177.91797	6.61299	357.38190	5.42979	0.2390777	0.27323284	2.3520549	20	3 9.0	19.9
98393 2000 UG_{2}	14.6	X	287.97457	339.06683	65.99424	14.95233	0.2380601	0.24008404	2.5638573	20	8 28.3	17.8
98394 2000 UH_{2}	15.7	X	121.24466	140.62946	187.89574	6.70820	0.1366799	0.26009052	2.4306347	20	—	—
98395 2000 UQ_{2}	14.3	X	255.57415	19.47560	65.39969	14.03535	0.1273698	0.24066096	2.5597582	20	9 22.7	17.9
98396 2000 US_{2}	15.2	X	196.54365	339.84299	30.57372	6.42379	0.1569038	0.27503038	2.3417953	20	4 1.1	18.7
98397 2000 UC_{3}	16.3	X	210.07337	213.27653	195.05383	2.56701	0.1648114	0.28194704	2.3033381	20	6 1.3	19.7
98398 2000 UE_{4}	15.5	X	125.35013	262.82381	39.40771	13.49139	0.2682036	0.25962079	2.4335657	20	—	—
98399 2000 UP_{4}	16.0	X	189.40991	271.58156	92.11873	3.77189	0.1866393	0.27446072	2.3450346	20	3 18.1	19.8
98400 2000 UR_{7}	15.3	X	135.14543	271.33431	72.91838	3.42026	0.1855856	0.26456305	2.4031632	20	1 1.1	18.6

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
98401 2000 UX_{7}	15.4	X	138.23429	182.35519	207.79144	5.86441	0.1217040	0.26992922	2.3712069	20	2 21.5	18.6
98402 2000 UE_{8}	16.3	X	170.65293	46.15919	12.40313	1.82889	0.1977082	0.27717882	2.3296787	20	5 7.8	20.1
98403 2000 UG_{8}	15.0	X	178.59990	235.45695	219.16402	5.64248	0.0737355	0.28281411	2.2986279	20	7 2.6	18.1
98404 2000 UT_{8}	15.6	X	286.44530	1.36150	35.89276	0.35857	0.2088054	0.24024851	2.5626871	20	8 10.9	18.3
98405 2000 UN_{9}	14.7	X	195.19924	32.78387	52.74775	15.15142	0.0846047	0.23229970	2.6208185	20	7 8.6	18.8
98406 2000 UC_{10}	15.5	X	193.76327	47.35017	45.34633	7.51837	0.0532041	0.28333650	2.2958017	20	7 22.7	18.6
98407 2000 UX_{10}	16.0	X	146.02698	95.70528	308.68280	5.41294	0.1065759	0.27283141	2.3543615	20	3 17.8	19.3
98408 2000 UD_{11}	15.6	X	108.76099	179.65733	180.47898	2.96651	0.2098907	0.26266497	2.4147265	20	—	—
98409 2000 UQ_{12}	16.7	X	85.78413	85.43589	31.14166	2.82059	0.1546982	0.27255082	2.3559770	20	4 18.4	19.4
98410 2000 UX_{12}	15.6	X	75.16820	123.34023	39.37745	4.35714	0.0910395	0.27775276	2.3264682	20	5 28.1	18.3
98411 2000 UT_{13}	15.4	X	222.73910	139.34238	258.49971	3.38316	0.1831890	0.28171112	2.3046239	20	5 29.2	19.0
98412 2000 UG_{15}	15.3	X	156.34191	16.53053	340.16955	2.38916	0.2270840	0.26834960	2.3805031	20	2 10.9	19.1
98413 2000 UQ_{16}	15.0	X	177.04265	1.89833	2.31504	7.35239	0.1393234	0.27158007	2.3615879	20	3 5.4	18.5
98414 2000 UE_{18}	16.3	X	192.63834	23.32040	108.66772	5.15057	0.1359350	0.28949516	2.2631248	20	9 8.8	19.5
98415 2000 UH_{18}	16.0	X	228.93970	282.13231	114.68205	4.37828	0.1793256	0.28396019	2.2924388	20	6 4.2	19.4
98416 2000 US_{20}	15.4	X	288.92135	83.82566	124.04664	1.94734	0.1136294	0.26533397	2.3985060	20	—	—
98417 2000 UW_{21}	16.4	X	172.81095	298.05376	88.15953	3.37679	0.2139277	0.27484304	2.3428593	20	4 1.5	20.2
98418 2000 US_{22}	15.7	X	187.62718	339.17730	71.04408	7.38205	0.1205580	0.27901954	2.3194213	20	5 13.8	19.0
98419 2000 UV_{22}	15.7	X	98.18818	7.12702	80.85785	7.05657	0.1450632	0.27058283	2.3673868	20	3 29.5	18.7
98420 2000 UN_{24}	16.4	X	203.52079	227.43003	175.86719	4.71921	0.1485175	0.28005860	2.3136808	20	5 20.5	20.0
98421 2000 UD_{26}	16.0	X	167.76169	270.93835	107.91884	5.55608	0.1883685	0.27262734	2.3555361	20	3 18.8	19.7
98422 2000 UQ_{26}	15.5	X	234.35096	203.46265	132.98415	5.63528	0.1819062	0.27709116	2.3301699	20	3 23.9	19.1
98423 2000 UU_{26}	15.6	X	67.64529	269.88846	76.38760	9.70235	0.3090137	0.25622061	2.4550481	20	—	—
98424 2000 UO_{28}	15.8	X	143.22890	158.15257	304.14480	5.83738	0.0637470	0.27779434	2.3262361	20	5 29.9	19.0
98425 2000 UM_{33}	16.3	X	294.19585	193.07686	341.72933	1.99051	0.1580834	0.26120715	2.4237027	20	—	—
98426 2000 UE_{34}	15.4	X	322.21008	295.54569	224.79569	5.94685	0.1085487	0.26249701	2.4157564	20	—	—
98427 2000 UA_{35}	16.1	X	99.39479	323.16055	228.73511	6.82053	0.0400716	0.28671635	2.2777239	20	8 4.1	19.0
98428 2000 UE_{35}	15.4	X	299.54378	127.91665	31.14638	9.98899	0.0453386	0.25947771	2.4344602	20	—	—
98429 2000 UL_{35}	15.8	X	103.29368	223.51938	197.45290	2.28011	0.1818023	0.26853537	2.3794051	20	2 29.5	18.8
98430 2000 UN_{35}	15.4	X	331.21342	282.83366	209.70254	6.22650	0.0569777	0.25987144	2.4320006	20	—	—
98431 2000 UA_{36}	15.6	X	290.61733	45.19272	26.76300	7.31436	0.1783605	0.24525968	2.5276597	20	10 15.4	18.1
98432 2000 UR_{36}	15.7	X	5.18899	144.80418	52.67271	2.37275	0.0786452	0.27387852	2.3483567	20	3 22.5	17.9
98433 2000 UP_{37}	15.7	X	155.88369	237.65220	214.49631	6.56422	0.0560704	0.27951779	2.3166641	20	6 1.6	18.7
98434 2000 UF_{39}	15.5	X	152.94993	224.98534	91.23233	2.17404	0.0935529	0.26265162	2.4148083	20	—	—
98435 2000 UE_{41}	15.8	X	154.45474	134.51794	279.00090	1.23113	0.1868719	0.27424975	2.3462370	20	4 16.0	19.4
98436 2000 UF_{42}	15.5	X	82.90977	331.44020	51.05184	7.71995	0.1321734	0.26086649	2.4258122	20	—	—
98437 2000 UP_{47}	16.0	X	148.85940	33.74543	29.90844	3.11352	0.1451443	0.27406724	2.3472786	20	4 21.3	19.2
98438 2000 UH_{49}	15.0	X	172.27935	190.18164	68.79169	7.86827	0.0970786	0.25480032	2.4641628	20	—	—
98439 2000 UD_{50}	15.8	X	133.19800	318.23915	85.12232	4.21050	0.0850245	0.26909499	2.3761051	20	3 3.7	18.9
98440 2000 UN_{50}	15.0	X	54.44047	15.42566	61.22839	13.30825	0.1091727	0.21094692	2.7948205	20	1 8.1	18.4
98441 2000 UW_{54}	14.0	X	120.43925	160.27060	73.23549	15.12301	0.0247693	0.24368414	2.5385431	20	10 29.7	17.6
98442 2000 UT_{55}	15.1	X	188.98926	344.64894	151.50213	4.60109	0.1737129	0.23649734	2.5897144	20	8 31.9	19.1
98443 2000 UZ_{56}	16.5	X	276.12449	136.38138	328.21318	8.68099	0.1214321	0.29972360	2.2113395	20	11 27.5	18.6
98444 2000 UM_{57}	15.8	X	248.14353	284.10999	324.19614	4.48118	0.1175271	0.26816768	2.3815796	20	—	—
98445 2000 UG_{59}	16.2	X	185.42981	14.28600	41.71109	3.36504	0.0437559	0.27943495	2.3171220	20	5 18.2	19.2
98446 2000 UM_{59}	15.5	X	313.24376	160.62378	351.86216	6.03215	0.0178142	0.26143411	2.4222997	20	—	—
98447 2000 UE_{60}	16.0	X	339.58129	55.86654	280.65615	3.01541	0.1457439	0.29283195	2.2459000	20	9 11.1	17.6
98448 2000 UN_{60}	16.1	X	42.15877	78.48522	233.84659	5.60343	0.1612794	0.29897822	2.2150134	20	11 28.7	18.7
98449 2000 UM_{61}	15.5	X	68.32687	118.18667	348.65797	5.74019	0.0785552	0.26979304	2.3720047	20	2 26.1	18.0
98450 2000 US_{62}	15.7	X	90.59899	152.91541	268.92268	5.57564	0.0875878	0.26716921	2.3875095	20	1 27.9	18.5
98451 2000 UT_{63}	15.6	X	272.22786	221.81474	7.58392	6.80264	0.0669945	0.26599051	2.3945576	20	—	—
98452 2000 UB_{65}	16.3	X	60.39701	158.44066	338.16800	5.18999	0.1339907	0.27268128	2.3552255	20	3 31.8	18.8
98453 2000 UL_{66}	15.7	X	310.39196	274.70787	258.53144	2.76593	0.1955013	0.26161306	2.4211950	20	—	—
98454 2000 US_{66}	15.5	X	283.85762	82.73008	337.44758	6.54627	0.0792627	0.29426768	2.2385889	20	10 7.2	17.9
98455 2000 UF_{68}	16.0	X	45.73203	239.60609	284.96011	5.97149	0.0580614	0.27689613	2.3312640	20	4 5.7	18.7
98456 2000 UD_{69}	15.7	X	235.65200	12.31368	3.22491	5.58815	0.1507343	0.28211079	2.3024467	20	5 13.8	19.0
98457 2000 UE_{69}	16.0	X	90.41757	53.12041	339.11444	3.82976	0.1380842	0.26348057	2.4097407	20	—	—
98458 2000 UP_{70}	16.1	X	261.73960	54.25124	276.69351	2.67428	0.1091800	0.28002717	2.3138539	20	4 18.6	19.2
98459 2000 UZ_{72}	14.6	X	117.28650	219.70173	21.81835	7.02708	0.1673889	0.24548388	2.5261205	20	11 5.4	18.7
98460 2000 UM_{73}	16.5	X	144.39772	24.61459	22.31468	2.30898	0.2120579	0.27281612	2.3544494	20	3 31.9	20.2
98461 2000 UQ_{76}	15.9	X	43.69898	137.75175	341.42518	2.01667	0.1548295	0.26819100	2.3814415	20	2 7.2	17.9
98462 2000 UB_{79}	15.5	X	226.95056	70.54285	38.66221	5.28931	0.0890699	0.23978444	2.5659925	20	9 17.5	19.1
98463 2000 UL_{81}	14.8	X	20.79264	192.17239	62.03640	24.44714	0.1277350	0.28112089	2.3078486	20	7 26.4	17.7
98464 2000 UP_{83}	15.5	X	303.11995	297.67436	273.82690	1.53858	0.1373092	0.26915190	2.3757701	20	—	—
98465 2000 UN_{84}	16.6	X	2.37480	245.19137	86.55303	1.90461	0.1450002	0.29520377	2.2338540	20	10 24.8	18.6
98466 2000 UF_{91}	16.5	X	312.96584	66.87203	280.98519	4.36127	0.0670735	0.29018583	2.2595325	20	8 8.9	18.9
98467 2000 UW_{91}	15.8	X	266.33647	194.31207	328.11142	4.42953	0.0765189	0.25515132	2.4619024	20	—	—
98468 2000 UM_{92}	14.9	X	106.28290	258.09904	265.27216	13.36041	0.0659863	0.23266156	2.6181004	20	7 5.5	18.5
98469 2000 UF_{93}	16.1	X	145.84749	318.59613	257.93632	5.36660	0.1091850	0.29714646	2.2241070	20	11 9.5	19.2
98470 2000 US_{94}	16.0	X	233.65902	91.35623	288.50631	4.73151	0.1048614	0.28179964	2.3041412	20	5 22.9	19.1
98471 2000 UW_{94}	15.7	X	84.52983	53.04931	323.38514	4.71840	0.1411836	0.26069595	2.4268701	20	—	—
98472 2000 UB_{95}	15.6	X	41.20954	143.08234	311.64369	4.93858	0.0827346	0.26353437	2.4094128	20	—	—
98473 2000 UD_{96}	15.2	X	201.12915	51.21369	328.01389	4.73692	0.2057937	0.27757535	2.3274594	20	4 12.4	19.0
98474 2000 UR_{97}	16.3	X	282.90068	70.82899	293.79865	4.59383	0.1762463	0.28698969	2.2762774	20	6 26.7	18.8
98475 2000 UF_{98}	15.7	X	91.64776	64.56430	293.82625	3.85977	0.0659244	0.25843468	2.4410061	20	—	—
98476 2000 UP_{98}	16.1	X	154.02276	80.36814	20.36931	6.92051	0.0627798	0.27967927	2.3157723	20	6 10.3	19.2
98477 2000 UR_{99}	15.4	X	175.51084	135.55174	254.95614	4.58412	0.1813851	0.27481765	2.3430037	20	4 4.3	19.1
98478 2000 UB_{100}	15.9	X	271.32191	307.50214	17.83880	6.20418	0.1290765	0.27973930	2.3154411	20	4 20.6	19.0
98479 2000 UM_{100}	15.2	X	256.30529	349.69305	283.45550	5.85611	0.1118133	0.26893603	2.3770413	20	1 28.3	18.7
98480 2000 UR_{100}	15.8	X	175.83717	148.04114	261.00040	6.21039	0.1016073	0.27604220	2.3360693	20	4 26.6	19.2

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	m		°	°	°	°		°				
98481 2000 UX_{100}	14.8	X	291.58877	61.55830	36.37764	13.28887	0.1179767	0.24710664	2.5150489	20	11 28.2	17.5
98482 2000 UL_{101}	14.8	X	224.76399	287.61683	23.92822	6.76023	0.1110899	0.27028141	2.3691466	20	2 16.7	18.3
98483 2000 UJ_{102}	16.1	X	62.05920	193.84722	300.24260	4.23982	0.0910700	0.27097383	2.3651089	20	3 24.4	18.6
98484 2000 UK_{103}	15.5	X	112.72354	280.51211	330.33127	4.67606	0.0768222	0.29484108	2.2356855	20	11 17.1	18.5
98485 2000 US_{105}	15.6	X	240.07123	134.48315	119.25405	6.83908	0.0803671	0.26707029	2.3880990	20	—	—
98486 2000 UZ_{105}	16.2	X	238.91963	225.93996	130.97808	6.53109	0.1241933	0.28073161	2.3099815	20	4 29.4	19.6
98487 2000 UC_{106}	15.4	X	267.83489	339.64606	115.62805	7.60752	0.1633940	0.24504802	2.5291150	20	10 15.4	18.5
98488 2000 UM_{106}	15.8	X	78.96672	15.48466	77.53989	7.05741	0.1440023	0.26880406	2.3778192	20	3 7.8	18.5
98489 2000 UR_{106}	15.6	X	122.11290	34.33038	74.04281	10.21415	0.1509034	0.27628126	2.3347216	20	5 23.5	18.8
98490 2000 UJ_{108}	16.2	X	280.91805	265.77627	90.82884	7.43535	0.1446141	0.28633928	2.2797231	20	6 16.9	18.8
98491 2000 UA_{109}	16.1	X	132.40055	286.75279	130.68216	6.67227	0.0946531	0.27135790	2.3628768	20	3 23.0	19.3
98492 2000 UU_{109}	15.4	X	329.31173	288.56775	81.35502	16.10986	0.2123768	0.24330998	2.5411449	20	10 13.8	17.9
98493 2000 UY_{110}	16.4	X	333.42917	146.38096	350.24350	1.98266	0.1314429	0.25854930	2.4402845	20	—	—
98494 Marsupilami	16.2	X	129.99079	1.19738	54.59288	3.56909	0.1565966	0.27026126	2.3692643	20	3 24.7	19.4
98495 2000 VV_2	15.5	X	236.00310	317.75119	27.74076	4.77817	0.1868159	0.27795939	2.3253151	20	4 4.2	19.0
98496 2000 VT_3	15.5	X	12.16439	237.88100	211.49931	5.79313	0.0272429	0.21019458	2.8014854	20	—	—
98497 2000 VL_5	16.1	X	56.75558	222.50953	225.27751	2.01703	0.1144407	0.26526256	2.3989364	20	1 13.8	18.3
98498 2000 VS_{10}	15.8	X	50.74774	74.52758	66.36707	3.16180	0.1422083	0.27014799	2.3699266	20	3 25.8	17.9
98499 2000 VW_{11}	15.7	X	177.21153	58.36951	49.98313	16.04494	0.1273763	0.23303146	2.6153291	20	7 19.9	20.1
98500 2000 VL_{12}	15.5	X	165.03589	99.47982	66.55304	5.86266	0.1087193	0.29025478	2.2591746	20	9 27.3	18.8
98501 2000 VS_{12}	15.9	X	236.77484	277.78413	50.88122	6.63523	0.1420350	0.27632412	2.3344801	20	3 19.9	19.4
98502 2000 VD_{15}	16.2	X	249.68497	143.11752	207.39510	6.28924	0.1667301	0.28075872	2.3098328	20	4 25.9	19.4
98503 2000 VK_{15}	15.6	X	51.17456	274.90292	210.00955	6.03854	0.1809867	0.26672068	2.3901854	20	3 2.9	17.6
98504 2000 VY_{15}	15.6	X	92.89442	287.95884	119.95445	3.25402	0.1876666	0.26483896	2.4014938	20	1 30.1	18.2
98505 2000 VC_{16}	14.8	X	160.50057	70.58848	98.45854	6.13859	0.1067262	0.23880268	2.5730205	20	9 20.3	18.7
98506 2000 VR_{16}	14.6	X	339.93870	177.51901	71.34822	14.02395	0.1115439	0.22646683	2.6656287	20	4 28.5	17.8
98507 2000 VK_{18}	15.8	X	108.39459	292.73942	119.34748	3.43342	0.1918365	0.26704839	2.3882296	20	2 27.7	18.8
98508 2000 VV_{19}	15.6	X	275.93272	280.72084	263.31918	1.67628	0.1362610	0.25830900	2.4417978	20	—	—
98509 2000 VK_{20}	16.2	X	232.34546	34.19781	99.17889	2.57146	0.0684652	0.29594971	2.2300988	20	11 8.6	18.6
98510 2000 VR_{22}	15.4	X	125.64337	290.83279	13.70613	2.38644	0.0745711	0.25635210	2.4542085	20	—	—
98511 2000 VM_{23}	16.3	X	27.84497	199.04722	268.52324	1.10477	0.1607405	0.26210568	2.4181603	20	—	—
98512 2000 VR_{24}	15.2	X	95.86759	325.34208	236.13473	14.26110	0.0696656	0.23465514	2.6032508	20	8 8.5	19.2
98513 2000 VA_{25}	16.5	X	84.09112	255.60663	195.42677	0.68236	0.1546081	0.26758882	2.3850130	20	3 10.6	19.2
98514 2000 VA_{26}	15.7	X	9.55964	123.69163	41.66962	6.36344	0.0774987	0.26860065	2.3790196	20	2 15.2	18.3
98515 2000 VB_{26}	15.1	X	55.02457	18.44086	236.49028	10.51864	0.1401790	0.23890063	2.5723172	20	9 8.9	18.6
98516 2000 VW_{26}	16.5	X	142.74025	195.47177	273.19487	1.62659	0.1210146	0.27882224	2.3205153	20	6 12.5	19.7
98517 2000 VQ_{27}	15.8	X	235.98191	295.51394	91.57296	4.30870	0.1733324	0.23155501	2.6264346	20	5 29.9	19.9
98518 2000 VX_{27}	15.9	X	264.47201	286.97291	181.14547	4.76215	0.0997202	0.29495049	2.2351327	20	11 16.9	18.2
98519 2000 VJ_{28}	15.5	X	86.05758	73.98402	82.19055	8.02649	0.1577174	0.27482736	2.3429485	20	6 15.0	18.4
98520 2000 VC_{29}	15.9	X	274.92630	249.12854	106.91398	4.97743	0.2128221	0.28425340	2.2908621	20	5 27.8	18.8
98521 2000 VP_{29}	14.7	X	200.36379	347.84713	79.30789	15.98735	0.1077853	0.22975395	2.6401426	20	6 17.7	18.7
98522 2000 VZ_{29}	14.7	X	169.27757	29.89567	69.64095	24.86130	0.1839520	0.27887313	2.3202330	20	6 27.0	18.6
98523 2000 VO_{30}	15.4	X	118.45420	279.29762	88.15628	7.17840	0.1070692	0.26242185	2.4162177	20	—	—
98524 2000 VT_{30}	15.6	X	236.33813	331.04922	97.13010	6.17915	0.0976666	0.28547854	2.2843032	20	8 6.6	18.5
98525 2000 VF_{31}	15.5	X	122.84082	315.47949	52.76604	3.02804	0.2164295	0.26472891	2.4021593	20	1 22.5	18.6
98526 2000 VG_{31}	16.0	X	55.13726	249.54086	200.64353	1.64457	0.1783210	0.26309278	2.4121081	20	1 20.2	18.1
98527 2000 VN_{32}	15.1	X	248.39174	334.68523	67.25850	8.77324	0.1105069	0.28451674	2.2894482	20	7 13.4	18.0
98528 2000 VU_{32}	16.0	X	8.16906	349.23454	121.49943	2.08339	0.1506667	0.25830371	2.4418311	20	—	—
98529 2000 VY_{33}	15.7	X	138.99896	80.71847	71.87190	7.75896	0.0991332	0.28205214	2.3027659	20	8 9.6	19.0
98530 2000 VR_{34}	15.5	X	122.12235	316.64723	92.28160	3.52406	0.1638790	0.26771591	2.3842580	20	3 7.9	18.7
98531 2000 VK_{38}	16.0	X	98.41208	357.00905	41.86592	5.02109	0.1990864	0.26402241	2.4064427	20	1 29.6	18.8
98532 2000 VM_{42}	15.5	X	80.93889	65.54371	246.60362	6.46955	0.1390925	0.25273865	2.4775453	20	12 27.8	19.1
98533 2000 VQ_{42}	15.8	X	223.95347	91.98710	27.49359	5.21303	0.0724700	0.24245362	2.5471251	20	9 28.9	19.1
98534 2000 VC_{46}	15.0	X	125.52039	248.47995	25.57080	13.70569	0.2353386	0.25423200	2.4678338	20	12 24.2	19.5
98535 2000 VM_{46}	15.7	X	354.39774	337.96122	11.10250	6.11524	0.1669124	0.29451790	2.2373208	20	11 6.1	17.7
98536 2000 VN_{46}	15.9	X	26.44626	112.89940	332.68590	4.58664	0.0977930	0.25886553	2.4382968	20	—	—
98537 2000 VC_{47}	15.1	X	127.58426	80.91001	270.40984	10.47748	0.1360345	0.26207710	2.4183361	20	—	—
98538 2000 VQ_{48}	15.6	X	357.68118	18.25907	321.80844	1.86187	0.1627044	0.24293638	2.5437496	20	10 15.1	18.1
98539 2000 VS_{48}	16.0	X	145.06699	157.93284	259.05491	1.77216	0.1442067	0.27215797	2.3582437	20	4 7.7	19.5
98540 2000 VW_{48}	16.5	X	74.90061	329.92564	140.35260	2.79296	0.1397571	0.27037236	2.3686153	20	3 21.9	19.1
98541 2000 VO_{49}	15.4	X	41.44150	24.19864	52.52031	7.02978	0.1078888	0.25932399	2.4354222	20	—	—
98542 2000 VA_{51}	16.1	X	83.65859	194.67193	306.96746	4.98117	0.0818352	0.27593908	2.3366513	20	5 6.9	19.0
98543 2000 VQ_{51}	16.6	X	255.11491	41.66138	339.38746	5.19600	0.0193890	0.28416647	2.2913292	20	7 6.9	19.4
98544 2000 VB_{55}	15.7	X	343.23143	116.19184	355.34862	2.19333	0.1613961	0.25571502	2.4582831	20	—	—
98545 2000 VE_{55}	16.0	X	95.34983	171.42486	281.25458	2.20065	0.1888079	0.26913479	2.3758708	20	4 2.7	18.8
98546 2000 VO_{55}	15.8	X	338.04619	348.25325	340.41808	4.33827	0.2108893	0.29039122	2.2584669	20	8 28.2	17.0
98547 2000 VE_{56}	16.0	X	69.94615	166.51472	272.13158	4.08489	0.1643255	0.26404486	2.4063063	20	1 29.9	18.4
98548 2000 VR_{56}	15.9	X	161.95410	135.81690	273.58340	6.19094	0.0912434	0.27362651	2.3497984	20	4 9.8	19.4
98549 2000 VY_{56}	16.4	X	115.08655	140.80773	314.96695	1.79129	0.1746997	0.27188270	2.3598352	20	4 29.7	19.7
98550 2000 VR_{60}	14.9	X	213.76634	55.64453	67.66957	8.86650	0.1128859	0.23833548	2.5763820	20	9 20.0	18.7
98551 2000 WK_1	15.4	X	45.99500	29.48042	281.01534	4.27861	0.1250980	0.24364498	2.5388151	20	11 12.5	18.8
98552 2000 WL_5	15.1	X	227.74680	205.79704	306.74198	6.58871	0.1979914	0.24363604	2.5388772	20	10 25.6	18.9
98553 2000 WO_6	16.3	X	131.41262	226.82499	66.16870	4.02638	0.2189422	0.30705017	2.1760214	20	—	—
98554 2000 WP_6	16.2	X	165.83504	276.45933	75.81120	4.04275	0.3425818	0.27451968	2.3446988	20	2 20.9	20.5
98555 2000 WD_7	14.9	X	37.86753	144.22202	47.27807	12.85801	0.0897421	0.22090288	2.7102029	20	5 11.5	17.9
98556 2000 WQ_7	16.0	X	128.66219	334.20854	125.87033	6.43892	0.0483943	0.27599965	2.3363094	20	5 9.7	19.1
98557 2000 WT_7	16.2	X	153.96448	325.40919	130.24516	6.04606	0.0944226	0.27837776	2.3229847	20	6 6.7	19.5
98558 2000 WB_{10}	16.0	X	5.71089	83.31873	13.25086	2.54318	0.1768551	0.25679042	2.4514150	20	—	—
98559 2000 WB_{11}	15.5	X	248.87101	170.76870	166.71972	7.43071	0.1990314	0.27934610	2.3176133	20	4 6.2	19.0
98560 2000 WH_{11}	14.9	X	137.85353	39.47323	76.36105	13.92826	0.1328743	0.22312940	2.6921433	20	6 16.3	19.0

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98561 2000 WA_{14}	m 15.2	X	° 149.54406	° 125.62716	° 48.70075	° 7.70012	0.0517068	° 0.23836441	2.5761735	20	9 15.8	18.9
98562 2000 WJ_{14}	15.3	X	166.18063	151.74387	45.45806	6.30901	0.0906880	0.24252151	2.5466497	20	10 30.3	18.9
98563 2000 WX_{16}	15.3	X	158.54157	80.10138	56.19240	3.83812	0.0744961	0.23265987	2.6181131	20	8 4.1	19.1
98564 2000 WW_{17}	15.4	X	209.29540	270.85583	230.10995	7.35935	0.1088371	0.24011319	2.5636498	20	10 1.1	19.1
98565 2000 WX_{17}	16.5	X	138.99522	199.02200	178.08930	2.10981	0.2266251	0.26755601	2.3852079	20	2 19.3	20.1
98566 2000 WC_{19}	15.8	X	3.81148	74.72963	74.52795	5.73419	0.1573208	0.26132186	2.4229934	20	1 3.3	18.0
98567 2000 WG_{19}	15.3	X	57.00319	252.71005	159.57263	7.21046	0.2200143	0.25979794	2.4324593	20	—	—
98568 2000 WZ_{19}	15.6	X	167.44024	111.88139	248.83267	6.05323	0.2342656	0.26972426	2.3724080	20	2 22.3	19.6
98569 2000 WY_{20}	16.1	X	330.64719	143.24700	91.75460	7.64762	0.0600317	0.27280774	2.3544977	20	3 26.2	18.9
98570 2000 WR_{23}	15.9	X	227.92268	234.43889	133.68711	6.94440	0.1224146	0.27823214	2.3237952	20	5 2.5	19.3
98571 2000 WC_{25}	14.6	X	258.90496	231.03572	247.74610	11.66413	0.1894668	0.23938728	2.5688298	20	10 21.8	17.9
98572 2000 WJ_{30}	16.0	X	221.77835	304.37232	345.48022	1.84508	0.1595937	0.26986305	2.3715945	20	1 14.6	19.6
98573 2000 WQ_{31}	15.8	X	83.79830	21.75923	119.65924	5.15235	0.1217362	0.27307409	2.3529663	20	5 17.4	18.6
98574 2000 WJ_{32}	15.4	X	241.38592	10.56175	87.49581	14.64345	0.1129038	0.23966561	2.5668406	20	9 23.6	19.2
98575 2000 WQ_{35}	15.5	X	214.62051	356.69534	139.80400	6.30421	0.2042199	0.23846806	2.5754270	20	9 25.4	19.5
98576 2000 WA_{38}	16.4	X	227.53030	286.92693	105.28682	6.59509	0.0988315	0.28060893	2.3106548	20	6 4.1	19.5
98577 2000 WF_{39}	14.7	X	34.67944	147.37373	95.90507	16.20039	0.0730946	0.22996105	2.6385573	20	7 18.2	18.0
98578 2000 WH_{39}	15.8	X	128.86165	174.96923	179.85475	5.85879	0.1517928	0.26170663	2.4206178	20	1 2.5	19.0
98579 2000 WN_{40}	16.1	X	149.76262	300.67277	125.27635	6.63091	0.0844563	0.27197853	2.3592808	20	4 23.7	19.4
98580 2000 WV_{40}	15.8	X	48.42991	323.13567	111.95018	8.31159	0.1235046	0.25880924	2.4386503	20	—	—
98581 2000 WH_{41}	14.3	X	191.43329	331.23434	116.28921	15.55698	0.2081220	0.22830838	2.6512752	20	7 2.1	18.8
98582 2000 WX_{41}	15.7	X	81.03881	29.60571	65.52784	2.43553	0.1511033	0.26225330	2.4172528	20	3 13.3	18.3
98583 2000 WX_{43}	16.1	X	268.55125	243.58203	139.19254	3.63913	0.1967630	0.28571334	2.2830515	20	6 28.5	19.0
98584 2000 WF_{44}	16.9	X	178.06089	286.93399	133.95873	1.70884	0.1031257	0.27827936	2.3235323	20	5 17.3	20.2
98585 2000 WH_{44}	14.9	X	80.46865	72.05592	91.53762	13.43671	0.0975780	0.22443092	2.6817251	20	6 8.5	18.5
98586 2000 WX_{44}	14.8	X	122.96541	169.40941	65.02271	11.51416	0.1676774	0.24397906	2.5364970	20	11 5.2	19.0
98587 2000 WD_{50}	15.8	X	262.22360	229.08487	99.76765	3.43589	0.2112585	0.23035423	2.6355540	20	4 9.9	19.9
98588 2000 WK_{50}	15.7	X	98.78094	305.85207	125.27189	11.10402	0.1131537	0.26671661	2.3902097	20	2 29.9	18.6
98589 2000 WM_{54}	14.3	X	1.47107	111.37564	289.21080	14.49916	0.1216307	0.24568410	2.5247479	20	—	—
98590 2000 WW_{54}	15.2	X	79.11649	92.11955	357.54184	2.94481	0.1948957	0.26251578	2.4156412	20	3 8.6	17.7
98591 2000 WB_{55}	14.8	X	112.23777	127.63680	329.37258	5.69083	0.0973012	0.26719066	2.3873818	20	4 15.6	18.0
98592 2000 WG_{55}	15.2	X	229.69620	23.86170	76.51762	3.76373	0.1921301	0.23362849	2.6108716	20	8 26.1	19.1
98593 2000 WM_{55}	15.0	X	283.15999	15.81576	94.82206	14.20100	0.1155004	0.24182176	2.5515600	20	12 4.7	17.9
98594 2000 WA_{56}	15.1	X	318.07310	92.16993	342.47066	5.20205	0.2223380	0.24366806	2.5386548	20	12 17.4	17.0
98595 2000 WO_{57}	15.7	X	142.74341	307.55158	97.54104	3.35948	0.2060557	0.27029306	2.3690785	20	3 29.2	19.3
98596 2000 WN_{58}	15.9	X	55.94886	339.37362	89.70831	7.34993	0.0874662	0.25919892	2.4362055	20	—	—
98597 2000 WD_{59}	15.6	X	292.49588	8.59136	105.04361	2.81554	0.1033408	0.24681632	2.5170208	20	12 25.5	18.4
98598 2000 WW_{59}	15.4	X	171.10411	245.86091	260.98668	11.55075	0.1549050	0.23244586	2.6197198	20	8 23.2	19.9
98599 2000 WU_{60}	14.9	X	277.02198	226.45411	116.24927	7.48298	0.1465340	0.27904896	2.3192583	20	5 23.2	17.8
98600 2000 WZ_{65}	14.3	X	51.90346	92.65531	92.21748	22.23004	0.2522189	0.27756946	2.3274924	20	6 22.6	16.4
98601 2000 WG_{66}	14.6	X	27.38925	212.57385	49.04574	29.35950	0.0401988	0.23445705	2.6047168	20	8 10.3	18.7
98602 2000 WK_{69}	15.6	X	306.11199	30.03333	307.52361	6.49351	0.1382458	0.28736079	2.2743172	20	7 2.6	17.6
98603 2000 WU_{69}	15.6	X	59.97946	261.17580	310.89353	6.21324	0.0787627	0.28335690	2.2956915	20	7 17.1	18.2
98604 2000 WK_{70}	15.6	X	325.00081	186.57410	326.08980	6.06763	0.0851655	0.26056156	2.4277045	20	—	—
98605 2000 WW_{70}	15.8	X	126.25277	161.02924	346.49035	7.06567	0.0464541	0.28267367	2.2993891	20	7 12.4	18.8
98606 2000 WV_{71}	15.7	X	303.47322	282.35707	302.34890	5.91744	0.0600123	0.26829708	2.3808137	20	1 28.8	18.7
98607 2000 WX_{72}	15.9	X	108.89469	196.64715	2.36915	5.66336	0.0465313	0.28784006	2.2717919	20	9 1.8	18.6
98608 2000 WL_{75}	16.7	X	240.38158	67.17880	330.65620	3.82422	0.0922339	0.28373281	2.2936633	20	6 28.8	19.7
98609 2000 WN_{75}	16.2	X	97.24035	151.75318	24.98752	7.41948	0.0375216	0.28211249	2.3024374	20	7 13.7	19.1
98610 2000 WP_{76}	15.9	X	316.81646	230.60129	35.35740	6.95855	0.1137736	0.27654144	2.3332570	20	4 6.5	18.4
98611 2000 WY_{77}	16.1	X	350.24410	1.81465	318.78101	3.47205	0.1850332	0.29050380	2.2578834	20	9 12.4	17.5
98612 2000 WG_{78}	15.5	X	157.25275	171.84515	14.23509	2.51609	0.0882922	0.24081996	2.5586314	20	10 5.9	19.3
98613 2000 WX_{78}	15.4	X	52.23292	229.27440	33.41698	6.91511	0.1590179	0.28906113	2.2653897	20	10 3.7	18.1
98614 2000 WZ_{78}	15.4	X	216.33091	159.75581	356.55730	3.54364	0.2286533	0.24199791	2.5503217	20	10 16.9	19.4
98615 2000 WZ_{80}	15.1	X	144.47066	279.53875	270.29750	7.52444	0.0829704	0.23881356	2.5729424	20	9 22.5	19.1
98616 2000 WH_{81}	15.7	X	226.46638	87.30707	350.09021	2.73990	0.1657665	0.23475767	2.6024927	20	7 25.5	19.6
98617 2000 WQ_{81}	15.2	X	1.26419	33.26949	311.28240	2.95592	0.0815552	0.24264589	2.5457793	20	10 17.6	18.3
98618 2000 WZ_{81}	16.0	X	239.55482	78.86129	261.85772	5.15730	0.1574261	0.27674653	2.3321041	20	3 31.4	19.7
98619 2000 WG_{82}	15.6	X	62.88080	88.37328	270.13627	5.42502	0.0858288	0.25297892	2.4759764	20	—	—
98620 2000 WU_{85}	16.2	X	186.24976	56.43853	326.76848	1.54729	0.2183380	0.27450334	2.3447918	20	4 6.6	20.1
98621 2000 WN_{88}	14.7	X	119.39589	348.25888	21.98589	6.34563	0.1187613	0.30826799	2.1702866	20	—	—
98622 2000 WJ_{89}	15.8	X	109.80202	79.25837	327.67967	0.57299	0.1842198	0.26646981	2.3916853	20	2 20.5	18.9
98623 2000 WK_{90}	14.5	X	329.00026	224.40513	67.89644	13.26455	0.1801197	0.23114971	2.6295039	20	5 28.8	17.2
98624 2000 WD_{93}	15.1	X	224.47646	76.70866	71.70619	6.08708	0.2177344	0.24128524	2.5553411	20	10 19.6	18.8
98625 2000 WO_{93}	16.2	X	263.04683	146.13164	330.01429	1.08010	0.1057168	0.24423941	2.5346941	20	11 10.1	19.1
98626 2000 WP_{98}	15.3	X	276.82037	153.15458	253.70700	1.31662	0.1428377	0.23654485	2.5893676	20	8 19.2	18.2
98627 2000 WQ_{98}	15.1	X	201.07158	82.43475	84.40995	11.98180	0.1223220	0.23943946	2.5684566	20	10 30.7	19.0
98628 2000 WF_{99}	15.5	X	169.76874	20.51267	75.82674	9.52540	0.0705342	0.22851141	2.6497046	20	6 23.1	19.3
98629 2000 WO_{99}	15.1	X	319.33717	32.33340	358.38392	2.07604	0.1333607	0.19137511	2.9822617	20	10 1.1	18.4
98630 2000 WW_{99}	15.5	X	284.05240	167.64004	249.82613	2.05835	0.2227106	0.24025180	2.5626637	20	9 1.6	18.3
98631 2000 WT_{100}	16.2	X	109.48312	188.01595	306.07075	1.26413	0.0724903	0.22481257	2.6786891	20	6 1.7	19.8
98632 2000 WQ_{103}	15.9	X	209.49210	238.68906	96.79517	8.08677	0.1370208	0.27200707	2.3591158	20	3 2.6	19.6
98633 2000 WG_{108}	15.9	X	58.50232	4.82808	108.91268	7.46004	0.0530598	0.26753878	2.3853104	20	2 19.4	18.7
98634 2000 WF_{113}	15.2	X	159.43202	123.15759	36.45168	5.19093	0.1761480	0.23404941	2.6077404	20	9 5.5	19.5
98635 2000 WA_{114}	15.3	X	276.27804	154.45662	309.33733	2.76096	0.1248946	0.24456423	2.5324493	20	11 10.4	18.1
98636 2000 WR_{114}	14.9	X	128.65980	128.75637	43.30271	5.13422	0.0336729	0.23301279	2.6154688	20	8 14.9	18.5
98637 2000 WP_{115}	16.0	X	137.80054	102.34994	297.54648	5.20946	0.0988892	0.26795565	2.3828357	20	3 2.2	19.2
98638 2000 WJ_{118}	15.8	X	169.45035	353.04089	15.44003	4.20893	0.1827695	0.26813924	2.3817480	20	3 5.9	19.5
98639 2000 WR_{118}	15.5	X	311.44760	92.96899	67.08900	7.09373	0.0936103	0.25396564	2.4695590	20	—	—
98640 2000 WE_{121}	15.8	X	261.51200	183.78901	284.79110	3.95095	0.0836830	0.24301335	2.5432124	20	10 30.3	18.9

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
98641 2000 WW_{122}	14.9	X	71.33791	307.76163	54.53400	1.61780	0.1907262	0.25365106	2.4716004	20	—	—
98642 2000 WX_{123}	15.9	X	124.38574	62.33408	77.83509	2.99152	0.1409783	0.22506838	2.6766591	20	7 4.9	19.9
98643 2000 WR_{125}	15.7	X	344.55570	116.77922	222.60244	1.65155	0.2007784	0.24172391	2.5522486	20	9 19.0	17.6
98644 2000 WA_{126}	15.7	X	60.74733	244.83267	324.47075	6.41923	0.0894179	0.28194752	2.3033355	20	7 16.3	18.3
98645 2000 WF_{129}	15.3	X	25.99459	308.62016	251.56107	4.05768	0.1461475	0.27517266	2.3409881	20	5 5.6	17.2
98646 2000 WH_{134}	15.9	X	341.09482	247.17747	344.88111	6.74558	0.0692209	0.27465087	2.3439521	20	3 30.3	18.6
98647 2000 WK_{134}	14.8	X	177.55432	35.79036	60.67736	10.61171	0.0956673	0.22544522	2.6736755	20	7 2.2	18.9
98648 2000 WG_{135}	15.7	X	184.42451	44.40511	41.58390	12.23930	0.1699880	0.22727479	2.6593074	20	6 23.9	20.2
98649 2000 WO_{138}	15.8	X	240.60880	113.98385	29.43783	2.47889	0.0818088	0.24625235	2.5208623	20	11 18.9	18.9
98650 2000 WM_{140}	15.5	X	171.78502	238.27438	53.44197	6.89710	0.1186018	0.25987680	2.4319672	20	—	—
98651 2000 WS_{143}	15.5	X	248.57529	85.53585	87.76493	6.05430	0.2033236	0.24333809	2.5409492	20	12 20.4	18.4
98652 2000 WW_{143}	15.1	X	205.12161	90.09210	72.33223	6.33022	0.2149642	0.23564977	2.5959204	20	10 17.8	19.3
98653 2000 WC_{144}	14.7	X	100.94373	63.50238	125.22158	4.11743	0.2191052	0.22938664	2.6429603	20	8 20.6	18.7
98654 2000 WB_{146}	16.2	X	279.90675	229.63246	112.39109	8.46620	0.1393463	0.28497767	2.2869789	20	5 27.4	19.0
98655 2000 WX_{146}	15.1	X	213.30122	28.11697	106.89569	12.78705	0.1974357	0.24034416	2.5620071	20	9 27.2	19.3
98656 2000 WY_{148}	15.1	X	352.42081	156.68686	130.24619	14.00666	0.0604207	0.23358936	2.6111632	20	7 11.2	18.2
98657 2000 WB_{149}	15.1	X	319.31655	228.35356	145.65802	14.13025	0.1377387	0.24182405	2.5515439	20	9 21.7	17.7
98658 2000 WT_{153}	14.9	X	85.88455	63.19220	65.70660	9.43035	0.1019461	0.21607996	2.7503823	20	5 2.0	18.5
98659 2000 WU_{154}	15.8	X	309.71887	29.19493	329.62378	6.46547	0.1494886	0.28935154	2.2638736	20	8 13.2	17.5
98660 2000 WD_{155}	15.5	X	63.30955	260.29076	319.59187	6.71486	0.0469599	0.28446750	2.2897124	20	7 28.7	18.2
98661 2000 WG_{155}	14.9	X	136.06620	6.27721	279.98797	9.85245	0.2231758	0.25674215	2.4517222	20	—	—
98662 2000 WN_{155}	15.7	X	145.26064	132.11378	305.40252	6.63380	0.0850599	0.27511243	2.3413297	20	4 27.7	19.1
98663 2000 WO_{156}	15.9	X	109.65107	238.97576	313.21370	6.48479	0.0438542	0.28555369	2.2839023	20	8 20.9	18.6
98664 2000 WR_{158}	15.3	X	96.85512	244.24522	139.58707	8.45066	0.1081437	0.26134224	2.4228674	20	—	—
98665 2000 WH_{159}	14.7	X	357.18425	250.79973	274.18866	23.95143	0.1370170	0.26393924	2.4069482	20	1 12.0	17.3
98666 2000 WC_{161}	15.5	X	229.28446	293.01864	199.72359	11.38776	0.0968220	0.24247357	2.5469853	20	10 18.9	18.7
98667 2000 WE_{163}	15.5	X	8.07122	100.68100	349.52196	6.71211	0.1547450	0.25190637	2.4829994	20	—	—
98668 2000 WY_{163}	16.4	X	203.11333	263.22654	254.86757	1.06443	0.2078760	0.24076198	2.5590422	20	10 8.8	20.3
98669 2000 WR_{164}	15.8	X	65.32745	41.58987	93.73755	11.82360	0.1543401	0.27126492	2.3634167	20	4 19.9	18.5
98670 2000 WC_{165}	15.6	X	90.42493	274.92378	110.44635	12.06474	0.2701454	0.26222692	2.4174149	20	1 8.9	18.0
98671 2000 WK_{165}	15.1	X	165.79980	336.53793	181.71120	13.36711	0.0995422	0.23800856	2.5787407	20	9 7.4	19.1
98672 2000 WL_{167}	15.5	X	57.11971	120.64876	124.32806	5.05656	0.1784982	0.28737511	2.2742417	20	9 18.2	18.3
98673 2000 WU_{167}	14.6	X	118.86059	344.92513	198.42563	10.13891	0.0759199	0.18476024	3.0530251	20	8 11.8	19.3
98674 2000 WQ_{168}	15.7	X	240.00729	290.87373	157.50723	4.72947	0.2247239	0.23496286	2.6009773	20	8 15.5	19.6
98675 2000 WV_{168}	15.0	X	118.44824	313.97462	127.87847	10.09841	0.1515052	0.21617292	2.7495937	20	4 20.1	19.2
98676 2000 WQ_{169}	15.5	X	301.97337	282.55426	155.29125	11.43719	0.1063948	0.24576014	2.5242270	20	11 24.2	18.5
98677 2000 WC_{173}	14.2	X	185.68428	329.86732	100.32084	15.71311	0.0409335	0.22300894	2.6931127	20	6 9.3	18.2
98678 2000 WF_{173}	14.7	X	53.10942	48.85600	87.17532	8.20275	0.1075932	0.21214892	2.7842539	20	3 28.5	18.2
98679 2000 WT_{176}	15.7	X	227.74999	236.55236	103.94968	3.59169	0.2154109	0.22637415	2.6663562	20	3 24.2	20.1
98680 2000 WE_{178}	16.3	X	113.08335	327.92854	68.83615	2.32286	0.1721657	0.26355617	2.4092799	20	2 10.8	19.4
98681 2000 WQ_{178}	15.6	X	109.70492	63.01037	80.31656	3.05639	0.1492190	0.27414008	2.3468627	20	6 25.3	18.8
98682 2000 WR_{180}	14.2	X	286.07420	86.68269	73.37817	21.93757	0.2451596	0.25659251	2.4526753	20	—	—
98683 2000 WY_{180}	15.8	X	98.08632	298.02688	279.83830	5.97462	0.0619837	0.28795418	2.2711917	20	9 11.0	18.8
98684 2000 WD_{187}	14.5	X	288.72702	178.33499	88.46086	10.12007	0.2694616	0.22377579	2.6869566	20	2 15.3	18.7
98685 2000 WM_{192}	16.0	X	71.01027	37.57962	29.53886	3.10500	0.1704605	0.26004752	2.4309027	20	1 18.9	18.3
98686 2000 XV_{2}	15.7	X	30.46422	114.81503	343.47940	11.08731	0.0646908	0.26218369	2.4176807	20	—	—
98687 2000 XH_{3}	15.4	X	214.66434	33.86648	300.79797	9.61061	0.2354723	0.27463924	2.3440183	20	2 26.9	19.5
98688 2000 XG_{8}	14.6	X	348.83036	25.44509	346.49439	6.32782	0.2405226	0.24422882	2.5347674	20	11 23.9	16.9
98689 2000 XV_{9}	14.9	X	305.93055	50.10016	43.43557	13.66105	0.1337692	0.24331109	2.5411372	20	12 17.0	17.6
98690 2000 XD_{10}	14.8	X	272.18852	14.00439	39.90548	10.09594	0.0676632	0.23484329	2.6018601	20	9 9.2	18.2
98691 2000 XL_{14}	15.1	X	259.21759	62.48966	294.90844	7.08728	0.0957248	0.27979061	2.3151580	20	5 24.6	18.1
98692 2000 XS_{14}	15.2	X	211.91338	9.65408	130.20578	24.24187	0.1987637	0.28966218	2.2622548	20	10 10.7	19.0
98693 2000 XO_{16}	16.1	X	211.02451	0.57181	332.24692	6.99687	0.1292759	0.27161161	2.3614051	20	2 26.1	19.6
98694 2000 XD_{21}	15.9	X	140.22100	152.54543	323.51683	6.28874	0.0447909	0.27831011	2.3233611	20	6 13.7	18.9
98695 2000 XX_{23}	15.0	X	174.12875	246.89891	315.81352	6.70787	0.1230443	0.24295833	2.5435963	20	11 9.8	19.0
98696 2000 XY_{23}	15.9	X	220.78250	63.37606	328.35799	6.44448	0.1368563	0.27922273	2.3182959	20	5 20.6	19.5
98697 2000 XQ_{27}	15.4	X	17.30110	66.03595	311.41638	12.87774	0.0845916	0.24683646	2.5168839	20	12 29.2	18.6
98698 2000 XQ_{28}	15.6	X	124.68959	325.42945	31.79842	10.00597	0.2403243	0.26112613	2.4242040	20	1 15.6	19.1
98699 2000 XW_{28}	14.3	X	28.03690	247.41353	65.61778	13.88091	0.1986390	0.23953337	2.5677852	20	11 6.4	17.5
98700 2000 XQ_{30}	15.3	X	105.23914	148.43866	291.88406	12.69252	0.1285678	0.26825516	2.3810617	20	3 14.2	18.6
98701 2000 XS_{30}	15.6	X	65.65635	239.97092	330.51925	5.97316	0.0494278	0.28020987	2.3128480	20	7 18.7	18.4
98702 2000 XX_{31}	15.2	X	220.10216	52.17326	20.07226	12.17513	0.0150019	0.23147380	2.6270489	20	7 31.9	19.0
98703 2000 XE_{33}	14.2	X	126.78704	246.86376	309.03647	15.02916	0.1992179	0.18127229	3.0920638	20	9 8.9	19.5
98704 2000 XJ_{34}	14.3	X	21.11320	237.47076	331.95805	12.37161	0.0891855	0.21873592	2.7280729	20	5 3.7	17.8
98705 2000 XT_{35}	15.5	X	149.22151	346.49329	354.11853	7.00633	0.1334131	0.26311056	2.4119994	20	1 7.1	18.9
98706 2000 XY_{36}	15.1	X	275.25576	294.19856	343.84932	9.35914	0.1663737	0.27183950	2.3600852	20	2 20.3	18.5
98707 2000 XL_{37}	14.5	X	164.15097	183.56758	346.53163	14.10026	0.0962490	0.23452036	2.6042481	20	9 19.9	18.4
98708 2000 XO_{38}	14.1	X	50.68283	257.18584	358.16207	26.76924	0.0653658	0.22726558	2.6593792	20	9 3.9	17.8
98709 2000 XQ_{38}	13.9	X	325.91457	307.44326	74.42810	25.43421	0.2465314	0.23702465	2.5858721	20	10 27.5	16.5
98710 2000 XZ_{38}	15.2	X	146.66096	141.22273	47.03625	27.60786	0.0516483	0.23782061	2.5800991	20	10 10.6	19.3
98711 2000 XH_{42}	14.9	X	123.16243	138.84822	331.69758	14.19571	0.0331246	0.22356966	2.6886079	20	5 7.7	19.0
98712 2000 XT_{42}	14.6	X	334.88961	20.79572	354.71368	12.82399	0.1913207	0.24215422	2.5492241	20	10 18.6	16.9
98713 2000 XH_{43}	14.8	X	317.80822	351.35770	31.66304	15.54969	0.1660960	0.23942664	2.5685483	20	10 2.2	17.3
98714 2000 XU_{47}	15.7	X	76.43996	273.43361	342.68657	6.63505	0.0915901	0.29019104	2.2595054	20	10 11.7	18.6
98715 2000 XH_{48}	13.9	X	101.68123	95.40746	16.85860	13.16150	0.1023182	0.16926548	3.2366106	20	4 27.5	18.7
98716 2000 XH_{49}	15.3	X	22.28833	134.63961	359.35039	8.40999	0.1235356	0.25907258	2.4369975	20	1 22.1	17.8
98717 2000 XL_{49}	14.9	X	271.43582	89.18863	87.03661	14.81974	0.1401572	0.24578167	2.5240796	20	—	—
98718 2000 XX_{49}	15.0	X	260.70066	51.62470	74.95725	13.19723	0.2368834	0.23865565	2.5740772	20	11 3.4	18.2
98719 2000 XT_{52}	14.6	X	220.73915	80.08454	341.96880	9.18116	0.0870920	0.17934890	3.1141311	20	7 5.3	19.4
98720 2000 XC_{54}	14.8	X	276.67313	97.47272	348.18371	14.47598	0.0583262	0.24024206	2.5627329	20	10 19.5	18.2

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Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
98721 2000 YV_5	15.1	X	97.92940	311.18478	46.77071	6.97617	0.1511434	0.25596334	2.4566929	20	—	—
98722 Elenaumberto	15.2	X	310.08614	93.71128	278.35187	12.04449	0.1940030	0.23709880	2.5853329	20	8 14.3	18.0
98723 2000 YY_{11}	15.3	X	138.10859	2.81775	126.62597	13.78236	0.1124963	0.22516694	2.6758779	20	7 3.5	19.4
98724 2000 YF_{14}	15.4	X	267.00914	254.96977	116.28608	5.73443	0.1621249	0.23008198	2.6376327	20	6 14.5	19.0
98725 2000 YP_{14}	15.5	X	320.06209	74.67307	346.22625	3.22670	0.0943722	0.24286318	2.5442606	20	11 26.9	18.4
98726 2000 YW_{15}	15.8	X	68.14817	51.85578	338.37767	2.78093	0.1948257	0.25487443	2.4636851	20	—	—
98727 2000 YN_{16}	15.6	X	357.56287	172.41581	345.28447	2.76491	0.1175521	0.25932585	2.4354105	20	1 10.5	18.3
98728 2000 YG_{21}	15.4	X	224.03829	144.21099	310.08079	8.97052	0.0924012	0.23308403	2.6149358	20	8 19.9	19.0
98729 2000 YW_{25}	15.5	X	154.48413	305.52063	301.66923	8.83599	0.0866610	0.24423842	2.5347009	20	12 19.4	19.2
98730 2000 YM_{26}	15.4	X	246.94770	272.88410	153.54410	12.54477	0.0825332	0.23529320	2.5985424	20	8 13.7	18.9
98731 2000 YF_{30}	15.4	X	153.02983	160.20974	78.00232	8.76918	0.1533581	0.23869190	2.5738166	20	12 3.5	19.5
98732 2000 YR_{30}	15.7	X	281.27510	220.60551	178.99749	0.52989	0.2072317	0.23636103	2.5907100	20	8 5.4	18.8
98733 2000 YT_{30}	14.7	X	84.73915	148.94589	102.61455	22.91508	0.0148623	0.23595126	2.5937086	20	10 12.4	18.8
98734 2000 YQ_{33}	15.9	X	57.76477	267.20682	169.52316	2.04147	0.1439077	0.25925999	2.4358229	20	1 3.6	18.0
98735 2000 YC_{34}	15.7	X	301.93443	300.32767	139.87434	12.73651	0.2486278	0.24251393	2.5467027	20	11 17.4	18.0
98736 2000 YO_{35}	15.7	X	49.32152	14.76684	96.80776	3.55455	0.1480842	0.26265904	2.4147628	20	2 8.6	17.9
98737 2000 YC_{36}	15.2	X	40.07804	293.53291	84.65208	6.02093	0.0884261	0.30093576	2.2053974	20	—	—
98738 2000 YG_{38}	15.1	X	253.38039	137.21345	259.24549	10.08167	0.0561287	0.22996878	2.6384981	20	7 14.7	18.7
98739 2000 YR_{40}	15.8	X	9.15773	213.24278	233.29165	1.66069	0.1638564	0.25389700	2.4700040	20	—	—
98740 2000 YN_{43}	14.9	X	127.26995	329.84603	115.37312	10.32967	0.0793719	0.21859799	2.7292204	20	4 26.2	19.0
98741 2000 YH_{45}	15.4	X	336.61284	125.11363	85.72255	3.33804	0.1322963	0.26385036	2.4074887	20	2 17.8	18.0
98742 2000 YM_{45}	16.0	X	125.99521	313.97778	149.29962	4.27461	0.0580872	0.27113591	2.3641663	20	5 11.0	19.0
98743 2000 YA_{46}	15.2	X	11.30445	329.54058	154.22801	2.82873	0.1301633	0.25704833	2.4497750	20	—	—
98744 2000 YM_{46}	15.6	X	176.67523	19.41389	124.46526	2.74549	0.0440024	0.23258237	2.6186946	20	9 4.4	19.2
98745 2000 YB_{47}	15.1	X	69.17575	59.05545	304.75231	3.79181	0.1958713	0.25282632	2.4769726	20	—	—
98746 2000 YQ_{49}	15.7	X	284.92775	107.97326	273.25808	3.14300	0.1714557	0.23391840	2.6087139	20	7 21.4	18.7
98747 2000 YV_{50}	15.5	X	6.48258	7.42285	124.70787	7.14821	0.0979494	0.25719683	2.4488319	20	—	—
98748 2000 YP_{51}	16.3	X	344.51019	249.67446	273.68561	1.16742	0.1365426	0.25744590	2.4472522	20	—	—
98749 2000 YS_{51}	15.4	X	328.55479	222.00909	283.42791	5.63779	0.0840001	0.25408967	2.4687553	20	—	—
98750 2000 YJ_{52}	15.9	X	207.27443	159.53718	63.07029	1.84571	0.0468385	0.24785758	2.5099664	20	—	—
98751 2000 YN_{52}	15.1	X	72.77588	101.38632	62.51904	4.01461	0.0441367	0.22086360	2.7105242	20	5 19.9	18.7
98752 2000 YK_{53}	15.7	X	23.21981	288.58525	86.19242	2.33179	0.0886252	0.24541674	2.5265812	20	—	—
98753 2000 YW_{53}	15.1	X	37.96955	112.49840	293.52748	6.81998	0.1225071	0.25210547	2.4816919	20	—	—
98754 2000 YV_{54}	15.8	X	68.76290	289.61744	89.52314	1.89841	0.2070676	0.25391456	2.4698902	20	—	—
98755 2000 YF_{58}	14.9	X	25.26736	308.88096	124.43249	9.24518	0.0071436	0.20149568	2.8815460	20	—	—
98756 2000 YL_{59}	15.5	X	238.47714	28.20569	106.39360	2.73208	0.1181095	0.23965402	2.5669233	20	10 30.2	18.8
98757 2000 YZ_{61}	15.5	X	227.66923	237.25576	299.54778	3.24040	0.2296701	0.24097340	2.5575452	20	11 23.0	19.2
98758 2000 YM_{63}	15.0	X	62.82574	193.15815	297.90422	6.95704	0.1654130	0.21315445	2.7754907	20	4 5.4	18.4
98759 2000 YH_{68}	14.2	X	93.82634	230.10868	319.79772	16.09013	0.1284713	0.17108719	3.2135943	20	8 1.4	18.9
98760 2000 YO_{68}	15.0	X	222.89548	33.50458	141.16417	10.28117	0.1433019	0.23878713	2.5731322	20	11 29.0	18.7
98761 2000 YR_{68}	15.5	X	161.90758	199.52873	302.65993	3.82502	0.1940773	0.22627763	2.6671143	20	8 13.5	19.9
98762 2000 YT_{68}	15.7	X	292.96624	303.59279	146.89862	6.11651	0.2512451	0.24088231	2.5581899	20	11 7.7	17.8
98763 2000 YL_{69}	15.0	X	78.26702	216.87325	81.60217	12.06347	0.1451796	0.24708019	2.5152285	20	12 8.3	18.6
98764 2000 YQ_{69}	15.6	X	240.17054	269.30076	101.46216	5.08107	0.2044330	0.28062746	2.3105530	20	5 10.6	19.2
98765 2000 YP_{70}	15.8	X	90.37410	152.92310	196.08122	1.77595	0.0676330	0.25421565	2.4679396	20	—	—
98766 2000 YF_{72}	15.6	X	263.73909	174.50239	286.27907	3.89066	0.1787026	0.24214362	2.5492985	20	10 7.2	18.9
98767 2000 YV_{72}	15.8	X	42.80397	16.85176	150.60525	1.78800	0.1250723	0.26898166	2.3767724	20	4 17.5	18.0
98768 2000 YD_{75}	15.1	X	171.52594	305.69037	101.01489	12.60587	0.0951380	0.22228995	2.6989168	20	4 28.2	19.4
98769 2000 YE_{75}	15.9	X	8.09114	49.36388	103.81485	7.75379	0.1213422	0.26198525	2.4189013	20	1 21.1	18.4
98770 2000 YN_{77}	15.6	X	319.49050	226.76571	80.60983	6.36659	0.1466862	0.28048369	2.3113425	20	6 7.5	17.7
98771 2000 YN_{78}	16.3	X	21.01445	126.16819	52.52404	2.98950	0.1469836	0.26692818	2.3889465	20	3 24.1	18.2
98772 2000 YP_{78}	15.7	X	337.80626	99.38120	62.89155	2.96797	0.1226066	0.25886426	2.4383047	20	—	—
98773 2000 YW_{79}	15.2	X	285.03636	155.76360	251.11422	4.04099	0.1231335	0.23826803	2.5768682	20	9 2.9	18.3
98774 2000 YM_{80}	14.7	X	353.78478	285.55511	263.80068	5.83161	0.2352070	0.21205790	2.7850505	20	2 9.7	17.6
98775 2000 YD_{82}	15.5	X	304.03362	316.53452	76.60331	2.32245	0.0746271	0.23911196	2.5708013	20	9 24.5	18.5
98776 2000 YN_{84}	14.8	X	174.69802	41.41311	105.44957	15.84393	0.2082022	0.23267773	2.6179791	20	9 5.1	19.4
98777 2000 YV_{85}	15.1	X	245.52755	318.25875	111.35850	15.31879	0.0861977	0.23419228	2.6066796	20	8 19.1	18.7
98778 2000 YX_{85}	14.2	X	25.99125	66.17192	110.89952	17.00872	0.1790790	0.21511484	2.7586026	20	4 17.8	17.4
98779 2000 YJ_{86}	15.9	X	251.66957	328.95367	117.30736	5.25773	0.1960790	0.23760576	2.5816542	20	9 1.5	19.4
98780 2000 YZ_{90}	15.5	X	183.64596	293.22958	88.99986	2.90413	0.0844512	0.21880116	2.7275306	20	4 5.9	19.6
98781 2000 YF_{91}	16.0	X	347.87262	171.45421	38.55451	1.89392	0.1298709	0.26495896	2.4007686	20	3 6.6	18.3
98782 2000 YS_{92}	15.9	X	296.99051	306.05863	93.38402	2.59357	0.1193000	0.23657104	2.5891765	20	9 16.6	18.8
98783 2000 YB_{93}	16.0	X	56.34650	333.31734	204.29478	1.96720	0.1255375	0.27102919	2.3647869	20	5 27.1	18.5
98784 2000 YU_{93}	15.4	X	156.20402	84.77182	82.09901	6.74336	0.0943512	0.23366465	2.6106023	20	9 12.9	19.4
98785 2000 YR_{94}	15.5	X	7.46813	0.42188	154.94147	3.51271	0.0233707	0.21038085	2.7998316	20	2 7.5	19.2
98786 2000 YR_{96}	15.3	X	162.57708	7.37304	113.97867	6.74581	0.1141225	0.22641105	2.6660665	20	7 18.7	19.5
98787 2000 YP_{97}	14.5	X	139.33034	122.40366	120.25482	13.68036	0.1334317	0.23828599	2.5767387	20	11 29.6	18.7
98788 2000 YQ_{98}	15.6	X	241.44345	256.39198	157.92391	5.79684	0.2051776	0.22992252	2.6388520	20	7 5.6	19.7
98789 2000 YF_{99}	15.2	X	2.60256	59.68435	291.17489	13.94658	0.1392667	0.23846656	2.5754378	20	10 30.6	18.4
98790 2000 YW_{99}	16.2	X	25.15663	134.91781	343.46759	1.58588	0.1268306	0.25708375	2.4495499	20	1 2.5	18.4
98791 2000 YW_{104}	15.0	X	252.06007	108.71297	337.19001	25.75332	0.2664562	0.23328861	2.6134069	20	8 23.5	18.8
98792 2000 YR_{105}	14.5	X	305.73099	148.00024	359.84206	8.36639	0.2012885	0.19540649	2.9411018	20	—	—
98793 2000 YT_{106}	15.3	X	190.04299	112.97212	81.69814	7.88779	0.1134223	0.24276196	2.5449678	20	11 20.5	19.0
98794 2000 YX_{109}	15.9	X	165.25743	48.74737	311.85817	5.48212	0.1378195	0.26421179	2.4052926	20	2 16.5	19.5
98795 2000 YJ_{110}	15.8	X	213.38519	55.04948	13.61340	3.29131	0.0870437	0.22808121	2.6530354	20	7 6.5	19.7
98796 2000 YD_{111}	15.7	X	8.14014	119.32327	319.99186	2.87790	0.2079144	0.25245827	2.4793794	20	—	—
98797 2000 YS_{111}	15.8	X	72.84140	78.39323	56.85663	3.23401	0.1309501	0.26696615	2.3887200	20	4 22.6	18.3
98798 2000 YW_{111}	16.1	X	214.16329	129.27149	346.20136	3.94243	0.1145136	0.23412366	2.6071890	20	9 4.6	19.9
98799 2000 YZ_{111}	15.8	X	169.86775	337.67516	44.23220	3.14368	0.2064180	0.26894567	2.3769845	20	3 24.0	19.5
98800 2000 YN_{114}	15.4	X	107.67332	25.67212	17.93183	3.14545	0.0884119	0.21045570	2.7991677	20	2 8.2	19.2

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Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
98801 2000 YZ_{114}	15.4	X	10.60610	129.37370	266.44793	11.11052	0.2061933	0.24668031	2.5179459	20	—	—
98802 2000 YB_{115}	14.9	X	127.37483	193.61995	266.85400	10.84562	0.0811341	0.21854607	2.7296526	20	5 9.7	19.0
98803 2000 YE_{115}	15.5	X	201.79173	84.09771	101.32427	4.86358	0.2116690	0.23823086	2.5771362	20	11 11.3	19.5
98804 2000 YD_{117}	15.1	X	266.44896	14.93684	82.84938	4.58924	0.1718262	0.23801151	2.5787193	20	10 12.2	18.2
98805 2000 YM_{117}	14.3	X	103.86153	119.48953	111.44885	10.75656	0.0440404	0.18206639	3.0830663	20	9 27.5	18.9
98806 2000 YU_{117}	15.1	X	58.92184	192.59336	313.94462	12.41473	0.0837592	0.26527840	2.3988410	20	3 31.8	18.2
98807 2000 YK_{118}	14.6	X	26.46409	70.15322	101.98323	8.06773	0.1310422	0.21167769	2.7883845	20	4 3.9	17.8
98808 2000 YP_{118}	14.5	X	312.83336	274.54014	67.71752	12.66304	0.1668564	0.23329399	2.6133667	20	7 15.2	17.4
98809 2000 YD_{119}	14.7	X	286.79225	353.86345	89.05922	15.43537	0.2412496	0.23816011	2.5776465	20	10 21.3	17.6
98810 2000 YR_{119}	15.1	X	270.24362	183.12266	279.18777	9.31743	0.0873481	0.24264188	2.5458074	20	11 1.6	18.4
98811 2000 YS_{119}	15.3	X	232.88687	11.45644	82.69778	16.44376	0.0907043	0.23604703	2.5930070	20	9 10.5	19.3
98812 2000 YP_{120}	14.8	X	332.20967	350.30202	101.21041	13.45104	0.1356274	0.24462640	2.5320202	20	—	—
98813 2000 YX_{120}	15.3	X	59.83636	265.18814	289.06387	4.62306	0.0498050	0.22631646	2.6668093	20	6 13.0	18.6
98814 2000 YC_{122}	15.9	X	336.41112	73.27201	70.16946	6.95205	0.0732583	0.25755612	2.4465540	20	—	—
98815 2000 YR_{123}	15.8	X	338.41053	136.04500	5.22117	0.31444	0.0950318	0.25285931	2.4767571	20	—	—
98816 2000 YU_{123}	15.5	X	90.62694	130.79905	106.75620	3.92530	0.0483268	0.23061364	2.6335772	20	9 24.2	19.1
98817 2000 YQ_{124}	15.0	X	292.81880	88.30030	241.55298	11.35288	0.1563021	0.23150038	2.6268478	20	5 24.5	18.2
98818 2000 YH_{125}	15.5	X	50.09835	133.45137	341.87926	11.25215	0.1840754	0.26138822	2.4225833	20	2 20.4	17.6
98819 2000 YC_{129}	15.3	X	218.81910	298.31853	75.79046	6.19838	0.1600377	0.22146583	2.7056082	20	4 29.3	19.7
98820 2000 YL_{130}	14.9	X	314.43261	253.25424	93.76949	26.53714	0.2561118	0.23709896	2.5853318	20	7 9.7	17.4
98821 2000 YV_{131}	14.8	X	60.40085	101.63588	120.16921	15.82674	0.0830130	0.22370160	2.6875507	20	7 27.4	18.3
98822 2000 YR_{132}	14.8	X	127.65007	280.23809	297.06863	11.49120	0.2481180	0.22717388	2.6600948	20	10 11.9	19.7
98823 2000 YF_{135}	14.8	X	2.03503	212.13893	98.25128	15.12729	0.1179707	0.23829106	2.5767021	20	9 12.1	17.9
98824 2000 YS_{135}	16.1	X	181.81755	52.51219	17.26739	0.73416	0.1346068	0.22439829	2.6819850	20	6 1.7	20.2
98825 Maryellen	15.0	X	229.65269	106.02444	355.76458	14.39582	0.1613900	0.23446388	2.6046662	20	9 1.8	18.8
98826 2000 YF_{140}	14.7	X	175.35857	138.47044	45.81251	13.76423	0.1917260	0.23253296	2.6190656	20	10 19.8	19.0
98827 2001 AW	15.3	X	102.00996	204.00984	21.34101	1.17297	0.1185056	0.18016706	3.1046963	20	9 21.4	19.9
98828 2001 AP_{3}	15.4	X	97.07690	17.37216	123.57237	11.37931	0.1756630	0.27103852	2.3647326	20	6 11.8	18.7
98829 2001 AG_{4}	15.0	X	334.59556	164.82324	201.13570	3.41091	0.2705504	0.23983377	2.5656406	20	10 10.5	16.3
98830 2001 AP_{4}	15.1	X	81.05317	3.82927	124.08730	13.31981	0.1357004	0.21641482	2.7475444	20	5 3.1	19.0
98831 2001 AR_{4}	16.1	X	230.79448	307.81980	152.43893	5.60753	0.2713114	0.23501980	2.6005572	20	8 16.7	20.3
98832 2001 AL_{5}	15.1	X	167.83842	257.41742	280.76558	10.99536	0.1025533	0.23373706	2.6100631	20	9 29.7	19.3
98833 2001 AF_{12}	15.2	X	185.68310	144.96673	276.17769	9.41252	0.0758228	0.22225404	2.6992075	20	5 25.4	19.2
98834 2001 AR_{15}	15.2	X	110.96483	175.92906	274.37805	7.75596	0.1234529	0.21475041	2.7617225	20	4 10.8	19.4
98835 2001 AS_{15}	15.4	X	247.68914	189.98863	279.38184	7.86837	0.1328342	0.23626180	2.5914353	20	9 30.3	19.0
98836 2001 AF_{17}	14.9	X	284.99349	307.94505	126.87264	14.60368	0.0968574	0.23649632	2.5897219	20	10 25.1	18.3
98837 2001 AQ_{17}	15.5	X	190.68949	251.54917	301.09430	4.03845	0.2434567	0.23427199	2.6060884	20	11 4.4	20.0
98838 2001 AH_{19}	15.7	X	123.29809	82.60618	94.75920	4.09338	0.0066870	0.22665368	2.6641634	20	8 10.7	19.2
98839 2001 AT_{20}	14.8	X	199.73724	338.87905	107.83578	22.78345	0.0304566	0.23060333	2.6336557	20	7 18.3	18.5
98840 2001 AA_{22}	14.8	X	16.20627	149.27188	82.15880	10.13246	0.0406135	0.22281828	2.6946488	20	5 30.7	18.3
98841 2001 AL_{22}	16.0	X	235.44585	29.18522	50.54405	2.26770	0.0670078	0.23321529	2.6139546	20	8 20.7	19.4
98842 2001 AQ_{22}	15.3	X	207.85185	246.79580	134.54492	12.43103	0.1144523	0.22135470	2.7065136	20	5 2.8	19.7
98843 2001 AQ_{26}	14.7	X	223.78293	42.28244	75.70982	18.52273	0.1137061	0.23675076	2.5878660	20	9 30.7	18.8
98844 2001 AP_{27}	15.2	X	69.62506	119.20677	1.62733	8.67225	0.1025985	0.21458168	2.7631701	20	3 27.0	18.6
98845 2001 AU_{27}	15.1	X	4.77716	202.12115	339.26651	11.49189	0.1015667	0.26313905	2.4118253	20	2 26.4	17.5
98846 2001 AV_{27}	15.0	X	84.65187	94.77607	45.50592	9.28163	0.0455942	0.21849206	2.7301024	20	5 4.7	18.5
98847 2001 AW_{29}	15.1	X	242.68932	283.51861	54.20581	5.96323	0.0593861	0.22163037	2.7042689	20	4 16.4	18.9
98848 2001 AT_{30}	14.8	X	75.78546	116.47396	78.32670	11.24403	0.2008373	0.22388241	2.6861035	20	7 31.6	18.7
98849 2001 AY_{30}	15.5	X	24.02931	80.41571	324.87963	5.69817	0.1209294	0.25189844	2.4830515	20	—	—
98850 2001 AM_{33}	15.5	X	320.68475	172.44609	6.79881	3.57085	0.1394769	0.25623598	2.4549499	20	—	—
98851 2001 AW_{33}	15.1	X	118.86411	44.38809	91.17413	11.79818	0.1220781	0.22233771	2.6985303	20	6 21.0	18.9
98852 2001 AJ_{34}	15.0	X	168.74687	0.23470	56.15231	6.01654	0.0294350	0.21913096	2.7247933	20	4 30.2	18.9
98853 2001 AY_{34}	14.7	X	243.61548	16.22689	124.07607	15.33013	0.1219284	0.23798821	2.5788877	20	11 16.9	18.4
98854 2001 AU_{36}	15.3	X	51.50868	170.45785	2.84233	8.48557	0.2524599	0.21538547	2.7562913	20	6 1.1	18.5
98855 2001 AU_{37}	14.8	X	223.95063	71.54850	75.44055	13.75930	0.1080210	0.23708749	2.5854151	20	11 1.8	18.5
98856 2001 AA_{38}	14.1	X	304.75643	57.13803	91.24272	17.84807	0.0575773	0.19742275	2.9210428	20	—	—
98857 2001 AM_{38}	14.5	X	85.23691	210.44441	14.60454	13.09477	0.2260642	0.22532403	2.6746341	20	9 22.4	18.6
98858 2001 AT_{41}	15.5	X	248.31612	110.98345	315.35282	11.49852	0.1720839	0.23140713	2.6275535	20	8 3.3	19.1
98859 2001 AZ_{41}	14.5	X	215.84719	341.91860	308.22687	5.52579	0.1813546	0.25463906	2.4652031	20	1 11.6	18.6
98860 2001 AK_{42}	15.3	X	266.03209	288.09492	123.05998	15.52456	0.1014373	0.23511365	2.5998652	20	8 18.4	18.7
98861 2001 AA_{44}	14.7	X	54.11158	126.17342	342.71272	24.62615	0.2288936	0.26069756	2.4268601	20	2 26.6	16.6
98862 2001 AN_{44}	15.4	X	286.87848	3.03598	103.35953	3.76629	0.1340177	0.24140388	2.5545038	20	12 1.7	18.0
98863 2001 AR_{46}	14.1	X	358.28169	143.75447	21.49719	24.24077	0.1893229	0.25864594	2.4396767	20	1 21.0	17.2
98864 2001 AR_{47}	14.2	X	135.51090	125.56203	45.51615	27.48004	0.1632328	0.22583148	2.6706259	20	9 12.5	19.1
98865 2001 AY_{47}	15.1	X	217.05513	285.32464	61.16309	13.21400	0.2075664	0.21806908	2.7336316	20	3 28.2	19.9
98866 Giannabussolari	15.5	X	122.69592	210.54625	178.53987	6.01364	0.1367588	0.26121064	2.4236811	20	2 5.5	18.7
98867 2001 BG_{4}	15.2	X	236.07814	96.32920	73.68706	8.78670	0.1819090	0.24076215	2.5590410	20	12 1.9	18.5
98868 2001 BS_{5}	14.9	X	128.85099	312.17739	97.77627	13.33888	0.0800756	0.21210940	2.7845997	20	3 16.5	19.1
98869 2001 BT_{5}	15.1	X	332.95485	291.61834	107.84961	15.06921	0.1919931	0.24133272	2.5550059	20	11 29.5	17.6
98870 2001 BV_{5}	15.2	X	325.58704	62.26726	338.15866	12.78695	0.1981215	0.24057245	2.5603861	20	11 2.9	17.7
98871 2001 BB_{7}	15.6	X	232.55095	306.09471	251.97505	6.80045	0.2190505	0.24415120	2.5353046	20	12 28.2	18.8
98872 2001 BO_{9}	15.6	X	26.45654	351.19720	35.75157	4.71193	0.1632260	0.24744687	2.5127430	20	—	—
98873 2001 BO_{11}	15.9	X	204.09877	349.00779	303.89316	5.64097	0.0963503	0.25581519	2.4576413	20	1 2.7	19.4
98874 2001 BE_{14}	14.7	X	6.44224	63.80459	328.56954	8.77990	0.0409868	0.18788707	3.0190580	20	12 9.7	18.9
98875 2001 BN_{15}	15.6	X	186.88412	184.28965	340.68510	4.91967	0.1625402	0.23282473	2.6168770	20	10 3.6	19.8
98876 2001 BL_{17}	15.8	X	67.50916	224.40086	180.21940	8.03541	0.1261600	0.25574536	2.4580887	20	—	—
98877 2001 BK_{19}	15.0	X	108.43655	132.58690	108.12284	13.00170	0.1257985	0.23390525	2.6088117	20	10 30.3	19.2
98878 2001 BT_{21}	14.9	X	209.11560	217.58733	16.53505	1.82806	0.0413003	0.20224153	2.8744570	20	—	—
98879 2001 BC_{24}	14.4	X	267.80300	6.12896	304.24757	16.19207	0.0197744	0.21742776	2.7390043	20	4 6.6	18.6
98880 2001 BF_{25}	16.2	X	33.31587	325.81030	139.67207	1.38790	0.1301905	0.25718071	2.4489343	20	—	—

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
98881 2001 BQ_{25}	15.6	X	178.19062	308.10582	110.87069	3.31955	0.1114068	0.22113548	2.7083020	20	5 16.3	19.8
98882 2001 BG_{28}	15.0	X	316.59680	358.01441	146.88374	2.72256	0.0652492	0.19922127	2.9034359	20	—	—
98883 2001 BY_{28}	14.9	X	193.27522	57.99705	141.60224	13.71985	0.0801667	0.23924178	2.5698713	20	12 4.6	18.8
98884 2001 BL_{29}	14.6	X	69.40613	339.93388	293.49624	15.06887	0.1908510	0.23383001	2.6093713	20	10 25.1	18.8
98885 2001 BX_{29}	15.1	X	213.54162	176.50116	102.90608	3.24798	0.0310662	0.20508758	2.8478021	20	1 3.5	19.0
98886 2001 BZ_{29}	15.4	X	295.30264	108.12489	123.92745	13.07631	0.2458134	0.25722156	2.4486749	20	1 5.9	19.1
98887 2001 BQ_{34}	15.0	X	174.14904	42.20945	154.89719	13.01583	0.1735646	0.23269537	2.6178468	20	11 4.9	19.4
98888 2001 BW_{34}	16.0	X	303.68150	315.15130	124.41416	5.22416	0.1585800	0.24096472	2.5576066	20	11 23.7	18.5
98889 2001 BL_{38}	13.9	X	148.64121	273.84073	320.83114	25.90284	0.4223421	0.23296101	2.6158564	20	11 13.5	19.7
98890 2001 BH_{40}	14.7	X	164.36171	108.46967	91.23342	15.98510	0.0813102	0.23523148	2.5989969	20	11 5.7	18.8
98891 2001 BK_{41}	15.6	X	56.37218	345.53749	237.95156	7.58433	0.3885852	0.27850773	2.3222620	20	9 10.3	19.1
98892 2001 BX_{42}	15.2	X	234.90812	273.31184	244.21997	7.30971	0.0299147	0.24034335	2.5620129	20	12 6.7	18.6
98893 2001 BB_{44}	15.3	X	250.72347	19.64732	121.44618	6.04621	0.1852590	0.23782810	2.5800449	20	11 14.3	18.6
98894 2001 BC_{44}	15.4	X	214.07221	24.59368	143.26495	12.78441	0.1009388	0.23526408	2.5987568	20	11 16.6	19.3
98895 2001 BE_{44}	15.4	X	263.55600	342.71221	134.40532	9.86372	0.1305610	0.23643685	2.5901561	20	11 10.8	18.7
98896 2001 BK_{44}	15.3	X	287.48457	318.99570	149.18521	17.70413	0.1190961	0.23843154	2.5756900	20	12 8.7	18.6
98897 2001 BL_{44}	14.7	X	263.97973	156.76915	329.06326	29.14449	0.1432227	0.23691239	2.5866889	20	11 1.6	18.7
98898 2001 BU_{45}	15.1	X	16.00933	232.24669	232.08288	11.93896	0.0306723	0.20436247	2.8545345	20	—	—
98899 2001 BG_{48}	15.3	X	72.03650	329.95385	188.06205	9.63411	0.1001439	0.21722322	2.7407235	20	5 21.2	19.0
98900 2001 BF_{50}	14.6	X	296.33665	182.46742	286.43041	12.78717	0.1087659	0.24027147	2.5625238	20	12 23.4	17.4
98901 2001 BB_{51}	15.2	X	282.65405	315.74615	127.99517	22.84920	0.0903309	0.23573589	2.5952881	20	11 6.4	18.9
98902 2001 BK_{53}	14.9	X	96.01122	170.62266	121.57935	14.49887	0.1743049	0.23796392	2.5790632	20	12 18.9	19.1
98903 2001 BB_{57}	15.7	X	210.17403	63.15956	140.30057	4.94971	0.1823286	0.23843803	2.5756432	20	12 13.7	19.5
98904 2001 BD_{57}	14.5	X	17.60675	44.79762	272.70135	15.69293	0.1547270	0.23191361	2.6237265	20	10 7.2	18.0
98905 2001 BL_{58}	15.6	X	218.87675	237.43559	311.02145	7.89325	0.1292660	0.24072536	2.5593017	20	12 11.3	19.2
98906 2001 BR_{58}	15.8	X	232.53446	67.72160	122.40115	4.46570	0.1351412	0.24264422	2.5457910	20	12 30.5	19.0
98907 2001 BM_{59}	14.4	X	255.37502	242.88286	258.78326	12.77357	0.1006135	0.24145517	2.5541420	20	12 3.5	17.5
98908 2001 BZ_{59}	15.4	X	253.78872	291.31328	165.70731	5.06431	0.2168325	0.23556168	2.5965675	20	9 13.7	18.9
98909 2001 BR_{60}	15.6	X	243.34908	246.09400	252.75156	8.43217	0.1495997	0.23777365	2.5804388	20	11 3.3	19.1
98910 2001 BE_{62}	15.9	X	233.42882	307.26423	188.12800	4.36880	0.1293134	0.23650518	2.5896572	20	10 22.1	19.3
98911 2001 BJ_{63}	15.4	X	320.74429	306.22696	133.89601	3.77009	0.1001189	0.24201996	2.5501668	20	12 25.5	18.2
98912 2001 BM_{63}	15.4	X	11.54557	308.78113	168.67380	6.62722	0.1222675	0.25441085	2.4666771	20	—	—
98913 2001 BG_{65}	15.8	X	98.14830	271.33111	199.58995	6.57782	0.2536209	0.21608583	2.7503324	20	5 13.9	19.8
98914 2001 BL_{66}	15.4	X	241.85957	101.30986	131.83913	8.29922	0.1744793	0.24533220	2.5271616	20	—	—
98915 2001 BJ_{67}	14.3	X	100.00715	136.55512	2.56429	25.67116	0.1493704	0.21413382	2.7670216	20	5 30.7	18.9
98916 2001 BU_{68}	14.5	X	46.25897	153.83449	138.08283	14.78403	0.0946090	0.22896454	2.6462075	20	10 18.9	18.3
98917 2001 BY_{70}	16.0	X	265.42527	274.96695	182.92884	2.27223	0.1476631	0.23816604	2.5776038	20	10 12.6	19.0
98918 2001 BG_{72}	14.8	X	111.73969	250.17463	262.42251	8.38473	0.1060730	0.21948436	2.7218676	20	7 2.8	18.7
98919 2001 BN_{74}	15.5	X	272.00782	169.32949	191.96310	2.04390	0.0247645	0.22233377	2.6985622	20	6 28.2	19.1
98920 2001 BX_{74}	15.1	X	204.64362	128.46923	3.14273	13.52805	0.1321487	0.23010086	2.6374884	20	9 14.8	19.1
98921 2001 BW_{76}	14.9	X	175.95236	49.00554	189.76313	2.54622	0.0584909	0.18843837	3.0131666	20	12 21.4	19.3
98922 2001 BY_{76}	15.2	X	241.57497	279.14333	158.89376	15.11893	0.1475464	0.22912833	2.6449463	20	8 12.2	19.0
98923 2001 BB_{78}	14.5	X	17.68751	218.86003	149.47029	12.49545	0.1061749	0.19034541	2.9930073	20	12 6.4	18.6
98924 2001 BG_{82}	15.3	X	157.71118	237.88522	343.17225	14.51882	0.0331225	0.23764804	2.5813480	20	11 15.8	19.3
98925 2001 CX	15.5	X	353.16225	145.40743	349.92498	3.19226	0.1349705	0.25379766	2.4706486	20	—	—
98926 2001 CH_{1}	14.8	X	110.33781	319.40489	121.28172	9.98885	0.1121805	0.21256344	2.7806329	20	4 4.7	18.9
98927 2001 CF_{2}	14.7	X	108.36902	104.41162	51.30855	3.98050	0.1154861	0.22040759	2.7142615	20	7 4.9	18.6
98928 2001 CH_{2}	15.6	X	224.92570	121.03837	65.57474	2.55849	0.1017820	0.24088032	2.5582040	20	12 20.6	18.9
98929 2001 CE_{4}	16.0	X	237.89673	197.22586	359.01800	4.19529	0.1958584	0.24249895	2.5468076	20	—	—
98930 2001 CB_{5}	15.1	X	110.60348	248.53784	351.25126	12.43815	0.1335597	0.23024164	2.6364132	20	10 20.7	19.3
98931 2001 CC_{5}	15.4	X	97.53737	230.31659	351.54498	12.64251	0.2061383	0.22496029	2.6775164	20	9 24.0	19.7
98932 2001 CZ_{6}	15.4	X	186.60976	83.61364	105.58519	5.62474	0.1571882	0.23550119	2.5970121	20	11 6.3	19.5
98933 2001 CS_{7}	14.6	X	347.22703	20.01781	341.33887	12.97309	0.1450884	0.23413017	2.6071406	20	10 16.4	17.6
98934 2001 CA_{8}	16.2	X	295.20797	98.88616	10.47073	4.56733	0.1118695	0.24175024	2.5520633	20	12 21.9	19.0
98935 2001 CV_{10}	13.0	X	77.40024	295.04213	321.76454	22.77174	0.2999287	0.17709721	3.1404718	20	10 10.1	18.5
98936 2001 CX_{10}	15.4	X	296.39900	11.53417	9.27596	4.08641	0.2238661	0.23329111	2.6133882	20	8 2.1	18.1
98937 2001 CO_{11}	15.6	X	61.26462	105.24772	17.74003	3.09597	0.1220450	0.26235491	2.4166286	20	3 15.5	18.0
98938 2001 CQ_{13}	15.2	X	243.00463	359.61355	339.65850	5.81133	0.0107902	0.21678956	2.7443772	20	4 20.5	19.1
98939 2001 CZ_{15}	15.3	X	328.20396	47.60629	329.12618	14.27289	0.0385311	0.23417051	2.6068412	20	10 1.4	18.8
98940 2001 CJ_{18}	15.5	X	244.99026	321.90355	295.50555	4.55089	0.1119244	0.25583785	2.4574962	20	—	—
98941 2001 CH_{20}	15.3	X	220.19498	50.73520	60.05169	14.13818	0.1130529	0.23087409	2.6315962	20	9 13.4	19.4
98942 2001 CP_{20}	14.7	X	189.60484	35.31481	124.90245	28.96219	0.1117468	0.22879724	2.6474973	20	10 15.9	19.3
98943 2001 CC_{21}	18.5	X	61.05509	179.40011	75.57207	4.80821	0.2191388	0.93968823	1.0323181	20	—	—
98944 2001 CM_{21}	14.8	X	37.82988	55.21168	103.70450	13.45028	0.0855735	0.21304391	2.7764507	20	4 4.7	18.5
98945 2001 CS_{21}	15.2	X	284.55327	308.03704	77.01257	4.89537	0.1764834	0.23228382	2.6209379	20	7 26.9	18.4
98946 2001 CB_{22}	15.2	X	298.01119	182.42810	93.15461	2.98698	0.0336491	0.21602299	2.7508658	20	4 9.6	18.9
98947 2001 CZ_{23}	15.3	X	337.10505	117.35173	143.21025	11.06503	0.2447830	0.26695441	2.3887901	20	4 19.2	17.4
98948 2001 CK_{24}	15.6	X	230.03554	175.29002	272.51489	3.33825	0.1247820	0.23182971	2.6243595	20	8 14.7	19.4
98949 2001 CM_{27}	14.7	X	147.08998	347.15153	84.32532	10.56223	0.1131178	0.21742135	2.7390582	20	5 2.9	18.9
98950 2001 CO_{28}	14.8	X	117.95908	112.32900	110.53487	10.60770	0.0970318	0.23099332	2.6306906	20	10 15.0	18.9
98951 2001 CV_{28}	14.5	X	120.50836	79.19356	347.12504	15.21814	0.0328395	0.21119153	2.7926621	20	3 13.2	18.2
98952 2001 CW_{28}	14.0	X	84.11670	93.58669	115.98976	16.28409	0.0273296	0.17389664	3.1788882	20	7 30.8	18.4
98953 2001 CZ_{29}	14.5	X	19.34923	308.07585	105.37767	13.08681	0.0485545	0.19611010	2.9340628	20	—	—
98954 2001 CJ_{32}	14.7	X	80.44618	177.54032	39.97601	11.99554	0.2348767	0.22109783	2.7086095	20	9 12.2	19.0
98955 2001 CE_{34}	13.6	X	79.94326	139.22719	110.36303	28.31957	0.1824274	0.17638653	3.1489017	20	10 17.3	18.9
98956 2001 CW_{34}	14.6	X	160.11462	185.32293	37.25896	13.41156	0.0803481	0.18659268	3.0330040	20	11 12.9	19.3
98957 2001 CH_{36}	14.9	X	278.96363	329.22536	86.51641	6.11993	0.2368087	0.23378831	2.6096816	20	8 22.2	18.0
98958 2001 CD_{38}	13.6	X	33.09108	169.56591	90.24520	22.80189	0.0482991	0.16975646	3.2303668	20	8 1.0	18.2
98959 2001 CG_{39}	15.0	X	111.65152	234.73504	8.21569	13.80889	0.1259299	0.23413224	2.6071253	20	10 26.6	19.2
98960 2001 CG_{43}	14.1	X	229.51467	57.33007	112.38344	15.53577	0.1576696	0.18592164	3.0402975	20	11 20.5	18.8

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Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
98961 2001 CP_{43}	14.4	X	302.55520	53.90221	59.25899	13.83792	0.2231819	0.24190561	2.5509704	20	—	—
98962 2001 CZ_{43}	15.0	X	7.29516	93.67123	94.33295	14.17186	0.1401224	0.20963385	2.8064789	20	3 25.7	18.4
98963 2001 CO_{44}	14.2	X	258.83564	325.77184	110.94835	22.91086	0.0189797	0.17843450	3.1247612	20	9 24.3	19.0
98964 2001 CR_{44}	15.3	X	235.39921	123.25814	41.61968	13.45325	0.0951959	0.23952978	2.5678109	20	12 4.7	18.8
98965 2001 CL_{45}	15.1	X	229.37409	77.06084	49.96952	14.75040	0.1157829	0.23349402	2.6118739	20	10 12.7	18.8
98966 2001 CW_{47}	15.4	X	330.25133	37.16234	353.93288	2.61633	0.2021239	0.24088939	2.5581397	20	11 5.7	17.6
98967 2001 DT_{2}	14.3	X	67.73507	164.23167	127.68938	2.63096	0.1360828	0.18057782	3.0999863	20	11 6.6	18.9
98968 2001 DA_{4}	15.6	X	154.78417	137.28101	63.00725	4.99096	0.1249432	0.23270945	2.6177411	20	10 21.1	19.6
98969 2001 DJ_{12}	15.5	X	271.08910	339.84698	139.10217	6.08735	0.0998882	0.23841133	2.5758355	20	11 27.3	18.6
98970 2001 DL_{12}	14.8	X	210.59756	356.44025	145.79081	11.96571	0.0651438	0.18147152	3.0898002	20	10 6.4	19.4
98971 2001 DR_{12}	15.1	X	110.84516	176.18859	137.65332	5.86250	0.1138193	0.24177348	2.5518997	20	—	—
98972 2001 DT_{14}	15.1	X	307.51537	145.69489	118.09198	4.59402	0.0505841	0.21024733	2.8010169	20	4 5.8	18.8
98973 2001 DB_{15}	15.8	X	277.80160	162.80563	324.39612	4.65950	0.1487214	0.24124169	2.5556486	20	12 12.3	18.5
98974 2001 DY_{15}	15.7	X	18.84644	66.80773	27.02333	7.12734	0.1560793	0.25194603	2.4827388	20	—	—
98975 2001 DY_{16}	15.1	X	122.56371	96.25298	95.60251	6.68321	0.1063939	0.22596084	2.6696066	20	9 8.3	19.2
98976 2001 DZ_{18}	15.0	X	357.68819	134.12497	35.92840	7.94594	0.1817127	0.20504683	2.8481794	20	2 4.6	18.1
98977 2001 DF_{19}	14.6	X	324.63905	357.15185	102.38908	11.34127	0.1132609	0.19249675	2.9706657	20	—	—
98978 2001 DG_{19}	14.5	X	298.54252	229.75623	74.49147	9.97288	0.1431776	0.21449995	2.7638720	20	5 3.2	18.1
98979 2001 DB_{21}	15.5	X	317.52486	323.14798	120.11547	8.67611	0.1784629	0.24092027	2.5579212	20	12 26.7	17.9
98980 2001 DF_{21}	14.6	X	195.05989	114.46353	88.57321	9.60692	0.0564803	0.18586949	3.0408662	20	11 30.4	19.0
98981 2001 DQ_{21}	14.9	X	324.55723	295.22866	132.50901	16.86358	0.1694720	0.23914023	2.5705987	20	12 19.4	17.6
98982 2001 DS_{22}	14.8	X	77.94505	348.31605	330.97663	9.11828	0.0623542	0.18963498	3.0004778	20	12 11.9	19.3
98983 2001 DD_{25}	15.5	X	234.33399	296.28559	98.82959	4.92711	0.1068401	0.22311760	2.6922383	20	6 13.9	19.4
98984 2001 DK_{25}	14.4	X	107.08054	252.15169	340.84357	16.31208	0.0736012	0.17960069	3.1112199	20	9 26.4	19.2
98985 2001 DS_{25}	15.8	X	146.38729	115.87964	117.13056	3.24768	0.0681868	0.23598541	2.5934583	20	11 22.6	19.6
98986 2001 DB_{26}	15.8	X	356.11048	331.46363	95.75029	4.89674	0.1405547	0.24561822	2.5251993	20	—	—
98987 2001 DG_{26}	15.6	X	19.42612	258.73822	67.88751	4.83150	0.0135439	0.23231139	2.6207306	20	10 13.5	19.0
98988 2001 DY_{27}	14.6	X	11.37871	186.12209	60.21434	1.69684	0.2064322	0.16507953	3.2910962	20	6 20.1	17.9
98989 2001 DE_{31}	15.3	X	111.33399	116.16416	359.80264	6.83498	0.2175861	0.21650080	2.7468169	20	5 27.2	19.7
98990 2001 DA_{34}	15.8	X	194.18379	118.90837	26.41850	4.77172	0.1737151	0.23055136	2.6340515	20	9 18.0	19.9
98991 2001 DH_{35}	15.4	X	79.84682	271.31762	140.61604	2.75437	0.0682281	0.20458412	2.8524723	20	1 10.0	19.2
98992 2001 DV_{35}	16.0	X	189.77738	20.25664	196.71405	2.65963	0.1638581	0.23965672	2.5669041	20	12 11.5	19.9
98993 2001 DC_{36}	15.3	X	201.72453	53.89374	331.30500	4.48791	0.0090397	0.21683678	2.7439788	20	4 28.2	19.2
98994 2001 DK_{39}	15.5	X	248.01166	109.17479	312.88257	14.36014	0.1423926	0.23013473	2.6372296	20	8 1.3	19.0
98995 2001 DA_{41}	14.7	X	349.87990	338.49290	7.20389	16.09737	0.1337590	0.23041841	2.6350646	20	10 2.7	17.4
98996 2001 DF_{44}	15.3	X	16.57444	110.72670	154.84406	7.72545	0.0815863	0.22098209	2.7095552	20	7 19.7	18.7
98997 2001 DR_{45}	15.8	X	332.57447	243.69138	182.58532	1.25195	0.2589392	0.24332559	2.5410363	20	—	—
98998 2001 DU_{46}	15.6	X	157.66645	348.17402	248.59298	3.44946	0.1752502	0.23648386	2.5898128	20	12 4.6	19.9
98999 2001 DE_{48}	15.6	X	216.25194	110.36903	44.44410	5.00890	0.1995048	0.23748966	2.5824955	20	10 19.1	19.3
99000 2001 DU_{48}	14.6	X	117.48826	241.09072	14.02990	10.39641	0.0482391	0.18618774	3.0374001	20	11 5.1	19.2
99001 2001 DY_{49}	14.6	X	244.67701	79.08292	99.07242	13.70128	0.0602891	0.19221003	2.9736192	20	12 28.3	18.5
99002 2001 DN_{50}	14.6	X	110.54437	157.92959	85.05201	12.14242	0.0427134	0.18293881	3.0732566	20	10 20.8	19.2
99003 2001 DZ_{50}	15.0	X	218.92310	332.61684	78.84519	11.00037	0.1819733	0.22487469	2.6781958	20	6 12.0	19.1
99004 2001 DK_{51}	14.6	X	306.84202	40.71219	86.06430	11.67674	0.0955719	0.19462324	2.9489874	20	—	—
99005 2001 DH_{52}	15.2	X	288.75423	43.26478	37.32513	5.51652	0.1551318	0.24361230	2.5390422	20	10 27.1	17.9
99006 2001 DR_{52}	15.0	X	234.91381	28.41086	112.00599	14.39334	0.0889433	0.23894086	2.5720284	20	11 11.1	18.7
99007 2001 DS_{52}	14.3	X	209.64596	79.25307	105.22054	11.26544	0.0665476	0.19011225	2.9954539	20	11 25.7	18.8
99008 2001 DU_{52}	15.4	X	244.20059	117.68533	78.64003	5.91301	0.1519975	0.24592058	2.5231290	20	—	—
99009 2001 DD_{54}	14.9	X	261.96503	186.56796	359.41977	2.48920	0.1212728	0.19231953	2.9724904	20	—	—
99010 2001 DF_{54}	13.9	X	57.87654	112.09532	170.58851	26.31392	0.0608041	0.17602203	3.1532473	20	10 4.6	18.4
99011 2001 DO_{59}	15.2	X	255.18156	175.47904	298.95964	12.54884	0.1140691	0.23640229	2.5904086	20	10 18.1	18.8
99012 2001 DU_{59}	14.8	X	115.74638	355.28245	117.29903	14.70458	0.1379667	0.22109263	2.7086520	20	5 24.5	19.0
99013 2001 DX_{64}	14.5	X	26.65053	346.95658	314.86079	7.13857	0.2973893	0.22703487	2.6611805	20	10 26.9	17.9
99014 2001 DG_{65}	15.0	X	261.38622	69.21666	332.92318	11.23637	0.0524016	0.22676790	2.6632688	20	8 6.7	18.6
99015 2001 DM_{65}	14.4	X	126.48735	320.52428	325.21663	8.29163	0.1120579	0.18865885	3.0108186	20	12 26.7	19.3
99016 2001 DP_{65}	15.4	X	75.30716	196.05111	179.46568	1.92070	0.0185400	0.19581211	2.9370388	20	—	—
99017 2001 DY_{66}	14.7	X	74.77364	293.21148	344.12859	8.28976	0.0257852	0.18112810	3.0937045	20	10 9.8	19.1
99018 2001 DY_{68}	15.5	X	267.43010	11.27763	172.55892	6.95256	0.2010071	0.24478180	2.5309485	20	—	—
99019 2001 DK_{73}	15.5	X	87.40980	140.76487	342.52182	3.83571	0.0149884	0.21155382	2.7894729	20	4 10.3	19.4
99020 2001 DU_{75}	14.7	X	81.74633	299.92757	312.76909	4.07400	0.0855848	0.17726548	3.1384841	20	9 26.2	19.3
99021 2001 DX_{78}	14.9	X	44.72459	197.70254	47.41056	11.31315	0.2026600	0.22016174	2.7162818	20	8 30.9	18.5
99022 2001 DR_{88}	15.6	X	325.61048	245.03230	29.98634	1.69370	0.1960692	0.21206406	2.7849966	20	4 24.9	18.6
99023 2001 DV_{88}	14.5	X	293.88314	253.57036	164.10965	22.04857	0.0147629	0.17994352	3.1072670	20	10 10.0	19.0
99024 2001 DO_{90}	15.1	X	4.30059	329.63898	299.44502	11.77063	0.1385207	0.21700487	2.7425616	20	7 8.5	18.1
99025 2001 DG_{92}	15.4	X	135.83568	200.99225	2.36504	4.63872	0.1682600	0.22718853	2.6599805	20	10 4.9	19.8
99026 2001 DX_{92}	14.8	X	13.43036	137.57052	155.15656	11.85606	0.0262187	0.17511498	3.1641265	20	8 12.2	19.1
99027 2001 DB_{95}	15.5	X	356.82547	340.33262	45.23216	5.40444	0.2244815	0.24301064	2.5432313	20	12 28.3	18.1
99028 2001 DC_{98}	15.2	X	233.19940	310.15817	141.51490	5.50524	0.2016413	0.23075056	2.6325353	20	8 15.5	19.2
99029 2001 DP_{98}	15.4	X	187.74488	290.52352	308.70712	13.04712	0.1162670	0.24176801	2.5519382	20	—	—
99030 2001 DU_{98}	15.2	X	209.22708	157.44790	307.29068	13.16344	0.1326342	0.22865841	2.6485688	20	8 12.1	19.2
99031 2001 DW_{98}	14.6	X	123.77007	212.82871	309.06654	12.22513	0.1090991	0.22252155	2.6970438	20	7 29.9	18.7
99032 2001 DJ_{100}	15.3	X	139.83660	320.46867	232.53789	0.61001	0.0841835	0.17934725	3.1141503	20	9 18.2	19.9
99033 2001 DQ_{101}	15.1	X	82.44519	252.09392	15.91200	10.50985	0.2031345	0.23072531	2.6327274	20	11 4.9	19.3
99034 2001 DD_{109}	14.6	X	330.44263	350.40027	347.53332	13.62451	0.1638190	0.22407956	2.6845277	20	8 16.2	17.3
99035 2001 EX	16.0	X	276.70724	126.67823	352.82725	12.24262	0.1702332	0.24150408	2.5537972	20	11 22.9	19.0
99036 2001 EV_{2}	15.2	X	139.14609	75.50246	108.55246	12.06303	0.2228316	0.22624495	2.6673712	20	9 21.2	20.0
99037 2001 EW_{2}	15.0	X	180.88885	62.28482	83.18030	15.09461	0.1384254	0.22805293	2.6532547	20	9 13.5	19.5
99038 2001 EJ_{3}	15.3	X	140.62989	151.13039	338.45579	13.83429	0.1492735	0.21868745	2.7284760	20	7 11.1	19.8
99039 2001 EB_{4}	14.6	X	76.37257	63.75124	351.24356	14.80905	0.1062474	0.20187237	2.8779603	20	1 18.9	18.5
99040 2001 EF_{5}	15.0	X	160.34752	79.00293	152.59051	13.91709	0.1199074	0.23509082	2.6000334	20	12 5.2	19.3

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	m		°	°	°	°		°				
99041 2001 EQ_5	15.0	X	318.73241	160.64019	94.74225	5.13220	0.0513938	0.21041049	2.7995686	20	4 10.4	18.7
99042 2001 EW_5	15.0	X	31.87649	204.42251	22.64363	9.71817	0.0597623	0.21651334	2.7467108	20	6 17.4	18.6
99043 2001 EX_7	15.8	X	137.00664	94.06970	151.58985	8.48531	0.1332030	0.23302221	2.6153983	20	11 28.7	20.0
99044 2001 EA_8	15.9	X	163.45642	99.03410	88.88658	2.94339	0.0902678	0.23016498	2.6369985	20	10 14.8	19.8
99045 2001 EQ_8	15.6	X	88.58316	123.97115	103.19665	2.93157	0.0971546	0.22429636	2.6827976	20	9 12.8	19.3
99046 2001 ET_{10}	15.0	X	174.20120	53.63014	119.33963	2.63972	0.0641545	0.17816010	3.1279689	20	10 1.3	19.6
99047 2001 EG_{13}	15.6	X	322.63580	236.63989	66.39197	23.88302	0.0482660	0.37141998	1.9167224	20	6 18.8	17.3
99048 2001 EP_{13}	15.2	X	228.83325	156.05386	127.85176	2.89357	0.0308043	0.20175618	2.8790651	20	1 26.9	19.3
99049 2001 EX_{13}	15.5	X	232.15733	114.01445	41.04957	11.28686	0.1875000	0.23810095	2.5780735	20	11 6.1	19.2
99050 2001 EG_{14}	14.4	X	352.44685	8.65834	43.46024	14.57608	0.0342582	0.18764496	3.0216543	20	12 13.9	18.7
99051 2001 EE_{15}	15.1	X	101.54178	111.28863	128.39608	15.49112	0.0560367	0.22761486	2.6566580	20	10 15.4	19.1
99052 2001 ET_{15}	15.4	X	57.37960	144.67561	86.39668	9.61195	0.0851836	0.21805914	2.7337147	20	8 6.8	19.1
99053 2001 EU_{15}	15.3	X	115.74902	0.00464	119.94030	9.12431	0.1703848	0.21392811	2.7687951	20	6 3.9	19.6
99054 2001 EV_{15}	14.2	X	341.16424	183.43680	106.60233	9.36515	0.1952974	0.21343330	2.7730727	20	6 19.3	16.9
99055 2001 ES_{16}	15.4	X	113.63835	307.01867	274.02485	1.91963	0.1418510	0.22658887	2.6646714	20	10 4.2	19.6
99056 2001 EE_{20}	15.6	X	183.58715	271.64228	150.99158	2.63661	0.2236260	0.22038851	2.7144181	20	5 25.8	20.3
99057 2001 EL_{21}	15.6	X	345.37341	93.04317	321.38777	11.96302	0.0860491	0.24021962	2.5628925	20	12 30.1	18.7
99058 2001 ET_{23}	16.2	X	127.35933	355.82451	202.99122	1.76301	0.1362768	0.22638788	2.6662484	20	9 20.3	20.2
99059 2001 EM_{24}	13.7	X	55.72273	290.18117	36.91144	22.52588	0.0951684	0.17932900	3.1143616	20	11 23.4	18.3
99060 2001 ET_{25}	15.4	X	242.32357	257.19903	226.37805	6.45069	0.0880914	0.23667074	2.5884493	20	10 22.7	18.8
99061 2001 EB_{26}	16.3	X	272.88431	280.11746	181.66790	2.24990	0.1578346	0.23660573	2.5889234	20	10 27.9	19.4
99062 2001 FQ	15.1	X	255.55220	3.68164	101.64446	11.56668	0.1957998	0.23391769	2.6087192	20	10 6.3	18.7
99063 2001 FZ_1	14.6	X	79.51836	354.16783	154.65983	9.75415	0.2392236	0.21297269	2.7770697	20	6 9.3	18.6
99064 2001 FT_2	15.7	X	192.51386	318.22531	199.60040	3.82248	0.1357947	0.23145936	2.6271582	20	10 2.9	19.7
99065 2001 FA_3	14.9	X	28.58971	234.86523	154.77208	10.69309	0.0959111	0.19035435	2.9929136	20	—	—
99066 2001 FB_5	15.3	X	12.47121	260.12544	1.30580	7.48763	0.1671592	0.21742034	2.7390667	20	7 17.1	18.2
99067 2001 FN_5	14.6	X	89.83039	131.38132	1.60033	24.73554	0.0743500	0.21169621	2.7882219	20	4 25.1	18.8
99068 2001 FZ_7	15.5	X	220.36636	319.94581	175.43230	12.59622	0.1606765	0.23217423	2.6217626	20	10 2.8	19.3
99069 2001 FB_8	15.4	X	170.62679	261.77790	345.36411	3.95513	0.2018606	0.23620907	2.5918210	20	12 26.7	19.8
99070 Strittmatter	14.0	X	47.56920	242.99831	2.36231	10.96898	0.0485332	0.16861211	3.2449664	20	8 4.1	18.6
99071 2001 FK_{11}	14.6	X	226.75556	166.37612	6.09636	11.48394	0.0662099	0.18527398	3.0473787	20	11 24.4	19.2
99072 2001 FO_{12}	15.6	X	198.32660	117.16831	17.77724	11.80213	0.1420897	0.22818194	2.6522546	20	9 13.3	19.7
99073 2001 FX_{12}	15.6	X	23.66994	151.43627	154.10347	4.94757	0.0742784	0.22513097	2.6761629	20	9 26.8	18.9
99074 2001 FU_{14}	15.0	X	132.59926	52.78065	187.65609	11.19565	0.1550135	0.23062450	2.6334945	20	11 18.2	19.3
99075 2001 FZ_{14}	15.3	X	350.50217	338.46829	346.49079	2.31755	0.0704297	0.22336762	2.6902289	20	8 31.1	18.3
99076 2001 FT_{15}	16.3	X	291.20264	114.50328	8.93827	12.55467	0.2242824	0.24120913	2.5558786	20	12 26.1	18.8
99077 2001 FV_{15}	15.2	X	353.59583	60.77266	169.75574	5.37682	0.0579451	0.21025056	2.8009881	20	4 26.4	18.7
99078 2001 FF_{16}	14.9	X	23.72012	188.68576	10.27726	10.57680	0.1073813	0.21010327	2.8022971	20	4 27.6	18.3
99079 2001 FH_{16}	14.4	X	249.15965	52.51585	12.43874	9.88756	0.0839706	0.17292105	3.1908334	20	8 13.3	19.1
99080 2001 FV_{16}	15.4	X	93.48397	4.43638	182.31024	10.94532	0.0847020	0.21816153	2.7328593	20	7 21.6	19.4
99081 2001 FR_{21}	14.4	X	283.13569	16.88115	80.07426	8.92018	0.1127536	0.18145732	3.0899614	20	11 2.2	18.4
99082 2001 FA_{23}	14.5	X	262.39550	286.07994	193.28904	15.72780	0.1150788	0.18131378	3.0915921	20	10 31.2	18.7
99083 2001 FC_{25}	15.6	X	193.27666	190.89828	351.98169	3.50911	0.1867948	0.23239224	2.6201227	20	10 30.1	19.7
99084 2001 FL_{26}	14.9	X	38.68979	276.36576	297.55471	4.46775	0.1857006	0.21313792	2.7756342	20	6 27.7	18.0
99085 2001 FO_{26}	14.7	X	263.14867	310.08555	214.45909	8.36578	0.2201910	0.18963578	3.0004694	20	12 12.2	18.6
99086 2001 FQ_{29}	14.5	X	243.67104	60.37959	47.75294	13.78634	0.0587433	0.17860505	3.1227716	20	10 5.6	19.1
99087 2001 FV_{29}	15.1	X	267.63945	144.49544	301.79500	13.92539	0.0097625	0.23220573	2.6215256	20	10 10.9	18.9
99088 2001 FK_{33}	15.0	X	238.49528	26.63203	174.79231	5.77910	0.1109189	0.19281403	2.9674060	20	—	—
99089 2001 FR_{33}	14.4	X	254.42678	242.37037	297.72063	8.15459	0.0935149	0.19253396	2.9702830	20	—	—
99090 2001 FG_{34}	15.5	X	280.05591	279.17852	161.26562	4.12702	0.2029876	0.23580930	2.5947495	20	10 2.8	18.3
99091 2001 FC_{37}	15.1	X	113.67072	307.07161	179.13459	14.38421	0.1347630	0.21679108	2.7443644	20	6 5.7	19.4
99092 2001 FR_{37}	14.3	X	77.94273	206.05073	3.05865	13.42043	0.0341143	0.16910485	3.2386599	20	7 27.0	19.1
99093 2001 FU_{37}	15.0	X	75.47112	306.87132	335.71990	14.21036	0.0435237	0.23137353	2.6278079	20	10 24.4	18.9
99094 2001 FE_{38}	15.4	X	106.84199	262.81455	336.30469	10.99652	0.1456960	0.22796344	2.6539490	20	10 16.5	19.8
99095 2001 FF_{39}	14.9	X	308.55339	320.30424	351.85607	4.25503	0.0783399	0.21659673	2.7460058	20	6 4.1	18.4
99096 2001 FU_{42}	14.5	X	213.74987	142.97613	66.21319	1.83002	0.1347594	0.18708241	3.0277087	20	12 18.6	18.9
99097 2001 FJ_{44}	15.1	X	336.01993	112.27560	343.86064	13.03398	0.1550641	0.24367058	2.5386372	20	—	—
99098 2001 FK_{45}	14.6	X	213.05174	3.38005	168.42896	0.17541	0.1729706	0.18280764	3.0747264	20	10 30.6	19.3
99099 2001 FH_{46}	14.5	X	47.68337	177.69287	15.04354	17.55223	0.1654226	0.21222105	2.7836230	20	6 5.4	18.2
99100 2001 FM_{49}	14.9	X	220.26727	28.39245	296.82847	1.33665	0.0434836	0.20587992	2.8404908	20	3 5.9	19.0
99101 2001 FY_{49}	14.8	X	285.67914	136.30714	0.43448	14.44769	0.1122302	0.23939875	2.5687478	20	—	—
99102 2001 FK_{50}	14.4	X	214.97048	154.55167	5.78897	13.52057	0.1126520	0.23204621	2.6227269	20	10 28.7	18.2
99103 2001 FO_{50}	15.9	X	104.70843	293.02847	298.14066	2.53943	0.2480769	0.22349468	2.6892092	20	10 14.8	20.5
99104 2001 FZ_{52}	15.6	X	134.87424	290.63991	329.15946	6.75269	0.1788085	0.23320696	2.6140168	20	12 11.5	20.0
99105 2001 FJ_{53}	15.5	X	169.99697	162.32671	54.92038	3.20338	0.1353596	0.23172319	2.6251636	20	11 23.2	19.6
99106 2001 FA_{54}	14.8	X	155.76111	138.95944	35.97476	13.54151	0.1167197	0.22387499	2.6861628	20	9 23.7	19.1
99107 2001 FX_{54}	15.1	X	26.54695	96.99938	168.49307	6.44068	0.1597309	0.21774915	2.7363086	20	8 14.8	18.2
99108 2001 FM_{55}	14.1	X	204.25653	290.18299	213.35575	22.58584	0.1999908	0.17683644	3.1435585	20	9 11.7	19.6
99109 2001 FW_{55}	15.0	X	233.62506	207.79882	259.31781	4.84025	0.2391669	0.23162345	2.6259172	20	8 29.1	19.0
99110 2001 FL_{56}	15.7	X	180.45224	264.88425	315.61267	6.10636	0.1486860	0.23532852	2.5982824	20	12 6.4	19.9
99111 2001 FN_{61}	15.5	X	300.71082	216.68078	15.92485	11.16723	0.1721065	0.25406112	2.4689402	20	1 25.8	19.1
99112 2001 FP_{62}	15.0	X	230.13154	357.99338	35.12357	5.84766	0.1261162	0.21869571	2.7284073	20	6 3.7	19.1
99113 2001 FR_{62}	14.5	X	248.52811	353.37600	81.60090	4.15647	0.0172155	0.17511227	3.1641592	20	9 1.9	18.9
99114 2001 FN_{63}	15.6	X	96.88093	124.16506	150.91156	5.08304	0.0382797	0.23236254	2.6203460	20	11 17.9	19.2
99115 2001 FF_{65}	15.3	X	322.86662	169.50548	129.81216	6.17514	0.0165036	0.21632178	2.7483321	20	6 15.8	19.0
99116 2001 FG_{67}	15.3	X	242.78082	339.45755	125.01430	3.71084	0.1348676	0.23076673	2.6324123	20	9 22.5	18.8
99117 2001 FB_{68}	15.7	X	62.33619	189.09331	30.52938	8.70463	0.1737618	0.21735653	2.7396027	20	8 13.8	19.5
99118 2001 FO_{68}	15.1	X	146.32209	271.19672	163.54762	13.33570	0.1905818	0.21334788	2.7738129	20	5 11.3	19.8
99119 2001 FF_{69}	14.8	X	327.09189	306.39038	159.34417	8.77699	0.1143040	0.19082982	2.9879401	20	—	—
99120 2001 FH_{73}	15.6	X	67.04098	112.46027	60.86028	5.79321	0.0934726	0.21214393	2.7842975	20	5 31.9	19.0

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
99121 2001 FK_{74}	14.1	X	255.81918	170.64122	25.40232	23.22499	0.0447757	0.24182763	2.5515187	20	—	—
99122 2001 FQ_{75}	15.5	X	235.60802	335.49732	124.28197	4.90346	0.0126644	0.22615145	2.6681064	20	9 24.9	19.1
99123 2001 FB_{78}	14.1	X	150.45535	259.16769	42.72490	11.15322	0.1054330	0.18702247	3.0283556	20	—	—
99124 2001 FW_{79}	14.9	X	30.80723	302.67699	257.92437	7.11475	0.1183860	0.21062654	2.7976539	20	5 15.5	18.1
99125 2001 FV_{80}	15.5	X	160.11171	199.76745	313.59531	5.25564	0.2488126	0.22437408	2.6821780	20	8 25.3	20.3
99126 2001 FV_{81}	14.8	X	219.37941	128.64148	329.42206	13.97364	0.0645049	0.22575316	2.6712436	20	8 23.3	18.5
99127 2001 FR_{87}	14.9	X	148.31822	344.29837	72.51405	5.79286	0.1034053	0.20899531	2.8121924	20	4 14.1	19.1
99128 2001 FJ_{93}	14.3	X	105.92873	183.22328	27.16894	10.08111	0.0585745	0.17435746	3.1732847	20	9 4.5	19.0
99129 2001 FT_{96}	15.6	X	259.32221	1.97472	95.33409	6.15947	0.2464918	0.23376437	2.6098597	20	9 19.6	19.1
99130 2001 FL_{97}	15.1	X	221.90138	19.60792	160.65603	13.19695	0.2004768	0.23611814	2.5924864	20	11 27.2	19.1
99131 2001 FN_{97}	15.5	X	304.87831	152.33216	123.44533	1.37512	0.0254615	0.21077276	2.7963599	20	4 19.7	19.3
99132 2001 FK_{98}	15.3	X	57.23690	106.07268	92.15501	10.76730	0.1384786	0.21409964	2.7673161	20	6 28.2	18.8
99133 2001 FQ_{98}	14.5	X	48.20706	107.62570	163.60447	12.05172	0.1960445	0.21990158	2.7184237	20	10 4.7	18.1
99134 2001 FF_{99}	15.7	X	97.81493	72.19785	144.76663	3.13863	0.1637949	0.22288585	2.6941042	20	9 16.5	19.8
99135 2001 FK_{99}	14.9	X	20.15999	258.37834	148.43701	14.87863	0.1255182	0.24092547	2.5578844	20	—	—
99136 2001 FN_{99}	15.3	X	137.89190	109.33898	123.29425	10.65581	0.1036546	0.23050607	2.6343965	20	11 15.1	19.5
99137 2001 FH_{101}	15.2	X	5.20132	287.78865	299.02751	11.80132	0.1208663	0.21236357	2.7823774	20	5 2.7	18.6
99138 2001 FV_{101}	14.4	X	231.57107	251.45139	288.95147	8.51787	0.1445614	0.18799482	3.0179043	20	12 2.2	18.8
99139 2001 FX_{103}	15.0	X	44.10729	258.06773	327.48376	9.27119	0.1995935	0.21684094	2.7439437	20	7 27.9	18.3
99140 2001 FM_{104}	15.3	X	242.77002	261.90065	43.99965	6.26865	0.0492044	0.20647144	2.8350630	20	3 10.8	19.4
99141 2001 FQ_{104}	14.4	X	143.52688	8.49531	150.62285	14.21592	0.0293043	0.17202436	3.2019121	20	8 7.4	19.1
99142 2001 FK_{106}	14.9	X	255.26688	230.90699	115.68555	6.84030	0.0137344	0.21539245	2.7562318	20	5 20.4	18.8
99143 2001 FS_{108}	15.2	X	220.99225	296.73172	73.95208	1.62553	0.0867297	0.21310924	2.7758832	20	4 30.5	19.4
99144 2001 FE_{113}	15.2	X	92.93751	129.28177	103.44343	4.98111	0.1596187	0.22347193	2.6893917	20	10 2.8	19.3
99145 2001 FL_{113}	14.3	X	124.11874	153.60543	56.48021	10.22625	0.0517691	0.17474067	3.1686435	20	9 25.0	19.1
99146 2001 FH_{117}	14.6	X	233.03842	74.63954	25.39158	22.87426	0.1541391	0.22727703	2.6592899	20	9 12.5	18.8
99147 2001 FP_{117}	14.9	X	123.44074	183.34528	68.89907	8.39711	0.1392956	0.17805585	3.1291897	20	11 14.8	19.9
99148 2001 FO_{121}	14.7	X	284.33094	348.05164	33.50585	15.14057	0.0142996	0.22392036	2.6857999	20	8 22.1	18.6
99149 2001 FH_{123}	14.9	X	227.94100	158.91867	238.26300	2.94151	0.1000271	0.21767604	2.7369213	20	6 9.9	19.0
99150 2001 FT_{127}	15.4	X	126.85662	256.85635	189.87163	3.35665	0.0698524	0.21023451	2.8011307	20	4 22.6	19.2
99151 2001 FP_{128}	14.3	X	337.44440	334.05055	33.23517	14.87089	0.1120284	0.22847203	2.6500090	20	10 12.9	17.2
99152 2001 FV_{128}	15.3	X	251.07206	69.56145	6.03145	22.14922	0.0530224	0.22853370	2.6495323	20	9 11.8	18.9
99153 2001 FH_{129}	15.4	X	97.98103	135.38061	86.93377	5.00620	0.1453039	0.22134490	2.7065935	20	9 23.4	19.5
99154 2001 FU_{129}	15.6	X	154.14379	249.10291	341.60946	11.30823	0.1002558	0.23440027	2.6051374	20	11 22.9	19.8
99155 2001 FV_{129}	14.2	X	51.42433	29.83278	338.17189	15.08393	0.1416938	0.24126671	2.5554720	20	—	—
99156 2001 FQ_{131}	15.2	X	178.57658	157.03094	308.63529	8.93724	0.0925825	0.22070311	2.7118381	20	7 15.9	19.3
99157 2001 FR_{131}	15.3	X	23.82360	32.48349	232.55090	8.66387	0.1704894	0.21764316	2.7371968	20	8 8.0	18.6
99158 2001 FA_{132}	14.6	X	106.38738	303.67867	272.09681	8.20183	0.1406092	0.17277846	3.1925888	20	9 11.0	19.7
99159 2001 FK_{134}	14.4	X	176.36910	234.30677	40.18827	13.99658	0.0974021	0.18826837	3.0149803	20	—	—
99160 2001 FZ_{134}	15.3	X	300.67538	225.60056	266.77171	12.04413	0.1017327	0.24386780	2.5372684	20	—	—
99161 2001 FG_{136}	14.3	X	128.45123	103.41658	123.29202	12.87365	0.0741890	0.17641886	3.1485170	20	10 21.9	19.3
99162 2001 FH_{136}	14.4	X	43.61577	345.19193	66.02382	16.58751	0.1221514	0.19254759	2.9701427	20	—	—
99163 2001 FO_{140}	15.5	X	167.26550	354.75817	107.37677	6.07146	0.1213077	0.21929447	2.7234387	20	6 28.6	19.8
99164 2001 FX_{144}	14.1	X	198.85951	272.76033	203.33316	31.88489	0.0343255	0.17023852	3.2242657	20	8 12.9	19.4
99165 2001 FF_{148}	14.4	X	333.32954	86.37893	326.36582	13.32861	0.1031706	0.23546968	2.5972438	20	12 5.4	17.7
99166 2001 FL_{148}	15.6	X	131.00048	243.02857	330.71981	13.83200	0.1719855	0.22701636	2.6613252	20	10 7.5	20.2
99167 2001 FX_{151}	13.6	X	15.03317	124.42813	74.70864	17.31236	0.1856160	0.15799811	3.3887130	20	4 29.2	17.6
99168 2001 FN_{152}	15.4	X	22.12912	205.90754	99.86210	5.75398	0.0791061	0.22657493	2.6647807	20	9 27.7	18.8
99169 2001 FY_{152}	15.1	X	211.87463	167.06738	121.73891	6.73263	0.2450146	0.19387770	2.9565426	20	1 12.8	20.2
99170 2001 FT_{159}	16.1	X	140.97581	32.03681	168.63082	2.30527	0.1717805	0.22625035	2.6673288	20	10 7.1	20.5
99171 2001 FW_{159}	15.7	X	305.91609	300.23011	191.60900	3.77519	0.2012802	0.24277552	2.5448730	20	—	—
99172 2001 FG_{160}	15.2	X	266.27955	60.52488	328.29731	5.46556	0.0297478	0.22155879	2.7048513	20	7 28.1	18.8
99173 2001 FS_{161}	15.0	X	106.22635	77.81948	116.78967	11.35986	0.1601144	0.21961805	2.7207629	20	8 29.1	19.3
99174 2001 FR_{163}	14.5	X	218.36046	338.62197	124.09550	11.53587	0.0462854	0.17603978	3.1530354	20	8 27.2	19.1
99175 2001 FY_{163}	15.4	X	257.51836	247.68341	138.75636	1.85421	0.0954757	0.21976583	2.7195431	20	7 1.9	19.0
99176 2001 FF_{164}	14.5	X	127.44005	342.37970	221.89316	8.55070	0.0430707	0.17496979	3.1658767	20	9 12.9	19.3
99177 2001 FN_{172}	15.2	X	47.33757	105.66205	95.00906	12.75828	0.0859519	0.21341158	2.7732609	20	6 9.4	18.8
99178 2001 FR_{172}	14.6	X	308.69478	28.69088	104.84575	14.58657	0.1212996	0.19090103	2.9871970	20	—	—
99179 2001 FP_{175}	14.5	X	85.19882	302.43569	104.55156	13.09456	0.0555623	0.19651108	2.9300702	20	1 11.2	18.5
99180 2001 FJ_{176}	14.2	X	65.57097	160.08583	72.46689	10.52406	0.0420275	0.16993746	3.2280727	20	8 9.9	18.8
99181 2001 FV_{176}	15.8	X	332.31484	302.09698	105.89021	11.16346	0.0918280	0.28581315	2.2825199	20	12 14.9	18.2
99182 2001 FW_{178}	14.5	X	330.42902	292.83968	115.43942	15.21767	0.0924534	0.23399134	2.6081718	20	11 29.1	17.7
99183 2001 FB_{180}	14.5	X	9.05589	337.28484	75.69569	10.89854	0.0752595	0.18983646	2.9983545	20	—	—
99184 2001 FH_{188}	15.3	X	171.18380	118.88649	132.17383	13.23090	0.1445820	0.23952651	2.5678343	20	—	—
99185 2001 FQ_{188}	15.3	X	126.84173	158.30078	121.67265	10.07209	0.1026190	0.23803161	2.5785742	20	12 29.5	19.2
99186 2001 FO_{189}	16.1	X	106.60052	228.72986	309.07058	1.69991	0.0479919	0.22103191	2.7091480	20	7 23.7	19.7
99187 2001 FP_{189}	14.8	X	62.81419	153.67163	96.69212	3.92261	0.0481569	0.17275723	3.1928504	20	8 28.5	19.3
99188 2001 FQ_{190}	15.7	X	352.98040	331.84922	290.65860	6.92933	0.1790037	0.21386334	2.7693541	20	6 3.4	18.4
99189 2001 FV_{190}	15.6	X	179.68935	340.10600	114.75525	8.46419	0.0554740	0.22106404	2.7088855	20	7 2.8	19.4
99190 2001 FP_{193}	15.1	X	319.98154	208.10172	102.72093	7.26500	0.0640039	0.21806581	2.7336590	20	6 22.5	18.4
99191 2001 FF_{194}	14.2	X	94.72141	121.37634	78.41728	16.93705	0.0718993	0.17227716	3.1987791	20	8 10.3	19.1
99192 2001 GD_4	15.0	X	155.24859	170.32345	61.46470	14.31810	0.0971661	0.23188775	2.6239215	20	11 27.7	18.8
99193 Obsfabra	14.4	X	160.11235	160.04862	114.04254	15.30046	0.3270095	0.18317859	3.0705740	20	—	—
99194 2001 GC_5	14.6	X	103.84871	135.61892	70.48502	15.29741	0.0359451	0.22019463	2.7160113	20	9 2.5	18.7
99195 2001 GH_5	14.2	X	171.51792	95.88156	27.50646	22.15308	0.0449605	0.22215485	2.7000109	20	8 11.2	18.6
99196 2001 GN_8	15.1	X	98.02718	139.77711	57.79451	16.52221	0.0991488	0.21864595	2.7288212	20	8 22.6	19.4
99197 2001 GL_{10}	15.2	X	267.49369	111.63886	321.64018	1.56517	0.0272379	0.22661662	2.6644539	20	9 27.4	18.8
99198 2001 HN_3	14.3	X	191.48388	126.47549	176.01570	3.38449	0.1649583	0.19080108	2.9882401	20	1 12.0	19.2
99199 2001 HW_{11}	14.6	X	322.04779	173.50259	309.88258	4.05091	0.1444195	0.19175631	2.9783080	20	—	—
99200 2001 HF_{15}	15.5	X	31.64590	303.87297	263.36104	3.36004	0.0965501	0.21162340	2.7888613	20	5 24.5	18.7

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Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
99201 Sattler	15.0	X	354.67651	150.80224	145.39747	14.86186	0.0933821	0.21519940	2.7578799	20	7 26.7	18.3
99202 2001 HR_{18}	13.5	X	48.81789	267.66589	58.46681	22.24914	0.2760078	0.17165780	3.2064688	20	12 8.9	18.3
99203 2001 HA_{20}	14.5	X	190.21734	38.61765	127.43316	21.33682	0.1600516	0.17754284	3.1352146	20	10 10.8	19.9
99204 2001 HE_{20}	14.3	X	106.47315	187.90464	143.71189	22.24587	0.0888745	0.18217920	3.0817934	20	—	—
99205 2001 HL_{22}	15.2	X	197.03607	64.12030	91.84547	14.00284	0.2267103	0.22859246	2.6490783	20	10 6.0	19.9
99206 2001 HH_{25}	15.5	X	51.33001	155.60147	31.95171	4.31324	0.0352579	0.21041644	2.7995159	20	5 20.0	19.3
99207 2001 HR_{27}	16.0	X	27.36018	128.61197	66.53436	2.24161	0.1323769	0.25901416	2.4373639	20	5 1.4	18.1
99208 2001 HX_{27}	14.2	X	114.83315	247.33984	49.01982	11.80197	0.0720541	0.17997715	3.1068800	20	12 23.0	19.0
99209 2001 HZ_{28}	15.5	X	153.87509	163.06399	61.08635	3.52061	0.2319503	0.22784062	2.6549027	20	11 14.2	20.1
99210 2001 HK_{32}	15.5	X	141.45526	275.55873	216.13686	8.43140	0.1763071	0.21717752	2.7411080	20	7 11.2	20.1
99211 2001 HD_{37}	15.0	X	87.07101	188.46122	64.76781	13.31520	0.1216947	0.22117363	2.7079906	20	10 20.6	19.1
99212 2001 HD_{38}	14.4	X	65.78880	107.69058	104.77310	11.04463	0.2151030	0.21374731	2.7703562	20	8 12.7	18.2
99213 2001 HL_{38}	15.1	X	53.45672	70.21060	133.37903	7.45174	0.2250504	0.21104805	2.7939276	20	7 13.6	18.5
99214 2001 HF_{41}	15.0	X	253.29594	32.79362	167.48205	13.13890	0.2258202	0.24045041	2.5612523	20	—	—
99215 2001 HU_{45}	14.5	X	106.65137	270.22329	85.57390	11.40263	0.0639977	0.19087543	2.9874641	20	—	—
99216 2001 HG_{48}	15.2	X	210.81542	80.36699	138.73587	14.30721	0.1230790	0.23898434	2.5717165	20	—	—
99217 2001 HJ_{48}	15.3	X	259.30831	358.05121	135.78210	14.91635	0.1202093	0.23570827	2.5954909	20	11 28.5	18.8
99218 2001 HV_{50}	15.0	X	24.40727	251.84283	333.35294	11.62296	0.0791101	0.21328355	2.7743706	20	6 3.9	18.6
99219 2001 HY_{53}	13.8	X	141.14291	149.63210	91.19428	22.75805	0.0604463	0.17756772	3.1349218	20	11 21.2	18.7
99220 2001 HE_{54}	14.7	X	27.56927	58.82484	129.22145	19.15930	0.1506232	0.20594375	2.8399039	20	5 4.4	18.3
99221 2001 HP_{55}	15.1	X	36.41915	96.97266	143.93393	8.13202	0.1717451	0.21265057	2.7798734	20	7 29.5	18.4
99222 2001 HQ_{55}	15.0	X	45.96217	100.38620	146.12917	8.24257	0.1930393	0.21470447	2.7621165	20	8 26.4	18.4
99223 2001 HJ_{57}	15.1	X	234.63191	0.02886	101.69631	13.99075	0.2144672	0.22884868	2.6471006	20	9 2.2	19.3
99224 2001 HC_{58}	14.7	X	5.75487	61.61342	59.83862	17.62158	0.0445990	0.19651946	2.9299869	20	—	—
99225 2001 HX_{59}	15.2	X	149.00083	267.08393	214.48728	10.39916	0.1078990	0.21644206	2.7473139	20	7 2.7	19.6
99226 2001 HO_{60}	15.0	X	37.37501	88.54033	121.12016	12.26833	0.1128231	0.21045097	2.7992097	20	6 10.4	18.5
99227 2001 HR_{60}	13.5	X	230.94389	353.21270	86.14212	24.79683	0.0807382	0.16777352	3.2557705	20	8 10.1	18.7
99228 2001 HJ_{62}	15.4	X	94.60700	262.56686	293.20915	6.41800	0.1396836	0.21772115	2.7365432	20	8 11.6	19.4
99229 2001 HK_{63}	14.8	X	256.65367	313.09061	9.17319	4.75411	0.3855779	0.20035482	2.8924744	20	3 14.4	19.9
99230 2001 KL	15.8	X	36.95592	43.10897	195.46375	1.65904	0.1684887	0.21261848	2.7801531	20	7 26.7	19.0
99231 2001 KC_{1}	14.6	X	171.72213	104.32269	58.16488	6.48935	0.1128379	0.17254319	3.1954903	20	9 16.3	19.7
99232 2001 KP_{4}	14.4	X	243.32481	30.09632	232.71731	9.42546	0.0662809	0.19320417	2.9634098	20	1 14.5	18.9
99233 2001 KJ_{7}	13.6	X	178.49332	310.37896	265.08298	19.88297	0.2798436	0.17632536	3.1496299	20	11 12.7	19.4
99234 2001 KU_{13}	15.9	X	328.18283	228.96645	93.57176	2.38503	0.1928802	0.26324827	2.4111582	20	7 15.5	17.7
99235 2001 KU_{29}	14.4	X	273.56660	85.56484	68.48390	12.68143	0.0252530	0.18333065	3.0688760	20	—	—
99236 2001 KV_{31}	14.3	X	59.10893	123.52068	84.75329	25.88607	0.2250800	0.21185406	2.7868367	20	7 30.8	18.4
99237 2001 KD_{33}	14.9	X	62.61991	277.89802	269.96847	5.71906	0.1539754	0.20965507	2.8062895	20	6 24.2	18.4
99238 2001 KQ_{35}	14.6	X	174.51136	178.55846	102.38979	8.96391	0.1668854	0.18335393	3.0686161	20	—	—
99239 2001 KX_{36}	14.8	X	196.61457	23.32206	208.90431	4.41600	0.1180698	0.18202204	3.0835670	20	12 28.5	19.5
99240 2001 KH_{37}	14.2	X	90.55136	223.98017	96.79397	8.75191	0.1135885	0.17682501	3.1436939	20	12 29.9	18.9
99241 2001 KV_{51}	14.3	X	257.72551	66.48188	66.27987	14.42729	0.0709723	0.17959590	3.1112752	20	11 16.4	18.7
99242 2001 KG_{52}	15.0	X	86.68019	97.18441	64.01712	9.97074	0.0881229	0.21088028	2.7954093	20	6 10.4	18.7
99243 2001 KH_{54}	14.6	X	200.26169	19.36153	214.37908	9.33842	0.0104559	0.18411276	3.0601788	20	—	—
99244 2001 KV_{54}	14.1	X	343.20939	178.88678	113.05844	22.82854	0.1777546	0.21090385	2.7952010	20	6 28.9	17.1
99245 2001 KG_{61}	15.4	X	26.95854	138.00577	113.23548	8.88433	0.1733303	0.21394919	2.7686132	20	7 29.1	18.5
99246 2001 KY_{62}	15.1	X	149.64947	142.00594	196.88057	14.58684	0.1798978	0.23968276	2.5667182	20	1 10.4	19.3
99247 2001 KV_{65}	14.6	X	242.41247	60.88768	163.70844	15.72001	0.0377336	0.18887964	3.0084718	20	—	—
99248 2001 KY_{66}	16.4	X	101.43331	61.49498	284.15369	10.61339	0.5073989	0.38644870	1.8667013	20	—	—
99249 2001 KW_{70}	14.8	X	200.87404	174.34585	38.38975	5.99627	0.0999721	0.18150043	3.0894721	20	12 11.5	19.5
99250 2001 LH	14.0	X	207.74437	60.75571	97.56951	17.48427	0.2007388	0.17624700	3.1505634	20	10 15.5	19.4
99251 2001 LM	13.8	X	107.05896	220.14903	124.56348	9.73991	0.2117936	0.12441122	3.9740166	20	—	—
99252 2001 LJ_{1}	14.4	X	224.92840	79.23621	260.78110	11.13969	0.2374265	0.24652555	2.5189995	20	3 11.8	19.1
99253 2001 LA_{2}	14.5	X	135.69593	219.54783	54.66688	7.06834	0.1769986	0.17694399	3.1422845	20	12 19.7	19.7
99254 2001 LG_{11}	14.1	X	83.55994	197.46794	123.24124	14.50514	0.1215885	0.17387568	3.1791437	20	12 23.8	19.0
99255 2001 LP_{11}	14.0	X	150.34435	147.51822	122.99183	26.77674	0.2405555	0.17600722	3.1534242	20	12 28.8	19.7
99256 2001 LQ_{12}	14.0	X	166.75733	344.18095	285.12469	16.04718	0.1723465	0.17640426	3.1486907	20	—	—
99257 2001 LT_{12}	14.2	X	303.62073	118.98171	130.29068	17.13648	0.2431799	0.19498837	2.9453047	20	2 14.5	18.3
99258 2001 MF_{5}	14.9	X	212.59913	322.27940	294.34878	7.65237	0.2115249	0.18257798	3.0773043	20	—	—
99259 2001 MO_{17}	14.9	X	81.61092	269.32993	120.55185	17.72674	0.1403950	0.17961195	3.1110899	20	—	—
99260 2001 MC_{28}	16.0	X	97.42424	225.08631	122.12394	6.77114	0.1533878	0.28095100	2.3087788	20	—	—
99261 2001 NB_{7}	14.8	X	236.34254	309.09880	334.17757	7.79979	0.1193536	0.18750286	3.0231808	20	2 1.2	19.5
99262 Bleustein	14.4	X	124.00833	172.31104	170.44954	11.30385	0.0794764	0.18088280	3.0965009	20	—	—
99263 2001 OZ_{31}	16.5	X	92.57581	115.66350	199.71744	22.70111	0.0390013	0.37714913	1.8972620	20	—	—
99264 2001 OP_{42}	15.9	X	128.18989	335.67837	293.00432	4.05241	0.1710476	0.27180700	2.3602733	20	12 23.5	19.7
99265 2001 OQ_{62}	15.5	X	214.62773	91.92037	212.84021	1.07287	0.1623236	0.18710304	3.0274860	20	2 3.3	20.4
99266 2001 OQ_{69}	15.4	X	220.45670	131.81290	107.49940	6.11404	0.1806290	0.28383661	2.2931041	20	—	—
99267 2001 OJ_{84}	14.3	X	232.56462	42.45519	105.98000	27.88014	0.0902205	0.17635489	3.1492783	20	11 12.7	19.4
99268 2001 OD_{94}	14.5	X	295.97577	42.81649	326.02344	14.51139	0.1597774	0.20518506	2.8469001	20	7 24.6	18.0
99269 2001 OU_{97}	14.0	X	147.02347	315.57286	334.43020	26.80617	0.1869566	0.17473733	3.1686839	20	—	—
99270 2001 OG_{98}	15.8	X	353.87998	195.07821	200.62290	21.38325	0.0745786	0.37171544	1.9157065	20	—	—
99271 2001 PJ_{2}	14.6	X	129.42041	329.14716	305.89416	3.20955	0.1241268	0.17017516	3.2250660	20	12 13.3	19.7
99272 2001 PW_{24}	14.1	X	190.65615	268.33264	338.67515	12.90943	0.1738271	0.17433127	3.1736025	20	—	—
99273 2001 PD_{28}	14.6	X	291.77410	291.67917	293.67409	10.59438	0.1815982	0.19113731	2.9847347	20	1 11.6	19.1
99274 2001 PM_{41}	15.2	X	124.85311	67.37822	287.36611	12.57823	0.0644477	0.22913386	2.6449037	20	—	—
99275 2001 PH_{57}	15.2	X	322.13679	313.67535	76.11834	6.73629	0.0835410	0.21296501	2.7771364	20	10 15.2	18.6
99276 2001 QC_{20}	13.5	X	142.88325	309.63562	8.30072	5.64156	0.2179949	0.12291033	4.0063029	20	1 1.6	19.9
99277 2001 QU_{58}	15.6	X	351.31860	68.93744	142.25491	24.54226	0.0661686	0.40525042	1.8085078	20	3 2.5	16.9
99278 2001 QA_{68}	17.2	X	241.57330	299.70481	201.00632	20.47362	0.2312205	0.37583744	1.9016738	20	11 29.4	18.8
99279 2001 QF_{70}	13.8	X	101.10449	70.14877	297.77484	6.53921	0.0877022	0.17463838	3.1698807	20	—	—
99280 2001 QA_{83}	16.1	X	82.35877	61.27221	285.68917	4.53073	0.2472974	0.27299709	2.3534088	20	—	—

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Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
99281 2001 QR_{99}	16.3	X	223.90773	332.38602	158.30137	23.08061	0.0593146	0.36947224	1.9234527	20	11 17.4	18.8
99282 2001 QS_{116}	15.6	X	205.77588	328.50951	302.45418	5.51960	0.1752454	0.28375414	2.2935484	20	—	—
99283 2001 QD_{120}	15.5	X	169.82858	231.87549	87.02933	3.13366	0.1724210	0.23159923	2.6261003	20	1 8.4	19.7
99284 2001 QX_{131}	14.8	X	266.87087	118.76994	187.74856	10.38931	0.0982916	0.19307328	2.9647490	20	4 1.1	18.9
99285 2001 QT_{138}	15.5	X	322.32168	148.72866	206.01318	20.99830	0.0792241	0.36088022	1.9538625	20	9 16.3	17.4
99286 2001 QO_{139}	15.6	X	44.67776	102.04182	218.96788	22.29619	0.0495813	0.36690526	1.9324136	20	12 13.3	18.0
99287 2001 QN_{165}	14.6	X	85.21015	300.92120	123.81051	16.01532	0.2880170	0.17906225	3.1174538	20	3 13.4	19.1
99288 2001 QA_{203}	15.3	X	81.57671	197.84556	99.64135	6.57108	0.0387951	0.21888480	2.7268357	20	11 24.8	19.2
99289 2001 QV_{205}	14.2	X	242.89216	261.22527	295.14746	4.46780	0.1738645	0.17487759	3.1669894	20	12 27.9	18.5
99290 2001 QU_{206}	15.5	X	16.38937	284.61022	132.99191	4.49341	0.0999682	0.22250402	2.6971855	20	—	—
99291 2001 QO_{220}	15.5	X	241.73458	5.26324	233.07956	6.86313	0.1548270	0.23524355	2.5989080	20	—	—
99292 2001 QS_{226}	13.9	X	174.96642	303.85848	305.63519	9.01110	0.1201113	0.17021479	3.2245654	20	12 25.9	19.1
99293 2001 QX_{256}	14.8	X	354.57592	267.06907	152.43847	9.81460	0.1726096	0.21602527	2.7508464	20	—	—
99294 2001 QR_{258}	14.2	X	28.32103	82.50938	334.02207	21.69949	0.1326184	0.16910868	3.2386110	20	—	—
99295 2001 QP_{274}	14.9	X	60.96849	310.38396	79.32038	5.45820	0.1666791	0.17385450	3.1794019	20	—	—
99296 2001 QK_{287}	15.8	X	155.19730	354.52655	263.95762	3.94042	0.2069816	0.27601885	2.3362011	20	—	—
99297 2001 RU_{14}	15.1	X	251.02761	4.44176	224.96523	20.30847	0.3679038	0.28568976	2.2831771	20	—	—
99298 2001 RV_{46}	16.2	X	254.05417	84.18580	32.98347	21.13354	0.0791662	0.37065757	1.9193498	20	12 1.7	18.1
99299 2001 RR_{48}	15.8	X	92.65408	337.36595	49.12802	25.38894	0.0455494	0.38525824	1.8705447	20	—	—
99300 2001 RV_{52}	13.6	X	119.89623	263.03995	110.72175	5.85875	0.0311744	0.12695149	3.9208254	20	1 21.6	19.2
99301 2001 RX_{91}	15.2	X	297.40648	247.06912	144.84368	2.97068	0.0780517	0.20566157	2.8425009	20	9 5.7	18.8
99302 2001 RU_{92}	15.1	X	141.54474	145.50135	265.00633	2.44521	0.1272419	0.18357688	3.0661312	20	3 30.3	19.9
99303 2001 SJ_{2}	15.6	X	177.21284	84.70175	347.38949	0.97882	0.0397789	0.24556792	2.5255441	20	5 30.5	19.1
99304 2001 SF_{53}	15.0	X	151.41737	268.61001	185.76271	11.61974	0.0496381	0.19032515	2.9932197	20	5 30.7	19.6
99305 2001 SL_{55}	15.8	X	9.78209	167.82196	148.68210	6.64981	0.1203234	0.25739860	2.4475520	20	10 3.7	18.4
99306 2001 SC_{101}	12.4	X	298.11608	122.80168	134.29003	5.53339	0.0232199	0.08450930	5.1428008	20	3 29.8	19.2
99307 2001 SB_{182}	15.4	X	151.76324	258.45690	161.22022	4.47508	0.0993069	0.19077002	2.9885645	20	4 20.9	20.0
99308 2001 SD_{233}	12.3	X	95.21658	125.13086	28.11950	29.85686	0.0222950	0.08484883	5.1290720	20	5 23.2	19.4
99309 2001 SH_{264}	12.4	X	291.35609	341.53478	286.65915	9.58475	0.0357028	0.08290704	5.2088493	20	3 26.4	19.4
99310 2001 SB_{282}	16.3	X	353.66944	319.26862	65.11885	23.16345	0.0862979	0.36907257	1.9248410	20	—	—
99311 2001 SQ_{282}	12.3	X	136.53230	267.02207	194.46476	14.37884	0.0436957	0.08389395	5.1679181	20	5 22.8	19.4
99312 2001 SK_{290}	16.0	X	301.41558	247.14843	216.06612	20.28940	0.1016738	0.37373445	1.9088009	20	—	—
99313 2001 TO_{25}	15.5	X	130.61889	240.99635	305.58943	5.52486	0.0690286	0.25432457	2.4672349	20	9 5.9	19.1
99314 2001 TM_{29}	15.8	X	155.52698	222.61151	20.26051	5.06763	0.0250931	0.21376801	2.7701773	20	12 10.3	19.7
99315 2001 TF_{46}	16.3	X	125.81336	293.78373	246.59037	17.22403	0.0804344	0.35684655	1.9685588	20	8 27.3	19.3
99316 2001 TH_{63}	17.0	X	279.68004	328.34801	107.68767	1.36029	0.1105202	0.31131239	2.1561143	20	10 28.4	18.6
99317 2001 TN_{74}	15.2	X	299.16906	313.78103	68.24487	1.86923	0.0906042	0.20050996	2.8909821	20	8 24.2	18.8
99318 2001 TW_{84}	15.9	X	307.18515	48.69919	41.70185	3.92228	0.0619421	0.21269197	2.7795126	20	12 8.3	19.2
99319 2001 TX_{92}	16.3	X	241.90856	73.17781	286.05589	2.85644	0.1962523	0.24509323	2.5288040	20	4 26.2	20.3
99320 2001 TF_{103}	15.3	X	0.13565	317.39215	223.69037	6.99310	0.0405783	0.28433428	2.2904276	20	2 16.2	18.0
99321 2001 TT_{113}	16.9	X	34.72096	32.29059	356.83195	2.41925	0.2116458	0.32214431	2.1075072	20	—	—
99322 2001 TW_{136}	14.5	X	2.60808	69.43908	86.69332	12.28314	0.0513055	0.18033656	3.1027505	20	2 8.6	18.8
99323 2001 TE_{205}	12.6	X	176.12387	343.66077	61.86659	17.25443	0.0090598	0.08344075	5.1866139	20	5 2.6	19.5
99324 2001 UJ_{2}	16.1	X	208.11608	119.43147	348.65950	19.11646	0.0869552	0.35951179	1.9588174	20	9 6.7	18.2
99325 2001 UF_{14}	16.3	X	8.13651	314.19041	70.75929	23.75807	0.0872038	0.37200290	1.9147195	20	—	—
99326 2001 UA_{26}	14.5	X	55.34219	255.41264	269.08308	9.29581	0.1175567	0.18507836	3.0495256	20	5 5.2	18.5
99327 2001 UP_{32}	12.5	X	288.67660	255.22827	58.26950	5.12753	0.0244335	0.08544951	5.1050068	20	5 19.3	19.3
99328 2001 UY_{123}	12.3	X	186.01594	266.77104	144.55896	16.81902	0.0712333	0.08284532	5.2114357	20	5 20.5	19.7
99329 2001 VH_{13}	15.2	X	72.88712	44.51894	280.31490	2.06714	0.0890757	0.21250231	2.7811662	20	12 21.6	19.2
99330 2001 VT_{15}	14.9	X	150.70737	337.52032	64.24888	29.07482	0.2064690	0.28528495	2.2853364	20	4 15.6	19.0
99331 2001 VF_{41}	15.9	X	112.37593	299.57153	309.54654	2.39185	0.0958244	0.30882755	2.1676643	20	11 18.6	18.7
99332 2001 VZ_{66}	15.2	X	230.75647	332.18894	354.12400	3.72212	0.1347393	0.23492466	2.6012593	20	3 11.6	19.3
99333 2001 VJ_{81}	15.7	X	272.88864	326.11548	86.24869	6.09819	0.1429929	0.30209255	2.1997638	20	9 3.6	17.9
99334 2001 VC_{92}	11.7	X	292.76714	217.42581	82.47225	29.65116	0.0852962	0.08027998	5.3218735	20	5 11.5	18.8
99335 2001 VB_{106}	15.3	X	84.01722	139.78040	243.28664	2.14974	0.0693382	0.22041592	2.7141931	20	—	—
99336 2001 VD_{111}	14.6	X	74.49696	244.85444	263.93008	9.61063	0.0450483	0.18227862	3.0806728	20	5 1.3	18.9
99337 2001 XR_{21}	15.4	X	13.64436	308.82327	22.53040	5.00319	0.1004551	0.30525172	2.1845600	20	11 5.8	17.7
99338 2001 XB_{24}	14.6	X	121.68688	328.61416	67.04018	12.41108	0.0549181	0.22467067	2.6798169	20	2 12.4	18.5
99339 2001 XY_{26}	15.6	X	269.12888	53.76834	33.46361	4.91828	0.1072019	0.30358996	2.1925245	20	10 24.4	17.6
99340 2001 XY_{27}	16.2	X	191.07501	78.22668	43.01094	6.78180	0.1761180	0.29507301	2.2345139	20	8 22.5	19.6
99341 2001 XP_{30}	15.4	X	26.73731	111.81700	53.85066	4.94981	0.1342232	0.27517142	2.3409951	20	3 15.6	17.4
99342 2001 XZ_{72}	15.2	X	220.77536	234.35299	85.74045	5.43246	0.0950560	0.23194626	2.6234802	20	2 27.3	19.2
99343 2001 XO_{83}	15.7	X	351.43103	39.51359	228.57859	6.87990	0.1558588	0.29422208	2.2388201	20	6 11.9	17.2
99344 2001 XG_{94}	16.5	X	263.24826	182.30974	24.42559	2.12598	0.0666056	0.27222270	2.3578698	20	—	—
99345 2001 XX_{100}	16.2	X	316.34328	55.88135	331.48692	3.30167	0.0926426	0.30421380	2.1895260	20	10 18.3	18.0
99346 2001 XN_{101}	15.6	X	35.07815	139.72909	64.32748	5.88341	0.1228551	0.28644308	2.2791723	20	5 28.6	17.7
99347 2001 XO_{104}	15.7	X	142.63012	41.03441	195.84930	4.74274	0.1156862	0.31161348	2.1547252	20	12 6.6	18.8
99348 2001 XP_{104}	15.8	X	102.35741	65.31008	203.62500	4.04096	0.1264740	0.30981610	2.1630509	20	12 6.3	18.9
99349 2001 XT_{107}	16.3	X	3.63170	322.72680	261.52309	4.17372	0.0710479	0.28812428	2.2702977	20	4 25.8	18.6
99350 2001 XO_{108}	16.1	X	144.19639	176.53444	352.95814	4.08559	0.0937361	0.29744685	2.2226093	20	9 6.9	19.2
99351 2001 XV_{119}	15.4	X	21.76635	98.12752	69.14319	6.36402	0.0523802	0.27394138	2.3479975	20	3 9.5	18.1
99352 2001 XW_{119}	15.6	X	50.14434	96.63179	89.53950	6.30242	0.1122595	0.27987062	2.3147167	20	5 27.8	18.0
99353 2001 XT_{133}	15.6	X	233.54517	210.24486	115.83001	0.96105	0.1662039	0.23498881	2.6007859	20	3 12.4	19.5
99354 2001 XZ_{145}	16.2	X	11.84792	183.08950	92.86412	2.98314	0.1551648	0.29818727	2.2189285	20	8 16.3	17.9
99355 2001 XU_{157}	17.0	X	324.47518	225.35196	139.36552	2.76274	0.1274935	0.30487687	2.1863502	20	10 1.2	18.5
99356 2001 XG_{165}	15.8	X	41.52592	159.90761	98.13195	5.45827	0.1449800	0.29826877	2.2185243	20	9 11.7	18.2
99357 2001 XZ_{178}	16.2	X	101.10174	83.36793	104.76425	4.76523	0.0823604	0.29366198	2.2416660	20	8 11.2	18.9
99358 2001 XC_{179}	16.6	X	357.94558	66.07746	286.68853	0.48623	0.1181425	0.30627449	2.1796938	20	11 15.9	18.7
99359 2001 XU_{179}	15.6	X	1.59155	64.70989	110.14437	6.43204	0.1341834	0.27612697	2.3355912	20	2 6.1	17.7
99360 2001 XY_{182}	16.9	X	213.04779	188.11517	219.46194	1.70593	0.1086736	0.29187912	2.2507851	20	6 6.9	20.0

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
99361 2001 XO_{194}	16.2	X	130.40649	239.64723	120.75486	6.54047	0.1325751	0.27226080	2.3576499	20	1 7.5	19.2
99362 2001 XN_{197}	15.5	X	298.99665	63.46077	276.32870	4.52900	0.2057394	0.29376705	2.2411315	20	6 9.7	17.8
99363 2001 XJ_{198}	16.1	X	303.16257	227.88434	127.76270	4.29466	0.0903810	0.29695221	2.2250768	20	8 3.1	18.1
99364 2001 XG_{211}	16.3	X	79.66429	287.09014	162.41102	5.01609	0.1362484	0.27899189	2.3195745	20	2 25.5	18.6
99365 2001 XY_{212}	15.4	X	270.11426	165.42070	115.17358	22.02799	0.1372474	0.28058349	2.3107944	20	2 22.6	18.9
99366 2001 XD_{214}	15.6	X	83.28685	269.00228	235.64305	6.00172	0.0444110	0.28547951	2.2842979	20	5 5.8	18.2
99367 2001 XG_{216}	17.2	X	304.49199	70.64020	298.55404	0.57730	0.0853370	0.30249618	2.1978065	20	8 28.7	19.3
99368 2001 XE_{221}	12.4	X	346.67507	0.05043	256.55062	5.84152	0.0187924	0.08095645	5.2921856	20	5 22.8	19.2
99369 2001 XN_{228}	16.1	X	40.74074	254.87262	5.37664	2.20227	0.1319268	0.30065768	2.2067570	20	9 9.2	18.2
99370 2001 XJ_{247}	16.0	X	330.50862	284.66465	277.38302	5.66260	0.0786815	0.27950728	2.3167222	20	1 29.7	18.7
99371 2001 XX_{251}	15.9	X	293.23427	170.96938	93.02159	8.08364	0.0879080	0.28319795	2.2965504	20	3 6.4	18.8
99372 2001 XW_{252}	16.3	X	174.78852	128.39015	342.45103	6.87356	0.0248412	0.29339212	2.2430403	20	7 25.4	19.0
99373 2001 YU	15.8	X	341.29103	192.52107	51.32852	11.18229	0.0777848	0.28445230	2.2897940	20	4 20.7	18.2
99374 2001 YH_{11}	16.2	X	111.27302	250.34032	252.59384	1.78952	0.0900215	0.28754079	2.2733680	20	6 19.7	19.2
99375 2001 YV_{48}	16.1	X	321.73681	268.81742	66.74061	5.49534	0.1010970	0.29992620	2.2103435	20	8 7.8	18.1
99376 2001 YR_{60}	16.0	X	59.27553	307.92089	331.38999	1.41875	0.0375724	0.30403094	2.1904038	20	10 18.1	18.3
99377 2001 YN_{73}	16.1	X	119.45541	159.86934	94.69629	6.83706	0.0739327	0.30702954	2.1761188	20	12 4.5	19.0
99378 2001 YY_{80}	16.0	X	266.27219	242.02144	95.04535	7.91768	0.1752336	0.29038276	2.2585108	20	4 28.2	19.1
99379 2001 YQ_{82}	16.4	X	21.85350	357.09268	8.12241	3.09939	0.1715793	0.31222735	2.1519000	20	—	—
99380 2001 YB_{87}	15.3	X	218.76500	291.78009	91.14506	7.28837	0.1099210	0.28893848	2.2660307	20	5 12.1	18.4
99381 2001 YO_{94}	16.0	X	228.06017	217.70709	105.47940	7.40505	0.1610133	0.28166954	2.3048506	20	3 2.7	19.6
99382 2001 YR_{96}	16.5	X	111.49208	88.95487	55.97090	5.46348	0.0639944	0.28837596	2.2689766	20	6 19.2	19.4
99383 2001 YV_{109}	15.1	X	242.58583	166.68529	96.98973	9.80389	0.1162635	0.27112322	2.3642401	20	1 2.6	18.4
99384 2001 YP_{113}	14.3	X	226.97227	29.47044	313.16024	25.36483	0.1426510	0.27903890	2.3193140	20	3 10.3	18.4
99385 2001 YD_{125}	15.4	X	247.10060	304.28561	353.63868	4.96052	0.0218091	0.22875894	2.6477928	20	3 3.9	18.8
99386 2001 YW_{148}	14.6	X	195.03926	223.22181	99.99896	6.60568	0.1247082	0.16979628	3.2298618	20	2 11.2	19.7
99387 2001 YS_{152}	14.7	X	217.31447	201.01378	57.25763	14.55842	0.1601679	0.21459412	2.7630633	20	—	—
99388 2002 AL	16.4	X	175.73579	276.00392	293.95199	16.98956	0.0714472	0.36168256	1.9509719	20	12 26.6	18.6
99389 2002 AN	15.7	X	282.34863	63.35757	308.43791	2.21346	0.1719114	0.29689649	2.2253552	20	7 8.2	18.0
99390 2002 AP_{1}	16.1	X	70.88977	301.24862	177.94597	2.65887	0.0644107	0.27854092	2.3220775	20	3 14.8	18.5
99391 2002 AK_{4}	15.4	X	203.89206	84.28947	30.12297	21.44175	0.0836279	0.35301888	1.9827628	20	9 20.8	18.0
99392 2002 AW_{4}	16.4	X	40.85521	79.45439	78.56279	4.15122	0.1456915	0.27809502	2.3245590	20	4 1.9	18.4
99393 2002 AS_{11}	16.0	X	10.09336	275.95315	75.70062	2.70803	0.2230756	0.30781254	2.1724269	20	12 22.3	18.3
99394 2002 AL_{16}	14.8	X	52.82661	119.14450	114.18830	15.91202	0.1692958	0.23523226	2.5989911	20	8 19.0	18.2
99395 2002 AB_{19}	15.1	X	59.80923	18.01406	339.02158	18.64516	0.0817419	0.36475484	1.9400012	20	—	—
99396 2002 AE_{23}	15.4	X	331.51513	59.60210	258.43125	5.93501	0.2304394	0.29675382	2.2260684	20	7 15.1	16.4
99397 2002 AF_{24}	15.7	X	244.57805	203.10921	154.98692	8.41655	0.2072965	0.28892465	2.2661030	20	4 29.0	19.2
99398 2002 AP_{29}	14.3	X	212.01679	273.84080	99.71910	11.36265	0.1146219	0.18149258	3.0895612	20	4 28.7	19.3
99399 2002 AJ_{31}	14.6	X	277.32331	163.33335	68.70108	14.48712	0.0957233	0.21143368	2.7905294	20	1 11.6	18.8
99400 2002 AV_{34}	16.2	X	301.97742	31.54376	77.91446	2.30935	0.0524717	0.31139942	2.1557125	20	—	—
99401 2002 AX_{34}	15.5	X	265.27043	321.09320	255.11968	8.99162	0.1631600	0.26270465	2.4144833	20	—	—
99402 2002 AT_{58}	15.9	X	223.51241	0.60864	210.57605	2.10862	0.1372855	0.25787163	2.4445580	20	—	—
99403 2002 AX_{58}	16.3	X	247.51323	209.04917	216.73566	1.93349	0.1300351	0.29764401	2.2216277	20	8 12.3	18.9
99404 2002 AE_{62}	17.1	X	322.79159	293.03084	142.87132	4.27572	0.0731313	0.30876746	2.1679455	20	—	—
99405 2002 AJ_{62}	15.6	X	233.01595	259.76718	279.09610	1.59774	0.1352499	0.25422248	2.4678954	20	12 19.7	18.5
99406 2002 AO_{64}	16.3	X	355.63033	5.51258	171.08233	3.10247	0.0870181	0.27314334	2.3525687	20	2 2.5	18.7
99407 2002 AY_{64}	15.4	X	120.72643	66.10105	178.41819	2.60595	0.0968098	0.24708975	2.5151636	20	11 11.9	19.1
99408 2002 AM_{69}	16.0	X	312.14061	278.69915	44.56973	1.48610	0.1750611	0.29436245	2.2381084	20	6 14.2	17.8
99409 2002 AD_{70}	16.1	X	191.85548	221.41851	80.33307	6.46824	0.0488356	0.27518799	2.3409011	20	—	—
99410 2002 AJ_{80}	17.2	X	289.41310	64.68574	332.53961	4.24526	0.1683788	0.30339995	2.1934398	20	9 2.1	18.9
99411 2002 AH_{85}	16.2	X	77.53581	306.97093	251.63178	6.73229	0.1174282	0.29017983	2.2595636	20	7 27.2	19.1
99412 2002 AB_{106}	16.3	X	308.44740	231.89509	101.12503	5.46573	0.1851581	0.29426811	2.2385867	20	6 21.3	17.9
99413 2002 AY_{109}	16.3	X	349.15257	174.90371	75.93920	1.23227	0.1132800	0.28389601	2.2927842	20	5 10.5	18.4
99414 2002 AV_{121}	16.6	X	12.27499	37.11241	73.44750	2.32021	0.1425200	0.26812020	2.3818607	20	—	—
99415 2002 AD_{123}	16.0	X	175.68433	192.83241	95.72937	3.69537	0.0191241	0.26373846	2.4081696	20	—	—
99416 2002 AY_{128}	15.3	X	331.30764	134.84045	125.94948	13.70318	0.0420191	0.22341322	2.6898629	20	5 9.1	19.0
99417 2002 AA_{141}	14.4	X	131.14512	286.40708	115.64798	13.86980	0.1011422	0.17250113	3.1960097	20	3 13.8	19.3
99418 2002 AR_{151}	14.5	X	349.49552	93.68749	127.14304	17.91980	0.1124006	0.17034176	3.2229628	20	4 13.2	18.9
99419 2002 AO_{153}	15.8	X	350.23688	190.09703	343.27215	1.92560	0.1425419	0.27099524	2.3649844	20	1 13.9	18.1
99420 2002 AY_{158}	14.9	X	65.58820	304.92786	299.97631	14.44454	0.1175274	0.23921970	2.5700294	20	9 3.9	18.6
99421 2002 AC_{164}	16.4	X	222.80019	207.25034	171.59631	4.21983	0.1646589	0.28693327	2.2765758	20	5 6.5	19.8
99422 2002 AG_{179}	15.9	X	226.95632	209.91182	17.02203	2.59103	0.1470382	0.26088226	2.4257145	20	—	—
99423 2002 AV_{179}	16.1	X	125.53978	296.20416	121.67842	7.47816	0.1208728	0.27643858	2.3338357	20	3 18.7	19.2
99424 2002 AU_{186}	15.8	X	305.32290	348.34215	327.60409	5.60484	0.1734530	0.29240260	2.2480979	20	5 18.3	18.2
99425 2002 AE_{190}	16.4	X	19.90197	203.15157	99.12634	5.59654	0.1589299	0.30062037	2.2069396	20	10 16.7	18.6
99426 2002 AX_{190}	16.1	X	215.85270	33.67850	70.07211	6.80886	0.1465602	0.29392481	2.2403295	20	8 27.9	19.3
99427 2002 AB_{191}	15.3	X	107.91053	226.66472	53.24950	6.53086	0.0965807	0.24660393	2.5184658	20	12 11.3	19.0
99428 2002 AO_{194}	15.8	X	110.62554	242.81215	286.56967	3.73104	0.1678472	0.28456228	2.2892040	20	8 3.0	19.1
99429 2002 AG_{197}	16.4	X	92.05583	16.98653	327.48419	1.70028	0.2291100	0.26638272	2.3922066	20	—	—
99430 2002 BQ_{1}	15.8	X	111.07252	164.69019	69.86790	6.41398	0.1252361	0.29397766	2.2400609	20	10 30.2	19.0
99431 2002 BP_{13}	14.3	X	263.82020	136.20484	81.58357	12.01863	0.0846222	0.20592122	2.8401110	20	—	—
99432 2002 BS_{15}	16.3	X	295.29318	135.51439	244.01880	3.76636	0.1296051	0.29728163	2.2234327	20	8 19.1	18.2
99433 2002 BN_{16}	16.2	X	344.65083	273.76094	252.45199	1.51624	0.1355807	0.26905747	2.3763259	20	—	—
99434 2002 BC_{17}	15.7	X	353.03796	335.11265	287.54206	5.07453	0.2038448	0.28119751	2.3074293	20	6 3.7	17.0
99435 2002 BV_{18}	14.7	X	165.89401	150.11505	125.75692	2.96818	0.0276293	0.20414302	2.8565798	20	—	—
99436 2002 BJ_{22}	15.9	X	281.87747	58.98005	163.63401	1.43260	0.1389343	0.26849288	2.3796561	20	—	—
99437 2002 BS_{25}	16.0	X	44.21072	223.43810	292.46258	6.16240	0.0755322	0.27600550	2.3362764	20	3 22.8	18.5
99438 2002 BT_{25}	15.6	X	129.60849	316.37303	260.62344	4.84094	0.0950320	0.24248003	2.5469401	20	10 14.1	19.5
99439 2002 CA_{1}	16.4	X	106.59048	293.92942	242.33254	5.71700	0.1075217	0.28998590	2.2605709	20	7 31.6	19.4
99440 2002 CA_{2}	16.1	X	276.37167	329.04033	18.85418	5.69921	0.1903917	0.29156950	2.2523782	20	5 19.1	19.0

ELEMENTS AND OPPOSITION DATES IN 2020

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Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
99441 2002 CA_6	15.7	X	276.31892	229.81564	296.91708	2.06971	0.1227559	0.25847660	2.4407421	20	—	—
99442 2002 CF_8	15.3	X	324.27163	47.40690	92.89051	6.91619	0.0468515	0.26346644	2.4098269	20	—	—
99443 2002 CA_{14}	15.7	X	266.53521	254.17717	318.94451	1.87673	0.1588510	0.26190227	2.4194123	20	—	—
99444 2002 CS_{17}	16.0	X	175.54995	5.91836	325.80834	6.49861	0.1361907	0.27527606	2.3404018	20	1 22.0	19.3
99445 2002 CQ_{22}	16.5	X	191.10029	260.36636	331.23320	4.94034	0.1444071	0.30799963	2.1715471	20	—	—
99446 2002 CS_{24}	16.0	X	346.04913	283.40291	244.65156	5.64618	0.0705173	0.26969758	2.3725645	20	1 9.3	18.8
99447 2002 CX_{25}	14.6	X	331.83041	240.81754	9.76548	23.32037	0.2724524	0.27488879	2.3425994	20	3 17.7	16.9
99448 2002 CF_{30}	16.0	X	267.06762	307.52007	64.93086	5.92273	0.2031303	0.29391288	2.2403900	20	6 10.4	18.6
99449 2002 CJ_{30}	16.3	X	222.96317	330.30390	36.36996	4.81158	0.1139882	0.28505035	2.2865902	20	4 22.6	19.3
99450 2002 CP_{34}	15.5	X	319.71038	195.91694	110.26074	13.19148	0.1910249	0.23473590	2.6026537	20	6 1.7	18.3
99451 2002 CL_{37}	16.4	X	241.49137	71.74876	344.26841	4.19635	0.1580812	0.24061989	2.5600495	20	7 15.3	20.1
99452 2002 CM_{38}	15.3	X	17.15498	183.74693	138.90231	9.18172	0.2097894	0.24419567	2.5349968	20	11 6.5	18.3
99453 2002 CW_{42}	16.6	X	279.77997	84.08037	76.10838	3.97257	0.0913731	0.31240841	2.1510685	20	—	—
99454 2002 CZ_{42}	16.4	X	198.29429	156.15141	17.46185	4.76641	0.1218725	0.30194061	2.2005016	20	11 10.6	19.2
99455 2002 CX_{55}	16.3	X	121.29005	29.31254	187.81632	0.26577	0.0988782	0.24137811	2.5546856	20	10 7.5	20.2
99456 2002 CH_{57}	15.7	X	286.65930	275.77866	271.78038	2.54026	0.0840915	0.26233878	2.4167277	20	—	—
99457 2002 CS_{58}	16.1	X	343.15822	238.10046	35.76640	6.82082	0.2194974	0.27918761	2.3184903	20	5 24.8	17.5
99458 2002 CF_{59}	16.7	X	268.75511	16.57892	155.51899	0.71389	0.1614939	0.25692926	2.4505317	20	—	—
99459 2002 CO_{62}	15.0	X	307.84659	328.59359	50.68367	10.74268	0.0495249	0.19005914	2.9960120	20	9 10.5	19.1
99460 2002 CJ_{66}	15.4	X	328.11594	134.17092	127.19024	14.49950	0.1204064	0.22909965	2.6451670	20	4 26.7	18.8
99461 2002 CM_{66}	16.3	X	238.54424	231.78974	105.06507	8.30909	0.1869875	0.28431245	2.2905449	20	3 29.9	20.0
99462 2002 CE_{83}	16.2	X	201.51140	34.98486	9.45668	2.75171	0.1729814	0.28664489	2.2781024	20	5 17.3	19.8
99463 2002 CR_{83}	15.4	X	301.57411	180.04456	354.46012	4.87672	0.1424059	0.26319357	2.4114922	20	—	—
99464 2002 CC_{91}	12.7	X	60.96422	211.93822	73.36475	2.87422	0.0444469	0.08236457	5.2316953	20	9 24.9	19.5
99465 2002 CP_{93}	16.5	X	281.61638	127.27814	111.14674	2.17285	0.1475004	0.26853068	2.3794328	20	1 8.9	19.9
99466 2002 CN_{96}	14.5	X	30.28004	127.95799	150.95751	24.09041	0.2473160	0.18070507	3.0985308	20	9 21.1	18.4
99467 2002 CN_{102}	15.9	X	23.22957	359.73015	108.68027	2.18182	0.1407341	0.26705910	2.3881657	20	—	—
99468 2002 CE_{103}	15.4	X	289.42052	270.46026	47.76449	3.19532	0.1009224	0.22753639	2.6572687	20	5 12.4	18.6
99469 2002 CB_{107}	16.4	X	121.10770	330.59244	105.97926	3.09341	0.1989243	0.27770527	2.3267335	20	4 15.8	19.6
99470 2002 CQ_{110}	16.5	X	92.19782	240.23041	22.63074	4.44773	0.1477315	0.29625991	2.2285418	20	11 15.5	19.8
99471 2002 CK_{112}	14.0	X	118.36641	71.94543	164.92939	12.38325	0.1852559	0.18555396	3.0443125	20	10 28.9	19.1
99472 2002 CO_{112}	16.0	X	148.24146	188.61526	17.73268	5.76016	0.1655596	0.29502774	2.2347425	20	10 27.9	19.6
99473 2002 CP_{112}	15.8	X	57.02539	352.51821	163.38776	6.39546	0.1401092	0.27558519	2.3386513	20	4 29.4	18.2
99474 2002 CE_{114}	16.5	X	81.86981	230.28940	22.47141	3.78560	0.1530108	0.29437125	2.2380638	20	10 23.3	19.6
99475 2002 CR_{118}	14.7	X	90.21858	99.23459	79.08186	22.75126	0.2377944	0.28418986	2.2912035	20	8 5.7	18.5
99476 2002 CU_{133}	15.6	X	9.77844	326.33593	339.63137	3.14244	0.0363153	0.23719876	2.5846066	20	9 2.8	18.7
99477 2002 CG_{135}	15.8	X	315.71083	284.95058	197.28587	6.10520	0.0972410	0.26452176	2.4034132	20	—	—
99478 2002 CD_{137}	16.2	X	225.35088	227.94933	204.27097	5.15095	0.1108095	0.29515253	2.2341125	20	7 24.9	19.2
99479 2002 CS_{152}	16.8	X	170.04856	161.82312	121.80793	4.44802	0.1661231	0.31280830	2.1492348	20	—	—
99480 2002 CE_{154}	16.5	X	115.44501	80.01153	2.85843	2.95836	0.1234937	0.27672168	2.3322437	20	4 5.8	19.4
99481 2002 CY_{157}	17.0	X	105.55467	49.89637	96.24373	3.22994	0.0975321	0.28502364	2.2867330	20	6 17.8	19.9
99482 2002 CP_{159}	16.3	X	68.74315	8.06578	69.78717	3.64876	0.1410263	0.26889683	2.3772723	20	1 24.4	18.5
99483 2002 CE_{166}	15.3	X	198.46962	229.66413	72.87244	3.82818	0.0720334	0.21382101	2.7697196	20	1 14.4	19.3
99484 2002 CQ_{169}	15.7	X	159.75794	349.66480	72.31089	5.63485	0.2044183	0.28302751	2.2974723	20	5 4.3	19.3
99485 2002 CD_{170}	15.8	X	172.01697	349.65163	69.49994	4.85365	0.0979871	0.28215408	2.3022112	20	5 8.3	19.0
99486 2002 CJ_{171}	16.1	X	165.14267	29.81325	69.21867	5.21139	0.0893562	0.28588064	2.2821607	20	6 23.4	19.2
99487 2002 CR_{172}	15.7	X	325.56823	295.87191	69.68836	6.40909	0.1908303	0.29879501	2.2159187	20	10 7.5	17.1
99488 2002 CW_{172}	16.2	X	130.33961	294.04179	117.55154	8.52793	0.1049233	0.27592613	2.3367244	20	3 14.5	19.4
99489 2002 CS_{174}	14.9	X	235.85023	233.75065	151.57014	19.24025	0.0437123	0.22956050	2.6416257	20	6 12.9	19.0
99490 2002 CD_{220}	16.2	X	24.51552	130.39254	147.09135	8.33983	0.1454842	0.28733146	2.2744720	20	9 9.5	18.3
99491 2002 CN_{227}	15.6	X	86.41727	35.73415	271.22621	8.01309	0.1786946	0.25289402	2.4765305	20	12 29.7	19.4
99492 2002 CZ_{231}	15.6	X	153.88367	314.73229	215.36676	3.97546	0.1754425	0.23718847	2.5846813	20	9 10.1	19.8
99493 2002 CR_{237}	14.6	X	220.42684	289.81492	358.08426	8.91720	0.1379591	0.20906563	2.8115617	20	1 20.7	19.2
99494 2002 CH_{239}	15.7	X	23.95834	97.71754	215.51427	2.91487	0.1507542	0.24014960	2.5633907	20	10 20.6	18.5
99495 2002 CD_{240}	16.4	X	178.17687	127.99960	315.48448	3.87563	0.1928557	0.28740631	2.2740771	20	6 16.4	20.1
99496 2002 CH_{243}	15.7	X	59.13352	343.41699	288.31483	1.54802	0.0131031	0.23990507	2.5651323	20	9 21.9	19.0
99497 2002 CX_{244}	16.0	X	48.46326	270.26213	347.14769	5.21554	0.1990695	0.28688245	2.2768446	20	9 24.3	18.7
99498 2002 CQ_{246}	15.3	X	82.47627	15.80204	174.28471	24.93108	0.1825796	0.28645153	2.2791275	20	7 30.4	18.8
99499 2002 CK_{247}	17.0	X	56.69397	9.92094	146.74932	2.22799	0.1427717	0.27712906	2.3299575	20	4 28.9	19.3
99500 2002 CQ_{248}	16.3	X	81.63342	216.00623	38.82782	5.20828	0.1174359	0.29526951	2.2335224	20	10 23.1	19.2
99501 2002 CT_{310}	15.1	X	38.40025	243.97385	64.34005	4.26810	0.0764442	0.24276868	2.5449209	20	10 25.3	18.3
99502 2002 CW_{311}	16.2	X	99.68631	172.19754	252.73469	5.67663	0.0770890	0.27102724	2.3647982	20	2 11.0	19.0
99503 Leewonchul	15.6	X	316.94291	140.93954	62.37039	7.68285	0.1950658	0.26388425	2.4072826	20	—	—
99504 2002 DR_{12}	15.6	X	333.17356	322.62706	42.56093	6.31838	0.1689059	0.29990573	2.2104441	20	10 22.4	16.9
99505 2002 DZ_{15}	15.9	X	19.15656	19.14373	133.10124	4.12645	0.2461902	0.26961761	2.3730336	20	1 29.5	17.3
99506 2002 DG_{17}	13.9	X	259.73892	270.59214	79.56991	18.33814	0.1516966	0.17723845	3.1388032	20	5 15.1	18.7
99507 2002 EL_1	17.0	X	182.90435	238.81085	347.92101	3.81855	0.0908498	0.30519356	2.1848375	20	—	—
99508 2002 EQ_8	16.5	X	139.04299	27.81258	79.09915	6.98921	0.2055659	0.28494883	2.2871333	20	6 11.9	19.9
99509 2002 EL_9	15.9	X	60.51799	34.22978	92.78203	7.10880	0.1361662	0.27283947	2.3543151	20	3 24.5	18.3
99510 2002 EO_{12}	15.2	X	258.56189	2.34168	299.79997	4.03934	0.1254208	0.27152397	2.3619132	20	3 5.6	18.5
99511 2002 ES_{14}	17.1	X	193.17918	317.90242	310.68101	1.41185	0.1076281	0.31380167	2.1446967	20	—	—
99512 2002 EL_{20}	16.5	X	24.70739	196.96960	44.45406	2.88566	0.1904381	0.28037540	2.3119376	20	7 19.5	18.4
99513 2002 EA_{26}	15.8	X	254.08366	357.35553	299.63383	2.35639	0.2289256	0.27074146	2.3664620	20	2 16.4	19.6
99514 2002 EL_{26}	16.1	X	344.88280	313.77451	239.28722	3.69732	0.0804230	0.27119185	2.3638412	20	2 8.8	18.9
99515 2002 EE_{30}	15.8	X	76.90729	215.71413	20.68738	6.00759	0.1455765	0.28908656	2.2652568	20	9 25.6	18.8
99516 2002 EM_{30}	15.9	X	284.11872	267.76490	19.63224	6.66481	0.1276848	0.27344800	2.3508209	20	3 19.0	18.9
99517 2002 ER_{30}	16.0	X	331.52670	136.07063	33.08476	3.08922	0.1060412	0.26494316	2.4008641	20	—	—
99518 2002 EV_{30}	15.7	X	328.90897	140.38964	109.67850	3.10572	0.1278662	0.27414856	2.3468144	20	4 1.5	18.0
99519 2002 EP_{31}	15.3	X	259.68404	83.66561	74.84383	4.18586	0.1359877	0.25350074	2.4725774	20	12 31.6	17.9
99520 2002 ER_{32}	15.9	X	131.00517	281.69781	79.25683	6.93169	0.1229206	0.26794257	2.3829133	20	1 8.8	19.0

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Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
99521 2002 EB_{34}	15.3	X	338.62953	174.08165	150.54205	13.92641	0.1804806	0.23566835	2.5957839	20	8 9.5	17.5
99522 2002 EF_{41}	15.4	X	312.71861	232.94423	348.46151	6.56605	0.0681481	0.26860067	2.3790194	20	2 6.5	18.3
99523 2002 EC_{66}	15.2	X	179.82272	67.23838	213.18409	2.70970	0.2287584	0.20064389	2.8896956	20	—	—
99524 2002 EO_{70}	16.1	X	67.44738	51.60994	180.63217	7.56267	0.0889094	0.28736686	2.2742852	20	8 27.1	18.9
99525 2002 EW_{70}	16.0	X	62.59534	310.40276	329.16503	4.37165	0.1730769	0.29177978	2.2512959	20	11 6.9	19.2
99526 2002 EC_{73}	16.4	X	68.58845	252.19804	334.93426	3.74567	0.0945152	0.28642885	2.2792478	20	8 23.8	19.0
99527 2002 EK_{74}	15.2	X	121.95171	323.49956	13.91541	11.65161	0.1591813	0.25483652	2.4639295	20	—	—
99528 2002 ES_{78}	14.8	X	151.61925	228.66212	110.97987	18.11090	0.1046323	0.20482096	2.8502729	20	1 13.2	18.9
99529 2002 EJ_{86}	15.6	X	203.23671	19.01511	136.70975	2.90559	0.0663077	0.24337243	2.5407102	20	10 22.1	19.0
99530 2002 EN_{86}	15.9	X	0.62409	202.84889	44.22360	4.54529	0.1302171	0.27818290	2.3240694	20	5 27.3	17.8
99531 2002 EM_{88}	15.7	X	171.78459	237.05772	43.37307	6.25957	0.1103700	0.25438900	2.4668183	20	—	—
99532 2002 EV_{88}	14.8	X	42.58767	223.93063	49.73450	6.66023	0.1989019	0.17806220	3.1291153	20	9 24.7	18.9
99533 2002 EB_{89}	15.8	X	299.67147	249.02596	40.78179	4.82833	0.1898461	0.27381269	2.3487331	20	4 2.2	18.5
99534 2002 EK_{91}	16.4	X	8.26092	86.23714	44.70360	2.46728	0.1764229	0.26663367	2.3907054	20	—	—
99535 2002 EM_{91}	16.0	X	80.44383	79.45146	83.55316	2.67567	0.1606287	0.28070468	2.3101293	20	6 17.8	18.8
99536 2002 EK_{92}	15.8	X	260.64502	341.82733	259.42040	2.76114	0.0968752	0.26283189	2.4137040	20	—	—
99537 2002 EE_{97}	16.3	X	230.52847	12.59229	115.71736	5.38046	0.1171285	0.29747195	2.2224843	20	10 24.2	19.0
99538 2002 EK_{97}	15.5	X	119.04711	331.90031	242.56870	8.37959	0.1211261	0.24205445	2.5499246	20	9 29.8	19.5
99539 2002 ES_{97}	16.5	X	184.57046	143.76306	113.83503	3.62888	0.0781204	0.30959139	2.1640974	20	—	—
99540 2002 EA_{98}	15.7	X	22.50768	224.07150	51.73118	6.07515	0.1530124	0.28539308	2.2847591	20	9 6.6	18.0
99541 2002 EG_{98}	15.9	X	58.92212	140.33278	116.00611	6.42868	0.1004202	0.28809069	2.2704742	20	9 25.9	18.7
99542 2002 ED_{99}	16.4	X	125.49170	226.17340	354.52045	5.77399	0.1209426	0.29357078	2.2421302	20	10 23.1	19.7
99543 2002 EO_{99}	16.1	X	192.40899	50.99955	86.58115	6.54711	0.0345493	0.29640042	2.2278375	20	9 28.7	18.9
99544 2002 EE_{100}	16.1	X	318.37733	305.19676	5.09960	6.82762	0.1311038	0.28249669	2.3003494	20	6 11.5	18.4
99545 2002 EM_{103}	15.6	X	74.46225	185.73726	84.57689	7.49491	0.1402115	0.24073630	2.5592242	20	10 30.9	19.3
99546 2002 EB_{104}	15.3	X	34.67152	109.27572	148.17037	13.71788	0.0306493	0.23237000	2.6202899	20	7 31.5	18.6
99547 2002 EA_{106}	16.5	X	170.52432	69.66676	108.01686	6.46342	0.0362895	0.29612450	2.2292211	20	10 25.2	19.3
99548 2002 EV_{107}	15.5	X	47.23371	194.86537	35.16119	5.40506	0.0513221	0.23155340	2.6264468	20	7 16.4	18.9
99549 2002 EE_{119}	15.0	X	122.28268	346.84930	286.77252	12.63675	0.1720131	0.24665619	2.5181100	20	12 20.3	19.1
99550 2002 EJ_{128}	16.2	X	237.17575	220.31737	72.49624	4.97560	0.0444208	0.26806092	2.3822118	20	2 8.7	19.4
99551 2002 ED_{129}	15.9	X	50.98083	329.65135	312.95611	3.98695	0.1435310	0.23752178	2.5822627	20	10 13.9	19.4
99552 2002 EQ_{129}	16.2	X	22.01880	354.28840	310.79441	3.85770	0.1515487	0.29033135	2.2587773	20	10 15.2	18.6
99553 2002 EV_{142}	15.5	X	317.79908	289.38293	36.21115	4.36163	0.1705501	0.23253174	2.6190747	20	6 27.8	18.3
99554 2002 EV_{143}	15.5	X	319.15623	164.35706	168.74177	4.63074	0.1915317	0.23640212	2.5904098	20	7 8.7	18.1
99555 2002 ES_{145}	16.3	X	52.22241	238.98216	13.79598	2.28789	0.0871846	0.28633235	2.2797599	20	9 5.9	18.9
99556 2002 EY_{145}	16.0	X	139.12858	342.19824	253.85583	3.42466	0.0688639	0.24481116	2.5307461	20	11 19.1	19.5
99557 2002 EE_{146}	15.1	X	298.24365	176.70400	158.58363	18.14062	0.2804195	0.23355759	2.6113999	20	5 23.8	18.7
99558 2002 EW_{146}	15.2	X	17.20152	20.58159	291.81227	6.28992	0.1407694	0.23927646	2.5696230	20	10 3.2	18.2
99559 2002 FL_{1}	15.2	X	41.61321	215.62092	6.53429	25.43583	0.1960449	0.28345895	2.2951405	20	8 6.5	18.3
99560 2002 FD_{2}	15.6	X	41.54083	100.70090	160.74008	1.80723	0.0535088	0.23205804	2.6226377	20	8 19.9	18.7
99561 2002 FJ_{4}	15.9	X	36.00280	189.21928	9.01473	4.16831	0.1000359	0.27752086	2.3277641	20	5 17.1	18.2
99562 2002 FN_{5}	16.2	X	83.39619	249.97128	273.63086	3.49143	0.0265320	0.28102758	2.3083594	20	5 31.2	18.7
99563 2002 FL_{8}	15.6	X	59.38503	45.94139	271.94384	4.84517	0.0985216	0.24571145	2.5245605	20	12 6.0	19.1
99564 2002 FT_{8}	15.3	X	248.40663	9.69767	297.49381	5.57330	0.1456218	0.27147908	2.3621735	20	2 28.1	18.9
99565 2002 FF_{10}	14.8	X	319.91887	345.90894	5.84466	25.62249	0.2087781	0.28691947	2.2766488	20	9 2.5	16.8
99566 2002 FT_{11}	16.2	X	359.26158	148.51077	75.66865	5.04480	0.0998012	0.27451040	2.3447516	20	4 21.3	18.4
99567 2002 FW_{12}	16.3	X	156.16235	107.49276	78.15294	1.61514	0.0854421	0.24010871	2.5636817	20	10 4.9	20.1
99568 2002 FB_{13}	15.2	X	128.79257	220.32593	141.15043	3.11520	0.1830756	0.26117369	2.4239097	20	1 15.7	18.4
99569 2002 FK_{13}	16.4	X	249.44166	69.83811	92.88263	2.65437	0.0786897	0.30494270	2.1860356	20	—	—
99570 2002 FS_{14}	15.7	X	214.72827	309.08760	188.13326	12.29755	0.1015407	0.24200891	2.5502445	20	10 6.4	19.3
99571 2002 FJ_{16}	15.6	X	103.46066	164.26877	85.81447	4.80787	0.0533594	0.23978837	2.5659645	20	10 28.0	19.1
99572 2002 FK_{16}	16.1	X	34.62298	122.13656	92.33627	6.92464	0.0382021	0.27899396	2.3195630	20	6 3.6	18.6
99573 2002 FC_{22}	15.7	X	227.35368	91.98710	28.57449	27.29330	0.1086392	0.24252964	2.5465928	20	10 6.7	19.4
99574 2002 FQ_{22}	14.6	X	196.23481	240.10042	134.64100	16.37455	0.1493217	0.22004941	2.7172060	20	4 13.9	19.3
99575 2002 FE_{25}	15.1	X	1.18629	178.38729	77.62488	16.43961	0.0923623	0.22883725	2.6471887	20	6 11.1	17.8
99576 2002 FF_{26}	15.1	X	16.68020	218.16435	87.91927	15.99646	0.1115996	0.23659556	2.5889977	20	10 2.6	18.5
99577 2002 FE_{33}	15.1	X	33.44156	211.68775	83.40310	8.20726	0.1606285	0.23760367	2.5816693	20	10 15.7	18.3
99578 2002 FP_{33}	15.8	X	6.82314	32.12693	83.56363	7.04833	0.0803848	0.26389982	2.4071879	20	—	—
99579 2002 FV_{33}	15.5	X	198.28325	250.92668	59.12574	6.50737	0.1063211	0.26220354	2.4175586	20	1 18.2	19.1
99580 2002 FM_{35}	16.2	X	311.62215	8.42710	289.68421	7.06881	0.0779676	0.28048244	2.3113494	20	5 18.5	18.9
99581 2002 FQ_{35}	14.3	X	17.95069	90.47798	194.59338	24.26046	0.3185135	0.17601920	3.1532810	20	9 11.7	17.8
99582 2002 FX_{37}	15.4	X	49.86416	64.45743	138.42948	14.03284	0.0410849	0.22748265	2.6576872	20	6 11.6	19.1
99583 2002 GD_{3}	15.8	X	249.81033	205.54123	48.87890	4.36552	0.1673360	0.26123103	2.4235550	20	—	—
99584 2002 GR_{7}	16.1	X	80.64711	166.51863	116.12345	5.09192	0.1609319	0.29388976	2.2405076	20	12 1.6	19.3
99585 2002 GA_{8}	15.6	X	233.55038	156.43165	140.77919	6.81577	0.1280191	0.26543282	2.3979105	20	2 4.4	19.1
99586 2002 GZ_{11}	15.5	X	114.38321	151.34346	49.70377	6.16083	0.0371179	0.23428106	2.6060211	20	9 6.1	19.1
99587 2002 GY_{15}	15.7	X	230.93536	261.14590	22.89945	7.47914	0.1261847	0.26404636	2.4062972	20	1 18.9	19.5
99588 2002 GH_{17}	14.9	X	76.50676	214.64746	58.13589	5.90598	0.1611009	0.18199048	3.0839235	20	10 27.6	19.6
99589 2002 GH_{19}	16.2	X	216.05109	292.11756	209.23097	6.14672	0.1490132	0.29693536	2.2251610	20	10 15.4	19.1
99590 2002 GG_{21}	15.8	X	12.01133	295.66980	296.88834	1.64871	0.1690942	0.27562851	2.3384062	20	5 30.5	17.6
99591 2002 GH_{21}	14.8	X	53.84936	305.95532	270.70762	3.31630	0.1298990	0.17126797	3.2113325	20	7 14.1	19.0
99592 2002 GM_{21}	15.9	X	210.92259	196.77842	38.32226	3.78444	0.0993957	0.30628814	2.1796291	20	—	—
99593 2002 GY_{21}	16.1	X	238.55140	166.20783	1.75618	2.35101	0.0359582	0.24727717	2.5138925	20	12 25.9	19.4
99594 2002 GH_{23}	16.1	X	140.54077	194.01758	22.29679	4.54863	0.0837214	0.29511333	2.2343103	20	11 3.8	19.2
99595 2002 GW_{23}	16.5	X	31.80227	229.98525	265.21539	0.51892	0.1212286	0.26819298	2.3814298	20	2 5.9	18.6
99596 2002 GG_{24}	16.0	X	14.88015	122.93683	100.24019	3.03574	0.1786675	0.27454359	2.3445626	20	5 22.9	17.5
99597 2002 GD_{26}	16.8	X	163.92383	281.54949	290.28284	1.57337	0.1151166	0.29786032	2.2205520	20	11 23.1	19.9
99598 2002 GG_{37}	16.6	X	45.36312	158.51964	109.46715	4.31107	0.1577176	0.28791857	2.2713790	20	10 1.9	19.2
99599 2002 GX_{41}	16.8	X	179.03722	173.85526	301.55385	1.01636	0.0178757	0.28690092	2.2767469	20	8 4.9	19.5
99600 2002 GM_{42}	14.8	X	63.35380	47.88513	199.67486	0.72260	0.1555315	0.17837027	3.1255113	20	9 9.2	19.0

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	m		°	°	°	°		°				
99601 2002 GW_{45}	15.9	X	139.60154	176.10116	205.25105	5.97859	0.1299521	0.26521144	2.3992447	20	2 13.3	19.3
99602 2002 GE_{46}	15.8	X	259.86697	179.00183	41.67683	7.14712	0.0663052	0.26054509	2.4278068	20	—	—
99603 2002 GM_{46}	14.5	X	125.05960	146.97581	134.40436	8.59315	0.0311555	0.19459721	2.9492504	20	12 18.9	18.8
99604 2002 GZ_{49}	15.6	X	195.78905	348.06731	232.19771	9.56669	0.0601744	0.25174950	2.4840308	20	—	—
99605 2002 GR_{51}	16.6	X	330.76026	320.14990	166.07124	2.09072	0.1542582	0.25868669	2.4394204	20	—	—
99606 2002 GZ_{52}	16.0	X	37.69605	5.99515	155.39394	4.15691	0.1306976	0.27206001	2.3588097	20	3 29.8	18.1
99607 2002 GO_{53}	15.4	X	309.05208	148.87795	344.06385	11.87005	0.1289798	0.25643285	2.4536933	20	—	—
99608 2002 GN_{54}	15.0	X	311.16090	326.05679	242.23323	6.68303	0.1422214	0.21199852	2.7855706	20	1 13.8	18.8
99609 2002 GQ_{57}	15.0	X	333.95323	353.45533	261.07890	8.46132	0.0866771	0.22230004	2.6988351	20	4 21.4	18.3
99610 2002 GS_{66}	15.7	X	350.22424	207.83690	88.65283	2.08688	0.0273108	0.22926305	2.6439100	20	7 21.4	18.9
99611 2002 GL_{68}	14.9	X	125.55775	186.68763	120.83848	13.02544	0.0352703	0.19480630	2.9471397	20	—	—
99612 2002 GN_{71}	15.6	X	101.87794	239.15279	55.88427	5.29480	0.0483459	0.24732299	2.5135820	20	12 21.5	19.1
99613 2002 GV_{71}	15.4	X	249.55743	183.99165	99.33004	2.76517	0.0593418	0.21345400	2.7728935	20	2 15.9	19.3
99614 2002 GW_{71}	14.6	X	31.18873	115.02251	150.33814	3.95120	0.1629119	0.17637607	3.1490262	20	8 18.5	18.5
99615 2002 GW_{76}	16.3	X	320.57436	16.11191	83.25412	7.07030	0.0929185	0.30646270	2.1788013	20	—	—
99616 2002 GX_{79}	15.7	X	283.61429	205.33880	59.93342	5.16722	0.0640259	0.26985806	2.3716237	20	2 28.3	18.8
99617 2002 GF_{82}	14.6	X	16.34110	185.70139	113.37143	4.88874	0.1793205	0.17656972	3.1467234	20	9 12.2	18.2
99618 2002 GO_{82}	15.3	X	187.16511	245.95150	124.05324	6.89967	0.1028232	0.21617396	2.7495849	20	3 27.3	19.6
99619 2002 GD_{84}	16.0	X	185.06285	286.55083	138.43928	6.05390	0.0270658	0.27865115	2.3214651	20	6 1.4	19.0
99620 2002 GP_{85}	15.8	X	277.63783	246.34626	86.93909	3.41068	0.1799337	0.27694633	2.3309823	20	5 4.4	18.7
99621 2002 GT_{86}	16.0	X	65.42242	359.87420	133.18989	7.47505	0.0516648	0.27084483	2.3658598	20	3 28.8	18.8
99622 2002 GD_{88}	15.4	X	177.82473	348.43299	148.41143	5.60851	0.1857401	0.23583372	2.5945703	20	8 21.9	19.6
99623 2002 GZ_{88}	15.2	X	195.36369	241.43758	111.58530	7.43287	0.0339958	0.21308706	2.7760759	20	3 15.1	19.2
99624 2002 GB_{89}	15.9	X	3.11658	36.07072	138.86977	7.06284	0.0657693	0.26680753	2.3896667	20	2 16.6	18.5
99625 2002 GJ_{91}	16.5	X	234.24776	23.99267	281.68278	0.60180	0.1556583	0.26682717	2.3895494	20	2 14.2	20.1
99626 2002 GT_{91}	16.0	X	241.64207	228.44066	46.16140	5.98797	0.1505895	0.26322965	2.4112719	20	1 15.9	19.8
99627 2002 GK_{93}	14.4	X	282.77737	148.70130	203.40637	12.55879	0.1341262	0.17321776	3.1871887	20	6 12.6	19.0
99628 2002 GD_{95}	16.2	X	213.16896	226.46316	287.43813	2.91928	0.1297768	0.24380283	2.5377192	20	10 21.2	19.8
99629 2002 GR_{96}	16.5	X	83.25078	118.95894	20.82860	3.93317	0.1262472	0.27568643	2.3380787	20	5 12.3	19.1
99630 2002 GB_{99}	16.9	X	42.05974	292.92687	335.40278	3.27067	0.1685577	0.28650357	2.2788515	20	9 25.7	19.5
99631 2002 GG_{102}	15.1	X	223.16749	225.02472	119.36864	8.51340	0.1022106	0.21628405	2.7486518	20	4 2.3	19.4
99632 2002 GT_{103}	16.1	X	188.48178	352.78234	135.46031	7.56913	0.0390613	0.28852722	2.2681835	20	9 6.1	18.9
99633 2002 GV_{103}	15.2	X	181.07201	279.57444	164.28538	13.14087	0.1407942	0.22733910	2.6588058	20	6 19.7	19.7
99634 2002 GN_{105}	16.3	X	166.89110	12.56231	117.38485	7.04831	0.0367767	0.28757376	2.2731943	20	8 9.7	19.0
99635 2002 GT_{106}	14.5	X	114.08623	251.07884	83.56104	10.17828	0.1825320	0.19838442	2.9115953	20	—	—
99636 2002 GF_{107}	15.8	X	271.35286	169.78303	131.63398	6.59971	0.1320247	0.27302446	2.3532515	20	3 22.6	19.0
99637 2002 GY_{107}	15.4	X	211.76541	235.98927	119.46166	7.55720	0.1399258	0.27236029	2.3570757	20	3 30.2	19.1
99638 2002 GV_{109}	15.0	X	35.31397	286.89047	80.80397	14.91430	0.1637475	0.24547023	2.5262142	20	—	—
99639 2002 GE_{131}	14.5	X	264.03150	316.48680	45.99425	1.79949	0.1977260	0.17184838	3.2040978	20	5 25.1	19.3
99640 2002 GU_{140}	15.6	X	60.88021	252.44763	200.91160	7.38363	0.1992430	0.21175934	2.7876677	20	2 17.4	18.8
99641 2002 GN_{142}	16.0	X	218.98105	249.84052	86.77916	3.44814	0.1527973	0.26649627	2.3915270	20	3 11.6	19.8
99642 2002 GM_{151}	16.5	X	173.16607	321.46673	154.44107	4.48985	0.0671555	0.28531770	2.2851616	20	7 26.4	19.6
99643 2002 GE_{158}	16.3	X	172.95092	355.56543	87.83669	7.47376	0.0605886	0.27999445	2.3140342	20	6 10.7	19.2
99644 2002 GF_{159}	15.3	X	91.62082	60.19760	247.82418	2.05615	0.1381049	0.18951694	3.0017236	20	12 20.8	19.9
99645 2002 GE_{165}	15.3	X	282.80223	254.37377	172.11274	5.94395	0.0973824	0.23875425	2.5733685	20	10 4.4	18.3
99646 2002 GE_{170}	16.1	X	262.27497	179.89563	292.50208	1.94611	0.0717162	0.24320917	2.5418471	20	11 8.3	19.1
99647 2002 GC_{178}	15.5	X	304.64478	252.65973	179.10522	5.83362	0.1236694	0.24430104	2.5342678	20	11 17.3	18.1
99648 2002 HR	16.1	X	349.58338	143.45661	109.64616	7.25711	0.2087339	0.27383242	2.3486203	20	5 10.9	17.9
99649 2002 HG_{1}	15.1	X	180.39682	100.05851	48.16573	5.33497	0.0715245	0.23556148	2.5965690	20	9 15.4	18.9
99650 2002 HF_{2}	16.2	X	340.33843	194.55680	111.70579	3.71818	0.0654323	0.28462442	2.2888708	20	7 24.3	18.4
99651 2002 HB_{4}	14.7	X	14.29627	130.99013	73.37612	15.48064	0.0843513	0.21807437	2.7335874	20	4 27.2	18.1
99652 2002 HD_{4}	13.8	X	14.87333	258.07304	61.28916	15.66622	0.2232818	0.17799959	3.1298490	20	10 17.9	17.6
99653 2002 HO_{4}	15.0	X	41.37666	218.94073	69.81968	15.34064	0.1744486	0.23083062	2.6319266	20	10 21.9	18.6
99654 2002 HP_{4}	15.7	X	343.56764	54.56052	105.22961	8.35869	0.1495789	0.26144470	2.4222343	20	—	—
99655 2002 HL_{6}	16.5	X	109.49614	222.67190	312.00347	4.95628	0.0749206	0.28620195	2.2804523	20	7 31.3	19.2
99656 2002 HD_{9}	15.7	X	272.87240	140.31927	108.40811	7.42923	0.0697386	0.26439549	2.4041784	20	1 21.8	19.0
99657 2002 HG_{9}	15.3	X	278.76192	267.32048	164.95225	7.43000	0.0860395	0.24076579	2.5590152	20	10 8.9	18.3
99658 2002 HV_{9}	15.7	X	199.48830	174.78582	189.06263	5.83439	0.0326869	0.21741746	2.7390908	20	3 30.0	19.6
99659 2002 HW_{11}	15.7	X	38.10925	95.66914	68.72230	7.52620	0.0696400	0.27358446	2.3500391	20	4 2.2	18.3
99660 2002 HY_{11}	15.6	X	315.70858	307.14688	257.38368	3.80964	0.1496095	0.26493410	2.4009188	20	1 5.1	18.5
99661 2002 HL_{13}	14.4	X	141.60741	44.14454	160.72351	29.30381	0.1074673	0.23569910	2.5955582	20	10 17.2	18.7
99662 2002 HS_{13}	15.1	X	292.28307	259.80225	146.61399	26.96094	0.0987718	0.23805133	2.5784318	20	9 24.6	18.4
99663 2002 HS_{15}	15.8	X	173.49016	211.57684	173.82397	6.12185	0.1099468	0.27029533	2.3690653	20	3 26.8	19.2
99664 2002 HK_{16}	15.7	X	292.09927	345.25455	43.55953	4.09582	0.1320580	0.23624160	2.5915830	20	8 22.5	18.6
99665 2002 HW_{16}	14.9	X	245.98877	345.87636	331.95329	7.49666	0.2153821	0.21250593	2.7811346	20	3 10.1	19.6
99666 2002 HQ_{17}	15.2	X	7.61483	335.41483	243.15024	7.93787	0.0962355	0.22033038	2.7148956	20	4 28.3	18.4
99667 2002 JO_{1}	15.1	X	37.00450	334.22867	164.55131	6.68227	0.1374747	0.21251160	2.7810851	20	3 3.0	17.9
99668 2002 JW_{4}	15.8	X	311.35723	264.78405	25.85526	3.55046	0.1771628	0.27472347	2.3435391	20	4 21.7	18.0
99669 2002 JE_{5}	14.7	X	69.60435	40.56653	221.01983	10.87730	0.0753916	0.17853618	3.1235746	20	9 19.9	19.2
99670 2002 JK_{6}	15.7	X	66.39174	265.83962	223.29990	4.22675	0.1189753	0.21506107	2.7590623	20	4 4.1	19.0
99671 2002 JE_{7}	15.4	X	83.58317	144.36666	92.64999	6.60990	0.0819276	0.23302101	2.6154073	20	9 21.1	19.1
99672 2002 JA_{8}	14.6	X	81.99901	225.72315	75.63228	10.91234	0.1316448	0.18795045	3.0183792	20	12 2.9	19.2
99673 2002 JP_{9}	15.7	X	11.54325	148.80255	78.61451	7.64541	0.1709005	0.27426333	2.3461596	20	5 21.9	17.3
99674 2002 JN_{11}	14.6	X	131.88960	247.54132	32.59026	11.65316	0.0833727	0.19054433	2.9909239	20	12 24.1	19.4
99675 2002 JM_{12}	15.7	X	1.30440	345.14008	241.32300	3.53194	0.1157679	0.27476051	2.3433285	20	4 25.1	17.8
99676 2002 JR_{12}	15.7	X	133.79652	63.35808	89.25894	5.33068	0.0582923	0.28215375	2.3022130	20	7 30.2	18.6
99677 2002 JC_{15}	15.1	X	238.07507	316.44299	68.10709	7.04604	0.0402715	0.22531591	2.6746983	20	6 11.9	18.6
99678 2002 JH_{15}	15.0	X	223.93640	262.92749	83.71261	10.16425	0.1542525	0.21292150	2.7775147	20	4 4.5	19.6
99679 2002 JK_{15}	15.9	X	77.37810	83.39005	113.81267	6.99064	0.0566867	0.27981666	2.3150143	20	7 16.4	18.6
99680 2002 JS_{16}	15.7	X	225.31005	137.91970	101.97685	7.25857	0.0617846	0.25662085	2.4524948	20	—	—

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	m		°	°	°	°		°				
99681 2002 JU_{18}	15.2	X	332.95870	136.17587	78.58008	7.13119	0.0579935	0.21274281	2.7790698	20	3 8.4	18.9
99682 2002 JL_{20}	15.7	X	179.37135	260.32332	315.75491	3.34942	0.1209817	0.24448170	2.5330192	20	12 3.9	19.5
99683 2002 JX_{20}	14.6	X	36.14146	262.00605	39.93001	10.25989	0.1787572	0.17816593	3.1279006	20	10 17.2	18.7
99684 2002 JZ_{20}	14.8	X	20.07791	119.90928	230.75786	10.18128	0.1395814	0.18367833	3.0650020	20	11 18.5	18.5
99685 2002 JH_{21}	16.6	X	31.45496	251.23618	254.28435	0.58840	0.1295764	0.26776913	2.3839421	20	2 20.8	18.9
99686 2002 JO_{22}	14.1	X	3.79121	134.71901	147.06655	2.21750	0.2705762	0.17014136	3.2254931	20	7 29.3	17.1
99687 2002 JY_{23}	16.0	X	290.02757	96.14943	157.18049	2.61581	0.1904037	0.26531207	2.3986380	20	1 31.9	19.5
99688 2002 JR_{24}	15.3	X	285.49053	191.16140	76.05029	6.72517	0.0037700	0.21337633	2.7735663	20	3 20.4	19.2
99689 2002 JB_{26}	16.0	X	192.70205	166.60846	90.01541	6.32959	0.1204301	0.25086370	2.4898747	20	—	—
99690 2002 JL_{26}	15.7	X	224.52347	49.81976	105.69837	4.66806	0.0724060	0.24356604	2.5393636	20	11 16.3	19.2
99691 2002 JP_{27}	16.1	X	272.58123	78.29587	182.77035	3.11612	0.1015950	0.26511268	2.3998405	20	2 1.5	19.3
99692 2002 JS_{27}	15.5	X	133.19383	163.23861	65.02727	9.85818	0.0670011	0.23902879	2.5713976	20	11 4.1	19.2
99693 2002 JV_{27}	14.7	X	111.68858	278.20249	46.56041	10.85463	0.1053197	0.19295193	2.9659919	20	—	—
99694 2002 JR_{29}	16.0	X	14.82550	358.36286	204.97414	6.07744	0.0683502	0.27174303	2.3606437	20	4 16.3	18.4
99695 2002 JS_{29}	15.7	X	36.59894	235.21129	87.44420	5.23611	0.1186624	0.23607223	2.5928225	20	11 15.7	19.1
99696 2002 JC_{30}	15.0	X	79.94284	222.74392	76.30501	2.29884	0.1254270	0.18414300	3.0598437	20	11 26.6	19.7
99697 2002 JX_{31}	16.2	X	59.13517	48.61308	74.27040	2.38805	0.1287465	0.26794545	2.3828962	20	3 12.4	18.4
99698 2002 JY_{31}	15.4	X	86.63673	71.27840	117.49143	2.18351	0.1077456	0.22618926	2.6678090	20	7 21.6	18.9
99699 2002 JD_{34}	14.5	X	24.22056	115.99108	224.77266	10.35631	0.0650464	0.18231096	3.0803084	20	11 1.3	18.6
99700 2002 JN_{34}	16.6	X	92.26020	20.92902	140.41249	3.32804	0.0965812	0.27722523	2.3294186	20	6 21.5	19.4
99701 2002 JW_{34}	16.1	X	148.22875	59.94998	210.19779	4.33582	0.1439302	0.24481689	2.5307066	20	—	—
99702 2002 JN_{35}	16.1	X	180.31013	112.28186	89.65450	4.72824	0.1223382	0.29626950	2.2284938	20	11 28.0	19.0
99703 2002 JU_{35}	14.9	X	261.08563	226.29334	73.79036	14.10034	0.1420186	0.21055158	2.7983179	20	3 18.9	19.4
99704 2002 JX_{35}	14.8	X	8.35994	176.67282	225.92639	8.48939	0.0732279	0.19044154	2.9920000	20	12 28.9	18.8
99705 2002 JY_{36}	15.2	X	203.29612	105.10111	167.39781	5.88757	0.0385496	0.20095992	2.8866652	20	—	—
99706 2002 JC_{38}	14.4	X	78.45339	198.85965	81.21516	10.44834	0.0704735	0.18138505	3.0907821	20	10 30.1	18.9
99707 2002 JY_{38}	14.4	X	343.95349	99.75684	247.23877	9.72728	0.0896875	0.17755881	3.1350266	20	9 7.6	18.6
99708 2002 JN_{39}	15.5	X	70.60517	176.72137	131.78732	6.76359	0.1553630	0.23856140	2.5747551	20	12 12.6	19.4
99709 2002 JW_{39}	14.2	X	346.59286	265.32794	88.05452	14.57835	0.2053197	0.17565928	3.1575870	20	10 7.4	17.8
99710 2002 JX_{39}	16.0	X	141.68764	91.68668	168.50272	4.19409	0.1928577	0.29706018	2.2245376	20	12 28.6	19.5
99711 2002 JK_{40}	15.5	X	354.54336	55.62870	249.21908	5.76089	0.1266938	0.28428236	2.2907065	20	8 17.2	17.7
99712 2002 JR_{40}	16.2	X	323.81445	262.69546	268.47984	1.71326	0.1234398	0.26257913	2.4152527	20	—	—
99713 2002 JS_{40}	16.1	X	359.85221	271.55943	231.65570	2.43674	0.1377309	0.26462502	2.4027880	20	—	—
99714 2002 JQ_{41}	15.1	X	305.22999	117.85212	214.29434	4.32070	0.1502965	0.28102770	2.3083587	20	6 19.1	17.5
99715 2002 JY_{41}	14.7	X	106.31868	176.74020	5.09827	2.69792	0.1136827	0.17739864	3.1369133	20	8 3.1	19.3
99716 2002 JU_{42}	16.0	X	312.09486	113.58674	115.15677	6.71510	0.0728749	0.26596254	2.3947255	20	2 14.9	18.9
99717 2002 JS_{43}	15.9	X	345.02732	295.97402	282.42596	3.34539	0.1542395	0.27036323	2.3686686	20	3 6.7	18.2
99718 2002 JV_{43}	15.2	X	87.24269	310.95491	242.86937	11.21472	0.0974263	0.22791706	2.6543091	20	7 24.1	19.1
99719 2002 JA_{44}	15.9	X	321.08685	338.18481	262.35883	3.46453	0.1453134	0.27001436	2.3707084	20	2 28.7	18.7
99720 2002 JK_{45}	16.2	X	239.70086	21.40681	238.55186	2.67293	0.0484585	0.26041007	2.4286459	20	—	—
99721 2002 JN_{45}	16.4	X	322.44063	343.47373	312.65994	3.33109	0.0958264	0.27715729	2.3297993	20	6 1.7	18.7
99722 2002 JW_{46}	15.9	X	310.75555	276.44598	269.28738	5.94503	0.1178828	0.26066350	2.4270715	20	—	—
99723 2002 JA_{47}	14.4	X	35.89277	38.35889	267.04224	7.56111	0.2144430	0.17769861	3.1333821	20	10 21.9	18.6
99724 2002 JM_{48}	14.8	X	61.46316	122.34973	235.86163	9.10237	0.0844113	0.19169476	2.9789455	20	—	—
99725 2002 JK_{49}	16.3	X	75.90282	275.06689	274.47047	5.50328	0.0817229	0.27910522	2.3189466	20	7 6.9	19.1
99726 2002 JZ_{50}	16.5	X	343.28427	215.48603	354.86591	1.95043	0.1458087	0.26804221	2.3823227	20	2 24.6	18.7
99727 2002 JW_{52}	16.8	X	113.91066	242.22806	353.64546	5.47401	0.0959464	0.29181298	2.2511252	20	10 29.5	19.9
99728 2002 JX_{54}	16.1	X	311.46737	195.06858	62.59828	2.07184	0.1591648	0.26841879	2.3800940	20	3 10.4	18.9
99729 2002 JQ_{55}	16.4	X	334.67096	207.75822	29.54508	2.37594	0.1704837	0.26951144	2.3736567	20	3 16.4	18.6
99730 2002 JL_{57}	15.1	X	145.35464	345.14377	270.11105	3.46086	0.0876632	0.18830609	3.0145776	20	12 8.3	19.6
99731 2002 JM_{57}	16.0	X	30.92948	268.40697	260.05050	5.06966	0.1587465	0.26999288	2.3708342	20	3 24.5	18.0
99732 2002 JN_{57}	14.6	X	137.21871	266.52960	47.73398	10.35717	0.0880965	0.19474033	2.9478052	20	—	—
99733 2002 JB_{58}	15.1	X	141.32673	260.06785	62.45885	2.72614	0.0907641	0.19790391	2.9163062	20	—	—
99734 2002 JN_{61}	16.1	X	4.26724	126.97423	146.82994	3.43161	0.1325982	0.27883145	2.3204642	20	7 19.8	18.2
99735 2002 JT_{61}	15.6	X	288.56551	152.47565	100.45262	7.65165	0.0817017	0.26501951	2.4004029	20	2 15.7	18.7
99736 2002 JW_{61}	16.1	X	94.10096	108.56873	92.61262	6.68441	0.1116405	0.28451544	2.2894553	20	8 25.3	19.2
99737 2002 JQ_{63}	16.3	X	44.43804	11.93590	183.83856	2.06193	0.1476684	0.27481851	2.3429988	20	6 6.6	18.5
99738 2002 JN_{64}	14.6	X	9.26453	101.90710	229.11711	14.97698	0.0767381	0.17808443	3.1288548	20	9 25.5	18.9
99739 2002 JT_{64}	15.0	X	204.08998	116.35281	69.14890	5.68694	0.1487863	0.24255254	2.5464325	20	11 19.6	18.6
99740 2002 JO_{65}	15.2	X	157.17045	146.46211	79.80149	8.61180	0.0989941	0.24037389	2.5617959	20	11 25.7	19.1
99741 2002 JX_{66}	16.5	X	75.48978	20.95908	146.04890	2.82858	0.1411528	0.27631874	2.3345105	20	6 13.4	19.2
99742 2002 JY_{68}	16.1	X	116.44796	58.57451	132.31653	7.30470	0.0498285	0.28776122	2.2722069	20	8 31.5	18.9
99743 2002 JP_{69}	16.0	X	305.72611	184.18886	105.97061	7.00357	0.1784672	0.27406471	2.3472930	20	4 15.9	18.7
99744 2002 JZ_{69}	15.1	X	99.94906	130.86640	73.62769	14.03904	0.1217542	0.23208065	2.6224674	20	9 6.2	19.2
99745 2002 JK_{71}	16.2	X	121.02063	87.91563	115.08953	6.20338	0.1245889	0.28870716	2.2672410	20	9 29.5	19.5
99746 2002 JJ_{73}	15.1	X	278.14191	244.37587	90.68296	15.49846	0.0822245	0.22045851	2.7138435	20	5 25.9	18.8
99747 2002 JK_{74}	14.7	X	53.43485	134.41436	149.60558	11.13000	0.1093748	0.18159496	3.0883999	20	10 9.7	19.0
99748 2002 JP_{77}	16.6	X	316.58143	287.40696	231.50400	0.71576	0.1242547	0.26000277	2.4311816	20	—	—
99749 2002 JF_{79}	15.6	X	103.33312	248.23250	19.07953	5.75020	0.0516453	0.24148164	2.5539554	20	11 15.9	19.3
99750 2002 JC_{83}	16.6	X	19.95875	339.45400	258.31128	1.30401	0.0255820	0.27838971	2.3229183	20	6 13.6	19.1
99751 2002 JG_{83}	15.3	X	30.60295	315.68227	352.32583	3.27882	0.0949271	0.18007268	3.1057810	20	10 3.0	19.4
99752 2002 JK_{84}	15.3	X	15.26496	300.01903	262.73253	3.60149	0.0471172	0.21914788	2.7246530	20	4 17.9	18.8
99753 2002 JC_{85}	15.2	X	30.84800	59.40039	299.85459	0.96288	0.0760264	0.18789431	3.0189804	20	12 5.7	19.3
99754 2002 JV_{88}	16.0	X	157.71156	269.71222	231.50869	2.46492	0.0381987	0.23058071	2.6338279	20	8 6.6	19.7
99755 2002 JZ_{88}	16.4	X	178.38644	133.63924	216.30417	1.08238	0.0825180	0.26366008	2.4086468	20	2 13.5	19.7
99756 2002 JH_{90}	16.5	X	57.06048	131.44317	353.29165	2.12597	0.1709673	0.27016009	2.3698558	20	3 15.3	18.5
99757 2002 JK_{90}	16.7	X	340.13810	197.60757	37.12647	2.30540	0.0773803	0.27170004	2.3608927	20	4 3.7	19.1
99758 2002 JN_{90}	15.0	X	355.35740	136.03986	226.44398	7.85436	0.1035780	0.18188070	3.0851644	20	10 21.3	18.8
99759 2002 JY_{99}	15.4	X	168.13357	91.32030	179.22580	13.94616	0.1804884	0.24534453	2.5270770	20	—	—
99760 2002 JN_{100}	14.8	X	169.24125	16.57905	118.34534	15.54621	0.1038189	0.23272333	2.6176371	20	8 14.3	18.8

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
99761 2002 JK_{101}	15.7	X	82.29269	15.30384	119.61551	24.97019	0.2969252	0.27330555	2.3516377	20	6 7.7	19.3
99762 2002 JF_{102}	15.3	X	113.11596	221.21978	86.63236	5.20873	0.2818936	0.24116963	2.5561577	20	—	—
99763 2002 JG_{102}	15.8	X	344.34667	69.44819	77.41980	2.38798	0.1342610	0.25908482	2.4369208	20	—	—
99764 2002 JK_{102}	15.1	X	170.06959	116.20385	172.23710	1.97608	0.0564530	0.19599193	2.9352421	20	—	—
99765 2002 JZ_{102}	16.3	X	23.56765	100.76304	121.11300	3.95477	0.1795710	0.27435454	2.3456396	20	6 10.8	18.0
99766 2002 JC_{103}	15.3	X	209.92518	138.74987	101.46154	3.11542	0.0612594	0.19589847	2.9361755	20	—	—
99767 2002 JP_{104}	14.7	X	67.85173	324.99103	18.37519	3.88391	0.1274792	0.19059275	2.9904173	20	—	—
99768 2002 JW_{104}	15.4	X	134.91253	85.42093	167.64286	0.35786	0.1336038	0.18565767	3.0431787	20	11 26.1	20.4
99769 2002 JD_{106}	15.9	X	128.14161	93.64303	66.04346	5.42440	0.0717307	0.28368175	2.2939386	20	8 3.9	19.0
99770 2002 JU_{106}	14.3	X	19.28234	64.74396	263.52816	10.64842	0.0904905	0.18202988	3.0834785	20	10 8.4	18.5
99771 2002 JE_{110}	16.4	X	303.39716	268.40457	356.74143	3.69021	0.1069902	0.26850936	2.3795587	20	3 16.5	19.2
99772 2002 JL_{110}	16.2	X	165.86907	233.25951	309.14141	5.43333	0.1094719	0.29196176	2.2503603	20	10 14.2	19.5
99773 2002 JC_{112}	15.1	X	146.61619	259.65458	277.72842	8.12466	0.1369038	0.23376422	2.6098609	20	9 8.9	19.3
99774 2002 JL_{112}	15.4	X	83.37002	275.25179	17.22140	4.39304	0.1608400	0.23678094	2.5876461	20	12 4.5	19.4
99775 2002 JA_{113}	15.3	X	181.28825	273.93589	137.70139	15.07007	0.0375002	0.22172154	2.7035275	20	5 13.9	19.4
99776 2002 JP_{114}	14.8	X	277.96545	235.10313	88.56313	13.26435	0.1029222	0.21788333	2.7351850	20	5 8.9	18.7
99777 2002 JR_{114}	15.6	X	350.53556	33.45341	157.06420	8.34869	0.0480904	0.26541434	2.3980218	20	2 20.0	18.5
99778 2002 JC_{115}	14.6	X	116.77950	358.87681	211.85535	16.39059	0.1548301	0.17742046	3.1366561	20	9 17.5	19.8
99779 2002 JN_{115}	16.1	X	21.40868	357.46532	212.32499	5.95718	0.0577368	0.27417120	2.3466852	20	5 7.3	18.6
99780 2002 JM_{116}	15.8	X	179.14866	259.38544	120.02846	6.86978	0.1450264	0.26980617	2.3719278	20	3 28.9	19.5
99781 2002 JY_{118}	15.6	X	149.87893	172.48465	79.21018	12.76769	0.1430718	0.24638898	2.5199303	20	12 17.9	19.4
99782 2002 JA_{121}	15.2	X	125.11317	180.12254	79.18525	16.74325	0.1371709	0.24180422	2.5516835	20	12 4.6	19.3
99783 2002 JE_{127}	15.4	X	179.05200	59.27853	141.22564	5.70342	0.0863988	0.24234845	2.5478619	20	11 18.8	19.1
99784 2002 JT_{129}	15.5	X	320.77131	247.34692	76.11920	10.32780	0.1546947	0.22477116	2.6790181	20	7 1.9	18.3
99785 2002 JU_{133}	14.8	X	87.26152	252.65278	353.72793	4.69827	0.1345589	0.17883518	3.1200921	20	10 1.9	19.4
99786 2002 JD_{141}	15.7	X	78.18111	297.00918	205.26614	8.47234	0.0749580	0.21702349	2.7424048	20	5 3.9	19.2
99787 2002 JM_{146}	16.2	X	346.18759	333.68626	277.91033	6.01200	0.0958900	0.27371309	2.3493029	20	5 5.4	18.6
99788 2002 KV_{1}	15.3	X	239.96660	122.26589	122.31866	3.07952	0.0384790	0.20377145	2.8600513	20	—	—
99789 2002 KE_{2}	15.4	X	272.24496	342.02529	292.46696	13.65167	0.2442478	0.25984764	2.4321491	20	2 2.5	19.3
99790 2002 KS_{2}	17.3	X	205.98578	339.87711	207.92470	1.51305	0.1115510	0.30053117	2.2073763	20	12 11.8	19.9
99791 2002 KD_{4}	14.8	X	106.26771	271.95618	290.96825	27.49294	0.1463267	0.22475625	2.6791367	20	8 21.7	19.4
99792 2002 KN_{4}	14.8	X	102.35105	16.26744	234.50246	4.87925	0.0917610	0.18070625	3.0985173	20	10 18.7	19.4
99793 2002 KO_{4}	16.7	X	346.84954	41.04293	174.64788	1.40572	0.1314563	0.26843158	2.3800184	20	3 11.4	19.1
99794 2002 KS_{5}	16.0	X	255.18001	146.38957	155.62630	1.43719	0.1885931	0.26352291	2.4094826	20	2 27.7	19.7
99795 2002 KM_{6}	14.7	X	75.47942	356.72520	280.96829	9.52725	0.4057490	0.22978767	2.6398844	20	11 28.3	19.5
99796 2002 KL_{12}	14.5	X	341.81615	193.29502	151.02638	11.78266	0.1208444	0.17434369	3.1734517	20	9 6.1	18.3
99797 2002 KJ_{13}	16.4	X	75.60761	336.14599	245.41480	5.15228	0.0934462	0.28245440	2.3005790	20	8 21.9	19.3
99798 2002 LT	14.9	X	127.21631	32.93331	145.81952	23.02825	0.0461995	0.23162905	2.6258749	20	8 20.7	18.4
99799 2002 LJ_{3}	18.3	X	335.23425	249.87674	122.36405	7.55779	0.2755877	0.55755794	1.4619843	20	—	—
99800 2002 LF_{7}	15.1	X	63.85443	318.85205	179.57467	7.75460	0.1627408	0.21567766	2.7538014	20	4 22.2	18.4
99801 2002 LP_{10}	14.2	X	69.21260	229.26336	119.86539	8.12168	0.2277099	0.18472711	3.0533900	20	—	—
99802 2002 LQ_{11}	15.9	X	301.69215	163.43769	108.21861	9.28699	0.2373727	0.26655610	2.3911692	20	3 6.8	19.1
99803 2002 LL_{13}	14.4	X	51.96076	38.83934	271.51422	8.53943	0.0822949	0.18127201	3.0920669	20	10 30.6	18.8
99804 2002 LL_{14}	15.9	X	70.09867	257.76307	261.43896	5.35892	0.0503866	0.27184365	2.3600611	20	5 8.1	18.7
99805 2002 LY_{16}	16.1	X	335.75284	196.20334	69.28925	3.50525	0.1457998	0.27155779	2.3617171	20	5 4.7	18.1
99806 2002 LN_{17}	14.3	X	317.29890	289.59874	78.62913	10.52396	0.0907475	0.17383879	3.1795934	20	9 3.5	18.5
99807 2002 LU_{18}	14.9	X	348.81997	223.53587	82.25095	15.48445	0.1140543	0.22361380	2.6882541	20	8 4.9	18.1
99808 2002 LE_{20}	15.9	X	182.34513	175.30342	67.64271	4.81481	0.2445236	0.24431567	2.5341666	20	12 29.9	20.0
99809 2002 LW_{20}	15.2	X	317.60077	197.91304	110.77562	10.32811	0.1685916	0.21656498	2.7462742	20	6 3.8	18.4
99810 2002 LD_{22}	15.0	X	67.02513	23.17794	252.53884	3.76693	0.1421397	0.17749604	3.1357657	20	10 15.2	19.6
99811 2002 LF_{25}	15.0	X	94.68059	61.93681	130.49629	15.30198	0.0333108	0.22715292	2.6602584	20	7 26.0	18.6
99812 2002 LW_{31}	14.2	X	33.12793	99.97700	250.22446	4.42822	0.1839285	0.17661956	3.1461314	20	12 10.2	18.3
99813 2002 LT_{34}	15.6	X	144.24995	155.46309	93.88301	10.88241	0.1664622	0.23799623	2.5788297	20	12 9.1	19.7
99814 2002 LS_{43}	13.2	X	147.40305	307.16061	284.57957	21.41532	0.0804245	0.17530610	3.1618265	20	11 6.1	18.5
99815 2002 LR_{45}	14.7	X	245.29921	116.79123	245.46918	6.32498	0.1690121	0.21582851	2.7525180	20	5 7.3	19.0
99816 2002 LH_{49}	14.7	X	4.30069	142.83174	263.68724	9.79307	0.1040604	0.18113366	3.0936412	20	12 29.4	18.6
99817 2002 LP_{50}	15.6	X	128.33142	162.06553	113.18335	10.05385	0.0435905	0.24408904	2.5357350	20	12 26.5	19.3
99818 2002 LO_{51}	15.5	X	192.18898	8.94932	157.13543	5.49012	0.1415929	0.23853533	2.5749428	20	10 15.5	19.5
99819 2002 LH_{52}	15.1	X	56.66060	298.99699	249.30555	8.99408	0.2917863	0.21836481	2.7311630	20	7 7.9	18.6
99820 2002 LG_{56}	14.9	X	41.27461	117.78069	138.56676	23.86630	0.2255341	0.27856423	2.3219480	20	9 21.9	18.0
99821 2002 LC_{57}	15.3	X	359.02302	143.10904	126.53191	10.31158	0.1530155	0.21765889	2.7370650	20	6 28.5	18.2
99822 2002 MA	14.2	X	271.10898	239.65612	123.27888	15.63562	0.0225423	0.16743723	3.2601283	20	6 28.2	18.9
99823 2002 ME_{2}	13.9	X	296.23099	126.07653	278.77259	15.39563	0.0780350	0.17107322	3.2137693	20	9 6.5	18.6
99824 Polnareff	15.4	X	8.78271	109.80242	123.56999	11.77028	0.0520572	0.21415207	2.7668643	20	5 25.3	19.1
99825 2002 NK_{7}	14.3	X	16.88733	88.25793	307.49498	14.66581	0.1590322	0.18087258	3.0966175	20	—	—
99826 2002 NJ_{8}	14.3	X	357.45978	76.28496	270.81709	8.55590	0.0487865	0.17072841	3.2180949	20	9 25.7	18.8
99827 2002 NR_{9}	14.9	X	93.30735	224.12350	130.84928	13.71547	0.1092522	0.18759074	3.0222366	20	—	—
99828 2002 NS_{9}	15.7	X	168.21257	46.22895	197.51449	2.85173	0.1777914	0.24101536	2.5572483	20	12 22.6	19.8
99829 2002 NV_{9}	14.7	X	38.23233	201.48898	158.15960	5.94999	0.1540202	0.17871338	3.1215095	20	12 24.2	19.1
99830 2002 NQ_{10}	15.2	X	82.66278	90.97761	281.67297	1.90948	0.1765001	0.18748777	3.0233429	20	—	—
99831 2002 NH_{11}	15.5	X	305.17379	35.69908	274.38897	3.64504	0.1457976	0.21417074	2.7667035	20	5 17.1	18.9
99832 2002 NL_{14}	15.7	X	169.14774	130.13269	130.95560	4.85888	0.2222272	0.24222300	2.5487415	20	—	—
99833 2002 NY_{18}	14.5	X	66.95378	199.02311	135.82821	17.90198	0.1111366	0.17933961	3.1142387	20	12 23.6	19.3
99834 2002 NX_{19}	14.8	X	18.99693	330.88613	289.60822	12.51818	0.1682543	0.21797252	2.7344389	20	7 25.3	17.7
99835 2002 NQ_{20}	15.1	X	190.70183	288.54703	267.68530	12.09588	0.1120967	0.23684945	2.5871471	20	11 20.0	19.0
99836 2002 NW_{20}	14.8	X	187.08022	134.08668	168.65744	9.66409	0.0110642	0.19288413	2.9666869	20	1 2.2	19.1
99837 2002 NJ_{21}	15.3	X	0.75586	63.32236	166.34781	5.21267	0.1962109	0.26817333	2.3815461	20	4 29.4	17.0
99838 2002 NX_{23}	14.4	X	153.74662	35.49789	298.83865	9.17124	0.0578122	0.19197375	2.9760587	20	1 6.9	18.7
99839 2002 NF_{25}	14.2	X	138.66218	13.42428	290.23670	9.59525	0.0905888	0.18427689	3.0583614	20	—	—
99840 2002 NN_{28}	14.6	X	44.70815	32.94265	14.79693	3.40434	0.1624293	0.18744667	3.0237849	20	—	—

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Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
99841 2002 NX_{32}	14.1	X	89.37945	353.81902	305.04499	15.04174	0.2409221	0.17451917	3.1713240	20	12 14.2	19.5
99842 2002 NT_{33}	13.9	X	334.66075	91.44979	276.46608	12.62777	0.1271794	0.16990934	3.2284288	20	9 15.8	18.1
99843 2002 NT_{34}	14.1	X	333.27437	151.89658	244.54018	8.42473	0.0713847	0.17450828	3.1714560	20	10 27.8	18.3
99844 2002 NR_{41}	14.8	X	0.26652	346.79958	101.64442	8.75909	0.0573541	0.18661752	3.0327348	20	—	—
99845 2002 NP_{42}	15.1	X	262.05931	60.89941	109.15686	14.56436	0.0938778	0.24141508	2.5544248	20	—	—
99846 2002 NK_{45}	15.7	X	251.79444	44.78807	120.60218	15.67240	0.0551230	0.24031193	2.5622362	20	—	—
99847 2002 NV_{46}	15.5	X	88.58598	143.76041	115.72019	5.96600	0.0991018	0.22853772	2.6495012	20	10 26.4	19.4
99848 2002 NY_{49}	15.0	X	24.02439	205.66702	146.02671	1.73755	0.1605237	0.17413110	3.1760341	20	11 26.1	19.1
99849 2002 NP_{51}	14.5	X	168.47993	180.88588	118.31077	16.20249	0.1169421	0.24464448	2.5318955	20	—	—
99850 2002 NS_{52}	13.3	X	31.57560	290.43672	109.57411	4.10127	0.2343514	0.12462714	3.9694253	20	—	—
99851 2002 OA_3	13.7	X	189.36142	226.72189	312.87240	19.89538	0.0397347	0.17020826	3.2246478	20	10 13.9	18.9
99852 2002 OL_8	14.7	X	59.31054	90.13200	271.41930	3.65689	0.1554641	0.18064512	3.0992163	20	—	—
99853 2002 OG_9	15.4	X	28.55408	289.35075	267.96322	6.15846	0.1548188	0.20945884	2.8080419	20	5 9.7	18.5
99854 2002 OD_{10}	14.7	X	103.61303	77.22997	276.29590	7.36218	0.0438907	0.18585564	3.0410172	20	—	—
99855 2002 OG_{10}	14.9	X	192.83349	21.01507	240.85710	8.17612	0.0386364	0.18590144	3.0405177	20	—	—
99856 2002 OS_{11}	15.5	X	68.93629	64.86293	222.53915	12.11977	0.1653127	0.22989254	2.6390815	20	11 14.1	19.4
99857 2002 OU_{15}	14.6	X	294.95008	250.43620	208.86844	10.18758	0.0819012	0.17672016	3.1449372	20	11 22.4	18.7
99858 2002 OX_{20}	15.1	X	170.56766	113.29104	123.55391	14.86928	0.1569785	0.23815716	2.5776678	20	12 18.7	19.3
99859 2002 OG_{21}	14.5	X	103.73924	314.90377	294.23631	9.35944	0.0279162	0.17169380	3.2060206	20	10 6.5	19.4
99860 2002 OL_{21}	15.8	X	208.35983	291.61839	321.64789	12.78195	0.1984574	0.24556104	2.5255913	20	—	—
99861 Tscharnuter	15.2	X	136.10409	322.25266	109.16616	3.25219	0.0523759	0.20370360	2.8606864	20	4 13.5	19.2
99862 Kenlevin	14.4	X	60.88412	261.73330	120.59858	10.08999	0.2602285	0.12546153	3.9518064	20	—	—
99863 Winnewisser	15.7	X	237.52804	228.35891	58.01311	3.28033	0.0512513	0.19709217	2.9243081	20	2 9.3	20.0
99864 2002 OF_{26}	14.5	X	67.94589	155.51514	133.89854	16.73360	0.0433134	0.17140966	3.2095626	20	10 26.3	19.3
99865 2002 PN_{20}	14.3	X	278.48264	295.03407	137.48808	23.17393	0.1526869	0.16981933	3.2295694	20	9 19.6	18.9
99866 2002 PX_{22}	14.6	X	271.96030	165.36124	308.34864	11.62344	0.0176363	0.17694523	3.1422698	20	11 12.6	19.2
99867 2002 PE_{24}	15.3	X	271.11509	60.94214	172.10353	2.44902	0.0187700	0.19527090	2.9424631	20	1 16.4	19.4
99868 2002 PD_{30}	14.2	X	332.44410	143.24366	317.11724	9.83630	0.0465038	0.18282036	3.0745839	20	—	—
99869 2002 PF_{46}	15.3	X	225.38132	45.46668	194.58551	2.76283	0.4036725	0.24795374	2.5093175	20	—	—
99870 2002 PZ_{47}	14.3	X	50.06476	107.11945	220.16179	9.53242	0.0859233	0.17219004	3.1998580	20	11 19.5	18.7
99871 2002 PB_{53}	15.0	X	178.71464	298.03813	356.31351	2.53215	0.0586860	0.18971524	2.9996315	20	—	—
99872 2002 PL_{53}	15.5	X	45.22306	205.32195	121.93855	7.53295	0.2123694	0.17278851	3.1924650	20	12 2.1	20.0
99873 2002 PA_{54}	14.2	X	21.83046	345.65712	66.95657	3.29636	0.1627060	0.18052948	3.1005397	20	—	—
99874 2002 PU_{70}	14.1	X	282.10334	186.69729	294.29510	16.14837	0.0713095	0.17566025	3.1575754	20	11 30.5	18.5
99875 2002 PE_{72}	13.8	X	143.93395	266.73440	279.65775	20.64466	0.0723986	0.16943712	3.2344244	20	9 1.7	19.1
99876 2002 PB_{74}	14.3	X	28.39583	41.81954	291.99480	15.58590	0.1426301	0.17107455	3.2137526	20	11 1.3	18.8
99877 2002 PB_{78}	12.8	X	64.86979	25.35506	347.20940	14.26609	0.2719529	0.12538060	3.9535068	20	—	—
99878 2002 PW_{83}	14.8	X	165.78902	287.06720	72.36673	2.74391	0.1024542	0.19547124	2.9404523	20	2 22.2	19.2
99879 2002 PO_{85}	14.7	X	4.78080	245.76827	113.90540	4.91044	0.1639837	0.16970131	3.2310666	20	11 7.3	18.5
99880 2002 PT_{91}	15.0	X	106.49529	42.34787	321.97893	8.54742	0.0938538	0.18786216	3.0193249	20	—	—
99881 2002 PX_{91}	14.8	X	128.25863	174.86828	141.97773	10.46821	0.0756486	0.18460366	3.0547512	20	—	—
99882 2002 PD_{94}	14.6	X	67.71933	31.09022	350.07484	9.11865	0.0606322	0.18325353	3.0697369	20	—	—
99883 2002 PP_{134}	14.2	X	24.26983	237.62433	150.55311	12.57226	0.0998294	0.17753311	3.1353292	20	—	—
99884 2002 PF_{135}	14.7	X	142.31044	14.71429	308.04843	9.08150	0.0617738	0.18829016	3.0147476	20	—	—
99885 2002 PR_{157}	14.7	X	276.62397	316.12487	125.40426	7.44972	0.1193372	0.17113394	3.2130090	20	10 2.1	19.0
99886 2002 PV_{158}	16.0	X	91.85024	95.40476	79.17346	2.00592	0.0986607	0.21407706	2.7675106	20	7 7.3	19.9
99887 2002 PC_{159}	15.3	X	53.37171	5.78025	69.97980	3.03818	0.0921702	0.19149316	2.9810359	20	1 7.9	19.0
99888 2002 PK_{164}	15.8	X	262.39061	289.16465	26.37016	2.20406	0.0704156	0.20675824	2.8324407	20	4 9.7	19.9
99889 2002 PS_{164}	14.7	X	229.21465	358.75926	116.57314	6.61334	0.1067765	0.17081565	3.2169991	20	9 17.4	19.6
99890 2002 PZ_{164}	15.6	X	300.54820	134.10935	132.25646	1.64149	0.0974416	0.20631190	2.8365244	20	3 22.5	19.2
99891 Donwells	15.0	X	119.16822	31.71117	296.94256	4.95027	0.0457901	0.18401682	3.0612423	20	—	—
99892 2002 QL	13.9	X	118.89684	357.07664	269.07789	21.42661	0.0837216	0.17192300	3.2031706	20	11 21.1	19.0
99893 2002 QX	14.7	X	235.37780	323.47471	139.00033	5.09144	0.0252502	0.16874417	3.2432731	20	9 17.4	19.4
99894 2002 QR_1	14.8	X	280.49419	88.82787	44.64675	2.55015	0.0485309	0.18013794	3.1050309	20	12 17.9	18.9
99895 2002 QS_5	13.7	X	292.22328	322.43630	276.46737	26.05877	0.1665370	0.19616227	2.9335426	20	1 22.4	18.2
99896 2002 QO_7	14.5	X	236.38969	313.99280	0.01198	6.83161	0.1135919	0.20200376	2.8767122	20	3 7.0	18.9
99897 2002 QO_{14}	14.2	X	142.87786	304.71701	282.98903	12.19052	0.1224044	0.17391026	3.1787222	20	10 29.0	19.4
99898 2002 QF_{32}	16.1	X	165.86700	217.59061	26.63126	4.68668	0.2156229	0.23750279	2.5824003	20	12 18.4	20.4
99899 2002 QJ_{32}	13.6	X	308.77920	66.13722	352.84413	12.73073	0.1487353	0.16959131	3.2324637	20	10 10.7	17.6
99900 2002 QL_{32}	14.7	X	169.45798	176.34952	354.28720	13.82868	0.1840776	0.22375263	2.6871420	20	9 23.3	19.2
99901 2002 QL_{44}	14.7	X	162.33527	200.33531	127.40306	11.45038	0.1069285	0.19286031	2.9669312	20	1 11.7	19.4
99902 2002 QZ_{47}	16.8	X	262.67608	328.01706	60.00239	1.23535	0.2229889	0.26915261	2.3757659	20	6 23.8	19.9
99903 2002 QG_{48}	15.9	X	307.46628	248.19739	67.34980	0.58260	0.0637689	0.21302107	2.7766492	20	6 9.9	19.5
99904 2002 QH_{48}	15.4	X	39.55129	33.95993	131.25215	3.86310	0.0387328	0.20444260	2.8537885	20	4 6.9	19.1
99905 Jeffgrossman	14.7	X	198.44026	143.81349	288.43811	3.45571	0.0892542	0.15365376	3.4522898	20	6 21.9	19.9
99906 Uofalberta	14.8	X	350.55269	219.69322	161.14467	11.66795	0.0872361	0.17135004	3.2103071	20	11 7.2	19.1
99907 1989 VA	17.9	X	224.76417	2.85197	225.59653	28.79850	0.5947111	1.58554731	0.7283664	20	—	—
99908 1990 OD_6	15.1	X	94.42274	191.27037	173.99187	15.09151	0.1120775	0.24352150	2.5396732	20	—	—
99909 1994 PU_2	16.0	X	126.92252	57.41371	316.57837	2.26302	0.1987405	0.24610848	2.5218446	20	2 2.9	19.4
99910 1994 TO_4	15.1	X	145.89959	123.50994	188.40366	13.89017	0.1301828	0.24106797	2.5568762	20	—	—
99911 1995 SE_{53}	15.5	X	161.48544	211.73118	183.22801	1.93052	0.2087400	0.26049872	2.4280949	20	4 1.5	19.2
99912 1995 UY_{44}	15.0	X	118.26969	333.51246	34.83955	10.02897	0.2047310	0.25097622	2.4891305	20	1 19.5	18.5
99913 1997 CZ_5	13.4	X	261.06751	169.50957	287.95257	24.95095	0.3978457	0.28386093	2.2929732	20	8 19.4	17.0
99914 1997 ST_{24}	15.4	X	11.28434	261.20006	6.67574	1.79904	0.0180667	0.20432327	2.8548995	20	7 10.5	19.1
99915 1997 TR_6	14.8	X	50.50484	218.27056	140.21200	3.02345	0.4032778	0.22264345	2.6960593	20	—	—
99916 1998 AA_5	14.4	X	22.04589	95.69838	272.77698	7.75424	0.1714243	0.21316568	2.7753932	20	12 25.9	18.0
99917 1998 HH_{19}	15.4	X	58.19904	126.50001	241.63946	3.26119	0.1513061	0.29629314	2.2283752	20	—	—
99918 1998 SQ_2	14.7	X	159.77287	38.25425	296.09534	16.67014	0.3164784	0.24389908	2.5370514	20	1 25.0	19.1
99919 1999 RR_{31}	15.2	X	81.98068	306.37225	22.78222	5.35314	0.2031506	0.29294842	2.2453046	20	—	—
99920 1999 RJ_{90}	14.6	X	261.86565	131.95084	14.57271	13.48869	0.0280934	0.24461246	2.5321164	20	12 30.5	18.1

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	m		°	°	°	°		°				
99921 1999 RO_{190}	15.4	X	109.39781	29.33990	12.95527	6.45561	0.1422161	0.25573610	2.4581480	20	2 11.5	18.5
99922 1999 RC_{193}	15.5	X	61.10985	334.33615	21.70679	5.54611	0.2004586	0.29428898	2.2384808	20	—	—
99923 1999 XS_{108}	15.4	X	84.30312	70.12338	41.18066	7.91750	0.0774956	0.25844449	2.4409443	20	3 30.9	18.4
99924 2000 AG_{62}	14.8	X	124.93479	183.89752	126.58699	16.09904	0.1240546	0.23443912	2.6048497	20	—	—
99925 2000 CF_{88}	14.5	X	117.22214	157.79446	136.76874	14.51580	0.1556137	0.22706865	2.6609166	20	—	—
99926 2000 CQ_{93}	15.4	X	118.76321	98.79885	276.42898	2.61251	0.1751925	0.24488475	2.5302390	20	1 22.8	18.6
99927 2000 ED_{90}	14.9	X	167.14401	98.60085	134.96275	14.41183	0.1343620	0.22511232	2.6763107	20	12 11.3	19.3
99928 Brainard	14.2	X	179.75190	64.02852	217.64005	4.00389	0.1411803	0.18001264	3.1064715	20	—	—
99929 2000 FF_{55}	14.6	X	5.29957	139.97455	170.17125	13.09929	0.1436880	0.20944168	2.8081953	20	9 6.7	17.8
99930 2000 GL_{87}	13.8	X	4.19698	29.38056	55.20237	11.53015	0.0644167	0.18138447	3.0907887	20	—	—
99931 2000 SK_{115}	16.0	X	43.55390	16.17432	20.51147	6.46179	0.0722451	0.30899501	2.1668811	20	—	—
99932 2000 VO_{34}	15.7	X	54.19015	358.16895	94.60366	1.27113	0.0483322	0.31351709	2.1459943	20	1 1.9	17.9
99933 2000 YN_{76}	15.9	X	318.81784	56.86608	98.90767	3.88662	0.0455566	0.30762829	2.1732943	20	—	—
99934 2001 DL_5	15.5	X	327.49829	341.23752	54.80411	5.51658	0.1565547	0.28834472	2.2691405	20	11 23.2	17.2
99935 2002 AV_4	15.9	X	329.85709	322.96315	16.35952	12.77067	0.6449862	0.46320387	1.6543266	20	4 20.8	16.9
99936 2002 RH_{183}	13.8	X	193.12415	273.66521	306.16705	15.64120	0.1143115	0.17617610	3.1514087	20	12 10.2	18.8
99937 2003 QT_{88}	14.7	X	143.49883	165.98214	191.35629	1.68938	0.1146624	0.19616670	2.9334984	20	1 27.5	19.1
99938 2003 UC_{149}	14.2	X	9.81015	217.21373	79.50904	16.41161	0.1157274	0.22323787	2.6912712	20	9 4.5	17.7
99939 2003 US_{149}	14.5	X	62.35586	180.45548	150.46102	4.82044	0.0454059	0.18053210	3.1005097	20	12 4.9	19.0
99940 2003 UM_{265}	15.5	X	14.17698	26.20710	187.99975	6.09706	0.0730370	0.26561277	2.3968274	20	5 3.3	18.0
99941 Lonniewege	14.7	X	227.59734	304.02205	145.92984	13.34003	0.1481156	0.22248791	2.6973156	20	8 12.1	18.6
99942 Apophis	19.2	X	248.14825	126.68698	204.04836	3.33685	0.1914747	1.11225549	0.9225707	20	—	—
99943 2005 AS_2	11.6	X	31.01407	89.17238	116.25931	13.54717	0.1095817	0.08115998	5.2833343	20	5 27.2	18.2
99944 2710 P–L	14.3	X	250.61461	108.70946	21.60887	9.06339	0.1433822	0.18194290	3.0844612	20	10 23.5	18.7
99945 4589 P–L	15.1	X	262.10487	299.25946	11.20024	10.37649	0.2596894	0.25824687	2.4421894	20	3 12.2	19.0
99946 4134 T–1	15.3	X	30.78146	292.65968	138.25677	2.80295	0.1776983	0.25710399	2.4494214	20	—	—
99947 4220 T–2	15.0	X	42.31400	109.10284	171.61017	12.88817	0.1667494	0.20998164	2.8033791	20	10 2.2	18.6
99948 1952 SU_1	15.5	X	217.81042	50.25070	299.05988	11.33729	0.3359246	0.24162805	2.5529236	20	3 15.1	20.5
99949 Miepgies	14.4	X	274.66059	159.65048	353.32102	29.41834	0.1470002	0.23919945	2.5701744	20	—	—
99950 Euchenor	12.3	X	341.06966	207.07122	167.65106	21.85458	0.0808269	0.08472150	5.1342100	20	9 28.9	18.7
99951 1975 SV_1	15.3	X	68.13804	354.02244	36.18734	6.06753	0.1585884	0.18149703	3.0895107	20	—	—
99952 1975 SY_1	16.3	X	196.10313	17.36062	25.81840	10.24049	0.2028951	0.27812403	2.3243974	20	5 8.8	20.2
99953 1978 ND	14.7	X	129.70563	116.70447	107.90652	32.59555	0.2514392	0.21786210	2.7353628	20	11 10.7	20.2
99954 1978 NH	14.5	X	155.40796	238.21241	123.86311	27.42417	0.2854648	0.20106989	2.8856126	20	2 28.7	19.8
99955 1978 UM_5	15.5	X	54.02789	336.09025	15.90344	9.61285	0.1648030	0.21530965	2.7569383	20	—	—
99956 1978 VA	14.9	X	325.84978	43.48012	59.28083	25.03237	0.3394205	0.23624566	2.5915534	20	—	—
99957 1978 VM_4	15.5	X	140.46849	327.86327	81.46199	3.65250	0.1553367	0.24592262	2.5231151	20	3 29.5	19.3
99958 1978 VB_9	16.6	X	250.39880	344.17881	54.51335	3.36832	0.2049363	0.27626127	2.3348342	20	6 26.7	19.9
99959 1978 VW_9	14.7	X	228.79130	282.42695	39.99354	2.83326	0.1598135	0.24658171	2.5186171	20	3 3.8	18.6
99960 1978 VD_{10}	16.3	X	6.48215	123.34963	247.99085	2.20354	0.3080999	0.23559237	2.5963420	20	—	—
99961 1979 MT_2	14.7	X	293.61709	294.55112	284.97137	9.97563	0.1773269	0.18414512	3.0598202	20	1 8.0	19.2
99962 1979 MF_3	15.7	X	110.27405	108.58334	195.52276	2.50300	0.1458449	0.22474182	2.6792513	20	—	—
99963 1979 MO_5	16.1	X	59.59115	19.57716	240.86923	4.53475	0.1570925	0.26742089	2.3860113	20	10 2.5	19.2
99964 1979 MJ_6	16.9	X	267.22870	188.69209	146.10238	1.81959	0.1881904	0.26074884	2.4265419	20	4 23.1	20.2
99965 1979 MC_7	16.9	X	272.37846	170.69374	143.53328	3.35540	0.1774727	0.26025531	2.4296086	20	4 3.7	20.2
99966 1979 MC_8	16.8	X	13.93078	54.61847	233.20955	1.69378	0.2195418	0.26562422	2.3967585	20	9 11.7	18.8
99967 1979 OG_8	15.5	X	325.69971	247.03915	125.50212	21.98532	0.3371783	0.26568764	2.3963771	20	10 21.2	17.2
99968 1979 QQ_2	15.4	X	335.93100	218.06816	155.15989	7.73969	0.3388250	0.24117215	2.5561398	20	11 8.9	16.7
99969 1981 DY_1	14.5	X	249.55540	288.44899	326.82030	13.24425	0.1729254	0.17075274	3.2177893	20	1 11.7	19.8
99970 1981 DB_2	15.1	X	23.81352	196.77477	288.36127	6.37676	0.2045319	0.22530726	2.6747668	20	1 15.1	17.3
99971 1981 DF_3	15.1	X	86.94357	300.62971	308.25235	10.20459	0.2576489	0.21087664	2.7954415	20	10 16.7	19.9
99972 1981 EV_5	14.7	X	179.28710	208.82351	233.87792	8.99744	0.0445447	0.18191793	3.0847434	20	6 15.4	19.3
99973 1981 EB_6	14.0	X	200.37093	57.89522	324.30636	12.17617	0.2172694	0.18047651	3.1011464	20	4 15.1	19.5
99974 1981 EJ_6	14.3	X	204.89959	229.49516	207.57671	15.83319	0.1903602	0.18371859	3.0645543	20	6 28.2	19.7
99975 1981 EP_6	14.4	X	332.99426	216.85110	334.60965	17.20715	0.1128992	0.17405036	3.1770163	20	2 6.5	18.6
99976 1981 EZ_6	16.0	X	286.76453	177.42942	257.25290	6.05709	0.2439511	0.26577738	2.3958376	20	10 2.6	18.2
99977 1981 ET_{12}	16.7	X	17.92280	330.93632	215.99102	6.32169	0.1433415	0.27815524	2.3242235	20	3 25.4	18.6
99978 1981 ER_{13}	16.2	X	96.85173	192.13828	281.91918	4.20718	0.1056089	0.22924352	2.6440602	20	4 22.8	19.7
99979 1981 EE_{16}	16.6	X	225.78558	304.82032	264.34113	3.33159	0.1836294	0.24340879	2.5404572	20	—	—
99980 1981 ER_{18}	15.2	X	251.38856	130.54331	344.64545	5.05747	0.1671727	0.24090351	2.5580398	20	10 11.3	18.5
99981 1981 EF_{20}	15.3	X	232.50175	14.34928	167.54061	7.94149	0.1221621	0.21786715	2.7353204	20	12 15.9	19.2
99982 1981 EJ_{21}	14.1	X	350.82331	15.10832	165.19558	9.66602	0.1689130	0.12510727	3.9592630	20	2 17.9	18.9
99983 1981 EF_{22}	16.1	X	351.73165	296.02160	193.30824	2.71072	0.2014785	0.27379853	2.3488141	20	—	—
99984 1981 EL_{23}	15.5	X	16.63710	279.10575	159.44946	3.43795	0.1234815	0.24677094	2.5173293	20	—	—
99985 1981 EJ_{25}	16.2	X	109.82794	44.69574	180.70968	2.41021	0.1707454	0.26150721	2.4218483	20	10 13.6	19.9
99986 1981 ET_{28}	14.9	X	61.00308	106.91322	322.14755	11.20940	0.0666083	0.22350290	2.6891432	20	1 3.0	18.3
99987 1981 EC_{31}	15.5	X	41.57005	116.79702	355.92106	13.50712	0.1174201	0.22544464	2.6736801	20	2 5.9	18.6
99988 1981 ET_{33}	14.9	X	308.73682	1.13294	295.02153	3.11536	0.1919230	0.18031835	3.1029595	20	4 27.0	18.9
99989 1981 EL_{35}	14.9	X	302.41771	27.92461	237.28309	10.20177	0.1082452	0.17717560	3.1395455	20	3 19.9	19.4
99990 1981 EM_{35}	15.9	X	77.22689	267.63311	1.16489	6.06121	0.1539116	0.28725673	2.2748664	20	11 5.7	19.2
99991 1981 EY_{37}	16.7	X	244.10869	291.96277	295.47234	1.66380	0.1263319	0.29626479	2.2285174	20	—	—
99992 1981 ER_{41}	14.6	X	340.59610	255.54584	358.62212	26.05489	0.2016524	0.17870289	3.1216317	20	4 13.9	18.4
99993 1981 ED_{42}	15.3	X	336.18769	70.97108	165.26273	4.66139	0.1310898	0.17707092	3.1407826	20	4 2.8	19.0
99994 1981 EN_{44}	15.0	X	287.56772	59.47393	307.21906	8.01386	0.2821688	0.26008341	2.4306790	20	6 17.3	18.0
99995 1981 ED_{45}	16.7	X	304.16675	181.39211	320.03292	5.96488	0.0666520	0.27034959	2.3687483	20	—	—
99996 1981 EJ_{45}	15.0	X	310.59539	39.07456	276.72490	4.58543	0.1728287	0.18159371	3.0884140	20	5 29.9	18.9
99997 1981 EN_{45}	15.9	X	344.89176	107.03057	304.44766	3.25028	0.1975573	0.29307724	2.2446467	20	—	—
99998 1981 ED_{48}	15.2	X	118.59764	301.77160	339.57089	8.72116	0.1553046	0.21530911	2.7569430	20	12 20.0	19.8
99999 1981 FP	16.2	X	76.28695	19.04683	181.31835	2.41606	0.1418554	0.25803494	2.4435264	20	7 30.8	19.3
100000 Astronautica	16.9	X	99.06540	199.65315	186.55208	21.18434	0.0872772	0.37487415	1.9049302	20	—	—