

## ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
32001 Golbin	15.5 <sup>m</sup>	X	259.44074	136.34611	169.46739	2.28821	0.1965266	0.23957924	2.5674575	20	3 8.7	19.5
32002 Gorokhovskiy	15.2	X	59.64504	156.47443	153.76185	2.18432	0.1868387	0.26218524	2.4176711	20	12 11.0	18.7
32003 2000 <i>HN</i> <sub>51</sub>	13.8	X	187.65791	109.61986	213.64278	7.37205	0.1075037	0.18408649	3.0604699	20	1 30.0	18.8
32004 2000 <i>HR</i> <sub>51</sub>	15.2	X	91.89305	82.84148	185.57297	2.16476	0.2021638	0.26169677	2.4206787	20	11 21.5	19.0
32005 Roberthalfon	15.5	X	249.20482	311.16304	47.35147	1.97652	0.1233238	0.29548500	2.2324364	20	5 10.4	18.5
32006 Hallisey	15.9	X	201.47478	32.33537	219.99146	6.27028	0.1094362	0.27547048	2.3393005	20	—	—
32007 Amirhelmy	15.7	X	216.05056	322.90531	66.84860	6.21038	0.1475284	0.29586987	2.2305000	20	5 14.5	18.8
32008 Adriángalád	14.5	X	309.82051	143.99554	221.82232	6.30394	0.1928042	0.30355957	2.1926708	20	8 17.9	16.2
32009 2000 <i>HN</i> <sub>54</sub>	14.2	X	306.27118	249.97587	65.63077	8.18841	0.1588798	0.24702225	2.5156217	20	5 24.8	16.9
32010 2000 <i>HW</i> <sub>54</sub>	14.8	X	124.34153	253.33873	61.34143	5.93730	0.2254735	0.27019334	2.3696613	20	—	—
32011 2000 <i>HF</i> <sub>56</sub>	13.4	X	224.70083	257.35564	51.26665	11.70163	0.1086711	0.18853137	3.0121757	20	2 24.4	18.3
32012 2000 <i>HE</i> <sub>57</sub>	14.6	X	213.83896	86.68929	199.76451	14.78355	0.1297144	0.23223622	2.6212961	20	1 5.8	19.0
32013 2000 <i>HJ</i> <sub>57</sub>	15.7	X	84.36677	120.04502	174.02165	6.28254	0.1457269	0.26451989	2.4034245	20	12 12.6	19.4
32014 Bida	14.9	X	290.73879	2.20661	339.15827	6.54272	0.2449051	0.29940962	2.2128852	20	5 19.8	17.6
32015 2000 <i>HC</i> <sub>67</sub>	15.3	X	263.67914	238.60714	75.87671	6.49607	0.2516293	0.24230947	2.5481351	20	3 21.5	19.5
32016 2000 <i>HC</i> <sub>76</sub>	14.5	X	136.76597	208.28295	103.85145	4.10391	0.2462661	0.27222984	2.3578286	20	—	—
32017 2000 <i>HC</i> <sub>77</sub>	15.5	X	265.70645	192.30273	131.14489	3.11453	0.2205515	0.24282458	2.5445303	20	4 6.6	19.3
32018 Robhenning	15.1	X	65.73760	115.99374	223.24018	5.58585	0.1373842	0.27101099	2.3648928	20	—	—
32019 Krithikaiyer	15.7	X	301.66341	2.71118	259.44479	2.03524	0.0880504	0.24130507	2.5552011	20	3 14.7	18.9
32020 2000 <i>HZ</i> <sub>87</sub>	13.6	X	106.56298	320.26764	58.41772	14.04103	0.1784912	0.23081077	2.6320775	20	1 17.0	17.2
32021 Lilyjenkins	14.6	X	79.48437	211.80398	67.27946	7.96793	0.1671977	0.26181092	2.4199750	20	11 20.4	18.1
32022 Sarahjenkins	15.5	X	11.88512	5.14182	193.03355	6.52247	0.0905280	0.29310195	2.4455205	20	3 31.7	17.6
32023 2000 <i>HO</i> <sub>89</sub>	15.6	X	28.66626	172.48738	172.87321	2.23497	0.2622028	0.26236224	2.1465836	20	12 26.2	18.8
32024 2000 <i>HP</i> <sub>89</sub>	15.0	X	25.84328	334.83545	51.13765	3.30442	0.2035556	0.26908790	2.3761468	20	—	—
32025 Karanjerrath	15.2	X	104.84397	332.50919	68.45550	5.22406	0.1582418	0.28216025	2.3021776	20	1 31.8	17.9
32026 2000 <i>HQ</i> <sub>90</sub>	15.0	X	167.30128	191.05599	167.90701	7.21239	0.2072622	0.23629905	2.5911630	20	2 23.5	19.2
32027 2000 <i>HO</i> <sub>100</sub>	14.9	X	278.12799	313.45621	76.95753	7.20184	0.1408632	0.25669598	2.4520162	20	8 2.8	17.8
32028 2000 <i>JU</i> <sub>12</sub>	16.1	X	43.49044	87.21607	236.03790	0.79283	0.2073137	0.26189685	2.4194456	20	12 12.4	19.4
32029 2000 <i>JJ</i> <sub>14</sub>	15.2	X	109.05847	291.18459	59.85344	9.47150	0.2166139	0.27382090	2.3486861	20	—	—
32030 2000 <i>JX</i> <sub>14</sub>	13.8	X	95.42870	46.10892	60.26068	10.90078	0.0492881	0.19270992	2.9684746	20	4 11.0	18.0
32031 Joyjin	16.5	X	208.42963	97.65188	186.65966	5.66719	0.1295726	0.28106476	2.3081558	20	—	—
32032 Askandola	15.5	X	223.92752	133.79241	166.11438	4.12127	0.0657968	0.28596300	2.2817225	20	1 27.4	18.6
32033 Arjunkturapur	15.0	X	25.90867	291.31199	324.20996	2.40206	0.1360429	0.29991418	2.2104026	20	8 6.9	16.9
32034 Sophiakorner	15.0	X	189.62022	187.26308	105.10843	5.12936	0.1439931	0.27837749	2.3229863	20	—	—
32035 2000 <i>JS</i> <sub>18</sub>	14.1	X	253.24502	233.97585	27.44756	12.04776	0.1313806	0.18405260	3.0608456	20	1 24.8	19.0
32036 2000 <i>JP</i> <sub>19</sub>	14.4	X	165.25831	248.49276	96.28532	22.71267	0.2298587	0.28002224	2.3138811	20	2 5.3	18.4
32037 Deepikakurup	15.6	X	4.07128	2.72772	331.98493	2.25194	0.1838832	0.25850667	2.4405528	20	10 26.6	18.0
32038 Kwiecinski	15.3	X	287.51678	350.00283	337.44758	1.94235	0.1938017	0.29639865	2.2278463	20	5 4.6	17.8
32039 2000 <i>JO</i> <sub>23</sub>	14.6	X	331.07681	353.32941	303.81902	6.50308	0.2820393	0.29731025	2.232901	20	5 22.1	15.8
32040 2000 <i>JH</i> <sub>26</sub>	15.1	X	96.63575	32.04363	307.06009	4.72443	0.2758042	0.27042682	2.3682972	20	—	—
32041 2000 <i>JP</i> <sub>26</sub>	14.5	X	72.30021	69.84138	269.06195	7.85709	0.2198692	0.26782874	2.3835884	20	—	—
32042 2000 <i>JZ</i> <sub>26</sub>	15.9	X	232.02498	166.47072	318.62211	3.26416	0.0774381	0.31412015	2.1432468	20	10 27.2	18.4
32043 2000 <i>JO</i> <sub>27</sub>	14.5	X	220.62194	87.30985	290.55811	3.52383	0.1981081	0.24615303	2.5215404	20	4 29.7	18.7
32044 Lakmazaheri	15.2	X	240.96979	37.85024	275.22371	3.20644	0.1978327	0.28748852	2.2736435	20	2 24.3	18.8
32045 2000 <i>JD</i> <sub>28</sub>	14.9	X	312.73643	116.57770	254.11935	4.70194	0.2174605	0.25663416	2.4524100	20	8 21.5	16.9
32046 2000 <i>JR</i> <sub>28</sub>	14.4	X	125.86301	51.54256	249.65817	9.73243	0.2102876	0.27004764	2.3705136	20	—	—
32047 Wenjiali	15.2	X	256.70952	354.07820	310.32444	4.39457	0.1744407	0.23945828	2.5683220	20	3 4.9	19.1
32048 Kathyiliu	15.0	X	178.95775	286.85175	301.55714	1.94558	0.1690065	0.26981827	2.3718569	20	12 20.2	18.4
32049 Jonathanma	14.8	X	187.43265	14.36586	249.44324	5.56057	0.1039550	0.27478202	2.3432062	20	—	—
32050 2000 <i>JA</i> <sub>37</sub>	14.6	X	227.48521	129.53239	40.86789	6.49043	0.0985905	0.26885857	2.3774978	20	12 9.8	17.5
32051 Sadhikamalladi	15.1	X	359.77030	285.04464	56.44646	5.76704	0.1221330	0.25771183	2.4455684	20	10 22.4	17.6
32052 Diyamathur	15.1	X	231.34059	17.15138	42.62056	6.49278	0.0180884	0.30184716	2.2009588	20	8 2.1	17.7
32053 Demetrimaxim	14.9	X	286.66896	302.86686	60.07378	4.06492	0.1787586	0.29887201	2.2155381	20	6 30.4	17.0
32054 Musunuri	14.8	X	282.39799	156.84692	51.98010	5.45661	0.0906102	0.28056896	2.3108742	20	—	—
32055 2000 <i>JS</i> <sub>39</sub>	14.9	X	254.37517	246.41906	63.08670	1.40312	0.2728066	0.18940031	3.0029557	20	3 6.7	19.9
32056 Abrarnadroo	16.0	X	100.47089	179.67502	208.75810	5.39537	0.0704889	0.28226334	2.3016171	20	—	—
32057 Ethannovek	15.8	X	341.82458	38.80124	277.30622	1.72743	0.1214924	0.25419725	2.4680587	20	8 6.9	18.2
32058 Charlesnodaya	14.8	X	4.01608	244.47311	62.46764	4.31080	0.1995221	0.20411035	2.8568846	20	9 7.6	17.7
32059 Ruchipandya	15.3	X	44.71664	17.96420	228.34846	3.96224	0.1199847	0.30173618	2.2014954	20	8 20.5	17.6
32060 Wyattpontius	14.4	X	308.93000	228.49756	100.67911	1.41236	0.1892130	0.19893038	2.9062656	20	6 12.5	17.7
32061 2000 <i>JK</i> <sub>48</sub>	14.4	X	113.09614	208.98492	21.66878	10.48549	0.1791492	0.26114916	2.4240615	20	10 22.3	18.2
32062 Amolpunjabi	16.3	X	285.95773	292.96831	230.20543	2.35747	0.1137212	0.27714144	2.3298881	20	—	—
32063 Pusapaty	14.5	X	338.64435	323.66191	283.03425	5.64933	0.0701076	0.24425381	2.5345945	20	4 18.2	17.6
32064 2000 <i>JU</i> <sub>51</sub>	14.5	X	174.98830	19.67572	256.97300	10.03426	0.1761994	0.27361442	2.3498676	20	—	—
32065 Radulovacki	14.8	X	185.28090	19.69797	266.88352	9.59457	0.1366203	0.27635570	2.3343023	20	—	—
32066 Ramayya	14.9	X	253.96301	196.12402	26.90552	7.35631	0.0542368	0.27848264	2.3224015	20	—	—
32067 Ranganathan	15.0	X	294.68879	181.65498	79.80834	7.32827	0.0782048	0.28870907	2.2672310	20	3 5.7	17.8
32068 2000 <i>JE</i> <sub>58</sub>	14.5	X	164.98165	348.02875	219.02425	13.14574	0.1358842	0.21561920	2.7542991	20	11 3.9	18.9
32069 Mayarao	14.7	X	187.07596	190.42604	29.51132	7.33716	0.0501679	0.26968053	2.3726644	20	12 31.8	17.9
32070 Michaelretchin	15.6	X	229.35553	280.84812	64.06804	4.64009	0.1395878	0.28968688	2.2621262	20	3 31.7	19.0
32071 Matthewwretchin	14.5	X	233.90241	240.37211	52.33221	7.34809	0.0738021	0.23467957	2.6030701	20	2 8.6	18.4
32072 Revanur	14.2	X	248.17452	192.98404	121.86023	1.03782	0.1721078	0.18917968	3.0052901	20	3 15.3	18.9
32073 Cassidyryan	15.0	X	69.21777	180.88958	66.76919	5.84357	0.1369796	0.25560259	2.4590039	20	9 27.7	18.4
32074 Kevinadhur	15.2	X	347.76806	178.07664	116.33034	0.51981	0.1266854	0.29922185	2.2138108	20	7 20.9	16.6
32075 2000 <i>JU</i> <sub>66</sub>	13.7	X	119.10365	238.54534	174.50738	9.97391	0.1017302	0.18859197	3.0115304	20	3 7.1	18.1
32076 2000 <i>JA</i> <sub>70</sub>	15.6	X										

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Planet	H	G	M	$\omega$	$\Omega$	$i$	$e$	$\mu$	$a$	TE	Oppos.	V
32081 2000 JT <sub>77</sub>	15.3	X	95.37659	283.87735	359.57165	6.07932	0.0846810	0.31444311	2.1417790	20	12 16.3	18.3
32082 Sominsky	15.3	X	217.21706	151.54292	142.83634	1.99375	0.1334187	0.18387835	3.0627789	20	1 25.9	20.2
32083 2000 KO	14.8	X	286.07590	193.44924	128.23801	4.72704	0.2541958	0.24388357	2.5371590	20	4 20.9	18.4
32084 2000 KP <sub>5</sub>	15.6	X	34.38353	156.95514	170.64027	6.54176	0.1387168	0.26104608	2.4246996	20	11 28.3	18.7
32085 Tomback	14.8	X	204.28510	101.57595	170.59583	3.57604	0.1495065	0.22701483	2.6613371	20	—	—
32086 Viviannetu	14.4	X	210.05818	356.21539	245.76533	4.61551	0.1313361	0.17604627	3.1529578	20	—	—
32087 Vemulapalli	14.2	X	292.90003	89.29859	258.44384	0.88763	0.0915071	0.20009701	2.8949583	20	6 28.1	18.0
32088 Ljamwallace	14.7	X	152.46199	184.55718	51.55699	4.64196	0.0582934	0.21670497	2.7450914	20	11 28.4	18.6
32089 Wojtania	15.5	X	149.83108	70.60970	171.47499	1.29297	0.1459084	0.26609315	2.3939418	20	12 10.2	19.1
32090 Craigworley	14.8	X	155.78742	231.80362	68.10265	9.04303	0.1276569	0.27305518	2.3530750	20	—	—
32091 Jasonwu	15.2	X	214.48474	91.18874	193.91762	1.54117	0.1097177	0.27954635	2.3165063	20	—	—
32092 Brianxia	15.0	X	261.38581	216.55388	93.56349	0.63288	0.1391358	0.23898786	2.5716912	20	3 22.3	18.5
32093 Zhengyan	15.7	X	207.82158	49.70009	228.04966	2.12955	0.1182844	0.27750069	2.3278769	20	—	—
32094 2000 KX <sub>32</sub>	14.6	X	262.89106	250.59964	355.23223	0.87335	0.2336332	0.18244687	3.0787785	20	1 4.3	19.6
32095 2000 KG <sub>38</sub>	14.9	X	99.63028	243.13012	128.74714	4.24665	0.0649144	0.22769538	2.6560316	20	—	—
32096 Puckett	14.9	X	288.77209	111.11883	203.47366	2.45426	0.1522716	0.24220225	2.5488871	20	4 28.2	18.2
32097 2000 KN <sub>39</sub>	14.8	X	69.77920	204.09759	168.76932	3.90106	0.1022251	0.22373886	2.6872523	20	—	—
32098 2000 KB <sub>43</sub>	15.3	X	302.27761	23.15581	117.22286	4.77469	0.1007929	0.27550510	2.3391045	20	—	—
32099 2000 KA <sub>48</sub>	14.4	X	257.42420	161.24043	125.46225	14.52741	0.1548789	0.23560352	2.5962601	20	2 18.1	18.4
32100 2000 KU <sub>48</sub>	15.9	X	88.13337	170.71407	121.13898	4.03618	0.2010149	0.26326177	2.4110757	20	12 16.6	19.9
32101 Williamyin	14.7	X	290.92514	298.04644	28.90636	1.20835	0.2022784	0.24428483	2.5343799	20	5 9.7	18.0
32102 2000 KB <sub>52</sub>	15.0	X	136.34379	153.04752	151.97469	2.76550	0.1670179	0.22345501	2.6895275	20	—	—
32103 2000 KF <sub>52</sub>	14.8	X	96.02918	277.36902	73.78278	5.27454	0.2531717	0.27211920	2.3584676	20	—	—
32104 2000 KR <sub>52</sub>	15.5	X	339.63185	150.50704	167.70329	5.22685	0.1861092	0.25259570	2.4784800	20	8 3.6	17.5
32105 2000 KT <sub>52</sub>	15.6	X	106.59742	88.26813	185.01120	5.45958	0.1011865	0.26569868	2.3963107	20	12 6.8	19.2
32106 2000 KD <sub>58</sub>	15.7	X	310.49113	170.19598	111.85080	6.89533	0.1790550	0.24463881	2.5319346	20	4 13.8	18.7
32107 Ylitalo	15.9	X	42.59834	345.78299	105.69275	3.88262	0.0373878	0.28235576	2.3011148	20	—	—
32108 Jovanzhang	15.2	X	88.62865	308.33942	90.42588	7.65459	0.1080352	0.28053966	2.3110351	20	—	—
32109 2000 KQ <sub>70</sub>	15.7	X	135.88942	209.44218	353.59110	4.51885	0.1726716	0.26186243	2.4196576	20	10 8.2	19.4
32110 2000 KA <sub>73</sub>	13.8	X	173.23223	206.04721	169.76950	13.75605	0.2073196	0.22955440	2.6416724	20	3 21.6	18.3
32111 2000 KD <sub>73</sub>	14.3	X	207.69851	106.51769	173.48675	5.68712	0.1614711	0.22436042	2.6822868	20	—	—
32112 2000 KK <sub>73</sub>	14.0	X	91.46446	92.59190	261.46279	7.72558	0.1606162	0.21618445	2.7494960	20	—	—
32113 2000 KP <sub>73</sub>	14.1	X	279.02478	86.42646	219.31193	9.33452	0.1054071	0.18784341	3.0195257	20	4 12.6	18.3
32114 2000 KY <sub>75</sub>	14.2	X	17.62241	310.75572	96.62644	13.93155	0.1610911	0.22259366	2.6964613	20	—	—
32115 2000 KQ <sub>80</sub>	15.5	X	241.49018	163.14459	90.76116	5.14961	0.2535798	0.27946849	2.3169366	20	—	—
32116 2000 LD <sub>4</sub>	13.6	X	164.88403	313.78618	129.08821	15.35166	0.0697792	0.24430465	2.5342428	20	6 3.4	17.5
32117 2000 LD <sub>5</sub>	14.6	X	90.85527	102.93077	177.77612	7.58369	0.2035167	0.21156945	2.7893354	20	11 28.4	19.2
32118 2000 LW <sub>5</sub>	15.4	X	115.23273	287.17798	320.63863	2.28787	0.1272327	0.26197794	2.4189464	20	11 12.7	19.1
32119 2000 LM <sub>7</sub>	13.9	X	312.65951	85.90901	156.24898	10.46373	0.0576461	0.18555270	3.0443263	20	3 16.3	18.0
32120 Stevezheng	14.8	X	122.70364	282.66121	298.91057	1.25870	0.1621803	0.25993548	2.4316012	20	10 19.2	18.5
32121 Joshuazhou	15.1	X	193.62859	154.54093	120.43334	3.57452	0.0667454	0.27528895	2.3403287	20	—	—
32122 2000 LD <sub>10</sub>	14.4	X	150.36415	245.33357	87.95035	14.26827	0.3315708	0.27078887	2.3661858	20	1 17.2	18.4
32123 2000 LO <sub>10</sub>	13.4	X	241.13202	352.21632	235.23082	15.17470	0.1746308	0.17337080	3.1853127	20	—	—
32124 2000 LH <sub>11</sub>	14.2	X	187.90200	96.11599	230.68710	21.48048	0.0468701	0.23130009	2.6283640	20	1 21.5	18.5
32125 2000 LZ <sub>11</sub>	12.4	X	68.71575	152.24973	245.04649	20.59292	0.0129415	0.17264740	3.1942043	20	—	—
32126 2000 LF <sub>12</sub>	13.7	X	162.20448	0.18095	244.67259	14.05364	0.1215644	0.26341527	2.4101390	20	12 25.1	17.4
32127 2000 LK <sub>12</sub>	13.9	X	230.60371	98.50859	202.96246	11.93424	0.0927833	0.17990160	3.1077497	20	2 14.5	18.8
32128 Jayzussman	14.6	X	281.63251	47.45175	204.28067	6.44619	0.1181960	0.28367505	2.2939747	20	1 25.2	17.8
32129 2000 LV <sub>14</sub>	14.0	X	1.27100	59.78476	267.25349	8.31075	0.1553466	0.25089753	2.4896510	20	9 29.5	16.6
32130 2000 LN <sub>16</sub>	14.2	X	178.77092	131.85592	180.95182	13.72530	0.0534616	0.22335206	2.6903539	20	1 1.8	18.4
32131 Ravindran	15.3	X	115.38994	120.52081	151.01729	6.95798	0.1015159	0.26565327	2.3965837	20	12 13.8	18.9
32132 Andrewamini	14.6	X	204.77553	204.50985	126.26275	6.88020	0.1669563	0.28400763	2.2921835	20	2 17.7	18.2
32133 2000 LU <sub>16</sub>	14.4	X	349.58733	334.92111	205.42768	12.50599	0.0859471	0.23654651	2.5893555	20	2 1.7	17.7
32134 2000 LT <sub>17</sub>	13.7	X	301.48867	2.32121	274.28255	15.19695	0.1228516	0.23702831	2.5858455	20	3 21.0	17.6
32135 2000 LF <sub>18</sub>	12.6	X	119.62118	240.31162	130.40534	23.95164	0.1249846	0.17514197	3.1638015	20	1 22.2	17.2
32136 2000 LN <sub>18</sub>	13.7	X	330.77330	259.11522	226.54758	7.41227	0.0649581	0.22155553	2.7048778	20	—	—
32137 2000 LM <sub>19</sub>	13.6	X	92.69865	79.19296	237.83482	7.77015	0.1987612	0.21305328	2.7763693	20	—	—
32138 2000 LQ <sub>19</sub>	13.4	X	291.29851	119.27231	219.33995	9.72591	0.1728539	0.24261352	2.5460057	20	6 1.3	16.5
32139 2000 LT <sub>19</sub>	13.9	X	170.82412	86.23555	248.63161	11.67418	0.2032187	0.22521698	2.6754815	20	1 26.8	18.5
32140 2000 LF <sub>21</sub>	14.0	X	73.61478	126.58182	215.66134	7.87469	0.2185187	0.21126677	2.7919990	20	—	—
32141 2000 LB <sub>24</sub>	13.8	X	3.84068	238.72503	205.62581	21.29028	0.0649542	0.22295959	2.6935101	20	—	—
32142 2000 LU <sub>26</sub>	14.3	X	133.47312	102.80810	245.13395	8.23162	0.1861490	0.21989993	2.7184373	20	1 9.6	18.4
32143 2000 LA <sub>27</sub>	13.3	X	127.82955	344.60383	282.07625	15.02487	0.1499532	0.26110727	2.4243207	20	12 19.3	17.1
32144 2000 LA <sub>29</sub>	13.8	X	49.84866	110.29813	300.68370	6.58069	0.2237961	0.21447884	2.7640533	20	—	—
32145 Katberman	14.6	X	139.81830	139.57820	105.89529	9.02315	0.1762041	0.26272042	2.4143867	20	12 4.9	18.6
32146 Paigebrown	14.5	X	96.98663	127.46260	243.98400	7.08550	0.1313515	0.27012507	2.3700606	20	—	—
32147 2000 LW <sub>30</sub>	14.2	X	312.26703	293.98023	69.90415	10.96506	0.1634370	0.25453066	2.4659029	20	8 25.1	16.8
32148 2000 LX <sub>30</sub>	15.5	X	45.28402	141.70915	192.04923	2.41782	0.1971718	0.26251513	2.4156452	20	12 26.4	19.0
32149 2000 LY <sub>30</sub>	15.1	X	106.29984	159.28481	192.44689	8.04303	0.1885163	0.27374448	2.3491232	20	—	—
32150 2000 LJ <sub>31</sub>	13.6	X	276.81468	49.760								

# ELEMENTS AND OPPOSITION DATES IN 2020

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
32161 2000 MR <sub>3</sub>	13.9	X	122.92585	9.00272	270.75455	8.10946	0.1232877	0.21614001	2.7498728	20	12 21.3	18.2
32162 2000 MV <sub>5</sub>	13.1	X	6.76104	86.76989	275.92089	12.33909	0.1470168	0.20266233	2.8704767	20	11 17.8	16.6
32163 Claireburch	14.6	X	186.72843	172.32981	154.29125	5.13734	0.1489031	0.28087455	2.3091977	20	1 25.1	18.0
32164 2000 NW <sub>4</sub>	13.7	X	274.77295	225.26305	114.79430	14.09219	0.1939936	0.24043147	2.5613869	20	5 13.6	17.5
32165 2000 NY <sub>5</sub>	14.8	X	18.41194	275.45285	147.01133	8.02110	0.2142369	0.21349214	2.7725632	20	—	—
32166 2000 NN <sub>6</sub>	14.9	X	147.30385	278.79504	268.81599	5.14152	0.0465822	0.25317483	2.4746989	20	9 25.7	18.5
32167 2000 NU <sub>8</sub>	15.0	X	104.57893	261.57003	172.88857	4.42881	0.2016676	0.27799157	2.3251357	20	3 23.7	17.7
32168 2000 NP <sub>9</sub>	14.6	X	128.37651	256.05550	118.13601	6.95067	0.1261368	0.27400051	2.3476596	20	1 22.1	17.3
32169 2000 NT <sub>9</sub>	14.3	X	197.25377	86.57951	196.71522	10.75276	0.1150884	0.22543671	2.6737428	20	—	—
32170 2000 NU <sub>9</sub>	13.6	X	93.15957	36.37552	196.37912	13.87888	0.1168464	0.20602441	2.8391626	20	9 22.3	17.8
32171 2000 ND <sub>10</sub>	14.7	X	207.88520	216.38896	346.07833	22.93966	0.1697561	0.26630954	2.3926448	20	12 17.0	18.6
32172 2000 NB <sub>11</sub>	13.9	X	164.87867	106.28905	194.29934	1.41286	0.1941815	0.17089661	3.2159830	20	—	—
32173 2000 NF <sub>12</sub>	13.3	X	260.70606	153.59629	243.43291	14.15353	0.1788035	0.19115260	2.9845565	20	7 4.5	17.8
32174 2000 NW <sub>12</sub>	14.8	X	108.25065	138.29680	198.82361	5.07882	0.0797408	0.21582636	2.7525753	20	—	—
32175 2000 NF <sub>14</sub>	14.1	X	291.41074	72.74874	145.32623	14.45610	0.1892827	0.17768413	3.1335523	20	1 3.6	18.9
32176 2000 NS <sub>14</sub>	14.4	X	49.48724	181.05877	317.70015	7.67026	0.0867328	0.28014237	2.9132195	20	3 7.9	16.8
32177 2000 NZ <sub>14</sub>	13.8	X	306.66156	36.99757	322.12137	10.62511	0.1022337	0.19548714	2.3402929	20	8 2.8	17.4
32178 2000 ND <sub>15</sub>	14.8	X	199.91579	194.26472	316.20411	5.50752	0.1053916	0.30274440	2.1966050	20	10 12.2	17.7
32179 2000 NC <sub>16</sub>	14.2	X	13.97003	304.90382	18.90685	2.39644	0.0585120	0.20145777	2.8819074	20	9 29.9	17.8
32180 2000 NY <sub>16</sub>	14.9	X	254.29393	163.04109	65.23891	4.23097	0.1367162	0.27332476	2.3515275	20	—	—
32181 2000 NB <sub>17</sub>	14.6	X	304.30496	144.98956	52.40741	3.39664	0.0103861	0.22401354	2.6850551	20	1 10.2	18.3
32182 2000 NR <sub>18</sub>	14.4	X	212.80177	233.82270	67.81092	3.16199	0.1898322	0.22685688	2.6625723	20	1 25.9	18.8
32183 2000 ND <sub>19</sub>	14.9	X	270.72719	134.44702	114.59088	3.15352	0.0309650	0.22724004	2.6595785	20	1 29.8	18.6
32184 Yamaura	14.6	X	290.66916	76.43095	279.90361	12.06667	0.2025529	0.24254129	2.5465112	20	6 20.5	17.5
32185 2000 ND <sub>23</sub>	13.3	X	300.20256	142.86469	315.17268	11.56611	0.0501158	0.15883242	3.3768359	20	11 22.6	18.1
32186 2000 NM <sub>23</sub>	13.9	X	52.54899	221.76667	319.02288	14.15552	0.0498169	0.23731369	2.5837720	20	5 8.8	17.5
32187 2000 NR <sub>23</sub>	14.6	X	93.57528	179.65270	229.45825	1.02282	0.1686974	0.22340766	2.6899075	20	2 5.2	17.9
32188 2000 NR <sub>25</sub>	13.5	X	252.34801	128.98871	118.58684	23.05950	0.0971286	0.17692102	3.1425565	20	1 8.5	18.4
32189 2000 NT <sub>25</sub>	14.8	X	174.99504	320.46951	355.12714	2.36855	0.0794419	0.22400156	2.6851508	20	1 4.1	18.6
32190 2000 NM <sub>26</sub>	13.9	X	198.62564	202.33925	194.07135	9.04617	0.1436254	0.18539791	3.0460206	20	5 8.9	18.9
32191 2000 NZ <sub>26</sub>	14.2	X	251.11798	37.65186	227.46545	0.85056	0.0589513	0.22742668	2.6581232	20	1 23.4	17.8
32192 2000 NH <sub>27</sub>	13.8	X	355.99898	315.16051	117.46252	8.44299	0.1461313	0.21229833	2.7829474	20	—	—
32193 2000 NK <sub>27</sub>	14.4	X	130.39718	277.68249	353.81522	4.08268	0.1839214	0.26262834	2.4149510	20	12 27.2	18.3
32194 2000 NY <sub>27</sub>	14.3	X	11.82849	332.53925	253.39476	9.85456	0.0422047	0.18879441	3.0093773	20	5 15.9	18.3
32195 2000 NT <sub>28</sub>	13.7	X	111.48632	312.68878	130.55728	6.93319	0.1650421	0.18202978	3.0834797	20	4 16.2	18.4
32196 2000 OK	15.3	X	251.76515	284.75215	282.55028	3.97690	0.1735754	0.27295302	2.3536621	20	—	—
32197 2000 OV	14.1	X	144.53139	36.01884	341.02194	4.37108	0.1337122	0.17705031	3.1410264	20	2 25.2	18.9
32198 2000 OK <sub>1</sub>	14.4	X	86.64396	237.75586	176.71484	9.34821	0.0740401	0.17441984	3.1725280	20	1 26.6	18.9
32199 2000 ON <sub>2</sub>	14.3	X	13.96309	171.42688	246.39699	8.66058	0.2133528	0.21217668	2.7840110	20	—	—
32200 Seicyoshida	13.4	X	166.29592	239.25137	103.05655	14.97537	0.2114552	0.17643420	3.1483344	20	2 11.7	18.8
32201 2000 OZ <sub>2</sub>	14.7	X	318.19548	297.73816	52.04184	2.60592	0.0966430	0.19731143	2.9221414	20	8 9.3	18.2
32202 2000 OA <sub>3</sub>	14.3	X	139.08534	311.20418	323.52789	4.45412	0.0464920	0.21345630	2.7728735	20	12 30.9	18.3
32203 2000 OF <sub>3</sub>	13.8	X	111.69308	102.07359	295.67644	12.00909	0.1878627	0.22312281	2.6921964	20	2 13.5	17.6
32204 2000 OL <sub>5</sub>	14.0	X	346.29979	47.31825	257.66546	7.27676	0.0851654	0.24376257	2.5379985	20	7 26.3	16.9
32205 2000 OS <sub>5</sub>	13.3	X	191.06655	79.54186	308.66784	18.22137	0.2464765	0.18047318	3.1011845	20	4 11.2	19.1
32206 2000 OM <sub>6</sub>	14.5	X	123.79659	138.82019	238.09855	5.92167	0.2221157	0.22279780	2.6948140	20	2 6.5	18.6
32207 Mairepercy	14.5	X	53.36359	218.85788	210.46698	2.11693	0.0554070	0.22241858	2.6978761	20	—	—
32208 Johnpercy	14.3	X	73.90570	104.10978	268.96767	4.02105	0.0092959	0.21806887	2.7336333	20	—	—
32209 2000 OW <sub>9</sub>	13.1	X	153.72647	76.14441	280.09304	12.81379	0.2733813	0.22584621	2.6705098	20	2 10.5	17.9
32210 2000 OD <sub>10</sub>	14.8	X	312.56701	147.48302	129.65749	10.14372	0.0998759	0.23989411	2.5652104	20	4 24.2	18.1
32211 2000 OZ <sub>10</sub>	13.7	X	241.34760	234.14685	126.79016	10.71009	0.0717478	0.24016589	2.5632748	20	5 15.5	17.5
32212 2000 OV <sub>11</sub>	13.9	X	94.58145	9.61562	277.38105	5.30980	0.1389071	0.26014667	2.4302850	20	12 12.0	17.5
32213 Joshuachoe	14.5	X	29.26668	352.26332	300.29112	1.20755	0.0354024	0.20151365	2.8813747	20	9 7.0	18.4
32214 Colburn	14.8	X	202.39425	91.05989	239.07961	1.85954	0.0729787	0.22927100	2.6438489	20	2 17.9	18.7
32215 2000 OG <sub>16</sub>	14.1	X	199.78909	229.64232	101.66988	2.67292	0.2073205	0.17955264	3.1117750	20	2 23.0	19.3
32216 2000 OY <sub>17</sub>	13.4	X	211.54526	43.12564	315.53111	8.87593	0.1038710	0.18378061	3.0638647	20	4 1.5	18.3
32217 Beverlyge	14.4	X	231.15590	300.35849	19.04816	1.84394	0.1543938	0.23110196	2.6298660	20	3 3.2	18.4
32218 2000 OE <sub>19</sub>	13.4	X	35.52060	255.14392	328.78165	14.06488	0.0429668	0.24035590	2.5619237	20	6 18.9	16.9
32219 2000 OU <sub>20</sub>	12.8	X	297.16480	256.26442	4.53470	13.64961	0.1565823	0.22836669	2.6508239	20	3 3.1	16.4
32220 2000 OL <sub>21</sub>	14.1	X	81.09008	73.31988	305.59650	23.63703	0.1466256	0.21689812	2.7434614	20	—	—
32221 2000 OY <sub>22</sub>	13.2	X	236.99830	220.07390	103.11332	16.15483	0.1369138	0.23460814	2.6035984	20	3 21.2	17.5
32222 Charlesvest	12.9	X	319.26500	317.41602	113.66907	9.90225	0.0656532	0.21180621	2.7872564	20	12 2.9	16.5
32223 2000 OE <sub>23</sub>	14.4	X	135.41834	79.39168	336.70825	4.98919	0.0905519	0.28229051	2.3014694	20	3 19.5	17.5
32224 2000 OK <sub>23</sub>	13.9	X	237.67166	357.27064	303.73586	4.87853	0.1663437	0.23217211	2.6217786	20	2 13.9	18.0
32225 2000 OL <sub>23</sub>	14.2	X	261.89249	126.36958	121.97687	2.43169	0.1224088	0.18012365	3.1051951	20	1 15.8	18.9
32226 Vikulgupta	14.7	X	239.73479	321.19394	302.65735	4.20138	0.1123623	0.27795111	2.3253613	20	—	—
32227 2000 OM <sub>25</sub>	13.7	X	249.58587	92.14201	331.59428	8.07438	0.1130500	0.24766319	2.5112796	20	8 11.8	16.9
32228 2000 OH <sub>26</sub>	13.9	X	214.51820	20.57796	337.90281	11.32540	0.1664859	0.23363189	2.6108463	20	3 29.3	18.3
32229 Higashino	14.6	X	129.06796	111.96657	153.79915	6.65803	0.0647786	0.21063105	2.7976140	20	12 9.5	18.9
32230 2000 OP <sub>27</sub>	12.5	X	104.00313	237.13134	154.29070	18.20733	0.1363234	0.17085686	3.2164818	20	1 30.0	17.2
32231 2000 OT <sub>27</sub>	13.5	X	212.31311	335.86359	329.69068	16.36835	0.1201428	0.17624444	3.1505940	20	2 6.7	18.5
32232 2000 OU <sub>27</sub>	13.8	X	85.60689	235.44507	131.25461	7.25748	0.1299355	0.26433158	2.4045659	20	—	—
32233 Georgehou	14.2	X	205.19515	140.53581	238.35263	8.45627	0.1235631	0.18560946	3.0437056	20	4 21.9	19.0
32234 Jesslihuang	15.1	X	328.62595	326.35056	227.67231	5.48948	0.1146654	0.27866795	2.3213718	20	1 10.6	18.0
32235 2000 OJ <sub>32</sub>	13.9	X	254.04361									

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
32241 2000 ON <sub>39</sub>	14.9	X	157.40355	22.10414	206.24364	10.58934	0.1682855	0.25979788	2.4324597	20	11 29.0	18.8
32242 Jagota	15.1	X	312.96652	326.13132	234.46202	7.52811	0.1014242	0.27657289	2.3330801	20	—	—
32243 2000 OU <sub>40</sub>	14.0	X	211.61478	169.06274	214.32965	9.32165	0.0988672	0.18708286	3.0277037	20	5 6.6	18.6
32244 2000 OK <sub>43</sub>	12.9	X	249.41935	306.80664	311.17151	15.22584	0.0795496	0.17431576	3.1737907	20	1 20.3	17.7
32245 2000 OM <sub>43</sub>	13.2	X	230.71925	114.92241	293.34153	8.89187	0.0649306	0.18982810	2.9984424	20	6 30.9	17.4
32246 2000 OQ <sub>43</sub>	13.1	X	263.84923	358.64715	299.82927	7.00913	0.1362777	0.18259006	3.0771686	20	3 11.8	17.9
32247 2000 OS <sub>43</sub>	13.8	X	332.25694	230.62801	257.59663	4.06691	0.1108878	0.21524794	2.7574652	20	—	—
32248 2000 OV <sub>44</sub>	13.0	X	297.75376	265.95265	308.66093	12.16739	0.1482409	0.22421489	2.6834474	20	1 5.3	16.8
32249 2000 OM <sub>45</sub>	13.1	X	266.12826	131.81813	236.77023	9.85331	0.0919608	0.18992637	2.9974081	20	6 18.6	17.4
32250 Karthik	14.2	X	235.98009	96.77026	231.52936	9.31808	0.0949245	0.18240747	3.0792217	20	3 22.7	18.9
32251 2000 OH <sub>50</sub>	12.6	X	123.90099	168.72442	35.33647	12.59266	0.1290551	0.24459450	2.5322403	20	9 29.9	16.5
32252 2000 OJ <sub>51</sub>	13.4	X	25.50481	328.36143	260.96103	13.34029	0.0372969	0.23796927	2.5790245	20	6 9.9	16.7
32253 2000 OP <sub>51</sub>	11.7	X	134.10484	74.17406	313.41197	21.01929	0.0954038	0.17312369	3.1883431	20	2 18.9	16.6
32254 2000 OR <sub>51</sub>	13.0	X	161.98216	54.71609	290.16809	13.31176	0.0719091	0.17154761	3.2078417	20	1 29.7	17.9
32255 2000 OT <sub>51</sub>	13.6	X	284.94332	64.66641	292.11297	10.86119	0.2162094	0.23949527	2.5680576	20	6 9.9	17.1
32256 2000 OL <sub>52</sub>	13.3	X	170.50645	187.87348	258.32535	14.12045	0.0920311	0.23455529	2.6039895	20	6 11.2	17.0
32257 2000 OW <sub>52</sub>	13.0	X	131.61724	121.45783	30.85211	10.92094	0.0490866	0.18428097	3.0583163	20	7 21.7	17.6
32258 2000 OF <sub>53</sub>	13.7	X	184.54232	139.16381	289.91559	7.71580	0.0936363	0.18585768	3.0409950	20	6 3.5	18.4
32259 2000 OT <sub>53</sub>	12.1	X	303.77617	318.50674	275.60402	14.52033	0.1275946	0.17658188	3.1465789	20	2 8.6	16.7
32260 2000 OG <sub>57</sub>	14.1	X	274.25534	31.33471	328.55179	9.91344	0.1059754	0.19233352	2.9723462	20	6 16.0	18.4
32261 2000 OS <sub>58</sub>	14.9	X	283.93975	331.11365	324.63893	2.26817	0.0919120	0.18605382	3.0388574	20	4 8.2	19.2
32262 2000 OA <sub>60</sub>	15.3	X	331.45051	29.75020	232.36839	1.65350	0.1412020	0.23831337	2.5765413	20	4 22.9	17.9
32263 Kusnierkiewicz	14.8	X	272.33644	313.90776	158.49719	2.69377	0.0222883	0.20950882	2.8075953	20	11 22.1	18.5
32264 Cathjesslai	15.0	X	186.02224	302.43259	118.24388	2.98608	0.1323470	0.23577118	2.5950291	20	5 25.9	19.0
32265 2000 PJ <sub>1</sub>	13.8	X	110.49210	220.33776	67.05512	9.03262	0.2017403	0.21055381	2.7982981	20	12 20.6	18.5
32266 2000 PN <sub>1</sub>	13.6	X	151.57101	47.67058	77.97023	11.02207	0.0117672	0.19000053	2.9966281	20	7 6.7	17.9
32267 Hermannweyl	14.6	X	33.91823	239.79382	142.95203	15.89931	0.0843260	0.21126351	2.7920277	20	—	—
32268 2000 PX <sub>1</sub>	14.2	X	136.91734	243.83281	135.56886	10.06552	0.0959384	0.17485849	3.1672200	20	2 17.3	18.9
32269 2000 PB <sub>2</sub>	14.4	X	211.45857	26.91216	34.68983	2.12968	0.0738277	0.18992725	2.9973988	20	6 24.4	18.8
32270 Inokuchihiroo	13.9	X	142.69496	324.85711	295.72034	6.44588	0.1031843	0.21110889	2.7933908	20	12 16.3	18.3
32271 2000 PH <sub>4</sub>	14.4	X	272.57896	10.22848	321.04539	9.29399	0.1067206	0.18969393	2.9998561	20	5 3.9	18.8
32272 Hasegawayuya	14.8	X	252.39448	256.68127	290.83662	5.59854	0.0620600	0.26512078	2.3997916	20	—	—
32273 2000 PC <sub>4</sub>	14.4	X	302.28513	194.47252	94.11925	10.57570	0.0534099	0.18654187	3.0335547	20	5 3.6	18.6
32274 2000 PU <sub>10</sub>	13.5	X	351.33590	227.80195	46.91104	11.69075	0.0661971	0.18970094	2.9997823	20	6 19.4	17.5
32275 Limichael	15.1	X	130.57755	14.80339	129.20815	3.52565	0.0495836	0.24455728	2.5324973	20	7 9.7	18.7
32276 Allenliu	15.2	X	116.01810	154.24194	311.69390	6.54650	0.0507226	0.28622546	2.2803274	20	4 24.7	18.1
32277 Helenliu	14.7	X	226.54379	49.61866	351.04210	3.09692	0.1885972	0.23976185	2.5661537	20	6 4.8	18.8
32278 Makaram	14.3	X	161.30893	12.22087	183.85312	1.93974	0.0988691	0.23166364	2.6256135	20	3 28.9	18.2
32279 Marshall	14.7	X	105.84070	273.87813	153.72665	3.52987	0.0764992	0.22824239	2.6517862	20	3 2.3	18.0
32280 Rachelmashal	14.5	X	46.82018	153.79983	138.24548	3.09654	0.0177055	0.20257852	2.8712683	20	9 29.3	18.3
32281 Shreyamenon	14.9	X	308.00622	291.98585	349.14210	1.45314	0.0819002	0.18722719	3.0261476	20	4 23.2	18.8
32282 Arnoldmong	14.3	X	191.79671	292.43707	37.00624	0.72969	0.1753730	0.17679145	3.1440917	20	2 14.2	19.4
32283 2000 PD <sub>24</sub>	13.8	X	7.98320	335.00980	144.97656	13.73113	0.1139935	0.21989917	2.7184436	20	—	—
32284 2000 PH <sub>24</sub>	14.0	X	58.14993	160.97774	110.31977	3.50211	0.0402297	0.19814172	2.9139724	20	9 20.5	17.9
32285 2000 PR <sub>24</sub>	14.3	X	260.18962	135.82046	238.85383	13.93003	0.1315370	0.24068057	2.5596192	20	6 14.3	17.8
32286 2000 PS <sub>24</sub>	13.4	X	270.15277	98.40413	195.28429	15.46924	0.2688482	0.18534314	3.0466205	20	2 27.5	18.5
32287 2000 PF <sub>26</sub>	14.2	X	243.51612	66.97957	69.97326	10.15486	0.1287484	0.25348492	2.4726803	20	11 11.0	17.2
32288 Terui	13.6	X	13.93116	106.52613	314.25038	9.85976	0.1766645	0.21047549	2.7989923	20	—	—
32289 2000 QR <sub>4</sub>	14.0	X	73.31763	337.61678	172.79501	10.05003	0.0161808	0.18258039	3.0772772	20	5 2.4	18.3
32290 2000 QH <sub>5</sub>	14.5	X	188.51846	222.00910	344.07975	12.87610	0.1256676	0.25746152	2.4471532	20	12 1.0	18.3
32291 2000 QP <sub>8</sub>	13.9	X	14.19356	199.12100	335.05603	13.02256	0.1118590	0.23049556	2.6344765	20	3 6.1	16.7
32292 2000 QR <sub>8</sub>	14.5	X	348.00827	5.27964	26.34489	1.78737	0.1223487	0.20427779	2.8553232	20	11 24.4	17.8
32293 2000 QT <sub>8</sub>	14.4	X	225.18024	187.56994	169.92040	10.47877	0.1125462	0.18405640	3.0608034	20	4 19.9	19.2
32294 Zajonc	14.0	X	339.82329	247.48126	7.92263	12.83638	0.1444666	0.23087589	2.6315825	20	4 24.6	16.9
32295 Ravichandran	14.5	X	270.12275	63.33437	320.10952	7.99959	0.1455466	0.24416484	2.5352102	20	7 9.3	17.9
32296 Aninsayana	14.7	X	218.16072	138.91916	186.00203	1.84312	0.0642287	0.18099321	3.0952415	20	3 4.8	19.3
32297 2000 QN <sub>11</sub>	15.0	X	196.22618	266.36219	140.95893	15.06072	0.0878340	0.23728004	2.5840163	20	5 23.9	19.1
32298 Kunalshroff	14.6	X	233.40891	113.47859	324.72135	1.17955	0.0980235	0.19614111	2.9337536	20	8 7.7	18.9
32299 Srinivas	14.4	X	55.01751	73.77436	138.65254	7.35006	0.1032972	0.21411383	2.7671938	20	—	—
32300 Uwamanzunna	14.5	X	145.26732	284.29254	174.27745	3.71312	0.0787670	0.18411428	3.0601618	20	5 30.2	19.2
32301 2000 QN <sub>23</sub>	14.1	X	239.11233	26.82986	18.37859	5.98605	0.1711518	0.18952491	3.0016394	20	6 24.5	18.8
32302 Mayavarma	15.0	X	108.13730	267.64237	326.64798	5.77071	0.1118099	0.30002732	2.2098469	20	10 22.3	18.2
32303 2000 QT <sub>24</sub>	13.1	X	140.17184	1.87070	341.38414	14.96079	0.0444585	0.16798884	3.2529878	20	1 7.1	18.0
32304 2000 QC <sub>25</sub>	14.0	X	208.18924	346.46211	27.31411	15.42880	0.1267408	0.23120159	2.6291105	20	4 17.8	18.1
32305 2000 QD <sub>28</sub>	14.0	X	239.67177	301.87371	348.39593	9.44634	0.0468637	0.17572520	3.1567972	20	2 19.6	18.7
32306 2000 QT <sub>28</sub>	13.9	X	313.70744	18.10168	20.27799	2.12148	0.0724583	0.19927220	2.9029412	20	10 8.0	17.3
32307 2000 QG <sub>31</sub>	14.3	X	271.25980	87.85197	5.23931	8.67117	0.1807100	0.20131070	2.8833110	20	10 1.8	17.9
32308 Sreyavemuri	14.6	X	141.78939	59.08197	11.71109	8.38195	0.1380812	0.23034801	2.6356014	20	4 22.6	18.6
32309 2000 QN <sub>32</sub>	13.6	X	239.68944	7.89328	357.04723	15.07419	0.1122159	0.23615298	2.5922314	20	5 4.5	17.7
32310 Asherwillner	14.8	X	178.77083	116.57822	303.04710	3.43798	0.1621501	0.23520015	2.5992276	20	5 16.1	19.0
32311 Josephineyu	15.1	X	311.47009	110.52350	142.48672	0.96278	0.0916460	0.23390041	2.6088477	20	3 17.8	18.4
32312 2000 QT <sub>38</sub>	14.1	X	173.52018	154.09110	119.16480	9.97294	0.0908884	0.19227083	2.9729922	20	7 19.4	18.7
32313 Zhangmichael	14.6	X	184.26484	119.37081	387.87359	1.26328	0.1067035	0.17293420	3.1906718	20	1 11.8	19.7
32314 Rachelzhang	14.6	X	292.64108	215.37163	223.65597	1.15758	0.0437821	0.20448545	2.8533899	20	11 2.7	18.3
32315 Clarezhu	14.6	X	68.38481	74.16067	191.35560	1.70381	0.0267247	0.20008963	2.8950296	20	9 22.6	18.5
32316 2000 QA <sub>44</sub>												

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
32321 2000 QO <sub>53</sub>	14.5	X	34.26883	99.64744	127.45503	5.87576	0.1356419	0.24131873	2.5551046	20	7 2.7	17.2
32322 2000 QS <sub>57</sub>	14.8	X	116.61466	152.95145	13.49531	4.38686	0.0836318	0.24360695	2.5390793	20	7 27.9	18.4
32323 2000 QW <sub>60</sub>	14.2	X	342.38057	295.86376	90.53092	3.25917	0.0690271	0.20280695	2.8691120	20	11 6.3	17.9
32324 2000 QB <sub>61</sub>	14.0	X	287.10268	295.35395	70.56208	10.83425	0.1118393	0.19200602	2.9757252	20	7 11.3	18.0
32325 2000 QG <sub>62</sub>	13.4	X	203.96143	268.15656	71.29154	7.19247	0.0756311	0.17743734	3.1364572	20	3 11.3	18.3
32326 2000 QO <sub>62</sub>	13.7	X	320.97967	194.22368	17.11271	14.09016	0.1857086	0.22761336	2.6566696	20	1 27.8	17.4
32327 2000 QA <sub>63</sub>	14.0	X	206.56064	303.72097	97.29480	8.77577	0.1377862	0.18391319	3.0623921	20	5 22.6	18.9
32328 2000 QW <sub>63</sub>	14.0	X	241.61173	325.73659	14.86394	11.35739	0.2310892	0.23289856	2.6163239	20	4 2.1	18.1
32329 2000 QJ <sub>64</sub>	13.7	X	198.97875	294.92660	44.08258	11.85837	0.1369756	0.17668656	3.1453359	20	3 7.5	18.9
32330 2000 QK <sub>64</sub>	13.9	X	215.43947	2.82662	71.00083	9.78846	0.1217575	0.18824048	3.0152781	20	7 10.9	18.6
32331 2000 QK <sub>65</sub>	13.1	X	155.50499	257.73230	118.29438	10.80686	0.1520725	0.17379695	3.1801037	20	3 10.1	18.3
32332 2000 QV <sub>69</sub>	14.0	X	80.62700	353.00177	317.91894	4.33203	0.0490136	0.15588563	3.4192589	20	11 26.0	19.1
32333 2000 QQ <sub>71</sub>	13.9	X	132.81382	135.54211	256.66499	2.14687	0.1248305	0.17460289	3.1703102	20	2 29.4	18.8
32334 2000 QM <sub>77</sub>	14.1	X	338.09498	40.92438	186.34848	1.00483	0.1208377	0.18202415	3.0835432	20	3 24.7	17.8
32335 2000 QO <sub>82</sub>	14.3	X	323.60385	323.70420	306.61174	2.52238	0.0401058	0.18489487	3.0515428	20	5 5.7	18.4
32336 2000 QB <sub>86</sub>	14.0	X	255.65129	289.44135	273.78227	4.70273	0.0855851	0.21753574	2.7380979	20	—	—
32337 2000 QM <sub>87</sub>	14.1	X	283.75224	34.05215	187.78266	5.41173	0.0853230	0.17418804	3.1753419	20	1 12.1	18.7
32338 2000 QS <sub>87</sub>	13.7	X	48.06762	274.77286	166.94264	22.56795	0.0850392	0.16954224	3.2330874	20	1 10.6	18.3
32339 2000 QA <sub>88</sub>	11.6	X	141.17448	274.78357	172.47055	18.88641	0.1098699	0.08269422	5.2177823	20	5 18.1	19.1
32340 2000 QY <sub>88</sub>	14.1	X	72.09538	162.98644	285.82747	4.15857	0.1165464	0.22283411	2.6945212	20	2 17.2	17.4
32341 2000 QG <sub>89</sub>	15.4	X	9.47864	4.09067	229.69175	5.73603	0.0605282	0.28682411	2.2771534	20	5 23.1	17.5
32342 2000 QE <sub>90</sub>	14.5	X	30.38385	232.32775	302.50685	4.83551	0.1219486	0.28070775	2.3101124	20	3 30.1	16.7
32343 2000 QD <sub>92</sub>	13.7	X	328.32112	164.26758	325.41609	8.48576	0.0971127	0.21349658	2.7725248	20	—	—
32344 2000 QV <sub>94</sub>	14.4	X	85.91961	284.80901	189.25458	9.41729	0.0495613	0.17970080	3.1100644	20	4 5.6	18.6
32345 2000 QF <sub>99</sub>	13.6	X	338.41247	302.74507	96.05951	4.94627	0.0443271	0.15287460	3.4640102	20	11 5.3	18.3
32346 2000 QS <sub>99</sub>	14.0	X	126.62360	341.24613	105.31384	6.15608	0.0491736	0.22937641	2.6430389	20	4 21.1	17.7
32347 2000 QK <sub>101</sub>	13.9	X	108.38119	167.03225	33.95683	11.07052	0.0538945	0.19332962	2.9621277	20	8 29.1	18.3
32348 2000 QL <sub>103</sub>	13.0	X	293.89681	140.27398	73.10457	9.86364	0.1291796	0.22112258	2.7084074	20	1 1.1	17.0
32349 2000 QA <sub>109</sub>	14.8	X	199.86710	329.06568	118.17098	7.05500	0.0750342	0.24031486	2.5622154	20	7 16.5	18.5
32350 2000 QP <sub>115</sub>	13.9	X	237.30820	16.13653	315.06150	9.26721	0.0617180	0.18236662	3.0796816	20	3 29.0	18.6
32351 2000 QH <sub>116</sub>	13.8	X	159.75762	40.93258	63.01776	2.13353	0.1624128	0.18424565	3.0587071	20	6 23.6	18.7
32352 2000 QT <sub>116</sub>	14.3	X	248.00672	39.57982	83.08230	3.67583	0.1337164	0.19995217	2.8963562	20	10 17.8	18.4
32353 2000 QX <sub>118</sub>	12.9	X	316.70764	264.39614	320.25026	10.56695	0.0850167	0.17662688	3.1460444	20	2 23.3	17.1
32354 2000 QN <sub>119</sub>	13.8	X	328.43431	263.18664	313.30869	9.49387	0.0647215	0.17666662	3.1455727	20	3 1.3	18.2
32355 2000 QA <sub>122</sub>	13.3	X	31.12563	250.32504	336.07525	12.13671	0.1243930	0.23666795	2.5884697	20	6 25.7	16.4
32356 2000 QM <sub>124</sub>	12.1	X	279.72740	343.44732	329.35870	12.66907	0.1562768	0.08285131	5.2111845	20	4 15.7	19.2
32357 2000 QR <sub>124</sub>	14.9	X	279.49067	164.56854	355.02070	5.73208	0.1333575	0.26361427	2.4089259	20	—	—
32358 2000 QS <sub>124</sub>	13.5	X	60.54653	340.88762	150.72145	18.05466	0.0674325	0.17890886	3.1192353	20	3 31.3	17.8
32359 2000 QZ <sub>128</sub>	14.0	X	207.29218	185.54871	248.49070	4.32742	0.1301845	0.23767357	2.5811632	20	7 3.1	17.9
32360 2000 QV <sub>133</sub>	14.1	X	175.72424	337.58911	68.33128	2.79356	0.2053954	0.18194983	3.0843828	20	4 29.9	19.4
32361 2000 QF <sub>135</sub>	13.1	X	154.24060	118.18293	340.27394	14.84666	0.0589352	0.18793722	3.0185209	20	6 5.3	17.9
32362 2000 QS <sub>136</sub>	14.5	X	109.82361	323.46895	153.02511	10.39870	0.0441768	0.18525443	3.0475931	20	5 10.3	19.0
32363 2000 QX <sub>136</sub>	14.2	X	29.52310	123.85308	123.48455	6.61238	0.1776629	0.24301188	2.5432226	20	7 31.7	16.6
32364 2000 QS <sub>137</sub>	13.9	X	303.20656	241.10813	22.91924	5.31859	0.1228910	0.18116810	3.0932491	20	3 22.2	18.0
32365 2000 QV <sub>138</sub>	13.7	X	203.13803	66.57135	355.96535	5.54940	0.1183392	0.18460146	3.0547755	20	6 13.5	18.5
32366 2000 QA <sub>142</sub>	14.0	X	271.23270	150.02577	31.27222	6.91407	0.1726020	0.26184576	2.4197604	20	—	—
32367 2000 QL <sub>144</sub>	14.3	X	107.15251	122.87905	120.30311	5.05261	0.0885599	0.20093489	2.8869049	20	10 20.7	18.6
32368 2000 QS <sub>146</sub>	13.9	X	232.44499	355.18560	34.98531	10.64327	0.1151032	0.18490030	3.0514831	20	6 2.4	18.6
32369 2000 QQ <sub>149</sub>	13.2	X	189.30987	353.70313	18.47200	13.58417	0.0533203	0.17399782	3.1776558	20	4 1.7	17.8
32370 2000 QY <sub>151</sub>	12.4	X	279.89320	352.30295	333.05010	7.36377	0.0569290	0.08416071	5.1569920	20	5 16.4	19.3
32371 2000 QM <sub>154</sub>	14.2	X	147.01340	36.42700	241.49078	8.52654	0.1284980	0.21418803	2.7665547	20	—	—
32372 2000 QL <sub>159</sub>	14.4	X	230.30782	180.47483	209.69576	9.71358	0.1050723	0.18948797	3.0020295	20	6 3.3	19.0
32373 2000 QZ <sub>168</sub>	14.4	X	240.14016	88.96439	183.88173	8.32198	0.0776726	0.17426561	3.1743996	20	1 25.1	19.3
32374 2000 QK <sub>169</sub>	13.9	X	291.27996	280.77128	301.58716	5.83477	0.0305457	0.17322552	3.1870934	20	1 29.4	18.4
32375 2000 QM <sub>169</sub>	14.3	X	120.59616	333.02349	203.01311	9.06522	0.0174072	0.19244937	2.9711532	20	7 30.6	18.6
32376 2000 QP <sub>169</sub>	13.5	X	321.17232	299.46388	328.02646	13.85021	0.0865116	0.23463488	2.6034006	20	4 13.5	17.0
32377 2000 QP <sub>170</sub>	14.2	X	173.97997	35.28106	309.99388	5.07812	0.0397000	0.17370317	3.1812482	20	2 11.2	18.7
32378 2000 QB <sub>173</sub>	14.6	X	190.38211	294.48887	267.68120	7.62828	0.0608801	0.20890618	2.8129922	20	11 26.9	18.8
32379 Markadame	15.0	X	234.23580	261.07324	302.26404	3.91411	0.1072262	0.21384345	2.7695258	20	—	—
32380 2000 QE <sub>184</sub>	13.9	X	333.63351	297.73856	354.96919	10.40774	0.0641674	0.19182186	2.9776294	20	6 17.3	17.9
32381 Bellomo	14.6	X	146.79631	218.60316	26.06900	7.36737	0.0367453	0.20899196	2.8122224	20	11 30.4	18.7
32382 2000 QE <sub>187</sub>	14.0	X	165.38577	17.43012	10.24306	11.97645	0.1413440	0.17882997	3.1201526	20	3 28.6	19.0
32383 2000 QG <sub>188</sub>	14.6	X	95.06054	311.61028	124.45945	13.00885	0.1347132	0.22453215	2.6809190	20	3 12.2	18.3
32384 Scottbest	14.3	X	258.40940	68.91446	101.90740	9.28402	0.1410835	0.21260253	2.7802922	20	12 31.7	17.7
32385 2000 QU <sub>191</sub>	12.9	X	340.68979	28.15786	95.80345	10.04196	0.2424591	0.21427162	2.7658350	20	—	—
32386 2000 QB <sub>192</sub>	13.9	X	213.19075	299.40189	10.08687	16.62877	0.1322899	0.17671038	3.1450533	20	2 16.2	19.1
32387 D'Egidio	13.9	X	110.03037	297.94457	114.57582	5.93191	0.1308647	0.17385933	3.1793430	20	3 3.9	18.5
32388 2000 QU <sub>201</sub>	14.1	X	160.08081	101.84547	352.04214	11.36787	0.0985226	0.18555889	3.0442586	20	6 8.1	19.0
32389 Michflannory	14.8	X	265.31432	193.97194	85.96238	2.75138	0.1427477	0.18001153	3.1064843	20	2 24.2	19.4
32390 2000 QA <sub>203</sub>	13.3	X	102.17351	147.80670	10.32431	9.35105	0.1371811	0.23750637	2.5823744	20	7 5.3	17.2
32391 2000 QO <sub>203</sub>	13.9	X	322.77885	216.29269	19.24959	5.10219	0.1089986	0.18087234	3.0966202	20	3 15.3	17.8
32392 2000 QF <sub>207</sub>	13.5	X	147.21275	125.78954	352.94528	9.85905	0.0559529	0.18571186	3.0425867	20	6 25.3	18.1
32393 Galinato	14.5	X	79.33237	228.49954	217.81131	1.15344	0.0520831	0.17459033	3.1704622	20	2 23.0	18.7
32394 2000 QL <sub>210</sub>	13.8	X	4.76382									

## ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
32401 2000 QO <sub>226</sub>	13.9 <sup>m</sup>	X	57.93716	270.87004	232.61981	9.31381	0.0704748	0.18288863	3.0738187	20	4 5.3	18.1
32402 2000 QF <sub>231</sub>	14.0	X	71.82886	304.34117	41.74810	8.44684	0.2364845	0.21087339	2.7954702	20	—	—
32403 2000 QK <sub>249</sub>	13.8	X	308.59473	110.78817	103.23106	5.58551	0.0804907	0.17428836	3.1741233	20	2 3.5	18.1
32404 2000 RN	13.6	X	175.09089	101.78639	260.89789	14.04779	0.0961769	0.22726166	2.6594098	20	2 23.8	17.9
32405 Jameshill	14.5	X	233.92758	243.16586	357.47293	6.86847	0.0850455	0.26667640	2.3904500	20	—	—
32406 Tracyhughes	14.0	X	223.02674	232.32020	337.25317	0.99197	0.0581379	0.20995486	2.8036175	20	—	—
32407 2000 RT <sub>1</sub>	14.1	X	102.90519	354.53987	299.96161	1.19847	0.0501014	0.20561942	2.8428894	20	12 12.7	18.2
32408 2000 RU <sub>12</sub>	14.0	X	336.23387	38.16728	214.17242	10.15614	0.0580666	0.18479055	3.0526912	20	4 29.6	18.0
32409 2000 RR <sub>16</sub>	14.2	X	1.42394	280.81968	262.76326	7.60635	0.1508415	0.22777998	2.6553739	20	2 21.2	17.1
32410 2000 RH <sub>19</sub>	14.2	X	214.69657	145.22742	286.98621	9.31158	0.0652819	0.18912143	3.0059070	20	7 12.2	18.5
32411 2000 RY <sub>24</sub>	14.1	X	2.24624	335.82332	216.82533	15.67086	0.0432508	0.17896508	3.1185821	20	3 18.1	18.5
32412 2000 RW <sub>25</sub>	12.9	X	202.18330	197.62754	254.93627	9.00890	0.0628506	0.19006126	2.9959897	20	7 21.9	17.4
32413 2000 RR <sub>26</sub>	13.4	X	12.80329	355.59340	275.66465	9.04105	0.0709147	0.19074779	2.9887967	20	7 18.2	17.3
32414 2000 RT <sub>29</sub>	13.3	X	246.15920	179.91931	241.72549	8.72424	0.0696359	0.19119665	2.9841171	20	8 1.7	17.7
32415 2000 RH <sub>30</sub>	14.2	X	22.88788	352.58762	293.17803	9.41417	0.0606971	0.19339530	2.9614570	20	8 19.2	18.1
32416 2000 RS <sub>31</sub>	13.3	X	163.82139	169.45274	212.65392	9.02244	0.1007344	0.17491615	3.1665239	20	3 16.3	18.3
32417 2000 RK <sub>32</sub>	14.0	X	15.62832	279.24953	325.58314	8.53307	0.0463558	0.18576012	3.0420597	20	6 16.3	18.1
32418 2000 RD <sub>33</sub>	13.9	X	289.00682	308.86326	235.49810	7.70975	0.2198479	0.21418412	2.7665883	20	—	—
32419 2000 RY <sub>33</sub>	13.8	X	4.69574	285.86587	341.66213	6.56201	0.1788980	0.23869007	2.5738298	20	7 11.9	16.1
32420 2000 RS <sub>40</sub>	11.7	X	266.48242	358.73935	314.04001	13.85897	0.0689085	0.08017147	5.3266744	20	4 11.4	18.9
32421 2000 RB <sub>41</sub>	14.1	X	147.68369	256.23170	306.57855	9.38033	0.1017718	0.19827073	2.9127082	20	10 6.2	18.9
32422 2000 RO <sub>42</sub>	13.7	X	39.84366	11.06394	257.86016	9.03821	0.0647277	0.19218931	2.9738330	20	8 20.2	17.8
32423 2000 RO <sub>43</sub>	13.2	X	270.14220	72.84363	288.40547	7.09702	0.1161461	0.18575936	3.0420679	20	6 10.8	17.4
32424 Caryjames	14.8	X	18.58616	317.20268	358.34150	5.91985	0.1000016	0.25143351	2.4861116	20	10 8.9	17.5
32425 2000 RL <sub>64</sub>	14.5	X	30.33866	247.87448	225.30134	14.28251	0.1500737	0.22189754	2.7020978	20	1 9.8	17.7
32426 2000 RP <sub>68</sub>	14.5	X	349.78904	246.84634	31.41788	12.33907	0.2504473	0.23977988	2.5660250	20	6 18.7	16.6
32427 2000 RU <sub>68</sub>	13.9	X	145.19022	1.54679	111.09813	3.67742	0.1813860	0.18242154	3.0790634	20	6 21.9	18.8
32428 Peterlangley	14.9	X	189.75553	175.73469	359.44774	6.75123	0.0878878	0.25177405	2.4838693	20	10 27.3	18.6
32429 2000 RP <sub>83</sub>	13.7	X	287.01636	351.13878	222.67960	8.00034	0.0366254	0.16887463	3.2416026	20	1 12.8	18.4
32430 2000 RQ <sub>83</sub>	12.0	X	259.80627	74.87250	255.60567	6.76862	0.0555724	0.08037534	5.3176632	20	4 30.9	19.2
32431 2000 RC <sub>84</sub>	14.3	X	174.33252	164.37605	182.50393	9.42213	0.0884264	0.17707377	3.1407490	20	2 14.0	19.2
32432 2000 RT <sub>86</sub>	13.7	X	21.38248	271.60565	245.51318	4.69950	0.0884248	0.17367479	3.1815948	20	3 2.7	17.7
32433 2000 RF <sub>92</sub>	13.1	X	59.23109	54.70513	318.94719	4.94324	0.0560363	0.15840104	3.3829639	20	—	—
32434 2000 RW <sub>96</sub>	11.9	X	236.08824	103.34181	256.40627	23.47259	0.1475582	0.08308893	5.2012446	20	4 28.9	19.4
32435 2000 RZ <sub>96</sub>	11.2	X	306.86459	343.69613	280.73083	21.74402	0.1268593	0.08261929	5.2209364	20	3 22.8	18.2
32436 2000 RQ <sub>97</sub>	13.2	X	98.15267	151.67397	295.29184	21.11391	0.0460622	0.22490397	2.6779634	20	3 1.2	17.3
32437 2000 RR <sub>97</sub>	11.2	X	288.63028	30.01687	269.28783	23.11300	0.1237484	0.08313849	5.1991773	20	4 13.6	18.3
32438 2000 RW <sub>98</sub>	13.3	X	103.70913	147.72538	272.41146	12.78472	0.1174882	0.17146740	3.2088420	20	2 24.9	18.1
32439 2000 RO <sub>99</sub>	13.8	X	137.57992	250.14169	245.87014	12.91285	0.1090066	0.18610320	3.0383199	20	7 7.3	18.6
32440 2000 RC <sub>100</sub>	11.4	X	298.43900	353.32466	319.34460	31.37070	0.0257349	0.08441062	5.1468082	20	5 26.1	18.6
32441 2000 RO <sub>100</sub>	13.2	X	338.67348	268.19724	334.91853	26.77895	0.1266713	0.23070903	2.6328512	20	3 26.2	16.7
32442 2000 RS <sub>100</sub>	12.8	X	326.90599	320.93158	270.76972	16.05861	0.1106995	0.17697865	3.1418743	20	3 6.3	17.3
32443 2000 RD <sub>101</sub>	13.8	X	88.74023	252.31914	299.95216	15.32086	0.1355757	0.23736168	2.5834238	20	8 1.1	17.3
32444 2000 RL <sub>101</sub>	13.0	X	319.17319	270.28154	286.17324	13.56439	0.1008009	0.17064523	3.2191406	20	1 22.2	17.3
32445 2000 RC <sub>104</sub>	13.4	X	314.78775	340.39725	283.15254	10.80428	0.1487085	0.23110414	2.6298495	20	3 21.4	17.0
32446 2000 SY <sub>5</sub>	13.9	X	122.33407	341.31975	116.81257	12.76176	0.1487390	0.23094653	2.6310459	20	5 14.5	18.0
32447 2000 SG <sub>6</sub>	14.0	X	228.35552	221.52227	51.51867	18.61950	0.1845195	0.17223085	3.1993525	20	1 12.4	19.6
32448 2000 SD <sub>12</sub>	13.5	X	72.11864	62.13665	333.34125	14.06293	0.1316796	0.16950607	3.2335472	20	—	—
32449 Crystalmiller	14.8	X	21.84872	285.40672	276.26734	8.90746	0.1191157	0.28156993	3.2053942	20	4 23.6	17.0
32450 2000 SH <sub>25</sub>	13.3	X	108.15402	197.38976	172.18624	24.54306	0.1076785	0.17201720	3.2020011	20	1 5.5	18.3
32451 2000 SP <sub>25</sub>	11.8	X	258.93632	64.57619	248.13393	19.69753	0.0995963	0.08259036	5.2221555	20	3 31.6	19.1
32452 2000 SC <sub>39</sub>	14.2	X	324.73130	353.86582	145.89300	8.77393	0.2146813	0.21068454	2.7971404	20	—	—
32453 Kanamishogo	13.3	X	98.50776	147.40399	11.33757	10.83249	0.0611484	0.18265631	3.0764246	20	6 17.8	17.9
32454 2000 SD <sub>50</sub>	14.3	X	186.86791	57.84528	245.14210	4.04736	0.1002004	0.17005095	3.2266362	20	1 9.3	19.4
32455 2000 SW <sub>60</sub>	12.9	X	69.14976	116.17274	12.47811	8.95404	0.1656114	0.12502361	3.9610291	20	4 19.7	18.3
32456 2000 SH <sub>72</sub>	13.1	X	86.38734	116.38896	37.29326	16.86226	0.1558506	0.17886891	3.1196999	20	6 7.3	17.8
32457 2000 SZ <sub>85</sub>	14.1	X	295.34345	315.40585	48.62754	11.37015	0.0612637	0.18869507	3.0104334	20	7 30.6	18.3
32458 2000 SF <sub>87</sub>	14.0	X	108.90493	240.93004	47.87420	12.20702	0.2351550	0.25652837	2.4530842	20	12 29.7	18.3
32459 2000 SK <sub>87</sub>	13.7	X	13.78473	168.09030	59.41795	12.45970	0.2409657	0.23189261	2.6238849	20	5 31.2	15.5
32460 2000 SY <sub>92</sub>	12.2	X	132.95509	172.66001	262.16521	10.99958	0.3069846	0.12533065	3.9545572	20	5 4.5	18.8
32461 2000 SP <sub>93</sub>	11.9	X	261.22965	146.65870	188.75587	30.88938	0.0684494	0.08433489	5.1498887	20	5 9.0	19.0
32462 Janmitchener	14.1	X	108.40071	299.89596	166.67027	9.0167	0.1439705	0.17499615	3.1655588	20	5 6.4	18.8
32463 2000 SO <sub>129</sub>	14.2	X	260.96018	4.52620	230.24300	17.09565	0.0835153	0.17235828	3.1977754	20	1 1.3	19.3
32464 2000 SB <sub>132</sub>	11.5	X	103.80350	264.15583	234.87260	25.23765	0.0172849	0.08219109	5.2390543	20	5 25.2	18.4
32465 2000 SM <sub>141</sub>	13.7	X	205.38033	222.08716	270.88786	9.29764	0.0588712	0.19342137	2.9611909	20	9 12.5	18.2
32466 2000 SN <sub>153</sub>	13.2	X	320.98654	221.22575	31.48363	16.09999	0.2438167	0.22967562	2.6407429	20	3 15.4	16.5
32467 2000 SL <sub>174</sub>	11.8	X	210.80677	190.90590	218.67596	29.69015	0.0253829	0.08253083	5.2246665	20	6 8.1	19.0
32468 2000 SS <sub>176</sub>	13.5	X	280.16516	261.89554	356.82883	12.50502	0.1581264	0.2292717	2.6937713	20	2 10.7	17.6
32469 2000 SL <sub>188</sub>	13.6	X	245.38731	336.24313	236.17354	8.92472	0.1529122	0.21158646	2.7891860	20	—	—
32470 2000 SD <sub>190</sub>	14.1	X	58.70736	306.81869	149.87787	11.53841	0.0469875	0.17293306	3.1906858	20	2 8.7	18.5
32471 2000 SK <sub>205</sub>	12.2	X	297.67614	163.83779	147.78662	2.66749	0.0496241	0.08046086	5.3138948	20	5 25.2	19.1
32472 2000 SC <sub>210</sub>	14.2	X	259.72223	305.84148	62.61912	11.04042	0.0811184	0.18554980	3.0443580	20	6 11.5	18.5
32473 2000 SG <sub>210</sub>	13.9	X	58.69787	100.59619	68.90713	9.69144	0.1001439	0.22934867	2.6432519	20	5 16.4	17.1
32474 2000 SP <sub>212</sub>	12.6	X	204.44321	242.78060	65.13906	13.01383						

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
32481 2000 SF <sub>352</sub>	13.8 <sup>m</sup>	X	258.34559	262.19105	62.73673	10.36962	0.0969411	0.18440621	3.0569313	20	4 18.1	18.3
32482 2000 ST <sub>354</sub>	11.0	X	323.65339	218.38978	52.77470	12.14934	0.0271489	0.08461247	5.1386198	20	5 11.9	17.6
32483 2000 SM <sub>362</sub>	14.0	X	349.18296	51.29251	163.75817	12.83207	0.0788769	0.18413376	3.0599460	20	3 31.8	18.0
32484 2000 TV <sub>29</sub>	13.2	X	31.58049	286.09879	316.66524	16.89157	0.1878648	0.23776690	2.5804877	20	7 31.3	15.8
32485 2000 TY <sub>44</sub>	13.7	X	160.98297	358.02433	43.10760	14.33348	0.1229486	0.17703689	3.1411852	20	4 11.9	18.7
32486 2000 TY <sub>56</sub>	12.9	X	265.43283	257.90858	77.54641	12.12464	0.1343992	0.18463431	3.0544131	20	5 4.5	17.4
32487 2000 TM <sub>61</sub>	13.6	X	251.29651	293.28768	108.88764	12.22133	0.1259584	0.18727443	3.0256386	20	7 9.3	18.1
32488 2000 TF <sub>64</sub>	13.7	X	44.75763	113.63625	89.86066	11.79158	0.0410249	0.18408167	3.0605233	20	6 3.6	17.8
32489 2000 UG <sub>17</sub>	13.9	X	288.48663	321.49078	58.73557	10.16083	0.0261130	0.18944222	3.0025128	20	8 17.2	18.2
32490 2000 UU <sub>27</sub>	13.6	X	176.18523	142.57537	297.68068	11.53228	0.0382782	0.23532528	2.5983062	20	6 9.4	17.4
32491 2000 UU <sub>107</sub>	13.8	X	323.84825	146.02297	82.44375	14.79008	0.1232829	0.22216554	2.6999243	20	3 7.1	17.5
32492 2000 VJ <sub>15</sub>	13.2	X	203.29711	199.64273	64.83233	10.57025	0.2193818	0.21129514	2.7917491	20	—	—
32493 2000 WR <sub>3</sub>	13.9	X	334.59533	97.18387	114.78644	13.51430	0.1307838	0.22608459	2.6686323	20	2 24.3	17.2
32494 2000 WY <sub>125</sub>	13.3	X	37.39915	276.54829	4.99402	11.08748	0.0833494	0.19006147	2.9959875	20	9 11.4	17.2
32495 2000 WT <sub>171</sub>	13.2	X	257.35280	145.00943	143.57395	13.81010	0.1452495	0.22351328	2.6890600	20	2 21.3	17.2
32496 2000 WX <sub>182</sub>	10.2	X	264.96688	274.34282	65.86284	30.46046	0.0785414	0.08133156	5.2759011	20	5 18.8	17.3
32497 2000 XF <sub>18</sub>	12.7	X	261.18008	352.38702	134.75106	13.07121	0.1766996	0.22500617	2.6771524	20	3 9.9	17.1
32498 2000 XX <sub>37</sub>	11.6	X	261.81498	359.43155	76.68591	26.30880	0.0966719	0.08331253	5.1919342	20	9 8.2	18.9
32499 2000 YS <sub>11</sub>	10.5	X	264.57559	245.10443	68.72631	16.78047	0.1621865	0.08371131	5.1754321	20	4 13.2	17.7
32500 2000 YV <sub>76</sub>	14.6	X	350.94146	88.24461	224.91080	1.98745	0.2178863	0.23647666	2.5898654	20	8 22.2	16.5
32501 2000 YV <sub>135</sub>	10.9	X	2.49685	179.59664	55.69558	32.12044	0.0696697	0.08275074	5.2154059	20	5 17.3	17.5
32502 2001 BG <sub>77</sub>	14.0	X	124.83835	132.84569	140.51143	14.56726	0.0723410	0.18318679	3.0704824	20	12 9.9	18.9
32503 2001 FN <sub>57</sub>	13.2	X	62.47110	36.58727	353.74590	15.17331	0.1323667	0.24310427	2.5425783	20	—	—
32504 2001 HP <sub>8</sub>	15.3	X	205.65068	271.53873	116.52742	23.90894	0.1122762	0.36120106	1.9527053	20	5 11.7	18.5
32505 2001 KF <sub>17</sub>	13.2	X	207.01725	50.40675	248.44908	14.23586	0.2160314	0.23995699	2.5647623	20	1 12.2	17.3
32506 2001 KP <sub>30</sub>	15.0	X	308.11262	193.93804	67.12330	12.08650	0.1607783	0.25336892	2.4734349	20	3 18.0	18.3
32507 2001 LR <sub>15</sub>	14.5	X	11.70606	204.76635	96.05365	9.35199	0.2127261	0.21161337	2.7889495	20	9 20.8	17.6
32508 2001 MR <sub>11</sub>	14.1	X	164.60297	174.38702	178.10386	17.29234	0.3215084	0.18310499	3.0713968	20	2 21.7	19.7
32509 2001 MW <sub>29</sub>	13.3	X	98.12407	356.51832	262.10418	12.55597	0.1341164	0.21513243	2.7584522	20	10 31.1	17.7
32510 2001 NS	15.2	X	39.36687	53.08579	292.16626	2.66214	0.2018379	0.27233410	2.3572268	20	—	—
32511 2001 NX <sub>17</sub>	12.8	X	247.74619	345.54160	285.73167	8.95275	0.4288801	0.08748730	5.0254238	20	1 17.8	20.9
32512 2001 OM <sub>14</sub>	14.8	X	123.41918	207.38525	145.32560	2.92496	0.2109347	0.23045269	2.6348032	20	1 7.2	18.5
32513 2001 OL <sub>31</sub>	11.5	X	191.77167	110.00405	266.14278	25.37120	0.0611955	0.08331557	5.1918079	20	4 4.3	19.0
32514 2001 OK <sub>34</sub>	13.8	X	330.49030	90.02684	19.44485	11.68847	0.2250454	0.22603715	2.6690057	20	—	—
32515 2001 OU <sub>42</sub>	15.0	X	304.62880	245.08524	214.68524	9.60519	0.1323452	0.26769456	2.3843088	20	—	—
32516 2001 OH <sub>46</sub>	15.2	X	50.93538	130.41696	282.52207	6.54568	0.1023139	0.28200899	2.3030008	20	—	—
32517 2001 OA <sub>54</sub>	13.6	X	345.98772	21.28679	62.32993	13.87878	0.1538264	0.22047308	2.7137240	20	—	—
32518 2001 OZ <sub>69</sub>	15.1	X	156.67376	268.72898	127.90510	4.85934	0.2665775	0.23784097	2.579519	20	4 5.7	19.6
32519 2001 OB <sub>73</sub>	15.4	X	333.12660	10.20634	1.58400	2.43434	0.1804898	0.26098299	2.4250903	20	10 19.1	17.1
32520 2001 OG <sub>73</sub>	14.1	X	339.57017	269.98539	146.57031	9.46197	0.1555070	0.21439817	2.7647466	20	12 20.4	17.2
32521 2001 OR <sub>80</sub>	13.6	X	354.73818	186.70150	225.74172	13.16736	0.1530764	0.21566973	2.7538688	20	—	—
32522 Judiepersons	14.6	X	36.84093	60.43217	314.64712	6.00191	0.1222718	0.26903883	2.3764357	20	—	—
32523 2001 OY <sub>82</sub>	12.6	X	254.82541	146.46678	34.91547	10.59695	0.0518636	0.17474407	3.1686024	20	—	—
32524 2001 OX <sub>85</sub>	13.9	X	17.14039	195.69573	239.54802	3.45606	0.1692413	0.17272129	3.1932932	20	—	—
32525 2001 OZ <sub>85</sub>	15.9	X	42.74864	100.74390	247.83257	1.52458	0.2240435	0.26885841	2.3774988	20	—	—
32526 2001 OD <sub>98</sub>	13.1	X	320.26344	357.09393	253.81019	9.71735	0.0670936	0.18990199	2.9976646	20	3 30.4	17.3
32527 2001 OS <sub>104</sub>	13.5	X	30.51607	359.24178	353.73572	4.02436	0.0811739	0.21214206	2.7843139	20	12 3.5	17.2
32528 2001 OZ <sub>105</sub>	12.6	X	356.10630	205.87928	276.47913	12.37171	0.1086272	0.17570036	3.1570947	20	—	—
32529 2001 PD <sub>7</sub>	14.6	X	6.85739	151.08219	189.10290	7.85728	0.2295302	0.21114481	2.7930740	20	11 4.9	17.6
32530 2001 PW <sub>12</sub>	14.9	X	52.63066	212.06747	154.06202	13.30766	0.2171375	0.27483284	2.3429173	20	—	—
32531 Ulrikababiaková	13.5	X	21.46125	91.62830	337.24991	12.23897	0.1506784	0.22355562	2.6887205	20	—	—
32532 Thereus	9.1	X	220.82963	86.86080	205.24883	20.36179	0.2004804	0.02851527	10.6108707	20	2 3.2	20.1
32533 Tranpham	14.6	X	106.51378	37.72156	261.06346	7.42307	0.1272585	0.27683029	2.3316336	20	—	—
32534 2001 PL <sub>37</sub>	12.9	X	104.02505	299.59396	20.46501	17.83313	0.1272742	0.17173057	3.2055629	20	—	—
32535 2001 PZ <sub>40</sub>	15.2	X	359.01422	205.66057	219.65823	8.63329	0.1388203	0.21933440	2.7231081	20	—	—
32536 2001 PD <sub>41</sub>	12.6	X	213.69284	7.76155	272.55746	9.01577	0.0396288	0.17938050	3.1137654	20	1 8.3	17.2
32537 2001 PH <sub>43</sub>	16.4	X	80.76449	115.18146	189.44738	5.08745	0.1274748	0.27253215	2.3560846	20	12 21.8	19.9
32538 2001 PB <sub>44</sub>	15.7	X	88.82643	184.83299	208.12901	1.22453	0.1473776	0.23043432	2.6349433	20	1 4.0	18.7
32539 2001 PD <sub>59</sub>	13.8	X	356.45021	289.89389	117.79361	14.27085	0.2141380	0.21534685	2.7566208	20	—	—
32540 2001 PN <sub>62</sub>	13.4	X	165.66602	259.28212	11.99439	17.20004	0.1297176	0.17434146	3.1734787	20	—	—
32541 2001 QF <sub>2</sub>	14.5	X	113.23342	57.60389	334.52516	6.97717	0.1231732	0.28236017	2.3010908	20	1 25.7	17.1
32542 2001 QK <sub>7</sub>	13.0	X	119.34201	189.27827	163.25223	1.18938	0.0722468	0.12499166	3.9617040	20	1 2.3	18.5
32543 2001 QL <sub>11</sub>	15.5	X	219.36954	210.30725	140.87755	1.85879	0.2346178	0.24380469	2.5377063	20	3 27.4	19.8
32544 Debjaniray	15.1	X	243.25509	138.53294	337.68996	6.61226	0.1021630	0.26457688	2.4030794	20	10 15.1	18.2
32545 2001 QV <sub>13</sub>	13.7	X	343.56997	18.40713	347.44595	8.95634	0.1689649	0.21010461	2.8022852	20	10 13.8	16.7
32546 2001 QE <sub>14</sub>	14.0	X	71.64255	156.76056	259.91562	0.08496	0.1554883	0.17665812	3.1456735	20	1 21.2	18.0
32547 Shandroff	15.6	X	217.82920	298.06630	36.56452	2.99410	0.1894201	0.29497940	2.2349866	20	3 4.4	19.0
32548 2001 QU <sub>18</sub>	13.9	X	161.13016	261.58823	153.51711	10.60221	0.1196810	0.18963119	3.0005177	20	4 28.0	18.7
32549 Taric												

ELEMENTS AND OPPOSITION DATES IN 2020

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
32561 Waldron	15.1 <sup>m</sup>	X	105.26281	205.73320	201.21890	3.11573	0.1751314	0.23519227	2.5992857	20	2 16.3	18.5
32562 Caseywarner	14.6	X	13.85807	235.41297	162.00754	3.91527	0.0940909	0.22149406	2.7053783	20	—	—
32563 Nicolozaidi	14.6	X	223.95513	301.58591	108.39959	3.35179	0.0897752	0.20040432	2.8919981	20	6 22.6	18.8
32564 Glass	14.5	X	98.55193	166.93250	234.05071	11.53863	0.1699383	0.23100861	2.6305745	20	1 27.7	18.1
32565 2001 QC <sub>69</sub>	13.7	X	144.25063	224.94534	195.30219	13.16413	0.1638851	0.24009273	2.5637955	20	4 16.0	17.6
32566 2001 QC <sub>70</sub>	13.6	X	168.19022	168.32548	193.97397	9.88403	0.1039441	0.18402880	3.0611094	20	2 25.7	18.4
32567 2001 QQ <sub>70</sub>	13.1	X	278.60046	130.80617	328.36834	8.42421	0.1210612	0.21184976	2.7868744	20	10 28.2	16.6
32568 2001 QD <sub>71</sub>	15.3	X	75.21935	137.90008	166.09008	5.12794	0.2590565	0.26946518	2.3739284	20	12 24.9	19.3
32569 Deming	12.6	X	226.29340	100.68095	9.39282	15.00423	0.1335848	0.20353824	2.8622356	20	9 10.0	16.9
32570 Peruindiana	13.3	X	105.96819	82.49228	16.42544	11.73041	0.2170391	0.23606506	2.5928750	20	4 28.3	17.2
32571 Brayton	13.2	X	210.21566	224.09532	35.23547	6.72649	0.2381400	0.17636063	3.1492100	20	—	—
32572 2001 QR <sub>74</sub>	15.0	X	81.90749	352.34127	0.75197	9.62564	0.2579694	0.27280906	2.3544901	20	—	—
32573 2001 QD <sub>75</sub>	14.2	X	320.32209	326.52945	18.87482	1.91276	0.0986827	0.19931165	2.9025581	20	8 6.4	17.7
32574 2001 QM <sub>78</sub>	14.0	X	156.72820	228.59193	206.18568	15.81114	0.1905160	0.18403511	3.0610394	20	5 18.6	19.2
32575 2001 QY <sub>78</sub>	15.2	X	266.29429	98.28024	229.11720	2.23233	0.3374626	0.29715654	2.2240567	20	3 24.4	18.7
32576 2001 QK <sub>79</sub>	14.1	X	138.22670	28.86767	11.88746	9.73190	0.0255177	0.18039766	3.1020500	20	3 8.9	18.5
32577 2001 QK <sub>87</sub>	13.9	X	162.64292	189.38940	237.30163	12.44647	0.1293809	0.24321305	2.5418200	20	5 9.1	17.9
32578 2001 QY <sub>88</sub>	13.2	X	216.89522	337.99690	339.55704	9.24220	0.1572884	0.18234975	3.0798715	20	2 21.5	18.1
32579 Allendavia	14.8	X	32.07119	74.50599	323.32277	6.19125	0.1188817	0.27170542	2.3608615	20	—	—
32580 Avbalasingam	15.9	X	159.86769	205.16560	179.76788	6.98027	0.1088279	0.29030628	2.2589074	20	3 8.3	19.0
32581 2001 QW <sub>98</sub>	15.2	X	249.67993	121.07208	177.84263	6.96754	0.2671312	0.29501890	2.2347871	20	2 9.9	19.1
32582 Mayachandar	15.8	X	81.31289	324.36463	31.35287	1.76628	0.1971167	0.27344416	2.3508429	20	—	—
32583 2001 QZ <sub>101</sub>	13.4	X	55.24038	124.94770	18.07519	22.51869	0.0436849	0.23628543	2.5912626	20	3 30.2	16.7
32584 2001 QW <sub>105</sub>	14.7	X	2.40487	256.48215	197.48409	21.35783	0.0697681	0.22740978	2.6582549	20	—	—
32585 2001 QQ <sub>107</sub>	14.6	X	95.89308	329.64335	171.83349	4.86788	0.0836989	0.29219199	2.2491781	20	5 27.7	17.3
32586 2001 QQ <sub>116</sub>	13.2	X	78.29205	342.64915	213.81468	9.18630	0.0992761	0.19849398	2.9105238	20	7 15.9	17.4
32587 2001 QQ <sub>117</sub>	15.0	X	265.09809	16.78134	303.21846	6.15584	0.2602595	0.24517638	2.5282323	20	3 27.3	19.0
32588 2001 QD <sub>124</sub>	16.4	X	18.32365	206.37115	32.42352	2.61600	0.1360333	0.30627534	2.1796898	20	6 23.5	17.9
32589 2001 QR <sub>127</sub>	13.9	X	124.24154	208.62884	220.93558	8.32464	0.3105138	0.18549846	3.0449197	20	4 22.2	19.0
32590 Cynthiachen	15.3	X	106.55823	121.17467	228.72275	5.57185	0.1373892	0.27991658	2.3144633	20	—	—
32591 2001 QV <sub>134</sub>	13.0	X	175.63536	112.03020	303.68036	8.78474	0.0728397	0.18982317	2.9984943	20	5 5.6	17.7
32592 2001 QR <sub>135</sub>	13.4	X	96.54168	18.09650	321.12278	10.77974	0.1364182	0.22069519	2.7119029	20	—	—
32593 Crotty	14.9	X	80.04134	44.11131	297.54625	5.12830	0.0988069	0.27007717	2.3703408	20	—	—
32594 Nathandeng	15.1	X	242.21580	320.57080	325.42582	2.65683	0.0129899	0.23581717	2.5946917	20	2 11.0	18.3
32595 2001 QA <sub>150</sub>	15.7	X	53.63426	255.91549	311.15018	7.60472	0.1189979	0.27292174	2.3538419	20	—	—
32596 2001 QS <sub>154</sub>	15.2	X	26.61891	162.45058	185.20972	6.21018	0.1368556	0.26201056	2.4187456	20	12 13.7	18.3
32597 2001 QC <sub>157</sub>	15.5	X	195.61389	180.32980	193.56218	6.01615	0.1975643	0.19063149	2.9900121	20	4 7.4	20.6
32598 2001 QN <sub>159</sub>	15.0	X	133.99859	109.86714	111.42328	1.65012	0.0129433	0.21294666	2.7772960	20	10 19.7	18.7
32599 2001 QL <sub>160</sub>	15.3	X	351.90566	46.07513	338.25534	1.82225	0.0817359	0.21534958	2.7565975	20	11 20.3	18.6
32600 2001 QF <sub>173</sub>	13.8	X	125.78895	242.54444	192.57963	11.91511	0.0490232	0.18943671	3.0025710	20	4 5.0	18.0
32601 2001 QA <sub>181</sub>	14.2	X	135.20510	346.15790	62.43977	3.38966	0.2799214	0.18242056	3.0790744	20	4 5.8	19.4
32602 2001 QE <sub>185</sub>	12.8	X	87.52734	228.19314	251.31797	9.74223	0.0588966	0.18992488	2.9974237	20	4 11.6	17.0
32603 Ariaepinger	14.1	X	286.33244	120.91644	231.57022	8.59072	0.0813728	0.19346782	2.9607169	20	6 25.7	18.2
32604 2001 QP <sub>212</sub>	16.3	X	350.29006	168.98370	155.87156	1.52240	0.1976422	0.25926467	2.4357937	20	9 14.7	18.1
32605 Lucy	14.1	X	302.91859	212.40219	48.56903	5.43393	0.2099438	0.18938767	3.0030893	20	3 5.9	18.2
32606 2001 QY <sub>217</sub>	14.6	X	273.73939	188.94372	123.73849	1.64695	0.0451271	0.19342165	2.9611881	20	4 24.9	18.6
32607 2001 QH <sub>220</sub>	14.0	X	299.49658	297.28725	12.18346	8.79674	0.2009676	0.24452912	2.5326917	20	4 25.9	17.2
32608 Hallas	15.7	X	47.65125	192.58255	267.18179	5.07423	0.1128727	0.28511657	2.8623611	20	1 9.3	17.8
32609 Jamesfagan	14.6	X	149.29057	105.09953	335.73674	1.53372	0.1982209	0.18812863	3.0164730	20	5 18.4	19.0
32610 Siennafink	14.2	X	116.58054	131.02838	8.95232	1.77606	0.0131318	0.19432974	2.9519559	20	6 10.5	18.2
32611 Ananyaganesh	14.8	X	270.47307	262.16320	113.69449	3.23651	0.0709995	0.20239286	2.8730240	20	7 17.5	18.7
32612 Ghatare	14.9	X	140.37002	153.73197	26.51798	7.52470	0.0967376	0.25831480	2.4417612	20	9 15.2	18.5
32613 Tseyuenman	15.7	X	78.92369	195.04941	204.56955	1.87441	0.1635070	0.27928073	2.3179749	20	—	—
32614 Hacegarcia	15.5	X	314.41155	243.68797	183.62455	7.32186	0.0776839	0.26864109	2.3787808	20	12 6.0	18.2
32615 2001 QU <sub>277</sub>	11.0	X	232.96557	224.31607	100.42037	17.54588	0.0330904	0.08398669	5.1641130	20	4 7.6	18.2
32616 Nadinehan	14.9	X	29.84890	334.14433	31.29478	6.30531	0.0557450	0.21794766	2.7346468	20	12 16.4	18.7
32617 2001 QY <sub>283</sub>	15.5	X	2.47984	235.34162	125.96596	7.00637	0.1532176	0.26315587	2.4117226	20	11 30.6	18.1
32618 Leungkamcheung	13.8	X	353.89004	198.83608	256.99170	1.55692	0.0242421	0.22194702	2.7019692	20	—	—
32619 2001 QC <sub>295</sub>	14.9	X	25.00544	180.36233	130.58728	5.97424	0.1656570	0.25649859	2.4532741	20	10 28.2	17.8
32620 2001 QZ <sub>295</sub>	14.1	X	177.09743	253.07772	143.13912	9.89011	0.1271643	0.23612571	2.5924310	20	4 19.1	18.3
32621 Talcott	13.2	X	139.77162	354.34343	97.15725	16.01533	0.0493926	0.23852100	2.5750459	20	5 16.1	17.0
32622 Yuewaichun	15.7	X	159.11071	258.85515	156.39221	3.07266	0.1300570	0.29301298	2.2449748	20	4 20.3	19.0
32623 Samuelkahn	15.2	X	94.67709	106.57259	1.63291	1.36246	0.0981346	0.24128257	2.5553600	20	4 11.8	18.3
32624 2001 RQ <sub>44</sub>	14.3	X	109.77829	249.72588	109.31404	3.24817	0.1851287	0.17051389	3.2207934	20	1 6.2	18.9
32625 2001 RZ <sub>45</sub>	14.4	X	147.72253	343.54110	266.73336	2.87365	0.0359122	0.21454782	2.7634608	20	12 10.8	18.3
32626 2001 RX <sub>64</sub>	14.6	X	297.47129	256.37495	255.13527	6.26648	0.0598372	0.27543873	2.3394802	20	—	—
32627 2001 RO <sub>69</sub>	13.9	X	69.71771	99.27275	324.76494	4.52780	0.0460634	0.17529003	3.1620197	20	1 15.2	18.1
32628 Lazoric	15.5	X	358.20318	258.64266	250.48295	5.46397	0.0566423	0.28263576	2.2995948	20	—	—
32629 2001 RQ <sub>70</sub>	14.1	X	136.18254	68.85866	343.57491	10.99239	0.2859854	0.18143364	3.0902303	20	4 6.4	19.5
32630 Ethanlevy	15.2	X	187.12532	219.43428	338.09108	6.02320	0.0898024	0.26519364	2.3993521	20	11 24.9	18.7
32631 Majzoub	14.8	X	346.97109	312.10292	213.58016	4.25526	0.0773467	0.28262451	2.2996558	20	1 3.9	17.3
32632 2001 RS <sub>75</sub>	15.4	X	28.20696	239.04426	124.85516	2.95105	0.2293253	0.26591603	2.3950047	20	—	—
32633 2001 RY <sub>93</sub>	14.1	X	262.06732	208.59949	38.25631	2.10267	0.1197123	0.18025431	3.1036943	20	1 14.9	18.8
32634 Sonjamchaluk	15.1	X	71.64771	230.90181	127.14817	6.87312	0.0447134	0.22233217	2.6985751	20	—	—
32635 2001 SN	14.7	X	157.50920	67.72592	337.01973	5.13379	0.2087611	0.23785754	2.5798321	20	4 10.9	19.1
32636 2001 SD <sub>58</sub>	16.2	X	117.87708	234.54891	185.60041							



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Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>		
32641	2595	<i>P-L</i>	15.8 <sup>m</sup>	X	248.64918	313.79503	24.72161	3.13595	0.2050800	0.24201879	2.5501750	20	4 7.3	19.8
32642	2601	<i>P-L</i>	14.0	X	157.01979	240.51561	53.95236	2.84271	0.0378235	0.16891417	3.2410967	20	—	—
32643	2609	<i>P-L</i>	16.1	X	243.88714	255.96619	31.92908	3.42215	0.1403314	0.28907935	2.2652945	20	1 31.9	19.6
32644	2723	<i>P-L</i>	15.8	X	37.65210	354.81535	178.22639	4.06106	0.0644130	0.28995595	2.2607265	20	4 8.8	18.1
32645	2763	<i>P-L</i>	14.8	X	213.77080	339.40445	97.96397	2.07598	0.0555841	0.19374642	2.9578780	20	7 19.1	19.2
32646	3010	<i>P-L</i>	13.5	X	323.06830	112.02611	227.05561	11.52534	0.1184039	0.19544737	2.9406917	20	7 26.2	17.3
32647	3109	<i>P-L</i>	14.3	X	324.95317	36.38172	289.65093	10.87934	0.0548107	0.19465428	2.9486739	20	7 19.9	18.2
32648	3538	<i>P-L</i>	14.6	X	222.70494	70.48548	291.22799	4.18772	0.2464653	0.29098246	2.2554066	20	4 6.5	18.5
32649	4056	<i>P-L</i>	16.1	X	337.36238	74.03987	307.37890	1.17438	0.1278796	0.26366608	2.4086103	20	11 18.7	17.7
32650	4070	<i>P-L</i>	14.4	X	95.79095	191.19821	300.47544	3.03151	0.1219593	0.24099832	2.5573688	20	5 18.3	17.9
32651	4208	<i>P-L</i>	14.6	X	158.20540	29.37322	190.61025	12.49410	0.1215838	0.21589844	2.7519236	20	11 15.1	19.0
32652	4319	<i>P-L</i>	16.1	X	79.13099	44.02550	253.66192	3.20180	0.1300313	0.31491636	2.1396327	20	12 20.5	18.9
32653	4635	<i>P-L</i>	15.8	X	264.40817	210.82684	110.28330	1.98738	0.1939086	0.24212892	2.5494017	20	4 2.8	19.5
32654	4640	<i>P-L</i>	14.5	X	126.48242	175.83043	169.12402	8.18255	0.0986342	0.17048475	3.2211605	20	—	—
32655	4692	<i>P-L</i>	15.5	X	151.31555	79.64685	170.56094	2.82178	0.1459087	0.26670839	2.3902588	20	12 21.5	19.1
32656	4711	<i>P-L</i>	15.7	X	80.53765	148.27568	167.48675	3.66786	0.1897368	0.21686564	2.7437354	20	12 28.8	20.0
32657	4721	<i>P-L</i>	14.9	X	228.75610	157.50638	10.58229	2.39736	0.0249495	0.21628639	2.7486319	20	12 6.7	18.8
32658	4800	<i>P-L</i>	16.3	X	48.33393	157.06179	155.41889	2.46177	0.2121894	0.26488918	2.4011902	20	12 5.6	19.7
32659	4804	<i>P-L</i>	14.6	X	275.84089	97.79652	181.38064	9.08606	0.0924649	0.19085228	2.9877057	20	3 8.7	18.9
32660	4826	<i>P-L</i>	14.9	X	308.89068	121.33980	201.55574	1.43181	0.0855352	0.19416922	2.9535826	20	6 18.8	18.8
32661	4848	<i>P-L</i>	15.7	X	165.87437	84.54434	173.11990	2.70347	0.1471926	0.26754962	2.3852459	20	—	—
32662	4900	<i>P-L</i>	14.3	X	255.03161	153.54698	54.13401	3.36465	0.0511957	0.16956476	3.2328011	20	—	—
32663	5553	<i>P-L</i>	15.0	X	17.93502	66.67273	29.62289	8.11592	0.0848456	0.26875465	2.3781106	20	—	—
32664	6072	<i>P-L</i>	14.6	X	96.08283	55.65813	298.47544	1.23420	0.0817526	0.21876808	2.7278056	20	—	—
32665	6107	<i>P-L</i>	15.0	X	289.67062	83.29085	196.39880	13.61523	0.0458494	0.24106544	2.5568942	20	3 28.8	18.4
32666	6124	<i>P-L</i>	15.7	X	70.28149	131.90301	181.21218	4.55897	0.2501688	0.26612459	2.3937532	20	12 30.3	19.6
32667	6180	<i>P-L</i>	15.2	X	96.73387	115.51352	210.21393	2.43216	0.1788251	0.21791418	2.7349269	20	—	—
32668	6278	<i>P-L</i>	14.7	X	28.81529	180.71711	275.97717	2.43180	0.1150546	0.21973561	2.7197924	20	—	—
32669	6287	<i>P-L</i>	14.5	X	96.69019	67.51741	351.38829	12.47607	0.1318402	0.17240710	3.1971717	20	2 25.5	19.0
32670	6323	<i>P-L</i>	15.6	X	68.65262	3.32179	352.71696	4.83064	0.1255564	0.21753322	2.7381190	20	—	—
32671	6537	<i>P-L</i>	15.0	X	39.86888	6.86008	27.18961	3.16970	0.1244217	0.21768359	2.7368580	20	—	—
32672	6720	<i>P-L</i>	15.1	X	281.90488	0.47569	6.63192	0.84423	0.1232756	0.19463402	2.9488785	20	7 3.4	18.9
32673	6742	<i>P-L</i>	16.0	X	163.08587	344.27669	89.26107	2.39624	0.1519766	0.29090461	2.2558089	20	5 19.5	19.4
32674	6750	<i>P-L</i>	15.9	X	244.75678	183.18521	20.70090	3.09510	0.1096463	0.26844871	2.3799171	20	—	—
32675	6755	<i>P-L</i>	15.0	X	225.37109	27.98197	15.21151	0.92488	0.1220674	0.19341709	2.9612347	20	6 12.3	19.4
32676	6802	<i>P-L</i>	16.1	X	202.30441	328.66172	16.30415	3.99884	0.1166092	0.23996194	2.5647269	20	3 7.9	20.0
32677	6806	<i>P-L</i>	14.9	X	3.20754	226.87172	69.22359	3.06412	0.0501052	0.19544183	2.9407473	20	8 7.6	18.7
32678	7566	<i>P-L</i>	14.7	X	15.10858	109.21883	27.16389	6.67426	0.0784577	0.20707619	2.3663427	20	1 11.7	17.4
32679	1070	<i>T-1</i>	14.1	X	256.40270	274.02900	355.66076	22.27658	0.0989019	0.17848137	3.1242142	20	2 14.7	19.0
32680	1095	<i>T-1</i>	13.7	X	221.81038	75.81509	348.28637	8.82547	0.1516840	0.18639462	3.0351521	20	7 3.5	18.6
32681	1166	<i>T-1</i>	14.3	X	72.99436	153.61119	0.38459	10.70102	0.0798891	0.18276217	3.0752365	20	5 9.5	18.7
32682	1177	<i>T-1</i>	14.6	X	136.17450	14.57150	249.51004	1.85127	0.0537062	0.21221795	2.7836501	20	12 14.1	18.7
32683	1202	<i>T-1</i>	15.8	X	51.97297	40.61141	183.34203	3.27223	0.0914555	0.24496140	2.5297112	20	7 20.0	18.8
32684	1269	<i>T-1</i>	14.6	X	327.17542	107.71754	350.86688	8.90234	0.1320425	0.21461989	2.7628421	20	—	—
32685	1294	<i>T-1</i>	16.1	X	143.28326	274.63076	353.84855	2.21485	0.1427663	0.27220394	2.3579781	20	—	—
32686	2072	<i>T-1</i>	14.5	X	318.87974	8.76634	173.69502	0.74250	0.1274920	0.17779634	3.1322338	20	1 1.5	18.8
32687	3166	<i>T-1</i>	14.7	X	358.77133	78.71909	191.32109	14.76343	0.1009070	0.24418326	2.5350827	20	6 27.4	17.8
32688	4025	<i>T-1</i>	15.3	X	82.16476	76.56548	119.97361	3.28277	0.0639817	0.24544044	2.5264186	20	7 21.0	18.4
32689	4043	<i>T-1</i>	15.2	X	152.29812	235.99808	19.76869	4.99897	0.1990490	0.27173603	2.3606843	20	12 27.9	19.0
32690	4075	<i>T-1</i>	14.5	X	321.46734	28.16016	159.36372	6.24228	0.0818717	0.17802191	3.1295873	20	1 16.5	18.8
32691	4269	<i>T-1</i>	14.8	X	15.75223	66.51868	82.40416	3.12267	0.1099359	0.17949609	3.1124286	20	2 15.4	18.5
32692	4329	<i>T-1</i>	15.4	X	132.00852	254.42038	48.48828	4.03576	0.1757120	0.27320960	2.3521883	20	—	—
32693	4339	<i>T-1</i>	15.4	X	187.39848	213.67166	42.65342	6.71689	0.0951834	0.27423694	2.3463101	20	—	—
32694	4408	<i>T-1</i>	14.6	X	156.82001	311.01538	59.62824	4.59436	0.1968658	0.27965163	2.3159249	20	2 27.1	18.1
32695	1016	<i>T-2</i>	14.2	X	261.66068	187.95066	359.27618	5.04338	0.0126494	0.21631212	2.7484140	20	—	—
32696	1055	<i>T-2</i>	14.9	X	85.52812	344.52096	352.12469	2.37076	0.1043398	0.21493803	2.7601152	20	—	—
32697	1069	<i>T-2</i>	16.2	X	264.10372	69.01007	216.47035	2.62122	0.1465331	0.28648070	2.2789728	20	2 15.9	19.5
32698	1104	<i>T-2</i>	15.2	X	133.33997	60.79812	13.13388	3.27123	0.1225984	0.28589181	2.2821012	20	4 14.8	18.2
32699	1286	<i>T-2</i>	16.0	X	99.71280	275.52965	176.19723	4.55943	0.1257516	0.28476501	2.2881174	20	3 28.7	18.7
32700	1351	<i>T-2</i>	14.4	X	209.16028	273.08029	331.92468	1.85487	0.1328837	0.21713504	2.7414655	20	—	—
32701	1353	<i>T-2</i>	14.9	X	168.51928	73.23370	7.70539	0.80590	0.1184161	0.24580516	2.5239189	20	6 2.6	18.6
32702	2028	<i>T-2</i>	15.0	X	115.65040	225.91269	0.68864	6.80046	0.0712115	0.21025555	2.8009439	20	10 6.2	19.2
32703	2087	<i>T-2</i>	14.0	X	129.92902	0.67957	342.23684	4.17672	0.1059446	0.21759075	2.7376364	20	—	—
32704	2140	<i>T-2</i>	12.7	X	277.33731	252.28977	12.20217	13.17288	0.1767542	0.17983663	3.1084981	20	2 18.6	17.5
32705	2157	<i>T-2</i>	13.8	X	175.07305	7.76210	10.28777	16.55092	0.1138296	0.18035765	3.1025087	20	3 25.9	18.6
32706	2212	<i>T-2</i>	14.7	X	224.35413	146.24942	28.92078	1.98020	0.0269635	0.21309723	2.7759875	20	12 9.2	18.4
32707	3089	<i>T-2</i>	14.0	X	21.43082	85.01126	102.95354	2.79551	0.0912580	0.18087464	3.0965940	20	4 14.5	17.8
32708	3160	<i>T-2</i>	14.3	X	138.93715	218.58514	160.95799	10.91844	0.1134741	0.17852293	3.1237292	20	2 19.7	19.1
32709	3355	<i>T-2</i>	14.6	X	45.21972	245.45500	160.52250	10.19066	0.1507581	0.21584448	2.7523823	20	—	—
32710	4063	<i>T-2</i>	15.9	X	109.49369	354.54604	14.24782	7.61869	0.1373120	0.28110473	2.3079370	20	—	—
32711	4132	<i>T-2</i>	14.9	X	52.52314	117.45353	179.23396	6.27016	0.0348361	0.21053696	2.7984474	20	10 16.4	18.7
32712	4135	<i>T-2</i>	14.0	X	155.03528	305.47198								

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
32721 2335 T-3	14.9	X	219.24803	297.95111	248.54298	3.03779	0.0610033	0.20973197	2.8056035	20	12 11.7	18.8
32722 3340 T-3	15.5	X	157.72115	69.49139	167.53231	2.67113	0.1404583	0.23308637	2.6149184	20	12 5.9	19.7
32723 4028 T-3	14.1	X	127.53347	219.37104	64.23848	7.33321	0.2285336	0.21178228	2.7874664	20	12 30.5	18.9
32724 Woerlitz	13.5	X	68.06580	60.02017	56.66576	9.90786	0.1400427	0.12580631	3.9445829	20	4 5.9	18.8
32725 4057 T-3	15.4	X	300.16288	221.98156	60.12612	4.29161	0.1013038	0.29130524	2.2537402	20	4 5.5	17.9
32726 Chromios	12.1	X	126.00585	36.66155	76.77510	5.12067	0.0111179	0.08219381	5.2389385	20	5 20.9	19.1
32727 4268 T-3	16.0	X	95.49063	63.85743	65.58395	7.72975	0.1757208	0.28928030	2.2642453	20	5 23.2	18.7
32728 4517 T-3	16.1	X	287.36522	107.23901	162.19055	6.85551	0.1017663	0.28960063	2.2625753	20	2 27.9	18.9
32729 5179 T-3	14.4	X	329.22899	35.10555	113.46728	9.99603	0.2313445	0.21318435	2.7752312	20	—	—
32730 1951 RX	14.5	X	295.11632	38.98880	338.39430	5.74745	0.2090418	0.29921253	2.2138568	20	8 5.0	16.2
32731 Annaivanovna	15.2	X	275.94798	102.01580	244.83767	5.68500	0.1481039	0.30132937	2.2034764	20	5 25.1	17.6
32732 1975 SH <sub>1</sub>	14.7	X	344.89136	285.58438	61.07719	3.07437	0.1057098	0.19623604	2.9328074	20	9 18.9	18.1
32733 1976 SB	14.9	X	244.99412	170.93039	167.96965	9.14976	0.2426870	0.24063300	2.5599565	20	4 2.9	19.1
32734 Kryukov	13.3	X	125.58209	302.74087	30.58300	0.61249	0.1486314	0.17224612	3.1991633	20	—	—
32735 Strekalov	14.5	X	44.25790	211.40813	194.42467	11.38388	0.2541950	0.26426019	2.4049989	20	—	—
32736 1978 UE <sub>5</sub>	16.3	X	23.11044	98.04679	292.79366	1.87007	0.1718048	0.26248305	2.4158420	20	—	—
32737 1978 UZ <sub>6</sub>	16.0	X	27.58354	124.99694	219.47508	10.42599	0.2195456	0.26083761	2.4599132	20	12 21.8	19.3
32738 1978 VT <sub>1</sub>	15.1	X	275.71683	95.86959	28.90163	5.83543	0.1352292	0.25942478	2.4347913	20	12 12.8	17.6
32739 1978 VA <sub>5</sub>	14.1	X	139.50492	292.81732	94.72916	2.91572	0.3039638	0.17534664	3.1613392	20	3 17.9	19.5
32740 1978 VB <sub>7</sub>	14.4	X	65.84450	144.33467	242.17451	11.49097	0.1499490	0.21594064	2.7515651	20	—	—
32741 1978 VX <sub>8</sub>	14.8	X	119.39176	9.43745	58.96485	1.42437	0.1733187	0.17418978	3.1753208	20	4 5.3	19.6
32742 1978 VB <sub>10</sub>	14.5	X	180.37894	0.41529	259.25248	9.01454	0.1114524	0.21439316	2.7647897	20	—	—
32743 1979 MR <sub>1</sub>	14.4	X	211.97011	184.18328	142.49845	2.82620	0.1784390	0.18474701	3.0531708	20	2 26.7	19.5
32744 1979 MR <sub>5</sub>	15.4	X	153.97784	81.02068	267.01809	1.95045	0.1366297	0.27820135	2.3239667	20	1 18.4	18.6
32745 1981 DO <sub>1</sub>	15.5	X	321.34861	275.65727	279.91595	6.07303	0.1936383	0.27434207	2.3457107	20	—	—
32746 1981 EW <sub>2</sub>	14.7	X	327.71962	301.39551	319.80413	13.19141	0.1090878	0.22895453	2.6462846	20	4 12.6	18.1
32747 1981 EY <sub>5</sub>	14.5	X	165.24613	60.68844	316.87933	11.76172	0.1902491	0.17762173	3.1342862	20	3 14.1	19.8
32748 1981 EY <sub>7</sub>	16.0	X	326.58013	171.20954	223.66123	5.67491	0.1542907	0.27433524	2.3457496	20	—	—
32749 1981 EA <sub>9</sub>	14.6	X	144.49932	22.04937	323.66859	6.85639	0.2420038	0.27383843	2.3485599	20	1 30.2	18.2
32750 1981 EG <sub>9</sub>	14.3	X	90.67729	298.79801	254.40926	3.80860	0.1771711	0.18301584	3.0723941	20	8 5.4	19.0
32751 1981 EB <sub>12</sub>	14.2	X	284.72285	324.19179	260.41816	5.64550	0.0827834	0.17265089	3.1941612	20	1 17.0	18.8
32752 1981 EZ <sub>13</sub>	15.4	X	1.22635	191.33810	335.09709	11.93126	0.1911014	0.22583795	2.6705749	20	1 30.9	18.2
32753 1981 EB <sub>14</sub>	14.6	X	188.40313	171.69688	250.25237	5.66658	0.1474985	0.18165405	3.0877300	20	5 29.2	19.7
32754 1981 EK <sub>15</sub>	14.5	X	132.61517	113.67988	341.68795	10.63195	0.1040357	0.17979068	3.1090277	20	5 10.1	19.4
32755 1981 EP <sub>15</sub>	15.5	X	106.02809	118.02520	288.36903	4.72466	0.1627914	0.27547099	2.3392975	20	2 8.9	18.3
32756 1981 ER <sub>15</sub>	15.6	X	281.42665	343.15834	257.78044	4.11520	0.1041359	0.27444722	2.3451115	20	1 15.2	18.7
32757 1981 EP <sub>18</sub>	14.1	X	335.73874	41.65051	184.64254	8.47601	0.1168399	0.17652467	3.1472588	20	3 20.6	18.1
32758 1981 ES <sub>18</sub>	16.1	X	325.04313	12.49935	207.41709	1.97461	0.1871501	0.27623696	2.3349712	20	1 30.2	18.9
32759 1981 EC <sub>28</sub>	16.0	X	241.21561	197.66559	12.27850	4.23112	0.1491977	0.26965078	2.3728389	20	—	—
32760 1981 ER <sub>28</sub>	14.2	X	175.28153	337.66264	2.73156	15.56062	0.1394763	0.22397703	2.6853469	20	2 12.5	18.6
32761 1981 ED <sub>31</sub>	15.3	X	70.49517	265.29204	157.02027	3.15137	0.1146824	0.27420091	2.3465157	20	—	—
32762 1981 ER <sub>32</sub>	14.6	X	170.39994	264.54892	166.40710	10.36760	0.2918350	0.18276138	3.0752453	20	5 27.8	20.3
32763 1981 EH <sub>35</sub>	16.0	X	87.72843	113.87413	325.05087	3.21958	0.2257303	0.27783198	2.3260260	20	3 9.1	18.5
32764 1981 EL <sub>36</sub>	16.2	X	50.74906	353.02639	281.85407	2.50523	0.1680165	0.26036361	2.4289348	20	10 11.7	19.3
32765 1981 EC <sub>40</sub>	14.6	X	149.60987	70.76739	297.46888	10.35540	0.2322579	0.22497735	2.6773811	20	2 19.7	19.2
32766 Voskresenskoe	14.7	X	11.72540	106.84192	263.29131	5.55206	0.2659183	0.26214373	2.4179264	20	—	—
32767 1983 RY <sub>2</sub>	14.7	X	236.76818	271.63415	61.10576	5.80814	0.2803177	0.23263065	2.6183323	20	3 19.4	19.3
32768 Alexandripatov	15.1	X	244.15111	96.04681	239.70555	4.18997	0.2618495	0.28585884	2.2822767	20	3 22.3	18.8
32769 1984 AJ <sub>1</sub>	14.5	X	297.73111	137.85577	347.18944	6.71282	0.1940811	0.26657152	2.3910769	20	—	—
32770 Starchik	15.5	X	249.46728	24.10519	13.45932	2.52431	0.1721427	0.29480259	2.2358802	20	6 29.2	18.5
32771 1985 RK <sub>3</sub>	14.5	X	346.14291	203.83984	170.34940	10.53550	0.2420064	0.25543008	2.4601109	20	11 30.4	16.8
32772 1986 JL	13.9	X	239.86024	45.77485	68.67909	25.54433	0.0969161	0.35902063	1.9606035	20	11 10.3	15.9
32773 1986 TD	13.6	X	73.37207	55.23486	27.03394	33.40577	0.3411117	0.21283174	2.7782956	20	4 1.4	17.4
32774 1986 VZ	14.5	X	108.54789	342.38037	13.70883	5.58153	0.2081704	0.27044773	2.3681752	20	—	—
32775 1986 WP <sub>2</sub>	14.9	X	68.54498	294.90677	168.29957	2.33918	0.1648824	0.27249622	2.3562917	20	3 3.1	16.9
32776 Nriag	13.6	X	268.37150	148.54474	142.53691	15.01213	0.1691379	0.23393092	2.6086209	20	3 4.5	17.5
32777 1987 QF <sub>1</sub>	14.3	X	209.77773	132.83796	200.87811	2.28063	0.1929557	0.22834211	2.6510141	20	2 28.5	18.8
32778 1988 CW <sub>1</sub>	14.5	X	302.77034	183.45670	304.65080	8.39665	0.1007139	0.20909405	2.8113070	20	—	—
32779 1988 CZ <sub>2</sub>	15.8	X	331.26465	39.63477	127.35565	4.02817	0.1707085	0.27438597	2.3454605	20	—	—
32780 1988 CR <sub>5</sub>	14.3	X	292.75113	326.08422	300.21708	9.92993	0.2587509	0.27635416	2.3343110	20	2 9.3	17.8
32781 1988 DD <sub>2</sub>	14.7	X	335.15257	30.74497	135.63459	9.02861	0.0511204	0.27562256	2.3384399	20	—	—
32782 1988 RX <sub>10</sub>	14.0	X	154.26368	327.40012	22.08485	2.53745	0.1589169	0.17020045	3.2247465	20	2 5.8	19.1
32783 1988 RK <sub>13</sub>	14.1	X	302.36236	207.68198	124.55780	15.05283	0.1403487	0.24246332	2.5470571	20	6 16.6	17.3
32784 1989 AR	14.4	X	189.58489	355.73553	96.38107	7.84247	0.2539580	0.23537758	2.5979213	20	7 4.9	18.9
32785 1989 CU <sub>1</sub>	15.4	X	163.41811	20.43609	114.51019	5.55529	0.0938144	0.29607216	2.2294839	20	8 12.5	18.3
32786 1989 GW <sub>2</sub>	15.3	X	170.47805	89.44560	354.93140	2.80055	0.0781259	0.28984806	2.2612875	20	6 8.8	18.4
32787 1989 ST <sub>1</sub>	15.0	X	348.08371	7.37668	74.50328	3.20605	0.1489190	0.26090643	2.4255647	20	—	—
32788 1989 SJ <sub>3</sub>	14.0	X	169.39682	301.51378	105.03872	2.39255	0.2010164	0.17771758	3.1331592	20	4 25.9	19.3
32789 1989 SF <sub>5</sub>	14.8	X	45.95675	283.95742	80.21223	3.03350	0.1352674	0.26028372	2.4294318	20	—	—
32790 1989 SM <sub>8</sub>	14.9	X	66.07693	318.29458	30.43355	1.81611	0.1977215	0.26261900	2.4150082	20	—	—
32791 1989 TQ <sub>2</sub>	13.1	X	149.72567	17.37774	46.21788	18.36165	0.1599791	0.17664909	3.1457807	20	4 28.4	18.2
32792 1989 TR <sub>7</sub>	14.6	X	198.93837	347.61998	49.50785	10.35067	0.1081016	0.18012848	3.1051395	20	5 9.9	19.5
32793 1989 TQ <sub>15</sub>	14.9	X	51.63796	163.62743	204.24960	2.36769	0.2044399	0.26159079	2.4213324	20	—	—
32794 1989 UE <sub>5</sub>	12.6	X	58.14770	347.18185	200.22328	15.06494	0.0600749	0.08287204	5.2103156	20	6 2.8	19.5
32795 1989 WA <sub>3</sub>	14.3	X	146.98047	0.89558	37.26246	18.19707	0.2191362	0.17412789	3.1760731	20	4 3.8	19.7
32796 Ehrenfest	13.7	X	281.23155	65.02255								

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
32801 1990 <i>RF</i> <sub>5</sub>	14.7	X	236.17357	124.58047	216.90226	4.47843	0.1964485	0.28646742	2.2790432	20	3 27.3	18.3
32802 1990 <i>SK</i>	14.0	X	189.63434	326.94154	47.00516	26.08107	0.2684411	0.28478317	2.2880201	20	4 9.8	18.3
32803 1990 <i>SR</i> <sub>1</sub>	15.2	X	153.57082	23.63329	309.73113	3.32098	0.1520184	0.27771583	2.3266745	20	1 1.5	18.5
32804 1990 <i>SO</i> <sub>2</sub>	14.4	X	218.34251	194.62103	111.78029	6.89693	0.2209897	0.28171540	2.3046005	20	1 30.2	18.3
32805 1990 <i>SM</i> <sub>3</sub>	14.7	X	220.30861	284.33185	52.73844	3.67652	0.1989072	0.28406572	2.2918710	20	3 10.7	18.5
32806 1990 <i>SF</i> <sub>13</sub>	15.6	X	21.28166	82.74301	268.13600	0.44317	0.1974550	0.26722306	2.3871888	20	12 21.2	18.4
32807 Quarenghi	15.0	X	221.94349	322.12802	359.95243	2.18861	0.1643391	0.28249068	2.3003821	20	2 22.2	18.4
32808 Bischoff	13.7	X	3.87062	162.75832	355.90422	4.89100	0.1118507	0.17846918	3.1243564	20	2 9.1	17.6
32809 Sommerfeld	14.3	X	304.63429	332.63704	357.29850	8.41495	0.0930650	0.19032958	2.9931733	20	6 20.7	18.3
32810 Steinbach	16.4	X	116.68956	33.22770	314.47959	1.82199	0.1778047	0.27465689	2.3439178	20	—	—
32811 Apisaon	11.2	X	36.12001	158.09968	50.54429	19.85285	0.0785763	0.08150250	5.2685215	20	5 29.4	17.9
32812 1990 <i>UY</i> <sub>4</sub>	15.1	X	178.28063	277.16805	88.12891	6.25047	0.1890884	0.28104510	2.3082634	20	3 11.2	18.8
32813 1990 <i>WH</i> <sub>4</sub>	14.6	X	263.31898	83.41451	79.99008	11.22112	0.1548305	0.26563871	2.3966713	20	—	—
32814 1990 <i>XZ</i>	14.3	X	53.82416	323.85353	53.03525	23.17505	0.0778027	0.36833682	1.9274034	20	—	—
32815 1991 <i>GK</i> <sub>1</sub>	14.4	X	312.18835	75.20756	47.10765	3.34841	0.1275334	0.26004296	2.4309311	20	—	—
32816 1991 <i>PP</i> <sub>1</sub>	15.2	X	90.00799	342.45700	321.50234	0.86455	0.2181089	0.21296504	2.7771361	20	12 24.7	19.8
32817 1991 <i>PZ</i> <sub>5</sub>	13.9	X	15.40999	261.67740	331.38424	7.70062	0.0921166	0.23354643	2.6114832	20	6 1.3	16.9
32818 1991 <i>PL</i> <sub>10</sub>	14.4	X	3.70558	149.75135	134.82839	8.90277	0.1728468	0.23737668	2.5833149	20	8 3.9	16.7
32819 1991 <i>PM</i> <sub>15</sub>	14.0	X	333.28795	345.39251	305.20071	3.71542	0.2373833	0.23456293	2.6039329	20	5 26.5	16.2
32820 1991 <i>PU</i> <sub>19</sub>	14.3	X	123.45567	61.13969	292.24864	5.60493	0.2232121	0.21800227	2.7341901	20	1 11.8	18.4
32821 Posch	14.6	X	106.71000	41.28577	318.49732	4.08393	0.1201990	0.21591762	2.7517607	20	—	—
32822 1991 <i>RB</i> <sub>16</sub>	15.3	X	15.60717	285.72030	42.70726	3.14987	0.1809273	0.30874321	2.1680590	20	11 19.9	17.4
32823 1991 <i>TM</i> <sub>8</sub>	15.1	X	0.12378	76.02164	13.53872	5.83398	0.1225630	0.21193816	2.7860994	20	—	—
32824 1992 <i>CJ</i> <sub>3</sub>	15.2	X	197.39358	261.25346	173.71700	4.15165	0.1563802	0.29354571	2.2422579	20	6 24.5	18.6
32825 1992 <i>CK</i> <sub>3</sub>	15.0	X	168.08660	204.34676	228.75597	2.62737	0.1178685	0.29040707	2.2583847	20	5 22.8	18.0
32826 1992 <i>DC</i> <sub>1</sub>	14.9	X	85.85054	27.12690	114.62535	6.52845	0.1191598	0.28559550	2.2836795	20	5 20.5	17.7
32827 1992 <i>DF</i> <sub>1</sub>	15.0	X	142.03418	268.99353	149.59161	21.18823	0.3117866	0.28620926	2.2804134	20	4 26.3	19.3
32828 1992 <i>DM</i> <sub>8</sub>	14.2	X	10.61644	14.08230	171.39614	16.05336	0.1056502	0.17721183	3.1391175	20	3 25.5	18.0
32829 1992 <i>DT</i> <sub>10</sub>	15.8	X	56.74150	271.27051	289.70722	2.44474	0.0645983	0.28825979	2.2695862	20	6 22.2	18.1
32830 1992 <i>DL</i> <sub>11</sub>	14.9	X	130.43138	234.51235	135.96277	7.59360	0.1343331	0.27779941	2.3262078	20	1 19.8	17.9
32831 1992 <i>DA</i> <sub>12</sub>	15.1	X	54.25737	326.53630	193.06007	0.36607	0.1043504	0.28442887	2.2899198	20	4 21.6	17.1
32832 1992 <i>EB</i> <sub>2</sub>	14.4	X	262.74825	65.14831	155.89763	5.98614	0.0992182	0.16941068	3.2347610	20	—	—
32833 1992 <i>EW</i> <sub>2</sub>	16.0	X	193.56602	201.01160	38.87879	1.91875	0.1535663	0.26883303	2.3776484	20	—	—
32834 1992 <i>EO</i> <sub>4</sub>	14.9	X	168.08340	277.21308	116.81806	5.73458	0.0490833	0.28417348	2.2912916	20	3 29.8	17.9
32835 1992 <i>EO</i> <sub>5</sub>	14.8	X	250.26019	188.52862	125.36280	7.81798	0.1463529	0.28310295	2.2970641	20	3 13.4	18.1
32836 1992 <i>EC</i> <sub>6</sub>	15.5	X	86.44668	129.08189	16.49953	5.29779	0.1561914	0.28643873	2.2791954	20	5 29.9	18.4
32837 1992 <i>EK</i> <sub>7</sub>	14.2	X	59.16296	138.89130	42.75667	6.59848	0.1285553	0.18105559	3.0945304	20	6 5.5	18.3
32838 1992 <i>EL</i> <sub>8</sub>	14.2	X	189.39991	227.40747	125.84387	7.24538	0.1448744	0.28202375	2.3029204	20	3 3.4	17.6
32839 1992 <i>EY</i> <sub>8</sub>	14.2	X	96.77609	38.31706	111.07760	6.85968	0.0991934	0.18255525	3.0775598	20	6 10.2	18.6
32840 1992 <i>ED</i> <sub>9</sub>	15.1	X	94.89894	318.24136	89.98432	5.47266	0.0437405	0.27803227	2.3249087	20	1 8.8	17.8
32841 1992 <i>EO</i> <sub>9</sub>	13.3	X	239.34166	304.17662	355.61694	1.36237	0.1367413	0.17618916	3.1512529	20	2 22.1	18.1
32842 1992 <i>EO</i> <sub>13</sub>	14.0	X	173.63024	242.80425	180.03210	4.34595	0.2664753	0.18470630	3.0536195	20	5 19.3	19.5
32843 1992 <i>EC</i> <sub>18</sub>	15.4	X	139.81645	169.29549	219.69595	3.28370	0.0908366	0.28100778	2.3084678	20	2 17.4	18.5
32844 1992 <i>EN</i> <sub>25</sub>	14.3	X	89.01215	289.86982	83.07052	1.50333	0.1485215	0.17034481	3.2229243	20	—	—
32845 1992 <i>FU</i> <sub>1</sub>	15.3	X	207.64249	14.12455	150.76950	2.55129	0.1535778	0.26374250	2.4081450	20	11 1.1	18.6
32846 1992 <i>GS</i> <sub>1</sub>	14.3	X	29.85844	10.67157	184.76912	2.60740	0.0838923	0.17752706	3.1354003	20	5 6.3	18.2
32847 1992 <i>JO</i> <sub>3</sub>	14.7	X	137.43267	25.07053	283.52240	1.91529	0.1674171	0.26512624	2.3997587	20	—	—
32848 1992 <i>MD</i>	14.0	X	332.08479	147.57860	131.46070	17.31075	0.2230691	0.24286409	2.5442542	20	5 15.6	16.8
32849 1992 <i>OO</i> <sub>2</sub>	15.1	X	277.32257	57.56270	157.78531	1.57288	0.1338229	0.26686661	2.3893140	20	—	—
32850 1992 <i>RY</i> <sub>4</sub>	15.1	X	298.22422	316.31596	332.15591	1.36201	0.1707610	0.23865181	2.5741048	20	4 2.2	18.2
32851 1992 <i>RC</i> <sub>6</sub>	14.5	X	331.11659	185.31694	118.69823	2.05142	0.1953458	0.24266172	2.5456686	20	6 19.3	16.8
32852 1992 <i>RE</i> <sub>7</sub>	15.2	X	257.43602	47.49121	10.93110	7.47255	0.2230524	0.24287047	2.5442097	20	7 30.6	18.8
32853 Döbereiner	13.6	X	106.24667	26.13779	171.74553	14.22571	0.0927175	0.24363765	2.5388660	20	8 24.7	17.3
32854 1992 <i>SC</i> <sub>13</sub>	14.4	X	232.82173	321.48632	18.90582	6.18557	0.2691279	0.23505116	2.6003259	20	3 24.1	18.8
32855 Zollitsch	15.6	X	185.26278	196.61662	203.69874	2.81850	0.1941973	0.23467718	2.6030877	20	4 29.2	20.0
32856 1992 <i>SA</i> <sub>25</sub>	13.9	X	199.38227	170.72931	195.48106	12.88572	0.2790126	0.23393489	2.6085914	20	3 28.9	18.7
32857 1992 <i>UG</i> <sub>6</sub>	14.2	X	189.57093	339.96792	52.31361	7.74092	0.3129242	0.23283356	2.6168109	20	4 23.9	19.0
32858 Kitakamigawa	13.4	X	77.32250	142.07651	306.03169	8.67412	0.0684112	0.18438208	3.0571981	20	2 21.8	17.5
32859 1993 <i>EL</i>	14.9	X	28.34224	88.56071	103.57050	15.94239	0.3387874	0.22085636	2.7105834	20	6 1.5	17.1
32860 1993 <i>FG</i> <sub>5</sub>	14.7	X	158.70804	106.87349	61.67857	2.81721	0.0578224	0.19606576	2.9345052	20	9 11.4	19.0
32861 1993 <i>FM</i> <sub>7</sub>	13.9	X	299.20321	308.10981	108.89070	3.42674	0.0131013	0.19903388	2.9052580	20	10 17.8	17.9
32862 1993 <i>FD</i> <sub>10</sub>	16.0	X	192.16917	336.31813	43.90413	5.37729	0.1915680	0.29359381	2.2420130	20	4 8.8	19.6
32863 1993 <i>FP</i> <sub>11</sub>	14.5	X	237.22256	13.36656	77.84405	3.22268	0.0226102	0.19592045	2.9359559	20	9 9.7	18.5
32864 1993 <i>FW</i> <sub>15</sub>	13.9	X	311.44449	268.17960	31.19908	10.25494	0.1001773	0.18683912	3.0303364	20	5 18.0	17.9
32865 1993 <i>FQ</i> <sub>16</sub>	15.8	X	68.72524	228.93053	97.90404	4.02686	0.0566883	0.31032335	2.1606931	20	—	—
32866 1993 <i>FW</i> <sub>16</sub>	14.7	X	11.60340	245.87061	70.79750	2.93134	0.1150619	0.19463694	2.9488490	20	9 23.1	18.2
32867 1993 <i>FL</i> <sub>20</sub>	14.6	X	217.15107	341.31096	350.25697	8.35563	0.1624600	0.18115156	3.0934374	20	3 8.3	19.7
32868 1993 <i>FM</i> <sub>25</sub>	14.4	X	53.48008	270.60519	241.82677	1.49514	0.1321751	0.18344025	3.0676534	20	4 20.3	18.3
32869 1993 <i>FW</i> <sub>26</sub>	13.6	X	315.34140	338.19753	356.17557	9.60025	0.0963839	0.19048861	2.9915071	20	7 15.3	17.5
32870 1993 <i>FD</i> <sub>27</sub>	15.7	X	123.12681	209.79678	44.55475	1.14450	0.1186735	0.30770320	2.1729415	20	12 7.6	18.5
32871 1993 <i>FQ</i> <sub>32</sub>	14.0	X	351.70900	311.32139	45.76023	2.53862	0.0973383	0.19660625	2.9291245	20	10 12.9	17.5
32872 1993 <i>FM</i> <sub>36</sub>	14.8	X	292.63501	150.72724	141.08950	3.58249	0.0826819	0.18386024	3.0629800	20	4 18.3	19.0
32873 1993 <i>FS</i> <sub>37</sub>	14.8	X	48.89355	145.59282	158.25273	2.50867	0.0704128	0.19692438	2.9259691			

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
32881 1993 <i>OK</i> <sub>6</sub>	15.0	X	353.74610	237.38184	111.96223	4.92547	0.1619363	0.26007204	2.4307499	20	10 29.6	17.3
32882 1993 <i>RW</i> <sub>6</sub>	14.9	X	34.29610	193.06497	221.53401	1.66770	0.1788526	0.26584310	2.3954427	20	—	—
32883 1993 <i>RJ</i> <sub>7</sub>	14.9	X	2.07016	111.31092	339.42495	2.22054	0.1391112	0.26608935	2.3939646	20	—	—
32884 1993 <i>SO</i> <sub>14</sub>	15.9	X	107.26025	87.01342	176.85230	2.75729	0.2174087	0.26183622	2.4198191	20	11 29.8	19.9
32885 1993 <i>TC</i> <sub>25</sub>	15.5	X	315.37877	331.03772	106.87589	3.49495	0.1719539	0.25905696	2.4370954	20	12 21.7	17.4
32886 1993 <i>TS</i> <sub>26</sub>	15.7	X	254.62855	59.32571	147.71759	2.93206	0.1088118	0.26725157	2.3870190	20	—	—
32887 1993 <i>TT</i> <sub>26</sub>	15.5	X	66.12009	141.04705	166.90539	2.33172	0.2082047	0.26060223	2.4274519	20	12 16.4	19.3
32888 1993 <i>TD</i> <sub>27</sub>	15.4	X	141.20910	276.74962	55.15407	3.03623	0.2316780	0.27029497	2.3690673	20	—	—
32889 1993 <i>TN</i> <sub>29</sub>	16.1	X	55.02940	196.13616	125.18547	3.25708	0.2197058	0.26065239	2.4271404	20	12 23.2	19.7
32890 Schwob	15.5	X	43.89949	53.98041	101.16192	28.56645	0.1667051	0.38162594	1.8823951	20	4 13.1	17.7
32891 Amatrice	14.1	X	241.26789	109.58211	320.46761	13.39982	0.1408136	0.24271549	2.5452926	20	8 5.5	17.7
32892 1994 <i>DW</i>	14.2	X	21.25429	151.40572	116.46235	11.40912	0.0841882	0.19311106	2.9643623	20	7 29.6	18.0
32893 van der Waals	13.4	X	337.00013	282.91604	145.24262	17.75973	0.1152158	0.21434381	2.7652140	20	12 28.5	16.9
32894 1994 <i>JK</i> <sub>3</sub>	14.9	X	354.76374	180.11838	221.52018	1.51942	0.0533885	0.20693495	2.8308280	20	12 12.5	18.5
32895 1994 <i>JL</i> <sub>5</sub>	14.9	X	65.96004	4.03237	48.93003	5.93368	0.1490387	0.21610654	2.7501568	20	—	—
32896 1994 <i>NM</i> <sub>2</sub>	13.1	X	211.43726	200.28049	115.10829	23.49149	0.2169371	0.17689481	3.1428669	20	2 15.3	18.6
32897 Curtharris	13.9	X	108.79322	129.21087	132.59507	23.86336	0.2082416	0.27568124	2.3281080	20	12 7.8	18.6
32898 1994 <i>PS</i> <sub>1</sub>	15.5	X	290.10070	58.98033	287.95149	5.46619	0.2231930	0.29990327	2.2104562	20	6 2.0	17.8
32899 Knigge	13.0	X	293.46784	3.08918	292.96022	13.45305	0.1584196	0.18364377	3.0653866	20	4 4.8	17.6
32900 1994 <i>PG</i> <sub>5</sub>	14.2	X	285.70118	335.15891	324.12775	7.88886	0.1207409	0.18114330	3.0935315	20	4 8.3	18.7
32901 1994 <i>PB</i> <sub>9</sub>	14.2	X	77.07437	262.42035	323.88221	6.21432	0.0536567	0.18851046	3.0123985	20	8 16.9	18.4
32902 1994 <i>PC</i> <sub>10</sub>	16.7	X	357.40290	254.32195	42.41353	0.87735	0.1457323	0.30277613	2.1964515	20	8 18.7	18.3
32903 1994 <i>PN</i> <sub>17</sub>	14.2	X	208.25763	18.63665	335.53436	4.50325	0.0824100	0.17696727	3.1420089	20	3 27.9	19.0
32904 1994 <i>PU</i> <sub>24</sub>	14.1	X	140.17504	311.63380	101.77334	2.78868	0.2160627	0.17428210	3.1741993	20	4 11.3	19.3
32905 1994 <i>PX</i> <sub>32</sub>	14.7	X	207.28508	28.95408	257.86640	3.83441	0.0997912	0.17027094	3.2238565	20	1 10.1	19.8
32906 1994 <i>RH</i>	15.8	X	194.83882	92.31324	331.21701	18.93090	0.4409295	0.29262041	2.2469822	20	5 27.8	20.8
32907 1994 <i>RL</i> <sub>2</sub>	13.7	X	237.76676	342.73077	333.27129	10.27998	0.1946609	0.17814784	3.1281123	20	3 4.9	18.8
32908 1994 <i>SE</i> <sub>2</sub>	15.1	X	342.21506	13.10719	38.55740	3.99667	0.1125333	0.30894708	2.1671052	20	—	—
32909 1994 <i>TS</i>	15.3	X	321.97240	346.16156	335.50083	1.32726	0.1706285	0.29893965	2.2152039	20	7 4.9	16.8
32910 1994 <i>TE</i> <sub>15</sub>	15.0	X	355.29433	131.54819	220.64702	4.79892	0.2544662	0.30572728	2.1822940	20	12 4.6	16.8
32911 Cervara	15.4	X	264.30379	144.39628	203.20125	6.39349	0.1767005	0.29392109	2.2403483	20	5 7.5	18.4
32912 1994 <i>WS</i> <sub>2</sub>	15.2	X	9.27705	313.41079	57.83902	4.65205	0.1010276	0.30447254	2.1882854	20	12 27.8	17.5
32913 1994 <i>YV</i> <sub>3</sub>	15.2	X	178.31863	119.59172	291.23863	3.20672	0.1729246	0.28637140	2.2795526	20	5 3.3	18.7
32914 1995 <i>AG</i> <sub>1</sub>	14.2	X	115.40746	167.45803	331.88855	5.08005	0.0737420	0.28634948	2.2796689	20	6 17.8	17.2
32915 1995 <i>BD</i> <sub>2</sub>	15.2	X	219.39997	160.90284	56.04799	2.91598	0.1466279	0.26439319	2.4041923	20	—	—
32916 1995 <i>CL</i>	14.1	X	1.72403	59.85591	345.95770	13.87901	0.2942581	0.22644122	2.6658296	20	—	—
32917 1995 <i>CM</i>	15.5	X	0.56936	182.07405	24.42998	5.13594	0.1988961	0.27711612	2.3300301	20	3 18.1	17.1
32918 1995 <i>CZ</i>	15.9	X	292.46804	73.59869	88.44878	3.50278	0.1125250	0.26645935	2.3917479	20	—	—
32919 1995 <i>CJ</i> <sub>1</sub>	14.2	X	28.70004	281.74945	260.01151	4.24290	0.1873453	0.27819261	2.3240153	20	4 12.7	15.8
32920 1995 <i>CH</i> <sub>2</sub>	15.8	X	357.94200	326.55899	209.80257	1.47869	0.1537103	0.27546710	2.3393196	20	1 28.5	18.0
32921 1995 <i>EV</i>	14.5	X	315.04585	8.09711	330.71863	5.09016	0.1661296	0.24648946	2.5192454	20	7 15.3	17.0
32922 1995 <i>EM</i> <sub>2</sub>	15.4	X	105.65997	189.87477	198.71020	1.25394	0.1036557	0.27300381	2.3533702	20	1 7.1	18.0
32923 1995 <i>GF</i> <sub>3</sub>	15.3	X	236.11709	3.70968	165.82237	10.92448	0.1455097	0.25906597	2.4370390	20	12 12.4	18.5
32924 1995 <i>GF</i> <sub>6</sub>	14.8	X	260.26830	198.22230	146.71512	4.87256	0.1170224	0.23997681	2.5646210	20	5 9.4	18.4
32925 1995 <i>KF</i>	14.2	X	218.32930	120.32328	126.92885	22.83866	0.2795795	0.26111862	2.4242505	20	—	—
32926 1995 <i>ME</i> <sub>1</sub>	13.9	X	358.64685	206.86260	181.71316	9.73944	0.1953804	0.21180711	2.7872485	20	12 19.9	17.2
32927 1995 <i>OY</i> <sub>3</sub>	16.0	X	301.50104	153.92408	153.90615	1.17737	0.2116428	0.19151797	2.9807784	20	4 29.9	20.0
32928 Xiejialin	15.3	X	105.84737	8.38156	302.57682	17.40651	0.1071568	0.36722364	1.9312966	20	—	—
32929 1995 <i>QY</i> <sub>9</sub>	8.4	X	20.49282	24.74674	341.93108	4.82870	0.2643843	0.00394664	39.6567896	20	11 4.0	23.2
32930 1995 <i>SC</i> <sub>4</sub>	14.2	X	172.41085	72.22593	237.10460	4.23334	0.1674670	0.17390561	3.1787789	20	1 5.9	19.4
32931 Ferioli	14.6	X	202.63659	73.99437	345.91014	8.68985	0.1449924	0.18598801	3.0395742	20	6 8.0	19.7
32932 1995 <i>SX</i> <sub>15</sub>	14.7	X	314.79023	121.05040	181.11034	3.50211	0.2529342	0.19177020	2.9781642	20	5 6.6	18.2
32933 1995 <i>SF</i> <sub>21</sub>	15.4	X	330.10023	140.67754	153.69592	2.32542	0.1520767	0.19253294	2.9702934	20	6 6.6	18.8
32934 1995 <i>SP</i> <sub>25</sub>	15.2	X	238.08954	86.41251	328.43395	1.18021	0.1663635	0.18848113	3.0127109	20	7 6.0	19.8
32935 1995 <i>SV</i> <sub>43</sub>	13.9	X	233.15554	190.65839	202.07379	7.43878	0.1228030	0.18703295	3.0282424	20	6 7.8	18.6
32936 1995 <i>SA</i> <sub>44</sub>	14.6	X	204.43368	161.82478	200.82644	9.15705	0.0642270	0.18149596	3.0895228	20	4 4.4	19.2
32937 1995 <i>TT</i>	12.8	X	311.27951	321.15815	28.61048	10.59999	0.1185232	0.19069085	2.9893916	20	7 28.6	16.7
32938 Ivanopaci	14.7	X	279.95237	68.87864	31.60369	12.56833	0.1921723	0.19864765	2.9090226	20	10 22.9	18.2
32939 1995 <i>UN</i> <sub>2</sub>	14.7	X	190.61029	308.28887	142.19710	2.21188	0.1975446	0.18419625	3.0592539	20	7 3.7	19.8
32940 1995 <i>UW</i> <sub>4</sub>	14.8	X	284.00279	280.02258	48.54914	8.11263	0.1354432	0.30435846	2.1888322	20	5 11.5	17.0
32941 1995 <i>UY</i> <sub>4</sub>	14.9	X	220.42708	0.81697	24.88306	11.19562	0.1556348	0.18522008	3.0479699	20	5 12.0	19.8
32942 1995 <i>UD</i> <sub>7</sub>	13.8	X	186.28572	153.28683	214.59158	16.97181	0.2187153	0.17978310	3.1091152	20	3 21.5	19.4
32943 Sandryan	14.1	X	271.84799	296.43400	71.49757	10.96667	0.0949701	0.18546363	3.0453009	20	6 24.5	18.3
32944 Gussalli	13.8	X	221.69555	349.62444	28.81160	4.48071	0.1782922	0.18284767	3.0742777	20	5 4.9	18.8
32945 Lecce	14.3	X	108.15811	84.61957	66.19676	11.60720	0.0748363	0.18126161	3.0921852	20	6 21.2	18.8
32946 1995 <i>WZ</i> <sub>17</sub>	14.8	X	91.63918	221.61856	234.85097	8.19074	0.0334024	0.17655241	3.1469290	20	3 16.2	19.3
32947 1995 <i>YH</i> <sub>2</sub>	13.9	X	239.25506	155.93110	255.70312	10.16804	0.0343051	0.18521657	3.0480084	20	7 16.7	18.3
32948 1995 <i>YA</i> <sub>6</sub>	1											

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
32961 1996 PS	14.9	X	358.56702	264.24419	316.04931	5.83825	0.0927520	0.27948584	2.3168407	20	4 8.1	17.3
32962 1996 PH <sub>1</sub>	15.3	X	339.64348	154.39305	129.09417	2.88776	0.0584126	0.24248612	2.5468974	20	6 16.1	18.3
32963 1996 PJ <sub>1</sub>	15.3	X	185.82489	279.42852	155.51570	0.33588	0.0939196	0.23921550	2.5700595	20	6 13.3	19.0
32964 1996 PS <sub>3</sub>	15.2	X	174.78917	125.77020	114.00569	3.21303	0.1658608	0.26134624	2.4228427	20	12 28.7	18.7
32965 1996 PX <sub>4</sub>	14.8	X	134.43524	17.46081	155.94885	4.91630	0.0544420	0.24607049	2.5221042	20	8 24.1	18.3
32966 1996 PE <sub>5</sub>	15.4	X	155.52169	262.34031	331.37802	6.63491	0.1581398	0.25666034	2.4522432	20	12 1.8	19.4
32967 1996 PG <sub>7</sub>	14.5	X	95.21758	321.60827	142.35930	16.39616	0.1051698	0.23368265	2.6104682	20	4 14.7	18.3
32968 1996 PK <sub>8</sub>	15.2	X	320.64772	343.24950	228.20688	1.56303	0.1691459	0.27468842	2.3437385	20	1 16.0	18.0
32969 1996 Motohikosato	14.8	X	125.26652	182.33601	165.11063	5.64619	0.2042825	0.22307873	2.6925510	20	1 2.9	18.7
32970 1996 QX	15.8	X	269.69772	113.59626	143.44147	5.36528	0.1343731	0.27419967	2.3465227	20	1 19.9	19.2
32971 1996 RQ <sub>10</sub>	15.7	X	241.90455	329.54931	53.61918	1.04515	0.1094488	0.23933604	2.5691965	20	6 6.6	19.4
32972 1996 SB <sub>2</sub>	14.5	X	84.42920	205.99468	190.70829	10.99152	0.0218729	0.22126958	2.7072077	20	—	—
32973 1996 TN <sub>11</sub>	14.6	X	303.62893	217.90641	116.49384	2.46330	0.0951994	0.23860389	2.5744494	20	6 26.9	17.6
32974 1996 TX <sub>16</sub>	13.8	X	240.34703	118.81757	217.88344	8.65388	0.0886854	0.19255857	2.9700298	20	4 8.4	18.3
32975 1996 TR <sub>23</sub>	14.2	X	104.24540	298.51225	12.15032	6.14018	0.3137096	0.21600648	2.7510059	20	—	—
32976 1996 VK	14.7	X	115.56065	355.97855	58.79093	7.37079	0.0625028	0.22417241	2.6837864	20	2 29.3	18.5
32977 1996 VR <sub>4</sub>	13.6	X	261.58138	348.01890	60.38266	8.58814	0.1932200	0.23815054	2.5777156	20	7 25.5	17.2
32978 1996 VG <sub>7</sub>	14.3	X	24.56961	202.37418	212.41640	18.33398	0.2214429	0.21581604	2.7526240	20	—	—
32979 1996 VH <sub>7</sub>	14.2	X	160.25402	107.62518	273.89543	9.26737	0.1050794	0.22916626	2.6446544	20	3 5.3	18.3
32980 1996 VI <sub>25</sub>	14.7	X	265.14519	216.87341	224.98027	11.04308	0.0327316	0.20184155	2.8785232	20	9 28.3	18.7
32981 1996 VO <sub>27</sub>	14.6	X	155.51216	187.56170	157.49702	1.37631	0.1836697	0.18054389	3.1003747	20	2 1.5	19.5
32982 1996 VD <sub>38</sub>	15.0	X	109.44841	355.85999	41.38265	5.67432	0.0381938	0.22258206	2.6965549	20	1 24.9	18.6
32983 1996 WU <sub>2</sub>	13.7	X	283.04214	174.37145	175.59190	13.59633	0.0874542	0.23922973	2.5699576	20	6 4.1	17.3
32984 1996 XX	14.6	X	250.88785	258.10369	67.47687	15.60288	0.1195456	0.22877777	2.6476475	20	4 9.8	18.8
32985 1996 XN <sub>3</sub>	14.6	X	24.16351	255.04624	290.02643	7.87990	0.2029834	0.22579790	2.6708907	20	4 11.6	17.1
32986 1996 XQ <sub>6</sub>	13.7	X	319.87226	300.76857	36.36414	15.19126	0.1302545	0.23929916	2.5694604	20	7 31.3	16.8
32987 Uyuni	14.1	X	265.73549	266.47535	76.07430	15.64866	0.1561832	0.23417049	2.6068414	20	5 10.1	18.0
32988 1996 XK <sub>19</sub>	13.6	X	205.15580	314.69665	112.33897	11.08841	0.0891718	0.18867651	3.0106308	20	6 23.6	18.2
32989 1996 XA <sub>24</sub>	14.5	X	170.94981	185.64867	67.54623	4.92887	0.1731971	0.25242515	2.4795962	20	—	—
32990 Sayo-hime	13.3	X	355.77302	280.18157	350.70558	9.44779	0.0821925	0.18689836	3.0296960	20	6 22.4	17.2
32991 1997 AC <sub>3</sub>	13.7	X	298.00697	226.96539	327.26458	11.71449	0.0818578	0.21114869	2.7930398	20	—	—
32992 1997 AN <sub>3</sub>	15.3	X	330.80256	46.49324	325.24409	0.97053	0.0876057	0.19620210	2.9331455	20	9 27.5	19.0
32993 1997 AX <sub>6</sub>	14.0	X	126.11745	284.17077	140.71528	14.55449	0.0679522	0.17694888	3.1422267	20	3 31.1	18.7
32994 1997 AT <sub>21</sub>	14.2	X	10.07102	69.62487	82.55397	15.16921	0.0435065	0.21994108	2.7180983	20	2 8.9	17.9
32995 1997 BS <sub>1</sub>	14.3	X	204.81643	306.69992	122.24401	10.59522	0.0469258	0.18492494	3.0512121	20	6 28.1	18.9
32996 1997 CV	14.5	X	10.69641	35.09365	150.60167	13.12644	0.0690481	0.21697848	2.7427840	20	3 23.6	17.9
32997 1997 CG <sub>3</sub>	14.3	X	21.66475	136.02244	183.10309	3.61433	0.0702806	0.19343065	2.9610963	20	10 4.8	18.1
32998 1997 CK <sub>5</sub>	14.5	X	65.29084	286.78365	316.60352	8.69072	0.0161478	0.18898649	3.0073378	20	8 17.5	18.7
32999 1997 CY <sub>27</sub>	13.2	X	246.48615	235.38858	320.18728	16.11113	0.0329184	0.20424984	2.8555837	20	—	—
33000 Chenjiansheng	14.5	X	331.80960	243.20518	313.90941	11.17283	0.1711281	0.21617636	2.7495645	20	1 24.9	17.7
33001 1997 CU <sub>29</sub>	6.0	X	240.66190	273.74271	350.07594	1.46289	0.0417886	0.00346741	43.2314080	20	2 9.9	22.5
33002 Everest	14.2	X	215.12184	337.87363	129.43094	5.20876	0.1163329	0.19012914	2.9952765	20	8 22.3	18.7
33003 1997 EJ	12.7	X	144.81525	178.94375	7.78135	10.00403	0.0392844	0.18912947	3.0058219	20	9 17.3	17.1
33004 Dianesipiera	14.2	X	291.68026	327.13802	330.04622	11.27628	0.0709057	0.17865157	3.1222295	20	4 18.9	18.8
33005 1997 EZ <sub>3</sub>	14.2	X	322.07761	258.24919	357.97453	4.14259	0.1018602	0.17390124	3.1788321	20	4 8.9	18.4
33006 1997 EJ <sub>6</sub>	13.4	X	327.78575	151.11484	51.78493	11.22831	0.1273797	0.17079867	3.2172123	20	2 13.3	17.8
33007 1997 EX <sub>10</sub>	14.2	X	97.01714	41.93437	17.80892	4.17489	0.0063066	0.16690983	3.2669923	20	2 9.7	18.9
33008 1997 EU <sub>17</sub>	12.8	X	153.23908	23.51523	333.31055	13.52992	0.0492822	0.16833406	3.2485387	20	2 6.1	17.6
33009 1997 EM <sub>28</sub>	15.7	X	71.29007	128.05805	26.65179	1.10301	0.1136731	0.17543491	3.1602786	20	5 16.8	20.0
33010 Enricoprosperti	14.3	X	232.91379	312.34297	110.68131	7.06103	0.0865957	0.27170783	2.3608476	20	7 25.1	17.3
33011 Kurtiscarsch	14.3	X	203.78558	245.44543	142.90059	13.76137	0.1747547	0.22475971	2.6791092	20	5 5.5	18.9
33012 Eddieirizarry	14.2	X	22.08272	191.62806	355.73669	1.58424	0.1033291	0.17239205	3.1973577	20	4 14.1	18.1
33013 1997 FZ	14.1	X	322.46951	47.93772	191.80781	0.56670	0.0998236	0.17155380	3.2077646	20	3 20.9	18.4
33014 Kalinich	14.1	X	70.39440	119.03399	63.80519	2.46320	0.0963130	0.17751176	3.1355805	20	6 18.4	18.4
33015 1997 GF <sub>7</sub>	16.1	X	14.98074	209.33282	137.35040	2.22998	0.1901121	0.31361699	2.1455386	20	12 18.6	18.3
33016 1997 GZ <sub>31</sub>	14.1	X	126.68927	146.52043	93.26949	11.11839	0.2935060	0.18795464	3.0183343	20	11 11.9	19.6
33017 Wronski	12.9	X	18.00335	185.93613	47.64810	10.03496	0.0358512	0.17541480	3.1605202	20	6 2.9	17.2
33018 1997 HT <sub>5</sub>	13.6	X	97.07040	301.28601	181.25764	16.22736	0.1551477	0.17701065	3.1414956	20	5 17.1	18.4
33019 1997 ME <sub>3</sub>	15.3	X	354.10740	312.41743	32.67513	1.39975	0.1750870	0.30613036	2.1803780	20	11 6.1	17.1
33020 1997 MG <sub>9</sub>	16.3	X	63.35860	183.85038	263.22372	1.53837	0.2127753	0.28027161	2.3125083	20	2 1.9	17.8
33021 1997 MV <sub>10</sub>	15.9	X	118.66891	230.43307	39.50768	3.08149	0.1526067	0.27141017	2.3625733	20	12 16.2	19.7
33022 1997 NN	15.2	X	76.99334	316.18537	286.79190	4.52877	0.1428906	0.30478614	2.1867841	20	10 2.7	18.1
33023 1997 PJ <sub>3</sub>	13.9	X	115.74409	61.43640	162.39129	12.70369	0.1212937	0.22053589	2.7132087	20	10 11.4	18.1
33024 1997 PD <sub>5</sub>	15.3	X	70.58239	339.89300	306.33983	3.02669	0.0324292	0.30570289	2.1824101	20	11 11.7	17.9
33025 1997 PV <sub>5</sub>	15.9	X	275.30115	94.27800	353.88347	3.71504	0.0313574	0.30517678	2.1849176	20	11 13.5	18.3
33026 1997 PD <sub>6</sub>	15.2	X	24.67086	1.28773	307.99774	5.20462	0.1954066	0.30347159	2.1930946	20	11 4.9	17.7
33027 Brouillac	16.2	X	197.78518	140.23939	165.16763	6.16295	0.2301108	0.28176382	2.3043365	20	1 11.8	20.2
33028 1997 QN	14.9	X	191.51910	132.94002	256.72898	5.02684	0.1022666	0.28476099	2.2881389	20	4 17.5	18.2
33029 1997 QV	15.7	X	105.54980	229.94208	165.47289	10.51556	0.1767461	0.27870909	2.3211433	20	1 25.5	18.5
33030 1997 QB <sub>2</sub>	15.1	X	1.64173	9.74785	357.10134	7.98166	0.2694202	0.26183582	2.4198215	20	12 24.8	17.8
33031 1997 RX	15.7	X	350.41758	174.18738	223.29384	1.77510	0.1910494	0.26377979	2.4079181	20	—	—
33032 1997 RQ <sub>8</sub>	15.6	X	222.89337	100.84040	257.71968	1.80884	0.1961156	0.24407399	2.5358392	20	4 8.4	19.8
33033 1997 RA <sub>10</sub>	15.2	X	300.89550	302.75362	131.62897	3.41936	0.1453021	0.25969655	2.4330924	20	11 17.4	17.3
33034 1997 RC <sub>11</sub>	16.0	X	222.45880	146.65728	175.58330	4.12253	0.1555102	0.28555918	2.2838731	20	2 21.5	19.3
33035 Pareschi	15.2	X	188.45837	81.00746	286.79289	6.19722	0.153401	0.2837				

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
33041 1997 TG <sub>17</sub>	14.7 <sup>m</sup>	X	236.94013	254.12227	89.53667	6.22779	0.2222829	0.24382140	2.5375903	20	4 4.8	18.9
33042 1997 TU <sub>18</sub>	14.7	X	210.04463	262.99559	176.99675	5.68945	0.1924331	0.29490464	2.2353643	20	7 11.2	18.1
33043 1997 TC <sub>23</sub>	15.8	X	163.45616	66.98842	232.09608	1.50639	0.2360846	0.27358192	2.3500537	20	—	—
33044 Erikdavy	15.7	X	8.48049	256.92366	185.45512	0.51394	0.0924637	0.26871095	2.3783685	20	—	—
33045 1997 UF <sub>1</sub>	15.1	X	141.50307	175.31996	217.88040	4.33034	0.1396919	0.27882392	2.3205060	20	3 1.8	18.5
33046 1997 UF <sub>2</sub>	15.1	X	231.00832	131.22870	207.49889	4.93684	0.2386698	0.28535776	2.2849477	20	3 17.2	18.9
33047 1997 UO <sub>3</sub>	15.1	X	60.71598	206.04445	238.47562	7.08969	0.2088909	0.27251390	2.3561899	20	1 22.4	17.0
33048 1997 UX <sub>4</sub>	15.1	X	49.10279	109.75013	4.97125	2.80101	0.1904773	0.27368091	2.3494870	20	2 14.3	16.7
33049 1997 UF <sub>5</sub>	15.2	X	277.43927	265.13408	356.18901	6.37705	0.1165567	0.28233123	2.3012481	20	2 6.1	18.3
33050 1997 UR <sub>6</sub>	16.3	X	239.58928	110.95656	37.76337	1.85737	0.1375037	0.25926609	2.4357848	20	11 19.2	19.1
33051 1997 UF <sub>7</sub>	15.0	X	118.27406	23.48271	47.65056	7.31405	0.0981694	0.27788502	2.3257300	20	3 24.4	18.0
33052 1997 UA <sub>8</sub>	15.1	X	168.07300	160.84204	62.82500	3.07034	0.1550022	0.25921168	2.4361256	20	12 2.8	18.8
33053 1997 UB <sub>12</sub>	16.5	X	87.41135	285.60348	212.39383	0.29539	0.1812532	0.28390733	2.2927233	20	5 25.5	19.2
33054 1997 UU <sub>14</sub>	15.4	X	109.10059	59.51610	225.30628	2.78085	0.2103346	0.30777488	2.1726042	20	—	—
33055 1997 UB <sub>15</sub>	14.9	X	35.12387	14.73506	54.67869	1.57193	0.0647304	0.26904838	2.3763795	20	—	—
33056 Ogunimachi	15.1	X	328.50759	283.30048	134.58982	2.72386	0.1614528	0.25932013	2.4354463	20	12 18.5	17.1
33057 1997 US <sub>17</sub>	14.8	X	310.09092	174.58655	70.80464	5.19173	0.0593805	0.28034622	2.3120981	20	3 7.9	17.5
33058 Kovařík	15.9	X	78.76312	126.44299	34.33425	6.32837	0.0998417	0.28495919	2.2870778	20	5 31.8	18.5
33059 1997 VS	15.0	X	80.84062	291.32256	81.37728	3.40943	0.2215118	0.26902018	2.3765456	20	—	—
33060 1997 VY	15.3	X	4.86055	110.21797	151.12611	2.97851	0.3402372	0.25960087	2.4336901	20	—	—
33061 Václavmorava	15.7	X	96.18969	18.49802	316.42540	1.64397	0.2220440	0.26979473	2.3719949	20	—	—
33062 1997 VT <sub>2</sub>	15.1	X	219.53256	222.82835	10.14419	3.42498	0.0513108	0.26597748	2.3946358	20	—	—
33063 1997 VB <sub>3</sub>	15.0	X	89.29517	5.15336	62.25693	4.50046	0.2006942	0.27419177	2.3465678	20	2 23.7	17.5
33064 1997 VS <sub>3</sub>	15.1	X	74.28146	330.24834	72.09780	3.45354	0.2022726	0.27018539	2.3697079	20	—	—
33065 1997 VQ <sub>5</sub>	15.6	X	60.11295	350.81030	59.23006	3.57718	0.1642862	0.26847342	2.3797711	20	—	—
33066 1997 VS <sub>6</sub>	15.2	X	277.71124	336.46347	244.15119	5.20928	0.0079087	0.27432060	2.3458331	20	—	—
33067 1997 WJ	14.8	X	123.90768	7.86735	59.94363	7.38191	0.1773741	0.27807137	2.3246908	20	4 6.2	18.1
33068 1997 WO <sub>1</sub>	15.4	X	290.03808	237.94554	253.02635	1.31026	0.1078644	0.26231844	2.4168526	20	—	—
33069 1997 WQ <sub>2</sub>	14.8	X	100.18284	310.30995	85.51890	6.70462	0.0890671	0.27150513	2.3620225	20	1 7.4	17.5
33070 1997 WY <sub>7</sub>	14.7	X	317.36963	183.81863	68.04028	6.80242	0.1329127	0.23607030	2.5928366	20	3 21.9	18.0
33071 1997 WJ <sub>12</sub>	15.0	X	213.79608	144.76879	90.15696	9.06946	0.0711625	0.21588907	2.7520033	20	—	—
33072 1997 WO <sub>12</sub>	15.0	X	341.72504	355.53253	233.10543	6.84450	0.1920354	0.28302367	2.2974930	20	3 6.3	17.2
33073 1997 WU <sub>16</sub>	15.1	X	72.12301	122.50809	243.50482	9.78716	0.3101908	0.26800729	2.3825297	20	—	—
33074 1997 WP <sub>21</sub>	12.4	X	321.48307	34.37847	91.38338	17.96036	0.1011338	0.17382326	3.1797828	20	—	—
33075 1997 WV <sub>22</sub>	14.4	X	144.30618	332.07262	87.43077	11.69354	0.2734149	0.23381944	2.6094500	20	4 26.9	19.0
33076 1997 WM <sub>24</sub>	14.6	X	220.58590	343.71289	32.18639	6.18072	0.1735267	0.28715120	2.2754238	20	4 28.3	18.1
33077 1997 WG <sub>25</sub>	16.2	X	118.51977	86.74646	220.65448	0.52206	0.1654352	0.26714660	2.3876442	20	—	—
33078 1997 WN <sub>35</sub>	15.2	X	21.07253	243.04233	243.45339	6.99111	0.1009518	0.27176150	2.3605367	20	1 3.5	17.5
33079 1997 WB <sub>39</sub>	15.0	X	191.59144	274.36345	53.83421	5.38232	0.1628903	0.27625656	2.3348607	20	2 4.3	18.6
33080 1997 WF <sub>39</sub>	14.7	X	20.62258	55.19980	70.82372	4.35394	0.1791363	0.27043424	2.3682539	20	—	—
33081 1997 WR <sub>41</sub>	15.1	X	25.02892	143.93169	215.35434	1.65090	0.1916770	0.25982519	2.4322892	20	—	—
33082 1997 WF <sub>43</sub>	14.3	X	314.20484	192.36670	78.62384	6.98648	0.0783869	0.28192064	2.3034819	20	4 16.9	16.9
33083 1997 WN <sub>47</sub>	15.7	X	36.37328	139.95744	325.02606	1.68994	0.1575460	0.27088892	2.3656031	20	—	—
33084 1997 WX <sub>49</sub>	14.7	X	350.75789	224.42755	57.15743	5.17947	0.1394216	0.28930476	2.2641177	20	7 4.7	16.4
33085 1997 WN <sub>56</sub>	15.9	X	6.57845	262.27395	92.87010	3.45087	0.2272776	0.25855149	2.4402708	20	12 7.9	18.3
33086 1997 XS	15.0	X	172.20058	175.49955	302.19548	3.54773	0.1238114	0.24230410	2.5481728	20	7 24.7	18.9
33087 1997 XX	13.8	X	27.48037	138.85620	63.57430	12.21761	0.1037577	0.27998389	2.3140923	20	5 10.9	16.1
33088 1997 XX <sub>9</sub>	15.6	X	258.83939	104.07621	66.54450	7.13664	0.0869518	0.26053300	2.4278819	20	—	—
33089 1997 XK <sub>11</sub>	14.6	X	6.51014	305.22994	93.80963	7.27560	0.1236668	0.25684208	2.4510863	20	—	—
33090 1997 XT <sub>11</sub>	14.0	X	81.30995	47.48469	105.50905	16.17116	0.0607250	0.23006819	2.6377380	20	5 24.1	17.7
33091 1997 XO <sub>12</sub>	15.5	X	110.86306	320.04027	77.78531	5.81531	0.0857849	0.27384934	2.3485235	20	1 25.5	18.3
33092 1997 YR <sub>1</sub>	14.1	X	60.09027	353.96575	252.08624	11.94025	0.2138438	0.24134002	2.5549544	20	9 13.8	17.9
33093 1997 YF <sub>3</sub>	14.4	X	275.90051	295.05583	227.33584	1.52832	0.1424891	0.25872731	2.4391651	20	—	—
33094 1997 YG <sub>5</sub>	14.6	X	341.41424	351.83164	98.76013	5.03830	0.1642762	0.26276665	2.4141035	20	—	—
33095 1997 YM <sub>5</sub>	14.7	X	266.96037	108.84272	189.56030	1.11507	0.0685013	0.23126875	2.6286015	20	3 22.5	18.1
33096 1997 YS <sub>6</sub>	15.3	X	251.73121	280.32631	296.55330	6.63274	0.1538193	0.26044511	2.4284281	20	—	—
33097 1997 YB <sub>7</sub>	14.5	X	204.93376	242.68333	120.19231	9.92925	0.1455435	0.28169986	2.3046853	20	4 2.5	18.2
33098 1997 YG <sub>7</sub>	14.3	X	311.46705	98.37078	115.40245	13.00026	0.1148529	0.22466646	2.6798505	20	1 24.5	17.7
33099 1997 YN <sub>8</sub>	13.9	X	28.61086	263.22045	13.95599	2.76912	0.1587318	0.29221950	2.2490369	20	9 18.6	15.9
33100 Udine	15.1	X	97.16841	51.82029	40.60323	6.82288	0.0646266	0.27727089	2.3291629	20	3 19.5	17.9
33101 1997 YN <sub>10</sub>	14.1	X	221.89352	316.33438	94.67796	8.80804	0.1977671	0.23968252	2.5667199	20	6 13.7	18.1
33102 1997 YJ <sub>11</sub>	14.4	X	66.73176	222.97830	3.49683	3.80178	0.1510401	0.23840517	2.5758799	20	8 24.7	17.8
33103 Pintar	14.6	X	76.06397	214.78711	158.08119	8.43641	0.1519132	0.26225490	2.4172430	20	—	—
33104 1997 YJ <sub>13</sub>	14.8	X	315.57321	34.11435	272.13838	8.32319	0.0831832	0.23657235	2.5891670	20	6 6.9	17.9
33105 1997 YB <sub>14</sub>	14.8	X	204.72604	332.33125	117.14009	14.40856	0.2091059	0.24219807	2.5489164	20	7 16.2	19.0
33106 1997 YG <sub>16</sub>	15.2	X	55.38545	329.04499	131.88176	3.67015	0.1433512	0.27223720	2.3577861	20	1 31.8	17.4
33107 1997 YL <sub>16</sub>	14.1	X	81.26014	79.84059	285.16266	11.72214	0.2308686	0.26424659	2.4050814	20	—	—
33108 1997 YJ <sub>18</sub>	14.0	X	302.70417	2.47792	354.05891	1.78702	0.0415680	0.20168976	2.8796971	20	7 31.6	17.6
33109 1998 AB <sub>2</sub>	14.7	X	184.79582	6.05033	107.90634	7.42672	0.0924991	0.24289875	2.5440122	20	8 4.1	18.4
33110 1998 AM <sub>10</sub>	13.8	X	97.70372	174.97124	145.58560	7.90000	0.0913035	0.25654772	2.4529608	20	—	—
33111 1998 BL	14.4	X	277.41809	130.04282	74.22247	6.02494	0.0999051	0.21798316	2.7343499	20	—	—
33112 1998 BL <sub>1</sub>	13.8	X	131.28055	244.14130	136.19821	11.79491	0.0576063	0.22304050	2.6928587	20	1 31.5	17.6
33113 Julabeth	14.9	X	51.28690	286.31286	286.18603	3.42806	0.1499255	0.23454839	2.6040405	20	7 12.1	17.8
33114 1998 BH <sub>5</sub>	15.3	X	307.39006	226.79108	124.47847	5.02965	0.0723814	0.24155846	2.5534139	20	7 31.0	18.0
33115 1998 BB <sub>8</sub>	14.2	X	126.50290	349.93275	139.87453	15.89298	0.0599430	0.23448461	2.6045127	20	6 17.9	18.1
33116 1998 BO <sub>12</sub>	13.7	X	318.28612	144.58952								

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
33121 1998 BR <sub>15</sub>	14.6	X	16.84884	201.83629	105.15232	9.24810	0.1123809	0.24421644	2.5348530	20	10 1.0	17.7
33122 1998 BR <sub>17</sub>	15.3	X	84.43274	256.65511	102.27339	2.14592	0.0626978	0.21336039	2.7737044	20	—	—
33123 1998 BG <sub>31</sub>	13.6	X	359.79129	355.91613	308.81831	9.05263	0.1664760	0.24147838	2.5539783	20	8 24.8	16.0
33124 1998 BN <sub>33</sub>	13.3	X	288.81861	356.86203	43.70418	7.46475	0.2091766	0.24596233	2.5228435	20	8 24.9	16.1
33125 1998 BU <sub>33</sub>	14.5	X	93.78817	79.32388	100.76989	5.72050	0.0430575	0.23473745	2.6026422	20	7 10.2	17.7
33126 1998 BB <sub>34</sub>	14.1	X	93.39073	349.10869	25.56730	5.37901	0.0814638	0.21520653	2.7578190	20	—	—
33127 1998 BO <sub>46</sub>	14.2	X	322.48492	180.12225	326.77781	4.69301	0.1698757	0.21741254	2.7391322	20	—	—
33128 1998 BU <sub>48</sub>	6.9	X	80.79504	281.85291	132.88790	14.27721	0.3823438	0.00516210	33.1577673	20	3 21.7	22.4
33129 Iivankrasko	14.3	X	87.84783	195.94068	108.72886	8.78552	0.1431498	0.20677153	2.8323194	20	12 17.4	18.6
33130 1998 CR <sub>1</sub>	14.4	X	98.19106	117.52855	157.04345	5.40873	0.1786509	0.24566170	2.5249013	20	12 1.2	18.5
33131 1998 CW <sub>3</sub>	14.0	X	127.07700	27.70681	132.55034	5.72565	0.1650924	0.23707107	2.5855346	20	8 5.0	18.0
33132 1998 CD <sub>4</sub>	13.6	X	111.08187	348.30420	124.37409	16.08315	0.0680122	0.23296807	2.6158035	20	5 11.9	17.5
33133 1998 CF <sub>4</sub>	14.7	X	26.78979	353.46075	162.48804	4.20662	0.1525672	0.22514993	2.6760127	20	3 6.9	17.3
33134 1998 CZ <sub>4</sub>	15.1	X	15.17659	281.50631	254.87602	1.23236	0.1069714	0.22548269	2.6733793	20	3 12.9	17.9
33135 Davidrisoldi	14.1	X	255.03989	229.77083	89.64349	7.33753	0.1289701	0.27795068	2.3253637	20	3 29.3	17.5
33136 1998 DZ	14.9	X	31.97235	283.10318	336.21189	2.92370	0.0540513	0.23981613	2.5657665	20	8 4.3	18.0
33137 1998 DO <sub>1</sub>	14.8	X	102.66580	116.71174	73.95628	4.80615	0.0633871	0.24103649	2.5570989	20	8 10.3	18.3
33138 1998 DQ <sub>2</sub>	14.2	X	98.99966	60.72882	89.88151	10.15092	0.1467625	0.23196337	2.6233513	20	6 21.2	17.7
33139 1998 DU <sub>2</sub>	14.6	X	234.56341	341.81681	100.33670	10.18076	0.2701018	0.24384978	2.5373934	20	7 30.1	18.6
33140 1998 DF <sub>3</sub>	13.4	X	292.74394	198.74863	107.25632	16.40360	0.1245752	0.23497577	2.6008821	20	5 4.3	17.1
33141 1998 DZ <sub>4</sub>	15.2	X	175.71256	87.53456	0.34109	2.33270	0.1479039	0.23707823	2.5854824	20	6 19.1	19.4
33142 1998 DL <sub>6</sub>	14.8	X	188.35595	322.52249	77.80587	4.36812	0.0473372	0.23112420	2.6296974	20	5 3.2	18.4
33143 1998 DJ <sub>7</sub>	14.3	X	212.68094	41.88906	126.89958	3.05755	0.0108895	0.20303684	2.8669458	20	11 17.9	18.2
33144 1998 DM <sub>7</sub>	14.4	X	303.14468	209.11734	351.02680	4.78562	0.0965329	0.21897636	2.7260756	20	—	—
33145 1998 DK <sub>8</sub>	15.5	X	358.13130	254.46370	216.87993	3.73374	0.0630632	0.21587055	2.7521607	20	—	—
33146 1998 DL <sub>8</sub>	15.1	X	112.83853	95.38395	211.28448	4.16285	0.0545007	0.20858078	2.8159171	20	—	—
33147 1998 DD <sub>9</sub>	14.1	X	286.31230	85.44728	148.09801	10.04813	0.1411266	0.21843008	2.7306189	20	1 15.5	18.1
33148 1998 DM <sub>9</sub>	14.4	X	81.59324	112.87498	60.69778	8.35865	0.1757993	0.23170689	2.6252868	20	7 5.2	18.0
33149 1998 DE <sub>10</sub>	13.8	X	280.65951	303.33220	231.53654	3.10692	0.0404792	0.21304459	2.7764448	20	—	—
33150 1998 DN <sub>10</sub>	13.4	X	300.20217	164.95865	153.88703	13.64938	0.1824136	0.23473216	2.6026813	20	5 19.8	16.9
33151 1998 DY <sub>11</sub>	14.6	X	76.41940	340.58834	115.51317	13.39720	0.1242484	0.22572935	2.6714314	20	3 11.6	18.1
33152 1998 DV <sub>12</sub>	14.0	X	246.44009	271.19175	122.08276	14.14502	0.2200607	0.24159821	2.5531338	20	6 14.2	18.1
33153 1998 DH <sub>15</sub>	14.0	X	76.72534	311.88610	19.74478	1.99727	0.0769838	0.20718534	2.8285468	20	12 31.7	18.1
33154 Talent	13.8	X	157.20863	341.16214	121.67938	15.73221	0.0599838	0.23317750	2.6142370	20	6 18.7	17.7
33155 1998 DD <sub>17</sub>	13.7	X	29.69415	344.04262	292.24765	12.20991	0.1298889	0.24047609	2.5610700	20	8 29.4	16.8
33156 1998 DG <sub>17</sub>	14.8	X	326.97968	86.83128	258.40944	6.12981	0.1129869	0.24333905	2.5409425	20	8 18.7	17.7
33157 Pertile	13.9	X	146.95722	240.42395	168.92115	13.12671	0.1730549	0.22672615	2.6635957	20	4 7.9	18.1
33158 Rífus	14.3	X	174.88778	317.88826	29.06090	5.32649	0.2737790	0.22550012	2.6732415	20	2 21.8	19.0
33159 1998 DQ <sub>33</sub>	14.2	X	162.51536	295.20636	126.27644	2.99747	0.0883459	0.22987262	2.6392339	20	5 2.4	18.0
33160 Denismukwege	13.5	X	5.11210	251.52537	163.67663	17.44361	0.1353972	0.20979939	2.8050024	20	—	—
33161 1998 DE <sub>35</sub>	14.4	X	113.88740	331.50957	132.11949	3.44890	0.0802447	0.22854771	2.6494240	20	4 30.3	18.1
33162 1998 DT <sub>35</sub>	14.8	X	203.13859	78.20562	329.75725	1.24621	0.1346678	0.23593724	2.5938113	20	5 25.7	18.8
33163 1998 EH	15.0	X	203.76520	145.60997	261.82694	2.82835	0.2423598	0.23553250	2.5967820	20	5 21.8	19.3
33164 1998 EB <sub>2</sub>	13.8	X	345.73508	347.97011	32.87449	2.21268	0.0728518	0.19874503	2.9080723	20	11 2.2	17.4
33165 1998 EO <sub>2</sub>	13.4	X	194.27594	200.45038	142.98784	2.19202	0.2508567	0.17324685	3.1868318	20	3 3.5	18.9
33166 1998 EV <sub>8</sub>	13.0	X	241.03840	210.83525	41.41077	35.61130	0.1531066	0.21116271	2.7929162	20	—	—
33167 1998 EJ <sub>9</sub>	13.9	X	117.23878	316.26330	122.03023	22.76904	0.1054552	0.23128074	2.6285106	20	4 13.2	18.1
33168 1998 ED <sub>10</sub>	13.9	X	258.66382	315.27673	323.02743	4.69094	0.1647879	0.17731931	3.1378489	20	2 12.7	18.7
33169 1998 EE <sub>10</sub>	14.2	X	106.38422	41.99811	137.14745	12.38527	0.0653218	0.23646703	2.5899357	20	8 5.8	17.8
33170 1998 EE <sub>11</sub>	14.3	X	241.60321	180.72948	45.90175	4.14595	0.2225240	0.21171762	2.7880339	20	—	—
33171 1998 EF <sub>14</sub>	14.2	X	17.34613	282.81773	103.19045	3.06121	0.0998475	0.20630639	2.8365750	20	12 29.3	17.7
33172 1998 EK <sub>14</sub>	13.6	X	9.36354	93.25366	145.30480	11.34731	0.1185321	0.18516601	3.0485632	20	6 3.4	17.4
33173 1998 FC	14.4	X	265.10783	203.98608	22.44288	9.59675	0.1129581	0.21721094	2.7408268	20	—	—
33174 1998 FK <sub>3</sub>	14.1	X	190.50318	313.97954	151.42637	14.62009	0.1302123	0.23648807	2.5897821	20	7 25.6	18.2
33175 1998 FP <sub>5</sub>	14.5	X	341.91350	91.05869	90.44865	6.48246	0.1046163	0.17359472	3.1825730	20	2 6.2	18.6
33176 1998 FN <sub>12</sub>	14.8	X	124.69885	262.08853	6.14823	1.91406	0.0295344	0.20427668	2.8553336	20	12 3.8	18.9
33177 1998 FR <sub>14</sub>	15.3	X	263.20986	296.12788	291.76466	2.61264	0.0449206	0.21497793	2.7597736	20	—	—
33178 1998 FL <sub>15</sub>	13.8	X	183.65905	334.34183	144.06301	12.10355	0.1659423	0.24027085	2.5625282	20	8 4.2	17.9
33179 Arsenewenger	14.2	X	121.17742	258.82738	231.66779	2.75166	0.0843968	0.23319686	2.6140923	20	6 13.1	17.8
33180 1998 FD <sub>17</sub>	14.7	X	174.18105	27.91638	158.17495	13.22165	0.0706878	0.24580688	2.5239071	20	10 30.1	18.5
33181 Aalokpatwa	14.4	X	224.95234	227.46972	77.54700	3.19341	0.0768283	0.22220755	2.6995840	20	2 13.7	18.3
33182 1998 FT <sub>26</sub>	14.8	X	299.01781	208.25880	359.31803	13.95006	0.0968633	0.21824070	2.7321983	20	1 7.3	18.9
33183 1998 FA <sub>28</sub>	14.2	X	166.33516	341.62180	311.31858	3.25421	0.0268070	0.21256143	2.7806505	20	—	—
33184 1998 FM <sub>30</sub>	14.9	X	17.03986	14.75292	183.02628	11.39317	0.1679482	0.22609604	2.6685422	20	4 20.2	17.5
33185 1998 FB <sub>31</sub>	14.2	X	169.13308	346.70101	165.81084	12.95122	0.0920880	0.24060093	2.5601840	20	9 5.2	18.0
33186 1998 FR <sub>34</sub>	14.5	X	108.38303	225.51523	348.30227	14.98008	0.1171713	0.23886881	2.5725456	20	9 18.7	18.2
33187 Pizzolato	15.2	X	351.82669	152.25144	17.05287	8.60376	0.1391162	0.22033355	2.7148695	20	1 25.4	18.4
33188 Shreya	14.3	X	76.00338	137.33284	348.74891	5.42586	0.1508357	0.18176189	3.0865087	20	4 20.0	18.6
33189 Ritzdorf	14.7	X	218.30946	317.49967	197.33646	2.05048	0.1720847	0.20268584	2.8702547	20	10 18.5	18.9
33190 Sigrest	14.3	X	40.66281	265.16159	358.87472	9.62819	0.0566210	0.19224870	2.9732205	20	8 21.3	18.3
33191 Santiagostone	14.4	X	205.44443	273.27779	181.17096	9.90250	0.0636287	0.19283419	2.9671991	20	7 28.3	19.0
33192 1998 FD <sub>44</sub>	14.4	X	273.12945	296.21390	171.32647	1.75455	0.0247837	0.20291337	2.8681087	20	11 15.1	18.3
33193 Emhvr	13.9	X	251.83474	59.00318	286.47507	1.62322	0.0500191	0.22866168	2.6485436	20	5 1.9	17.5
33194 1998 FE <sub>48</sub>	13.5	X	220.79081	325.88097	354.39154	18.08339	0.1577268	0.17638944	3.1488670	20	3 1.9	18.7
33195 Davenyadav	14.0	X	169.46852	244.42261	308.60228	3.30328	0.0853478	0.24410734	2.5356083			

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
33201 Thomasartiss	14.8	X	16.84497	156.58367	297.73681	1.02345	0.0542087	0.21377999	2.7700738	20	—	—
33202 Davignon	14.7	X	136.84007	122.11227	77.60371	0.73005	0.0248389	0.19655840	2.9295999	20	9 23.4	18.8
33203 1998 FA <sub>57</sub>	14.1	X	233.22295	303.83219	173.44000	1.97410	0.0272302	0.19852209	2.9102490	20	10 6.3	18.2
33204 1998 FP <sub>57</sub>	14.4	X	32.18642	310.46288	193.17511	13.52735	0.0990361	0.17702810	3.1412891	20	3 1.8	18.5
33205 Graigmarx	14.3	X	0.63282	198.39128	5.16342	0.45353	0.1007973	0.17922706	3.1155424	20	3 31.5	18.2
33206 1998 FB <sub>60</sub>	14.4	X	136.07615	52.58687	14.89084	12.52135	0.1541819	0.22619598	2.6677561	20	4 14.4	18.4
33207 1998 FU <sub>64</sub>	13.3	X	53.42642	24.16811	185.73017	10.73707	0.1254717	0.18605636	3.0388298	20	7 3.9	17.5
33208 1998 FL <sub>65</sub>	14.2	X	191.86763	174.11352	210.56380	10.17650	0.0797957	0.18128176	3.0919560	20	4 17.9	18.9
33209 1998 FD <sub>67</sub>	13.8	X	308.52072	39.51026	178.21615	16.68699	0.0060737	0.17445794	3.1720660	20	2 14.6	18.4
33210 Johnrobertson	14.6	X	95.95394	287.65915	155.96670	6.31005	0.0406501	0.22106916	2.7088436	20	3 5.9	18.1
33211 1998 FG <sub>74</sub>	13.9	X	196.92123	93.69888	255.74377	9.30698	0.0737869	0.17573358	3.1566968	20	3 7.8	18.9
33212 1998 FG <sub>76</sub>	13.8	X	184.76510	291.25818	49.37716	1.96198	0.1967204	0.17278228	3.1925418	20	2 22.4	19.1
33213 Diggs	15.0	X	20.03472	3.93527	101.12283	4.12222	0.1601574	0.21719020	2.7410013	20	—	—
33214 1998 FP <sub>90</sub>	13.0	X	125.76296	64.42463	3.77380	21.96652	0.0549980	0.22555512	2.6728070	20	3 24.8	16.6
33215 Garyjones	14.0	X	90.06043	198.31824	24.49298	8.11401	0.1790555	0.23734204	2.5835662	20	9 20.8	17.9
33216 1998 FW <sub>96</sub>	14.8	X	99.57332	325.42393	201.10961	11.38116	0.2465195	0.23339294	2.6126279	20	7 21.5	19.1
33217 Bonnybasu	14.2	X	27.87170	38.56219	210.81132	8.85155	0.0736463	0.18918154	3.0052704	20	7 11.1	18.2
33218 1998 FO <sub>106</sub>	13.4	X	21.50448	288.95725	345.79868	9.62922	0.0718172	0.18993845	2.9972810	20	8 8.9	17.3
33219 De Los Santos	15.0	X	319.38117	221.14017	281.64408	6.67897	0.1636552	0.21315340	2.7754998	20	—	—
33220 1998 FS <sub>109</sub>	14.9	X	151.67708	284.90171	313.01961	6.26441	0.2572333	0.20027763	2.8932175	20	11 23.2	20.2
33221 Raqueljacobsen	14.8	X	215.35422	342.29920	307.33747	4.94601	0.1816987	0.30174496	2.2014527	20	1 4.7	18.1
33222 Gillingham	14.1	X	260.18156	269.74254	309.30968	8.36694	0.1312886	0.21232132	2.7827465	20	—	—
33223 1998 FT <sub>113</sub>	13.7	X	133.07987	221.64463	221.12725	11.02163	0.1685049	0.22752751	2.6573378	20	5 3.5	17.7
33224 Lesrogers	14.2	X	129.07332	146.18979	326.64398	8.26602	0.0587167	0.18409874	3.0603341	20	5 25.6	18.8
33225 1998 FA <sub>118</sub>	14.3	X	327.92956	305.07418	328.62627	5.13733	0.1090672	0.173711134	3.1811484	20	2 9.6	18.6
33226 Melissamacko	14.2	X	302.26493	277.21129	62.50746	2.75855	0.1146145	0.18818386	3.0158829	20	6 27.3	18.1
33227 1998 FX <sub>121</sub>	14.6	X	20.10557	277.72473	142.14514	3.46811	0.2086226	0.21123560	2.7922736	20	—	—
33228 1998 FZ <sub>121</sub>	13.0	X	325.43163	168.80070	165.91832	10.31526	0.0986721	0.19046183	2.9917875	20	7 27.8	16.8
33229 1998 FC <sub>124</sub>	13.4	X	324.58589	320.71094	18.12571	15.14240	0.1287834	0.23799695	2.5788245	20	8 14.1	16.4
33230 Libbyrobertson	15.1	X	25.88764	293.51194	133.27345	5.30947	0.0529442	0.21260329	2.7802855	20	—	—
33231 1998 FH <sub>146</sub>	13.5	X	177.51168	94.51289	162.47609	14.54751	0.0789660	0.20651029	2.8347075	20	—	—
33232 1998 GE <sub>3</sub>	14.2	X	331.39009	33.01566	137.86839	14.47919	0.1376416	0.21792891	2.7348036	20	—	—
33233 1998 GT <sub>6</sub>	13.7	X	78.49694	79.96718	105.33747	14.63633	0.2116636	0.23146125	2.6271438	20	7 22.4	17.3
33234 1998 GL <sub>7</sub>	14.4	X	112.56780	320.12290	141.42413	13.96825	0.1043230	0.27078542	2.3662059	20	5 1.6	17.8
33235 1998 GB <sub>8</sub>	13.8	X	30.52305	183.23916	125.20914	15.56793	0.1028534	0.23875351	2.5733738	20	10 23.7	17.4
33236 1998 GV <sub>8</sub>	14.1	X	5.46111	103.36843	114.80330	13.81746	0.1298456	0.22492468	2.6777990	20	5 1.7	17.3
33237 1998 GY <sub>8</sub>	14.6	X	114.04645	34.98238	126.46465	13.57627	0.2163729	0.23324349	2.6137439	20	7 28.7	18.8
33238 1998 GE <sub>9</sub>	13.6	X	14.93074	120.61299	150.47364	15.21222	0.1173290	0.232109348	2.6299304	20	7 29.2	16.7
33239 1998 GO <sub>9</sub>	13.4	X	248.80704	203.99397	119.71717	15.52679	0.1851947	0.17734937	3.1374943	20	3 31.9	18.6
33240 1998 HC <sub>3</sub>	14.4	X	168.08776	297.22519	177.48294	14.21271	0.1127502	0.18950591	3.0018400	20	7 12.5	19.3
33241 1998 HX <sub>5</sub>	14.3	X	263.06500	233.08132	130.80299	4.49709	0.0494120	0.18525655	3.0475698	20	6 15.3	18.6
33242 1998 HR <sub>6</sub>	13.7	X	298.24754	276.81159	71.72149	9.37551	0.0968706	0.18415750	3.0596831	20	7 5.6	17.7
33243 1998 HY <sub>7</sub>	13.9	X	333.67022	140.36774	91.93473	17.02301	0.2165078	0.22252721	2.6969981	20	3 15.4	17.3
33244 1998 HO <sub>13</sub>	14.1	X	348.03879	275.35562	218.60296	15.24549	0.1007928	0.17006552	3.2264520	20	—	—
33245 1998 HV <sub>14</sub>	15.2	X	49.22565	47.05661	77.86560	3.28846	0.1003773	0.17684347	3.1434751	20	3 8.4	19.2
33246 1998 HK <sub>17</sub>	13.6	X	92.98301	112.89068	241.73572	3.41695	0.0826564	0.21040928	2.7995794	20	—	—
33247 Iannacone	14.6	X	12.61753	285.96042	226.12029	5.07557	0.1715781	0.22024839	2.7155693	20	1 31.5	17.5
33248 Nataliehovell	14.3	X	120.96386	108.20824	3.42002	6.10703	0.1949002	0.22988373	2.6391489	20	5 29.2	18.5
33249 Pamelašovson	14.5	X	193.93029	74.65422	196.60313	2.70971	0.0510566	0.21081598	2.7959777	20	—	—
33250 1998 HO <sub>23</sub>	13.9	X	147.70509	38.14916	155.33581	8.41791	0.2044661	0.19612138	2.9339503	20	10 2.9	18.9
33251 1998 HS <sub>24</sub>	14.0	X	159.59652	353.33173	136.95086	12.06804	0.0397991	0.18984825	2.9982302	20	7 22.9	18.3
33252 1998 HA <sub>28</sub>	14.2	X	213.32337	118.44966	230.96613	3.78244	0.1723983	0.17870861	3.1215651	20	3 23.9	19.3
33253 1998 HJ <sub>29</sub>	13.6	X	114.83137	66.14446	8.26987	10.63689	0.1359425	0.17903392	3.1177826	20	4 2.2	18.1
33254 Sundaresakumar	14.6	X	347.70187	317.71032	147.54239	4.99627	0.0253165	0.21024721	2.8010180	20	—	—
33255 Kathybush	14.2	X	329.02925	337.32161	214.21501	8.58954	0.1707615	0.17311406	3.1884613	20	1 18.8	18.5
33256 1998 HK <sub>35</sub>	13.0	X	134.20619	333.38833	175.02166	10.56793	0.0418003	0.18860930	3.0113460	20	7 15.1	17.5
33257 1998 HS <sub>37</sub>	13.8	X	5.81720	229.11380	262.77743	2.40702	0.0332287	0.21509236	2.7587948	20	1 5.6	17.3
33258 Femariebustos	14.9	X	259.75645	120.00669	7.14607	2.15373	0.1683635	0.20335123	2.8639901	20	10 31.9	18.6
33259 1998 HL <sub>39</sub>	13.6	X	101.11310	197.72316	201.26087	17.26766	0.2120236	0.21593822	2.7515856	20	2 5.5	17.7
33260 1998 HJ <sub>43</sub>	14.3	X	236.32559	100.99265	127.43786	10.23732	0.1933648	0.21039709	2.7996875	20	—	—
33261 Ginagarlie	14.1	X	175.52488	74.25193	250.14215	5.48393	0.0186423	0.21438203	2.7648853	20	1 11.4	18.1
33262 1998 HK <sub>51</sub>	13.6	X	337.47878	69.18794	155.13278	7.60161	0.1327144	0.17609473	3.1523794	20	3 20.8	17.5
33263 Willhutch	14.7	X	73.99616	143.19135	139.75455	2.82138	0.0705373	0.19669285	2.9282648	20	10 28.4	18.8
33264 Maryrogers	14.4	X	309.58193	136.78611	91.38269	2.29260	0.1148495	0.17389689	3.1788852	20	2 17.0	18.7
33265 1998 HC <sub>63</sub>	13.2	X	142.62037	120.24759	39.28546	15.40117	0.0527325	0.23501871	2.6005653	20	8 22.7	17.2
33266 1998 HW <sub>78</sub>	13.9	X	262.48361	175.69461	233.36937	9.11919	0.0764286	0.19057307	2.9906232	20	8 4.8	18.3
33267 1998 HY <sub>93</sub>	13.2	X	252.93124	286.81419	5.37040	5.01258	0.1187585	0.17351070	3.1836003	20	2 29.1	18.1
33268 1998 HZ <sub>93</sub>	15.2	X	353.66083	147.12507	26.67039	13.03780	0.1706957	0.21831221	2.7316017	20	2 2.9	18.4
33269 Broccoli	15.3	X	0.47085	7.71527	92.46125	3.51221	0.0815925	0.29887879	2.2155046	20	—	—
33270 Katiecrysyp	13.9	X	326.10406	182.80615	108.53201	3.21795	0.1381216	0.18204604	3.0832961	20	5 28.1	17.6
33271 1998 HS <sub>101</sub>	14.1	X	294.66270	112.29445	136.74521	19.24851	0.1612591	0.21871964	2.7282083	20	2 11.3	17.8
33272 1998 HC <sub>102</sub>	13.2	X	61.50281	226.98440	42.54632	10.86597	0.0747838	0.19073852	2.9888935	20	9 29.2	17.4
33273 1998 HM <sub>103</sub>	13.5	X	127.10378	324.30749	80.39468	12.53571	0.1160340	0.17568055	3.1573321	20	3 15.7	18.4
33274 Beaubingham	14.3	X	135.48165	119.46416	79.99369	8.02320	0.0988424	0.23908100	2.5710232	20	10 4.1	18.2
33275 1998 HD <sub>115</sub>	13.3	X	245.30994	286.07537	115.55749	13.34466	0.1763556	0.23260092	2.6185554	20	6 27.4	17.3
33276 1998 HS <sub>115</sub>	13.7	X</										



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Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
33281 1998 HE <sub>125</sub>	13.2	X	237.18124	271.05994	126.19049	12.15864	0.0789848	0.18424092	3.0587594	20	6 22.9	17.8
33282 1998 Arjunramani	14.0	X	220.41902	286.72566	52.98352	1.38753	0.0614167	0.17924839	3.1152952	20	3 26.1	18.6
33283 1998 HJ <sub>148</sub>	14.3	X	16.75645	88.65460	155.24259	1.65265	0.0973387	0.18210689	3.0826092	20	6 19.8	18.2
33284 1998 HD <sub>153</sub>	13.0	X	246.60625	207.58461	154.98830	13.05174	0.1836326	0.22886652	2.6469630	20	5 11.8	17.3
33285 1998 JR <sub>2</sub>	13.6	X	40.30197	141.58103	93.26671	10.77824	0.0452943	0.18457706	3.0550447	20	7 8.2	17.7
33286 1998 KA	13.8	X	18.21833	300.29889	239.02671	3.64851	0.1043039	0.17557477	3.1586000	20	3 27.1	17.7
33287 1998 KE <sub>1</sub>	13.2	X	335.37843	255.50705	55.41825	11.91639	0.0855154	0.18484342	3.0521091	20	7 14.9	17.2
33288 1998 KL <sub>4</sub>	13.4	X	19.12242	320.41832	228.30185	21.60402	0.0799375	0.17602461	3.1532164	20	4 7.2	17.7
33289 1998 KP <sub>5</sub>	13.2	X	156.17365	267.72430	150.78710	15.58973	0.1829754	0.17483403	3.1675154	20	5 2.2	18.7
33290 1998 KZ <sub>7</sub>	12.8	X	261.62597	253.04793	74.36522	17.13918	0.1380554	0.17625921	3.1504179	20	4 23.8	17.7
33291 1998 KP <sub>9</sub>	14.2	X	84.62609	150.03306	27.77921	15.31410	0.0802642	0.23389350	2.6088991	20	6 30.8	18.0
33292 1998 KT <sub>26</sub>	13.1	X	71.66073	344.84789	115.49814	20.63966	0.1284735	0.17133732	3.2104659	20	3 19.8	17.7
33293 1998 KM <sub>31</sub>	13.8	X	52.31802	200.84987	87.93639	11.53910	0.0588816	0.19137186	2.9822955	20	10 11.4	18.1
33294 1998 KM <sub>35</sub>	13.7	X	163.19257	203.27172	63.87228	16.37281	0.2487095	0.20126589	2.8837389	20	—	—
33295 1998 KV <sub>40</sub>	13.8	X	255.91924	350.02122	85.43291	11.63505	0.0545355	0.18986673	2.9980357	20	9 12.2	18.2
33296 1998 KN <sub>42</sub>	13.1	X	10.18908	222.96279	95.98981	13.84068	0.1625979	0.18988313	2.9978631	20	10 4.8	16.9
33297 1998 KW <sub>44</sub>	13.0	X	0.49501	315.68790	223.94145	13.21812	0.1046329	0.17174151	3.2054268	20	2 25.2	17.3
33298 1998 KY <sub>44</sub>	13.8	X	173.70243	77.36376	93.38938	11.69218	0.0461622	0.19205078	2.9752628	20	10 5.6	18.4
33299 1998 KN <sub>45</sub>	13.8	X	272.56233	185.60353	77.29289	2.09101	0.0952473	0.17015310	3.2253448	20	2 17.9	18.5
33300 1998 KP <sub>45</sub>	13.6	X	88.77640	270.30107	249.67786	13.81649	0.1077386	0.18038836	3.1021565	20	6 14.2	18.0
33301 1998 KH <sub>47</sub>	12.9	X	96.98339	315.56165	235.71270	12.31047	0.0406405	0.18403308	3.0610620	20	7 21.9	17.4
33302 1998 KV <sub>48</sub>	12.9	X	310.29247	143.16998	97.92741	13.08261	0.1300848	0.17397966	3.1778769	20	3 7.2	17.4
33303 1998 KW <sub>48</sub>	14.0	X	20.51845	126.05260	90.26706	12.56306	0.1358695	0.22443473	2.6816948	20	5 24.0	16.9
33304 1998 KH <sub>50</sub>	13.6	X	284.87293	188.29587	134.06596	11.63901	0.0424487	0.17966021	3.1105328	20	5 24.9	18.1
33305 1998 KQ <sub>50</sub>	13.6	X	141.13872	222.68768	177.94983	15.34109	0.0568288	0.17175379	3.2052740	20	3 11.9	18.4
33306 1998 KT <sub>50</sub>	13.3	X	149.44480	260.43414	161.66557	13.10186	0.0611490	0.17557947	3.1585437	20	4 21.3	18.1
33307 1998 KX <sub>52</sub>	13.5	X	2.63517	1.86872	176.79246	15.56793	0.1491833	0.17320099	3.1873944	20	2 28.7	17.3
33308 1998 KR <sub>53</sub>	12.7	X	14.20513	155.05964	109.81352	15.49270	0.0064935	0.18298445	3.0727456	20	7 8.4	17.0
33309 1998 KY <sub>53</sub>	13.5	X	20.88208	182.85274	108.87627	11.10338	0.0662368	0.18675701	3.0312246	20	8 30.6	17.6
33310 1998 KF <sub>54</sub>	13.0	X	182.98475	181.43870	120.16620	16.28870	0.1244466	0.16323813	3.3157999	20	1 6.5	18.3
33311 1998 KX <sub>54</sub>	13.3	X	10.36433	81.97795	103.49784	23.42889	0.0735615	0.17381826	3.1798438	20	4 5.6	17.9
33312 1998 KG <sub>57</sub>	13.3	X	16.39129	9.29029	43.78802	12.62134	0.0361452	0.20421164	2.8559398	20	—	—
33313 1998 KJ <sub>60</sub>	14.2	X	250.79241	95.95743	136.27473	17.91797	0.0962744	0.20932419	2.8092460	20	—	—
33314 1998 KX <sub>60</sub>	13.3	X	224.85499	358.34403	104.11779	11.96920	0.0564666	0.18999409	2.9966958	20	9 6.4	17.8
33315 1998 KA <sub>63</sub>	14.1	X	304.06168	113.89895	96.32138	5.79842	0.0838537	0.16943229	3.2344858	20	1 24.4	18.5
33316 1998 KY <sub>65</sub>	13.1	X	6.48592	13.93341	201.04801	30.50179	0.1942339	0.17695213	3.1421881	20	4 26.1	16.4
33317 1998 MT <sub>5</sub>	14.0	X	89.81169	313.91614	247.04541	23.16810	0.1854631	0.27264278	2.3554472	20	8 12.9	18.0
33318 1998 MU <sub>9</sub>	15.1	X	208.28188	151.11048	165.22944	6.71799	0.2244922	0.25464262	2.4651801	20	2 4.2	19.3
33319 Kunqu	15.0	X	280.90281	304.20035	101.03229	23.99255	0.0994895	0.36328683	1.9452240	20	10 11.6	17.4
33320 1998 OP <sub>12</sub>	14.4	X	107.36861	137.66850	101.74838	1.31461	0.3225848	0.18879737	3.0093458	20	10 28.5	19.6
33321 1998 QL	14.2	X	191.21192	1.04692	14.80844	3.57158	0.1078347	0.21063432	2.7975850	20	4 4.9	18.5
33322 1998 QQ <sub>5</sub>	16.0	X	161.77701	85.54075	177.03577	21.67294	0.0911889	0.37424108	1.9070778	20	—	—
33323 1998 QN <sub>53</sub>	12.5	X	88.92870	28.60188	176.24603	11.29433	0.2103631	0.18027441	3.1034636	20	10 9.2	17.4
33324 1998 QE <sub>56</sub>	15.0	X	93.29863	124.91530	180.04104	23.73005	0.0806869	0.36793056	1.9288220	20	—	—
33325 1998 RH <sub>3</sub>	14.8	X	10.82052	12.92957	343.13219	20.47257	0.0683688	0.36556603	1.9371303	20	12 22.9	17.3
33326 1998 RJ <sub>4</sub>	16.3	X	49.26746	123.94330	182.13794	21.93417	0.0573717	0.36371838	1.9436850	20	12 4.1	19.0
33327 1998 RV <sub>4</sub>	16.2	X	284.51188	207.16402	169.21197	23.45184	0.0870932	0.35556265	1.9732948	20	8 7.7	18.4
33328 Archanavarma	14.2	X	67.83604	117.66275	187.48874	6.65146	0.0967153	0.18501365	3.0502367	20	11 18.5	18.6
33329 Stefanwan	14.4	X	243.88777	51.80762	152.04512	5.26605	0.1101031	0.28336384	2.2956540	20	—	—
33330 Baréges	16.9	X	288.40302	287.35949	45.61734	1.15513	0.2367584	0.30584439	2.1817369	20	5 7.4	19.4
33331 1998 SY <sub>21</sub>	15.4	X	41.67448	139.64424	185.22380	6.02814	0.2228565	0.27428530	2.3460343	20	12 17.3	18.7
33332 1998 SN <sub>34</sub>	15.6	X	314.13733	226.93327	196.08982	21.74785	0.0895321	0.36370555	1.9437307	20	12 30.3	17.9
33333 1998 SP <sub>66</sub>	15.1	X	343.79831	200.30304	67.81836	6.38661	0.1723277	0.30443232	2.1884781	20	5 22.5	16.2
33334 Turon	13.8	X	7.22421	50.46414	47.44065	12.02874	0.0346964	0.18973604	2.9994122	20	—	—
33335 Guibert	15.7	X	266.52514	197.10812	42.89920	1.98809	0.1628441	0.28697023	2.2763803	20	—	—
33336 1998 VF <sub>7</sub>	14.0	X	41.49899	177.56391	225.32738	13.06438	0.2519502	0.23482574	2.6019898	20	—	—
33337 Amberyang	15.7	X	82.59059	303.27472	37.77224	3.28777	0.1000817	0.27852676	2.3221562	20	—	—
33338 1998 VF <sub>21</sub>	14.1	X	94.05531	124.40960	236.32028	10.71455	0.1072551	0.19040824	2.9923488	20	—	—
33339 1998 VR <sub>32</sub>	15.5	X	14.48043	234.94003	126.06275	24.25126	0.0890769	0.36125483	1.9525115	20	—	—
33340 1998 VG <sub>44</sub>	6.5	X	9.80413	323.94414	127.93743	3.04094	0.2470734	0.00404975	38.9807597	20	1 8.6	21.2
33341 1998 WA <sub>5</sub>	15.0	X	317.03730	12.37542	96.34353	28.38118	0.0587169	0.36576373	1.9364322	20	—	—
33342 1998 WT <sub>24</sub>	17.9	X	319.69917	167.55702	81.69310	7.36580	0.4175896	1.61695209	0.7189046	20	—	—
33343 Madorobin	15.5	X	323.27002	68.67933	121.57623	7.28153	0.0724834	0.27886087	2.3203010	20	1 5.5	18.2
33344 Madymesplé	14.8	X	257.90600	85.45395	73.15748	5.17771	0.2135574	0.22568487	2.6717824	20	12 7.9	17.8
33345 Nataliedessay	13.9	X	10.32363	80.38716	98.11254	5.17989	0.1827605	0.24247465	2.5469778	20	3 4.9	16.1
33346 Sabinedevieille	14.8	X	315.22016	117.72232	79.79084	14.15038	0.1141763	0.23902836	2.5714007	20	1 5.9	18.2
33347 Maryzhu	14.8	X	243.41977	122.45643	30.11846	2.88292	0.1511037	0.26799873	2.3825804	20	11 29.7	17.5
33348 Stevelliott	14.6	X	54.45234	87.33939	50.88449	4.13435	0.0716352	0.28839668	2.2688679	20	3 18.2	16.9
33349 1998 XF <sub>72</sub>	13.7	X	338.84374	140.05109	339.79932	8.05512	0.1061370	0.27632664	2.3344659	20	—	—
33350 1998 XY <sub>86</sub>	15.4	X	318.08552	227.79823	192.96449	4.57549	0.2095668	0.26833865	2.3805679	20	12 7.4	17.0
33351 1998 XZ <sub>89</sub>	15.0	X	287.58721	324.58375	127.24893	12.54150	0.2078707	0.26700536	2.3884862	20	11 16.3	17.3
33352 1998 XF <sub>95</sub>	14.3	X	48.07023	206.11301	238.83159	6.33128	0.1532108	0.28068233	2.3102519	20	—	—
33353 Chattopadhyay	14.9	X	317.71877	64.49968	131.40786	6.67181	0.0696083	0.28212129	2.3023896	20	1 5.3	17.6
33354 1998 YZ <sub>16</sub>	15.4	X	181.14359	70.13048	139.70866	1.88970	0.1288457	0.26331242	2.4107665	20	12 1.8	18.9
33355 1998 YJ <sub>19</sub>	16.4	X	148.28724	252.18149	84.71369	1.69768	0.2246363	0.28050359				

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
33361 1999 AU <sub>25</sub>	15.9	X	13.58778	242.62622	336.40129	5.02549	0.1929781	0.28440124	2.2900681	20	5 9.1	17.5
33362 1999 BP <sub>1</sub>	15.4	X	123.71741	191.86775	21.54600	3.26758	0.1026484	0.30299339	2.1954015	20	10 14.3	18.4
33363 1999 BO <sub>4</sub>	14.2	X	235.64549	4.07107	326.00919	13.34002	0.2273338	0.23857258	2.5746747	20	3 11.0	18.7
33364 1999 BX <sub>5</sub>	15.4	X	309.82037	237.40931	313.20267	6.50486	0.0685555	0.27536897	2.3398753	20	—	—
33365 1999 BQ <sub>6</sub>	14.3	X	222.87251	257.60892	143.77731	4.75107	0.1567228	0.29173025	2.2515508	20	6 6.1	17.6
33366 1999 BF <sub>7</sub>	14.2	X	320.44313	119.30550	91.98481	6.54405	0.0675019	0.27890380	2.3200629	20	2 1.6	16.9
33367 1999 BD <sub>8</sub>	15.4	X	8.84557	292.33107	316.77494	6.28936	0.1067609	0.28960510	2.2625521	20	6 17.4	17.5
33368 1999 BD <sub>9</sub>	14.5	X	266.73444	325.36206	309.54592	6.93168	0.2038294	0.28089775	2.3090706	20	2 1.7	17.8
33369 1999 BE <sub>11</sub>	15.1	X	114.10813	244.00257	138.54850	6.72209	0.1277850	0.27753832	2.3276664	20	1 13.5	17.8
33370 1999 BQ <sub>11</sub>	14.3	X	103.98234	4.31133	332.91379	31.13255	0.1405354	0.22210855	2.7003861	20	—	—
33371 1999 BS <sub>11</sub>	15.5	X	279.03834	48.01945	319.19740	3.26777	0.1965767	0.29737486	2.2229680	20	6 21.2	17.8
33372 Jonathanchung	14.7	X	256.69639	53.67917	140.85491	2.80655	0.1589431	0.27172394	2.3607543	20	—	—
33373 1999 BL <sub>28</sub>	15.3	X	254.73993	197.12202	125.84956	8.08041	0.2252173	0.29026003	2.2591473	20	3 22.8	18.8
33374 1999 CE <sub>2</sub>	15.4	X	248.37945	193.53821	332.42163	2.01531	0.1274518	0.26508760	2.3999919	20	12 29.2	17.9
33375 1999 CD <sub>4</sub>	15.8	X	337.83134	281.51931	300.19413	2.89587	0.1816650	0.28313615	2.2968845	20	2 21.9	17.8
33376 Medi	15.1	X	120.47365	89.84185	98.12354	6.27802	0.1201275	0.29906951	2.2145626	20	9 9.6	18.2
33377 Večerniček	15.6	X	334.96156	297.34234	328.39412	7.15598	0.1343207	0.28668706	2.2778790	20	4 29.4	17.9
33378 1999 CE <sub>14</sub>	15.1	X	192.87038	257.36006	210.89444	5.07967	0.0763403	0.29758794	2.2219067	20	8 8.2	18.2
33379 Rohandalvi	15.9	X	359.92172	330.13534	124.58542	3.75446	0.1225240	0.27325046	2.3519538	20	—	—
33380 1999 CC <sub>33</sub>	15.0	X	101.19956	266.36400	3.53639	3.75147	0.1290271	0.30541752	2.1837693	20	12 4.6	18.2
33381 1999 CD <sub>33</sub>	14.3	X	84.87895	300.45580	342.78847	7.39013	0.2248709	0.25788598	2.4444673	20	12 2.6	18.4
33382 Indranidas	15.0	X	227.21590	94.45061	102.12588	4.12622	0.1376588	0.26582597	2.3955456	20	—	—
33383 Edupuganti	15.0	X	197.97729	248.79989	11.09047	6.34845	0.0774895	0.27074155	2.3664615	20	—	—
33384 Jacyfang	14.9	X	243.50272	322.84725	341.19426	5.50272	0.1967202	0.28140299	2.3063059	20	2 18.0	18.6
33385 1999 CY <sub>46</sub>	14.4	X	132.57143	278.64584	122.39632	7.05025	0.0962080	0.28213541	2.3023128	20	2 28.6	17.4
33386 1999 CJ <sub>48</sub>	15.5	X	232.55055	96.55056	112.93017	2.88493	0.2051045	0.26626099	2.3929357	20	—	—
33387 1999 CA <sub>49</sub>	14.9	X	15.04625	229.40440	107.88862	5.88243	0.1742032	0.30385441	2.1912521	20	11 30.9	17.2
33388 1999 CH <sub>50</sub>	14.6	X	303.78845	271.64478	1.46968	4.95796	0.2392950	0.28275267	2.2989608	20	3 6.3	17.4
33389 Isairisgreco	14.8	X	354.29996	305.35923	348.17894	5.31590	0.1815673	0.29295171	2.2452878	20	8 8.2	16.2
33390 Hajlasz	15.1	X	166.69764	216.34613	16.21797	3.18459	0.1282789	0.26108241	2.4244746	20	12 14.4	18.8
33391 1999 CN <sub>51</sub>	14.6	X	324.38558	264.04149	120.37554	5.95482	0.1428943	0.30447977	2.1882508	20	11 5.6	16.3
33392 Blakehord	15.1	X	357.34720	296.93552	331.65389	4.02912	0.1526473	0.28982930	2.2613851	20	6 27.7	16.8
33393 Khandelwal	15.2	X	18.13155	284.09793	344.30863	2.25189	0.1602957	0.29229358	2.2486569	20	8 15.9	17.0
33394 Nathaniellee	14.7	X	206.89953	142.39664	117.76670	3.21363	0.1814716	0.26875000	2.3781381	20	—	—
33395 Dylanli	15.5	X	238.87241	172.21754	45.73908	2.79834	0.1685656	0.26801745	2.3824694	20	—	—
33396 Vrindamadan	14.9	X	283.49235	193.30254	131.75586	8.11810	0.1570792	0.28886712	2.2664039	20	5 6.2	17.8
33397 Prathiknaidu	15.3	X	12.03303	263.72271	333.90390	6.85915	0.0619551	0.28883530	2.2665703	20	5 31.9	17.7
33398 1999 CQ <sub>58</sub>	13.8	X	120.79060	91.70378	357.76844	18.56250	0.1711172	0.24069576	2.5595115	20	4 21.5	17.8
33399 Emilyann	15.3	X	304.09300	345.75652	29.42109	4.47150	0.0955579	0.30041447	2.2079479	20	9 7.8	17.4
33400 Laurapirex	14.4	X	5.95813	282.14468	67.47417	7.44997	0.0605178	0.21120208	2.7925691	20	10 26.5	18.0
33401 RADIYA-DIXIT	15.1	X	328.49000	55.78889	258.94577	3.76978	0.1654247	0.29550243	2.2323486	20	7 8.1	16.7
33402 Canizares	14.7	X	195.36662	186.65736	155.95217	15.53886	0.0802546	0.23606897	2.5928463	20	2 26.1	18.5
33403 1999 CN <sub>73</sub>	15.9	X	52.16789	258.47719	268.88014	4.33659	0.1009556	0.28657133	2.2784923	20	4 27.6	18.2
33404 1999 CT <sub>73</sub>	13.8	X	24.28302	280.09094	182.93329	6.00331	0.1322740	0.18391904	3.0623271	20	—	—
33405 Rehtman	15.9	X	180.93037	254.19618	194.35351	3.35167	0.1554469	0.29517173	2.2340156	20	6 26.3	19.3
33406 Saltzman	14.8	X	213.80293	40.42566	249.23829	2.70325	0.1548453	0.27552420	2.3389964	20	1 5.8	18.4
33407 1999 CA <sub>75</sub>	14.4	X	267.93328	9.23925	190.89875	13.03023	0.0732837	0.22544795	2.6736539	20	—	—
33408 Mananshah	14.9	X	86.23858	274.26620	294.03956	6.10821	0.0555656	0.29556499	2.2320336	20	8 14.1	17.6
33409 1999 CD <sub>77</sub>	15.4	X	185.59294	5.82308	234.10655	3.46747	0.0986628	0.31171275	2.1542677	20	—	—
33410 1999 CX <sub>85</sub>	14.4	X	230.07834	10.64108	134.46160	8.20939	0.1781626	0.28687908	2.2768625	20	2 29.8	18.1
33411 1999 CV <sub>91</sub>	16.5	X	357.07924	300.91405	138.65654	2.84922	0.1734595	0.27150173	2.3620422	20	—	—
33412 Arjunsabra	14.9	X	205.54430	333.33006	359.02093	3.97508	0.1956154	0.28168807	2.3047496	20	2 20.7	18.7
33413 Alecsun	15.5	X	227.49234	232.79183	351.25420	3.99281	0.0954925	0.26829791	2.3808083	20	—	—
33414 Jessicatian	15.1	X	179.64189	218.64797	13.53500	6.58960	0.1708082	0.26196844	2.4190048	20	12 23.8	18.9
33415 Felixwang	15.4	X	306.71947	196.57767	51.63192	5.62855	0.0666330	0.28186059	2.3038091	20	3 5.7	18.1
33416 1999 CW <sub>101</sub>	14.9	X	328.79023	208.14124	88.21127	5.50816	0.2185100	0.28894289	2.2660077	20	5 29.5	16.5
33417 1999 CV <sub>103</sub>	14.1	X	245.82106	93.62118	134.70114	10.73782	0.0621349	0.27420934	2.3464676	20	—	—
33418 Jacksonweaver	14.7	X	236.10482	169.93867	251.08854	4.72780	0.0401295	0.29850530	2.2173522	20	8 2.6	17.3
33419 Wellman	14.7	X	144.58880	316.46706	237.34431	9.44986	0.0576879	0.25532869	2.4607621	20	9 30.5	18.3
33420 Derekwoo	14.6	X	7.02906	267.91520	223.56116	9.47707	0.0276049	0.27576593	2.3376293	20	—	—
33421 Byronxu	14.7	X	227.06016	67.38592	287.40925	1.15098	0.1399541	0.28859041	2.2678524	20	4 8.5	18.1
33422 1999 CN <sub>135</sub>	14.9	X	298.72458	154.70661	182.77637	1.92519	0.0741110	0.19960899	2.8996750	20	6 25.1	18.7
33423 1999 DK	14.7	X	146.51444	145.95150	194.90431	4.31445	0.1783373	0.27516040	2.3410576	20	1 6.0	18.0
33424 1999 DC <sub>2</sub>	14.4	X	214.84225	41.35902	160.10538	23.49828	0.2059345	0.26270228	2.4144978	20	12 20.3	18.3
33425 1999 DP <sub>2</sub>	14.8	X	296.03110	306.26209	90.84811	4.97048	0.1985063	0.30190242	2.2006872	20	9 15.5	16.3
33426 1999 DR <sub>2</sub>	15.1	X	316.33921	134.04215	110.04091	7.68313	0.0731558	0.28160256	2.3052161	20	3 13.4	17.8
33427 1999 DZ <sub>2</sub>	15.0	X	108.71644	36.50117	57.51879	6.55214	0.1067549	0.28316521	2.2967274	20	4 12.4	17.8
33428 1999 DO <sub>3</sub>	15.4	X	59.09007	205.81502	352.08241	3.83902	0.1534706	0.28745989	2.2737945	20	7 7.6	17.9
33429 1999 DL <sub>4</sub>	13.2	X	244.56512	184.84862	355.46542	10.85052	0.0444069	0.17122669	3.2118487	20	12 28.3	17.9
33430 1999 EH	15.3	X	41.55936	157.30195	318.94649	2.71339	0.0927091	0.27659606	2.3329498	20	1 25.0	17.4
33431 1999 EK	14.6	X	336.94809	197.53100	252.98223	1.41876	0.1600519	0.26692552	2.3889624	20	—	—
33432 1999 ET <sub>3</sub>	13.8	X	99.34298	61.93210	30.98212	9.55166	0.0784235	0.18623082	3.0369316	20	4 1.4	18.0
33433 Maurilia	14.5	X	104.06149	287.57303	95.65242	9.48427	0.1755880	0.27238534	2.3569311	20	1 9.4	17.1
33434 1999 FU	13.9	X	157.56613	138.21754	333.94840	1.30319	0.0635610	0.19591600	2.9360005	20	6 28.9	18.3
33435 1999 FD <sub>4</sub>	14.9	X	220.97596	25.38089	267.78047	1.27890	0.1837942	0.22813626	2.6526086	20	1 21.8	19.4
33436 1999 FZ <sub>6</sub>	14.0	X	170.64951	80.60220	197.00912	8.92481	0.1466417	0.21607939	2.7503871	20	—	—
33437 1999 FK <sub>9</sub>												

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
33441 1999 FT <sub>18</sub>	14.9	X	202.56693	233.26935	7.69581	6.77697	0.0873692	0.26493864	2.4008914	20	—	—
33442 1999 FW <sub>18</sub>	14.7	X	40.58952	29.85518	200.73104	2.81454	0.1449669	0.24231825	2.5480736	20	7 19.9	17.7
33443 1999 FZ <sub>18</sub>	14.5	X	251.98494	56.34072	211.39937	3.23012	0.1901146	0.22597430	2.6695005	20	1 17.5	18.9
33444 1999 FF <sub>19</sub>	15.4	X	102.08388	350.89878	229.57413	2.92863	0.1766416	0.29584691	2.2306154	20	10 3.2	18.7
33445 1999 FB <sub>21</sub>	14.2	X	54.33074	108.88935	131.07906	3.06834	0.0177311	0.20169908	2.8796084	20	7 31.6	17.9
33446 Michaelyang	15.4	X	356.15984	89.36916	153.02101	3.01223	0.1560378	0.28607846	2.2811085	20	5 10.1	17.1
33447 1999 FM <sub>24</sub>	14.1	X	35.32866	249.90932	322.66839	4.27063	0.1202165	0.28603603	2.2813341	20	6 11.4	16.2
33448 Aaronyeiser	15.1	X	303.90929	246.61538	6.52239	5.63825	0.0423005	0.27969048	2.3157105	20	3 10.7	17.9
33449 1999 FL <sub>25</sub>	14.9	X	32.13449	125.36054	116.44256	4.56068	0.2057139	0.24121888	2.5558097	20	8 1.9	17.4
33450 Allender	14.7	X	115.88625	41.10681	51.22364	5.89134	0.1507992	0.28396646	2.2924050	20	4 24.1	17.6
33451 Michaelarney	14.8	X	223.02405	248.09754	319.78733	1.94259	0.1153092	0.26303558	2.4124578	20	—	—
33452 Olivebryan	14.3	X	271.51355	217.07118	59.00976	4.61940	0.1030137	0.23072455	2.6327331	20	2 26.5	18.0
33453 Townley	15.2	X	12.99896	160.54211	47.32432	5.34507	0.0992597	0.28275865	2.2989284	20	4 20.3	17.4
33454 Neilclaffey	15.0	X	152.59207	317.06781	77.46570	5.15939	0.1718622	0.27980955	2.3150535	20	3 22.9	18.5
33455 Coakley	15.0	X	135.54702	272.15734	183.42235	6.58406	0.0685773	0.28523959	2.2855787	20	5 13.5	17.9
33456 Ericacurran	15.2	X	18.18245	340.10133	259.80802	5.21745	0.1344887	0.28625917	2.2801484	20	6 23.8	17.0
33457 Cutillo	15.1	X	46.50190	108.59761	178.91628	4.44050	0.1634067	0.29512647	2.2342440	20	10 31.8	17.8
33458 Fialkow	15.3	X	0.96639	62.14286	128.08420	3.39138	0.0849216	0.27919268	2.3184623	20	3 3.2	17.5
33459 1999 FM <sub>30</sub>	15.5	X	324.27303	324.39917	150.90734	1.56492	0.1364372	0.26631808	2.3925936	20	—	—
33460 1999 FL <sub>31</sub>	14.4	X	212.25692	197.30482	58.10949	3.14636	0.1770712	0.26584206	2.3954490	20	—	—
33461 1999 FP <sub>31</sub>	15.5	X	262.77339	6.15833	170.74111	2.61848	0.2040024	0.26499894	2.4005272	20	—	—
33462 Tophergee	14.9	X	98.15530	187.28912	330.99901	2.00800	0.0665108	0.28748503	2.2736619	20	6 20.9	17.5
33463 Bettinagregg	14.6	X	85.26639	226.13654	146.51055	6.56738	0.1382606	0.26716317	2.3875455	20	—	—
33464 Melahudock	14.9	X	178.72218	97.49422	348.45618	3.70680	0.1505193	0.29042719	2.2582804	20	6 20.7	18.2
33465 1999 FP <sub>32</sub>	15.2	X	209.26773	255.34730	352.85410	1.32801	0.1492369	0.26485991	2.4013671	20	—	—
33466 Thomaslarson	15.5	X	314.17807	319.22914	181.87885	6.52262	0.0623161	0.27022651	2.3694674	20	—	—
33467 Johnlieb	14.9	X	6.10740	113.60260	165.01852	3.45667	0.1606820	0.24143456	2.5542874	20	7 29.4	17.4
33468 Nelsoneric	14.5	X	204.21729	96.24062	292.14549	7.63163	0.1772643	0.28998098	2.2605964	20	4 25.9	18.2
33469 1999 FL <sub>36</sub>	14.7	X	357.80327	219.67163	9.61693	10.50441	0.0343055	0.19237411	2.9719281	20	4 27.9	18.8
33470 1999 FQ <sub>37</sub>	13.9	X	87.06370	117.10584	168.70473	4.46050	0.0401185	0.21269774	2.7794624	20	11 15.7	17.9
33471 Ozuna	15.3	X	13.22826	268.23740	323.42163	3.77448	0.1447349	0.28703952	2.2760139	20	5 29.6	17.2
33472 Yunorperalta	14.7	X	63.63448	2.89831	334.03946	6.43185	0.1498870	0.26187607	2.4195736	20	—	—
33473 Porterfield	15.2	X	68.13658	165.21448	312.01467	6.26673	0.0575030	0.28116849	2.3075881	20	3 4.3	17.7
33474 1999 FB <sub>51</sub>	14.5	X	267.38552	250.47576	238.67816	2.57558	0.0376831	0.30819344	2.1706366	20	—	—
33475 1999 FK <sub>53</sub>	14.3	X	143.75696	13.95144	51.97139	7.94085	0.0495573	0.27953714	2.3165573	20	4 11.7	17.2
33476 Gilanareiss	14.4	X	217.87687	357.89539	311.25725	5.95594	0.1174265	0.27664623	2.3326677	20	2 2.9	17.7
33477 1999 FR <sub>59</sub>	15.1	X	280.13300	82.95033	177.64314	6.61473	0.0859888	0.27759189	2.3273670	20	2 9.4	18.3
33478 Deniselivon	15.3	X	356.23530	294.17053	298.39234	3.74133	0.0971199	0.28337719	2.2956102	20	4 23.8	17.5
33479 1999 GO	13.5	X	211.79887	281.21632	29.54945	0.83482	0.1576208	0.18160549	3.0882805	20	2 9.1	18.6
33480 Bartolucci	14.9	X	147.07211	173.53479	35.42920	4.63852	0.1384441	0.25383689	2.4703940	20	10 25.8	18.8
33481 1999 GH <sub>1</sub>	15.4	X	115.47542	132.12512	68.04556	6.69465	0.0899053	0.29375111	2.2412125	20	9 18.8	18.5
33482 1999 GO <sub>4</sub>	15.1	X	21.79250	50.42646	161.52150	6.80023	0.1194804	0.23643657	2.5901581	20	5 17.9	17.9
33483 1999 GW <sub>4</sub>	14.9	X	206.26655	146.57593	40.93311	8.67742	0.1034997	0.25768534	2.4457360	20	12 1.5	18.2
33484 1999 GS <sub>7</sub>	14.9	X	300.37418	123.10636	164.78355	2.44429	0.1733724	0.23470698	2.6028674	20	4 5.5	18.1
33485 1999 GE <sub>8</sub>	15.2	X	77.93979	245.46098	220.93459	6.08082	0.0812252	0.27927292	2.3180181	20	3 7.2	17.9
33486 1999 GN <sub>8</sub>	14.4	X	202.47548	20.47722	178.61248	7.83176	0.0702888	0.25856937	2.4401583	20	12 17.9	17.7
33487 1999 GS <sub>8</sub>	15.3	X	165.81359	23.81188	79.05192	4.91863	0.0892350	0.28865755	2.2675007	20	6 29.8	18.5
33488 1999 GD <sub>9</sub>	14.3	X	114.44240	125.65595	45.08716	12.10910	0.0499412	0.24293207	2.5437796	20	7 29.9	18.0
33489 1999 GF <sub>9</sub>	13.7	X	324.20447	134.86760	201.12211	14.42139	0.1392565	0.24243090	2.5472842	20	7 26.7	16.7
33490 1999 GK <sub>9</sub>	14.4	X	136.58492	337.07974	303.01269	6.43292	0.1545167	0.25969893	2.4330775	20	—	—
33491 1999 GM <sub>9</sub>	14.5	X	223.56789	277.59154	310.74525	5.92873	0.0705821	0.26586474	2.3953127	20	—	—
33492 Christi Rogers	14.4	X	281.77927	173.43137	62.70695	6.88473	0.0807546	0.27433538	2.3457488	20	1 13.8	17.5
33493 1999 GX <sub>17</sub>	13.2	X	61.77151	337.42481	100.68005	9.42246	0.0692897	0.22738754	2.6584282	20	1 14.0	16.3
33494 1999 GZ <sub>17</sub>	14.7	X	59.19536	32.03148	164.65961	14.78347	0.1264157	0.24085145	2.5584084	20	6 28.2	18.2
33495 Schaferjames	15.0	X	55.35493	239.37215	51.11738	4.50374	0.1256966	0.29759305	2.2218813	20	11 10.0	17.6
33496 1999 GQ <sub>18</sub>	15.0	X	268.02726	172.15059	69.00252	10.73110	0.2544296	0.27148501	2.3621392	20	—	—
33497 1999 GD <sub>19</sub>	13.7	X	192.07287	162.04149	152.20791	14.45760	0.1520308	0.22391102	2.6858747	20	1 21.5	18.2
33498 Juliesmith	14.0	X	210.75615	99.13985	127.20535	8.43529	0.0608948	0.26343579	2.4100138	20	—	—
33499 Stanton	15.5	X	140.06178	127.02576	34.67817	3.56364	0.1051073	0.29339235	2.2430392	20	8 23.6	18.6
33500 1999 GV <sub>19</sub>	14.3	X	39.73702	71.15013	168.12052	13.09085	0.1125203	0.24191263	2.5509211	20	7 24.8	17.5
33501 Juliethompson	14.6	X	135.95968	106.35817	139.93685	4.34327	0.1793209	0.25454470	2.4658123	20	12 1.0	18.6
33502 Janetwaldeck	15.0	X	177.50943	152.45585	99.16630	3.24537	0.1527929	0.26061485	2.4273735	20	—	—
33503 Dasilvborges	14.3	X	241.19758	148.69759	82.76156	2.89623	0.0919467	0.26698229	2.3886237	20	—	—
33504 Rebrouwer	15.4	X	263.79832	107.43468	122.24547	3.02900	0.1696965	0.26943073	2.3741307	20	—	—
33505 1999 GZ <sub>21</sub>	15.4	X	62.43655	89.85265	42.34376	10.65995	0.0598357	0.27972295	2.3155313	20	3 24.9	18.1
33506 1999 GM <sub>23</sub>	15.3	X	234.19762	213.36797	2.92768	7.91191	0.2107399	0.26556924	2.3970892	20	—	—
33507 1999 GT <sub>23</sub>	14.4	X	325.70546	91.59222	176.85939	14.02140	0.1420743	0.23726905	2.5840961	20	4 25.2	17.4
33508 Drewnik	14.7	X	322.62237	223.17672	74.60079	3.42662	0.1423555	0.24017661	2.5631985	20	5 29.9	17.5
33509 Mogilny	15.8	X	116.93147	342.26608	187.33122	7.22149	0.0482590	0.29130899	2.2537209	20	7 29.1	18.8
33510 1999 GM <sub>31</sub>	16.0	X	84.53303	342.70500	163.26129	2.60911	0.1132580	0.28459960	2.2890038	20	5 22.5	18.6
33511 Austinwang	14.8	X	303.51169	60.60932	79.74700	7.22239	0.0675852	0.26645142	2.3917954	20	—	—
33512 1999 GM <sub>33</sub>	14.1	X	182.51097	1.54487	33.29038	7.86045	0.1203565	0.28134164	2.3066412	20	4 17.3	17.5
33513 1999 GE <sub>34</sub>	13.6	X	28.48583	86.28728	252.85992	4.24498	0.1941730	0.25539947	2.4603075	20	12 11.6	16.6
33514 Changpeihuan	15.0	X	252.39162	287.39515	2.33683	6.96442	0.1218545	0.27715944	2.3297873	20	2 15.6	18.3
33515 Linbohan	14.4	X	8.55001	295.12888	348.80760	1.99757	0.1328516	0.24427434	2.5344524	20	8 10.6	16.8
33516 Timonen	15.0	X	38.61128	318.83881	215.96763	5.07114	0.1085105	0.28287318	2.2983079	20	4 16.6	17.1
33517 Paulfoltin	14.7	X	117.41118	292.43936	346.68824	6.86183	0					

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
33521 1999 GK <sub>40</sub>	13.9 <sup>m</sup>	X	210.06547	222.89817	141.00262	13.75251	0.2005834	0.23549741	2.5970399	20	4 9.7	18.4
33522 Chizumimaeta	14.8	X	358.87941	182.40464	75.48216	7.50097	0.0791017	0.28689321	2.2767877	20	6 10.9	16.7
33523 Warashina	15.1	X	349.13113	129.04201	123.04216	4.43301	0.1653466	0.28378905	2.2933603	20	5 10.3	16.9
33524 1999 GM <sub>48</sub>	14.5	X	96.08641	292.01395	35.39806	2.62156	0.0762429	0.21513991	2.7583883	20	—	—
33525 1999 GG <sub>53</sub>	14.6	X	122.21178	195.71044	312.28019	5.22378	0.0876751	0.28906966	2.2653451	20	7 11.4	17.4
33526 1999 GG <sub>55</sub>	15.2	X	241.18362	273.02190	296.72589	0.98890	0.0810000	0.26598489	2.3945913	20	—	—
33527 1999 GJ <sub>55</sub>	15.1	X	152.86256	40.54529	4.10142	7.11997	0.1782691	0.28299394	2.2976540	20	4 1.9	18.4
33528 Jinzeman	15.6	X	311.93329	211.27449	6.45003	3.65304	0.1361516	0.27621700	2.3350837	20	1 18.9	18.5
33529 Henden	14.6	X	190.80688	48.46089	186.58620	4.96570	0.1640823	0.26235539	2.4166257	20	—	—
33530 1999 HH <sub>1</sub>	15.4	X	14.06890	285.90946	267.98710	3.22110	0.2149734	0.27975945	2.3153298	20	3 26.1	16.8
33531 1999 HG <sub>2</sub>	14.9	X	57.10501	39.66544	220.88512	3.19743	0.1462512	0.29162366	2.2520994	20	10 2.7	17.6
33532 Gabriellacoli	14.8	X	300.35640	215.79656	54.20182	6.41455	0.1120974	0.27895884	2.3197577	20	3 20.5	17.7
33533 1999 HV <sub>3</sub>	15.4	X	73.91519	121.65285	38.25733	6.91226	0.1429874	0.28525627	2.2854896	20	5 30.5	18.1
33534 Meiyamamura	15.3	X	246.83111	328.25704	219.50078	1.54943	0.1380591	0.26347575	2.4097701	20	—	—
33535 Alshaikh	15.0	X	281.34292	147.55260	320.15238	1.27783	0.1265503	0.25898485	2.4375478	20	11 29.5	17.3
33536 Charpugdee	15.2	X	326.64930	105.51720	5.85793	3.46802	0.0841846	0.26451190	2.4034730	20	—	—
33537 Doungnga	14.4	X	316.16145	209.22915	287.40214	0.81224	0.0623411	0.21933758	2.7230817	20	—	—
33538 Jaredbergen	14.8	X	118.45321	19.94212	34.80702	4.94537	0.0555570	0.27594214	2.3366340	20	2 24.0	17.6
33539 Elenaberman	15.5	X	90.90689	222.79366	216.68513	6.64504	0.0784706	0.27615712	2.3354212	20	2 17.5	18.3
33540 1999 JH <sub>3</sub>	14.0	X	134.26236	159.45659	95.95433	6.11129	0.1371870	0.25443737	2.4665056	20	12 10.2	17.8
33541 1999 JF <sub>6</sub>	14.6	X	15.47691	190.18541	95.64202	7.67060	0.1641161	0.24136091	2.5548070	20	9 2.8	17.3
33542 1999 JZ <sub>7</sub>	14.3	X	1.09314	219.74150	60.79022	19.48907	0.2441455	0.23949516	2.5680583	20	8 5.7	16.8
33543 1999 JR <sub>8</sub>	14.7	X	180.63013	134.55234	46.36971	4.12766	0.1133309	0.20429456	2.8551670	20	10 18.5	19.0
33544 Jerold	13.9	X	10.64397	256.83847	50.12028	13.41174	0.1698038	0.24329347	2.5412599	20	9 30.3	16.8
33545 1999 JV <sub>9</sub>	14.9	X	35.22992	208.44288	199.54720	15.46796	0.0231427	0.21553908	2.7549816	20	—	—
33546 1999 JM <sub>10</sub>	13.7	X	267.48995	263.29355	101.71504	14.75611	0.2206770	0.19178855	2.9779742	20	5 31.7	18.2
33547 1999 JZ <sub>12</sub>	14.6	X	68.97144	125.41643	121.22974	4.83279	0.0219867	0.24612495	2.5217321	20	9 5.8	17.9
33548 1999 JC <sub>13</sub>	14.0	X	335.38869	96.69402	195.40840	13.23436	0.1092130	0.23621761	2.5917585	20	6 17.5	17.2
33549 1999 JS <sub>13</sub>	14.0	X	243.50724	81.35035	242.52332	15.74325	0.0300029	0.22997752	2.6384313	20	3 25.7	18.0
33550 Blackburn	14.1	X	216.99036	279.46621	81.30278	4.99644	0.0776816	0.23276086	2.6173557	20	4 14.9	17.9
33551 1999 JB <sub>15</sub>	14.7	X	63.57590	174.62608	75.26440	15.27449	0.1555363	0.24384640	2.5374169	20	9 30.7	18.5
33552 1999 JN <sub>15</sub>	14.0	X	175.28164	145.74433	92.14415	16.66124	0.1887178	0.21075052	2.7965566	20	12 16.5	18.7
33553 Nagai	14.4	X	40.14250	122.27079	125.76576	6.84548	0.0805844	0.23992091	2.5650194	20	8 4.3	17.4
33554 1999 JU <sub>17</sub>	13.7	X	246.72169	60.95535	251.52928	4.49393	0.2526236	0.18287102	3.0740160	20	3 3.2	18.9
33555 Nataliebush	15.5	X	81.37632	277.82693	270.72387	5.21077	0.1113520	0.28786935	2.2716379	20	7 18.2	18.3
33556 Brennanclark	14.7	X	172.87591	55.92864	38.34180	3.72716	0.0570163	0.28771562	2.2724470	20	6 26.1	17.7
33557 1999 JC <sub>22</sub>	13.7	X	157.28390	128.43301	234.45117	12.37315	0.2099175	0.22427399	2.6829759	20	2 16.4	18.4
33558 1999 JN <sub>22</sub>	15.2	X	224.33988	135.64428	21.25839	5.66493	0.0704107	0.30244120	2.1980729	20	11 29.7	17.7
33559 Laurencoop	14.6	X	194.70895	13.34512	57.30413	6.02628	0.1293457	0.28770010	2.2725287	20	6 16.6	17.9
33560 D' Alessandro	14.5	X	275.50825	229.04345	50.57689	7.12712	0.1065285	0.27626815	2.3347954	20	3 2.9	17.7
33561 Brianjandou	15.4	X	276.23005	173.89121	36.05467	3.69656	0.1732657	0.26862369	2.3788835	20	—	—
33562 Amydunphy	14.6	X	225.95811	291.34241	24.07787	5.90313	0.1245111	0.27360331	2.3499312	20	2 21.6	18.1
33563 1999 JV <sub>24</sub>	14.2	X	120.30477	110.22680	26.96639	15.32914	0.0453184	0.23896802	2.5718336	20	6 14.4	18.0
33564 Miriamshira	14.4	X	110.67983	240.87035	32.06131	5.30044	0.0907115	0.25391475	2.4698889	20	12 6.6	18.1
33565 Samferguson	14.5	X	23.25538	240.19928	43.04921	2.52820	0.1197735	0.24335898	2.5408038	20	9 4.3	17.3
33566 1999 JZ <sub>25</sub>	14.5	X	302.08114	218.12272	222.08012	11.39115	0.1455311	0.25633405	2.4543238	20	11 26.7	16.9
33567 Sulekhferdic	14.8	X	244.42050	205.76823	83.19337	2.56951	0.1716616	0.17885648	3.1198444	20	2 12.2	19.7
33568 Godishala	14.6	X	213.28332	324.12166	260.29258	4.19351	0.0292945	0.21538198	2.7563211	20	—	—
33569 Nikhilgopal	15.1	X	347.58727	268.90371	304.77891	3.85175	0.1091102	0.27804783	2.3248220	20	3 9.3	17.5
33570 Jagruenstein	14.1	X	139.16893	323.63313	2.81345	4.97783	0.1654582	0.21574458	2.7532318	20	—	—
33571 Jaygupta	15.4	X	332.37639	194.25987	92.82249	3.55895	0.1257368	0.23687143	2.5869871	20	6 3.3	18.0
33572 Mandolin	14.8	X	227.16331	334.58952	87.91753	5.00579	0.0566041	0.24258776	2.5461860	20	7 19.1	18.3
33573 Hugrace	14.9	X	312.83956	107.94863	66.79755	7.67818	0.1406166	0.26939130	2.3743619	20	—	—
33574 Shailaja	15.2	X	147.51515	176.22097	104.78911	1.56267	0.1075417	0.25916262	2.4364330	20	—	—
33575 Joshuajacob	14.3	X	211.49577	347.24446	265.57234	2.53927	0.0366108	0.21784172	2.7355334	20	—	—
33576 1999 JW <sub>33</sub>	13.9	X	249.13025	232.89546	33.18468	13.14556	0.1165746	0.22360981	2.6882860	20	1 22.2	18.2
33577 1999 JX <sub>33</sub>	14.0	X	344.25355	301.85404	23.55021	10.30259	0.1791887	0.24212209	2.5494497	20	9 1.2	16.4
33578 1999 JT <sub>34</sub>	14.1	X	120.79295	68.30344	248.00586	6.09805	0.1459667	0.21216306	2.7841302	20	—	—
33579 1999 JC <sub>35</sub>	13.0	X	356.79754	244.90809	229.54504	10.64274	0.1379230	0.17408807	3.1765574	20	—	—
33580 Priyankajain	14.7	X	281.98169	51.42400	77.32209	3.55355	0.1334203	0.25996771	2.4314002	20	12 31.1	17.0
33581 Rajeevjha	14.9	X	115.31114	10.95225	81.35165	4.91190	0.1513751	0.28011463	2.3133723	20	4 24.6	17.9
33582 Tiashajoardar	15.1	X	330.69080	170.56307	65.48076	7.72211	0.0529511	0.27806277	2.3247387	20	3 27.9	17.8
33583 Karamchedu	14.4	X	192.31156	326.51858	48.09196	6.47947	0.1816906	0.22985261	2.6393871	20	4 5.6	18.7
33584 Austinkatzer	15.3	X	281.44528	230.86073	270.69710	5.58404	0.0843443	0.26048747	2.4281648	20	—	—
33585 1999 JC <sub>38</sub>	13.7	X	356.55530	233.04856	283.14613	5.71294	0.2035916	0.17976344	3.1093418	20	1 14.9	17.0
33586 Keeley	14.7	X	39.13452	211.71871	31.62313	6.65105	0.1012680	0.24034019	2.5620354	20	8 1.6	17.8
33587 Arianakim	15.0	X	195.82759	164.59000	82.49571	4.20441	0.1412369	0.26121615	2.4236470	20	—	—
33588 1999 JZ <sub>45</sub>	14.0	X	67.28423	294.43622	83.61080	9.31975	0.2336507	0.21300357	2.7768012	20	—	—
33589 Edwardkim	14.5	X	285.19551	164.20872	122.77234	3.16919	0.2037589	0.18339985	3.0681039	20	3 17.0	18.9
33590 Sreelakashmi	14.8	X	271.21233	241.62919	65.02454	7.62761	0.1175449	0.27749857	2.3278887	20	4 1.4	17.9
33591 Landsberger	14.8	X	98.07671	25.09115	62.08803	7.69538	0.1305196	0.27618300	2.3352753	20	3 25.5	17.7
33592 Kathrynanna	14.7	X	168.15529	27.51343	231.82089	4.30855	0.1214131	0.25872276	2.4391937	20	—	—
33593 1999 JT <sub>47</sub>	13.8	X	320.42028	334.43637	39.57732	10.08532	0.0668584	0.19981052	2.8977249	20	9 20.9	17.5
33594 Ralphlawton	15.3	X	108.35919	229.84495	35.32419	7.78172	0.1865813	0.25108830	2.4883897	20	11 27.8	19.3
33595 Jiwoolee	15.0	X	241.41626	222.02281	269.22601	0.84055	0.1030990	0.253800169	2.4706224	20	11 2.3	18.1
33596 Taesoolee	14.4	X	216.35947	120.29604	158.63876	1.81671	0.0216107	0.22116286	2.7080785	20	1 3.4	18.0
33597 1999 JQ <sub>49</sub>	15.7	X	265.29549	59.54606	156.85439	1.38196	0.1317648	0.26688287				

# ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
33601 1999 JO <sub>51</sub>	13.2	X	173.77658	221.41250	220.84019	9.56202	0.1146646	0.19063687	2.9899560	20	6 9.5	18.0
33602 Varunmandi	14.7	X	110.07569	185.86863	69.23129	8.23954	0.0766253	0.25070887	2.4908997	20	11 13.9	18.3
33603 Saramason	14.6	X	300.91838	178.90681	132.70208	5.97859	0.0219414	0.23564591	2.5959488	20	6 2.0	17.9
33604 McChesney	14.8	X	333.13109	114.99132	146.62938	2.17973	0.0546531	0.18757626	3.0223921	20	5 8.0	18.8
33605 McCue	15.5	X	14.67350	69.25697	76.64663	6.24416	0.0788848	0.27264309	2.3554455	20	1 23.9	17.9
33606 Brandonmuncan	14.4	X	125.79814	240.34122	82.29652	8.48901	0.1371457	0.21314968	2.7755321	20	—	—
33607 Archanamurali	14.4	X	1.34959	201.59529	29.94015	8.47516	0.1153140	0.23382557	2.6094044	20	5 4.9	17.1
33608 Paladugu	14.3	X	312.90479	266.50508	190.96385	5.01985	0.0946196	0.25736225	2.4477825	20	—	—
33609 Harishpalani	14.4	X	352.88395	100.39719	166.76629	6.52184	0.0688989	0.18955708	3.0012997	20	6 13.1	18.3
33610 Payra	15.3	X	35.85021	95.36711	63.03647	8.08725	0.1808252	0.27760545	2.3272912	20	3 28.6	17.2
33611 1999 JB <sub>61</sub>	14.4	X	58.18251	77.33155	82.99400	15.14882	0.0686032	0.23230592	2.6207718	20	5 3.2	17.9
33612 1999 JZ <sub>62</sub>	14.7	X	42.19577	221.23162	76.15324	12.50477	0.1079477	0.24555145	2.5256570	20	10 25.5	18.1
33613 Pendharkar	15.2	X	8.73348	289.71036	228.97872	7.71499	0.1769285	0.27346305	2.3507347	20	1 18.6	17.4
33614 Meganploch	14.4	X	259.52067	109.46939	110.73362	5.92267	0.0533744	0.21813864	2.7330505	20	—	—
33615 1999 JB <sub>64</sub>	14.6	X	282.60569	181.01599	71.97503	10.64938	0.1838343	0.27194053	2.3595006	20	1 25.9	18.1
33616 1999 JR <sub>64</sub>	13.9	X	355.85754	15.72093	83.64136	14.97173	0.0429122	0.26202470	2.4186586	20	—	—
33617 Kailashraman	14.7	X	154.85204	17.53465	64.23101	4.65907	0.1060170	0.28505995	2.3865388	20	5 19.4	17.9
33618 1999 JA <sub>66</sub>	15.5	X	3.25162	88.50557	74.92071	2.93796	0.1517098	0.27598422	2.3363965	20	1 20.5	17.7
33619 Dominickrowan	14.6	X	285.66938	129.87404	165.07766	4.65710	0.0932602	0.23371280	2.6102436	20	4 8.2	18.1
33620 1999 JC <sub>66</sub>	14.0	X	12.40538	16.89382	190.69239	10.41998	0.0383937	0.188331194	3.0145152	20	4 24.7	18.0
33621 Sathish	14.9	X	140.16107	45.31598	71.73436	5.22129	0.0410034	0.28628580	2.2800070	20	6 14.9	17.7
33622 Sedigh	14.6	X	265.35385	299.78065	57.37449	8.82058	0.0946820	0.23881213	2.5729527	20	6 2.3	17.9
33623 Kyraseevers	15.5	X	12.25958	2.62937	132.27933	2.98481	0.1465336	0.27323840	2.3520230	20	—	—
33624 Omersiddiqui	14.7	X	94.75497	257.62548	185.84482	5.55159	0.1536281	0.27744385	2.3281948	20	3 14.2	17.2
33625 Slepyan	15.4	X	334.74618	46.06702	129.25443	3.96893	0.0581473	0.27191017	2.3596762	20	1 4.9	18.1
33626 Jasonsmith	14.9	X	105.81883	82.16785	98.96440	7.30438	0.1392424	0.24347868	2.5399710	20	8 9.9	18.6
33627 1999 JS <sub>71</sub>	13.3	X	148.90653	275.23872	69.26159	11.84036	0.2551578	0.17338745	3.1851088	20	2 4.2	18.8
33628 Spettel	14.1	X	68.87920	225.19253	194.34631	9.75185	0.1326563	0.26793427	2.3829625	20	—	—
33629 1999 JK <sub>76</sub>	13.8	X	7.61941	158.37757	67.28854	16.06114	0.2562191	0.18721182	3.0263132	20	5 16.2	16.4
33630 Swathiravi	14.2	X	137.04382	273.30036	190.90647	6.12749	0.0612080	0.28182289	2.3040145	20	5 26.4	17.2
33631 1999 JG <sub>77</sub>	14.4	X	119.40335	233.66630	95.92512	10.32512	0.1642436	0.21449534	2.7639115	20	—	—
33632 1999 JP <sub>78</sub>	14.2	X	240.88655	163.10789	107.99631	14.41256	0.1250484	0.27103277	2.3647660	20	1 9.8	17.8
33633 Strickland	14.5	X	196.18598	8.14418	226.25205	7.37950	0.1626568	0.21309444	2.7760117	20	—	—
33634 Strickler	14.1	X	97.99699	17.91607	99.56075	6.98402	0.1381810	0.27861870	2.3216453	20	5 6.5	17.0
33635 1999 JC <sub>80</sub>	14.2	X	329.89987	187.31055	80.76328	10.60362	0.0389897	0.23589434	2.5941258	20	5 13.6	17.4
33636 1999 JD <sub>80</sub>	13.8	X	30.44913	109.11692	180.97569	12.68702	0.1641512	0.24406002	2.5359360	20	10 2.4	16.6
33637 1999 JW <sub>80</sub>	14.2	X	325.65219	87.09270	97.23632	14.01908	0.1127353	0.22374435	2.6872083	20	1 5.9	17.6
33638 1999 JZ <sub>80</sub>	13.7	X	29.71933	168.15655	116.78390	16.05644	0.0977572	0.24281834	2.5445739	20	9 19.1	17.1
33639 1999 JB <sub>81</sub>	13.0	X	67.41348	149.78294	135.68418	14.20619	0.0312366	0.20096442	2.8866221	20	10 23.4	17.3
33640 1999 JT <sub>81</sub>	14.2	X	249.52801	186.21465	94.17766	13.24056	0.1706133	0.22628086	2.6670889	20	2 3.2	18.5
33641 1999 JZ <sub>81</sub>	13.5	X	236.59735	169.56456	100.78732	13.92025	0.1300678	0.22337672	2.6901559	20	1 11.1	17.8
33642 1999 JB <sub>82</sub>	14.1	X	307.27801	202.18568	100.80127	12.35711	0.0752080	0.28392191	2.2926448	20	5 24.1	16.7
33643 1999 JJ <sub>82</sub>	13.7	X	294.90991	271.34257	88.57600	14.45211	0.1992261	0.24201474	2.5502035	20	7 2.7	16.5
33644 1999 JT <sub>82</sub>	14.3	X	10.63113	92.66280	112.99588	15.49219	0.0556606	0.23376633	2.6098452	20	4 23.7	17.8
33645 1999 JW <sub>82</sub>	13.7	X	196.91909	182.90059	120.39428	13.59184	0.1531553	0.22105498	2.7089565	20	1 14.1	18.0
33646 1999 JX <sub>82</sub>	13.8	X	289.83043	154.16545	136.69594	14.48954	0.0902399	0.23266870	2.6180468	20	4 13.5	17.5
33647 1999 JE <sub>83</sub>	14.8	X	314.74454	50.88475	189.29571	13.65799	0.1176940	0.22936243	2.6431463	20	2 28.0	18.4
33648 1999 JN <sub>83</sub>	14.6	X	3.53632	196.15170	116.02309	16.31317	0.1230546	0.24352040	2.5396809	20	9 18.2	17.7
33649 1999 JR <sub>83</sub>	14.5	X	239.60280	200.51186	126.96563	13.50884	0.1613879	0.22868096	2.6483947	20	3 24.9	18.8
33650 1999 JF <sub>84</sub>	13.8	X	284.54266	206.29011	101.68316	15.84882	0.1455292	0.23175227	2.6249441	20	4 23.4	17.7
33651 1999 JG <sub>84</sub>	13.4	X	323.86452	257.08893	102.39222	15.92300	0.1530796	0.24309816	2.5426208	20	9 12.6	16.2
33652 1999 JP <sub>84</sub>	14.2	X	113.67229	322.22501	167.56568	15.24602	0.1155582	0.23552470	2.5968393	20	6 8.7	18.3
33653 1999 JR <sub>84</sub>	13.9	X	150.31227	338.69738	184.26173	13.58499	0.1070273	0.24432345	2.5341128	20	8 27.8	17.9
33654 1999 JX <sub>86</sub>	14.2	X	166.96211	44.96117	75.79742	14.14599	0.1137183	0.24498035	2.5295808	20	7 25.5	18.2
33655 Sumathipala	14.9	X	238.91433	34.40633	120.07797	7.65160	0.1215146	0.25817967	2.4426132	20	11 30.1	18.0
33656 1999 JD <sub>89</sub>	14.6	X	71.78484	111.34971	107.56219	13.78874	0.1172656	0.24314225	2.5423134	20	8 18.0	18.1
33657 1999 JP <sub>89</sub>	14.5	X	248.53754	194.33108	126.88869	9.72927	0.2300709	0.22925653	2.6439602	20	3 18.9	18.9
33658 1999 JD <sub>90</sub>	14.8	X	115.81163	265.88087	202.46213	23.98032	0.3111705	0.23832403	2.5764645	20	6 1.2	19.5
33659 1999 JM <sub>91</sub>	13.5	X	183.72896	255.65060	178.65058	16.44377	0.1848143	0.23927684	2.5696202	20	6 10.2	18.1
33660 Rishishankar	14.9	X	295.30808	9.79131	147.52467	8.23240	0.0568385	0.26402725	2.4064133	20	—	—
33661 Sophiaswartz	14.9	X	94.83088	353.32662	132.93076	7.56548	0.0567482	0.28088065	2.3091643	20	5 2.1	17.8
33662 Tacescu	14.6	X	120.05788	144.32397	144.40747	7.04325	0.1046428	0.25631981	2.4544147	20	—	—
33663 1999 JT <sub>92</sub>	14.7	X	238.28672	124.54417	103.84963	10.24305	0.1197644	0.21818077	2.7326986	20	—	—
33664 1999 JK <sub>93</sub>	13.8	X	182.97920	152.75092	193.34598	15.23042	0.1282307	0.22426214	2.6830704	20	2 16.9	18.3
33665 1999 JR <sub>93</sub>	13.8	X	234.74051	282.87639	99.23601	11.14298	0.1334250	0.18975375	2.9992256	20	5 27.7	18.5
33666 1999 JO <sub>94</sub>	14.1	X	215.58872	193.42598	113.92574	17.90117	0.0841081	0.17780178	3.1321699	20	2 12.4	19.0
33667 Uttripathii	13.9	X	299.01957	169.94337	127.04464	8.48372	0.1247207	0.18661238	2.6327905	20	4 29.2	18.1
33668 1999 JO <sub>97</sub>	13.8	X	178.01106	267.39725	122.28464	12.26294	0.2126246	0.22880472	3.0474396	20	4 15.8	18.5
33669 1999 JU <sub>97</sub>	14.0	X	267.85876	119.11015	149.56704	15.19178	0.1672748	0.17849130	3.1240982	20	2 9.5	18.9
33670 1999 JB <sub>98</sub>	14.1	X	331.21902	322.96515	115.83864	12.64473	0.1686526	0.25925831	2.4358335	20	—	—
33671 1999 JV <sub>98</sub>	13.5	X	104.17243	230.28959	148.61718	10.15355	0.1776672	0.21694634	2.7430549	20	1 13.9	17.2
33672 1999 JU <sub>99</sub>	13.6	X	224.35579	263.83307	163.23333	14.83579	0.1073421	0.24037714	2.5617728	20	7 14.1	17.5
33673 1999 JZ <sub>99</sub>	13.3	X	346.44778	348.64714	98.97995	17.88922	0.1593072	0.21329425	2.7742779	20	—	—
33674 1999 JT <sub>100</sub>	13.6	X	109.61211	322.82431	142.24611	12.12260	0.1098871	0.23127881	2.6285252	20	5 4.0	17.5
33675 1999 JW <sub>100</sub>	13.9	X	251.09823	79.33108	142.21343	13.93043	0.1440248	0.21783686	2.7353480	20	—	—
33676 1999 JZ <sub>101</sub>	13.5											

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
33681 Wamsley	15.5	X	314.18025	22.08733	112.29859	2.25323	0.1205708	0.26436130	2.4043856	20	—	—
33682 Waylonreid	15.2	X	135.55992	228.12994	226.17564	2.36880	0.0193230	0.23379912	2.6096011	20	5 6.0	18.6
33683 1999 JQ <sub>115</sub>	15.8	X	125.96879	265.92706	218.18899	3.61439	0.1254010	0.28454218	2.2893118	20	6 15.3	18.9
33684 Xiaomichael	14.7	X	349.71505	2.43886	108.32322	7.08597	0.0797669	0.26377689	2.4079357	20	—	—
33685 Younglove	14.7	X	148.74708	110.35552	46.82686	5.24524	0.0977977	0.24383435	2.5375005	20	8 23.3	18.5
33686 1999 JC <sub>122</sub>	14.0	X	302.17173	269.01658	78.15042	11.81321	0.1198679	0.19102300	2.9859253	20	7 6.7	17.8
33687 Julianbain	14.8	X	10.21294	202.73452	74.67803	8.34249	0.1937491	0.23827022	2.5768523	20	8 13.2	17.3
33688 Meghnabehari	14.5	X	161.91722	151.76813	45.88428	2.97161	0.1051822	0.20401441	2.8577801	20	10 20.2	18.8
33689 1999 JM <sub>126</sub>	13.2	X	172.41023	152.97127	242.65298	8.96170	0.1282946	0.18423958	3.0587743	20	4 10.0	18.2
33690 Noahcain	14.2	X	314.93422	128.80768	59.95400	6.00306	0.1249905	0.17566606	3.1575057	20	1 5.3	18.5
33691 Andrewchiang	14.4	X	323.45509	13.87072	238.00948	8.43872	0.0385506	0.18395945	3.0618787	20	4 10.9	18.7
33692 1999 JS <sub>133</sub>	14.5	X	261.70456	296.96484	113.51423	14.10533	0.1568648	0.24291533	2.5438965	20	8 2.3	17.8
33693 1999 KA	14.3	X	289.10076	228.63984	110.27255	13.89832	0.1404938	0.23861802	2.5743478	20	6 5.8	17.7
33694 1999 KN	15.0	X	89.31069	23.40576	89.67770	13.09931	0.1207494	0.28001982	2.3138944	20	4 19.7	18.0
33695 1999 KH <sub>3</sub>	14.8	X	219.03510	142.92450	152.92021	2.05257	0.1665034	0.17546577	3.1599081	20	1 29.1	20.0
33696 Crouchley	15.3	X	278.09540	289.63721	241.07740	1.18151	0.1583341	0.26508736	2.3999933	20	—	—
33697 1999 KJ <sub>11</sub>	14.0	X	97.30323	6.97473	96.66363	7.59036	0.0695645	0.27669130	2.324144	20	4 6.7	16.9
33698 1999 KP <sub>12</sub>	14.2	X	192.76488	278.03749	45.97356	12.23905	0.1789059	0.22025938	2.7154790	20	2 9.3	18.9
33699 Jessiegan	14.2	X	216.74496	114.03344	98.28574	1.79975	0.0150876	0.21151918	2.7897774	20	—	—
33700 Gluckman	14.1	X	333.31805	88.16380	46.29690	2.63538	0.1620415	0.26515609	2.3995786	20	—	—
33701 Gotthold	15.0	X	34.17431	329.07101	280.03303	5.13454	0.1488387	0.28593083	2.2818936	20	8 10.4	17.2
33702 Spencergreen	15.2	X	345.85840	319.17433	260.66945	4.40269	0.1467850	0.27676620	2.3319936	20	3 9.7	17.6
33703 Anthonyhill	14.4	X	49.63887	22.62977	162.08932	5.23215	0.0909172	0.23342865	2.6123615	20	5 22.7	17.5
33704 Herinkang	15.3	X	274.33351	262.96292	262.51870	1.97764	0.1645755	0.26328553	2.4109306	20	—	—
33705 1999 LJ	13.9	X	128.22785	61.96311	200.37242	6.23575	0.1290297	0.25018493	2.4943762	20	12 12.2	17.8
33706 1999 LD <sub>5</sub>	14.3	X	124.31805	302.67759	127.18431	15.83010	0.1030839	0.23021966	2.6365809	20	4 6.9	18.3
33707 1999 LW <sub>8</sub>	14.2	X	109.57421	204.67039	140.92337	10.83081	0.1036325	0.21379428	2.7699504	20	—	—
33708 1999 LE <sub>10</sub>	13.6	X	91.92257	227.65915	195.71820	12.75257	0.1480621	0.22198829	2.7013613	20	2 15.4	17.3
33709 1999 LK <sub>10</sub>	13.8	X	98.54951	291.77272	142.84675	12.78522	0.1506410	0.22527272	2.6750402	20	3 15.9	17.4
33710 1999 LC <sub>14</sub>	13.8	X	101.45151	329.13458	242.27420	14.17323	0.0698057	0.24162710	2.5529303	20	8 28.7	17.8
33711 1999 LH <sub>15</sub>	14.8	X	52.29316	342.60546	129.49234	15.50362	0.0625667	0.22530102	2.6748162	20	2 14.4	18.0
33712 1999 LE <sub>19</sub>	13.9	X	265.43653	277.35740	50.15862	10.84811	0.1192607	0.18117445	3.0931768	20	4 24.9	18.4
33713 Mithravamshi	14.4	X	219.80416	10.24184	156.83480	3.37244	0.0106242	0.25228532	2.4805124	20	12 5.7	17.7
33714 Sarakaufman	14.5	X	223.59438	124.43968	131.65389	5.47919	0.0965978	0.26389083	2.4072426	20	—	—
33715 1999 LP <sub>25</sub>	13.6	X	285.21122	50.90048	255.66497	10.42224	0.1314338	0.18351358	3.0668362	20	4 15.7	18.1
33716 1999 LF <sub>26</sub>	14.0	X	242.29610	180.70777	106.35226	8.31646	0.1782673	0.22187926	2.7022461	20	2 3.7	18.3
33717 1999 LS <sub>26</sub>	12.5	X	173.26381	60.12915	90.86757	15.40244	0.0191298	0.24303081	2.5430906	20	9 19.8	16.3
33718 1999 LT <sub>26</sub>	13.1	X	304.70775	209.85760	105.04265	14.76388	0.1887735	0.23252144	2.6191521	20	5 21.1	16.4
33719 1999 LA <sub>27</sub>	12.9	X	292.79368	228.45615	97.94375	13.88618	0.1697766	0.23223206	2.6213274	20	5 21.3	16.3
33720 1999 LD <sub>27</sub>	13.6	X	6.84268	183.40995	95.18705	13.32057	0.1346679	0.23703110	2.5858252	20	7 30.5	16.3
33721 1999 LS <sub>34</sub>	14.1	X	315.41005	237.59978	225.31974	6.53481	0.1931816	0.21236774	2.7823410	20	—	—
33722 1999 NO	14.3	X	295.43154	40.47566	52.48699	2.67200	0.0359692	0.20062890	2.8898395	20	11 23.8	18.1
33723 1999 NB <sub>3</sub>	14.8	X	120.33309	170.86101	212.09325	13.02185	0.1899425	0.26371363	2.4083208	20	1 29.9	18.4
33724 1999 NW <sub>4</sub>	12.9	X	274.99094	137.60275	124.75826	22.80413	0.0249870	0.17296263	3.1903221	20	3 2.7	17.7
33725 Robertkent	14.1	X	4.19128	340.20868	293.43272	9.83045	0.0640927	0.18581804	3.0414275	20	7 8.9	18.0
33726 1999 NJ <sub>9</sub>	14.1	X	204.98067	329.74169	306.69666	6.53959	0.2705964	0.21322331	2.7748931	20	—	—
33727 Kummel	14.0	X	290.99410	77.84666	131.34287	9.82178	0.0902346	0.21753111	2.7381368	20	—	—
33728 1999 NO <sub>16</sub>	13.8	X	301.96632	341.74382	286.08654	12.66613	0.0884379	0.17910954	3.1169050	20	3 22.1	18.3
33729 1999 NJ <sub>21</sub>	13.1	X	21.87509	156.60773	90.22671	12.67110	0.1417733	0.23413038	2.6071391	20	7 10.2	15.8
33730 1999 NH <sub>23</sub>	13.9	X	1.47965	190.87371	119.67949	11.56262	0.0895827	0.19068356	2.9894678	20	8 27.6	17.7
33731 1999 NM <sub>24</sub>	13.6	X	235.68207	123.22142	318.40693	7.76159	0.0548756	0.19098677	2.9863029	20	8 19.1	17.7
33732 1999 NC <sub>32</sub>	12.8	X	170.04803	182.87002	297.31572	9.70681	0.0624336	0.18662422	3.0326622	20	7 22.6	17.2
33733 1999 NU <sub>32</sub>	13.1	X	245.13685	206.69040	112.53160	11.97277	0.1212053	0.17621629	3.1509294	20	3 27.8	18.1
33734 Stephenlitt	13.8	X	84.98490	344.86488	123.68093	5.77726	0.1000819	0.17499441	3.1655797	20	4 7.4	18.2
33735 1999 NW <sub>34</sub>	13.6	X	169.55107	353.46894	118.67282	13.57357	0.1238616	0.23277428	2.6172551	20	7 14.2	17.6
33736 1999 NY <sub>36</sub>	13.7	X	299.16592	100.38895	86.25004	7.62407	0.2229071	0.21562978	2.7542090	20	—	—
33737 Helenlyons	14.4	X	267.01232	184.30729	90.02507	5.25777	0.1934164	0.22109770	2.7086106	20	2 10.2	18.7
33738 1999 NY <sub>41</sub>	13.3	X	216.92051	34.93185	334.02230	17.99506	0.1641060	0.17517538	3.1633992	20	4 12.1	18.7
33739 1999 NK <sub>43</sub>	14.1	X	102.22757	63.68267	124.55310	11.38365	0.0433505	0.19262988	2.9692968	20	7 29.3	18.4
33740 Arjunmoorthy	14.6	X	259.87792	176.92622	145.33238	8.58087	0.1790837	0.27289704	2.3539839	20	4 1.1	18.1
33741 1999 NB <sub>50</sub>	14.2	X	346.41831	325.05223	275.26535	11.89162	0.2253713	0.22846153	2.6500902	20	4 3.1	17.0
33742 1999 NK <sub>50</sub>	13.9	X	242.24229	241.08167	253.17110	4.22812	0.1506767	0.24529729	2.5274014	20	10 28.5	17.1
33743 1999 NC <sub>55</sub>	12.7	X	226.19342	89.01951	241.32683	13.16567	0.1841498	0.17317744	3.1876834	20	3 8.5	18.2
33744 1999 NS <sub>55</sub>	13.2	X	21.17828	357.93716	177.55044	17.62983	0.0333724	0.17294419	3.1905489	20	3 27.4	17.5
33745 1999 NW <sub>61</sub>	13.9	X	44.76848	69.69682	161.18695	13.94302	0.1649491	0.23509338	2.6000146	20	7 29.1	17.2
33746 Sombart	14.0	X	166.13569	312.24850	121.33835	17.98887	0.1057860	0.17707994	3.1406761	20	5 26.8	19.2
33747 Clingan	14.5	X	323.02035	187.10831	125.59578	10.95732	0.1688624	0.18300779	3.0724842	20	6 17.8	18.2
33748 1999 PP <sub>4</sub>	12.5	X	253.77746	293.28773	32.63199	6.54621	0.0929530	0.17373304	3.1808836	20	4 12.3	17.1
33749 1999 QO	13.6	X	277.09622	187.08332	237.17506	7.67992	0.0709260	0.19109063	2.9852208	20	9 14.0	17.8
33750 Davehiggins	12.7	X	82.68219	113.20658	23.38915	32.69402	0.3195984	0.21106666	2.7937634	20	5 25.1	17.3
33751 1999 RR <sub>21</sub>	13.9	X	263.93906	165.26921	112.20337	2.60047	0.1203672	0.16943179	3.2344922	20	2 22.9	18.6
33752 1999 RM <sub>36</sub>	13.9	X	348.13869	182.80154	166.38251	18.08409	0.2081853	0.23517813	2.5993899	20	10 17.1	16.4
33753 1999 RW <sub>42</sub>	12.4	X	186.30845	259.69019	136.27998	8.19925	0.2241752	0.12522074	3.9568708	20	4 30.4	19.0
33754 1999 RH <sub>47</sub>	13.5	X	216.49570	222.04606	335.38589	12.96471	0.1194726	0.17546870	3.1598729	20	4 13.8	18.6
33755 1999 RU <sub>47</sub>	13.4	X	286.63673	305.97215	329.40929	12.58077	0.0599667	0.17568293	3.1573036	20	3 19.2	18.0
33756 1999 RF <sub>48</sub>	13.4	X	146.9015									

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Planet	H	G	M	$\omega$	$\Omega$	$i$	$e$	$\mu$	$a$	TE	Oppos.	V	
33761	Honoranavid	14.7	X	144.95110	289.25235	127.24850	5.38958	0.1519178	0.26432651	2.4045966	20	4 11.5	18.3
33762	Sanjayseshan	14.9	X	139.75914	320.34628	104.41810	3.95006	0.0772132	0.21732155	2.7398967	20	4 11.6	18.8
33763	1999 RB <sub>84</sub>	13.4	X	189.33898	196.84005	358.76010	10.51211	0.0762745	0.19510654	2.9441154	20	11 10.9	17.9
33764	1999 RM <sub>92</sub>	13.2	X	353.49137	21.87823	195.59317	0.30088	0.1008822	0.17114327	3.2128923	20	4 8.0	17.2
33765	1999 RK <sub>100</sub>	14.1	X	278.28277	307.77389	293.34603	13.17271	0.2082914	0.21932433	2.7231915	20	1 10.0	18.4
33766	1999 RT <sub>100</sub>	13.1	X	223.36707	32.67390	278.54746	10.35152	0.1721421	0.17091318	3.2157752	20	2 15.7	18.5
33767	1999 RK <sub>102</sub>	14.3	X	233.30394	31.32269	297.74475	11.86922	0.1668871	0.22024919	2.7155627	20	3 10.5	19.0
33768	1999 RV <sub>107</sub>	13.7	X	313.31381	308.52138	231.88555	6.32134	0.1929880	0.21028378	2.8006932	20	—	—
33769	1999 RN <sub>112</sub>	13.9	X	71.66108	53.33994	145.92624	26.56184	0.0630190	0.23166518	2.6256019	20	7 10.4	17.7
33770	1999 RF <sub>128</sub>	13.4	X	197.79966	282.42296	175.03237	4.82563	0.0906540	0.18336561	3.0684858	20	7 22.4	18.1
33771	1999 RJ <sub>142</sub>	13.4	X	334.75904	103.68746	143.56697	5.09935	0.0851998	0.17383804	3.1796026	20	4 20.9	17.6
33772	1999 RF <sub>145</sub>	13.6	X	280.75207	338.95391	267.38855	7.01970	0.0997713	0.16906862	3.2391226	20	2 4.2	18.4
33773	1999 RL <sub>145</sub>	14.4	X	34.36435	280.48099	310.80225	10.58043	0.2479628	0.23148904	2.6269336	20	7 27.9	17.1
33774	1999 RD <sub>147</sub>	14.0	X	74.21439	315.90816	305.92293	10.67258	0.1096395	0.19132020	2.9828322	20	9 29.9	18.5
33775	1999 RZ <sub>151</sub>	13.7	X	330.11738	269.09297	354.42558	7.95826	0.0854705	0.17773984	3.1328976	20	4 29.8	17.9
33776	1999 RB <sub>158</sub>	12.4	X	275.57799	305.63715	354.53545	16.51469	0.1012819	0.17488858	3.1668568	20	3 31.3	17.1
33777	1999 RM <sub>158</sub>	13.1	X	50.58012	122.87587	60.78585	1.83884	0.1074600	0.17626622	3.1503345	20	5 24.2	17.1
33778	1999 RO <sub>160</sub>	13.1	X	94.06614	239.38570	13.12295	9.95120	0.0600208	0.19170462	2.9788433	20	10 10.5	17.3
33779	1999 RG <sub>165</sub>	13.4	X	354.02463	274.59967	337.17480	14.97098	0.1412916	0.17904665	3.1176349	20	5 17.4	17.4
33780	1999 RU <sub>171</sub>	13.4	X	97.77249	263.06777	9.93534	9.37931	0.0145585	0.19245476	2.9710978	20	10 21.9	17.6
33781	1999 RP <sub>174</sub>	13.5	X	76.81523	142.38683	86.80145	2.78537	0.1256951	0.18651432	3.0338535	20	8 31.6	17.8
33782	1999 RW <sub>178</sub>	13.4	X	141.49262	231.14067	77.68467	4.08753	0.0984812	0.15706677	3.4020955	20	—	—
33783	1999 RD <sub>183</sub>	13.8	X	325.01489	232.42472	54.81071	1.85691	0.1540236	0.17921621	3.1156670	20	5 18.2	17.6
33784	1999 RE <sub>187</sub>	14.0	X	71.16682	223.12663	356.30073	11.24138	0.1740516	0.18514575	3.0487856	20	8 21.0	18.4
33785	1999 RD <sub>192</sub>	13.2	X	21.97357	182.39810	85.38563	5.28516	0.1435035	0.23270468	2.6177770	20	8 12.7	16.0
33786	1999 RJ <sub>196</sub>	13.0	X	305.89356	261.27271	335.97663	18.44764	0.0988628	0.16888848	3.2414254	20	2 25.4	17.4
33787	1999 RJ <sub>229</sub>	13.8	X	225.40008	244.95727	136.50706	16.33509	0.0727555	0.17913969	3.1165553	20	5 25.0	18.7
33788	1999 RL <sub>240</sub>	13.0	X	84.46217	146.20896	104.59176	12.19021	0.1075939	0.18847474	3.0127791	20	10 9.3	17.6
33789	Sharmacam	14.1	X	137.81320	143.26349	81.70335	6.88994	0.1411633	0.24279669	2.5447251	20	11 6.1	18.2
33790	1999 SA <sub>9</sub>	14.1	X	354.95713	167.12548	118.33198	13.09736	0.1666138	0.23171314	2.6252396	20	7 15.5	16.5
33791	1999 SG <sub>17</sub>	14.8	X	195.09574	205.71123	85.98033	4.03295	0.1688496	0.30633405	2.1794113	20	—	—
33792	1999 SU <sub>18</sub>	12.8	X	37.95745	67.30476	155.23841	17.10022	0.1787259	0.17914843	3.1164540	20	7 5.3	16.9
33793	1999 SO <sub>26</sub>	13.4	X	239.69080	229.55966	85.33361	11.79019	0.0967194	0.17067590	3.2187550	20	3 20.5	18.5
33794	1999 TR <sub>2</sub>	12.3	X	311.69953	193.26479	110.83025	22.83416	0.0527255	0.17545923	3.1599865	20	6 6.6	16.8
33795	1999 TR <sub>6</sub>	13.3	X	23.27323	286.87237	40.98086	10.99771	0.0657434	0.18750710	3.0231352	20	10 18.3	17.2
33796	1999 TP <sub>37</sub>	12.8	X	248.93049	0.57748	285.44665	8.37980	0.1027086	0.16929577	3.2362246	20	2 15.8	17.8
33797	1999 TO <sub>88</sub>	13.7	X	260.85337	208.82282	83.93414	2.38814	0.1543589	0.17172968	3.2055741	20	3 5.3	18.5
33798	1999 TO <sub>95</sub>	14.1	X	172.63558	158.68746	46.07061	11.20581	0.0534255	0.19188516	2.9769746	20	11 9.3	18.4
33799	Myra	14.1	X	37.82841	203.78695	59.93381	7.16744	0.2313272	0.23073492	2.6326543	20	9 19.3	17.3
33800	Gross	12.1	X	286.96266	184.41396	140.81519	22.45680	0.0491241	0.17173084	3.2055596	20	6 1.7	17.0
33801	Emilyshi	14.2	X	254.63478	197.54782	235.34022	5.12569	0.1454516	0.27576786	2.3376184	20	8 25.9	17.2
33802	1999 VA <sub>203</sub>	13.1	X	38.20256	204.36081	118.89052	11.25425	0.0773744	0.19123444	2.9837239	20	11 6.4	17.3
33803	1999 VK <sub>210</sub>	15.8	X	197.56076	141.85848	177.11971	6.81585	0.2038385	0.30400792	2.1905144	20	1 24.3	19.3
33804	1999 WL <sub>4</sub>	14.9	X	188.79250	338.96152	96.60507	3.69178	0.1414314	0.26535232	2.3983954	20	6 16.7	18.6
33805	1999 XQ <sub>36</sub>	14.1	X	337.50019	72.36114	356.01600	6.33387	0.0926133	0.28665886	2.2780284	20	—	—
33806	Shrivastava	15.2	X	1.58506	98.87978	147.66881	6.08326	0.0524377	0.26312179	2.4119308	20	5 30.3	18.0
33807	1999 XF <sub>71</sub>	14.4	X	145.56734	206.07295	92.42665	8.15283	0.1581382	0.29147908	2.2528440	20	—	—
33808	1999 XD <sub>114</sub>	12.7	X	299.68062	129.95254	4.32752	15.85920	0.0794728	0.24141807	2.5544037	20	—	—
33809	1999 XK <sub>152</sub>	14.7	X	215.09018	329.53668	100.13376	4.76356	0.1973732	0.27166505	2.3610954	20	7 1.9	18.2
33810	Tangirala	14.4	X	24.41672	185.07276	199.82593	3.74718	0.0658753	0.28535310	2.2849725	20	—	—
33811	Scottobin	14.1	X	226.14834	231.69374	89.97925	8.32167	0.1926081	0.30022034	2.2088996	20	2 26.1	17.7
33812	1999 XS <sub>173</sub>	13.2	X	113.50389	239.00108	90.40983	13.18605	0.2662989	0.24046219	2.5611687	20	—	—
33813	1999 XH <sub>177</sub>	13.5	X	177.39541	218.52024	72.77421	13.55791	0.1534663	0.23899261	2.5716571	20	—	—
33814	Viswesh	14.9	X	69.82671	17.17595	320.53286	3.28756	0.1625850	0.23800001	2.5788024	20	—	—
33815	2000 AG <sub>31</sub>	13.9	X	117.19136	158.51258	103.51519	13.80566	0.1952132	0.22726893	2.6593531	20	12 1.7	18.4
33816	2000 AL <sub>42</sub>	14.9	X	95.73929	244.46443	107.24793	29.70217	0.0972451	0.38000263	1.8877522	20	—	—
33817	Fariswald	15.2	X	171.67350	104.05423	115.95694	5.12063	0.0635882	0.27609243	2.3357860	20	12 13.0	18.3
33818	2000 AK <sub>97</sub>	12.4	X	96.51574	147.97979	141.57185	16.48789	0.0791090	0.17542279	3.1604241	20	11 30.1	17.4
33819	2000 AX <sub>119</sub>	14.8	X	116.67789	102.69016	141.57974	12.36628	0.1780095	0.27170581	2.3608593	20	11 17.5	18.8
33820	2000 AB <sub>141</sub>	13.1	X	40.33171	37.76390	277.39842	12.40475	0.1607047	0.22392553	2.6857586	20	11 10.9	16.8
33821	2000 AF <sub>200</sub>	12.9	X	147.18717	32.41349	168.82990	13.11776	0.1668361	0.18614484	3.0378667	20	10 10.3	17.9
33822	2000 AA <sub>231</sub>	11.9	X	217.44060	21.83222	112.59414	17.37759	0.1625088	0.08320654	5.1963422	20	9 17.0	19.5
33823	2000 CQ <sub>1</sub>	14.8	X	89.20624	339.98755	125.65487	2.78578	0.0234521	0.20031770	2.8928316	20	3 25.7	18.7
33824	2000 DG <sub>31</sub>	16.2	X	130.34449	292.58078	305.56370	1.82021	0.1276511	0.27076850	2.3663045	20	11 17.1	19.6
33825	Reganwill	15.0	X	104.04434	218.98636	116.82044	5.93893	0.1802009	0.28360194	2.2943689	20	—	—
33826	Kevynadams	15.3	X	139.48095	271.93331	15.06204	6.62436	0.1199766	0.27970443	2.3156335	20	—	—
33827	2000 ED	14.3	X	80.91254	98.32408	91.49917	10.04302	0.1646770	0.25604427	2.4561752	20	7 27.3	17.6
33828	2000 EP <sub>44</sub>	15.9	X	20.27404	98.12674	203.70192	3.86514	0.1988958	0.30864893	2.1685005	20	10 22.5	17.9
33829	Asherson	16.3	X	235.65000	177.24238	159.01435	1.54913	0.1269014	0.29565819	2.2315645	20	3 25.4	19.3
33830	2000 EC <sub>93</sub>	12.4	X	23.61696	188.68697	139.96022	23.75391	0.0855161	0.16964956	3.2317237	20	10 24.6	17.1
33831	2000 EA <sub>98</sub>	15.5	X	131.60017	103.11493	125.68535	23.85571	0.0447295	0.36540883	1.9376858	20	12 4.3	18.3
33832	2000 EE <sub>135</sub>	15.9	X	351.92168	183.06386	101.37968	3.22883	0.1937876	0.30233399	2.1985925	20	7 15.3	16.9
33833	2000 EN <sub>154</sub>	14.3	X	72.58849	77.21579	257.81436	1.35382						

# ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
33841 2000 GB <sub>75</sub>	14.7	X	171.07481	147.06051	194.56251	4.64385	0.3061742	0.23182698	2.6243800	20	2 10.4	19.6
33842 2000 GN <sub>79</sub>	14.9	X	105.23598	219.33587	191.31117	2.15072	0.2078662	0.23770084	2.5809657	20	2 25.9	18.3
33843 2000 GP <sub>127</sub>	15.7	X	40.98803	120.98675	152.97424	22.95053	0.0726889	0.35624677	1.9707677	20	10 5.1	17.9
33844 2000 GQ <sub>133</sub>	15.7	X	299.06031	149.10963	151.01604	7.24896	0.2224128	0.29414612	2.2392056	20	4 10.3	18.4
33845 2000 GT <sub>157</sub>	15.6	X	289.17491	209.26110	46.61363	5.69831	0.1494703	0.29145714	2.2529571	20	2 7.8	18.6
33846 2000 GO <sub>167</sub>	15.0	X	210.51387	291.88875	357.87216	5.06484	0.2267156	0.23539602	2.5977856	20	1 9.6	19.6
33847 2000 GO <sub>182</sub>	15.7	X	243.15548	321.52209	139.81025	7.32382	0.0836516	0.26255703	2.4153882	20	10 2.8	18.7
33848 2000 HU <sub>6</sub>	15.2	X	125.46365	279.10519	44.51472	5.12223	0.2560244	0.27194333	2.3594844	20	—	—
33849 2000 HL <sub>13</sub>	16.2	X	264.28983	5.39607	283.07336	1.39261	0.1672290	0.28784014	2.2717915	20	2 18.5	19.6
33850 2000 HT <sub>26</sub>	15.1	X	88.01940	146.84642	209.03805	13.72195	0.2426194	0.27304803	2.3531161	20	—	—
33851 2000 HD <sub>33</sub>	13.8	X	161.73108	249.70212	77.51700	32.79661	0.1267647	0.23067061	2.6331436	20	1 3.9	18.0
33852 2000 Baschnagel	15.3	X	100.45611	297.02125	53.30814	7.78539	0.1384074	0.27360945	2.3498961	20	—	—
33853 2000 HB <sub>53</sub>	16.1	X	276.58232	241.16046	57.65721	5.38032	0.1740311	0.29039327	2.2584563	20	3 18.7	19.2
33854 2000 HH <sub>53</sub>	13.4	X	255.34271	277.92332	51.67864	13.56243	0.1646795	0.19348237	2.9605685	20	4 13.3	18.0
33855 2000 HS <sub>60</sub>	14.9	X	162.82851	333.43663	24.32450	6.76848	0.3037843	0.23476073	2.6024701	20	2 26.9	19.6
33856 2000 HD <sub>73</sub>	15.9	X	316.95781	233.19916	94.02647	3.74950	0.1364793	0.25317087	2.4747247	20	7 4.6	18.3
33857 2000 HU <sub>74</sub>	16.1	X	186.76259	193.84279	143.64238	2.27147	0.2043566	0.28406592	2.2918699	20	2 10.2	19.9
33858 2000 HG <sub>78</sub>	13.5	X	66.84938	152.36052	225.86538	14.95332	0.0876161	0.18051157	3.1007448	20	—	—
33859 2000 HX <sub>82</sub>	16.5	X	351.25338	172.78139	170.13069	0.98314	0.1836698	0.30704823	2.1760305	20	10 29.8	17.8
33860 2000 HZ <sub>86</sub>	14.9	X	171.08009	215.81324	139.03844	6.28488	0.2500633	0.28242167	2.3007567	20	2 21.4	18.6
33861 Boucval	15.3	X	278.22134	56.78961	282.83286	1.98334	0.1737885	0.24671386	2.5177176	20	5 14.2	18.6
33862 2000 HS <sub>99</sub>	14.4	X	24.46393	244.80886	121.76231	6.68525	0.1843988	0.26386462	2.4074019	20	—	—
33863 Elfriederwin	15.7	X	278.75876	239.49003	63.90535	7.92404	0.1746097	0.29136807	2.2534162	20	3 28.7	18.8
33864 2000 JP <sub>12</sub>	15.2	X	16.44145	290.86439	49.45593	3.90079	0.2063277	0.26124728	2.4234545	20	11 29.6	17.8
33865 2000 JX <sub>15</sub>	15.8	X	184.23972	254.10581	82.87155	26.84255	0.1368498	0.38092022	1.8847194	20	1 23.9	18.5
33866 2000 JN <sub>17</sub>	14.4	X	240.26040	135.47555	160.57296	4.22230	0.1936310	0.18684642	3.0302575	20	2 13.4	19.3
33867 2000 JO <sub>18</sub>	16.1	X	24.50721	351.70970	352.91685	4.63412	0.1714279	0.31235704	2.1513043	20	12 25.3	18.7
33868 2000 JF <sub>29</sub>	15.7	X	349.27072	302.00640	10.74297	4.06848	0.1793446	0.25296712	2.4760533	20	8 21.5	17.6
33869 Brunnermatt	14.8	X	335.49295	83.80244	244.81962	6.36237	0.1786560	0.25268443	2.4778997	20	8 9.1	16.9
33870 2000 JP <sub>32</sub>	14.2	X	10.72398	315.08563	48.54507	14.51571	0.2180603	0.21283265	2.7782877	20	12 7.2	17.5
33871 Locastillo	15.8	X	61.96967	255.00648	316.57992	2.77351	0.0358961	0.30038342	2.2081000	20	7 12.9	18.1
33872 Kristichung	14.9	X	246.48386	100.59617	239.83760	5.07184	0.1764331	0.24153095	2.5536078	20	4 8.4	18.9
33873 2000 JS <sub>52</sub>	14.2	X	128.08089	311.49763	280.87188	7.45024	0.2724491	0.21434467	2.7652066	20	11 1.4	19.3
33874 2000 JF <sub>53</sub>	13.9	X	291.85068	105.39038	19.75898	12.93666	0.1309832	0.22331718	2.6906340	20	12 30.7	17.1
33875 Laurenceooney	15.4	X	268.26495	222.50068	65.88041	7.20061	0.1205857	0.28870182	2.2672689	20	3 2.9	18.5
33876 2000 JJ <sub>57</sub>	13.2	X	280.67517	261.21953	72.72403	14.22823	0.2517366	0.19522288	2.9429456	20	5 4.4	17.6
33877 2000 JR <sub>57</sub>	15.3	X	39.78839	197.32545	137.74942	4.45219	0.2805432	0.25980284	2.4324287	20	12 31.6	18.8
33878 2000 JW <sub>61</sub>	15.4	X	81.29407	238.32643	64.29912	3.16432	0.1771087	0.31185791	2.1535992	20	12 31.4	18.5
33879 Kierstenden	15.2	X	358.94226	264.13933	40.78207	3.60316	0.1654216	0.30103025	2.2049359	20	9 9.5	16.7
33880 2000 JD <sub>65</sub>	14.8	X	143.14198	61.18072	133.41144	7.83701	0.2301941	0.26152385	2.4217456	20	10 8.6	19.0
33881 2000 JK <sub>66</sub>	14.3	X	322.82015	218.82282	123.06710	11.16195	0.2916656	0.29932096	2.2133222	20	7 28.5	14.9
33882 2000 JM <sub>74</sub>	15.7	X	212.62395	340.99610	246.01681	6.23252	0.0688003	0.27707272	2.3302734	20	—	—
33883 2000 KD <sub>4</sub>	15.0	X	59.20375	44.26596	289.96949	1.70797	0.1929498	0.26233662	2.4167409	20	—	—
33884 2000 KX <sub>9</sub>	16.5	X	132.49250	220.86078	112.01805	0.15448	0.2307375	0.27403850	2.3474427	20	—	—
33885 2000 KF <sub>16</sub>	15.7	X	310.40153	83.59896	135.48033	0.50702	0.1735063	0.30920230	2.1659125	20	10 27.1	17.0
33886 Lilydeveau	15.3	X	223.08713	134.54203	319.05551	1.06767	0.0732083	0.23223994	2.6212681	20	1 14.1	19.0
33887 2000 KF <sub>19</sub>	15.6	X	176.71376	65.00181	290.38414	0.89189	0.2058556	0.28265032	2.2995158	20	2 23.6	19.2
33888 2000 KG <sub>21</sub>	15.9	X	27.29161	221.07434	117.70662	21.61517	0.1234281	0.36079322	1.9541766	20	12 27.9	18.1
33889 Jengebo	15.4	X	323.26565	237.56678	61.01804	6.51673	0.1815414	0.29561329	2.2317904	20	5 25.8	17.1
33890 2000 KQ <sub>24</sub>	16.1	X	47.52125	218.00970	84.60090	3.57965	0.2070808	0.25808887	2.4431860	20	11 20.3	19.3
33891 2000 KS <sub>24</sub>	15.7	X	49.78032	80.36058	215.16329	1.90540	0.1674835	0.25798382	2.4438492	20	11 7.9	18.7
33892 Melingorich	15.0	X	41.72541	257.01858	60.95230	8.37172	0.1386706	0.21048242	2.7989308	20	11 13.3	18.7
33893 2000 KB <sub>26</sub>	14.4	X	136.35014	230.33920	157.72282	11.70177	0.1982739	0.23387607	2.6090287	20	3 2.3	18.2
33894 2000 KM <sub>30</sub>	13.5	X	165.54721	240.50433	75.13521	13.51062	0.1646219	0.17683064	3.1436272	20	1 7.3	18.6
33895 2000 KM <sub>31</sub>	15.3	X	94.34634	36.53037	259.97906	2.68908	0.1218746	0.31322857	2.1473119	20	—	—
33896 2000 KL <sub>40</sub>	14.5	X	241.81955	49.13214	109.80085	23.25145	0.0568005	0.36900537	1.9250747	20	—	—
33897 Erikagreen	15.6	X	120.36908	232.94659	88.99992	7.12109	0.1509311	0.27084990	2.3658303	20	—	—
33898 Kendra	15.2	X	195.76060	17.70816	296.30982	2.26916	0.1483318	0.23029832	2.6359805	20	1 24.5	19.3
33899 2000 KE <sub>55</sub>	14.1	X	182.15496	304.90556	72.38622	14.63456	0.1462025	0.23860716	2.5744259	20	4 4.7	18.4
33900 2000 KS <sub>55</sub>	15.5	X	128.40193	209.49415	103.56293	3.45299	0.2149967	0.26991436	2.3712939	20	—	—
33901 2000 KJ <sub>56</sub>	14.4	X	302.82875	291.63905	91.73906	10.85858	0.2063684	0.25383818	2.4703856	20	8 28.8	16.9
33902 Ingoldsby	15.4	X	210.36736	141.33047	156.99409	4.14176	0.1074312	0.28226775	2.3015930	20	1 11.5	18.9
33903 2000 KH <sub>68</sub>	13.0	X	130.41416	49.96664	248.72715	15.44259	0.3133802	0.21480754	2.7612328	20	—	—
33904 Janardhanan	14.9	X	120.02864	278.14147	203.94333	4.36155	0.0995259	0.24722870	2.5142211	20	6 2.7	18.4
33905 Leyajoykutty	15.0	X	326.08670	290.10438	191.22136	6.16150	0.0536100	0.27349584	2.3505468	20	—	—
33906 2000 KL <sub>81</sub>	14.9	X	240.74498	184.64848	153.46795	6.59255	0.2301681	0.28486925	2.2875592	20	3 27.9	18.6
33907 Christykrenek	15.6	X	183.71928	146.89459	155.00253	6.13601	0.1955588	0.27616593	2.3353715	20	—	—
33908 2000 LL <sub>6</sub>	15.2	X	237.94135	98.28694	93.08638	24.52250	0.0499187	0.36915425	1.9245571	20	—	—
33909 2000 LU <sub>7</sub>	13.6	X	10.70337	161.57726	233.52009	14.33975	0.2572745	0.21317875	2.7752798	20	—	—
33910 Lestarge	15.3	X	293.11609	242.36535	126.52309	4.27820	0.1580146	0.29983746	2.2107797	20	7 25.8	17.2
33911 2000 LM <sub>11</sub>	13.6	X	125.36878	269.53044	151.56868	15.35894	0.1712237	0.23388719	2.6089460	20	4 1.9	17.6
33912 Melissanoland	14.3	X	229.55837	167.84431	146.06390	6.74728	0.1771015	0.28242423	2.3007428	20	2 18.1	17.9
33913 2000 LK <sub>14</sub>	14.0	X	28.64654	176.44600	237.25982	11.22989	0.2229737	0.27081261	2.3660475	20	—	—
33914 2000 LN <sub>14</sub>	13.5	X	190.99424	285.36889	77.93248	16.70402	0.3059486	0.18447912	3.0561259	20	3 31.4	19.4
33915 2000 LA <sub>15</sub>	15.4	X	246.61605	118.27521	194.77807	4.79283	0.1891559	0.28627753	2.2800509	20		



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Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
33921 2000 LC <sub>21</sub>	13.5	X	270.37558	314.46702	280.98003	21.31305	0.0954030	0.17733402	3.1376754	20	1 11.2	18.3
33922 2000 LB <sub>23</sub>	14.2	X	122.69558	330.02414	231.90145	8.03232	0.0736371	0.20345221	2.8630424	20	9 9.8	18.5
33923 Juliewarren	15.5	X	282.64502	172.58165	113.88494	3.23353	0.1890924	0.23918842	2.5702535	20	3 10.7	19.2
33924 2000 LS <sub>26</sub>	14.2	X	350.08734	171.70346	125.61830	3.70254	0.1129983	0.24509938	2.5287617	20	7 24.3	16.7
33925 2000 LB <sub>27</sub>	14.3	X	118.25455	74.86325	262.06140	9.53978	0.2433191	0.26708202	2.3880291	20	—	—
33926 2000 LC <sub>27</sub>	13.7	X	321.67334	207.14238	85.87559	7.64379	0.1973784	0.24091961	2.5579259	20	5 14.3	16.3
33927 2000 LH <sub>27</sub>	15.8	X	14.31424	14.83449	277.84215	1.78004	0.1693823	0.29766550	2.2215208	20	9 18.1	17.5
33928 2000 LJ <sub>27</sub>	14.6	X	256.89671	210.01766	118.90813	11.99468	0.2124941	0.23533055	2.5982674	20	4 8.2	18.9
33929 Lisaprato	14.7	X	97.85805	72.30303	202.01152	2.12517	0.1608210	0.25747582	2.4470626	20	11 30.7	18.4
33930 2000 LQ <sub>27</sub>	15.1	X	105.45663	116.79398	136.88086	3.90805	0.1630124	0.25609929	2.4558234	20	11 13.4	19.0
33931 2000 LW <sub>28</sub>	15.1	X	222.03463	109.33028	221.19739	3.64240	0.1820264	0.28023263	2.3127228	20	3 1.5	18.9
33932 2000 LZ <sub>28</sub>	13.9	X	190.69517	256.25351	124.82037	6.05438	0.1954122	0.18166299	3.0876287	20	4 14.7	19.1
33933 2000 LE <sub>29</sub>	14.7	X	94.11070	196.74339	55.41771	1.08214	0.2128156	0.30483885	2.1865320	20	11 10.0	18.0
33934 2000 LA <sub>30</sub>	15.6	X	100.94061	206.60660	106.63285	3.11160	0.2229209	0.26641013	2.3920425	20	—	—
33935 2000 LH <sub>30</sub>	13.4	X	1.19023	262.64922	112.72304	22.47141	0.1428603	0.15876383	3.3778084	20	11 22.2	17.9
33936 Johnwells	15.2	X	255.62754	68.07934	186.45235	3.78065	0.1972620	0.22849030	2.6498677	20	1 4.7	19.5
33937 2000 LZ <sub>31</sub>	13.7	X	147.14258	80.14768	277.84215	10.07528	0.2126933	0.22354198	2.6888299	20	2 3.4	18.1
33938 2000 LT <sub>33</sub>	14.7	X	243.72476	242.84046	83.88555	6.75623	0.1813616	0.28547996	2.2842956	20	3 21.5	18.3
33939 2000 LO <sub>35</sub>	13.8	X	184.73139	216.31272	135.19579	19.66690	0.2322251	0.17877594	3.1207813	20	3 7.9	19.3
33940 2000 LS <sub>35</sub>	14.7	X	17.40186	145.60566	219.86355	4.72922	0.1626048	0.25599242	2.4565068	20	12 26.4	17.8
33941 2000 LX <sub>35</sub>	15.0	X	335.10349	64.21203	273.94082	0.61008	0.1219475	0.29784285	2.2206388	20	9 5.7	16.8
33942 2000 LA <sub>36</sub>	15.3	X	130.92096	163.83223	157.90093	3.59365	0.2123353	0.26703223	2.3883259	20	—	—
33943 2000 LE <sub>36</sub>	14.4	X	319.27486	82.89034	288.21516	4.03006	0.1213479	0.25692012	2.4505899	20	9 15.3	16.9
33944 2000 MA	14.8	X	341.50484	0.03808	251.72997	6.49309	0.2284666	0.28992230	2.2609014	20	4 6.0	16.6
33945 2000 MR	15.1	X	14.97249	318.46874	290.99690	27.10685	0.1715174	0.29514420	2.2341545	20	7 9.7	16.8
33946 2000 MV	15.6	X	22.32431	335.59822	294.35232	2.24751	0.0814982	0.29983137	2.2108096	20	8 14.1	17.7
33947 2000 ML <sub>1</sub>	13.9	X	78.36454	246.00375	104.22747	14.24532	0.2321389	0.21347651	2.7726985	20	—	—
33948 2000 MA <sub>2</sub>	15.6	X	9.22273	10.05856	312.55279	3.47062	0.1801291	0.30026455	2.2086828	20	10 27.7	17.7
33949 2000 MP <sub>4</sub>	14.8	X	112.60097	343.43254	330.35662	4.73272	0.1406461	0.31590242	2.1351780	20	—	—
33950 2000 MY <sub>4</sub>	15.3	X	134.65198	298.75924	233.63364	3.75440	0.2170605	0.26721980	2.3872082	20	—	—
33951 2000 MD <sub>5</sub>	13.4	X	79.46203	207.02692	115.61816	7.51613	0.2092753	0.21023987	2.8010831	20	—	—
33952 2000 ML <sub>5</sub>	13.6	X	132.15878	142.25813	144.58948	12.61634	0.0875991	0.26185938	2.4196764	20	—	—
33953 2000 MM <sub>6</sub>	15.3	X	12.85127	73.92765	241.50541	3.98099	0.1942020	0.30110518	2.2045700	20	10 26.8	17.4
33954 2000 ND	15.7	X	241.23710	214.39297	206.38173	1.87469	0.1109576	0.29715911	2.2240439	20	7 30.4	18.2
33955 2000 NC <sub>3</sub>	15.2	X	275.36526	248.21694	133.59262	3.88878	0.0426936	0.24699103	2.5158337	20	7 30.3	18.1
33956 2000 NN <sub>3</sub>	13.2	X	184.89362	239.19621	122.96965	13.93620	0.2017758	0.23050590	2.6343978	20	3 18.3	17.8
33957 2000 NG <sub>5</sub>	14.8	X	347.73567	30.90776	285.57417	3.14307	0.2073299	0.24414026	2.5353803	20	8 20.3	16.6
33958 Zafierou	14.7	X	280.10886	206.12850	212.72866	6.49131	0.1941828	0.28625753	2.2801571	20	4 29.5	17.7
33959 2000 ND <sub>6</sub>	15.5	X	176.14986	177.72221	241.22643	4.17067	0.1201788	0.28707577	2.2758223	20	5 11.9	18.6
33960 2000 NJ <sub>9</sub>	14.2	X	237.82680	37.99220	286.00609	1.56328	0.2948146	0.18289748	3.0737195	20	3 8.7	19.7
33961 Macinleyneve	14.7	X	154.72045	168.16957	110.78607	3.27165	0.1905770	0.26321116	2.4113848	20	—	—
33962 2000 NR <sub>9</sub>	13.7	X	156.94022	67.23119	219.26751	12.65559	0.1797257	0.22019812	2.7159826	20	—	—
33963 Moranhidalgo	15.1	X	276.89890	223.46264	106.70996	7.92527	0.1591168	0.28931954	2.2640406	20	5 4.2	18.0
33964 2000 NS <sub>10</sub>	15.0	X	150.01402	340.72422	324.32795	6.84009	0.1368460	0.27128159	2.3633198	20	—	—
33965 2000 NY <sub>10</sub>	14.7	X	269.12562	260.44508	49.99406	1.82969	0.1518238	0.23642665	2.5902306	20	3 30.3	18.5
33966 2000 NC <sub>11</sub>	14.8	X	261.91481	100.99281	287.91156	5.66172	0.1586448	0.29364290	2.2417631	20	7 4.9	17.4
33967 2000 NO <sub>12</sub>	14.4	X	358.20214	48.39764	214.73218	10.66531	0.1068458	0.19212997	2.9744452	20	6 15.3	18.1
33968 2000 NF <sub>13</sub>	15.3	X	232.88272	78.00393	226.31575	3.53699	0.1504155	0.27933495	2.3176749	20	2 8.9	19.0
33969 2000 NM <sub>13</sub>	14.5	X	198.42982	132.27897	307.59442	22.06329	0.0730942	0.24129196	2.5552936	20	7 8.7	18.4
33970 2000 NC <sub>14</sub>	14.2	X	286.06720	185.76498	150.31018	9.65905	0.1025807	0.19043708	2.9920468	20	6 2.9	18.4
33971 2000 NL <sub>14</sub>	14.8	X	279.24050	301.22859	316.83267	5.30522	0.0824145	0.27998593	2.3140811	20	2 6.5	17.8
33972 2000 NO <sub>15</sub>	15.3	X	89.37631	163.59901	106.51407	5.13710	0.1770067	0.30595935	2.1811903	20	11 27.4	18.5
33973 2000 NS <sub>16</sub>	14.0	X	40.84323	283.23290	105.65419	10.05421	0.1732163	0.21166972	2.7884545	20	—	—
33974 2000 ND <sub>17</sub>	14.8	X	354.95363	19.03864	20.92328	5.38973	0.1075995	0.25740297	2.4475243	20	—	—
33975 2000 NF <sub>17</sub>	14.9	X	224.16772	193.28350	64.01217	4.45991	0.0508778	0.22173228	2.7034402	20	—	—
33976 2000 NL <sub>19</sub>	15.3	X	310.28440	324.84655	289.69203	2.94082	0.1387593	0.28479431	2.2879604	20	3 2.9	17.8
33977 2000 NY <sub>19</sub>	14.6	X	191.30324	215.28721	200.80255	3.47539	0.1868202	0.23566487	2.5958095	20	5 24.3	18.8
33978 2000 NX <sub>20</sub>	15.2	X	352.29088	331.54935	317.60474	6.90744	0.1877865	0.29443699	2.2377306	20	7 25.1	16.4
33979 Sunhaochun	14.4	X	164.79293	309.41633	96.85561	4.69304	0.1561607	0.28444093	2.2898550	20	4 17.3	17.9
33980 2000 NW <sub>21</sub>	15.3	X	217.13161	165.78521	174.89252	1.68955	0.2196013	0.23265210	2.6181713	20	3 13.5	19.6
33981 2000 NH <sub>22</sub>	14.3	X	86.30527	86.31014	249.13341	7.47317	0.2407920	0.21122430	2.7923732	20	—	—
33982 2000 NQ <sub>23</sub>	14.0	X	238.55570	359.13234	316.40501	16.09056	0.2890913	0.23184073	2.6242763	20	2 23.1	18.7
33983 2000 NV <sub>23</sub>	14.5	X	97.91323	172.13166	310.78484	7.08886	0.1762238	0.28428180	2.2907095	20	5 14.7	17.6
33984 2000 NU <sub>24</sub>	14.4	X	298.07032	94.90828	278.29029	4.45328	0.2355001	0.24564400	2.5250226	20	7 21.7	16.8
33985 2000 NG <sub>25</sub>	13.8	X	323.82302	123.84018	304.73365	11.83126	0.2135299	0.25705650	2.4497230	20	12 29.8	15.7
33986 2000 NK <sub>25</sub>	15.7	X	183.24851	183.65194	100.12412	6.26987	0.2164470	0.27169680	2.3609115	20	—	—
33987 2000 NV <sub>25</sub>	14.6	X	52.60175	40.82095	311.62088	4.58027	0.0567024	0.26150130	2.4218848	20	—	—
33988 2000 NQ <sub>26</sub>	15.4	X	149.96565	73.98214	189.96477	2.01368	0.1951866	0.26448190	2.4036547	20	—	—
33989 2000 NC <sub>27</sub>	15.3	X	359.41086	10.65500	49.11790	1.63066	0.0910621	0.31152257	2.1551444	20	—	—
33990 2000 ND <sub>27</sub>	15.1	X	94.35683	309.40286	337.10155	2.08792	0.1850155	0.25917514	2.4363546	20	12 13.6	19.0
33991 Weixunjing	15.3	X	137.69485	29.29028	265.33365	5.63822	0.1358607	0.26699430	2.3885521	20	—	—
33992 2000 OQ	14.5	X	225.37841	41.26056	311.47775	10.89057	0.1793887	0.23447810	2.6045609	20	3 30.8	19.0
33993 2000 OS	14.1	X	255.40936	224.99058	123.29113	11.63235	0.1827887	0.23814129	2.5777824	20	5 3.5	18.2
33994 Regidufour	15.4	X	186.19287	62.53381	317.18067	4.49739	0.0361231	0.28424914	2.2908849	20	3 27.2	18.4
33995 2000 OV <sub>1</sub>	16.5	X	323.06989	141.98655	186.11291	2.05764	0.1855904	0.29480182	2.2358840	20		

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
34001 2000 OR <sub>5</sub>	13.6 <sup>m</sup>	X	273.45459	74.76465	319.32271	23.13021	0.1521766	0.19272568	2.9683127	20	7 27.0	17.8
34002 Movsesian	14.8	X	45.37100	298.24295	238.17893	5.65566	0.0512053	0.28442100	2.2899620	20	4 24.1	17.2
34003 Ivozell	14.0	X	352.68425	253.28466	173.79817	9.58684	0.0735222	0.26307806	2.4121981	20	—	—
34004 Gregorini	14.2	X	45.05715	8.58983	325.39890	1.85857	0.2271249	0.25781751	2.4449001	20	12 29.2	17.6
34005 2000 OY <sub>7</sub>	13.8	X	238.81372	52.85564	309.03996	11.47553	0.1617668	0.18460899	3.0546924	20	4 27.7	18.9
34006 2000 OQ <sub>9</sub>	14.7	X	316.55138	30.66018	291.81130	12.04575	0.1701365	0.24376312	2.5379947	20	6 21.7	17.2
34007 2000 OS <sub>11</sub>	14.8	X	184.24744	52.97196	260.33677	2.76300	0.2015851	0.22525715	2.6751635	20	1 15.9	19.2
34008 2000 OB <sub>12</sub>	15.4	X	148.98961	61.12888	275.38778	1.40679	0.2325982	0.27194373	2.3594821	20	1 10.1	19.0
34009 2000 OX <sub>12</sub>	15.9	X	133.99701	284.80195	329.30226	0.99467	0.1580833	0.26199820	2.4188216	20	12 9.1	19.6
34010 Tassiloschwarz	15.1	X	196.41313	78.08090	283.00901	2.72815	0.1558986	0.28169295	2.3047230	20	3 16.8	18.7
34011 Divyakranthi	14.8	X	137.79672	18.24178	260.85171	1.71227	0.1741791	0.26500443	2.4004940	20	—	—
34012 Prashaant	15.6	X	222.86510	343.41283	265.99785	3.45066	0.1238200	0.27272616	2.3549672	20	—	—
34013 2000 OG <sub>15</sub>	15.0	X	257.91169	63.81763	318.89743	4.09838	0.2163463	0.24159379	2.5531649	20	6 11.0	18.7
34014 Pingali	15.1	X	300.60184	147.35527	156.88247	2.18445	0.1036592	0.23994011	2.5648826	20	5 9.4	18.3
34015 2000 OR <sub>16</sub>	15.9	X	231.97649	6.81780	242.73954	1.66457	0.1739481	0.27437980	2.3454956	20	—	—
34016 Chaitanya	15.3	X	304.58090	203.72209	150.32832	2.78430	0.1628572	0.29473338	2.2362302	20	7 22.4	17.0
34017 Geeve	14.8	X	63.14036	261.79065	96.45380	1.75909	0.0824269	0.21302276	2.7766345	20	—	—
34018 2000 OK <sub>19</sub>	14.0	X	286.95345	351.50600	358.23495	14.14484	0.0918008	0.23862359	2.5743078	20	6 24.1	17.6
34019 2000 OU <sub>19</sub>	14.2	X	215.84077	276.54236	135.69233	15.74261	0.0971271	0.24180723	2.5516623	20	6 18.3	18.2
34020 2000 ON <sub>21</sub>	13.8	X	56.53822	275.66604	146.39018	20.19280	0.2306473	0.26864156	2.3787780	20	—	—
34021 Suhanjain	15.0	X	286.24018	264.32602	44.31431	2.43361	0.0981076	0.28969259	2.2620965	20	4 22.7	17.4
34022 2000 OY <sub>23</sub>	14.2	X	231.97026	234.66897	108.67546	2.06788	0.2989497	0.18559193	3.0438972	20	3 27.9	19.6
34023 2000 OH <sub>24</sub>	14.9	X	284.63761	337.62205	345.82615	4.92969	0.2745134	0.23992405	2.5649970	20	4 14.9	18.6
34024 Cormaclarkin	14.8	X	32.63424	302.75724	48.60522	3.75357	0.1953343	0.25750928	2.4468507	20	—	—
34025 Caolannbrady	15.0	X	274.33489	291.18915	80.09891	5.01751	0.1644470	0.29434456	2.2381990	20	6 25.7	17.5
34026 Valpagliarino	14.6	X	93.12342	335.18580	12.92319	2.68963	0.1979460	0.26535705	2.3983669	20	—	—
34027 2000 OL <sub>25</sub>	15.6	X	122.63711	308.08168	356.49160	2.12091	0.0544280	0.31490533	2.1396827	20	—	—
34028 Wuhuiyi	15.3	X	10.43072	139.56546	92.93152	4.05150	0.1135187	0.29175512	2.2514228	20	5 24.9	17.1
34029 2000 OX <sub>25</sub>	14.2	X	199.86410	213.97060	339.93681	6.06353	0.0059564	0.21090678	2.7951751	20	12 3.8	18.2
34030 Tabuchi	14.8	X	272.70993	262.80860	104.98935	5.51300	0.1234415	0.24308449	2.5427161	20	6 21.9	17.9
34031 Fukumitsu	15.0	X	108.60963	74.63245	201.29514	2.07601	0.1734544	0.25995747	2.4314640	20	12 13.2	18.9
34032 2000 OC <sub>27</sub>	14.2	X	153.80653	268.78792	150.19021	11.07999	0.1649225	0.23165062	2.6257119	20	4 27.0	18.5
34033 2000 OH <sub>27</sub>	13.7	X	256.04978	16.72960	306.66091	8.30172	0.0877967	0.18505448	3.0497880	20	4 6.8	18.4
34034 Shehadeh	14.8	X	223.40165	336.57590	337.92124	0.88714	0.1778044	0.22914987	2.6447805	20	2 18.2	19.2
34035 2000 OV <sub>27</sub>	13.5	X	324.06414	188.52584	148.36111	15.86630	0.1385798	0.24405668	2.5359592	20	7 31.6	16.1
34036 2000 OX <sub>27</sub>	13.2	X	99.08402	140.54521	337.57320	23.22569	0.2148771	0.28003934	2.3137869	20	5 5.7	16.9
34037 2000 OZ <sub>27</sub>	14.1	X	228.12452	157.49014	146.75463	15.24849	0.1084201	0.22890056	2.6467006	20	2 12.5	18.0
34038 Abualragheb	15.3	X	344.40778	44.26806	181.95234	4.51333	0.1037842	0.28511262	2.2862572	20	3 24.2	17.3
34039 Torsteinvik	14.5	X	333.77779	137.11944	261.01546	5.54826	0.0925057	0.25606576	2.4560378	20	11 22.5	17.1
34040 2000 OX <sub>30</sub>	14.5	X	32.22267	128.64939	277.73046	7.81288	0.1614674	0.21375933	2.7702523	20	—	—
34041 2000 OD <sub>31</sub>	14.5	X	241.15441	240.82240	164.36171	13.65526	0.1714856	0.24191903	2.5508761	20	6 27.9	18.6
34042 Espeseth	15.6	X	294.52481	118.98278	218.49284	2.46190	0.1112016	0.29181985	2.2510898	20	6 15.7	17.9
34043 2000 OS <sub>31</sub>	14.3	X	119.74133	132.83637	170.37075	13.08088	0.1442175	0.21504543	2.7591961	20	—	—
34044 Obafial	15.2	X	358.25463	328.10987	258.30820	5.13456	0.0656551	0.28682715	2.2771373	20	4 19.4	17.7
34045 2000 OD <sub>34</sub>	14.2	X	176.52725	231.16750	219.99849	5.91729	0.2688569	0.23800955	2.5787335	20	6 23.5	18.8
34046 2000 OQ <sub>34</sub>	14.2	X	254.35692	112.83008	187.48362	10.10914	0.0602160	0.18395874	3.0618866	20	3 14.2	18.6
34047 Gloria	15.0	X	44.08780	132.24920	286.41468	5.33109	0.1315178	0.26553647	2.3972864	20	—	—
34048 2000 OR <sub>35</sub>	15.8	X	358.54955	356.22073	358.46823	7.86342	0.2605125	0.29980104	2.2109587	20	12 11.9	18.0
34049 Myrelleangela	14.7	X	337.17171	204.66813	226.91436	5.66659	0.1391671	0.20991633	2.8039605	20	—	—
34050 2000 OU <sub>36</sub>	14.2	X	80.66223	113.79083	277.24493	11.65492	0.1511734	0.21798697	2.7343180	20	—	—
34051 2000 OK <sub>37</sub>	14.9	X	243.20613	156.43687	172.25267	12.83333	0.2214111	0.18530751	3.0470111	20	3 24.1	19.8
34052 2000 OL <sub>37</sub>	13.1	X	110.23560	236.85825	153.22313	22.20910	0.0802826	0.22415351	2.6839372	20	1 20.3	17.0
34053 Carlquines	14.1	X	297.79473	156.05396	234.62913	8.10579	0.1157641	0.19718782	2.9233624	20	8 25.1	17.9
34054 2000 OE <sub>39</sub>	14.5	X	249.18184	95.06837	249.70056	9.77077	0.1243671	0.18641696	3.0349096	20	4 23.7	19.1
34055 2000 OU <sub>41</sub>	14.2	X	163.16481	231.01008	190.36883	12.88263	0.1461571	0.23514804	2.5996116	20	5 6.0	18.4
34056 2000 OJ <sub>42</sub>	14.6	X	224.50747	98.88428	181.65139	10.08153	0.1207836	0.22475568	2.6791412	20	1 10.6	19.0
34057 2000 ON <sub>44</sub>	13.8	X	254.07258	199.59178	171.57385	13.44734	0.1683933	0.23757239	2.5818960	20	5 30.8	17.9
34058 2000 OT <sub>44</sub>	13.6	X	338.18015	1.89629	317.88703	12.35946	0.1930537	0.24403116	2.5361360	20	8 3.4	15.5
34059 2000 OS <sub>45</sub>	14.1	X	240.43250	119.30956	212.67164	10.33396	0.1499921	0.18289787	3.0737151	20	3 28.4	19.0
34060 2000 OZ <sub>45</sub>	12.8	X	57.66237	61.52011	293.73305	7.81196	0.1654084	0.20859942	2.8157493	20	—	—
34061 2000 OC <sub>48</sub>	13.9	X	282.86926	234.24399	347.37708	8.38255	0.0512563	0.26949209	2.3737703	20	—	—
34062 2000 OD <sub>48</sub>	13.4	X	231.05113	357.05215	13.04431	6.36053	0.2398500	0.18255516	3.0775608	20	4 28.3	18.7
34063 Mariamakarova	14.4	X	232.69212	300.82191	16.60167	5.15271	0.1982953	0.27833850	2.3232032	20	2 26.5	18.1
34064 2000 OK <sub>51</sub>	13.6	X	241.29879	78.20380	240.87800	10.43734	0.2864809	0.18260563	3.0769937	20	3 2.3	19.1
34065 2000 OD <sub>52</sub>	13.8	X	24.56959	300.59697	16.66398	15.27672	0.1380768	0.24581712	2.5238370	20	10 23.7	16.8
34066 2000 OS <sub>52</sub>	13.7	X	221.86638	264.53742	90.02178	2.40027	0.1364860	0.17866050	3.1221255	20	4 10.7	18.7
34067 2000 OA <sub>55</sub>	14.3	X	40.43106	221.25825	156.13321	1.04143	0.1686890	0.16297061	3.3194275	20	—	—
34068 2000 OB <sub>56</sub>	15.1	X	315.06177	1.90391	285.52774	0.33813	0.1615730	0.19090175	2.9871895	20	4 30.6	18.9
34069 2000 OZ <sub>56</sub>	13.9	X	39.47670	131.58948	334.40935	8.54021	0.0653939	0.17513166	3.1639257	20	1 28.4	18.1
34070 2000 OK <sub>57</sub>	14.2	X	113.73395	276.94354	125.16076	11.19315	0.1549509	0.17505565	3.1648415	20	2 27.7	18.9
34071 2000 OT <sub>57</sub>	15.3	X	332.52203	335.00388	127.13362	8.58497	0.1735117	0.26354344	2.4093575	20	—	—
34072 2000 OU <sub>58</sub>	15.7	X	76.54501	177.85991	1.81286	1.98597	0.0699452	0.29032048	2.2588337	20	6 21.8	18.1
34073 2000 OW <sub>58</sub>	15.0	X	176.31113	120.59953	140.50302	3.37651	0.1136385	0.21689451	2.7434919	20	—	—
34074 2000 OG <sub>59</sub>	15.5	X	341.47526	273.27617	183.96197	1.90469	0.1427926	0.26401608	2.4064811	20	—	—
34075 2000 OE <sub>60</sub>	14.0	X	147.61947	173.84332	168.19509	4.72182	0.1261392	0.17215041	3.2003490	20	1 17.7	19.0
34076 2000 OK <sub>60</sub>	15.3	X	191.49131									

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
34081 Chowkitmun	14.5	X	234.15286	237.38597	44.96504	7.10661	0.1063936	0.27638761	2.3341226	20	1 18.6	18.0
34082 2000 <i>PL</i> <sub>2</sub>	13.4	X	198.36747	287.14410	152.19482	10.48496	0.1245967	0.18442548	3.0567184	20	6 29.7	18.4
34083 Feretova	15.2	X	266.37494	75.06878	305.51789	6.37956	0.1868649	0.24293696	2.5437455	20	6 22.9	18.6
34084 2000 <i>PM</i> <sub>4</sub>	14.7	X	19.67292	136.95076	132.26690	11.38175	0.0442023	0.24565737	2.5249310	20	7 29.2	17.8
34085 2000 <i>PE</i> <sub>5</sub>	15.2	X	211.90171	148.61335	128.31352	3.12411	0.0438721	0.22470436	2.6795491	20	—	—
34086 2000 <i>PP</i> <sub>5</sub>	14.4	X	125.13211	110.52161	319.64096	6.07047	0.0777408	0.27930102	2.3178627	20	3 22.7	17.3
34087 2000 <i>PA</i> <sub>7</sub>	14.5	X	337.51637	151.66680	247.71595	0.92857	0.0912424	0.20440364	2.8541511	20	11 16.1	18.0
34088 Satokosuka	15.4	X	308.17444	151.99792	205.84182	1.25773	0.0806699	0.29643243	2.2276771	20	8 16.4	17.5
34089 Smoter	14.9	X	208.78335	290.79272	174.79846	2.31172	0.1031814	0.24458953	2.5322747	20	8 18.0	18.6
34090 Cewhang	15.5	X	50.16725	164.96165	58.15892	5.89311	0.0713546	0.29089548	2.2558562	20	7 18.2	18.0
34091 2000 <i>PQ</i> <sub>10</sub>	13.8	X	241.95173	253.22258	103.32985	11.74251	0.1436890	0.18481884	3.0523797	20	5 5.3	18.7
34092 2000 <i>PF</i> <sub>11</sub>	14.3	X	145.76177	74.94294	93.36442	11.88546	0.0930609	0.24520848	2.5280116	20	9 6.5	18.2
34093 2000 <i>PP</i> <sub>11</sub>	14.0	X	175.55764	299.60175	102.50574	12.37685	0.1942007	0.22923339	2.6441381	20	4 28.5	18.6
34094 2000 <i>PP</i> <sub>11</sub>	14.4	X	246.94290	161.60655	116.34738	14.49337	0.1371941	0.22586355	2.6703732	20	1 29.7	18.6
34095 2000 <i>PW</i> <sub>11</sub>	13.8	X	287.05882	158.10226	118.05278	14.52912	0.1641649	0.23162468	2.6259079	20	3 9.9	17.7
34096 2000 <i>PC</i> <sub>12</sub>	13.8	X	172.89859	260.23261	121.50884	17.02526	0.1072703	0.17727967	3.1383167	20	4 2.9	19.0
34097 2000 <i>PD</i> <sub>12</sub>	13.3	X	38.97229	359.55579	136.42089	22.77344	0.0352865	0.17452700	3.1712292	20	3 3.8	17.7
34098 2000 <i>PM</i> <sub>12</sub>	13.3	X	155.94798	298.39681	84.34769	10.45777	0.0990264	0.17512270	3.1640336	20	3 16.7	18.3
34099 2000 <i>PT</i> <sub>12</sub>	14.1	X	249.07843	141.52516	257.44311	8.51103	0.0186126	0.19228718	2.9728238	20	7 15.9	18.3
34100 Thapa	14.8	X	87.59966	252.29599	134.73136	6.76945	0.1353216	0.27007594	2.3703480	20	—	—
34101 Hesrivastava	15.0	X	252.81249	15.34602	258.12084	6.10405	0.1033989	0.27626157	2.3348325	20	1 24.0	18.3
34102 Shawnzhang	14.8	X	234.16211	226.15658	140.07463	2.69029	0.0526025	0.18843613	3.0131906	20	5 14.0	19.1
34103 Suganthkannan	14.6	X	310.19710	312.56451	43.40220	2.53379	0.1064421	0.19661125	2.9290749	20	8 3.6	18.1
34104 Jeremiahpate	14.8	X	174.76996	286.79128	342.74641	8.90811	0.0553709	0.21577481	2.7529747	20	—	—
34105 2000 <i>PD</i> <sub>20</sub>	14.0	X	182.94849	259.17672	349.85311	14.13605	0.1503726	0.22665827	2.6641275	20	2 26.4	18.3
34106 Sakhrani	14.5	X	209.56151	347.01103	319.34462	3.83179	0.1976825	0.27795741	2.3253261	20	1 23.2	18.1
34107 Kashfiarahman	14.8	X	254.79866	199.48174	83.01698	2.51396	0.1710875	0.18228369	3.0806156	20	2 13.8	19.6
34108 2000 <i>PN</i> <sub>23</sub>	14.6	X	286.59121	228.08125	142.24899	1.22135	0.2454477	0.19217018	2.9740303	20	6 24.8	18.5
34109 2000 <i>PX</i> <sub>23</sub>	14.8	X	173.56839	251.05620	1.94230	2.08170	0.1769567	0.26507361	2.4000763	20	—	—
34110 2000 <i>PX</i> <sub>24</sub>	14.0	X	248.39208	250.25644	132.70377	10.16676	0.1585899	0.18578823	3.0417529	20	6 9.0	18.8
34111 2000 <i>PZ</i> <sub>24</sub>	13.2	X	120.32784	261.84393	138.33036	10.00669	0.1266481	0.17026449	3.2239379	20	2 28.7	18.0
34112 2000 <i>PC</i> <sub>25</sub>	13.8	X	192.24940	133.68471	155.76216	16.71461	0.0630966	0.16822805	3.2499033	20	—	—
34113 2000 <i>PL</i> <sub>25</sub>	15.4	X	159.08017	30.50491	135.36763	6.19794	0.0534545	0.29831853	2.2182776	20	9 22.2	18.2
34114 2000 <i>PU</i> <sub>26</sub>	13.6	X	258.45120	166.36301	256.10195	9.64738	0.0770637	0.19107384	2.9853956	20	8 16.0	18.0
34115 2000 <i>PV</i> <sub>26</sub>	13.8	X	355.59191	14.28688	291.71916	11.40130	0.1807898	0.24245913	2.5470865	20	8 16.9	16.2
34116 2000 <i>PW</i> <sub>26</sub>	13.0	X	298.04831	80.16682	273.15038	10.99903	0.0227020	0.18780367	3.0199518	20	7 19.8	17.3
34117 2000 <i>PA</i> <sub>27</sub>	14.8	X	181.00267	238.50824	254.65887	1.94545	0.0574484	0.24465595	2.5318163	20	8 25.2	18.4
34118 2000 <i>PC</i> <sub>27</sub>	15.2	X	323.52472	125.60491	312.42233	4.34323	0.0073489	0.30713899	2.1756018	20	—	—
34119 2000 <i>PY</i> <sub>27</sub>	12.5	X	98.92018	182.55276	275.91861	28.46776	0.1500798	0.17424500	3.1746499	20	4 4.1	17.7
34120 2000 <i>PL</i> <sub>28</sub>	15.0	X	20.65252	32.74787	94.94068	7.61251	0.1458990	0.27088282	2.3656387	20	1 2.1	16.8
34121 2000 <i>PJ</i> <sub>29</sub>	14.5	X	120.87159	284.46857	101.13925	10.17008	0.0815545	0.22309501	2.6924200	20	1 30.2	18.2
34122 2000 <i>PQ</i> <sub>29</sub>	15.2	X	282.19440	216.64546	96.84878	10.13054	0.2045903	0.28661367	2.2782678	20	4 13.2	18.4
34123 Uedayukika	13.5	X	118.94239	156.34694	127.27143	7.91709	0.2045684	0.20947651	2.8078840	20	12 23.4	18.3
34124 2000 <i>QY</i>	15.1	X	136.51380	112.17273	198.76238	2.23007	0.1619372	0.26543491	2.3978979	20	—	—
34125 2000 <i>QZ</i>	14.8	X	138.51277	245.80177	161.14161	1.71933	0.1705657	0.17501259	3.1653606	20	3 28.8	19.8
34126 2000 <i>QA</i> <sub>1</sub>	14.7	X	91.86358	196.41589	179.01395	1.05654	0.1647503	0.21512302	2.7585326	20	—	—
34127 Adamnayak	15.3	X	122.88344	42.55436	326.63819	2.92032	0.0994431	0.22122381	2.7075811	20	1 14.2	18.9
34128 Hannahbrown	14.0	X	311.48946	331.06717	326.33675	9.32313	0.0966007	0.18961954	3.0006406	20	5 14.7	18.1
34129 Madisonsneve	14.5	X	29.91718	7.71371	328.31302	1.17296	0.0692606	0.20301014	2.8671972	20	11 7.8	18.1
34130 Isabellaivy	14.9	X	265.04330	288.69093	344.82075	6.17253	0.1088815	0.27837083	2.3230233	20	2 8.6	18.1
34131 2000 <i>QY</i> <sub>3</sub>	15.4	X	328.54615	99.72507	153.24009	6.06286	0.0645319	0.28376644	2.2934821	20	4 14.1	17.9
34132 Theoguerin	15.4	X	20.12332	88.72835	176.16499	2.99803	0.1651019	0.29365720	2.2416903	20	8 13.9	17.2
34133 Charlesfenske	14.6	X	271.92299	84.49948	330.80246	2.15368	0.0266945	0.19702878	2.9249353	20	9 5.8	18.6
34134 Zlokapa	15.4	X	206.40703	1.38965	19.27191	0.65626	0.0876924	0.23279508	2.6170992	20	4 26.1	19.2
34135 Rahulsubra	15.0	X	233.86001	102.67678	179.00182	0.93875	0.1394408	0.17539128	3.1608027	20	1 26.9	20.0
34136 2000 <i>QF</i> <sub>6</sub>	15.1	X	309.53871	336.03830	321.77954	5.35775	0.1165334	0.28767229	2.2726751	20	5 7.2	17.6
34137 Lonnielinda	15.7	X	137.94131	356.47501	307.96885	2.65270	0.1967660	0.26418550	2.4054522	20	—	—
34138 Frasso Sabino	14.4	X	261.42097	141.66180	190.54475	15.63498	0.1891678	0.23517475	2.5994148	20	4 14.9	18.2
34139 Lucabarcelo	14.3	X	171.60110	287.20966	96.44047	2.20505	0.2035266	0.18026780	3.1035395	20	4 1.1	19.5
34140 2000 <i>QE</i> <sub>11</sub>	15.0	X	148.97106	44.35670	316.68758	11.18761	0.1553863	0.22421942	2.6834112	20	2 7.3	19.1
34141 Antonwu	14.5	X	45.26267	336.94730	291.14698	1.12080	0.0482788	0.19897365	2.9058443	20	8 29.2	18.2
34142 Sachinkonan	14.8	X	196.54252	153.71302	156.45645	0.94512	0.1473652	0.17606105	3.1527814	20	1 26.7	19.9
34143 Heeric	15.2	X	317.96023	177.21456	134.27780	2.33261	0.1014080	0.24186892	2.5512284	20	6 16.6	18.1
34144 Alexandersun	15.6	X	180.02288	295.75018	125.85353	2.63809	0.0321263	0.28677551	2.2774106	20	5 20.1	18.5
34145 2000 <i>QV</i> <sub>15</sub>	14.8	X	244.31650	207.22273	109.82271	1.93603	0.1255542	0.18289270	3.0737730	20	3 19.1	19.6
34146 2000 <i>QH</i> <sub>16</sub>	14.1	X	113.07155	221.04366	143.28597	9.33570	0.1499226	0.16955264	3.2329551	20	1 11.2	18.9
34147 Vengadesan	14.7	X	101.88397	138.28255	318.39674	3.29788	0.0676844	0.23023279	2.6364807	20	3 31.8	18.3
34148 Marchuo	14.6	X	355.07705	110.40632	300.74338	3.47338	0.0583167	0.25892005	2.4379545	20	—	—
34149 2000 <i>QL</i> <sub>17</sub>	15.7	X	317.83167	158.22033	344.81913	2.20944	0.1493359	0.26686858	2.3893022	20	—	—
34150 2000 <i>QK</i> <sub>18</sub>	14.9	X	91.12047	78.82450	181.03028	3.42009	0.1325548	0.30372970	2.1918519	20	11 12.5	17.9
34151 2000 <i>QH</i> <sub>19</sub>	16.1	X	115.67888	22.09286	102.73619	1.02742	0.0454250	0.28563575	2.2834649	20	5 24.4	18.8
34152 Kendrazhang	14.9	X	337.79753	127.01318	163.33318	2.67267	0.1210511	0.19088697	2.9873437	20	6 17.3	18.4
34153 Deeannguo	14.6	X	128.16465	280.21823	131.72396	2.33643	0.1954426	0.17446123	3.1720261	20	3 27.9	19.6
34154 Anushkanair	15.2	X	87.35481	124.45766	139.92308	3.16826	0.1502896	0.25314861	2.4748698	20	11 7.7	18.8
34155 2000 <i>QJ</i> <sub>22</sub>	13.8	X	38.70185									

ELEMENTS AND OPPOSITION DATES IN 2020

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>	
34161	Michaellee	15.8 <sup>m</sup>	X	98.88527	351.32966	197.96463	2.73123	0.1118325	0.29394397	2.2402321	20	8 11.6	18.7
34162	Yegnesh	14.4	X	280.48425	297.69146	138.38533	2.84761	0.0396083	0.20040317	2.8920092	20	10 14.4	18.2
34163	Neyveli	15.3	X	86.97515	157.05508	9.70086	3.41048	0.0748305	0.28652273	2.2787499	20	6 18.5	18.1
34164	Anikacheerla	15.2	X	85.47506	93.61691	156.57963	3.98653	0.1123749	0.29987604	2.2105900	20	10 22.5	18.1
34165	Nikhilcheerla	14.3	X	25.10193	248.78863	38.91579	2.34131	0.1010615	0.19603745	2.9347877	20	9 3.5	17.9
34166	Neildeshmukh	14.3	X	286.66223	43.22729	237.06440	6.35919	0.1068070	0.28007387	2.3135967	20	3 10.2	17.5
34167	2000 Q <sub>S</sub> 30	13.7	X	261.91845	252.39915	155.02388	10.43189	0.0929588	0.19146445	2.9813339	20	8 2.0	17.9
34168	2000 Q <sub>P</sub> 31	15.4	X	308.11688	177.21668	47.88642	6.00806	0.1046092	0.27866707	3.2323766	20	1 29.3	18.3
34169	2000 Q <sub>A</sub> 33	14.8	X	292.20739	275.45686	28.23075	11.63633	0.0793148	0.18595241	3.3099621	20	4 30.3	19.1
34170	2000 Q <sub>X</sub> 33	14.7	X	316.01856	130.29933	336.38680	4.26927	0.1730287	0.25842158	2.4410885	20	—	—
34171	2000 Q <sub>Z</sub> 34	14.5	X	254.13947	317.68216	179.99656	5.81405	0.0907098	0.25427666	2.4675448	20	12 2.3	17.5
34172	Camille miles	14.8	X	234.58580	2.69269	276.46057	2.19319	0.1479545	0.22687104	2.6624616	20	1 18.2	19.1
34173	2000 Q <sub>Y</sub> 37	14.2	X	99.84953	313.06070	154.43806	12.87654	0.1735251	0.23094224	2.6310785	20	5 3.7	18.1
34174	2000 Q <sub>P</sub> 38	13.8	X	88.36106	289.74282	146.51024	17.68027	0.2014290	0.17400279	3.1775952	20	3 17.8	18.3
34175	Joshuadong	14.9	X	297.59812	348.05835	303.66400	4.12523	0.1348446	0.23678909	2.5875868	20	4 9.8	18.4
34176	Balamulugan	14.8	X	31.92388	287.02071	151.69782	7.88794	0.1000946	0.21754599	2.7380119	20	—	—
34177	Amandawilson	14.4	X	277.73952	274.58777	127.92929	3.03441	0.0864160	0.19662962	2.9288924	20	8 19.4	18.1
34178	Sarahmarie	14.9	X	274.67517	18.66398	167.02938	5.67943	0.0114734	0.21753324	2.7381189	20	—	—
34179	Bryanchun	14.9	X	263.41077	175.06959	172.56465	2.35057	0.1428057	0.18824726	3.0152057	20	5 13.4	19.2
34180	Jessicayoung	15.0	X	51.76528	208.78139	231.03038	1.21963	0.0364127	0.22107956	2.7087587	20	—	—
34181	Patnaik	15.4	X	39.83175	231.60954	247.20681	1.53745	0.1555856	0.27379265	2.3488477	20	1 27.0	17.2
34182	Sachan	15.0	X	256.19097	319.56134	329.90639	2.13551	0.0691740	0.22989581	2.6390564	20	2 27.3	18.7
34183	Yeshdoctor	14.4	X	142.94211	292.42170	123.38933	0.24573	0.1844666	0.17824902	3.1269276	20	4 12.9	19.3
34184	Hegde	14.9	X	233.16176	65.64521	345.15218	5.49109	0.1280305	0.19011857	2.9953876	20	6 30.2	19.4
34185	2000 Q <sub>P</sub> 47	13.8	X	145.75686	330.60052	149.48980	10.95478	0.0898876	0.18841891	3.0133741	20	6 27.1	18.5
34186	2000 Q <sub>T</sub> 47	14.6	X	218.02457	146.35552	151.89844	11.97725	0.1320871	0.17630177	3.1499109	20	1 31.2	19.8
34187	Tomaino	14.7	X	218.02824	241.41764	118.25213	0.82866	0.1933060	0.18260909	3.0769548	20	4 9.6	19.9
34188	Clarawagner	14.9	X	163.32028	80.82914	228.50026	0.98854	0.1211770	0.21923541	2.7239278	20	—	—
34189	Ambatipudi	14.7	X	276.89402	285.62224	162.95415	6.53401	0.1024682	0.25215180	2.4813880	20	10 29.5	17.5
34190	Erismith	15.0	X	155.52498	151.12392	159.65094	6.42110	0.2029530	0.21756460	2.7378558	20	—	—
34191	Jakhete	14.9	X	48.42502	69.90376	351.02216	5.68571	0.0434707	0.26717080	2.3875000	20	—	—
34192	Sappington	14.4	X	85.49243	333.10745	356.32396	2.24023	0.0831597	0.21033146	2.8002699	20	—	—
34193	Annakoonce	14.6	X	196.77651	85.48342	346.26571	5.43141	0.0137204	0.18937404	3.0032334	20	6 24.0	18.9
34194	Serenajing	15.2	X	173.86262	137.95546	137.49222	5.31827	0.0511246	0.21520409	2.7578398	20	—	—
34195	2000 Q <sub>A</sub> 54	14.7	X	84.94245	191.43092	147.47010	13.47611	0.0295361	0.21157360	2.7892990	20	—	—
34196	2000 Q <sub>B</sub> 54	13.9	X	240.96665	338.40882	355.89915	8.78670	0.2131755	0.23308859	2.6149017	20	3 24.9	18.1
34197	Susrinivasan	15.0	X	190.39407	113.45774	353.51804	7.97400	0.1306560	0.29179625	2.2512112	20	8 3.9	18.3
34198	Oliverleitner	14.6	X	219.57704	206.82389	212.66506	3.34026	0.1005552	0.24072828	2.5592810	20	6 29.9	18.4
34199	Amyjin	15.5	X	358.73998	102.05016	76.77460	2.90508	0.1569172	0.27868551	3.3212743	20	2 3.1	17.4
34200	Emmasun	15.1	X	335.31439	49.38693	61.22624	2.92679	0.1582586	0.26291709	2.4131825	20	—	—
34201	2000 Q <sub>X</sub> 54	14.2	X	239.74686	58.61032	355.96035	9.52568	0.1023425	0.19162078	2.9797122	20	7 17.3	18.7
34202	Sionaprasad	14.5	X	73.46983	280.09562	137.18549	8.29993	0.1093467	0.21938129	2.7227201	20	1 9.7	17.9
34203	Nicwamsley	14.8	X	56.34304	231.95820	134.56216	7.19233	0.0774079	0.21079136	2.7961953	20	—	—
34204	Quryshi	14.3	X	48.68580	312.22704	141.52105	6.92789	0.0986232	0.22079798	2.7110612	20	1 17.4	17.5
34205	Mizerak	15.2	X	158.21698	341.65710	3.41075	4.63238	0.1652485	0.27298848	2.3534583	20	1 24.4	18.6
34206	Zhiyuewang	14.9	X	339.54386	307.32475	68.98515	3.09569	0.1529893	0.20139276	2.8825276	20	10 19.3	18.5
34207	2000 Q <sub>R</sub> 65	13.7	X	71.55976	89.69279	97.57349	9.81445	0.0192547	0.18595307	3.0399549	20	6 14.9	17.9
34208	Danielzhang	14.9	X	132.12766	228.71067	109.00410	4.79024	0.1976314	0.21716775	2.7411901	20	—	—
34209	2000 Q <sub>P</sub> 67	14.1	X	54.54595	3.05910	129.29593	13.31137	0.1349156	0.22603570	2.6690171	20	3 28.3	17.3
34210	2000 Q <sub>V</sub> 67	13.2	X	125.67649	314.30417	137.97884	11.13193	0.2031849	0.17775473	3.1327226	20	5 15.7	18.4
34211	2000 Q <sub>E</sub> 68	13.7	X	252.01339	282.35833	138.16762	11.27357	0.1100782	0.19174680	2.9784065	20	8 4.9	17.9
34212	2000 Q <sub>F</sub> 68	14.4	X	65.15177	263.90756	118.05204	2.92148	0.0870501	0.21288132	2.7778642	20	—	—
34213	2000 Q <sub>F</sub> 69	14.7	X	269.90407	115.23217	220.71392	9.72260	0.1307808	0.18910431	3.0060885	20	5 7.4	19.0
34214	2000 Q <sub>A</sub> 72	14.6	X	352.96112	112.26995	162.80749	14.14383	0.1846677	0.24227402	2.5483837	20	6 25.3	17.2
34215	Stutigarg	14.9	X	7.67537	288.83598	314.11780	2.59144	0.1132620	0.23917775	2.5703299	20	6 4.0	17.5
34216	2000 Q <sub>K</sub> 75	13.8	X	323.26265	353.23347	336.84460	5.29164	0.1135925	0.19311390	2.9643333	20	7 19.4	17.4
34217	2000 Q <sub>A</sub> 78	14.2	X	26.08250	357.58227	344.04477	6.11011	0.1802997	0.25305175	2.4755012	20	12 8.1	17.3
34218	Padiyath	14.4	X	126.24935	277.31753	161.19487	5.54795	0.1733000	0.17728184	3.1382910	20	4 25.2	19.3
34219	Megantang	15.1	X	80.79839	85.05170	333.42647	4.49295	0.1644670	0.21793045	2.7347908	20	1 31.4	18.4
34220	Pelagiamajoni	15.2	X	103.51260	244.45909	188.51701	6.42390	0.1697772	0.27560395	2.3385451	20	3 14.4	18.0
34221	2000 Q <sub>W</sub> 84	13.7	X	232.70096	120.48473	296.30437	8.11858	0.0201358	0.19264950	2.9690952	20	7 19.5	17.9
34222	2000 Q <sub>S</sub> 85	14.7	X	201.23970	259.57780	174.53075	10.35162	0.1070529	0.18896900	3.0075233	20	6 26.8	19.5
34223	2000 Q <sub>D</sub> 87	14.4	X	113.82262	318.75231	172.32152	13.81750	0.1209911	0.23580299	2.5947958	20	6 10.7	18.4
34224	Maggiechen	15.0	X	273.54787	359.85014	306.52754	5.25102	0.1681702	0.28445790	2.2897640	20	3 21.0	18.3
34225	Fridberg	14.7	X	41.85781	253.72386	196.41054	4.95225	0.1604925	0.26841202	2.3801340	20	—	—
34226	2000 Q <sub>M</sub> 88	14.5	X	312.83965	74.44275	270.83531	4.37914	0.2356616	0.24342335	2.5403559	20	7 8.2	16.9
34227	Daveyhuang	15.6	X	40.66538	330.31739	333.44762	5.53849	0.0659623	0.28659598	2.2783616	20	5 31.2	17.8
34228	2000 Q <sub>F</sub> 90	13.7	X	197.97021	355.72090	322.17688	9.94118	0.2125285	0.17589308	3.1547882	20	2 6.5	19.1
34229	2000 Q <sub>E</sub> 92	15.7	X	73.05010	312.11046	260.92058	3.25583	0.1069879	0.29208763	2.2497138	20	8 10.5	18.3
34230	2000 Q <sub>F</sub> 93	12.8	X	138.23854	289.48958	168.39879	18.43249	0.1507978	0.17905562	3.1175307	20	5 29.5	18.1
34231	Isanisingh	14.9	X	248.59395	42.00671	340.07383	9.84962	0.0931827	0.19004636	2.9961462	20	6 14.3	19.4
34232	2000 Q <sub>L</sub> 94	14.1	X	297.68969	205.75733	122.88970	10.72492	0.0944490	0.19196630	2.9761356	20	6 10.1	18.1
34233	Caldwell	15.2	X	2.72810	100.21278	347.89547	5.47652	0.0600877	0.21324224	2.7747289	20	—	—
34234	Andrewfang	15.2	X	337.97500	183.27719	0.95292	6.54425	0.0812964	0.27304593	2.3531282	20	1 20.2	18.0
34235	Ellafeiner	14.5	X	343.66355									

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
34241 Skylerjones	14.4	X	284.58530	216.15771	78.09331	5.53554	0.1791653	0.18410009	3.0603191	20	3 29.9	18.9
34242 2000 QD <sub>100</sub>	15.1	X	150.77192	175.71076	68.51460	3.86489	0.1030655	0.30685088	2.1769634	20	12 24.2	18.1
34243 2000 QR <sub>100</sub>	13.4	X	246.89428	276.07297	154.60236	10.96822	0.0876747	0.19230635	2.9726262	20	8 14.4	17.6
34244 2000 QF <sub>101</sub>	13.8	X	352.52967	269.01075	77.97499	7.03301	0.1000273	0.19760914	2.9192057	20	10 4.4	17.4
34245 Andrewkomo	15.4	X	254.98492	154.68097	76.40651	6.07278	0.1254019	0.26939492	2.3743412	20	—	—
34246 Kopperapu	15.5	X	17.62047	187.89321	88.87874	4.09464	0.1641844	0.29338531	2.2430751	20	8 31.6	17.4
34247 2000 QC <sub>103</sub>	13.5	X	92.08473	60.69467	122.80727	10.25818	0.0467550	0.18719780	3.0264643	20	7 10.3	17.7
34248 2000 QE <sub>104</sub>	14.0	X	231.19483	275.96813	107.24705	12.47711	0.0613694	0.18473085	3.0533489	20	6 1.5	18.5
34249 Leolo	14.9	X	124.21377	286.80377	77.66047	5.03330	0.1343023	0.21923163	2.7239590	20	1 15.1	18.7
34250 Mamichael	15.8	X	354.92771	251.05382	339.60265	9.06495	0.1012150	0.28430115	2.2906055	20	4 15.2	18.1
34251 Rohanmehrotra	15.3	X	222.06207	89.34080	348.58277	3.46381	0.0176183	0.24238478	2.5476073	20	8 8.0	18.7
34252 Orlovsky	15.7	X	161.58322	54.95739	162.30736	2.20079	0.1479397	0.25709448	2.4494818	20	11 19.5	19.4
34253 Nitya	15.8	X	85.30654	13.29558	1.65235	3.26050	0.1118466	0.21448543	2.7639967	20	—	—
34254 Mihirpatel	14.2	X	219.44112	322.90079	331.74332	4.24687	0.1318211	0.17403827	3.1771633	20	1 30.0	19.3
34255 2000 QR <sub>115</sub>	14.2	X	192.55477	39.83883	19.66438	10.87356	0.1247472	0.18349468	3.0670468	20	5 28.2	19.2
34256 Advaitpatil	14.5	X	151.82351	127.86607	111.45840	3.26170	0.0390856	0.20579591	2.8412638	20	11 30.7	18.5
34257 2000 QU <sub>116</sub>	14.1	X	26.93948	316.77230	246.15460	7.74279	0.0372959	0.18540886	3.0459006	20	5 6.9	18.2
34258 Pentland	14.3	X	324.61602	278.86259	224.60389	7.89502	0.0954148	0.21466159	2.7624843	20	—	—
34259 Abprabhakaran	15.0	X	28.46622	359.76453	260.62186	5.24220	0.0992958	0.29211116	2.2495930	20	8 9.7	17.2
34260 2000 QG <sub>120</sub>	13.6	X	163.54110	143.99092	208.77014	4.78042	0.1709296	0.17293604	3.1906491	20	2 15.6	18.8
34261 Musharahman	14.9	X	355.78068	344.74954	293.88542	3.51172	0.1371569	0.29063317	2.2572133	20	7 11.1	16.3
34262 Michaelren	14.7	X	24.02244	17.63380	246.28993	3.58306	0.1273459	0.24219820	2.5489155	20	8 6.1	17.5
34263 2000 QV <sub>121</sub>	13.3	X	145.11225	43.32199	321.76282	9.58015	0.1170440	0.17085855	3.2164606	20	2 10.9	18.3
34264 Sadhuka	14.4	X	171.34467	158.07022	311.24168	9.15878	0.0241075	0.18715196	3.0269585	20	7 11.3	18.7
34265 2000 QC <sub>125</sub>	14.2	X	130.04237	294.20906	88.90982	6.74209	0.1754219	0.17208606	3.2011468	20	2 25.0	19.2
34266 Schweinfurth	15.0	X	33.10077	238.47255	297.68244	9.82520	0.0177050	0.28186562	2.3037816	20	3 27.9	18.0
34267 Haniya	14.6	X	353.49935	130.56069	172.57441	1.69094	0.0340853	0.19184632	2.9773763	20	7 31.6	18.4
34268 Gracetian	14.1	X	176.37481	304.40435	299.47281	5.92804	0.0787645	0.21027963	2.8007300	20	12 31.6	18.2
34269 2000 QV <sub>130</sub>	14.6	X	103.40153	358.40713	327.39228	4.44248	0.2160494	0.26514191	2.3996642	20	—	—
34270 2000 QW <sub>131</sub>	12.8	X	328.84408	247.34830	34.77581	15.26579	0.0687680	0.23253756	2.6190310	20	5 23.0	16.1
34271 Vinjaivale	14.7	X	156.29022	334.11196	262.93893	1.78293	0.0291386	0.21103416	2.7940502	20	12 3.9	18.7
34272 Veeramacheni	14.7	X	156.24256	308.36691	145.02361	9.97068	0.0216668	0.23893176	2.5720937	20	6 3.2	18.3
34273 Franklynwang	15.0	X	186.01179	289.88618	43.91802	3.20311	0.0818398	0.22587998	2.6702437	20	2 7.7	19.0
34274 2000 QM <sub>135</sub>	14.7	X	24.09155	72.73341	132.83042	15.74620	0.0543340	0.23552295	2.5968522	20	5 12.6	18.2
34275 2000 QE <sub>136</sub>	13.9	X	241.49841	158.25189	153.14866	17.33991	0.1016415	0.17897472	3.1184701	20	3 12.7	18.6
34276 2000 QW <sub>136</sub>	15.7	X	291.46818	158.63332	88.77297	2.90055	0.2031654	0.27995973	2.3142255	20	1 23.3	18.8
34277 Davidxingwu	14.5	X	3.48630	281.67120	34.23294	2.58033	0.0972622	0.19536642	2.9415040	20	9 6.9	18.1
34278 Justinxie	14.2	X	358.47427	338.31036	355.87025	0.89734	0.1015284	0.19654933	2.9296900	20	9 22.8	17.7
34279 Alicezhang	14.6	X	78.71093	226.90804	157.73832	3.39702	0.1019067	0.21351057	2.7724036	20	—	—
34280 Victoradler	14.7	X	183.38226	209.76302	168.19242	2.90608	0.0755795	0.22740246	2.6583120	20	3 29.5	18.6
34281 Albritton	14.5	X	307.19454	92.31930	49.61235	5.79460	0.1480670	0.21020858	2.8013611	20	—	—
34282 Applegate	14.1	X	173.70780	152.51930	108.67740	4.59366	0.0514966	0.21051103	2.7986772	20	—	—
34283 Bagley	14.7	X	345.90577	90.13566	36.20493	6.97485	0.0695492	0.26435975	2.4043950	20	—	—
34284 Seancampbell	15.2	X	73.96788	164.70080	62.47951	5.48532	0.1341347	0.29301355	2.0249719	20	9 10.1	18.1
34285 Dorothydady	15.0	X	113.07226	28.20433	87.52642	2.50751	0.0450096	0.23153140	2.6266132	20	5 9.6	18.6
34286 2000 QF <sub>147</sub>	13.4	X	21.84454	256.06018	45.26923	13.97014	0.1856492	0.23816240	2.5776300	20	10 11.2	16.4
34287 2000 QG <sub>147</sub>	12.9	X	10.65014	269.92941	59.78407	11.63945	0.1070104	0.18951713	3.0017215	20	10 10.8	16.8
34288 Bevingdagnen	15.2	X	238.90114	311.29400	280.22843	4.73749	0.0656452	0.26740885	2.3860829	20	—	—
34289 Johndell	14.7	X	255.79895	178.21989	239.80347	2.06558	0.0930008	0.24251719	2.5466799	20	8 12.9	18.0
34290 2000 QQ <sub>150</sub>	13.1	X	297.03727	37.23332	339.98290	9.09839	0.0922570	0.19060921	2.9902451	20	8 13.8	16.9
34291 2000 QS <sub>150</sub>	12.7	X	280.41370	28.78938	354.61839	9.60947	0.0954536	0.18878789	3.0094465	20	7 29.8	16.9
34292 2000 QK <sub>151</sub>	13.5	X	298.32430	108.85232	249.75126	9.16854	0.1350602	0.18754339	3.0227452	20	7 11.9	17.4
34293 Khiemdoba	15.2	X	0.41346	112.09705	288.33236	5.47190	0.1238394	0.25899793	2.4374658	20	—	—
34294 Taylordufford	14.8	X	199.02496	186.71101	219.80422	7.75710	0.0998498	0.23805841	2.5783806	20	5 21.7	18.6
34295 2000 QN <sub>152</sub>	14.4	X	233.96805	235.14559	167.04401	14.11434	0.2079336	0.24043380	2.5613703	20	6 13.9	18.7
34296 2000 QT <sub>153</sub>	15.9	X	65.80215	349.99377	305.61567	6.47657	0.0631784	0.30444625	2.1884114	20	11 21.7	18.7
34297 Willfrazier	15.3	X	70.49383	163.40654	245.89925	8.53697	0.1072972	0.26973163	2.3723647	20	—	—
34298 2000 QH <sub>159</sub>	12.3	X	205.61756	178.18564	212.50225	9.67756	0.1245735	0.08379792	5.1718657	20	5 10.6	19.7
34299 2000 QF <sub>162</sub>	14.3	X	162.57138	97.77089	230.72993	7.05205	0.0308011	0.17246722	3.1964286	20	1 8.8	19.0
34300 Brendafrost	14.0	X	119.93453	202.32450	230.96887	4.67825	0.1291918	0.17679320	3.1440709	20	4 4.9	18.7
34301 2000 QO <sub>171</sub>	14.3	X	336.13984	181.57960	319.79533	4.51873	0.0055729	0.21721826	2.7407652	20	—	—
34302 Riagalanos	15.1	X	126.84694	144.31350	287.43859	4.90629	0.0898450	0.27966429	2.3158550	20	3 28.6	18.2
34303 2000 QN <sub>173</sub>	15.9	X	15.30016	340.67533	248.97648	4.23235	0.1858780	0.29014460	2.2597465	20	6 4.5	17.2
34304 Alainagarza	15.1	X	78.24639	134.69316	203.22829	5.33190	0.0667505	0.21139335	2.7908843	20	—	—
34305 2000 QN <sub>179</sub>	14.1	X	71.57773	90.88531	1.77966	14.83533	0.1118789	0.17153031	3.2080575	20	3 3.9	18.4
34306 2000 QP <sub>183</sub>	14.7	X	82.40148	254.34740	70.45528	3.32062	0.2079159	0.25984858	2.4321432	20	—	—
34307 Arielhaas	14.8	X	241.97781	223.66013	61.00884	2.89771	0.1384878	0.22935451	2.6432071	20	2 1.9	18.8
34308 Roberthall	14.4	X	92.81061	233.36596	124.48003	7.60001	0.0500899	0.21572515	2.7533972	20	—	—
34309 2000 QY <sub>186</sub>	13.1	X	137.75841	343.92060	352.53934	13.22460	0.2449636	0.17041106	3.2220889	20	1 17.1	18.5
34310 Markhannum	15.5	X	46.72467	292.98491	74.65412	4.57125	0.1049489	0.20969280	2.8059528	20	—	—
34311 2000 QE <sub>188</sub>	14.2	X	139.64062	338.95203	121.26852	12.79699	0.1001836	0.18468267	3.0538799	20	5 30.0	19.0
34312 Deahaupt	14.5	X	45.99818	219.18032	88.17338	3.23741	0.0530560	0.20301803	2.8671229	20	10 23.1	18.3
34313 Lisahevner	15.2	X	202.43922	218.78055	46.62105	7.06884	0.0853722	0.26914070	2.3758360	20	—	—
34314 Jasonlee	14.8	X	210.15428	245.54819	30.01481	7.50572	0.1919253	0.27260851	2.3556446	20	—	—
34315 2000 QJ <sub>190</sub>	14.4	X	73.25793	277.82897	119.98098	10.26410	0.1423045	0.21608931	2.7503029	20	—	—
34316 2000 QS <sub>190</sub>	14.9	X	214.39570	198.55255	78.94869	6.44214	0.1333172	0.27248500	2.3563564	20	—	—
34317 2000 QH <sub>191</sub>	14.1	X	283.96027	296.90458	17.							

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
34321 2000 QY <sub>195</sub>	14.8	X	196.00501	184.45059	108.54977	4.52489	0.0783274	0.22003387	2.7173340	20	—	—
34322 2000 QW <sub>196</sub>	15.3	X	237.44578	137.82682	215.17405	1.13956	0.0835363	0.23464499	2.6033258	20	4 25.4	19.0
34323 2000 QN <sub>198</sub>	15.2	X	210.35368	130.53112	83.68039	4.15084	0.1218791	0.26298045	2.4127949	20	—	—
34324 2000 QB <sub>199</sub>	14.5	X	357.94364	230.65286	118.42312	3.44998	0.0872288	0.20034476	2.8925712	20	10 13.4	18.0
34325 2000 QN <sub>201</sub>	14.4	X	156.09963	282.80612	8.83025	7.25734	0.0771996	0.21520493	2.7578327	20	—	—
34326 Zhaurova	14.7	X	179.87237	186.60591	56.65925	3.30333	0.1259254	0.26273865	2.4142750	20	—	—
34327 2000 QS <sub>203</sub>	14.7	X	155.17981	304.40948	46.34757	4.34039	0.0929614	0.22185140	2.7024724	20	1 28.2	18.7
34328 2000 QR <sub>204</sub>	14.5	X	108.03786	39.15223	327.07456	4.39375	0.0742380	0.21691602	2.7433105	20	—	—
34329 2000 QO <sub>206</sub>	14.7	X	179.31897	7.30684	9.60357	4.15688	0.1043022	0.22738469	2.6584505	20	3 24.5	18.6
34330 2000 QB <sub>209</sub>	15.7	X	105.56108	203.18981	314.81749	5.29811	0.1053809	0.28881375	2.2666831	20	7 6.7	18.6
34331 2000 QH <sub>209</sub>	15.3	X	338.11876	219.97335	287.88306	1.72950	0.1272964	0.26789006	2.3832246	20	—	—
34332 2000 QU <sub>209</sub>	14.4	X	223.33473	268.16022	180.39512	2.09047	0.0350634	0.19476387	2.9475676	20	8 15.8	18.6
34333 2000 QG <sub>211</sub>	14.6	X	234.75155	63.38295	177.70182	1.02592	0.1190024	0.18611722	3.0381672	20	5 25.7	19.2
34334 2000 QO <sub>212</sub>	14.7	X	204.72442	329.59213	314.83526	2.70461	0.0412885	0.19543385	2.9408273	20	8 26.4	18.9
34335 2000 QR <sub>214</sub>	14.7	X	23.28951	299.71506	148.16709	5.40706	0.1360585	0.21414419	2.7669322	20	—	—
34336 2000 QT <sub>214</sub>	14.7	X	88.74455	165.59884	114.24271	3.22631	0.0397092	0.20275041	2.8696453	20	11 8.2	18.7
34337 2000 QU <sub>215</sub>	15.2	X	321.79859	23.04449	112.18818	3.55014	0.1076595	0.26287326	2.4134508	20	—	—
34338 2000 QM <sub>216</sub>	15.3	X	12.35085	141.41105	72.97998	3.12344	0.0383518	0.23325867	2.6136305	20	4 30.9	18.6
34339 2000 QH <sub>218</sub>	13.9	X	113.05600	84.31197	12.58995	9.63440	0.2063737	0.17698394	3.1418116	20	5 3.7	18.8
34340 2000 QN <sub>224</sub>	14.8	X	96.39945	234.93267	184.38359	4.23812	0.0863640	0.22057411	2.7128953	20	2 9.5	18.5
34341 2000 QW <sub>224</sub>	14.7	X	26.53154	32.88021	68.15364	7.30212	0.0814055	0.26664681	2.3906268	20	—	—
34342 2000 QK <sub>227</sub>	14.6	X	357.09720	152.20249	304.08464	8.09223	0.1239886	0.21248617	2.7813070	20	—	—
34343 2000 QU <sub>227</sub>	15.1	X	71.18216	0.03114	149.92992	2.42113	0.0231264	0.23093139	2.6311608	20	4 26.3	18.5
34344 2000 QP <sub>229</sub>	13.6	X	215.08813	244.04768	134.23612	13.31174	0.2291928	0.17884108	3.1200235	20	5 2.2	19.1
34345 2000 RY	14.9	X	248.44753	42.21448	317.77428	2.27831	0.1605355	0.23453018	2.6041753	20	5 7.9	18.8
34346 2000 RJ <sub>1</sub>	15.1	X	241.12393	79.43092	239.89728	0.76428	0.0476325	0.22799678	2.6536903	20	3 20.6	18.9
34347 2000 RN <sub>1</sub>	14.2	X	126.33025	6.62195	184.93824	12.98951	0.0900919	0.24367344	2.5386174	20	9 8.1	17.9
34348 2000 RF <sub>3</sub>	13.1	X	124.66295	150.68581	15.64384	13.61770	0.1014200	0.23824456	2.5770374	20	8 12.1	17.1
34349 2000 RQ <sub>7</sub>	13.4	X	241.12465	313.20928	68.05024	6.04447	0.1166961	0.18175589	3.0865766	20	6 2.1	17.9
34350 2000 RW <sub>7</sub>	13.1	X	222.04182	290.57341	68.72130	9.85489	0.0272428	0.17532463	3.1616036	20	4 25.8	17.7
34351 Decatur	14.7	X	261.02376	88.86600	342.82518	1.29616	0.0689155	0.19495869	2.9456037	20	9 6.5	18.8
34352 2000 RJ <sub>13</sub>	13.7	X	60.69005	212.83105	277.70492	4.37712	0.1267777	0.17540271	3.1606654	20	3 31.6	17.9
34353 2000 RX <sub>17</sub>	14.1	X	119.23649	52.04952	238.57748	5.45962	0.1102391	0.25962985	2.4335091	20	—	—
34354 2000 RL <sub>18</sub>	14.9	X	191.14409	38.71520	244.57555	5.24952	0.1055561	0.26845210	2.3798971	20	—	—
34355 2000 RB <sub>20</sub>	15.0	X	83.42769	136.87149	267.12399	4.00965	0.0572580	0.21784170	2.7355335	20	—	—
34356 2000 RR <sub>20</sub>	14.9	X	261.33697	25.58432	248.79836	7.08385	0.1245467	0.22714565	2.6603152	20	2 6.3	19.0
34357 2000 RO <sub>21</sub>	14.3	X	77.46946	314.62444	210.20198	8.61739	0.0800891	0.18387116	3.0628588	20	5 23.4	18.5
34358 2000 RV <sub>22</sub>	14.1	X	244.45530	11.60810	335.97186	10.04711	0.0842575	0.18245355	3.0787033	20	4 24.0	18.8
34359 2000 RN <sub>26</sub>	13.8	X	225.72028	59.22773	248.23355	8.70825	0.0541036	0.17539691	3.1607350	20	2 18.7	18.7
34360 2000 RS <sub>28</sub>	13.8	X	66.39293	245.47873	297.03563	10.38245	0.0410021	0.18447001	3.0562269	20	6 4.1	18.1
34361 2000 RT <sub>28</sub>	13.8	X	184.39255	151.41124	227.09707	11.85821	0.0583244	0.17826429	3.1267499	20	3 30.9	18.7
34362 2000 RK <sub>30</sub>	13.3	X	223.68742	146.39736	263.30325	8.40345	0.0879358	0.18612813	3.0380485	20	6 21.6	17.7
34363 2000 RT <sub>30</sub>	15.1	X	319.69166	2.16477	213.60886	7.95541	0.0915677	0.27503246	2.3417836	20	1 30.2	18.2
34364 2000 RZ <sub>30</sub>	13.9	X	232.83141	20.49581	282.28313	7.91858	0.0512725	0.17469187	3.1692337	20	2 21.8	18.6
34365 2000 RS <sub>34</sub>	15.4	X	321.63006	41.18340	286.37774	3.89951	0.1268327	0.24032113	2.5621708	20	7 14.1	18.0
34366 Rosavestal	14.0	X	132.72681	6.83208	38.68131	8.14868	0.1125189	0.22206561	2.7007342	20	3 15.4	18.0
34367 2000 RQ <sub>40</sub>	14.6	X	323.98891	19.93152	264.18103	8.22485	0.1972301	0.23703627	2.5857876	20	5 1.3	17.3
34368 2000 RA <sub>41</sub>	13.1	X	238.10177	303.49625	324.45022	13.24876	0.0445264	0.16976708	3.2302321	20	1 24.0	17.8
34369 2000 RA <sub>42</sub>	12.9	X	258.08854	100.52052	267.77565	8.87232	0.0840071	0.18543814	3.0455799	20	6 9.6	17.3
34370 2000 RY <sub>42</sub>	13.7	X	347.36854	2.13529	307.63252	10.06012	0.0840364	0.19043034	2.9921173	20	7 31.7	17.2
34371 2000 RC <sub>43</sub>	13.0	X	180.04275	98.02883	329.30328	10.35468	0.1870168	0.17989004	3.1078829	20	5 26.0	18.4
34372 2000 RS <sub>44</sub>	14.2	X	293.84711	4.69388	328.82215	8.05547	0.1129158	0.23680302	2.5874853	20	6 6.4	17.6
34373 2000 RT <sub>44</sub>	13.2	X	9.37646	312.71937	340.05604	11.22345	0.1708238	0.24316083	2.5421840	20	8 30.3	15.4
34374 2000 RP <sub>48</sub>	13.7	X	286.50746	31.78981	352.08669	10.69043	0.1131813	0.18796123	3.0182639	20	8 5.7	17.8
34375 2000 RP <sub>49</sub>	13.6	X	41.82420	142.23699	218.95973	16.42281	0.1232605	0.20445086	2.8537117	20	12 30.3	17.9
34376 2000 RO <sub>54</sub>	13.2	X	289.55451	75.41620	310.46683	9.58054	0.1057017	0.18940365	3.0029204	20	8 9.9	17.0
34377 2000 RQ <sub>54</sub>	13.6	X	356.20898	312.95098	324.46871	11.79607	0.1261363	0.23544380	2.5974341	20	7 7.3	16.4
34378 2000 RV <sub>54</sub>	13.4	X	358.62913	355.35195	323.59676	9.52896	0.0985117	0.19080930	2.9881544	20	8 30.6	16.9
34379 2000 RJ <sub>55</sub>	14.4	X	161.47128	306.07909	338.74105	8.37162	0.1317576	0.21599272	2.7511227	20	—	—
34380 2000 RV <sub>55</sub>	15.2	X	175.81449	210.57956	160.45730	2.25294	0.1029325	0.22772460	2.6558044	20	3 13.5	19.0
34381 2000 RW <sub>55</sub>	14.0	X	159.76123	8.33077	340.75892	12.69589	0.0451545	0.17335463	3.1855108	20	2 3.9	18.7
34382 2000 RG <sub>56</sub>	14.0	X	321.55287	343.72015	281.94271	7.41284	0.0680928	0.23125354	2.6287167	20	4 18.6	17.5
34383 2000 RH <sub>56</sub>	14.1	X	358.22747	332.63369	305.09735	9.06036	0.0920009	0.18809542	3.0168281	20	7 6.3	17.8
34384 2000 RW <sub>61</sub>	13.1	X	342.71137	254.49206	78.79177	9.78789	0.0919327	0.18698991	3.0287070	20	8 29.6	17.0
34385 2000 RE <sub>62</sub>	13.9	X	247.42770	263.61468	78.37244	12.74908	0.2186198	0.22733798	2.6588146	20	4 15.8	18.3
34386 2000 RP <sub>62</sub>	13.8	X	351.73580	105.94939	88.40398	9.70841	0.2038518	0.21539436	2.7562155	20	2 22.9	16.7
34387 2000 RX <sub>62</sub>	15.6	X	297.35602	329.78088	1.20884	4.41579	0.0618994	0.29171877	2.2516098	20	6 18.5	18.1
34388 2000 RE <sub>63</sub>	15.2	X	84.25908	40.47173	120.71167	6.93902	0.1121979	0.28793701	2.2712820	20	6 13.4	17.9
34389 2000 RJ <sub>65</sub>	14.2	X	224.96666	322.44274	12.59440	2.40060	0.1340948	0.17792913	3.1306752	20	3 20.8	19.2
34390 2000 RJ <sub>66</sub>	13.8	X	65.40887	57.75432	178.31883	13.18862	0.1170821	0.23910325	2.5708638	20	8 27.8	17.3
34391 2000 RX <sub>67</sub>	14.4	X	6.18753	159.14183	106.02581	5.54707	0.1857633	0.29624175	2.2286329	20	7 17.1	15.7
34392 2000 RT <sub>68</sub>	14.7	X	342.81781	343.94207	161.54453	1.38332	0.1286388	0.26626232	2.3929277	20	—	—
34393 2000 RL <sub>69</sub>	14.4	X	250.51582	215.86750	90.10113	2.85402	0.1474588	0.17953322	3.1119994	20	3 10.9	19.3
34394 2000 RC <sub>70</sub>	14.5	X	342.04679	310.62481	10.19472	10.19041	0.0932594	0.19122342	2.9838386	20	8 11.5	18.2

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
34401 2000 RS <sub>83</sub>	14.9	X	274.64931	347.40547	321.45632	3.77882	0.0824327	0.23043047	2.6349726	20	4 11.1	18.4
34402 2000 RW <sub>84</sub>	14.9	X	205.55174	195.71129	48.13469	3.33010	0.1286007	0.26579338	2.3957414	20	—	—
34403 2000 RP <sub>85</sub>	14.6	X	331.35837	191.89098	144.90254	2.79675	0.1054433	0.19506054	2.9445783	20	8 11.1	17.9
34404 2000 RZ <sub>85</sub>	15.2	X	23.93928	135.24642	51.55399	3.21761	0.0904592	0.27766207	2.3269748	20	4 8.5	17.5
34405 2000 RU <sub>86</sub>	14.3	X	356.53855	258.91578	331.95236	8.21342	0.0925037	0.23246259	2.6195941	20	4 23.1	17.4
34406 2000 RD <sub>92</sub>	15.2	X	2.67884	299.26144	318.14768	2.61864	0.1570711	0.28732326	2.2745153	20	6 20.5	16.7
34407 2000 RD <sub>93</sub>	13.8	X	322.57970	11.36214	293.65196	6.67006	0.1801244	0.23668137	2.5883718	20	6 3.8	16.4
34408 2000 RX <sub>94</sub>	14.2	X	302.88320	271.14571	94.22701	3.22806	0.1026075	0.19126120	2.9834456	20	8 4.5	17.9
34409 2000 RB <sub>95</sub>	14.2	X	266.94268	27.14737	29.79535	9.64737	0.0607585	0.19275385	2.9680236	20	8 31.7	18.4
34410 2000 RT <sub>95</sub>	14.6	X	104.52361	251.16912	83.68577	5.42404	0.0716833	0.21044132	2.7992953	20	—	—
34411 2000 RR <sub>96</sub>	13.2	X	23.50856	129.92380	227.47232	8.92671	0.0976942	0.15166379	3.4824224	20	11 18.5	17.7
34412 2000 RG <sub>100</sub>	14.2	X	351.29408	23.68366	37.15995	2.72230	0.0431369	0.20703650	2.8299023	20	12 31.2	17.9
34413 2000 RS <sub>101</sub>	13.6	X	317.96098	51.53391	270.44647	11.49420	0.1703194	0.18973849	2.9993864	20	6 20.8	16.8
34414 2000 RQ <sub>103</sub>	12.9	X	246.78270	52.72167	292.23853	14.82206	0.1100828	0.18233397	3.0800492	20	4 18.6	17.9
34415 2000 RV <sub>103</sub>	14.0	X	39.66613	186.97715	270.47946	6.79702	0.0448469	0.21626584	2.7488061	20	1 7.5	17.5
34416 2000 RV <sub>104</sub>	14.2	X	144.33690	224.21314	245.42823	10.80632	0.0957235	0.23163160	2.6258556	20	6 13.1	18.0
34417 2000 RE <sub>105</sub>	13.9	X	262.11469	345.57488	288.10459	11.79948	0.1440750	0.22399143	2.6852318	20	2 4.8	18.1
34418 2000 SO <sub>3</sub>	14.9	X	263.66914	287.97015	75.76916	7.40926	0.1678656	0.28786048	2.2716845	20	5 30.3	17.9
34419 Corning	14.7	X	62.98764	325.27107	277.47101	4.64207	0.1453634	0.24129102	2.5553003	20	9 6.7	18.2
34420 Peterpau	13.7	X	237.76738	296.66247	41.91280	5.66780	0.1602663	0.17833745	3.1258947	20	4 5.3	18.6
34421 2000 SA <sub>12</sub>	13.2	X	163.70471	14.13378	327.27099	20.64872	0.1295864	0.17594040	3.1542225	20	2 4.6	18.2
34422 2000 SX <sub>14</sub>	14.0	X	338.98885	180.06634	128.60842	14.44565	0.1692239	0.24179131	2.5517743	20	7 17.2	16.4
34423 2000 SF <sub>20</sub>	14.6	X	150.38441	234.97574	286.05916	10.45173	0.1615078	0.23916699	2.5704070	20	8 23.7	18.9
34424 Utashima	14.3	X	329.48271	92.32981	233.28715	9.45538	0.1041477	0.18955955	3.0012737	20	7 20.3	18.1
34425 2000 SP <sub>22</sub>	15.2	X	302.51239	192.73419	97.37830	8.05668	0.2132317	0.28482712	2.2877847	20	4 5.2	18.0
34426 2000 SS <sub>22</sub>	14.2	X	105.02192	352.07018	124.58139	1.83966	0.1222841	0.17718413	3.1394447	20	5 12.6	18.7
34427 2000 SN <sub>23</sub>	13.2	X	222.64190	331.92638	103.09532	12.30279	0.0727675	0.18374189	3.0642952	20	7 24.7	17.7
34428 2000 SA <sub>27</sub>	13.6	X	122.58509	171.10511	204.45061	21.93607	0.0707129	0.16944801	3.2342858	20	1 20.4	18.7
34429 2000 SC <sub>27</sub>	14.9	X	231.99269	133.66114	195.70864	10.22279	0.0719797	0.17961646	3.1110378	20	3 23.9	19.5
34430 2000 SJ <sub>29</sub>	14.5	X	145.99554	124.50339	216.52678	4.00186	0.1242408	0.17008168	3.2262476	20	1 14.9	19.4
34431 2000 SZ <sub>33</sub>	14.9	X	154.53041	3.37699	23.81460	10.69498	0.1663790	0.17436792	3.1731578	20	3 22.2	20.0
34432 2000 SF <sub>36</sub>	14.7	X	217.46134	1.66155	111.06830	3.45138	0.0417837	0.19473111	2.9478982	20	9 9.8	18.8
34433 2000 SE <sub>37</sub>	14.6	X	308.79446	134.82601	112.12415	2.72010	0.1092934	0.17881443	3.1203334	20	3 10.5	18.9
34434 2000 SE <sub>39</sub>	13.8	X	89.57396	297.07252	112.93244	6.37918	0.0631146	0.21780825	2.7358136	20	1 17.9	17.3
34435 2000 SR <sub>39</sub>	14.6	X	16.18631	123.84416	36.25191	13.94457	0.1230407	0.22215025	2.7000482	20	3 1.2	17.8
34436 2000 SE <sub>40</sub>	14.2	X	286.19537	234.88805	157.76439	10.77525	0.0403413	0.19210280	2.9747256	20	8 23.7	18.2
34437 2000 SF <sub>43</sub>	14.7	X	335.20966	274.98239	352.39942	8.42255	0.0857719	0.23295698	2.6158660	20	5 10.7	18.0
34438 2000 SV <sub>44</sub>	13.9	X	210.64820	267.61302	338.17698	5.98935	0.0857877	0.26235787	2.4166104	20	—	—
34439 2000 SG <sub>45</sub>	13.0	X	228.06310	319.79557	85.46570	11.01769	0.0218382	0.18738846	3.0244111	20	6 28.0	17.3
34440 2000 SV <sub>46</sub>	12.7	X	79.80987	191.43233	281.82560	14.32597	0.1942029	0.17731878	3.1378552	20	4 10.9	17.3
34441 2000 SZ <sub>60</sub>	14.4	X	252.91200	98.08234	168.93772	5.22374	0.1368655	0.17413660	3.1759672	20	1 27.2	19.4
34442 2000 SS <sub>64</sub>	14.5	X	316.88358	38.04497	141.61176	5.34855	0.1943606	0.26692889	2.3889423	20	—	—
34443 2000 ST <sub>70</sub>	15.1	X	355.43941	293.23010	118.50378	3.11478	0.0618380	0.20439401	2.8542408	20	12 26.2	18.9
34444 2000 SW <sub>73</sub>	14.6	X	281.04169	152.70224	54.83444	6.89012	0.0520570	0.26622275	2.3931648	20	—	—
34445 2000 SX <sub>73</sub>	14.4	X	27.42076	234.48547	34.23668	13.64240	0.1310946	0.24124568	2.5556204	20	8 29.3	17.6
34446 2000 SN <sub>74</sub>	14.5	X	339.47004	60.05770	134.61980	7.25684	0.0522461	0.27235870	2.3570849	20	2 8.3	17.2
34447 2000 SU <sub>74</sub>	14.0	X	31.03866	20.30695	47.37087	7.51182	0.0385409	0.21117794	2.7927818	20	—	—
34448 2000 SC <sub>78</sub>	13.9	X	79.75601	171.51700	354.18315	10.82289	0.0601609	0.18316140	3.0707662	20	6 1.1	18.3
34449 2000 SJ <sub>79</sub>	14.5	X	221.23347	139.70161	136.29272	2.19798	0.1184084	0.17028218	3.2237145	20	1 10.6	19.7
34450 2000 SZ <sub>80</sub>	15.2	X	276.99704	156.76905	86.87191	3.78460	0.1927481	0.27366701	2.3495666	20	1 5.7	18.7
34451 2000 SY <sub>82</sub>	14.8	X	271.76913	288.30291	126.77637	4.96908	0.0834199	0.19198106	2.9759831	20	8 28.7	18.9
34452 2000 SS <sub>83</sub>	14.9	X	34.05295	321.95514	157.37851	4.25660	0.0448290	0.21931954	2.7232311	20	1 26.9	18.3
34453 2000 SG <sub>84</sub>	14.8	X	305.97437	281.06222	151.29454	2.40698	0.0490952	0.20040304	2.8920103	20	11 12.2	18.5
34454 2000 SW <sub>86</sub>	14.4	X	188.84452	259.39685	59.6358	7.56740	0.1609746	0.22020708	2.7159089	20	1 27.9	18.9
34455 2000 SW <sub>87</sub>	13.7	X	172.06365	264.31773	89.03015	7.24805	0.0980224	0.17067799	3.2187287	20	2 25.0	18.7
34456 2000 SG <sub>88</sub>	14.7	X	249.38908	170.39664	87.19623	8.78581	0.0759344	0.21781656	2.7357439	20	1 12.9	18.7
34457 2000 SW <sub>88</sub>	14.9	X	6.72732	270.71068	141.49665	2.70263	0.0446254	0.20638665	2.8358395	20	—	—
34458 2000 ST <sub>90</sub>	14.4	X	269.45132	8.18884	228.53993	23.98694	0.1349046	0.27275181	2.3548195	20	—	—
34459 2000 SC <sub>91</sub>	13.2	X	209.54819	170.96351	294.28504	12.03920	0.1212358	0.23893225	2.5720902	20	8 13.4	17.1
34460 2000 SV <sub>91</sub>	13.5	X	76.17128	236.43437	209.54219	16.03878	0.1331442	0.17216343	3.2001876	20	2 25.6	18.0
34461 2000 SC <sub>95</sub>	14.3	X	267.60564	88.44647	226.83551	13.06730	0.0175607	0.18104777	3.0946196	20	4 23.4	18.6
34462 2000 SD <sub>95</sub>	15.5	X	50.57428	322.75473	283.51707	4.11421	0.0898465	0.29263968	2.2468836	20	8 23.5	18.0
34463 2000 SB <sub>101</sub>	13.8	X	261.83137	25.98954	328.76698	12.47333	0.1952261	0.18346653	3.0673605	20	5 8.8	18.8
34464 2000 SC <sub>101</sub>	13.7	X	185.01399	84.83614	269.96740	10.83200	0.0215625	0.17137685	3.2099723	20	2 29.4	18.6
34465 2000 SD <sub>102</sub>	15.1	X	299.38838	113.56280	349.67550	6.10889	0.0709261	0.20413342	2.8566694	20	12 10.2	18.7
34466 2000 SN <sub>105</sub>	14.4	X	20.41991	341.39053	265.80597	2.26530	0.0961264	0.18778483	3.0201537	20	6 30.3	17.9
34467 2000 SC <sub>108</sub>	14.4	X	293.44389	135.98142	215.43533	1.35863	0.0169064	0.18757510	3.0224045	20	7 13.3	18.5
34468 2000 SS <sub>109</sub>	15.1	X	254.61047	121.95757	345.46237	2.80761	0.2374703	0.24208989	2.5496757	20	9 25.7	18.5
34469 2000 SM <sub>110</sub>	14.8	X	346.21049	143.33361	207.06421	1.35872	0.0852560	0.19542204	2.9409458	20	9 23.4	18.4
34470 2000 SV <sub>113</sub>	14.1	X	314.49510	256.66001	35.21028	9.02831	0.0616728	0.18304944	3.0720181	20	5 18.2	18.3
34471 2000 SE <sub>115</sub>	14.2	X	107.40372	103.25134	177.11112	2.05018	0.1224352	0.20347222	2.8628547	20	12 5.3	18.7
34472 2000 ST <sub>115</sub>	14.2	X	119.07718	20.52571	179.83648	4.43416	0.1155415	0.24197814	2.5504606	20	9 14.4	18.0
34473 2000 SC <sub>116</sub>	14.6	X	20.89312	285.36540	162.77825	3.91739	0.0672403	0.21174994	2.7877502	20	—	—
34474 2000 SJ <sub>116</sub>	14.2	X	340.84503	293.18711	109.00314	3.06247	0.064404					

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
34481 2000 SF <sub>122</sub>	13.6 <sup>m</sup>	X	205.73031	317.86243	52.54743	11.55617	0.1046017	0.17725861	3.1385652	20	4 17.5	18.5
34482 2000 SX <sub>122</sub>	14.3	X	212.31637	284.54020	76.08502	3.84863	0.0766990	0.17669889	3.1451896	20	4 12.1	19.0
34483 2000 SW <sub>123</sub>	13.6	X	163.56437	334.98046	57.96184	10.27597	0.0604045	0.17348943	3.1838605	20	4 2.6	18.4
34484 2000 SR <sub>124</sub>	14.4	X	265.15905	129.30597	107.90441	3.23809	0.1611763	0.26765862	2.3845983	20	—	—
34485 2000 SF <sub>128</sub>	14.6	X	8.21011	271.82367	73.24351	6.22959	0.1155407	0.19706212	2.9246055	20	10 26.5	18.2
34486 2000 ST <sub>131</sub>	14.7	X	306.00165	263.89498	240.65551	20.98398	0.2627734	0.26120059	2.4237433	20	—	—
34487 2000 SE <sub>133</sub>	14.9	X	320.57016	259.31412	261.29132	10.39821	0.1913268	0.26642947	2.3919267	20	—	—
34488 2000 SO <sub>135</sub>	14.3	X	314.64912	16.87606	237.82976	7.97594	0.0815585	0.17979284	3.1090029	20	3 27.7	18.6
34489 2000 SE <sub>136</sub>	14.1	X	5.88064	249.02383	332.77274	9.73618	0.0590711	0.18106152	3.0944628	20	4 28.5	18.4
34490 2000 SO <sub>137</sub>	13.9	X	231.01651	122.45824	232.17253	5.86936	0.1782499	0.18127251	3.0920612	20	4 14.2	18.9
34491 2000 SB <sub>138</sub>	15.1	X	104.59600	333.23261	257.79965	5.36471	0.1694817	0.29738869	2.2228991	20	10 18.1	18.4
34492 2000 SP <sub>139</sub>	14.4	X	264.30763	157.75908	273.63739	8.78795	0.0696383	0.19337581	2.9616561	20	9 5.3	18.7
34493 2000 SR <sub>139</sub>	13.9	X	208.77540	134.34859	281.82727	8.52667	0.0810916	0.18316164	3.0707635	20	6 13.9	18.5
34494 2000 SE <sub>144</sub>	14.6	X	253.12578	147.59874	246.51316	2.59586	0.1181861	0.18684930	3.0302263	20	7 1.9	18.9
34495 2000 SX <sub>146</sub>	14.0	X	359.83545	242.11038	11.30642	9.53800	0.0444887	0.18304226	3.0720985	20	6 2.7	18.2
34496 2000 SF <sub>147</sub>	14.6	X	64.38914	328.25537	9.68580	1.77453	0.0309268	0.20391149	2.8587417	20	12 18.5	18.5
34497 2000 SJ <sub>147</sub>	14.8	X	262.73447	355.89006	261.09215	0.32742	0.1023992	0.22111861	2.7084398	20	1 23.2	18.6
34498 2000 SF <sub>149</sub>	14.1	X	225.42335	29.26304	198.20929	1.96180	0.1477927	0.21121382	2.7924656	20	—	—
34499 2000 SL <sub>150</sub>	14.0	X	217.59978	54.97119	13.56346	8.86385	0.1229521	0.18458378	3.0549705	20	7 7.1	18.9
34500 2000 SR <sub>154</sub>	13.8	X	180.58467	270.39560	73.09349	1.46379	0.1782904	0.17130332	3.2108908	20	2 21.8	19.0
34501 2000 SC <sub>155</sub>	13.4	X	196.41464	223.13342	51.33070	9.95400	0.1170923	0.21299088	2.7769115	20	—	—
34502 2000 SE <sub>157</sub>	13.1	X	91.79573	306.69524	276.62763	14.16036	0.0428177	0.24142453	2.5543581	20	8 28.4	16.9
34503 2000 SJ <sub>157</sub>	14.9	X	22.30556	272.26671	155.91131	1.27289	0.0178169	0.21107851	2.7936588	20	—	—
34504 2000 SL <sub>158</sub>	14.5	X	212.71720	94.82156	90.84126	3.08163	0.0120173	0.20171433	2.8794633	20	12 7.6	18.3
34505 2000 SR <sub>160</sub>	15.0	X	118.92604	24.52320	343.24799	4.03924	0.1464791	0.30971811	2.1635071	20	—	—
34506 2000 SO <sub>172</sub>	14.3	X	128.43227	63.45867	270.84640	21.53233	0.2873049	0.25786130	2.4446232	20	—	—
34507 2000 SE <sub>174</sub>	14.1	X	259.36274	304.68725	261.84348	13.45320	0.1282114	0.21326453	2.7745356	20	—	—
34508 2000 SU <sub>174</sub>	14.2	X	296.08685	266.90292	268.14599	10.67371	0.1606939	0.21153768	2.7896147	20	—	—
34509 2000 SH <sub>175</sub>	15.2	X	94.08590	307.53255	291.64030	6.49121	0.0911974	0.29460248	2.2368925	20	10 9.5	18.3
34510 2000 SJ <sub>175</sub>	14.0	X	25.73870	129.23382	349.60866	12.52738	0.0802889	0.21576309	2.7530744	20	1 19.0	17.5
34511 2000 SK <sub>175</sub>	14.9	X	4.70459	331.21498	308.71929	6.37331	0.1738396	0.28963593	2.2623915	20	8 6.3	16.5
34512 2000 SE <sub>178</sub>	13.8	X	54.57677	270.30825	354.54518	9.91815	0.0765613	0.19102467	2.9859079	20	9 10.9	17.7
34513 2000 SQ <sub>178</sub>	13.5	X	73.51068	27.70621	354.23537	6.07395	0.0562782	0.15891489	3.3756674	20	—	—
34514 2000 SQ <sub>180</sub>	14.4	X	272.52944	275.47392	341.86142	6.14129	0.2477272	0.27193751	2.3595181	20	1 15.2	18.2
34515 2000 SD <sub>182</sub>	14.8	X	59.72524	324.94683	56.36291	9.11183	0.2355207	0.21152128	2.7897589	20	—	—
34516 2000 SF <sub>182</sub>	14.4	X	297.91944	302.11463	39.33098	10.48865	0.1110885	0.19091408	2.9870609	20	6 23.2	18.4
34517 2000 SC <sub>185</sub>	14.1	X	248.74348	338.65716	109.34499	11.72899	0.0822620	0.19327445	2.9626914	20	9 14.4	18.4
34518 2000 SD <sub>185</sub>	13.8	X	222.88324	290.87104	133.71250	12.43298	0.0684280	0.18599493	3.0394988	20	7 11.3	18.3
34519 2000 SJ <sub>186</sub>	14.0	X	38.90994	72.10478	93.87276	0.19694	0.1225608	0.17560355	3.1582550	20	4 14.9	17.8
34520 2000 SC <sub>187</sub>	14.0	X	241.68519	340.75689	73.87220	9.81652	0.0552979	0.18853167	3.0121725	20	7 24.7	18.4
34521 2000 SA <sub>191</sub>	11.5	X	273.05828	318.09052	4.93676	17.49138	0.0738105	0.08558317	5.0996901	20	4 30.1	18.5
34522 2000 SH <sub>192</sub>	15.0	X	87.95740	155.45908	151.59535	2.29847	0.1055449	0.20513832	2.8473325	20	12 16.5	19.4
34523 2000 SU <sub>194</sub>	14.4	X	23.65465	178.73228	25.18474	1.35806	0.1003451	0.18297171	3.0728881	20	5 7.9	18.2
34524 2000 SZ <sub>195</sub>	15.4	X	339.30008	135.53778	348.24667	0.27645	0.0809219	0.21374057	2.7704144	20	—	—
34525 2000 SQ <sub>205</sub>	14.9	X	272.65003	0.09791	202.43126	2.42855	0.1623451	0.26371282	2.4083257	20	—	—
34526 2000 SY <sub>205</sub>	13.6	X	72.80328	346.63089	141.71639	1.56011	0.1436002	0.17237424	3.1975779	20	4 20.6	17.9
34527 2000 SQ <sub>208</sub>	15.3	X	317.78647	33.32361	131.55256	1.92832	0.1288837	0.26681035	2.3896498	20	—	—
34528 2000 SW <sub>211</sub>	14.2	X	197.03433	337.67890	121.88808	10.80851	0.0456120	0.18762124	3.0219089	20	7 28.2	18.6
34529 2000 SD <sub>212</sub>	13.6	X	80.55268	73.22691	164.41529	15.17178	0.0766703	0.24281470	2.5445993	20	9 15.9	17.0
34530 2000 ST <sub>212</sub>	14.0	X	325.58467	274.43370	85.43156	11.70074	0.1286926	0.19327323	2.9627038	20	9 6.9	17.6
34531 2000 SY <sub>212</sub>	14.3	X	60.74133	157.68978	87.33509	9.92878	0.0409786	0.19011876	2.9953856	20	8 21.8	18.5
34532 2000 SO <sub>213</sub>	12.9	X	171.03738	342.13540	79.21872	11.99835	0.1218680	0.17764487	3.1340140	20	5 16.1	18.3
34533 2000 SY <sub>213</sub>	14.0	X	194.76301	348.33341	94.46662	10.65852	0.0808125	0.18381587	3.0634729	20	7 2.2	18.5
34534 2000 SL <sub>216</sub>	14.9	X	237.14580	133.60226	89.83927	7.46826	0.0682597	0.26221734	2.4174738	20	—	—
34535 2000 SR <sub>220</sub>	14.6	X	358.64516	126.03666	91.08039	10.93263	0.0389289	0.22696018	2.6617643	20	4 19.6	18.1
34536 2000 SJ <sub>221</sub>	13.8	X	297.56122	339.34234	159.21814	12.71057	0.1189399	0.20471693	2.8512385	20	—	—
34537 2000 SW <sub>221</sub>	14.1	X	352.99628	222.44556	100.17431	13.05805	0.1590445	0.19166846	2.9792180	20	9 5.2	17.6
34538 2000 SA <sub>222</sub>	13.7	X	303.80515	173.72184	116.41918	12.71971	0.1108361	0.17950034	3.1123794	20	5 1.4	18.1
34539 2000 SL <sub>223</sub>	15.2	X	273.29779	9.45733	223.53453	1.12619	0.0174803	0.21901855	2.7257255	20	1 15.4	18.8
34540 2000 SW <sub>225</sub>	13.7	X	208.42747	216.17338	128.91496	8.40512	0.0410838	0.17236813	3.1976535	20	3 23.4	18.5
34541 2000 SB <sub>228</sub>	14.9	X	44.20302	37.27829	216.32798	3.50789	0.0408734	0.18957906	3.0010678	20	8 5.7	19.0
34542 2000 SC <sub>228</sub>	14.4	X	267.90689	245.72889	11.03547	10.10653	0.0723113	0.17132617	3.2106053	20	2 11.1	19.2
34543 Davidbriggs	14.7	X	67.77057	336.82643	301.25868	1.10434	0.0541193	0.19580175	2.9371425	20	10 10.7	18.7
34544 2000 SP <sub>233</sub>	15.4	X	88.79619	94.62464	111.82841	7.31519	0.1077324	0.29188771	2.2507409	20	8 25.8	18.3
34545 2000 SB <sub>234</sub>	15.3	X	318.14225	37.32593	77.48306	7.26513	0.1050737	0.25850676	2.4405522	20	—	—
34546 2000 SG <sub>234</sub>	14.3	X	199.63249	243.66666	73.20335	6.85603	0.2612569	0.27438228	2.3454815	20	1 30.7	18.5
34547 2000 SH <sub>234</sub>	14.0	X	238.05185	275.54433	95.60625	8.86882	0.1331617	0.18415282	3.0597350	20	5 17.8	18.8
34548 2000 SY <sub>237</sub>	14.4	X	149.30204	210.87460	69.88655	10.79012	0.2653348	0.26210319	2.4181757	20	—	—
34549 2000 SA <sub>238</sub>	13.9	X	106.00818	83.42000	141.23272	11.20231	0.0373059	0.19349012	2.9604895	20	9 20.8	18.2
34550 2000 SU <sub>238</sub>	13.5	X	87.55227	73.38524	106.70049	7.83300	0.1497886	0.18207214	3.0830013	20	7 14.7	17.9
34551 2000 SJ <sub>242</sub>	14.4	X	240.50342	319.44422	6.13505	8.91947	0.1269427	0.23107992	2.6300333	20	3 21.6	18.5
34552 2000 SV <sub>242</sub>	14.6	X	106.70798	152.52970	323.84466	1.84748	0.0973970	0.18119520	3.0929406	20	5 9.7	19.1
34553 2000 SV <sub>246</sub>	12.1	X	192.20577	19.74835	22.06544	14.92498	0.0516644	0.08122374	5.2805689	20	5 8.7	19.4
34554 2000 ST <sub>251</sub>	14.1	X	200.54140	131.15165	158.09807	1.38090	0.1448063	0.169				



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Planet	H	G	M	$\omega$	$\Omega$	$i$	$e$	$\mu$	$a$	TE	Oppos.	V
34561 2000 SQ <sub>285</sub>	13.7	X	303.31965	20.40211	225.79385	9.22609	0.0551101	0.17430218	3.1739555	20	3 5.8	18.3
34562 2000 SW <sub>287</sub>	13.3	X	298.55819	334.74713	353.01853	12.16193	0.1512769	0.18352457	3.0667138	20	5 28.0	17.6
34563 2000 SS <sub>290</sub>	14.2	X	56.36356	244.53390	294.76427	13.86832	0.0715505	0.23087565	2.6315844	20	5 18.7	17.8
34564 2000 SN <sub>292</sub>	14.2	X	292.37206	244.71843	318.06573	11.96883	0.1749632	0.21465782	2.7625167	20	—	—
34565 2000 SY <sub>292</sub>	13.8	X	113.63082	341.32529	256.64422	11.75855	0.0516220	0.19535225	2.9416462	20	10 10.9	18.3
34566 2000 SE <sub>294</sub>	13.6	X	113.62529	116.15653	26.89818	15.62868	0.1391669	0.22726144	2.6594115	20	6 26.7	17.9
34567 2000 SR <sub>297</sub>	14.2	X	323.39415	336.64533	308.56803	8.40424	0.0566476	0.18434631	3.0575935	20	5 22.3	18.3
34568 2000 SP <sub>305</sub>	13.7	X	232.25537	69.74075	3.77001	9.81316	0.1088394	0.18774233	3.0206094	20	8 1.8	18.3
34569 2000 ST <sub>306</sub>	14.5	X	248.22620	302.14543	264.68875	5.25936	0.0587043	0.21066063	2.7973521	20	—	—
34570 2000 SZ <sub>307</sub>	14.1	X	243.03787	265.32802	335.01109	8.37698	0.1666061	0.21567432	2.7538298	20	—	—
34571 2000 SA <sub>308</sub>	14.6	X	214.46326	296.42088	265.00808	7.08705	0.1521698	0.25471148	2.4647358	20	12 22.9	17.9
34572 2000 SY <sub>310</sub>	13.0	X	274.51752	126.82163	292.52145	14.20431	0.0781452	0.24329048	2.5412807	20	9 6.1	16.5
34573 2000 SG <sub>316</sub>	14.1	X	132.38838	159.55176	250.18377	15.60771	0.1015145	0.17536311	3.1611411	20	3 12.2	19.1
34574 2000 SW <sub>319</sub>	13.9	X	236.36385	64.81543	316.80183	8.54301	0.0964039	0.18070666	3.0985127	20	5 29.2	18.7
34575 2000 SH <sub>327</sub>	13.9	X	85.75315	359.54989	125.61170	13.62742	0.2174635	0.22550127	2.6732324	20	5 16.9	17.8
34576 2000 SA <sub>329</sub>	14.3	X	138.49316	171.64977	59.47081	7.03627	0.0891267	0.19953187	2.9004221	20	11 5.9	18.8
34577 2000 SP <sub>336</sub>	14.4	X	66.91153	191.32237	64.49696	4.34111	0.1369765	0.24200343	2.5502830	20	10 2.6	17.8
34578 2000 SL <sub>338</sub>	14.1	X	75.46785	29.77012	149.30406	17.21368	0.0410506	0.18478451	3.0527578	20	6 14.5	18.6
34579 2000 SR <sub>339</sub>	14.5	X	136.17571	252.73585	14.32853	14.91508	0.1251433	0.20450097	2.8532454	20	12 14.9	19.3
34580 2000 SA <sub>343</sub>	14.7	X	173.03236	164.03195	16.46707	2.00471	0.0572492	0.19546365	2.9405284	20	10 10.6	18.9
34581 2000 SC <sub>348</sub>	13.6	X	6.47569	347.72862	70.77121	16.42477	0.1042527	0.15837625	3.3833169	20	—	—
34582 2000 SH <sub>348</sub>	14.4	X	58.33842	86.56716	97.81684	14.24530	0.1209746	0.23415209	2.6069779	20	6 9.5	17.7
34583 2000 SN <sub>351</sub>	14.4	X	73.56939	340.47422	131.17982	14.67745	0.1589566	0.22234204	2.6984953	20	4 3.9	18.0
34584 2000 SX <sub>351</sub>	14.3	X	74.54661	4.95774	113.54030	14.32906	0.1269338	0.22360897	2.6882928	20	4 11.1	18.0
34585 2000 SJ <sub>352</sub>	14.7	X	140.47821	310.09358	52.10662	7.62885	0.1840615	0.27184754	2.3600386	20	1 26.3	18.0
34586 2000 SK <sub>352</sub>	13.8	X	48.99205	123.43552	96.36425	11.56229	0.0463569	0.18982569	2.9984678	20	6 30.7	17.6
34587 2000 SA <sub>357</sub>	14.4	X	43.56416	246.51558	47.39260	7.32055	0.2009406	0.25275436	2.4774426	20	11 2.3	17.6
34588 2000 TL	13.5	X	0.27973	326.52796	314.14640	11.82437	0.1692172	0.23751843	2.5822870	20	7 22.4	15.8
34589 2000 TO <sub>2</sub>	15.2	X	287.78338	217.14320	341.62583	3.78234	0.0281438	0.22019369	2.7160190	20	—	—
34590 2000 TS <sub>2</sub>	14.9	X	282.16899	327.67261	164.68986	12.14404	0.1014852	0.20878821	2.8140517	20	12 21.9	18.6
34591 2000 TB <sub>15</sub>	14.1	X	8.67107	159.58989	40.61439	1.29988	0.1116948	0.17542915	3.1603477	20	4 9.7	18.0
34592 2000 TM <sub>17</sub>	14.9	X	285.23624	258.77459	62.88308	2.14648	0.1082884	0.18268450	3.0761081	20	5 11.6	18.9
34593 2000 TD <sub>19</sub>	13.5	X	265.06397	246.55720	126.83793	11.50501	0.1073874	0.18850738	3.0124312	20	6 22.2	17.8
34594 2000 TP <sub>24</sub>	14.6	X	175.91528	43.12286	90.81358	4.25470	0.0725350	0.19020559	2.9944739	20	8 17.1	19.1
34595 2000 TR <sub>29</sub>	14.2	X	314.01916	254.53551	293.68783	19.67356	0.2993781	0.26643626	2.3918861	20	—	—
34596 2000 TB <sub>34</sub>	14.2	X	287.59594	243.37447	38.09094	11.76927	0.1665956	0.22578199	2.6710162	20	3 18.2	18.0
34597 2000 TO <sub>36</sub>	14.5	X	210.09811	95.99914	85.44334	3.32761	0.0243009	0.20138720	2.8825807	20	11 27.7	18.4
34598 2000 TC <sub>38</sub>	14.3	X	347.33056	347.63772	31.48389	12.62862	0.0208698	0.20250285	2.8719836	20	10 30.8	18.1
34599 2000 TV <sub>39</sub>	14.9	X	81.61374	291.14353	68.84094	7.33603	0.0826931	0.21283977	2.7782257	20	—	—
34600 2000 TY <sub>39</sub>	14.3	X	213.65511	13.67137	23.19779	15.63568	0.0792505	0.18533211	3.0467119	20	5 22.1	19.0
34601 2000 TR <sub>51</sub>	14.4	X	28.77481	171.89849	122.57006	11.92648	0.0840225	0.19285175	2.9670190	20	9 18.6	18.4
34602 2000 TO <sub>57</sub>	13.7	X	325.16953	205.34523	90.38056	11.59536	0.0835881	0.18802177	3.0176159	20	6 7.7	17.6
34603 2000 TS <sub>60</sub>	13.4	X	169.08368	329.15324	92.80871	14.04403	0.1689618	0.17786177	3.1314656	20	5 15.9	18.7
34604 2000 TW <sub>60</sub>	14.3	X	46.44524	58.69164	85.95932	13.68895	0.0654529	0.22390552	2.6859186	20	3 27.6	17.9
34605 2000 US	14.6	X	255.32838	219.14158	49.93211	10.09938	0.1085674	0.22003371	2.7173354	20	2 2.1	18.8
34606 2000 UT	14.7	X	291.59399	198.13467	79.23694	3.01117	0.0315642	0.22519004	2.6756949	20	4 3.1	18.2
34607 2000 UD <sub>3</sub>	14.1	X	339.85997	293.24193	36.68274	11.29395	0.1169970	0.19018904	2.9946476	20	8 21.5	17.8
34608 2000 UW <sub>7</sub>	14.1	X	326.45412	263.75895	46.18616	10.13583	0.0779560	0.18483570	3.0521940	20	6 28.6	17.9
34609 2000 UK <sub>8</sub>	13.4	X	121.21802	134.33438	47.88612	11.52659	0.0530169	0.18607788	3.0385954	20	8 19.6	18.0
34610 2000 UV <sub>9</sub>	13.4	X	170.79199	62.40086	60.03546	10.51425	0.0473593	0.18298403	3.0727502	20	7 28.8	18.1
34611 Nacogdoches	14.3	X	337.19630	203.83284	19.17640	1.87954	0.1074917	0.17397028	3.1779911	20	3 20.5	18.4
34612 2000 UN <sub>13</sub>	13.9	X	198.86418	70.60695	266.58888	4.81262	0.1460577	0.17328698	3.1863399	20	2 26.6	19.2
34613 2000 UR <sub>13</sub>	16.0	X	330.35822	286.24020	115.28568	6.17584	0.3872768	0.33115610	2.0690971	20	1 26.9	18.3
34614 2000 UF <sub>19</sub>	13.8	X	220.50365	195.23894	127.39228	14.21484	0.1501289	0.22199139	2.7013361	20	2 29.3	18.2
34615 2000 UQ <sub>27</sub>	13.6	X	191.93080	191.59283	97.07878	10.56750	0.1211255	0.21171571	2.7880507	20	—	—
34616 2000 UO <sub>38</sub>	14.7	X	356.06025	307.08908	9.42008	3.69601	0.1313724	0.19082206	2.9880211	20	8 27.5	18.1
34617 2000 UU <sub>48</sub>	13.9	X	17.85227	203.83895	54.04238	10.47866	0.0708485	0.18224386	3.0810644	20	7 9.3	18.0
34618 2000 UX <sub>49</sub>	13.7	X	272.98254	256.34431	62.84920	18.26139	0.1621798	0.17868629	3.1218251	20	4 22.5	18.4
34619 2000 UY <sub>53</sub>	13.6	X	205.44996	63.89456	80.49758	9.95641	0.0448110	0.19243739	2.9712765	20	10 8.5	18.0
34620 2000 UX <sub>54</sub>	13.9	X	161.14974	230.42232	105.56269	6.29530	0.1641622	0.21552636	2.7550899	20	1 22.3	18.1
34621 2000 UR <sub>55</sub>	13.8	X	359.13755	244.23241	84.21436	9.69076	0.0846934	0.19030496	2.9934314	20	9 19.5	17.7
34622 2000 UK <sub>58</sub>	13.8	X	34.31336	41.77344	246.84568	7.65071	0.0577001	0.19275527	2.9680089	20	9 6.9	18.0
34623 2000 US <sub>59</sub>	14.0	X	172.26116	117.02555	1.52454	11.15940	0.0790311	0.18495448	3.0508872	20	7 26.5	18.8
34624 2000 UB <sub>62</sub>	14.0	X	249.39029	196.82767	236.62556	9.30866	0.0216899	0.19073363	2.9889446	20	8 26.7	18.4
34625 2000 UT <sub>68</sub>	14.4	X	157.57287	313.92888	248.66402	7.81987	0.0247850	0.19654633	2.9297198	20	10 19.1	18.6
34626 2000 UN <sub>69</sub>	13.8	X	341.52252	269.60957	22.31731	9.97272	0.0450491	0.18398580	3.0615864	20	6 29.6	18.0
34627 2000 UW <sub>95</sub>	13.8	X	206.13704	359.87469	348.35633	6.05917	0.1465296	0.17387594	3.1791405	20	3 18.2	19.0
34628 2000 UA <sub>99</sub>	13.8	X	61.23879	4.94702	276.29639	8.						

# ELEMENTS AND OPPOSITION DATES IN 2020

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>		
34641	2000	WL <sub>2</sub>	14.2	X	273.13696	235.77528	97.97142	11.56563	0.0973476	0.18160773	3.0882551	20	5 16.4	18.7
34642	2000	WN <sub>2</sub>	10.7	X	275.00070	266.21300	45.18395	19.62280	0.0984170	0.08272497	5.2164890	20	4 24.4	17.6
34643	2000	WQ <sub>3</sub>	14.3	X	143.24284	178.12280	81.51506	14.14344	0.1656326	0.25802163	2.4436104	20	12 22.9	18.2
34644	2000	WX <sub>13</sub>	14.5	X	242.22750	330.72246	278.91075	3.80837	0.1563405	0.26428978	2.4048194	20	—	—
34645	2000	WT <sub>67</sub>	14.0	X	335.55758	227.31951	99.78995	11.48101	0.1229193	0.18754350	3.0227440	20	8 5.1	17.6
34646	2000	WT <sub>95</sub>	15.0	X	77.19470	333.48846	91.85675	0.43393	0.0552273	0.21154741	2.7895292	20	1 20.7	18.7
34647	2000	WV <sub>97</sub>	13.8	X	256.83860	244.46153	71.20327	9.39028	0.1585689	0.27297902	2.3535126	20	3 24.8	17.4
34648	2000	WZ <sub>101</sub>	14.0	X	192.02714	258.48566	101.16853	12.34235	0.0626782	0.22255594	2.6967659	20	3 21.9	18.2
34649	2000	WB <sub>103</sub>	13.5	X	1.18494	322.88982	172.66841	8.88320	0.0972646	0.15894553	3.3752336	20	1 9.8	18.0
34650	2000	WK <sub>108</sub>	15.3	X	74.24461	174.77545	292.72092	6.06863	0.0735618	0.26834272	2.3805438	20	3 2.9	18.0
34651	2000	WQ <sub>114</sub>	14.6	X	124.01643	16.88319	18.09669	3.52489	0.0676072	0.21465026	2.7625815	20	2 14.1	18.4
34652	2000	WN <sub>136</sub>	14.9	X	92.35201	207.51963	29.34301	5.56549	0.1142658	0.24040835	2.5615510	20	10 3.5	18.5
34653	2000	WJ <sub>144</sub>	14.3	X	12.49288	78.17297	139.93107	13.05608	0.1228273	0.22848415	2.6499153	20	5 12.9	17.4
34654	2000	WF <sub>145</sub>	14.1	X	266.82356	265.03737	100.13365	15.08196	0.0903854	0.18389774	3.0625636	20	6 16.3	18.5
34655	2000	WS <sub>151</sub>	13.4	X	186.09116	254.55400	124.42809	20.57643	0.0800749	0.17291340	3.1909276	20	4 14.0	18.7
34656	2000	WL <sub>152</sub>	14.0	X	305.26265	38.78937	277.18929	12.34551	0.1635634	0.23672700	2.5880392	20	5 21.6	17.1
34657	2000	WV <sub>154</sub>	13.9	X	341.70569	286.48824	357.15511	10.37446	0.0611185	0.18207761	3.0829396	20	6 17.2	18.1
34658	2000	WS <sub>158</sub>	14.0	X	28.35312	113.17804	111.85282	12.62085	0.1750924	0.22700222	2.6614357	20	6 23.9	16.7
34659	2000	WS <sub>159</sub>	14.0	X	48.83842	64.61817	159.72959	2.76581	0.1291630	0.18079561	3.0974963	20	7 17.4	18.0
34660	2000	WV <sub>162</sub>	13.9	X	356.37270	143.17719	109.82446	16.86624	0.0654142	0.17832363	3.1250562	20	6 2.4	18.1
34661	2000	WQ <sub>165</sub>	13.8	X	311.98744	210.28344	108.20296	10.85077	0.0837710	0.18282690	3.0745106	20	6 17.9	17.9
34662	2000	WA <sub>172</sub>	14.9	X	198.03042	10.63721	137.57440	14.81302	0.0790828	0.24216916	2.5491193	20	10 8.7	18.8
34663	2000	WW <sub>173</sub>	13.3	X	240.17207	348.34278	89.83775	12.96998	0.0692171	0.18864877	3.0109258	20	8 23.1	17.8
34664	2000	WW <sub>182</sub>	14.1	X	176.37978	344.25202	121.19472	15.98307	0.0421447	0.23554294	2.5967052	20	7 13.8	17.7
34665	2000	WV <sub>184</sub>	14.2	X	213.74123	257.57085	138.27062	14.70368	0.1849482	0.23305032	2.6151880	20	5 22.7	18.7
34666	Bohyunsan		14.6	X	344.61415	108.62500	144.71218	0.52023	0.1496541	0.17450846	3.1714539	20	5 7.5	18.3
34667	2000	XJ <sub>19</sub>	13.3	X	274.90938	285.94487	20.54700	17.84719	0.1852275	0.17540530	3.1606343	20	4 2.1	17.9
34668	2000	XW <sub>39</sub>	12.9	X	85.60883	183.84657	322.48946	19.48782	0.0895950	0.17368397	3.1814826	20	5 15.6	17.8
34669	2000	YO <sub>5</sub>	12.7	X	256.45068	227.70174	127.28261	24.31627	0.2925804	0.18534709	3.0465773	20	5 7.8	18.2
34670	2000	YL <sub>11</sub>	12.6	X	44.12806	8.55656	119.02278	23.76669	0.0627217	0.16966394	3.2315411	20	3 5.4	17.2
34671	2000	YY <sub>18</sub>	15.1	X	158.85559	319.56761	130.26965	2.56759	0.2072510	0.27195555	2.3594137	20	6 7.8	19.0
34672	2000	YU <sub>53</sub>	13.6	X	171.51728	30.65926	120.83409	10.92446	0.0414268	0.18439506	3.0570546	20	9 4.9	18.1
34673	2000	YM <sub>70</sub>	13.7	X	350.86432	207.39157	89.13354	11.85066	0.1432237	0.18273394	3.0755531	20	7 19.5	17.3
34674	2000	YE <sub>78</sub>	12.9	X	246.77788	264.04435	107.48916	14.13297	0.2221658	0.17891738	3.1191363	20	5 20.4	18.1
34675	2000	YR <sub>115</sub>	15.2	X	4.89030	39.56820	84.20454	3.88442	0.1311476	0.25503011	2.4626824	20	—	—
34676	2000	YF <sub>126</sub>	14.0	X	249.13150	175.04534	127.99126	18.86838	0.1509423	0.17160999	3.2070644	20	3 9.0	19.2
34677	2000	YB <sub>135</sub>	13.8	X	341.24436	173.59165	126.25354	13.51710	0.1341394	0.18463397	3.0544169	20	7 5.7	17.4
34678	2001	AB <sub>29</sub>	14.4	X	5.76198	138.78624	307.74265	4.32285	0.1520776	0.25420248	2.4680249	20	—	—
34679	2001	BH <sub>17</sub>	14.4	X	319.76206	215.89847	140.24843	10.68344	0.1888347	0.23604081	2.5930525	20	8 17.0	16.8
34680	2001	BR <sub>21</sub>	14.8	X	336.74032	103.72534	92.12149	4.94217	0.0369612	0.21537631	2.7563694	20	2 18.2	18.4
34681	2001	BB <sub>22</sub>	15.6	X	78.91114	301.05039	261.68543	5.05571	0.0511523	0.27974680	2.3153996	20	7 24.6	18.4
34682	2001	BM <sub>42</sub>	14.0	X	286.92556	211.99609	105.56823	12.38162	0.1219704	0.23188280	2.6239589	20	5 9.7	17.7
34683	2001	CM <sub>11</sub>	14.6	X	66.70176	222.32654	124.01581	14.42303	0.1872498	0.24490522	2.5300981	20	—	—
34684	2001	CJ <sub>28</sub>	11.9	X	317.16389	272.64306	118.19408	21.24752	0.1265141	0.08283468	5.2118823	20	9 15.4	18.5
34685	2001	EE <sub>12</sub>	14.8	X	193.96713	243.94192	32.19363	13.35004	0.1495474	0.24293203	2.5437799	20	—	—
34686	2001	FA <sub>40</sub>	14.5	X	5.21446	325.73055	356.04901	15.27835	0.2521358	0.22342923	2.6897343	20	10 7.3	17.2
34687	2001	FU <sub>74</sub>	14.6	X	213.50785	111.91772	174.73495	9.08541	0.1803327	0.24546740	2.5262336	20	1 5.4	18.9
34688	2001	FG <sub>119</sub>	15.0	X	10.05827	346.63541	302.28172	9.86617	0.1630404	0.27007125	2.3703755	20	8 25.1	17.2
34689	2001	FY <sub>147</sub>	14.5	X	59.47919	11.44162	327.25383	13.10415	0.2546202	0.23276991	2.6172878	20	—	—
34690	2001	FH <sub>161</sub>	13.9	X	105.52079	78.93519	229.80693	10.53347	0.0534254	0.18250489	3.0781259	20	12 26.8	18.6
34691	2001	KV <sub>58</sub>	13.7	X	85.78678	131.91880	223.45779	15.37040	0.1087409	0.17996852	3.1069792	20	—	—
34692	2001	KE <sub>61</sub>	15.1	X	57.43904	233.97423	112.81282	7.16511	0.2546943	0.28147781	2.3058972	20	—	—
34693	2001	LW <sub>14</sub>	15.1	X	155.42340	143.60150	199.22826	4.80959	0.2747813	0.23416907	2.6068519	20	—	—
34694	2001	MK <sub>18</sub>	15.2	X	340.47360	116.80253	285.67138	3.58725	0.2920035	0.26884961	2.3775506	20	—	—
34695	2001	NY <sub>21</sub>	15.4	X	35.02477	218.81465	169.16942	2.97501	0.1739721	0.27250631	2.3562336	20	—	—
34696	Risoldi		13.8	X	47.18706	208.40742	290.81469	13.34628	0.1304679	0.24398251	2.5364731	20	3 8.5	16.9
34697	2001	OS <sub>14</sub>	13.8	X	117.71961	284.15406	327.24847	11.42731	0.0357877	0.21660727	2.7459167	20	11 3.1	18.0
34698	2001	OD <sub>22</sub>	12.7	X	6.39501	303.05472	161.26827	23.23196	0.0701173	0.17403165	3.1772439	20	—	—
34699	2001	OQ <sub>25</sub>	14.6	X	197.13137	187.97426	155.07256	10.99906	0.1068782	0.19016743	2.9948745	20	3 4.3	19.2
34700	2001	OE <sub>45</sub>	12.3	X	64.10051	150.66306	273.05908	11.77074	0.0916335	0.18043364	3.1016375	20	1 9.6	16.4
34701	2001	OZ <sub>57</sub>	14.4	X	118.55750	313.99785	100.92579	3.36888	0.1251996	0.23424548	2.6062850	20	3 9.5	18.0
34702	2001	OW <sub>62</sub>	13.9	X	298.68653	188.12952	350.42828	6.70655	0.0545192	0.27439290	2.3454210	20	—	—
34703	2001	OZ <sub>67</sub>	15.8	X	336.82373	177.50523	215.11577	1.97551	0.1677514	0.26787980	2.3832855	20	12 1.4	17.7
34704	2001	OS <sub>80</sub>	12.8	X	61.38333	192.12510	288.52596	13.54340	0.1347885	0.23462399	2.6034812	20	3 8.6	16.1
34705	2001	OA <sub>81</sub>	13.5	X	132.46486	186.15869	232.41058	13.13448	0.1432428	0.23596717	2.5935920	20	3 26.2	17.5
34706	2001	OP <sub>83</sub>	14.9	X	87.11982	41.74998	66.62531	8.69471	0.3833283	0.29150413	2.2527149	20	5 14.2	17.9
34707	2001	OU <sub>86</sub>	14.8	X	17.29217	50.44392	294.63175	5.97653	0.2260472	0.26546206	2.3977344	20	12 11.8	17.6
34708	Grasset		13.6	X	297.36027	131.85457	294.53905	22.72915	0.2348094	0.26110646	2.4243257	20	9 29.5	16.5
34709	2001	OW <sub>96</sub>	14.8	X	130.16752	266.69444	138.61756	12.95736	0.1005976	0.24033623	2.5620635	20	3 7.9	18.4
34710	2001	OS <sub>97</sub>	14.0	X	184.13527	279.70647	98.18861	11.78846	0.1337132	0.19043849				

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
34721 2001 QH <sub>5</sub>	14.1	X	72.88648	16.00112	41.58506	1.72041	0.2322289	0.17837849	3.1254152	20	2 4.6	17.8
34722 2001 QF <sub>9</sub>	16.4	X	80.98669	279.71201	2.09375	2.04827	0.1898287	0.26941604	2.3742171	20	11 27.6	19.9
34723 2001 QV <sub>14</sub>	13.7	X	219.31348	187.89235	23.97103	6.81294	0.0885433	0.17387329	3.1791728	20	12 30.6	18.4
34724 2001 QM <sub>18</sub>	16.3	X	157.98563	291.03237	140.34285	3.03645	0.1425788	0.29637474	2.2279662	20	5 11.5	19.4
34725 2001 QJ <sub>19</sub>	14.0	X	185.84236	249.62478	317.25472	3.94856	0.0989449	0.21820231	2.7325188	20	11 25.8	18.2
34726 2001 QA <sub>25</sub>	12.5	X	19.91274	80.86016	2.79175	21.79482	0.1029236	0.17275128	3.1929236	20	—	—
34727 2001 QV <sub>28</sub>	13.7	X	93.53299	242.96399	154.89191	1.12987	0.1750805	0.17371851	3.1810609	20	1 31.0	18.1
34728 2001 QM <sub>30</sub>	13.6	X	102.71277	120.23409	196.63627	4.72473	0.0542630	0.21614829	2.7498025	20	—	—
34729 2001 QJ <sub>42</sub>	14.6	X	209.37549	59.97444	345.13110	1.26513	0.0664786	0.19946529	2.9010675	20	6 1.4	18.7
34730 2001 QO <sub>45</sub>	15.4	X	89.25361	299.25021	36.38716	1.83875	0.1664275	0.17173415	3.2055184	20	—	—
34731 2001 QU <sub>47</sub>	15.1	X	308.87170	247.79160	154.17546	7.69297	0.0836842	0.21223503	2.7835008	20	10 9.5	18.5
34732 2001 QD <sub>48</sub>	16.2	X	277.74968	59.93598	1.91499	0.91945	0.0978971	0.26259150	2.4151769	20	9 23.2	18.8
34733 2001 QY <sub>52</sub>	15.7	X	343.58288	300.97988	114.25014	2.83418	0.2106817	0.27023942	2.3693920	20	—	—
34734 2001 QS <sub>64</sub>	14.5	X	121.77202	329.69862	96.84236	2.81076	0.2285224	0.18326690	3.0695875	20	4 11.3	19.3
34735 2001 QA <sub>69</sub>	13.7	X	117.58982	124.87473	255.77787	5.15264	0.2029445	0.17904918	3.1176055	20	2 7.8	18.5
34736 2001 QC <sub>69</sub>	13.5	X	40.28671	217.14452	225.51986	10.82572	0.1485053	0.17543715	3.1602517	20	1 1.6	17.4
34737 2001 QG <sub>71</sub>	15.2	X	134.56847	205.09968	182.26951	7.04266	0.1104443	0.28692136	2.2766388	20	2 10.3	18.3
34738 Hulbert	15.8	X	295.24427	133.72881	249.70825	1.23149	0.1619877	0.30858742	2.1687887	20	8 23.7	17.4
34739 2001 QO <sub>75</sub>	14.2	X	90.37246	157.89209	291.93482	0.55980	0.1860844	0.17704328	3.1411096	20	3 31.1	18.7
34740 2001 QJ <sub>77</sub>	14.5	X	102.06149	184.51364	195.45803	3.32967	0.1128456	0.22352523	2.6889641	20	1 2.1	17.9
34741 2001 QM <sub>77</sub>	14.7	X	306.51290	348.04593	66.78284	3.28221	0.1934849	0.25763997	2.4460231	20	10 25.8	16.6
34742 2001 QD <sub>79</sub>	14.6	X	105.41856	221.46081	225.42521	10.59626	0.1543163	0.23085573	2.6317357	20	4 4.4	18.3
34743 2001 QE <sub>80</sub>	14.4	X	198.07295	215.96159	130.47867	0.68913	0.1840331	0.18208708	3.0828327	20	3 9.1	19.6
34744 2001 QS <sub>86</sub>	13.7	X	224.54678	3.20792	305.28625	14.63513	0.1341816	0.23691840	2.5866451	20	2 10.2	17.9
34745 2001 QV <sub>90</sub>	15.7	X	301.59271	267.17995	190.64214	21.87851	0.1022328	0.37584997	1.9016315	20	—	—
34746 2001 QE <sub>91</sub>	9.8	X	289.09438	196.34400	93.25397	27.42413	0.0387009	0.08408722	5.1599962	20	5 3.3	16.9
34747 2001 QC <sub>92</sub>	13.2	X	75.73536	316.46103	56.86612	7.46799	0.1487787	0.17232780	3.1981524	20	—	—
34748 2001 QN <sub>93</sub>	13.3	X	224.57512	257.53952	40.33405	22.46748	0.0189295	0.17478324	3.1681290	20	2 24.1	18.3
34749 2001 QB <sub>93</sub>	13.8	X	101.31785	19.52668	26.36690	5.17940	0.1416083	0.17437311	3.1730947	20	2 16.5	18.3
34750 2001 QJ <sub>97</sub>	13.6	X	294.59822	241.61996	196.72251	10.82464	0.1058172	0.15965983	3.3651591	20	10 20.4	17.9
34751 2001 QO <sub>100</sub>	14.1	X	4.47553	87.54766	29.65161	24.27973	0.1751774	0.28019120	2.3129508	20	—	—
34752 2001 QU <sub>105</sub>	14.5	X	339.67134	23.25855	213.13985	2.95165	0.1009514	0.28867437	2.2674126	20	3 30.5	16.8
34753 Zdeněkmatyáš	16.4	X	321.37232	111.48014	168.77846	4.82006	0.1206592	0.30520668	2.1847749	20	5 3.4	18.3
34754 2001 QG <sub>111</sub>	13.9	X	155.14130	186.57185	240.03386	7.73651	0.1632317	0.24131941	2.5550999	20	5 2.9	17.9
34755 2001 QW <sub>120</sub>	14.3	X	54.82472	264.39720	145.93779	22.08578	0.3261592	0.27970153	2.3156495	20	—	—
34756 2001 QL <sub>139</sub>	14.5	X	347.50134	172.36937	288.40047	9.43430	0.2425470	0.21569270	2.7536733	20	—	—
34757 2001 QX <sub>139</sub>	13.8	X	81.37144	87.75093	339.82043	10.90736	0.1863472	0.22613692	2.6682206	20	2 16.1	16.9
34758 2001 QH <sub>148</sub>	13.8	X	352.03015	78.00282	105.74566	12.77725	0.1327199	0.23135044	2.6279827	20	2 13.7	16.8
34759 2001 QL <sub>151</sub>	13.8	X	45.76201	81.98041	350.81248	28.15747	0.4266466	0.22003372	2.7173352	20	2 2.5	15.9
34760 2001 QR <sub>152</sub>	14.3	X	815.26608	202.03474	227.41777	2.96256	0.0892996	0.21327180	2.7744725	20	11 23.1	17.6
34761 2001 QM <sub>179</sub>	15.1	X	83.19621	297.90545	155.31231	5.98438	0.1173210	0.28193393	2.3034095	20	3 4.9	17.4
34762 2001 QP <sub>180</sub>	15.9	X	59.37713	346.14133	41.29122	3.10602	0.2139864	0.27510286	2.3413840	20	—	—
34763 2001 QV <sub>189</sub>	14.6	X	96.36380	166.90166	244.53616	13.55955	0.0664687	0.23318762	2.6141614	20	1 22.2	18.2
34764 2001 QZ <sub>197</sub>	14.1	X	272.67389	151.16393	226.03334	11.57032	0.0676768	0.19598595	2.9353017	20	7 10.2	18.3
34765 2001 QG <sub>199</sub>	14.1	X	19.18018	149.86943	251.48794	4.52635	0.0753719	0.21397440	2.7683957	20	—	—
34766 2001 QP <sub>200</sub>	15.2	X	125.80301	175.05974	251.57859	2.96465	0.1429344	0.28499399	2.2868916	20	3 28.3	18.3
34767 2001 QV <sub>201</sub>	13.0	X	35.55212	251.34102	119.34476	9.89837	0.1705866	0.21308038	2.7761339	20	—	—
34768 2001 QK <sub>221</sub>	15.4	X	77.68811	5.00459	355.34952	6.49741	0.2067777	0.27855136	3.2220195	20	—	—
34769 2001 QG <sub>236</sub>	15.4	X	289.85656	74.40669	45.83412	2.74124	0.1498263	0.26957483	2.3732846	20	—	—
34770 2001 QJ <sub>243</sub>	14.8	X	202.11073	68.96123	333.63185	1.20809	0.0825220	0.19267752	2.9688073	20	5 20.3	19.4
34771 2001 QO <sub>252</sub>	15.3	X	207.74824	24.45783	79.23188	3.03291	0.1638633	0.25717098	2.4489960	20	8 11.6	18.9
34772 2001 QU <sub>257</sub>	15.2	X	216.06071	212.52768	129.73905	6.68355	0.1473130	0.23972234	2.5664357	20	3 18.5	19.3
34773 2001 QL <sub>260</sub>	14.2	X	141.47710	205.15810	222.77646	9.04418	0.1845265	0.18595636	3.0399191	20	4 25.3	19.1
34774 2001 QX <sub>261</sub>	13.6	X	336.22038	233.97486	290.75587	9.54328	0.0552887	0.17626012	3.1504071	20	1 12.4	17.6
34775 2001 QL <sub>263</sub>	14.2	X	323.25449	292.43190	225.77722	8.73054	0.0266734	0.17051371	3.2207958	20	—	—
34776 2001 QC <sub>269</sub>	15.2	X	255.01147	250.96445	94.94601	5.45601	0.2735351	0.24511769	2.5286358	20	4 18.4	19.4
34777 2001 RH	12.8	X	264.48861	197.30551	284.34828	34.13905	0.4064081	0.20295204	2.8677444	20	9 3.7	17.9
34778 Huhunglick	15.0	X	311.67084	81.92000	16.89969	5.20800	0.1438643	0.21414216	2.7669497	20	12 25.6	18.1
34779 Chungchiyung	15.2	X	351.28489	6.49680	174.91575	6.17326	0.0808836	0.28604029	2.2813114	20	1 30.9	17.8
34780 2001 RB <sub>56</sub>	15.6	X	10.76875	355.96666	130.18659	5.38834	0.0978378	0.28373923	2.2936287	20	—	—
34781 2001 RK <sub>63</sub>	13.3	X	132.11720	193.40643	161.28536	22.88278	0.0877658	0.17437070	3.1731240	20	1 12.3	18.3
34782 2001 RV <sub>72</sub>	14.0	X	300.08812	14.54618	226.94176	3.77029	0.1294418	0.23659746	2.5889838	20	2 8.6	17.6
34783 2001 RB <sub>75</sub>	13.9	X	149.77134	343.41105	325.88499	0.21396	0.1769487	0.17212777	3.2006296	20	—	—
34784 2001 RS <sub>77</sub>	14.7	X	39.34197	284.66162	84.17667	7.65741	0.1463738	0.26601152	2.3944315	20	—	—
34785 2001 RG <sub>87</sub>	11.5	X	291.98874	88.87825	198.91628	20.32030	0.0397777	0.08443867	5.1456682	20	4 23.0	18.3
34786 2001 RS <sub>87</sub>	14.3	X	305.09711	16.15128	292.86708	0.98013	0.0986215	0.19594274	2.9357333	20	5 23.4	18.0
34787 2001 RG <sub>109</sub>	15.9	X	315.38169	321.42603	155.09045	2.45724	0.1644959	0.27343192	2.3509131	20	—	—
34788 2001 RE <sub>114</sub>	15.7	X	254.07911	324.68528	151.84551	9.95189	0.1422065	0.26470164	2.4023243	20	10 31.4	18.6
34789 2001 SC <sub>2</sub>	15.4	X	322.85136	264.90957	267.13639	0.38080	0.1489576	0.28122098	2.3073009	20	—	—
34790 2001 SA <sub>4</sub>	13.7	X	281.70692	230.43726	101.61739	10.96590	0.1062670	0.19121173	2.9839602	20	5 22.9	17.9
34791 Ericcraine	15.0	X	122.39177	326.53197	120.09728	3.08391	0.1111085	0.23831764	2.5765105	20	4 21.8	18.6
34792 2001 SE <sub>10</sub>	15.5	X	18.00640	105.72488	116.42988	5.84225	0.1224691	0.25773917	2.4453954	20	10 23.2	18.2
34793 2001 SO <sub>12</sub>	13.9	X	98.04652	247.86697	292.67221	5.18846	0.1517841	0.18274115	3.0754722	20	3 23.5	18.1
34794 2001 SS <sub>25</sub>	13.8	X	125.92847	296.73743	108.92134	1.32894	0.1208509	0.18154020	3.0890209	20	3 9.7	18.4
34795 2001												

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
34801 2001 SE <sub>61</sub>	13.8	X	111.24939	294.27714	25.25510	1.70731	0.1097763	0.16752685	3.2589655	20	—	—
34802 2001 SP <sub>61</sub>	15.3	X	164.65958	9.82444	94.55584	0.95749	0.0884070	0.24613019	2.5216963	20	6 29.1	19.1
34803 2001 SW <sub>63</sub>	13.5	X	151.07459	162.13052	143.82517	1.50899	0.1853595	0.17159044	3.2073080	20	—	—
34804 2001 SP <sub>67</sub>	15.2	X	28.73524	276.78420	36.71748	16.43887	0.0898697	0.25828444	2.4419526	20	10 24.0	18.1
34805 2001 SC <sub>69</sub>	14.1	X	235.73448	182.69517	183.15454	9.71665	0.0849888	0.18895542	3.0076675	20	5 13.0	18.6
34806 2001 SJ <sub>69</sub>	15.1	X	182.77744	263.14089	90.78106	5.69653	0.2119803	0.28712307	2.2755724	20	2 29.7	18.9
34807 2001 SQ <sub>72</sub>	14.6	X	30.31561	335.89108	216.28835	25.49151	0.1925700	0.28661315	2.2782706	20	5 7.8	16.1
34808 2001 SY <sub>73</sub>	14.2	X	305.93442	320.59287	253.80078	9.96199	0.0399879	0.17912257	3.1167539	20	2 1.2	18.7
34809 2001 SQ <sub>74</sub>	13.8	X	347.90663	261.50898	327.64928	9.83812	0.0639766	0.18757277	3.0224296	20	4 10.9	18.0
34810 2001 SN <sub>108</sub>	14.0	X	257.22236	352.75992	23.66352	10.03003	0.0995982	0.19154099	2.9805396	20	6 16.0	18.4
34811 2001 ST <sub>108</sub>	14.2	X	82.14236	143.17900	27.97789	14.27292	0.1121645	0.23842122	2.5757642	20	6 21.9	17.9
34812 2001 SB <sub>109</sub>	13.2	X	120.44009	75.37269	15.17208	13.22459	0.1401963	0.23313724	2.6145380	20	4 24.0	17.0
34813 2001 SS <sub>109</sub>	13.5	X	152.33676	37.48272	22.83618	13.10291	0.1439178	0.23406419	2.6076306	20	4 20.8	17.6
34814 2001 ST <sub>109</sub>	14.3	X	359.56501	139.12008	345.10668	9.19115	0.1161888	0.22247729	2.6974015	20	—	—
34815 2001 SQ <sub>113</sub>	14.9	X	109.18955	224.71976	210.94911	5.09347	0.0889518	0.23554335	2.5967022	20	3 16.5	18.4
34816 2001 ST <sub>113</sub>	14.9	X	112.11528	295.74016	330.60346	5.33702	0.1024094	0.21422725	2.7662170	20	11 22.3	19.2
34817 Shiomine-moto	14.1	X	153.16491	70.52014	285.94590	22.23179	0.1180472	0.38264299	1.8790581	20	1 8.7	15.8
34818 2001 SQ <sub>116</sub>	13.9	X	59.43489	170.99317	245.15241	4.53643	0.1450940	0.17567863	3.1573551	20	—	—
34819 2001 SW <sub>119</sub>	15.0	X	130.05132	49.09611	247.94315	4.28244	0.0363627	0.22171448	2.7035849	20	—	—
34820 2001 SC <sub>125</sub>	16.2	X	344.27445	92.99371	189.98427	4.08434	0.1731871	0.30636307	2.1792737	20	6 20.6	17.4
34821 2001 SF <sub>129</sub>	14.4	X	226.76340	316.77897	205.99749	7.19375	0.1550065	0.21410234	2.7672927	20	11 10.5	18.3
34822 2001 SO <sub>133</sub>	14.5	X	315.53409	301.55403	262.34160	3.13280	0.1619097	0.23484061	2.6018799	20	1 7.9	17.9
34823 2001 SM <sub>155</sub>	15.7	X	22.63411	89.91397	17.16176	6.11247	0.1073606	0.27826428	2.3236163	20	—	—
34824 2001 SY <sub>156</sub>	13.5	X	122.67407	114.31568	299.53602	5.67194	0.1850639	0.18065783	3.0990709	20	3 19.8	18.4
34825 2001 SR <sub>161</sub>	13.1	X	99.22781	108.34058	357.19497	8.48742	0.0659822	0.18409909	3.0603302	20	4 5.8	17.4
34826 2001 SK <sub>163</sub>	16.2	X	15.11249	32.50913	300.71923	0.15483	0.2304924	0.26239044	2.4164105	20	11 22.4	18.8
34827 2001 SK <sub>165</sub>	13.8	X	283.07337	92.10464	284.42969	1.40011	0.0654702	0.19849654	2.9104988	20	7 26.5	17.7
34828 2001 SO <sub>168</sub>	14.0	X	173.21835	109.86206	193.19834	4.95549	0.1321655	0.17390470	3.1787899	20	—	—
34829 2001 SF <sub>198</sub>	16.1	X	81.56430	292.96153	166.03933	7.29434	0.0663743	0.28947621	2.2632236	20	2 29.9	18.6
34830 2001 SR <sub>227</sub>	14.7	X	308.74391	356.82732	191.24590	7.13965	0.1047917	0.17574673	3.1565394	20	—	—
34831 2001 SA <sub>234</sub>	15.7	X	136.50514	318.43048	148.98506	4.81824	0.0971644	0.29627748	2.2284538	20	6 2.7	18.6
34832 2001 SU <sub>234</sub>	16.3	X	258.94822	190.19752	168.16487	2.07795	0.1754872	0.24717991	2.5145519	20	5 16.8	19.9
34833 2001 SF <sub>239</sub>	15.7	X	273.73523	227.49236	106.57116	3.83169	0.2170403	0.29989786	2.2104828	20	4 25.2	18.6
34834 2001 SF <sub>243</sub>	14.0	X	144.66460	27.06647	198.72241	15.24162	0.0370459	0.15715465	3.4008272	20	10 29.2	19.0
34835 2001 SE <sub>249</sub>	12.5	X	297.59385	130.06798	138.39936	3.53236	0.0824912	0.08046821	5.3135711	20	4 3.1	19.3
34836 2001 SE <sub>254</sub>	14.7	X	241.66780	228.21004	138.25026	1.03146	0.0566696	0.19107903	2.9853416	20	5 22.1	18.8
34837 2001 SD <sub>262</sub>	14.9	X	89.62865	204.39616	302.94046	5.51707	0.1041056	0.29159438	2.2522501	20	5 28.7	17.7
34838 Lazowski	13.7	X	102.10646	15.02293	37.83578	9.92417	0.0897896	0.17050762	3.1648178	20	2 21.1	18.3
34839 2001 SL <sub>263</sub>	13.1	X	209.02414	269.29034	99.28691	11.02680	0.1159081	0.18837272	3.0138667	20	4 19.8	18.0
34840 2001 SB <sub>268</sub>	14.6	X	134.26073	218.34974	109.82598	4.18427	0.0523845	0.22127508	2.7071629	20	—	—
34841 2001 SE <sub>268</sub>	15.5	X	201.42259	330.94024	193.52436	7.33034	0.0569767	0.25873847	2.4390950	20	11 4.1	18.8
34842 2001 SU <sub>270</sub>	14.5	X	164.73130	318.97345	93.86198	2.09954	0.2392329	0.18430032	3.0581022	20	4 30.3	19.9
34843 2001 SZ <sub>276</sub>	14.5	X	77.67021	20.48748	330.17838	5.17787	0.0295387	0.21605621	2.7505838	20	—	—
34844 2001 SG <sub>277</sub>	15.2	X	42.87051	297.85838	126.34929	2.77669	0.1897010	0.27224621	2.3577341	20	—	—
34845 2001 SN <sub>278</sub>	13.8	X	150.49433	73.48915	230.66349	14.63449	0.1224748	0.16940032	3.2348929	20	—	—
34846 2001 SY <sub>281</sub>	13.7	X	196.91359	113.34093	161.77063	25.82571	0.0246476	0.17397982	3.1778749	20	—	—
34847 2001 SJ <sub>286</sub>	14.4	X	93.35384	62.76688	59.60953	14.03512	0.1398453	0.23751368	2.5823214	20	5 7.9	17.8
34848 2001 SC <sub>288</sub>	13.2	X	71.47823	219.93069	142.85113	22.85120	0.0447136	0.16859466	3.2451904	20	—	—
34849 2001 SG <sub>288</sub>	13.6	X	33.01281	8.24996	116.45805	14.13671	0.1135748	0.23176512	2.6248470	20	2 1.8	16.4
34850 2001 TL <sub>8</sub>	13.4	X	56.81240	327.14909	16.52855	10.20905	0.1396221	0.15947192	3.3678022	20	12 20.0	18.4
34851 2001 TT <sub>8</sub>	14.9	X	316.46274	1.41413	19.79206	5.93138	0.0716523	0.30635907	2.1792927	20	10 11.3	16.7
34852 2001 TS <sub>12</sub>	15.2	X	174.16128	350.64062	10.72724	3.40682	0.1584533	0.28403718	2.2920245	20	2 26.8	18.6
34853 2001 TK <sub>16</sub>	13.7	X	250.12472	133.65024	86.24019	16.29472	0.1686331	0.22460591	2.6803320	20	—	—
34854 Paquifrutos	13.2	X	84.53551	211.55213	229.57888	16.32297	0.2012777	0.17712391	3.1401562	20	3 9.9	17.8
34855 2001 TT <sub>30</sub>	15.4	X	168.73445	264.04968	77.08880	6.48810	0.1526463	0.28399855	2.2922323	20	1 27.5	18.8
34856 2001 TR <sub>32</sub>	14.8	X	242.74828	211.28178	340.27050	6.13989	0.0539571	0.26803450	2.3823684	20	—	—
34857 2001 TB <sub>36</sub>	15.2	X	220.02344	162.00241	11.33366	9.24179	0.1376284	0.25918978	2.4362628	20	11 24.2	18.6
34858 2001 TW <sub>44</sub>	14.1	X	271.58138	289.78300	33.23277	7.43966	0.2186972	0.28989852	2.2610251	20	4 7.5	17.3
34859 2001 TR <sub>49</sub>	14.6	X	352.44976	328.69150	195.80896	6.73173	0.1652226	0.22381031	2.686803	20	1 11.6	17.8
34860 2001 TJ <sub>77</sub>	14.1	X	69.85583	43.81172	45.96240	9.82194	0.0749295	0.17493553	3.1662901	20	2 23.1	18.5
34861 2001 TY <sub>77</sub>	13.8	X	71.02274	131.47881	77.46217	9.58189	0.0722390	0.24612742	2.5217153	20	7 26.0	17.1
34862 2001 TX <sub>79</sub>	14.3	X	279.42418	158.48511	165.95020	5.43947	0.1473322	0.19091763	2.9870239	20	5 3.3	18.5
34863 2001 TP <sub>107</sub>	14.2	X	144.11165	296.55323	83.18648	8.55695	0.1347347	0.27893615	2.3198835	20	2 20.9	17.5
34864 2001 TG <sub>114</sub>	13.5	X	249.56705	108.00832	257.84060	9.08139	0.1148064	0.19105285	2.9856143	20	5 23.0	17.8
34865 2001 TH <sub>116</sub>	13.1	X	103.55164	341.18643	44.71266	14.53949	0.1141952	0.17055228	3.2203101	20	1 24.7	17.9
34866 2001 TN <sub>119</sub>	14.3	X	67.32156	192.83283	297.06327	12.95656	0.1315300	0.23490629	2.6013949	20	3 30.8	17.8
34867 2001 TB <sub>121</sub>	14.2	X	346.26687	223.60374	284.54129	10.56535	0.1364660	0.22479439	2.6788336	20	—	—
34868 2001 TB <sub>136</sub>	12.9	X	312.68881	1.31394	256.93939	9.08074	0.0635214	0.18814127	3.0163379	20	3 30.1	17.2
34869 2001 TD <sub>170</sub>	14.4	X	271.80954	358.40352	356.44888	8.78135	0.2056872	0.29594502	2.2301223	20	5 19.1	17.5
34870 2001 TS <sub>195</sub>	14.4	X	139.09115	7.99735	129.44563	12.02759	0.0394757	0.19284287	2.9671101	20	7 8.2	18.8
34871 2001 UM <sub>2</sub>	14.9	X	50.73511	100.48535	185.87128	5.14693	0.1175037	0.25486883	2.4637212	20	10 20.8	17.9
34872 2001 UV <sub>2</sub>	14.6	X	9.56303	234.56326	290.61174	13.28190	0.0307101	0.23164825	2.6257298	20	2 15.0	18.1
34873 2001 UF <sub>6</sub>	13.4	X	190.53692	1.89117	326.64428	12.28953	0.1760728	0.22975907	2.6401034	20	2 7.7	17.8
34874 2001 UU <sub>9</sub>	14.8	X	55.83546	283.53879	5.07224	1.45349	0.0848247	0.20555532	2.8434804	20	10 15.4	

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Planet	H	G	M	$\omega$	$\Omega$	$i$	$e$	$\mu$	$a$	TE	Oppos.	V	
34881	2001	UF <sub>63</sub>	14.6	X	86.26733	118.08601	40.48224	10.28128	0.0987667	0.18715278	3.0269497	20 6 6.9	18.9
34882	2001	UK <sub>66</sub>	14.2	X	356.95692	192.44477	42.96396	5.37146	0.1432028	0.29012781	2.2598337	20 4 29.2	16.0
34883	2001	UQ <sub>94</sub>	13.8	X	142.93430	314.98757	72.16558	22.94661	0.0400641	0.17787793	3.1312759	20 3 9.4	18.8
34884	2001	UR <sub>119</sub>	14.9	X	103.75195	43.25445	177.06979	0.09688	0.1256757	0.30512737	2.1851534	20 10 3.2	17.8
34885	2001	VE <sub>12</sub>	14.4	X	154.96620	220.03481	30.84192	16.12748	0.1663253	0.21127749	2.7919045	20 12 12.6	19.2
34886	2001	VH <sub>12</sub>	13.7	X	262.36146	277.70803	3.84634	11.28372	0.3230473	0.23492241	2.6012759	20 2 5.8	18.4
34887	2001	VJ <sub>14</sub>	14.2	X	302.40893	243.22750	27.58016	9.35688	0.1018773	0.28964833	2.2623269	20 3 24.5	16.7
34888	2001	VP <sub>16</sub>	13.8	X	147.74452	0.96955	94.80007	14.20065	0.1209247	0.24034966	2.5619680	20 6 2.3	17.7
34889	2001	VY <sub>33</sub>	15.8	X	201.89429	93.38458	241.37351	5.65784	0.2424653	0.28620249	2.2804494	20 2 17.3	19.8
34890	2001	VS <sub>62</sub>	14.7	X	79.05493	350.83746	262.44018	4.14921	0.0832793	0.25445517	2.4663906	20 10 4.5	18.1
34891	2001	VR <sub>66</sub>	15.1	X	224.91712	276.72757	31.59087	7.39997	0.1328462	0.28445796	2.2897636	20 2 10.9	18.7
34892		Evapalisa	14.4	X	217.05227	253.89043	109.78747	5.17880	0.2828729	0.23947624	2.5681936	20 4 10.1	19.1
34893		Mihomatsatoshi	14.9	X	286.61747	312.47070	117.72807	8.17870	0.2615352	0.25563667	2.4587853	20 9 27.5	17.3
34894	2012	P-L	15.1	X	83.73144	26.17828	356.44698	8.17719	0.3062129	0.21903642	2.7255772	20 1 12.3	18.3
34895	2026	P-L	14.0	X	95.72564	9.56111	334.36093	6.17328	0.0863610	0.21801765	2.7340615	20	—
34896	2117	P-L	15.3	X	134.46803	98.78108	270.04508	1.21173	0.0801918	0.22087848	2.7104025	20 1 24.3	19.0
34897	2537	P-L	15.2	X	103.74838	317.95225	26.72018	5.22498	0.2039633	0.26832333	2.3806585	20	—
34898	2622	P-L	14.0	X	90.33177	334.36703	152.48508	1.55913	0.1438208	0.17300907	3.1897511	20 5 11.0	18.4
34899	2628	P-L	15.9	X	278.44656	142.90941	5.45023	1.67630	0.0766283	0.26663941	2.3906710	20	—
34900	2698	P-L	15.8	X	336.23324	278.88134	5.85455	7.62999	0.0692983	0.29268266	2.2466636	20 6 11.4	18.1
34901		Mauna Loa	14.6	X	326.29141	204.06755	238.00185	0.38196	0.2047083	0.16779850	3.2554472	20 12 12.6	18.0
34902	2728	P-L	14.4	X	162.38396	152.95532	13.20559	10.83223	0.0717024	0.19618030	2.9333628	20 9 13.8	18.8
34903	3037	P-L	13.0	X	93.20524	148.59359	297.96626	8.43929	0.1114390	0.17273125	3.1931704	20 3 16.4	17.6
34904	3085	P-L	13.6	X	75.61806	237.48782	225.84736	10.33231	0.1045676	0.17243370	3.1968428	20 3 14.2	18.0
34905	3110	P-L	14.4	X	334.18886	73.64631	280.23417	10.81937	0.0647509	0.19650800	2.9301008	20 9 3.8	18.4
34906	3116	P-L	14.2	X	221.23866	41.13849	269.38887	11.70670	0.1385322	0.17368530	3.1814664	20 2 13.3	19.5
34907	3527	P-L	15.0	X	96.87554	314.81203	269.56756	7.55337	0.0561163	0.29513785	2.2341866	20 9 17.9	18.1
34908	3528	P-L	14.4	X	273.60641	33.49056	232.18088	14.30538	0.0411068	0.22262613	2.6961991	20 2 16.2	18.5
34909	3534	P-L	14.3	X	51.32365	308.55460	0.27235	25.25317	0.1124239	0.21481838	2.7611400	20 10 29.6	18.5
34910	4052	P-L	14.1	X	323.08362	174.99979	212.44641	8.01553	0.0990294	0.19726754	2.9225747	20 10 5.1	17.7
34911	4288	P-L	15.2	X	75.37978	12.23847	190.58971	5.69789	0.1393479	0.29330501	2.2434845	20 8 3.6	18.0
34912	4314	P-L	15.1	X	94.35388	24.53972	351.72320	6.84096	0.3164137	0.21940381	2.7225338	20 1 20.8	18.6
34913	4527	P-L	15.6	X	266.06877	148.82682	71.08326	3.18218	0.1642826	0.27017114	2.3697912	20	—
34914	4535	P-L	14.1	X	136.58855	356.70327	43.05015	0.20973	0.1721326	0.17366460	3.1817192	20 3 18.5	19.1
34915	4564	P-L	14.8	X	40.42010	311.87419	177.48093	1.32959	0.1443865	0.17180087	3.2046884	20 3 3.1	18.4
34916	4595	P-L	15.8	X	70.15414	189.67000	176.37323	2.63182	0.1876805	0.26747071	2.3857150	20	—
34917	4616	P-L	15.1	X	100.02789	253.20252	138.56356	3.17711	0.1907832	0.22021168	2.7158711	20 1 26.7	18.6
34918	4654	P-L	15.5	X	313.04569	345.65200	310.05840	1.33053	0.2640666	0.24335108	2.5408588	20 4 21.3	18.1
34919		Imelda	14.0	X	152.71030	41.52443	16.30995	6.60950	0.2267266	0.12480760	3.9655981	20 4 26.2	20.5
34920	4735	P-L	16.1	X	62.20214	345.10444	91.34776	2.64105	0.0242597	0.31808680	2.1253915	20	—
34921	4801	P-L	14.5	X	214.92561	190.52401	98.58075	2.14494	0.1224929	0.17143046	3.2093030	20 1 19.8	19.6
34922	4825	P-L	14.9	X	252.39968	6.80345	190.22747	1.45054	0.0283825	0.21856122	2.7295265	20	—
34923	4870	P-L	15.8	X	284.63543	118.73302	180.62786	4.80137	0.1105803	0.25834882	2.4415468	20 4 7.8	18.9
34924	6109	P-L	14.7	X	39.61540	284.72766	339.29807	3.32827	0.1019986	0.24537809	2.5268465	20 8 30.2	17.5
34925	6114	P-L	13.8	X	325.40018	222.49239	348.17365	12.83408	0.1405425	0.22311483	2.6922606	20 2 8.3	17.3
34926	6133	P-L	15.5	X	88.80844	127.73505	245.80215	2.78541	0.2160926	0.26861166	2.3789546	20	—
34927	6189	P-L	16.4	X	234.18899	79.28930	266.18809	1.67957	0.1622094	0.29110585	2.2547692	20 4 1.7	19.6
34928	6230	P-L	15.2	X	171.07067	9.23978	281.50199	3.10245	0.2206467	0.26981527	2.3718744	20	—
34929	6522	P-L	13.8	X	106.94191	312.76968	112.84250	3.06720	0.1737585	0.17294103	3.1905877	20 3 21.5	18.6
34930	6570	P-L	15.0	X	44.67364	243.22105	180.36020	2.41170	0.2097982	0.26837241	2.3803682	20	—
34931	6621	P-L	14.4	X	196.42240	100.35402	169.30224	12.58731	0.1564300	0.22030625	2.7150938	20	—
34932	6644	P-L	14.9	X	358.03924	142.70243	153.78747	5.35468	0.2093842	0.24547305	2.5261948	20 8 14.4	16.8
34933	6652	P-L	13.9	X	352.67473	129.43546	122.46905	2.00421	0.1592601	0.17748666	3.1358762	20 5 20.3	17.5
34934	6689	P-L	13.8	X	26.56658	350.41995	177.89603	4.83082	0.1320913	0.17298870	3.1900015	20 3 29.9	17.6
34935	6780	P-L	13.9	X	66.02269	320.59983	167.52686	13.53975	0.1124166	0.17321048	3.1872780	20 4 8.3	18.2
34936	6861	P-L	14.9	X	248.92944	141.86595	117.65890	3.91785	0.0458800	0.22172459	2.7035027	20 1 16.1	18.7
34937	9063	P-L	14.9	X	105.78459	265.38625	205.40134	4.51658	0.0869664	0.29029960	2.2589421	20 4 26.7	17.6
34938	9562	P-L	14.5	X	167.72889	264.76826	82.90226	4.52460	0.1804413	0.17379956	3.1800719	20 2 16.9	19.7
34939	9575	P-L	15.4	X	86.10728	281.58484	78.53259	2.90204	0.1872280	0.31770862	2.1270778	20	—
34940	9586	P-L	13.9	X	50.58924	32.05345	133.48296	6.11954	0.0997460	0.17417365	3.1755168	20 5 2.2	18.1
34941	1244	T-1	14.4	X	18.32775	159.83759	205.70268	3.86066	0.0834794	0.21154823	2.7895220	20 12 4.3	18.0
34942	1275	T-1	15.8	X	28.91606	278.18418	352.20592	5.20465	0.1984483	0.30571610	2.1823472	20 9 17.6	17.9
34943	1286	T-1	14.5	X	352.27779	13.34580	194.58136	17.69876	0.1613502	0.17996107	3.1070650	20 3 17.8	18.2
34944	2202	T-1	14.8	X	298.09318	76.87441	155.19732	4.14612	0.3114098	0.17574403	3.1565717	20 1 11.9	19.8
34945	2263	T-1	15.0	X	196.48833	119.46171	179.04591	6.38319	0.1656856	0.27677860	2.3319239	20	—
34946	2286	T-1	14.2	X	200.76851	220.36236	173.68396	13.88935	0.3057315	0.22463609	2.6800920	20 5 5.1	19.3
34947	3298	T-1	14.8	X	11.50940	342.93687	187.87128	19.39681	0.2303307	0.22066189	2.7121757	20 2 20.1	17.6
34948	4103	T-1	14.8	X	307.31240	140.77065	86.69240	3.47401	0.1463801	0.25955014	2.4340073	20 1 26.8	17.9
34949	4111	T-1	14.5	X	343.21902	193.72255	46.04715	4.51696	0.0950703	0.18176469	3.0864769	20 4 21.2	18.2
34950	4188	T-1	15.9	X	240.31964	327.42769	158.41783	2.21304	0.0796829	0.29111876	2.2547025	20 11 6.5	18.5
34951	4221	T-1	14.4	X	45.13855	28.26027	167.25354	4.63780	0.0823714	0.18285997	3.0741398	20 5 29.4	18.5
34952	4874	T-1	14.7	X	52.34260	140.18442	51.99966	2.94791	0.2365055	0.18149120	3.0895768	20 6 27.1	18.6
34953	1008	T-2	14.5	X	174.33970	49.96623	350.52139	11.21572	0.1267456	0.18149527	3.0895307	20 4 16.2	19.5
34954	1032	T-2	14.6	X	152.23496	337.18435	3.55072	2.36105	0.0745902	0.21902813	2.7256460	20 1 10.3	18.6
34955	1044	T-2	15.1	X	171.49727	321.56552	327.47508	4.					

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
34961 2252 T-2	13.6 <sup>m</sup>	X	44.22298	18.39112	1.03057	8.94328	0.1629057	0.21417155	2.7666966	20	—	—
34962 2307 T-2	15.2	X	35.26725	174.94261	269.43339	0.85660	0.1847700	0.17508483	3.1644899	20	—	—
34963 3091 T-2	14.7	X	176.95911	45.94573	179.19419	9.15517	0.1013176	0.21418349	2.7665937	20	12 9.4	19.0
34964 3122 T-2	15.1	X	177.11969	205.21803	17.20215	6.11632	0.1634482	0.25615137	2.4554905	20	12 7.9	18.9
34965 3221 T-2	14.7	X	196.35473	181.78121	120.48917	1.87916	0.1586537	0.17716390	3.1396836	20	1 17.7	19.9
34966 3260 T-2	14.3	X	78.89696	329.47042	100.55828	4.34591	0.0518263	0.21947834	2.7219174	20	1 27.7	17.8
34967 3269 T-2	14.6	X	355.78535	216.76494	165.68032	8.53729	0.2324966	0.21150288	2.7899207	20	12 12.5	17.6
34968 4094 T-2	14.8	X	239.26223	245.75625	135.39179	1.83142	0.1534349	0.18399165	3.0615215	20	5 27.7	19.6
34969 4108 T-2	15.7	X	177.03200	301.13106	142.05782	4.73324	0.0915392	0.28881143	2.2666952	20	6 15.7	18.9
34970 4218 T-2	14.4	X	3.01878	258.77603	23.03850	14.93118	0.0808103	0.18581230	3.0414901	20	7 23.2	18.5
34971 4286 T-2	14.5	X	97.25838	117.60575	33.16184	10.06943	0.0420481	0.18263776	3.0766329	20	6 2.2	18.9
34972 5039 T-2	13.8	X	66.11225	206.97539	329.70453	12.88739	0.0893825	0.18223654	3.0811469	20	6 1.8	18.2
34973 5157 T-2	14.6	X	350.90804	355.86881	252.93222	9.31414	0.0595743	0.18287458	3.0739761	20	5 15.5	18.6
34974 5164 T-2	14.3	X	166.08230	147.02132	267.05513	9.15314	0.1412392	0.18120388	3.0928419	20	4 26.8	19.4
34975 1050 T-3	13.9	X	279.91138	22.66326	275.66718	8.60859	0.0410501	0.17518005	3.1633429	20	4 11.5	18.5
34976 1115 T-3	15.0	X	144.87391	275.75821	305.29132	6.04718	0.0859187	0.25372694	2.4711077	20	11 5.9	18.8
34977 1167 T-3	14.2	X	345.04524	212.70528	329.70453	10.79105	0.1788695	0.24106767	2.5668784	20	1 31.6	17.1
34978 1901 T-3	13.6	X	88.44308	195.06619	299.18784	8.25156	0.0310119	0.17421819	3.1749756	20	4 27.9	18.2
34979 2173 T-3	15.0	X	234.29092	188.39215	211.79825	8.38631	0.1380712	0.29343697	2.2428118	20	6 18.3	18.2
34980 2307 T-3	15.0	X	138.66412	257.30834	313.47555	4.28387	0.0301267	0.29862185	2.2167752	20	10 24.8	17.8
34981 2342 T-3	15.5	X	43.96306	82.66586	346.50747	3.48438	0.1694590	0.28257164	2.2999426	20	—	—
34982 2494 T-3	14.8	X	128.05546	206.45343	320.57236	3.12808	0.0942883	0.29451558	2.2373325	20	8 14.9	17.8
34983 3046 T-3	15.6	X	145.35404	111.70890	59.15081	4.30839	0.1010555	0.29596641	2.2300149	20	9 12.1	18.7
34984 3163 T-3	13.6	X	318.31697	174.00518	27.66211	19.09104	0.0694541	0.17027488	3.2238067	20	2 10.9	18.4
34985 3286 T-3	14.6	X	265.32260	173.09632	31.21442	12.17470	0.0569185	0.21394509	2.7268648	20	—	—
34986 3837 T-3	15.1	X	124.52865	243.81556	34.06551	8.36695	0.0570189	0.21002500	2.8029933	20	12 17.1	19.3
34987 4065 T-3	14.0	X	8.07615	90.16020	106.14487	6.26972	0.0770908	0.17316784	3.1878011	20	4 7.1	18.1
34988 4222 T-3	14.7	X	248.81375	199.88770	41.64195	9.72713	0.0973278	0.21552965	2.7550620	20	—	—
34989 4251 T-3	15.0	X	353.39413	317.41831	76.72215	3.99038	0.0896468	0.20842722	2.8173000	20	12 4.8	18.5
34990 4270 T-3	14.7	X	198.20527	210.52462	88.38841	5.74367	0.0699079	0.21601721	2.7509149	20	1 9.1	18.8
34991 4295 T-3	14.8	X	316.27472	313.58031	62.26292	5.89457	0.1111371	0.25122137	2.4875109	20	9 22.3	17.4
34992 4418 T-3	14.6	X	225.51491	293.92832	53.05123	8.67093	0.1558021	0.24417877	2.5351138	20	4 2.7	18.6
34993 Euaimon	12.4	X	258.28294	47.75871	40.32436	8.89265	0.0558461	0.08440948	5.1468547	20	9 15.0	19.3
34994 1977 CS <sub>1</sub>	14.9	X	89.64745	27.09048	128.47472	7.31901	0.2232644	0.23388554	2.6089583	20	6 27.1	18.7
34995 Dainihonshi	14.8	X	54.29527	108.90755	47.58051	1.08732	0.2253527	0.18564672	3.0432984	20	5 11.2	18.2
34996 Mitokoumon	14.0	X	233.63707	80.85765	348.76015	11.45929	0.1622104	0.23826139	2.5769160	20	7 26.5	17.9
34997 1978 OP	13.3	X	160.20026	193.25650	108.99524	14.82625	0.1573718	0.22215407	2.7000172	20	—	—
34998 1978 SE	13.7	X	35.59937	271.23141	140.12922	13.90971	0.1194473	0.21989517	2.7184765	20	—	—
34999 1978 VC <sub>3</sub>	14.2	X	82.98825	74.67038	255.96065	5.36110	0.1891454	0.21411765	2.7671608	20	—	—
35000 1978 VN <sub>3</sub>	15.5	X	66.82214	213.92348	224.44714	3.86779	0.0925803	0.21877416	2.7277550	20	1 24.5	18.8
35001 1978 VN <sub>4</sub>	15.8	X	58.25802	251.82390	103.54563	2.12468	0.1906629	0.26160272	2.4212588	20	—	—
35002 1978 VY <sub>8</sub>	12.9	X	340.71553	108.18895	247.45593	10.20987	0.0358059	0.18407120	3.0606393	20	9 14.8	17.2
35003 1979 MT <sub>1</sub>	15.7	X	219.46177	219.61475	128.54954	4.62200	0.1796726	0.28258745	2.2998568	20	3 24.7	19.3
35004 1979 MC <sub>3</sub>	15.6	X	82.58699	90.89288	172.47400	2.11871	0.1192403	0.24500811	2.5293897	20	10 27.3	19.3
35005 1979 MY <sub>3</sub>	15.1	X	306.25131	231.84216	123.40660	6.56006	0.1678258	0.24034044	2.5620335	20	7 21.5	17.6
35006 1979 ON <sub>8</sub>	14.5	X	142.61115	203.27092	151.79602	10.62401	0.1866769	0.22941974	2.6427060	20	1 26.5	18.6
35007 1979 OD <sub>11</sub>	14.8	X	194.55342	224.64648	138.43243	15.98224	0.1346922	0.23366913	2.6105689	20	3 26.7	19.1
35008 1980 FZ <sub>2</sub>	13.9	X	346.82635	102.84968	177.26840	16.12901	0.1503679	0.17745103	3.1362959	20	6 17.9	17.9
35009 1980 US <sub>1</sub>	15.6	X	113.81305	10.44662	6.67567	4.40118	0.2109522	0.28094581	3.2088072	20	1 19.9	18.4
35010 1981 DV <sub>1</sub>	14.5	X	352.86774	301.87867	317.29928	10.38016	0.0588549	0.18039945	3.1020294	20	5 31.5	18.7
35011 1981 DU <sub>2</sub>	15.2	X	306.24221	332.43358	312.59248	11.87989	0.2090948	0.22804167	2.6533421	20	3 28.3	18.9
35012 1981 EU <sub>2</sub>	14.4	X	329.47883	5.34687	315.56953	11.14593	0.0926787	0.18336586	3.0684831	20	7 18.5	18.3
35013 1981 EL <sub>3</sub>	15.4	X	189.86487	295.37512	284.90792	8.05259	0.0853285	0.21701322	2.7424913	20	12 18.3	19.3
35014 1981 EX <sub>5</sub>	14.6	X	278.27464	138.48207	226.35981	10.03690	0.0936280	0.18325107	3.0697643	20	6 28.3	19.0
35015 1981 EO <sub>6</sub>	15.2	X	171.47128	180.02293	249.30624	7.78835	0.1706516	0.23174389	2.6250073	20	5 22.6	19.3
35016 1981 EC <sub>7</sub>	13.6	X	21.67050	207.89432	307.29356	7.84078	0.1180970	0.12550388	3.9509173	20	3 7.1	18.6
35017 1981 EG <sub>7</sub>	15.7	X	321.44990	271.34496	299.99990	6.10379	0.0556671	0.27557560	2.3387055	20	2 3.4	18.4
35018 1981 EX <sub>9</sub>	14.5	X	215.95415	49.25398	319.26975	8.55095	0.0786639	0.17963076	3.1108728	20	4 19.7	19.4
35019 1981 EH <sub>10</sub>	15.2	X	183.01915	44.90630	319.69654	5.94353	0.1242553	0.27741349	2.3283646	20	3 7.6	18.7
35020 1981 EJ <sub>12</sub>	14.9	X	85.64239	303.03263	271.61781	4.01010	0.1284366	0.18412062	3.0600916	20	8 20.8	19.3
35021 1981 ER <sub>12</sub>	14.8	X	40.27342	245.85359	338.93700	11.10607	0.0947680	0.18125730	3.0922342	20	7 2.4	18.9
35022 1981 EK <sub>13</sub>	15.4	X	143.75098	138.98684	239.69808	5.82078	0.1091437	0.27554769	2.3388634	20	2 10.4	18.7
35023 1981 EO <sub>14</sub>	14.7	X	310.38002	339.36308	338.74668	14.24870	0.1694394	0.23133802	2.6280767	20	5 30.6	18.1
35024 1981 EV <sub>14</sub>	14.7	X	38.07253	286.49890	298.67782	4.62345	0.1310596	0.18100112	3.0951513	20	7 2.8	18.4
35025 1981 EA <sub>15</sub>	14.3	X	339.25876	281.85319	333.52027	9.88120	0.0408616	0.17935417	3.1140702	20	5 4.9	18.7
35026 1981 EM <sub>16</sub>	14.4	X	329.97437	342.08013	329.65709	9.87939	0.0375326	0.18259919	3.0770661	20	7 10.9	18.6
35027 1981 ET <sub>18</sub>	15.5	X	136.12446	139.01972	341.47198	4.04088	0.1731985	0.23289083	2.6163819	20	6 24.1	19.6
35028 1981 ET <sub>21</sub>	15.5	X	136.81773	299.14309	166.71495	4.99002	0.2141351	0.23251132	2.6192281	20	6 9.2	19.9
35029 1981 EM <sub>22</sub>	16.6	X	63.70360	142.85626	335.77102	2.00653	0.1595386	0.27800949	3.2250357	20	3 15.4	18.6
35030 1981 EW <sub>22</sub>	15.4	X	150.46587	277.61769	188.48579	3.03607	0.2682347	0.18223935	3.0811153	20	6 21.9	20.8
35031 1981 EE <sub>23</sub>	15.3	X	292.41403	351.35636	304.47934	2.82118	0.1626848	0.22884082	2.6471612	20	4 5.3	18.8
35032 1981 EL <sub>26</sub>	15.1	X	334.24338	255.58579	354.65591	8.57412	0.1715150	0.27856268	2.3219566	20	3 31.2	17.4
35033 1981 EA <sub>27</sub>	15.1	X	143.39661	22.22104	86.84702	1.67533	0.2043659	0.18163215	3.0879783	20	6 17.2	20.3
35034 1981 EF <sub>27</sub>	15.3	X	45.46925	53.21409	185.84425	3.97461	0.1113500	0.23256813	2.6188015	20	8 2.3	18.5
35035 1981 ER <sub>29</sub>	14.4	X	130.76215	308.98055	192.62516	13.28023	0.1364042	0.23293823	2.6160269	20		

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
35041 1981 ER <sub>34</sub>	15.0	X	334.12369	307.83579	246.60036	8.09588	0.0259944	0.17498144	3.1657363	20	2 14.3	19.5
35042 1981 EO <sub>36</sub>	16.1	X	48.21446	319.93549	312.98143	8.22669	0.2167132	0.25942713	2.4347766	20	10 9.8	19.4
35043 1981 EH <sub>38</sub>	15.6	X	278.48663	63.34982	211.22446	4.21116	0.1605955	0.27631579	2.3345270	20	2 16.5	18.9
35044 1981 ET <sub>40</sub>	15.2	X	347.48422	297.47546	313.44663	2.94720	0.0284470	0.23021550	2.6366127	20	5 13.2	18.5
35045 1981 EB <sub>42</sub>	14.9	X	108.42292	288.03704	176.51673	4.64942	0.1045328	0.17890925	3.1192308	20	4 29.8	19.5
35046 1981 EL <sub>43</sub>	15.5	X	46.31792	179.28355	243.25959	1.20211	0.0726033	0.22215753	2.6999892	20	—	—
35047 1981 EF <sub>44</sub>	14.7	X	10.03994	299.18433	331.46461	4.29809	0.1442490	0.18213291	3.0823156	20	7 19.2	18.3
35048 1981 EF <sub>45</sub>	14.7	X	82.14968	177.97691	52.20375	2.06016	0.1568009	0.18496162	3.0508087	20	9 11.6	19.1
35049 1981 EE <sub>46</sub>	14.5	X	336.96607	5.29682	313.02626	4.78139	0.1547144	0.18377871	3.0638858	20	7 22.9	17.8
35050 1981 EA <sub>47</sub>	15.1	X	156.61784	36.95035	350.53585	6.04344	0.1458370	0.27780548	2.3261739	20	3 12.9	18.3
35051 1981 ED <sub>47</sub>	16.5	X	86.72551	132.91943	337.16123	2.04329	0.1678873	0.27918094	2.3185273	20	4 11.2	19.0
35052 1982 JY <sub>1</sub>	14.5	X	69.13071	151.05942	90.38562	6.03667	0.0812149	0.18712543	3.0272446	20	9 1.9	18.7
35053 Rojyurii	15.0	X	76.31894	192.89852	218.12491	1.93429	0.2019110	0.26830675	2.3807565	20	1 6.4	17.0
35054 1982 WK	14.1	X	106.11209	326.72879	75.05582	13.43818	0.2874564	0.22310734	2.6923208	20	3 6.7	18.3
35055 1984 RB	14.7	X	331.73977	296.93084	155.63886	23.36377	0.0964898	0.36446290	1.9410371	20	—	—
35056 Cullers	14.0	X	106.60683	59.83552	344.16495	23.50322	0.3223045	0.25792814	2.4442009	20	3 4.3	17.3
35057 1981 SP <sub>4</sub>	14.7	X	302.15758	80.98460	302.83399	5.09534	0.2495612	0.24454591	2.5325758	20	8 12.6	16.9
35058 1985 RP <sub>4</sub>	15.2	X	82.76091	206.64587	136.92614	3.75553	0.2465494	0.26206254	2.4184257	20	—	—
35059 1986 QM <sub>1</sub>	15.7	X	262.19995	232.43805	79.33112	2.08072	0.2231680	0.28294868	2.2978990	20	3 14.1	19.1
35060 1986 QG <sub>3</sub>	14.1	X	134.99914	345.29137	13.26954	5.12765	0.1493317	0.21656277	2.7462929	20	1 22.9	18.1
35061 1986 QL <sub>3</sub>	15.3	X	178.56345	193.91869	132.26945	5.63890	0.3357227	0.21811888	2.7332155	20	2 1.1	20.2
35062 Sakuranosyou	14.4	X	287.79735	37.96069	163.31668	10.51112	0.2389136	0.27018826	2.3696911	20	—	—
35063 1988 FD	13.4	X	107.24212	98.48961	12.89056	22.92642	0.1753971	0.28062234	2.3105811	20	5 3.3	16.8
35064 1988 RE <sub>10</sub>	15.1	X	295.35847	177.53159	162.03876	2.93254	0.2363114	0.24312275	2.5424494	20	5 29.2	18.2
35065 1988 SU <sub>1</sub>	13.1	X	196.28475	149.77496	41.04376	11.50879	0.1442201	0.19026446	2.9938562	20	11 16.9	17.6
35066 1988 SV <sub>1</sub>	14.4	X	103.47883	253.37228	130.73746	10.42234	0.0503120	0.22915161	2.6447671	20	—	—
35067 1989 LL	14.6	X	153.58700	175.86534	49.64339	6.62752	0.1159706	0.29802078	2.2197549	20	11 29.6	17.6
35068 1989 SF <sub>4</sub>	14.0	X	21.84845	271.24024	34.24454	10.73414	0.0566841	0.18887031	3.0085709	20	9 19.4	18.1
35069 1989 SH <sub>4</sub>	15.2	X	163.77275	272.52468	49.92242	4.36315	0.1599021	0.26811833	2.3818178	20	—	—
35070 1989 TE <sub>3</sub>	14.7	X	272.39147	235.16868	144.88785	3.52561	0.1600881	0.18465221	3.0542157	20	7 1.4	18.9
35071 1989 TE <sub>5</sub>	15.0	X	359.43106	31.25937	147.04161	4.19849	0.0660883	0.27105945	2.3646109	20	2 14.3	17.5
35072 1989 TX <sub>6</sub>	15.9	X	39.56066	252.00622	107.02401	3.73676	0.2208406	0.25980927	2.4323886	20	—	—
35073 1989 TG <sub>16</sub>	15.8	X	150.11837	149.49132	194.90604	0.90990	0.2056486	0.26912059	2.3759544	20	1 18.4	19.3
35074 1989 UF <sub>1</sub>	14.8	X	58.91180	124.04731	269.49162	1.79775	0.2149543	0.26323037	2.4112675	20	—	—
35075 1989 XW <sub>1</sub>	13.5	X	270.52230	241.63842	168.77607	9.90640	0.0996871	0.18547699	3.0451547	20	8 15.3	17.8
35076 Yataro	13.8	X	317.04523	182.39410	4.33719	12.50713	0.0365728	0.22814150	2.6525680	20	1 10.6	17.6
35077 1990 OT <sub>2</sub>	15.1	X	319.18825	281.41639	25.25133	5.30811	0.1855371	0.29301583	2.2449603	20	5 28.9	17.1
35078 1990 QG <sub>7</sub>	15.9	X	25.63236	164.92547	123.03630	3.32030	0.2264887	0.29732427	2.2322202	20	10 14.5	18.1
35079 1990 QR <sub>7</sub>	16.0	X	290.79810	3.74411	1.73942	2.07786	0.1776535	0.29352195	2.2423789	20	7 12.1	18.0
35080 1990 QH <sub>8</sub>	15.7	X	219.00669	313.07754	107.58843	1.60310	0.2476540	0.29015930	2.2596702	20	6 20.6	19.1
35081 1990 QT <sub>8</sub>	15.4	X	165.30910	140.62328	143.73530	4.10700	0.1617236	0.30965424	2.1638045	20	—	—
35082 1990 RJ <sub>3</sub>	15.0	X	351.94752	319.08066	352.04044	6.28468	0.0794227	0.29425870	2.2386344	20	8 25.5	17.1
35083 1990 SP <sub>6</sub>	15.3	X	256.65772	195.76332	161.76712	6.09618	0.1946684	0.28900725	2.2656712	20	5 11.3	18.5
35084 1990 SA <sub>9</sub>	15.4	X	188.18017	269.07984	148.16007	6.05912	0.1301247	0.28725550	2.2748730	20	5 24.3	18.8
35085 1990 SL <sub>11</sub>	14.3	X	352.98809	26.45429	328.18369	4.17948	0.1791450	0.29783636	2.2206711	20	11 15.4	16.3
35086 1990 TW <sub>8</sub>	15.1	X	259.36887	311.03641	18.56659	5.89474	0.1893264	0.28681974	2.2717165	20	4 5.5	18.3
35087 von Sydow	15.4	X	62.54494	130.91314	201.24705	21.23838	0.0879868	0.36688613	1.9324808	20	—	—
35088 1990 VU <sub>4</sub>	15.7	X	209.64951	248.43806	119.72046	5.66847	0.1387039	0.28293793	2.2979572	20	4 12.2	19.2
35089 1990 WH <sub>1</sub>	14.9	X	359.32413	186.55931	330.22644	5.69470	0.1397217	0.29260516	2.2470603	20	9 25.5	16.8
35090 1990 WR <sub>1</sub>	15.1	X	248.85551	223.38643	129.88306	6.20562	0.1586238	0.28578548	2.2826672	20	5 1.7	18.4
35091 1990 WC <sub>2</sub>	14.5	X	228.81488	269.72077	187.38414	10.68328	0.0750553	0.19116986	2.9843959	20	8 26.4	19.0
35092 1990 WK <sub>6</sub>	14.9	X	143.57182	146.69581	200.92288	7.10367	0.1468791	0.27461261	2.3441698	20	1 7.1	18.2
35093 Akicity	13.8	X	93.39048	30.79895	115.65571	6.30882	0.1021235	0.17458194	3.1705639	20	6 2.9	18.3
35094 1991 GW <sub>2</sub>	14.0	X	357.08902	174.91577	63.22754	1.87174	0.1232344	0.17305645	3.1891689	20	5 10.4	17.9
35095 1991 GY <sub>3</sub>	15.4	X	338.12208	148.86710	18.47396	2.81232	0.1230099	0.26603064	2.3943168	20	—	—
35096 1991 GV <sub>4</sub>	15.0	X	143.60908	104.42030	187.27537	2.68982	0.1688951	0.25706072	2.4496963	20	—	—
35097 1991 GS <sub>5</sub>	15.0	X	30.48597	39.87454	221.59965	5.86005	0.1522476	0.24359720	2.5391471	20	8 16.6	17.9
35098 1991 GB <sub>7</sub>	13.7	X	82.74289	116.74808	28.43299	7.88593	0.0875047	0.17194481	3.2028997	20	5 14.6	18.2
35099 1991 GY <sub>7</sub>	15.4	X	244.31384	301.03323	318.85968	1.74420	0.1459480	0.26378615	2.4078794	20	—	—
35100 1991 NK	14.4	X	236.27429	41.47599	239.47163	13.07893	0.2443204	0.22633345	2.6666758	20	1 15.3	19.2
35101 1991 PL <sub>16</sub>	13.8	X	345.10604	324.42281	350.09286	12.25785	0.1828972	0.23638880	2.5905071	20	8 14.1	16.1
35102 1991 RT	14.6	X	323.55298	170.92965	159.71211	16.10413	0.2476295	0.23615972	2.5921821	20	7 6.5	17.2
35103 1991 RZ <sub>14</sub>	13.2	X	233.96319	214.44259	195.77682	1.49560	0.0632298	0.19838851	2.9115553	20	7 7.2	17.4
35104 1991 RP <sub>17</sub>	14.3	X	19.24012	302.95231	349.03390	12.05720	0.2694624	0.23884442	2.5727208	20	9 29.4	16.9
35105 1991 RP <sub>23</sub>	13.6	X	19.17755	268.31320	9.41995	14.99674	0.0917976	0.23596129	2.5936351	20	8 21.4	16.9
35106 1991 TE <sub>11</sub>	15.8	X	353.41707	280.93690	203.68612	2.72320	0.1359551	0.21422191	2.7662630	20	—	—
35107 1991 VH	16.7	X	240.41235	206.93648	139.35113	13.91129	0.1442313	0.81260340	1.1373225	20	2 19.9	15.3
35108 1991 VZ <sub>7</sub>	14.8	X	305.10770	93.35361	60.89153	8.35764	0.1705558	0.21077280	2.7963595	20	—	—
35109 1991 XM	13.2	X	167.95897	83.43755	243.42255	14.27048	0.1499668	0.21563368	2.7541757	20	1 13.2	17.7
35110 1992 BJ <sub>2</sub>	15.3	X	36.82535	286.98398	231.55441	4.61337	0.0914329	0.28487671	2.2875192	20	3 15.5	17.5
35111 1992 BH <sub>4</sub>	15.8	X	345.14626	355.72241	11.54644	2.39844	0.1476173	0.30204619	2.1999888	20	11 17.4	17.4
35112 1992 BT <sub>5</sub>	15.9	X	248.32682	261.78469	218.81062	3.68575	0.0702758	0.30203898	2.2000238	20	11 14.6	18.3
35113 1992 CR <sub>2</sub>	14.6	X	139.84069	55.53503	201.71094	4.08233	0.1063374	0.30391120	2.1909792	20	12 28.2	17.6
35114 1992 DC <sub>7</sub>	14.1	X	103.05478	205.06992	120.97459	3.15547	0.0677426	0.19984712	2.8973711	20	—	—
35115 1992 DN <sub>8</sub>	14.1	X	82.54865	329.21071	172.72402	9.01002	0.0391617	0.18084236	3.0			

# ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
35121 1992 EP <sub>8</sub>	15.4	X	181.51664	138.44913	75.58551	4.01872	0.1136349	0.30117993	2.2042053	20	12 16.8	18.4
35122 1992 ET <sub>15</sub>	15.7	X	42.71859	357.49396	268.82838	1.95270	0.1758657	0.29118508	2.2543602	20	9 25.6	18.3
35123 1992 EB <sub>17</sub>	15.4	X	211.17767	182.25184	170.42219	3.97636	0.1674951	0.28316447	2.2967314	20	3 21.5	19.1
35124 1992 EU <sub>21</sub>	14.0	X	190.53974	215.16363	136.56353	13.28492	0.0292140	0.17672158	3.1449204	20	3 10.8	18.7
35125 1992 ED <sub>22</sub>	15.6	X	313.20856	127.61150	120.66473	5.43605	0.1144284	0.28183939	2.3039245	20	3 6.3	18.2
35126 1992 EM <sub>25</sub>	15.0	X	142.53860	359.38406	158.31812	3.93079	0.0188748	0.22274011	2.6952792	20	8 8.5	18.8
35127 1992 EQ <sub>26</sub>	15.4	X	108.89374	335.76377	143.72647	3.21326	0.0759750	0.28656420	2.2785301	20	5 12.8	18.1
35128 1992 EG <sub>27</sub>	15.7	X	11.78286	117.22183	167.75483	6.22707	0.1876089	0.29046274	2.2580961	20	9 2.7	17.4
35129 1992 EZ <sub>29</sub>	15.6	X	347.89086	137.10384	62.41786	1.15509	0.0297240	0.28124275	2.3071818	20	2 29.4	18.3
35130 1992 LQ	12.9	X	109.81015	207.21811	75.27082	11.48346	0.0728610	0.19021247	2.9944017	20	12 4.5	17.4
35131 1992 PE <sub>2</sub>	14.6	X	208.56798	74.62139	291.94964	12.49943	0.2299379	0.23635837	2.5907295	20	3 30.6	19.4
35132 1992 PY <sub>3</sub>	15.2	X	296.46974	46.20636	301.74843	4.86287	0.3047507	0.24346560	2.5400620	20	5 29.5	18.4
35133 1992 QX	14.8	X	254.21230	206.19901	154.54034	10.53954	0.2411256	0.23951391	2.5679244	20	5 10.3	19.0
35134 1992 RE	14.8	X	22.36599	270.78277	111.28860	24.34727	0.1036227	0.35891480	1.9609889	20	—	—
35135 1992 RO <sub>1</sub>	14.9	X	164.70374	181.79853	135.74618	12.79210	0.2580561	0.26416627	2.4055690	20	1 4.2	18.9
35136 1992 RU <sub>1</sub>	14.8	X	130.48712	45.21640	187.86627	4.28351	0.0989016	0.25201102	2.4823119	20	11 8.8	18.4
35137 Meudon	15.6	X	223.06110	114.50970	153.85472	3.18316	0.1593888	0.26507686	2.4000567	20	—	—
35138 1992 RV <sub>5</sub>	15.2	X	128.57441	222.16534	80.96832	3.50177	0.1727192	0.25815789	2.4427505	20	—	—
35139 1992 RP <sub>7</sub>	15.5	X	228.77590	302.25547	111.62537	3.76541	0.2102865	0.23981422	2.5657801	20	6 22.7	19.5
35140 1992 RQ <sub>7</sub>	15.2	X	2.91905	206.08071	121.14729	3.14041	0.1196011	0.24729716	2.5137570	20	10 4.4	17.8
35141 1992 SH <sub>1</sub>	14.4	X	282.47821	321.86435	52.99093	7.37415	0.2859152	0.24193685	2.5507509	20	6 20.0	17.6
35142 1992 ST <sub>7</sub>	15.6	X	214.06748	131.91906	112.02536	2.40349	0.1539908	0.26157142	2.4214520	20	—	—
35143 1992 UF <sub>1</sub>	14.2	X	134.89134	349.88493	31.20941	8.07922	0.2206565	0.26271416	2.4144251	20	2 24.3	17.9
35144 1992 YE <sub>1</sub>	14.0	X	244.07276	327.64977	79.72787	5.11541	0.1428274	0.23621478	2.5917792	20	7 7.8	17.7
35145 1993 AM	14.2	X	73.56074	183.70707	303.83787	10.80669	0.1337340	0.22424608	2.6831985	20	4 9.1	17.9
35146 1993 FC <sub>9</sub>	14.7	X	70.89220	214.35264	107.84116	3.50828	0.0510595	0.20191859	2.8775211	20	12 9.5	18.7
35147 1993 FD <sub>9</sub>	14.7	X	55.39704	82.05248	8.57269	23.90795	0.2877406	0.21707304	2.7419874	20	2 29.9	17.6
35148 1993 FX <sub>15</sub>	13.9	X	38.15471	36.79120	49.11901	7.08824	0.1280098	0.17634824	3.1493575	20	1 2.8	17.7
35149 1993 FG <sub>33</sub>	14.8	X	23.85525	298.41725	97.68240	2.92977	0.0290519	0.20448932	2.8533538	20	—	—
35150 1993 FR <sub>41</sub>	14.4	X	2.12252	111.19977	171.30531	1.09690	0.1682634	0.18947770	3.0021380	20	7 21.9	17.4
35151 1993 FQ <sub>50</sub>	15.7	X	165.39146	340.28949	329.82004	2.25417	0.1781444	0.31741324	2.1283972	20	—	—
35152 1993 FG <sub>51</sub>	14.1	X	260.12264	127.57322	193.45296	4.84851	0.1817639	0.18392171	3.0622976	20	4 2.1	18.7
35153 1993 FU <sub>52</sub>	15.0	X	96.53707	276.68374	136.05182	4.84005	0.0934746	0.21490220	2.7604220	20	2 4.3	18.5
35154 1993 FF <sub>53</sub>	14.9	X	53.37622	260.32235	63.83322	3.37397	0.1023491	0.20032821	2.8927305	20	11 27.4	18.7
35155 1993 FU <sub>58</sub>	14.8	X	133.37423	248.57091	191.86066	3.64238	0.0325766	0.18479047	3.0526920	20	4 19.3	19.2
35156 1993 FH <sub>59</sub>	15.1	X	173.24797	294.18459	34.74272	1.69602	0.1910533	0.17615580	3.1516508	20	1 30.5	20.4
35157 1993 FQ <sub>73</sub>	15.3	X	110.43870	319.12440	302.28485	0.92577	0.0370623	0.19936628	2.9020279	20	11 8.5	19.3
35158 1993 FL <sub>82</sub>	14.9	X	189.78096	44.49820	157.56238	4.53648	0.0885259	0.20202731	2.8764886	20	11 23.9	19.2
35159 1993 LH <sub>1</sub>	14.5	X	330.46233	109.67175	308.47035	14.46743	0.1105221	0.23552895	2.5968081	20	12 9.8	17.6
35160 1993 NY	15.7	X	261.20684	333.55569	276.70621	1.38159	0.1285574	0.27994141	2.3143265	20	1 2.6	18.8
35161 1993 OW	14.8	X	151.80950	240.30859	111.60407	23.14799	0.2841518	0.27551920	2.3390247	20	2 6.1	18.7
35162 1993 OE <sub>2</sub>	15.6	X	324.91354	181.17160	160.12064	3.69062	0.1675971	0.29302828	2.2448967	20	8 15.8	17.1
35163 1993 OD <sub>5</sub>	16.1	X	323.78732	315.56214	358.03106	1.09514	0.1553118	0.29095853	2.2555302	20	6 26.3	17.8
35164 1993 PZ <sub>8</sub>	15.1	X	286.78175	316.27044	224.53636	4.36679	0.1007518	0.27329931	2.3516735	20	—	—
35165 Quebec	12.9	X	324.46005	323.98633	332.23500	21.08206	0.0243911	0.17588873	3.1548402	20	6 11.8	17.6
35166 1993 QD <sub>8</sub>	15.4	X	135.16538	214.55126	349.97182	5.14729	0.0811595	0.29503163	2.2347228	20	10 12.0	18.4
35167 1993 RX <sub>13</sub>	14.0	X	337.87711	271.81911	337.30943	1.09360	0.1049937	0.17303486	3.1894341	20	4 23.7	17.9
35168 1993 RS <sub>14</sub>	15.5	X	261.38496	108.43026	176.96712	1.79316	0.2152222	0.27981339	3.3150323	20	2 8.7	19.2
35169 1993 SP <sub>2</sub>	15.2	X	94.92039	167.12964	151.80217	3.12654	0.1939697	0.26564803	2.3966153	20	—	—
35170 1993 TM	14.5	X	129.01088	355.25761	25.88442	7.13387	0.1214077	0.27263102	2.3555150	20	2 3.4	17.6
35171 1993 TF <sub>1</sub>	14.5	X	150.11859	147.50408	239.86518	5.48609	0.1429374	0.27470888	2.3436221	20	3 3.3	17.9
35172 1993 TA <sub>3</sub>	14.6	X	276.25395	160.15577	146.91985	3.97280	0.1575474	0.28157549	2.3053639	20	3 30.9	17.7
35173 1993 TP <sub>9</sub>	15.2	X	297.36321	322.50462	359.73815	5.38749	0.1780580	0.28469932	2.2884693	20	5 13.9	17.7
35174 1993 TV <sub>13</sub>	15.3	X	218.76762	234.56670	23.48746	2.35849	0.1943349	0.27134394	2.3629578	20	—	—
35175 1993 TJ <sub>21</sub>	12.9	X	98.72059	200.44844	25.47008	17.85308	0.1464087	0.18064165	3.0992560	20	9 26.7	17.8
35176 1993 TK <sub>21</sub>	15.6	X	116.85197	2.32280	30.33270	7.70679	0.1098529	0.27214816	2.3583003	20	2 1.6	18.6
35177 1993 TP <sub>22</sub>	14.0	X	351.29647	146.04010	96.06704	2.60506	0.1837316	0.17267814	3.1938251	20	5 3.3	17.4
35178 1993 TQ <sub>27</sub>	13.7	X	337.66599	217.41745	56.32820	7.40120	0.0822054	0.17279348	3.1924038	20	5 27.6	17.8
35179 1993 TK <sub>28</sub>	15.0	X	191.13667	243.98161	59.14440	3.24506	0.2301601	0.27315222	2.3525176	20	1 5.8	18.9
35180 1993 TC <sub>38</sub>	15.0	X	263.89526	215.31404	73.40003	4.91695	0.1445471	0.27794174	2.3254135	20	2 24.5	18.3
35181 1993 TO <sub>38</sub>	15.6	X	73.65485	231.78784	141.10921	5.32478	0.1879560	0.26571959	2.3961849	20	—	—
35182 1993 US <sub>1</sub>	15.6	X	38.85060	263.37189	4.20433	4.47543	0.1666907	0.28966524	2.2622389	20	9 21.3	17.9
35183 1993 UY <sub>2</sub>	12.7	X	277.56725	293.51009	52.31174	23.65664	0.1789460	0.17503168	3.1651305	20	5 20.5	17.4
35184 1993 UW <sub>3</sub>	15.8	X	288.43337	229.14012	68.77423	6.86125	0.1573337	0.28137153	2.3064778	20	4 4.8	18.7
35185 1993 VS	14.7	X	219.09923	271.18234	126.04683	1.52185	0.1745450	0.24402792	2.5361583	20	5 26.0	18.7
35186 1993 VV <sub>1</sub>	15.0	X	35.83383	97.97025	351.05750	1.98594	0.1718249	0.26659218	2.3909534	20	—	—
35187 1993 VW <sub>1</sub>	14.6	X	1.74308	103.42816	245.95667	7.68533	0.2133596	0.25590034	2.4570961	20	11 17.6	16.8
35188 1993 VP <sub>3</sub>	14.1	X	143.35705	89.63319	320.70477	3.71721	0.1913144	0.23729408	2.5839143	20	4 2.6	18.1
35189 1994 AE	14.9	X	4.81473	275.25306	124.08803	5.36489	0.1897704	0.25739767	2.4475579	20	—	—
35190 1994 AW	14.2	X	140.92264	244.48263	170.01280	1.25897	0.1378048	0.23405577	2.6076931	20	4 2.9	17.9
35191 1994 CE <sub>3</sub>	14.8	X	210.09351	289.01303	152.85458	11.00052	0.1245167	0.24176946	2.5519280	20	7 16.5	18.8
35192 1994 CG <sub>6</sub>	14.5	X	319.18944	171.70364	146.74027	15.51538	0.1915749	0.23787112	2.5797339	20	6 18.4	17.5
35193 1994 CG <sub>14</sub>	13.8	X	124.11952	313.47156	41.76445	6.85007	0.0917869	0.25843358	2.4410130	20	—	—
35194 1994 ET <sub>3</sub>	14.6	X	50.68162	213.58083	161.72562	23.92369	0.1004659	0.36406640	1.9424461	20	—	—
35195 1994 JD <sub>4</sub>	15.4	X	138.44663	266.93261	48.9500							



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Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
35201 1994 <i>PW</i> <sub>6</sub>	14.8	X	236.81531	109.88710	278.82635	0.45137	0.1756850	0.18214766	3.0821491	20	6 1.1	19.5
35202 1994 <i>PH</i> <sub>8</sub>	14.5	X	217.63666	192.76724	227.78820	0.09485	0.1630906	0.18243877	3.0788696	20	6 22.9	19.3
35203 1994 <i>PF</i> <sub>15</sub>	14.4	X	55.41214	322.33073	321.32559	9.52918	0.0782626	0.19227466	2.9729528	20	10 1.1	18.6
35204 1994 <i>PV</i> <sub>15</sub>	13.9	X	294.29868	305.98180	164.01457	6.28174	0.0644124	0.19779159	2.9174102	20	12 11.5	17.7
35205 1994 <i>PS</i> <sub>17</sub>	14.8	X	260.51774	176.38844	203.87277	2.28838	0.1186362	0.18370415	3.0647148	20	6 22.9	19.1
35206 1994 <i>PO</i> <sub>27</sub>	14.4	X	13.70584	327.21822	54.79654	2.93442	0.0975744	0.19705810	2.9246452	20	12 16.3	18.3
35207 1994 <i>PN</i> <sub>36</sub>	14.4	X	180.28145	291.06117	154.22611	10.18466	0.0574813	0.18330259	3.0691891	20	6 20.4	19.1
35208 1994 <i>PB</i> <sub>38</sub>	14.0	X	316.89032	72.35814	322.82364	9.59208	0.0989871	0.19236102	2.9720629	20	9 30.9	17.8
35209 1994 <i>PJ</i> <sub>38</sub>	14.6	X	289.92304	100.76353	314.07292	8.36060	0.0629708	0.19187816	2.9770470	20	9 20.5	18.6
35210 1994 <i>PR</i> <sub>39</sub>	15.6	X	314.01685	202.58507	155.22239	3.50187	0.2085648	0.30285068	2.1960911	20	8 15.2	16.8
35211 1994 <i>RR</i> <sub>2</sub>	15.4	X	49.58642	35.14183	221.76962	3.15601	0.0238308	0.18949307	3.0019756	20	8 14.9	19.6
35212 1994 <i>RP</i> <sub>18</sub>	14.7	X	88.05650	98.64978	174.50308	1.66658	0.0799046	0.19472448	2.9479652	20	11 1.6	18.9
35213 1994 <i>RF</i> <sub>25</sub>	13.9	X	325.80764	239.05646	327.75694	14.48960	0.0228867	0.17108154	3.2136651	20	2 22.4	18.3
35214 1994 <i>SC</i> <sub>5</sub>	15.3	X	116.58118	90.02160	42.39852	1.35726	0.0952615	0.17765988	3.1338375	20	6 10.6	19.8
35215 1994 <i>SH</i> <sub>9</sub>	13.7	X	146.41826	229.36547	27.22728	2.30585	0.0524848	0.19635957	2.9315772	20	12 12.7	18.0
35216 1994 <i>UH</i> <sub>3</sub>	14.4	X	185.67433	298.09369	41.05079	1.49804	0.1731740	0.17114080	3.2129232	20	2 20.9	19.8
35217 1994 <i>VK</i> <sub>1</sub>	15.3	X	281.10552	164.55250	210.26368	3.84181	0.1230785	0.29681106	2.2257822	20	7 18.6	17.8
35218 1994 <i>WU</i> <sub>2</sub>	15.0	X	3.63420	287.76418	64.24398	4.96839	0.2054659	0.30314015	2.1946928	20	12 8.4	16.9
35219 1994 <i>WY</i> <sub>2</sub>	14.6	X	65.04508	105.74334	274.36168	4.50340	0.1067107	0.31121519	2.1565632	20	—	—
35220 1994 <i>WX</i> <sub>7</sub>	13.8	X	273.24655	148.59746	146.25462	6.99816	0.1127217	0.17237064	3.1976224	20	3 26.5	18.4
35221 1994 <i>XK</i> <sub>1</sub>	15.3	X	333.71130	10.44477	67.52379	2.23421	0.1496242	0.26708488	2.3880121	20	—	—
35222 Delbarrio	14.7	X	333.75230	128.79032	75.30394	7.19695	0.0577154	0.28139429	2.3063534	20	2 13.6	17.4
35223 1995 <i>BR</i>	15.7	X	102.18113	22.64437	125.42253	10.60198	0.0703381	0.28474301	2.2882352	20	6 13.3	18.6
35224 1995 <i>BN</i> <sub>1</sub>	15.5	X	83.67356	60.32430	77.76862	2.39765	0.1235305	0.28191782	2.3034972	20	5 11.2	18.0
35225 1995 <i>DX</i> <sub>8</sub>	15.6	X	93.22861	240.32064	138.32919	2.09518	0.1930462	0.26862649	2.3788670	20	—	—
35226 1995 <i>FT</i> <sub>4</sub>	15.6	X	164.08053	233.30192	48.23490	2.76806	0.1956297	0.26208953	2.4182597	20	—	—
35227 1995 <i>FR</i> <sub>5</sub>	15.7	X	25.63814	256.28784	82.30096	2.78866	0.2064962	0.25494300	2.4632434	20	12 8.9	18.6
35228 1995 <i>FB</i> <sub>14</sub>	15.6	X	262.80931	143.06507	206.85154	0.68457	0.2060498	0.24119329	2.5559905	20	5 5.9	19.3
35229 Benckert	14.3	X	8.61682	225.46789	27.09968	7.02166	0.0834227	0.28092941	2.3088971	20	6 20.6	16.6
35230 1995 <i>GW</i>	14.3	X	104.26922	118.63137	35.58395	8.41663	0.1334171	0.28025101	2.3126217	20	7 2.9	17.5
35231 1995 <i>GH</i> <sub>7</sub>	13.9	X	137.67274	79.54123	143.25555	7.64917	0.1401493	0.25178065	2.4838259	20	11 5.5	17.9
35232 1995 <i>GS</i> <sub>7</sub>	15.3	X	166.16756	299.32771	131.18133	7.10278	0.0631181	0.28151058	2.3057183	20	5 17.4	18.5
35233 Krcin	15.6	X	70.84528	97.08204	166.72280	1.98864	0.1974721	0.24619422	2.5212591	20	10 24.2	19.3
35234 1995 <i>NH</i>	14.6	X	337.94613	160.47309	99.84707	14.88705	0.1313071	0.23553806	2.5967411	20	5 10.3	17.7
35235 1995 <i>OZ</i> <sub>14</sub>	15.2	X	12.18492	281.03877	179.10376	7.66154	0.1881960	0.21436304	2.7650486	20	—	—
35236 1995 <i>PC</i> <sub>1</sub>	15.2	X	158.54229	288.78267	251.55006	6.49050	0.1969579	0.24300127	2.5432967	20	9 25.7	19.6
35237 Matzner	14.7	X	124.66589	35.84021	148.40340	7.47343	0.2336076	0.21510243	2.7587087	20	2 21.7	18.8
35238 1995 <i>QR</i> <sub>1</sub>	15.4	X	291.25541	121.24960	374.47582	2.47030	0.0754367	0.22732593	2.6589085	20	4 19.3	18.9
35239 Ottoseyd	15.5	X	8.01191	155.58263	212.02485	1.41094	0.0781041	0.20077674	2.8884207	20	11 18.9	19.0
35240 1995 <i>SY</i> <sub>5</sub>	15.0	X	59.35617	36.22521	178.30805	2.23849	0.0285468	0.19083710	2.9878642	20	7 5.3	19.1
35241 1995 <i>SD</i> <sub>41</sub>	15.8	X	37.12652	311.67383	72.65610	3.05485	0.0708017	0.20530206	2.8458184	20	—	—
35242 1995 <i>SJ</i> <sub>52</sub>	15.2	X	334.80386	72.75044	354.95072	1.98136	0.1265207	0.20148207	2.8816758	20	12 19.6	18.4
35243 1995 <i>TZ</i> <sub>1</sub>	14.4	X	54.05268	201.40450	42.62428	7.63059	0.2395751	0.23108592	2.6299878	20	9 16.1	18.0
35244 1995 <i>TX</i> <sub>7</sub>	15.7	X	163.24733	266.63602	326.41890	1.14606	0.0624926	0.20052400	2.8908472	20	12 3.1	20.0
35245 1995 <i>UW</i> <sub>12</sub>	15.0	X	28.17823	83.36823	8.23522	2.29704	0.0305281	0.21052333	2.7985682	20	—	—
35246 1995 <i>UQ</i> <sub>15</sub>	15.1	X	306.14291	253.27176	97.60533	3.92267	0.1484561	0.18946268	3.0022967	20	7 13.9	18.7
35247 1995 <i>UZ</i> <sub>20</sub>	15.3	X	308.42567	183.14753	339.10124	1.23355	0.0207553	0.20961974	2.8066048	20	—	—
35248 1995 <i>UR</i> <sub>53</sub>	13.8	X	112.78183	71.34132	305.12437	1.44770	0.2411894	0.17401432	3.1774549	20	2 4.9	18.5
35249 1995 <i>WQ</i> <sub>3</sub>	14.4	X	237.79046	68.63451	71.75977	2.97894	0.0516814	0.19565251	2.9386358	20	11 6.1	18.6
35250 1995 <i>WB</i> <sub>28</sub>	15.3	X	215.06214	223.67879	51.73567	3.27445	0.0591041	0.21208699	2.7847958	20	—	—
35251 1995 <i>YE</i> <sub>5</sub>	15.1	X	52.32497	204.93912	90.97716	3.22306	0.0848389	0.19450678	2.9501644	20	10 19.9	19.1
35252 1995 <i>YJ</i> <sub>14</sub>	14.4	X	114.76706	289.05035	91.29311	10.52497	0.1792486	0.17077725	3.2174814	20	2 6.7	19.2
35253 1996 <i>AB</i> <sub>7</sub>	14.5	X	192.17051	57.52138	313.89978	10.04330	0.0919511	0.17233068	3.1981167	20	3 28.9	19.7
35254 1996 <i>BW</i> <sub>2</sub>	13.8	X	176.68876	336.88274	119.40615	18.55682	0.1694837	0.17768177	3.1335801	20	6 29.9	19.1
35255 1996 <i>BS</i> <sub>8</sub>	15.6	X	124.89552	276.97577	35.66738	4.19362	0.1301966	0.31634606	2.1331813	20	—	—
35256 1996 <i>DT</i> <sub>1</sub>	13.6	X	159.00010	301.56762	136.92688	12.50702	0.1117348	0.17470567	3.1690667	20	5 24.3	18.7
35257 1996 <i>HM</i> <sub>14</sub>	15.5	X	246.34564	281.56540	36.68747	2.93107	0.2421745	0.28155422	2.3054800	20	3 6.9	19.2
35258 1996 <i>HN</i> <sub>23</sub>	15.8	X	319.98363	202.57206	88.33796	3.80073	0.1393554	0.28799625	2.2709705	20	5 14.8	17.8
35259 1996 <i>HN</i> <sub>24</sub>	14.4	X	93.33564	115.25851	73.22613	5.60511	0.1076788	0.29365791	2.2416867	20	8 5.7	17.3
35260 1996 <i>HA</i> <sub>25</sub>	15.6	X	8.14254	324.37232	181.17898	1.40617	0.2006757	0.28079149	2.3096531	20	—	—
35261 1996 <i>JX</i> <sub>5</sub>	15.8	X	186.80274	279.98245	198.44626	6.22583	0.0511617	0.29677852	2.2259449	20	8 16.6	18.8
35262 1996 <i>NA</i> <sub>2</sub>	14.4	X	105.25282	121.18421	298.68613	6.42308	0.1195016	0.27248405	2.3563619	20	2 19.1	17.3
35263 1996 <i>NH</i> <sub>3</sub>	15.6	X	94.07131	73.76943	304.20407	0.82501	0.1793309	0.22264525	2.6960447	20	—	—
35264 1996 <i>NM</i> <sub>5</sub>	14.7	X	260.25636	336.51222	319.43579	6.48448	0.1262057	0.27588880	2.3369352	20	2 28.3	18.1
35265 Takeosaitou	14.9	X	296.38752	62.30964	237.35253	6.55334	0.1354899	0.28143201	2.3061474	20	4 16.9	17.7
35266 1996 <i>PC</i> <sub>4</sub>	15.3	X	85.45639	102.65482	139.77185	6.79394	0.1441263	0.29200373	2.2501447	20	10 15.5	18.5
35267 1996 <i>PO</i> <sub>7</sub>	15.9	X	354.93665	66.24362	133.82650	1.96755	0.0972378	0.25370559	2.4712463	20	12 1.8	18.6
35268 Panoramix	15.7	X	245.60744	289.93653	322.70746	4.79819	0.0989579	0.26974188	2.3723047	20	—	—
35269 Idefix	14.8	X	9.07942	150.30017	63.03285	5.98659	0.1355124	0.27878222	2.3207374	20	4 22.3	16.6
35270 Molinari	15.6	X	184.25272	106.52876	210.12490	3.96385	0.2429073	0.26732422	2.3865865	20	1 16.5	19.7
35271 1996 <i>RR</i> <sub>3</sub>	14.9	X	277.51624	171.90057	1.96046	3.27489	0.0208052	0.26059076	2.4275231	20	—	—
35272 1996 <i>RH</i> <sub>10</sub>	12.0	X	217.43854	341.96348	158.72575	17.59016	0.0766791	0.08369329	5.1761751	20	9 26.9	19.2
35273 1996 <i>RF</i> <sub>11</sub>	15.7	X	337.47274	221.34713	65.38538	1.25857	0.0616047	0.24068524	2.5958661			

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
35281 1996 SD <sub>6</sub>	15.7	X	317.08000	288.84243	34.44167	0.97049	0.2055685	0.24133558	2.5549857	20	6 17.5	18.2
35282 1996 SC <sub>7</sub>	14.4	X	222.98023	14.92489	29.32578	12.86038	0.1846629	0.23399809	2.6081216	20	6 4.3	18.7
35283 1996 TB <sub>1</sub>	15.3	X	18.60031	294.15766	213.73760	0.81114	0.0342633	0.22477165	2.6790142	20	2 10.5	18.8
35284 1996 TM <sub>3</sub>	14.5	X	307.82430	132.88149	168.13273	6.43676	0.1297576	0.27979111	2.3151552	20	5 11.8	17.0
35285 1996 TR <sub>5</sub>	14.4	X	204.78109	4.81666	344.06890	25.26212	0.2286177	0.27179101	2.3603658	20	3 8.9	18.5
35286 Takaoakihiro	14.3	X	263.17550	177.50896	113.27324	12.97089	0.1623619	0.23054388	2.6341085	20	3 1.7	18.4
35287 1996 TA <sub>18</sub>	15.3	X	96.42122	306.71660	12.26639	2.56681	0.1373133	0.25447603	2.4662558	20	—	—
35288 1996 TL <sub>19</sub>	15.5	X	265.26330	297.86589	29.76863	4.64689	0.1660991	0.23372845	2.6101272	20	4 14.9	19.2
35289 1996 TL <sub>40</sub>	15.3	X	295.09769	323.85043	39.00633	4.79351	0.2002714	0.24222480	2.5487289	20	7 8.1	18.2
35290 1996 TE <sub>42</sub>	14.6	X	44.89909	263.49562	41.10620	4.69894	0.1360654	0.29136313	2.2534416	20	11 15.7	17.4
35291 1996 TN <sub>46</sub>	14.5	X	184.28824	91.74638	343.25531	11.25990	0.2767605	0.23448042	2.6045438	20	6 8.4	19.4
35292 1996 TE <sub>47</sub>	14.9	X	98.13342	74.36326	322.88312	6.14411	0.0468485	0.26489092	2.4011798	20	1 2.1	17.7
35293 1996 TC <sub>54</sub>	15.0	X	255.99118	49.69029	18.34380	3.83134	0.1649772	0.24381302	2.5376485	20	8 18.5	18.4
35294 1996 UG <sub>4</sub>	14.7	X	263.88962	145.93067	204.20314	13.93314	0.0858170	0.23573095	2.5953243	20	5 24.9	18.3
35295 Omo	13.9	X	75.91068	169.71648	72.06932	14.80253	0.1114306	0.24060495	2.5601555	20	9 28.2	17.8
35296 1996 VY <sub>1</sub>	14.3	X	69.32691	225.71338	270.48303	10.89709	0.2013607	0.22411312	2.6842597	20	4 28.5	17.8
35297 1996 VE <sub>3</sub>	15.0	X	240.94947	146.96698	43.58347	3.19896	0.1162010	0.25510308	2.4622128	20	—	—
35298 1996 VH <sub>5</sub>	14.4	X	169.11837	164.51451	230.28458	6.28396	0.2199510	0.22813584	2.6526119	20	4 8.2	19.0
35299 1996 VK <sub>8</sub>	14.7	X	92.63958	71.88147	295.39080	3.58160	0.2393951	0.21756486	2.7378536	20	1 7.8	18.0
35300 1996 VQ <sub>18</sub>	15.5	X	88.92596	249.72646	19.42878	1.88190	0.0939209	0.24583541	2.5237118	20	11 7.3	18.9
35301 1996 XE	14.7	X	15.79078	161.89912	243.79569	6.71270	0.0525049	0.20932686	2.8092221	20	—	—
35302 1996 XD <sub>6</sub>	13.9	X	64.31633	2.45235	83.75287	17.69783	0.1020046	0.17434304	3.1734596	20	2 14.8	18.3
35303 1996 XR <sub>6</sub>	15.2	X	303.48256	298.75580	349.71028	5.93431	0.1501048	0.23189687	2.6238528	20	4 11.9	18.4
35304 1996 XY <sub>11</sub>	15.4	X	200.72017	156.89866	73.73662	3.13861	0.0077552	0.20557583	2.8432912	20	—	—
35305 1996 XB <sub>12</sub>	15.3	X	282.77042	76.12072	28.41550	2.20064	0.0260359	0.20066379	2.8895045	20	11 22.3	19.2
35306 1996 XQ <sub>17</sub>	15.0	X	217.54838	238.51206	101.41435	12.12603	0.1582354	0.22758206	2.6569132	20	3 20.9	19.5
35307 1996 XG <sub>20</sub>	15.7	X	28.23660	128.96862	256.54607	2.02651	0.1603442	0.21002104	2.8030285	20	—	—
35308 1996 XJ <sub>20</sub>	15.1	X	131.32080	36.76586	260.71653	1.55109	0.0781829	0.21156959	2.7893342	20	—	—
35309 1996 YF <sub>3</sub>	14.2	X	259.13013	83.87279	285.30583	13.71525	0.1403091	0.23532630	2.5982987	20	6 4.5	18.0
35310 1996 AX <sub>1</sub>	13.5	X	343.77899	94.40942	170.70876	16.03237	0.0953999	0.20173665	2.8792509	20	12 1.3	17.3
35311 1997 AE <sub>2</sub>	13.7	X	248.75644	73.15812	303.13268	8.87742	0.1006947	0.18584827	3.0410976	20	6 5.9	18.3
35312 1997 AX <sub>2</sub>	14.7	X	32.44192	344.64832	90.36930	9.36813	0.2093393	0.21110418	2.7934323	20	—	—
35313 Hangtianyuan	14.6	X	42.25817	287.85803	68.21648	3.12214	0.0752596	0.20376760	2.8600873	20	12 20.0	18.4
35314 1997 AW <sub>8</sub>	13.3	X	98.56902	149.79189	305.09221	16.64520	0.1340318	0.17693205	3.1424259	20	3 30.7	18.2
35315 1997 AX <sub>9</sub>	15.0	X	326.72639	268.45912	180.99010	1.85556	0.0400234	0.20269968	2.8701241	20	12 31.9	18.7
35316 Monella	14.4	X	324.86494	261.37033	333.94560	12.33985	0.1171447	0.21806882	2.7336338	20	3 8.9	17.9
35317 1997 AQ <sub>23</sub>	14.5	X	258.84841	25.54504	151.18440	15.74613	0.0802830	0.20384902	2.8593257	20	—	—
35318 1997 BD <sub>1</sub>	13.8	X	225.35104	199.77111	264.05653	14.53425	0.0804773	0.24225035	2.5485497	20	8 30.1	17.7
35319 1997 BU <sub>4</sub>	14.4	X	300.05171	73.60405	142.03489	13.83884	0.1040896	0.21214201	2.7843143	20	1 15.4	18.3
35320 1997 BR <sub>8</sub>	14.3	X	24.92926	178.58016	123.29455	15.13282	0.1527553	0.23732703	2.5836752	20	10 13.7	17.7
35321 1997 CU <sub>9</sub>	14.2	X	276.51377	329.50067	336.65854	16.74727	0.1184801	0.17724229	3.1387579	20	4 2.6	18.9
35322 1997 CX <sub>16</sub>	14.3	X	180.92201	195.12900	317.90642	9.74221	0.0371136	0.19028240	2.9936680	20	9 12.2	18.7
35323 1997 CD <sub>26</sub>	14.6	X	114.30180	100.04445	136.18606	10.97294	0.0579826	0.19320406	2.9634109	20	10 18.3	19.1
35324 Orlandi	13.1	X	337.17814	288.16156	348.06355	21.40373	0.2485554	0.17277758	3.1383413	20	5 2.7	16.9
35325 Claudiaguarnieri	14.7	X	267.07527	281.16390	348.97998	1.18329	0.1659999	0.16952286	3.2333338	20	2 12.3	19.5
35326 Lucastrabla	14.6	X	305.16988	113.20737	162.33122	1.11473	0.1399694	0.17512788	3.1639712	20	4 5.4	18.8
35327 1997 EP <sub>13</sub>	14.8	X	116.17132	232.94117	185.32508	3.39037	0.1132990	0.17321231	3.1872556	20	3 13.1	19.3
35328 1997 EH <sub>15</sub>	14.4	X	30.95886	192.78210	359.25399	17.23626	0.0976481	0.17445872	3.1720566	20	4 27.0	18.7
35329 1997 EG <sub>34</sub>	14.7	X	128.49559	26.08805	111.30429	5.29359	0.0961099	0.18337242	3.0684098	20	6 30.3	19.2
35330 1997 EN <sub>35</sub>	14.9	X	76.51981	43.87800	135.01812	2.58928	0.1763970	0.18075479	3.0979626	20	7 3.3	19.2
35331 1997 EO <sub>47</sub>	13.7	X	162.95925	11.53872	67.52929	0.45749	0.0591627	0.17600769	3.1534186	20	5 23.7	18.3
35332 1997 EY <sub>52</sub>	14.5	X	121.25946	134.85229	83.88659	0.89164	0.1209339	0.18803277	3.0174982	20	10 4.2	19.2
35333 1997 EW <sub>55</sub>	14.5	X	301.55888	268.66567	351.51938	1.10487	0.0537526	0.17140065	3.2096751	20	3 24.7	18.8
35334 Yarkovsky	14.2	X	236.64497	310.82978	131.65894	4.18151	0.0350924	0.18769732	3.0210923	20	8 24.9	18.4
35335 1997 FU <sub>1</sub>	13.6	X	222.71255	266.72841	89.84817	15.06355	0.0984178	0.17119714	3.2122182	20	4 22.4	18.8
35336 1997 FO <sub>2</sub>	13.4	X	8.21787	80.04854	187.59258	15.20002	0.0838170	0.17930764	3.1146089	20	7 5.4	17.7
35337 1997 FB <sub>3</sub>	14.1	X	38.96691	36.80707	197.62593	10.57725	0.0288668	0.17946437	3.1127952	20	7 2.4	18.5
35338 1997 GD <sub>7</sub>	14.2	X	349.94089	168.83152	75.35236	1.99766	0.0949176	0.17292975	3.1907265	20	5 7.8	18.2
35339 1997 GS <sub>16</sub>	13.6	X	284.63388	319.65473	171.79414	1.98075	0.0229269	0.19667665	2.9284255	20	12 27.5	17.4
35340 1997 GV <sub>18</sub>	13.7	X	110.29906	232.48015	208.10278	4.06516	0.1438517	0.17133078	3.2105477	20	4 6.3	18.4
35341 1997 GT <sub>22</sub>	13.2	X	124.51519	235.17001	40.77265	10.77204	0.0735353	0.19125344	2.9835263	20	12 10.8	17.8
35342 1997 GZ <sub>24</sub>	14.0	X	274.96413	159.84949	184.88645	15.45068	0.0207943	0.17820273	3.1274699	20	6 10.5	18.7
35343 1997 GV <sub>36</sub>	14.3	X	6.10786	69.42284	155.86574	1.45514	0.1419967	0.17440234	3.1727402	20	5 9.2	18.0
35344 1997 HX <sub>6</sub>	13.6	X	205.19454	65.09778	97.33864	2.35458	0.1614591	0.19088767	2.9873364	20	10 15.2	18.3
35345 1997 HY <sub>6</sub>	13.4	X	49.03690	213.53198	52.33555	10.16341	0.0333237	0.18215290	3.0820900	20	9 2.2	17.8
35346 Ivanoferrri	14.1	X	94.97017	58.67271	74.17546	10.00136	0.0358555	0.17381402	3.1798955	20	5 10.4	18.7
35347 Tallinn	12.7	X	108.05378	215.01038	55.50526	10.72898	0.0645721	0.18861534	3.0112816	20	11 17.4	16.9
35348 1997 JO <sub>18</sub>	13.3	X	56.10427	184.19004	60.72495	18.66046	0.1624111	0.17955770	3.1117165	20	9 8.7	18.0
35349 1997 LY <sub>12</sub>	14.4	X	93.09981	47.31890	84.07239	6.23697	0.1073636	0.17106507	3.2138714	20	5 15.7	18.9
35350 Lespaul	13.9	X	329.75769	137.02722	140.92369	5.09210	0.1194135	0.17204400	3.2016685	20	5 19.4	18.0
35351 1997 MP <sub>3</sub>	15.9	X	46.52754	186.47962	122.75013	5.17675	0.1657877	0.30917971	2.1660180	20	12 3.3	18.7
35352 Texas	16.4	X	125.47736	76.11904	229.02437	1.58040	0.2398922	0.27398205	2.3477651	20	—	—
35353 1997 RW <sub>9</sub>	14.8	X	123.76441	339.78310	238.46208	5.19706	0.0212768	0.30592488	2.1813542	20	10 17.4	17.5
35354 1997 SP <sub>1</sub>	15.9	X	176.09889	267.11512	137.75810	0.44548	0.1845928	0.28527107	2.2854106	20	4 25.1	19.4
35355 1997 SB <sub>2</sub>	15.7	X	254.91918	123.03580	18.95056	3						

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
35361 1997 TH <sub>26</sub>	15.9	X	352.20990	12.76814	329.77562	3.25943	0.1554232	0.30028700	2.2085727	20	10 22.4	17.7
35362 1997 TZ <sub>26</sub>	15.3	X	334.74917	184.38439	154.37269	9.95042	0.2037466	0.25413318	2.4684735	20	8 27.7	17.1
35363 1997 TV <sub>28</sub>	11.8	X	300.30013	23.82804	32.94389	16.03804	0.0786520	0.08339453	5.1885302	20	9 27.5	18.5
35364 Donaldpray	15.2	X	231.81715	199.81551	216.79601	6.26353	0.0768952	0.29208697	2.2497172	20	7 15.2	18.1
35365 Cooney	16.1	X	142.30284	230.18231	219.45800	5.62063	0.0698748	0.28417685	2.2912734	20	5 12.7	18.9
35366 Kaifeng	15.9	X	293.50542	226.28830	152.34396	2.89769	0.1665291	0.29691083	2.2252835	20	8 9.6	17.5
35367 1997 UW <sub>7</sub>	16.3	X	76.93130	314.08794	20.02417	0.73434	0.2288376	0.26611962	2.3937831	20	—	—
35368 1997 UB <sub>8</sub>	14.6	X	104.66641	221.91977	202.68498	22.72844	0.3140078	0.27693593	2.3310407	20	3 23.9	17.9
35369 1997 UJ <sub>11</sub>	13.8	X	71.27422	75.87031	49.27595	23.00229	0.1961299	0.27745524	2.3281311	20	4 21.9	16.4
35370 Daisakyu	16.0	X	211.45871	209.13346	198.83960	3.52963	0.1522646	0.28954106	2.2628856	20	6 2.9	19.3
35371 1997 UZ <sub>21</sub>	14.3	X	336.88804	176.85394	165.65332	3.97401	0.2081588	0.29749673	2.2223609	20	9 22.9	15.3
35372 1997 UN <sub>24</sub>	15.7	X	44.59822	182.43497	249.90069	5.38361	0.2825938	0.26893399	2.3770533	20	—	—
35373 1997 UT <sub>25</sub>	15.8	X	82.88625	127.08574	249.36624	1.26217	0.2177311	0.27180967	2.3602578	20	—	—
35374 1997 VK	15.4	X	100.16842	172.67970	218.47794	5.36781	0.1058473	0.27251716	2.3561710	20	1 2.4	18.0
35375 1997 VP <sub>1</sub>	14.3	X	108.39421	325.07374	101.47682	0.87853	0.1095452	0.23395991	2.6084054	20	3 8.7	17.8
35376 1997 VJ <sub>5</sub>	14.9	X	252.91292	59.95888	245.73298	3.86446	0.1788246	0.28081252	2.3095378	20	2 27.4	18.5
35377 1997 WN <sub>2</sub>	15.8	X	37.25833	134.25748	327.48428	1.71921	0.1726616	0.26974211	2.3723033	20	—	—
35378 1997 WN <sub>12</sub>	15.5	X	285.40838	359.35757	270.36821	1.33442	0.2177146	0.28342554	2.2953208	20	2 11.4	18.6
35379 1997 WS <sub>20</sub>	15.8	X	257.52178	263.06807	80.94875	5.47873	0.1528726	0.28695995	2.2764346	20	4 28.8	18.9
35380 1997 WJ <sub>21</sub>	15.0	X	127.77907	326.46680	209.04823	5.72662	0.2212005	0.28758028	2.2731599	20	8 29.9	18.7
35381 1997 WH <sub>31</sub>	15.9	X	94.21959	309.34103	158.55382	2.61833	0.1688223	0.27867900	2.3213104	20	4 20.9	18.8
35382 1997 WJ <sub>36</sub>	15.3	X	86.22269	267.93464	57.92012	0.12377	0.2188005	0.30804352	2.1713408	20	—	—
35383 1997 WU <sub>36</sub>	14.7	X	15.02610	229.25309	86.74324	7.15860	0.2040102	0.29823258	2.2187038	20	11 5.1	16.9
35384 1997 WK <sub>37</sub>	15.6	X	127.48261	194.05346	155.87171	2.61713	0.2257209	0.27207581	2.3587184	20	1 3.4	18.6
35385 1997 WL <sub>37</sub>	16.1	X	28.57463	211.71166	197.09746	5.67881	0.1687769	0.26498828	2.4005915	20	—	—
35386 1997 WM <sub>43</sub>	14.8	X	160.23002	206.18624	263.09169	8.52829	0.0656309	0.28606034	2.2812048	20	6 30.9	17.7
35387 1997 WY <sub>44</sub>	15.6	X	116.93334	262.03967	135.14861	2.96408	0.2022160	0.27432935	2.3457832	20	2 18.4	18.6
35388 1997 WY <sub>56</sub>	15.6	X	111.27165	131.02045	267.22843	4.85367	0.1837286	0.27473112	2.3434956	20	2 7.8	18.5
35389 1997 XO	14.5	X	114.50518	65.57502	300.41687	5.37679	0.1656696	0.26871441	2.3783481	20	—	—
35390 1997 XW	15.0	X	183.59809	109.41419	293.24172	4.70217	0.1827638	0.28247530	2.3004655	20	4 26.9	18.8
35391 1997 XN <sub>3</sub>	14.8	X	275.10816	86.19902	99.00666	3.77239	0.1491053	0.26002800	2.4310243	20	—	—
35392 1997 XD <sub>5</sub>	14.9	X	234.92992	120.12467	124.02551	6.22016	0.0462242	0.26014417	2.4303006	20	—	—
35393 1997 XJ <sub>5</sub>	15.4	X	201.93869	228.88912	196.76799	5.18830	0.1373899	0.28645885	2.2790887	20	6 17.5	18.8
35394 1997 XD <sub>9</sub>	14.1	X	309.19200	36.09859	144.12205	9.93571	0.2113570	0.21499102	2.7596616	20	—	—
35395 1997 XM <sub>10</sub>	15.2	X	40.02702	31.29669	13.01342	2.31344	0.2050546	0.26443182	2.4039582	20	—	—
35396 1997 XF <sub>11</sub>	16.9	X	81.81789	102.91743	213.74673	4.09876	0.4839688	0.56873708	1.4427631	20	—	—
35397 1997 YJ	15.4	X	285.60792	269.55090	290.30012	1.86785	0.1541623	0.26630455	2.3926747	20	—	—
35398 1997 YR	14.9	X	66.22109	27.38992	121.17793	4.51922	0.1347553	0.27611208	2.3356752	20	5 3.0	17.4
35399 1997 YQ <sub>1</sub>	15.1	X	286.44550	85.03496	20.02846	4.33155	0.1599270	0.26003041	2.4310093	20	12 1.3	17.3
35400 1997 YU <sub>2</sub>	15.1	X	104.28549	308.43772	46.52672	3.12729	0.2043077	0.26824962	2.3810945	20	—	—
35401 1997 YW <sub>2</sub>	15.7	X	39.67817	344.32707	102.04349	3.33271	0.1307089	0.26654267	2.3912494	20	—	—
35402 1997 YK <sub>3</sub>	14.9	X	175.00448	53.13633	321.63823	5.76567	0.2151473	0.28030880	2.3123038	20	3 16.1	18.7
35403 Latimer	15.2	X	309.26599	1.02795	227.86176	6.23454	0.0736155	0.27477346	2.3432549	20	2 5.7	18.2
35404 1997 YV <sub>5</sub>	13.3	X	296.87056	342.42696	309.48787	10.40884	0.2158388	0.27876707	2.3208215	20	3 20.5	16.6
35405 1997 YU <sub>7</sub>	15.4	X	28.94586	289.51361	102.48190	2.08562	0.1737360	0.26041337	2.4286254	20	—	—
35406 1997 YH <sub>8</sub>	14.2	X	222.41270	317.68036	86.52115	8.42956	0.2441901	0.29022623	2.2593228	20	6 2.7	17.7
35407 1997 YF <sub>11</sub>	14.5	X	354.39631	116.46428	105.80910	7.50983	0.1212963	0.27452298	2.3446800	20	4 10.0	16.8
35408 1997 YS <sub>13</sub>	15.3	X	282.62846	224.90565	326.94004	0.37290	0.1316588	0.26125142	2.4234289	20	—	—
35409 1997 YT <sub>13</sub>	14.9	X	93.38081	54.60238	309.14221	7.11705	0.0775772	0.26180505	2.4200111	20	—	—
35410 1997 YC <sub>15</sub>	14.6	X	253.02440	129.18683	58.72039	0.89594	0.1350062	0.25838529	2.4413171	20	—	—
35411 1997 YX <sub>16</sub>	15.0	X	267.88732	284.43617	91.20964	6.60241	0.1143769	0.28675728	2.2775072	20	6 30.9	17.4
35412 1997 YN <sub>17</sub>	15.7	X	62.53774	58.45644	359.09978	1.31442	0.1741149	0.26685894	2.3893598	20	—	—
35413 1998 AS	15.6	X	250.46988	197.51042	22.50865	1.33369	0.1367525	0.25982957	2.4322618	20	—	—
35414 1998 AC <sub>3</sub>	15.5	X	172.28629	284.54005	99.46211	7.76651	0.1207551	0.27639472	2.3340826	20	3 27.5	19.0
35415 1998 AD <sub>3</sub>	15.5	X	290.59240	239.81336	337.71057	2.11653	0.1082481	0.26715150	2.3876150	20	—	—
35416 1998 AC <sub>4</sub>	14.8	X	84.31623	221.75911	98.43996	3.62909	0.1997186	0.25744384	2.4472653	20	—	—
35417 1998 AT <sub>4</sub>	14.5	X	61.57815	180.67917	103.00280	7.20748	0.1555517	0.29145774	2.2529540	20	11 13.2	17.6
35418 1998 AP <sub>5</sub>	14.1	X	342.47704	303.55519	325.25446	14.18961	0.1230498	0.23181680	2.6244569	20	5 21.7	17.3
35419 1998 AC <sub>6</sub>	15.2	X	285.27137	174.45779	333.21296	6.16582	0.0677634	0.25562031	2.4588903	20	—	—
35420 1998 AG <sub>6</sub>	13.6	X	333.28646	226.25573	162.76967	10.91464	0.1445836	0.20166595	2.8799238	20	10 30.1	16.9
35421 1998 AO <sub>6</sub>	14.4	X	186.94780	153.04996	311.61176	12.22744	0.1133432	0.24137134	2.5547334	20	7 24.3	18.2
35422 1998 AF <sub>7</sub>	14.9	X	336.98799	160.24660	99.95510	7.83004	0.1071332	0.27899391	2.3195633	20	5 5.8	17.2
35423 1998 AL <sub>7</sub>	14.9	X	325.19440	269.73929	242.58846	1.27177	0.1400415	0.26246931	2.4159264	20	—	—
35424 1998 BK	15.1	X	114.18472	324.48938	81.78193	6.18422	0.2176085	0.27206345	2.3587898	20	3 3.4	18.3
35425 1998 BY	14.4	X	157.45827	257.08220	330.77201	8.70946	0.0082808	0.25289947	2.4764949	20	12 2.8	17.8
35426 1998 BN <sub>1</sub>	15.0	X	177.49187	72.13047	8.40485	3.99183	0.1003520	0.28197789	2.3031701	20	6 11.6	18.2
35427 1998 BJ <sub>2</sub>	15.1	X	284.28985	3.31850	169.08786	2.22109	0.1562703	0.26005728	2.4308419	20	—	—
35428 1998 BS <sub>2</sub>	14.7	X	95.32645	27.20464	109.88592	7.08199	0.1135317	0.27740504	2.3284120	20	5 25.9	17.6
35429 1998 BW <sub>4</sub>	14.5	X	58.77493	327.73616	255.85222	3.62612	0.2186078	0.23675974	2.5878006	20	8 17.6	18.0
35430 1998 BT <sub>6</sub>	15.3	X	306.57514	345.02870	107.18865	1.41978	0.1029280	0.26451570	2.4034500	20	—	—
35431 1998 BY <sub>6</sub>	14.5	X	117.10231	222.12743	135.37455	5.40212	0.1067284	0.21895575	2.7262467	20	—	—
35432 1998 BG <sub>9</sub>	19.3	X	221.07380	1.46350	115.33828	13.13760	0.5438810	0.24846857	2.5058501	20	8 12.6	24.3
35433 1998 BP <sub>9</sub>	15.5	X	267.67102	39.22442	163.29136	2.43489	0.0422835	0.31238763	2.1511639	20	—	—
35434 1998 BF <sub>13</sub>	15.1	X	162.01417	319.30023	95.56622	2.91244	0.2119237	0.23589001	2.5941576	20	4 28.7	19.5
35435 1998 BL <sub>13</sub>	14.4	X	347.02527	218.28635	108.79666	5.39611	0.1934916	0.29078572	2.2564238	20	9 21.9	15.9
35436 1998 BU <sub>15</sub>	14.2	X	2.63155									

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
35441 Kyoko	14.2 <sup>m</sup>	X	210.49085	60.96204	7.41954	13.42092	0.1586379	0.24053836	2.5606279	20	6 28.5	18.5
35442 1998 BR <sub>33</sub>	14.0	X	284.89697	142.60792	10.50602	9.32698	0.0500839	0.25648563	2.4533567	20	—	—
35443 1998 BG <sub>42</sub>	14.2	X	337.03516	51.65190	349.39976	4.01345	0.1511642	0.30419312	2.1896253	20	12 26.8	16.1
35444 1998 BU <sub>43</sub>	15.0	X	47.02961	111.69911	47.54626	5.59231	0.1868160	0.27295801	2.3536334	20	4 21.4	16.8
35445 1998 CY	14.8	X	244.22895	340.02313	244.15962	4.21396	0.1415239	0.25890833	2.4380281	20	—	—
35446 Staña	15.0	X	350.55855	143.73242	93.84874	6.33581	0.2342311	0.27331865	2.3515626	20	4 13.7	16.6
35447 1998 CW <sub>2</sub>	14.7	X	296.50720	99.58991	133.58841	3.36933	0.0573961	0.26669930	2.3903131	20	1 31.8	17.8
35448 1998 CX <sub>2</sub>	14.6	X	0.87836	351.47860	151.46235	6.30810	0.0513928	0.26430962	2.4046991	20	1 1.1	17.6
35449 1998 CR <sub>3</sub>	14.6	X	12.62386	8.00739	124.32731	0.54580	0.1353666	0.17607319	3.1526365	20	1 18.9	18.3
35450 1998 CV <sub>4</sub>	13.8	X	268.77707	38.35341	335.99094	7.16302	0.2073384	0.23955864	2.5676047	20	6 13.7	17.4
35451 1998 CW <sub>4</sub>	14.2	X	216.71595	77.18911	329.36238	13.04008	0.1751842	0.23731228	2.5837822	20	6 2.6	18.6
35452 1998 DF <sub>10</sub>	13.9	X	288.37958	201.04491	172.91608	14.31825	0.1536679	0.23968150	2.5667271	20	7 18.3	17.3
35453 1998 DE <sub>13</sub>	14.9	X	326.56665	49.35539	92.02270	8.94316	0.1616478	0.21561325	2.7543497	20	—	—
35454 1998 DE <sub>14</sub>	12.9	X	294.29234	300.92028	25.96986	12.56381	0.2134880	0.18241811	3.0791021	20	5 11.6	17.1
35455 1998 DN <sub>14</sub>	14.6	X	267.75914	310.01235	110.54505	4.46790	0.1521319	0.24556793	2.5255441	20	8 26.7	17.7
35456 1998 DF <sub>15</sub>	14.2	X	23.32458	255.28769	162.76968	6.32701	0.0489554	0.21212282	2.7844822	20	—	—
35457 1998 DN <sub>15</sub>	14.3	X	353.17535	342.92460	60.34653	7.94238	0.0922623	0.25153061	2.4854717	20	12 29.9	17.2
35458 1998 DU <sub>15</sub>	14.8	X	114.36788	74.59676	154.70404	15.10632	0.0645880	0.24465601	2.5318159	20	10 18.1	18.6
35459 1998 DG <sub>20</sub>	13.9	X	189.83309	159.76292	95.48192	8.55741	0.0989628	0.25216309	2.4813139	20	—	—
35460 1998 DU <sub>20</sub>	15.0	X	145.19436	205.91978	164.54571	2.75243	0.2411097	0.27756696	2.3275063	20	2 17.5	18.6
35461 Mazzucato	15.7	X	203.33022	286.85011	197.60696	5.43487	0.0991682	0.25547026	2.4598530	20	—	—
35462 1998 DW <sub>23</sub>	15.0	X	33.12221	4.23350	139.48029	7.36370	0.0792375	0.22614868	2.6681281	20	2 28.2	18.1
35463 1998 DJ <sub>32</sub>	14.3	X	104.44322	220.15162	196.47465	1.98988	0.0026468	0.23153656	2.6265742	20	2 3.3	17.7
35464 1998 DC <sub>33</sub>	14.9	X	306.83758	198.03580	5.56934	10.86279	0.1621050	0.26468314	2.4024362	20	—	—
35465 1998 DF <sub>33</sub>	14.6	X	87.44615	359.00555	37.03467	7.30584	0.1078615	0.26495927	2.4007668	20	—	—
35466 1998 DO <sub>34</sub>	15.2	X	135.67113	106.57612	148.55734	8.88444	0.2202731	0.24610865	2.5218435	20	12 10.1	19.6
35467 1998 ED	13.9	X	53.30272	267.01488	32.91089	13.39754	0.1897873	0.24163444	2.5528786	20	11 15.1	17.6
35468 1998 EW <sub>2</sub>	14.6	X	67.24796	278.44532	19.12402	9.86965	0.0910628	0.24110426	2.5566196	20	11 15.2	18.3
35469 1998 ED <sub>3</sub>	14.2	X	297.52705	28.71249	103.30633	7.05954	0.0835936	0.25230898	2.4803573	20	—	—
35470 1998 EC <sub>8</sub>	14.9	X	88.09601	125.31602	136.50074	3.37895	0.0136138	0.19852524	2.9102182	20	10 12.3	18.9
35471 1998 ED <sub>8</sub>	14.9	X	68.84105	350.50206	127.55936	2.63351	0.0381677	0.22334569	2.6904050	20	3 14.2	18.2
35472 1998 EJ <sub>8</sub>	14.5	X	70.45234	128.67924	170.63344	6.67681	0.1562490	0.24432514	2.5341011	20	12 2.7	18.3
35473 1998 EZ <sub>8</sub>	13.9	X	83.90082	202.72497	47.44341	9.47413	0.1428305	0.24011856	2.5636116	20	10 15.7	17.7
35474 1998 EA <sub>9</sub>	14.4	X	90.79954	159.65516	111.27254	9.08891	0.2408630	0.24032978	2.5621094	20	11 24.7	18.8
35475 1998 EP <sub>9</sub>	14.9	X	273.17196	85.10522	111.73813	3.30279	0.1380886	0.25884994	2.4383947	20	—	—
35476 1998 EN <sub>10</sub>	14.8	X	242.11721	352.28521	43.69983	4.97696	0.0562826	0.23570720	2.5954987	20	7 1.5	18.3
35477 1998 ER <sub>10</sub>	14.8	X	134.34981	336.56978	105.72384	3.70528	0.2381798	0.18653056	3.0336773	20	5 11.5	19.8
35478 1998 EG <sub>11</sub>	14.8	X	219.68920	72.93249	131.72420	5.87461	0.0912804	0.25239702	2.4797805	20	—	—
35479 1998 FT <sub>4</sub>	14.9	X	295.40189	164.00694	350.67672	7.49394	0.0986847	0.21107105	2.7937247	20	—	—
35480 1998 FN <sub>5</sub>	14.1	X	89.20662	258.44656	263.13493	11.62056	0.1116655	0.22973150	2.6403147	20	6 18.6	17.7
35481 1998 FA <sub>8</sub>	15.0	X	346.56264	145.89026	14.56382	3.12766	0.1859891	0.22006025	2.7171168	20	—	—
35482 1998 FJ <sub>11</sub>	14.9	X	135.00820	163.38199	85.76412	7.58093	0.1907323	0.24402317	2.5361913	20	12 1.7	19.1
35483 1998 FQ <sub>12</sub>	15.8	X	149.66402	292.19574	174.50341	12.05264	0.2098944	0.23452433	2.6042186	20	6 20.9	20.4
35484 1998 FC <sub>14</sub>	14.8	X	146.82808	212.46908	7.03767	12.58102	0.0655572	0.24479195	2.5308785	20	11 3.0	18.6
35485 1998 FZ <sub>14</sub>	14.8	X	174.11281	6.47624	266.80551	5.95384	0.1645016	0.20692314	2.8309358	20	—	—
35486 1998 FH <sub>15</sub>	13.6	X	171.00144	347.46222	353.77205	12.02276	0.1089852	0.21686990	2.7436994	20	2 6.3	17.9
35487 1998 FK <sub>16</sub>	14.4	X	180.17001	288.20434	151.39347	12.85171	0.1654382	0.23610303	2.5925970	20	6 14.1	18.8
35488 1998 FJ <sub>21</sub>	14.7	X	127.59890	164.20239	7.87463	4.49613	0.0920085	0.23796640	2.5790452	20	8 17.7	18.5
35489 1998 FE <sub>22</sub>	15.0	X	31.62742	209.19226	245.27266	3.93914	0.1405582	0.21867538	2.7285764	20	—	—
35490 1998 FD <sub>27</sub>	14.9	X	172.70026	267.33006	178.66086	14.71314	0.0758022	0.23379546	2.6096284	20	6 13.9	19.0
35491 1998 FQ <sub>27</sub>	14.5	X	82.65462	308.48882	310.90686	4.12650	0.2453955	0.23958737	2.5673994	20	10 31.5	18.7
35492 1998 FA <sub>29</sub>	15.3	X	116.15655	224.68025	21.72450	2.14193	0.0467140	0.24484640	2.5305033	20	11 5.5	18.9
35493 1998 FG <sub>29</sub>	14.2	X	12.30204	312.67411	352.48620	9.94381	0.0954176	0.23875810	2.5733408	20	9 12.6	17.0
35494 1998 FZ <sub>31</sub>	14.3	X	141.00002	224.22935	570.79933	14.68459	0.1066503	0.24335490	2.5408322	20	10 19.9	18.3
35495 1998 FO <sub>32</sub>	14.2	X	10.75823	301.49646	347.60862	11.04881	0.2699812	0.23362304	2.6109122	20	9 9.6	16.2
35496 1998 FC <sub>33</sub>	13.5	X	246.04351	233.65230	173.16057	22.07538	0.0470195	0.23681797	2.5873764	20	7 20.6	17.4
35497 1998 FT <sub>33</sub>	14.8	X	280.77943	112.38662	177.64431	10.61801	0.0037639	0.22622966	2.6674914	20	4 9.7	18.4
35498 1998 FC <sub>35</sub>	13.8	X	30.96114	263.69752	177.49369	8.48939	0.2637521	0.17344060	3.1844581	20	—	—
35499 1998 FO <sub>35</sub>	13.9	X	246.52766	294.49969	174.90528	16.36170	0.0431736	0.24459833	2.5322139	20	10 21.6	17.3
35500 1998 FP <sub>39</sub>	14.5	X	300.69547	129.77709	166.64180	14.86622	0.0260199	0.22946797	2.6423358	20	5 13.8	18.2
35501 1998 FM <sub>41</sub>	15.3	X	217.46462	200.74203	254.03930	0.75870	0.1378461	0.24011469	2.5636392	20	8 9.9	18.9
35502 1998 FP <sub>41</sub>	14.3	X	243.23431	65.10230	332.91058	1.55606	0.1169863	0.23541526	2.5976441	20	6 27.4	18.0
35503 1998 FT <sub>42</sub>	13.7	X	172.20126	63.92768	349.80424	10.56842	0.1601340	0.18543579	3.0456057	20	4 30.8	18.9
35504 1998 FF <sub>43</sub>	13.8	X	308.06612	188.11864	185.11480	13.14734	0.1796443	0.23985773	2.5654698	20	8 16.8	16.6
35505 1998 FS <sub>43</sub>	15.3	X	181.29662	92.55534	0.55389	4.02774	0.1687087	0.23574719	2.5952052	20	7 1.4	19.5
35506 1998 FU <sub>43</sub>	15.1	X	102.42649	77.89541	352.73514	2.29252	0.0361773	0.22168450	2.7038287	20	2 25.8	18.6
35507 1998 FY <sub>43</sub>	15.3	X	208.60625	104.36053	0.06011	10.56790	0.1891015	0.24077047	2.5589820	20	8 12.9	19.4
35508 1998 FC <sub>44</sub>	14.7	X	249.90807	267.01390	3.97598	7.25911	0.1597361	0.21737081	2.7394828	20	1 25.2	19.1
35509 1998 FK <sub>44</sub>	14.3	X	98.42575	287.06249	5.96046	4.25846	0.2827557	0.19986039	2.8972428	20	12 20.2	19.4
35510 1998 FF <sub>47</sub>	14.7	X	41.96429	220.24838	354.51568	12.80626	0.2180696	0.22962982	2.6410940	20	7 14.9	17.9
35511 1998 FY <sub>48</sub>	14.6	X	131.33783	143.27269	238.01900	2.58312	0.1126230	0.21887931	2.7268814	20	2 8.6	18.6
35512 1998 FH <sub>53</sub>	15.2	X	10.74854	318.66391	197.63610	4.53052	0.0997289	0.22072171	2.7116857	20	2 7.1	18.4
35513 1998 FL <sub>53</sub>	14.6	X	31.65758	86.67903	255.79278	1.00184	0.0960287	0.20062693	2.8898584	20	11 21.8	18.4
35514 1998 FZ <sub>56</sub>	14.5	X	161.41153	127.46244	8.86657	9.02550	0.0460686	0.19165172	2.9793915	20	8 5.9	19.0
35515 1998 FK <sub>57</sub>	15.3											

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
35521 1998 FX <sub>61</sub>	15.3	X	33.38534	191.62875	317.70798	2.77349	0.1465994	0.22269201	2.6956673	20	3 9.3	18.1
35522 1998 FY <sub>62</sub>	13.7	X	256.85689	249.12123	187.52811	13.87479	0.0566637	0.24068666	2.5595760	20	9 14.2	17.1
35523 1998 FQ <sub>63</sub>	14.0	X	111.40161	278.03427	44.65379	5.21197	0.2077631	0.20521997	2.8465772	20	—	—
35524 1998 FK <sub>64</sub>	14.5	X	109.64663	227.70840	174.76692	9.30405	0.1877955	0.21894882	2.7263042	20	2 19.5	18.4
35525 1998 FV <sub>64</sub>	14.7	X	177.88552	342.34995	203.52651	1.28844	0.0180346	0.19934327	2.9022512	20	10 25.6	18.8
35526 1998 FX <sub>67</sub>	14.5	X	55.16413	162.57154	81.41172	1.82162	0.1667605	0.18983624	2.9983567	20	8 29.2	18.4
35527 1998 FG <sub>68</sub>	13.8	X	227.47051	284.34875	10.88665	10.56911	0.2349646	0.17172946	3.2055768	20	2 5.9	19.4
35528 1998 FC <sub>69</sub>	14.8	X	159.52494	96.73172	356.92794	3.16747	0.1380652	0.23119877	2.6291319	20	6 10.2	18.8
35529 1998 FU <sub>69</sub>	14.6	X	245.74286	214.85596	25.83563	8.14576	0.1655772	0.21230582	2.7828820	20	—	—
35530 1998 FE <sub>70</sub>	14.7	X	123.82101	78.37711	26.67900	14.96760	0.0470757	0.22733434	2.6588429	20	5 5.8	18.4
35531 1998 FQ <sub>70</sub>	14.2	X	77.16331	30.36750	32.73172	5.95130	0.0907626	0.21645056	2.7472419	20	1 23.0	17.7
35532 1998 FV <sub>71</sub>	14.7	X	270.82143	303.76061	340.29171	3.81519	0.0818991	0.22249398	2.6972666	20	3 7.7	18.5
35533 1998 FO <sub>72</sub>	14.4	X	145.63647	213.58268	13.06765	5.71900	0.0702637	0.19966693	2.8991140	20	11 5.5	18.9
35534 1998 FW <sub>73</sub>	13.0	X	316.46546	271.83608	303.46076	24.35831	0.2006030	0.17669469	3.1452394	20	1 27.1	17.2
35535 1998 FS <sub>77</sub>	14.2	X	88.71372	104.40078	163.91311	8.04137	0.1475553	0.24050825	2.5608416	20	11 12.7	18.2
35536 1998 FG <sub>78</sub>	14.8	X	165.75640	10.05145	100.12667	4.82891	0.2369095	0.23496972	2.6009267	20	7 9.0	19.4
35537 1998 FG <sub>79</sub>	14.5	X	41.91569	285.47060	128.10508	6.39566	0.0401141	0.20974250	2.8055096	20	—	—
35538 1998 FH <sub>80</sub>	14.7	X	19.99849	67.37164	26.01884	11.30581	0.1356905	0.21555638	2.7548342	20	—	—
35539 1998 FI <sub>91</sub>	13.0	X	283.66287	193.25031	133.93244	13.72041	0.2192655	0.23010604	2.6374488	20	5 4.2	16.9
35540 1998 FE <sub>94</sub>	13.5	X	316.99227	148.05275	42.07794	9.78563	0.1127540	0.17325641	3.1867147	20	1 12.7	18.0
35541 1998 FS <sub>95</sub>	14.8	X	97.45105	297.70753	282.19098	7.21336	0.1375787	0.23811659	2.5779606	20	9 14.2	18.8
35542 1998 FS <sub>99</sub>	13.7	X	166.36698	138.13347	344.54295	13.82862	0.0983839	0.23629732	2.5911757	20	7 29.1	17.8
35543 1998 FU <sub>99</sub>	14.5	X	231.92454	167.94767	297.38779	5.37109	0.1683931	0.24371438	2.5383331	20	9 3.8	18.2
35544 1998 FT <sub>102</sub>	14.3	X	57.85071	8.32387	210.73020	14.72607	0.0736423	0.23268975	2.6178889	20	7 15.1	18.0
35545 1998 FQ <sub>103</sub>	14.6	X	64.43941	330.97803	283.65467	3.95237	0.1210269	0.237114474	2.5849990	20	9 20.6	18.1
35546 1998 FA <sub>105</sub>	14.8	X	294.03567	304.91153	316.56411	8.63880	0.0677928	0.22217741	2.6998281	20	3 7.0	18.5
35547 1998 FI <sub>106</sub>	14.5	X	267.98209	324.51811	334.48416	8.68985	0.0693934	0.22346034	2.6894847	20	3 22.4	18.2
35548 1998 FL <sub>107</sub>	13.7	X	126.95077	317.04443	339.28996	14.52345	0.1379390	0.20456141	2.8526835	20	—	—
35549 1998 FT <sub>108</sub>	14.7	X	51.96847	10.28564	212.17369	12.55215	0.1296477	0.23158368	2.6262179	20	7 20.2	18.2
35550 1998 FD <sub>109</sub>	14.1	X	291.21950	159.67860	217.61635	8.88512	0.0725375	0.19220316	2.9736900	20	8 3.3	18.2
35551 1998 FA <sub>114</sub>	13.5	X	114.79027	320.51188	262.19454	5.50814	0.1327917	0.23923102	2.5699483	20	10 6.9	17.6
35552 1998 FE <sub>115</sub>	13.2	X	20.07601	345.69772	224.78230	11.25727	0.1325023	0.22565908	2.6719860	20	5 11.9	15.8
35553 1998 FK <sub>116</sub>	15.3	X	334.73455	342.43460	213.75337	7.74257	0.1184238	0.21963539	2.7206197	20	1 31.4	18.9
35554 1998 FL <sub>118</sub>	14.4	X	265.85111	255.46241	347.75792	6.92138	0.1007667	0.21510726	2.7586674	20	1 12.3	18.5
35555 1998 FC <sub>120</sub>	14.3	X	311.01456	354.90648	53.34168	3.07241	0.0416091	0.20110686	2.8852589	20	10 19.8	17.9
35556 1998 FC <sub>122</sub>	14.4	X	180.18940	296.94174	137.35712	4.86700	0.2036596	0.23281936	2.6169173	20	6 6.5	18.9
35557 1998 FO <sub>122</sub>	13.8	X	5.96846	129.80002	15.67648	5.51266	0.1119905	0.17361985	3.1822659	20	1 28.2	17.8
35558 1998 FT <sub>122</sub>	13.1	X	275.70107	18.23556	26.42844	13.32174	0.1711026	0.23935335	2.5690726	20	8 17.7	16.5
35559 1998 FO <sub>127</sub>	14.7	X	184.33503	259.73685	118.33635	4.52422	0.1179404	0.22639180	2.6662176	20	4 2.3	18.8
35560 1998 FU <sub>130</sub>	15.4	X	20.38342	85.56790	172.83308	2.91766	0.0970536	0.23216033	2.6218673	20	7 18.6	18.5
35561 1998 FZ <sub>132</sub>	14.4	X	124.45717	41.86025	165.33092	12.82348	0.1019056	0.24033479	2.5620737	20	9 30.0	18.2
35562 1998 GL <sub>1</sub>	13.7	X	227.26039	101.47015	26.31558	16.00655	0.0568406	0.24129636	2.5552626	20	10 15.8	17.1
35563 1998 GK <sub>3</sub>	14.3	X	107.18681	125.57235	114.01239	14.48011	0.1602437	0.24109396	2.5566925	20	10 31.5	18.6
35564 1998 GY <sub>5</sub>	14.4	X	19.66782	28.33978	141.29856	13.33093	0.0930656	0.22279703	2.6948202	20	3 15.5	17.6
35565 1998 GF <sub>6</sub>	14.5	X	31.81507	123.65229	121.21417	15.72540	0.1095588	0.23186341	2.6241051	20	7 20.4	17.3
35566 1998 GE <sub>7</sub>	13.3	X	25.07493	179.40111	90.77348	14.92031	0.1436001	0.23326559	2.6135788	20	8 25.9	16.5
35567 1998 GC <sub>9</sub>	14.8	X	215.12135	30.59277	86.20391	12.27588	0.0580715	0.23953471	2.5677757	20	9 21.6	18.6
35568 1998 GD <sub>9</sub>	13.9	X	104.16965	152.23740	147.42506	14.24046	0.1811950	0.24488563	2.5302330	20	—	—
35569 1998 GN <sub>9</sub>	13.7	X	341.38122	204.67593	95.35523	15.82112	0.1104718	0.23051001	2.6343664	20	7 10.5	16.7
35570 1998 GF <sub>10</sub>	14.5	X	17.95182	182.14411	103.21010	13.98061	0.2309328	0.23193482	2.6235665	20	9 19.6	17.5
35571 1998 HV <sub>6</sub>	14.6	X	150.94647	356.80112	221.83122	5.47651	0.1518636	0.24202488	2.5501323	20	11 8.5	18.5
35572 1998 HW <sub>6</sub>	13.2	X	47.85879	338.23046	71.53499	14.24558	0.0233411	0.20838950	2.8176399	20	—	—
35573 1998 HH <sub>9</sub>	13.9	X	70.93641	292.78011	127.65351	10.20554	0.1873284	0.21264889	2.7798881	20	1 21.3	17.1
35574 1998 HE <sub>12</sub>	14.3	X	139.69758	160.84677	17.95377	8.92733	0.0611591	0.23666350	2.5885021	20	9 9.2	18.0
35575 1998 HC <sub>18</sub>	14.3	X	203.78250	39.44889	264.88583	3.39874	0.1279346	0.21469912	2.7621624	20	1 21.4	18.8
35576 1998 HB <sub>21</sub>	15.1	X	241.24976	169.09720	128.12087	3.27513	0.0332176	0.22045854	2.7138433	20	2 24.9	18.8
35577 1998 HZ <sub>26</sub>	14.8	X	128.68454	271.57383	59.99995	5.47257	0.0850014	0.21006908	2.8026011	20	—	—
35578 1998 HE <sub>34</sub>	14.6	X	83.82855	214.87110	35.63795	2.64568	0.0536174	0.19455665	2.9496603	20	9 26.8	18.8
35579 1998 HA <sub>36</sub>	14.3	X	89.48133	12.94692	52.18908	4.94572	0.0882872	0.21811612	2.7332386	20	2 11.6	17.8
35580 1998 HK <sub>39</sub>	13.9	X	263.11187	237.52919	30.39943	5.08064	0.0696887	0.21787219	2.7352783	20	2 11.9	17.8
35581 1998 HD <sub>40</sub>	14.6	X	18.19020	168.47852	35.02865	8.96566	0.1543359	0.22505461	2.6767683	20	4 28.3	17.3
35582 1998 HD <sub>45</sub>	14.1	X	173.31311	183.35773	243.27207	4.20780	0.1333225	0.22853572	2.6495166	20	5 20.4	18.3
35583 1998 HX <sub>45</sub>	14.2	X	147.57176	328.41821	31.05814	2.58534	0.1069714	0.21490112	2.7604313	20	2 1.5	18.2
35584 1998 HY <sub>46</sub>	13.9	X	93.61519	234.36567	192.55988	13.39243	0.1298958	0.21877548	2.7277441	20	2 20.2	17.7
35585 1998 HZ <sub>51</sub>	14.4	X	311.03311	336.32141	187.07043	6.02051	0.0744122	0.21138898	2.7909228	20	—	—
35586 1998 HG <sub>54</sub>	14.5	X	306.00504	305.50948	22.18866	11.98155	0.0489355	0.23059758	2.6336995	20	6 27.3	18.1
35587 1998 HR <sub>63</sub>	14.3	X	161.97777	244.44846	87.25931	4.36429	0.0964462	0.21239099	2.7821380	20	1 12.9	18.3
35588 1998 HU <sub>80</sub>	14.4	X	137.60777	90.82343	29.29656	6.25421	0.1356417	0.23022957	2.6365053	20	6 22.3	18.5
35589 1998 HY <sub>80</sub>	14.1	X	229.93415	226.48063	46.77473	2.87986	0.1185767	0.16825747	3.2495245	20	1 16.3	19.2
35590 1998 HQ <sub>86</sub>	14.5	X	51.81468	33.08161	293.97010	1.13359	0.0762716	0.19765457	2.9187584	20	11 24.7	18.6
35591 1998 HB <sub>91</sub>	15.0	X	225.86948	101.54885	145.86377	4.77542	0.1077482	0.20950173	2.8076587	20	—	—
35592 1998 HR <sub>94</sub>	13.3	X	328.56417	61.25689	216.48549	12.21833	0.1514932	0.22486486	2.6782739	20	5 10.8	16.3
35593 1998 HP <sub>98</sub>	13.9	X	169.63370	46.86781	223.45768	5.31978	0.0154187	0.20541403	2.8447841	20	—	—
35594 1998 HY <sub>114</sub>	13.6	X	31.19844	71.65695	145.67128	13.08719						

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
35601 1998 <i>HJ</i> <sub>122</sub>	14.9	X	299.00210	118.19393	127.55712	13.82584	0.1604323	0.21803092	2.7339506	20	2 13.3	18.6
35602 1998 <i>HC</i> <sub>124</sub>	14.7	X	341.56112	54.51875	147.22794	9.44379	0.1536171	0.21901118	2.7257866	20	2 16.5	17.8
35603 1998 <i>HP</i> <sub>124</sub>	14.7	X	18.46035	40.17062	115.59320	6.35668	0.0049651	0.21689889	2.7434549	20	2 23.9	18.3
35604 1998 <i>HZ</i> <sub>124</sub>	14.7	X	254.43932	136.21183	126.26322	12.85735	0.1596715	0.21358697	2.7717425	20	1 17.6	19.1
35605 1998 <i>HU</i> <sub>125</sub>	13.0	X	350.16648	271.33119	86.76146	11.38679	0.1194687	0.19198734	2.9759182	20	10 17.5	16.7
35606 1998 <i>HG</i> <sub>126</sub>	14.7	X	94.08310	68.02695	115.72280	15.24786	0.1142815	0.23050815	2.6343807	20	7 25.5	18.4
35607 1998 <i>HJ</i> <sub>127</sub>	14.7	X	39.33245	6.69836	191.87326	14.98562	0.0719214	0.22912643	2.6449609	20	5 23.9	18.1
35608 1998 <i>HX</i> <sub>127</sub>	15.0	X	243.60366	281.94874	359.97835	4.70739	0.1361835	0.21645461	2.7472076	20	2 2.2	19.2
35609 1998 <i>HC</i> <sub>132</sub>	14.0	X	1.15811	136.10929	102.36463	5.52116	0.0721285	0.18349184	3.0670784	20	5 19.1	17.9
35610 1998 <i>HW</i> <sub>133</sub>	14.9	X	123.34190	31.68883	95.25639	5.32426	0.2101102	0.23207787	2.6224883	20	6 22.8	19.0
35611 1998 <i>HU</i> <sub>136</sub>	14.1	X	155.42041	156.68183	76.44427	5.83865	0.2914238	0.20011009	2.8948321	20	11 21.7	19.4
35612 1998 <i>HR</i> <sub>137</sub>	14.4	X	143.37185	67.08072	116.00379	3.10742	0.0208227	0.19419934	2.9532772	20	9 10.6	18.5
35613 1998 <i>HS</i> <sub>147</sub>	13.9	X	15.08223	235.33991	90.14912	10.67332	0.0603319	0.19242829	2.9713703	20	10 8.1	18.0
35614 1998 <i>HB</i> <sub>148</sub>	14.2	X	255.26339	144.69003	147.78724	1.39226	0.1818104	0.17239364	3.1973381	20	2 24.9	19.2
35615 1998 <i>HE</i> <sub>148</sub>	14.4	X	62.98612	56.57454	210.19380	2.71551	0.2094804	0.23415940	2.6069237	20	10 18.4	17.9
35616 1998 <i>HN</i> <sub>148</sub>	14.3	X	89.34771	124.39387	169.07932	2.02169	0.0927932	0.19604877	2.9346747	20	11 29.0	18.6
35617 1998 <i>HY</i> <sub>148</sub>	13.6	X	81.39531	196.26197	56.74313	15.00132	0.0769176	0.23549376	2.5970667	20	10 12.1	17.4
35618 1998 <i>Tartu</i>	12.8	X	286.45353	351.95691	56.20472	14.80791	0.2318981	0.18909113	3.0062282	20	8 23.7	16.9
35619 1998 <i>HT</i> <sub>149</sub>	13.4	X	222.31578	265.14808	43.34241	9.42944	0.1503970	0.21322210	2.7749036	20	2 16.6	18.0
35620 1998 <i>JZ</i>	14.4	X	338.99740	217.05140	47.31070	12.42862	0.1552732	0.22499158	2.6772682	20	5 9.5	17.2
35621 1998 <i>JD</i> <sub>4</sub>	14.2	X	245.84276	348.23114	81.74168	13.39795	0.0780042	0.19016438	2.9949065	20	8 18.6	18.7
35622 1998 <i>JF</i> <sub>4</sub>	14.5	X	151.21280	24.47241	110.92319	4.34593	0.1540429	0.23220732	2.6215135	20	7 26.8	18.7
35623 1998 <i>KF</i> <sub>7</sub>	13.5	X	74.24161	155.58745	58.80704	11.53483	0.0720953	0.23348509	2.6119405	20	8 8.8	17.2
35624 1998 <i>KR</i> <sub>7</sub>	13.9	X	316.96006	82.66701	79.22112	15.38327	0.1320666	0.21067095	2.7972607	20	—	—
35625 1998 <i>KK</i> <sub>8</sub>	13.5	X	39.77823	89.44594	201.48477	10.30438	0.0824144	0.18993262	2.9973423	20	9 22.8	17.5
35626 1998 <i>KD</i> <sub>9</sub>	14.4	X	87.74513	19.79177	157.68107	12.24980	0.1500855	0.22913174	2.6449200	20	7 12.9	18.3
35627 1998 <i>KW</i> <sub>9</sub>	12.9	X	276.66655	35.35123	285.89043	9.24480	0.2225780	0.17702304	3.1413490	20	4 10.6	17.9
35628 1998 <i>KQ</i> <sub>13</sub>	14.8	X	205.04944	70.52894	92.52608	2.73296	0.1157447	0.19866028	2.9088993	20	10 20.9	19.1
35629 1998 <i>KK</i> <sub>21</sub>	13.4	X	81.87037	275.41501	245.83546	12.03910	0.1507233	0.22690308	2.6622109	20	6 14.3	16.9
35630 1998 <i>KK</i> <sub>23</sub>	12.8	X	301.73367	116.81868	93.15940	9.96458	0.1275349	0.12503749	3.9607359	20	1 22.5	18.3
35631 1998 <i>KL</i> <sub>24</sub>	14.3	X	60.43663	224.26096	44.89065	10.96504	0.0963699	0.19054461	2.9909209	20	9 30.6	18.5
35632 1998 <i>KA</i> <sub>26</sub>	15.2	X	148.38835	159.05384	115.49491	4.46927	0.1296844	0.20161028	2.8804539	20	—	—
35633 1998 <i>KM</i> <sub>28</sub>	14.1	X	142.23841	68.60140	68.02035	8.38931	0.0508072	0.22952337	2.6419105	20	7 14.6	17.9
35634 1998 <i>KS</i> <sub>32</sub>	13.7	X	345.73617	109.35183	246.31499	8.90953	0.1135130	0.19005475	2.9960581	20	9 25.8	17.5
35635 1998 <i>KV</i> <sub>33</sub>	14.7	X	355.70249	162.98839	100.63757	0.81934	0.1942656	0.18145245	3.0900166	20	6 10.9	17.6
35636 1998 <i>KO</i> <sub>34</sub>	14.6	X	88.32694	78.57561	88.69034	12.01282	0.1733509	0.22779184	2.6552817	20	7 4.1	18.3
35637 1998 <i>KV</i> <sub>34</sub>	14.4	X	342.07234	107.71888	91.03890	11.61201	0.0856179	0.21711162	2.7416626	20	2 26.9	18.0
35638 1998 <i>KU</i> <sub>37</sub>	14.3	X	350.08253	202.00008	92.82108	9.95488	0.0696318	0.22811980	2.6527362	20	7 19.3	17.5
35639 1998 <i>KY</i> <sub>49</sub>	14.0	X	3.51650	202.24127	129.76922	10.67938	0.0878969	0.18983799	2.9983382	20	9 29.9	17.9
35640 1998 <i>KN</i> <sub>51</sub>	13.9	X	14.63133	222.09580	172.89491	11.56175	0.1204552	0.19179430	2.7779147	20	11 7.2	17.9
35641 1998 <i>KT</i> <sub>51</sub>	14.3	X	10.31099	42.67000	170.07373	11.16232	0.0865096	0.22210538	2.7004118	20	4 28.9	17.6
35642 1998 <i>KF</i> <sub>53</sub>	13.7	X	39.29762	85.08771	139.90260	11.18496	0.1408886	0.22681747	2.6628807	20	7 8.1	16.9
35643 1998 <i>KN</i> <sub>55</sub>	13.6	X	47.22848	280.24364	176.83949	9.05677	0.1367648	0.21114875	2.7930393	20	1 22.9	16.8
35644 1998 <i>KW</i> <sub>59</sub>	14.8	X	344.85297	18.42594	177.89442	8.44277	0.1743387	0.21815839	2.7328855	20	2 10.2	18.0
35645 1998 <i>KU</i> <sub>60</sub>	13.7	X	42.08255	97.75587	164.03111	12.01633	0.1463266	0.23093440	2.6311380	20	9 4.7	16.9
35646 1998 <i>KO</i> <sub>66</sub>	14.3	X	72.41772	286.00729	244.59230	4.59104	0.1025655	0.18152718	3.0891686	20	6 6.4	18.5
35647 1998 <i>KA</i> <sub>67</sub>	14.2	X	38.09083	141.79266	88.08741	16.01097	0.0792689	0.22855782	2.6493459	20	7 4.5	17.4
35648 1998 <i>KR</i> <sub>68</sub>	14.2	X	259.67834	183.06795	126.70113	10.26490	0.2698097	0.21704095	2.7422577	20	3 11.2	18.9
35649 1998 <i>ML</i> <sub>4</sub>	13.1	X	209.32531	179.26279	142.70492	24.64357	0.1078123	0.16981604	3.2296113	20	2 22.3	18.1
35650 1998 <i>MD</i> <sub>11</sub>	13.7	X	11.42325	163.95130	150.63479	10.88586	0.1039815	0.18572601	3.0424322	20	9 17.6	17.5
35651 1998 <i>MS</i> <sub>29</sub>	13.4	X	349.18026	140.13546	117.89813	6.46029	0.1359984	0.17645088	3.1481360	20	5 24.4	17.1
35652 1998 <i>MT</i> <sub>29</sub>	13.6	X	336.40843	94.10311	113.79697	10.00512	0.0945753	0.21324140	2.7747362	20	2 28.1	17.1
35653 1998 <i>MF</i> <sub>30</sub>	13.1	X	19.07024	203.34719	94.80798	10.90672	0.0712539	0.18360982	3.0657645	20	9 6.9	17.2
35654 1998 <i>MR</i> <sub>33</sub>	13.2	X	2.15948	183.59477	96.11465	5.90134	0.2075929	0.17957809	3.1114810	20	7 19.7	16.4
35655 1998 <i>OJ</i> <sub>6</sub>	13.9	X	291.74955	124.28614	157.06073	5.34944	0.1147191	0.16925828	3.2367024	20	3 31.3	18.5
35656 1998 <i>OZ</i> <sub>12</sub>	12.7	X	343.16685	0.17138	329.58040	13.99574	0.0962707	0.17871892	3.1214450	20	8 20.0	16.3
35657 1998 <i>QE</i> <sub>5</sub>	13.0	X	115.12589	250.31999	291.65879	10.53096	0.2345682	0.17893111	3.1189769	20	8 18.7	18.3
35658 1998 <i>QV</i> <sub>9</sub>	14.8	X	102.68132	323.05343	332.13390	9.14236	0.1959874	0.23738952	2.5832218	20	12 28.8	19.2
35659 1998 <i>QU</i> <sub>10</sub>	13.4	X	293.83374	323.47371	620.87297	5.53733	0.0668585	0.16928818	3.2363212	20	4 9.5	18.1
35660 1998 <i>QS</i> <sub>38</sub>	13.8	X	10.93425	289.96476	321.37223	13.43867	0.2162636	0.17463196	3.1699584	20	6 29.6	17.3
35661 1998 <i>QV</i> <sub>39</sub>	14.9	X	356.27440	259.74889	11.21089	2.35813	0.1726129	0.26494231	2.4008692	20	6 27.8	16.8
35662 1998 <i>QW</i> <sub>40</sub>	16.0	X	350.38290	38.33557	235.83040	2.72002	0.1829373	0.30983781	2.1629498	20	6 20.5	16.9
35663 1998 <i>QT</i> <sub>50</sub>	13.3	X	33.16878	138.06585	146.31664	10.25961	0.3165916	0.18150464	3.0894244	20	10 14.5	17.3
35664 1998 <i>QC</i> <sub>64</sub>	13.3	X	50.50250	72.05853	176.71299	21.91868	0.0447080	0.17950844	3.1122858	20	8 6.0	17.9
35665 1998 <i>RF</i> <sub>18</sub>	15.4	X	144.06931	317.47740	301.81134	2.49574	0.1318837	0.28197355	2.3031937	20	12 29.6	18.7
35666 1998 <i>RZ</i> <sub>47</sub>	14.2	X	290.21260	322.39248	333.04124	7.35163	0.2034384	0.21293069	2.7774348	20	3 27.0	18.2
35667 1998 <i>RN</i> <sub>72</sub>	14.7	X	133.46474	295.80366	15.38201	5.35108	0.1828471	0.23913648	2.5706256	20	—	—
35668 1998 <i>RB</i> <sub>76</sub>	14.6	X	253.70835	184.46224	27.40847	5.92786	0.0967720	0.28621804	2.2803668	20	—	—
35669 1998 <i>SO</i> <sub>12</sub>	16.6	X	310.37703	63.76372	4.89164	19.76700	0.0967983	0.36362983	1.9440005	20	—	—
35670 1998 <i>SU</i> <sub>27</sub>	19.3	X	340.15879	169.86639	271.35154	7.13973	0.0596188	0.31886696	2.1219234	20	—	—
35671 1998 <i>SN</i> <sub>165</sub>	5.5	X	296.08442	261.72088	192.09257	4.60605	0.0404534	0.00421938	37.9288914	20	10 19.9	21.2
35672 1998 <i>UZ</i> <sub>14</sub>	12.3	X	2									

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
35681 1999 BC <sub>2</sub>	14.8	X	114.01799	325.56652	336.72997	17.49576	0.0597367	0.35982462	1.9576819	20	—	—
35682 1999 BP <sub>2</sub>	14.6	X	339.06589	357.81436	43.65061	6.33923	0.1311778	0.26377709	2.4079345	20	12 12.3	17.0
35683 1999 BK <sub>5</sub>	15.9	X	261.49177	241.28758	232.22113	1.54292	0.0465000	0.30855474	2.1689418	20	11 29.8	18.0
35684 1999 BO <sub>5</sub>	13.2	X	213.32170	194.82214	327.38380	7.73331	0.0106968	0.26308872	2.4121329	20	11 20.3	16.4
35685 1999 BT <sub>11</sub>	16.1	X	311.24787	164.64072	149.54684	1.20364	0.0622176	0.29233021	2.2484690	20	6 15.8	18.4
35686 1999 BW <sub>18</sub>	15.5	X	325.60172	1.03936	352.48899	6.78716	0.1501672	0.30572367	2.1823111	20	9 13.2	16.8
35687 1999 CP <sub>8</sub>	16.1	X	94.11161	319.73636	266.55750	2.05254	0.0530148	0.30011121	2.2094350	20	9 20.8	18.7
35688 1999 CD <sub>10</sub>	13.3	X	246.71166	52.82628	112.96812	10.70106	0.0643820	0.21474019	2.7618102	20	12 21.4	17.0
35689 1999 CE <sub>12</sub>	14.4	X	335.61847	331.06859	156.30799	13.52796	0.1220982	0.27225539	2.3576811	20	—	—
35690 1999 CT <sub>21</sub>	14.3	X	357.90182	130.94249	107.04678	7.71187	0.1301245	0.24248137	2.5469307	20	5 11.6	16.9
35691 1999 CE <sub>26</sub>	14.9	X	187.68406	296.33070	141.11498	2.51114	0.0074150	0.20119721	2.8843951	20	6 20.2	18.8
35692 1999 CV <sub>32</sub>	15.3	X	332.60383	347.92084	73.36271	3.18855	0.1687325	0.26627786	2.3928346	20	—	—
35693 1999 CQ <sub>48</sub>	16.0	X	193.44638	232.12125	4.74255	4.63165	0.1064429	0.31200360	2.1529287	20	—	—
35694 1999 CP <sub>54</sub>	15.1	X	354.77530	316.90334	64.62215	1.19831	0.1557708	0.30795736	2.1717458	20	12 30.6	17.0
35695 1999 CE <sub>57</sub>	14.9	X	334.91449	289.44655	342.66187	5.31909	0.1540544	0.28721638	2.2750795	20	5 8.5	17.0
35696 1999 CE <sub>97</sub>	15.3	X	127.80475	153.22864	126.04607	2.17031	0.1701310	0.26255377	2.4154082	20	—	—
35697 1999 CP <sub>104</sub>	14.5	X	44.68666	340.20725	315.39294	5.82889	0.1831371	0.30096097	2.2052742	20	11 10.2	17.3
35698 1999 CJ <sub>118</sub>	15.4	X	196.82995	307.80122	287.01074	2.99811	0.1517585	0.31066610	2.1591036	20	—	—
35699 1999 CO <sub>118</sub>	15.4	X	336.32950	106.39849	161.51969	3.51531	0.1001821	0.28712198	2.2755781	20	5 15.0	17.5
35700 1999 DL <sub>2</sub>	14.8	X	187.86280	172.65259	115.28975	8.77809	0.1009078	0.27033030	2.3688609	20	—	—
35701 1999 FF <sub>7</sub>	15.9	X	242.14908	238.45442	354.27640	3.79194	0.0902942	0.31548238	2.1370728	20	—	—
35702 1999 FN <sub>9</sub>	15.2	X	31.47211	169.54445	77.85218	3.96760	0.1188659	0.28985122	2.2612711	20	8 1.1	17.3
35703 Lafiascaia	14.8	X	38.58527	343.84518	145.33271	4.39587	0.0901643	0.27683531	2.3316055	20	2 7.1	17.1
35704 1999 FB <sub>13</sub>	15.3	X	258.83333	192.01253	173.96153	3.69162	0.2407137	0.24540729	2.5266460	20	5 19.2	19.2
35705 1999 FF <sub>17</sub>	15.3	X	152.43545	233.76898	184.59638	5.66460	0.1038292	0.28182387	2.3040092	20	4 15.4	18.4
35706 1999 FG <sub>25</sub>	15.0	X	329.51617	177.56227	105.41540	5.48763	0.1265487	0.28570341	2.2831044	20	5 23.1	17.0
35707 1999 FZ <sub>25</sub>	15.0	X	82.58420	301.78834	347.89083	6.28100	0.1314512	0.25408119	2.4688102	20	11 30.4	18.7
35708 1999 FX <sub>27</sub>	15.5	X	177.98319	197.83300	160.07021	2.79460	0.0626574	0.25812445	2.4429615	20	12 7.8	18.7
35709 1999 FR <sub>28</sub>	13.7	X	208.72042	300.64637	16.33107	13.62391	0.3022664	0.27134973	2.3629242	20	2 10.6	18.2
35710 1999 FT <sub>29</sub>	15.6	X	242.83013	119.79251	133.71193	5.69139	0.2029160	0.26961777	2.3730326	20	—	—
35711 1999 FZ <sub>29</sub>	15.6	X	32.12621	190.03141	57.04009	3.90830	0.1332092	0.28884770	2.2665055	20	8 4.6	17.8
35712 1999 FF <sub>30</sub>	15.2	X	240.96732	60.41409	35.28363	7.51695	0.1109066	0.29932089	2.2133225	20	9 23.6	17.8
35713 1999 FS <sub>30</sub>	15.4	X	179.60356	226.49225	265.71657	4.12261	0.0490328	0.29483191	2.2357319	20	8 26.9	18.4
35714 1999 FB <sub>31</sub>	15.4	X	91.23920	107.13930	162.39835	4.64532	0.1141537	0.29923147	2.2137634	20	11 23.5	18.5
35715 1999 FD <sub>32</sub>	15.2	X	141.63426	103.49382	125.78040	3.02600	0.1578534	0.25461762	2.4653414	20	11 15.6	19.2
35716 1999 FY <sub>32</sub>	14.6	X	82.17037	135.32243	335.80377	7.48187	0.0472366	0.28360602	2.2943469	20	3 15.6	17.2
35717 1999 FK <sub>33</sub>	15.1	X	240.15644	259.53012	107.61019	6.02547	0.1297010	0.28667227	2.2779574	20	5 13.2	18.2
35718 1999 FE <sub>34</sub>	15.6	X	324.08965	68.58730	185.92591	6.30407	0.0700163	0.28170745	2.3046439	20	4 6.8	18.1
35719 1999 FY <sub>34</sub>	15.0	X	302.57031	45.64439	153.57357	7.22838	0.0552694	0.27224682	2.3577305	20	—	—
35720 1999 FP <sub>36</sub>	14.5	X	144.21108	198.92758	246.80157	5.53959	0.1209127	0.28720360	2.2751470	20	5 13.2	17.6
35721 1999 FW <sub>39</sub>	15.0	X	237.06798	21.31544	342.72014	6.20972	0.1370594	0.28903005	2.2655521	20	4 29.9	18.4
35722 1999 FM <sub>41</sub>	15.4	X	64.67336	312.69801	296.41086	6.48324	0.0859453	0.29630532	2.2283141	20	9 15.3	18.2
35723 1999 FT <sub>42</sub>	14.3	X	300.70584	21.26267	356.95634	4.71187	0.1657019	0.29958915	2.2120011	20	8 26.7	16.0
35724 1999 FW <sub>53</sub>	15.8	X	179.04293	323.78620	125.76942	2.43404	0.1585474	0.29340076	2.2429963	20	6 25.8	19.2
35725 Tramuntana	15.1	X	347.01198	141.56444	121.70714	5.79179	0.1618006	0.23784585	2.5799166	20	5 25.3	17.6
35726 1999 GW	15.3	X	168.48293	71.03742	136.01974	3.58110	0.0959226	0.30100244	2.2050716	20	11 25.3	18.3
35727 1999 GM <sub>1</sub>	15.0	X	199.35114	93.98032	85.08914	5.76757	0.0570356	0.30206135	2.1999152	20	11 29.9	17.5
35728 1999 GA <sub>2</sub>	15.1	X	12.09449	195.85522	106.24841	6.59677	0.2085325	0.29335233	2.2432431	20	10 10.6	17.2
35729 1999 GZ <sub>4</sub>	14.4	X	330.47213	26.23378	207.67299	5.33965	0.1439621	0.27699204	2.3307258	20	3 4.4	16.8
35730 1999 GM <sub>7</sub>	15.7	X	70.53688	139.76568	156.90132	0.91503	0.1673916	0.29941936	2.2128372	20	12 10.2	18.7
35731 1999 GH <sub>8</sub>	16.1	X	318.87930	238.71531	278.68855	1.44602	0.1429775	0.27027976	2.3691562	20	—	—
35732 1999 GL <sub>8</sub>	15.1	X	88.66718	244.35132	215.14706	5.04052	0.1739224	0.28098886	2.3085714	20	3 30.5	17.8
35733 1999 GW <sub>8</sub>	15.6	X	120.28381	62.04320	102.83316	4.72288	0.0400107	0.28994089	2.2608048	20	7 28.4	18.4
35734 Dilithium	16.0	X	287.83649	104.88320	153.34627	6.00879	0.1583730	0.27597343	2.3364574	20	2 7.2	19.2
35735 1999 GP <sub>11</sub>	15.2	X	294.20544	316.64778	21.04237	3.73009	0.1957384	0.24240907	2.5474371	20	5 30.3	18.4
35736 1999 GQ <sub>19</sub>	14.5	X	357.06401	247.21902	42.46006	6.58341	0.1743997	0.28801824	2.2708549	20	8 8.7	16.2
35737 1999 GN <sub>20</sub>	15.6	X	272.05738	71.10836	177.32602	5.33637	0.2113538	0.27214686	2.3583078	20	11 5.0	19.3
35738 1999 GQ <sub>20</sub>	14.9	X	335.16810	235.69736	52.06704	5.00647	0.1452490	0.28500813	2.2868160	20	6 7.8	16.8
35739 1999 GR <sub>21</sub>	15.0	X	41.23041	127.46556	156.41047	7.95299	0.1124962	0.29351478	2.2424154	20	10 12.5	17.6
35740 1999 GK <sub>24</sub>	15.6	X	332.08323	129.06014	152.60110	3.33547	0.1682948	0.28574966	2.2828580	20	5 20.2	17.5
35741 1999 GX <sub>24</sub>	14.8	X	258.28369	349.74841	11.74413	3.58836	0.1557124	0.28819961	2.2699021	20	5 20.8	18.0
35742 1999 GD <sub>29</sub>	15.2	X	52.29246	151.18698	168.18313	6.81495	0.1543977	0.25382801	2.4704516	20	12 9.6	18.7
35743 1999 GP <sub>29</sub>	16.0	X	331.08607	213.48030	24.05376	3.66757	0.0810674	0.28026193	2.3125616	20	3 22.9	18.3
35744 1999 GF <sub>30</sub>	16.1	X	114.29478	52.18951	186.62685	2.87245	0.0910069	0.29865350	2.2166186	20	11 6.4	19.2
35745 1999 GZ <sub>30</sub>	15.3	X	287.75455	72.18110	78.87719	3.51971	0.1079190	0.26491426	2.4010387	20	—	—
35746 1999 GX <sub>31</sub>	15.0	X	262.00825	246.95992	70.31143	5.16721	0.1555596	0.27968154	2.3157598	20	3 29.8	18.3
35747 1999 GE <sub>32</sub>	14.9	X	267.35578	191.02165	117.96697	3.73906	0.2294568	0.23134885	2.6279947	20	3 19.2	19.0
35748 1999 GK <sub>32</sub>	14.9	X	263.03473	340.31547	192.72719	6.62107	0.0648617	0.26352259	2.4094846	20	—	—
35749 1999 GF <sub>33</sub>	14.9	X	82.65083	194.05012	104.58459	7.17381	0.1844881	0.30019525	2.2090227	20	12 25.7	18.3
35750 1999 GP <sub>34</sub>	15.3	X	289.54066	255.81173	320.95203	3.41321	0.0504057	0.27340886	2.3510453	20	1 1.4	18.4
35751 1999 GE <sub>36</sub>	15.5	X	218.02883	67.61440	26.20966	5.64435	0.0818954	0.29492219	2.2352756	20	8 23.8	18.3
35752 1999 GW <sub>36</sub>	15.2	X	306.13652	246.67346	291.39102	1.37582	0.1443732	0.27024027	2.3693870	20	—	—
35753 1999 GE <sub>45</sub>	14.8	X	135.98602	187.90812	81.13582	8.29365	0.0998613	0.25829570	2.4418816	20	12 29.5	18.3
35754 1999 GN <sub>50</sub>	15.5	X	17.66853	199.21441	74.16339	5.24514	0.1800864	0.28956710	2.2627500	20	8 29.1	17.5

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
35761 1999 HC <sub>2</sub>	15.2	X	185.48903	139.91653	165.41477	8.32256	0.2733957	0.26702731	2.3883553	20	1 5.8	19.4
35762 1999 HF <sub>2</sub>	15.6	X	295.15672	140.23000	47.81130	1.82879	0.1421050	0.26853026	2.3794353	20	—	—
35763 1999 HK <sub>3</sub>	15.9	X	269.54305	333.10728	244.16107	1.19319	0.0860308	0.26992405	2.3712372	20	—	—
35764 1999 HP <sub>7</sub>	15.7	X	80.99111	142.52184	56.97875	0.84044	0.0690117	0.28871691	2.2671899	20	7 28.1	18.4
35765 1999 HR <sub>8</sub>	15.3	X	265.71188	346.39854	279.31484	1.38332	0.1944484	0.27357936	2.3500684	20	1 21.9	19.1
35766 1999 HB <sub>9</sub>	15.5	X	54.37305	240.09360	220.12726	3.47619	0.0966203	0.27497115	2.3421316	20	1 23.3	17.8
35767 1999 JM	14.1	X	79.64953	98.79706	196.92231	13.06235	0.0921883	0.25103928	2.4887136	20	12 2.7	17.8
35768 1999 JR <sub>1</sub>	14.4	X	10.93464	202.53278	88.07152	3.43901	0.0566422	0.19837251	2.9117118	20	8 12.5	18.0
35769 1999 JX <sub>1</sub>	15.5	X	188.45101	168.62930	144.07868	7.27686	0.1354657	0.26978856	2.3720310	20	1 10.4	19.2
35770 1999 JH <sub>2</sub>	15.6	X	20.35329	214.49521	145.40922	5.42535	0.1000329	0.30234692	2.1985298	20	12 26.7	18.2
35771 1999 JE <sub>6</sub>	14.3	X	42.26227	129.18595	89.41829	7.59399	0.1362084	0.28523302	2.2856138	20	7 7.3	16.5
35772 1999 JM <sub>7</sub>	14.8	X	210.68666	183.48264	123.15094	7.99381	0.1233679	0.27045984	2.3681045	20	1 24.5	18.2
35773 1999 JT <sub>7</sub>	15.8	X	24.84211	337.29273	243.80777	1.86597	0.2151360	0.28268704	2.2993167	20	6 17.7	17.3
35774 1999 JL <sub>9</sub>	14.2	X	50.96019	84.90250	86.25448	15.63286	0.1149017	0.23500135	2.6006934	20	5 12.5	17.4
35775 1999 JW <sub>9</sub>	14.9	X	304.45419	170.00378	193.18417	12.93433	0.1209911	0.24332245	2.5410581	20	8 2.7	18.0
35776 1999 JE <sub>11</sub>	15.4	X	281.29381	192.40470	84.15800	3.41371	0.1989694	0.27440451	2.3453548	20	2 20.9	18.9
35777 1999 JM <sub>13</sub>	14.0	X	197.74994	182.67688	120.82015	10.37177	0.2617359	0.21784646	2.7354936	20	1 17.3	18.9
35778 1999 JL <sub>16</sub>	15.4	X	13.52126	307.17350	232.56025	5.93884	0.0703978	0.27652447	2.3333524	20	3 6.2	18.0
35779 1999 JB <sub>18</sub>	15.5	X	256.23030	337.44305	262.27451	6.18994	0.0652179	0.26991485	2.3712910	20	—	—
35780 1999 JR <sub>18</sub>	14.9	X	348.35243	324.86896	337.41636	4.77425	0.2182868	0.24049696	2.5609219	20	7 30.8	16.7
35781 1999 JA <sub>19</sub>	15.2	X	358.01475	25.05688	242.79064	6.95993	0.1195798	0.28561996	2.2835491	20	6 25.9	17.1
35782 1999 JW <sub>19</sub>	15.4	X	89.21985	233.63763	282.83022	4.97729	0.0947109	0.28520615	2.2857573	20	6 9.8	18.2
35783 1999 JU <sub>20</sub>	14.4	X	30.61243	241.12981	53.82139	3.41849	0.2007014	0.29181963	2.2510910	20	10 25.4	16.9
35784 1999 JS <sub>21</sub>	15.2	X	154.98521	16.69889	305.87185	3.43882	0.2044798	0.26424830	2.4050711	20	—	—
35785 1999 JY <sub>21</sub>	15.3	X	120.28414	334.62970	270.70425	2.53327	0.0699679	0.29924860	2.2136789	20	11 19.8	18.1
35786 1999 JR <sub>22</sub>	14.7	X	36.03639	4.46480	242.65920	4.26648	0.1070787	0.28804072	2.2707368	20	8 3.5	17.1
35787 1999 JY <sub>22</sub>	14.8	X	291.47492	263.58210	39.47211	3.11872	0.0524476	0.23529859	2.5985027	20	5 1.9	17.9
35788 1999 JL <sub>24</sub>	14.3	X	190.48362	305.91538	36.61162	12.41026	0.1664115	0.27213111	2.3583989	20	2 25.8	18.2
35789 1999 JF <sub>25</sub>	15.9	X	356.65248	258.49353	349.42101	3.79171	0.1280546	0.28276770	2.2988794	20	5 19.1	17.9
35790 1999 JG <sub>25</sub>	14.9	X	335.20908	331.47906	286.58034	4.03124	0.1276241	0.28106537	2.3081525	20	4 20.5	17.3
35791 1999 JK <sub>25</sub>	15.5	X	273.54253	12.59413	276.48980	3.90656	0.2074242	0.27553783	2.3389192	20	2 24.6	19.0
35792 1999 JL <sub>29</sub>	15.4	X	54.52572	63.79656	71.74853	7.72363	0.0422781	0.27680248	2.3317898	20	3 15.5	18.2
35793 1999 JN <sub>30</sub>	14.6	X	38.83594	53.12519	286.85493	5.39441	0.1312431	0.25219142	2.4811280	20	12 15.6	17.9
35794 1999 JB <sub>31</sub>	15.5	X	178.38785	81.85251	32.98712	4.89145	0.1151839	0.29105898	2.2550113	20	8 1.6	18.7
35795 1999 JF <sub>31</sub>	15.8	X	48.61333	165.57198	39.19654	5.64187	0.0857269	0.28484358	2.2876966	20	6 17.6	18.3
35796 1999 JL <sub>31</sub>	15.7	X	133.34942	127.01102	41.06958	6.73539	0.0348990	0.29098116	2.2554133	20	8 22.7	18.6
35797 1999 JY <sub>31</sub>	15.5	X	45.21750	245.84604	146.15832	2.40581	0.1561932	0.26098601	2.4250716	20	—	—
35798 1999 JY <sub>32</sub>	14.4	X	197.97212	170.93555	152.05317	2.91188	0.2279180	0.26903355	2.3764668	20	2 3.6	19.3
35799 1999 JK <sub>32</sub>	15.6	X	342.76056	43.68910	168.83871	3.31149	0.0707168	0.27714333	2.3298775	20	3 6.1	18.0
35800 1999 JT <sub>32</sub>	15.1	X	156.60397	51.15003	57.81326	8.21547	0.0807720	0.28692058	2.2766429	20	6 26.9	18.3
35801 1999 JB <sub>38</sub>	14.9	X	351.78597	239.26924	2.52239	5.20255	0.0787426	0.28132474	2.3067336	20	5 4.7	17.5
35802 1999 JF <sub>39</sub>	15.7	X	151.69614	208.90813	274.37061	3.69409	0.0827483	0.28766789	2.2726983	20	7 11.2	18.6
35803 1999 JT <sub>40</sub>	15.6	X	327.24909	75.45051	180.18013	4.14201	0.1295869	0.27940602	2.3172819	20	4 4.8	17.8
35804 1999 JK <sub>41</sub>	15.0	X	65.11017	215.28243	122.54265	4.50147	0.0788943	0.25549154	2.4597164	20	—	—
35805 1999 JP <sub>41</sub>	14.9	X	19.47943	66.01783	175.96939	4.30771	0.1237736	0.28460969	2.2889498	20	6 28.5	17.0
35806 1999 JB <sub>42</sub>	15.8	X	214.75646	75.00626	156.70839	1.54007	0.1373334	0.26215115	2.4178807	20	—	—
35807 1999 JS <sub>42</sub>	15.5	X	117.77824	267.78083	233.38949	5.60873	0.0557234	0.28532613	2.2851165	20	6 21.1	18.3
35808 1999 JA <sub>43</sub>	14.8	X	102.24023	280.82855	55.65320	10.21566	0.1731076	0.21182318	2.7871076	20	—	—
35809 1999 JY <sub>43</sub>	14.6	X	133.61402	95.73313	315.29793	5.29597	0.0578464	0.27457951	2.3443582	20	3 6.3	17.6
35810 1999 JB <sub>44</sub>	14.4	X	347.69246	317.89249	21.29749	7.87565	0.2651887	0.24236403	2.5477527	20	10 5.3	16.0
35811 1999 JS <sub>45</sub>	14.7	X	48.88870	2.52454	140.53650	2.72039	0.0785655	0.27702127	2.3305619	20	3 16.8	17.0
35812 1999 JD <sub>46</sub>	15.2	X	42.63130	190.11657	116.92889	4.39856	0.1303733	0.24775093	2.5106867	20	11 8.1	18.4
35813 1999 JM <sub>47</sub>	13.9	X	75.29259	197.78396	236.53103	12.62582	0.1852449	0.22445556	2.6815288	20	2 8.4	17.3
35814 1999 JK <sub>48</sub>	15.1	X	29.80539	303.60360	310.16603	3.95238	0.0972358	0.23980627	2.5658368	20	7 29.3	18.1
35815 1999 JO <sub>48</sub>	14.8	X	287.84559	304.09255	17.23576	4.16931	0.1749822	0.23365475	2.6106760	20	5 1.8	18.1
35816 1999 JU <sub>49</sub>	15.4	X	197.31306	343.26976	91.63243	4.15794	0.0166308	0.28604412	2.2812911	20	7 2.4	18.0
35817 1999 JV <sub>49</sub>	15.0	X	244.76228	89.68281	118.16070	3.04659	0.1476949	0.26346740	2.4098210	20	—	—
35818 1999 JC <sub>50</sub>	14.6	X	124.09952	16.52393	78.92826	10.44599	0.1381261	0.23388749	2.6089438	20	5 9.7	18.5
35819 1999 JG <sub>50</sub>	15.5	X	146.16490	66.45127	130.95537	4.29291	0.0669332	0.29604694	2.2296105	20	10 19.2	18.4
35820 1999 JM <sub>50</sub>	15.3	X	143.47358	296.34905	173.42279	6.21178	0.0549100	0.28406702	2.2918640	20	6 10.7	18.3
35821 1999 JW <sub>50</sub>	14.3	X	349.04520	199.40140	190.89417	5.94358	0.1253668	0.25206366	2.4819664	20	12 10.3	17.0
35822 1999 JD <sub>52</sub>	15.5	X	260.75139	288.79754	292.38390	1.94399	0.1552303	0.26666629	2.3905104	20	—	—
35823 1999 JO <sub>52</sub>	15.3	X	205.31347	236.85253	56.57014	3.47643	0.1804877	0.26631306	2.3926238	20	1 5.0	19.1
35824 1999 JF <sub>53</sub>	14.8	X	331.07645	109.09277	95.82495	7.34718	0.0508099	0.27366178	2.3495965	20	2 12.2	17.6
35825 1999 JY <sub>53</sub>	15.3	X	283.27134	148.19071	135.75781	6.02215	0.1113875	0.22929662	2.6436520	20	3 20.3	19.0
35826 1999 JT <sub>53</sub>	15.0	X	2.79274	131.97591	185.50916	4.30176	0.1518225	0.24300892	2.5432433	20	9 20.6	17.4
35827 1999 JY <sub>53</sub>	14.8	X	306.09412	94.68874	200.37073	3.61959	0.2023702	0.23252412	2.6191319	20	4 18.5	18.0
35828 1999 JZ <sub>53</sub>	15.6	X	7.58250	131.52872	95.71019	3.11347	0.1478402	0.28126404	2.3070654	20	5 11.1	17.2
35829 1999 JH <sub>54</sub>	15.5	X	352.86160	239.70683	54.38694	11.35210	0.1729825	0.23865951	2.5740495	20	7 29.7	18.1
35830 1999 JL <sub>54</sub>	15.5	X	150.36398	125.09424	45.31051	3.14630	0.1057224	0.29335399	2.2432347	20	9 15.8	18.7
35831 1999 JN <sub>55</sub>	14.4	X	20.24551	253.24127	118.50449	7.05181	0.1623819	0.25242342	2.4796075	20	—	—
35832 1999 JR <sub>56</sub>	15.8	X	311.63732	289.18540	290.24332	3.45575	0.1758825	0.27320903	2.3521915	20	1 14.4	18.6
35833 1999 JN <sub>57</sub>	14.8	X	359.49833	264.07359	68.97366	13.33258	0.1809156	0.24384416	2.5374324	20	10 18.8	17.5
35834 1999 JT <sub>57</sub>	13.7	X	196.31552	260.59830	51.49864	8.71294	0.0567366	0.26844061	2.3799650			



ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
35841 1999 <i>JR</i> <sub>59</sub>	15.3	X	204.66817	119.02492	181.64154	5.77227	0.1217808	0.26717865	2.3874533	20	1 10.7	19.0
35842 1999 <i>JX</i> <sub>59</sub>	14.9	X	342.76236	96.19270	171.79591	3.99572	0.1016068	0.23484669	2.6018350	20	5 27.6	17.8
35843 1999 <i>JZ</i> <sub>59</sub>	15.0	X	222.68612	112.07183	142.33067	1.71636	0.1544499	0.26458841	2.4030096	20	—	—
35844 1999 <i>JD</i> <sub>60</sub>	14.6	X	105.14938	249.07749	75.96574	3.18053	0.1457614	0.25674917	2.4516776	20	—	—
35845 1999 <i>JM</i> <sub>60</sub>	14.1	X	317.77928	84.24197	246.64397	11.71823	0.1339842	0.23812674	2.5778874	20	7 8.6	17.1
35846 1999 <i>JO</i> <sub>60</sub>	14.7	X	24.15973	351.86609	242.52434	5.41700	0.1468089	0.28354972	2.2946506	20	6 28.4	16.7
35847 1999 <i>JJ</i> <sub>61</sub>	14.1	X	128.71318	260.97441	75.06524	12.67357	0.2513120	0.25936165	2.4351864	20	—	—
35848 1999 <i>JY</i> <sub>61</sub>	15.0	X	48.91689	224.71488	50.97913	13.10570	0.2399110	0.24320618	2.5418679	20	10 22.8	18.5
35849 1999 <i>JK</i> <sub>62</sub>	15.6	X	131.02499	152.92395	95.89250	4.68920	0.1694518	0.29885802	2.2156072	20	12 6.6	19.1
35850 1999 <i>JS</i> <sub>62</sub>	14.8	X	31.33162	141.96572	136.04904	5.17269	0.2174619	0.24132314	2.5550735	20	9 26.6	17.7
35851 1999 <i>JW</i> <sub>62</sub>	15.2	X	345.43498	187.69280	115.68030	5.38915	0.1901010	0.23785952	2.5798178	20	7 23.3	17.2
35852 1999 <i>JD</i> <sub>63</sub>	14.9	X	41.22779	279.18087	232.86723	6.15954	0.0560657	0.27531254	2.3401951	20	3 11.7	17.7
35853 1999 <i>JY</i> <sub>63</sub>	14.8	X	296.35210	180.95475	131.10902	5.75833	0.2020445	0.23220106	2.6215607	20	4 30.1	18.2
35854 1999 <i>JZ</i> <sub>63</sub>	14.2	X	285.38838	193.15488	170.30547	6.11095	0.1629005	0.23726386	2.5841337	20	6 28.5	17.5
35855 1999 <i>JC</i> <sub>64</sub>	14.8	X	300.96185	116.09788	203.92132	2.46078	0.2020391	0.23355040	2.6114535	20	5 15.8	17.9
35856 1999 <i>JG</i> <sub>64</sub>	14.9	X	36.44375	177.73026	66.93906	5.77147	0.1683420	0.28578146	2.2826887	20	8 15.7	17.2
35857 1999 <i>JN</i> <sub>64</sub>	14.7	X	294.22972	269.75570	316.04114	4.32908	0.1095972	0.27091766	2.3654359	20	1 11.7	17.9
35858 1999 <i>JZ</i> <sub>65</sub>	15.8	X	197.39934	141.87685	144.95713	1.70411	0.2237282	0.26602682	2.3943397	20	—	—
35859 1999 <i>JN</i> <sub>66</sub>	14.8	X	245.32103	207.89692	119.68807	1.51299	0.2373550	0.27677457	2.3319465	20	3 17.7	18.6
35860 1999 <i>JO</i> <sub>66</sub>	15.8	X	119.53227	39.67896	178.45413	3.07076	0.0761106	0.29643450	2.2276668	20	10 14.5	18.7
35861 1999 <i>JT</i> <sub>66</sub>	15.9	X	269.28352	74.72385	134.37376	2.89281	0.1483475	0.26808344	2.3820784	20	—	—
35862 1999 <i>JO</i> <sub>67</sub>	15.1	X	179.50706	193.33058	78.57439	2.71021	0.2339228	0.21476130	2.7616292	20	—	—
35863 1999 <i>JX</i> <sub>67</sub>	14.6	X	31.07611	184.46086	112.22216	3.98192	0.2746723	0.24486126	2.5304009	20	10 31.8	17.7
35864 1999 <i>JG</i> <sub>68</sub>	14.6	X	274.29171	226.23588	121.72525	5.89850	0.2241700	0.23730099	2.5838642	20	5 15.8	18.3
35865 1999 <i>JL</i> <sub>68</sub>	15.0	X	221.77110	165.06192	123.03742	3.47243	0.1569434	0.26965681	2.3728036	20	1 12.0	18.5
35866 1999 <i>JM</i> <sub>68</sub>	15.2	X	70.22951	159.18099	62.89304	7.42483	0.0655477	0.29004590	2.2602591	20	8 17.9	18.0
35867 1999 <i>JO</i> <sub>68</sub>	14.9	X	28.00194	184.89325	61.42031	6.05204	0.1298398	0.28695265	2.2764733	20	7 25.9	17.1
35868 1999 <i>JP</i> <sub>68</sub>	15.6	X	313.86578	27.43687	168.45265	2.26636	0.1514892	0.27231644	2.3573287	20	—	—
35869 1999 <i>JR</i> <sub>68</sub>	15.5	X	155.10310	221.51777	79.46924	4.13956	0.1923436	0.26190518	2.4193943	20	—	—
35870 1999 <i>JQ</i> <sub>69</sub>	15.6	X	309.88716	302.31928	85.53924	4.09461	0.0271180	0.29563185	2.2316971	20	10 6.9	18.1
35871 1999 <i>JW</i> <sub>70</sub>	15.1	X	297.54408	170.74327	168.63642	6.40493	0.1395437	0.28597192	2.2816750	20	6 18.9	17.6
35872 1999 <i>JB</i> <sub>72</sub>	16.0	X	84.61958	350.91862	181.71107	6.21673	0.1044385	0.28612822	2.2808440	20	6 28.4	18.9
35873 1999 <i>JO</i> <sub>72</sub>	16.1	X	78.36914	97.61739	148.30779	3.91651	0.1731520	0.29292570	2.2454208	20	10 14.2	19.2
35874 1999 <i>JU</i> <sub>72</sub>	15.2	X	85.28370	164.61285	90.60371	5.41243	0.0957314	0.29514714	2.2341397	20	10 27.5	18.2
35875 1999 <i>JP</i> <sub>73</sub>	14.4	X	223.69882	238.50995	98.99203	6.98189	0.1475585	0.27526772	2.3404490	20	3 18.5	18.0
35876 1999 <i>JX</i> <sub>74</sub>	14.2	X	114.23740	4.53262	144.14274	14.17845	0.0782358	0.23759992	2.5816965	20	6 28.9	18.1
35877 1999 <i>JR</i> <sub>75</sub>	15.1	X	346.37055	6.00887	246.03565	7.45773	0.1953096	0.28234686	2.3011631	20	4 26.2	16.8
35878 1999 <i>JX</i> <sub>75</sub>	15.0	X	165.13388	267.53681	11.56857	3.50367	0.1109676	0.30908933	2.1664402	20	—	—
35879 1999 <i>JA</i> <sub>76</sub>	15.5	X	34.11083	9.39333	238.58953	7.98294	0.1950958	0.28776632	2.2721800	20	8 14.7	17.9
35880 1999 <i>JC</i> <sub>76</sub>	14.1	X	357.42815	55.72659	221.98202	5.64114	0.1287110	0.28615059	2.2807251	20	7 10.9	16.0
35881 1999 <i>JM</i> <sub>77</sub>	14.3	X	324.17151	151.43245	186.74115	9.07292	0.2043537	0.23997074	2.5646642	20	7 25.1	16.8
35882 1999 <i>JT</i> <sub>77</sub>	15.6	X	267.61672	109.94766	154.76763	5.68427	0.1779472	0.27164120	2.3612336	20	1 23.6	19.1
35883 1999 <i>JH</i> <sub>78</sub>	14.3	X	328.16751	67.25080	235.24351	5.54294	0.1592740	0.28509969	2.2863263	20	6 16.1	16.1
35884 1999 <i>JW</i> <sub>78</sub>	15.2	X	56.73386	54.34758	223.99431	4.14123	0.1637345	0.29318758	2.2440834	20	10 30.2	17.9
35885 1999 <i>JO</i> <sub>79</sub>	15.6	X	167.55580	231.63883	48.95272	1.92486	0.1761732	0.26047678	2.4282312	20	—	—
35886 1999 <i>JG</i> <sub>80</sub>	14.2	X	258.30634	224.90857	116.24471	7.89786	0.1365014	0.27982438	2.3149717	20	4 29.9	17.5
35887 1999 <i>JH</i> <sub>80</sub>	14.8	X	329.24447	180.10403	117.39589	8.69410	0.1872290	0.23623905	2.5916017	20	6 6.9	17.4
35888 1999 <i>JS</i> <sub>80</sub>	13.9	X	300.18842	150.52948	191.36170	12.57840	0.1554982	0.23726873	2.5840984	20	6 22.1	17.2
35889 1999 <i>JA</i> <sub>81</sub>	14.5	X	353.12201	136.29392	107.30325	14.32073	0.1341500	0.23313262	2.6145725	20	5 13.9	17.5
35890 1999 <i>JR</i> <sub>81</sub>	15.5	X	339.10858	105.86463	143.35816	7.67216	0.1362398	0.28156925	2.3053980	20	4 18.9	17.7
35891 1999 <i>JS</i> <sub>81</sub>	14.3	X	69.41482	227.09681	138.42222	11.34025	0.2013815	0.26144304	2.4222446	20	—	—
35892 1999 <i>JY</i> <sub>82</sub>	13.7	X	220.33200	160.73135	151.45989	13.27265	0.1694587	0.22488585	2.6781072	20	2 12.9	18.0
35893 1999 <i>JC</i> <sub>83</sub>	15.0	X	343.87233	54.49669	176.30433	7.02089	0.0880595	0.27892393	2.3199513	20	4 2.8	17.2
35894 1999 <i>JP</i> <sub>83</sub>	13.9	X	334.99353	153.06296	174.91735	13.60604	0.1802011	0.24109046	2.5567173	20	8 5.2	16.4
35895 1999 <i>JX</i> <sub>83</sub>	15.1	X	13.85963	112.18637	146.46091	6.87067	0.2308135	0.28479070	2.2879798	20	7 29.7	16.7
35896 1999 <i>JW</i> <sub>84</sub>	15.1	X	228.35629	177.27690	158.61697	5.10223	0.1087197	0.22913154	2.6449216	20	3 23.9	19.0
35897 1999 <i>JU</i> <sub>85</sub>	15.0	X	117.29096	239.20574	156.50162	7.06602	0.1345187	0.26896059	2.3768966	20	2 6.6	18.0
35898 1999 <i>JC</i> <sub>86</sub>	15.8	X	243.90590	28.59677	89.89131	6.49571	0.0532894	0.30074661	2.2063220	20	11 9.2	18.2
35899 1999 <i>JC</i> <sub>87</sub>	13.6	X	221.89962	191.38398	144.83929	10.87334	0.0145661	0.18499465	3.0504455	20	3 28.6	18.0
35900 1999 <i>JH</i> <sub>88</sub>	15.6	X	30.74774	89.23973	107.03213	10.11415	0.1002363	0.28234211	2.3011890	20	5 9.8	18.0
35901 1999 <i>JK</i> <sub>88</sub>	14.4	X	69.96859	206.56955	128.49868	9.32836	0.1862395	0.25577034	2.4579286	20	—	—
35902 1999 <i>JM</i> <sub>88</sub>	15.6	X	289.32592	146.34454	112.09178	8.02332	0.0917500	0.27594173	2.3366363	20	2 21.1	18.6
35903 1999 <i>JY</i> <sub>88</sub>	13.8	X	229.21959	189.05988	175.04172	14.35047	0.1983207	0.23413924	2.6070733	20	4 24.7	18.1
35904 1999 <i>JJ</i> <sub>89</sub>	15.2	X	113.46174	328.18095	122.32101	4.87317	0.1271835	0.27975056	2.3153789	20	4 17.1	18.2
35905 1999 <i>JA</i> <sub>92</sub>	15.3	X	318.72331	349.46051	183.54103	6.77022	0.0791107	0.26900001	2.3766644	20	—	—
35906 1999 <i>JL</i> <sub>92</sub>	15.1	X	4.03053	202.10086	119.70074	14.32342	0.1789178	0.24469813	2.5315254	20	10 11.7	18.0
35907 1999 <i>JO</i> <sub>92</sub>	15.7	X	239.52785	129.20433	155.79523	6.57176	0.1516287	0.27076051	2.3663510	20	1 23.8	19.3
35908 1999 <i>JP</i> <sub>92</sub>	14.8	X	120.13589	162.34284	141.29978	7.71727	0.1537523	0.25736704	2.4477521	20	—	—
35909 1999 <i>JY</i> <sub>93</sub>	14.5	X	187.08025	280.39072	129.34737	7.35356	0.0946920	0.28150749	2.3057351	20	5 14.3	17.8
35910 1999 <i>JZ</i> <sub>93</sub>	15.7	X	9.91388	71.70956	133.18095	6.52325	0.0869215	0.27929870	2.3178755	20	4 12.6	18.0
35911 1999 <i>JB</i> <sub>95</sub>	14.4	X	5.97524	149.23491	183.07535	11.54140	0.1614610	0.24552482	2.5258397	20	10 22.7	17.0
35912 1999 <i>JY</i> <sub>95</sub>	14.9	X	337.10974	177.11142	127.75441	11.68269						

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
35921 1999 JU <sub>101</sub>	16.0	X	195.91871	79.24774	88.15364	7.12086	0.0363410	0.30022826	2.2088607	20	11 13.1	18.7
35922 1999 JO <sub>102</sub>	15.3	X	17.52485	183.40064	119.80290	3.64855	0.1010443	0.24528327	2.5274977	20	9 21.8	18.1
35923 1999 JX <sub>103</sub>	15.1	X	321.21045	153.86742	136.96292	14.87034	0.1592898	0.23372820	2.6101290	20	5 19.9	18.4
35924 1999 JA <sub>104</sub>	14.4	X	357.60631	349.25935	115.70836	13.58673	0.1346214	0.26835847	2.3804506	20	—	—
35925 1999 JP <sub>104</sub>	13.9	X	210.38617	40.32974	164.52387	11.46066	0.1096795	0.25910738	2.4367793	20	12 29.3	17.3
35926 1999 JL <sub>105</sub>	14.0	X	205.04197	359.05027	235.20870	12.17277	0.0569278	0.21590872	2.7518363	20	—	—
35927 1999 JN <sub>106</sub>	15.7	X	158.25678	322.52650	175.96450	2.65448	0.1021405	0.29192744	2.2505367	20	8 9.5	18.7
35928 1999 JV <sub>107</sub>	14.5	X	246.36586	327.69362	61.98657	10.72599	0.1077853	0.24064538	2.5598673	20	6 20.6	18.1
35929 1999 JK <sub>108</sub>	14.1	X	353.46482	244.96257	243.28774	10.69807	0.1165790	0.22214228	2.7001119	20	—	—
35930 1999 JD <sub>110</sub>	16.0	X	206.65694	240.75051	257.48974	3.29970	0.1363606	0.29790149	2.2203474	20	9 30.2	18.9
35931 1999 JW <sub>112</sub>	15.7	X	36.25974	182.10037	27.64262	3.18209	0.0933111	0.28317599	2.2966691	20	6 4.6	17.9
35932 1999 JP <sub>113</sub>	16.0	X	11.17873	113.92912	63.63167	4.50550	0.1027419	0.27633576	2.3344146	20	3 3.5	18.2
35933 1999 JD <sub>117</sub>	14.5	X	16.68407	71.18023	251.69161	3.39898	0.2194477	0.24435969	2.5338623	20	11 3.1	17.3
35934 1999 JZ <sub>120</sub>	15.3	X	17.39376	164.60991	86.04690	7.65923	0.0662836	0.28428256	2.2907054	20	7 2.8	17.5
35935 1999 JO <sub>122</sub>	15.6	X	24.46879	341.54268	226.26987	3.34722	0.1334774	0.28055311	2.3109612	20	5 14.5	17.4
35936 1999 JX <sub>123</sub>	14.7	X	51.85957	183.56972	93.23436	4.05591	0.1483028	0.29091386	2.2557611	20	10 21.7	17.4
35937 1999 JD <sub>124</sub>	15.0	X	56.58733	143.39291	106.41360	6.24184	0.1694880	0.28880568	2.2667263	20	9 24.5	17.8
35938 1999 JQ <sub>125</sub>	15.2	X	12.06063	85.95982	116.46296	5.64439	0.1031741	0.27828621	2.3234942	20	4 12.7	17.4
35939 1999 JO <sub>127</sub>	14.0	X	280.73828	300.07633	83.43202	14.44329	0.1725295	0.23920920	2.5701046	20	7 19.9	17.3
35940 1999 JE <sub>128</sub>	16.2	X	33.46915	83.59938	187.31702	2.06415	0.0612980	0.28988000	2.2611214	20	8 29.8	18.5
35941 1999 JT <sub>129</sub>	14.5	X	208.75661	181.58336	152.51380	13.00624	0.1781754	0.22436545	2.6822468	20	2 29.9	19.0
35942 1999 JP <sub>132</sub>	16.0	X	70.87365	301.93125	211.92784	3.58946	0.0875685	0.28315141	2.2968020	20	5 8.5	18.5
35943 1999 KP <sub>2</sub>	14.9	X	98.78770	151.23287	213.08764	5.21539	0.0498119	0.21669556	2.7451708	20	—	—
35944 1999 KT <sub>2</sub>	15.9	X	21.06300	325.07313	102.16762	2.24647	0.1688514	0.26286353	2.4135103	20	—	—
35945 1999 KU <sub>2</sub>	15.7	X	248.24974	100.04009	203.89086	3.28749	0.1569375	0.22674045	2.6634837	20	2 28.1	19.9
35946 1999 KO <sub>4</sub>	15.1	X	162.89453	106.49469	165.46789	3.19891	0.1517136	0.25811728	2.4430067	20	—	—
35947 1999 KT <sub>5</sub>	14.1	X	248.67541	181.16241	212.92857	14.69231	0.1027503	0.23896189	2.5718775	20	6 28.7	18.0
35948 1999 KD <sub>6</sub>	15.4	X	98.49968	289.40091	77.56305	5.85809	0.1256873	0.21599488	2.7511044	20	—	—
35949 1999 KQ <sub>10</sub>	14.2	X	164.26174	55.55165	241.35379	1.73203	0.1831657	0.26115691	2.4240135	20	—	—
35950 1999 KL <sub>13</sub>	14.9	X	225.64534	73.55798	242.99628	3.89647	0.0974606	0.22469664	2.6796105	20	2 24.3	19.0
35951 1999 KE <sub>14</sub>	14.3	X	355.84950	175.46321	47.06162	9.71058	0.0946013	0.27812753	2.3243779	20	4 13.1	16.5
35952 1999 KN <sub>14</sub>	15.0	X	66.53832	118.99487	161.84105	3.87535	0.1649951	0.24625181	2.5208660	20	11 6.9	18.7
35953 1999 KJ <sub>15</sub>	13.6	X	294.24681	173.69979	144.93126	19.10945	0.2482045	0.18192923	3.0846156	20	5 4.8	18.2
35954 1999 KY <sub>15</sub>	14.7	X	34.17556	11.44541	225.66922	4.06961	0.1334250	0.28445750	2.2897661	20	7 19.9	17.1
35955 1999 KS <sub>17</sub>	14.4	X	232.41289	326.99965	95.28024	3.28880	0.0864153	0.19519230	2.9432530	20	7 18.5	18.8
35956 1999 LG <sub>2</sub>	14.9	X	139.45972	179.23155	124.33220	6.92139	0.1387548	0.26032374	2.4291828	20	—	—
35957 1999 LZ <sub>3</sub>	15.3	X	242.38166	141.76186	138.81729	6.87812	0.1464618	0.26883846	2.3776164	20	1 21.9	19.1
35958 1999 LF <sub>4</sub>	14.0	X	18.11634	29.25983	217.85957	6.12286	0.0969190	0.28285142	2.2984257	20	6 30.6	16.2
35959 1999 LE <sub>5</sub>	14.6	X	163.23609	228.40867	159.69466	15.14368	0.1806566	0.22641995	2.6659966	20	3 28.4	19.0
35960 1999 LB <sub>7</sub>	14.7	X	198.37540	326.38613	93.04273	15.20361	0.1631179	0.23623983	2.5915960	20	6 5.5	18.9
35961 1999 LH <sub>7</sub>	13.0	X	35.77801	86.96393	107.16750	27.51326	0.1111337	0.22986520	2.6392907	20	5 25.3	16.6
35962 1999 LX <sub>9</sub>	14.6	X	195.66458	178.71799	136.74315	8.81516	0.0693852	0.22085134	2.7106245	20	1 25.2	18.5
35963 1999 LL <sub>11</sub>	14.2	X	197.83519	205.12322	186.69730	14.47541	0.1106839	0.23195111	2.6234437	20	5 2.9	18.3
35964 1999 LC <sub>13</sub>	15.3	X	139.78049	61.24122	210.10057	6.03248	0.1180786	0.25456347	2.4656911	20	—	—
35965 1999 LH <sub>13</sub>	14.2	X	319.40657	144.99306	139.45673	6.80019	0.1351960	0.27923122	2.3182489	20	5 6.7	16.6
35966 1999 LJ <sub>13</sub>	15.1	X	292.71134	101.52170	130.32026	7.90707	0.0538739	0.26995263	2.3710698	20	1 24.9	18.0
35967 1999 LG <sub>14</sub>	14.3	X	39.31464	24.66645	208.48879	6.76832	0.1532640	0.28391684	2.2926721	20	7 25.4	16.7
35968 1999 LK <sub>14</sub>	14.6	X	57.95606	108.60573	171.28795	4.86338	0.2479978	0.24387745	2.5372014	20	11 6.3	18.4
35969 1999 LJ <sub>14</sub>	15.6	X	1.66270	107.32676	141.97522	6.94965	0.1012649	0.28129055	2.3069205	20	6 4.2	17.8
35970 1999 LE <sub>21</sub>	15.3	X	176.68356	164.42745	65.70634	4.28326	0.1417618	0.30247666	2.1979010	20	12 29.8	18.2
35971 1999 LJ <sub>26</sub>	14.4	X	179.08196	162.84945	96.13966	7.50147	0.1096363	0.25803842	2.4435045	20	—	—
35972 1999 LL <sub>26</sub>	14.6	X	15.58215	25.55126	233.28413	1.19413	0.0884246	0.28350738	2.2948791	20	7 14.4	16.7
35973 1999 LU <sub>26</sub>	13.8	X	49.48666	20.09777	270.04288	14.54859	0.2710109	0.24384264	2.5374429	20	11 9.4	17.6
35974 1999 LW <sub>26</sub>	14.4	X	28.86475	126.98768	110.32273	7.31354	0.0807281	0.28265087	2.2995128	20	7 3.7	16.6
35975 1999 LG <sub>27</sub>	13.8	X	335.07819	36.91649	256.61946	12.47951	0.1342515	0.23425444	2.6062185	20	6 16.9	16.5
35976 Yorktown	14.5	X	288.56758	307.15753	280.06114	22.19389	0.2603895	0.26775062	2.3840520	20	—	—
35977 Lexington	13.5	X	233.81911	303.79400	88.91006	12.67673	0.1779964	0.23095338	2.6309938	20	6 4.1	17.6
35978 Arlington	14.9	X	24.30678	116.45664	136.68256	6.03268	0.1327613	0.28210519	2.3024772	20	7 27.5	17.1
35979 1999 NC <sub>2</sub>	14.9	X	282.49787	137.83828	171.23848	15.01210	0.0664887	0.22789340	2.6544928	20	4 29.5	18.6
35980 1999 NO <sub>3</sub>	14.4	X	178.95570	12.51948	164.40715	9.53713	0.0406311	0.24443382	2.5333499	20	10 24.5	17.9
35981 1999 NU <sub>3</sub>	14.1	X	336.39684	170.91858	131.55557	14.54286	0.1622910	0.23338303	2.6127020	20	7 1.8	16.7
35982 1999 NJ <sub>4</sub>	15.7	X	331.08221	138.62046	100.50780	3.82194	0.1981082	0.27420757	2.3464777	20	3 8.6	18.0
35983 1999 NG <sub>5</sub>	13.9	X	206.08591	149.81965	126.23650	11.73154	0.2226019	0.21336180	2.7736923	20	—	—
35984 1999 NK <sub>7</sub>	14.5	X	334.67197	356.84505	303.46919	9.66436	0.1881937	0.18529508	3.0471474	20	6 20.1	17.8
35985 1999 NJ <sub>8</sub>	14.1	X	185.98714	157.22762	125.40275	9.92158	0.1209914	0.21037153	2.7999143	20	—	—
35986 1999 NL <sub>8</sub>	13.1	X	186.93761	278.12082	134.85407	20.51005	0.1583253	0.17686389	3.1432332	20	5 23.0	18.6
35987 1999 NV <sub>8</sub>	15.1	X	22.05743	355.42047	284.48319	1.46479	0.1665972	0.23625286	2.5915007	20	9 1.1	17.8
35988 1999 NO <sub>9</sub>	13.5	X	351.76278	101.86440	297.49337	7.68108	0.0436842	0.19841674	2.9112791	20	12 1.7	17.4
35989 1999 NF <sub>10</sub>	14.4	X	188.96061	229.56469	108.24883	1.02995	0.2590816	0.16923848	3.2369549	20	2 22.9	20.0
35990 1999 NG <sub>10</sub>	14.2	X	127.05294	256.33841	134.54592	11.48375	0.1149212	0.24119469	2.5559806	20	9 30.3	18.3
35991 1999 NN <sub>11</sub>	15.1	X	40.78989	115.69056	128.00115	4.90221	0.1635302	0.28166285	2.3048872	20	8 18.1	17.5
35992 1999 NF <sub>12</sub>	14.5	X	334.00220	211.16582	136.10925	3.14766	0.0896594	0.18927908	3.0042378	20	8 30.5	18.0
35993 1999 NS <sub>17</sub>	14.8	X	328.17365	209.74284	19.58745	2.55789	0.1848644	0.27346295	2.507352	20	2 19.9	17.4
35994 1999 NS <sub>18</sub>	14.6	X	358.37700	265.04599	340.55676	3.31595	0.1160236	0.27819717	2.3239899	20	5 19.6	16