ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
456001 2005 XF_{109}	18.0	X	286.58241	177.69660	81.07221	5.47058	0.0524843	0.29412995	2.2392876	20	2 21.7	20.7
456002 2005 YZ_{5}	18.1	X	331.01926	132.94119	97.35117	2.55253	0.0487382	0.29477541	2.2360176	20	3 15.8	20.4
456003 2005 YV_{6}	17.4	X	338.65790	80.45856	308.71669	1.64511	0.2069769	0.19246021	2.9710417	20	11 4.9	20.4
456004 2005 YM_{20}	16.2	X	46.09135	227.17851	103.17543	12.28405	0.1017122	0.18965821	3.0002328	20	11 26.4	20.5
456005 2005 YR_{21}	17.5	X	352.11119	152.98672	299.83060	3.87403	0.0595565	0.20123534	2.8840307	20	—	—
456006 2005 YC_{23}	17.6	X	52.28431	138.42798	104.90667	22.07661	0.0559537	0.37679207	1.8984604	20	9 7.8	19.9
456007 2005 YE_{45}	17.8	X	342.94298	294.27840	150.99408	2.22781	0.1597740	0.19920900	2.9035551	20	—	—
456008 2005 YG_{45}	16.8	X	351.51946	190.26287	281.91147	13.89409	0.1039294	0.20426026	2.8554866	20	—	—
456009 2005 YQ_{51}	17.0	X	267.07023	334.39474	115.98195	7.19650	0.1589652	0.18628430	3.0363503	20	9 27.2	21.2
456010 2005 YS_{58}	16.8	X	304.45070	309.20529	131.30391	11.87376	0.0995913	0.18959867	3.0008608	20	11 17.6	20.7
456011 2005 YX_{65}	17.2	X	353.36757	339.29636	100.12769	9.12669	0.2204382	0.20147964	2.8816989	20	—	—
456012 2005 YT_{68}	18.4	X	91.95825	250.63594	297.51241	4.76976	0.0442540	0.30563833	2.1827174	20	7 23.9	20.8
456013 2005 YX_{68}	17.1	X	11.17093	127.36842	293.18912	10.95608	0.0203611	0.19890154	2.9065466	20	—	—
456014 2005 YS_{69}	17.7	X	283.63150	30.11672	91.66257	5.50390	0.2108150	0.19272067	2.9683642	20	11 22.3	21.1
456015 2005 YT_{73}	16.3	X	316.06073	145.75708	292.53884	9.11635	0.0839166	0.19353260	2.9600562	20	11 29.4	20.0
456016 2005 YC_{77}	16.7	X	64.53730	39.46006	311.79879	4.75960	0.0746452	0.19729086	2.9223445	20	—	—
456017 2005 YO_{81}	16.6	X	77.31017	262.37084	107.04677	10.14491	0.1478862	0.20445046	2.8537154	20	—	—
456018 2005 YY_{81}	16.5	X	282.67888	184.85400	283.62001	9.21919	0.0629735	0.19044009	2.9920152	20	11 19.7	20.5
456019 2005 YM_{83}	17.8	X	85.96181	83.19201	126.49916	5.85148	0.0566668	0.30724111	2.1751197	20	8 19.9	20.2
456020 2005 YU_{83}	16.4	X	214.14739	251.90365	280.16581	9.17249	0.0456692	0.18825058	3.0151702	20	11 13.7	20.9
456021 2005 YY_{84}	18.5	X	212.63396	252.13390	117.56887	3.23142	0.1813298	0.29985762	2.2106805	20	4 13.8	21.8
456022 2005 YW_{86}	18.1	X	127.73805	147.04824	289.07699	6.87839	0.0890503	0.29283152	2.2459022	20	4 2.5	21.0
456023 2005 YB_{88}	17.7	X	24.14612	126.02059	112.08949	3.42354	0.1314103	0.29938175	2.2130225	20	7 3.9	19.4
456024 2005 YN_{93}	17.5	X	194.57904	310.12178	75.62835	7.08421	0.2684573	0.30132096	2.2035174	20	4 19.0	21.4
456025 2005 YQ_{94}	17.5	X	138.01316	341.44373	96.81802	27.40581	0.2545878	0.29683161	2.2256795	20	5 18.3	21.6
456026 2005 YN_{102}	18.0	X	195.89270	101.96406	270.68841	4.10912	0.1581422	0.29729974	2.2233425	20	3 29.5	21.5
456027 2005 YY_{104}	17.2	X	263.45321	39.49049	87.19653	2.42858	0.1110017	0.19075911	2.9886785	20	11 12.2	21.1
456028 2005 YZ_{104}	16.3	X	354.23868	130.04538	282.98526	8.17472	0.0065003	0.19452466	2.9499837	20	12 18.8	20.3
456029 2005 YA_{114}	18.0	X	208.40097	79.74408	355.44043	3.76688	0.0659714	0.30705783	2.1759852	20	7 15.8	20.7
456030 2005 YP_{114}	16.4	X	32.81098	65.60478	311.03140	8.38996	0.0476490	0.19368955	2.9584570	20	12 27.7	20.4
456031 2005 YV_{114}	16.1	X	0.95236	248.83802	105.28551	12.43334	0.0428209	0.18312116	3.0712161	20	10 21.9	20.4
456032 2005 YY_{115}	18.5	X	101.49935	73.14289	75.25527	3.51808	0.1204985	0.29789027	2.2204031	20	6 19.2	21.3
456033 2005 YZ_{115}	18.1	X	162.25357	98.60314	309.31716	7.25014	0.1854788	0.29549726	2.2323746	20	4 11.9	21.6
456034 2005 YE_{132}	17.7	X	16.52776	305.36652	118.90550	4.58691	0.2451130	0.20220954	2.8747602	20	—	—
456035 2005 YX_{140}	16.9	X	290.88013	21.43221	87.73427	6.03608	0.1251185	0.19290020	2.9665222	20	11 28.4	20.4
456036 2005 YW_{154}	16.8	X	1.51151	116.26443	334.46455	5.61404	0.0313654	0.20077780	2.8884105	20	—	—
456037 2005 YB_{158}	17.3	X	339.56847	244.09361	121.94939	5.42453	0.2136980	0.25567202	2.4585587	20	10 29.8	19.2
456038 2005 YH_{164}	16.4	X	20.54161	233.96420	275.80623	8.16478	0.1042532	0.21861583	2.7290719	20	2 13.0	19.6
456039 2005 YL_{166}	16.4	X	232.62138	262.49931	264.54363	9.46610	0.1529788	0.18981133	2.9986190	20	11 16.2	20.9
456040 2005 YU_{176}	16.8	X	105.00977	306.36684	107.47846	12.80867	0.0327354	0.21478326	2.7614410	20	2 9.9	20.6
456041 2005 YE_{180}	17.0	X	68.41427	350.28171	111.55964	24.83942	0.1916244	0.28519072	2.2858398	20	3 13.1	19.8
456042 2005 YF_{200}	16.3	X	125.69076	274.38616	110.02183	9.59051	0.1205933	0.21473625	2.7618439	20	2 10.1	20.3
456043 2005 YC_{205}	16.4	X	291.86549	205.56659	297.17566	15.72728	0.0574044	0.19687631	2.9264453	20	—	—
456044 2005 YP_{215}	16.5	X	280.64559	353.57159	77.39104	12.78953	0.1342560	0.18991103	2.9975695	20	9 29.5	20.6
456045 2005 YA_{216}	17.0	X	196.70675	196.41015	19.43660	1.88922	0.1557457	0.19223248	2.9733877	20	12 8.3	21.5
456046 2005 YT_{216}	16.8	X	211.55499	152.79790	26.83315	3.22457	0.1168416	0.18895635	3.0076575	20	11 13.3	21.3
456047 2005 YS_{239}	16.9	X	241.13796	256.90517	253.69865	3.68100	0.0598904	0.18962822	3.0005490	20	11 19.6	21.0
456048 2005 YX_{264}	18.8	X	211.44530	19.34885	351.43949	1.47376	0.1627585	0.29750282	2.2223305	20	4 12.7	22.0
456049 2005 YB_{266}	17.4	X	289.82455	20.78897	128.70200	7.58931	0.1602865	0.19715001	2.9237362	20	—	—
456050 2005 YR_{267}	16.9	X	56.01749	88.69322	296.21392	9.92482	0.1042756	0.20078967	2.8882967	20	—	—
456051 2006 AW	18.8	X	145.46098	113.18142	281.47323	10.45265	0.5979068	0.29920080	2.2139147	20	4 2.9	23.7
456052 2006 AS_{14}	16.2	X	270.48338	355.24384	124.94321	11.05792	0.0693073	0.18782667	3.0197052	20	11 21.3	20.4
456053 2006 AY_{22}	17.4	X	168.87522	47.57265	296.63357	22.03139	0.0764938	0.28254683	2.3000773	20	1 22.5	20.3
456054 2006 AA_{24}	16.1	X	321.89278	73.95709	125.95463	10.76820	0.0610551	0.20990111	2.8040961	20	1 30.7	19.9
456055 2006 AG_{30}	18.3	X	72.69928	45.30991	134.30561	5.45005	0.1036365	0.29801711	2.2197731	20	6 22.1	20.7
456056 2006 AW_{35}	16.5	X	287.39739	347.14912	118.53940	10.66020	0.0390072	0.18982166	2.9985102	20	11 28.7	20.6
456057 2006 AF_{37}	18.1	X	87.79438	106.03399	78.49621	2.58452	0.1495834	0.29973882	2.2112646	20	7 28.9	20.9
456058 2006 AB_{38}	16.9	X	359.59788	158.30211	304.94037	9.15885	0.0592215	0.20194651	2.8772558	20	—	—
456059 2006 AV_{38}	16.9	X	35.29252	334.32193	114.54146	3.25205	0.0281201	0.20675133	2.8325039	20	—	—
456060 2006 AZ_{46}	16.2	X	132.90203	41.91026	276.12498	13.93614	0.1426815	0.20336912	2.8638221	20	—	—
456061 2006 AY_{53}	16.4	X	190.19166	349.93879	292.79227	14.13425	0.1187571	0.20245057	2.8724780	20	—	—
456062 2006 AK_{58}	18.2	X	40.13761	297.42042	259.77205	2.66240	0.1393648	0.29264745	2.2468438	20	5 29.8	20.2
456063 2006 AA_{60}	17.4	X	241.19868	233.90139	289.37216	2.65723	0.0766296	0.19128713	2.9831760	20	12 3.1	21.6
456064 2006 AT_{61}	16.3	X	337.18767	243.85447	140.96475	8.56054	0.1007477	0.18547822	3.0451413	20	10 26.6	20.1
456065 2006 AX_{63}	17.3	X	4.28715	313.16901	113.35358	3.73274	0.1663389	0.20039591	2.8920790	20	—	—
456066 2006 AH_{65}	18.0	X	182.47528	54.12663	300.65524	4.28604	0.0535718	0.28672037	2.2777026	20	2 19.3	21.1
456067 2006 AF_{70}	18.6	X	159.12119	247.85292	177.27951	0.70777	0.2434286	0.29801133	2.2198018	20	5 8.2	22.3
456068 2006 AS_{74}	15.8	X	196.83743	211.28729	332.05943	20.77290	0.2753929	0.18140601	3.0905440	20	10 12.4	21.5
456069 2006 AR_{80}	16.9	X	243.83286	241.33163	268.03854	3.06872	0.0714313	0.18837888	3.0138010	20	11 19.3	21.0
456070 2006 AV_{92}	18.6	X	91.01894	118.70877	10.27844	1.70024	0.1313857	0.29294184	2.2453383	20	5 8.6	21.2
456071 2006 AF_{105}	16.7	X	349.51736	287.73910	123.39381	16.32395	0.1589850	0.19209538	2.9748022	20	12 23.6	20.3
456072 2006 BC_{11}	18.0	X	97.98145	356.48401	112.62822	5.49916	0.1823346	0.29062435	2.2572589	20	4 30.8	20.9
456073 2006 BZ_{17}	16.0	X	257.76791	351.14024	112.22408	11.03310	0.1786782	0.18333120	3.0688698	20	9 30.2	20.5
456074 2006 BK_{23}	16.7	X	43.42267	281.27016	124.86370	15.78620	0.1503408	0.20277571	2.8694067	20	—	—
456075 2006 BB_{35}	18.2	X	15.11863	118.16572	114.17191	6.98350	0.0962613	0.29568254	2.2314420	20	6 2.9	20.2
456076 2006 BM_{36}	16.9	X	292.94197	209.54904	20.81874	3.59890	0.1262281	0.20830522	2.8183999	20	1 24.2	20.8
456077 2006 BT_{38}	17.5	X	217.69636	258.67368	121.83904	7.72305	0.1879696	0.30418530	2.1896628	20	5 3.9	20.9
456078 2006 BE_{56}	16.3	X	332.36926	20.53757	148.45658	15.81546	0.0758934	0.20420585	2.8559938	20	1 4.7	20.3
456079 2006 BU_{59}	14.0	X	345.98372	107.09305	128.74803	17.91361	0.0354927	0.08417419	5.1564415	20	5 4.4	20.9
456080 2006 BZ_{66}	18.3	X	185.97944	56.81470	344.91196	3.52606	0.0994066	0.29565501	2.2315805	20	4 27.6	21.5

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
456081 2006 BA_{68}	17.2	X	299.46293	66.21819	13.74207	1.31430	0.1516663	0.18809844	3.0167958	20	10 30.3	20.6
456082 2006 BF_{71}	18.7	X	169.78549	13.65385	50.53211	4.00509	0.1145279	0.29602074	2.2297421	20	5 12.0	21.6
456083 2006 BT_{76}	16.1	X	80.28390	143.13563	124.29047	17.46700	0.0840279	0.17675070	3.1445750	20	10 21.4	21.0
456084 2006 BW_{84}	16.7	X	115.48447	230.95565	122.69563	7.09430	0.0930420	0.20275641	2.8695887	20	—	—
456085 2006 BF_{88}	16.8	X	238.48158	75.58479	43.79746	1.35441	0.1380009	0.18137738	3.0908692	20	9 27.9	21.4
456086 2006 BK_{88}	16.5	X	191.43700	97.23138	129.91919	10.23237	0.0618769	0.18979063	2.9988371	20	12 24.7	21.0
456087 2006 BF_{106}	18.8	X	86.60661	33.86795	113.73270	3.68883	0.0676054	0.29453872	2.2372153	20	5 20.4	21.4
456088 2006 BL_{113}	17.7	X	316.93602	345.95523	130.43311	15.50690	0.2335327	0.19618740	2.9332920	20	—	—
456089 2006 BM_{114}	17.4	X	42.27146	250.53052	343.28534	5.71400	0.1468571	0.29540058	2.2328617	20	8 4.8	19.6
456090 2006 BR_{123}	18.6	X	111.94645	312.52530	139.64485	2.10758	0.1866457	0.28918355	2.2647503	20	4 23.7	21.5
456091 2006 BE_{128}	17.2	X	200.18370	2.52799	323.60198	10.08978	0.1593768	0.27795848	2.3253202	20	2 7.9	20.8
456092 2006 BD_{137}	17.5	X	106.19013	100.65122	311.48429	7.86323	0.0967650	0.28028314	2.3124449	20	2 6.5	20.1
456093 2006 BM_{152}	17.0	X	343.57301	39.61995	68.69289	2.73061	0.1266088	0.19840082	2.9114349	20	—	—
456094 2006 BH_{164}	13.8	X	278.04168	344.09704	320.03091	22.57545	0.0644353	0.08452054	5.1423448	20	4 9.5	21.0
456095 2006 BO_{167}	16.1	X	121.87663	87.83954	143.87469	17.30843	0.1028012	0.17504946	3.1649160	20	10 22.6	21.2
456096 2006 BC_{177}	18.5	X	12.31519	177.38924	54.34925	2.69947	0.0712433	0.29445488	2.2376400	20	5 24.8	20.5
456097 2006 BZ_{177}	17.7	X	225.80228	203.51920	120.13743	8.28849	0.1545600	0.28686593	2.2769320	20	2 29.4	21.2
456098 2006 BS_{194}	18.4	X	104.12049	318.71972	230.05783	1.93297	0.1014255	0.30275077	2.1965742	20	8 17.1	21.3
456099 2006 BJ_{214}	16.2	X	215.59701	258.19679	296.60465	9.09887	0.2935615	0.18411879	3.0601119	20	11 15.9	21.5
456100 2006 BZ_{222}	18.4	X	77.71141	349.08524	161.34169	0.95807	0.1549093	0.29140376	2.2532322	20	5 25.5	20.8
456101 2006 BE_{225}	18.3	X	12.21962	296.51380	240.49968	1.77560	0.1619455	0.28270220	2.2992344	20	2 24.9	20.0
456102 2006 BO_{226}	16.5	X	296.21457	173.08717	330.77403	10.97246	0.1077859	0.19298014	2.9657029	20	—	—
456103 2006 BZ_{227}	18.2	X	40.56439	186.91426	151.99603	24.01318	0.0213269	0.38803362	1.8616148	20	—	—
456104 2006 BN_{230}	16.2	X	248.82156	4.63905	114.21930	10.69763	0.0296602	0.18284620	3.0742942	20	10 29.1	20.7
456105 2006 BO_{238}	16.4	X	253.92637	118.80078	118.73646	9.39353	0.0821792	0.20360881	2.8615741	20	—	—
456106 2006 BS_{250}	15.7	X	104.34280	101.76508	148.84523	19.71129	0.1574516	0.17343549	3.1845206	20	10 31.7	21.0
456107 2006 BZ_{253}	17.2	X	271.33178	231.86071	321.32735	9.77829	0.0886889	0.19693558	2.9258581	20	—	—
456108 2006 BY_{274}	18.5	X	85.67146	187.07701	326.22929	6.02738	0.0811394	0.29271239	2.2465115	20	5 27.3	21.2
456109 2006 BT_{277}	17.0	X	14.91480	306.25906	162.02864	2.28290	0.0214337	0.20287543	2.8684663	20	—	—
456110 2006 BF_{284}	14.1	X	320.11733	304.19750	341.04161	3.33499	0.0383341	0.08403460	5.1621499	20	5 21.8	20.8
456111 2006 CV_{2}	17.6	X	30.49961	78.42433	318.64849	1.08747	0.1269590	0.19687996	2.9264092	20	—	—
456112 2006 CW_{19}	18.6	X	115.38873	207.61323	294.83832	3.28736	0.0878719	0.29838968	2.2179250	20	6 24.5	21.3
456113 2006 CR_{32}	18.1	X	82.99465	195.48622	257.79176	4.11238	0.0970051	0.28340025	2.2954573	20	2 27.4	20.7
456114 2006 CP_{35}	16.8	X	310.34911	81.25002	107.06569	8.73865	0.2381478	0.20471357	2.8512697	20	—	—
456115 2006 CF_{50}	17.7	X	353.40286	244.56784	339.67732	7.48580	0.0612180	0.28856768	2.2679715	20	4 6.5	20.2
456116 2006 CS_{56}	18.3	X	44.29468	297.18742	288.40610	1.09054	0.1385244	0.29592936	2.2302010	20	7 23.1	20.3
456117 2006 CY_{56}	13.5	X	259.35718	6.32981	325.03747	24.69380	0.0871619	0.08448834	5.1436513	20	4 15.9	20.8
456118 2006 DK_{2}	16.9	X	219.68546	267.23159	336.97522	6.45989	0.2611698	0.19098006	2.9863728	20	—	—
456119 2006 DN_{24}	19.0	X	148.70674	94.76310	353.52907	2.92316	0.1348140	0.29380025	2.2409626	20	5 22.3	22.1
456120 2006 DC_{25}	14.4	X	25.55748	145.47817	71.56481	1.74538	0.0497785	0.08274149	5.2157945	20	5 25.8	21.0
456121 2006 DZ_{27}	18.2	X	85.93422	203.59829	354.05950	7.25820	0.1149111	0.29744810	2.2226031	20	8 11.2	21.0
456122 2006 DZ_{54}	16.6	X	208.90096	244.55134	358.06373	5.40625	0.1462839	0.18864983	3.0109146	20	—	—
456123 2006 DD_{63}	16.6	X	320.30765	155.48581	354.00459	12.08988	0.0677558	0.19569150	2.9382455	20	—	—
456124 2006 DH_{76}	16.8	X	155.04175	96.52401	151.78247	12.37886	0.0149265	0.18399682	3.0614642	20	12 12.1	21.4
456125 2006 DQ_{83}	16.7	X	226.15507	49.74812	173.79478	10.90654	0.2090647	0.18856113	3.0118588	20	—	—
456126 2006 DT_{86}	16.6	X	133.38713	307.15329	3.17272	8.85101	0.0575611	0.18902216	3.0069595	20	—	—
456127 2006 DY_{87}	17.5	X	226.98084	39.16960	169.17242	12.59772	0.1056590	0.18713241	3.0271692	20	—	—
456128 2006 DD_{99}	18.2	X	23.12909	198.21715	329.09527	2.50812	0.0912913	0.28259990	2.2997893	20	3 5.9	20.3
456129 2006 DO_{99}	16.7	X	259.37060	2.41182	166.26867	6.52528	0.1145670	0.18987092	2.9979916	20	12 27.2	20.7
456130 2006 DO_{100}	16.9	X	237.93687	335.28122	153.40828	11.42825	0.0811012	0.17982384	3.1086455	20	10 18.9	21.5
456131 2006 DY_{103}	16.2	X	310.25948	101.29545	354.35255	10.40143	0.0164496	0.18423347	3.0588419	20	12 12.6	20.6
456132 2006 DF_{106}	16.8	X	191.61154	231.21485	8.51053	3.54095	0.1697237	0.18476234	3.0530019	20	12 29.1	21.6
456133 2006 DZ_{108}	16.8	X	324.34495	107.18713	342.29012	7.25411	0.1221777	0.18717781	3.0266798	20	12 25.9	20.5
456134 2006 DT_{110}	16.8	X	222.67451	332.76275	185.35302	11.68886	0.1136260	0.17770707	3.1332827	20	10 31.2	21.5
456135 2006 DO_{132}	16.9	X	299.71823	95.56400	2.75209	11.13913	0.1758456	0.18712264	3.0272746	20	11 17.6	20.5
456136 2006 DD_{134}	18.1	X	69.44341	36.59179	93.24794	2.63178	0.0855249	0.28487749	2.2875150	20	4 1.2	20.4
456137 2006 DQ_{139}	17.6	X	132.01079	263.76162	120.95950	5.67079	0.0808404	0.27571438	2.3379207	20	2 3.2	20.4
456138 2006 DN_{142}	15.8	X	312.96900	73.35300	4.28446	9.71705	0.0713588	0.18316127	3.0707677	20	11 19.8	19.9
456139 2006 DZ_{144}	18.0	X	328.79865	285.55676	357.31535	6.05043	0.1218381	0.29082477	2.2562218	20	5 18.3	20.2
456140 2006 DA_{145}	16.2	X	295.18225	247.87179	160.46523	16.03258	0.0725257	0.17390183	3.1788250	20	9 21.0	20.4
456141 2006 DN_{148}	16.4	X	179.78226	97.87123	176.88430	8.53715	0.1092223	0.18914333	3.0056751	20	—	—
456142 2006 DY_{177}	16.6	X	11.09705	192.81712	156.47035	9.66571	0.0756544	0.17514345	3.1637837	20	10 28.1	20.9
456143 2006 DH_{188}	16.9	X	242.47739	115.31825	67.68334	1.76816	0.1036082	0.18582710	3.0413286	20	12 23.7	21.1
456144 2006 EQ_{2}	18.2	X	43.76925	277.11945	340.40220	6.40326	0.1977823	0.29881458	2.2158220	20	9 19.1	20.5
456145 2006 EN_{9}	16.6	X	286.27194	110.97557	3.21675	9.95679	0.0382193	0.18284378	3.0743213	20	12 1.6	20.9
456146 2006 EH_{26}	16.7	X	354.64514	247.99055	164.68005	9.42419	0.0520049	0.18757828	3.0223704	20	12 20.9	20.8
456147 2006 ES_{44}	18.5	X	353.24615	43.07373	191.33545	5.05920	0.1690727	0.28310865	2.2970333	20	4 18.0	20.2
456148 2006 EB_{53}	16.5	X	319.12636	77.21437	8.90522	8.36292	0.1254057	0.18461654	3.0546091	20	12 10.5	20.2
456149 2006 EA_{73}	18.1	X	21.70605	234.24979	21.10496	6.41033	0.1191501	0.29366017	2.2416752	20	7 28.4	20.3
456150 2006 FE_{2}	16.8	X	159.75392	193.46139	24.36963	5.43129	0.1518637	0.17435998	3.1732541	20	11 4.9	22.0
456151 2006 FV_{5}	16.9	X	242.51217	215.59571	7.80369	1.91981	0.1387756	0.19075937	2.9886757	20	—	—
456152 2006 FZ_{14}	18.2	X	44.78116	134.06244	33.07774	3.06775	0.1424706	0.28293642	2.2979654	20	4 21.1	19.9
456153 2006 FZ_{15}	17.8	X	182.90499	101.15403	5.49824	7.84193	0.0773726	0.29958660	2.2120136	20	7 29.5	20.9
456154 2006 FQ_{20}	16.7	X	242.83300	169.84604	46.17801	4.91474	0.1086778	0.18776496	3.0203667	20	—	—
456155 2006 FP_{30}	16.5	X	228.89462	335.57527	199.23801	15.16152	0.2109011	0.18040541	3.1019611	20	11 15.4	21.4
456156 2006 FU_{33}	16.7	X	53.03499	217.77866	339.89917	24.40151	0.1310559	0.28831868	2.2692771	20	6 27.0	19.8
456157 2006 FT_{53}	16.6	X	282.94430	327.89124	201.74030	14.55724	0.1914543	0.18986859	2.9980161	20	—	—
456158 2006 GJ_{1}	16.6	X	224.83745	53.52168	188.73597	3.93403	0.2010535	0.18576013	3.0420595	20	—	—
456159 2006 GO_{2}	16.3	X	263.61291	163.99333	100.62016	9.46352	0.3077063	0.19663268	2.9288621	20	1 19.5	21.4
456160 2006 GJ_{7}	16.4	X	333.87268	271.48253	163.90114	12.77414	0.1323010	0.18347277	3.0672909	20	12 22.6	20.3

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Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
456161 2006 GG_{17}	16.9	X	266.09642	12.35839	187.75184	10.01990	0.0352369	0.19055439	2.9908186	20	—	—
456162 2006 GS_{18}	16.8	X	212.19777	142.52658	75.97945	3.07600	0.0644197	0.18242458	3.0790292	20	—	—
456163 2006 GW_{21}	17.0	X	187.24058	162.86660	98.43686	3.16365	0.2546764	0.18150019	3.0894749	20	—	—
456164 2006 GJ_{37}	17.8	X	212.96997	15.89629	163.06262	24.08572	0.0998043	0.38451750	1.8729462	20	—	—
456165 2006 GA_{41}	17.4	X	39.93483	47.84973	138.46809	7.43721	0.1602441	0.28502221	2.2867406	20	5 17.9	19.5
456166 2006 GD_{51}	15.6	X	242.20479	84.05769	101.71754	11.46880	0.0839479	0.18576703	3.0419842	20	12 29.4	19.7
456167 2006 HF_{3}	18.0	X	339.92516	109.33491	137.34417	2.92496	0.1891701	0.28031968	2.3122440	20	4 6.7	19.9
456168 2006 HS_{4}	18.3	X	62.76754	330.91403	178.64641	6.68335	0.0348723	0.28189929	2.3035982	20	4 12.4	20.8
456169 2006 HV_{9}	16.0	X	3.25057	30.39628	62.75297	12.84776	0.1063801	0.19011360	2.9954398	20	—	—
456170 2006 HX_{9}	16.5	X	205.08677	183.97271	67.49599	11.00743	0.1207538	0.18585390	3.0410363	20	—	—
456171 2006 HQ_{11}	16.0	X	199.14799	140.69077	64.62812	13.33095	0.1438734	0.17715344	3.1398073	20	11 26.9	21.0
456172 2006 HY_{22}	16.3	X	126.28070	103.91210	193.88923	10.14091	0.0319425	0.17957269	3.1115433	20	—	—
456173 2006 HC_{26}	18.3	X	348.85491	67.35941	192.42206	3.38044	0.1518078	0.28264454	2.2995471	20	5 22.8	20.0
456174 2006 HG_{27}	15.7	X	186.95698	172.30343	74.25988	18.75739	0.1588053	0.17821438	3.1273337	20	12 31.4	20.8
456175 2006 HU_{33}	16.6	X	283.49702	110.83719	38.11803	11.77043	0.0940763	0.18378433	3.0638234	20	—	—
456176 2006 HE_{36}	15.8	X	348.47228	75.60240	3.76802	9.42698	0.0912949	0.18734915	3.0248341	20	—	—
456177 2006 HJ_{41}	15.7	X	120.91916	189.44085	94.83388	14.92571	0.0864914	0.17216874	3.2001219	20	12 15.5	20.7
456178 2006 HZ_{43}	18.1	X	0.70140	99.74608	117.15461	3.13103	0.1475708	0.27893218	2.3199056	20	4 9.2	20.0
456179 2006 HP_{48}	16.0	X	115.17775	232.87538	54.59083	10.17682	0.0588736	0.17505826	3.1648101	20	12 11.1	20.7
456180 2006 HR_{48}	16.3	X	194.20927	62.75039	141.51976	2.21170	0.1661198	0.17624329	3.1506077	20	11 20.1	21.3
456181 2006 HS_{58}	17.0	X	263.69814	109.09399	101.82469	8.16298	0.3015487	0.18928518	3.0041732	20	—	—
456182 2006 HP_{65}	16.6	X	244.72948	68.03634	119.99299	2.23463	0.2056852	0.18242518	3.0790225	20	12 17.5	20.8
456183 2006 HS_{65}	16.6	X	183.04392	96.53312	151.30833	1.58311	0.1357186	0.17861992	3.1225983	20	12 31.6	21.5
456184 2006 HY_{68}	17.0	X	261.24361	343.42419	206.50488	4.44236	0.2192684	0.18587559	3.0407996	20	—	—
456185 2006 HG_{70}	16.3	X	186.96134	178.92143	62.68049	4.25582	0.1411100	0.18207604	3.0829573	20	12 28.5	21.1
456186 2006 HU_{74}	16.6	X	288.01000	106.91961	72.38124	10.25736	0.0520520	0.18749291	3.0232877	20	—	—
456187 2006 HN_{77}	16.4	X	202.92015	146.14232	139.91785	10.66000	0.0610907	0.18822584	3.0154344	20	1 2.6	21.0
456188 2006 HD_{78}	16.1	X	153.06485	131.99151	155.71368	4.61832	0.2025688	0.18157412	3.0886361	20	—	—
456189 2006 HB_{85}	16.2	X	228.05581	338.82424	265.93462	8.97262	0.2902355	0.18597397	3.0397272	20	—	—
456190 2006 HM_{89}	16.9	X	261.70116	171.73635	89.81659	15.95136	0.1545656	0.26683384	2.3895096	20	1 17.7	20.6
456191 2006 HT_{89}	16.0	X	202.96983	89.36302	156.48632	22.36075	0.2494251	0.18160872	3.0882438	20	—	—
456192 2006 HB_{99}	18.5	X	9.26693	49.00890	178.54099	1.66098	0.1417155	0.28196811	2.3032233	20	5 14.9	20.2
456193 2006 HN_{102}	16.6	X	153.74318	71.91002	209.36659	8.22985	0.2050303	0.17583399	3.1554949	20	—	—
456194 2006 HB_{118}	16.0	X	227.35991	102.63321	92.45330	17.27708	0.1873252	0.17889412	3.1194068	20	12 9.8	20.7
456195 2006 HE_{119}	18.5	X	33.49470	123.11364	74.77420	6.26843	0.1078973	0.28286750	2.2983386	20	5 14.9	20.6
456196 2006 HU_{119}	16.1	X	238.39877	101.65320	53.33247	16.96226	0.0781649	0.17558830	3.1584378	20	11 16.3	20.7
456197 2006 HJ_{121}	15.6	X	25.03672	312.94287	118.47679	15.47581	0.0619570	0.18365838	3.0652240	20	—	—
456198 2006 HE_{151}	15.8	X	162.13390	122.28149	129.28755	15.24564	0.2266978	0.17611156	3.1521786	20	12 16.0	21.4
456199 2006 JX_{10}	18.1	X	295.04827	331.43561	299.02807	1.32120	0.2154261	0.27293925	2.3537413	20	2 24.5	21.2
456200 2006 JM_{12}	15.6	X	86.67434	250.27880	83.66324	12.98406	0.0753535	0.17430900	3.1738727	20	—	—
456201 2006 JY_{13}	15.5	X	257.01746	68.00317	66.76010	18.46199	0.0539015	0.17341643	3.1847540	20	11 19.2	19.9
456202 2006 JQ_{16}	17.8	X	98.01394	35.17887	151.12483	2.63278	0.1378930	0.29312693	2.2443930	20	8 10.1	20.6
456203 2006 JL_{19}	16.4	X	247.13599	99.61368	63.78558	11.23873	0.0595993	0.17662046	3.1461207	20	12 9.1	20.7
456204 2006 JV_{19}	17.2	X	229.80504	213.37674	109.88705	8.27568	0.1313703	0.27017260	2.3697827	20	3 7.2	20.8
456205 2006 JG_{31}	16.2	X	283.06595	84.57584	72.97163	13.39099	0.1181006	0.18350417	3.0669410	20	—	—
456206 2006 JH_{31}	17.4	X	17.75737	177.90132	92.38188	6.37803	0.1557850	0.28960414	2.2625570	20	8 19.4	19.4
456207 2006 JA_{32}	18.0	X	342.36610	28.49701	176.06460	3.99314	0.1655478	0.27361709	2.3498523	20	2 8.9	20.5
456208 2006 JQ_{36}	17.2	X	273.91343	160.77336	103.32459	14.76263	0.1140457	0.26833059	2.3806155	20	2 8.1	20.6
456209 2006 JP_{45}	16.2	X	118.25689	219.52090	130.06433	15.70927	0.2698378	0.17193395	3.2030346	20	1 13.7	21.1
456210 2006 JD_{60}	15.8	X	4.70106	355.15054	54.35035	12.25720	0.0646320	0.17633864	3.1494719	20	12 27.9	20.1
456211 2006 KA_{1}	17.9	X	280.21607	123.08791	237.29282	17.13178	0.1183952	0.35704287	1.9678371	20	6 26.5	19.9
456212 2006 KL_{12}	15.9	X	171.55484	173.58902	99.21366	13.17606	0.0888446	0.18179698	3.0861114	20	—	—
456213 2006 KS_{19}	17.2	X	267.50881	36.18945	254.40773	11.28269	0.2700828	0.26933965	2.3746659	20	2 12.5	21.3
456214 2006 KM_{29}	15.9	X	220.71005	106.82731	143.08386	10.44876	0.0934888	0.18640956	3.0349900	20	—	—
456215 2006 KS_{30}	16.3	X	207.20828	134.19406	50.56509	3.95398	0.0443422	0.17174040	3.2054406	20	11 19.5	20.8
456216 2006 KB_{34}	17.8	X	317.91853	214.33297	72.48331	5.98008	0.2245963	0.27887980	2.3201960	20	4 21.2	20.0
456217 2006 KX_{36}	16.5	X	315.24368	78.38440	69.76388	13.58408	0.0472110	0.18530097	3.0470828	20	—	—
456218 2006 KH_{37}	15.9	X	346.55716	348.28840	113.52492	17.73721	0.0751528	0.18591260	3.0403961	20	—	—
456219 2006 KW_{40}	16.1	X	167.78295	235.89750	43.90258	29.21079	0.2703250	0.17928015	3.1149272	20	—	—
456220 2006 KH_{44}	15.9	X	161.80982	192.62491	112.38439	15.70455	0.1332446	0.18513179	3.0489389	20	—	—
456221 2006 KW_{44}	16.1	X	12.02771	244.00065	136.04703	11.60244	0.0632135	0.17310954	3.1885169	20	12 3.6	20.6
456222 2006 KU_{46}	18.2	X	316.02440	209.93974	65.63537	3.48178	0.1997045	0.27800457	2.3250632	20	4 4.7	20.5
456223 2006 KD_{51}	15.5	X	202.11474	181.41453	74.64401	13.19257	0.1539648	0.18144972	3.0900477	20	—	—
456224 2006 KT_{52}	17.4	X	94.55777	184.51311	68.09661	22.93382	0.0506362	0.37209145	1.9144157	20	11 17.5	19.4
456225 2006 KV_{53}	16.4	X	185.08527	161.00788	80.78119	10.01057	0.0279073	0.17654156	3.1470579	20	—	—
456226 2006 KK_{58}	17.8	X	25.42785	128.99087	98.42293	6.43969	0.1623044	0.28432437	2.2904808	20	6 22.1	19.5
456227 2006 KC_{62}	17.3	X	60.39601	346.32774	82.33645	15.40944	0.0369107	0.25904283	2.4371841	20	—	—
456228 2006 KL_{62}	18.0	X	13.35641	116.66585	100.74758	7.25052	0.1254975	0.28014691	2.3131945	20	5 9.1	20.1
456229 2006 KT_{66}	16.4	X	229.21197	112.76894	65.46090	11.44743	0.0857303	0.17541729	3.1604903	20	12 2.2	20.9
456230 2006 KG_{73}	16.3	X	235.86701	15.52142	194.01061	11.72149	0.1026795	0.18101318	3.0950138	20	—	—
456231 2006 KW_{86}	17.8	X	344.69282	89.90621	236.32745	19.82167	0.0866295	0.36231986	1.9486834	20	9 6.4	20.0
456232 2006 KB_{93}	17.2	X	58.18155	241.39493	205.58384	4.04303	0.0495434	0.26376321	2.4080189	20	1 10.5	20.1
456233 2006 KF_{95}	16.6	X	249.77348	299.72288	226.16112	12.15373	0.0695416	0.17612639	3.1520015	20	12 14.2	21.1
456234 2006 KU_{99}	18.2	X	202.32092	276.56299	207.70341	20.33615	0.0901775	0.36787750	1.9290074	20	9 18.6	20.5
456235 2006 KL_{117}	16.7	X	142.49142	218.04629	148.79472	15.69088	0.1988786	0.25761933	2.4461537	20	2 8.0	20.4
456236 2006 KC_{123}	15.9	X	201.44746	163.82706	118.12793	18.35243	0.1620971	0.18467780	3.0539336	20	—	—
456237 2006 MM_{6}	17.3	X	330.90909	339.70149	302.21623	8.32234	0.3032066	0.27498382	2.3420597	20	4 17.0	19.4
456238 2006 MA_{8}	17.4	X	337.28361	190.46611	117.67957	7.02329	0.1310433	0.28151094	2.3057162	20	7 18.9	19.4
456239 2006 MQ_{9}	15.8	X	188.64591	148.15125	133.66012	17.83018	0.1803674	0.17683036	3.1436305	20	—	—
456240 2006 OW	16.5	X	93.32584	111.41837	245.21560	9.56976	0.1735637	0.23832528	2.5764555	20	—	—

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Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
456241 2006 ON_6	17.0	X	56.65746	235.63078	160.18434	4.79258	0.3237423	0.23063922	2.6333825	20	—	—
456242 2006 OH_8	17.2	X	138.04222	198.01421	132.46669	2.43158	0.2018764	0.24455720	2.5324978	20	—	—
456243 2006 OW_{18}	15.9	X	181.84543	295.77630	339.78261	13.77829	0.2600686	0.17530927	3.1617883	20	—	—
456244 2006 PK_5	17.5	X	44.72517	316.08263	327.44041	17.95626	0.0404133	0.36011404	1.9566329	20	10 3.8	19.9
456245 2006 PL_6	16.5	X	6.55644	272.87381	318.96463	22.37299	0.2740861	0.27587699	2.3370019	20	5 1.3	18.6
456246 2006 PD_{34}	17.2	X	243.85131	2.23724	289.83546	9.30187	0.2022314	0.25918898	2.4362678	20	2 3.1	21.2
456247 2006 PZ_{37}	16.2	X	63.96581	45.26933	299.59165	31.43202	0.2050390	0.22894478	2.6463598	20	—	—
456248 2006 QG_4	17.6	X	93.36667	228.57990	146.92444	4.95976	0.1907518	0.23690914	2.5867126	20	—	—
456249 2006 QP_4	16.1	X	213.05524	18.87108	278.46859	8.41847	0.2377069	0.18125996	3.0922039	20	1 23.3	21.5
456250 2006 QF_7	16.8	X	89.75751	21.07704	347.55344	14.72795	0.2724078	0.23455568	2.6039866	20	—	—
456251 2006 QZ_{10}	16.3	X	231.50254	154.19443	228.62577	2.06648	0.2816572	0.12275691	4.0096403	20	5 13.2	22.8
456252 2006 QJ_{24}	17.0	X	125.03925	212.60327	110.86882	3.29655	0.1802156	0.23765650	2.5812867	20	—	—
456253 2006 QE_{39}	16.0	X	192.21682	137.72061	152.64776	12.77499	0.2182954	0.17664897	3.1457822	20	1 2.1	21.5
456254 2006 QD_{88}	17.0	X	88.39744	198.80932	163.22130	13.78751	0.1639111	0.23523191	2.5989937	20	—	—
456255 2006 QR_{101}	16.5	X	64.89448	162.64937	261.21397	13.61335	0.0828542	0.24478221	2.5309456	20	—	—
456256 2006 QZ_{112}	17.2	X	276.04816	315.77678	325.35313	15.63692	0.1984083	0.26151784	2.4217827	20	2 20.2	20.9
456257 2006 QM_{132}	17.3	X	116.90178	244.92191	8.83725	21.26977	0.1376651	0.37027500	1.9206716	20	12 8.1	20.4
456258 2006 QM_{148}	17.1	X	91.70467	338.07984	7.34633	11.45296	0.1059709	0.23193078	2.6235970	20	—	—
456259 2006 QT_{148}	18.0	X	73.55040	257.72307	138.39604	5.35235	0.2943490	0.23476043	2.6024723	20	1 4.2	20.2
456260 2006 QY_{164}	17.5	X	87.83348	129.54090	205.59101	11.62699	0.2858355	0.23140822	2.6275452	20	—	—
456261 2006 QL_{184}	17.1	X	21.69257	53.83178	3.29574	15.35131	0.0989489	0.23010842	2.6374306	20	—	—
456262 2006 QX_{185}	17.8	X	72.06159	274.43442	123.88156	2.17905	0.1766118	0.23588418	2.5942003	20	—	—
456263 2006 RW_8	17.5	X	73.80475	86.86702	296.24709	1.50155	0.2629821	0.23352114	2.6116717	20	—	—
456264 2006 RP_{21}	17.7	X	87.01233	208.60098	182.64369	12.75761	0.2767770	0.23636884	2.5906529	20	1 16.2	20.9
456265 2006 RM_{23}	17.4	X	66.25345	37.08746	351.97483	4.63087	0.2538250	0.23229017	2.6208902	20	—	—
456266 2006 RG_{27}	16.7	X	44.65649	351.95196	19.24541	14.51910	0.2600778	0.22452760	2.6809552	20	—	—
456267 2006 RT_{33}	17.7	X	86.19647	82.61340	300.24639	2.26452	0.2456376	0.23678898	2.5875876	20	—	—
456268 2006 RE_{42}	17.9	X	42.99816	308.98056	127.99240	0.57363	0.1876080	0.23445649	2.6047210	20	—	—
456269 2006 RQ_{47}	17.6	X	119.82781	187.87447	170.33897	4.12412	0.2219075	0.23882074	2.5728908	20	1 9.8	21.2
456270 2006 RK_{49}	17.7	X	66.39768	247.60453	193.65764	14.23549	0.1398473	0.23997951	2.5646018	20	1 26.7	20.8
456271 2006 RX_{49}	18.0	X	96.79846	169.36855	209.49586	0.87656	0.2038165	0.23619737	2.5919066	20	1 4.8	20.9
456272 2006 RS_{54}	17.2	X	28.98574	35.11355	27.34193	6.89998	0.0659931	0.22983516	2.6395207	20	—	—
456273 2006 RU_{68}	17.6	X	102.15379	13.81498	12.49573	5.19442	0.1841344	0.24021221	2.5629453	20	1 19.8	20.8
456274 2006 RM_{75}	17.5	X	8.15398	231.49230	170.04925	3.78645	0.1849061	0.22273427	2.6953263	20	—	—
456275 2006 RV_{79}	17.9	X	332.12649	92.79207	157.76047	2.96472	0.1610500	0.26333279	2.4106422	20	4 3.1	20.1
456276 2006 RB_{80}	17.3	X	102.53112	237.31756	88.81676	1.29177	0.1214484	0.23044252	2.6348808	20	—	—
456277 2006 RC_{85}	17.9	X	92.87153	82.20085	334.25706	0.82805	0.0424142	0.24344335	2.5402167	20	1 23.3	20.9
456278 2006 RX_{105}	17.9	X	345.24544	304.49491	203.18989	3.54334	0.1629938	0.23728379	2.5839890	20	—	—
456279 2006 RL_{108}	17.9	X	314.97546	73.16321	191.54222	2.50031	0.1731777	0.26210629	2.4181566	20	3 22.5	20.4
456280 2006 SB_1	17.0	X	31.65919	246.18520	186.16268	11.69835	0.1781315	0.23310619	2.6147701	20	—	—
456281 2006 SC_8	17.4	X	42.10707	157.94964	191.76829	23.22400	0.0845986	0.36575216	1.9364730	20	—	—
456282 2006 ST_8	17.1	X	64.94122	182.72439	181.97337	13.96807	0.2639320	0.23072567	2.6327247	20	—	—
456283 2006 SB_{17}	18.0	X	103.12251	77.87872	302.16656	3.19156	0.2561974	0.23784910	2.5798931	20	1 22.9	21.1
456284 2006 SY_{26}	17.0	X	70.25269	82.12384	277.41450	4.83286	0.1894313	0.22921956	2.6442444	20	—	—
456285 2006 SK_{56}	17.4	X	45.99202	253.61899	118.55742	9.11350	0.2908596	0.22499670	2.6772275	20	—	—
456286 2006 SB_{74}	17.7	X	57.60304	249.01812	173.11101	6.43390	0.2919923	0.23266074	2.6181066	20	1 5.9	19.7
456287 2006 SS_{76}	17.2	X	97.41812	205.93053	195.07779	15.46420	0.1369727	0.24503341	2.5292156	20	1 19.4	20.7
456288 2006 SH_{77}	18.0	X	66.12539	281.57922	108.06545	6.15868	0.3739740	0.23123011	2.6288943	20	—	—
456289 2006 SU_{82}	17.5	X	74.72175	182.45875	165.14589	3.81091	0.1176812	0.22708323	2.6608027	20	—	—
456290 2006 SO_{92}	17.6	X	113.35893	174.05635	203.88955	8.03020	0.1013104	0.23829877	2.5766466	20	1 8.8	21.1
456291 2006 SD_{95}	18.1	X	70.60374	234.54293	176.48919	2.35370	0.1782554	0.23463615	2.6033912	20	1 1.7	20.8
456292 2006 SQ_{96}	17.4	X	60.17689	30.29915	27.41433	9.56852	0.0867065	0.23422920	2.6064058	20	—	—
456293 2006 SE_{105}	16.5	X	68.46067	47.37921	1.40605	31.70100	0.2656730	0.23263039	2.6183342	20	1 23.9	19.9
456294 2006 SS_{110}	16.6	X	83.89390	25.71433	13.88724	18.18761	0.1908076	0.23707230	2.5855256	20	1 15.5	20.0
456295 2006 SD_{116}	16.7	X	78.72937	286.52741	77.52800	11.49478	0.2900180	0.23114079	2.6295715	20	—	—
456296 2006 SB_{119}	17.2	X	94.46731	10.71280	264.31401	17.80409	0.0508425	0.36204042	1.9496860	20	12 14.1	19.3
456297 2006 SB_{121}	17.3	X	104.96841	272.41163	73.75776	5.00366	0.2735330	0.23371734	2.6102098	20	—	—
456298 2006 SG_{122}	16.9	X	82.93791	86.56892	288.21562	11.42378	0.2952368	0.23246025	2.6196117	20	—	—
456299 2006 SN_{128}	15.7	X	210.73874	210.35410	119.95026	13.09640	0.3341557	0.18373192	3.0644060	20	2 29.7	21.5
456300 2006 SX_{128}	17.3	X	63.08400	81.07469	303.12396	11.16063	0.2906858	0.23005776	2.6378178	20	—	—
456301 2006 SV_{134}	18.7	X	173.97478	64.39115	217.19239	21.53707	0.4809809	0.38613324	1.8677178	20	—	—
456302 2006 SU_{138}	17.2	X	329.59597	329.97380	18.98866	21.64262	0.1201779	0.35296009	1.9829829	20	10 1.9	18.3
456303 2006 SY_{143}	18.2	X	43.77422	83.99505	305.00777	1.20488	0.2205721	0.22715984	2.6602044	20	—	—
456304 2006 SX_{144}	17.3	X	91.44936	12.19207	7.59120	10.16353	0.2121630	0.23549429	2.5970629	20	—	—
456305 2006 SP_{145}	17.2	X	19.32285	211.94191	176.59980	3.46316	0.0913227	0.22248784	2.6973162	20	—	—
456306 2006 ST_{171}	18.0	X	71.91567	72.03669	0.03917	7.95990	0.1442402	0.24113271	2.5564186	20	1 30.1	20.9
456307 2006 SQ_{187}	15.7	X	256.53589	333.17370	43.91314	3.07836	0.0682900	0.12416784	3.9792078	20	6 19.6	21.5
456308 2006 SH_{188}	17.8	X	303.65052	120.78869	134.90930	1.98383	0.1626629	0.25824785	2.4421832	20	2 25.8	20.8
456309 2006 SS_{199}	17.4	X	61.83109	27.59576	8.30848	13.86500	0.2640979	0.23194544	2.6234865	20	—	—
456310 2006 SJ_{211}	18.2	X	70.03837	134.53856	272.95508	1.01980	0.2107071	0.23620091	2.5918807	20	—	—
456311 2006 SN_{215}	17.8	X	85.02293	307.51924	73.47349	3.36998	0.2292234	0.23421419	2.6065171	20	—	—
456312 2006 SM_{238}	17.6	X	78.64631	45.43736	22.88801	4.93559	0.1962489	0.24049148	2.5609607	20	2 12.5	20.4
456313 2006 SV_{239}	17.2	X	354.92227	246.36766	180.58230	12.12298	0.0542814	0.22575738	2.6712103	20	—	—
456314 2006 SZ_{239}	17.4	X	135.92713	213.92228	152.39906	2.24426	0.0603485	0.24297676	2.5434677	20	1 16.7	20.8
456315 2006 SG_{246}	18.5	X	111.89320	46.88104	10.96514	3.37913	0.1691560	0.24688358	2.5165636	20	3 9.2	21.9
456316 2006 SY_{268}	17.4	X	98.07648	91.58366	288.61484	3.41954	0.1344590	0.23574639	2.5952110	20	—	—
456317 2006 SZ_{283}	17.2	X	297.34405	256.73545	49.30900	10.07974	0.2000120	0.26583941	2.3954649	20	4 21.3	20.0
456318 2006 SC_{287}	16.5	X	85.56169	61.88516	267.10795	11.58566	0.2658280	0.22838194	2.6507059	20	—	—
456319 2006 SM_{289}	17.4	X	56.23356	203.99295	161.54474	12.09312	0.1985615	0.22698768	2.6615493	20	—	—
456320 2006 SZ_{296}	18.0	X	108.16946	201.71671	193.50144	12.22919	0.1921733	0.24152948	2.5536181	20	2 4.4	21.6

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
456321 2006 SH_{310}	17.6	X	80.45667	110.67338	288.34493	1.77777	0.1277200	0.23627610	2.5913308	20	—	—
456322 2006 SD_{316}	17.7	X	77.14548	234.80836	182.77645	9.51076	0.1948862	0.23749549	2.5824533	20	1 22.3	20.6
456323 2006 SY_{319}	17.4	X	270.99405	202.35107	91.83738	3.64261	0.1877997	0.25822376	2.4423351	20	3 6.8	21.0
456324 2006 SB_{328}	17.4	X	337.98177	329.91046	109.16298	3.03500	0.0545331	0.22243153	2.6977715	20	—	—
456325 2006 SS_{336}	17.4	X	28.85058	234.32133	168.73837	10.43733	0.1759759	0.22611493	2.6683936	20	—	—
456326 2006 SG_{344}	16.9	X	233.69575	275.50885	9.69814	11.17011	0.1025484	0.24613101	2.5216908	20	1 28.2	20.8
456327 2006 SZ_{344}	17.5	X	80.37940	112.01959	260.03478	2.86448	0.1369566	0.23134712	2.6280078	20	—	—
456328 2006 SB_{345}	17.4	X	54.11665	213.86868	212.28522	10.25602	0.1615767	0.23417083	2.6068388	20	—	—
456329 2006 SW_{347}	18.0	X	42.95815	209.18263	211.37617	5.03164	0.1692214	0.23074990	2.6325403	20	—	—
456330 2006 SK_{350}	17.7	X	62.55637	106.04319	345.40236	9.00380	0.0494597	0.24462934	2.5319999	20	1 29.9	20.9
456331 2006 SU_{350}	17.0	X	29.76787	326.60223	16.88359	11.75404	0.1755362	0.21997128	2.7178495	20	12 4.8	20.7
456332 2006 SC_{356}	16.8	X	93.52320	343.09500	41.47163	8.14191	0.2062695	0.23548064	2.5971632	20	1 9.2	20.0
456333 2006 SB_{364}	16.7	X	50.72735	3.57451	35.16401	13.97390	0.2623556	0.22654126	2.6650448	20	—	—
456334 2006 SN_{366}	18.2	X	53.88642	69.22852	19.09671	4.15765	0.2544207	0.23283120	2.6168285	20	2 3.5	20.3
456335 2006 SG_{400}	17.9	X	57.59147	136.43896	281.97695	0.57843	0.0931345	0.23461161	2.6035728	20	—	—
456336 2006 SB_{403}	18.1	X	38.98257	48.62974	344.80866	1.29653	0.1467885	0.22543300	2.6737721	20	—	—
456337 2006 SA_{410}	17.6	X	56.49731	239.60260	199.71330	8.17148	0.1369839	0.23941287	2.5686468	20	1 8.5	20.5
456338 2006 SE_{413}	17.8	X	69.73365	262.25557	154.72849	12.00117	0.2858988	0.23423541	2.6063597	20	1 24.4	20.3
456339 2006 TO_{1}	17.7	X	216.94906	111.51637	23.57400	22.68091	0.0852291	0.35375103	1.9800260	20	10 25.4	19.8
456340 2006 TW_{12}	17.3	X	57.86365	109.65935	256.89171	7.34645	0.2742650	0.22681305	2.6629153	20	—	—
456341 2006 TD_{14}	17.2	X	264.34818	18.02896	302.67974	3.99320	0.2033164	0.26155749	2.4215379	20	3 27.9	20.9
456342 2006 TK_{17}	18.0	X	55.75754	228.81339	173.12572	2.22246	0.2145797	0.23002665	2.6380556	20	—	—
456343 2006 TW_{19}	17.3	X	90.18178	5.58774	28.53756	14.57012	0.1487978	0.23533117	2.5982629	20	1 8.9	20.7
456344 2006 TN_{21}	16.8	X	338.71241	273.90344	214.90968	21.24148	0.0543319	0.22979419	2.6398344	20	—	—
456345 2006 TY_{23}	17.3	X	351.63568	250.85313	204.95246	11.20275	0.1617761	0.22444513	2.6816119	20	—	—
456346 2006 TN_{38}	17.8	X	138.40727	317.42347	40.63552	4.29385	0.2504070	0.24033302	2.5620863	20	2 2.6	21.8
456347 2006 TT_{48}	17.6	X	118.28048	181.53537	208.23774	2.80871	0.1760242	0.23978352	2.5659990	20	2 9.8	21.2
456348 2006 TU_{52}	17.4	X	100.84289	184.35569	210.76792	10.90849	0.2319905	0.23663699	2.5886955	20	2 1.2	20.9
456349 2006 TE_{56}	18.4	X	72.07655	10.27009	40.80152	2.45412	0.2194301	0.23319421	2.6141121	20	1 11.5	21.0
456350 2006 TX_{67}	16.5	X	57.21985	156.48161	236.51877	14.14677	0.2436965	0.22980908	2.6397204	20	—	—
456351 2006 TT_{72}	17.3	X	63.87552	17.81793	20.26959	14.17701	0.2574117	0.23102452	2.6304537	20	—	—
456352 2006 TR_{77}	17.3	X	79.28410	150.11127	205.95164	8.39541	0.1637340	0.22781302	2.6551171	20	—	—
456353 2006 TM_{78}	17.3	X	336.33934	217.03794	203.45166	5.54702	0.1040177	0.21524031	2.7575304	20	12 16.0	20.6
456354 2006 TA_{83}	17.0	X	102.47075	85.39837	252.36077	4.55075	0.2314434	0.23040193	2.6351902	20	—	—
456355 2006 TG_{83}	18.1	X	33.66154	62.49057	7.68403	8.54766	0.2188955	0.22869808	2.6482626	20	—	—
456356 2006 TT_{84}	17.8	X	122.63541	119.81038	266.12465	3.71051	0.1446646	0.24031835	2.5621906	20	2 5.6	21.3
456357 2006 TO_{86}	17.6	X	31.91355	56.11554	25.66987	12.67627	0.1613222	0.22978799	2.6398819	20	—	—
456358 2006 TV_{88}	17.1	X	41.75895	225.89537	235.82993	7.54767	0.0674275	0.23686960	2.5870004	20	1 11.3	20.3
456359 2006 TY_{92}	17.1	X	121.81813	167.03120	218.94683	16.32952	0.1325065	0.24094137	2.5577718	20	1 29.6	21.0
456360 2006 TB_{94}	18.1	X	67.98144	278.42148	107.06857	2.33201	0.1518640	0.22926404	2.6439024	20	—	—
456361 2006 TP_{104}	17.2	X	90.92612	337.14574	52.58587	6.34771	0.3305116	0.23521078	2.5991493	20	2 2.6	20.4
456362 2006 TG_{107}	16.0	X	273.33985	251.99073	113.05939	0.88839	0.3264356	0.12470561	3.9677599	20	5 22.9	21.9
456363 2006 TH_{109}	17.2	X	83.23898	0.29846	48.38964	18.02957	0.0456432	0.23583194	2.5945834	20	1 1.4	20.8
456364 2006 TW_{112}	17.1	X	251.33339	63.05203	160.42982	13.83704	0.0947879	0.23370735	2.6102843	20	—	—
456365 2006 TB_{114}	18.5	X	23.25926	326.41437	122.45205	8.00454	0.3057919	0.22830978	2.6512644	20	—	—
456366 2006 TT_{121}	17.9	X	73.65693	200.13892	240.19178	3.52380	0.0953905	0.23895781	2.5719068	20	2 2.9	20.9
456367 2006 TP_{122}	17.1	X	84.65340	270.63694	104.68159	11.82367	0.2816284	0.23177579	2.6247665	20	—	—
456368 2006 US_{1}	16.4	X	43.24385	155.30374	234.08804	11.30336	0.2740889	0.22566232	2.6719604	20	—	—
456369 2006 UE_{14}	17.1	X	108.99600	306.29190	50.04603	13.06943	0.1105447	0.23163248	2.6258490	20	—	—
456370 2006 UT_{15}	17.1	X	49.23803	271.62330	160.44443	3.01320	0.1831908	0.23095237	2.6310016	20	—	—
456371 2006 UK_{23}	17.8	X	13.51628	148.18648	245.96994	3.71786	0.1282223	0.22071729	2.7117219	20	—	—
456372 2006 UL_{24}	17.3	X	126.97769	19.22232	25.18157	15.38776	0.0604754	0.24533524	2.5271407	20	3 2.2	20.9
456373 2006 UO_{44}	17.4	X	170.91631	306.29438	45.02964	3.93014	0.0703670	0.24215663	2.5492072	20	2 10.9	21.1
456374 2006 UX_{44}	16.8	X	129.34444	285.62113	46.70004	24.69116	0.1173806	0.23093415	2.6311399	20	—	—
456375 2006 UJ_{48}	17.1	X	28.99657	74.18981	331.36019	11.08122	0.1925605	0.22791614	2.6543162	20	—	—
456376 2006 UP_{53}	17.3	X	68.93680	140.59776	208.15935	2.89813	0.2739286	0.22388392	2.6860914	20	—	—
456377 2006 UU_{57}	17.6	X	17.82335	180.51007	195.34533	6.23203	0.1608278	0.21763528	2.7372630	20	12 28.8	21.1
456378 2006 UA_{62}	17.6	X	120.92698	146.84712	227.99162	12.67132	0.2071918	0.24069522	2.5595153	20	1 25.8	21.5
456379 2006 US_{76}	17.7	X	55.85938	181.37179	245.30924	5.85324	0.2754355	0.23270984	2.6177382	20	1 6.1	19.6
456380 2006 UO_{78}	17.8	X	56.12144	163.76702	267.71122	2.77476	0.1588612	0.23454606	2.6040578	20	1 1.4	20.4
456381 2006 UK_{79}	18.1	X	21.56029	168.00827	285.72666	2.83040	0.2253580	0.23004654	2.6379036	20	—	—
456382 2006 UK_{81}	17.4	X	48.20495	148.82695	259.45367	4.64565	0.2497021	0.22876885	2.6477163	20	—	—
456383 2006 UY_{83}	17.7	X	53.61067	40.77901	9.37442	6.57756	0.2376393	0.22969154	2.6406208	20	—	—
456384 2006 UQ_{85}	17.8	X	21.07330	139.81792	242.45262	4.22517	0.2484076	0.21953874	2.7214181	20	—	—
456385 2006 UY_{91}	17.4	X	83.10208	156.92181	188.56494	3.10240	0.1196634	0.22638452	2.6662748	20	—	—
456386 2006 UF_{93}	17.5	X	17.02247	261.61808	151.73121	2.33298	0.2061194	0.22337380	2.6901793	20	—	—
456387 2006 UV_{122}	17.8	X	245.56314	80.78487	189.80447	4.83335	0.0311489	0.24342707	2.5403300	20	1 22.6	21.2
456388 2006 UY_{138}	17.9	X	88.99598	109.93050	277.55046	4.41428	0.2842118	0.23384189	2.6092829	20	1 17.8	20.8
456389 2006 UX_{139}	17.3	X	27.84714	217.47241	247.45069	10.29096	0.0665327	0.23348030	2.6119762	20	—	—
456390 2006 UL_{140}	17.4	X	112.57078	152.88177	240.46701	13.73718	0.1093383	0.23804220	2.5784977	20	1 25.4	21.1
456391 2006 UQ_{149}	17.9	X	104.59989	351.04234	37.80405	2.89545	0.1904263	0.23878239	2.5731663	20	1 27.0	21.1
456392 2006 UW_{149}	16.6	X	50.12963	299.53527	86.07581	15.72747	0.1720077	0.22649713	2.6653909	20	—	—
456393 2006 UE_{150}	17.4	X	45.79149	278.50517	144.75417	12.75586	0.2594180	0.23036847	2.6354454	20	—	—
456394 2006 UG_{170}	17.6	X	34.57078	28.25547	96.81395	3.60610	0.0642999	0.24134440	2.5549235	20	2 1.9	20.4
456395 2006 UU_{179}	17.5	X	70.51501	264.27254	127.85435	4.75731	0.2449939	0.23107632	2.6300606	20	—	—
456396 2006 UX_{179}	17.3	X	62.26196	320.70395	76.12318	7.91458	0.2277136	0.22985864	2.6393410	20	—	—
456397 2006 UQ_{183}	17.2	X	105.17477	299.82105	68.44421	13.00303	0.3157430	0.23542434	2.5975773	20	1 21.4	20.9
456398 2006 UX_{190}	17.0	X	125.44861	128.51644	256.86155	11.29664	0.1675290	0.24254879	2.5464587	20	2 7.3	20.8
456399 2006 UE_{199}	16.9	X	104.51044	267.87195	47.71170	7.83112	0.2265583	0.22516441	2.6758980	20	—	—
456400 2006 UK_{204}	16.4	X	72.65269	354.66576	0.90684	14.34428	0.2448016	0.22625311	2.6673070	20	—	—

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Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
456401 2006 UP_{207}	17.5	X	40.08467	84.26229	293.50190	9.54292	0.2970415	0.22423739	2.6832678	20	—	—
456402 2006 UY_{210}	17.7	X	103.92404	22.03784	12.49357	4.44429	0.1382700	0.23671661	2.5881149	20	1 26.4	21.0
456403 2006 US_{211}	17.7	X	113.55961	114.86831	270.06187	4.31417	0.2102855	0.23759166	2.5817564	20	2 2.9	21.2
456404 2006 UA_{220}	17.4	X	64.98154	271.64052	107.33737	3.27630	0.2179748	0.22883836	2.6471802	20	—	—
456405 2006 UH_{220}	17.4	X	69.04346	190.01267	236.26568	3.84541	0.2470172	0.23470514	2.6028810	20	1 29.4	20.0
456406 2006 US_{231}	17.9	X	55.20404	270.77272	139.78970	5.12463	0.2657054	0.23151345	2.6267489	20	—	—
456407 2006 UL_{240}	17.5	X	17.53965	261.42307	235.78021	4.50683	0.0160567	0.24114736	2.5563150	20	1 23.0	20.7
456408 2006 UP_{247}	17.0	X	129.96761	165.88756	218.15041	14.45000	0.1035947	0.24211857	2.5494743	20	2 2.2	20.8
456409 2006 UF_{250}	17.3	X	64.64135	149.94271	207.29415	1.35511	0.0997871	0.22408030	2.6845218	20	—	—
456410 2006 UA_{268}	17.3	X	88.08161	97.21346	259.24396	11.01469	0.2875955	0.22942588	2.6426589	20	—	—
456411 2006 UC_{268}	18.2	X	2.57434	260.79384	220.99213	1.28952	0.1564562	0.23074453	2.6325811	20	—	—
456412 2006 UN_{275}	18.2	X	86.89001	32.72287	349.60671	1.99972	0.1810311	0.23394519	2.6085148	20	—	—
456413 2006 UR_{282}	17.0	X	317.14873	118.32384	34.01809	17.74964	0.1890421	0.22752316	2.6573717	20	—	—
456414 2006 UU_{284}	17.4	X	348.65037	199.75462	217.40458	7.29093	0.1411556	0.21806491	2.7336665	20	—	—
456415 2006 UC_{285}	17.6	X	81.56476	150.00265	241.50923	1.82197	0.0845769	0.23273510	2.6175489	20	—	—
456416 2006 UD_{322}	17.6	X	95.59267	11.47843	30.19191	9.78196	0.1615656	0.23899788	2.5716194	20	1 29.7	20.9
456417 2006 UU_{328}	16.7	X	170.17332	318.98888	55.02746	12.49250	0.1222866	0.24456797	2.5324234	20	3 17.7	20.7
456418 2006 UG_{333}	16.9	X	254.39118	97.55048	187.33686	13.97310	0.1402346	0.25278788	2.4772236	20	2 7.6	20.9
456419 2006 UM_{334}	17.9	X	58.80500	196.74572	220.03251	4.06605	0.1813251	0.22943906	2.6425577	20	—	—
456420 2006 UB_{335}	16.0	X	6.98997	199.30858	287.36075	24.63085	0.0961656	0.22255361	2.6967848	20	—	—
456421 2006 UA_{336}	17.9	X	26.83354	90.11194	1.11244	3.73132	0.1619182	0.23230861	2.6207515	20	—	—
456422 2006 UW_{348}	17.1	X	9.06869	199.60644	39.91153	8.42796	0.1592611	0.25998001	2.4313235	20	6 2.5	19.2
456423 2006 UU_{360}	17.5	X	107.02386	151.25422	205.00755	3.76694	0.1151028	0.22910217	2.6451476	20	—	—
456424 2006 VQ_{3}	17.0	X	75.26829	338.79162	47.52703	8.66503	0.0945131	0.23136209	2.6278945	20	—	—
456425 2006 VY_{10}	18.0	X	50.26287	168.95094	227.93445	2.48566	0.2449593	0.22687097	2.6624621	20	—	—
456426 2006 VR_{16}	17.9	X	53.25299	159.21340	249.88258	3.58846	0.2252195	0.22872478	2.6480564	20	—	—
456427 2006 VE_{17}	17.4	X	30.38257	36.23260	42.42998	5.08045	0.1010566	0.22885296	2.6470676	20	—	—
456428 2006 VX_{17}	17.8	X	55.65813	348.07929	26.19887	2.91921	0.1513215	0.22397305	2.6853787	20	—	—
456429 2006 VJ_{24}	17.3	X	339.96411	80.12272	63.37852	11.08513	0.2337422	0.22701854	2.6613082	20	—	—
456430 2006 VL_{27}	17.5	X	20.64112	171.12617	240.47307	3.34847	0.3117422	0.22239980	2.6980280	20	—	—
456431 2006 VX_{27}	17.6	X	128.92148	106.27661	241.21498	2.40630	0.2166866	0.23467521	2.6031023	20	1 6.8	21.3
456432 2006 VQ_{28}	17.2	X	100.77145	328.42768	51.36121	14.77600	0.1749031	0.23269831	2.6178247	20	1 8.9	20.7
456433 2006 VS_{28}	17.2	X	23.46913	28.76226	45.57921	9.77519	0.2931814	0.22466383	2.6798713	20	—	—
456434 2006 VY_{28}	17.2	X	78.94834	151.84475	257.53620	8.29195	0.0682093	0.23198510	2.6231874	20	—	—
456435 2006 VR_{31}	17.6	X	78.48640	13.75784	5.01148	5.13713	0.2980510	0.23039276	2.6352602	20	—	—
456436 2006 VZ_{35}	17.9	X	104.29651	326.50817	53.14797	2.80318	0.2264553	0.23513534	2.5997053	20	1 20.6	21.3
456437 2006 VD_{36}	17.3	X	79.99215	323.99330	54.73603	3.76147	0.2061665	0.22978694	2.6398899	20	—	—
456438 2006 VY_{46}	18.1	X	88.80380	46.95238	321.20196	1.41799	0.2207828	0.23068723	2.6330171	20	—	—
456439 2006 VO_{47}	17.9	X	26.71596	134.08429	328.92102	1.41040	0.1649771	0.23154426	2.6265159	20	—	—
456440 2006 VY_{59}	17.9	X	50.48006	337.27600	121.60865	2.69488	0.1031314	0.23532656	2.5982967	20	1 25.0	20.6
456441 2006 VP_{61}	17.3	X	56.17208	3.71513	49.25696	3.59591	0.2385956	0.22900109	2.6459259	20	—	—
456442 2006 VF_{63}	17.4	X	303.75652	233.96774	243.86440	6.79034	0.1777403	0.21502870	2.7593393	20	—	—
456443 2006 VZ_{66}	16.3	X	177.20861	41.86117	230.51756	13.37094	0.0566123	0.22809813	2.6529042	20	—	—
456444 2006 VM_{68}	17.7	X	92.16423	125.29839	252.38789	1.21403	0.2262157	0.23085637	2.6317309	20	1 1.1	20.8
456445 2006 VB_{77}	17.6	X	37.21691	309.17473	190.14365	3.69254	0.1292232	0.24001340	2.5643604	20	2 27.1	20.2
456446 2006 VW_{84}	16.9	X	146.18761	101.63137	262.91327	15.31257	0.1872887	0.24101464	2.5572534	20	2 4.1	21.1
456447 2006 VG_{87}	16.7	X	40.28214	136.49722	246.04613	13.87130	0.1054052	0.22164998	2.7041094	20	—	—
456448 2006 VD_{96}	16.8	X	70.38889	31.58425	51.06240	12.62615	0.0171641	0.23681946	2.5873656	20	1 28.9	20.4
456449 2006 VV_{97}	17.8	X	70.71160	60.67229	10.09258	5.11805	0.1481432	0.23477458	2.6023677	20	1 27.1	20.7
456450 2006 VN_{101}	18.0	X	65.42173	325.92349	82.40618	5.58422	0.2931854	0.23157774	2.6262627	20	1 5.7	20.0
456451 2006 VG_{102}	17.8	X	93.50665	149.81372	242.40219	6.52367	0.1893202	0.23526661	2.5987381	20	1 14.2	20.9
456452 2006 VR_{108}	17.6	X	147.21735	75.70372	284.33720	2.42963	0.2273770	0.24047526	2.5610759	20	2 8.7	21.7
456453 2006 VS_{108}	17.0	X	155.36033	119.21190	248.60908	13.55836	0.0919403	0.24112185	2.5564953	20	2 8.6	21.0
456454 2006 VR_{109}	17.0	X	77.12806	315.62693	78.66837	14.22027	0.2615083	0.23191123	2.6237444	20	1 3.9	19.6
456455 2006 VF_{112}	16.3	X	100.21911	88.57969	247.25000	26.28462	0.2497858	0.22813048	2.6526534	20	—	—
456456 2006 VZ_{122}	15.9	X	282.76846	280.24779	247.37914	24.65369	0.3263873	0.21658217	2.7461289	20	—	—
456457 2006 VL_{125}	17.4	X	50.31692	177.35737	245.69367	12.16617	0.2670818	0.22912918	2.6449398	20	—	—
456458 2006 VY_{125}	16.9	X	8.82571	131.56314	257.50608	2.92080	0.1279793	0.21885273	2.7271021	20	12 28.9	20.1
456459 2006 VZ_{125}	17.8	X	54.49407	58.59811	7.86468	4.10826	0.2323190	0.23279704	2.6170845	20	—	—
456460 2006 VK_{128}	17.4	X	14.14058	56.78861	8.30693	5.63873	0.0475430	0.22287621	2.6941818	20	—	—
456461 2006 VW_{131}	17.5	X	303.66699	33.45132	72.50529	9.76723	0.0766838	0.21505128	2.7591461	20	12 23.5	20.9
456462 2006 VU_{135}	18.2	X	10.48230	71.80485	45.70671	2.12271	0.1641344	0.22905993	2.6454728	20	—	—
456463 2006 VK_{136}	17.6	X	63.60819	96.05182	258.42717	1.49326	0.1724210	0.22110059	2.7085869	20	—	—
456464 2006 VS_{137}	17.7	X	292.52485	77.23789	79.63968	2.96038	0.0209627	0.22308245	2.6925210	20	—	—
456465 2006 VC_{140}	17.2	X	292.34110	271.30080	237.38662	7.33125	0.0145466	0.22063278	2.7124143	20	—	—
456466 2006 VA_{170}	17.7	X	11.10532	173.17327	235.61007	2.75326	0.1758041	0.21867692	2.7285637	20	—	—
456467 2006 WO_{8}	17.8	X	88.25555	199.53203	199.85663	4.01631	0.1814120	0.23300517	2.6155258	20	1 15.5	20.8
456468 2006 WV_{14}	17.5	X	61.37372	169.24541	247.17293	10.36295	0.1881018	0.22969315	2.6406085	20	—	—
456469 2006 WO_{15}	17.4	X	108.97884	294.49595	30.09835	3.73051	0.1919587	0.22954254	2.6417635	20	—	—
456470 2006 WP_{37}	17.9	X	357.15446	293.99720	115.33277	4.41419	0.1951777	0.21695510	2.7429811	20	—	—
456471 2006 WL_{40}	17.4	X	96.83762	149.07278	224.61277	13.09818	0.2787800	0.23233404	2.6205603	20	1 8.1	20.9
456472 2006 WM_{40}	17.9	X	83.24443	267.74359	116.42267	5.95264	0.1829407	0.22977096	2.6400124	20	—	—
456473 2006 WU_{41}	18.0	X	244.77133	262.49479	138.57143	3.27651	0.1837060	0.26575907	2.3959476	20	6 25.7	21.4
456474 2006 WV_{59}	17.5	X	26.30988	259.47879	232.63495	12.20505	0.2137179	0.23636596	2.5906740	20	1 23.4	19.9
456475 2006 WM_{60}	16.9	X	57.29480	273.29427	127.89933	13.59664	0.2650188	0.22960994	2.6412464	20	—	—
456476 2006 WK_{67}	15.0	X	139.87831	103.06899	92.27653	13.00122	0.1095226	0.12540898	3.9529102	20	9 22.8	21.2
456477 2006 WJ_{70}	17.9	X	77.71260	5.17736	35.54157	3.91575	0.1862506	0.23230684	2.6207648	20	1 2.4	20.6
456478 2006 WA_{72}	17.9	X	14.41157	253.11090	250.93351	3.00125	0.1585069	0.23588010	2.5942302	20	1 21.8	20.6
456479 2006 WP_{78}	16.5	X	100.74408	67.34543	260.61728	9.14493	0.2797899	0.22602123	2.6691310	20	—	—
456480 2006 WU_{92}	16.0	X	331.54918	259.25423	82.62198	4.87760	0.0956946	0.12563873	3.9480898	20	8 12.4	21.1

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Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
456481 2006 WJ_{97}	18.2	X	85.00694	35.07926	11.64552	0.71948	0.1716325	0.23360902	2.6110167	20	1 19.8	21.2
456482 2006 WL_{99}	17.1	X	304.35765	54.89811	72.95026	8.59522	0.0641918	0.21894234	2.7263580	20	—	—
456483 2006 WW_{102}	17.4	X	317.68114	302.14602	243.87589	2.38046	0.1442937	0.23096054	2.6309395	20	—	—
456484 2006 WJ_{114}	18.1	X	337.60288	20.55038	152.59352	5.20464	0.1482793	0.23258681	2.6186613	20	—	—
456485 2006 WG_{116}	17.7	X	38.18329	133.27761	277.84443	4.05214	0.1622781	0.22538754	2.6741317	20	—	—
456486 2006 WJ_{124}	17.4	X	74.38193	243.64180	156.31079	5.70967	0.1579397	0.22999757	2.6382780	20	—	—
456487 2006 WT_{132}	17.8	X	160.02601	120.16342	232.98733	1.33625	0.0589785	0.23862173	2.5743211	20	1 29.1	21.4
456488 2006 WM_{138}	17.0	X	17.66372	189.55219	262.68591	11.68093	0.2158165	0.22597663	2.6694822	20	—	—
456489 2006 WE_{139}	17.4	X	93.47363	256.84620	117.58245	6.73643	0.3346975	0.23304187	2.6152512	20	1 15.9	20.4
456490 2006 WS_{140}	17.3	X	313.07694	262.69977	241.18176	9.01499	0.1793810	0.22268092	2.6957568	20	—	—
456491 2006 WJ_{148}	16.8	X	81.34795	283.41601	88.46941	13.32094	0.3099560	0.22903335	2.6456775	20	—	—
456492 2006 WF_{151}	16.9	X	87.90599	289.35414	47.59171	11.95427	0.1907811	0.22592383	2.6698981	20	—	—
456493 2006 WA_{154}	17.5	X	78.94360	109.72855	227.49779	4.10255	0.2451705	0.22547158	2.6734671	20	—	—
456494 2006 WG_{160}	16.3	X	11.83459	202.84066	299.30266	12.23700	0.1065582	0.22612640	2.6683034	20	1 20.9	19.4
456495 2006 WR_{164}	17.9	X	17.73689	165.02743	266.86929	2.05563	0.0910945	0.22393018	2.6857214	20	—	—
456496 2006 WH_{180}	17.7	X	27.24730	217.14130	156.06193	1.01410	0.0863199	0.21499647	2.7596150	20	12 26.8	21.4
456497 2006 WQ_{180}	17.1	X	331.52888	76.24010	77.43441	9.39296	0.0169924	0.22999732	2.6382799	20	—	—
456498 2006 WS_{181}	17.3	X	50.10052	216.78398	242.25541	9.99685	0.0909466	0.23442011	2.6049905	20	1 20.9	20.5
456499 2006 WW_{183}	17.0	X	96.52816	108.85158	283.50988	11.34708	0.2847027	0.23053929	2.6341434	20	2 1.9	20.4
456500 2006 WX_{191}	17.0	X	6.63196	42.09256	67.62529	13.70800	0.1253535	0.22692292	2.6620557	20	—	—
456501 2006 WB_{199}	17.7	X	44.38457	353.08133	80.08504	7.83014	0.2226142	0.23002515	2.6380671	20	—	—
456502 2006 WH_{199}	16.9	X	242.47078	348.73393	254.34149	5.21290	0.0689290	0.22968185	2.6406951	20	—	—
456503 2006 WY_{201}	18.0	X	37.46456	49.00272	44.22522	2.66705	0.1766845	0.22521577	2.6754911	20	—	—
456504 2006 WR_{202}	17.2	X	111.76418	299.63883	84.07031	9.71006	0.2070356	0.23549253	2.5970758	20	2 2.5	20.8
456505 2006 XK_{12}	17.1	X	79.95410	119.83926	261.55077	10.45495	0.3137491	0.22952235	2.6419183	20	—	—
456506 2006 XK_{24}	16.6	X	34.63281	288.28782	97.15622	14.14054	0.2126458	0.21881716	2.7273977	20	—	—
456507 2006 XG_{29}	17.3	X	65.03473	174.45137	217.06078	3.63552	0.1844840	0.22625371	2.6673023	20	—	—
456508 2006 XV_{29}	16.5	X	98.60846	292.57630	103.71205	12.96007	0.2785175	0.23290054	2.6163091	20	2 13.7	20.0
456509 2006 XJ_{39}	17.2	X	8.08423	350.44870	103.89315	10.24002	0.1340552	0.22019834	2.7159807	20	—	—
456510 2006 XW_{40}	16.9	X	10.57438	341.31134	91.18638	15.00540	0.2266181	0.22218308	2.6997822	20	—	—
456511 2006 XA_{53}	17.4	X	35.03596	42.73540	5.18160	3.12295	0.2722062	0.22194322	2.7017270	20	—	—
456512 2006 XX_{62}	17.0	X	339.63594	113.95876	97.97252	14.00278	0.2198507	0.23163529	2.6258277	20	2 19.4	20.0
456513 2006 XR_{64}	16.9	X	90.50901	115.04237	251.51875	11.78323	0.2942159	0.22955953	2.6416331	20	—	—
456514 2006 XD_{72}	17.5	X	85.98597	279.69114	125.66088	3.16029	0.1154525	0.23324178	2.6137567	20	1 10.9	20.7
456515 2006 XM_{73}	17.2	X	254.02131	78.30188	105.21391	8.62875	0.1586790	0.21053066	2.7985033	20	—	—
456516 2006 YJ_{12}	17.0	X	335.64643	3.25389	108.65769	6.23450	0.1157556	0.21529185	2.7570903	20	—	—
456517 2006 YG_{19}	16.9	X	40.21572	169.89424	321.94159	11.65472	0.1130795	0.22959430	2.6413664	20	2 22.1	19.7
456518 2006 YT_{21}	17.6	X	30.85223	221.15068	227.74029	11.23171	0.1297805	0.23052290	2.6342682	20	—	—
456519 2006 YL_{32}	17.3	X	62.73949	125.88457	327.55320	5.22086	0.2003325	0.23136827	2.6278477	20	2 19.8	20.0
456520 2006 YP_{32}	16.3	X	138.38047	30.36693	310.02531	10.76032	0.1624739	0.22514310	2.6760668	20	1 4.5	20.2
456521 2006 YS_{33}	16.8	X	332.49777	185.62280	320.98496	8.21199	0.2370749	0.21964303	2.7205566	20	—	—
456522 2006 YE_{41}	16.9	X	355.95353	184.56878	240.10079	2.09366	0.0492713	0.21419502	2.7664944	20	—	—
456523 2006 YX_{44}	16.6	X	54.19956	338.55153	104.53851	34.89687	0.2035960	0.23350954	2.6117582	20	1 17.8	19.0
456524 2006 YC_{45}	16.8	X	90.76966	319.14281	82.34594	13.95456	0.1142935	0.23220635	2.6215209	20	1 13.5	20.1
456525 2006 YR_{53}	17.4	X	11.28800	158.94623	353.35037	4.73765	0.1490471	0.22812068	2.6527294	20	2 1.3	20.0
456526 2006 YC_{54}	16.9	X	72.88912	129.84020	298.59539	6.39007	0.1138798	0.22571379	2.6715542	20	1 22.9	19.8
456527 2006 YK_{54}	16.6	X	7.37117	173.01386	306.47425	14.20421	0.0312454	0.22068247	2.7120071	20	—	—
456528 2007 AP_{1}	16.6	X	358.62031	314.90917	115.34036	16.63283	0.1729769	0.21357015	2.7718881	20	—	—
456529 2007 AL_{20}	17.4	X	79.92181	88.21973	314.47242	10.50209	0.2867517	0.22756713	2.6570294	20	1 26.8	20.2
456530 2007 AV_{23}	16.4	X	354.79153	256.45847	285.00745	11.98862	0.2209785	0.22878508	2.6475911	20	1 29.4	19.1
456531 2007 AC_{25}	16.7	X	352.14080	201.88166	294.14898	13.82544	0.1226543	0.22251238	2.6971179	20	—	—
456532 2007 AX_{27}	16.3	X	87.71108	299.46566	112.48525	17.76668	0.1827038	0.22802133	2.6534999	20	2 3.7	19.5
456533 2007 AS_{28}	16.8	X	31.77148	46.41897	114.47397	8.80551	0.1505046	0.23159484	2.6261335	20	3 27.7	19.6
456534 2007 AG_{29}	16.3	X	345.01964	238.09624	302.63784	14.43586	0.0961129	0.22660489	2.6645459	20	1 29.9	19.6
456535 2007 AJ_{30}	17.4	X	346.07660	324.39264	126.56334	8.95445	0.1919872	0.21497207	2.7598238	20	—	—
456536 2007 BA	18.9	X	354.82466	204.68702	293.22075	12.81755	0.3098829	0.44536747	1.6982061	20	—	—
456537 2007 BG	19.5	X	217.67599	133.36973	168.33110	12.73921	0.3307717	1.41255302	0.7866826	20	—	—
456538 2007 BX_{1}	17.5	X	82.46496	217.43334	199.64542	1.63291	0.0752683	0.22778870	2.6553061	20	1 16.5	20.8
456539 2007 BR_{2}	16.6	X	43.91726	118.61578	330.54040	12.63346	0.1440877	0.22291946	2.6938334	20	1 8.1	19.6
456540 2007 BA_{6}	16.7	X	68.74541	119.61480	337.55174	12.36728	0.1425352	0.23224467	2.6212325	20	2 26.9	19.6
456541 2007 BN_{9}	16.4	X	315.53434	38.05916	105.03214	14.79875	0.1379244	0.21589506	2.7519524	20	—	—
456542 2007 BK_{10}	17.3	X	358.41252	58.49789	23.54304	3.46813	0.0693124	0.21250403	2.7811512	20	—	—
456543 2007 BG_{12}	16.7	X	73.16391	67.77347	319.68751	10.58551	0.1410906	0.21893588	2.7264116	20	—	—
456544 2007 BE_{18}	17.1	X	2.36808	174.08632	315.11577	7.01629	0.2160332	0.22238074	2.6981822	20	—	—
456545 2007 BG_{18}	16.1	X	296.78241	187.43814	307.34603	24.76204	0.1052619	0.20959208	2.8068517	20	—	—
456546 2007 BX_{24}	17.0	X	293.51924	334.09205	120.54483	15.09124	0.1496951	0.20355243	2.8621025	20	11 18.8	20.6
456547 2007 BX_{27}	16.8	X	1.42569	206.38948	313.06752	11.16523	0.0911152	0.22764479	2.6564251	20	1 28.8	19.9
456548 2007 BC_{42}	16.7	X	327.68211	203.83412	311.60307	13.74537	0.1024292	0.21885819	2.7270568	20	—	—
456549 2007 BS_{47}	16.2	X	183.95246	93.38456	132.09426	15.15609	0.1408189	0.19889937	2.9065678	20	12 12.3	21.0
456550 2007 BP_{53}	17.4	X	105.48071	286.02378	96.70327	3.94672	0.1014321	0.22371671	2.6874297	20	1 8.8	20.9
456551 2007 BL_{55}	16.5	X	91.96275	326.04131	111.33842	22.78006	0.0314959	0.23146124	2.6271440	20	2 22.8	20.3
456552 2007 BF_{57}	17.4	X	30.78067	304.62169	108.00989	9.89281	0.3492015	0.21956781	2.7211779	20	—	—
456553 2007 BS_{58}	16.3	X	54.53319	151.04177	306.51378	12.12148	0.1468035	0.22629101	2.6670092	20	2 3.9	19.1
456554 2007 BV_{61}	17.9	X	65.58662	103.04706	317.15518	4.84671	0.3494442	0.22933566	2.6433519	20	2 3.8	20.0
456555 2007 BJ_{62}	16.3	X	300.25112	224.65002	331.10555	28.35931	0.2246036	0.21672697	2.7449056	20	—	—
456556 2007 BU_{76}	17.4	X	45.95042	112.71303	304.53558	7.30794	0.1695257	0.22071233	2.7117625	20	—	—
456557 2007 BW_{77}	16.6	X	262.52353	299.60237	331.07814	13.82728	0.0928510	0.22662766	2.6643674	20	2 10.6	20.6
456558 2007 BE_{100}	17.2	X	64.87715	82.56084	309.71541	5.28947	0.0207851	0.21644165	2.7473174	20	—	—
456559 2007 BC_{101}	16.3	X	204.87511	311.66300	310.20136	8.25131	0.1072493	0.21242645	2.7818283	20	—	—
456560 2007 CT_{1}	16.7	X	299.40669	332.22861	298.99491	13.73363	0.0859860	0.24007470	2.5639238	20	3 17.2	20.4

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
456561 2007 CE_6	17.1	X	64.82304	274.26762	102.54014	9.48646	0.3824270	0.22292396	2.6937971	20	—	—
456562 2007 CX_6	16.1	X	210.78275	350.42791	290.19997	11.89840	0.1559958	0.22247559	2.6974152	20	—	—
456563 2007 CO_{16}	17.3	X	354.42399	167.08862	297.86771	11.82779	0.1756437	0.21890984	2.7266278	20	—	—
456564 2007 CQ_{16}	17.1	X	293.77624	268.97541	293.31072	10.12404	0.1435597	0.22242923	2.6977900	20	—	—
456565 2007 CH_{20}	17.3	X	21.89581	337.79926	132.28483	9.49542	0.1807983	0.22365318	2.6879385	20	—	—
456566 2007 CC_{21}	16.4	X	306.45908	38.74872	134.53473	14.58330	0.1410109	0.21717063	2.7411659	20	—	—
456567 2007 CN_{30}	16.5	X	326.71304	143.49806	316.83735	7.86935	0.1000152	0.20960963	2.8066950	20	—	—
456568 2007 CD_{32}	17.8	X	34.40540	277.99543	131.96004	2.61383	0.0867725	0.21332378	2.7740218	20	—	—
456569 2007 CH_{33}	17.1	X	246.57227	303.38065	315.39962	4.40198	0.1142957	0.22114036	2.7082622	20	1 8.4	21.3
456570 2007 CO_{44}	17.5	X	335.32507	211.16812	316.67940	10.35575	0.1418868	0.22227271	2.6990564	20	—	—
456571 2007 DY_3	17.5	X	309.90649	17.82095	165.94031	11.18786	0.2223781	0.21621852	2.7492071	20	—	—
456572 2007 DB_{13}	16.8	X	326.29713	210.96351	332.68845	17.35794	0.1706224	0.22068182	2.7120125	20	—	—
456573 2007 DQ_{16}	16.5	X	41.43447	135.58317	340.65312	21.46729	0.0663270	0.22516217	2.6759157	20	2 8.9	19.9
456574 2007 DV_{16}	17.5	X	342.94952	355.44085	74.32811	2.97078	0.0436940	0.20419770	2.8560698	20	12 30.2	21.1
456575 2007 DW_{18}	17.5	X	35.03955	93.28278	0.95077	0.87585	0.1117880	0.21938845	2.7226608	20	—	—
456576 2007 DV_{20}	17.5	X	311.55822	251.21350	345.96526	8.47451	0.3416895	0.22143163	2.7058868	20	1 23.9	21.4
456577 2007 DZ_{21}	17.5	X	300.07487	259.45647	324.42282	1.43535	0.0265068	0.22323439	2.6912992	20	2 4.7	21.0
456578 2007 DL_{27}	17.2	X	332.24064	160.79473	6.56991	4.44387	0.2249159	0.21790983	2.7349633	20	—	—
456579 2007 DK_{28}	17.1	X	327.68959	81.00618	140.23511	6.87412	0.0726384	0.22656137	2.6648870	20	3 3.1	20.3
456580 2007 DF_{32}	16.8	X	181.77883	53.92401	158.20165	13.02475	0.2114639	0.19260521	2.9695504	20	11 20.7	22.0
456581 2007 DG_{33}	16.7	X	9.61288	150.48394	350.61175	13.78947	0.0424835	0.22001964	2.7174512	20	1 25.5	20.4
456582 2007 DU_{34}	17.2	X	259.86220	88.70065	163.06498	10.91947	0.1435240	0.21589399	2.7519614	20	1 10.3	21.7
456583 2007 DJ_{39}	17.3	X	326.00901	20.79496	162.69159	13.89422	0.1347956	0.21702731	2.7423726	20	1 3.0	21.1
456584 2007 DC_{50}	16.2	X	334.24692	200.70955	14.55921	20.06192	0.2193953	0.22479981	2.6787905	20	2 22.3	19.6
456585 2007 DK_{51}	16.2	X	305.45125	248.17631	336.84567	13.02750	0.2137250	0.22169852	2.7037146	20	1 20.4	20.2
456586 2007 DL_{55}	16.7	X	107.55479	254.03422	73.00416	2.97474	0.0677350	0.20380288	2.8597573	20	—	—
456587 2007 DU_{58}	16.7	X	19.04407	280.85321	163.29071	15.00729	0.1263420	0.21356640	2.7719205	20	—	—
456588 2007 DH_{60}	17.0	X	344.85149	21.39375	158.52712	11.65928	0.1622237	0.22326398	2.6910614	20	1 20.2	20.3
456589 2007 DN_{60}	16.3	X	305.28214	232.71070	345.13952	12.85931	0.1454437	0.22100268	2.7093869	20	1 21.3	20.2
456590 2007 DD_{93}	17.0	X	15.67839	354.86731	148.24191	14.29088	0.1863752	0.22370600	2.6875154	20	1 24.1	19.6
456591 2007 DO_{103}	16.8	X	295.67026	188.37764	349.02087	8.98366	0.0995410	0.21138147	2.7909888	20	—	—
456592 2007 ES_{12}	17.3	X	315.06723	1.71638	164.88799	15.13205	0.2343253	0.21424684	2.7660483	20	—	—
456593 2007 EX_{14}	17.0	X	352.29527	35.70663	165.79129	3.02950	0.2436615	0.22701431	2.6613412	20	2 21.9	19.2
456594 2007 EB_{25}	16.3	X	47.19059	109.91963	16.69001	17.26620	0.1442585	0.22242673	2.6978102	20	3 10.6	19.4
456595 2007 EJ_{41}	16.8	X	284.64222	273.15721	287.33670	1.74176	0.1998457	0.21191902	2.7862672	20	—	—
456596 2007 EO_{75}	16.5	X	109.27924	33.59606	6.21582	6.45942	0.0513757	0.21647961	2.7469962	20	1 31.2	20.3
456597 2007 EF_{82}	16.4	X	345.46884	186.20270	17.60007	16.98410	0.1971875	0.22470425	2.6795499	20	2 27.8	19.5
456598 2007 EQ_{104}	17.4	X	7.21408	99.30565	2.05629	7.37939	0.1867450	0.21416358	2.7667652	20	—	—
456599 2007 ET_{138}	16.9	X	296.35627	94.37726	145.24768	12.72919	0.2263173	0.22327012	2.6910121	20	1 22.5	20.8
456600 2007 ED_{146}	17.4	X	148.96270	195.07103	148.90207	6.64048	0.0306084	0.21470604	2.7621030	20	1 5.4	21.3
456601 2007 EE_{146}	16.5	X	147.87059	353.72679	20.99629	6.25687	0.0669537	0.22169023	2.7037821	20	2 17.1	20.4
456602 2007 EY_{155}	16.5	X	338.76275	169.31909	344.14632	12.55577	0.0971810	0.21385998	2.7693831	20	—	—
456603 2007 EB_{157}	16.6	X	297.36190	205.20044	32.94895	9.97864	0.1188497	0.21801702	2.7340668	20	2 11.0	20.5
456604 2007 EK_{161}	16.9	X	0.50604	311.54693	146.75834	5.77887	0.1314412	0.21069935	2.7970094	20	—	—
456605 2007 ER_{188}	16.8	X	263.50188	50.88684	179.67652	12.62148	0.1500184	0.21299739	2.7768550	20	—	—
456606 2007 EV_{217}	16.6	X	239.48759	237.29675	34.13673	5.30081	0.1120804	0.21129832	2.7917211	20	1 18.8	21.0
456607 2007 ET_{218}	17.0	X	310.29055	134.33553	44.27654	11.29117	0.2450730	0.21275005	2.7790068	20	—	—
456608 2007 FU_7	17.1	X	42.88953	87.53145	295.80891	1.03671	0.0794969	0.20285056	2.8687007	20	—	—
456609 2007 FR_{35}	15.8	X	119.31626	111.12189	136.92174	26.80077	0.2177293	0.17988250	3.1079696	20	11 17.5	21.6
456610 2007 FL_{42}	16.1	X	341.86456	24.69265	197.68184	36.02853	0.2995468	0.22417130	2.6837952	20	2 16.4	19.7
456611 2007 GV_{11}	16.4	X	239.26387	118.77971	171.54167	19.81368	0.3281095	0.21295471	2.7772260	20	1 27.1	21.8
456612 2007 GD_{14}	16.8	X	334.99451	128.38588	47.58595	9.86527	0.1377749	0.21796385	2.7345114	20	1 6.6	20.3
456613 2007 GE_{36}	16.8	X	312.81718	137.99887	50.91201	9.34134	0.1225726	0.21196381	2.7858746	20	—	—
456614 2007 GP_{39}	16.6	X	189.43749	256.46467	47.49159	7.11393	0.0616288	0.20655987	2.8342539	20	1 7.5	20.9
456615 2007 GQ_{60}	15.8	X	77.36041	36.76370	233.42877	8.85939	0.0851117	0.17625089	3.1505170	20	10 12.0	20.4
456616 2007 GB_{71}	17.2	X	294.61325	42.28214	169.58015	2.58221	0.1110004	0.21410097	2.7673045	20	1 3.4	21.0
456617 2007 GK_{77}	16.4	X	142.60193	279.36994	64.89584	10.44609	0.0582808	0.20341819	2.8633615	20	1 4.1	20.5
456618 2007 HB	19.7	X	118.98770	103.80569	67.37498	23.26843	0.3968667	0.32173700	2.1092855	20	9 11.1	24.3
456619 2007 HU_3	16.9	X	309.54470	170.25341	71.29651	16.17528	0.2030053	0.21852678	2.7298133	20	2 20.8	20.9
456620 2007 HQ_{40}	16.6	X	84.00188	217.54219	106.80316	2.23738	0.2180011	0.18423928	3.0587776	20	—	—
456621 2007 HE_{41}	16.0	X	106.20530	15.85190	230.86377	13.04397	0.1622255	0.17576982	3.1562629	20	10 22.5	21.1
456622 2007 HW_{41}	16.8	X	114.30911	183.64191	41.86581	0.36394	0.1177428	0.18129452	3.0918110	20	10 4.1	21.6
456623 2007 HU_{74}	16.1	X	123.78436	173.26807	61.69762	11.64718	0.0869455	0.17753592	3.1352961	20	10 25.6	20.9
456624 2007 HS_{95}	16.2	X	102.91024	52.55270	234.27869	6.07967	0.1145141	0.18188463	3.0851199	20	12 3.9	21.0
456625 2007 JR_{19}	16.3	X	124.88546	16.43462	222.37914	12.14530	0.0609869	0.18084208	3.0969657	20	10 26.4	21.0
456626 2007 JL_{25}	16.4	X	104.84521	159.19001	88.11674	10.56424	0.0543610	0.17511758	3.1640953	20	10 18.8	21.2
456627 Cristianmartins	16.7	X	246.66197	180.75028	92.42342	10.20460	0.1134533	0.21263013	2.7800515	20	1 27.7	21.0
456628 2007 LG_{16}	16.1	X	13.55028	268.40028	144.19058	11.62609	0.1098238	0.18949748	3.0019291	20	—	—
456629 2007 LK_{19}	16.0	X	75.25803	216.57717	121.68489	18.27778	0.2049595	0.18145024	3.0900418	20	—	—
456630 2007 LP_{33}	15.4	X	126.53052	357.36287	319.23725	24.46257	0.2836840	0.17744811	3.1363304	20	—	—
456631 2007 PN_{11}	17.6	X	271.63650	355.93798	325.58603	9.50059	0.2206925	0.28855365	2.2680450	20	3 30.5	21.1
456632 2007 PJ_{15}	15.9	X	155.06299	299.65081	342.45386	10.09175	0.2883135	0.18108689	3.0941739	20	—	—
456633 2007 PJ_{19}	17.2	X	176.63903	358.89511	310.49548	3.82535	0.1984637	0.26683677	2.3894921	20	—	—
456634 2007 PE_{25}	17.6	X	210.20743	208.74773	110.87871	7.86972	0.2804392	0.27519610	2.3408551	20	2 10.0	21.9
456635 2007 PD_{38}	16.8	X	164.08975	48.48362	309.28596	5.37814	0.2700524	0.26737746	2.3862697	20	2 20.1	20.9
456636 2007 PN_{45}	16.5	X	152.98244	329.57762	103.17794	24.13320	0.1487595	0.28142889	2.3061644	20	5 17.5	20.4
456637 2007 PR_{48}	16.8	X	148.12221	342.67067	20.73716	24.33071	0.2020519	0.26792918	2.3829926	20	2 22.5	21.0
456638 2007 QN_6	17.6	X	138.00752	24.30460	331.14581	9.01340	0.2271356	0.26411420	2.4058851	20	1 24.9	21.1
456639 2007 QP_6	17.6	X	170.62322	113.65542	244.23718	0.43702	0.2018523	0.27164740	2.3611977	20	2 22.2	21.2
456640 2007 QJ_9	17.3	X	162.48151	208.66343	167.91926	7.54407	0.2369205	0.27163950	2.3612434	20	3 11.6	21.3

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	m		°	°	°	°		°				
456641 2007 QL_9	18.2	X	174.30944	158.23385	201.96245	1.29280	0.2457049	0.27173579	2.3606856	20	3 1.0	22.3
456642 2007 QM_{13}	17.7	X	137.53067	128.65831	326.04370	4.89761	0.1720484	0.28045969	2.3114743	20	5 21.5	21.1
456643 2007 QC_{15}	15.7	X	59.84331	41.36992	337.00595	7.94233	0.0773365	0.17468478	3.1693194	20	—	—
456644 2007 QL_{17}	17.9	X	144.71102	101.72103	273.04638	1.45065	0.1733369	0.26808310	2.3820805	20	2 16.5	21.3
456645 2007 RJ_4	17.7	X	212.71377	337.03093	358.20855	6.27008	0.2360212	0.27693650	2.3310374	20	3 1.4	21.7
456646 2007 RJ_5	16.4	X	341.03599	324.92371	132.55344	10.73356	0.0624151	0.17747294	3.1360377	20	—	—
456647 2007 RH_{15}	17.7	X	202.81046	113.78867	203.56842	2.16188	0.2557967	0.27089038	2.3655946	20	1 31.5	21.9
456648 2007 RK_{18}	17.8	X	133.09725	139.03332	246.07238	0.36423	0.2111393	0.26531244	2.3986357	20	2 22.4	21.1
456649 2007 RU_{18}	17.8	X	199.08007	115.49321	188.00761	1.68572	0.2080420	0.26878795	2.3779142	20	1 11.8	21.8
456650 2007 RY_{18}	17.3	X	148.69265	346.35679	14.25175	2.61171	0.2062102	0.26499218	2.4005680	20	2 7.8	20.9
456651 2007 RT_{19}	18.3	X	41.35844	96.56651	197.95112	24.38618	0.3768796	0.38787864	1.8621106	20	12 13.2	21.8
456652 2007 RA_{21}	17.8	X	186.44514	207.08716	142.49097	1.78607	0.1966096	0.27348292	2.3506208	20	2 25.7	21.6
456653 2007 RB_{21}	18.3	X	138.52603	205.69863	146.59808	1.76491	0.2026091	0.26331616	2.4107437	20	1 17.0	21.7
456654 2007 RV_{22}	17.9	X	169.30501	136.21971	228.94785	1.59333	0.2323715	0.27136819	2.3628170	20	3 2.2	21.7
456655 2007 RY_{23}	17.9	X	192.57724	112.13007	240.55640	1.18988	0.2578203	0.27436034	2.3456065	20	3 5.8	21.9
456656 2007 RF_{33}	17.1	X	219.85282	259.27751	64.48153	7.30792	0.1379431	0.27564363	2.3383207	20	2 26.8	20.7
456657 2007 RO_{33}	17.8	X	171.60702	294.08856	47.47348	5.46158	0.2545551	0.26753170	2.3853524	20	2 8.9	21.9
456658 2007 RF_{37}	17.7	X	147.61019	358.39904	12.36577	1.26328	0.2016446	0.26605767	2.3941546	20	2 18.3	21.3
456659 2007 RL_{37}	17.8	X	154.58756	334.55253	21.89971	1.59724	0.1986480	0.26572444	2.3961558	20	2 7.1	21.4
456660 2007 RN_{38}	17.7	X	317.58799	186.82656	140.48840	5.51718	0.2068722	0.29682441	2.2257155	20	6 28.1	19.4
456661 2007 RD_{54}	17.5	X	164.74369	35.11488	308.93096	4.36090	0.1945028	0.26582010	2.3955809	20	1 31.3	21.3
456662 2007 RF_{55}	18.0	X	268.23362	351.48272	300.55775	3.92946	0.0741829	0.27711857	2.3300163	20	3 8.9	21.1
456663 2007 RJ_{55}	17.2	X	193.58964	162.61347	183.32596	11.08196	0.2455859	0.27100201	2.3649450	20	2 26.4	21.4
456664 2007 RQ_{55}	16.6	X	129.28310	124.66915	245.65567	3.89003	0.1370698	0.18435555	3.0574914	20	1 31.2	21.3
456665 2007 RH_{59}	17.4	X	151.16032	255.08681	177.14099	8.90186	0.2237323	0.27736715	2.3286240	20	5 11.8	21.3
456666 2007 RO_{60}	18.1	X	194.23283	169.12105	202.96963	5.10290	0.1836055	0.27773517	2.3265665	20	3 30.1	21.9
456667 2007 RK_{66}	17.9	X	132.81610	224.94932	171.68481	4.79981	0.2273867	0.26861056	2.3789610	20	3 9.2	21.5
456668 2007 RX_{76}	17.9	X	177.49776	195.61189	165.63624	6.63976	0.1464066	0.27324588	2.3519801	20	2 29.6	21.5
456669 2007 RJ_{78}	18.5	X	130.30713	218.42252	174.05922	3.92606	0.2138247	0.26741384	2.3860533	20	2 28.6	22.0
456670 2007 RH_{80}	16.3	X	230.07731	274.34044	345.27619	13.39938	0.1344492	0.18906746	3.0064791	20	—	—
456671 2007 RK_{82}	18.2	X	139.10031	17.99254	352.48525	5.87592	0.2344506	0.26535901	2.3983551	20	2 14.1	21.7
456672 2007 RM_{82}	18.2	X	355.30934	262.76186	355.21824	4.47720	0.1503878	0.29313217	2.2443663	20	6 2.1	19.8
456673 2007 RG_{91}	18.0	X	151.93656	210.67724	158.00013	1.64444	0.1847308	0.26663361	2.3907057	20	2 17.7	21.6
456674 2007 RF_{98}	17.7	X	130.10365	269.81080	159.74888	6.85005	0.0833218	0.27191959	2.3596217	20	4 3.2	20.7
456675 2007 RG_{112}	18.2	X	140.40014	179.83847	187.64748	2.41743	0.2010589	0.26378036	2.4079146	20	2 6.2	21.7
456676 2007 RM_{112}	18.1	X	32.21504	261.98091	359.05073	6.08310	0.1685867	0.29927244	2.2135614	20	9 3.5	20.1
456677 Yepeijian	17.6	X	134.86525	190.29658	154.78799	4.19018	0.2027057	0.26005854	2.4308340	20	1 4.4	20.9
456678 2007 RF_{124}	17.7	X	138.01834	233.11937	140.45640	2.06779	0.2225627	0.26526814	2.3989028	20	2 14.3	21.2
456679 2007 RX_{126}	17.9	X	174.96232	164.74364	172.41610	1.17264	0.2029236	0.26663877	2.3906749	20	2 1.2	21.5
456680 2007 RK_{134}	17.7	X	161.34946	279.91148	67.92556	4.16046	0.2167039	0.26635293	2.3923850	20	2 4.9	21.5
456681 2007 RO_{134}	17.9	X	171.14385	254.61080	108.68249	3.12460	0.2453026	0.27018507	2.3697097	20	3 4.0	21.8
456682 2007 RV_{139}	17.7	X	154.36771	34.08148	330.05353	1.58288	0.2292154	0.26748001	2.3856597	20	2 18.1	21.5
456683 2007 RP_{151}	15.6	X	138.40857	344.79620	291.24072	9.29725	0.1865105	0.17566421	3.1575279	20	12 24.4	21.0
456684 2007 RL_{156}	16.1	X	330.57175	302.05883	173.64704	9.00967	0.0565543	0.17532477	3.1616020	20	—	—
456685 2007 RZ_{156}	17.8	X	128.31397	334.67991	26.36138	1.43319	0.1783271	0.26233343	2.4167605	20	1 14.3	20.9
456686 2007 RD_{158}	17.5	X	121.54733	250.82814	127.79120	3.03239	0.2258696	0.26243125	2.4161600	20	2 4.2	20.7
456687 2007 RQ_{163}	18.2	X	171.54688	216.56635	200.11005	6.09681	0.1084546	0.28207437	2.3026449	20	5 4.8	21.4
456688 2007 RR_{163}	16.1	X	255.05376	222.78963	301.79060	6.18706	0.0864101	0.17072837	3.2180954	20	12 15.7	20.7
456689 2007 RU_{165}	18.0	X	318.29297	340.42912	323.23976	4.13005	0.1514116	0.29347452	2.2426205	20	5 28.1	20.1
456690 2007 RY_{165}	15.8	X	276.91872	191.53200	346.95484	28.28114	0.1536868	0.17779021	3.1323058	20	—	—
456691 2007 RE_{195}	17.8	X	125.22886	46.94971	339.92272	3.73204	0.2086572	0.26325820	2.4110975	20	2 16.8	21.1
456692 2007 RJ_{206}	18.5	X	117.23741	302.09253	108.54743	2.13441	0.1663118	0.26580384	2.3956786	20	3 4.0	21.5
456693 2007 RM_{207}	17.8	X	153.70068	233.24028	129.24109	3.14588	0.1844043	0.26582986	2.3955223	20	2 12.2	21.2
456694 2007 RB_{210}	18.2	X	103.23012	328.29337	115.24589	3.41577	0.1755510	0.26806655	2.3821785	20	4 1.7	21.2
456695 2007 RT_{212}	17.5	X	133.31827	123.23850	250.79985	4.41842	0.2132889	0.26443643	2.4039302	20	2 7.4	21.0
456696 2007 RK_{213}	18.1	X	163.91879	170.36705	183.08569	1.09136	0.2007163	0.26834186	2.3805489	20	2 11.0	21.6
456697 2007 RO_{219}	17.5	X	177.84534	255.54849	100.78544	6.63894	0.2849397	0.27107455	2.3645230	20	3 3.7	21.7
456698 2007 RT_{223}	17.9	X	125.41305	57.43190	20.63668	7.90443	0.0721683	0.27016086	2.3698513	20	4 6.0	20.9
456699 2007 RL_{234}	17.6	X	187.36484	197.05761	129.53686	6.08826	0.2457182	0.26820677	2.3813482	20	1 31.6	21.8
456700 2007 RU_{240}	17.3	X	148.13401	127.05706	230.55612	5.55910	0.1627610	0.26569111	2.3963561	20	1 27.3	20.8
456701 2007 RV_{241}	17.9	X	148.94090	161.28033	197.61797	0.73879	0.3108168	0.26520233	2.3992996	20	2 13.5	21.8
456702 2007 RL_{244}	18.4	X	97.97084	332.36320	60.18528	2.02289	0.1967914	0.25762650	2.4461083	20	1 19.9	21.2
456703 2007 RM_{244}	18.5	X	117.22506	345.79440	57.28160	2.28014	0.1817467	0.26346190	2.4098546	20	2 25.7	21.6
456704 2007 RY_{244}	18.4	X	220.46414	195.72048	165.23365	5.53321	0.1175475	0.27892212	2.3199613	20	4 13.8	21.7
456705 2007 RZ_{251}	17.3	X	167.51404	194.52356	211.66564	6.03688	0.1191666	0.27627367	2.3347643	20	4 15.9	20.7
456706 2007 RF_{253}	17.5	X	153.05554	20.91320	33.88570	6.61786	0.1679837	0.26998772	2.3708644	20	4 16.4	21.1
456707 2007 RV_{265}	18.2	X	124.73156	107.95785	262.67747	0.70236	0.2148850	0.26197661	2.4189546	20	1 26.9	21.5
456708 2007 RL_{273}	17.6	X	113.67589	106.49240	275.56978	1.56711	0.1698047	0.25962428	2.4335439	20	1 22.3	20.4
456709 2007 RV_{286}	18.3	X	172.56009	64.55218	286.70924	0.59659	0.2055715	0.26928371	2.3749948	20	2 16.3	22.1
456710 2007 RX_{287}	18.5	X	91.04690	226.50614	156.39759	3.60818	0.2132369	0.25458471	2.4655539	20	—	—
456711 2007 RG_{289}	16.4	X	359.26194	290.85987	11.89001	15.65256	0.1454969	0.22370499	2.6875235	20	8 26.4	19.4
456712 2007 RD_{290}	17.3	X	169.75906	1.14229	0.53309	12.19516	0.2321880	0.26811993	2.3818623	20	3 1.9	21.3
456713 2007 RU_{290}	17.8	X	124.16212	23.75625	37.33136	5.51948	0.2212105	0.26717627	2.3874674	20	4 1.7	21.2
456714 2007 RF_{292}	18.4	X	83.57885	321.53965	133.67809	1.69117	0.1479502	0.26620999	2.3932413	20	3 15.6	20.9
456715 2007 RG_{292}	18.0	X	96.65868	297.13586	159.18484	2.35148	0.1673023	0.26876799	2.3780320	20	4 8.2	20.9
456716 2007 RY_{293}	18.2	X	66.96309	72.14200	61.39917	2.99516	0.1092626	0.27228067	2.3575351	20	4 7.1	20.7
456717 2007 RV_{295}	17.6	X	168.91783	288.93251	33.01111	6.40707	0.1498235	0.26208933	2.4182609	20	1 5.8	21.2
456718 2007 RP_{298}	18.2	X	123.31437	14.22966	32.04167	5.17097	0.2080814	0.26549337	2.3975459	20	3 11.9	21.7
456719 2007 RL_{301}	18.2	X	130.07060	224.65088	199.85157	1.08898	0.1602552	0.27053724	2.3676528	20	4 3.9	21.4
456720 2007 RY_{316}	17.7	X	291.69162	95.48522	213.47058	4.79651	0.1833197	0.28730334	2.2746204	20	4 16.4	20.4

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	m		°	°	°	°		°				
456721 2007 RK_{318}	18.1	X	164.07943	341.96176	20.95263	1.34623	0.2038132	0.26870471	2.3784053	20	2 23.7	21.7
456722 2007 RK_{322}	17.9	X	157.83081	336.49075	42.28964	3.92378	0.1992143	0.27011111	2.3701423	20	3 9.6	21.6
456723 2007 RK_{323}	17.9	X	52.26492	263.05426	207.31789	8.35932	0.2021796	0.26147937	2.4220202	20	2 14.2	20.0
456724 2007 SZ_{5}	17.7	X	120.54003	69.55809	317.67865	2.23763	0.2378128	0.26187779	2.4195630	20	2 15.4	21.0
456725 2007 SF_{7}	15.8	X	129.51094	283.99934	20.38445	15.81698	0.2236207	0.17332138	3.1859182	20	—	—
456726 2007 SO_{7}	18.2	X	119.21510	266.23868	131.60144	2.03814	0.1684007	0.26309088	2.4121197	20	2 18.6	21.4
456727 2007 SY_{13}	17.8	X	176.81272	56.68228	284.37390	1.07924	0.2316334	0.26745371	2.3858161	20	2 8.9	21.8
456728 2007 SA_{14}	17.8	X	134.98208	99.98805	269.26798	1.09867	0.2507635	0.26222776	2.4174098	20	2 8.9	21.5
456729 2007 SC_{16}	18.2	X	231.31145	196.87766	165.95357	6.77785	0.1314954	0.28492413	2.2872654	20	4 27.3	21.5
456730 2007 SQ_{22}	17.9	X	145.85290	8.64574	19.50012	1.30615	0.1877940	0.26844889	2.3799161	20	3 7.8	21.4
456731 Uligrözinger	17.7	X	104.39844	86.99685	317.50526	3.84553	0.2516306	0.25918097	2.4363180	20	2 20.9	20.9
456732 2007 TP_{9}	17.7	X	155.71529	14.90134	7.06603	4.59020	0.1952441	0.26861714	2.3789222	20	3 10.5	21.4
456733 2007 TD_{12}	17.5	X	147.48013	139.68910	233.78233	1.22696	0.2347118	0.26448472	2.4036376	20	2 23.6	21.2
456734 2007 TZ_{12}	17.9	X	125.14733	4.63711	23.44960	2.95245	0.1983331	0.26289854	2.4132960	20	2 17.8	21.2
456735 2007 TA_{14}	18.1	X	6.70627	135.83026	196.92566	19.12550	0.1584288	0.38346935	1.8763576	20	12 1.0	20.1
456736 2007 TG_{14}	17.6	X	150.99234	15.74200	0.09693	4.38013	0.1903738	0.26601825	2.3943911	20	2 27.4	21.2
456737 2007 TU_{15}	17.8	X	139.05543	158.73974	256.10462	3.13268	0.2766400	0.26832211	2.3806657	20	4 9.9	21.8
456738 2007 TX_{17}	18.2	X	150.62818	7.02011	19.95778	4.77793	0.1762668	0.26717332	2.3874851	20	3 11.2	21.9
456739 2007 TR_{21}	17.8	X	255.66982	283.17957	49.49313	5.13045	0.1921686	0.28372570	2.2937016	20	4 7.1	21.1
456740 2007 TF_{23}	17.4	X	124.62377	47.92855	1.45878	6.47923	0.2156784	0.26442340	2.4040092	20	3 16.6	20.8
456741 2007 TV_{25}	15.8	X	233.07533	80.56676	289.15247	0.50330	0.1663910	0.12694701	3.9209178	20	5 7.2	21.9
456742 2007 TU_{26}	17.7	X	100.15067	58.79557	21.62703	5.38412	0.1382393	0.26574380	2.3960394	20	3 18.4	20.6
456743 2007 TS_{28}	18.2	X	162.45576	26.81167	300.09921	0.26066	0.1946621	0.25965440	2.4333556	20	1 9.1	22.0
456744 2007 TG_{29}	18.0	X	73.23706	259.60332	203.90850	1.92162	0.1425698	0.26291781	2.4131781	20	3 9.1	20.6
456745 2007 TA_{35}	17.9	X	219.34024	212.73840	137.14825	1.95098	0.2009428	0.27567412	2.3381483	20	3 25.3	21.6
456746 2007 TM_{43}	18.0	X	113.27530	14.60467	48.77977	5.12199	0.1655012	0.26256637	2.4153310	20	3 17.8	21.2
456747 2007 TF_{46}	17.4	X	159.17829	24.74647	357.64396	3.57574	0.2515468	0.26707385	2.3880778	20	3 17.0	21.3
456748 2007 TA_{51}	15.8	X	281.46770	234.27108	211.05957	9.53707	0.0618400	0.15070765	3.4971359	20	10 13.6	20.6
456749 2007 TN_{52}	18.0	X	253.25577	302.89240	22.05382	6.91006	0.1331341	0.27787752	2.3257719	20	3 30.9	21.3
456750 2007 TM_{56}	18.0	X	140.27063	34.01530	358.63404	1.52769	0.1762511	0.26470911	2.4022791	20	3 6.9	21.5
456751 2007 TP_{58}	16.1	X	79.14431	165.49181	170.67824	11.81997	0.1013057	0.16981314	3.2296480	20	—	—
456752 2007 TF_{73}	18.1	X	188.43001	161.42268	201.06216	6.54760	0.1395620	0.27089033	2.3655949	20	3 11.5	21.9
456753 2007 TY_{79}	18.2	X	4.20526	118.44854	221.05769	21.53940	0.0909142	0.38404669	1.8744766	20	11 24.4	19.8
456754 2007 TQ_{80}	17.9	X	180.70669	303.70173	53.25743	3.81876	0.2215966	0.26980371	2.3719422	20	3 3.7	21.8
456755 2007 TJ_{81}	18.0	X	149.36301	201.03695	189.24185	2.14804	0.2140248	0.26757813	2.3850765	20	3 15.5	21.6
456756 2007 TX_{84}	17.9	X	263.44739	94.04070	3.36007	19.48484	0.1546842	0.38104059	1.8843225	20	11 4.7	19.5
456757 2007 TZ_{91}	17.4	X	122.45335	338.49974	79.84457	4.02276	0.1952048	0.26678032	2.3898291	20	3 25.1	20.7
456758 2007 TP_{93}	17.7	X	92.77475	341.43872	79.94599	2.52577	0.1658846	0.25855517	2.4402476	20	2 15.9	20.5
456759 2007 TX_{93}	17.8	X	270.69465	129.01748	194.21599	7.16434	0.1518848	0.28084195	2.3093764	20	4 15.1	20.8
456760 2007 TU_{94}	17.4	X	203.24698	219.30940	106.29222	3.49939	0.2724613	0.27039910	2.3684591	20	2 12.1	21.5
456761 2007 TO_{98}	16.0	X	166.91283	269.12006	25.69524	18.83744	0.3508955	0.18136354	3.0910265	20	—	—
456762 2007 TB_{99}	17.6	X	125.84499	244.03591	192.85846	9.99013	0.1121119	0.27104933	2.3646697	20	4 10.3	20.8
456763 2007 TJ_{103}	17.6	X	35.84480	318.81311	195.55178	4.93513	0.0831409	0.26471402	2.4022493	20	3 11.0	20.2
456764 2007 TW_{103}	18.5	X	144.80382	224.51758	158.02680	2.16167	0.2032913	0.26361221	2.4089384	20	3 1.3	22.2
456765 2007 TL_{105}	17.9	X	132.45540	184.21424	201.67664	2.90704	0.1331979	0.26285703	2.4135501	20	2 12.7	21.1
456766 2007 TV_{107}	16.1	X	216.14075	177.79028	203.65887	2.29522	0.2670560	0.12559848	3.9489333	20	5 1.6	22.6
456767 2007 TJ_{113}	17.1	X	143.82765	332.91966	34.54408	14.57206	0.2619174	0.26386677	2.4073889	20	2 23.3	21.2
456768 2007 TO_{121}	18.8	X	118.71750	248.96840	154.95642	1.05859	0.1716894	0.26240761	2.4163051	20	2 26.2	22.0
456769 2007 TW_{121}	17.5	X	202.61639	323.17201	32.29624	6.92319	0.2086391	0.27362143	2.3498275	20	3 19.7	21.4
456770 2007 TC_{125}	18.1	X	171.34352	299.46893	80.98684	2.30531	0.1954380	0.27027187	2.3692023	20	3 22.9	21.8
456771 2007 TE_{131}	17.8	X	100.00609	286.58956	210.50753	4.28831	0.1072038	0.27573939	2.3377793	20	5 30.2	20.8
456772 2007 TW_{135}	17.3	X	116.34526	27.86509	331.46299	12.24329	0.2949890	0.25782633	2.4448443	20	1 17.3	20.7
456773 2007 TQ_{143}	15.6	X	177.43562	269.02925	12.02534	25.64668	0.2200116	0.18028280	3.1033674	20	—	—
456774 2007 TW_{143}	18.1	X	217.86210	49.33274	294.33295	0.63847	0.1774646	0.27674434	2.3321164	20	3 15.8	21.7
456775 2007 TY_{144}	18.2	X	141.31142	108.54289	279.00676	0.91926	0.2147472	0.26565693	2.3965617	20	3 4.6	21.7
456776 2007 TQ_{145}	17.8	X	104.75888	358.91866	45.78186	2.93824	0.2176642	0.25934157	2.4353121	20	2 18.5	20.9
456777 2007 TS_{155}	18.0	X	156.99501	33.95179	339.59548	3.42230	0.1910588	0.26682691	2.3895510	20	2 29.2	21.7
456778 2007 TQ_{157}	17.5	X	259.33489	91.67915	235.24354	5.33428	0.1532876	0.28180747	2.3040985	20	4 4.3	20.7
456779 2007 TV_{162}	17.6	X	252.85813	22.59411	296.37001	1.10561	0.2204466	0.27959578	2.3162334	20	3 13.4	21.1
456780 2007 TT_{169}	17.5	X	184.15437	272.81489	78.60966	4.24417	0.2403810	0.26941901	2.3741996	20	2 29.5	21.6
456781 2007 TY_{170}	17.9	X	311.16730	87.00296	202.24085	2.11342	0.1549616	0.28565573	2.2833584	20	4 22.9	20.0
456782 2007 TV_{171}	18.0	X	151.44389	301.52991	72.07372	3.12323	0.2269031	0.26590378	2.3950783	20	2 28.7	21.8
456783 2007 TF_{174}	15.2	X	84.42243	275.35772	23.13654	14.96922	0.0905604	0.15702452	3.4027058	20	11 18.2	20.3
456784 2007 TZ_{174}	16.3	X	209.67900	19.61344	6.01696	2.35072	0.2650672	0.12288517	4.0068498	20	5 1.2	22.9
456785 2007 TE_{175}	18.5	X	82.25325	247.98435	187.22046	2.02953	0.1883170	0.25883011	2.4385192	20	2 20.7	21.2
456786 2007 TX_{177}	17.7	X	110.49078	198.04879	222.37928	3.58913	0.0821753	0.26233226	2.4167677	20	2 22.8	20.7
456787 2007 TB_{187}	17.9	X	178.17487	261.06487	93.93272	2.32412	0.2099801	0.26879823	2.3778536	20	2 26.9	21.8
456788 2007 TA_{195}	18.2	X	59.72305	228.91022	207.93525	1.60419	0.1696063	0.25446563	2.4663230	20	1 11.3	20.5
456789 2007 TD_{200}	18.0	X	104.65470	32.01189	18.96962	1.54946	0.1827957	0.26050724	2.4280420	20	2 20.4	21.1
456790 2007 TK_{200}	18.3	X	109.15800	89.40776	311.07800	2.16609	0.1111445	0.26522171	2.3991828	20	1 30.9	21.3
456791 2007 TK_{204}	18.0	X	81.06065	8.81875	78.20241	4.02405	0.1448190	0.25993628	2.4315962	20	3 2.1	20.7
456792 2007 TE_{205}	17.9	X	138.99823	322.12777	85.70115	3.70497	0.0885817	0.26636635	2.3923046	20	3 17.3	21.1
456793 2007 TH_{205}	18.1	X	207.14180	276.07132	77.60676	3.85280	0.1405964	0.27208717	2.3586527	20	3 21.9	21.8
456794 2007 TC_{210}	18.2	X	113.96507	333.28196	32.33033	2.27537	0.1947975	0.25963704	2.4334642	20	1 5.3	21.1
456795 2007 TK_{230}	18.0	X	186.47317	249.40817	104.98079	2.49167	0.2072967	0.26891269	2.3771788	20	3 4.1	21.8
456796 2007 TE_{236}	18.0	X	207.11045	198.46562	138.69868	1.89182	0.1891062	0.27170091	2.3608877	20	2 28.1	21.9
456797 2007 TB_{239}	17.7	X	208.61427	152.18750	185.13010	6.25952	0.1855961	0.27205001	2.3588675	20	2 28.1	21.6
456798 2007 TL_{244}	17.0	X	210.91763	70.88365	312.18919	6.94638	0.1063082	0.27978046	2.3152139	20	4 28.6	20.5
456799 2007 TC_{246}	17.1	X	232.25093	62.09143	228.94390	22.33955	0.2677477	0.27116946	2.3639713	20	1 15.8	21.7
456800 2007 TY_{247}	18.1	X	306.90483	354.10682	279.10893	3.33651	0.1462816	0.27971515	2.3155743	20	3 23.2	20.7

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
456801 2007 TA_{259}	17.8	X	96.70111	99.02825	7.55844	7.37794	0.1107938	0.27125449	2.3634773	20	4 11.4	20.5
456802 2007 TH_{265}	17.4	X	117.57707	94.18275	352.82329	6.78590	0.1031062	0.27143782	2.3624129	20	4 9.9	20.6
456803 2007 TN_{270}	18.0	X	217.71659	7.44156	340.90980	2.02769	0.2245163	0.27565500	2.3382564	20	3 20.2	22.0
456804 2007 TL_{291}	18.0	X	157.63103	96.09865	247.81511	1.36377	0.1848641	0.26423792	2.4051341	20	1 23.6	21.5
456805 2007 TZ_{291}	16.5	X	211.16947	164.35196	226.23535	2.00207	0.2889699	0.12562611	3.9483543	20	5 7.4	23.2
456806 2007 TZ_{299}	17.8	X	231.64654	105.14072	226.35528	1.52056	0.2371153	0.27627829	2.3347383	20	3 9.9	21.8
456807 2007 TW_{304}	17.8	X	88.21434	232.27228	167.92433	9.13321	0.2848150	0.25988002	2.4319471	20	1 27.6	20.4
456808 2007 TS_{312}	18.0	X	152.19402	313.43783	75.80837	3.39186	0.2015500	0.26787211	2.3833311	20	3 17.9	21.7
456809 2007 TQ_{351}	15.8	X	113.92569	182.13376	152.82932	12.28663	0.0558204	0.17789906	3.1310279	20	—	—
456810 2007 TV_{356}	16.5	X	150.20320	250.23380	30.70956	0.50946	0.0067723	0.17073859	3.2179670	20	—	—
456811 2007 TD_{357}	18.2	X	154.31755	324.77484	40.81922	2.87201	0.2207381	0.26437968	2.4042742	20	2 20.8	22.1
456812 2007 TS_{358}	17.3	X	113.81163	301.77811	200.33538	28.70965	0.2407942	0.28189722	2.3036095	20	7 3.0	21.6
456813 2007 TV_{363}	18.3	X	93.50930	198.24040	216.58639	1.91613	0.1866786	0.25528877	2.4610187	20	2 9.9	21.2
456814 2007 TP_{366}	17.5	X	142.37316	92.34251	304.40955	3.24147	0.1619779	0.26531249	2.3986355	20	3 11.3	21.1
456815 2007 TK_{372}	16.5	X	345.77340	352.96092	36.20670	7.25046	0.0758867	0.15642288	3.4114252	20	11 3.1	20.9
456816 2007 TP_{375}	17.5	X	122.78432	262.89259	118.63159	3.25589	0.2044058	0.26300646	2.4126358	20	2 6.7	20.7
456817 2007 TJ_{377}	15.8	X	215.09679	229.79717	13.00875	16.21036	0.0416552	0.17320244	3.1873766	20	—	—
456818 2007 TN_{389}	17.8	X	97.24957	242.46693	147.30602	3.30566	0.1815270	0.25646481	2.4534894	20	1 11.9	20.7
456819 2007 TZ_{392}	18.1	X	121.34410	33.72945	4.43776	2.01129	0.1875720	0.26263378	2.4149177	20	2 24.4	21.3
456820 2007 TA_{393}	18.2	X	84.81931	34.65228	24.01868	1.23039	0.2096823	0.25750751	2.4468618	20	2 6.6	20.7
456821 2007 TO_{410}	17.3	X	174.62345	251.69397	121.34733	8.27030	0.1728770	0.26950225	2.3737107	20	3 17.8	21.1
456822 2007 TN_{412}	17.4	X	248.72337	39.01950	291.96361	6.73446	0.1294621	0.27920443	2.3183972	20	3 29.4	20.9
456823 2007 TN_{413}	17.9	X	227.06807	299.94532	23.12423	2.56592	0.2079057	0.27406574	2.3472871	20	2 27.8	21.8
456824 2007 TY_{418}	18.1	X	94.00858	30.11395	48.35160	7.40674	0.1020654	0.26249617	2.4157616	20	3 4.4	21.1
456825 2007 TW_{420}	16.9	X	178.71681	300.46507	86.35579	12.30430	0.1855105	0.27410560	2.3470596	20	4 11.2	20.9
456826 2007 TH_{422}	7.7	X	20.15755	312.18385	96.31650	28.59943	0.2741687	0.00402216	39.1588482	20	12 18.8	22.4
456827 2007 TA_{425}	17.9	X	287.87036	91.47178	214.96979	4.44036	0.1810452	0.28173330	2.3045029	20	4 8.1	20.9
456828 2007 TS_{425}	18.0	X	20.01979	99.51765	70.99620	2.97625	0.1094411	0.26434308	2.4044961	20	3 10.2	20.4
456829 2007 TE_{427}	18.1	X	62.66062	55.30246	58.79102	2.39168	0.1559632	0.26217598	2.4177280	20	3 10.4	20.5
456830 2007 TF_{428}	17.7	X	105.29537	335.99717	67.96102	4.37522	0.1028576	0.25772012	2.4455159	20	1 31.6	20.8
456831 2007 TN_{433}	18.1	X	259.58892	145.55635	151.30822	2.41785	0.2126241	0.27428346	2.3460448	20	2 22.5	21.6
456832 2007 TA_{434}	18.4	X	159.28094	88.16693	303.65973	2.50505	0.1826758	0.26846610	2.3798143	20	3 23.3	22.0
456833 2007 TC_{435}	17.8	X	208.52044	89.19070	224.70723	2.53488	0.1331220	0.26266057	2.4147534	20	1 31.5	21.6
456834 2007 TK_{435}	17.3	X	355.82205	336.89457	117.03331	4.86559	0.0421676	0.24332350	2.5410508	20	—	—
456835 2007 TP_{444}	17.8	X	183.86683	57.03249	314.89268	3.06085	0.1590648	0.27226321	2.3576359	20	3 19.7	21.6
456836 2007 TX_{445}	17.4	X	184.80395	139.79527	242.93034	9.64160	0.1569133	0.27434563	2.3456904	20	3 31.9	21.3
456837 2007 TK_{446}	17.9	X	144.70189	269.50565	119.93885	3.21199	0.1889544	0.26529995	2.3987111	20	3 9.6	21.5
456838 2007 UU_{4}	18.0	X	120.64474	98.92264	308.42777	1.72469	0.1859160	0.26456635	2.4031432	20	3 4.9	21.2
456839 2007 UP_{11}	17.3	X	201.41489	259.58584	89.10556	4.67903	0.2519523	0.27192239	2.3596055	20	3 10.6	21.5
456840 2007 UC_{22}	17.6	X	334.13082	197.85399	50.76806	7.61357	0.0905412	0.27537044	2.3398670	20	4 14.1	20.0
456841 2007 UK_{24}	18.0	X	133.66151	217.32596	159.48644	2.83799	0.1843499	0.26021698	2.4298472	20	2 9.8	21.5
456842 2007 UM_{25}	18.1	X	207.45640	131.83610	197.34187	0.91884	0.1919483	0.26783378	2.3835585	20	2 18.4	22.0
456843 2007 UG_{43}	18.0	X	95.20172	16.92826	55.47129	3.00388	0.1824569	0.26149805	2.4219049	20	3 8.3	20.9
456844 2007 UQ_{49}	18.1	X	6.97232	307.78125	130.76515	2.66934	0.2595452	0.24003081	2.5642364	20	—	—
456845 2007 UL_{53}	18.2	X	162.97286	155.67312	234.00729	4.14455	0.1098683	0.26814133	2.3817356	20	3 18.8	21.7
456846 2007 UM_{53}	17.8	X	276.48691	76.78649	238.07945	4.78189	0.1828311	0.28037696	2.3119290	20	4 4.2	20.9
456847 2007 UQ_{81}	17.9	X	42.62843	174.18299	100.61930	2.89116	0.1932920	0.30285385	2.1960758	20	10 15.4	20.4
456848 2007 UQ_{82}	17.8	X	233.35535	72.04910	243.23208	3.22318	0.1557426	0.27033891	2.3688106	20	2 23.6	21.4
456849 2007 UD_{83}	18.4	X	155.32872	346.40802	37.83801	3.02641	0.1646605	0.26814958	2.3816867	20	3 11.2	22.0
456850 2007 UN_{84}	17.7	X	80.27211	229.96490	226.52991	5.55956	0.0707880	0.26156817	2.4214720	20	2 26.5	20.7
456851 2007 UZ_{99}	17.9	X	175.04900	103.43309	237.71654	2.79655	0.0690771	0.25869242	2.4393844	20	1 28.8	21.3
456852 2007 UB_{106}	18.2	X	100.74125	241.48239	179.20577	1.26277	0.1806881	0.25928293	2.4356792	20	2 27.1	21.2
456853 2007 UE_{107}	17.9	X	167.07096	35.70505	329.29777	0.97585	0.2163323	0.26538819	2.3981793	20	2 29.3	21.9
456854 2007 UT_{107}	17.6	X	217.82434	324.21080	19.95772	6.74663	0.1375243	0.27491312	2.3424612	20	3 19.6	21.2
456855 2007 UO_{123}	17.7	X	125.07024	158.97756	244.25416	4.68290	0.0545758	0.26133980	2.4228824	20	2 14.4	20.9
456856 2007 UY_{126}	18.1	X	78.35460	65.63512	71.32412	4.37769	0.1974349	0.26569760	2.3963171	20	5 14.7	20.8
456857 2007 UX_{127}	17.9	X	147.72349	352.65156	76.41738	8.26290	0.0929321	0.26990727	2.3713354	20	4 26.2	21.2
456858 2007 UK_{137}	17.8	X	156.98496	101.98507	289.79643	5.68328	0.1312853	0.26784670	2.3834818	20	3 15.5	21.4
456859 2007 UN_{140}	17.6	X	344.48473	221.84308	227.16140	8.82468	0.1722499	0.23753817	2.5821439	20	—	—
456860 2007 UG_{141}	17.3	X	147.65517	286.20068	67.45808	9.21312	0.2091957	0.25841414	2.4411354	20	1 31.8	21.2
456861 2007 VB_{4}	17.7	X	146.12957	94.62871	297.99791	4.34608	0.1680487	0.26562870	2.3967315	20	3 9.8	21.4
456862 2007 VR_{4}	17.5	X	180.32741	72.31719	314.62696	7.53388	0.2727677	0.27214072	2.3583433	20	4 4.5	21.8
456863 2007 VX_{7}	19.5	X	342.68638	105.40487	243.89184	16.81510	0.3756778	0.38347524	1.8763384	20	12 26.2	21.0
456864 2007 VE_{9}	17.3	X	250.86195	219.06376	107.61613	6.55076	0.2496058	0.27743762	2.3282296	20	3 22.9	21.1
456865 2007 VF_{11}	16.8	X	130.57169	342.55414	72.62085	14.92699	0.2167722	0.26425438	2.4050342	20	4 6.9	20.7
456866 2007 VH_{13}	18.1	X	171.57937	349.63430	0.02363	1.26524	0.1993436	0.26586336	2.3953210	20	2 13.9	21.8
456867 2007 VP_{15}	17.9	X	30.99656	24.76206	99.23025	2.30121	0.1335995	0.25628951	2.4546081	20	1 21.9	20.3
456868 2007 VC_{39}	16.1	X	43.23413	212.08157	171.82654	18.23736	0.2313788	0.17371674	3.1810825	20	—	—
456869 2007 VR_{39}	18.0	X	167.27015	284.74232	65.87837	2.17443	0.1375230	0.26250090	2.4157326	20	2 7.8	21.6
456870 2007 VQ_{42}	17.3	X	100.34466	7.46125	355.15386	3.98625	0.2944803	0.24425731	2.5345703	20	1 1.8	20.4
456871 2007 VT_{43}	17.3	X	42.84085	275.19891	247.18094	12.34876	0.1533203	0.26636614	2.3923058	20	4 7.7	19.8
456872 2007 VO_{49}	17.2	X	190.77396	39.89605	278.81928	5.61523	0.1291202	0.25979506	2.4324773	20	1 20.8	21.0
456873 2007 VJ_{61}	18.2	X	96.08942	130.60354	273.14006	1.82820	0.2170380	0.25482834	2.4639822	20	2 4.0	21.0
456874 2007 VM_{68}	17.9	X	108.91773	194.01824	222.80563	1.70974	0.2028154	0.26056359	2.4276919	20	3 6.1	21.0
456875 2007 VP_{76}	17.9	X	169.52112	278.31472	82.85885	2.16094	0.1676237	0.26498193	2.4006299	20	2 25.1	21.5
456876 2007 VP_{78}	17.5	X	140.14788	315.31562	52.47517	11.02752	0.2507390	0.26063014	2.4272786	20	2 17.5	21.5
456877 2007 VY_{91}	18.5	X	107.01547	52.79502	357.37853	1.68020	0.2031770	0.25844052	2.4409693	20	2 25.4	21.6
456878 2007 VL_{92}	17.7	X	114.76956	60.35934	23.04400	10.46256	0.2158966	0.26476244	2.4019565	20	4 18.3	21.2
456879 2007 VX_{93}	18.1	X	151.84377	47.26763	336.69126	2.47259	0.2084082	0.26506359	2.4001368	20	3 9.6	21.9
456880 2007 VM_{102}	18.0	X	299.51813	2.53874	60.91421	22.70092	0.0834283	0.37957245	1.8891782	20	12 7.5	19.2

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Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
456881 2007 VP_{103}	17.6	X	87.63503	79.03674	52.78044	7.80468	0.0423322	0.27587842	2.3369938	20	4 25.5	20.3
456882 2007 VU_{104}	17.4	X	69.69891	70.75362	45.38215	6.63716	0.0986970	0.26205363	2.4184805	20	3 18.9	20.1
456883 2007 VO_{105}	18.3	X	86.44791	108.66064	320.27576	0.85881	0.1681525	0.25653701	2.4530291	20	2 16.2	21.0
456884 2007 VP_{108}	18.0	X	78.95474	86.24112	66.63477	2.04968	0.1260217	0.27087282	2.3656969	20	5 25.9	20.7
456885 2007 VZ_{108}	18.4	X	103.06587	31.51683	50.98292	2.96775	0.1690617	0.26235391	2.4166348	20	3 29.9	21.5
456886 2007 VY_{120}	17.5	X	38.56410	262.51985	9.96105	6.56971	0.1231151	0.29434716	2.2381859	20	9 22.0	19.8
456887 2007 VU_{122}	17.6	X	17.04779	302.26747	187.77950	2.34833	0.1340387	0.25773005	2.4454531	20	1 3.2	19.8
456888 2007 VF_{123}	18.3	X	159.16716	15.67400	351.20320	0.95263	0.2039483	0.26681340	2.3896317	20	2 24.0	21.9
456889 2007 VP_{123}	17.4	X	183.76080	208.70683	163.57991	12.18837	0.1964193	0.27088007	2.3656547	20	3 23.9	21.2
456890 2007 VC_{131}	18.4	X	83.37661	310.05368	142.82293	1.79034	0.1531543	0.26155133	2.4215760	20	3 13.3	20.9
456891 2007 VN_{144}	18.5	X	76.51078	334.91472	142.35860	2.39451	0.1414549	0.26214171	2.4179388	20	4 4.8	21.1
456892 2007 VZ_{147}	16.9	X	293.25411	45.67177	81.14804	13.36726	0.0401621	0.23340543	2.6125348	20	—	—
456893 2007 VX_{157}	18.0	X	184.78729	252.90930	109.80527	2.71474	0.2069968	0.26846797	2.3798033	20	3 13.1	21.8
456894 2007 VJ_{158}	17.9	X	63.63757	222.44566	151.26490	2.36181	0.2622261	0.24419051	2.5350325	20	—	—
456895 2007 VM_{176}	18.1	X	173.42145	333.27077	25.71894	2.72327	0.0453253	0.26874110	2.3781906	20	2 17.9	21.2
456896 2007 VX_{178}	17.9	X	34.23070	57.47669	123.79506	1.78340	0.1146098	0.27087105	2.3657072	20	4 21.4	20.0
456897 2007 VZ_{180}	18.3	X	157.48760	334.15521	40.90382	2.30214	0.1941634	0.26575249	2.3959872	20	3 3.9	21.9
456898 2007 VG_{184}	17.4	X	160.47267	155.85447	146.91821	16.10613	0.6711515	0.26755078	2.3852390	20	1 7.5	22.8
456899 2007 VV_{185}	17.5	X	99.39292	322.29447	104.39502	9.38993	0.1984507	0.25942012	2.4348204	20	3 11.8	20.7
456900 2007 VW_{188}	15.6	X	141.19499	282.60359	38.94252	12.95449	0.1154394	0.16985102	3.2291677	20	—	—
456901 2007 VL_{201}	17.9	X	11.60338	157.39372	40.47248	4.65663	0.1362685	0.26972955	2.3723770	20	4 3.1	19.8
456902 2007 VT_{206}	17.9	X	183.49567	179.54276	193.95100	6.41946	0.1937064	0.27031091	2.3689742	20	3 23.0	21.6
456903 2007 VT_{216}	18.1	X	169.46101	1.14091	353.16724	1.14886	0.1804095	0.26225462	2.4172447	20	2 16.8	21.9
456904 2007 VC_{222}	17.6	X	101.38549	62.25207	358.29789	6.83903	0.2621687	0.26386081	2.4074251	20	3 11.4	20.8
456905 2007 VG_{225}	18.1	X	103.65124	324.74496	95.92521	2.62199	0.1717272	0.26150415	2.4218672	20	3 1.8	21.2
456906 2007 VU_{239}	17.9	X	143.87219	315.54722	67.90345	8.41766	0.2458002	0.26210988	2.4181345	20	3 9.9	21.9
456907 2007 VZ_{277}	18.4	X	84.44588	271.93334	193.42650	1.47361	0.1916704	0.26240886	2.4162974	20	4 7.3	21.2
456908 2007 VG_{286}	17.2	X	51.17389	138.06996	262.81741	8.92713	0.1070651	0.24170728	2.5523657	20	—	—
456909 2007 VQ_{319}	18.2	X	91.56574	354.80818	99.51075	1.90192	0.1246125	0.26212451	2.4180446	20	3 23.3	20.9
456910 2007 VR_{325}	17.8	X	6.36023	109.48311	321.70624	3.31425	0.1581924	0.23899496	2.5716403	20	—	—
456911 2007 VQ_{331}	18.1	X	141.89936	10.13970	10.02535	3.38003	0.1812300	0.26083413	2.4260129	20	2 23.6	21.6
456912 2007 VO_{335}	17.0	X	40.55439	343.38301	132.93429	14.13983	0.1823954	0.24211035	2.5495321	20	2 3.9	19.1
456913 2007 WC_{21}	17.0	X	62.07714	17.36190	145.39938	5.30430	0.1301826	0.25747245	2.4470840	20	5 16.9	19.8
456914 2007 WM_{39}	17.7	X	98.15506	293.37292	85.64425	7.83883	0.1171005	0.25166571	2.4845821	20	—	—
456915 2007 WQ_{58}	18.8	X	90.09971	88.64168	337.38876	0.77948	0.1698777	0.25573232	2.4581722	20	2 18.3	21.6
456916 2007 WQ_{61}	17.7	X	41.37741	89.50218	254.59882	18.30150	0.1102701	0.38676726	1.8656761	20	—	—
456917 2007 XP_{28}	17.9	X	80.99181	58.01608	77.69026	7.79159	0.1276055	0.26480467	2.4017011	20	5 6.7	20.8
456918 2007 XL_{29}	17.7	X	117.08166	181.91420	242.93447	6.51671	0.0844702	0.26348553	2.4097105	20	3 6.9	20.9
456919 2007 XS_{29}	18.1	X	117.41681	343.99688	72.62782	3.46275	0.1946155	0.26171744	2.4205512	20	3 17.3	21.4
456920 2007 XG_{43}	17.6	X	35.57347	256.18388	268.55625	5.33697	0.0664979	0.26179587	2.4200677	20	3 22.9	20.3
456921 2007 XM_{45}	18.1	X	112.87215	211.13420	186.26705	1.39995	0.1737346	0.25446670	2.4663161	20	2 11.4	21.1
456922 2007 XS_{45}	16.9	X	52.73641	154.88167	259.88300	12.61663	0.1062907	0.24299671	2.5433285	20	—	—
456923 2007 XD_{49}	17.0	X	84.43284	181.82750	280.94144	8.80688	0.1545763	0.25700565	2.4500462	20	3 23.5	20.1
456924 2007 XH_{50}	15.5	X	129.70928	264.55692	80.14263	16.62859	0.2121285	0.17378302	3.1802737	20	1 12.9	20.5
456925 2007 XQ_{51}	16.7	X	343.43805	219.80993	280.52529	13.47106	0.0607194	0.24145689	2.5541299	20	—	—
456926 2007 XN_{52}	17.7	X	91.51911	173.39369	251.49305	3.91269	0.2907730	0.25321844	2.4744148	20	3 7.4	20.8
456927 2007 XT_{52}	17.7	X	330.91289	68.98803	84.56516	5.73473	0.2082257	0.23864772	2.5741342	20	—	—
456928 2007 XS_{53}	17.4	X	82.27610	23.48489	63.06712	3.39437	0.1350000	0.25342279	2.4730844	20	3 2.3	20.2
456929 2007 XV_{57}	16.9	X	337.48737	84.99627	70.92333	9.63770	0.1643896	0.24442261	2.5334274	20	—	—
456930 2007 YQ_{2}	17.7	X	335.88868	313.30573	97.48131	23.17475	0.1019456	0.38045169	1.8862664	20	—	—
456931 2007 YP_{16}	18.6	X	97.25260	143.96665	302.58291	0.62886	0.1484465	0.25939012	2.4350082	20	3 23.2	21.4
456932 2007 YU_{28}	17.8	X	29.80567	89.30678	322.11426	1.67053	0.1355702	0.23876264	2.5733082	20	—	—
456933 2007 YJ_{42}	18.0	X	111.00865	77.68037	108.44653	24.61912	0.0508154	0.35722391	1.9671722	20	8 30.7	20.7
456934 2007 YG_{43}	17.8	X	66.56464	313.08685	112.19849	15.71321	0.2028854	0.24527470	2.5275566	20	1 15.1	20.0
456935 2007 YN_{43}	17.7	X	10.69776	27.18453	110.28104	12.66931	0.1865617	0.24370224	2.5384174	20	—	—
456936 2007 YC_{53}	18.0	X	48.08447	5.13622	128.60772	3.83900	0.1570462	0.25201095	2.4823125	20	3 13.9	20.3
456937 2007 YX_{53}	17.0	X	145.49894	104.95226	302.63555	7.69010	0.2095259	0.26672422	2.3901642	20	3 29.5	20.9
456938 2007 YV_{56}	21.0	X	126.68671	265.72173	102.40364	6.24446	0.6218782	0.49833914	1.5756245	20	2 22.4	22.7
456939 2007 YY_{67}	17.1	X	92.63704	249.88910	99.73915	5.12532	0.1051241	0.23391278	2.6087558	20	—	—
456940 2007 YH_{72}	17.4	X	349.45620	119.08168	48.31915	4.81818	0.1669827	0.24301080	2.5432302	20	1 7.5	20.2
456941 2008 AG	16.6	X	285.51499	267.82988	294.35975	26.56240	0.3563776	0.23270735	2.6177569	20	—	—
456942 2008 AG_{5}	17.3	X	71.86063	92.80879	312.61900	3.86698	0.2732498	0.24335174	2.5408542	20	1 8.7	19.4
456943 2008 AB_{17}	17.4	X	342.38533	34.79106	191.47218	0.70594	0.1395274	0.25378247	2.4707471	20	3 19.9	20.0
456944 2008 AO_{24}	18.0	X	71.42015	343.35757	58.47729	2.80618	0.2168010	0.23965078	2.5669465	20	—	—
456945 2008 AW_{29}	17.4	X	170.52143	263.99185	89.35098	16.32937	0.2339094	0.26012197	2.4304388	20	2 25.3	21.7
456946 2008 AF_{32}	21.2	X	49.17106	80.20843	105.30680	27.18348	0.1107927	0.73999142	1.2105561	20	6 4.4	21.3
456947 2008 AX_{41}	17.3	X	79.65496	94.25208	315.20139	16.56040	0.2318133	0.24447719	2.5330504	20	1 23.9	19.9
456948 2008 AU_{51}	17.8	X	40.59324	336.99834	112.23814	5.81997	0.1063862	0.24332898	2.5410126	20	—	—
456949 2008 AJ_{55}	17.7	X	94.78425	99.98757	302.49552	8.75313	0.1684186	0.24666130	2.5180753	20	1 25.5	20.6
456950 2008 AD_{56}	17.6	X	98.51937	200.89786	187.80260	0.87895	0.2256129	0.24671923	2.5176811	20	1 21.5	20.7
456951 2008 AZ_{56}	17.1	X	255.93473	43.55118	120.78315	14.97345	0.0938349	0.22440497	2.6819318	20	12 30.5	20.5
456952 2008 AP_{57}	17.5	X	288.42286	105.19978	131.55839	8.15475	0.1740897	0.24483497	2.5305820	20	1 14.3	21.1
456953 2008 AV_{57}	17.5	X	347.41865	56.77336	147.72069	2.54557	0.1450516	0.25140846	2.4862767	20	2 26.2	20.0
456954 2008 AT_{59}	17.8	X	309.34737	83.30580	125.36178	8.20796	0.1654446	0.24278980	2.5447733	20	1 4.5	21.2
456955 2008 AB_{62}	18.0	X	53.84909	283.30768	119.53380	6.01110	0.2542874	0.23870402	2.5737294	20	—	—
456956 2008 AR_{62}	17.6	X	70.80437	205.63366	285.31672	11.31952	0.1006847	0.25698073	2.4502045	20	4 1.3	20.7
456957 2008 AR_{65}	17.9	X	119.41379	116.15251	306.50758	1.73808	0.1885166	0.25530944	2.4608859	20	3 24.3	21.3
456958 2008 AO_{68}	17.8	X	349.99086	172.20826	10.05248	3.10586	0.1196212	0.24568350	2.5247520	20	2 4.5	20.5
456959 2008 AS_{68}	18.5	X	26.19896	317.33305	130.63026	4.61650	0.2722484	0.23921088	2.5700926	20	—	—
456960 2008 AU_{70}	16.8	X	274.27329	296.31682	315.68577	11.50814	0.1257399	0.24276956	2.5449147	20	1 25.2	20.4

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	m		°	°	°	°		°				
456961 2008 AD_{79}	18.1	X	294.55338	298.60032	124.47014	22.76395	0.0980206	0.37282413	1.9119067	20	12 5.5	20.0
456962 2008 AN_{83}	17.3	X	342.21311	232.76661	305.93473	11.79313	0.1760417	0.24534548	2.5270704	20	1 9.8	20.2
456963 2008 AN_{87}	17.8	X	310.25996	318.98846	114.03649	23.59839	0.1291258	0.38062429	1.8856962	20	—	—
456964 2008 AF_{89}	18.2	X	98.97133	318.87745	130.31446	2.82825	0.1863236	0.25675303	2.4516530	20	4 5.9	21.3
456965 2008 AF_{92}	16.9	X	9.60961	109.78431	97.76337	10.41869	0.1903476	0.25650974	2.4532029	20	4 20.2	19.1
456966 2008 AQ_{95}	17.2	X	278.40819	68.37010	116.24824	5.39383	0.1353083	0.23154772	2.6264897	20	—	—
456967 2008 AD_{97}	15.1	X	198.25003	34.61935	101.70017	13.10774	0.0402271	0.12512892	3.9588064	20	9 12.4	21.0
456968 2008 AG_{100}	17.2	X	51.68688	292.99483	271.16378	5.58087	0.1237919	0.26380575	2.4077601	20	6 27.7	19.9
456969 2008 AV_{101}	17.7	X	22.20609	312.98333	233.25629	1.30156	0.1576281	0.25692018	2.4505895	20	4 7.2	19.8
456970 2008 AX_{108}	17.8	X	62.33522	14.06358	131.95291	4.46550	0.1318384	0.25692612	2.4505517	20	4 23.5	20.5
456971 2008 AC_{113}	17.7	X	311.45852	304.57165	127.56195	22.41736	0.0973691	0.37942841	1.8896563	20	—	—
456972 2008 AE_{118}	17.6	X	13.38854	36.72396	147.74841	8.09222	0.0893689	0.25339438	2.4732693	20	3 20.9	20.3
456973 2008 BS_{2}	18.0	X	232.52845	351.07038	311.09513	14.14553	0.4713153	0.49305126	1.5868699	20	1 18.8	20.9
456974 2008 BY_{6}	17.9	X	17.22025	11.72480	141.77554	5.53297	0.1217058	0.24680133	2.5171227	20	2 9.9	20.5
456975 2008 BB_{12}	17.3	X	96.26817	324.06238	136.57647	7.10518	0.1212651	0.25584211	2.4574689	20	4 9.7	20.5
456976 2008 BS_{19}	17.8	X	59.13768	323.28556	188.17921	0.85883	0.1273445	0.25885286	2.4383764	20	4 23.2	20.2
456977 2008 BN_{21}	17.5	X	86.50394	265.90947	148.79896	3.78645	0.2454991	0.24416888	2.5351822	20	2 11.5	20.1
456978 2008 BS_{30}	17.6	X	34.05132	304.62198	147.29775	4.38306	0.2587925	0.24107260	2.5568435	20	—	—
456979 2008 BE_{32}	17.7	X	44.79485	283.15014	142.45210	2.10270	0.2353328	0.23781746	2.5801219	20	—	—
456980 2008 BU_{33}	18.0	X	351.32324	0.29468	135.12624	5.36841	0.2150886	0.23694745	2.5864337	20	—	—
456981 2008 BM_{34}	18.0	X	35.78065	158.71454	329.21843	14.32794	0.2090337	0.24455139	2.5325379	20	2 12.8	19.8
456982 2008 BS_{35}	17.5	X	45.21324	100.85856	354.13375	4.96475	0.3001893	0.24265249	2.5457332	20	1 23.9	18.8
456983 2008 BD_{38}	16.8	X	52.39233	238.43072	146.81553	14.48604	0.1428505	0.22799561	2.6536994	20	—	—
456984 2008 BN_{49}	17.7	X	305.47423	277.56242	158.33822	23.78869	0.1258373	0.37168387	1.9158150	20	—	—
456985 2008 CW_{5}	17.3	X	79.49290	338.84875	154.01051	6.84571	0.2801450	0.25674335	2.4517146	20	5 25.3	20.6
456986 2008 CE_{7}	17.1	X	288.96057	51.49711	141.41065	15.31061	0.1513589	0.23068160	2.6330600	20	—	—
456987 2008 CU_{9}	17.8	X	330.89393	237.23614	322.84990	10.66121	0.1845017	0.24302001	2.5431659	20	1 20.9	20.9
456988 2008 CQ_{14}	17.0	X	31.71792	26.19840	122.01863	7.68928	0.0424209	0.24657707	2.5186487	20	2 29.1	20.1
456989 2008 CK_{17}	17.6	X	315.12412	359.66990	168.15809	4.24833	0.1183164	0.23289578	2.6163448	20	—	—
456990 2008 CY_{27}	17.4	X	309.38717	104.17966	112.28438	7.04578	0.2241349	0.24070573	2.5594409	20	1 6.7	20.9
456991 2008 CS_{30}	16.3	X	257.85547	268.38624	328.84360	14.35036	0.1060283	0.23650819	2.5896352	20	—	—
456992 2008 CM_{35}	17.7	X	13.89782	32.95285	131.54262	4.75597	0.1224912	0.24641193	2.5197738	20	2 20.5	20.3
456993 2008 CU_{35}	16.8	X	304.36096	243.62564	332.59138	12.13495	0.1354595	0.23986258	2.5654352	20	1 15.5	20.4
456994 2008 CF_{42}	17.8	X	348.05814	308.92115	198.48871	4.69150	0.1188935	0.23657968	2.5891135	20	—	—
456995 2008 CF_{45}	17.6	X	67.05826	336.46729	109.96175	5.07506	0.1915973	0.24337759	2.5406743	20	2 15.7	20.1
456996 2008 CO_{45}	17.5	X	328.03452	85.10377	99.10712	5.08802	0.0850080	0.23753232	2.5821863	20	1 10.6	20.8
456997 2008 CC_{50}	17.9	X	308.42256	261.84978	138.65976	24.70273	0.1196405	0.36890448	1.9254257	20	11 27.5	20.1
456998 2008 CH_{50}	17.7	X	300.82998	107.92078	334.15141	18.63679	0.0990767	0.37579873	1.9018044	20	—	—
456999 2008 CJ_{50}	17.7	X	353.85761	184.89628	342.51620	11.95276	0.2189856	0.24230063	2.5481971	20	1 9.7	20.5
457000 2008 CL_{51}	18.0	X	341.73487	192.00845	319.06359	3.57512	0.1312385	0.24150020	2.5538245	20	—	—
457001 2008 CN_{54}	17.7	X	350.29028	268.44548	142.37703	22.30475	0.0827049	0.38203862	1.8810393	20	—	—
457002 2008 CV_{70}	17.4	X	25.58900	62.25718	67.83676	6.18589	0.1364320	0.24413043	2.5354484	20	1 24.7	19.9
457003 2008 CU_{76}	17.9	X	335.66859	43.88104	329.10260	18.44875	0.0821767	0.36987491	1.9220564	20	11 13.1	20.1
457004 2008 CZ_{76}	14.8	X	180.62830	52.87680	114.92200	12.64069	0.0757373	0.12555883	3.9497645	20	9 28.9	20.9
457005 2008 CN_{77}	18.1	X	194.79948	79.40649	133.52097	23.58696	0.0633811	0.37789831	1.8947536	20	—	—
457006 2008 CO_{80}	17.2	X	93.00750	336.85736	129.78825	11.93979	0.1998388	0.25494436	2.4632346	20	4 28.1	20.7
457007 2008 CX_{82}	17.4	X	319.27071	38.30320	125.99916	5.19627	0.1196734	0.23381937	2.6094504	20	—	—
457008 2008 CA_{83}	17.3	X	61.80255	17.66612	129.85054	6.99040	0.0767745	0.25364430	2.4716443	20	4 18.0	20.3
457009 2008 CB_{87}	16.8	X	344.17181	117.39935	139.16511	14.85711	0.1736412	0.25469509	2.4648415	20	5 11.6	19.4
457010 2008 CO_{87}	17.2	X	71.14624	42.89577	41.01716	4.52598	0.1828000	0.24457997	2.5323406	20	2 18.9	19.9
457011 2008 CY_{92}	17.9	X	47.45291	106.02030	348.80392	4.77885	0.2038749	0.24165067	2.5527642	20	1 20.6	20.1
457012 2008 CZ_{92}	17.8	X	53.52217	297.74162	338.56965	17.90188	0.0129384	0.35919856	1.9599560	20	10 3.3	20.1
457013 2008 CY_{109}	18.1	X	59.62448	283.85079	171.59140	12.78908	0.2292364	0.24394609	2.5367255	20	2 16.7	20.5
457014 2008 CT_{115}	17.0	X	17.61039	40.50832	80.02435	14.71234	0.1427065	0.24008887	2.5638230	20	—	—
457015 2008 CY_{116}	17.2	X	6.82968	19.93568	117.09520	11.98553	0.1587113	0.23994293	2.5648625	20	—	—
457016 2008 CZ_{119}	17.8	X	340.98079	215.43668	145.58186	24.50003	0.0780544	0.36606360	1.9353745	20	11 19.8	20.3
457017 2008 CN_{120}	17.8	X	48.87616	332.46665	331.63609	19.61066	0.0280420	0.36805197	1.9283978	20	11 13.8	20.4
457018 2008 CT_{120}	17.8	X	320.51915	254.39290	133.19580	23.81734	0.1287090	0.36853509	1.9267121	20	12 1.7	19.9
457019 2008 CL_{123}	18.5	X	4.91783	14.60464	152.94575	6.70018	0.1936723	0.24511446	2.5286580	20	1 31.3	20.9
457020 2008 CP_{131}	16.5	X	207.18726	336.90948	334.75887	13.07422	0.1716818	0.23984346	2.5655715	20	2 2.6	20.7
457021 2008 CL_{134}	16.6	X	227.32447	330.00494	311.61764	13.83550	0.1003476	0.24000659	2.5644089	20	1 15.9	20.5
457022 2008 CX_{137}	17.8	X	25.07739	159.24296	345.22280	12.39732	0.1018790	0.24423750	2.5347073	20	2 15.1	20.5
457023 2008 CP_{141}	17.4	X	3.47801	208.06729	333.80984	16.96303	0.0971833	0.24543912	2.5264276	20	2 26.8	20.1
457024 2008 CZ_{142}	17.4	X	273.63843	65.66609	154.52477	3.98783	0.1686986	0.23083414	2.6318999	20	—	—
457025 2008 CQ_{144}	18.1	X	331.89227	213.65931	276.73404	2.96654	0.0890152	0.23052207	2.6342746	20	—	—
457026 2008 CG_{145}	17.8	X	265.97846	6.71599	179.36152	3.11809	0.0526620	0.22657539	2.6647771	20	—	—
457027 2008 CQ_{146}	16.9	X	323.73594	232.61809	319.15860	16.10097	0.1354793	0.23944098	2.5684457	20	1 9.4	20.3
457028 2008 CY_{148}	17.7	X	324.10077	296.18540	263.14294	2.88627	0.1477319	0.24238747	2.5475885	20	1 14.0	20.7
457029 2008 CD_{159}	18.2	X	12.77419	203.24073	301.68624	6.25165	0.2333329	0.24193943	2.5507327	20	1 12.1	20.0
457030 2008 CH_{160}	18.2	X	49.95896	171.58018	292.75213	3.48519	0.2308138	0.24356014	2.5394046	20	2 10.1	20.3
457031 2008 CD_{166}	17.4	X	265.90409	231.32106	10.49263	2.17161	0.0988071	0.23454278	2.6040821	20	1 6.8	21.2
457032 2008 CZ_{169}	17.3	X	313.34039	246.16351	312.15384	8.28538	0.0772250	0.23925570	2.5697716	20	1 10.8	20.7
457033 2008 CU_{172}	16.9	X	342.29552	293.41224	169.48564	13.29124	0.1327382	0.22882081	2.6473155	20	—	—
457034 2008 CA_{179}	18.1	X	128.53885	228.65001	352.03790	19.33140	0.0481923	0.36376680	1.9435125	20	10 30.7	20.7
457035 2008 CM_{181}	17.5	X	109.16178	252.77689	322.87742	16.29834	0.0724067	0.35646062	1.9699794	20	9 27.5	20.2
457036 2008 CT_{186}	16.0	X	36.26140	245.96191	157.01928	30.67967	0.2448138	0.23267289	2.6180154	20	—	—
457037 2008 CB_{191}	18.3	X	39.83486	141.84438	326.21834	2.60920	0.1703336	0.24305689	2.5429087	20	1 20.5	20.6
457038 2008 CT_{193}	17.4	X	256.68608	284.60790	349.58620	12.48226	0.2280994	0.23745116	2.5827747	20	1 29.6	21.8
457039 2008 CV_{196}	18.5	X	18.00515	128.33529	5.89790	3.06669	0.1597465	0.24066131	2.5597558	20	1 14.9	20.9
457040 2008 CR_{199}	17.7	X	302.48988	326.97912	183.05706	2.42883	0.1262913	0.22482385	2.6785996	20	—	—

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
457041 2008 CW_{201}	16.2	X	209.03534	301.27640	10.27495	30.94747	0.2485941	0.22975342	2.6401467	20	2 18.7	21.4
457042 2008 CT_{203}	17.7	X	341.69286	70.72270	122.93324	3.86745	0.1546521	0.24273348	2.5451669	20	2 1.3	20.2
457043 2008 CV_{203}	18.3	X	26.18409	304.61428	171.88163	2.86406	0.2570626	0.24077652	2.5589392	20	—	—
457044 2008 CA_{206}	17.4	X	315.54784	124.59796	114.88353	16.02421	0.0817717	0.25140164	2.4863217	20	3 10.3	20.7
457045 2008 CT_{214}	17.4	X	282.53420	339.06828	202.66572	4.18187	0.1625001	0.22574938	2.6712734	20	—	—
457046 2008 DD_{4}	17.1	X	68.14460	17.66583	51.06603	6.28230	0.2429417	0.24322614	2.5417288	20	2 1.5	19.5
457047 2008 DQ_{10}	17.0	X	221.45791	255.25870	339.75241	4.74239	0.0801622	0.22892863	2.6464842	20	—	—
457048 2008 DY_{10}	18.0	X	348.10293	53.62704	119.37634	3.87945	0.0634211	0.24430887	2.5342137	20	1 25.9	21.0
457049 2008 DN_{17}	16.3	X	182.63489	356.80536	345.40649	13.39729	0.1520986	0.24099933	2.5573617	20	2 17.1	20.4
457050 2008 DJ_{25}	17.8	X	350.90768	96.58252	68.65667	5.62499	0.1545222	0.24058220	2.5603169	20	1 9.2	20.6
457051 2008 DJ_{27}	17.1	X	309.42887	323.86202	186.56440	9.75307	0.1499607	0.22695913	2.6617726	20	—	—
457052 2008 DH_{31}	17.8	X	63.59816	310.02477	108.20360	3.94687	0.1536212	0.23985889	2.5654615	20	—	—
457053 2008 DA_{49}	17.7	X	314.09142	56.68472	5.84024	21.11057	0.1155146	0.37309218	1.9109909	20	—	—
457054 2008 DZ_{49}	17.4	X	277.46369	171.37002	65.79402	6.66533	0.1188474	0.24121371	2.5558463	20	1 10.8	21.2
457055 2008 DT_{50}	17.3	X	102.10526	29.63019	308.06804	5.31009	0.0077883	0.22182762	2.7026656	20	—	—
457056 2008 DV_{53}	17.5	X	340.22856	182.37489	340.76055	4.75961	0.2123117	0.23553204	2.5967854	20	—	—
457057 2008 DZ_{59}	16.9	X	271.22171	232.19387	350.15201	11.83246	0.1377131	0.22812762	2.6526756	20	—	—
457058 2008 DN_{75}	17.3	X	280.73432	76.17170	155.84946	8.05081	0.0604484	0.23785789	2.5798295	20	1 14.1	20.9
457059 2008 EG	20.0	X	41.08358	355.50971	327.45475	26.78531	0.7390235	1.07655079	0.9428582	20	—	—
457060 2008 ET_{3}	16.9	X	287.82997	91.98906	99.69064	6.93789	0.1795699	0.22928730	2.6437236	20	—	—
457061 2008 EM_{5}	17.2	X	284.21990	229.43587	1.76860	13.34365	0.1154645	0.23650248	2.5896769	20	1 14.8	21.1
457062 2008 EJ_{23}	16.7	X	208.28481	84.70634	137.35270	14.85010	0.2189831	0.21536548	2.7564618	20	12 25.8	21.2
457063 2008 EC_{37}	18.3	X	254.59639	169.43941	321.64132	19.11480	0.0565968	0.37575760	1.9019432	20	—	—
457064 2008 EX_{44}	16.9	X	229.93916	293.53772	0.25744	14.76964	0.1048659	0.23450829	2.6043374	20	2 6.8	21.0
457065 2008 EZ_{44}	18.1	X	308.31210	32.31983	184.09224	3.31017	0.1724971	0.23566518	2.5958073	20	1 12.8	21.5
457066 2008 EB_{45}	17.5	X	286.22456	268.15406	332.27384	1.21934	0.1299324	0.23538458	2.5978698	20	1 23.7	21.0
457067 2008 ER_{47}	16.9	X	233.84485	253.42386	43.33578	8.68534	0.2020386	0.23136379	2.6278816	20	2 8.2	21.4
457068 2008 EK_{49}	17.2	X	351.73058	3.49515	183.49602	12.06457	0.1262811	0.24136343	2.5547892	20	2 9.9	20.3
457069 2008 EJ_{53}	17.2	X	329.88729	50.39927	148.73285	12.24982	0.1995190	0.23782848	2.5800422	20	1 14.3	20.4
457070 2008 EG_{54}	17.3	X	57.99706	342.96149	130.56233	8.58170	0.1110916	0.24209431	2.5496447	20	2 28.0	20.1
457071 2008 EP_{57}	17.7	X	315.27601	113.42650	89.61342	4.80445	0.1289441	0.23544209	2.5974467	20	1 11.8	21.2
457072 2008 EM_{66}	17.6	X	68.16529	118.73924	290.58083	3.85866	0.1709208	0.23289423	2.6163563	20	—	—
457073 2008 EO_{68}	17.9	X	97.13860	252.80759	15.15131	19.94129	0.0632045	0.36496294	1.9392637	20	12 2.4	20.6
457074 2008 EE_{69}	17.6	X	41.60895	90.70236	11.63649	24.04789	0.2485539	0.23989069	2.5652348	20	2 3.9	20.3
457075 2008 EK_{72}	17.3	X	285.93273	210.68842	4.91767	13.46076	0.1250918	0.23375192	2.6099524	20	—	—
457076 2008 EP_{77}	17.6	X	10.53210	23.53676	157.24684	8.13951	0.1335095	0.24385164	2.5373805	20	3 8.9	20.1
457077 2008 EU_{82}	16.5	X	357.45050	217.56708	332.48148	16.73474	0.1176943	0.24415074	2.5353077	20	2 26.3	19.2
457078 2008 EN_{90}	16.8	X	82.91366	61.97282	0.89288	22.30258	0.0461801	0.23492859	2.6012303	20	1 29.6	20.6
457079 2008 EN_{92}	16.7	X	13.09385	74.79360	84.94661	14.53998	0.1322207	0.24194624	2.5506848	20	2 17.3	19.6
457080 2008 EA_{96}	17.1	X	297.62327	205.57642	11.04651	13.26584	0.1806312	0.23562695	2.5960880	20	1 1.5	21.2
457081 2008 EZ_{98}	17.2	X	353.66771	261.28964	258.54633	5.83212	0.1640272	0.24117510	2.5561190	20	1 4.0	19.8
457082 2008 EE_{100}	18.2	X	183.57893	199.88352	359.67434	21.91372	0.0558165	0.36821267	1.9278367	20	12 27.3	20.8
457083 2008 EE_{107}	17.2	X	151.47928	287.78385	24.90638	14.36364	0.0727768	0.22329028	2.6908501	20	—	—
457084 2008 ER_{111}	17.2	X	235.12042	183.91241	57.81148	4.17904	0.0986007	0.22697732	2.6616303	20	—	—
457085 2008 EA_{113}	17.6	X	13.83173	155.28894	341.12164	8.45602	0.1921347	0.23824117	2.5770618	20	1 8.6	20.1
457086 2008 ES_{114}	17.1	X	315.76675	193.97792	352.73200	15.03624	0.0965387	0.23205099	2.6226909	20	—	—
457087 2008 EV_{117}	18.1	X	326.17913	241.14062	329.77551	3.76491	0.1367759	0.24326512	2.5414573	20	2 3.6	21.0
457088 2008 EF_{121}	17.2	X	286.50842	159.00062	38.95727	3.23091	0.1273494	0.22815451	2.6524671	20	—	—
457089 2008 ER_{123}	17.2	X	280.87392	43.49184	141.05914	11.92305	0.1401728	0.22996491	2.6385278	20	—	—
457090 2008 ET_{123}	17.8	X	341.52147	228.62815	323.25945	10.91997	0.1236314	0.24491105	2.5300579	20	2 3.5	20.5
457091 2008 EQ_{124}	17.7	X	72.78328	187.20591	208.45013	4.74263	0.2559993	0.23761631	2.5815778	20	—	—
457092 2008 EH_{127}	17.7	X	301.03185	13.94544	197.99219	4.84857	0.0978888	0.23334751	2.6129671	20	1 8.9	21.4
457093 2008 ER_{127}	18.2	X	8.71617	356.25068	129.11728	6.59655	0.1943142	0.23744636	2.5828095	20	—	—
457094 2008 EL_{131}	17.8	X	17.76132	355.74817	129.62232	5.40362	0.1579078	0.23678687	2.5876030	20	1 1.9	20.5
457095 2008 EW_{134}	17.7	X	332.91258	90.08645	76.05385	3.11202	0.0906683	0.23286605	2.6165674	20	—	—
457096 2008 EL_{136}	17.0	X	85.36794	284.13869	170.47782	13.05437	0.1561300	0.24453620	2.5326428	20	3 21.5	20.1
457097 2008 EU_{144}	17.6	X	200.05581	154.83897	171.09303	0.88642	0.0592621	0.24182171	2.5515604	20	2 9.1	21.3
457098 2008 EB_{147}	17.5	X	42.03425	80.65276	16.95412	12.90485	0.2406721	0.23903733	2.5713364	20	1 18.1	19.8
457099 2008 EN_{147}	17.2	X	251.96882	217.02789	28.39141	5.50253	0.1090487	0.22942151	2.6426925	20	—	—
457100 2008 ET_{151}	17.4	X	349.91998	14.71618	116.41805	2.71151	0.0849699	0.22859922	2.6490260	20	—	—
457101 2008 EK_{152}	17.5	X	279.72051	277.08152	289.33995	1.41212	0.0678337	0.22776303	2.6555057	20	—	—
457102 2008 EF_{157}	17.8	X	17.85639	283.48368	194.37079	11.46473	0.1336632	0.23372826	2.6101286	20	—	—
457103 2008 EY_{157}	17.3	X	222.47460	103.72347	174.81400	12.82750	0.1917220	0.22727950	2.6592706	20	1 5.2	22.0
457104 2008 EV_{160}	17.6	X	256.39308	33.82607	217.98657	1.59827	0.1484337	0.23065164	2.6332879	20	1 5.3	21.6
457105 2008 EQ_{164}	16.7	X	253.05480	47.23801	137.42577	9.99762	0.2102957	0.21970093	2.7200786	20	—	—
457106 2008 EJ_{167}	17.6	X	82.03345	144.36454	175.76448	23.36561	0.0511060	0.37402683	1.9078060	20	—	—
457107 2008 FH_{1}	17.8	X	276.41557	76.51344	153.57324	3.98623	0.2592836	0.23155408	2.6264416	20	—	—
457108 2008 FR_{6}	17.6	X	327.68988	62.96782	136.24546	6.23958	0.1392303	0.23645608	2.5900157	20	1 21.3	20.9
457109 2008 FO_{11}	17.5	X	8.57162	153.93747	342.12628	10.39790	0.0654380	0.23895454	2.5719302	20	1 9.9	20.8
457110 2008 FF_{12}	18.1	X	18.40613	288.77858	208.77894	1.05152	0.1305729	0.24179181	2.5517708	20	1 20.8	20.8
457111 2008 FA_{13}	18.2	X	35.77256	194.90888	49.75886	1.73382	0.1431094	0.26064603	2.4271799	20	8 4.8	20.7
457112 2008 FC_{13}	18.0	X	286.91638	67.47011	171.08249	4.49205	0.1030120	0.23586081	2.5943717	20	1 24.4	21.6
457113 2008 FH_{13}	17.7	X	305.74277	35.43120	182.00349	6.99849	0.0717871	0.23624898	2.5915291	20	1 24.4	21.2
457114 2008 FW_{15}	17.3	X	1.11833	109.13603	70.49439	8.31545	0.1336775	0.23898684	2.5716985	20	2 23.0	20.1
457115 2008 FT_{16}	17.0	X	304.78971	186.29484	8.17170	5.99195	0.1368313	0.23352054	2.6116762	20	—	—
457116 2008 FL_{19}	17.4	X	311.72492	148.48763	6.46252	4.27367	0.1527255	0.22764676	2.6564098	20	—	—
457117 2008 FS_{24}	17.7	X	316.84161	72.23074	91.96271	7.34526	0.1004879	0.22662147	2.6644159	20	—	—
457118 2008 FZ_{26}	17.0	X	243.93223	232.26484	28.99837	13.45587	0.2319920	0.22411581	2.6842382	20	1 2.9	21.8
457119 2008 FR_{27}	17.1	X	343.26452	25.50899	151.38009	12.66365	0.0910630	0.23609617	2.5926472	20	1 21.0	20.4
457120 2008 FB_{30}	17.8	X	22.40293	147.81948	340.24914	7.40311	0.1495361	0.24059845	2.5602016	20	1 16.3	20.3

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Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
457121 2008 FS_{33}	18.3	X	8.78123	2.47949	174.70681	5.31343	0.1290859	0.24492406	2.5299683	20	2 27.8	20.9
457122 2008 FP_{38}	17.5	X	238.98708	108.70713	155.01028	5.42636	0.1179811	0.22752481	2.6573588	20	1 4.9	21.6
457123 2008 FV_{49}	18.1	X	278.72550	67.50400	181.46067	3.42865	0.1450291	0.23434103	2.6055765	20	1 23.4	21.8
457124 2008 FS_{51}	17.5	X	172.93708	265.32853	52.02832	3.31920	0.0484022	0.22794868	2.6540636	20	—	—
457125 2008 FF_{52}	17.1	X	262.16474	207.42344	29.50555	4.72020	0.0435354	0.23007972	2.6376500	20	1 2.7	20.7
457126 2008 FJ_{52}	17.5	X	257.10363	88.18584	185.77698	15.13147	0.1243840	0.23483217	2.6019423	20	1 31.3	21.8
457127 2008 FF_{58}	16.7	X	234.89324	183.89120	43.79175	11.42324	0.0612896	0.21876432	2.7278368	20	—	—
457128 2008 FP_{58}	17.3	X	272.24230	140.49113	83.54977	3.82636	0.1219159	0.22542061	2.6738701	20	—	—
457129 2008 FQ_{63}	17.8	X	359.51053	81.04926	106.32119	4.79737	0.1238844	0.24126597	2.5554771	20	2 29.2	20.5
457130 2008 FB_{65}	18.0	X	338.92230	350.19469	195.92713	13.84182	0.1879249	0.23516561	2.5994822	20	1 11.3	21.4
457131 2008 FB_{68}	17.8	X	214.72134	292.45673	198.46635	20.73829	0.0969697	0.35790327	1.9646820	20	10 18.9	19.6
457132 2008 FA_{71}	17.4	X	283.30331	106.13607	146.06903	12.33012	0.2321254	0.23279890	2.6170706	20	1 22.8	21.4
457133 2008 FG_{75}	17.5	X	260.44781	110.23108	167.04538	11.85317	0.1359270	0.23551938	2.5968784	20	2 8.1	21.5
457134 2008 FB_{80}	17.1	X	238.65674	232.86770	15.36308	1.95879	0.1505228	0.22516441	2.6758979	20	—	—
457135 2008 FN_{80}	17.4	X	288.58401	324.51003	195.97158	11.97942	0.1235098	0.22141111	2.7060539	20	—	—
457136 2008 FD_{86}	17.5	X	29.81013	99.51810	8.84396	13.10434	0.1049064	0.23550762	2.5969648	20	1 5.1	20.7
457137 2008 FA_{91}	17.4	X	264.73928	222.53720	17.86595	2.22842	0.1256980	0.23578750	2.5949094	20	1 1.2	21.4
457138 2008 FW_{96}	17.6	X	272.72837	49.44379	179.02127	9.18130	0.1902382	0.22564951	2.6720615	20	—	—
457139 2008 FK_{99}	17.2	X	267.97153	118.63993	92.35878	7.79544	0.0895169	0.22332050	2.6906073	20	—	—
457140 2008 FF_{101}	17.4	X	324.49787	27.43328	145.63386	6.77479	0.1524704	0.22966009	2.6408619	20	—	—
457141 2008 FG_{103}	17.6	X	17.76001	345.08408	137.18661	4.89889	0.1798903	0.23172697	2.6251351	20	—	—
457142 2008 FP_{114}	18.0	X	327.85521	343.90507	18.61188	21.07686	0.0949709	0.35457416	1.9769605	20	10 14.7	19.2
457143 2008 FT_{122}	16.7	X	249.88797	189.20276	76.11624	12.16086	0.1573045	0.22839782	2.6505831	20	1 16.2	21.0
457144 2008 FL_{126}	17.0	X	139.88380	154.11405	174.51830	6.58301	0.0357393	0.21969531	2.7201250	20	—	—
457145 2008 FV_{126}	16.8	X	289.64344	161.61460	56.70352	14.65885	0.1952517	0.22872004	2.6480930	20	—	—
457146 2008 FE_{128}	17.5	X	2.27450	91.46015	52.12889	6.26607	0.0806827	0.23134583	2.6280176	20	1 9.3	20.7
457147 2008 FZ_{129}	18.1	X	30.84603	336.00259	180.29510	4.61071	0.1822693	0.24199009	2.5503767	20	3 14.0	20.1
457148 2008 FP_{130}	17.3	X	285.74982	83.66608	154.10516	13.45796	0.2234673	0.23103315	2.6303882	20	1 9.1	21.6
457149 2008 FY_{132}	18.3	X	295.73146	227.72792	342.96845	1.43061	0.1354169	0.22978341	2.6399170	20	—	—
457150 2008 FD_{133}	13.6	X	272.15069	269.09376	51.28890	30.41429	0.0247387	0.08405945	5.1611326	20	5 9.3	20.5
457151 2008 FE_{133}	17.1	X	24.12479	91.02578	74.96153	4.87701	0.1157053	0.23949589	2.5680531	20	3 16.1	19.8
457152 2008 FQ_{133}	18.1	X	298.74943	48.87025	164.40029	2.96702	0.0618294	0.23265623	2.6181404	20	1 13.4	21.5
457153 2008 FN_{134}	17.9	X	281.27381	191.40672	16.76494	2.30423	0.1398805	0.22606535	2.6687837	20	—	—
457154 2008 FW_{136}	16.0	X	222.43742	277.07831	267.98229	10.34853	0.1813302	0.21113512	2.7931595	20	11 28.0	20.1
457155 2008 GU	17.0	X	23.68938	48.74904	92.94337	13.28107	0.2449900	0.24102049	2.5572121	20	2 6.9	19.0
457156 2008 GS_{5}	17.5	X	57.71183	306.76873	169.20801	15.73851	0.1204366	0.24465402	2.5318297	20	2 28.9	20.3
457157 2008 GT_{7}	17.2	X	300.55730	115.20596	109.20899	3.14220	0.0695848	0.23265874	2.6181215	20	1 29.5	20.7
457158 2008 GW_{11}	16.7	X	263.37706	182.87282	37.19140	14.55844	0.1876747	0.22175331	2.7032693	20	—	—
457159 2008 GY_{11}	16.6	X	284.79916	315.37705	218.80711	16.54074	0.2244950	0.21984648	2.7188779	20	—	—
457160 2008 GF_{14}	17.1	X	259.69427	217.97922	25.24797	6.87633	0.1700375	0.22905717	2.6454941	20	—	—
457161 2008 GP_{34}	17.4	X	18.23074	55.60407	13.87022	11.63576	0.1460608	0.22267452	2.6958084	20	—	—
457162 2008 GV_{34}	17.5	X	314.21477	198.21108	15.87402	1.10719	0.1273624	0.23627931	2.5913073	20	1 24.7	20.7
457163 2008 GJ_{38}	17.4	X	345.09487	31.54441	149.67816	2.84482	0.2233080	0.23459596	2.6036885	20	1 11.5	20.3
457164 2008 GA_{44}	17.0	X	33.14078	53.90778	27.71617	11.12369	0.1686359	0.22475655	2.6791342	20	—	—
457165 2008 GR_{52}	17.3	X	244.71334	215.42176	25.95523	5.37940	0.1295274	0.22532566	2.6746212	20	—	—
457166 2008 GD_{57}	17.5	X	292.19233	147.40568	55.44444	3.71438	0.1106039	0.22647130	2.6655936	20	—	—
457167 2008 GA_{67}	17.4	X	343.19416	103.68348	24.50225	13.52527	0.1456354	0.22648313	2.6655008	20	—	—
457168 2008 GE_{67}	17.3	X	313.63095	337.14028	196.24112	3.84955	0.0556196	0.22698308	2.6615853	20	—	—
457169 2008 GL_{69}	17.3	X	26.16241	355.09029	154.13661	5.25641	0.1907265	0.23850774	2.5751413	20	2 22.7	19.3
457170 2008 GM_{69}	16.6	X	268.07871	44.75400	155.87269	12.86202	0.1852211	0.22374491	2.6872038	20	—	—
457171 2008 GA_{73}	17.3	X	340.30336	113.65313	19.33918	15.87500	0.1514304	0.22835312	2.6509289	20	—	—
457172 2008 GY_{73}	17.3	X	41.56327	323.18519	108.91320	6.97038	0.1133791	0.22444312	2.6816279	20	—	—
457173 2008 GS_{80}	16.8	X	63.67018	270.58256	101.79115	7.05175	0.0848110	0.21548092	2.7554773	20	—	—
457174 2008 GA_{81}	17.8	X	288.76931	163.97481	54.99342	4.32359	0.1505272	0.23132880	2.6281466	20	—	—
457175 2008 GO_{98}	12.9	X	171.62833	53.66672	192.59374	15.56030	0.2800429	0.12473577	3.9671203	20	12 7.9	19.8
457176 2008 GF_{100}	17.3	X	5.41032	159.39810	36.84201	8.75620	0.1673909	0.24282870	2.5445015	20	3 23.3	19.6
457177 2008 GC_{105}	17.7	X	53.34349	49.83153	85.83286	5.39216	0.0873304	0.24198581	2.5504068	20	3 21.1	20.7
457178 2008 GU_{105}	16.9	X	262.46852	180.77112	52.00207	10.42497	0.1662382	0.22624377	2.6673804	20	—	—
457179 2008 GX_{110}	16.1	X	253.00865	209.50044	78.28917	34.28798	0.1692310	0.23302295	2.6153927	20	2 24.1	20.9
457180 2008 GD_{115}	17.3	X	25.67458	14.00292	94.32908	6.16851	0.2191045	0.23242578	2.6198706	20	—	—
457181 2008 GF_{115}	17.1	X	136.73239	186.59445	120.63559	5.91869	0.1412791	0.21124510	2.7921899	20	—	—
457182 2008 GW_{120}	16.6	X	267.89266	164.20048	62.45957	13.50416	0.1016160	0.22784884	2.6548388	20	—	—
457183 2008 GZ_{123}	17.0	X	272.72675	239.19552	6.54494	12.92876	0.2284360	0.23060400	2.6336506	20	1 9.2	21.5
457184 2008 GE_{124}	17.3	X	117.58135	273.97422	20.57959	21.50089	0.1032190	0.37316703	1.9107353	20	—	—
457185 2008 GW_{124}	17.6	X	26.84813	36.03481	124.54659	5.98602	0.1540164	0.24396314	2.5366073	20	3 13.2	19.9
457186 2008 GS_{137}	17.4	X	320.01471	331.67375	201.42355	11.36801	0.1283870	0.22687672	2.6624171	20	—	—
457187 2008 GN_{139}	17.0	X	308.86426	265.75764	235.20037	4.31646	0.1146416	0.21846013	2.7303685	20	—	—
457188 2008 GO_{143}	17.2	X	264.29550	216.21961	18.70698	8.31013	0.1567532	0.22583367	2.6706086	20	—	—
457189 2008 GB_{144}	16.5	X	289.85022	95.36189	111.12950	12.07970	0.2127521	0.22861613	2.6488954	20	—	—
457190 2008 GC_{144}	15.5	X	8.28136	187.74285	76.78090	25.12977	0.2187869	0.17306492	3.1890649	20	7 9.9	19.0
457191 2008 GA_{146}	17.6	X	310.31946	330.28711	232.59902	5.39335	0.2570786	0.23140538	2.6275667	20	—	—
457192 2008 HV	17.7	X	351.93769	323.87453	201.32304	1.97972	0.1103847	0.23538759	2.5978476	20	1 16.9	20.7
457193 2008 HS_{6}	17.2	X	284.74142	14.65785	207.20473	11.01965	0.1482769	0.22973314	2.6403021	20	—	—
457194 2008 HN_{13}	17.5	X	287.20585	47.36886	210.59658	8.33110	0.1278371	0.23747343	2.5826132	20	2 12.6	21.2
457195 2008 HQ_{16}	16.9	X	302.09803	354.09015	277.23119	4.52952	0.2459849	0.23955747	2.5676130	20	3 2.4	20.3
457196 2008 HZ_{17}	17.4	X	27.90615	359.38236	157.69428	9.17017	0.2798408	0.24254864	2.5464598	20	3 15.7	18.7
457197 2008 HJ_{22}	16.4	X	224.67657	119.69031	103.34365	16.31046	0.0612036	0.21214010	2.7843310	20	—	—
457198 2008 HH_{25}	18.1	X	300.03455	207.08928	354.70342	1.68428	0.1324539	0.22905742	2.6454921	20	—	—
457199 2008 HC_{39}	17.4	X	243.78447	258.38449	12.88210	12.95937	0.1532481	0.23156834	2.6263338	20	1 20.2	21.8
457200 2008 HC_{44}	17.1	X	285.08265	326.31979	191.12390	5.22901	0.1017236	0.21680110	2.7442798	20	—	—

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Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
457201 2008 HQ_{44}	17.4	X	346.28691	101.74206	99.18508	13.21001	0.2110367	0.23688513	2.5868873	20	2 15.7	20.2
457202 2008 HV_{48}	17.2	X	342.61036	58.83966	147.14116	8.70920	0.1824319	0.23841826	2.5757856	20	2 16.5	19.9
457203 2008 HT_{55}	17.4	X	324.37580	92.50829	107.58565	2.51343	0.1289415	0.23098584	2.6307474	20	1 20.9	20.8
457204 2008 HL_{62}	17.6	X	341.71808	41.96823	163.08269	10.81485	0.1681678	0.23653245	2.5894581	20	2 14.9	20.4
457205 2008 JA_{3}	17.0	X	266.84496	54.97686	219.45486	14.48683	0.1137106	0.23309127	2.6148817	20	2 10.1	21.2
457206 2008 JM_{8}	17.3	X	322.13434	113.74125	90.06275	6.23501	0.2272360	0.23586471	2.5943431	20	1 6.7	20.6
457207 2008 JL_{9}	16.9	X	319.99344	90.65701	97.03595	13.28592	0.1263822	0.22914976	2.6447814	20	—	—
457208 2008 JK_{20}	15.6	X	15.35689	188.78281	90.04972	16.60714	0.2420342	0.17546626	3.1599022	20	8 25.4	19.2
457209 2008 JR_{21}	17.0	X	197.52595	127.17351	154.10527	9.28991	0.0875884	0.21964756	2.7205192	20	—	—
457210 2008 JY_{22}	17.6	X	342.35587	340.33125	197.25834	13.02335	0.2033309	0.23539257	2.5978110	20	1 3.5	20.8
457211 2008 JD_{26}	16.0	X	196.18302	195.54654	62.02706	13.08454	0.0928711	0.21169217	2.7882573	20	—	—
457212 2008 JR_{26}	19.8	X	44.30442	96.57924	230.71750	16.81461	0.1774169	0.59872320	1.3941794	20	—	—
457213 2008 JG_{29}	17.0	X	285.95611	148.39052	90.99869	14.08331	0.1982118	0.23062571	2.6334853	20	1 14.9	21.0
457214 2008 JK_{30}	17.8	X	293.53724	13.89445	215.65458	5.82524	0.1484093	0.22942119	2.6426950	20	1 15.4	21.6
457215 2008 JS_{33}	17.0	X	239.42909	74.93840	193.36524	12.33721	0.2428647	0.22206896	2.7007071	20	1 5.2	21.9
457216 2008 JM_{36}	17.3	X	191.97122	114.00348	188.82288	14.02261	0.0915100	0.21921775	2.7240740	20	1 5.8	21.7
457217 2008 KE_{2}	16.8	X	156.62394	96.50769	217.09403	12.37116	0.2112426	0.21028654	2.8006686	20	—	—
457218 2008 KC_{4}	17.7	X	1.29150	323.73765	204.27637	13.26726	0.1904745	0.23354125	2.6115218	20	1 24.5	20.6
457219 2008 KM_{6}	15.7	X	43.63374	220.60236	87.99431	17.67031	0.3342986	0.18249815	3.0782017	20	11 27.8	20.2
457220 2008 KY_{6}	16.7	X	304.99944	102.60627	109.69138	14.51467	0.1815675	0.22834929	2.6509586	20	1 4.4	20.3
457221 2008 KZ_{8}	13.9	X	13.41489	356.53270	226.73101	11.99649	0.1760329	0.08311175	5.2002922	20	5 22.9	19.8
457222 2008 KG_{14}	17.0	X	104.47440	228.82199	143.45834	11.71831	0.1250042	0.21602871	2.7508172	20	—	—
457223 2008 KM_{17}	17.8	X	338.62397	86.17732	72.40077	13.79677	0.2014146	0.22882533	2.6472807	20	—	—
457224 2008 KM_{18}	16.7	X	25.77747	24.17425	125.36931	13.73228	0.1983982	0.23729859	2.5838816	20	2 25.8	18.9
457225 2008 KN_{18}	17.1	X	316.00337	7.95894	174.70483	14.08751	0.1808218	0.22690537	2.6621930	20	—	—
457226 2008 KK_{23}	16.8	X	288.19246	174.42237	83.01901	15.38123	0.2157099	0.23193698	2.6235502	20	2 9.5	20.9
457227 2008 KY_{29}	17.3	X	323.49623	60.08939	150.42352	12.52137	0.2309635	0.23319707	2.6140907	20	1 16.1	20.7
457228 2008 KM_{33}	17.4	X	347.22615	343.45251	211.91879	13.61694	0.1935217	0.23600260	2.5933324	20	2 3.6	20.5
457229 2008 KB_{40}	17.2	X	216.86097	149.46501	138.27975	7.72783	0.0685648	0.22208329	2.7005909	20	1 13.8	21.1
457230 2008 KU_{40}	17.1	X	247.09144	119.21113	113.18839	6.07227	0.0544324	0.22052908	2.7132645	20	—	—
457231 2008 KM_{41}	17.6	X	256.01368	88.19111	146.14981	9.60880	0.2050053	0.22042680	2.7141038	20	—	—
457232 2008 KF_{43}	16.4	X	249.03715	356.37365	282.78594	11.86446	0.1741532	0.21983367	2.7189836	20	1 28.5	20.9
457233 2008 KH_{43}	16.9	X	199.83643	155.30334	132.87912	17.94963	0.2296418	0.21497005	2.7598411	20	1 1.9	21.9
457234 2008 LC_{7}	17.2	X	217.68936	97.91216	168.47512	9.38635	0.1764756	0.21688429	2.7435780	20	—	—
457235 2008 LT_{8}	16.1	X	197.76959	44.73358	269.61391	12.06209	0.1833548	0.21390924	2.7689579	20	1 26.2	20.8
457236 2008 LO_{9}	17.3	X	286.16575	134.75675	152.01543	12.13966	0.1886376	0.23700140	2.5860412	20	3 15.8	20.9
457237 2008 LJ_{14}	17.3	X	303.89981	82.39984	120.92661	12.11084	0.1025235	0.22654603	2.6650073	20	1 3.1	20.9
457238 2008 LN_{14}	17.1	X	342.81814	65.76305	105.63895	14.88792	0.2036529	0.23077469	2.6323518	20	—	—
457239 2008 NU_{4}	16.4	X	317.16380	268.60500	312.10742	10.71275	0.1713196	0.22322744	2.6913551	20	2 1.4	19.6
457240 2008 OT_{6}	16.1	X	27.62840	42.71835	282.70730	9.90697	0.2774562	0.17406818	3.1767994	20	11 13.8	20.3
457241 2008 OY_{8}	16.2	X	272.40018	359.88990	274.64901	12.88474	0.2196679	0.22200455	2.7012294	20	2 7.0	20.7
457242 2008 OC_{19}	16.1	X	35.74340	41.62441	316.35331	21.26436	0.1795036	0.18082085	3.0972081	20	12 26.3	20.7
457243 2008 OC_{21}	16.5	X	349.59938	77.71554	328.12792	13.23328	0.2335881	0.17634012	3.1494541	20	12 18.2	20.0
457244 2008 OT_{21}	16.8	X	333.47088	63.76183	341.45515	9.37102	0.1072010	0.17403167	3.1772436	20	11 5.9	20.9
457245 2008 OH_{22}	16.6	X	29.00410	23.78580	326.93591	4.42985	0.1586786	0.17575800	3.1564045	20	11 30.8	20.8
457246 2008 PV_{1}	16.3	X	318.99769	98.48822	147.44873	14.07928	0.1274533	0.22761931	2.6566233	20	3 16.9	19.6
457247 2008 PF_{3}	15.8	X	28.48748	20.50662	326.93652	16.84688	0.2064465	0.17568860	3.1572357	20	12 1.4	20.3
457248 2008 QH	16.3	X	21.04971	48.63321	324.80834	26.57206	0.1624716	0.17993813	3.1073290	20	12 24.4	20.8
457249 2008 QR_{8}	15.8	X	2.86746	236.52998	157.27985	19.42345	0.2567462	0.17682295	3.1437184	20	12 30.8	19.7
457250 2008 QD_{12}	16.0	X	77.89894	25.93363	266.53265	8.62776	0.1317831	0.17886056	3.1197969	20	11 15.3	20.8
457251 2008 QC_{15}	16.2	X	233.87731	120.17783	178.77516	20.07602	0.1885435	0.21276881	2.7788434	20	2 7.1	21.1
457252 2008 QQ_{28}	18.1	X	238.51388	222.87939	124.04990	3.23105	0.1686409	0.30920895	2.1658814	20	4 9.1	21.3
457253 2008 QS_{31}	16.1	X	28.00683	40.03417	334.78422	16.47725	0.2361048	0.17698666	3.1417794	20	—	—
457254 2008 QL_{35}	15.6	X	31.45952	270.29142	78.17569	25.34366	0.3247070	0.17331394	3.1860094	20	12 23.8	20.0
457255 2008 QQ_{47}	16.6	X	311.67179	280.06404	184.48957	18.31799	0.1172649	0.17875018	3.1210811	20	12 21.0	20.8
457256 2008 RO_{4}	16.3	X	77.42193	352.87776	348.02559	8.72861	0.1321378	0.18325710	3.0696970	20	—	—
457257 2008 RR_{8}	18.6	X	223.60527	142.65979	225.34267	2.41373	0.1921262	0.30676950	2.1773484	20	4 19.1	22.0
457258 2008 RU_{12}	16.3	X	113.90628	108.37909	194.88042	9.16517	0.0342206	0.18930712	3.0039411	20	12 30.0	20.8
457259 2008 RV_{15}	16.7	X	9.38178	98.84377	280.20120	3.50702	0.1262334	0.17443274	3.1723715	20	12 3.7	20.7
457260 2008 RY_{24}	17.8	X	167.46108	130.74077	285.00077	4.38505	0.4603376	0.29876737	2.2160554	20	5 6.8	22.4
457261 2008 RY_{25}	16.7	X	332.44940	257.70962	9.78544	26.75876	0.4304207	0.23322069	2.6139143	20	3 19.5	19.4
457262 2008 RO_{32}	16.8	X	6.02663	35.66186	354.34815	12.50803	0.1687306	0.17586245	3.1551545	20	12 17.7	20.9
457263 2008 RX_{32}	16.8	X	314.89081	187.11543	342.27461	10.66182	0.0350914	0.19801172	2.9152476	20	—	—
457264 2008 RT_{33}	15.7	X	325.75290	10.28730	342.21113	7.91573	0.1386713	0.15886607	3.3763589	20	8 17.5	19.8
457265 2008 RU_{39}	16.4	X	100.66196	351.05672	356.21424	10.65493	0.0999100	0.18923849	3.0046674	20	—	—
457266 2008 RL_{41}	18.9	X	180.51699	194.84417	178.06163	0.34550	0.1126175	0.29708863	2.2243956	20	3 15.4	21.9
457267 2008 RP_{41}	16.3	X	303.44179	96.90040	3.38280	13.66226	0.0049789	0.17762551	3.1342418	20	12 7.4	20.9
457268 2008 RS_{42}	16.6	X	357.58565	25.14590	10.90511	9.39690	0.0721271	0.17448571	3.1717295	20	11 30.5	20.9
457269 2008 RC_{45}	18.6	X	160.95915	359.81508	18.33185	2.87251	0.1842593	0.29326045	2.2437117	20	3 7.9	21.9
457270 2008 RA_{46}	18.0	X	196.62574	19.38778	8.33804	4.42857	0.1282403	0.30355821	2.1926773	20	4 20.2	21.3
457271 2008 RG_{54}	16.6	X	97.29888	7.42231	309.87260	8.62435	0.0907920	0.18557822	3.0440472	20	—	—
457272 2008 RZ_{55}	16.3	X	239.21124	227.61952	317.99614	9.66532	0.0610062	0.18743185	3.0239443	20	12 30.2	20.6
457273 2008 RE_{64}	18.3	X	244.58281	346.54517	9.01740	7.60808	0.1431033	0.30967412	2.1637119	20	4 26.0	21.3
457274 2008 RA_{76}	15.9	X	332.67624	275.03148	169.47018	26.22072	0.2327952	0.17731248	3.1379295	20	—	—
457275 2008 RK_{78}	18.1	X	179.88447	69.77679	328.12607	5.41735	0.1751307	0.29861261	2.2168210	20	4 16.1	21.6
457276 2008 RP_{80}	16.6	X	83.12785	160.01606	182.35732	14.71888	0.1750308	0.18458665	3.0549389	20	—	—
457277 2008 RZ_{83}	16.5	X	320.01399	105.73708	319.36246	6.44079	0.1855834	0.17405805	3.1769226	20	11 7.6	20.0
457278 2008 RN_{86}	16.1	X	111.50206	14.17468	322.42834	10.24091	0.0629725	0.18810430	3.0167332	20	—	—
457279 2008 RQ_{86}	16.7	X	111.56222	354.88546	321.36680	9.66158	0.1655082	0.18564208	3.0433490	20	—	—
457280 2008 RR_{86}	16.4	X	97.23193	30.52278	319.08298	9.16866	0.1113601	0.18796293	3.0182456	20	—	—

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	m		°	°	°	°		°				
457281 2008 RS_{86}	16.8	X	151.74156	72.34161	226.69111	9.79832	0.0874296	0.19011366	2.9954392	20	—	—
457282 2008 RZ_{99}	16.2	X	323.80700	55.80774	359.57764	16.32471	0.0963624	0.16973124	3.2306868	20	10 31.2	20.5
457283 2008 RQ_{103}	16.0	X	15.41533	42.00360	344.87250	15.25786	0.0791980	0.17636552	3.1491518	20	12 16.5	20.5
457284 2008 RK_{105}	16.0	X	145.14236	235.92591	19.81203	8.76099	0.0510638	0.17499917	3.1655224	20	12 4.7	20.9
457285 2008 RK_{111}	15.9	X	164.11777	269.56844	20.95844	10.10880	0.0707064	0.19111886	2.9849268	20	—	—
457286 2008 RM_{112}	16.4	X	339.81952	250.13187	177.31646	23.02913	0.1470086	0.17838843	3.1252991	20	12 21.4	20.6
457287 2008 RU_{113}	16.6	X	323.53073	223.12577	194.91779	4.92472	0.1254937	0.17167347	3.2062737	20	11 9.9	20.4
457288 2008 RL_{118}	16.6	X	35.80296	357.72934	10.56172	9.73293	0.0799462	0.17488442	3.1669069	20	12 19.9	21.1
457289 2008 RU_{125}	16.3	X	35.79723	171.77983	198.13241	9.62276	0.0913037	0.18010101	3.1054554	20	12 24.6	20.7
457290 2008 RU_{128}	18.6	X	186.89957	80.42973	325.71404	0.64783	0.1189133	0.30133013	2.2034727	20	5 5.7	21.7
457291 2008 RA_{129}	16.4	X	90.01413	341.57374	344.52839	15.13140	0.2541241	0.18310175	3.0714330	20	—	—
457292 2008 RY_{131}	16.0	X	344.75304	245.57448	163.86605	16.60471	0.2861623	0.17334574	3.1856197	20	12 17.9	19.4
457293 2008 RK_{135}	17.6	X	186.25800	31.68363	332.00027	9.34200	0.1042719	0.29791557	2.2202774	20	3 7.2	20.7
457294 2008 RW_{137}	16.3	X	326.43104	240.08229	198.38510	15.68549	0.2360680	0.17322125	3.1871458	20	12 10.5	19.7
457295 2008 RX_{138}	16.0	X	6.74177	30.02050	33.05555	12.08054	0.1653684	0.18035468	3.1025427	20	—	—
457296 2008 RL_{140}	15.9	X	116.11229	50.46925	287.16986	9.18253	0.1011544	0.18940869	3.0028671	20	—	—
457297 2008 RT_{140}	16.8	X	17.00392	148.56772	235.02113	9.28359	0.0648745	0.17627175	3.1502685	20	12 13.1	21.1
457298 2008 RN_{142}	15.6	X	1.85765	143.19718	235.31449	15.54343	0.2056988	0.17327223	3.1865207	20	11 30.7	19.2
457299 2008 RP_{142}	15.9	X	38.19167	92.14991	304.55478	24.99391	0.2309148	0.18506915	3.0496268	20	—	—
457300 2008 RV_{142}	16.6	X	44.18308	22.85221	347.16208	8.40643	0.1100942	0.18133981	3.0912961	20	—	—
457301 2008 RG_{143}	16.9	X	6.20418	193.64910	204.35095	5.28243	0.1939146	0.17703619	3.1411934	20	12 31.7	20.7
457302 2008 RL_{143}	18.2	X	123.06645	71.54323	11.68750	5.59141	0.0673652	0.29989966	2.2104740	20	4 6.5	20.8
457303 2008 SC_{8}	18.3	X	176.59368	100.51662	257.83912	2.97704	0.2289725	0.29489383	2.2354189	20	2 26.1	22.0
457304 2008 SS_{23}	16.2	X	27.64047	16.88043	350.02777	12.75983	0.1270917	0.17793818	3.1305690	20	12 14.8	20.6
457305 2008 SV_{32}	15.9	X	29.67079	27.14151	353.60309	16.45958	0.1955803	0.17763226	3.1341623	20	—	—
457306 2008 SN_{34}	16.8	X	354.78367	204.12832	190.29435	4.67103	0.1594750	0.17161329	3.2070232	20	12 3.7	20.6
457307 2008 SV_{34}	16.6	X	324.55659	238.97134	195.24225	12.39393	0.1350716	0.17177934	3.2049562	20	12 2.3	20.6
457308 2008 SK_{36}	16.7	X	4.45667	359.37729	23.14275	11.22791	0.1007367	0.17109761	3.2134638	20	11 24.8	21.0
457309 2008 SN_{42}	16.3	X	73.46412	340.95119	9.57788	8.68369	0.1812496	0.18173149	3.0868529	20	—	—
457310 2008 SQ_{50}	16.8	X	347.45775	73.59188	2.22289	8.91647	0.0673191	0.18082135	3.0972024	20	—	—
457311 2008 SO_{54}	16.1	X	321.10737	99.81110	14.82658	13.37082	0.2780417	0.17580240	3.1558730	20	—	—
457312 2008 SE_{61}	16.1	X	62.85354	162.98230	189.83453	6.85458	0.1669194	0.18165568	3.0877116	20	—	—
457313 2008 SM_{65}	17.9	X	182.95466	3.82707	11.75988	2.97978	0.1797118	0.29517755	2.2339863	20	3 24.1	21.2
457314 2008 ST_{65}	15.9	X	62.70870	334.32325	27.11325	9.58508	0.0773582	0.17783608	3.1317672	20	—	—
457315 2008 SY_{79}	16.6	X	51.46136	154.30757	192.11426	12.70458	0.1472616	0.17769030	3.1334798	20	12 22.5	21.3
457316 2008 SL_{82}	16.5	X	85.60769	19.98126	324.24233	14.24842	0.0396157	0.18210387	3.0826432	20	—	—
457317 2008 ST_{89}	16.0	X	317.72021	87.35959	350.44246	15.44211	0.1504281	0.17438828	3.1729107	20	11 19.0	20.0
457318 2008 SU_{89}	16.6	X	4.20288	37.67874	359.73521	11.41679	0.0684567	0.17482554	3.1676179	20	12 11.7	21.0
457319 2008 SV_{95}	16.6	X	204.27211	41.44098	253.76463	2.72538	0.1420316	0.20008506	2.8950735	20	1 13.3	21.2
457320 2008 ST_{100}	18.0	X	295.44160	192.77599	94.48934	3.52185	0.1795258	0.30583219	2.1817949	20	3 23.2	20.5
457321 2008 SC_{101}	18.0	X	173.31685	276.66970	143.29960	4.24728	0.1193829	0.30153353	2.2024817	20	5 11.7	21.1
457322 2008 SB_{115}	17.6	X	232.48040	223.11433	56.72931	5.78004	0.1523386	0.28952522	2.2629682	20	1 9.9	21.1
457323 2008 SW_{131}	16.5	X	76.56247	119.63645	230.68626	4.23079	0.1706951	0.18066324	3.0990091	20	—	—
457324 2008 SO_{138}	18.5	X	128.69247	216.63297	154.52081	1.89803	0.1932143	0.28003054	2.3138353	20	1 26.6	21.5
457325 2008 SB_{142}	17.8	X	262.08595	280.81685	40.25325	6.55918	0.1045963	0.30192627	2.2005713	20	4 7.5	20.6
457326 2008 SJ_{146}	16.6	X	108.70527	345.77546	331.04642	9.16935	0.0755355	0.18395157	3.0619662	20	—	—
457327 2008 SX_{161}	18.1	X	188.56602	183.46050	160.97672	4.26807	0.2192523	0.29416587	2.2391054	20	2 19.6	21.8
457328 2008 SD_{162}	16.0	X	12.36856	28.26050	12.63978	27.71131	0.1316560	0.17802165	3.1295904	20	—	—
457329 2008 SA_{166}	16.5	X	87.07220	325.71290	25.44016	11.04353	0.1337449	0.18580416	3.0415789	20	—	—
457330 2008 SQ_{168}	16.3	X	331.18716	101.78201	346.59495	11.42719	0.1140135	0.18043300	3.1016449	20	—	—
457331 2008 SC_{172}	16.2	X	52.85892	14.98478	334.38902	8.54020	0.1460811	0.17962153	3.1109793	20	12 29.0	20.8
457332 2008 SE_{174}	15.9	X	92.10623	317.46453	17.53815	20.45145	0.0950588	0.18118023	3.0931110	20	—	—
457333 2008 SW_{179}	16.9	X	116.10181	89.04704	183.75235	1.46990	0.0497709	0.17169193	3.2060438	20	11 24.8	21.7
457334 2008 SP_{181}	18.9	X	118.98834	283.15675	114.18171	0.95248	0.2092852	0.28400891	2.2921766	20	2 20.8	21.9
457335 2008 SA_{190}	16.3	X	86.23128	137.83501	216.18389	6.22253	0.1393178	0.18470093	3.0536787	20	—	—
457336 2008 SY_{194}	17.9	X	195.79053	163.49880	189.29972	2.69631	0.2345204	0.29507849	2.2344862	20	3 6.8	21.6
457337 2008 SZ_{194}	18.3	X	176.05974	18.44819	29.57760	4.20576	0.1162985	0.29896628	2.2150723	20	4 26.5	21.4
457338 2008 SG_{203}	17.3	X	81.19723	131.31882	169.98888	4.68376	0.1294738	0.25519143	2.4616445	20	12 15.1	21.0
457339 2008 SS_{203}	16.6	X	345.42922	199.12285	189.82033	9.96279	0.2165459	0.16594595	3.2796307	20	11 12.9	20.1
457340 2008 SU_{207}	15.5	X	44.78756	278.35404	79.31358	16.83857	0.2327821	0.17584564	3.1553556	20	—	—
457341 2008 SD_{215}	16.8	X	31.76099	210.00934	182.00201	5.59969	0.1462903	0.18144851	3.0900614	20	—	—
457342 2008 SK_{215}	16.9	X	310.46160	77.96429	9.39525	9.33678	0.0678710	0.17508740	3.1644589	20	11 27.0	21.1
457343 2008 SY_{218}	16.0	X	19.83406	186.63879	196.84524	17.32048	0.1960844	0.17692272	3.1425364	20	—	—
457344 2008 SA_{220}	16.4	X	97.31020	142.48992	198.42373	11.03480	0.1466062	0.18687540	3.0299441	20	—	—
457345 2008 SP_{222}	16.8	X	349.09976	60.08308	343.23492	9.09746	0.2173099	0.17295019	3.1904751	20	12 9.3	20.4
457346 2008 SZ_{222}	17.0	X	13.02619	184.98324	203.16499	9.74475	0.0791671	0.17675920	3.1444742	20	12 15.3	21.3
457347 2008 SA_{223}	18.4	X	219.69098	12.05921	340.52997	5.19177	0.1644833	0.30276589	2.1965011	20	3 26.5	21.7
457348 2008 SY_{225}	16.4	X	61.62398	303.27151	34.40160	10.36064	0.0946717	0.17718723	3.1394081	20	12 16.1	21.1
457349 2008 SD_{234}	16.6	X	134.44383	253.34126	39.53415	6.31533	0.0417186	0.18374465	3.0642645	20	—	—
457350 2008 SF_{237}	17.1	X	294.78952	126.45814	327.56938	2.29850	0.0702396	0.17363698	3.1820566	20	11 14.4	21.4
457351 2008 SC_{250}	16.7	X	334.76134	297.34100	156.73391	9.82522	0.0694091	0.17876574	3.1209001	20	—	—
457352 2008 SG_{257}	16.4	X	39.02566	350.32320	31.61257	10.28451	0.0605907	0.17566558	3.1575115	20	—	—
457353 2008 SA_{258}	16.7	X	24.53708	211.61745	207.99541	10.35495	0.0643155	0.18219807	3.0815806	20	—	—
457354 2008 SQ_{259}	18.2	X	148.91066	272.45096	164.27119	4.84941	0.1149233	0.30070915	2.2065052	20	5 7.4	21.2
457355 2008 SC_{262}	16.9	X	103.38330	243.03315	53.86729	1.50815	0.1323444	0.17820447	3.1274496	20	12 16.4	21.9
457356 2008 SV_{263}	17.0	X	8.90687	342.06930	57.45981	3.00062	0.1298877	0.17399260	3.1777192	20	12 28.9	20.9
457357 2008 SA_{265}	16.2	X	265.95859	329.01695	206.18978	16.66801	0.1434077	0.17937867	3.1137866	20	—	—
457358 2008 SC_{267}	15.5	X	55.64173	284.81044	57.79863	16.93926	0.2137558	0.17716714	3.1396453	20	12 30.5	20.4
457359 2008 SM_{267}	18.0	X	204.47181	18.58256	355.19138	8.47735	0.1484017	0.30091137	2.2055165	20	4 8.1	21.4
457360 2008 SN_{269}	16.3	X	274.00255	297.67942	214.12994	10.87125	0.0495754	0.17655020	3.1469553	20	12 29.4	20.7

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	m		°	°	°	°		°				
457361 2008 SX_{269}	16.4	X	289.97697	233.85099	22.46723	25.48773	0.0891484	0.21239342	2.7821167	20	3 9.5	20.6
457362 2008 SJ_{271}	16.4	X	55.20293	311.65979	31.81600	16.02140	0.0526523	0.17195566	3.2027650	20	12 6.9	21.2
457363 2008 SY_{288}	18.1	X	230.32027	25.33594	331.57358	4.82967	0.1789173	0.30303912	2.1951806	20	4 10.0	21.6
457364 2008 SZ_{288}	16.2	X	328.76177	60.96742	9.59879	9.61091	0.0308052	0.17365019	3.1818952	20	12 1.9	20.7
457365 2008 SU_{289}	18.0	X	190.12035	337.21318	64.77113	5.52458	0.1320631	0.30136580	2.2032988	20	5 4.7	21.1
457366 2008 SV_{290}	16.5	X	138.86461	9.65234	279.85150	4.05437	0.0917124	0.18331485	3.0690522	20	—	—
457367 2008 SY_{291}	18.2	X	210.30086	67.05163	299.50902	4.13908	0.2194163	0.30291441	2.1957831	20	4 2.7	21.8
457368 2008 SC_{301}	16.2	X	14.26408	18.07502	347.89212	17.89502	0.1712443	0.16987784	3.2288279	20	11 24.2	20.6
457369 2008 SU_{303}	16.5	X	268.98219	67.55520	287.96075	11.65870	0.2909825	0.22711866	2.6605260	20	5 6.4	20.8
457370 2008 SA_{307}	18.1	X	257.67098	226.72770	116.13383	4.49730	0.2080280	0.30890986	2.1672792	20	4 20.5	21.3
457371 2008 TR_{11}	18.1	X	195.68038	222.13461	122.54672	4.15360	0.1922541	0.29555917	2.2320629	20	2 26.5	21.6
457372 2008 TU_{16}	18.2	X	223.01567	225.58513	127.44664	5.14024	0.2286957	0.30426176	2.1892959	20	3 31.4	21.8
457373 2008 TZ_{20}	18.7	X	141.08102	238.15913	217.08168	1.47490	0.0790997	0.29998280	2.2100655	20	5 19.5	21.6
457374 2008 TE_{24}	18.6	X	196.67852	88.96376	295.35309	1.14245	0.1659496	0.30076098	2.2062517	20	4 15.9	21.9
457375 2008 TJ_{24}	16.5	X	84.11371	351.56372	342.70665	4.26746	0.1723750	0.18169241	3.0872954	20	—	—
457376 2008 TO_{29}	18.3	X	170.81298	51.28464	16.24123	5.42831	0.1140122	0.30482855	2.1865813	20	5 16.3	21.4
457377 2008 TR_{29}	16.4	X	50.49506	337.01742	12.06811	5.19414	0.1265236	0.17727226	3.1384040	20	12 22.0	20.9
457378 2008 TD_{32}	16.8	X	46.42266	177.25343	195.86757	9.33015	0.1010874	0.17768938	3.1334906	20	—	—
457379 2008 TK_{34}	16.3	X	206.12480	21.95104	197.46784	15.75560	0.0390321	0.17813794	3.1282283	20	12 29.8	21.1
457380 2008 TJ_{39}	18.6	X	153.02083	169.07050	273.26130	1.34754	0.1196898	0.30026642	2.2086736	20	5 18.4	21.7
457381 2008 TG_{40}	16.5	X	353.41516	162.91777	266.66757	8.16193	0.1274439	0.17728680	3.1382325	20	—	—
457382 2008 TW_{43}	16.5	X	154.25192	238.11621	32.94296	15.98092	0.1620417	0.17909448	3.1170797	20	—	—
457383 2008 TC_{44}	16.7	X	8.64669	334.05019	26.01823	5.50430	0.1617142	0.16515402	3.2901064	20	11 9.9	20.6
457384 2008 TK_{44}	18.7	X	99.75653	225.02121	228.00355	3.33090	0.0970040	0.28901978	2.2656058	20	3 23.6	21.2
457385 2008 TX_{49}	16.7	X	137.49694	329.18570	22.28942	6.27245	0.0853687	0.19660038	2.9291828	20	1 12.4	21.0
457386 2008 TT_{52}	17.1	X	61.59187	166.00412	188.97574	9.19108	0.0654564	0.17918332	3.1160494	20	—	—
457387 2008 TV_{53}	16.6	X	21.04731	241.11496	143.47420	3.09096	0.1305981	0.17562345	3.1580164	20	12 27.9	20.6
457388 2008 TZ_{56}	16.6	X	359.09367	9.86554	26.35448	2.79746	0.1322142	0.17190860	3.2033494	20	12 9.4	20.5
457389 2008 TV_{58}	16.6	X	99.87232	258.80947	62.82306	1.57603	0.0299257	0.17899264	3.1182620	20	—	—
457390 2008 TR_{60}	16.8	X	23.23045	153.45534	211.93593	11.25771	0.1066159	0.17087847	3.2162107	20	12 3.7	21.2
457391 2008 TW_{63}	16.5	X	237.19938	8.45742	209.95989	3.79313	0.0886647	0.18564752	3.0432896	20	—	—
457392 2008 TX_{63}	18.7	X	215.71848	134.51095	206.86171	0.71315	0.1497090	0.29724326	2.2236241	20	3 10.1	22.1
457393 2008 TB_{68}	16.5	X	15.70506	345.55994	49.35093	10.01946	0.0711172	0.17390726	3.1787588	20	12 24.9	20.9
457394 2008 TS_{70}	18.1	X	176.69775	1.66204	44.10764	9.67512	0.0621074	0.29929045	2.2134726	20	4 23.8	20.8
457395 2008 TA_{73}	15.8	X	153.53706	12.24042	227.93562	10.19724	0.0603105	0.16949398	3.2337010	20	11 26.0	20.7
457396 2008 TA_{75}	16.4	X	332.08862	239.64477	215.50393	8.08334	0.0638298	0.17531488	3.1617209	20	—	—
457397 2008 TU_{76}	18.7	X	143.85580	220.19480	178.45760	2.25895	0.2549947	0.29128807	2.2538287	20	3 23.2	22.0
457398 2008 TJ_{90}	18.4	X	178.63495	289.44293	79.35008	1.51749	0.2144975	0.29287317	2.2456892	20	3 13.6	21.9
457399 2008 TA_{97}	18.0	X	166.79129	77.53164	333.41456	5.73461	0.1347141	0.29996072	2.2101740	20	4 18.8	21.3
457400 2008 TG_{100}	16.6	X	46.75768	166.75977	187.54029	9.19792	0.0882135	0.17560315	3.1582598	20	12 18.4	21.1
457401 2008 TS_{104}	16.5	X	352.66275	187.30324	210.71270	12.46659	0.2047165	0.17054048	3.2204587	20	12 8.3	20.2
457402 2008 TQ_{108}	16.2	X	296.95456	89.59866	36.83616	10.34566	0.0766293	0.17894279	3.1188411	20	12 28.9	20.4
457403 2008 TU_{115}	17.9	X	277.83453	49.98376	272.41743	5.34742	0.2058347	0.30964656	2.1638403	20	4 10.2	20.9
457404 2008 TK_{122}	17.9	X	241.52207	204.52411	151.03510	3.91445	0.1664383	0.30517706	2.1849162	20	4 24.2	20.9
457405 2008 TP_{122}	15.7	X	12.58352	7.15135	33.86738	10.03670	0.0808661	0.17418129	3.1754240	20	12 30.0	20.1
457406 2008 TD_{124}	16.4	X	38.89651	139.37656	246.35242	5.25709	0.0980662	0.18060187	3.0997111	20	—	—
457407 2008 TB_{126}	16.3	X	108.01087	318.82605	1.07467	12.57409	0.1219199	0.18343888	3.0676687	20	—	—
457408 2008 TR_{130}	18.2	X	91.84346	215.32815	218.90448	7.79741	0.1765894	0.28404952	2.2919581	20	2 25.8	20.8
457409 2008 TH_{136}	18.2	X	206.70366	18.74742	22.30766	7.07724	0.1113563	0.30509412	2.1853122	20	5 19.4	21.3
457410 2008 TK_{148}	16.5	X	90.75740	166.44112	184.69670	11.21504	0.0154295	0.18525434	3.0475940	20	—	—
457411 2008 TN_{148}	16.2	X	18.42617	45.78409	29.17979	9.48664	0.1137825	0.18543443	3.0456205	20	—	—
457412 2008 TA_{155}	16.5	X	173.23963	299.50696	336.63968	11.22885	0.1052016	0.18675787	3.0312153	20	—	—
457413 2008 TG_{160}	16.2	X	248.37931	203.74842	43.93154	8.74327	0.1768664	0.19836310	2.9118039	20	—	—
457414 2008 TE_{163}	16.2	X	1.65507	232.61823	157.47238	14.59010	0.2723958	0.17152273	3.2081519	20	12 24.3	20.0
457415 2008 TQ_{163}	16.7	X	16.86488	164.55894	226.79693	4.88724	0.1303188	0.17361768	3.1822924	20	12 29.5	20.8
457416 2008 TM_{170}	18.2	X	160.87961	180.61019	248.98207	6.07581	0.0530961	0.29966729	2.2116165	20	5 4.9	20.9
457417 2008 TU_{177}	16.2	X	10.51006	210.75422	183.66260	16.36174	0.1896449	0.17342425	3.1846582	20	12 31.4	20.5
457418 2008 TV_{180}	15.8	X	59.40534	25.81318	331.79961	17.76236	0.1103715	0.18157300	3.0886488	20	—	—
457419 2008 TU_{184}	16.4	X	83.16644	172.08263	187.74176	9.25278	0.0932730	0.18251650	3.0779954	20	—	—
457420 2008 TP_{185}	15.9	X	19.01240	184.50701	210.93895	16.85487	0.1969369	0.17313387	3.1882181	20	—	—
457421 2008 UH_{8}	16.4	X	45.24288	344.33704	10.18426	9.90190	0.0961633	0.17733729	3.1376368	20	12 17.6	20.9
457422 2008 UX_{13}	16.6	X	344.61181	221.83831	211.61393	11.43643	0.1292933	0.17670627	3.1451021	20	—	—
457423 2008 UR_{17}	16.3	X	148.34585	240.77090	30.45425	7.99205	0.1428884	0.18179326	3.0861536	20	12 28.0	21.4
457424 2008 UB_{23}	18.4	X	222.16567	4.18713	33.31090	4.59176	0.1585238	0.30818112	2.1706944	20	5 29.4	21.6
457425 2008 UA_{28}	17.9	X	172.96249	315.66085	51.38244	5.59571	0.1473034	0.29012122	2.2598679	20	3 5.3	21.2
457426 2008 UU_{32}	16.3	X	349.30170	33.45520	59.40873	10.23087	0.0758828	0.17784754	3.1316326	20	—	—
457427 2008 UC_{34}	16.4	X	204.78463	185.16158	58.40870	13.34649	0.0843327	0.18112765	3.0937096	20	—	—
457428 2008 US_{37}	16.0	X	299.34531	251.18485	243.25604	8.36690	0.0454315	0.17466917	3.1695082	20	—	—
457429 2008 UA_{40}	18.5	X	201.20422	155.79415	232.42624	4.66998	0.1322940	0.29991976	2.2103752	20	4 26.2	21.7
457430 2008 UE_{49}	18.6	X	155.81368	52.83173	30.27074	4.68943	0.1547316	0.29745381	2.2225747	20	5 23.8	21.8
457431 2008 UL_{53}	18.4	X	254.93049	133.23816	208.14504	1.57150	0.2135881	0.30411774	2.1899870	20	4 12.9	21.4
457432 2008 UH_{69}	16.5	X	156.97210	149.49609	181.18682	10.68777	0.1090210	0.19610300	2.9341337	20	1 8.5	21.1
457433 2008 UT_{76}	16.1	X	133.94927	78.63933	247.57202	9.21101	0.0598777	0.18181862	3.0858666	20	—	—
457434 2008 UN_{78}	15.9	X	46.63337	338.04606	62.74488	11.60463	0.1137296	0.18169076	3.0873141	20	—	—
457435 2008 US_{79}	16.4	X	8.36254	112.93836	270.63199	4.54537	0.1170435	0.17069375	3.2185305	20	12 5.8	20.6
457436 2008 UC_{80}	16.4	X	108.13592	337.56433	344.94438	2.52598	0.0985388	0.17915065	3.1164282	20	—	—
457437 2008 UK_{102}	18.9	X	204.65675	57.28177	340.97079	1.64095	0.1720554	0.30447581	2.1882697	20	5 11.9	22.0
457438 2008 UP_{105}	18.5	X	181.00762	4.70277	53.27221	5.48866	0.1288898	0.29859008	2.2169325	20	5 15.9	21.6
457439 2008 UB_{110}	18.0	X	174.80752	148.64240	252.34664	5.79703	0.1471403	0.29702554	2.2247106	20	4 15.1	21.3
457440 2008 UX_{116}	16.3	X	137.83369	26.77543	257.96426	9.03159	0.0802909	0.17645590	3.1480764	20	—	—

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
457441 2008 UV_{117}	18.5	X	140.49802	149.09832	321.01265	3.62846	0.0454441	0.30300352	2.1953525	20	6 5.5	21.2
457442 2008 UU_{121}	15.7	X	90.22297	322.96346	7.94017	9.09705	0.0678839	0.17477268	3.1682566	20	—	—
457443 2008 UM_{122}	15.9	X	294.51828	238.01599	264.18689	10.27251	0.0594690	0.17476123	3.1683950	20	—	—
457444 2008 UW_{125}	18.3	X	196.38656	85.59080	281.29088	4.96900	0.2079901	0.29435082	2.2381673	20	3 22.4	21.9
457445 2008 UU_{126}	18.1	X	209.92375	153.80377	216.76455	5.43841	0.2190163	0.29805951	2.2195626	20	4 9.2	21.8
457446 2008 UL_{129}	18.8	X	125.17975	92.25591	17.30275	3.83847	0.0697668	0.30001349	2.2099148	20	5 17.2	21.5
457447 2008 UV_{129}	16.9	X	317.42127	100.65879	337.36799	1.53324	0.0858725	0.16848852	3.2465531	20	11 24.8	21.1
457448 2008 UE_{131}	19.0	X	142.25878	155.17370	238.64333	3.53308	0.1485510	0.28761187	2.2729934	20	3 3.5	22.1
457449 2008 UE_{143}	16.2	X	159.16885	30.51460	222.63603	10.62130	0.0522304	0.17200049	3.2022084	20	12 16.9	21.1
457450 2008 UU_{150}	16.2	X	305.42936	51.73693	45.28203	10.41993	0.0499458	0.17105893	3.2139483	20	12 2.9	20.6
457451 2008 UC_{152}	16.9	X	346.44069	318.43262	79.45341	2.37836	0.1374509	0.16816818	3.2506746	20	11 21.0	20.7
457452 2008 UL_{154}	18.3	X	254.66993	139.13260	207.44917	4.82089	0.1928579	0.30751423	2.1738316	20	4 21.9	21.1
457453 2008 UT_{156}	16.7	X	35.85476	305.23074	56.39022	6.12289	0.1291049	0.16939555	3.2349536	20	12 17.5	21.0
457454 2008 UP_{159}	15.9	X	160.85185	1.27891	263.46881	9.53481	0.0938373	0.17620948	3.1510106	20	12 31.4	20.8
457455 2008 UK_{164}	16.2	X	225.59261	327.53110	235.64025	8.63673	0.0607671	0.17806560	3.1290754	20	12 30.8	20.7
457456 2008 UU_{167}	16.6	X	135.26118	184.26302	114.43475	2.12562	0.1429091	0.18135132	3.0911653	20	—	—
457457 2008 UE_{168}	16.2	X	132.22360	271.45700	53.68588	10.21997	0.0404861	0.18416261	3.0596264	20	—	—
457458 2008 UF_{168}	16.6	X	132.71541	67.89423	207.76872	9.56550	0.1902814	0.17564457	3.1577633	20	12 19.0	22.0
457459 2008 UU_{174}	16.0	X	349.35835	172.85968	261.30320	9.07661	0.1309069	0.17612546	3.1520127	20	—	—
457460 2008 UZ_{177}	18.2	X	197.04298	109.42045	275.93535	1.56474	0.1544640	0.29990058	2.2104694	20	4 17.6	21.5
457461 2008 UD_{181}	16.1	X	212.87535	159.22470	44.51668	10.13935	0.0457631	0.17448731	3.1717101	20	12 18.1	20.7
457462 2008 UZ_{182}	18.1	X	106.05358	258.40855	201.33264	8.56018	0.1213622	0.29262583	2.2469545	20	4 16.5	20.7
457463 2008 UO_{187}	18.0	X	111.22532	210.32075	214.95960	5.96119	0.0824687	0.28261407	2.2997124	20	2 26.9	20.9
457464 2008 UA_{207}	16.6	X	281.23567	85.39679	15.16298	10.89343	0.0495061	0.16980065	3.2298063	20	11 3.9	21.1
457465 2008 UO_{210}	16.0	X	348.18705	208.51595	226.13839	8.58191	0.0472409	0.17507714	3.1645825	20	—	—
457466 2008 UZ_{213}	16.4	X	93.37969	291.82798	351.21282	9.68318	0.1265050	0.25463903	2.4652033	20	12 2.2	20.3
457467 2008 UO_{216}	18.0	X	139.81129	308.80201	72.53812	7.48386	0.1277334	0.28140001	2.3063222	20	2 16.6	21.2
457468 2008 UY_{218}	16.1	X	113.37594	265.90781	32.52226	9.44544	0.0700807	0.17385642	3.1793785	20	12 22.8	21.0
457469 2008 UF_{221}	18.4	X	301.39489	343.51018	322.53385	3.86603	0.1520568	0.30682222	2.1770990	20	4 29.5	20.8
457470 2008 UQ_{221}	17.7	X	215.50662	343.98208	14.00085	6.06734	0.1831543	0.29826623	2.2185369	20	3 30.9	21.2
457471 2008 UX_{221}	15.7	X	121.93808	38.60136	254.32106	9.98802	0.1069866	0.17348726	3.1838871	20	12 26.4	20.8
457472 2008 UY_{229}	18.1	X	95.23606	105.36699	32.80099	6.24246	0.1006963	0.29330363	2.2434915	20	5 22.4	20.7
457473 2008 UO_{232}	16.7	X	12.06253	196.55246	230.95187	7.84737	0.0640780	0.17925015	3.1152748	20	—	—
457474 2008 UC_{234}	16.7	X	291.37909	256.57582	221.34302	15.33126	0.0619360	0.17460921	3.1702338	20	12 10.5	21.0
457475 2008 UB_{239}	15.7	X	23.05730	104.15416	256.74164	22.02983	0.2587568	0.17331619	3.1859818	20	12 18.9	19.7
457476 2008 UX_{240}	18.0	X	230.44022	75.32217	267.15541	5.84352	0.1781660	0.29849680	2.2173943	20	3 21.5	21.6
457477 2008 UP_{247}	18.2	X	116.24536	48.80641	55.65697	5.90600	0.1166553	0.29167494	2.2518354	20	5 6.2	21.0
457478 2008 UR_{252}	16.3	X	125.85203	83.79452	221.91604	8.94064	0.1144003	0.17957742	3.1114887	20	—	—
457479 2008 UL_{269}	16.2	X	304.32343	78.35111	56.21428	12.37867	0.0690605	0.17694514	3.1422709	20	—	—
457480 2008 UL_{286}	16.2	X	318.05029	74.85381	61.63053	9.40031	0.1658553	0.17880296	3.1204669	20	—	—
457481 2008 UT_{289}	17.8	X	115.86858	47.88940	79.21375	7.19714	0.0446192	0.29746687	2.2225096	20	5 28.2	20.4
457482 2008 UN_{292}	16.4	X	21.79966	158.88355	222.94261	6.79982	0.1636746	0.17289508	3.1911529	20	12 28.9	20.6
457483 2008 US_{294}	18.3	X	222.82622	341.61922	20.22300	3.45077	0.2135270	0.30154509	2.2024254	20	4 9.9	21.9
457484 2008 UF_{303}	16.2	X	22.12014	332.88182	52.39372	19.72468	0.1102960	0.16980344	3.2297710	20	12 24.2	20.7
457485 2008 UD_{315}	17.5	X	257.29352	64.09343	237.47142	6.48298	0.1719353	0.29305180	2.2447766	20	2 24.7	20.9
457486 2008 UM_{315}	16.2	X	77.10776	72.62482	244.54287	9.30592	0.0866139	0.17276999	3.1926932	20	12 8.2	20.8
457487 2008 UY_{315}	18.8	X	192.33698	187.81127	223.98818	2.03384	0.1156482	0.29964247	2.2117386	20	5 19.9	22.0
457488 2008 UK_{324}	18.4	X	195.57804	34.83072	357.90745	7.03441	0.2326515	0.30090283	2.2055583	20	4 23.8	22.1
457489 2008 UD_{330}	18.2	X	192.00967	163.22379	224.93626	4.49045	0.2020528	0.29892089	2.2152965	20	4 16.7	21.7
457490 2008 UA_{336}	15.9	X	175.84799	26.25665	255.50400	8.57530	0.0239241	0.18063938	3.0992820	20	—	—
457491 2008 UP_{350}	16.0	X	350.26957	48.77506	46.20132	10.13486	0.0772064	0.17845979	3.1244660	20	—	—
457492 2008 UX_{359}	18.1	X	164.64850	318.04750	85.54191	7.15690	0.1004899	0.29168382	2.2517897	20	4 11.5	21.3
457493 2008 UO_{360}	16.1	X	173.93577	11.73867	240.76101	8.44680	0.0474625	0.17449907	3.1715675	20	—	—
457494 2008 UM_{362}	18.2	X	92.28516	210.74333	238.88534	20.49242	0.0971606	0.37439488	1.9065555	20	2 13.2	20.5
457495 2008 UD_{367}	18.1	X	235.38160	279.11577	89.15520	6.01914	0.2129420	0.30655710	2.1783540	20	5 1.8	21.4
457496 2008 UQ_{367}	15.7	X	59.01414	287.60820	63.57359	11.59452	0.1089747	0.17529561	3.1619526	20	12 31.4	20.3
457497 2008 UN_{369}	18.4	X	135.37989	199.84056	191.80634	3.29612	0.2348665	0.28386548	2.2929486	20	3 4.2	21.7
457498 2008 VP_{2}	17.9	X	193.38546	337.14776	26.99670	6.61002	0.3141315	0.29537250	2.2330032	20	3 22.0	21.9
457499 2008 VD_{4}	18.4	X	239.84976	326.31077	25.34212	3.38389	0.2450528	0.30529979	2.1843306	20	4 9.9	21.9
457500 2008 VH_{11}	18.3	X	185.24252	307.56969	99.40988	4.02891	0.1768370	0.29900602	2.2148760	20	5 7.0	21.7
457501 2008 VV_{15}	18.6	X	154.47626	346.53187	56.30260	3.84649	0.2399923	0.29247375	2.2477333	20	4 6.9	22.2
457502 2008 VV_{22}	17.6	X	225.17611	275.70413	84.14608	5.15047	0.1813004	0.30052325	2.2074150	20	4 13.5	20.9
457503 2008 VQ_{24}	15.8	X	311.65256	272.48355	226.23969	11.21725	0.1727270	0.17197842	3.2024824	20	—	—
457504 2008 VN_{29}	16.3	X	306.02505	214.35993	280.63961	7.04681	0.0358938	0.17771235	3.1332206	20	—	—
457505 2008 VY_{29}	16.2	X	267.93118	259.17504	269.34632	8.05547	0.0465995	0.17550622	3.1594226	20	—	—
457506 2008 VM_{36}	17.9	X	205.27522	288.78864	81.10970	6.02516	0.1810504	0.29801196	2.2197987	20	4 8.8	21.4
457507 2008 VS_{51}	18.2	X	230.15456	41.03854	301.33601	2.50675	0.1643381	0.30049759	2.2075407	20	3 23.6	21.4
457508 2008 VC_{55}	16.9	X	31.95556	125.18876	245.17659	3.87785	0.1338144	0.17312981	3.1882679	20	12 24.8	21.3
457509 2008 VV_{58}	18.0	X	153.89013	291.84265	101.99680	4.76782	0.1570221	0.29043761	2.2582264	20	3 20.9	21.3
457510 2008 VS_{61}	16.4	X	330.97597	75.91859	49.20756	16.52473	0.1023694	0.17895247	3.1187286	20	—	—
457511 2008 VT_{61}	16.0	X	58.47962	338.93804	49.13131	11.04292	0.0922365	0.18040005	3.1020225	20	—	—
457512 2008 VQ_{63}	15.6	X	92.58436	235.26288	76.05820	17.62588	0.2169096	0.17526567	3.1623127	20	12 27.9	20.8
457513 2008 VZ_{65}	18.2	X	199.41988	281.52019	98.88744	2.74805	0.1698926	0.29729441	2.2233691	20	4 15.5	21.6
457514 2008 VX_{66}	15.7	X	308.95766	159.02255	243.29516	8.93673	0.0919897	0.15391635	3.4483623	20	9 22.2	20.4
457515 2008 VP_{67}	18.7	X	118.88429	90.14874	42.68791	1.99120	0.0954588	0.30105901	2.2047954	20	6 15.9	21.5
457516 2008 VX_{70}	18.9	X	155.43192	95.87301	323.75695	3.16397	0.1194411	0.29297443	2.2451717	20	4 18.7	22.1
457517 2008 WK_{3}	15.9	X	189.81087	350.74003	229.92685	16.24351	0.0916007	0.17266618	3.1939727	20	12 8.7	20.8
457518 2008 WE_{4}	15.9	X	227.19032	347.77414	236.66830	16.99773	0.1091799	0.18183821	3.0856450	20	—	—
457519 2008 WE_{7}	18.4	X	231.68910	309.47886	41.69074	5.82934	0.2211936	0.30232782	2.1986224	20	4 5.1	21.8
457520 2008 WZ_{8}	16.8	X	209.42876	50.43630	177.04163	3.97880	0.0326313	0.17863829	3.1223843	20	—	—

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	m		°	°	°	°		°				
457521 2008 WL_{22}	18.1	X	161.75262	38.51886	357.77157	3.76640	0.1613629	0.29327598	2.2436325	20	3 29.3	21.4
457522 2008 WP_{22}	16.2	X	339.77242	200.79635	236.36683	14.51380	0.0261092	0.17434031	3.1734927	20	12 24.5	20.7
457523 2008 WK_{34}	18.3	X	232.43251	235.10135	93.45472	2.15775	0.2425311	0.29912686	2.2142795	20	3 6.9	21.9
457524 2008 WO_{43}	15.2	X	6.28765	196.40417	248.49028	25.91157	0.0395731	0.17636518	3.1491558	20	—	—
457525 2008 WW_{43}	16.2	X	325.41013	48.62214	59.98207	8.99096	0.0338361	0.17278417	3.1925184	20	—	—
457526 2008 WX_{46}	17.8	X	255.68648	103.00872	241.19858	4.49571	0.2180999	0.30376888	2.1916634	20	4 15.9	21.0
457527 2008 WF_{49}	16.3	X	15.73025	8.93483	43.45602	13.55878	0.1210377	0.17417633	3.1754842	20	—	—
457528 2008 WP_{54}	18.3	X	178.97758	85.00676	272.00346	4.57702	0.2141708	0.28827831	2.2694889	20	2 25.6	22.0
457529 2008 WE_{55}	17.8	X	159.64588	336.18412	70.73373	6.37576	0.0867397	0.29202273	2.2500471	20	4 8.5	20.9
457530 2008 WP_{66}	18.1	X	136.27866	292.06069	77.47125	4.11444	0.2231808	0.28054943	2.3109814	20	2 7.1	21.4
457531 2008 WU_{69}	18.1	X	146.61888	135.96933	258.07135	4.52929	0.1465185	0.28484003	2.2877156	20	3 7.9	21.4
457532 2008 WT_{77}	18.4	X	92.70579	54.09161	95.05525	4.85136	0.0642727	0.29681802	2.2257474	20	5 30.7	21.0
457533 2008 WV_{81}	18.1	X	132.85162	289.13574	110.66684	3.56927	0.1945912	0.28379251	2.2933417	20	3 10.1	21.3
457534 2008 WS_{91}	17.8	X	85.80520	187.34337	273.52070	3.38991	0.1836348	0.27606949	2.3359154	20	3 29.3	20.5
457535 2008 WV_{99}	16.0	X	244.93882	324.27770	217.60369	9.51939	0.0429848	0.17354046	3.1832364	20	12 29.5	20.6
457536 2008 WG_{107}	18.0	X	289.89424	246.02304	65.47986	5.94469	0.1194974	0.30453768	2.1879733	20	4 29.2	20.5
457537 2008 WO_{126}	18.0	X	123.83113	170.98534	252.42392	4.23659	0.1954566	0.28090874	2.3090104	20	3 27.9	21.3
457538 2008 WY_{126}	18.3	X	149.13911	330.06097	88.44503	4.65746	0.0895457	0.29004005	2.2602895	20	4 11.6	21.3
457539 2008 WG_{134}	17.5	X	159.08824	341.93316	80.85604	7.20346	0.1321620	0.29299320	2.2450759	20	5 1.8	20.7
457540 2008 WA_{141}	18.2	X	106.58991	284.14556	113.38341	3.76782	0.1761844	0.27811224	2.3244630	20	1 31.9	20.9
457541 2008 XV	17.4	X	147.71604	101.52397	249.65655	18.90413	0.0934649	0.36120572	1.9526885	20	—	—
457542 2008 XA_{15}	18.1	X	146.65509	340.52236	88.89782	3.37185	0.1644568	0.29135520	2.2534825	20	4 28.8	21.4
457543 2008 XL_{34}	16.0	X	55.79254	331.09482	52.67755	10.13617	0.0797457	0.17484345	3.1674016	20	—	—
457544 2008 XD_{43}	18.4	X	93.80191	65.97323	37.02957	3.88038	0.1949749	0.28049721	2.3112683	20	4 16.9	21.1
457545 2008 XX_{52}	15.4	X	68.34089	77.82885	266.50460	19.93790	0.2105918	0.17379048	3.1801827	20	—	—
457546 2008 YM	17.8	X	77.76830	210.61981	280.65503	6.10229	0.1178513	0.28309704	2.2970961	20	4 17.4	20.5
457547 2008 YX_{18}	18.6	X	112.05023	123.34251	322.87080	1.96562	0.1207987	0.28034224	2.3121199	20	4 4.9	21.5
457548 2008 YL_{20}	18.3	X	79.87887	298.57104	111.38063	3.19453	0.1850024	0.26664641	2.3906292	20	1 9.8	20.6
457549 2008 YT_{43}	18.4	X	38.13153	242.49400	247.55201	3.49001	0.1648426	0.27626508	2.3348127	20	2 8.5	20.3
457550 2008 YN_{53}	18.0	X	56.02290	157.02521	66.38712	4.05014	0.1810700	0.29233689	2.2484348	20	8 17.2	20.6
457551 2008 YW_{62}	17.4	X	314.65618	26.63889	271.14598	5.93917	0.1216148	0.29260378	2.2470674	20	5 16.6	19.6
457552 2008 YX_{62}	18.6	X	145.63065	258.46662	171.63488	2.30789	0.2047773	0.28756906	2.2732190	20	5 1.2	22.0
457553 2008 YL_{64}	17.8	X	335.49458	6.76435	264.97305	5.84973	0.1105248	0.28916573	2.2648434	20	5 16.1	19.9
457554 2008 YL_{74}	18.0	X	23.90798	34.46032	96.17434	8.12334	0.0586871	0.27030521	2.3690075	20	1 18.1	20.6
457555 2008 YP_{80}	16.2	X	109.93606	264.26888	99.19284	9.90682	0.0875814	0.17459715	3.1703797	20	—	—
457556 2008 YC_{89}	18.0	X	189.19683	109.70791	284.11328	5.14511	0.0585001	0.28904389	2.2654798	20	4 19.4	21.2
457557 2008 YG_{90}	18.4	X	149.78346	161.43163	273.30223	4.50342	0.1606571	0.29006603	2.2601545	20	5 6.4	21.8
457558 2008 YV_{90}	18.3	X	53.49320	213.96539	275.46035	4.99061	0.1338456	0.27647769	2.3336156	20	3 6.5	20.6
457559 2008 YX_{96}	17.8	X	113.40103	277.21837	106.87924	7.46334	0.2082657	0.26962930	2.3729649	20	1 29.7	20.8
457560 2008 YQ_{100}	17.2	X	326.80722	333.76198	294.13362	6.54139	0.1040981	0.28668385	2.2778960	20	4 22.0	19.6
457561 2008 YV_{100}	17.8	X	132.82417	282.39516	105.46386	3.63048	0.1694699	0.27504245	2.3417268	20	2 21.0	20.9
457562 2008 YL_{103}	18.2	X	128.21290	152.77121	279.08542	3.12941	0.1358369	0.28237825	2.3009926	20	4 6.3	21.3
457563 2008 YM_{105}	17.6	X	328.40438	136.51412	120.31065	9.23079	0.0785332	0.28364088	2.2941589	20	4 20.5	20.2
457564 2008 YU_{107}	17.9	X	141.75590	123.41299	305.34926	6.21270	0.0785571	0.28292980	2.2980012	20	4 9.9	21.1
457565 2008 YV_{112}	19.0	X	157.41924	323.86381	74.45325	1.89756	0.2514865	0.28486784	2.2875667	20	4 4.2	22.7
457566 2008 YB_{120}	18.2	X	126.71857	359.48582	88.46066	6.16690	0.1186229	0.28632885	2.2797784	20	4 28.5	21.3
457567 2008 YX_{122}	17.8	X	66.66497	24.22673	138.67483	3.60433	0.1729866	0.28471871	2.2883655	20	5 30.8	20.3
457568 2008 YX_{123}	18.1	X	51.13148	176.80459	257.00533	3.17860	0.1593943	0.26530189	2.3986994	20	—	—
457569 2008 YZ_{124}	18.3	X	156.57995	325.43574	87.30768	3.69879	0.1820109	0.28652566	2.2787343	20	4 18.5	21.8
457570 2008 YB_{127}	18.1	X	37.15810	54.60010	101.06720	5.69848	0.1574920	0.27570663	2.3379645	20	3 23.8	20.1
457571 2008 YL_{134}	17.8	X	214.44344	313.80291	87.30934	6.74508	0.1553583	0.30300605	2.1953403	20	5 27.9	21.0
457572 2008 YZ_{138}	15.9	X	299.61194	334.05980	130.02056	14.84739	0.1123590	0.15517962	3.4296220	20	11 29.4	20.5
457573 2008 YN_{139}	17.8	X	212.91818	257.44864	117.13822	7.48186	0.1620037	0.29174027	2.2514992	20	4 23.4	21.3
457574 2008 YV_{140}	17.5	X	70.56630	282.84795	276.57741	6.50430	0.0978615	0.29301241	2.2449777	20	7 16.9	20.1
457575 2008 YG_{143}	17.6	X	20.75615	294.93162	280.02875	6.03407	0.0562136	0.28638631	2.2794735	20	5 11.3	20.0
457576 2008 YV_{145}	17.5	X	30.54421	331.06686	126.51616	7.72789	0.0575220	0.26170273	2.4206419	20	—	—
457577 2008 YT_{150}	17.4	X	310.24322	126.29186	117.27003	7.11158	0.0870602	0.27753119	2.3277063	20	2 29.7	20.2
457578 2008 YB_{155}	17.8	X	237.82611	53.54459	300.43868	23.81112	0.1804460	0.28924120	2.2644494	20	4 1.3	21.9
457579 2008 YQ_{155}	18.3	X	163.56762	111.61015	281.67039	6.27828	0.1117144	0.28074978	2.3098819	20	3 21.5	21.8
457580 2008 YV_{162}	18.3	X	187.13575	76.04535	302.82283	2.31357	0.1764911	0.28641026	2.2793464	20	3 31.1	22.0
457581 2008 YO_{165}	18.6	X	101.89355	104.66454	315.48733	1.77521	0.2140485	0.27368668	2.3494540	20	3 2.2	21.2
457582 2008 YA_{173}	18.1	X	38.09504	313.74090	189.37578	2.27248	0.0556704	0.27360169	2.3499405	20	2 25.4	20.6
457583 2009 AW_{10}	18.6	X	93.61419	65.04019	43.37286	1.31042	0.2166105	0.28138384	2.3064106	20	4 27.3	21.4
457584 2009 AY_{14}	18.2	X	37.99490	200.41543	320.70549	0.80273	0.1243667	0.27617781	2.3353046	20	3 27.2	20.3
457585 2009 AF_{20}	18.3	X	15.89872	50.50363	104.73616	3.15779	0.1516247	0.27071445	2.3666194	20	2 3.7	20.2
457586 2009 AY_{20}	18.4	X	113.10700	138.26000	302.43906	4.92220	0.2271967	0.28072302	2.3100287	20	4 11.5	21.6
457587 2009 AV_{27}	17.9	X	178.45769	328.86949	113.91702	7.20096	0.1127792	0.29481616	2.2358115	20	6 16.8	21.1
457588 2009 AM_{28}	17.7	X	26.43706	320.24507	298.09513	6.01604	0.0959099	0.29758727	2.2219101	20	8 4.6	19.8
457589 2009 AF_{31}	17.9	X	108.18110	180.64992	292.45864	4.35605	0.0775170	0.28503534	2.2866704	20	4 29.8	20.9
457590 2009 AN_{33}	17.9	X	29.76873	82.61154	116.92538	5.47504	0.1978499	0.27936029	2.3175348	20	5 21.9	19.6
457591 2009 AX_{40}	18.1	X	15.60860	329.57018	268.97079	2.43385	0.1084289	0.28915315	2.2649090	20	6 13.7	19.9
457592 2009 AD_{44}	18.1	X	40.99806	77.89182	135.65137	5.59702	0.2254835	0.28555519	2.2838943	20	7 12.8	20.1
457593 2009 AH_{45}	18.2	X	112.22266	131.34512	310.37521	6.35642	0.1516710	0.27817704	2.3241021	20	3 31.9	21.4
457594 2009 AU_{47}	17.1	X	115.70763	326.37602	167.83926	23.25002	0.1654514	0.28197042	2.3032107	20	6 22.7	21.0
457595 2009 BO_{10}	18.3	X	118.81764	324.64979	169.18807	5.77401	0.2130573	0.28964271	2.2623562	20	6 28.9	21.8
457596 2009 BU_{16}	17.8	X	173.54587	236.16202	137.80625	6.00243	0.1761407	0.28037011	2.3119667	20	3 15.8	21.3
457597 2009 BA_{23}	18.1	X	50.76351	73.62527	103.10886	6.67254	0.1515233	0.28036819	2.3119772	20	5 21.5	20.3
457598 2009 BP_{31}	18.6	X	141.60298	61.33167	0.39956	1.82824	0.0619788	0.28003577	2.3138065	20	4 1.7	21.3
457599 2009 BU_{31}	18.0	X	125.96159	52.67081	356.14885	2.11243	0.1860167	0.27653618	2.3332865	20	3 12.5	21.0
457600 2009 BS_{35}	17.6	X	69.74660	228.31074	335.40741	6.87471	0.0367318	0.29361410	2.2419097	20	7 13.7	20.2

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	m		°	°	°	°		°				
457601 2009 BZ_{36}	18.1	X	174.76066	95.06673	317.24509	9.00811	0.1097915	0.28669012	2.2778628	20	4 27.1	21.6
457602 2009 BA_{40}	18.5	X	111.38751	115.42441	358.53294	2.98313	0.1359507	0.28355434	2.2946257	20	5 14.8	21.5
457603 2009 BH_{40}	17.7	X	148.53708	203.64053	172.44982	1.86110	0.1382223	0.27515897	2.3410657	20	2 18.0	21.0
457604 2009 BB_{41}	18.1	X	78.24232	40.29609	102.18283	3.67208	0.1649058	0.28051967	2.3111449	20	5 17.2	20.7
457605 2009 BB_{42}	17.4	X	317.25450	77.31331	132.14697	6.13369	0.1442250	0.26453125	2.4033558	20	1 14.6	20.3
457606 2009 BG_{43}	18.4	X	14.74029	86.85561	100.06518	2.53507	0.0752748	0.27468200	2.3437750	20	3 23.8	20.7
457607 2009 BX_{54}	18.2	X	88.84606	157.63076	321.95754	5.71684	0.1725712	0.28011852	2.3133509	20	4 26.7	21.1
457608 2009 BY_{54}	18.0	X	85.40639	176.43644	343.21728	2.63261	0.1135212	0.28658924	2.2783973	20	6 12.1	20.6
457609 2009 BC_{66}	17.8	X	10.42644	25.04893	136.52946	4.00976	0.1046905	0.26698123	2.3886300	20	2 6.3	20.1
457610 2009 BX_{67}	17.9	X	340.01703	32.38382	322.57895	19.80817	0.0935601	0.39537205	1.8385075	20	10 25.9	19.9
457611 2009 BF_{68}	17.7	X	134.97167	114.24391	310.05074	2.21306	0.1404964	0.27750056	2.3278776	20	4 5.4	20.9
457612 2009 BQ_{68}	17.2	X	142.03750	337.67262	126.72285	24.23334	0.1868159	0.28891610	2.2661478	20	6 14.9	21.1
457613 2009 BF_{69}	17.6	X	146.44142	119.90992	311.80357	7.84686	0.1517035	0.28670726	2.2777720	20	4 25.8	21.1
457614 2009 BA_{81}	17.4	X	18.90819	193.91796	14.15373	5.23991	0.2009997	0.28031942	2.3122454	20	5 5.3	18.8
457615 2009 BD_{85}	17.7	X	20.13007	287.68316	286.96612	2.97601	0.1907909	0.28103186	2.3083359	20	5 20.6	19.4
457616 2009 BH_{86}	17.7	X	148.44277	66.90126	312.97548	1.82843	0.2070280	0.27484910	2.3428249	20	2 29.3	21.3
457617 2009 BK_{86}	18.1	X	51.50226	216.15609	316.68957	5.67029	0.1551264	0.28044898	2.3115332	20	5 13.2	20.4
457618 2009 BJ_{89}	18.3	X	137.26601	289.17685	141.09742	3.54872	0.1823839	0.28319573	2.2965624	20	4 22.4	21.6
457619 2009 BW_{89}	16.3	X	145.41727	31.61309	136.99736	15.16071	0.0231568	0.21693808	2.7431245	20	8 28.4	20.2
457620 2009 BJ_{93}	18.1	X	97.85781	300.19534	148.69918	6.99510	0.0737469	0.27433996	2.3457227	20	3 15.8	20.8
457621 2009 BZ_{93}	18.5	X	15.48864	247.72535	258.73638	0.80038	0.1126637	0.26621472	2.3932129	20	1 23.8	20.6
457622 2009 BK_{94}	18.0	X	9.35649	11.03164	141.05159	2.07319	0.1254640	0.26563444	2.3966970	20	1 19.8	20.4
457623 2009 BA_{96}	18.2	X	85.74895	358.96784	145.52724	3.51176	0.1725033	0.28400263	2.2922104	20	5 31.9	20.9
457624 2009 BX_{100}	17.3	X	310.53588	351.52457	299.98585	5.24178	0.1688628	0.28646144	2.2790749	20	4 19.5	19.9
457625 2009 BK_{104}	18.2	X	22.92973	33.09971	149.15895	5.20190	0.0960532	0.27445941	2.3450420	20	4 1.0	20.4
457626 2009 BZ_{109}	17.7	X	48.84624	53.40379	162.25051	6.63499	0.0811872	0.28554610	2.2839428	20	7 3.9	20.2
457627 2009 BS_{118}	18.3	X	157.38740	291.11895	132.16404	5.45088	0.0948321	0.28536895	2.2848880	20	4 28.6	21.5
457628 2009 BB_{123}	18.1	X	42.44413	3.09359	196.26421	1.94798	0.1584127	0.28186273	2.3037974	20	6 10.4	20.0
457629 2009 BY_{126}	18.4	X	21.77267	44.33479	150.54488	6.33338	0.1527150	0.27681757	2.3317050	20	4 21.6	20.3
457630 2009 BV_{129}	18.6	X	53.20479	124.07835	341.44796	6.38211	0.2044005	0.26793661	2.3829486	20	2 12.3	20.3
457631 2009 BY_{129}	18.5	X	47.87985	43.19303	137.88702	5.48381	0.1579594	0.27932896	2.3177081	20	5 23.9	20.7
457632 2009 BY_{135}	18.7	X	72.37056	285.44378	220.35190	1.10147	0.1776772	0.28080329	2.3095884	20	5 14.3	21.1
457633 2009 BF_{143}	18.4	X	115.52906	79.51616	20.42547	2.77823	0.1735524	0.28226552	2.3016052	20	5 5.7	21.5
457634 2009 BO_{145}	17.7	X	77.78569	343.69365	130.87522	6.84710	0.0489814	0.27439918	2.3453852	20	3 19.9	20.5
457635 2009 BD_{148}	17.5	X	78.11434	23.96298	163.10630	6.57966	0.0958418	0.28770467	2.2725046	20	7 8.8	20.3
457636 2009 BN_{155}	17.7	X	1.71875	244.43562	325.05199	4.73119	0.1047764	0.27710621	2.3300856	20	3 29.0	20.0
457637 2009 BM_{156}	18.2	X	69.72617	336.37988	153.79437	1.35155	0.1321170	0.27451980	2.3446981	20	4 9.4	20.7
457638 2009 BH_{157}	18.1	X	88.42543	333.31389	142.32907	2.57992	0.1637656	0.27643391	2.3338620	20	4 23.3	20.7
457639 2009 BQ_{157}	17.9	X	350.26072	74.35782	143.51914	5.39619	0.1873386	0.27035846	2.3686964	20	3 15.5	19.8
457640 2009 BK_{174}	17.9	X	160.35517	236.93589	151.77377	6.26539	0.1920466	0.27690757	2.3311998	20	3 23.2	21.5
457641 2009 BX_{174}	18.4	X	73.36629	320.62597	154.05151	2.61478	0.1592807	0.27225842	2.3576636	20	3 28.7	20.8
457642 2009 BZ_{181}	18.3	X	18.73834	27.81148	158.83517	1.54362	0.1213708	0.26755543	2.3852113	20	3 30.4	20.5
457643 2009 BW_{184}	17.6	X	329.67254	163.38498	91.11478	7.13265	0.1027945	0.27667932	2.3324817	20	4 15.2	20.1
457644 2009 BG_{185}	17.9	X	146.98675	134.52639	345.69718	8.92105	0.1411901	0.29427892	2.2385319	20	7 6.2	21.3
457645 2009 BW_{189}	18.7	X	122.42812	94.48631	340.81665	1.13391	0.1929252	0.27728378	2.3290907	20	4 12.8	21.8
457646 2009 BD_{190}	18.2	X	80.55593	288.13826	144.52192	2.55267	0.1896010	0.26909269	2.3761186	20	2 13.3	20.4
457647 2009 CZ	17.9	X	79.50613	188.95458	46.61253	21.98619	0.7174335	0.28684976	2.2770176	20	11 5.1	23.1
457648 2009 CE_{5}	17.8	X	45.43386	44.15314	136.82560	7.94634	0.1115107	0.28371039	2.2937842	20	5 13.3	20.2
457649 2009 CK_{8}	18.0	X	85.58080	274.05732	270.92751	4.23715	0.1048011	0.29386974	2.2406093	20	7 18.3	20.8
457650 2009 CV_{21}	17.9	X	87.84205	216.89546	310.57076	6.85072	0.0327322	0.28931174	2.2640812	20	6 13.9	20.6
457651 2009 CW_{23}	17.9	X	108.23034	118.69710	272.30759	3.09490	0.2171466	0.26614610	2.3936243	20	2 1.5	20.7
457652 2009 CN_{28}	18.6	X	70.96264	138.64079	357.14576	1.93708	0.1563588	0.27675899	2.3320340	20	4 22.6	20.9
457653 2009 CL_{29}	18.2	X	69.63212	331.12123	123.20978	4.18806	0.1617158	0.26865895	2.3786754	20	2 22.3	20.3
457654 2009 CT_{34}	18.5	X	140.72661	11.43718	39.10921	3.63425	0.1976555	0.28056696	2.3108852	20	4 1.1	21.8
457655 2009 CJ_{38}	18.3	X	120.92518	103.69794	5.01541	4.61784	0.0851341	0.28551749	2.2840954	20	5 12.2	21.2
457656 2009 CJ_{41}	18.2	X	5.60861	212.01059	303.79708	1.92615	0.1307757	0.26661267	2.3908309	20	1 17.9	20.5
457657 2009 CJ_{42}	18.5	X	78.65613	335.63683	152.26506	4.17978	0.2168147	0.27634532	2.3343608	20	5 6.2	21.1
457658 2009 CZ_{46}	17.8	X	7.06245	270.62892	338.15798	6.29320	0.1453489	0.28789302	2.2715133	20	6 14.8	19.7
457659 2009 CX_{47}	17.6	X	91.09958	146.42561	346.44854	22.40796	0.1515015	0.27963600	2.3160112	20	5 6.8	21.1
457660 2009 CR_{48}	18.5	X	62.47077	34.98945	137.66359	2.07540	0.1323278	0.28456638	2.2891820	20	5 31.1	20.8
457661 2009 CB_{56}	18.6	X	132.09898	44.59714	20.53997	2.40212	0.2017606	0.27888757	2.3201529	20	4 10.9	22.1
457662 2009 DZ	22.0	X	168.99536	335.82923	151.47392	14.11411	0.3018636	0.56279770	1.4528959	20	8 19.5	23.1
457663 2009 DN_{1}	20.3	X	127.12400	314.25814	280.89052	7.85975	0.2853554	0.56933629	1.4417506	20	12 28.7	20.9
457664 2009 DY_{8}	17.5	X	118.43061	138.05372	317.86041	6.03742	0.1352027	0.27779606	2.3262265	20	4 26.4	20.7
457665 2009 DO_{15}	17.7	X	181.18488	86.87249	347.56988	8.54440	0.1275642	0.29132510	2.2536378	20	6 6.5	21.2
457666 2009 DQ_{19}	18.0	X	96.50269	33.30177	78.52171	9.28062	0.2476283	0.28016972	2.3130690	20	5 12.2	21.1
457667 2009 DJ_{34}	17.8	X	312.34252	137.66284	121.04129	3.74547	0.1729065	0.26581899	2.3955875	20	3 11.6	20.7
457668 2009 DW_{35}	18.2	X	115.65180	350.84411	139.91179	1.92424	0.1212778	0.28123800	2.3072078	20	6 11.9	21.2
457669 2009 DL_{43}	17.7	X	27.75135	113.70592	93.08158	7.04682	0.0612713	0.28114769	2.3077019	20	5 15.0	20.1
457670 2009 DX_{46}	17.5	X	16.10239	203.58289	342.62384	7.46445	0.1826711	0.27136406	2.3628410	20	3 20.7	19.3
457671 2009 DN_{49}	17.6	X	339.80701	94.34508	154.89919	2.80099	0.1761171	0.27118872	2.3638594	20	4 13.3	19.5
457672 2009 DP_{49}	17.9	X	349.71158	0.20443	162.76532	5.36226	0.1359095	0.25777172	2.4451895	20	1 1.8	20.8
457673 2009 DW_{50}	17.8	X	321.67726	71.58335	185.07132	1.33485	0.1581395	0.26845378	2.3798872	20	3 23.7	20.1
457674 2009 DP_{54}	17.9	X	29.84312	186.18443	4.80262	2.83614	0.0890941	0.27725565	2.3292482	20	4 23.8	20.1
457675 2009 DG_{71}	17.7	X	357.47398	180.25741	28.55749	1.72632	0.1321648	0.27275281	2.3548138	20	3 21.1	19.9
457676 2009 DG_{72}	17.9	X	95.91237	127.42958	333.68469	6.37551	0.1714494	0.27503259	2.3417828	20	4 10.3	20.9
457677 2009 DA_{73}	17.2	X	88.79924	188.73634	347.81201	26.25000	0.1802696	0.28753737	2.2733860	20	8 2.5	20.8
457678 2009 DT_{78}	18.2	X	124.42587	29.28951	83.99284	3.21209	0.1481853	0.28503407	2.2866773	20	5 31.9	21.2
457679 2009 DM_{81}	18.4	X	72.08453	24.54918	110.08362	3.23221	0.1420896	0.27284229	2.3542989	20	4 22.9	20.9
457680 2009 DZ_{82}	17.9	X	338.46540	123.86950	58.23555	2.47147	0.1300651	0.25827797	2.4419933	20	1 12.1	20.5

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
457681 2009 DS_{85}	17.5	*X*	150.50707	185.36568	144.19582	6.60801	0.1434215	0.25233508	2.4801863	20	—	—
457682 2009 DS_{86}	17.5	*X*	6.56859	288.73069	303.42449	2.33858	0.1486336	0.27643817	2.3338380	20	5 15.3	19.3
457683 2009 DQ_{91}	18.1	*X*	60.65589	346.92910	156.60692	4.86482	0.1597632	0.27280324	2.3545235	20	4 20.0	20.5
457684 2009 DR_{100}	18.6	*X*	89.99182	85.21924	30.72946	6.53977	0.0478458	0.27273229	2.3549319	20	4 6.9	21.4
457685 2009 DB_{103}	17.4	*X*	302.43036	152.94057	124.48392	6.80729	0.1844243	0.26912406	2.3759340	20	3 22.7	20.3
457686 2009 DF_{112}	17.7	*X*	16.58341	41.82409	150.78209	7.18160	0.0520319	0.27323414	2.3520474	20	4 5.7	20.3
457687 2009 DL_{112}	18.4	*X*	40.63323	43.00351	147.43875	2.65689	0.1454010	0.27820756	2.3239321	20	5 21.9	20.4
457688 2009 DM_{130}	18.0	*X*	14.08299	307.57630	227.52772	0.62653	0.1227165	0.26634156	2.3924531	20	3 2.8	20.0
457689 2009 DT_{130}	17.3	*X*	66.74648	335.88524	191.66233	24.96361	0.1704831	0.27457579	2.3443793	20	6 6.0	20.6
457690 2009 DA_{137}	18.1	*X*	110.76627	136.07832	335.60593	3.51641	0.1020797	0.27726789	2.3291797	20	5 5.7	21.1
457691 2009 DE_{140}	17.1	*X*	45.10988	313.09588	240.54502	6.07074	0.1096089	0.28025954	2.3125748	20	5 29.3	19.4
457692 2009 EB_{4}	17.2	*X*	70.48171	10.23818	145.67964	7.94367	0.1307632	0.27734037	2.3287739	20	5 20.8	20.0
457693 2009 EL_{4}	17.8	*X*	41.79806	39.30898	155.33271	7.12065	0.1361030	0.27728266	2.3290970	20	5 30.4	20.2
457694 2009 EL_{13}	17.7	*X*	295.89578	307.44913	319.72382	1.64476	0.1921587	0.27037956	2.3685732	20	2 24.8	20.7
457695 2009 ET_{13}	18.0	*X*	56.49202	218.52010	300.75728	1.40392	0.1379022	0.27555423	2.3388264	20	4 30.1	20.4
457696 2009 EO_{14}	18.1	*X*	99.02987	84.18728	20.37397	6.06817	0.1850233	0.27712790	2.3299640	20	4 23.4	20.9
457697 2009 EZ_{16}	18.0	*X*	95.44069	306.82977	226.36192	1.89512	0.1413525	0.28742231	2.2739927	20	7 19.2	21.1
457698 2009 ED_{17}	17.9	*X*	59.29645	43.51725	117.91449	5.80221	0.1699674	0.27749950	2.3278835	20	5 16.8	20.3
457699 2009 EB_{23}	18.1	*X*	34.66335	30.50301	199.73577	1.96955	0.1530970	0.28082083	2.3094922	20	7 13.7	20.2
457700 2009 EE_{25}	18.3	*X*	75.11286	279.68863	215.67813	0.68444	0.1252698	0.27419019	2.3465768	20	4 24.2	20.8
457701 2009 EN_{25}	18.2	*X*	50.90666	352.00130	189.90880	4.94042	0.1012976	0.27732779	2.3288443	20	5 21.0	20.6
457702 2009 EM_{29}	17.8	*X*	24.41788	116.89318	48.99866	3.28040	0.1069787	0.26246612	2.4159459	20	3 11.7	20.2
457703 2009 FP_{1}	17.3	*X*	342.63012	210.46514	28.08555	5.39230	0.1969148	0.26989024	2.3714352	20	3 30.3	19.3
457704 2009 FO_{5}	17.8	*X*	114.51427	152.61187	342.35260	6.86649	0.0447086	0.28503246	2.2866858	20	6 5.2	20.7
457705 2009 FN_{6}	18.1	*X*	14.13350	186.15711	165.26353	18.73705	0.0456797	0.40097828	1.8213307	20	12 26.7	20.3
457706 2009 FP_{13}	17.8	*X*	0.47057	209.72050	344.78193	7.24570	0.0475668	0.26844849	2.3799184	20	3 11.2	20.6
457707 2009 FJ_{14}	17.8	*X*	28.44622	218.94170	353.07270	22.23852	0.1713410	0.27856157	2.3219627	20	5 25.7	20.5
457708 2009 FO_{14}	17.9	*X*	350.41258	203.53029	35.80890	1.62826	0.1517894	0.27152926	2.3618825	20	4 21.8	19.6
457709 2009 FN_{22}	17.6	*X*	22.60528	21.50163	195.41637	5.33329	0.1690396	0.27448991	2.3448683	20	5 30.2	19.5
457710 2009 FC_{29}	17.5	*X*	42.26961	66.40217	145.17621	10.90192	0.2019331	0.27974073	2.3154331	20	7 7.1	19.9
457711 2009 FU_{32}	17.0	*X*	118.75281	20.93400	112.62315	23.63560	0.1959560	0.28507178	2.2864756	20	6 28.4	20.6
457712 2009 FX_{36}	17.5	*X*	356.94200	344.20871	169.16279	12.37360	0.0938943	0.25599414	2.4564958	20	1 5.7	20.5
457713 2009 FT_{39}	17.6	*X*	52.70328	139.38623	68.28101	7.01923	0.2216672	0.28119245	2.3074570	20	7 25.1	20.1
457714 2009 FM_{45}	18.1	*X*	328.37192	342.77056	234.44067	0.47891	0.1375144	0.26296145	2.4129111	20	2 11.3	20.6
457715 2009 FD_{49}	17.0	*X*	337.12258	97.60568	133.28650	21.90527	0.2584846	0.26522226	2.3991795	20	2 27.8	19.4
457716 2009 FY_{49}	18.2	*X*	11.79251	22.09968	131.24596	6.57945	0.2378664	0.26209948	2.4181984	20	1 14.9	19.8
457717 2009 FE_{50}	18.1	*X*	68.68267	64.19312	91.22312	3.61052	0.1675370	0.27831547	2.3233313	20	5 21.7	20.5
457718 2009 FA_{55}	18.0	*X*	280.87255	178.40645	76.69417	3.51137	0.1672256	0.25697199	2.4502601	20	1 29.4	21.6
457719 2009 FT_{55}	17.2	*X*	95.49598	113.02624	72.09466	23.05960	0.1957700	0.28823936	2.2696934	20	8 21.1	21.1
457720 2009 FP_{60}	17.8	*X*	322.01850	287.63033	318.88634	0.73895	0.1037124	0.26638405	2.3921987	20	3 18.4	20.5
457721 2009 FT_{60}	17.7	*X*	22.05989	23.15413	208.63739	6.43445	0.1056884	0.27955997	2.3164311	20	6 15.1	20.0
457722 2009 FD_{63}	17.7	*X*	358.44015	66.62413	117.31718	2.19142	0.1520896	0.26193876	2.4191875	20	2 13.9	19.8
457723 2009 FM_{63}	18.0	*X*	354.29848	37.59805	151.99682	2.13942	0.1143215	0.26171888	2.4205423	20	2 18.6	20.5
457724 2009 FP_{65}	17.6	*X*	37.20536	126.30424	39.42988	7.22889	0.0790124	0.26626203	2.3929294	20	4 2.1	20.1
457725 2009 FE_{66}	18.0	*X*	300.32752	189.28674	61.33076	4.72138	0.0911745	0.26137446	2.4226682	20	2 27.3	21.1
457726 2009 FA_{68}	18.0	*X*	30.38042	57.13545	138.87950	1.97461	0.1295753	0.27188474	2.3598233	20	5 8.3	20.1
457727 2009 FG_{68}	17.8	*X*	284.82782	123.05371	121.42853	3.29628	0.1544979	0.25484851	2.4638522	20	1 21.2	21.4
457728 2009 FS_{69}	17.9	*X*	359.75865	96.39546	83.11912	2.88643	0.1817495	0.26177104	2.4202208	20	2 6.8	20.0
457729 2009 FD_{70}	16.1	*X*	47.28166	35.66372	170.13468	17.15660	0.1336701	0.18887083	3.0085654	20	6 22.1	20.3
457730 2009 FH_{70}	17.6	*X*	359.80817	189.66137	30.10176	6.34367	0.1680798	0.26847224	2.3797781	20	4 10.5	19.6
457731 2009 FB_{74}	18.1	*X*	42.59267	85.35332	60.93304	3.38703	0.1417019	0.26653584	2.3912903	20	3 18.7	20.3
457732 2009 GT_{3}	17.3	*X*	351.41407	223.86897	18.46678	5.32402	0.1841580	0.26994979	2.3710864	20	4 25.0	19.0
457733 2009 HS	17.6	*X*	38.00201	103.24502	39.78701	3.78596	0.1689859	0.26400354	2.4065573	20	3 6.7	19.5
457734 2009 HJ_{3}	17.1	*X*	62.53540	136.85297	60.85775	24.74460	0.1989360	0.27781387	2.3261271	20	7 22.4	20.5
457735 2009 HA_{12}	16.9	*X*	69.88179	64.23191	137.09237	23.31594	0.1592319	0.28046501	2.3114451	20	7 28.4	19.9
457736 2009 HY_{12}	15.6	*X*	126.71116	172.33758	45.82382	4.90086	0.1374718	0.12373209	3.9885449	20	10 3.2	21.7
457737 2009 HW_{13}	16.8	*X*	339.75291	225.61946	52.38975	25.34815	0.1906563	0.27374298	2.3491318	20	5 24.1	18.6
457738 2009 HE_{14}	17.9	*X*	68.30850	70.83095	90.78920	4.30084	0.2202659	0.27479149	2.3431524	20	6 8.3	20.6
457739 2009 HJ_{14}	17.6	*X*	16.94386	106.45159	101.98415	3.48138	0.1143253	0.26932052	2.3747784	20	4 30.8	19.9
457740 2009 HR_{15}	17.8	*X*	338.71069	190.99592	45.78518	3.00992	0.1462110	0.26788307	2.3832661	20	3 27.5	20.1
457741 2009 HK_{16}	17.2	*X*	166.86964	224.53166	145.62643	8.22677	0.0960004	0.26081721	2.4261178	20	2 29.2	20.7
457742 2009 HG_{19}	17.9	*X*	36.84822	100.10273	78.06503	2.07797	0.1238300	0.26936350	2.3745258	20	4 22.5	20.0
457743 Balklavs	18.0	*X*	16.25251	70.43248	99.50005	3.47337	0.1138584	0.26164680	2.4209869	20	3 2.5	20.3
457744 2009 HG_{24}	17.6	*X*	264.78704	189.15218	91.71190	9.12745	0.0966670	0.25603241	2.4562511	20	2 24.1	21.1
457745 2009 HU_{40}	17.3	*X*	135.83355	23.01302	80.91886	6.64169	0.1414417	0.28050265	2.3112384	20	5 31.3	20.4
457746 2009 HT_{43}	17.4	*X*	15.85525	112.44340	93.85929	3.30391	0.1450950	0.26881619	2.3777477	20	4 26.2	19.4
457747 2009 HB_{49}	17.2	*X*	34.35677	40.08729	191.24558	8.70842	0.2653141	0.27561169	2.3385014	20	8 2.1	19.5
457748 2009 HK_{54}	17.3	*X*	269.37964	30.47388	191.61342	11.28130	0.1040566	0.24340227	2.5405025	20	—	—
457749 2009 HZ_{58}	17.3	*X*	12.76374	37.16574	178.10777	2.02910	0.1537754	0.27018122	2.3697322	20	5 3.2	19.0
457750 2009 HE_{62}	18.1	*X*	16.87024	55.73576	146.12069	6.60578	0.0432768	0.27086197	2.3657601	20	4 20.1	20.8
457751 2009 HB_{68}	18.1	*X*	20.10547	29.94681	125.00729	3.02941	0.1636315	0.26036542	2.4289236	20	2 13.8	20.0
457752 2009 HK_{68}	17.7	*X*	47.41445	107.02657	45.07843	6.69556	0.0556980	0.26370997	2.4083431	20	3 28.8	20.4
457753 2009 HU_{69}	17.8	*X*	31.56429	127.62711	126.70677	1.35086	0.1137331	0.28158822	2.3052944	20	8 9.3	19.8
457754 2009 HD_{77}	17.6	*X*	313.04622	154.44366	135.27286	3.78786	0.1836406	0.26947767	2.3738550	20	4 24.5	20.0
457755 2009 HL_{80}	17.5	*X*	15.67094	56.02220	167.13315	4.97131	0.1432443	0.27334324	2.3514216	20	5 23.2	19.5
457756 2009 HL_{83}	17.1	*X*	321.72319	193.56632	82.55769	10.72294	0.3054337	0.26476135	2.4019631	20	4 2.4	19.8
457757 2009 HP_{88}	17.8	*X*	25.38553	173.19357	15.33857	2.20915	0.1572603	0.26768490	2.3844422	20	4 17.0	19.7
457758 2009 HV_{95}	17.8	*X*	321.22312	56.27257	181.60651	1.35572	0.1685185	0.26204848	2.4185122	20	2 24.1	20.5
457759 2009 HY_{99}	17.6	*X*	345.89620	124.68043	73.27289	10.16321	0.1575752	0.25842782	2.4410492	20	2 15.3	20.3
457760 2009 HN_{105}	17.7	*X*	61.90894	59.59714	161.63677	9.95908	0.1727825	0.28098088	2.3086152	20	8 16.7	20.6

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Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
457761 2009 JT_3	17.5	X	357.97264	149.67245	122.78467	7.53348	0.1998757	0.27402762	2.3475048	20	7 6.4	19.0
457762 2009 JX_8	13.8	X	283.56393	196.85652	109.83631	12.77361	0.1516839	0.08513101	5.1177319	20	4 24.6	20.7
457763 2009 JD_9	17.4	X	322.81686	88.47285	154.72622	14.65698	0.1344326	0.26289068	2.4133441	20	3 12.6	20.1
457764 2009 JS_{11}	17.6	X	271.29479	67.76070	130.11488	14.04028	0.1130095	0.23858113	2.5746132	20	—	—
457765 2009 JD_{18}	17.2	X	160.29458	213.27249	101.60970	8.52951	0.1482138	0.23365380	2.6106831	20	—	—
457766 2009 KT_2	17.2	X	326.08688	153.35239	70.64316	15.75176	0.1425926	0.25822983	2.4422968	20	2 25.6	20.4
457767 2009 KF_4	17.1	X	345.87376	110.74898	89.03516	6.16160	0.0615079	0.25647220	2.4534423	20	2 29.2	20.0
457768 2009 KN_4	18.3	X	356.45341	38.28752	308.23345	9.14413	0.5247586	0.36449281	1.9409309	20	—	—
457769 2009 KZ_4	17.8	X	56.92603	155.84989	39.65834	2.94334	0.1405424	0.27897299	2.3196793	20	6 27.0	20.3
457770 2009 KA_6	13.7	X	250.18251	220.05539	112.45982	18.65934	0.1420842	0.08396270	5.1650966	20	4 22.8	21.1
457771 2009 KD_{11}	16.9	X	150.01505	224.04749	108.60457	14.64547	0.1926370	0.23395362	2.6084521	20	1 7.6	20.9
457772 2009 KQ_{37}	17.2	X	83.10033	296.83415	210.89855	20.56908	0.2670419	0.27432286	2.3458202	20	6 14.4	20.7
457773 2009 LK_4	16.7	X	127.57490	227.67480	123.07430	19.65943	0.1761233	0.23267020	2.6180356	20	1 5.2	20.5
457774 2009 MP_1	17.0	X	99.22766	54.74183	87.74305	23.27977	0.2023041	0.27431192	2.3458825	20	6 18.6	20.3
457775 2009 MG_8	16.5	X	199.31872	1.05750	287.30960	13.02162	0.2320928	0.22952075	2.6419307	20	—	—
457776 2009 NE_2	16.6	X	22.26777	30.54993	318.28714	9.69828	0.1575394	0.19279407	2.9676108	20	11 21.5	20.5
457777 2009 OA_1	17.8	X	64.54896	2.90306	312.58830	18.99322	0.1022289	0.37926309	1.8902054	20	—	—
457778 2009 OQ_3	16.3	X	192.67852	337.23652	303.66654	14.34173	0.1781386	0.22558129	2.6726002	20	—	—
457779 2009 OE_{21}	16.4	X	188.61411	358.08677	312.63066	14.58363	0.1819102	0.22710738	2.6606140	20	1 17.5	20.8
457780 2009 OD_{25}	17.8	X	96.16773	348.65100	338.43720	19.33840	0.1021988	0.38569637	1.8691279	20	—	—
457781 2009 PP_9	17.0	X	111.20440	9.93770	338.87978	8.35129	0.2086039	0.21074685	2.7965891	20	—	—
457782 2009 PR_9	16.2	X	155.89480	156.55786	148.80479	21.14011	0.0916154	0.21024758	2.8010147	20	—	—
457783 2009 PS_9	17.2	X	261.41412	34.75672	256.01991	11.68378	0.2535532	0.24406735	2.5358852	20	2 11.2	21.6
457784 2009 PL_{10}	17.0	X	219.37771	310.56905	323.66634	12.71565	0.2460067	0.23007010	2.6377235	20	—	—
457785 2009 PJ_{15}	17.3	X	148.71150	175.67736	162.73245	11.55565	0.1743787	0.22138261	2.7062861	20	1 12.2	21.6
457786 2009 PQ_{16}	16.5	X	336.89280	37.45447	354.41736	14.32415	0.2579647	0.18287141	3.0740117	20	10 28.3	19.5
457787 2009 QB	17.9	X	352.66258	236.13591	170.38110	22.41364	0.0931837	0.38185389	1.8816459	20	—	—
457788 2009 QU_2	16.8	X	63.93872	305.63129	35.03708	2.74631	0.1829351	0.19875687	2.9079568	20	—	—
457789 2009 QC_4	16.3	X	242.59820	316.10268	327.39527	14.25732	0.1581687	0.23249733	2.6193331	20	1 31.8	20.6
457790 2009 QE_{20}	18.0	X	299.24469	284.30241	150.27843	22.42273	0.0876356	0.37339757	1.9099488	20	12 29.3	19.9
457791 2009 QM_{23}	16.9	X	174.59585	342.12065	342.34442	11.57648	0.1915503	0.22561653	2.6723219	20	1 23.6	21.4
457792 2009 QC_{24}	17.0	X	132.67220	25.38907	300.03814	3.46185	0.0626220	0.21286753	2.7779842	20	—	—
457793 2009 QR_{28}	18.5	X	0.46303	189.18715	160.60752	23.80204	0.1076181	0.36861089	1.9264479	20	12 7.4	21.1
457794 2009 QS_{30}	16.3	X	135.79734	1.54934	335.33171	20.00724	0.2900983	0.21488215	2.7605937	20	1 16.7	21.0
457795 2009 QX_{30}	17.6	X	94.10738	296.01656	357.33666	21.23645	0.0363338	0.37904469	1.8909314	20	—	—
457796 2009 QB_{33}	18.2	X	92.57887	136.17623	148.93745	24.09955	0.0685204	0.38031595	1.8867152	20	—	—
457797 2009 QR_{36}	16.5	X	280.06421	123.55554	216.68390	12.58744	0.2548551	0.25604730	2.4561558	20	5 6.1	19.8
457798 2009 QH_{38}	18.0	X	241.73188	343.35711	176.43626	21.65479	0.0210113	0.38196806	1.8812709	20	—	—
457799 2009 QP_{60}	16.9	X	218.70717	144.57664	155.41726	14.35356	0.2798787	0.23163715	2.6258137	20	1 25.3	21.8
457800 2009 QT_{60}	15.7	X	339.95964	41.80310	304.15376	15.99386	0.2378545	0.17618767	3.1512706	20	8 26.9	19.0
457801 2009 RC_3	16.4	X	185.89060	23.38536	286.08168	10.99005	0.1744284	0.22348164	2.6893138	20	1 12.0	20.6
457802 2009 RY_6	17.9	X	1.31923	348.53022	350.70708	18.84900	0.0619347	0.36431036	1.9415788	20	10 27.6	20.1
457803 2009 RS_7	16.2	X	152.57133	336.90988	354.80509	14.30371	0.2163530	0.21612436	2.7500055	20	1 16.9	20.9
457804 2009 RV_8	17.9	X	350.97821	130.99150	214.26887	2.02008	0.2318223	0.27096054	2.3651863	20	10 28.4	19.3
457805 2009 RA_{11}	17.3	X	162.62299	132.05084	188.93385	5.29522	0.0714349	0.21536671	2.7564513	20	—	—
457806 2009 RT_{11}	16.7	X	348.96567	180.84263	186.78965	0.74273	0.2360258	0.18112979	3.0936853	20	10 27.3	19.8
457807 2009 RK_{14}	16.9	X	340.26928	244.77158	188.32251	8.93739	0.0964845	0.19263669	2.9692269	20	12 29.9	20.7
457808 2009 RY_{21}	17.9	X	353.76335	138.83445	172.82825	22.19430	0.0516959	0.35972796	1.9580326	20	9 4.9	19.5
457809 2009 RF_{26}	16.7	X	93.17883	6.18757	353.66496	10.98089	0.3415485	0.21051051	2.7986818	20	1 4.0	20.4
457810 2009 RF_{27}	17.1	X	14.85244	104.42836	248.31482	5.62613	0.2491258	0.18806716	3.0171303	20	11 30.2	20.5
457811 2009 RM_{30}	17.1	X	335.52671	69.80525	349.98592	7.53042	0.2454677	0.18654428	3.0335286	20	12 10.8	20.0
457812 2009 RL_{49}	16.3	X	332.61813	37.52376	11.74023	8.99106	0.1048191	0.18417362	3.0595046	20	11 13.6	20.1
457813 2009 RD_{50}	17.0	X	100.63650	146.83783	195.45650	12.48131	0.1493284	0.20349132	2.8626755	20	—	—
457814 2009 RK_{53}	17.8	X	8.25903	255.21367	184.40852	5.23534	0.1017345	0.29170436	2.2516839	20	—	—
457815 2009 RZ_{53}	17.0	X	359.26312	190.89733	143.20353	1.64585	0.1750975	0.17483760	3.1674723	20	9 25.8	20.5
457816 2009 RS_{54}	16.6	X	354.79152	158.80871	190.63063	10.54903	0.2152533	0.17701714	3.1414187	20	10 11.9	19.7
457817 2009 RB_{55}	16.7	X	125.51668	165.79562	187.78012	9.59224	0.1691238	0.21193580	2.7861201	20	1 7.2	20.9
457818 2009 RB_{58}	16.6	X	194.25999	327.19966	331.67577	16.23569	0.1944033	0.22295101	2.6935792	20	1 10.9	21.3
457819 2009 SY_{11}	17.2	X	131.89991	100.93880	234.19459	1.39292	0.0990621	0.21356493	2.7719332	20	—	—
457820 2009 SU_{46}	16.5	X	325.48484	319.25888	216.08075	13.18643	0.1395455	0.21213737	2.7843549	20	—	—
457821 2009 SW_{47}	16.7	X	308.49302	105.73324	14.23796	13.30294	0.0902002	0.19310458	2.9644287	20	—	—
457822 2009 SB_{48}	16.6	X	1.37062	49.90638	297.09666	2.21817	0.2880749	0.17960892	3.1111249	20	10 30.8	19.5
457823 2009 SP_{52}	17.6	X	4.92368	273.80144	151.32276	2.76556	0.1442172	0.19701720	2.9250499	20	—	—
457824 2009 SW_{55}	16.5	X	288.91098	220.57023	235.55722	10.45616	0.0869998	0.18408069	3.0605342	20	11 9.9	20.4
457825 2009 SV_{59}	16.4	X	353.55158	248.77654	346.97726	8.81209	0.1579594	0.24169293	2.5524667	20	4 20.5	19.1
457826 2009 SW_{59}	17.1	X	331.68606	216.78374	221.02471	11.35252	0.1708475	0.18911564	3.0059685	20	12 24.3	20.5
457827 2009 SF_{60}	16.4	X	151.53945	278.04390	347.54670	9.09324	0.0535011	0.19564434	2.9387176	20	12 29.8	20.9
457828 2009 SX_{61}	17.0	X	15.36279	72.82458	342.70910	8.06315	0.1128006	0.20174688	2.8791536	20	—	—
457829 2009 ST_{65}	17.3	X	45.83052	210.59854	182.15514	9.30501	0.0561504	0.20468142	2.8515683	20	—	—
457830 2009 SB_{72}	16.9	X	34.45548	44.66680	352.37197	8.90884	0.1000292	0.20077007	2.8884846	20	—	—
457831 2009 SX_{75}	17.0	X	159.05787	175.34138	147.25923	5.50436	0.1451659	0.21337077	2.7736145	20	1 2.7	21.2
457832 2009 SM_{76}	16.7	X	6.74737	238.97715	153.65792	6.62310	0.2188254	0.18841598	3.0134053	20	—	—
457833 2009 SN_{79}	16.9	X	297.52837	3.97237	269.82120	3.79087	0.2218545	0.24358619	2.5392236	20	3 3.4	20.3
457834 2009 SQ_{86}	17.5	X	353.19621	100.50081	310.13969	3.44068	0.0931174	0.19001707	2.9964542	20	12 20.5	21.2
457835 2009 ST_{90}	17.2	X	115.57130	39.69818	278.44365	4.10045	0.1087763	0.20457641	2.8525440	20	—	—
457836 2009 SF_{92}	17.0	X	340.50987	170.21289	223.87852	6.14537	0.2766015	0.18413532	3.0599287	20	11 18.5	19.4
457837 2009 SS_{92}	16.5	X	311.61296	43.29371	38.21315	14.23245	0.2466172	0.17933698	3.1142692	20	11 10.8	19.5
457838 2009 SW_{97}	15.9	X	38.67713	287.22427	23.98079	15.80268	0.1910787	0.18001410	3.1064547	20	10 30.2	20.0
457839 2009 SX_{100}	17.2	X	11.98033	64.86542	0.53846	3.84539	0.1327301	0.20054396	2.8906555	20	—	—
457840 2009 SW_{107}	16.7	X	195.58869	108.78531	203.21224	9.09998	0.1250613	0.21825767	2.7320567	20	1 20.8	21.2

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Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
457841 2009 SZ_{113}	17.1	X	206.60852	4.63136	278.94037	4.00514	0.1297034	0.21954059	2.7214029	20	—	—
457842 2009 SD_{123}	16.6	X	304.55828	11.41115	218.92186	11.36695	0.1379451	0.22841672	2.6504368	20	1 28.6	20.5
457843 2009 SK_{123}	17.1	X	305.76533	83.50170	329.69964	6.88913	0.1461766	0.17856299	3.1232620	20	10 1.4	20.9
457844 2009 SX_{123}	16.6	X	191.46931	300.68729	334.74068	6.31335	0.0558413	0.20946818	2.8079584	20	—	—
457845 2009 SH_{128}	16.8	X	22.46599	339.25889	350.73313	4.82462	0.1388652	0.18095800	3.0956429	20	10 24.3	20.8
457846 2009 SK_{136}	16.7	X	338.05592	138.35712	206.42542	13.25745	0.2780777	0.17307488	3.1889425	20	8 19.6	19.8
457847 2009 SA_{142}	17.0	X	126.51405	69.47189	236.12223	1.69963	0.0641801	0.20115465	2.8848019	20	—	—
457848 2009 SS_{147}	16.7	X	196.74958	12.16773	305.32821	5.11700	0.0501033	0.22333807	2.6904662	20	1 28.3	20.6
457849 2009 SX_{149}	16.6	X	70.80308	153.57409	203.21339	8.13030	0.0731408	0.20056624	2.8904414	20	—	—
457850 2009 SR_{153}	17.2	X	56.24168	126.35485	262.79700	0.99932	0.0769980	0.20296432	2.8676287	20	—	—
457851 2009 SY_{154}	17.1	X	229.19225	304.51857	351.99387	10.47329	0.1639449	0.23294375	2.6159856	20	2 4.9	21.4
457852 2009 SJ_{164}	17.3	X	94.61262	273.28300	72.42065	2.66690	0.0763037	0.19933382	2.9023429	20	—	—
457853 2009 SE_{168}	17.3	X	357.44603	172.36823	236.22293	6.44785	0.2862673	0.19108995	2.9852278	20	—	—
457854 2009 SQ_{170}	16.2	X	329.30186	26.59150	341.13620	16.00067	0.2068652	0.17667431	3.1454813	20	9 9.4	19.3
457855 2009 SH_{172}	17.0	X	24.50907	224.49942	140.48468	2.94571	0.1733242	0.18739880	3.0242998	20	12 18.2	20.8
457856 2009 SR_{173}	16.5	X	107.70524	110.86852	253.82167	11.91170	0.2191149	0.21097111	2.7946069	20	1 6.8	20.4
457857 2009 SL_{175}	17.9	X	31.45173	9.94895	7.25265	21.97683	0.0712942	0.37864636	1.8922573	20	—	—
457858 2009 SU_{179}	17.5	X	240.57720	148.12685	127.24132	6.09597	0.1979781	0.23055561	2.6340191	20	1 16.4	21.8
457859 2009 SL_{190}	16.9	X	92.16796	95.38847	290.25605	3.79824	0.0667415	0.21230885	2.7828555	20	—	—
457860 2009 SO_{192}	17.0	X	322.67567	141.34467	219.97722	5.32792	0.1540501	0.17256596	3.1952091	20	8 20.8	20.8
457861 2009 SX_{192}	17.4	X	178.23388	51.15223	254.86632	2.72957	0.0815037	0.21523341	2.7575894	20	—	—
457862 2009 SO_{194}	16.5	X	234.20999	292.13903	204.43294	8.20029	0.2414173	0.17821709	3.1273020	20	9 30.5	21.4
457863 2009 SB_{201}	17.1	X	140.31824	144.05685	156.64827	2.33258	0.0399392	0.20186503	2.8780360	20	—	—
457864 2009 SM_{215}	16.2	X	342.35658	142.39070	189.72220	7.43656	0.1889700	0.17351952	3.1834924	20	8 17.2	19.7
457865 2009 SD_{219}	17.1	X	49.36567	85.27190	303.37173	6.92660	0.1756291	0.20248778	2.8721261	20	—	—
457866 2009 SB_{220}	16.3	X	277.31972	291.97068	159.51135	9.97431	0.0619748	0.18325246	3.0697488	20	10 25.3	20.5
457867 2009 SC_{222}	17.3	X	175.68785	28.09215	296.99901	3.16525	0.1169198	0.22181778	2.7027455	20	1 18.8	21.5
457868 2009 SC_{223}	16.6	X	79.27835	184.54671	202.85575	8.91161	0.1594542	0.20953715	2.8073422	20	—	—
457869 2009 SY_{240}	16.4	X	353.94629	88.72601	253.84074	13.00260	0.2525907	0.17771349	3.1332072	20	9 26.5	19.8
457870 2009 SK_{243}	16.3	X	8.34812	141.70407	281.58680	14.78608	0.2179579	0.19746663	2.9206100	20	—	—
457871 2009 SX_{248}	16.8	X	133.79977	17.34101	288.06410	3.43469	0.1746094	0.20294477	2.8678128	20	—	—
457872 2009 SF_{252}	16.6	X	219.33208	289.04467	358.55740	10.93119	0.1258377	0.22053746	2.7131958	20	1 18.7	21.0
457873 2009 SG_{254}	17.3	X	330.21089	132.45305	277.12812	2.88484	0.1614484	0.18329208	3.0693065	20	11 11.9	20.7
457874 2009 SQ_{261}	17.8	X	260.35438	61.90489	13.99805	19.14787	0.1145831	0.35565131	1.9729668	20	10 3.1	19.2
457875 2009 SN_{278}	16.4	X	165.71932	163.53125	147.96441	4.89986	0.0595442	0.21299175	2.7769040	20	—	—
457876 2009 SA_{281}	17.1	X	118.22997	299.65914	59.24094	5.23629	0.0849308	0.21189211	2.7865031	20	—	—
457877 2009 SO_{287}	17.1	X	11.09852	206.95090	238.90715	6.64828	0.0968779	0.20256326	2.8714125	20	—	—
457878 2009 SD_{288}	17.0	X	330.29749	147.62848	249.16226	5.17634	0.1912850	0.18064098	3.0992636	20	10 23.9	20.3
457879 2009 SE_{289}	16.9	X	88.69129	232.39876	118.05124	3.04680	0.1375444	0.20149213	2.8815799	20	—	—
457880 2009 SF_{303}	17.0	X	85.61640	189.81834	184.58907	4.36306	0.0883637	0.20968854	2.8059908	20	—	—
457881 2009 SG_{322}	17.1	X	223.20459	224.84841	31.55860	4.71342	0.0295887	0.21575678	2.7531281	20	—	—
457882 2009 SH_{327}	16.3	X	341.94691	106.97409	280.49675	11.75671	0.1756153	0.18190753	3.0848609	20	11 1.3	19.9
457883 2009 SS_{338}	16.6	X	324.56235	8.24183	46.93479	11.88209	0.2888820	0.18067360	3.0988906	20	11 4.8	19.2
457884 2009 SE_{339}	16.4	X	347.23378	135.47835	224.47790	15.87667	0.2281388	0.17492681	3.1663953	20	10 6.6	19.8
457885 2009 SJ_{344}	16.3	X	9.96027	167.86609	194.75323	14.15970	0.1372691	0.18538285	3.0461855	20	11 20.1	20.2
457886 2009 SP_{347}	17.4	X	83.70172	285.92997	71.15456	5.96883	0.1162512	0.20171751	2.8794330	20	—	—
457887 2009 SG_{350}	17.3	X	337.68004	0.48732	45.68034	5.16843	0.1371364	0.18227505	3.0807129	20	11 20.3	20.8
457888 2009 SM_{354}	16.8	X	308.38492	79.65487	31.91429	10.63110	0.1296529	0.18750270	3.0231825	20	12 27.3	20.5
457889 2009 SJ_{357}	16.2	X	20.00768	14.01535	40.79900	8.11562	0.0753309	0.19061793	2.9901539	20	—	—
457890 2009 TZ_{3}	17.0	X	348.09203	132.69804	240.65849	8.34033	0.1065003	0.18176517	3.0864715	20	10 23.3	20.8
457891 2009 TR_{12}	17.1	X	350.64449	357.86020	41.06525	1.31217	0.2657700	0.18696180	3.0290106	20	12 18.9	19.9
457892 2009 TE_{14}	17.0	X	1.49810	191.39391	220.08833	5.42726	0.1504710	0.19231720	2.9725144	20	—	—
457893 2009 TJ_{19}	17.4	X	337.14321	316.58064	65.98274	0.15022	0.1442783	0.17808359	3.1288647	20	10 18.8	20.7
457894 2009 TY_{23}	17.7	X	43.66440	120.64247	203.48864	22.01628	0.0820896	0.37084134	1.9187157	20	12 21.6	20.4
457895 2009 TK_{25}	17.6	X	206.73596	86.24475	25.36523	20.32820	0.0920632	0.35089956	1.9907383	20	9 17.6	20.2
457896 2009 TW_{30}	17.0	X	74.64057	343.23812	70.28638	4.70283	0.0951428	0.21145616	2.7903316	20	1 7.2	20.4
457897 2009 TC_{32}	16.0	X	344.59209	320.52712	36.70804	12.16669	0.2254378	0.17783756	3.1317498	20	10 4.8	19.1
457898 2009 TD_{32}	17.0	X	352.99741	340.10982	68.41177	6.14747	0.2864866	0.18891765	3.0080683	20	—	—
457899 2009 TJ_{33}	16.0	X	326.66344	169.22339	205.12264	27.17570	0.1545849	0.17471705	3.1689292	20	9 13.3	20.0
457900 2009 TE_{37}	17.5	X	26.00563	130.06250	312.18109	4.30519	0.1306502	0.29679520	2.2258615	20	—	—
457901 2009 TM_{42}	17.1	X	328.44690	199.73018	215.61364	4.28305	0.1735677	0.18149514	3.0895322	20	11 16.8	20.5
457902 2009 TD_{46}	15.5	X	238.77351	87.85160	66.96953	26.38414	0.2113778	0.17212635	3.2006472	20	11 6.7	20.5
457903 2009 TG_{48}	16.4	X	229.29838	138.51531	28.66529	8.97850	0.1195935	0.18652968	3.0336869	20	11 15.8	20.9
457904 2009 UA_{6}	16.7	X	325.00252	85.28776	351.74276	9.85527	0.1059632	0.18811876	3.0165786	20	12 9.5	20.5
457905 2009 UG_{6}	17.4	X	180.58191	168.81274	186.16401	2.48695	0.2046692	0.22941580	2.6427363	20	3 1.3	21.9
457906 2009 UR_{7}	17.5	X	203.89277	216.93543	60.24502	4.60236	0.0593296	0.21384097	2.7695472	20	—	—
457907 2009 UD_{10}	17.4	X	343.50240	286.19863	96.45762	2.64597	0.1808234	0.18113365	3.0936412	20	11 2.8	20.7
457908 2009 UA_{13}	16.3	X	7.55729	330.62759	46.67360	18.62978	0.2829665	0.18609675	3.0383900	20	12 22.8	20.0
457909 2009 UY_{14}	17.2	X	113.64154	295.47811	72.61523	6.86438	0.0971612	0.21186715	2.7867219	20	1 2.6	20.9
457910 2009 UH_{16}	15.4	X	2.17291	275.44205	51.86539	16.39191	0.3028113	0.17529167	3.1620000	20	10 13.7	18.5
457911 2009 UT_{17}	16.6	X	163.10078	335.57765	338.06635	13.46226	0.2475724	0.21614577	2.7498240	20	1 5.6	21.4
457912 2009 UW_{18}	19.6	X	182.29508	59.83556	227.22457	16.98632	0.4390331	0.68132558	1.2790855	20	—	—
457913 2009 UN_{27}	17.2	X	121.21934	124.56560	230.54218	3.46184	0.0811146	0.20954358	2.8072848	20	—	—
457914 2009 UP_{28}	16.5	X	10.98416	343.60685	43.48844	12.12025	0.0601930	0.18562402	3.0435465	20	12 9.8	20.6
457915 2009 UU_{28}	16.4	X	15.70593	164.53136	217.36275	8.72945	0.0905106	0.18585201	3.0410569	20	12 15.0	20.5
457916 2009 UU_{34}	16.6	X	292.90146	42.01017	58.26399	11.11140	0.2026395	0.17721071	3.1391307	20	11 7.2	20.1
457917 2009 UH_{43}	17.4	X	335.81198	234.68194	179.64736	1.55795	0.1697584	0.18432142	3.0578688	20	11 30.3	20.6
457918 2009 UZ_{45}	16.4	X	306.90437	29.42307	43.84370	11.31498	0.0687580	0.17983630	3.1085020	20	11 7.7	20.2
457919 2009 UR_{46}	17.3	X	301.12570	88.75468	45.78670	5.90274	0.2405828	0.18585752	3.0409968	20	—	—
457920 2009 UT_{47}	17.0	X	259.26775	67.82602	34.70436	9.73871	0.1233944	0.17227897	3.1987566	20	10 4.6	21.5

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
457921 2009 UN_{56}	16.6	X	356.00710	27.41747	34.46764	8.63609	0.1372505	0.18910101	3.0061235	20	—	—
457922 2009 UQ_{75}	16.9	X	285.34610	192.62250	264.44252	2.42733	0.1789631	0.17970164	3.1100547	20	10 23.3	20.8
457923 2009 UO_{79}	16.3	X	47.86909	132.17016	235.85021	9.26328	0.1188465	0.19249302	2.9707041	20	—	—
457924 2009 UU_{82}	17.1	X	47.83068	182.93815	195.99056	4.15915	0.1693396	0.19298678	2.9656349	20	—	—
457925 2009 UJ_{90}	17.4	X	203.34614	82.04313	54.91007	22.83956	0.0727987	0.35675178	1.9689074	20	10 24.1	19.8
457926 2009 UX_{92}	15.5	X	258.38636	248.71082	243.18738	24.94815	0.2517194	0.17215382	3.2003067	20	10 14.5	20.5
457927 2009 UA_{101}	16.7	X	270.27940	89.74145	61.15969	9.73597	0.0299595	0.18906266	3.0065300	20	12 30.4	20.8
457928 2009 UU_{103}	16.4	X	343.74840	56.09953	25.29542	11.35305	0.1678877	0.19078224	2.9884368	20	—	—
457929 2009 UC_{110}	16.5	X	70.36846	110.07829	233.88408	10.33856	0.2265368	0.19231858	2.9725002	20	—	—
457930 2009 UY_{113}	17.0	X	343.51822	55.62325	38.99296	5.44702	0.1647474	0.19625027	2.9326655	20	—	—
457931 2009 UV_{123}	16.1	X	351.42190	302.23990	64.94570	13.75235	0.0689346	0.17711133	3.1403050	20	10 24.3	20.3
457932 2009 UE_{128}	16.4	X	22.08694	42.66403	59.39980	15.91566	0.1112314	0.20201003	2.8766527	20	—	—
457933 2009 UE_{133}	16.3	X	297.63269	347.73304	75.68751	6.28140	0.2133696	0.17466901	3.1695101	20	9 27.9	20.1
457934 2009 UO_{139}	15.4	X	315.56373	300.86596	96.15485	25.95510	0.2281814	0.17445807	3.1720645	20	10 6.2	19.4
457935 2009 UN_{142}	17.6	X	18.83459	218.33079	198.11781	0.95069	0.1745265	0.19310654	2.9644086	20	—	—
457936 2009 UW_{150}	17.1	X	315.79529	38.24879	69.95209	6.15932	0.2111074	0.18612729	3.0380577	20	—	—
457937 2009 UL_{151}	16.5	X	327.69290	95.54312	275.62601	14.70808	0.2533400	0.17456445	3.1707756	20	8 30.2	19.9
457938 2009 UL_{154}	16.3	X	349.99372	34.62202	30.33590	10.57883	0.0440314	0.18695123	3.0291247	20	12 28.9	20.5
457939 2009 VG_{1}	15.9	X	276.23728	206.65714	235.59660	14.86843	0.0520804	0.17222863	3.1993799	20	10 4.8	20.5
457940 2009 VD_{2}	15.9	X	340.54727	99.09311	266.93301	24.12775	0.2603661	0.17520357	3.1630598	20	9 18.4	19.5
457941 2009 VX_{2}	16.6	X	336.96182	93.69448	326.57618	12.84345	0.2626429	0.18256805	3.0774159	20	12 15.1	19.7
457942 2009 VC_{9}	17.1	X	278.71054	188.11670	288.16313	2.41677	0.1415058	0.18099325	3.0952410	20	11 12.6	21.1
457943 2009 VW_{11}	16.5	X	264.17497	62.03124	38.75532	11.15807	0.0607050	0.17505369	3.1648651	20	10 17.3	20.9
457944 2009 VY_{15}	17.1	X	253.30388	349.16204	201.97570	3.45223	0.0642828	0.19509778	2.9442035	20	—	—
457945 2009 VO_{28}	15.7	X	342.85050	347.67585	48.38724	12.24779	0.1261296	0.18071677	3.0983971	20	11 15.0	19.4
457946 2009 VQ_{31}	16.1	X	219.79432	303.35488	269.02672	8.61428	0.0708800	0.19082545	2.9879857	20	—	—
457947 2009 VK_{32}	16.8	X	301.55617	37.17435	52.35745	16.64364	0.2460708	0.17644490	3.1482072	20	11 3.5	20.2
457948 2009 VB_{33}	15.8	X	267.88835	257.21473	266.67567	10.68539	0.1406197	0.18473944	3.0532543	20	12 27.8	19.6
457949 2009 VT_{38}	15.6	X	341.22446	25.73064	51.41628	20.05270	0.0950331	0.18559842	3.0438263	20	—	—
457950 2009 VY_{38}	15.8	X	31.20096	343.43112	53.16327	9.80853	0.0642410	0.18944339	3.0025005	20	—	—
457951 2009 VB_{40}	16.2	X	60.36579	298.57061	65.99033	8.09798	0.2265124	0.19233688	2.9723116	20	—	—
457952 2009 VG_{40}	16.8	X	33.48329	22.34980	4.08240	1.74420	0.1997139	0.19179028	2.9779563	20	—	—
457953 2009 VF_{46}	16.7	X	337.70653	25.64322	49.63589	11.37872	0.1072265	0.18601968	3.0392293	20	12 27.7	20.5
457954 2009 VX_{53}	17.4	X	170.16273	55.88581	256.65359	1.71844	0.0645837	0.20938635	2.8086900	20	—	—
457955 2009 VH_{54}	16.6	X	324.66435	199.83569	36.79853	14.69266	0.1938169	0.22934119	2.6433094	20	3 7.9	20.0
457956 2009 VJ_{63}	17.4	X	4.30463	260.36068	139.97232	1.34812	0.2494797	0.18535573	3.0464827	20	—	—
457957 2009 VE_{65}	16.5	X	338.22013	161.10078	254.97528	9.68499	0.0732802	0.18109434	3.0940890	20	12 1.5	20.4
457958 2009 VN_{65}	16.3	X	24.86331	37.74504	46.71107	12.23494	0.1024744	0.19853071	2.9101648	20	—	—
457959 2009 VK_{67}	15.8	X	194.82189	278.60338	259.78063	8.96622	0.0722925	0.17165190	3.2065423	20	10 24.6	20.8
457960 2009 VU_{67}	16.2	X	1.49446	327.29448	50.85492	8.95638	0.0658228	0.17737241	3.1372227	20	11 15.9	20.4
457961 2009 VV_{69}	17.2	X	5.48316	114.34663	269.84122	3.28270	0.1672237	0.18108085	3.0942426	20	12 11.4	20.9
457962 2009 VQ_{70}	17.0	X	356.37287	0.93559	36.21622	5.89767	0.1346926	0.18135485	3.0911252	20	12 9.0	20.7
457963 2009 VL_{78}	17.0	X	356.96843	183.38689	201.11206	8.47427	0.2523191	0.18178670	3.0862278	20	12 8.9	20.3
457964 2009 VM_{79}	16.0	X	282.32412	350.88414	268.28841	12.48745	0.0938195	0.22191048	2.7019927	20	2 12.4	20.0
457965 2009 VB_{80}	16.0	X	359.62067	264.23798	94.06814	14.76482	0.2181316	0.18025535	3.1036825	20	11 9.4	19.6
457966 2009 VQ_{83}	16.8	X	314.33784	74.53518	41.14916	9.86003	0.1223318	0.18652743	3.0337112	20	—	—
457967 2009 VZ_{83}	16.5	X	260.90838	110.84250	54.76140	20.60562	0.2654706	0.17972684	3.1097639	20	11 29.0	20.7
457968 2009 VR_{85}	17.0	X	351.26163	209.90510	211.64284	4.90431	0.1308831	0.18549940	3.0449094	20	—	—
457969 2009 VE_{88}	16.6	X	27.91814	121.16262	267.25962	9.03929	0.1408653	0.18667094	3.0321562	20	—	—
457970 2009 VH_{88}	16.1	X	308.60455	25.01871	59.47788	16.07742	0.0427504	0.17714849	3.1398658	20	11 24.6	20.4
457971 2009 VV_{88}	16.8	X	322.30457	108.59748	34.61971	14.61446	0.1150080	0.20215229	2.8753030	20	—	—
457972 2009 VO_{94}	17.2	X	318.02816	21.91022	41.10524	5.33144	0.1563730	0.17809721	3.1287052	20	11 6.4	20.8
457973 2009 VV_{94}	15.6	X	110.59964	13.24629	256.19422	9.40589	0.0557821	0.17602712	3.1531866	20	11 15.0	20.4
457974 2009 VX_{95}	16.3	X	315.27559	230.42472	228.43552	16.15707	0.1140901	0.18502404	3.0501225	20	12 20.6	20.1
457975 2009 VG_{96}	16.4	X	269.03053	258.19713	236.67159	8.67279	0.1868782	0.17791069	3.1308915	20	11 15.3	20.6
457976 2009 VX_{104}	15.8	X	30.05184	59.75731	305.12511	12.29093	0.1609261	0.18711495	3.0273576	20	12 24.4	20.0
457977 2009 VB_{107}	16.1	X	296.46889	175.69362	268.93687	9.41996	0.1939826	0.17778529	3.1323636	20	10 20.0	19.9
457978 2009 VE_{107}	15.6	X	274.10558	201.13372	258.29724	9.80746	0.0618873	0.17739784	3.1369228	20	10 24.2	20.0
457979 2009 VD_{109}	17.8	X	216.72402	243.35537	234.54673	19.26777	0.0848820	0.35296250	1.9829739	20	9 24.9	20.5
457980 2009 VK_{110}	16.3	X	313.21956	120.61277	266.83926	9.55826	0.1828090	0.17035831	3.2227541	20	9 1.7	20.2
457981 2009 VS_{111}	16.4	X	344.39703	348.03037	73.86390	10.92273	0.1254419	0.18564217	3.0433480	20	12 22.2	20.0
457982 2009 VY_{113}	16.1	X	32.29340	271.78396	82.78446	9.01461	0.1933238	0.18093117	3.0959489	20	12 16.8	20.3
457983 2009 VD_{114}	16.4	X	295.84200	189.46554	260.45651	7.52882	0.0567257	0.17490195	3.1666954	20	11 12.0	20.7
457984 2009 VC_{116}	16.2	X	315.91373	358.59117	56.21293	19.97102	0.0776945	0.17287766	3.1913674	20	10 31.2	20.4
457985 2009 WG_{3}	16.9	X	80.59424	159.41324	217.88819	8.89261	0.0759833	0.19963741	2.8993998	20	—	—
457986 2009 WU_{9}	16.1	X	33.19679	285.14700	83.97981	13.89126	0.2328780	0.18725098	3.0258913	20	—	—
457987 2009 WC_{10}	17.5	X	207.75062	48.73992	73.95986	25.47924	0.0910603	0.34787803	2.0022488	20	10 13.2	20.5
457988 2009 WF_{11}	15.9	X	269.96919	163.31331	284.46690	9.34596	0.0188435	0.17114446	3.2128774	20	10 6.9	20.7
457989 2009 WV_{19}	15.8	X	283.38023	179.51711	272.60382	16.41547	0.1776636	0.17748089	3.1359442	20	10 6.8	20.3
457990 2009 WS_{28}	16.9	X	277.69729	163.51360	296.45118	0.28675	0.1297575	0.17347761	3.1840052	20	10 22.2	21.0
457991 2009 WT_{31}	16.3	X	148.58613	207.07717	69.94789	13.77262	0.0613399	0.18773724	3.0206641	20	—	—
457992 2009 WF_{32}	16.6	X	77.22577	214.81746	135.36403	1.99221	0.1641454	0.19135083	2.9825139	20	—	—
457993 2009 WZ_{35}	17.2	X	312.87093	343.79859	94.17167	2.48018	0.1969672	0.18321387	3.0701798	20	11 16.4	20.5
457994 2009 WP_{37}	17.1	X	41.81766	77.69581	317.25523	2.15267	0.1756728	0.19258322	2.9697764	20	—	—
457995 2009 WB_{39}	16.6	X	304.90303	159.61815	257.87114	7.55605	0.1132750	0.17162476	3.2068803	20	10 7.1	20.9
457996 2009 WP_{42}	16.9	X	333.08235	179.28943	267.90012	9.74800	0.0497159	0.18330336	3.0691806	20	—	—
457997 2009 WN_{62}	16.8	X	335.77156	263.52045	140.68576	4.18031	0.1993721	0.17892963	3.1189940	20	11 16.9	20.1
457998 2009 WK_{63}	16.3	X	343.14724	321.04388	87.26481	9.68795	0.0788865	0.18026128	3.1036144	20	11 30.1	20.2
457999 2009 WK_{65}	17.0	X	328.16545	80.51477	337.38005	1.78609	0.1425020	0.17772920	3.1330226	20	11 17.6	20.5
458000 2009 WP_{65}	16.5	X	204.76705	150.08832	61.46320	9.61399	0.0155087	0.18835480	3.0140579	20	12 25.4	20.9

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Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
458001 2009 WR_{70}	17.3	X	330.74656	317.38705	83.39717	1.83811	0.2083174	0.17722730	3.1389349	20	10 31.2	20.4
458002 2009 WK_{76}	16.6	X	26.84801	339.53521	42.89719	10.02935	0.0775463	0.18432501	3.0578291	20	12 28.2	20.8
458003 2009 WL_{82}	16.4	X	286.12114	124.40795	25.93150	10.79907	0.0777788	0.18915679	3.0055325	20	—	—
458004 2009 WM_{84}	16.5	X	293.41637	77.14381	49.43235	16.35856	0.1567049	0.18277302	3.0751148	20	12 15.8	20.3
458005 2009 WJ_{85}	16.6	X	172.61896	278.60052	44.30156	13.97624	0.2382387	0.21303499	2.7765282	20	1 24.4	21.6
458006 2009 WK_{85}	16.1	X	221.48307	146.20545	40.30192	12.47948	0.0792451	0.18100854	3.0950666	20	12 3.7	20.7
458007 2009 WJ_{88}	16.7	X	298.36429	60.98985	139.71942	2.78094	0.0139181	0.20518941	2.8468599	20	1 9.1	20.7
458008 2009 WB_{90}	16.2	X	28.95152	109.60451	266.98945	15.20912	0.1367025	0.18380363	3.0636090	20	12 31.1	20.3
458009 2009 WY_{91}	16.5	X	275.29624	258.01419	266.34839	12.45620	0.0985264	0.18964630	3.0003584	20	—	—
458010 2009 WW_{92}	16.2	X	345.12627	317.56828	93.52633	13.75406	0.2031360	0.17941732	3.1133394	20	12 14.6	19.6
458011 2009 WQ_{99}	16.7	X	14.59817	130.16819	252.76867	4.20082	0.1420748	0.18546416	3.0452951	20	12 21.4	20.5
458012 2009 WW_{105}	17.9	X	94.63546	242.63376	266.74227	14.66718	0.3867106	0.30772944	2.1728180	20	7 12.2	21.5
458013 2009 WN_{120}	17.0	X	29.78484	136.92769	249.01022	6.79684	0.1537551	0.18855797	3.0118924	20	—	—
458014 2009 WP_{120}	16.3	X	154.14310	329.52710	251.41933	8.33200	0.0559731	0.17471904	3.1689050	20	11 3.5	21.1
458015 2009 WC_{128}	16.4	X	267.83756	225.23959	236.51119	4.08688	0.1238550	0.17006964	3.2263998	20	10 10.3	20.8
458016 2009 WN_{139}	16.3	X	21.45241	3.85188	24.55453	9.68686	0.0691658	0.18451786	3.0556981	20	12 27.7	20.6
458017 2009 WN_{140}	16.7	X	11.18573	312.72142	80.09641	11.34030	0.0846886	0.18571952	3.0425030	20	12 21.3	20.6
458018 2009 WJ_{143}	16.6	X	239.68363	277.12246	214.48042	8.77761	0.2046569	0.17427905	3.1742363	20	10 3.1	21.5
458019 2009 WU_{143}	16.7	X	358.40698	7.41962	39.46774	7.19163	0.0879688	0.18858712	3.0115820	20	12 22.1	20.6
458020 2009 WD_{146}	17.6	X	312.24675	42.25104	37.84913	22.61193	0.0774241	0.36677057	1.9328867	20	—	—
458021 2009 WB_{148}	16.3	X	339.29894	292.30530	89.63903	10.69955	0.0755564	0.17435390	3.1733278	20	10 24.8	20.5
458022 2009 WC_{149}	16.7	X	21.85762	332.93040	79.79553	14.29426	0.0934327	0.19229158	2.9727784	20	—	—
458023 2009 WU_{156}	16.8	X	35.70475	85.76961	284.75128	8.88750	0.1183766	0.18737913	3.0245114	20	12 31.6	20.9
458024 2009 WV_{160}	16.3	X	273.35713	69.11915	56.46062	16.47005	0.0867953	0.17902958	3.1178331	20	11 23.5	20.5
458025 2009 WU_{177}	15.6	X	10.96672	90.59147	261.94030	16.52069	0.0973676	0.17434718	3.1734093	20	10 27.1	20.0
458026 2009 WB_{179}	16.6	X	25.95480	330.43499	39.05460	8.58922	0.1706207	0.18339053	3.0682079	20	12 23.9	20.7
458027 2009 WR_{179}	16.9	X	228.96930	313.70990	334.65806	3.17411	0.0684620	0.21229883	2.7829430	20	1 29.7	21.1
458028 2009 WO_{181}	16.3	X	107.59869	226.74136	90.56881	12.72801	0.0230865	0.18613774	3.0379440	20	—	—
458029 2009 WE_{183}	16.3	X	274.00900	207.88790	272.40335	9.43182	0.0240205	0.18034166	3.1026920	20	11 25.9	20.7
458030 2009 WD_{184}	16.1	X	156.25123	68.76847	236.50707	8.71041	0.0075495	0.19236472	2.9720248	20	—	—
458031 2009 WD_{190}	16.8	X	163.76963	67.50474	249.88980	9.63811	0.0682186	0.20271307	2.8699977	20	—	—
458032 2009 WF_{196}	16.7	X	287.61426	86.36258	10.32283	23.47558	0.3086019	0.17541438	3.1605252	20	10 5.3	20.5
458033 2009 WS_{199}	16.6	X	280.13163	339.00835	121.04303	5.43336	0.1589609	0.17331799	3.1859597	20	10 24.3	20.7
458034 2009 WY_{205}	16.3	X	13.70797	357.32232	49.39876	11.71704	0.1096091	0.18771346	3.0209192	20	—	—
458035 2009 WQ_{206}	16.6	X	42.30696	96.85221	262.44951	7.56261	0.1009370	0.18419096	3.0593125	20	12 22.7	20.8
458036 2009 WD_{212}	16.4	X	260.20300	309.51746	222.35759	8.39686	0.2658670	0.18042475	3.1017394	20	12 8.1	20.5
458037 2009 WK_{212}	15.7	X	33.09561	83.43435	266.89763	10.68697	0.1091780	0.17929132	3.1147979	20	11 30.0	19.9
458038 2009 WN_{212}	16.2	X	242.65195	141.27453	50.29908	10.40408	0.0279043	0.18777021	3.0203105	20	—	—
458039 2009 WQ_{214}	16.8	X	185.51628	250.57719	79.47770	9.44724	0.2104553	0.21399627	2.7682071	20	2 9.7	21.6
458040 2009 WQ_{219}	16.9	X	21.01319	176.47980	219.28473	9.20339	0.1018209	0.18837062	3.0138891	20	—	—
458041 2009 WP_{221}	16.9	X	344.68001	337.46123	96.14116	4.62488	0.1663091	0.18737780	3.0245258	20	—	—
458042 2009 WX_{223}	16.2	X	13.93648	297.28786	74.21309	11.85839	0.0848689	0.18111489	3.0938549	20	11 28.5	20.1
458043 2009 WP_{225}	17.0	X	225.29084	269.15327	311.88703	0.88117	0.0085817	0.19810775	2.9143055	20	—	—
458044 2009 WY_{226}	16.7	X	23.74651	317.38361	64.03252	9.96140	0.0771262	0.18669865	3.0318562	20	12 23.2	20.8
458045 2009 WF_{229}	17.2	X	347.40240	220.89059	212.00419	7.37978	0.1165083	0.18851243	3.0123774	20	—	—
458046 2009 WG_{234}	16.7	X	131.85082	254.84261	51.35997	12.77889	0.0324142	0.19703006	2.9249227	20	—	—
458047 2009 WH_{235}	16.2	X	226.10960	336.88161	244.80533	14.60198	0.0492424	0.19311694	2.9643022	20	—	—
458048 2009 WV_{242}	17.4	X	342.66815	215.10172	163.08678	1.96048	0.2154043	0.17426719	3.1743803	20	10 25.1	20.6
458049 2009 WO_{246}	16.4	X	41.81979	100.04833	244.34826	11.70821	0.1919577	0.18196519	3.0842093	20	12 16.1	20.8
458050 2009 WU_{246}	16.5	X	331.13513	201.54865	259.67890	11.68779	0.1460627	0.18798610	3.0179976	20	—	—
458051 2009 WW_{249}	16.0	X	286.06205	82.11538	75.34146	16.05497	0.0241642	0.18833543	3.0142645	20	—	—
458052 2009 WL_{256}	15.9	X	18.74011	288.09036	76.41324	14.18531	0.0465969	0.17608440	3.1525027	20	11 21.9	20.2
458053 2009 WO_{257}	15.9	X	338.53443	299.51014	75.33502	27.56571	0.1823579	0.17048308	3.2211815	20	10 25.4	20.0
458054 2009 WY_{259}	16.2	X	346.14013	313.13303	75.57023	10.71379	0.0722146	0.17310375	3.1885880	20	11 9.5	20.3
458055 2009 WU_{260}	17.1	X	309.55182	46.17782	26.95840	1.23486	0.1621214	0.17494864	3.1661319	20	11 3.3	20.8
458056 2009 WH_{263}	15.7	X	230.07947	283.32693	285.58985	9.54453	0.1295379	0.17570114	3.1570854	20	—	—
458057 2009 XR	16.4	X	59.87430	187.70662	162.85625	5.76949	0.2183298	0.18880004	3.0093174	20	—	—
458058 2009 XB_{6}	16.1	X	309.89039	17.32154	95.80260	12.46354	0.1783409	0.18145216	3.0900200	20	12 27.4	19.2
458059 2009 XB_{15}	16.3	X	67.08655	95.65397	290.32641	9.10395	0.1141667	0.18878419	3.0094859	20	—	—
458060 2009 XE_{15}	15.9	X	249.99961	257.81682	293.06932	10.13949	0.0520036	0.18048667	3.1010299	20	—	—
458061 2009 XV_{23}	16.3	X	16.72265	124.70777	269.61966	15.39535	0.3436975	0.18651774	3.0338163	20	—	—
458062 2009 YO	18.9	X	317.68001	1.82711	266.34378	32.00641	0.5629348	0.70294437	1.2527240	20	—	—
458063 Gustavomuler	16.3	X	325.95076	196.45011	254.11168	11.01664	0.2449736	0.18028735	3.1033151	20	12 28.4	19.2
458064 2009 YT_{8}	16.7	X	302.39511	200.99808	274.01147	9.28820	0.1868556	0.17681914	3.1437635	20	12 13.5	20.2
458065 2009 YW_{11}	16.4	X	304.50734	172.45420	297.21123	9.61497	0.0980675	0.17566863	3.1574749	20	12 16.8	20.5
458066 2009 YD_{18}	15.8	X	223.82018	104.48823	100.95716	12.46791	0.0474436	0.17576167	3.1563605	20	—	—
458067 2009 YR_{18}	16.3	X	350.09076	15.16171	59.28041	13.54889	0.1798944	0.18566510	3.0430975	20	—	—
458068 2009 YR_{21}	16.4	X	354.36093	135.64798	312.42613	9.47490	0.0470118	0.18200659	3.0837415	20	—	—
458069 2009 YS_{21}	15.8	X	331.55471	176.54129	305.18670	10.40581	0.0731713	0.18388363	3.0627203	20	—	—
458070 2010 AB_{2}	15.6	X	342.23590	340.73675	114.13373	10.85510	0.0464180	0.18213185	3.0823275	20	—	—
458071 2010 AP_{4}	16.3	X	12.76328	113.30486	279.70111	16.56136	0.1785077	0.18194719	3.0844126	20	—	—
458072 2010 AY_{9}	16.5	X	3.65328	21.58992	42.30646	8.34679	0.0874496	0.18719708	3.0264721	20	—	—
458073 2010 AH_{10}	16.1	X	181.82143	180.01477	85.31401	10.20832	0.0687051	0.18337673	3.0683618	20	—	—
458074 2010 AJ_{13}	16.1	X	340.24669	182.10742	269.85425	12.77288	0.1183557	0.18548763	3.0450382	20	—	—
458075 2010 AG_{21}	16.8	X	275.84852	28.69575	109.10742	1.85510	0.1421108	0.17639175	3.1488396	20	12 4.8	20.9
458076 2010 AQ_{22}	16.0	X	302.07510	192.41747	298.69148	10.74332	0.1430946	0.17571052	3.1569730	20	—	—
458077 2010 AW_{23}	16.3	X	339.29079	133.80158	316.41191	8.73591	0.0855171	0.17630764	3.1498410	20	—	—
458078 2010 AR_{41}	16.6	X	347.48108	307.20615	97.13856	18.88897	0.2985600	0.17726616	3.1384761	20	12 20.2	19.4
458079 2010 AH_{44}	16.2	X	284.18734	188.37655	312.60053	14.03994	0.1599255	0.17305020	3.1892457	20	12 18.4	20.3
458080 2010 AN_{46}	15.8	X	358.67826	129.33260	288.45829	10.18917	0.0461430	0.17531128	3.1617642	20	12 28.7	20.0

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Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
458081 2010 AZ_{48}	16.1	X	279.83547	9.24658	140.42176	17.82434	0.0617801	0.17477600	3.1682165	20	—	—
458082 2010 AW_{49}	15.7	X	35.96621	92.80158	289.62518	14.76762	0.0742128	0.17328409	3.1863752	20	—	—
458083 2010 AS_{52}	15.8	X	272.00309	36.55536	120.86124	28.36147	0.1227074	0.17518997	3.1632236	20	12 28.2	20.1
458084 2010 AS_{60}	16.7	X	314.36012	49.93620	81.72780	9.95794	0.2175505	0.18202102	3.0835786	20	—	—
458085 2010 AE_{61}	16.5	X	308.00327	313.79351	140.42122	15.04334	0.2677028	0.17432819	3.1736398	20	11 22.6	20.0
458086 2010 AS_{62}	16.2	X	294.59827	25.15130	95.67420	14.47621	0.1393391	0.17809814	3.1286943	20	12 13.5	20.0
458087 2010 AY_{62}	16.0	X	288.09682	283.18487	221.64993	16.27878	0.3361775	0.17703045	3.1412614	20	12 4.8	19.5
458088 2010 AO_{66}	16.3	X	259.73597	39.67995	149.22230	6.45530	0.1500197	0.17291205	3.1909442	20	—	—
458089 2010 AJ_{72}	16.1	X	250.29003	237.52032	319.84085	11.60086	0.3567978	0.17119400	3.2122575	20	12 12.0	21.0
458090 2010 AK_{74}	15.7	X	326.79703	316.81696	114.36089	28.04914	0.2011517	0.17486396	3.1671539	20	12 9.1	19.5
458091 2010 AO_{74}	15.9	X	308.55210	10.18247	122.16541	13.68094	0.1565368	0.18026813	3.1035357	20	—	—
458092 2010 AM_{76}	15.7	X	273.59607	205.35913	321.92291	16.83475	0.1450670	0.17768452	3.1335478	20	—	—
458093 2010 AU_{91}	14.8	X	57.43025	188.21177	74.66554	11.18130	0.2201792	0.12556820	3.9495682	20	9 28.8	20.4
458094 2010 AM_{95}	15.8	X	254.44526	149.32643	97.43750	15.60610	0.1353338	0.17673737	3.1447331	20	1 6.1	20.7
458095 2010 BW_{19}	17.5	X	135.77114	269.79559	149.51805	7.46534	0.2476103	0.22592104	2.6699201	20	4 16.1	21.9
458096 2010 BY_{24}	16.3	X	301.54041	151.08776	289.26942	13.97168	0.0614849	0.18188294	3.0851391	20	11 6.2	20.7
458097 2010 BK_{56}	16.3	X	330.86785	271.15382	119.28299	6.86840	0.1324617	0.17770625	3.1332923	20	10 21.5	20.0
458098 2010 BV_{79}	16.3	X	308.71101	260.94585	232.97626	12.50257	0.1668616	0.19194303	2.9763762	20	—	—
458099 2010 BZ_{105}	15.7	X	36.26677	353.58391	301.84594	27.21199	0.1743292	0.17254570	3.1954593	20	9 17.7	20.5
458100 2010 BO_{126}	16.3	X	41.18049	13.00367	9.47010	13.76497	0.1737578	0.19307450	2.9647365	20	—	—
458101 2010 CS_{11}	16.1	X	302.39348	357.09203	98.65977	13.62132	0.1667465	0.17980343	3.1088808	20	11 24.6	19.8
458102 2010 CT_{23}	15.7	X	1.28684	92.50553	315.18116	14.82730	0.0807863	0.17107783	3.2137115	20	12 22.9	20.1
458103 2010 CQ_{24}	16.2	X	264.45806	223.00302	310.35159	9.10389	0.0698547	0.17483918	3.1674533	20	—	—
458104 2010 CK_{27}	16.0	X	356.55324	127.91886	311.80642	9.84393	0.0622334	0.17672655	3.1448615	20	—	—
458105 2010 CM_{40}	16.3	X	267.03157	232.01148	344.25781	8.18745	0.1948656	0.17730061	3.1380696	20	—	—
458106 2010 CG_{41}	16.0	X	268.04654	64.81591	142.33556	16.98399	0.1771270	0.17758358	3.1347351	20	—	—
458107 2010 CK_{55}	15.6	X	330.84954	322.48615	119.04486	15.95865	0.2718236	0.17527027	3.1622574	20	12 27.7	18.5
458108 2010 CU_{55}	16.1	X	330.64504	281.89185	141.74684	25.39065	0.3312582	0.17449535	3.1716127	20	12 8.7	19.2
458109 2010 CP_{58}	16.2	X	177.01715	320.17218	143.79437	33.23984	0.2216875	0.23249051	2.6193844	20	7 12.4	21.1
458110 2010 CF_{61}	16.8	X	342.71851	116.16319	303.88039	6.71319	0.1529221	0.17430725	3.1738940	20	12 15.5	20.6
458111 2010 CJ_{76}	15.8	X	357.66989	87.30696	335.08212	24.59911	0.2087828	0.17304712	3.1892836	20	—	—
458112 2010 CS_{113}	16.5	X	187.59310	220.74865	33.88094	2.49896	0.0189644	0.17318046	3.1876463	20	—	—
458113 2010 CP_{124}	15.4	X	339.89774	220.74448	155.35852	15.45101	0.0832514	0.15476217	3.4357866	20	10 13.5	20.0
458114 2010 CC_{128}	16.1	X	317.18397	110.07158	345.00185	11.23181	0.2942983	0.17411103	3.1762782	20	12 7.4	19.1
458115 2010 CH_{128}	15.6	X	298.74123	169.57931	5.98492	14.23677	0.2561633	0.18067370	3.0988895	20	—	—
458116 2010 DA	20.2	X	217.73204	122.23269	162.32664	20.53364	0.5656957	0.94229400	1.0304140	20	—	—
458117 2010 DN_{42}	16.1	X	264.05442	32.45295	173.49855	14.11196	0.1200163	0.17415940	3.1756900	20	—	—
458118 2010 DC_{45}	16.2	X	148.50926	298.78285	300.39078	4.51091	0.0411578	0.15287676	3.4639775	20	11 15.0	21.4
458119 2010 DO_{70}	16.4	X	250.37021	77.87355	80.33701	10.68736	0.2009365	0.17476521	3.1683470	20	11 19.2	20.9
458120 2010 DP_{78}	15.4	X	283.02822	2.40896	188.24169	27.57100	0.1132294	0.17543525	3.1602745	20	—	—
458121 2010 EK_{7}	16.9	X	310.98687	28.93267	77.61423	10.46168	0.1099113	0.18113904	3.0935800	20	12 23.5	20.7
458122 2010 EW_{45}	17.6	X	182.64472	135.43558	233.01050	2.11390	0.6686124	0.33228224	2.0644195	20	3 22.7	22.3
458123 2010 EW_{82}	15.5	X	229.76258	76.87176	170.33874	20.99047	0.1964364	0.17068426	3.2186498	20	—	—
458124 2010 ET_{84}	16.3	X	290.63938	43.78501	153.45775	20.26185	0.0919388	0.18411644	3.0601380	20	—	—
458125 2010 EY_{105}	15.8	X	273.17080	189.52582	7.18955	27.86434	0.1206238	0.17408935	3.1765418	20	—	—
458126 2010 ED_{131}	18.6	X	66.17542	63.33339	86.20328	4.75071	0.1455374	0.29910610	2.2143820	20	5 4.8	20.7
458127 2010 EM_{137}	15.5	X	296.65817	93.49478	68.56672	22.69384	0.1586344	0.17279629	3.1923692	20	—	—
458128 2010 EX_{139}	18.7	X	63.47612	179.11025	19.31304	3.54658	0.0859966	0.30864716	2.1685088	20	7 4.3	20.9
458129 2010 EA_{140}	15.3	X	17.02724	271.21624	163.63576	22.71095	0.1060935	0.17843150	3.1247962	20	—	—
458130 2010 ES_{164}	16.5	X	305.87386	296.51370	157.72327	5.07146	0.1352215	0.17729722	3.1381096	20	11 28.4	20.2
458131 2010 FY_{5}	17.5	X	271.21840	69.07253	200.76683	21.97314	0.2056439	0.27952688	2.3166140	20	1 25.6	21.6
458132 2010 FU_{51}	15.5	X	226.08330	279.93432	293.02141	23.32037	0.2356157	0.17508905	3.1644390	20	12 23.8	20.5
458133 2010 FA_{58}	15.7	X	260.26112	202.53067	310.56756	12.19286	0.1012214	0.17443812	3.1723063	20	12 6.7	20.3
458134 2010 FV_{92}	18.0	X	10.96268	81.83886	100.50037	6.00767	0.1754297	0.29156176	2.2524181	20	3 3.4	19.6
458135 2010 GE_{25}	20.2	X	142.47445	235.26703	324.52673	21.65304	0.4689555	0.33207241	2.0652891	20	10 4.9	24.9
458136 2010 GE_{95}	16.0	X	299.90113	150.64317	319.10442	26.55685	0.1469718	0.17198579	3.2023908	20	12 2.9	20.5
458137 2010 GW_{135}	18.1	X	331.32634	215.77157	82.23214	3.97461	0.2429276	0.30020342	2.2089826	20	6 3.7	19.1
458138 2010 HJ_{18}	16.9	X	182.40223	230.23828	123.27552	15.67421	0.2277994	0.25990445	2.4317947	20	3 3.4	21.2
458139 2010 HF_{27}	16.0	X	307.44755	69.11207	33.76524	15.52718	0.2453476	0.17335565	3.1854983	20	11 26.9	19.5
458140 2010 HX_{49}	13.1	X	318.45694	351.78266	288.83735	28.08745	0.0426610	0.08283729	5.2117728	20	5 11.4	20.2
458141 2010 HV_{58}	18.0	X	322.44589	336.62968	303.24921	3.36056	0.1790186	0.28386187	2.2929681	20	4 22.3	20.1
458142 2010 HS_{61}	16.8	X	295.13781	230.92655	265.57710	5.45691	0.1332360	0.17449590	3.1716060	20	—	—
458143 2010 HP_{84}	15.4	X	199.32176	93.10545	138.44803	22.64022	0.0768783	0.17059727	3.2197439	20	—	—
458144 2010 HQ_{95}	16.6	X	265.69304	150.61359	164.33715	15.13758	0.2788954	0.17474446	3.1685977	20	3 23.6	21.7
458145 2010 JH_{1}	16.8	X	115.33958	154.79025	183.40227	13.54768	0.4433861	0.23298923	2.6156451	20	1 8.0	21.1
458146 2010 JH_{28}	15.7	X	300.07362	281.29806	149.12300	19.08510	0.1067257	0.15904802	3.3737835	20	10 23.2	20.4
458147 2010 JE_{30}	17.9	X	317.54969	172.50289	118.67401	3.44561	0.1640078	0.29402729	2.2398088	20	5 6.7	19.9
458148 2010 JW_{38}	18.0	X	6.43334	126.17120	120.58599	7.55237	0.1005208	0.30083861	2.2058721	20	6 9.5	20.0
458149 2010 JA_{48}	17.7	X	179.76032	212.80791	130.18863	5.78972	0.1615682	0.26929010	2.3749572	20	2 10.8	21.5
458150 2010 JD_{57}	17.7	X	108.09629	44.04609	302.80668	4.88907	0.2713354	0.23458589	2.6037630	20	—	—
458151 2010 JF_{77}	18.7	X	78.34528	47.87089	139.89175	0.58570	0.0885584	0.30530202	2.1843200	20	7 10.7	20.9
458152 2010 JP_{83}	17.9	X	329.10263	155.60257	92.87120	7.75508	0.2279383	0.28973139	2.2618945	20	3 14.1	20.1
458153 2010 JP_{85}	18.1	X	10.79462	33.33219	219.91354	4.85867	0.1824685	0.30031405	2.2084400	20	7 5.8	19.5
458154 2010 JR_{117}	17.9	X	349.22676	145.16420	118.69919	3.45698	0.1388996	0.29712927	2.2241928	20	5 31.4	19.4
458155 2010 JT_{117}	15.7	X	121.74827	118.78245	96.69215	4.57647	0.1702107	0.12702334	3.9193468	20	9 28.9	21.8
458156 2010 JO_{124}	15.5	X	320.37684	45.21820	88.58842	13.46768	0.1319619	0.17762141	3.1342899	20	—	—
458157 2010 JT_{155}	17.7	X	224.68267	138.52234	203.61594	6.72524	0.2057719	0.28205783	2.3027349	20	3 17.5	21.5
458158 2010 JD_{159}	17.3	X	103.95459	147.90039	176.65570	13.55403	0.1896069	0.24128237	2.5553614	20	—	—
458159 2010 KV_{6}	15.6	X	21.42013	240.89017	162.29211	18.70789	0.1279138	0.17117264	3.2125247	20	—	—
458160 2010 KM_{36}	17.6	X	197.05577	99.49214	204.72472	5.67293	0.1356519	0.26645711	2.3917613	20	1 8.2	21.3

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
458161 2010 KZ_{45}	16.9	X	73.12551	117.40279	270.48842	11.15421	0.2725260	0.23112000	2.6297292	20	—	—
458162 2010 KG_{50}	17.2	X	96.74134	238.95747	128.13904	13.25297	0.3178753	0.23265736	2.6181319	20	1 8.2	20.5
458163 2010 KQ_{78}	16.9	X	28.14337	200.57802	195.10052	18.14073	0.2470668	0.22078530	2.7111650	20	—	—
458164 2010 KF_{110}	16.3	X	251.06360	16.40836	274.03747	16.18673	0.2368502	0.26296057	2.4129165	20	2 1.5	20.5
458165 2010 LU_{14}	18.0	X	288.20681	163.29040	121.78793	7.18568	0.1184627	0.28459268	2.2890410	20	3 23.2	20.9
458166 2010 LB_{17}	17.1	X	130.66924	117.41887	211.65191	11.79396	0.1052411	0.23563877	2.5960012	20	—	—
458167 2010 LB_{52}	17.0	X	94.28619	321.60820	52.46546	9.91142	0.1375716	0.23471564	2.6028034	20	—	—
458168 2010 LE_{84}	17.2	X	98.09253	352.39846	8.86442	12.06378	0.1954420	0.23202395	2.6228946	20	—	—
458169 2010 LR_{100}	17.0	X	42.76694	265.89268	99.80589	10.18546	0.2407894	0.21636219	2.7479899	20	—	—
458170 2010 ME_{4}	17.0	X	100.89043	27.92665	291.86413	4.81332	0.2441222	0.22855096	2.6493989	20	—	—
458171 2010 MK_{11}	17.1	X	118.95856	34.19372	332.14217	11.40272	0.2055531	0.23789468	2.5795635	20	1 19.8	20.8
458172 2010 MP_{17}	17.0	X	83.97751	4.32071	17.00738	7.23419	0.3270110	0.22943426	2.6425946	20	1 11.9	20.0
458173 2010 MH_{33}	17.3	X	63.18131	236.33370	177.09874	11.54436	0.2565462	0.23021368	2.6366266	20	1 1.7	19.9
458174 2010 MT_{49}	17.0	X	79.70721	28.06982	340.26270	13.84911	0.1735988	0.22663959	2.6642739	20	—	—
458175 2010 MW_{56}	16.8	X	47.70645	178.18954	167.65252	10.18820	0.2738106	0.21323013	2.7748340	20	—	—
458176 2010 MM_{71}	17.9	X	285.73847	9.47207	273.33437	4.44084	0.2220000	0.26809989	2.3819810	20	2 27.9	21.4
458177 2010 MF_{113}	17.4	X	268.85982	162.70051	136.13288	8.43490	0.2501603	0.27416980	2.3466932	20	3 2.6	21.0
458178 2010 ND_{1}	17.1	X	358.47443	151.33256	122.45535	27.40578	0.2383203	0.29478555	2.2359663	20	7 16.8	18.2
458179 2010 NQ_{4}	17.1	X	225.45113	16.26161	297.50160	15.61593	0.2573155	0.26345071	2.4099228	20	2 10.2	21.5
458180 2010 NW_{22}	17.9	X	102.94903	204.48309	195.97519	9.01635	0.1605059	0.23869488	2.5737952	20	1 31.8	21.4
458181 2010 NH_{26}	16.2	X	235.57625	74.94795	358.80424	22.39869	0.1589881	0.18164076	3.0878807	20	8 5.9	21.3
458182 2010 NC_{49}	17.3	X	20.52810	82.19679	336.95840	16.26919	0.3209530	0.21589728	2.7519335	20	—	—
458183 2010 NF_{50}	17.4	X	46.39297	125.25563	257.93722	1.89241	0.1162894	0.21893874	2.7263878	20	—	—
458184 2010 NO_{69}	17.9	X	314.03873	79.78050	207.87040	5.40963	0.2574498	0.27579277	2.3374776	20	4 6.9	20.4
458185 2010 NP_{69}	17.2	X	22.59333	85.77521	333.59427	8.06464	0.1787158	0.21848170	2.7301888	20	—	—
458186 2010 NU_{72}	17.6	X	68.61335	29.31717	17.56423	13.81371	0.2481889	0.22798110	2.6538120	20	1 6.4	20.5
458187 2010 NA_{77}	17.3	X	140.46426	144.30956	201.83998	12.67168	0.2774037	0.23808693	2.5781747	20	1 19.7	21.7
458188 2010 NK_{80}	16.6	X	77.09847	317.55531	81.41028	15.07865	0.2227070	0.22918633	2.6445000	20	1 4.8	19.4
458189 2010 OC_{25}	17.7	X	128.53925	337.89363	36.82965	12.64887	0.1986217	0.23897848	2.5717585	20	2 12.0	21.7
458190 2010 OY_{92}	17.4	X	115.56040	170.62207	193.42346	3.59104	0.1990017	0.23201115	2.6229911	20	1 10.0	21.0
458191 2010 OM_{97}	16.8	X	46.70281	3.07476	52.11631	12.66707	0.1694661	0.22261992	2.6962492	20	—	—
458192 2010 PX_{10}	16.7	X	65.12707	270.22701	137.86591	18.40666	0.2040016	0.22519514	2.6756546	20	—	—
458193 2010 PM_{16}	16.7	X	2.55078	316.52473	110.91154	10.19873	0.1851934	0.21209441	2.7847309	20	—	—
458194 2010 QG_{3}	18.1	X	5.13301	115.78978	189.79417	2.67530	0.1796491	0.29809239	2.2193993	20	9 23.4	19.7
458195 2010 QJ_{3}	17.1	X	90.67326	220.96891	157.88878	14.38251	0.2865395	0.23396424	2.6083732	20	1 8.9	20.3
458196 2010 QW_{3}	16.8	X	125.61814	173.89650	154.13645	15.48163	0.1469271	0.23368228	2.6104710	20	—	—
458197 2010 QK_{4}	17.4	X	234.20454	96.43892	232.74784	7.72142	0.2899505	0.26647000	2.3916842	20	3 4.9	21.7
458198 2010 RT_{11}	19.0	X	110.21733	17.63604	221.78435	2.25844	0.4063945	0.31954556	2.1189182	20	11 14.1	23.1
458199 2010 RL_{28}	16.9	X	320.22312	102.31856	322.81286	5.42313	0.0182996	0.21337082	2.7736140	20	11 24.2	20.7
458200 2010 RZ_{39}	17.1	X	92.08220	52.65440	325.77303	11.80674	0.2789811	0.23261196	2.6184725	20	1 12.5	20.2
458201 2010 RY_{42}	18.1	X	349.06951	87.65166	195.42478	6.17334	0.1492173	0.28523727	2.2855911	20	7 1.7	19.9
458202 2010 RA_{46}	16.8	X	135.46267	144.31760	172.11661	13.22458	0.0833610	0.23396915	2.6083367	20	—	—
458203 2010 RS_{48}	17.8	X	81.12593	221.15475	187.31899	1.70446	0.2235927	0.23398946	2.6081858	20	1 23.5	20.5
458204 2010 RG_{53}	16.9	X	96.95762	31.34748	344.50287	18.71973	0.2317445	0.23304482	2.6152291	20	1 11.3	20.5
458205 2010 RT_{61}	16.7	X	47.70744	354.04657	330.40050	1.13143	0.0751705	0.20473198	2.8510987	20	11 17.6	20.4
458206 2010 RV_{61}	16.7	X	78.06379	37.80881	7.66545	14.90065	0.1463790	0.23257876	2.6187217	20	1 5.9	20.0
458207 2010 RD_{64}	17.0	X	159.36997	39.56801	244.71413	11.81618	0.1862722	0.23127645	2.6285432	20	—	—
458208 2010 RJ_{65}	17.0	X	77.60526	83.68455	273.49634	7.81015	0.2137699	0.22737951	2.6584908	20	—	—
458209 2010 RA_{69}	17.2	X	308.52167	13.65234	272.14810	6.04645	0.1174540	0.27325706	2.3519159	20	4 17.6	20.0
458210 2010 RX_{75}	17.6	X	47.55515	92.92097	317.34994	11.45670	0.3346288	0.22503972	2.6768863	20	—	—
458211 2010 RF_{79}	17.6	X	260.56665	357.41320	347.55866	2.53784	0.2014157	0.27371224	2.3493077	20	4 25.4	21.0
458212 2010 RG_{79}	17.0	X	95.97355	22.17697	337.62234	12.68819	0.2650950	0.22911338	2.6450613	20	—	—
458213 2010 RP_{79}	16.7	X	90.56700	0.91171	0.75293	14.36210	0.2609491	0.22609167	2.6685766	20	—	—
458214 2010 RP_{101}	16.8	X	345.82712	270.87493	199.68933	14.19893	0.0499623	0.22578324	2.6710063	20	—	—
458215 2010 RE_{104}	17.6	X	46.89520	75.92720	356.92867	4.35144	0.1896431	0.22879223	2.6475360	20	—	—
458216 2010 RU_{112}	17.1	X	22.01290	147.12767	240.68386	6.17114	0.1363820	0.21369888	2.7707747	20	—	—
458217 2010 RZ_{114}	17.8	X	88.06570	42.05302	340.26763	6.18492	0.2389711	0.23054675	2.6340866	20	1 4.0	20.8
458218 2010 RL_{116}	17.7	X	72.57596	309.13608	65.67285	4.16930	0.1798723	0.22432066	2.6826038	20	—	—
458219 2010 RS_{128}	17.9	X	204.84476	70.17125	291.70549	4.53180	0.0984586	0.26127485	2.4232840	20	3 26.9	21.5
458220 2010 RX_{135}	17.3	X	173.50611	142.95909	185.31032	10.22825	0.0997051	0.24135559	2.5548445	20	1 14.9	21.2
458221 2010 RO_{136}	17.5	X	344.22342	259.68248	187.35814	8.06604	0.2195930	0.21332429	2.7740174	20	—	—
458222 2010 RL_{142}	17.0	X	359.96834	255.64354	196.00333	21.71906	0.0527637	0.22556890	2.6726980	20	—	—
458223 2010 RK_{145}	17.4	X	4.85426	92.57305	5.82342	12.18895	0.2656865	0.22108488	2.7087153	20	—	—
458224 2010 RL_{148}	17.5	X	10.40590	16.21521	252.73688	2.71048	0.1497507	0.28740364	2.7240912	20	7 27.4	19.4
458225 2010 RN_{165}	17.7	X	104.26188	214.39760	172.79331	12.56739	0.1710627	0.23998291	2.5645776	20	1 18.5	21.2
458226 2010 RZ_{165}	17.5	X	81.57623	55.69699	320.55888	3.12224	0.2510543	0.22833104	2.6510998	20	—	—
458227 2010 RT_{180}	17.4	X	113.08909	15.26595	357.60954	7.47286	0.1569613	0.23439165	2.6052013	20	1 13.9	20.9
458228 2010 SA_{3}	17.5	X	29.30279	28.16727	349.83280	6.56830	0.1571072	0.21046720	2.7990657	20	—	—
458229 2010 SD_{17}	16.9	X	63.29252	296.86729	2.05289	1.66679	0.0482036	0.20453675	2.8529127	20	11 1.1	20.8
458230 2010 SE_{17}	17.0	X	36.20605	39.56923	18.96198	13.50277	0.2529429	0.22322553	2.6913705	20	—	—
458231 2010 SJ_{25}	18.2	X	32.39672	234.98374	167.33862	2.30137	0.2840892	0.21918791	2.7243212	20	—	—
458232 2010 TG_{6}	16.3	X	22.52590	246.82779	23.73190	4.42520	0.1707450	0.18490424	3.0514397	20	8 15.2	19.8
458233 2010 TW_{7}	17.1	X	91.42740	152.39392	187.17223	4.54587	0.1010876	0.22402304	2.6849792	20	—	—
458234 2010 TJ_{9}	17.2	X	3.65396	222.54523	191.08939	11.91390	0.1325182	0.21492573	2.7602205	20	—	—
458235 2010 TD_{12}	16.8	X	18.81838	221.76636	217.92121	12.69449	0.2292428	0.22331440	2.6906563	20	—	—
458236 2010 TV_{12}	17.7	X	16.31289	171.64814	263.98294	3.71873	0.1241457	0.22293674	2.6936942	20	—	—
458237 2010 TZ_{13}	17.6	X	33.48308	230.58253	207.73529	11.01903	0.1805475	0.22747270	2.6577647	20	—	—
458238 2010 TC_{14}	17.8	X	68.71384	172.98135	225.27855	5.13100	0.2028889	0.22863979	2.6487127	20	—	—
458239 2010 TY_{29}	17.2	X	19.83144	318.48715	227.04323	3.92966	0.1448875	0.25855602	2.4402422	20	3 30.4	19.5
458240 2010 TP_{37}	17.2	X	118.26446	26.36406	305.24193	4.88791	0.2711718	0.22986474	2.6392942	20	—	—

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
458241 2010 TA_{40}	17.4	X	47.49481	85.55812	343.07309	5.43088	0.1492849	0.22908921	2.6452474	20	—	—
458242 2010 TO_{41}	18.1	X	99.30169	138.46040	240.11987	2.03090	0.2144663	0.23269859	2.6178226	20	1 10.2	21.4
458243 2010 TT_{41}	17.5	X	22.62125	222.71120	11.53435	12.79059	0.1674685	0.27496142	2.3421869	20	6 28.6	19.9
458244 2010 TA_{49}	16.8	X	72.99030	179.88216	196.43937	21.91112	0.0126066	0.22329130	2.6908419	20	—	—
458245 2010 TD_{51}	17.7	X	100.22924	238.93197	154.39760	4.57484	0.0907957	0.23756011	2.5819850	20	1 10.6	21.0
458246 2010 TK_{56}	16.6	X	14.38089	100.76143	8.79059	28.46643	0.1565951	0.22884724	2.6471117	20	—	—
458247 2010 TE_{58}	17.6	X	43.53718	75.51165	16.02814	7.98886	0.2773301	0.22833036	2.6511051	20	1 17.4	19.6
458248 2010 TJ_{63}	17.6	X	24.82330	66.42395	321.61158	2.45275	0.1012517	0.21439905	2.7647391	20	—	—
458249 2010 TB_{74}	17.8	X	11.92503	291.37263	199.58332	8.26593	0.0889051	0.23700501	2.5860149	20	1 3.6	20.9
458250 2010 TB_{96}	18.1	X	295.94156	249.12856	35.32466	2.81061	0.1796462	0.26858931	2.3790865	20	3 22.3	20.9
458251 2010 TZ_{105}	17.4	X	1.38078	324.65697	228.19343	4.31435	0.0735599	0.25341081	2.4731623	20	3 9.0	20.3
458252 2010 TJ_{108}	18.2	X	85.19886	85.48184	325.39784	1.67056	0.1804538	0.23526181	2.5987735	20	1 26.7	21.1
458253 2010 TR_{115}	17.9	X	134.74948	166.25872	199.08286	6.00693	0.0804343	0.23880388	2.5730119	20	1 16.4	21.5
458254 2010 TE_{129}	17.3	X	60.49400	344.47117	48.70570	8.88208	0.2422903	0.22424606	2.6831987	20	—	—
458255 2010 TJ_{139}	17.3	X	347.17195	101.24027	3.39270	7.20820	0.1729609	0.21676205	2.7446094	20	—	—
458256 2010 TE_{149}	17.3	X	83.92583	7.41498	43.98100	9.85745	0.1361734	0.23304589	2.6152212	20	1 21.5	20.6
458257 2010 TN_{152}	17.7	X	36.99420	300.37412	151.49442	4.81752	0.0695423	0.23473742	2.6026424	20	—	—
458258 2010 TR_{162}	15.8	X	359.10672	177.75520	267.83343	21.15123	0.0370940	0.22618216	2.6678648	20	—	—
458259 2010 TK_{164}	17.4	X	114.91706	167.48122	201.88318	13.23921	0.2650041	0.23327113	2.6135374	20	1 21.9	21.4
458260 2010 TB_{166}	16.3	X	82.05592	163.96327	231.69880	13.98731	0.2636449	0.23010999	2.6374186	20	1 11.9	19.5
458261 2010 TD_{173}	17.1	X	82.67330	112.71257	264.48143	9.89842	0.2988094	0.22855328	2.6493809	20	—	—
458262 2010 TF_{173}	17.6	X	60.02183	150.95868	260.13391	5.86331	0.3015696	0.22564603	2.6720890	20	—	—
458263 2010 UU_{4}	16.5	X	141.65537	306.32430	29.48151	14.58462	0.1044643	0.23024752	2.6363683	20	—	—
458264 2010 UR_{9}	17.7	X	112.36565	346.78129	37.49538	2.42990	0.2169710	0.23553991	2.5967275	20	2 4.1	21.2
458265 2010 UV_{9}	16.9	X	316.13092	238.94835	220.95864	12.20307	0.1462905	0.20673462	2.8326565	20	12 30.5	20.2
458266 2010 UR_{12}	17.0	X	102.16340	352.42851	11.09391	6.37431	0.1891684	0.22854538	2.6494420	20	—	—
458267 2010 UG_{15}	17.6	X	62.27468	273.88504	111.77449	3.10324	0.2090873	0.22243978	2.6977047	20	—	—
458268 2010 UV_{15}	16.6	X	38.20379	315.31292	65.84933	6.73004	0.0478016	0.21248555	2.7813125	20	—	—
458269 2010 UT_{20}	17.6	X	118.47260	194.95005	151.34102	0.43079	0.1193559	0.22854533	2.6494424	20	—	—
458270 2010 UJ_{26}	17.1	X	85.67726	328.20330	38.94194	5.56944	0.1250619	0.22068333	2.7120000	20	—	—
458271 2010 UM_{26}	17.6	X	140.00402	120.26602	234.90668	3.87984	0.3248363	0.23808669	2.5781765	20	2 4.5	21.9
458272 2010 UR_{28}	16.0	X	217.48387	255.23176	217.99570	9.57944	0.0574714	0.18142897	3.0902832	20	9 2.1	20.7
458273 2010 UU_{30}	17.5	X	18.28387	105.88996	297.89777	3.31231	0.0734102	0.21183259	2.7870250	20	—	—
458274 2010 UM_{32}	17.2	X	326.40476	208.62108	254.16771	7.43109	0.1932586	0.20967749	2.8060895	20	—	—
458275 2010 UN_{36}	16.9	X	3.82621	140.48313	26.68219	12.48456	0.1206534	0.23336399	2.6128441	20	2 14.5	20.0
458276 2010 UF_{45}	17.4	X	150.42820	18.36747	345.12463	6.04670	0.0953267	0.24018580	2.5631331	20	2 5.5	21.0
458277 2010 UK_{46}	17.4	X	82.17971	36.10195	7.67110	4.67580	0.1203095	0.23124291	2.6287973	20	1 4.9	20.5
458278 2010 UY_{51}	16.8	X	104.40129	159.85446	206.81970	15.80855	0.2260050	0.22916392	2.6446725	20	1 2.2	20.5
458279 2010 UB_{55}	17.6	X	153.97889	330.65405	23.73164	2.65142	0.2282444	0.24026501	2.5625698	20	2 9.5	21.8
458280 2010 UP_{55}	17.4	X	38.15402	341.92903	50.84831	2.73468	0.2238183	0.21396368	2.7684882	20	—	—
458281 2010 UZ_{55}	17.2	X	8.68970	38.87612	38.50546	10.67499	0.1075650	0.21379015	2.7699861	20	—	—
458282 2010 UJ_{60}	16.8	X	27.81274	175.49001	250.86329	3.96370	0.1456358	0.21438345	2.7648731	20	—	—
458283 2010 UR_{61}	16.7	X	61.52778	65.56018	19.52611	29.68676	0.3347601	0.23314765	2.6144601	20	3 15.7	19.7
458284 2010 UQ_{64}	17.6	X	100.05471	44.58051	2.02539	2.71726	0.0721092	0.23460992	2.6035853	20	1 26.7	20.9
458285 2010 UZ_{66}	16.7	X	76.26709	271.83340	54.30911	8.85729	0.1417675	0.21130642	2.7916497	20	—	—
458286 2010 UA_{71}	17.1	X	98.56909	28.63462	355.15467	9.90721	0.1769790	0.23044598	2.6348544	20	1 13.2	20.5
458287 2010 UK_{72}	16.3	X	151.45741	295.93416	41.58232	11.32945	0.2775844	0.23572692	2.5953540	20	1 24.7	20.8
458288 2010 UA_{73}	17.0	X	26.96573	323.76419	75.10069	5.78823	0.3131524	0.21315232	2.7755092	20	—	—
458289 2010 UX_{78}	17.1	X	59.38476	168.72862	259.80555	8.15300	0.1721754	0.22727509	2.6593050	20	1 5.9	19.8
458290 2010 UQ_{79}	16.6	X	75.04123	141.51335	258.56680	10.43779	0.0711595	0.22520317	2.6755910	20	—	—
458291 2010 UL_{81}	17.5	X	70.22356	64.40750	340.71807	1.73895	0.0810804	0.22635553	2.6665024	20	—	—
458292 2010 US_{81}	17.6	X	261.35349	25.00198	243.68747	2.76022	0.1201894	0.24493224	2.5299120	20	1 30.4	21.4
458293 2010 UQ_{83}	17.1	X	50.97124	194.59852	242.09743	12.91258	0.2250317	0.22335260	2.6903496	20	1 5.3	19.6
458294 2010 UB_{93}	17.0	X	90.93149	359.55276	24.86345	13.31534	0.1722763	0.23077376	2.6323589	20	—	—
458295 2010 UC_{96}	16.9	X	95.46888	219.88472	170.37237	5.51393	0.2811563	0.23011841	2.6373543	20	1 30.0	20.3
458296 2010 UM_{96}	17.3	X	230.21619	233.26931	144.38368	7.26297	0.1315857	0.26686620	2.3893164	20	5 16.8	20.9
458297 2010 UV_{96}	16.9	X	92.18623	48.87111	7.06601	31.84774	0.2635106	0.23492741	2.6012390	20	3 9.5	20.6
458298 2010 UN_{101}	17.1	X	6.43501	51.82285	41.82579	3.12294	0.1008893	0.22242082	2.6978580	20	—	—
458299 2010 VV_{14}	16.7	X	74.57035	214.15794	231.08250	12.94999	0.1245200	0.23454300	2.6040804	20	2 11.1	20.1
458300 2010 VZ_{15}	17.6	X	53.92094	134.01383	305.45288	5.49200	0.1513417	0.23032509	2.6357763	20	1 9.5	20.3
458301 2010 VN_{16}	16.7	X	216.31009	263.22820	5.42557	11.45841	0.1152146	0.23374616	2.6099953	20	—	—
458302 2010 VK_{18}	17.5	X	37.40661	283.64676	113.35083	6.10337	0.1868164	0.21566573	2.7539029	20	—	—
458303 2010 VB_{25}	17.7	X	335.91063	213.44418	261.81141	1.04041	0.1786382	0.21083252	2.7958314	20	—	—
458304 2010 VT_{28}	16.4	X	66.70627	322.87609	59.65172	12.72134	0.1077278	0.22049901	2.7135112	20	—	—
458305 2010 VP_{37}	17.1	X	108.35540	318.03502	77.63716	8.11626	0.1436461	0.23484211	2.6018689	20	2 4.6	20.6
458306 2010 VE_{42}	18.0	X	30.42264	114.46833	274.56954	2.16631	0.1043038	0.21360451	2.7715908	20	—	—
458307 2010 VO_{44}	17.4	X	16.15059	241.16605	250.85481	5.08219	0.1372896	0.23383815	2.6093107	20	1 9.9	20.2
458308 2010 VD_{47}	17.2	X	330.37609	198.46300	248.60865	8.53009	0.1859482	0.20343808	2.8631750	20	—	—
458309 2010 VC_{50}	17.3	X	53.26591	71.23109	32.31611	13.45117	0.2379381	0.23101788	2.6305041	20	2 29.4	20.0
458310 2010 VE_{57}	17.6	X	23.64505	219.69914	165.78656	2.79435	0.1904458	0.20859652	2.8157754	20	—	—
458311 2010 VM_{60}	17.0	X	174.25612	322.16732	0.72701	12.02768	0.1918360	0.23944158	2.5684414	20	1 20.5	21.4
458312 2010 VA_{70}	17.6	X	98.55738	131.92393	250.86136	4.16106	0.1849023	0.22945243	2.6424550	20	1 10.4	20.9
458313 2010 VZ_{70}	17.1	X	55.96376	302.21715	73.84200	14.83727	0.2216291	0.21626263	2.7488332	20	—	—
458314 2010 VQ_{84}	17.1	X	123.06986	294.89449	64.67890	2.42368	0.0646516	0.22543795	2.6737330	20	—	—
458315 2010 VV_{84}	17.6	X	121.85338	153.37471	231.50466	1.83952	0.1155112	0.23391872	2.6087116	20	1 31.8	21.3
458316 2010 VC_{85}	17.1	X	8.57260	294.55816	237.70440	12.44957	0.0849556	0.23825683	2.5769489	20	2 18.4	20.5
458317 2010 VY_{88}	16.6	X	347.10636	193.96149	258.20061	7.16295	0.1803451	0.20928520	2.8095949	20	—	—
458318 2010 VE_{89}	16.6	X	87.53457	337.15957	44.14314	8.83828	0.0618754	0.22128954	2.7070449	20	—	—
458319 2010 VB_{95}	16.9	X	23.83531	348.48106	54.04844	9.10382	0.2213996	0.21224303	2.7834307	20	—	—
458320 2010 VG_{96}	16.0	X	67.10395	189.95085	73.35255	11.65211	0.0864401	0.17826546	3.1267363	20	9 30.2	20.6

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Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
458321 2010 VR_{104}	17.4	X	82.09627	107.41008	303.99899	5.68729	0.2448481	0.22968157	2.6406972	20	2 2.4	20.2
458322 2010 VT_{104}	17.3	X	355.96183	11.84897	76.10372	5.88200	0.1393042	0.21076328	2.7964437	20	—	—
458323 2010 VZ_{105}	17.5	X	35.80718	246.13458	194.83960	5.31581	0.1585489	0.22259427	2.6964564	20	—	—
458324 2010 VD_{107}	17.2	X	47.63700	350.11277	28.77821	12.70968	0.1290009	0.21326012	2.7745738	20	—	—
458325 2010 VS_{111}	17.1	X	90.58696	328.92043	66.32957	15.07772	0.0615850	0.22720816	2.6598272	20	—	—
458326 2010 VZ_{114}	17.2	X	42.76336	166.10494	255.19622	12.64641	0.1887124	0.21849498	2.7300781	20	—	—
458327 2010 VS_{118}	16.8	X	28.63902	41.46639	34.31621	9.65046	0.1786337	0.21791329	2.7349343	20	—	—
458328 2010 VN_{121}	17.0	X	21.67518	338.46879	79.34631	10.63161	0.1538987	0.21195017	2.7859942	20	—	—
458329 2010 VO_{122}	17.2	X	260.35459	263.69473	350.80423	5.26204	0.1642848	0.23894656	2.5719876	20	1 11.1	21.3
458330 2010 VK_{132}	16.7	X	86.49469	287.06778	82.83219	13.23297	0.1988018	0.22464394	2.6800295	20	—	—
458331 2010 VU_{132}	17.5	X	81.72850	33.37722	343.13267	3.30323	0.2322159	0.22357355	2.6885767	20	—	—
458332 2010 VB_{133}	16.5	X	6.53003	254.32368	220.00611	14.02044	0.0820764	0.22509051	2.6764837	20	—	—
458333 2010 VX_{133}	17.6	X	73.67799	263.47484	140.65341	5.35943	0.2852142	0.22756985	2.6570083	20	1 16.2	20.1
458334 2010 VV_{134}	17.2	X	111.30528	298.41852	56.76457	13.48882	0.1886439	0.22686829	2.6624831	20	—	—
458335 2010 VY_{135}	17.1	X	75.78795	122.16807	228.36843	3.00519	0.1157591	0.21374204	2.7704017	20	—	—
458336 2010 VM_{136}	16.9	X	213.89222	231.66371	55.74771	7.08428	0.1334472	0.23350561	2.6117875	20	1 9.6	21.1
458337 2010 VU_{139}	17.6	X	195.33146	41.82851	5.44309	20.89961	0.0790672	0.36553384	1.9372440	20	5 6.4	20.3
458338 2010 VL_{152}	17.0	X	30.66813	327.91787	80.16296	14.68334	0.1884946	0.21162909	2.7888114	20	—	—
458339 2010 VR_{152}	16.5	X	70.97126	341.56615	81.38864	15.67711	0.2345927	0.22610427	2.6684775	20	2 2.1	19.6
458340 2010 VE_{162}	17.4	X	73.69502	110.41815	269.42968	1.74883	0.1078191	0.22025602	2.7155065	20	—	—
458341 2010 VJ_{163}	17.0	X	32.95381	35.75140	32.48377	6.35035	0.0863185	0.21806094	2.7336997	20	—	—
458342 2010 VO_{165}	17.7	X	25.75041	41.36539	57.07453	7.18048	0.0982478	0.22203924	2.7009480	20	—	—
458343 2010 VP_{168}	17.2	X	229.05984	62.69617	238.88841	9.92889	0.0775694	0.24074325	2.5591749	20	2 6.4	21.2
458344 2010 VB_{169}	17.2	X	79.51587	108.94889	239.09963	4.38091	0.0507166	0.20989726	2.8041304	20	—	—
458345 2010 VA_{172}	16.0	X	223.50606	66.21718	63.35712	17.29296	0.1970305	0.18093875	3.0958625	20	9 27.4	21.2
458346 2010 VP_{173}	17.0	X	31.35515	80.59453	65.62638	13.27681	0.1386947	0.23403229	2.6078676	20	3 8.1	20.0
458347 2010 VT_{174}	17.0	X	50.87538	347.19287	37.13522	9.69282	0.1635460	0.21494747	2.7600344	20	—	—
458348 2010 VE_{176}	17.4	X	88.14638	134.57708	255.91028	12.57526	0.2826886	0.22883678	2.6471923	20	1 18.4	20.7
458349 2010 VZ_{177}	17.4	X	43.94700	27.39011	48.41871	6.55892	0.1343394	0.22398149	2.6853112	20	—	—
458350 2010 VG_{179}	17.0	X	90.57926	307.56816	57.49183	7.33188	0.0337363	0.21894973	2.7262966	20	—	—
458351 2010 VK_{184}	17.4	X	63.41397	125.39695	290.79965	3.76377	0.1621479	0.22730876	2.6590424	20	—	—
458352 2010 VM_{184}	17.0	X	24.63211	187.83726	268.06732	5.43954	0.1155889	0.22572371	2.6714759	20	—	—
458353 2010 VU_{184}	17.9	X	52.96635	147.58881	256.71077	1.97805	0.3038712	0.22003784	2.7173014	20	—	—
458354 2010 VU_{189}	17.2	X	131.09592	314.87001	53.40261	9.29187	0.0821790	0.23100002	2.6306397	20	1 20.4	21.0
458355 2010 VH_{193}	17.4	X	43.25744	50.72142	20.00001	5.38754	0.1267836	0.22150003	2.7053296	20	—	—
458356 2010 VD_{196}	16.6	X	330.28182	281.19789	111.86660	4.92165	0.1702614	0.19419438	2.9533276	20	10 26.9	19.8
458357 2010 VB_{199}	17.3	X	143.24691	122.84849	222.42725	9.61663	0.2220601	0.23400690	2.6080561	20	1 16.9	21.5
458358 2010 VM_{199}	16.8	X	24.20292	214.35342	218.43884	16.58965	0.2450260	0.21629460	2.7485624	20	—	—
458359 2010 VG_{200}	17.0	X	61.65912	292.29001	117.95615	13.78990	0.2654250	0.22336745	2.6902303	20	—	—
458360 2010 VV_{206}	17.3	X	78.80411	14.84303	36.89564	4.82589	0.1056538	0.23059455	2.6337225	20	1 8.6	20.5
458361 2010 VX_{209}	17.7	X	84.70209	91.19519	289.07933	4.44219	0.1663937	0.22539838	2.6740459	20	—	—
458362 2010 VV_{210}	17.4	X	51.83663	76.55799	355.16272	6.89550	0.1042725	0.22665822	2.6641279	20	—	—
458363 2010 VK_{214}	17.3	X	45.80861	52.01150	17.34870	12.99621	0.1304769	0.22699105	2.6615230	20	—	—
458364 2010 VN_{218}	17.3	X	52.76900	162.67084	264.65791	5.09886	0.1298030	0.22486181	2.6782981	20	—	—
458365 2010 VU_{218}	17.6	X	80.75710	171.64646	255.42602	3.21486	0.1731967	0.23271302	2.6177144	20	2 8.4	20.7
458366 2010 VV_{218}	16.9	X	91.80465	40.96921	347.68217	14.04211	0.1322870	0.23011503	2.6373801	20	1 3.1	20.4
458367 2010 VB_{220}	17.1	X	81.52753	128.85212	279.75384	12.02950	0.2141581	0.23100112	2.6306313	20	1 21.9	20.2
458368 2010 WJ	18.4	X	16.69603	107.63602	262.55023	27.02448	0.2849908	0.40879713	1.7980323	20	—	—
458369 2010 WQ_2	16.9	X	90.31647	301.30821	77.92052	7.25183	0.0583904	0.22203452	2.7009863	20	—	—
458370 2010 WL_3	17.3	X	156.37209	23.70464	298.82505	1.23418	0.2097065	0.23163567	2.6258249	20	1 3.3	21.3
458371 2010 WO_3	17.4	X	62.17330	172.39736	263.19572	2.28026	0.0714293	0.22943693	2.6425741	20	1 10.6	20.7
458372 2010 WX_4	17.6	X	62.40286	137.51848	300.98081	3.48954	0.0358891	0.22885393	2.6470600	20	1 12.2	20.7
458373 2010 WA_7	17.1	X	60.66783	296.88813	73.72326	5.80534	0.0760434	0.21029768	2.8005698	20	—	—
458374 2010 WW_7	16.4	X	5.29778	140.95175	279.39811	11.93644	0.1528740	0.20985372	2.8045183	20	—	—
458375 2010 WY_8	21.3	X	210.69689	81.43875	88.86053	5.98393	0.1356971	0.60461897	1.3851013	20	—	—
458376 2010 WF_{25}	17.2	X	106.68608	100.48593	262.44236	4.93148	0.0310657	0.22046662	2.7137770	20	—	—
458377 2010 WF_{29}	17.2	X	48.43039	311.43569	103.22685	10.88303	0.2593380	0.22014095	2.7164528	20	—	—
458378 2010 WW_{29}	17.4	X	158.73363	119.06693	227.64464	2.38061	0.2516994	0.23752331	2.5822516	20	2 4.4	21.7
458379 2010 WW_{31}	16.9	X	23.26081	357.96088	66.27726	14.21277	0.2049044	0.21390148	2.7690248	20	—	—
458380 2010 WY_{33}	17.1	X	253.55494	76.97530	79.66400	7.04672	0.0424592	0.20116530	2.8847001	20	12 17.7	20.8
458381 2010 WP_{65}	16.0	X	268.50483	27.99668	80.66272	5.49952	0.0790772	0.18511074	3.0491699	20	10 31.9	20.1
458382 2010 WG_{66}	17.4	X	78.15646	41.84817	31.84394	3.28846	0.1967101	0.23378789	2.6096847	20	2 19.7	20.4
458383 2010 WL_{67}	17.1	X	87.96111	74.89029	286.06062	3.32631	0.0875751	0.21504173	2.7592278	20	—	—
458384 2010 WX_{67}	16.8	X	136.48848	116.62150	261.77318	12.18261	0.1174954	0.23450804	2.6043393	20	2 5.6	20.7
458385 2010 WU_{68}	17.5	X	52.63853	37.95967	347.34852	2.77037	0.1617844	0.21249121	2.7812631	20	—	—
458386 2010 WZ_{69}	17.2	X	69.29169	158.93178	256.24028	12.24236	0.1629428	0.22321351	2.6914670	20	1 4.8	20.2
458387 2010 XE_3	17.3	X	356.06347	215.48120	235.30758	8.41782	0.2466271	0.21151223	2.7898384	20	—	—
458388 2010 XV_8	17.5	X	50.54906	250.23709	189.57715	5.53619	0.0572875	0.22288613	2.6941019	20	—	—
458389 2010 XA_9	17.0	X	287.47527	309.00603	111.29520	11.76853	0.0576857	0.18289178	3.0737834	20	10 2.9	21.3
458390 2010 XT_9	16.6	X	89.97122	205.69847	89.63691	13.47362	0.0639151	0.19579278	2.9372321	20	11 30.3	20.9
458391 2010 XU_9	17.0	X	344.58975	256.59041	219.00416	6.77170	0.1739499	0.21214201	2.7843144	20	—	—
458392 2010 XU_{11}	16.5	X	335.02774	50.74305	105.78510	10.62191	0.1320182	0.21520121	2.7578644	20	—	—
458393 2010 XA_{12}	17.3	X	19.89454	171.37709	278.11122	3.38221	0.1748490	0.21228183	2.7830916	20	—	—
458394 2010 XG_{12}	16.1	X	358.87953	277.21155	105.13849	9.21481	0.0961547	0.18818113	3.0159120	20	11 25.0	20.0
458395 2010 XJ_{12}	17.2	X	94.33047	85.81930	290.19663	6.20652	0.3042114	0.22297648	2.6933741	20	1 16.0	20.5
458396 2010 XY_{14}	16.9	X	29.41973	355.35556	89.17596	13.47079	0.1600769	0.21889253	2.7267716	20	—	—
458397 2010 XS_{38}	15.9	X	242.84483	57.93753	96.33893	28.12597	0.1508780	0.18552989	3.0445758	20	11 22.4	20.6
458398 2010 XO_{46}	17.1	X	82.84076	139.65274	254.37845	6.78002	0.2363539	0.22134321	2.7066073	20	1 11.1	20.2
458399 2010 XA_{57}	18.1	X	185.84407	275.76714	233.17402	4.68747	0.1004110	0.28420952	2.2910978	20	9 22.0	21.3
458400 2010 XP_{58}	17.1	X	137.70561	186.70280	185.38447	5.30769	0.1974310	0.23627427	2.5913442	20	2 11.2	21.0

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
458401 2010 XR_{59}	17.5	X	171.62158	274.59722	284.86046	18.73224	0.1012595	0.38544775	1.8699315	20	12 6.4	19.8
458402 2010 XB_{62}	16.7	X	221.75185	313.67796	241.57883	10.35069	0.0917939	0.20509288	2.8477530	20	12 19.8	20.7
458403 2010 XV_{64}	16.7	X	339.18011	177.75997	228.57287	9.11548	0.1943739	0.19645931	2.9305849	20	12 1.8	19.6
458404 2010 XV_{65}	16.6	X	286.34589	144.70647	252.19533	4.21734	0.1342326	0.17941323	3.1133868	20	8 13.4	20.7
458405 2010 XC_{66}	18.9	X	297.60522	8.89906	99.87472	22.66917	0.0810260	0.40104605	1.8211255	20	—	—
458406 2010 XH_{69}	17.0	X	144.23215	167.93281	214.97424	6.01897	0.0933447	0.23695318	2.5863920	20	2 19.3	20.8
458407 2010 XU_{69}	16.1	X	73.61312	6.66574	71.56845	34.69083	0.1866121	0.23368846	2.6104249	20	3 6.0	20.1
458408 2010 YM_{1}	16.9	X	119.52226	137.32343	255.41113	12.18953	0.1912880	0.23283149	2.6168263	20	2 13.2	20.9
458409 2011 AP	17.1	X	337.62295	84.55595	84.23511	3.16973	0.1440166	0.21602437	2.7508541	20	—	—
458410 2011 AK_{2}	17.5	X	295.67185	75.71430	6.83410	3.03430	0.2667971	0.18803864	3.0174354	20	10 10.9	20.6
458411 2011 AM_{2}	17.2	X	295.98595	19.71115	63.62934	4.92592	0.1980338	0.18736736	3.0246382	20	10 24.5	20.6
458412 2011 AD_{5}	16.6	X	131.30288	357.34928	324.96169	9.21205	0.1173034	0.20980646	2.8049394	20	—	—
458413 2011 AH_{8}	17.1	X	298.31418	303.43049	90.70424	2.22865	0.1562005	0.17456425	3.1707780	20	8 26.8	21.1
458414 2011 AP_{9}	16.2	X	145.28031	165.17405	109.64750	21.77199	0.1192617	0.19280789	2.9674689	20	—	—
458415 2011 AP_{10}	16.5	X	306.68358	342.74471	112.37984	12.01527	0.0666612	0.18977679	2.9989829	20	12 9.1	20.4
458416 2011 AS_{10}	16.4	X	82.01786	94.81793	291.05549	12.28688	0.0623771	0.21041725	2.7995087	20	—	—
458417 2011 AT_{10}	16.2	X	342.08057	250.08011	116.63610	10.13798	0.0679230	0.17638315	3.1489419	20	10 9.9	20.4
458418 2011 AM_{12}	19.5	X	295.33118	237.69865	124.78739	38.50731	0.5376594	0.39033928	1.8542767	20	5 27.8	22.9
458419 2011 AW_{12}	16.1	X	346.04018	102.29869	284.40042	8.58708	0.0938193	0.18380119	3.0636360	20	11 5.1	20.1
458420 2011 AG_{14}	16.3	X	234.06642	82.06026	98.95069	9.19774	0.1655996	0.18694842	3.0291552	20	12 4.4	20.8
458421 2011 AU_{21}	16.6	X	70.04762	283.18384	102.91694	6.12806	0.1740730	0.20879764	2.8139669	20	—	—
458422 2011 AH_{26}	16.3	X	240.24740	197.41608	78.37548	16.20711	0.0540874	0.22261749	2.6962688	20	1 28.0	20.4
458423 2011 AJ_{26}	16.3	X	294.55948	49.59128	27.22243	8.75693	0.1077457	0.18350387	3.0669444	20	10 22.3	20.1
458424 2011 AX_{30}	16.3	X	273.33098	339.64294	120.79264	11.35574	0.1002050	0.18043708	3.1015981	20	10 27.6	20.7
458425 2011 AV_{31}	17.4	X	38.57247	126.79332	339.04536	4.55724	0.1226559	0.21945652	2.7220978	20	1 19.8	20.4
458426 2011 AV_{33}	15.8	X	85.69240	163.63820	102.48261	19.18463	0.1005813	0.17215625	3.2002766	20	10 28.8	20.9
458427 2011 AS_{36}	16.4	X	146.44308	320.53159	312.65607	10.29541	0.0821769	0.18673797	3.0314305	20	12 31.0	21.1
458428 2011 AP_{37}	17.4	X	131.14283	242.06606	309.25007	18.86957	0.0570055	0.37411267	1.9075142	20	9 19.2	20.0
458429 2011 AA_{40}	16.9	X	26.15122	328.61404	89.71936	11.63148	0.1013362	0.20369503	2.8607666	20	—	—
458430 2011 AQ_{42}	16.7	X	229.23529	133.63503	68.91180	4.56969	0.1308357	0.19215812	2.9741547	20	12 29.4	20.8
458431 2011 AF_{43}	17.1	X	324.72596	98.44373	98.03406	2.59589	0.1270981	0.21718624	2.7410346	20	1 19.6	20.6
458432 2011 AG_{43}	17.7	X	36.60708	338.86852	303.89068	19.21247	0.0833985	0.37209464	1.9144048	20	9 26.9	20.2
458433 2011 AW_{43}	17.5	X	327.96979	120.88729	359.45309	2.08429	0.1433660	0.19978666	2.8979556	20	—	—
458434 2011 AJ_{46}	16.5	X	229.21448	4.61744	139.52835	5.51680	0.1665880	0.17436532	3.1731893	20	10 15.3	21.4
458435 2011 AW_{47}	16.7	X	282.38614	329.66326	119.65032	18.44818	0.1430134	0.18243228	3.0789426	20	10 24.2	21.0
458436 2011 AL_{52}	17.4	X	349.47088	171.76226	272.71150	13.42662	0.6353301	0.20976144	2.8053407	20	—	—
458437 2011 AS_{52}	17.1	X	273.74772	353.34438	104.91080	7.69549	0.2655580	0.18201971	3.0835933	20	9 29.9	21.2
458438 2011 AK_{56}	16.0	X	16.54570	256.26638	123.18887	16.99341	0.1137055	0.18719679	3.0264752	20	12 18.4	20.1
458439 2011 AW_{56}	16.0	X	218.49634	270.29692	308.85762	10.22079	0.1157983	0.18938208	3.0031484	20	—	—
458440 2011 AZ_{57}	16.4	X	319.34354	290.34565	124.19508	11.86264	0.1250019	0.18438874	3.0571244	20	11 6.0	20.3
458441 2011 AY_{65}	16.9	X	338.58020	308.79438	110.64233	6.17144	0.1426494	0.18868205	3.0105718	20	12 12.4	20.3
458442 2011 AX_{73}	16.7	X	340.05866	195.12314	305.69352	7.50092	0.0945611	0.21120991	2.7925000	20	—	—
458443 2011 AD_{76}	17.4	X	281.95699	70.92359	50.10558	3.52137	0.2290801	0.18988179	2.9978772	20	11 13.9	20.9
458444 2011 AA_{78}	16.8	X	342.53074	127.81450	323.05057	7.81455	0.1878650	0.20140343	2.8824258	20	—	—
458445 2011 AM_{78}	16.2	X	343.41123	251.74208	120.25263	11.75136	0.0739399	0.17695491	3.1421552	20	10 19.4	20.4
458446 2011 BY_{1}	16.5	X	336.31569	80.95720	308.70553	9.29555	0.0834118	0.18116277	3.0933097	20	10 22.2	20.6
458447 2011 BW_{3}	16.5	X	334.69172	285.22810	113.68317	10.12267	0.0405753	0.18163746	3.0879181	20	11 8.7	20.8
458448 2011 BV_{4}	16.7	X	108.53843	243.11390	125.08453	16.90291	0.1227669	0.21378868	2.7699988	20	—	—
458449 2011 BB_{5}	15.7	X	169.33319	276.29635	285.91229	10.39911	0.0315742	0.17800887	3.1297402	20	10 27.2	20.5
458450 2011 BZ_{7}	16.9	X	28.88011	297.32684	117.84324	6.80189	0.0706404	0.20213595	2.8754578	20	—	—
458451 2011 BG_{9}	16.4	X	56.24778	33.02410	312.43374	7.83456	0.0925638	0.18996171	2.9970363	20	12 23.3	20.7
458452 2011 BR_{15}	20.0	X	358.96650	72.12142	216.82736	10.22818	0.2769882	1.20747194	0.8734097	20	1 17.7	19.0
458453 2011 BF_{16}	18.2	X	352.31820	257.34627	127.88077	23.33089	0.0595706	0.39102426	1.8521106	20	—	—
458454 2011 BK_{22}	16.0	X	336.48890	102.02806	316.13523	15.82520	0.0979735	0.18315832	3.0708006	20	12 1.3	20.1
458455 2011 BK_{25}	16.6	X	313.47565	328.73999	196.54027	7.96903	0.2167140	0.20437253	2.8544407	20	—	—
458456 2011 BD_{27}	17.2	X	134.51907	280.71274	65.89387	1.19758	0.0778721	0.21064478	2.7974924	20	—	—
458457 2011 BM_{28}	17.0	X	258.94495	39.12264	88.27380	2.07780	0.1270398	0.18077393	3.0977439	20	11 2.9	21.2
458458 2011 BV_{29}	16.3	X	167.64143	142.67051	101.76195	12.72913	0.0758977	0.18753094	3.0228790	20	12 18.6	20.8
458459 2011 BS_{30}	16.2	X	285.69684	109.83790	321.74923	16.90326	0.1172656	0.17620963	3.1510089	20	9 21.9	20.6
458460 2011 BJ_{34}	16.5	X	256.82714	180.08152	356.27085	6.25805	0.2402265	0.18644104	3.0346484	20	12 13.8	20.7
458461 2011 BU_{36}	16.1	X	333.71418	243.90167	137.82599	17.54520	0.1890980	0.17700496	3.1415629	20	10 17.7	19.8
458462 2011 BT_{37}	16.8	X	171.66799	331.50024	250.97008	3.64244	0.1197225	0.17567922	3.1573480	20	11 22.4	21.8
458463 2011 BZ_{38}	16.5	X	296.46841	312.24802	162.90553	21.26202	0.1083083	0.18239260	3.0793891	20	12 14.8	20.8
458464 2011 BG_{44}	16.7	X	282.66420	30.25955	246.24882	3.50994	0.0828944	0.22744151	2.6580077	20	3 10.2	20.5
458465 2011 BC_{51}	16.1	X	268.35880	175.58501	285.20538	9.38687	0.1010179	0.17549043	3.1596120	20	10 10.5	20.6
458466 2011 BY_{55}	16.5	X	331.80741	328.70070	141.95632	13.28539	0.0440322	0.19969849	2.8988085	20	—	—
458467 2011 BG_{61}	17.0	X	100.45185	312.98959	55.95264	5.29238	0.0850278	0.21319096	2.7751739	20	—	—
458468 2011 BF_{63}	16.1	X	316.91993	313.39221	119.87586	10.11235	0.1197859	0.18501537	3.0502178	20	11 24.4	19.9
458469 2011 BU_{66}	16.8	X	186.55764	301.24477	276.12460	3.85120	0.0738297	0.17916990	3.1162049	20	12 4.2	21.5
458470 2011 BV_{66}	16.3	X	185.49178	278.45531	310.84161	10.63839	0.1588226	0.17956125	3.1116755	20	12 11.2	21.4
458471 2011 BB_{68}	16.6	X	204.44405	266.87168	304.24285	11.62114	0.0407067	0.18491635	3.0513065	20	12 21.6	21.1
458472 2011 BV_{86}	17.3	X	291.20899	323.52441	133.81087	6.21814	0.1627781	0.18520835	3.0480986	20	11 8.9	21.0
458473 2011 BF_{87}	17.0	X	185.13969	185.11248	133.58275	7.08829	0.0106700	0.21526713	2.7573014	20	1 15.7	20.8
458474 2011 BW_{87}	16.6	X	238.85186	40.56821	117.62096	11.73004	0.0328389	0.18451120	3.0557717	20	12 1.3	21.0
458475 2011 BM_{89}	16.4	X	253.40125	202.80242	308.92098	9.60550	0.0319518	0.18372949	3.0644330	20	12 8.3	20.7
458476 2011 BS_{102}	16.2	X	51.19261	11.82165	325.06507	10.91498	0.1619124	0.18502828	3.0500759	20	12 14.8	20.8
458477 2011 BZ_{103}	17.2	X	310.81477	155.34448	278.78373	1.01548	0.0502229	0.17937408	3.1138397	20	11 15.1	21.4
458478 2011 BX_{104}	16.9	X	200.37992	67.73215	146.49853	11.63818	0.0134736	0.18810380	3.0167386	20	12 24.3	21.3
458479 2011 BF_{107}	16.4	X	327.03986	152.13245	284.30403	8.07415	0.1100857	0.18751658	3.0230333	20	12 13.1	20.1
458480 2011 BE_{108}	16.8	X	189.77801	80.11051	156.62274	9.97666	0.1531773	0.18303055	3.0722296	20	12 24.9	21.8

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Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
458481 2011 BX_{109}	16.9	X	312.36594	255.28774	208.75484	8.03128	0.0985344	0.18728913	3.0254803	20	12 24.6	20.8
458482 2011 BH_{113}	16.8	X	48.77792	76.10773	319.08595	8.62873	0.0831844	0.19583228	2.9368371	20	—	—
458483 2011 BK_{114}	16.3	X	262.34986	145.15565	115.12255	14.81444	0.1628090	0.21908060	2.7252108	20	1 21.8	20.6
458484 2011 BG_{115}	17.5	X	334.84086	316.23841	132.38042	9.63187	0.1702807	0.19654926	2.9296907	20	—	—
458485 2011 BD_{119}	16.2	X	318.16774	132.54211	346.88112	10.73432	0.0518854	0.19442583	2.9509832	20	—	—
458486 2011 BQ_{121}	16.4	X	351.50870	103.10273	315.54116	14.94212	0.0995108	0.18792175	3.0186865	20	12 29.9	20.3
458487 2011 BX_{145}	17.2	X	199.60159	145.96157	43.00491	0.94313	0.0837164	0.17959447	3.1112918	20	11 13.9	21.9
458488 2011 BX_{153}	16.8	X	119.32388	11.67410	298.28247	11.08125	0.0413768	0.19767487	2.9185586	20	—	—
458489 2011 BR_{154}	17.3	X	322.61042	289.98827	141.34548	1.69907	0.1793883	0.18620308	3.0372332	20	11 28.4	20.3
458490 2011 BS_{161}	16.7	X	270.14527	81.02580	121.36105	15.88637	0.0942958	0.20441950	2.8540035	20	—	—
458491 2011 BA_{162}	15.9	X	324.92410	321.11279	130.70980	23.29645	0.1246989	0.19135195	2.9825023	20	—	—
458492 2011 CS	16.4	X	3.40138	322.59314	112.32106	10.39390	0.1252403	0.19554811	2.9396817	20	—	—
458493 2011 CE_{3}	18.0	X	181.81093	167.26936	316.96244	17.90492	0.0741567	0.36562954	1.9369059	20	8 22.9	20.2
458494 2011 CF_{4}	17.2	X	332.66295	357.69959	93.19568	4.63393	0.2498792	0.19499756	2.9452123	20	—	—
458495 2011 CL_{6}	16.4	X	353.31430	157.73167	3.22418	13.23283	0.1347973	0.21382831	2.7696565	20	1 19.9	19.9
458496 2011 CT_{8}	15.9	X	150.51037	267.01282	306.48974	9.72034	0.0872701	0.17066828	3.2188507	20	10 18.1	21.0
458497 2011 CR_{11}	17.2	X	57.25967	88.25900	287.07518	1.03587	0.1060040	0.19623400	2.9328277	20	—	—
458498 2011 CP_{23}	18.6	X	223.22917	235.94716	309.63852	19.77291	0.0481401	0.39483117	1.8401862	20	—	—
458499 2011 CG_{24}	16.2	X	250.42829	59.18310	101.76108	26.76842	0.3962923	0.17553656	3.1590585	20	11 8.4	21.6
458500 2011 CE_{25}	16.5	X	285.21136	12.16111	131.15060	11.72885	0.1836735	0.18995237	2.9971345	20	12 25.4	20.1
458501 2011 CL_{25}	16.4	X	238.94089	180.98130	342.03437	10.24907	0.0420105	0.18289991	3.0736923	20	12 1.3	20.9
458502 2011 CQ_{27}	16.2	X	25.03814	107.35483	334.01682	16.08396	0.0714763	0.20339973	2.8635348	20	—	—
458503 2011 CE_{30}	16.1	X	256.32699	344.91766	123.37832	24.65607	0.1898884	0.17883926	3.1200446	20	10 6.2	21.0
458504 2011 CC_{34}	16.4	X	15.00485	95.34091	313.95301	10.92743	0.0463053	0.19424947	2.9527691	20	—	—
458505 2011 CW_{36}	16.1	X	269.45435	134.77696	134.31057	15.47786	0.2000989	0.21843247	2.7305990	20	2 4.5	20.3
458506 2011 CM_{39}	16.9	X	268.28746	133.25119	33.93068	7.55679	0.2818903	0.18731185	3.0252356	20	12 11.7	20.7
458507 2011 CH_{40}	16.6	X	200.34693	141.56343	77.95505	4.84981	0.1234342	0.18412327	3.0600622	20	12 17.6	21.1
458508 2011 CM_{42}	15.4	X	202.28803	229.30215	314.19754	27.59866	0.1948642	0.17282138	3.1920601	20	10 16.3	21.2
458509 2011 CT_{44}	16.9	X	170.62946	357.05351	247.56908	5.79748	0.0728302	0.18446023	3.0563345	20	12 20.8	21.5
458510 2011 CC_{46}	16.6	X	171.58078	244.01701	109.60438	8.34154	0.0470281	0.21952404	2.7215396	20	2 15.7	20.5
458511 2011 CG_{46}	15.4	X	263.46252	24.98328	118.32942	28.82282	0.1445208	0.18040686	3.1019445	20	12 3.6	20.0
458512 2011 CQ_{47}	15.2	X	220.53629	77.93292	95.51194	26.34603	0.2347284	0.17302865	3.1895105	20	11 11.9	20.7
458513 2011 CF_{58}	16.8	X	245.26058	139.07917	146.67562	8.42163	0.1975884	0.21529570	2.7570574	20	2 2.7	21.3
458514 2011 CG_{59}	17.2	X	45.72253	135.89451	284.28100	0.96028	0.0594847	0.20265706	2.8705264	20	—	—
458515 2011 CA_{63}	16.7	X	292.24381	0.08342	107.51105	6.06247	0.1765367	0.18650971	3.0339035	20	11 21.7	20.2
458516 2011 CQ_{64}	16.2	X	262.26635	34.43792	107.45359	10.97956	0.0495248	0.18257747	3.0773101	20	12 6.7	20.6
458517 2011 CA_{68}	16.7	X	358.19027	41.61115	136.95518	13.35617	0.1072634	0.22217985	2.6998084	20	2 18.2	19.8
458518 2011 CO_{68}	16.7	X	220.35759	291.44072	275.35597	1.96399	0.1865764	0.18368746	3.0649004	20	12 16.1	21.5
458519 2011 CS_{71}	16.3	X	309.62246	107.34602	357.36480	11.28504	0.1111891	0.18809779	3.0168027	20	12 21.5	20.2
458520 2011 CT_{71}	16.2	X	156.35096	229.33615	10.64004	9.09020	0.1505240	0.17521904	3.1628737	20	11 26.1	21.5
458521 2011 CZ_{72}	16.2	X	270.73588	128.07835	353.15704	15.48937	0.1401088	0.18173000	3.0868697	20	11 2.1	20.6
458522 2011 CW_{76}	16.8	X	330.09300	21.42869	68.53907	4.91225	0.1169914	0.19032100	2.9932632	20	—	—
458523 2011 CV_{83}	16.0	X	205.28926	259.02356	312.92713	8.78701	0.0735443	0.18200686	3.0837385	20	12 18.8	20.6
458524 2011 CA_{99}	17.4	X	143.49562	148.42157	209.76852	6.04621	0.0336177	0.21024341	2.8010517	20	1 16.4	21.4
458525 2011 CE_{104}	17.0	X	213.01894	13.31335	224.68445	1.03654	0.0300302	0.19321208	2.9633290	20	—	—
458526 2011 CR_{106}	17.0	X	287.74786	115.16136	146.41870	5.61572	0.0653411	0.22093766	2.7099184	20	3 3.2	20.5
458527 2011 CM_{107}	16.4	X	240.80765	188.31164	329.97508	11.07175	0.0337612	0.17816890	3.1278658	20	11 27.6	21.0
458528 2011 CQ_{107}	16.5	X	175.91433	106.26172	159.63039	12.77239	0.2894875	0.18041968	3.1017976	20	—	—
458529 2011 DZ	16.0	X	227.70657	185.36525	2.71617	9.19192	0.1541791	0.18075243	3.0979896	20	12 3.3	20.8
458530 2011 DG_{1}	17.0	X	312.15470	228.15578	250.44437	2.13336	0.0758590	0.19180680	2.9777853	20	—	—
458531 2011 DQ_{5}	17.6	X	350.69371	29.18004	343.37030	20.51974	0.0949993	0.38100582	1.8844371	20	12 28.2	19.8
458532 2011 DS_{12}	16.1	X	147.21077	296.34651	359.65896	15.20448	0.0797567	0.18352685	3.0666883	20	—	—
458533 2011 DN_{18}	17.3	X	207.16691	195.28618	0.73156	1.03992	0.1483119	0.17238887	3.1973970	20	11 22.5	22.3
458534 2011 DP_{19}	16.6	X	261.92875	319.97105	339.82688	8.26506	0.1201659	0.22400668	2.6851099	20	3 11.7	20.7
458535 2011 DB_{20}	16.1	X	296.72453	245.55335	3.48887	11.58065	0.1714081	0.21599930	2.7510669	20	2 16.5	20.0
458536 2011 DB_{27}	16.8	X	252.11696	27.78346	146.99175	7.83507	0.1107259	0.18696068	3.0290227	20	12 25.2	21.0
458537 2011 DK_{40}	16.3	X	244.07834	39.76880	168.20138	10.25768	0.2036097	0.18606143	3.0387745	20	—	—
458538 2011 DQ_{49}	16.1	X	248.11776	327.82781	171.61432	28.79277	0.1308430	0.17564788	3.1577236	20	11 5.9	21.0
458539 2011 DH_{50}	16.4	X	24.77111	40.55341	91.97396	13.88039	0.1423927	0.21738305	2.7393799	20	2 2.7	19.4
458540 2011 DK_{50}	15.6	X	220.64087	237.25862	310.81653	11.29633	0.1077876	0.17800584	3.1297757	20	12 1.2	20.4
458541 2011 DV_{51}	16.4	X	313.52557	130.52092	307.75000	8.41884	0.0963597	0.17936904	3.1138981	20	11 20.1	20.4
458542 2011 DY_{51}	17.8	X	303.75619	72.02463	327.81155	19.38539	0.0803082	0.37818186	1.8938064	20	10 23.5	19.8
458543 2011 EA	18.1	X	354.66127	58.19743	327.36833	19.93126	0.0742569	0.38821252	1.8610428	20	—	—
458544 2011 EA_{7}	16.3	X	226.33267	27.34281	160.05157	12.07153	0.1317756	0.17637727	3.1490119	20	12 6.3	21.2
458545 2011 EU_{10}	16.8	X	256.76083	263.60800	345.72911	14.39291	0.1167582	0.20315680	2.8658172	20	1 12.5	21.4
458546 2011 EU_{13}	15.6	X	219.57052	197.36752	346.88243	20.90920	0.0830112	0.17324280	3.1868816	20	11 22.4	20.7
458547 2011 EP_{14}	16.5	X	205.37298	41.65921	152.76875	1.38413	0.1153933	0.17379042	3.1801834	20	11 22.7	21.3
458548 2011 ED_{17}	17.8	X	274.11374	1.47009	122.63739	24.25315	0.0490104	0.39101704	1.8521334	20	—	—
458549 2011 EV_{17}	15.9	X	255.51562	132.20160	31.78211	11.25925	0.1009253	0.18591079	3.0404158	20	12 16.3	20.2
458550 2011 EK_{19}	15.6	X	161.48281	122.38222	150.59480	14.73040	0.1776563	0.17100835	3.2145820	20	—	—
458551 2011 EE_{22}	16.1	X	238.25149	159.15074	51.57062	7.30337	0.0807775	0.18782352	3.0197389	20	—	—
458552 2011 EB_{27}	16.0	X	230.16659	212.92669	23.04950	10.40776	0.1565664	0.18586446	3.0409210	20	—	—
458553 2011 EA_{28}	17.3	X	295.64188	53.15253	77.87830	1.87288	0.2243343	0.18661986	3.0327095	20	12 21.7	20.4
458554 2011 EM_{33}	18.3	X	241.94060	306.13666	165.46246	24.33662	0.1184156	0.37927003	1.8901823	20	11 8.7	20.5
458555 2011 EC_{35}	16.5	X	266.56404	131.47397	44.33286	11.86792	0.0925645	0.18721220	3.0263091	20	—	—
458556 2011 EE_{39}	16.4	X	246.72481	88.30721	103.51667	2.64535	0.1247055	0.18063772	3.0993010	20	—	—
458557 2011 EC_{43}	16.1	X	288.29758	156.52976	340.89754	12.45835	0.1371757	0.18497911	3.0506163	20	12 27.4	20.0
458558 2011 EW_{45}	17.6	X	185.89780	139.48973	7.13959	22.45580	0.0102126	0.36697613	1.9321648	20	10 10.3	19.4
458559 2011 EH_{48}	15.9	X	219.29201	123.86833	125.78523	10.56666	0.0762868	0.19270178	2.9685581	20	—	—
458560 2011 ER_{51}	16.1	X	251.96609	141.29329	5.00533	14.42493	0.1463226	0.17650385	3.1475062	20	11 8.1	20.7

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Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
458561 2011 ED_{54}	15.9	X	217.56707	135.21284	48.96885	11.36622	0.0424880	0.16855133	3.2457465	20	11 29.1	20.5
458562 2011 EK_{54}	16.5	X	230.95578	6.61477	175.01919	17.46273	0.1568054	0.17389935	3.1788552	20	12 1.3	21.5
458563 2011 EL_{54}	16.4	X	252.93168	192.67722	347.14066	11.74229	0.0712762	0.18449882	3.0559083	20	—	—
458564 2011 EN_{60}	16.7	X	15.25631	293.93510	98.26517	10.51989	0.0955746	0.18007989	3.1056981	20	12 26.1	20.9
458565 2011 ET_{60}	15.8	X	77.62257	273.08616	70.08572	10.24350	0.0844783	0.18130523	3.0916892	20	—	—
458566 2011 EY_{60}	16.1	X	147.36131	159.87811	107.04865	10.91050	0.0890532	0.17624184	3.1506249	20	12 21.8	21.0
458567 2011 ET_{61}	16.5	X	4.60343	5.86803	62.47834	11.04775	0.0827122	0.18784973	3.0194580	20	—	—
458568 2011 EJ_{69}	16.7	X	187.26484	97.02289	154.70976	10.20887	0.1171544	0.17885591	3.1198510	20	—	—
458569 2011 EZ_{70}	16.2	X	190.91761	52.55006	174.03880	11.04740	0.1046114	0.17629982	3.1499341	20	12 17.1	21.2
458570 2011 EY_{72}	16.7	X	249.11935	149.34121	37.29456	9.22228	0.1375402	0.17933586	3.1142821	20	12 30.1	21.1
458571 2011 EE_{77}	16.4	X	298.28180	86.30068	356.31777	25.00310	0.2535710	0.17784146	3.1317040	20	10 7.4	20.2
458572 2011 EM_{78}	16.8	X	261.49843	326.54705	165.28955	3.52658	0.1706782	0.17426653	3.1743884	20	11 4.4	21.2
458573 2011 EJ_{83}	17.5	X	253.76377	7.35702	158.94566	1.75475	0.1307934	0.18092841	3.0959804	20	12 12.7	21.7
458574 2011 EP_{85}	16.4	X	35.02233	42.05979	81.83666	11.65915	0.1162638	0.21207303	2.7849180	20	2 11.1	19.8
458575 2011 ES_{85}	16.1	X	255.90233	129.35812	106.67702	18.07874	0.1162207	0.19840334	2.9114102	20	—	—
458576 2011 EZ_{85}	16.5	X	259.67465	68.01885	108.59980	6.45164	0.0923580	0.18262280	3.0768008	20	—	—
458577 2011 FJ_{3}	16.8	X	256.57326	221.76902	342.21060	11.47181	0.1304762	0.19093019	2.9868929	20	—	—
458578 2011 FD_{4}	16.4	X	256.73939	61.58824	129.27426	7.40787	0.1270371	0.18534082	3.0466460	20	—	—
458579 2011 FS_{5}	17.2	X	303.48565	352.86997	131.47674	1.86262	0.1473409	0.18844364	3.0131105	20	—	—
458580 2011 FM_{7}	15.5	X	75.15066	262.75344	144.50080	13.63793	0.0831195	0.19736466	2.9216160	20	1 1.3	19.5
458581 2011 FH_{8}	16.3	X	267.29029	36.97191	119.48492	2.12072	0.1263976	0.17726746	3.1384608	20	12 18.0	20.3
458582 2011 FL_{8}	15.8	X	217.22267	194.11375	14.18150	17.04765	0.1223921	0.17506106	3.1647763	20	12 18.9	20.8
458583 2011 FX_{11}	16.3	X	255.55034	150.43405	28.71601	18.18563	0.1805175	0.17765571	3.1338865	20	12 20.7	20.9
458584 2011 FL_{13}	16.3	X	209.25528	51.99186	175.13825	7.33006	0.2055109	0.17603182	3.1531304	20	12 25.5	21.4
458585 2011 FD_{16}	16.6	X	281.42531	83.94001	94.19945	5.72617	0.0713251	0.18913645	3.0057480	20	—	—
458586 2011 FK_{21}	16.9	X	237.92102	62.87707	143.72363	3.17389	0.0500316	0.18272888	3.0756099	20	—	—
458587 2011 FA_{22}	15.9	X	50.22332	273.43587	72.96799	10.68506	0.0860000	0.17399683	3.1776678	20	12 12.1	20.3
458588 2011 FQ_{24}	18.0	X	120.78146	1.62793	177.85606	22.84387	0.0550573	0.35401188	1.9790533	20	8 24.6	20.5
458589 2011 FZ_{25}	16.1	X	181.11241	212.88174	76.91024	12.09817	0.0840273	0.18597343	3.0397331	20	—	—
458590 2011 FB_{27}	16.4	X	205.98403	176.31334	150.21725	14.17557	0.1855310	0.20212839	2.8755296	20	2 19.9	21.3
458591 2011 FB_{28}	16.9	X	280.80364	298.72187	226.99824	5.61151	0.2771699	0.18782868	3.0196836	20	12 31.7	20.2
458592 2011 FL_{28}	15.7	X	248.79436	220.26327	10.95145	22.92767	0.2113013	0.18850457	3.0124612	20	—	—
458593 2011 FG_{35}	16.6	X	260.39001	104.51474	59.50675	4.76434	0.0929614	0.17752065	3.1354759	20	12 22.5	20.8
458594 2011 FH_{35}	16.8	X	247.78454	147.49803	53.17443	1.85958	0.1780390	0.18489670	3.0515228	20	—	—
458595 2011 FC_{36}	16.1	X	328.84248	44.94311	102.99661	6.98430	0.1457384	0.19561883	2.9389731	20	—	—
458596 2011 FA_{41}	16.0	X	279.94176	183.54838	2.29776	19.51446	0.1989278	0.18807331	3.0170646	20	—	—
458597 2011 FU_{41}	16.2	X	195.28645	159.56275	72.76550	11.67481	0.1717219	0.17636723	3.1491314	20	12 21.6	21.2
458598 2011 FL_{42}	15.9	X	312.45429	43.48360	82.35281	10.67051	0.0391548	0.18458960	3.0549063	20	—	—
458599 2011 FU_{42}	15.8	X	286.47798	100.97134	20.30232	16.19759	0.1994762	0.17746529	3.1361279	20	11 17.9	19.7
458600 2011 FJ_{43}	16.8	X	322.97899	292.36100	167.42682	15.69163	0.2483638	0.18609963	3.0383587	20	—	—
458601 2011 FP_{43}	16.0	X	351.96742	22.11408	66.53024	10.95034	0.0088301	0.18361204	3.0657397	20	—	—
458602 2011 FR_{43}	16.3	X	270.30913	137.37890	30.14127	17.03444	0.1184673	0.18347294	3.0672890	20	—	—
458603 2011 FH_{44}	16.4	X	141.30371	161.73103	182.47046	11.83753	0.0501610	0.19538959	2.9412714	20	1 1.9	20.9
458604 2011 FD_{45}	16.1	X	117.53455	292.35920	10.60616	8.63639	0.0912854	0.17439842	3.1727877	20	—	—
458605 2011 FZ_{46}	16.7	X	208.14904	50.36083	188.79202	0.68983	0.1314698	0.17608166	3.1525354	20	—	—
458606 2011 FF_{50}	16.6	X	59.31508	349.24024	352.05750	10.75460	0.0510450	0.16873810	3.2433509	20	12 9.8	21.4
458607 2011 FF_{53}	17.4	X	299.31976	357.99010	155.18478	1.48629	0.2106792	0.19132290	2.9828042	20	—	—
458608 2011 FW_{53}	16.4	X	156.64389	108.22356	161.73707	4.75367	0.0917568	0.18009661	3.1055058	20	—	—
458609 2011 FC_{57}	16.8	X	267.89777	260.39648	7.12434	14.96094	0.1236673	0.20587392	2.8405460	20	2 16.1	21.2
458610 2011 FU_{57}	16.4	X	335.96349	70.54733	357.68306	11.69030	0.1403016	0.17503763	3.1650586	20	12 12.9	20.4
458611 2011 FZ_{58}	16.7	X	300.65767	240.20966	299.61870	1.09523	0.0390274	0.19324992	2.9629421	20	—	—
458612 2011 FX_{60}	16.9	X	313.30892	300.74459	180.37887	2.35370	0.1772432	0.18521535	3.0480218	20	—	—
458613 2011 FZ_{62}	16.1	X	245.71968	25.64023	142.93159	16.63809	0.0800282	0.18058282	3.0999291	20	12 14.5	20.7
458614 2011 FZ_{65}	16.7	X	322.21860	214.94037	269.03304	3.67476	0.1581256	0.19027674	2.9937273	20	—	—
458615 2011 FF_{67}	16.6	X	280.36627	62.37239	42.93539	10.27952	0.2030150	0.17548496	3.1596777	20	10 24.1	20.6
458616 2011 FH_{69}	16.5	X	306.30783	10.44901	105.32384	13.23669	0.1203433	0.18122607	3.0925894	20	12 27.7	20.1
458617 2011 FD_{74}	16.5	X	216.24084	195.14002	6.16734	2.84118	0.1258253	0.17847205	3.1243228	20	12 10.9	21.1
458618 2011 FR_{83}	17.1	X	287.70495	91.96802	26.87797	13.33226	0.2773126	0.18074790	3.0980414	20	11 8.2	20.6
458619 2011 FX_{83}	15.8	X	149.93059	201.29620	102.51844	9.90465	0.0752448	0.17732633	3.1377661	20	—	—
458620 2011 FP_{84}	15.9	X	311.68827	358.32011	113.84880	11.91736	0.0729096	0.18222496	3.0812775	20	—	—
458621 2011 FJ_{85}	16.4	X	38.20469	275.36937	81.18859	10.97657	0.0164985	0.17073182	3.2180521	20	11 30.6	20.9
458622 2011 FG_{88}	16.7	X	284.63543	121.94275	4.04653	16.09910	0.1752876	0.17910794	3.1169236	20	11 24.4	20.9
458623 2011 FP_{94}	17.1	X	288.02222	4.97639	190.03466	9.90422	0.0383890	0.19602883	2.9348737	20	—	—
458624 2011 FZ_{131}	16.3	X	263.36429	134.62387	359.47839	16.62332	0.2000260	0.17522387	3.1628156	20	10 29.2	20.8
458625 2011 FB_{132}	15.5	X	207.97461	304.57785	280.93727	9.31275	0.2004191	0.17691413	3.1426381	20	12 23.4	20.5
458626 2011 FH_{133}	16.8	X	246.81409	185.64655	351.01476	9.94537	0.0403744	0.18251588	3.0780023	20	12 30.3	21.2
458627 2011 FM_{133}	16.7	X	203.07486	268.71677	345.35770	9.63699	0.0751712	0.18973922	2.9993788	20	—	—
458628 2011 FP_{138}	16.9	X	338.57896	248.00562	202.31917	1.43536	0.0817719	0.18467271	3.0539897	20	—	—
458629 2011 FT_{141}	16.4	X	284.62161	163.61900	351.11402	17.40190	0.2285556	0.18448326	3.0560801	20	—	—
458630 2011 FO_{142}	16.2	X	312.01595	339.65311	221.17507	6.64706	0.1565090	0.20024626	2.8935197	20	1 5.9	20.2
458631 2011 FH_{143}	16.6	X	247.60862	349.79217	190.40231	10.69707	0.1674592	0.17896965	3.1185290	20	12 16.2	21.2
458632 2011 FR_{144}	16.2	X	281.38315	91.90440	79.64933	11.73263	0.1570759	0.18321610	3.0701550	20	—	—
458633 2011 FR_{145}	15.7	X	224.21030	243.75550	331.12920	15.46331	0.1863944	0.17718885	3.1393889	20	12 30.2	20.6
458634 2011 FX_{146}	15.6	X	203.72247	257.51139	309.24849	9.73816	0.1397880	0.17188924	3.2035899	20	12 1.4	20.7
458635 2011 FV_{152}	18.0	X	283.54227	229.62359	202.46091	20.49353	0.1073203	0.37044158	1.9200958	20	11 19.6	19.4
458636 2011 FY_{152}	17.9	X	210.62698	79.03661	105.54745	24.12312	0.0814995	0.38124662	1.8836435	20	—	—
458637 2011 FB_{156}	15.9	X	197.46800	235.02096	10.30997	17.42768	0.2504002	0.18061270	3.0995872	20	—	—
458638 2011 FR_{156}	16.0	X	213.67900	119.34271	131.86035	13.41855	0.2420918	0.18023011	3.1039722	20	—	—
458639 2011 GN_{9}	16.0	X	149.11641	134.63252	171.91751	11.99198	0.1221353	0.17340557	3.1848870	20	—	—
458640 2011 GV_{13}	16.4	X	259.78315	215.18554	344.18269	7.02546	0.1810395	0.18460932	3.0546888	20	—	—

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Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
458641 2011 GQ_{23}	16.2	X	197.17504	342.71879	260.00869	6.22178	0.1202347	0.17690712	3.1427211	20	—	—
458642 2011 GH_{24}	16.5	X	240.13593	172.26275	357.89137	13.48826	0.1348303	0.17263173	3.1943975	20	11 24.7	21.4
458643 2011 GH_{35}	16.7	X	322.26618	264.84884	349.27275	12.98543	0.2095474	0.21896409	2.7261774	20	3 16.9	19.9
458644 2011 GN_{35}	16.1	X	236.23328	225.78741	302.50116	4.22532	0.1395797	0.17331541	3.1859914	20	11 20.3	20.7
458645 2011 GW_{36}	17.9	X	174.76730	207.46967	8.09209	19.26487	0.0562949	0.37915322	1.8905705	20	—	—
458646 2011 GM_{53}	15.9	X	333.16437	34.64738	88.68093	17.05413	0.0944372	0.18815270	3.0162158	20	—	—
458647 2011 GZ_{55}	15.7	X	316.97999	35.88991	111.11937	13.65574	0.0378351	0.18702817	3.0282940	20	—	—
458648 2011 GX_{56}	16.2	X	125.23864	156.84275	177.04177	11.39373	0.0483540	0.18313085	3.0711076	20	—	—
458649 2011 GP_{57}	16.5	X	255.74941	120.04611	46.41336	10.51261	0.1566324	0.17611658	3.1521186	20	12 9.2	20.8
458650 2011 GS_{57}	16.6	X	272.44845	0.34011	181.18400	11.34746	0.0878895	0.18318406	3.0705129	20	—	—
458651 2011 GC_{58}	16.1	X	291.99465	87.79488	44.79123	22.18198	0.2403103	0.17939689	3.1135758	20	12 7.4	19.7
458652 2011 GE_{58}	16.8	X	227.96335	94.16436	146.14613	4.25581	0.1773926	0.18244828	3.0787626	20	—	—
458653 2011 GZ_{59}	16.3	X	190.48001	129.83894	99.26042	9.38016	0.2137578	0.16864507	3.2445435	20	12 10.8	21.7
458654 2011 GF_{64}	16.6	X	277.10117	84.04769	110.92167	10.34205	0.1623986	0.18995414	2.9971159	20	—	—
458655 2011 GH_{67}	16.4	X	262.54563	105.45932	49.70582	26.25209	0.2999679	0.17951776	3.1121781	20	11 14.5	20.7
458656 2011 GB_{68}	16.3	X	238.17001	132.65937	93.04521	14.05838	0.2190133	0.18208944	3.0828061	20	—	—
458657 2011 GO_{68}	15.8	X	202.95517	137.74946	92.39023	29.70877	0.2080452	0.17362035	3.1822598	20	12 23.0	20.9
458658 2011 GF_{73}	15.5	X	313.73787	48.08903	31.01893	26.70273	0.3071432	0.17292605	3.1907720	20	11 1.1	18.4
458659 2011 GQ_{75}	17.1	X	276.40149	43.25082	168.11348	10.74512	0.1477517	0.19186930	2.9771386	20	—	—
458660 2011 GR_{76}	15.8	X	190.80228	210.54322	83.32777	10.58092	0.0332720	0.19057645	2.9905878	20	—	—
458661 2011 GS_{76}	16.2	X	336.50473	341.12027	116.12944	10.72093	0.0447802	0.17725600	3.1385960	20	—	—
458662 2011 GO_{78}	15.3	X	146.71048	190.44022	94.41745	30.71018	0.1784894	0.17302046	3.1896111	20	—	—
458663 2011 GH_{79}	16.6	X	274.68920	40.29006	103.67304	11.43014	0.0974643	0.17595333	3.1540680	20	12 16.8	20.9
458664 2011 GT_{81}	16.7	X	241.68926	104.09460	121.03450	2.61883	0.1338158	0.17977146	3.1092494	20	—	—
458665 2011 GV_{82}	16.5	X	236.98828	73.35467	162.14494	8.81682	0.0790947	0.18639810	3.0351144	20	—	—
458666 2011 GW_{83}	15.5	X	123.89865	184.96813	128.10296	10.21897	0.0580535	0.17497093	3.1658630	20	—	—
458667 2011 GV_{85}	16.8	X	290.46415	124.18010	8.50514	0.29185	0.1401160	0.17850776	3.1239062	20	12 21.1	20.5
458668 2011 GG_{86}	16.3	X	191.50510	74.11127	154.57704	5.84403	0.0722943	0.17920395	3.1158103	20	12 23.0	21.0
458669 2011 GJ_{86}	16.4	X	196.01380	220.00039	11.58538	9.47258	0.1944016	0.17716568	3.1396626	20	12 19.9	21.6
458670 2011 GY_{87}	16.2	X	208.50050	110.67505	118.07253	8.84706	0.1575741	0.17848119	3.1242162	20	12 31.9	21.0
458671 2011 HH_{3}	16.0	X	119.42796	229.41415	101.55363	10.21016	0.0497949	0.17839375	3.1252370	20	—	—
458672 2011 HK_{3}	16.2	X	324.35210	338.81805	142.74235	10.08452	0.0666872	0.18062999	3.0993894	20	—	—
458673 2011 HZ_{8}	15.8	X	272.34281	76.46825	56.71047	14.45028	0.1197214	0.17105153	3.2140409	20	11 25.1	20.1
458674 2011 HN_{11}	15.8	X	299.52374	80.38500	86.34104	14.25334	0.1186000	0.18413666	3.0599139	20	—	—
458675 2011 HJ_{17}	16.2	X	275.10753	60.26819	80.24977	16.97927	0.1893814	0.17811352	3.1285141	20	12 1.9	20.1
458676 2011 HL_{18}	16.6	X	308.12817	34.76476	78.36176	10.62718	0.1705673	0.17700989	3.1415046	20	12 22.6	20.1
458677 2011 HG_{29}	16.1	X	218.99747	185.49124	62.69917	10.04100	0.1747132	0.18039167	3.1021186	20	—	—
458678 2011 HC_{34}	16.3	X	185.64795	229.21476	12.25212	11.02989	0.0835660	0.17412937	3.1760551	20	12 30.5	21.3
458679 2011 HA_{36}	16.3	X	281.62711	320.82814	197.88539	7.73726	0.0227665	0.17171190	3.2057953	20	—	—
458680 2011 HD_{38}	15.9	X	294.36520	101.77057	87.66296	12.52089	0.0742209	0.18709038	3.0276226	20	—	—
458681 2011 HJ_{38}	16.3	X	243.02448	64.92464	155.74311	10.69959	0.1686089	0.17801085	3.1297169	20	—	—
458682 2011 HY_{38}	16.3	X	247.01360	78.42037	147.20699	8.83589	0.1845053	0.18336000	3.0685484	20	—	—
458683 2011 HD_{40}	16.2	X	290.63416	46.49168	71.74021	14.25317	0.1412410	0.17272578	3.1932378	20	12 1.6	20.1
458684 2011 HK_{40}	16.0	X	173.41757	133.51601	104.71556	8.88505	0.0263751	0.16797510	3.2531651	20	12 15.9	20.8
458685 2011 HX_{44}	15.9	X	307.01719	79.07340	76.88283	12.34848	0.0754475	0.18195952	3.0842733	20	—	—
458686 2011 HV_{48}	16.5	X	261.07291	40.45952	159.05809	10.99495	0.0414980	0.18103623	3.0947510	20	—	—
458687 2011 HE_{49}	16.2	X	310.14228	87.41055	60.77378	12.14418	0.0755258	0.18248247	3.0783780	20	—	—
458688 2011 HS_{50}	16.3	X	246.75975	88.40798	105.44919	11.41631	0.0578740	0.17428997	3.1741037	20	—	—
458689 2011 HL_{54}	16.5	X	212.70183	88.31186	165.11750	10.86969	0.0802932	0.17869837	3.1216844	20	—	—
458690 2011 HK_{56}	15.8	X	192.36145	198.66707	84.40202	13.87636	0.0669637	0.18171222	3.0870710	20	—	—
458691 2011 HV_{56}	15.7	X	159.60107	193.23768	106.88573	13.63648	0.1119691	0.17558518	3.1584752	20	—	—
458692 2011 HG_{57}	16.5	X	257.21130	61.73795	144.74770	11.89336	0.1438164	0.18089798	3.0963276	20	—	—
458693 2011 HU_{57}	16.8	X	277.26506	25.94749	154.64058	14.97004	0.1613364	0.18079048	3.0975549	20	—	—
458694 2011 HY_{58}	15.6	X	174.97220	158.68649	104.13323	11.79951	0.0244832	0.17255057	3.1953992	20	—	—
458695 2011 HD_{61}	16.2	X	84.77244	172.04352	159.66336	9.99326	0.0380529	0.16900764	3.2399016	20	12 27.2	21.0
458696 2011 HX_{63}	17.4	X	295.68815	312.01913	204.39663	5.16052	0.1952531	0.18770604	3.0209988	20	—	—
458697 2011 HT_{65}	16.5	X	248.33550	32.18317	155.56141	11.00741	0.1705777	0.17729019	3.1381925	20	12 25.2	21.1
458698 2011 HX_{65}	16.3	X	247.53363	348.20554	168.76842	4.64606	0.1104115	0.17218131	3.1999662	20	11 25.5	20.9
458699 2011 HA_{66}	16.7	X	250.29044	18.64882	164.67257	0.81642	0.0924184	0.17896524	3.1185803	20	—	—
458700 2011 HK_{67}	15.9	X	260.06297	12.37582	166.25999	15.39894	0.1211370	0.17320073	3.1873976	20	—	—
458701 2011 HZ_{71}	16.3	X	255.09726	161.01620	60.65239	11.95739	0.1472586	0.18343004	3.0677672	20	—	—
458702 2011 HT_{72}	16.4	X	231.91317	66.32312	193.78030	15.10619	0.2788976	0.18226179	3.0808623	20	—	—
458703 2011 HU_{73}	15.7	X	98.63028	146.73757	104.20619	8.52579	0.1350369	0.14293337	3.6228218	20	10 18.8	21.3
458704 2011 HA_{76}	16.4	X	272.15908	109.30753	66.99908	27.08212	0.2463867	0.18030798	3.1030784	20	12 30.8	20.4
458705 2011 HH_{83}	15.9	X	154.73335	332.16166	286.41520	6.15724	0.3861482	0.15859046	3.3802696	20	12 13.2	22.3
458706 2011 HH_{84}	15.3	X	262.93398	76.87188	110.26886	22.75901	0.0902073	0.17631502	3.1497530	20	—	—
458707 2011 HB_{85}	17.2	X	284.41131	308.64544	209.54862	10.83254	0.2198127	0.19071799	2.9891080	20	—	—
458708 2011 HK_{85}	15.8	X	117.37409	240.69154	108.38109	13.20046	0.0795933	0.17676355	3.1444226	20	—	—
458709 2011 HM_{86}	16.3	X	122.72501	270.37184	88.47165	10.89900	0.1244098	0.18743346	3.0239270	20	1 10.1	20.7
458710 2011 HZ_{95}	16.6	X	198.72583	18.45444	221.92942	0.38176	0.1186362	0.17686214	3.1432539	20	—	—
458711 2011 HW_{102}	15.9	X	308.22776	5.29749	134.52033	11.64369	0.1432169	0.18230334	3.0803943	20	—	—
458712 2011 JV	16.5	X	240.45278	90.36928	126.56291	18.37621	0.2761215	0.18090051	3.0962987	20	—	—
458713 2011 JB_{1}	15.2	X	238.64833	116.54551	104.69694	23.35976	0.0964025	0.18009330	3.1055439	20	—	—
458714 2011 JM_{2}	17.6	X	176.65300	47.44962	109.50775	25.35880	0.0900614	0.36200943	1.9497973	20	10 22.1	20.7
458715 2011 JG_{7}	15.9	X	229.88617	123.69376	120.39158	17.72755	0.1941558	0.17986944	3.1081201	20	—	—
458716 2011 JD_{9}	16.7	X	253.24148	91.78946	89.56987	14.25282	0.2516730	0.17558315	3.1584996	20	12 12.2	21.1
458717 2011 JP_{14}	16.1	X	298.12225	328.10991	170.18180	17.49822	0.1686205	0.17495256	3.1660846	20	—	—
458718 2011 JX_{14}	15.7	X	341.84521	335.65416	139.77846	17.94318	0.0886791	0.17722931	3.1389112	20	—	—
458719 2011 JL_{17}	16.1	X	225.33660	147.93291	98.19008	11.51320	0.0776930	0.18287074	3.0740191	20	—	—
458720 2011 JQ_{29}	18.2	X	128.57245	97.38869	151.02382	24.17035	0.1047980	0.36797818	1.9286556	20	12 21.9	21.2

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Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
458721 2011 KV_{1}	15.9	X	268.54810	77.00722	139.64317	14.53190	0.1561439	0.18450525	3.0558373	20	—	—
458722 2011 KK_{12}	17.2	X	62.35769	225.73297	122.22222	27.36163	0.1037427	0.37586675	1.9015749	20	—	—
458723 2011 KQ_{12}	19.4	X	246.76371	142.88301	83.66167	19.28466	0.5030470	0.40463531	1.8103402	20	—	—
458724 2011 KB_{14}	16.0	X	36.78059	342.49313	74.80091	10.40948	0.0802033	0.17502005	3.1652707	20	—	—
458725 2011 KW_{18}	17.7	X	63.93056	149.43577	131.19453	24.43114	0.0528548	0.35645793	1.9699893	20	11 19.9	20.6
458726 2011 KM_{21}	15.5	X	266.66014	75.05000	113.85110	18.85833	0.0793095	0.17694416	3.1422825	20	—	—
458727 2011 KM_{23}	16.7	X	244.54528	65.91391	169.82453	6.75689	0.2474792	0.18184693	3.0855463	20	—	—
458728 2011 LH_{4}	15.8	X	77.30957	97.20009	222.82913	14.69377	0.1221613	0.15326321	3.4581522	20	12 11.5	21.0
458729 2011 LO_{4}	16.4	X	228.45142	73.73920	193.01798	13.27614	0.2409760	0.17149572	3.2084887	20	1 1.3	22.2
458730 2011 LA_{20}	13.7	X	241.34273	103.34670	257.17779	10.26479	0.0544279	0.08149033	5.2690462	20	5 15.4	20.8
458731 2011 LR_{23}	16.3	X	119.47340	298.69620	84.11895	11.20582	0.1159554	0.18745341	3.0237125	20	2 5.1	20.8
458732 2011 MD_{5}	17.9	X	49.18801	224.83764	170.33637	10.55323	0.6023278	0.25111823	2.4881920	20	—	—
458733 2011 NN_{2}	17.6	X	76.11859	350.20619	290.94489	13.51009	0.0729313	0.34947048	1.9961617	20	11 26.0	20.2
458734 2011 OC_{3}	17.7	X	311.72232	155.29693	132.61547	6.52650	0.2290806	0.31437320	2.1420965	20	4 9.2	19.9
458735 2011 OA_{39}	14.1	X	266.93746	67.85948	256.05458	9.50195	0.0602628	0.08399167	5.1639089	20	4 30.2	21.1
458736 2011 OL_{44}	17.9	X	130.04637	215.76885	118.06634	3.85920	0.2280260	0.26887686	2.3773900	20	—	—
458737 2011 OS_{56}	18.1	X	211.85384	223.72274	123.77024	7.20265	0.1786549	0.29526826	2.2335287	20	3 16.9	21.6
458738 2011 QB_{18}	18.3	X	194.50274	236.81660	117.36753	2.85406	0.2607225	0.28785296	2.2717241	20	3 9.9	22.3
458739 2011 QE_{27}	18.0	X	221.71919	37.84753	327.46944	5.53929	0.2087219	0.30126540	2.2037883	20	4 11.1	21.5
458740 2011 QF_{27}	17.5	X	173.91535	13.01389	357.47916	3.13549	0.2468245	0.28691008	2.2766984	20	3 12.9	21.1
458741 2011 QH_{27}	18.7	X	191.20875	264.25142	126.60966	3.13663	0.1576116	0.29515272	2.2341116	20	4 21.6	22.0
458742 2011 QZ_{32}	17.6	X	113.22992	282.62346	143.57417	6.67800	0.0896903	0.28113186	2.3077885	20	3 7.1	20.3
458743 2011 QM_{34}	18.0	X	141.74055	73.50343	330.38036	5.67603	0.1942996	0.28272738	2.2990979	20	3 21.2	21.5
458744 2011 QE_{35}	18.2	X	183.63145	135.94525	218.09252	6.09646	0.1276736	0.28707018	2.2758519	20	2 22.1	21.6
458745 2011 QY_{37}	18.5	X	50.57285	281.38863	135.80361	7.57080	0.5143174	0.25140023	2.4863310	20	1 2.1	17.6
458746 2011 QB_{42}	17.5	X	143.97133	312.38291	1.83178	4.90996	0.2015592	0.26633719	2.3924792	20	—	—
458747 2011 QP_{47}	13.8	X	275.13208	15.03219	304.65161	11.15274	0.0797560	0.08065564	5.3053361	20	4 29.7	21.0
458748 2011 QJ_{72}	17.8	X	170.49401	19.95162	351.24022	3.88553	0.2310812	0.28571227	2.2830572	20	3 10.2	21.6
458749 2011 QP_{74}	13.7	X	317.10717	324.07738	326.84213	18.28197	0.0678690	0.08453812	5.1416321	20	5 17.7	20.6
458750 2011 QK_{91}	18.4	X	119.83272	90.47361	286.74726	1.41593	0.2094480	0.26842632	2.3800495	20	1 28.1	21.5
458751 2011 QB_{92}	18.5	X	132.06495	122.67802	296.52965	4.68559	0.1653676	0.28455772	2.2892284	20	3 27.2	21.8
458752 2011 QS_{95}	15.9	X	211.04355	293.81290	6.79911	25.49696	0.3151661	0.17429796	3.1740067	20	2 6.2	22.1
458753 2011 QW_{96}	19.1	X	111.11742	165.21040	242.09721	1.73825	0.1699183	0.27453764	2.3445965	20	2 18.6	22.0
458754 2011 RF_{4}	18.0	X	209.18251	296.46306	14.40137	7.17112	0.1873563	0.28109044	2.3080152	20	1 30.0	21.8
458755 2011 RU_{10}	17.9	X	197.55189	244.12228	126.31014	3.56588	0.1981332	0.29050474	2.2578785	20	4 1.5	21.5
458756 2011 RQ_{11}	18.1	X	116.19041	56.37857	306.37600	1.22753	0.2397225	0.26358442	2.4091078	20	1 10.2	21.2
458757 2011 RX_{16}	18.4	X	222.55658	175.58815	161.84846	6.05072	0.2244998	0.29205610	2.2498757	20	3 10.4	22.2
458758 2011 SU	18.9	X	161.81179	152.17278	225.55268	1.51324	0.2086110	0.28246774	2.3005066	20	3 9.2	22.6
458759 2011 SP_{6}	18.5	X	143.72758	85.92985	339.97186	4.81036	0.0976314	0.29116759	2.2544505	20	4 11.5	21.4
458760 2011 SD_{10}	16.4	X	184.63542	187.80395	184.49414	22.74175	0.1637697	0.17536886	3.1610721	20	3 28.3	21.6
458761 2011 SV_{10}	18.9	X	156.18131	83.31578	328.20846	2.50236	0.2139953	0.28727227	2.2747844	20	4 15.6	22.5
458762 2011 SJ_{33}	17.6	X	185.41967	115.39092	242.99460	4.35325	0.1745865	0.28723146	2.2749999	20	3 2.5	21.1
458763 2011 SV_{33}	18.3	X	147.90679	89.56678	318.33040	1.49569	0.1656328	0.28557233	2.2838030	20	3 31.0	21.7
458764 2011 SY_{34}	17.7	X	83.37035	58.42334	20.29738	3.28469	0.1780268	0.26850329	2.3795946	20	2 26.3	20.2
458765 2011 SM_{49}	18.9	X	126.76305	142.40388	300.66194	1.18231	0.1720409	0.28740695	2.2740737	20	4 24.9	22.0
458766 2011 SR_{55}	18.4	X	90.68692	297.83400	140.14724	4.82566	0.1402785	0.27145986	2.3622850	20	2 29.4	21.1
458767 2011 SH_{57}	18.2	X	132.65629	333.56939	71.23384	2.61487	0.1817761	0.27093929	2.3653099	20	3 15.9	21.5
458768 2011 SK_{57}	18.2	X	186.63714	348.20560	24.64551	0.92878	0.2177398	0.28163102	2.3050608	20	3 25.5	21.9
458769 2011 SF_{64}	18.2	X	179.98941	190.60363	179.50365	2.26596	0.2237964	0.28564660	2.2834071	20	3 16.3	21.9
458770 2011 SH_{66}	17.6	X	286.02494	54.51667	221.17002	20.97591	0.0667821	0.29122160	2.2541717	20	3 3.9	20.9
458771 2011 SL_{67}	17.5	X	142.90781	7.61014	345.00276	6.56214	0.2275104	0.27174518	2.3606313	20	1 25.3	21.0
458772 2011 SP_{67}	18.1	X	249.19674	350.13723	9.28915	6.14602	0.2083091	0.30430444	2.1890912	20	4 30.3	21.4
458773 2011 ST_{84}	17.8	X	234.20090	219.31903	77.48663	3.17514	0.1864477	0.27988501	2.3146374	20	2 1.8	21.4
458774 2011 SJ_{87}	17.4	X	179.79308	326.47881	3.40279	7.43125	0.1393327	0.27340449	2.3510703	20	1 25.7	21.0
458775 2011 SK_{97}	17.6	X	206.16855	233.19977	113.36086	7.41249	0.2530988	0.29035983	2.2586297	20	3 10.9	21.6
458776 2011 SP_{99}	17.7	X	119.52856	228.55092	155.25692	2.00142	0.1848235	0.26797247	2.3827360	20	2 1.7	20.6
458777 2011 SR_{103}	18.0	X	198.72698	338.28310	26.55578	4.79105	0.1916308	0.28968653	2.2621281	20	3 25.9	21.5
458778 2011 SN_{105}	18.5	X	232.85418	50.86773	301.80667	4.04485	0.1842207	0.29489000	2.2354383	20	4 6.9	22.0
458779 2011 SS_{108}	18.2	X	230.06845	1.47851	355.89434	6.94751	0.1561416	0.29993281	2.2103111	20	4 12.1	21.4
458780 2011 SU_{114}	18.1	X	150.74147	22.73649	12.81283	6.89885	0.2372145	0.27982283	2.3149802	20	3 25.2	21.7
458781 2011 SY_{116}	17.8	X	165.21227	216.64059	168.60957	2.31962	0.2152518	0.27909925	2.3189797	20	3 23.1	21.3
458782 2011 SD_{119}	17.6	X	142.49519	209.10129	202.89822	4.25303	0.2380860	0.27979367	2.3151411	20	4 6.9	21.2
458783 2011 SE_{119}	17.7	X	208.72673	166.31277	190.93464	7.48357	0.1750306	0.28947858	2.2632113	20	3 23.8	21.1
458784 2011 SQ_{125}	18.2	X	159.19876	8.39570	40.91284	3.60858	0.1600427	0.28574518	2.2828819	20	4 14.1	21.5
458785 2011 SH_{128}	18.0	X	147.91893	215.37778	197.06737	7.46453	0.1175897	0.28098230	2.3086073	20	4 2.5	21.0
458786 2011 SB_{133}	17.6	X	92.09296	303.48779	121.36043	2.43717	0.1716114	0.26705059	2.3882165	20	2 18.7	20.3
458787 2011 SC_{133}	17.3	X	175.68108	276.74947	54.88695	4.87265	0.1037769	0.27052114	2.3677467	20	1 20.4	20.7
458788 2011 SE_{135}	17.8	X	161.37141	94.33970	232.93551	0.56395	0.1964561	0.26832005	2.3806779	20	1 7.5	21.4
458789 2011 SL_{135}	18.5	X	141.86534	227.80287	163.25107	3.10271	0.2329340	0.27710841	2.3300733	20	3 10.9	22.1
458790 2011 SM_{140}	18.0	X	122.06055	181.93752	192.57077	2.27787	0.1764956	0.26580970	2.3956434	20	1 22.5	21.0
458791 2011 SY_{160}	18.5	X	169.31639	115.07337	290.21030	3.02960	0.2207902	0.28784008	2.2717918	20	4 19.1	22.3
458792 2011 SV_{163}	18.1	X	169.98172	1.62567	45.16341	4.90935	0.1257339	0.28961045	2.2625242	20	4 20.0	21.4
458793 2011 SS_{167}	17.6	X	186.52004	227.89144	82.81526	2.42486	0.1983645	0.27043884	2.3682270	20	1 9.9	21.4
458794 2011 SW_{170}	18.5	X	112.17388	93.15643	343.00963	1.43398	0.1550280	0.27451038	2.3447517	20	3 28.2	21.5
458795 2011 SJ_{171}	18.1	X	71.96390	294.92942	230.47982	4.65799	0.0854218	0.29092409	2.2557082	20	5 27.0	20.5
458796 2011 SL_{171}	18.9	X	157.50545	113.74052	293.57619	1.94307	0.1507177	0.28218678	2.3020333	20	4 7.8	22.3
458797 2011 SH_{175}	17.9	X	154.38019	236.64580	162.60820	4.18584	0.1186739	0.28351125	2.2948582	20	3 24.1	20.9
458798 2011 SG_{184}	18.1	X	154.44648	254.12665	69.60519	3.32329	0.1805932	0.26163513	2.4210588	20	—	—
458799 2011 SU_{189}	18.4	X	164.80142	218.10078	185.92205	6.92086	0.1970624	0.28695796	2.2764452	20	4 14.9	21.9
458800 2011 SV_{189}	18.6	X	155.93311	202.18851	170.93765	0.83813	0.2298886	0.27756247	2.3275314	20	2 29.7	22.3

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
458801 2011 SM_{201}	18.7	X	131.80009	47.95272	358.89157	2.39915	0.2228447	0.27861539	2.3216637	20	3 20.0	22.1
458802 2011 SW_{202}	18.2	X	157.32375	32.39634	356.96043	2.23067	0.2230068	0.28495448	2.2871030	20	3 21.1	21.9
458803 2011 SR_{205}	18.2	X	191.62486	220.25165	114.36490	1.73390	0.2060042	0.27915396	2.3186766	20	2 11.7	21.8
458804 2011 ST_{207}	18.1	X	142.41115	253.00498	94.38812	2.32858	0.2013114	0.26560403	2.3968799	20	1 14.8	21.4
458805 2011 SU_{219}	18.2	X	208.67842	170.34296	203.66881	5.39479	0.1333681	0.29204620	2.2499265	20	4 15.9	21.4
458806 2011 SN_{221}	18.2	X	197.22366	29.75380	14.08674	6.75064	0.1432238	0.29791057	2.2203023	20	5 11.7	21.4
458807 2011 SB_{225}	18.0	X	0.81147	12.25792	234.98745	6.10470	0.0733484	0.29758979	2.2218976	20	5 28.7	20.1
458808 2011 SD_{231}	18.1	X	248.17521	42.05388	319.60490	5.03048	0.1902223	0.30381574	2.1914381	20	5 3.6	21.2
458809 2011 SX_{232}	18.2	X	163.38052	158.28000	250.58491	3.00148	0.1436192	0.28596804	2.2816957	20	4 15.2	21.5
458810 2011 SA_{236}	17.4	X	94.24527	128.44608	259.66517	6.98444	0.1762106	0.25767735	2.4457865	20	1 3.7	20.0
458811 2011 SU_{245}	18.2	X	139.50883	1.42096	50.87420	3.90091	0.1784581	0.27952172	2.3166425	20	3 31.9	21.6
458812 2011 SE_{256}	17.7	X	225.42225	212.31014	95.77409	1.79017	0.1771313	0.28050097	2.3112476	20	2 7.8	21.4
458813 2011 SH_{256}	17.9	X	120.02756	297.89848	81.25771	2.28695	0.1871863	0.26507200	2.4000861	20	1 28.9	21.0
458814 2011 SY_{256}	17.5	X	132.15049	106.94675	293.74837	10.11538	0.2442986	0.27396501	2.3478625	20	3 9.8	21.3
458815 2011 SC_{260}	18.4	X	131.25173	33.13846	26.42663	2.52180	0.2018854	0.27674151	2.3321323	20	4 3.2	21.6
458816 2011 SF_{274}	17.8	X	234.16444	198.57058	122.17158	5.85593	0.2002032	0.29110381	2.2547798	20	3 1.6	21.5
458817 2011 TE_{6}	17.4	X	169.08285	289.08116	90.28273	7.56834	0.1862828	0.28454113	2.2893174	20	3 21.1	21.1
458818 2011 TG_{8}	17.6	X	231.70906	159.97735	170.19769	7.67678	0.1795096	0.29116916	2.2544423	20	3 10.5	21.2
458819 2011 TY_{12}	17.7	X	162.86444	177.38978	221.26125	5.03252	0.0876262	0.28665469	2.2780505	20	3 27.9	20.8
458820 2011 TT_{14}	17.6	X	115.33732	311.01483	64.94486	6.84895	0.2146280	0.26625015	2.3930006	20	1 23.7	20.7
458821 2011 UY	18.3	X	196.78455	154.77303	246.62514	4.70663	0.1224898	0.29412889	2.2392930	20	5 9.9	21.6
458822 2011 UB_{1}	18.3	X	185.00000	17.09830	6.90978	6.05194	0.1641662	0.28621198	2.2803990	20	4 5.2	21.8
458823 2011 UH_{2}	18.0	X	217.81671	103.58808	238.72395	5.50458	0.1373483	0.28566875	2.2832890	20	3 12.2	21.4
458824 2011 UF_{6}	18.7	X	107.64102	187.04639	221.17830	2.09422	0.1927286	0.26482414	2.4015834	20	2 19.9	21.8
458825 2011 UR_{8}	18.4	X	170.63939	348.90388	46.19008	6.31167	0.2231126	0.28207753	2.3026277	20	4 10.6	22.3
458826 2011 UD_{10}	18.0	X	167.42647	358.37672	353.55727	3.03702	0.1940851	0.27101673	2.3648593	20	2 12.6	21.6
458827 2011 UB_{14}	17.0	X	215.61212	75.93492	258.79385	6.53842	0.1042294	0.28253860	2.3001219	20	2 29.4	20.5
458828 2011 UV_{17}	17.4	X	171.27497	325.12782	58.02999	6.68985	0.1874290	0.28184071	2.3039174	20	3 27.2	21.0
458829 2011 UB_{22}	16.7	X	190.24437	27.15529	261.68054	6.04962	0.0843772	0.26099354	2.4250249	20	—	—
458830 2011 UQ_{22}	17.7	X	152.58557	23.64386	342.00249	5.23912	0.2032626	0.27306357	2.3530268	20	2 16.4	21.2
458831 2011 UE_{28}	18.0	X	194.26502	71.72478	292.67812	4.36632	0.1895149	0.28310540	2.2970508	20	3 18.5	21.8
458832 2011 UJ_{28}	17.7	X	189.56878	70.21731	285.10468	4.65470	0.1725151	0.27894952	2.3198094	20	3 3.0	21.3
458833 2011 UR_{28}	17.7	X	154.98908	132.09341	260.39198	6.06230	0.1394472	0.27596317	2.3365153	20	3 14.1	21.2
458834 2011 UU_{29}	18.3	X	109.26096	225.68159	200.20613	3.51779	0.2055587	0.26870889	2.3783806	20	3 18.2	21.4
458835 2011 UA_{30}	17.7	X	171.36157	280.88565	67.08341	2.92150	0.2245208	0.27172385	2.3607548	20	2 13.4	21.5
458836 2011 UK_{30}	17.7	X	143.75493	198.43861	212.78157	5.71747	0.1247195	0.27615968	2.3354068	20	3 27.2	21.0
458837 2011 UH_{40}	18.5	X	204.65357	351.13270	17.57494	6.98713	0.1167845	0.28995281	2.2607428	20	4 5.2	21.7
458838 2011 UP_{41}	18.4	X	254.27268	141.54798	208.66944	6.41862	0.1192392	0.30061142	2.2069834	20	5 5.9	21.2
458839 2011 UV_{42}	18.3	X	201.46984	161.62983	214.37831	3.38237	0.1533187	0.29021799	2.2593655	20	4 10.5	21.8
458840 2011 UW_{45}	17.7	X	112.51867	14.68727	37.90214	5.28409	0.1874337	0.27041843	2.3683462	20	3 4.9	20.7
458841 2011 UA_{53}	17.6	X	126.87968	263.33694	125.51078	3.09309	0.1900939	0.26671170	2.3902391	20	2 18.5	20.9
458842 2011 UT_{53}	17.0	X	281.33572	57.73682	235.11772	10.89707	0.1794864	0.28806996	2.2705831	20	3 7.8	20.4
458843 2011 UB_{55}	18.2	X	98.28500	29.34248	40.10936	3.41160	0.2117870	0.26519577	2.3993392	20	3 12.6	21.1
458844 2011 UZ_{56}	17.8	X	229.95136	134.07245	203.78895	9.78653	0.2477211	0.29181190	2.2511307	20	3 13.6	21.6
458845 2011 UV_{59}	17.9	X	198.30971	122.46071	223.97585	3.21466	0.2345362	0.28055098	2.3109729	20	3 1.1	22.0
458846 2011 UR_{65}	17.2	X	119.74188	281.46246	97.21305	4.25906	0.1381486	0.26470372	2.4023117	20	1 20.6	20.3
458847 2011 UC_{67}	17.7	X	138.13856	277.07556	99.18246	3.50353	0.2093411	0.27012950	2.3700347	20	2 16.9	21.1
458848 2011 UV_{70}	17.4	X	37.82022	56.57632	56.15015	6.94942	0.1411335	0.26219125	2.4176342	20	1 18.5	19.7
458849 2011 UX_{74}	17.9	X	162.32679	350.91047	56.16061	5.79999	0.1502064	0.28352684	2.2947740	20	4 15.0	21.3
458850 2011 UH_{75}	17.9	X	180.24187	242.93238	90.99835	2.78980	0.2326952	0.27398290	2.3477603	20	2 3.4	21.7
458851 2011 UC_{76}	16.5	X	302.63832	285.48162	14.03810	9.44680	0.0634151	0.18105121	3.0945803	20	5 10.3	20.9
458852 2011 UR_{80}	18.5	X	101.37332	49.98548	21.59923	1.49361	0.1633486	0.26844670	2.3799290	20	3 10.6	21.4
458853 2011 UW_{80}	18.4	X	149.44109	149.75269	248.19883	0.35064	0.1878448	0.27590173	2.3368622	20	3 22.7	21.7
458854 2011 UK_{83}	18.4	X	139.04428	180.44635	247.79316	5.14941	0.1141675	0.27928164	2.3179699	20	4 11.7	21.5
458855 2011 UK_{84}	17.9	X	144.79549	26.60969	25.11716	6.81213	0.1349316	0.27605735	2.3359839	20	4 1.3	21.1
458856 2011 UH_{85}	18.1	X	243.57346	352.67911	31.45756	7.41782	0.1522282	0.30132685	2.2034887	20	6 4.1	21.1
458857 2011 UT_{87}	17.5	X	100.11662	19.41688	59.73973	6.29360	0.1463232	0.26726758	2.3869237	20	3 19.8	20.5
458858 2011 UX_{94}	18.3	X	175.16380	86.25669	243.73611	0.25437	0.1988578	0.27175991	2.3605459	20	1 23.1	21.8
458859 2011 UY_{95}	18.1	X	143.76574	351.99812	42.58528	1.15085	0.1936879	0.27625063	2.3348942	20	3 13.9	21.4
458860 2011 UA_{100}	18.2	X	140.70750	212.79246	237.87740	3.70008	0.1782843	0.28490763	2.2873537	20	5 21.1	21.4
458861 2011 UF_{101}	18.6	X	201.23666	207.05873	183.91454	6.01595	0.1012416	0.29386485	2.2406341	20	5 2.9	21.7
458862 2011 UP_{101}	17.4	X	160.37388	192.76732	203.79548	7.56673	0.1206971	0.27806020	2.3247530	20	3 25.7	20.7
458863 2011 UX_{115}	18.2	X	174.13812	24.52515	1.35827	7.01918	0.1375862	0.28382475	2.2931680	20	3 27.4	21.6
458864 2011 UW_{116}	17.9	X	76.06333	168.52873	219.45445	11.93215	0.1632178	0.25208514	2.4818253	20	—	—
458865 2011 UG_{119}	18.5	X	120.27219	45.96673	20.09992	1.25891	0.1638739	0.27652736	2.3333361	20	3 26.1	21.5
458866 2011 UZ_{122}	18.6	X	190.13580	168.75349	157.44680	1.45932	0.2049381	0.27830264	2.3234028	20	1 30.7	22.4
458867 2011 UO_{127}	17.2	X	144.19398	283.00665	74.90805	5.69029	0.2627143	0.26611222	2.3938274	20	2 6.3	21.0
458868 2011 UT_{127}	17.4	X	122.01207	286.60145	75.13223	6.94018	0.1409332	0.25724027	2.4485562	20	1 2.9	20.4
458869 2011 UO_{129}	18.2	X	174.32866	122.49511	267.19920	4.16676	0.1428202	0.28480214	2.2879185	20	3 30.9	21.8
458870 2011 UZ_{129}	17.6	X	117.98848	113.25511	304.96328	5.49333	0.1770256	0.27150323	2.3620335	20	3 12.4	20.7
458871 2011 UM_{132}	18.3	X	160.57492	124.56122	279.98941	4.06636	0.1762004	0.28113332	2.3077805	20	4 7.8	21.9
458872 2011 UL_{135}	17.6	X	152.83384	61.56575	295.29403	5.21910	0.1267787	0.27260594	2.3556594	20	1 28.0	20.9
458873 2011 UO_{137}	18.1	X	179.24978	145.96864	214.76146	2.20644	0.1858677	0.27851407	2.3222267	20	3 2.3	21.6
458874 2011 UJ_{138}	17.3	X	116.22886	51.66164	37.99552	7.37159	0.0836533	0.27636723	2.3342374	20	4 12.2	20.1
458875 2011 UG_{139}	18.5	X	216.17099	131.91522	236.95736	4.48606	0.1797607	0.29022983	2.2593041	20	4 13.7	22.0
458876 2011 UC_{146}	18.2	X	97.66992	196.03793	248.20255	4.84108	0.1918187	0.26738366	2.3862328	20	3 24.6	21.2
458877 2011 UB_{151}	17.7	X	117.22705	11.22341	39.20980	3.25795	0.2158430	0.26884640	2.3775696	20	3 10.7	21.0
458878 2011 UG_{152}	17.8	X	199.43733	210.95061	138.52039	1.56116	0.1852816	0.27927643	2.3179987	20	3 7.2	21.5
458879 2011 UM_{153}	18.3	X	220.26097	289.35482	77.20893	6.49212	0.1915415	0.28894199	2.2660124	20	4 17.9	21.9
458880 2011 UG_{161}	17.8	X	104.32929	201.61431	185.74827	0.94539	0.1954347	0.25958373	2.4337973	20	1 20.7	20.7

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458881 2011 UL_{163}	17.9	*X*	251.02860	100.26406	249.59884	6.45693	0.1888982	0.29553992	2.2321598	20	4 21.5	21.1
458882 2011 UV_{163}	17.9	*X*	84.93397	206.71356	238.46254	4.59788	0.1827961	0.26326141	2.4110779	20	3 6.6	20.7
458883 2011 UE_{164}	16.9	*X*	155.05627	297.42976	90.30530	7.58325	0.1167530	0.27603904	2.3360871	20	3 13.5	20.3
458884 2011 UZ_{164}	17.6	*X*	185.02793	183.65997	170.66506	5.48567	0.2506961	0.27857210	2.3219042	20	3 1.9	21.7
458885 2011 UU_{166}	17.5	*X*	131.87093	279.63535	127.81535	8.77568	0.1870269	0.27459621	2.3442631	20	3 20.7	20.9
458886 2011 UU_{173}	17.3	*X*	122.44910	16.24345	31.16922	8.08445	0.1111132	0.26724277	2.3870714	20	3 1.2	20.5
458887 2011 US_{174}	18.0	*X*	106.10746	274.66456	140.62352	6.22012	0.1122224	0.26388785	2.4072607	20	2 16.3	20.9
458888 2011 UQ_{175}	17.2	*X*	159.01021	85.24533	263.40909	5.90994	0.1353269	0.26725877	2.3869761	20	1 24.9	20.6
458889 2011 UH_{177}	18.3	*X*	216.72774	116.72969	234.99594	6.22343	0.1287736	0.28555063	2.2839187	20	3 23.7	21.7
458890 2011 UM_{178}	18.1	*X*	233.06672	210.32742	110.38818	3.56700	0.1809261	0.28199529	2.3030754	20	3 1.9	21.8
458891 2011 UG_{179}	17.5	*X*	87.52103	358.57942	69.21273	8.34866	0.1799334	0.26201253	2.4187335	20	2 21.7	20.4
458892 2011 UQ_{182}	17.2	*X*	78.93982	99.63558	250.08969	12.88389	0.1318220	0.23861122	2.5743967	20	—	—
458893 2011 UG_{185}	17.5	*X*	105.10473	295.61122	137.21403	5.99521	0.1377987	0.27109490	2.3644047	20	3 14.4	20.3
458894 2011 UU_{187}	17.3	*X*	177.59604	268.70618	83.41728	8.30691	0.1568531	0.27606708	2.3359290	20	2 22.2	21.0
458895 2011 UQ_{195}	18.3	*X*	97.49926	141.86709	320.75304	3.93089	0.1139638	0.27607310	2.3358950	20	4 6.3	21.2
458896 2011 UZ_{198}	17.9	*X*	147.29278	294.09832	92.90669	2.62671	0.1979600	0.27187489	2.3598804	20	3 9.4	21.5
458897 2011 UV_{201}	18.3	*X*	42.32642	70.26917	72.60953	3.30164	0.1615389	0.26619273	2.3933447	20	3 14.9	20.3
458898 2011 UT_{202}	18.1	*X*	176.09103	216.03549	143.59850	1.52230	0.2062810	0.27479957	2.3431064	20	2 29.5	21.9
458899 2011 UW_{202}	18.2	*X*	105.28519	251.64368	174.32062	1.93348	0.1080344	0.26672574	2.3901551	20	2 28.1	21.1
458900 2011 UT_{203}	18.1	*X*	121.92359	261.99150	181.46965	1.84332	0.1742048	0.27546637	2.3393237	20	4 21.9	21.2
458901 2011 UZ_{203}	18.4	*X*	93.51500	26.34584	89.36171	2.14336	0.1353671	0.27534684	2.3400007	20	4 25.7	21.1
458902 2011 UA_{204}	18.3	*X*	135.68163	217.63345	191.62145	1.91588	0.1839641	0.27260199	2.3556822	20	3 23.3	21.5
458903 2011 US_{204}	18.3	*X*	71.51249	285.07147	199.49362	2.02584	0.1592511	0.26992470	2.3712334	20	4 8.5	20.8
458904 2011 UP_{205}	17.8	*X*	123.62874	354.82477	58.37850	6.89505	0.1122007	0.27292950	2.3537973	20	3 9.9	20.9
458905 2011 UE_{230}	18.0	*X*	122.54083	252.61879	113.71210	2.20523	0.1973999	0.26371308	2.4083241	20	1 16.4	21.1
458906 2011 UW_{234}	17.4	*X*	22.85903	318.72738	230.91816	22.53783	0.1993264	0.27896907	2.3197010	20	4 10.1	19.5
458907 2011 UL_{236}	18.2	*X*	129.23491	211.87330	240.72335	3.96471	0.1965496	0.28199850	2.3030579	20	5 13.5	21.5
458908 2011 UF_{239}	18.5	*X*	191.73617	356.77534	29.41899	3.41662	0.1673845	0.28598605	2.2815999	20	4 15.1	22.0
458909 2011 UY_{239}	18.6	*X*	104.33097	209.89376	225.80375	4.08592	0.2028047	0.26860555	2.3789906	20	3 24.1	21.6
458910 2011 UJ_{240}	17.7	*X*	257.17807	278.97600	33.08520	8.57872	0.1695888	0.28895829	2.2659271	20	3 16.4	21.0
458911 2011 UK_{240}	18.1	*X*	307.77113	268.30990	31.54205	4.66473	0.1763461	0.30146966	2.2027928	20	4 28.1	20.3
458912 2011 UQ_{240}	18.3	*X*	71.25224	57.30861	41.32079	2.47789	0.1039984	0.26595096	2.3947950	20	2 23.6	20.8
458913 2011 UO_{249}	18.3	*X*	98.10010	223.90832	222.34647	3.73808	0.1113118	0.26944598	2.3740411	20	3 15.9	21.1
458914 2011 UY_{251}	18.6	*X*	90.13185	256.32905	124.92663	2.84290	0.2475079	0.25212163	2.4815859	20	1 1.1	21.2
458915 2011 UH_{252}	17.7	*X*	138.84913	299.45873	86.39015	4.52083	0.2073521	0.26801023	2.3825122	20	3 1.8	21.3
458916 2011 UO_{267}	18.0	*X*	162.73638	34.53040	337.17786	3.37250	0.1800280	0.27372859	2.3492141	20	3 1.8	21.7
458917 2011 UV_{274}	18.4	*X*	264.08350	71.97524	257.83280	3.44675	0.0875451	0.29375981	2.2411682	20	4 22.5	21.1
458918 2011 UP_{277}	18.2	*X*	171.80478	122.23784	270.05595	4.56720	0.1723956	0.28023086	2.3127326	20	4 2.2	21.8
458919 2011 UO_{278}	18.7	*X*	111.29874	64.34751	355.06767	1.78100	0.1823479	0.26629954	2.3927047	20	3 9.8	21.8
458920 2011 UH_{279}	17.5	*X*	187.57653	322.16390	46.33933	5.74600	0.2633149	0.28111534	2.3078789	20	3 23.8	21.5
458921 2011 UL_{279}	17.6	*X*	209.74773	292.73841	48.79415	7.74134	0.1468578	0.27730710	2.3289601	20	3 10.4	21.3
458922 2011 UQ_{280}	18.1	*X*	117.91277	170.01590	265.16886	4.48385	0.1852647	0.27535742	2.3399408	20	4 4.9	21.4
458923 2011 UD_{281}	18.0	*X*	158.81039	236.99709	129.49200	6.60823	0.2492483	0.27401850	2.3475569	20	2 26.9	21.8
458924 2011 UD_{282}	18.2	*X*	63.76312	83.54801	350.74909	2.77279	0.1773605	0.25666104	2.4522387	20	1 16.9	20.4
458925 2011 UC_{283}	17.6	*X*	154.62361	296.67459	81.22701	5.46771	0.1439446	0.27167195	2.3610554	20	3 1.8	21.1
458926 2011 UE_{283}	17.5	*X*	130.47121	274.05667	111.76561	3.77648	0.1010026	0.26582821	2.3955321	20	2 7.2	20.6
458927 2011 UO_{283}	17.5	*X*	13.96080	298.57335	142.33875	4.15033	0.1242592	0.24232227	2.5480454	20	—	—
458928 2011 UF_{284}	18.5	*X*	152.30976	114.15490	293.01944	1.83714	0.2269504	0.27707180	2.3302785	20	4 8.0	22.3
458929 2011 UM_{295}	18.1	*X*	198.02990	133.07511	238.92770	6.09209	0.1224067	0.28646385	2.2790621	20	3 31.3	21.6
458930 2011 UW_{296}	18.1	*X*	167.52804	175.99060	203.71167	3.62217	0.2600045	0.27931851	2.3177659	20	3 19.3	22.1
458931 2011 UE_{299}	17.9	*X*	172.80315	311.40533	59.98050	6.35481	0.1473486	0.27579383	2.3374716	20	3 12.4	21.5
458932 2011 UV_{301}	18.0	*X*	112.40731	259.39195	96.83055	2.98586	0.1928557	0.25493575	2.4632901	20	—	—
458933 2011 US_{313}	18.3	*X*	132.82739	25.27526	62.36421	5.66644	0.1035077	0.28327717	2.2961222	20	5 2.4	21.2
458934 2011 UJ_{316}	18.2	*X*	97.41561	67.11619	31.72010	1.74636	0.1427048	0.27278909	2.3546049	20	4 7.9	21.1
458935 2011 UX_{318}	18.3	*X*	69.41525	292.41200	215.21775	5.08542	0.0968574	0.27735165	2.3287107	20	4 28.4	20.9
458936 2011 UW_{321}	18.1	*X*	144.48975	283.04951	126.37095	7.22893	0.2650631	0.27772816	2.3266056	20	4 11.0	22.0
458937 2011 UK_{323}	18.1	*X*	186.05356	78.06865	275.40577	1.02890	0.2270604	0.27963034	2.3160425	20	2 29.9	22.0
458938 2011 UG_{324}	18.5	*X*	127.75139	309.37531	109.43375	2.12282	0.1733857	0.27535102	2.3399770	20	3 27.2	21.7
458939 2011 UO_{333}	17.3	*X*	153.52885	299.22405	93.46317	7.85608	0.1659189	0.27874157	2.3209630	20	3 22.5	20.9
458940 2011 UZ_{334}	17.7	*X*	176.40844	336.16649	23.99017	5.67926	0.1253250	0.27636184	2.3342677	20	2 28.3	21.1
458941 2011 UX_{336}	18.2	*X*	206.43804	299.15321	69.80520	5.71425	0.2167118	0.29172987	2.2515527	20	4 7.9	21.9
458942 2011 UC_{337}	17.3	*X*	182.62247	229.94418	116.86370	5.65360	0.1505605	0.27753960	2.3276593	20	2 17.6	20.8
458943 2011 UR_{337}	18.4	*X*	145.99705	324.55963	72.99340	3.98478	0.2039078	0.27939673	2.3173333	20	3 22.3	21.9
458944 2011 UW_{337}	17.9	*X*	355.26587	23.91416	33.86553	5.33052	0.2164639	0.23452181	2.6042373	20	—	—
458945 2011 UR_{340}	18.0	*X*	136.57187	334.84317	30.90048	5.45185	0.1351168	0.26786147	2.3833942	20	1 24.8	21.2
458946 2011 UC_{341}	18.4	*X*	136.49926	175.81894	217.86044	4.33617	0.1836564	0.27202272	2.3590253	20	3 2.5	21.7
458947 2011 UG_{344}	17.8	*X*	164.95193	336.23378	26.26755	3.51475	0.1452547	0.27479966	2.3431059	20	2 20.3	21.3
458948 2011 UJ_{352}	17.5	*X*	343.59825	81.18040	12.42575	7.70700	0.1092893	0.23757005	2.5819129	20	—	—
458949 2011 UB_{369}	18.1	*X*	105.13083	171.06901	238.81088	4.51234	0.2178654	0.26317477	2.4116071	20	2 21.6	21.1
458950 2011 UH_{377}	18.2	*X*	172.47368	81.74143	318.07756	1.72221	0.2101481	0.28312977	2.2969190	20	4 15.2	21.9
458951 2011 UH_{379}	18.3	*X*	108.02227	40.21039	15.25450	2.61233	0.1627061	0.26511061	2.3998530	20	2 27.4	21.3
458952 2011 US_{379}	17.3	*X*	347.10683	16.72685	76.69662	14.03594	0.1503378	0.23505630	2.6002880	20	—	—
458953 2011 UH_{381}	17.8	*X*	215.55337	109.25565	192.40238	3.45997	0.1064572	0.27442492	2.3452385	20	1 21.7	21.4
458954 2011 UW_{391}	18.6	*X*	190.30557	303.00848	89.72898	5.62872	0.2307431	0.29031286	2.2588733	20	4 24.3	22.4
458955 2011 UU_{396}	17.8	*X*	173.82740	114.51699	221.80251	1.53089	0.2355084	0.27244797	2.3565699	20	1 31.2	21.8
458956 2011 UX_{398}	17.2	*X*	205.63285	301.47140	2.56045	14.86186	0.0230391	0.26474491	2.4020625	20	1 19.5	20.7
458957 2011 UC_{404}	17.6	*X*	3.02267	209.79049	59.07798	7.61071	0.1471143	0.29999265	2.2100171	20	7 13.5	19.3
458958 2011 UY_{404}	17.4	*X*	227.91093	165.46888	148.77067	4.23044	0.1443900	0.28306275	2.2972816	20	2 17.9	20.9
458959 2011 UE_{407}	18.2	*X*	98.31049	56.85511	359.19305	1.39457	0.1715640	0.26913395	2.3758758	20	2 15.2	20.8
458960 2011 VY	17.2	*X*	127.39211	104.70678	308.31677	6.16039	0.1006103	0.27359754	2.3499642	20	3 6.4	20.3

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Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
458961 2011 VT_{12}	18.0	X	152.01394	283.83211	128.26713	3.21237	0.1963485	0.27960241	2.3161967	20	4 14.4	21.5
458962 2011 VE_{21}	18.1	X	345.11975	195.87728	73.95442	7.24908	0.0609177	0.29703783	2.2246492	20	6 5.2	20.2
458963 2011 VN_{22}	18.2	X	354.70071	28.42051	96.72394	4.61479	0.1780947	0.24415225	2.5352973	20	—	—
458964 2011 WM_{2}	20.3	X	156.09959	315.29062	57.50701	15.87245	0.2876904	0.50614145	1.5593901	20	2 22.4	22.2
458965 2011 WS_{8}	17.8	X	55.43277	161.10377	42.14192	3.60168	0.1142025	0.29358037	2.2420814	20	7 2.7	20.1
458966 2011 WA_{14}	18.1	X	118.16971	158.74572	261.72420	0.51008	0.1683107	0.26897782	2.3767951	20	3 16.9	21.2
458967 2011 WB_{17}	18.3	X	190.42479	289.18081	69.00623	3.25353	0.2048384	0.27748446	2.3279677	20	3 12.0	22.0
458968 2011 WK_{17}	17.4	X	181.03749	289.76609	70.64518	7.44855	0.1657917	0.27369337	2.3494157	20	3 7.9	21.2
458969 2011 WR_{18}	18.2	X	111.97718	39.56193	48.66854	5.64865	0.1536082	0.27923735	2.3182150	20	4 14.7	21.1
458970 2011 WW_{23}	17.7	X	279.45773	255.22686	63.53853	7.59297	0.1776967	0.29388218	2.2405461	20	4 17.7	20.6
458971 2011 WK_{24}	18.1	X	132.78508	339.28758	70.55949	4.13565	0.1862692	0.26962775	2.3729741	20	3 23.9	21.5
458972 2011 WZ_{24}	16.8	X	72.71706	332.01008	91.57918	6.80280	0.0730705	0.25770691	2.4455995	20	1 4.8	19.4
458973 2011 WT_{36}	18.0	X	137.51662	323.64493	61.29814	1.60433	0.2058936	0.26975143	2.3722487	20	2 26.6	21.4
458974 2011 WG_{56}	18.2	X	80.56402	48.59335	61.72117	4.13868	0.2151012	0.26762588	2.3847928	20	4 13.7	20.8
458975 2011 WO_{57}	18.7	X	103.17064	347.84830	102.95962	2.21917	0.1514335	0.27090683	2.3654989	20	4 7.1	21.6
458976 2011 WV_{60}	18.4	X	158.87441	240.81626	207.34294	2.33644	0.1465953	0.28760655	2.2730215	20	6 3.6	21.7
458977 2011 WE_{62}	18.6	X	94.33365	310.81903	147.78879	2.68835	0.1623163	0.26962756	2.3729751	20	4 7.7	21.5
458978 2011 WV_{63}	17.3	X	210.69525	269.98999	61.69788	11.66172	0.2814313	0.27809134	2.3245795	20	2 28.9	21.7
458979 2011 WG_{68}	16.8	X	48.66365	323.75356	112.19515	10.81502	0.0770910	0.23691540	2.5866670	20	—	—
458980 2011 WT_{69}	18.0	X	204.56163	11.43533	351.34743	2.51839	0.1985936	0.28386607	2.2929455	20	3 27.2	21.7
458981 2011 WJ_{70}	17.9	X	153.96213	356.87490	32.35443	3.07238	0.2330941	0.27500534	2.3419375	20	3 20.4	21.7
458982 2011 WU_{70}	18.0	X	138.06995	10.68150	20.79675	2.84490	0.1961500	0.26901529	2.3765743	20	3 5.6	21.4
458983 2011 WF_{71}	17.8	X	209.55636	126.68936	257.97145	5.84031	0.1219377	0.28797878	2.2710623	20	4 30.2	21.2
458984 2011 WP_{71}	17.3	X	91.23354	59.64613	64.29762	21.70070	0.1218004	0.27675520	2.3320554	20	5 6.5	20.3
458985 2011 WC_{72}	17.0	X	269.87952	230.71588	59.28115	10.86563	0.1751278	0.27673694	2.3321579	20	3 4.1	20.6
458986 2011 WT_{72}	17.9	X	175.64590	11.42246	16.49139	4.32706	0.1898541	0.27937099	2.3174756	20	4 3.3	21.4
458987 2011 WZ_{82}	18.4	X	98.70876	202.87757	231.71150	6.39570	0.0840424	0.26619733	2.3933172	20	2 24.0	21.4
458988 2011 WP_{93}	18.2	X	103.52143	352.40123	101.38866	2.51872	0.1386782	0.27163979	2.3612418	20	4 9.8	21.2
458989 2011 WP_{105}	17.3	X	329.92629	178.85896	270.08936	2.89788	0.0585286	0.22792569	2.6542421	20	—	—
458990 2011 WR_{112}	17.6	X	121.87324	141.95814	266.28156	10.22750	0.1789493	0.26668824	2.3903792	20	3 1.4	21.2
458991 2011 WZ_{112}	17.2	X	132.88737	305.10422	105.92112	9.23084	0.2615506	0.27201729	2.3590567	20	4 4.5	21.1
458992 2011 WJ_{115}	17.6	X	127.85187	304.43328	121.34565	5.48527	0.2494887	0.27247855	2.3563936	20	4 15.3	21.2
458993 2011 WY_{115}	18.2	X	60.64607	340.14437	70.67840	4.16896	0.1500772	0.24710474	2.5150618	20	—	—
458994 2011 WV_{126}	18.6	X	165.92781	148.18129	256.56664	4.56800	0.2171220	0.28170330	2.3046665	20	4 15.4	22.4
458995 2011 WG_{132}	18.6	X	129.72547	238.07141	183.14019	1.87239	0.1944960	0.27239039	2.3569020	20	4 3.1	21.9
458996 2011 WB_{134}	18.4	X	109.14080	91.28179	338.87118	0.75195	0.1637919	0.26819603	2.3814117	20	3 18.3	21.4
458997 2011 WC_{134}	17.7	X	249.29328	268.96335	70.40609	7.13682	0.1709752	0.28821378	2.2698277	20	4 12.6	21.0
458998 2011 WO_{137}	18.8	X	136.43542	58.32269	341.26680	0.92367	0.1895427	0.26886371	2.3774675	20	3 12.6	22.0
458999 2011 WA_{141}	18.0	X	82.29252	71.60524	34.06291	5.30873	0.1089498	0.26708012	2.3880404	20	3 23.2	20.6
459000 2011 WY_{143}	15.7	X	240.78932	130.50547	229.74971	11.03176	0.0717662	0.17869228	3.1217553	20	5 11.5	20.1
459001 2011 WW_{144}	18.4	X	116.85013	72.77533	0.58976	1.13970	0.1617186	0.26968958	2.3726113	20	3 31.7	21.7
459002 2011 WY_{144}	17.2	X	91.39319	232.95822	282.22719	5.11952	0.0631290	0.28520840	2.2857453	20	6 5.7	19.9
459003 2011 WH_{146}	18.0	X	122.41268	12.53864	79.03652	7.33473	0.0635024	0.27713437	2.3299278	20	4 21.9	21.0
459004 2011 WL_{151}	17.3	X	123.24466	114.42017	303.00459	12.89470	0.1778696	0.27289651	2.3539870	20	3 13.0	20.8
459005 2011 WO_{152}	17.5	X	142.87978	126.81938	284.74301	6.89478	0.1909095	0.27668831	2.3324312	20	3 30.3	21.2
459006 2011 WG_{153}	18.4	X	142.73612	319.35652	141.07350	9.99527	0.1291934	0.28621102	2.2804041	20	6 3.9	21.8
459007 2011 XB_{2}	18.1	X	130.14105	145.19209	279.22771	5.04511	0.2179957	0.27163101	2.3612927	20	4 7.4	21.8
459008 2011 YQ_{3}	16.5	X	25.85690	33.42284	58.47884	12.34274	0.1200049	0.24135863	2.5548231	20	—	—
459009 2011 YY_{3}	16.8	X	334.27700	205.28530	240.16694	12.08711	0.1278514	0.21940640	2.7225124	20	—	—
459010 2011 YB_{8}	17.6	X	98.58724	313.21944	120.67448	7.73251	0.0833112	0.25797789	2.4438866	20	2 29.3	20.6
459011 2011 YJ_{8}	18.0	X	91.59933	304.05672	144.87953	1.66976	0.1615643	0.26064253	2.4272017	20	3 21.5	21.0
459012 2011 YJ_{9}	17.5	X	45.68394	257.57872	254.20454	6.26731	0.0612025	0.26975141	2.3722488	20	3 18.9	20.3
459013 2011 YM_{18}	17.2	X	324.76461	39.34009	224.69777	6.05199	0.1039255	0.28405138	2.2919481	20	4 15.3	19.5
459014 2011 YY_{22}	18.3	X	84.44136	42.98660	35.26684	2.91967	0.1789470	0.25530425	2.4609192	20	2 29.5	21.1
459015 2011 YS_{23}	17.6	X	65.97051	212.48656	307.95811	4.47143	0.1597467	0.26860487	2.3789946	20	5 21.7	20.2
459016 2011 YX_{24}	18.3	X	106.57445	320.00419	100.92656	4.12135	0.1707168	0.25766754	2.4458486	20	3 6.9	21.4
459017 2011 YY_{24}	15.9	X	103.21837	232.59498	108.57391	18.55897	0.2365174	0.23264170	2.6182494	20	—	—
459018 2011 YR_{25}	17.0	X	306.44640	259.42179	296.60190	10.02355	0.1172589	0.23871999	2.5736146	20	—	—
459019 2011 YU_{25}	17.0	X	358.57769	207.56567	293.52279	13.00298	0.1064684	0.24049605	2.5609283	20	—	—
459020 2011 YX_{25}	16.9	X	38.45944	322.00919	113.62244	13.93315	0.1246156	0.23644295	2.5901115	20	—	—
459021 2011 YS_{32}	17.3	X	65.37481	199.93649	211.00724	2.96791	0.1892944	0.24313918	2.5423349	20	—	—
459022 2011 YJ_{33}	17.5	X	48.62347	41.43745	159.85939	4.58395	0.1375802	0.27459951	2.3442443	20	6 21.0	19.9
459023 2011 YO_{34}	18.2	X	130.48672	326.78402	78.95833	3.84596	0.1700978	0.26154821	2.4215952	20	3 14.9	21.6
459024 2011 YC_{35}	17.6	X	103.60071	105.92838	320.62275	5.09604	0.1962422	0.25830493	2.4418234	20	3 10.8	20.8
459025 2011 YT_{35}	17.4	X	53.59910	308.80389	93.56734	3.99949	0.2008480	0.23488274	2.6015688	20	—	—
459026 2011 YA_{41}	17.9	X	196.55217	97.04650	295.72916	5.42167	0.0941545	0.28518165	2.2858883	20	4 26.7	21.2
459027 2011 YK_{43}	17.4	X	62.97516	326.95606	97.40219	1.51516	0.0824855	0.24345047	2.5401672	20	—	—
459028 2011 YM_{43}	17.3	X	68.63956	205.46914	289.09151	6.20482	0.0705603	0.26504363	2.4002573	20	3 31.9	20.3
459029 2011 YU_{44}	17.9	X	75.02766	317.15484	147.14706	2.88982	0.1580408	0.25697037	2.4502704	20	3 17.9	20.5
459030 2011 YH_{46}	17.4	X	75.18086	4.52505	41.80291	5.03561	0.2160152	0.24370169	2.5384212	20	1 7.5	19.9
459031 2011 YS_{46}	17.4	X	77.01138	3.76856	83.12977	6.11565	0.1524237	0.25333138	2.4736793	20	2 27.5	20.2
459032 2011 YS_{48}	17.4	X	173.01527	324.81867	84.79726	10.68463	0.0880316	0.28340335	2.2954406	20	4 29.6	20.7
459033 2011 YS_{53}	17.7	X	298.14408	92.23733	122.92976	11.01088	0.0739640	0.24405028	2.5360035	20	1 11.7	21.2
459034 2011 YV_{59}	17.9	X	33.63047	317.05795	259.19359	1.57643	0.1501961	0.27248874	2.3563349	20	6 18.5	20.1
459035 2011 YD_{61}	16.6	X	97.21526	85.90717	294.37771	27.01460	0.2333607	0.24116530	2.5561883	20	1 12.0	19.5
459036 2011 YS_{64}	17.3	X	310.75740	90.11828	61.67168	6.06377	0.0565536	0.23338763	2.6126676	20	—	—
459037 2011 YY_{64}	17.5	X	156.19725	297.63985	106.06813	4.55776	0.1368794	0.26959030	2.3731938	20	4 4.9	21.0
459038 2011 YF_{66}	17.7	X	157.90230	28.65216	349.57449	4.60894	0.1457580	0.26031675	2.4292263	20	3 4.3	21.2
459039 2011 YD_{77}	16.4	X	122.05362	246.74048	109.45619	13.56444	0.3289767	0.24495791	2.5297352	20	1 23.1	20.1
459040 2011 YX_{77}	17.1	X	335.60336	181.57262	282.67864	7.68204	0.1608965	0.22411559	2.6842399	20	—	—

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
459041 2011 YV_{78}	17.3	X	62.05916	174.45281	359.24126	5.80589	0.0564315	0.27097391	2.3651085	20	5 17.1	20.1
459042 2011 YY_{78}	16.8	X	272.89813	0.50449	291.23481	13.65521	0.1098057	0.26334431	2.4105719	20	3 5.3	20.4
459043 2012 AU_{1}	17.8	X	38.81078	263.19187	292.58269	4.61465	0.1651765	0.26835396	2.3804773	20	5 28.4	20.0
459044 2012 AB_{9}	17.2	X	79.16603	268.37386	132.70823	15.47617	0.1386338	0.23991063	2.5650927	20	—	—
459045 2012 AY_{9}	17.0	X	40.15781	209.24769	304.55569	6.28875	0.0749158	0.26321743	2.4113465	20	3 14.9	19.7
459046 2012 AS_{10}	17.1	X	285.91143	194.89263	50.95051	12.50003	0.4868070	0.48828408	1.5971817	20	—	—
459047 2012 AL_{13}	17.6	X	23.95181	43.39764	125.62699	2.18394	0.1229466	0.25644944	2.4535875	20	3 15.8	19.8
459048 2012 AJ_{14}	16.6	X	267.93477	264.90662	311.96272	10.29394	0.1137599	0.22732712	2.6588992	20	—	—
459049 2012 AW_{17}	17.5	X	49.37475	24.69760	136.32493	3.08957	0.1473792	0.25934503	2.4352904	20	4 24.5	19.8
459050 2012 AF_{22}	17.1	X	23.77145	51.70207	55.69294	12.75914	0.1403154	0.24093865	2.5577911	20	—	—
459051 2012 BF_{4}	17.4	X	42.33656	221.30671	282.15342	4.28955	0.0719939	0.25760932	2.4462171	20	3 5.2	20.1
459052 2012 BE_{7}	17.9	X	19.20316	89.78163	106.55092	2.54867	0.1419218	0.26209606	2.4182195	20	4 17.7	20.0
459053 2012 BR_{8}	16.9	X	25.24870	134.15607	118.91340	24.46324	0.1362184	0.27761281	2.3272500	20	7 29.9	19.2
459054 2012 BS_{8}	17.2	X	78.64976	42.02772	82.75525	8.73780	0.2009797	0.25986360	2.4320495	20	5 1.3	20.2
459055 2012 BB_{12}	17.3	X	357.93304	93.79994	62.76355	3.48903	0.1280778	0.24334737	2.5408846	20	1 11.9	20.2
459056 2012 BD_{16}	17.2	X	51.99877	208.27214	308.27101	9.57943	0.0908525	0.26129989	2.4231292	20	4 7.0	20.1
459057 2012 BL_{17}	17.2	X	95.37576	221.38444	150.72665	9.19229	0.0944047	0.22737976	2.6584889	20	—	—
459058 2012 BW_{17}	16.7	X	98.62744	79.35995	10.75975	9.07211	0.0920722	0.25743369	2.4473296	20	3 22.6	19.6
459059 2012 BL_{18}	17.0	X	65.50766	133.47543	308.60855	11.97644	0.1282960	0.24226725	2.5484312	20	1 28.2	19.7
459060 2012 BO_{18}	17.8	X	30.97159	29.93637	151.26363	6.71491	0.1458656	0.25657857	2.4527642	20	4 20.8	20.2
459061 2012 BP_{20}	18.1	X	49.55911	325.37727	160.90859	1.58235	0.1429366	0.25220937	2.4810103	20	3 2.5	20.2
459062 2012 BU_{21}	17.2	X	18.20829	182.39324	278.66463	11.81715	0.1191351	0.23722116	2.5844438	20	—	—
459063 2012 BB_{22}	17.5	X	39.34890	232.48967	277.83120	6.01443	0.0699569	0.25696213	2.4503228	20	3 8.9	20.4
459064 2012 BA_{24}	17.4	X	33.28554	160.45088	48.11029	5.78650	0.2013757	0.26312010	2.4119411	20	6 12.6	19.4
459065 2012 BS_{24}	17.2	X	122.33431	264.09006	141.25370	6.53556	0.1208382	0.25519802	2.4616021	20	2 27.0	20.5
459066 2012 BG_{27}	17.2	X	49.75832	241.44669	255.21214	7.37552	0.1725617	0.25613500	2.4555951	20	3 16.8	19.7
459067 2012 BT_{27}	17.2	X	37.43547	227.75752	298.75819	3.93505	0.0681103	0.25969572	2.4330975	20	3 29.7	20.0
459068 2012 BM_{29}	17.4	X	45.64205	180.26557	309.23401	3.06432	0.1603333	0.25357176	2.4721157	20	2 29.1	19.7
459069 2012 BB_{30}	17.3	X	354.35914	126.17456	276.13844	7.74559	0.1789304	0.21587903	2.7520886	20	12 29.9	20.2
459070 2012 BO_{32}	17.0	X	73.13514	133.33821	317.39768	9.09635	0.1106437	0.25268658	2.4778857	20	2 16.4	19.8
459071 2012 BZ_{35}	17.7	X	104.29017	286.57397	138.13035	4.67999	0.1331678	0.25666386	2.4522208	20	3 2.4	20.6
459072 2012 BQ_{36}	17.0	X	296.04610	284.74077	285.29522	10.91018	0.1367088	0.24088625	2.5581620	20	—	—
459073 2012 BH_{41}	17.7	X	24.46299	343.68599	104.46890	4.22352	0.1441968	0.23548698	2.5971166	20	—	—
459074 2012 BN_{47}	17.3	X	245.90779	97.87451	85.87999	5.99277	0.0903166	0.21380164	2.7698869	20	—	—
459075 2012 BJ_{50}	17.8	X	339.36591	226.46641	269.87433	1.38309	0.0493661	0.23425408	2.6062212	20	—	—
459076 2012 BS_{51}	17.5	X	76.88008	271.23825	137.63556	9.16712	0.1614045	0.23912165	2.5707319	20	1 6.2	20.3
459077 2012 BB_{52}	17.0	X	309.79101	244.68861	306.97936	10.71271	0.1425795	0.23310167	2.6148039	20	—	—
459078 2012 BW_{52}	16.6	X	30.36010	114.82407	332.00034	21.54708	0.0350273	0.22809767	2.6529078	20	—	—
459079 2012 BQ_{53}	17.5	X	334.38358	31.46157	137.48198	12.70115	0.2355625	0.23327617	2.6134997	20	—	—
459080 2012 BH_{54}	16.4	X	234.10786	284.16850	332.17984	11.13456	0.0389988	0.22973109	2.6403178	20	—	—
459081 2012 BO_{55}	16.3	X	249.81266	256.12766	350.21462	13.17436	0.1240281	0.22718257	2.6600270	20	—	—
459082 2012 BQ_{57}	18.0	X	63.85001	206.93222	286.80223	5.16955	0.0913421	0.26171460	2.4205687	20	3 27.1	20.8
459083 2012 BZ_{57}	17.2	X	251.36932	66.64656	125.34832	8.73541	0.1509437	0.21971452	2.7199664	20	—	—
459084 2012 BY_{62}	17.1	X	30.39385	233.93965	151.92518	5.12437	0.1194783	0.21925884	2.7237337	20	—	—
459085 2012 BU_{63}	18.0	X	57.50964	39.19955	153.53350	3.14696	0.1514172	0.27307099	2.3529842	20	6 25.3	20.5
459086 2012 BJ_{69}	17.5	X	99.17271	76.02320	316.40461	14.24854	0.1349376	0.24201360	2.5502115	20	1 16.4	20.7
459087 2012 BB_{71}	18.2	X	104.99643	94.37018	327.81088	1.85334	0.1900349	0.25489106	2.4635780	20	3 7.5	21.4
459088 2012 BK_{74}	17.2	X	138.06427	122.82734	282.70299	12.72131	0.1603991	0.26099904	2.4249909	20	3 12.3	21.0
459089 2012 BL_{81}	17.2	X	354.59130	109.33628	123.15854	14.90396	0.1487001	0.26333782	2.4106115	20	4 29.0	19.8
459090 2012 BP_{82}	17.7	X	79.03958	170.46402	317.20047	4.15595	0.1264244	0.26211819	2.4180834	20	4 17.8	20.6
459091 2012 BX_{83}	17.9	X	339.31933	121.22953	109.56193	8.08311	0.0334742	0.26188083	2.4195443	20	4 6.5	20.9
459092 2012 BC_{85}	18.0	X	57.20933	61.70238	348.84478	2.77119	0.1658959	0.23494264	2.6011266	20	—	—
459093 2012 BM_{88}	17.7	X	343.95707	224.32517	2.14474	4.93346	0.1339734	0.25818757	2.4425633	20	3 23.2	19.9
459094 2012 BO_{88}	17.7	X	111.93866	79.24143	343.70973	5.98998	0.1501115	0.25646408	2.4534941	20	3 11.0	21.0
459095 2012 BR_{88}	17.5	X	126.78715	358.56000	34.14184	3.60785	0.2124311	0.25418012	2.4681696	20	2 28.4	21.1
459096 2012 BA_{89}	17.8	X	51.21146	91.43453	343.37265	4.51115	0.1992993	0.24084932	2.5584235	20	—	—
459097 2012 BJ_{89}	17.0	X	355.36099	336.89225	123.73943	22.76092	0.0450681	0.22514694	2.6760364	20	—	—
459098 2012 BE_{93}	17.8	X	353.97516	89.20407	355.80935	4.42305	0.0775969	0.22160449	2.7044794	20	—	—
459099 2012 BR_{98}	17.8	X	52.73436	276.08954	126.73641	6.01711	0.1244187	0.22967292	2.6407636	20	—	—
459100 2012 BP_{100}	17.8	X	307.03380	241.57821	316.03380	8.54750	0.0831012	0.23776886	2.5804735	20	1 1.3	21.4
459101 2012 BU_{100}	17.4	X	358.67381	173.69356	121.53078	5.76679	0.1171070	0.28763007	2.2728976	20	8 14.0	19.3
459102 2012 BS_{104}	17.7	X	56.11931	31.11978	144.27559	3.04895	0.1037720	0.26800571	2.3825390	20	5 20.5	20.4
459103 2012 BX_{104}	16.8	X	305.59589	225.51142	322.73589	9.79111	0.0888891	0.23222273	2.6213976	20	—	—
459104 2012 BO_{105}	17.7	X	19.33279	67.55296	100.74837	14.47986	0.1712202	0.25049981	2.4922854	20	3 13.3	20.3
459105 2012 BM_{107}	17.5	X	81.71121	262.67631	102.29242	9.02529	0.1064798	0.22555203	2.6728313	20	—	—
459106 2012 BF_{108}	17.4	X	116.30919	33.10499	314.73885	8.36751	0.1071591	0.23016752	2.6369791	20	—	—
459107 2012 BW_{108}	17.6	X	92.57841	318.17992	115.87147	9.25503	0.1759966	0.25257390	2.4786226	20	3 8.8	20.7
459108 2012 BB_{112}	17.7	X	47.85082	296.78579	148.89725	9.97745	0.1751638	0.23881890	2.5729040	20	1 4.9	20.2
459109 2012 BS_{116}	18.0	X	87.11129	236.93724	156.99978	1.95674	0.2119230	0.24157720	2.5532818	20	1 10.1	20.8
459110 2012 BY_{116}	17.6	X	60.71474	132.70146	298.93167	4.05311	0.1702937	0.24230505	2.5481661	20	1 9.7	20.1
459111 2012 BS_{117}	17.5	X	16.48100	235.99364	306.26829	3.53105	0.0810874	0.25688761	2.4507966	20	3 18.6	20.2
459112 2012 BW_{117}	17.5	X	252.71016	98.09594	134.89385	2.25914	0.0924609	0.23158099	2.6262382	20	—	—
459113 2012 BU_{121}	17.7	X	312.23832	249.46023	319.27492	12.32850	0.2476654	0.23686413	2.5870402	20	—	—
459114 2012 BG_{125}	16.7	X	356.07084	186.51724	305.20069	13.71128	0.0563197	0.23290765	2.6162559	20	—	—
459115 2012 BX_{125}	17.0	X	348.89411	306.53713	301.26804	8.88615	0.2241550	0.25931991	2.4354477	20	4 19.9	19.2
459116 2012 BJ_{127}	18.0	X	316.18702	100.46328	42.47003	0.74438	0.2354639	0.22619454	2.6677675	20	—	—
459117 2012 BK_{127}	17.7	X	163.94024	241.25653	118.06417	23.75166	0.1182819	0.37333866	1.9101497	20	1 29.7	19.8
459118 2012 BE_{129}	16.6	X	80.22645	186.39549	155.44240	10.36636	0.0905893	0.21177766	2.7875069	20	—	—
459119 2012 BJ_{134}	18.2	X	136.71914	138.24971	144.54983	21.25439	0.8329642	0.29069079	2.2569150	20	—	—
459120 2012 BV_{134}	16.9	X	20.24372	226.53585	267.97970	5.72858	0.0869113	0.24235475	2.5478178	20	1 20.8	19.9

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459121 2012 BW_{138}	17.5	X	342.18392	238.45885	306.38880	4.61165	0.0645523	0.24388669	2.5371373	20	2 1.8	20.3
459122 2012 BV_{141}	17.5	X	41.05822	354.89184	81.25560	5.82321	0.1849575	0.23762674	2.5815023	20	—	—
459123 2012 BF_{142}	17.3	X	26.55412	85.89987	142.41623	22.25115	0.2958507	0.26846005	2.3798501	20	7 19.2	19.4
459124 2012 BQ_{147}	17.9	X	77.34127	346.31843	115.18569	7.56251	0.1025998	0.25701068	2.4500142	20	3 11.4	20.8
459125 2012 BR_{150}	17.0	X	12.35198	30.69240	94.49467	9.40237	0.0880064	0.23707124	2.5855333	20	—	—
459126 2012 BL_{152}	17.8	X	36.33486	97.90272	106.16636	3.38314	0.1353382	0.26530898	2.3986567	20	6 2.4	20.0
459127 2012 CP	16.7	X	18.65887	28.83591	112.92720	10.51476	0.0546290	0.23522426	2.5990500	20	2 1.6	19.8
459128 2012 CR_{1}	17.2	X	237.93379	319.26913	315.65573	3.31247	0.1322017	0.23664478	2.5886387	20	1 16.2	21.2
459129 2012 CE_{2}	16.5	X	290.68301	202.52167	313.01111	10.13569	0.1290178	0.21762865	2.7373185	20	—	—
459130 2012 CY_{2}	16.2	X	226.81730	332.43731	146.71990	11.25794	0.0873551	0.18625462	3.0366729	20	9 23.5	20.7
459131 2012 CC_{10}	16.6	X	50.43255	110.68236	315.23860	13.98866	0.1021252	0.23215556	2.6219032	20	—	—
459132 2012 CV_{10}	17.3	X	243.52199	120.43105	124.71692	3.70508	0.0338006	0.23153767	2.6265658	20	—	—
459133 2012 CH_{11}	17.1	X	52.36896	277.78445	131.67934	12.69865	0.1805521	0.23065432	2.6332676	20	—	—
459134 2012 CV_{12}	18.4	X	344.12215	162.32258	4.91064	3.76018	0.1771974	0.23702471	2.5858717	20	—	—
459135 2012 CX_{12}	17.6	X	358.62150	3.97941	120.45939	4.48310	0.1320806	0.23127372	2.6285638	20	—	—
459136 2012 CO_{13}	17.1	X	15.08278	152.25574	334.41976	17.31351	0.1010101	0.23673426	2.5879863	20	1 7.3	20.3
459137 2012 CW_{16}	18.1	X	22.47966	143.33359	326.11625	3.55238	0.1459716	0.23564213	2.5959765	20	—	—
459138 2012 CP_{17}	17.5	X	309.44858	22.44929	143.27539	5.43937	0.2156400	0.22649229	2.6654289	20	—	—
459139 2012 CK_{18}	17.4	X	321.52169	81.49908	92.77994	13.58860	0.2120604	0.22878814	2.6475675	20	—	—
459140 2012 CH_{23}	17.0	X	51.37984	155.78745	304.73650	14.42400	0.0657727	0.24190230	2.5509937	20	1 24.9	19.8
459141 2012 CU_{25}	16.7	X	14.09343	184.18103	313.06992	21.27999	0.0255478	0.23821281	2.5772664	20	1 22.5	20.0
459142 2012 CY_{26}	17.4	X	323.85668	343.97242	276.32705	1.60532	0.1914115	0.25717382	2.4489780	20	3 27.4	20.0
459143 2012 CF_{33}	17.3	X	100.09577	213.15708	176.62800	6.84643	0.2746896	0.24392575	2.5368666	20	1 31.9	20.7
459144 2012 CU_{36}	17.2	X	119.79173	325.57578	148.43403	7.92624	0.0453324	0.26866341	2.3786491	20	5 17.2	20.4
459145 2012 CO_{37}	18.0	X	353.88518	164.57552	339.53150	3.99276	0.1525354	0.23362882	2.6108692	20	—	—
459146 2012 CH_{38}	17.2	X	338.55525	225.60345	234.33436	4.16347	0.0862075	0.21778120	2.7360401	20	—	—
459147 2012 CA_{47}	18.0	X	87.94349	305.96261	158.03353	2.86688	0.2218984	0.25737299	2.4477143	20	4 16.7	21.0
459148 2012 CE_{47}	17.1	X	19.88106	70.49752	15.61451	5.63648	0.0367281	0.22241258	2.6979247	20	—	—
459149 2012 CV_{47}	16.8	X	286.82322	72.51865	146.48033	14.99542	0.1221548	0.22967857	2.6407203	20	—	—
459150 2012 CN_{49}	18.0	X	100.42934	11.71393	64.62904	5.69720	0.1641565	0.25538763	2.4603836	20	3 20.0	21.2
459151 2012 CT_{50}	17.1	X	88.02201	265.48773	156.48935	14.44236	0.0876586	0.24098515	2.5574620	20	1 29.2	20.4
459152 2012 CZ_{50}	17.8	X	331.90246	282.83305	236.40215	1.09515	0.1401322	0.23064199	2.6333614	20	—	—
459153 2012 CW_{51}	17.2	X	296.45085	76.79569	153.18625	12.44332	0.1636620	0.23623269	2.5916483	20	1 16.7	21.0
459154 2012 CT_{52}	17.7	X	359.21755	102.02382	123.74039	3.34426	0.1587220	0.25760924	2.4462176	20	4 21.8	19.7
459155 2012 CF_{54}	17.8	X	354.32536	39.64719	122.74247	5.10871	0.1812574	0.23876071	2.5733221	20	1 7.2	20.5
459156 2012 CY_{54}	17.8	X	7.57429	59.05054	166.21941	5.16073	0.3851268	0.25606867	2.4560192	20	5 16.4	17.9
459157 2012 DX_{5}	17.8	X	150.44249	72.20753	336.78587	6.09838	0.1130114	0.25834110	2.4415955	20	3 30.9	21.5
459158 2012 DL_{6}	17.8	X	25.09967	325.43423	152.37021	10.14758	0.1511612	0.23857808	2.5746351	20	1 5.0	20.5
459159 2012 DT_{7}	18.2	X	9.62041	46.09140	122.88541	5.99335	0.1871152	0.24451096	2.5328171	20	2 15.3	20.3
459160 2012 DN_{9}	17.7	X	303.34485	111.39465	124.57137	3.21832	0.0830918	0.24390146	2.5370349	20	2 13.4	20.8
459161 2012 DS_{10}	17.5	X	33.57763	78.89456	22.83868	3.50577	0.1769532	0.23590240	2.5940667	20	—	—
459162 2012 DY_{11}	17.5	X	47.47660	123.86259	346.14729	30.51458	0.2024981	0.24328705	2.5413046	20	2 21.3	20.0
459163 2012 DA_{12}	17.1	X	339.17972	0.51983	133.76621	11.19931	0.0918773	0.22400683	2.6851087	20	—	—
459164 2012 DB_{15}	17.4	X	16.70492	69.48546	133.81570	7.17089	0.1190568	0.25828157	2.4419706	20	4 25.3	19.9
459165 2012 DN_{16}	16.9	X	192.61485	126.73518	154.73717	12.35350	0.1376143	0.21007984	2.8025055	20	—	—
459166 2012 DQ_{17}	17.4	X	324.41913	108.94615	67.65307	2.79034	0.1200519	0.22793673	2.6541564	20	—	—
459167 2012 DA_{22}	17.1	X	315.13753	104.31277	98.44805	9.43413	0.1608469	0.23330581	2.6132784	20	1 6.7	20.5
459168 2012 DU_{22}	17.4	X	280.31384	333.12381	195.60574	3.80604	0.1384353	0.21396319	2.7684924	20	—	—
459169 2012 DA_{23}	17.3	X	163.26314	23.57710	300.84440	4.24649	0.1638461	0.22462941	2.6801451	20	1 9.2	21.5
459170 2012 DF_{23}	17.4	X	83.03156	104.93326	326.52224	12.73477	0.0279779	0.23699157	2.5861127	20	1 30.6	20.8
459171 2012 DH_{23}	18.2	X	322.85301	18.40182	155.87873	4.78650	0.1767724	0.22771572	2.6558734	20	—	—
459172 2012 DV_{24}	17.3	X	324.81791	48.20000	93.56537	4.90851	0.0565565	0.21586686	2.7521920	20	—	—
459173 2012 DB_{25}	16.2	X	8.07365	228.20935	150.21727	10.82119	0.0223553	0.18746285	3.0236109	20	11 26.0	20.6
459174 2012 DJ_{25}	17.3	X	68.89610	307.49082	128.34077	4.34562	0.0586933	0.22979138	2.6398559	20	1 19.5	20.6
459175 2012 DQ_{26}	16.9	X	318.75217	14.12857	168.40704	14.09132	0.1775534	0.22785477	2.6547928	20	—	—
459176 2012 DS_{27}	17.4	X	303.62279	16.23395	171.15043	14.42825	0.1253653	0.22291849	2.6938412	20	—	—
459177 2012 DX_{28}	16.5	X	147.78241	106.32514	158.55891	10.85469	0.0688386	0.19494252	2.9457666	20	12 23.8	21.1
459178 2012 DV_{33}	17.7	X	30.73458	355.62186	138.83902	2.32080	0.0125626	0.24338071	2.5406526	20	2 7.2	20.9
459179 2012 DY_{34}	17.5	X	347.61242	54.79097	100.51406	3.67415	0.0522826	0.23196979	2.6233029	20	1 5.6	20.7
459180 2012 DP_{35}	17.8	X	356.09581	14.00090	141.87949	5.25416	0.0728091	0.23478388	2.6022990	20	1 15.2	20.9
459181 2012 DK_{36}	17.8	X	358.88609	313.27467	195.25743	3.72445	0.2058096	0.23403092	2.6078777	20	—	—
459182 2012 DM_{39}	18.0	X	7.33714	214.35796	298.80113	2.58529	0.1671214	0.23689957	2.5867822	20	1 20.8	20.6
459183 2012 DS_{39}	15.9	X	184.78946	22.63804	340.54829	12.64532	0.2986334	0.24396946	2.5365635	20	3 13.8	20.5
459184 2012 DC_{40}	17.7	X	72.79815	146.28645	307.27708	4.77736	0.2483237	0.24456433	2.5324486	20	3 12.7	20.4
459185 2012 DG_{44}	17.3	X	3.23883	103.93155	17.20642	11.53344	0.1526023	0.22669936	2.6638055	20	—	—
459186 2012 DC_{45}	17.1	X	350.55294	33.09734	99.36935	5.77340	0.0611480	0.22142459	2.7059441	20	—	—
459187 2012 DD_{46}	17.1	X	258.51666	83.46988	168.08273	12.92363	0.1265638	0.22486633	2.6782622	20	1 8.7	21.4
459188 2012 DM_{46}	17.5	X	307.18580	48.59628	169.35141	13.13915	0.1962020	0.23031781	2.6358318	20	1 10.4	21.5
459189 2012 DU_{46}	16.5	X	356.25555	31.29537	109.10849	31.92434	0.2101905	0.23438706	2.6052353	20	—	—
459190 2012 DJ_{47}	17.2	X	52.65281	66.07435	329.50706	27.67956	0.4361158	0.23596867	2.5935810	20	—	—
459191 2012 DQ_{47}	17.7	X	316.94906	222.77193	349.10331	8.36195	0.2246265	0.23561984	2.5961402	20	1 12.5	21.2
459192 2012 DG_{48}	17.6	X	31.96703	198.25645	39.94063	1.84969	0.1794303	0.26713460	2.3877157	20	7 25.7	19.8
459193 2012 DL_{48}	17.3	X	346.86108	128.23045	345.12639	5.68679	0.0676524	0.21931733	2.7232494	20	—	—
459194 2012 DY_{48}	17.5	X	16.54341	138.06198	331.68443	12.99408	0.1994866	0.23313040	2.6145891	20	—	—
459195 2012 DT_{53}	17.0	X	301.22413	28.88176	166.47952	11.90497	0.1182268	0.22285714	2.6943356	20	—	—
459196 2012 DX_{54}	16.2	X	312.34067	23.39936	146.85567	15.35352	0.0351523	0.22568158	2.6718084	20	—	—
459197 2012 DZ_{56}	17.7	X	50.24709	267.45262	174.38148	10.88240	0.1634356	0.23533580	2.5982287	20	1 3.9	20.5
459198 2012 DD_{58}	17.4	X	303.59813	131.64319	17.11059	4.49310	0.0626382	0.21222491	2.7835892	20	—	—
459199 2012 DH_{60}	17.0	X	223.80601	233.40700	9.50771	6.17192	0.0250278	0.21427648	2.7657932	20	—	—
459200 2012 DK_{61}	21.0	X	246.78221	301.42848	336.11509	6.26706	0.1653872	0.71131146	1.2428809	20	—	—

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	m		°	°	°	°		°				
459201 2012 DX_{62}	16.3	X	171.24930	303.46712	323.62568	11.81955	0.0561811	0.21482411	2.7610909	20	—	—
459202 2012 DL_{67}	16.3	X	55.30238	208.64449	150.87417	12.45751	0.0634224	0.19490491	2.9461456	20	—	—
459203 2012 DB_{72}	16.8	X	229.35039	333.49805	264.44205	5.97843	0.0084731	0.22231603	2.6987057	20	—	—
459204 2012 DV_{72}	18.0	X	33.13329	110.53209	352.97548	4.85284	0.2351875	0.23713882	2.5850420	20	—	—
459205 2012 DZ_{73}	17.9	X	45.64918	314.20115	204.79591	1.87800	0.1395364	0.25552729	2.4594870	20	4 11.9	20.1
459206 2012 DH_{74}	16.6	X	25.55919	171.60086	0.03753	15.00910	0.0585617	0.24397014	2.5365588	20	3 21.3	19.6
459207 2012 DP_{77}	17.2	X	35.27552	85.52212	122.52991	12.47217	0.2143015	0.26240202	2.4163394	20	6 19.9	19.5
459208 2012 DT_{78}	17.3	X	3.28916	168.03405	341.41844	2.44533	0.2400973	0.23682190	2.5873478	20	—	—
459209 2012 DP_{80}	17.7	X	291.88113	97.55618	135.53688	6.14528	0.1570581	0.23381703	2.6094679	20	1 17.2	21.4
459210 2012 DU_{80}	17.5	X	281.21894	112.60382	131.74161	6.28447	0.1381830	0.23408215	2.6074972	20	1 21.8	21.4
459211 2012 DD_{81}	17.8	X	78.12834	355.53601	122.06359	5.77231	0.0698904	0.25099933	2.4889777	20	3 30.3	20.9
459212 2012 DN_{81}	16.7	X	170.48446	208.66314	154.54037	12.36215	0.0617749	0.24273396	2.5451635	20	2 22.9	20.1
459213 2012 DQ_{82}	16.9	X	269.58170	215.95862	9.93579	15.42244	0.0368654	0.22357598	2.6885572	20	—	—
459214 2012 DS_{82}	16.5	X	38.12559	248.12458	166.28038	14.33461	0.0769529	0.21183921	2.7869670	20	—	—
459215 2012 DE_{83}	18.1	X	71.42627	287.18646	154.52932	7.25492	0.2444260	0.24418179	2.5350928	20	2 24.1	20.5
459216 2012 DH_{87}	16.2	X	13.75113	65.14320	12.01420	15.13704	0.0335008	0.21230315	2.7829053	20	—	—
459217 2012 DN_{87}	17.3	X	351.16340	326.31368	195.48876	14.24269	0.1221644	0.23599119	2.5934160	20	1 7.7	20.7
459218 2012 DZ_{87}	17.3	X	331.16024	127.76693	5.00053	3.43750	0.1305221	0.22023898	2.7156467	20	—	—
459219 2012 DJ_{88}	17.5	X	287.13376	12.03005	165.77310	1.62103	0.1588731	0.21447676	2.7640712	20	—	—
459220 2012 DC_{90}	16.7	X	349.88288	61.65513	99.29767	15.72797	0.0735138	0.23920955	2.5701021	20	1 12.3	19.7
459221 2012 DW_{90}	17.7	X	67.29474	24.39194	137.52183	2.89655	0.1424646	0.26220029	2.4175786	20	5 25.1	20.4
459222 2012 DF_{92}	17.1	X	312.36345	201.60834	350.03969	8.67200	0.1071008	0.23176986	2.6248112	20	—	—
459223 2012 DA_{96}	16.7	X	158.78279	15.20519	343.06757	8.25460	0.1615153	0.23809925	2.5780858	20	2 14.0	20.6
459224 2012 DS_{96}	17.3	X	183.60052	346.30085	332.22175	2.16940	0.0962845	0.23467927	2.6030723	20	1 16.2	21.1
459225 2012 DO_{97}	17.0	X	349.03392	47.90779	122.23751	15.23850	0.1216429	0.23662251	2.5888010	20	1 17.7	20.0
459226 2012 EB_{1}	17.3	X	269.89149	18.93282	180.71110	4.92646	0.0594233	0.21760450	2.7375211	20	—	—
459227 2012 EH_{4}	16.8	X	16.87343	98.36270	9.56587	13.66549	0.0140188	0.21991860	2.7182835	20	—	—
459228 2012 EP_{4}	17.4	X	359.48504	340.64453	168.99568	13.39068	0.1250170	0.23246460	2.6195790	20	1 6.5	20.6
459229 2012 EA_{5}	16.8	X	350.27345	239.68357	11.92415	10.25092	0.2330030	0.25792694	2.4442085	20	5 1.4	18.5
459230 2012 ER_{6}	17.4	X	3.65093	128.56833	354.60690	16.55894	0.2209204	0.23056565	2.6339426	20	—	—
459231 2012 EN_{8}	16.9	X	60.77130	273.27768	160.96290	26.96914	0.1098193	0.23585384	2.5944228	20	1 9.1	20.5
459232 2012 EH_{12}	18.1	X	348.13013	204.40536	258.15962	1.25772	0.2280221	0.21892611	2.7264927	20	—	—
459233 2012 EB_{13}	17.1	X	26.80621	109.36579	335.07225	11.04339	0.1696826	0.22516893	2.6758622	20	—	—
459234 2012 EV_{15}	17.7	X	29.17601	307.66204	174.36445	11.69735	0.1321345	0.23582593	2.5946275	20	1 18.6	20.6
459235 2012 ER_{16}	17.3	X	348.40436	117.64001	19.97236	12.09365	0.1511073	0.22559067	2.6725261	20	—	—
459236 2012 FH_{1}	16.8	X	302.90210	132.56279	106.36521	14.02063	0.2144114	0.23087282	2.6316058	20	1 31.3	20.6
459237 2012 FC_{7}	18.2	X	4.54057	341.59160	173.42221	3.22426	0.1526422	0.23920989	2.5700997	20	1 18.4	20.9
459238 2012 FH_{11}	16.0	X	132.24370	153.00220	97.86029	10.26490	0.0946771	0.18577112	3.0419396	20	11 22.2	20.8
459239 2012 FD_{15}	16.8	X	293.50852	226.13560	355.97150	13.09251	0.1285244	0.22993398	2.6387644	20	1 13.2	20.7
459240 2012 FL_{15}	16.5	X	225.60879	270.03089	344.27639	11.83089	0.1130512	0.22101714	2.7092687	20	—	—
459241 2012 FN_{15}	16.3	X	44.24857	106.52716	1.60755	22.19078	0.0648637	0.23474458	2.6025894	20	2 4.9	19.9
459242 2012 FZ_{19}	16.6	X	42.52841	18.31798	16.56356	9.04561	0.0855605	0.20894463	2.8126471	20	—	—
459243 2012 FZ_{20}	17.8	X	22.24922	102.20407	24.61047	5.38139	0.1767250	0.23550837	2.5969594	20	1 13.8	20.2
459244 2012 FB_{21}	17.5	X	94.51084	237.99669	103.36479	3.07338	0.0355229	0.20566160	2.8425007	20	—	—
459245 2012 FL_{22}	17.3	X	62.71572	266.69322	171.46673	14.90017	0.0973395	0.23070828	2.6328570	20	1 15.5	20.7
459246 2012 FJ_{25}	16.4	X	257.99531	213.14173	13.82855	7.75856	0.0473456	0.21979266	2.7193217	20	—	—
459247 2012 FV_{25}	17.9	X	3.52878	101.63669	22.25676	3.53004	0.1917664	0.22803477	2.6533956	20	—	—
459248 2012 FD_{28}	17.2	X	288.55385	80.08572	117.73645	6.40692	0.0260938	0.21930271	2.7233704	20	—	—
459249 2012 FY_{31}	17.0	X	226.96862	133.17147	168.32008	13.17489	0.1779971	0.22656319	2.6648728	20	2 4.3	21.5
459250 2012 FL_{34}	16.0	X	85.52690	162.06898	169.56456	14.66904	0.1522888	0.19256367	2.9699775	20	—	—
459251 2012 FA_{35}	17.5	X	248.37333	70.29292	160.95060	8.13573	0.1705990	0.21387264	2.7692738	20	—	—
459252 2012 FP_{36}	17.4	X	328.92677	59.49643	112.76181	6.85901	0.0472280	0.22632947	2.6667071	20	1 3.8	20.7
459253 2012 FG_{39}	17.4	X	148.15433	113.18552	347.70330	9.85130	0.0885068	0.27024113	2.3693820	20	6 4.0	20.9
459254 2012 FV_{43}	16.5	X	160.98970	109.63084	108.14808	13.22595	0.2445906	0.17981155	3.1087872	20	11 10.6	22.1
459255 2012 FL_{44}	16.9	X	314.79801	188.96348	53.96250	12.98281	0.2282965	0.23314044	2.6145140	20	2 23.5	20.5
459256 2012 FZ_{46}	17.7	X	68.20027	285.05122	179.73525	21.86480	0.1341159	0.24303074	2.5430911	20	3 2.9	20.6
459257 2012 FJ_{48}	17.3	X	301.08135	0.53743	125.60548	2.88112	0.0457231	0.20531254	2.8457216	20	—	—
459258 2012 FV_{48}	17.5	X	274.87707	41.47830	154.29665	5.20710	0.0802513	0.21566498	2.7539093	20	—	—
459259 2012 FJ_{49}	17.4	X	222.57314	70.31897	98.95956	2.88007	0.1823029	0.19192217	2.9765918	20	11 7.1	21.8
459260 2012 FW_{52}	16.5	X	19.80059	192.66992	169.67588	11.28052	0.0688273	0.18765085	3.0215911	20	11 26.3	20.7
459261 2012 FF_{54}	16.6	X	230.51767	311.26170	217.29008	7.91848	0.0794179	0.19247730	2.9708658	20	11 27.3	20.7
459262 2012 FZ_{54}	17.4	X	135.78732	197.19940	148.77360	6.62210	0.0320319	0.21765475	2.7370997	20	—	—
459263 2012 FB_{55}	17.1	X	58.27419	246.63694	169.36225	12.93937	0.0450199	0.21676602	2.7445759	20	—	—
459264 2012 FM_{56}	17.5	X	301.52784	65.16382	151.58967	7.55949	0.2127614	0.22833113	2.6510992	20	1 1.6	21.5
459265 2012 FX_{56}	17.0	X	37.40691	262.44968	171.72132	14.28605	0.1091288	0.22269332	2.6956568	20	—	—
459266 2012 FT_{60}	16.2	X	312.05048	96.19808	83.31783	8.74345	0.0715163	0.21874445	2.7280020	20	—	—
459267 2012 FM_{61}	16.9	X	292.43506	194.30796	53.14620	6.03681	0.2069785	0.23095938	2.6309483	20	2 1.0	20.7
459268 2012 FU_{61}	16.2	X	208.19568	85.62683	84.08631	14.36522	0.0217406	0.18222232	3.0813073	20	11 11.4	20.7
459269 2012 FR_{64}	17.7	X	72.53577	296.25179	170.24127	9.69001	0.0758532	0.24240351	2.5474761	20	3 5.3	20.7
459270 2012 FB_{67}	17.4	X	203.73685	275.78679	62.83922	2.45285	0.1370005	0.23809856	2.5780908	20	3 1.8	21.5
459271 2012 FL_{67}	18.0	X	336.93979	133.16920	38.57303	2.73267	0.1885457	0.22521064	2.6755318	20	—	—
459272 2012 FF_{69}	17.0	X	310.01421	336.09146	196.10954	11.24446	0.1660639	0.21495390	2.7599793	20	—	—
459273 2012 FU_{72}	16.6	X	282.27467	212.69232	354.05043	9.62933	0.2103089	0.21715667	2.7412834	20	—	—
459274 2012 FG_{73}	16.9	X	335.25928	189.43752	17.32165	13.72864	0.1686134	0.23490691	2.6013904	20	2 14.7	20.1
459275 2012 FV_{74}	16.7	X	310.21797	230.63149	343.81221	12.73837	0.1225626	0.23020439	2.6366975	20	1 24.9	20.3
459276 2012 FM_{75}	17.0	X	283.81896	175.87287	67.91885	10.48485	0.0856039	0.23281209	2.6169717	20	2 2.9	20.8
459277 2012 FE_{77}	17.4	X	343.95299	355.59569	165.23218	2.26963	0.1370596	0.22965474	2.6409029	20	—	—
459278 2012 FG_{78}	17.8	X	341.70684	246.23030	261.00050	4.17544	0.2256694	0.22639007	2.6662312	20	—	—
459279 2012 FH_{78}	17.1	X	15.95663	133.78848	14.37530	12.00937	0.1274341	0.23303797	2.6152804	20	2 8.3	20.1
459280 2012 FM_{82}	17.1	X	286.10387	108.40335	82.77773	5.73276	0.1273176	0.21725118	2.7404883	20	—	—

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
459281 2012 GB	15.6	X	146.29671	260.19718	7.72805	10.16141	0.1077284	0.18985445	2.9981649	20	12 24.3	20.5
459282 2012 GU_{2}	17.1	X	308.70404	136.71382	28.31134	5.00795	0.0147411	0.21364550	2.7712362	20	—	—
459283 2012 GB_{3}	17.9	X	322.60768	69.53142	81.32720	1.67440	0.2094552	0.21827260	2.7319321	20	—	—
459284 2012 GR_{3}	16.7	X	6.89417	256.52676	197.49723	12.06439	0.1024310	0.21208351	2.7848263	20	—	—
459285 2012 GX_{4}	17.2	X	338.32487	330.19508	222.17199	4.48033	0.1798439	0.23309781	2.6148328	20	1 21.7	20.4
459286 2012 GY_{4}	16.4	X	301.81830	244.71110	7.16274	10.32453	0.2931216	0.23197457	2.6232668	20	2 7.3	20.3
459287 2012 GX_{6}	16.6	X	257.24846	315.20653	184.41503	8.75895	0.0364847	0.18954600	3.0014168	20	11 30.8	20.8
459288 2012 GK_{7}	16.7	X	302.90441	193.88708	24.35914	13.57019	0.1646168	0.22457297	2.6805941	20	1 15.1	20.7
459289 2012 GC_{8}	16.0	X	35.28346	63.60178	7.12057	13.43802	0.0240920	0.21294551	2.7773059	20	—	—
459290 2012 GQ_{12}	17.0	X	346.75324	103.16516	84.51530	12.52860	0.1225631	0.23131830	2.6282261	20	2 11.7	20.2
459291 2012 GT_{12}	16.7	X	216.38623	196.07822	101.63288	11.07094	0.1250515	0.21621589	2.7492294	20	1 26.5	21.0
459292 2012 GA_{13}	15.8	X	170.69739	274.13663	19.11133	14.71090	0.1443086	0.20399193	2.8579901	20	—	—
459293 2012 GQ_{13}	16.8	X	324.05165	105.25540	62.69223	25.49681	0.2489008	0.22010516	2.7167472	20	—	—
459294 2012 GL_{14}	16.8	X	15.10270	128.67682	12.88964	12.68014	0.0880141	0.23040672	2.6351537	20	1 30.8	20.1
459295 2012 GP_{16}	17.2	X	333.41929	225.21864	5.04701	7.36878	0.1416350	0.23940092	2.5687322	20	3 12.9	19.9
459296 2012 GA_{17}	16.9	X	344.86265	88.47089	109.33390	7.91077	0.2279101	0.23491578	2.6013248	20	2 3.8	19.5
459297 2012 GE_{17}	17.1	X	305.30393	105.36361	76.35268	13.95150	0.1537378	0.21651341	2.7467103	20	—	—
459298 2012 GZ_{19}	17.0	X	267.53074	227.39677	40.00815	13.13583	0.1259248	0.22799936	2.6536703	20	2 12.7	21.2
459299 2012 GE_{21}	17.6	X	351.49104	35.35487	112.89801	7.62859	0.2065693	0.22454625	2.6808068	20	—	—
459300 2012 GS_{22}	16.8	X	221.10643	167.78175	102.26218	11.08243	0.1293829	0.21042494	2.7994405	20	—	—
459301 2012 GN_{24}	16.5	X	307.49021	150.98555	23.29135	12.71399	0.1480790	0.21482463	2.7610864	20	—	—
459302 2012 GP_{25}	17.1	X	299.52314	160.40589	35.72336	12.83355	0.1228794	0.21964291	2.7205576	20	—	—
459303 2012 GS_{25}	17.2	X	29.45724	291.80444	187.96513	12.46302	0.2109828	0.23259453	2.6186033	20	1 15.4	19.7
459304 2012 GC_{26}	17.0	X	326.48077	204.16465	16.33650	12.49281	0.1455065	0.23649757	2.5897127	20	2 21.9	20.3
459305 2012 GT_{27}	16.9	X	244.59619	168.91381	75.64918	10.76807	0.1571534	0.21258807	2.7804182	20	—	—
459306 2012 GY_{27}	17.2	X	318.21655	54.92603	179.52201	12.00367	0.1204346	0.23478539	2.6022879	20	2 25.0	20.5
459307 2012 GZ_{27}	16.7	X	348.30485	167.93321	57.83423	15.88895	0.0559220	0.24356964	2.5393386	20	4 14.8	19.9
459308 2012 GN_{29}	17.0	X	81.47618	44.41006	20.26409	6.50997	0.1392702	0.22850472	2.6497563	20	2 5.9	20.2
459309 2012 GS_{29}	16.1	X	158.39103	183.72240	21.85781	10.85191	0.0393061	0.17656444	3.1467861	20	10 21.6	20.7
459310 2012 GZ_{32}	16.9	X	189.76605	293.10074	275.32626	0.57710	0.1984031	0.18611699	3.0381698	20	11 19.7	21.8
459311 2012 GF_{33}	15.8	X	116.15660	56.61701	206.06916	25.30930	0.1339765	0.17480313	3.1678887	20	11 19.1	21.0
459312 2012 GY_{33}	16.5	X	15.01895	178.96644	355.58068	14.15577	0.0958225	0.23889616	2.5723493	20	3 10.4	19.4
459313 2012 GM_{37}	17.1	X	278.43454	234.54314	350.15443	4.06307	0.0662878	0.21939200	2.7226314	20	1 6.0	20.9
459314 2012 GC_{39}	16.9	X	222.37573	109.18081	149.31782	14.57617	0.1425061	0.20399644	2.8579480	20	—	—
459315 2012 GA_{40}	16.6	X	233.50175	163.24449	105.21124	9.28092	0.1815101	0.21365838	2.7711248	20	1 5.3	21.1
459316 2012 HS_{1}	16.8	X	283.34071	102.51599	90.33709	6.64319	0.0756820	0.21201192	2.7854532	20	—	—
459317 2012 HT_{1}	16.3	X	313.56449	109.96947	112.98874	18.58742	0.2354054	0.22992450	2.6388369	20	1 20.1	19.9
459318 2012 HU_{3}	16.7	X	298.52428	169.91358	100.41683	6.66759	0.2077223	0.23313554	2.6145507	20	3 8.4	20.3
459319 2012 HV_{5}	16.3	X	224.01316	94.30531	71.98450	18.71580	0.1771124	0.18584966	3.0410825	20	11 8.6	21.0
459320 2012 HL_{6}	15.7	X	117.87828	161.45605	107.38407	15.16648	0.0463673	0.17487564	3.1670130	20	11 25.8	20.6
459321 2012 HX_{8}	15.6	X	347.80265	273.00590	103.88682	13.00566	0.0783257	0.17254292	3.1954936	20	10 31.6	19.9
459322 2012 HB_{9}	16.1	X	95.52740	224.56302	78.43951	12.19095	0.1215435	0.18072701	3.0982801	20	12 15.5	20.9
459323 2012 HF_{10}	16.6	X	260.83665	142.48453	140.03798	13.84705	0.1628009	0.22381021	2.6866811	20	2 15.6	20.7
459324 2012 HY_{11}	17.1	X	337.22660	39.48801	174.41080	8.08466	0.1882273	0.23314071	2.6145120	20	2 16.8	20.1
459325 2012 HM_{17}	16.2	X	125.47934	172.60334	93.36719	10.46771	0.0456628	0.17651572	3.1473651	20	11 28.7	20.8
459326 2012 HX_{18}	15.9	X	217.72565	21.96820	118.60391	14.96286	0.2378009	0.17532256	3.1616285	20	9 27.3	21.3
459327 2012 HK_{19}	15.9	X	159.18470	187.93869	70.28373	16.03865	0.0671570	0.18570996	3.0426074	20	12 24.8	20.6
459328 2012 HX_{19}	16.2	X	85.90009	302.26606	28.39716	5.03723	0.0508784	0.18506702	3.0496502	20	—	—
459329 2012 HE_{20}	16.8	X	351.86094	88.00070	145.75481	12.71646	0.2747765	0.24201128	2.5502278	20	4 10.8	18.8
459330 2012 HY_{22}	16.0	X	334.81039	68.44138	108.99038	14.48373	0.1455635	0.22278713	2.6949000	20	1 5.3	19.2
459331 2012 HR_{23}	16.9	X	345.91028	159.47167	54.01146	8.52770	0.1326874	0.23793139	2.5792982	20	3 15.8	19.8
459332 2012 HT_{23}	16.5	X	116.53008	291.31307	147.50341	15.12170	0.0277113	0.22994391	2.6386884	20	3 26.8	20.2
459333 2012 HZ_{27}	16.0	X	19.14303	304.54729	67.21034	11.42081	0.0797598	0.17760369	3.1344985	20	12 3.5	20.2
459334 2012 HO_{38}	16.8	X	22.15365	309.46839	207.01091	25.77896	0.2794640	0.23802231	2.5786414	20	2 15.3	19.3
459335 2012 HC_{39}	16.5	X	13.27961	156.91694	355.38219	13.54217	0.2485904	0.23629867	2.5911657	20	1 30.6	18.8
459336 2012 HF_{39}	16.1	X	269.10974	339.30156	262.99769	8.93835	0.1392208	0.22128692	2.7070663	20	1 7.7	20.2
459337 2012 HO_{39}	17.0	X	262.16937	298.47711	318.50113	9.06925	0.3201626	0.21641177	2.7475702	20	1 7.8	21.9
459338 2012 HZ_{40}	16.0	X	204.35498	221.07365	351.05062	8.33828	0.1235647	0.19162358	2.9796831	20	12 13.9	20.7
459339 2012 HA_{41}	16.7	X	328.63164	229.26130	5.31702	12.01911	0.2284634	0.23790550	2.5794854	20	2 29.2	19.7
459340 2012 HP_{41}	16.9	X	245.59636	177.55227	54.97819	10.05520	0.1171847	0.21055362	2.7982998	20	—	—
459341 2012 HX_{42}	16.8	X	306.98767	91.85690	103.35655	13.53263	0.1896865	0.21741419	2.7391183	20	—	—
459342 2012 HC_{47}	16.7	X	172.13596	184.65415	83.04226	12.02539	0.1386315	0.19072452	2.9890398	20	—	—
459343 2012 HM_{51}	15.6	X	108.57998	242.87740	66.52036	17.14364	0.2153583	0.18130302	3.0917143	20	—	—
459344 2012 HV_{51}	16.4	X	223.20177	164.45252	46.31366	11.13824	0.0533063	0.19231036	2.9725848	20	—	—
459345 2012 HY_{52}	17.0	X	195.58685	215.49256	79.03050	9.23548	0.1126361	0.21183896	2.7869692	20	1 2.9	21.3
459346 2012 HR_{53}	17.2	X	288.06359	143.24447	92.16911	5.10525	0.0338649	0.22697925	2.6616153	20	2 3.6	20.7
459347 2012 HM_{54}	17.0	X	5.79133	284.19115	225.15462	9.09457	0.1177318	0.22737549	2.6585222	20	1 16.9	20.2
459348 2012 HF_{55}	17.3	X	11.86200	95.56128	54.15898	11.51049	0.2574239	0.23236062	2.6203604	20	1 20.2	19.6
459349 2012 HE_{56}	15.9	X	158.10869	15.81645	208.28843	11.51098	0.0832541	0.17933115	3.1143366	20	11 13.9	20.7
459350 2012 HG_{59}	17.4	X	358.76859	112.94977	58.16760	13.76038	0.2077612	0.23585608	2.5944064	20	1 29.5	20.2
459351 2012 HL_{60}	17.3	X	302.97732	149.13580	71.79083	3.24093	0.1397286	0.22505454	2.6767688	20	1 19.5	21.0
459352 2012 HJ_{61}	15.6	X	142.78164	135.68122	86.59644	23.64523	0.0545319	0.17074752	3.2178548	20	11 3.9	20.8
459353 2012 HH_{62}	17.0	X	270.21128	88.44210	186.54224	12.39793	0.2497012	0.22750399	2.6575210	20	2 4.1	21.5
459354 2012 HO_{69}	16.2	X	69.33283	264.51349	69.71719	20.11126	0.0732858	0.18167607	3.0874806	20	12 18.6	20.7
459355 2012 HQ_{75}	17.5	X	310.71288	12.36816	153.56505	8.68061	0.1557221	0.21298621	2.7769521	20	—	—
459356 2012 HT_{78}	16.3	X	166.90943	33.44677	235.41036	13.81417	0.1293758	0.18941797	3.0027690	20	—	—
459357 2012 HN_{79}	16.4	X	197.28757	356.70688	219.59341	4.80139	0.2070250	0.18470274	3.0536587	20	12 4.6	21.4
459358 2012 HN_{81}	15.8	X	112.98911	241.01713	61.89719	13.23638	0.0476923	0.18195950	3.0842736	20	12 28.0	20.4
459359 2012 HN_{83}	17.4	X	345.43836	67.41682	109.63136	14.03407	0.1217367	0.22621103	2.6676378	20	1 24.0	20.4
459360 2012 HO_{83}	17.1	X	333.78123	94.82337	103.59467	14.94941	0.1636284	0.22878503	2.6475915	20	1 28.5	20.3

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Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
459361 2012 JE_2	16.0	X	279.71719	70.98290	72.14158	10.91137	0.0665863	0.19025005	2.9940073	20	12 29.5	19.9
459362 2012 JD_{12}	16.9	X	316.26566	176.35688	67.64447	11.23349	0.1354341	0.23620695	2.5918365	20	3 11.9	20.3
459363 2012 JR_{13}	16.6	X	254.11283	20.98482	226.40728	8.98956	0.2446317	0.21121491	2.7924560	20	—	—
459364 2012 JA_{14}	16.9	X	244.21941	160.38045	129.82483	5.40476	0.0520028	0.22321842	2.6914276	20	2 17.6	20.7
459365 2012 JF_{15}	16.0	X	72.88260	271.50956	46.43466	11.47325	0.0864044	0.17376230	3.1805264	20	12 3.3	20.7
459366 2012 JN_{18}	16.2	X	281.44951	131.75490	95.06807	31.61388	0.0892241	0.22050844	2.7134338	20	1 7.3	20.1
459367 2012 JH_{23}	16.8	X	303.43367	81.32104	117.87676	13.30532	0.1914781	0.21799872	2.7342198	20	—	—
459368 2012 JK_{24}	16.6	X	276.88698	152.36007	121.86545	16.37474	0.1852953	0.22563870	2.6721468	20	2 21.1	20.7
459369 2012 JR_{24}	17.2	X	327.62959	69.53623	161.88360	4.00049	0.2408385	0.23449454	2.6044392	20	2 17.3	20.2
459370 2012 JV_{27}	17.5	X	292.59477	133.76865	126.18425	14.13929	0.2237500	0.22768101	2.6561433	20	2 14.1	21.3
459371 2012 JF_{29}	16.1	X	114.59918	261.32661	44.05693	8.58793	0.0603356	0.18355906	3.0663295	20	—	—
459372 2012 JA_{32}	17.5	X	311.21451	1.32006	198.76328	9.60640	0.0776783	0.21990340	2.7184087	20	1 11.1	21.4
459373 2012 JE_{35}	16.2	X	108.78500	253.69604	45.83051	11.38057	0.0749506	0.18131605	3.0915662	20	12 20.8	21.0
459374 2012 JF_{38}	17.2	X	295.71599	25.91632	217.89939	10.92981	0.1902968	0.22617840	2.6678944	20	1 28.3	21.3
459375 2012 JR_{41}	15.5	X	305.43424	296.67892	133.90464	22.90426	0.0401388	0.16875695	3.2431095	20	11 10.4	20.4
459376 2012 JM_{42}	16.8	X	96.25850	178.89766	131.06883	5.90094	0.0851443	0.17588010	3.1549435	20	12 20.7	21.5
459377 2012 JN_{45}	16.4	X	195.85423	23.39730	225.53506	8.88823	0.0659137	0.19045608	2.9918477	20	—	—
459378 2012 JY_{49}	16.4	X	185.11987	314.21528	236.08126	8.41740	0.0708295	0.17289011	3.1912142	20	10 30.4	21.2
459379 2012 JK_{57}	16.3	X	206.97559	103.05074	102.73752	13.57520	0.0407677	0.18330109	3.0692058	20	12 17.8	20.7
459380 2012 JR_{60}	16.4	X	0.78220	5.12326	68.12121	12.18376	0.0777486	0.19809928	2.9143885	20	—	—
459381 2012 JX_{61}	16.7	X	209.18813	260.04284	98.01387	12.79390	0.0937047	0.23073940	2.6326202	20	4 7.2	20.9
459382 2012 JY_{61}	16.2	X	119.28990	263.68465	32.82038	9.56552	0.0707674	0.18295188	3.0731102	20	12 29.1	20.9
459383 2012 JV_{62}	17.4	X	244.81462	58.01227	188.51420	8.37204	0.1532466	0.21160244	2.7890455	20	—	—
459384 2012 KM_{8}	17.0	X	0.08971	194.26716	233.37403	11.02970	0.0878177	0.19012489	2.9953212	20	—	—
459385 2012 KA_{11}	16.7	X	207.13113	91.10074	79.61070	8.52896	0.1463048	0.17886674	3.1197250	20	10 28.4	21.6
459386 2012 KJ_{11}	16.9	X	310.52620	305.31279	339.62990	35.83753	0.5717162	0.50183698	1.5682945	20	2 12.2	19.8
459387 2012 KD_{12}	15.7	X	80.95120	202.59043	144.43627	20.36882	0.2350160	0.17602638	3.1531954	20	—	—
459388 2012 KC_{16}	16.0	X	137.01261	192.41575	92.07249	11.29235	0.0625747	0.18131841	3.0915393	20	—	—
459389 2012 KQ_{19}	16.0	X	136.37019	321.70847	54.94451	12.60729	0.0568850	0.21954943	2.7213297	20	2 7.4	20.0
459390 2012 KQ_{20}	16.4	X	308.95195	72.98108	67.19322	9.63526	0.0417038	0.19990860	2.8967770	20	—	—
459391 2012 KF_{23}	16.8	X	274.10851	90.77841	72.09176	9.40190	0.1133798	0.19964060	2.8993688	20	—	—
459392 2012 KK_{25}	16.2	X	6.45196	219.20690	134.50774	7.16010	0.1775469	0.16542548	3.2865062	20	11 3.9	20.2
459393 2012 KE_{26}	17.3	X	4.10924	39.26584	88.96755	5.36519	0.1650382	0.21888311	2.7268498	20	—	—
459394 2012 KJ_{26}	17.1	X	69.74861	356.87161	71.79520	7.15473	0.0389243	0.21494083	2.7600912	20	1 13.1	20.7
459395 2012 KE_{29}	17.2	X	289.19459	85.05371	207.74500	14.04041	0.0751348	0.24080593	2.5587308	20	4 10.5	20.6
459396 2012 KJ_{30}	16.1	X	68.98679	238.36066	91.93527	17.51887	0.0245227	0.17479129	3.1680318	20	12 8.6	20.6
459397 2012 KK_{31}	16.4	X	87.03621	253.90635	56.29729	11.34587	0.0707385	0.17835649	3.1256722	20	12 9.3	21.0
459398 2012 KO_{31}	16.3	X	56.41366	159.01102	204.72788	10.22016	0.1012423	0.18638677	3.0352373	20	—	—
459399 2012 KB_{40}	16.6	X	345.45408	271.44798	224.42065	12.08576	0.1676109	0.21052561	2.7985480	20	—	—
459400 2012 KX_{47}	17.7	X	343.90733	89.78587	102.74771	11.46565	0.2395483	0.22941564	2.6427375	20	1 24.7	20.4
459401 2012 KE_{48}	16.2	X	269.64527	42.98621	105.85281	11.82609	0.0581251	0.18273795	3.0755082	20	12 22.5	20.4
459402 2012 KT_{49}	16.9	X	257.26133	158.91378	108.23634	7.68731	0.0198113	0.21738754	2.7393422	20	2 8.9	20.7
459403 2012 KK_{50}	16.5	X	198.68073	44.73443	205.90594	9.84775	0.0533396	0.19115464	2.9845543	20	—	—
459404 2012 LR	16.4	X	353.69107	310.10465	106.09261	11.14886	0.0463410	0.17743529	3.1364814	20	12 20.9	20.6
459405 2012 LZ_{5}	16.4	X	318.61298	290.38367	211.40026	12.52540	0.0168169	0.19635548	2.9316179	20	—	—
459406 2012 LD_{9}	16.5	X	295.07897	16.85511	168.85311	15.61336	0.0765443	0.20578941	2.8413236	20	—	—
459407 2012 LU_{14}	16.1	X	156.94318	126.51667	144.59136	16.06273	0.1994032	0.18139349	3.0906863	20	—	—
459408 2012 LP_{17}	17.4	X	340.80468	74.02196	136.75741	6.04477	0.2196304	0.23208840	2.6224090	20	2 15.9	20.1
459409 2012 LY_{17}	16.0	X	250.94846	77.90035	95.16784	16.77259	0.0608727	0.18515961	3.0486335	20	12 27.9	20.0
459410 2012 LL_{20}	16.6	X	135.36750	132.27964	140.54672	11.05784	0.1227982	0.17486724	3.1671143	20	12 17.9	21.7
459411 2012 LO_{22}	16.6	X	295.83200	109.11722	71.16441	10.29788	0.1324052	0.20959059	2.8068650	20	—	—
459412 2012 MR_{5}	16.5	X	278.57978	128.36981	133.78069	15.67381	0.2073815	0.22047640	2.7136967	20	2 3.9	20.5
459413 2012 MO_{15}	16.5	X	178.63217	131.22710	135.18533	11.19099	0.1154645	0.17835588	3.1256794	20	—	—
459414 2012 NG	18.3	X	355.13390	113.66127	273.76301	19.52978	0.0814756	0.39900197	1.8273400	20	—	—
459415 2012 PQ	15.3	X	214.55912	295.21582	304.15931	14.77538	0.1482130	0.17765332	3.1339147	20	—	—
459416 2012 PO_{14}	18.1	X	6.98431	49.22045	315.18956	18.56816	0.1245817	0.38932529	1.8574949	20	—	—
459417 2012 PY_{27}	15.7	X	200.08840	260.01406	330.87488	24.53599	0.2204005	0.17211035	3.2008456	20	12 22.9	21.3
459418 2012 QL_{44}	17.7	X	3.45457	193.35087	135.16742	22.81420	0.0908163	0.37991915	1.8880287	20	11 14.1	20.1
459419 2012 QM_{48}	16.3	X	214.01466	87.40377	201.53005	9.15400	0.0338805	0.18932396	3.0037630	20	1 16.0	20.8
459420 2012 QA_{50}	18.0	X	223.93805	109.96765	312.66697	17.10746	0.0988945	0.35961972	1.9584255	20	7 19.1	20.3
459421 2012 RK	18.6	X	18.45630	81.06909	299.64561	18.61634	0.1147163	0.39977977	1.8249691	20	—	—
459422 2012 RA_{9}	13.5	X	319.09005	353.20960	272.89268	29.21256	0.0520084	0.08501288	5.1224717	20	4 21.9	20.5
459423 2012 RG_{9}	16.2	X	252.65344	48.10224	165.10243	16.90011	0.1530100	0.18011830	3.1052566	20	—	—
459424 2012 RH_{39}	16.0	X	268.14426	214.25326	16.15941	10.84754	0.0779658	0.18851143	3.0123881	20	1 5.9	20.6
459425 2012 SE	18.8	X	24.43003	51.30590	341.08708	21.05475	0.1765177	0.40029726	1.8233959	20	—	—
459426 2012 SF_{4}	17.9	X	155.54569	159.11518	13.19363	20.23812	0.0564808	0.36950437	1.9233412	20	10 5.9	19.9
459427 2012 SG_{25}	13.8	X	243.38567	343.90333	13.67805	13.01627	0.1061176	0.08321586	5.1959540	20	5 6.3	21.0
459428 2012 SC_{50}	13.6	X	263.69086	29.20505	301.73451	7.72868	0.1079963	0.08214806	5.2408833	20	4 27.5	20.8
459429 2012 SS_{51}	18.1	X	184.35872	357.83174	186.44669	22.27722	0.0461531	0.38878652	1.8592106	20	12 11.4	20.5
459430 2012 SW_{63}	15.8	X	210.83316	75.32331	204.31253	11.22767	0.0728796	0.17824976	3.1269198	20	1 3.4	20.7
459431 2012 TG_{5}	18.0	X	272.01855	192.06711	271.28776	19.78246	0.0776903	0.38338455	1.8766343	20	12 25.3	19.1
459432 2012 TL_{14}	14.4	X	235.68858	110.38558	248.98953	8.60376	0.0898866	0.08290997	5.2087265	20	5 4.6	21.6
459433 2012 TG_{37}	16.2	X	218.95200	62.33122	188.89863	13.56315	0.0905831	0.17235245	3.1978474	20	—	—
459434 2012 TA_{65}	16.3	X	223.60011	277.17164	329.48101	9.87120	0.2587038	0.17259064	3.1949046	20	—	—
459435 2012 TE_{77}	15.7	X	100.64777	349.99179	255.16879	2.12601	0.0128452	0.12607349	3.9390081	20	9 23.7	21.3
459436 2012 TV_{81}	14.2	X	255.91778	104.78453	230.24836	2.08492	0.1090385	0.08380866	5.1714236	20	4 26.5	21.2
459437 2012 TH_{89}	16.2	X	165.51859	95.00228	225.78467	8.71375	0.2089872	0.17382218	3.1797960	20	1 13.9	21.6
459438 2012 TZ_{103}	14.4	X	268.22377	105.99438	224.53199	9.20170	0.0757723	0.08033413	5.3194818	20	5 8.9	21.5
459439 2012 TB_{146}	13.7	X	311.33778	289.09428	359.27230	13.45456	0.1087311	0.08386701	5.1690248	20	5 3.1	20.4
459440 2012 TU_{297}	18.4	X	311.93349	126.53506	215.10602	20.77013	0.0739545	0.35409325	1.9787501	20	7 27.5	20.8

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	m		°	°	°	°		°				
459441 2012 TN_{308}	17.8	X	241.41341	265.31667	237.44474	20.58466	0.0745639	0.38093034	1.8846860	20	12 27.9	19.6
459442 2012 UC_{18}	18.3	X	82.40287	24.18303	227.37107	20.14924	0.0454575	0.36980318	1.9223050	20	10 23.2	20.4
459443 2012 UR_{85}	16.4	X	185.05597	86.37528	231.92459	13.79880	0.3085100	0.17766355	3.1337943	20	1 25.6	22.3
459444 2012 UF_{158}	17.6	X	189.33323	177.22196	335.26638	17.95889	0.1017381	0.36916585	1.9245168	20	10 6.4	20.2
459445 2012 UC_{170}	15.5	X	141.34236	283.31977	65.63720	26.87181	0.2273379	0.17286600	3.1915108	20	2 3.7	21.1
459446 2012 VR_{1}	18.0	X	238.18240	99.70721	66.23400	20.42544	0.0896756	0.39217026	1.8485007	20	—	—
459447 2012 VL_{38}	17.9	X	232.13765	78.98887	83.93315	22.61347	0.0807290	0.38221120	1.8804730	20	—	—
459448 2012 VM_{38}	18.0	X	337.35091	266.86887	110.18487	24.61635	0.1155544	0.37431888	1.9068135	20	12 14.4	19.8
459449 2012 WO	17.8	X	271.23207	51.42221	350.26081	18.24571	0.1089037	0.35696661	1.9681173	20	8 30.3	19.3
459450 2012 WX_{4}	18.8	X	148.79007	171.48286	249.53395	3.12191	0.1504178	0.31685626	2.1308908	20	4 15.1	21.7
459451 2012 WG_{32}	17.5	X	81.18264	300.44963	26.57240	17.61336	0.4962316	0.39664556	1.8345701	20	—	—
459452 2012 XB_{6}	16.2	X	196.76858	150.65358	165.06835	6.99167	0.3135373	0.17576889	3.1562741	20	2 2.3	22.0
459453 2012 XH_{21}	17.7	X	310.06256	92.86874	245.56357	19.50906	0.0300527	0.34534761	2.0120175	20	7 22.0	20.1
459454 2012 XY_{55}	17.9	X	37.08672	188.77859	97.95084	24.35315	0.0710966	0.35540619	1.9738738	20	10 29.1	20.7
459455 2012 XB_{56}	17.9	X	225.20102	193.17954	301.27798	18.93737	0.0576060	0.36465007	1.9403728	20	11 11.3	20.3
459456 2012 XD_{111}	17.7	X	330.38101	276.05953	102.63663	25.01136	0.0662702	0.36985393	1.9221291	20	11 29.0	19.8
459457 2012 XG_{134}	17.4	X	145.96424	148.21715	109.28372	24.28518	0.0496521	0.37994863	1.8879311	20	—	—
459458 2012 XR_{134}	18.5	X	162.59193	355.13971	218.04791	11.87104	0.7713565	0.34443001	2.0155894	20	11 3.1	23.4
459459 2012 YZ_{2}	17.7	X	152.34999	297.74446	293.32058	19.10877	0.0472299	0.36968800	1.9227042	20	12 31.2	19.7
459460 2012 YT_{3}	18.3	X	334.86722	88.88161	312.12651	18.86795	0.1290754	0.36990695	1.9219454	20	—	—
459461 2013 AD	17.6	X	306.56553	30.20648	333.01823	18.02208	0.0281021	0.34585341	2.0100553	20	9 1.9	19.3
459462 2013 AY_{52}	19.9	X	21.40789	251.79033	116.35702	18.35005	0.4744493	0.65401589	1.3144493	20	—	—
459463 2013 AO_{55}	17.8	X	27.47988	11.30776	312.58824	18.35332	0.0705010	0.35601810	1.9716115	20	11 19.9	20.4
459464 2013 AZ_{72}	17.9	X	200.57077	221.76730	329.22171	18.05637	0.0720115	0.36672349	1.9330521	20	—	—
459465 2013 AK_{112}	18.4	X	192.46014	340.50938	66.88889	2.02972	0.0822357	0.31188813	2.1534600	20	5 14.3	21.1
459466 2013 BR	14.0	X	302.77979	307.45487	93.27456	8.81851	0.0419026	0.08449340	5.1434460	20	9 15.1	20.8
459467 2013 BZ_{16}	17.7	X	36.63994	10.95917	291.11456	16.45489	0.1115441	0.34975464	1.9950804	20	11 4.9	20.3
459468 2013 BC_{22}	17.4	X	328.77156	85.02710	37.34832	2.52364	0.1694389	0.25641867	2.4537838	20	—	—
459469 2013 BO_{43}	18.1	X	26.26546	97.63309	96.58603	4.49533	0.0780589	0.30055262	2.2072712	20	4 23.2	20.1
459470 2013 BU_{45}	17.9	X	228.29660	2.16903	161.76762	22.62877	0.0653479	0.36961684	1.9229510	20	—	—
459471 2013 BT_{54}	18.8	X	139.34154	15.58832	91.53547	2.99725	0.0583525	0.31316866	2.1475858	20	6 1.5	21.2
459472 2013 CA_{7}	18.2	X	161.90656	125.89660	260.88251	3.21072	0.0768058	0.29369448	2.2415006	20	3 8.8	21.2
459473 2013 CF_{16}	17.7	X	74.83637	303.19089	125.66228	6.73349	0.1091899	0.27307426	2.3529654	20	1 15.9	20.0
459474 2013 CJ_{18}	17.2	X	116.33006	295.00778	130.68636	6.93820	0.0777900	0.28292215	2.2980426	20	3 9.5	20.0
459475 2013 CX_{21}	17.3	X	78.82644	334.92219	87.57870	7.45145	0.0965975	0.27055057	2.3675750	20	1 13.1	19.7
459476 2013 CL_{36}	17.7	X	23.30571	9.24560	24.79441	11.99967	0.1765988	0.38199962	1.8811673	20	—	—
459477 2013 CE_{41}	18.6	X	115.92687	272.57226	147.31714	4.67068	0.1052866	0.28836166	2.2690516	20	3 2.9	21.1
459478 2013 CT_{45}	18.0	X	289.83566	95.92330	331.17954	18.30963	0.0709885	0.35203165	1.9864680	20	11 7.2	20.2
459479 2013 CP_{47}	17.8	X	353.99592	309.98635	300.70993	5.22220	0.1240594	0.30019811	2.2090087	20	5 17.4	19.7
459480 2013 CR_{47}	18.5	X	44.54990	34.53140	182.09967	5.37325	0.1147768	0.30766601	2.1731166	20	7 5.0	20.6
459481 2013 CR_{60}	16.8	X	158.93435	148.51438	124.02657	9.09596	0.1503347	0.23665711	2.5885488	20	—	—
459482 2013 CO_{68}	18.8	X	78.53310	230.97140	230.15396	4.58173	0.1692406	0.28757655	2.2731795	20	3 14.0	21.0
459483 2013 CZ_{73}	18.6	X	176.94570	340.47586	76.17686	2.72663	0.1090074	0.30830245	2.1701249	20	5 9.7	21.6
459484 2013 CS_{75}	16.6	X	150.32264	93.95610	140.63139	10.46112	0.1416138	0.21376293	2.7702212	20	11 25.3	21.2
459485 2013 CS_{79}	18.3	X	116.89804	323.00850	135.77369	4.82585	0.1021416	0.30399433	2.1905797	20	4 28.1	21.0
459486 2013 CX_{103}	17.2	X	185.34261	194.04432	99.92125	6.33382	0.1528007	0.25672214	2.4518497	20	—	—
459487 2013 CW_{110}	18.4	X	58.03076	77.64800	104.90298	6.69336	0.0661641	0.30385359	2.1912561	20	5 28.5	20.7
459488 2013 CJ_{111}	18.1	X	159.43190	301.42870	105.53679	5.16380	0.1602574	0.30022664	2.2088687	20	4 12.7	21.3
459489 2013 CH_{119}	18.2	X	30.53904	243.78877	10.36247	6.29050	0.2163423	0.30769286	2.1729902	20	9 1.1	20.1
459490 2013 CY_{123}	18.1	X	343.15104	88.74614	98.29518	2.22914	0.1256233	0.27388265	2.3483331	20	1 23.6	20.4
459491 2013 CC_{128}	18.6	X	80.36050	154.72199	81.25212	2.99479	0.2319245	0.32935536	2.0766321	20	10 13.6	21.6
459492 2013 CO_{139}	17.8	X	354.28856	6.78357	133.96399	7.37389	0.1594440	0.26340856	2.4101799	20	—	—
459493 2013 CH_{143}	18.2	X	7.12378	340.72567	184.95155	2.95114	0.0956811	0.27750378	2.3278596	20	2 4.1	20.5
459494 2013 CM_{161}	17.9	X	194.89666	353.65726	16.06294	1.55282	0.1112369	0.28963770	2.2623823	20	3 27.2	21.1
459495 2013 CJ_{168}	18.0	X	159.81645	131.96228	275.48776	6.82313	0.1421132	0.29816478	2.2190401	20	4 6.4	21.3
459496 2013 CH_{172}	17.6	X	333.42235	303.61308	310.88605	2.46484	0.2105357	0.28858661	2.2678723	20	3 28.9	19.6
459497 2013 CL_{174}	18.5	X	34.84763	280.12013	288.74691	1.95038	0.1289645	0.29876447	2.2160697	20	6 5.9	20.3
459498 2013 CH_{175}	17.9	X	129.31336	261.41152	157.61181	6.20723	0.1000497	0.28546411	2.2843801	20	3 19.2	20.8
459499 2013 CS_{191}	18.4	X	69.20696	139.54853	34.21394	4.34332	0.0906274	0.30288804	2.1959105	20	6 4.5	20.7
459500 2013 CR_{195}	18.5	X	174.94608	269.16255	145.19231	5.56159	0.1267119	0.30616452	2.1802157	20	5 6.5	21.6
459501 2013 CD_{207}	18.4	X	202.96803	91.96768	304.48025	3.59035	0.0855713	0.30832381	2.1700247	20	5 9.9	21.4
459502 2013 CB_{208}	18.4	X	180.33685	128.79660	292.71872	4.26311	0.0862179	0.30764795	2.1732017	20	5 18.6	21.4
459503 2013 CC_{218}	17.8	X	202.20891	50.88378	303.43495	5.27378	0.1102650	0.29024377	2.2592317	20	3 12.1	21.0
459504 2013 DC_{13}	17.9	X	325.02991	240.47508	6.24624	6.83537	0.0765283	0.29130408	2.2537462	20	3 25.4	20.1
459505 2013 EC_{6}	17.7	X	218.13026	163.04241	173.64870	5.48927	0.1865805	0.28242102	2.3007603	20	3 6.6	21.3
459506 2013 EU_{10}	17.5	X	24.63468	322.00404	222.25887	2.91256	0.1073708	0.28539000	2.2847756	20	4 3.6	19.4
459507 2013 EA_{13}	17.3	X	186.05052	212.08031	147.86912	7.32456	0.1364959	0.28072198	2.3100343	20	3 7.6	20.7
459508 2013 EQ_{15}	17.4	X	126.60086	306.36794	110.44421	5.26088	0.0842017	0.28186092	2.3038073	20	3 12.3	20.3
459509 2013 EQ_{17}	18.0	X	17.74517	146.59582	67.47659	5.49834	0.1840391	0.28829334	2.2694101	20	5 13.9	19.3
459510 2013 ER_{18}	18.2	X	44.35783	295.74745	284.78338	3.37713	0.0838623	0.30696750	2.1764120	20	7 6.3	20.3
459511 2013 ER_{25}	18.6	X	22.60808	52.72657	106.10773	2.19535	0.1239856	0.27686555	2.3314356	20	2 23.1	20.5
459512 2013 EA_{26}	18.7	X	41.12202	36.54637	159.05899	1.54338	0.0862900	0.29524930	2.2336243	20	5 21.9	20.7
459513 2013 EB_{29}	17.9	X	1.74541	293.21214	327.64222	6.51023	0.2066825	0.29926585	2.2135939	20	6 29.0	19.1
459514 2013 EZ_{30}	17.8	X	352.67260	170.64330	108.42749	4.91119	0.1760380	0.29958849	2.2120043	20	7 5.9	19.0
459515 2013 EW_{52}	18.3	X	34.39382	209.84550	351.81895	8.65469	0.0331052	0.29706243	2.2245264	20	5 9.6	20.9
459516 2013 ER_{62}	18.0	X	284.21642	329.80612	355.16042	6.31449	0.1209530	0.29882100	2.2157902	20	5 6.7	20.7
459517 2013 EN_{67}	17.8	X	308.25209	120.21546	133.43792	5.11634	0.1589490	0.27349870	2.3505304	20	2 28.6	20.7
459518 2013 EB_{82}	18.2	X	165.78688	274.71799	159.37584	5.00970	0.1187846	0.30290731	2.1958173	20	5 22.7	21.3
459519 2013 EP_{85}	17.4	X	302.76068	145.42013	80.83174	5.97080	0.1034961	0.26772592	2.3841986	20	1 24.9	20.4
459520 2013 EY_{101}	17.5	X	173.79734	105.47152	151.01212	9.70563	0.0472573	0.22850241	2.6497742	20	—	—

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
459521 2013 EY_{107}	17.3	X	24.39435	63.52050	136.50366	23.40751	0.1867117	0.28220807	2.3019176	20	5 16.9	19.9
459522 2013 EV_{109}	17.3	X	270.16038	206.32990	70.65599	4.73214	0.1627444	0.26665080	2.3906030	20	2 15.2	20.8
459523 2013 EM_{116}	17.3	X	73.76133	197.21328	124.62435	5.25529	0.0717499	0.21766641	2.7370020	20	12 18.4	21.1
459524 2013 ES_{116}	18.5	X	1.84435	101.92776	65.26547	3.43485	0.1078468	0.27109258	2.3644182	20	1 30.4	21.0
459525 2013 EL_{125}	18.0	X	1.24935	109.06315	94.77568	4.37026	0.0974702	0.28054329	2.3110152	20	3 24.8	20.2
459526 2013 EM_{125}	18.1	X	9.07809	76.27476	79.74648	5.54187	0.1301102	0.26862228	2.3788918	20	1 25.4	20.3
459527 2013 EW_{127}	14.9	X	82.55984	302.62611	279.80578	25.01463	0.2674352	0.17589712	3.1547399	20	8 30.1	20.3
459528 2013 EG_{141}	18.1	X	223.08016	173.63971	148.70840	1.30167	0.1134936	0.28988240	2.2611089	20	2 23.8	21.2
459529 2013 EY_{152}	18.2	X	48.79977	88.23755	20.32428	5.37923	0.1918801	0.26370268	2.4083875	20	2 8.0	20.1
459530 2013 FG_{1}	18.4	X	43.19490	80.49318	142.27310	3.73590	0.0611926	0.30603746	2.1808192	20	7 3.8	20.5
459531 2013 FB_{2}	17.4	X	227.06282	184.50963	120.66464	8.01659	0.1117878	0.26711381	2.3878397	20	2 9.3	21.0
459532 2013 FL_{6}	18.0	X	55.05844	191.34409	29.08442	6.48729	0.1382013	0.30514903	2.1850500	20	8 6.0	20.4
459533 2013 FW_{19}	18.0	X	351.80580	76.48858	169.17293	6.75568	0.2144661	0.28578418	2.2826742	20	5 1.3	19.4
459534 2013 FC_{26}	17.5	X	315.55766	142.43942	52.87617	5.65288	0.1166197	0.26409204	2.4060197	20	—	—
459535 2013 GE_{2}	18.4	X	16.05820	186.04088	20.40561	3.92153	0.1700114	0.28367132	2.2939948	20	4 24.0	19.9
459536 2013 GN_{2}	18.8	X	76.28469	25.38095	126.20719	0.61426	0.1475967	0.29398776	2.2400096	20	5 23.7	21.1
459537 2013 GF_{3}	17.7	X	338.04455	347.35197	199.05466	11.74585	0.1146934	0.26911288	2.3759997	20	1 14.5	20.7
459538 2013 GL_{6}	18.5	X	48.32084	40.04541	141.74020	4.00201	0.0219750	0.29160131	2.2522144	20	5 6.0	21.0
459539 2013 GG_{17}	17.8	X	275.69263	183.19410	94.59773	5.52092	0.1073798	0.27271024	2.3550588	20	2 28.5	21.0
459540 2013 GY_{19}	18.2	X	14.52166	26.96036	149.51146	2.45367	0.1749223	0.27643364	2.3338635	20	3 2.2	19.6
459541 2013 GC_{22}	18.1	X	73.52097	150.45031	17.65182	5.92068	0.0976458	0.29503342	2.2347138	20	6 3.3	20.6
459542 2013 GP_{22}	18.0	X	288.72752	269.36932	25.32984	5.45880	0.1665804	0.27807371	2.3246778	20	3 28.2	20.9
459543 2013 GX_{23}	17.5	X	216.47241	6.49394	264.56485	2.35012	0.0950545	0.24697194	2.5159633	20	—	—
459544 2013 GJ_{25}	18.0	X	77.49300	313.14193	221.98590	5.04816	0.1624179	0.29951197	2.2123810	20	7 1.9	20.6
459545 2013 GR_{25}	17.8	X	351.81102	239.23628	345.60911	7.09972	0.1661563	0.28088198	2.3091570	20	3 27.4	19.7
459546 2013 GH_{26}	18.2	X	340.40651	53.54290	195.12798	6.18523	0.2013563	0.28319292	2.2965776	20	4 7.3	20.0
459547 2013 GR_{28}	17.7	X	330.90329	306.97104	198.76494	14.11804	0.0316823	0.24633420	2.5203039	20	—	—
459548 2013 GD_{31}	17.9	X	310.16987	333.67663	270.43084	0.72371	0.1324331	0.27158917	2.3615352	20	2 21.2	20.5
459549 2013 GO_{32}	17.5	X	319.26172	177.94502	57.34670	2.78816	0.1797306	0.27029861	2.3690460	20	2 16.3	20.2
459550 2013 GT_{43}	18.1	X	330.88355	111.64013	150.95371	2.58090	0.1927153	0.28083286	2.3094263	20	4 12.5	19.9
459551 2013 GH_{46}	18.2	X	330.61559	272.20214	5.24871	7.71523	0.1434557	0.29482115	2.2357863	20	5 9.0	20.3
459552 2013 GN_{46}	18.3	X	9.10615	245.07711	27.97106	3.48776	0.1576157	0.30607937	2.1806201	20	8 7.2	19.9
459553 2013 GA_{51}	18.4	X	62.04656	247.53476	311.14468	3.96482	0.1084371	0.29805026	2.2196085	20	7 5.8	20.7
459554 2013 GZ_{69}	17.9	X	352.66827	93.73934	138.34379	4.59478	0.1726253	0.27913709	2.3187701	20	4 14.6	19.7
459555 2013 GT_{74}	17.8	X	266.59649	280.02117	356.12257	1.47346	0.1734811	0.26193874	2.4191877	20	2 8.4	21.5
459556 2013 GU_{78}	18.3	X	326.50619	341.50980	217.46486	2.46221	0.1256690	0.25932899	2.4353908	20	1 16.9	21.2
459557 2013 GF_{81}	18.5	X	71.44214	101.79215	38.87440	3.31146	0.1375146	0.28367120	2.2939955	20	4 27.8	20.9
459558 2013 GV_{82}	16.0	X	27.62361	265.25131	81.94750	10.85655	0.1001238	0.18879489	3.0093721	20	11 21.9	20.0
459559 2013 GL_{85}	17.1	X	249.14185	108.58477	92.97374	13.03343	0.2203221	0.23287038	2.6165350	20	—	—
459560 2013 GV_{89}	18.4	X	59.29499	284.02993	333.73176	2.25063	0.1049347	0.31856683	2.1232560	20	9 29.9	20.7
459561 2013 GM_{92}	18.0	X	12.01555	32.29241	235.73861	2.74168	0.3049491	0.29329510	2.2435350	20	8 26.9	19.3
459562 2013 GQ_{96}	17.4	X	249.04845	164.25652	126.39983	3.66072	0.1672599	0.26019084	2.4300099	20	2 10.1	21.3
459563 2013 GW_{97}	17.6	X	48.66376	329.57487	235.46926	9.44098	0.1059496	0.29448547	2.2374850	20	6 21.6	19.9
459564 2013 GF_{98}	18.4	X	332.67071	156.67091	28.22148	2.75071	0.1451235	0.26082677	2.4260585	20	1 4.3	21.1
459565 2013 GH_{99}	15.4	X	153.94717	276.90592	210.15893	24.84499	0.1670524	0.17173243	3.2055398	20	7 10.9	21.1
459566 2013 GO_{99}	15.8	X	52.12845	219.74543	86.26074	14.02087	0.1535060	0.18544756	3.0454769	20	11 11.9	20.2
459567 2013 GU_{101}	18.1	X	354.95494	166.89635	65.59023	4.75717	0.1873490	0.27760781	2.3272780	20	4 18.9	19.8
459568 2013 GY_{103}	18.5	X	76.87789	139.47414	23.05170	1.83500	0.1488027	0.29421639	2.2388490	20	6 9.9	21.1
459569 2013 GW_{104}	18.1	X	37.00194	164.14905	6.49080	4.32398	0.0772085	0.28203049	2.3028837	20	4 4.5	20.3
459570 2013 GF_{105}	18.0	X	8.47408	66.19075	143.97842	5.00505	0.1662270	0.28113210	2.3077872	20	4 15.4	19.7
459571 2013 GB_{107}	18.1	X	95.42223	339.55058	177.72541	5.18875	0.0794610	0.29854817	2.2171400	20	6 17.9	20.8
459572 2013 GC_{107}	18.0	X	356.39541	194.09619	89.16534	2.09013	0.2184525	0.29738060	2.2229394	20	7 28.1	19.0
459573 2013 GE_{107}	16.2	X	75.23770	197.75681	107.81246	10.89352	0.2786220	0.18655385	3.0334249	20	12 15.5	21.3
459574 2013 GD_{109}	17.6	X	59.70084	299.34248	268.03618	4.71685	0.1073412	0.29892959	2.2152536	20	7 14.4	19.9
459575 2013 GF_{109}	17.7	X	337.40181	347.85041	249.13404	4.79202	0.1495516	0.27577426	2.3375822	20	3 19.7	20.2
459576 2013 GB_{110}	18.2	X	17.87458	102.65864	121.38304	4.17285	0.1879856	0.28816754	2.2700705	20	6 2.1	19.6
459577 2013 GF_{110}	17.8	X	317.47086	204.00040	55.71099	4.43258	0.2184545	0.27340557	2.3510641	20	3 13.0	20.3
459578 2013 GZ_{110}	18.0	X	333.82687	205.69170	61.69888	4.34576	0.2040689	0.28059528	2.3107297	20	4 24.7	19.7
459579 2013 GG_{112}	17.6	X	310.48695	236.14988	355.31924	4.31858	0.1561980	0.26268228	2.4146204	20	2 3.9	20.5
459580 2013 GR_{112}	17.1	X	294.25088	320.08214	210.80737	14.74686	0.0640410	0.23868972	2.5738323	20	—	—
459581 2013 GL_{115}	18.2	X	317.53500	14.22352	262.70409	2.64194	0.1383725	0.28426515	2.2907989	20	4 16.6	20.6
459582 2013 GV_{117}	18.2	X	27.49328	155.19706	20.92183	7.64625	0.0430199	0.27936348	2.3175172	20	3 28.0	20.7
459583 2013 GU_{118}	16.0	X	47.57278	213.58805	82.72811	16.61654	0.2572876	0.17537259	3.1610272	20	11 8.6	20.6
459584 2013 GE_{123}	18.0	X	319.86165	91.88993	164.98193	1.18761	0.1590932	0.27295562	2.3536471	20	3 20.6	20.6
459585 2013 GH_{124}	18.6	X	16.65519	188.77196	14.47912	2.07258	0.1214780	0.28289735	2.2981769	20	4 19.1	20.6
459586 2013 GV_{126}	16.7	X	343.17766	296.20234	190.50677	21.86820	0.0283254	0.23326802	2.6135606	20	—	—
459587 2013 GW_{126}	17.7	X	5.52996	86.88320	107.98084	4.99562	0.0533424	0.26749642	2.3855622	20	3 22.9	20.4
459588 2013 GE_{127}	18.0	X	8.77941	93.28564	161.03717	2.97526	0.1340475	0.29167673	2.2518262	20	6 27.9	19.8
459589 2013 GD_{130}	17.3	X	191.23549	24.73152	257.37063	5.05902	0.1135710	0.23588625	2.5941851	20	—	—
459590 2013 GQ_{130}	17.6	X	353.87678	207.53047	13.25947	5.75272	0.1641310	0.27656356	2.3331326	20	3 28.7	19.5
459591 2013 GS_{134}	18.4	X	61.65012	8.15579	193.71268	6.56455	0.1002077	0.29796629	2.2200255	20	7 7.1	21.0
459592 2013 HV_{2}	16.7	X	260.98924	54.39798	148.00549	14.95111	0.1069215	0.23681133	2.5874248	20	—	—
459593 2013 HX_{8}	17.6	X	45.27264	129.84791	77.11141	7.52102	0.0809690	0.29757184	2.2219869	20	6 15.1	19.7
459594 2013 HZ_{9}	17.4	X	258.99476	118.46593	86.54786	9.73855	0.1103127	0.23808664	2.5781768	20	—	—
459595 2013 HF_{12}	16.9	X	210.76389	130.57411	104.90483	12.59702	0.1504876	0.22403266	2.6849023	20	—	—
459596 2013 HK_{13}	17.8	X	335.49940	147.89141	109.35898	5.25784	0.2038049	0.27954881	2.3164928	20	4 13.9	19.7
459597 2013 HP_{20}	16.8	X	332.60345	30.91862	94.22921	14.29851	0.1722696	0.24418123	2.5350967	20	—	—
459598 2013 HY_{20}	17.8	X	303.87652	103.64578	132.02024	3.35247	0.1509566	0.26098850	2.4250562	20	1 31.7	21.1
459599 2013 HG_{22}	17.7	X	325.06812	41.54847	233.75202	5.80301	0.2384886	0.27963064	2.3160408	20	4 9.8	20.0
459600 2013 HO_{23}	17.9	X	347.83870	134.88412	122.27242	4.97344	0.2191941	0.28357353	2.2945222	20	5 10.8	19.4

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	m		°	°	°	°		°				
459601 2013 HQ_{24}	17.9	X	59.56877	274.56961	227.66546	2.65259	0.0813498	0.27556931	2.3387411	20	4 1.1	20.2
459602 2013 HD_{25}	17.6	X	351.96684	330.54710	231.47644	5.81792	0.0625407	0.26986198	2.3716008	20	3 4.7	20.3
459603 2013 HB_{26}	18.2	X	35.73746	269.58524	316.56637	1.59037	0.1775537	0.29416507	2.2391094	20	7 15.3	20.0
459604 2013 HB_{28}	17.4	X	321.75400	132.60058	136.93181	7.50128	0.1180732	0.27974424	2.3154138	20	4 21.4	19.9
459605 2013 HH_{30}	17.3	X	49.08508	120.01002	265.27075	5.16386	0.1142296	0.22719475	2.6599319	20	—	—
459606 2013 HM_{31}	17.9	X	99.09077	151.36716	282.34590	5.97957	0.1000066	0.26799956	2.3825755	20	2 25.9	20.8
459607 2013 HZ_{42}	17.9	X	225.98398	19.74239	356.22610	6.89365	0.1407994	0.28806455	2.2706115	20	5 3.8	21.2
459608 2013 HP_{43}	18.8	X	155.28662	105.07246	344.95739	5.19952	0.1057518	0.29558890	2.2319132	20	5 29.9	22.0
459609 2013 HM_{51}	18.2	X	142.62366	55.59652	357.03887	7.99601	0.0982135	0.27325219	2.3519438	20	3 25.6	21.3
459610 2013 HU_{59}	18.2	X	250.69576	314.76492	1.31056	7.38099	0.1262999	0.27204901	2.3588733	20	3 17.1	21.5
459611 2013 HV_{62}	18.4	X	171.88490	25.05318	10.89319	6.50664	0.1188768	0.27895645	2.3197710	20	4 6.7	21.8
459612 2013 HS_{67}	18.0	X	283.73954	34.61548	225.25312	6.60561	0.0835577	0.26520159	2.3993041	20	2 13.4	21.3
459613 2013 HM_{73}	18.5	X	336.57451	332.62059	269.19887	1.87050	0.1534614	0.27758098	2.3274280	20	3 26.4	20.7
459614 2013 HN_{79}	18.0	X	305.10843	40.12473	218.48022	3.33717	0.1467255	0.27041645	2.3683578	20	3 1.8	21.1
459615 2013 HM_{107}	18.3	X	135.47336	225.65717	177.62057	2.38198	0.1951380	0.26940633	2.3742741	20	3 16.9	21.7
459616 2013 HS_{113}	17.5	X	29.06061	11.48693	17.13898	3.01464	0.0569431	0.21909707	2.7250742	20	—	—
459617 2013 HN_{115}	17.4	X	84.97256	124.26615	205.19685	3.33780	0.1009879	0.21352417	2.7722860	20	—	—
459618 2013 HJ_{116}	18.6	X	15.86072	295.78365	191.87584	3.17209	0.1131294	0.25715393	2.4491042	20	—	—
459619 2013 HU_{126}	17.8	X	338.35939	234.42625	1.57448	9.69381	0.0502170	0.27822749	2.3238211	20	4 2.9	20.3
459620 2013 HH_{130}	17.7	X	66.49764	258.07136	292.75567	3.27884	0.0886700	0.29792317	2.2202397	20	6 26.9	20.1
459621 2013 HK_{138}	18.3	X	195.33809	90.85293	289.62595	1.70497	0.1667429	0.28079553	2.3096309	20	4 10.3	22.0
459622 2013 HR_{139}	17.9	X	128.67078	124.59987	278.23648	1.42230	0.2193088	0.26789169	2.3832150	20	3 11.4	21.5
459623 2013 JB_{2}	15.1	X	294.19515	256.49667	143.87915	26.08543	0.2638397	0.17458159	3.1705681	20	8 10.5	18.9
459624 2013 JF_{2}	17.9	X	53.44686	131.17779	73.96848	4.09883	0.1055523	0.29419721	2.2389463	20	6 30.6	20.0
459625 2013 JG_{2}	18.1	X	35.63752	265.72001	299.81784	2.24428	0.1940271	0.28788944	2.2715322	20	6 12.6	19.7
459626 2013 JP_{2}	17.9	X	319.50762	143.34149	93.24460	3.54364	0.1288652	0.26354247	2.4093634	20	2 28.1	20.7
459627 2013 JC_{3}	17.8	X	46.90164	145.76000	18.74283	6.57098	0.1200023	0.28248698	2.3004021	20	4 17.3	19.9
459628 2013 JZ_{3}	17.6	X	329.43425	157.20447	86.02238	8.33637	0.1837975	0.27154268	2.3618047	20	3 17.8	20.1
459629 2013 JQ_{4}	17.1	X	179.35543	121.38586	136.07646	25.48249	0.1199044	0.22445169	2.6815597	20	—	—
459630 2013 JB_{5}	17.7	X	350.33153	210.06152	39.29698	3.38493	0.1980319	0.28100612	2.3084769	20	5 3.2	19.0
459631 2013 JF_{5}	16.5	X	175.43883	13.61014	259.75738	9.26698	0.1672486	0.22017261	2.7161923	20	—	—
459632 2013 JD_{11}	17.4	X	350.15306	158.56731	72.43887	6.01320	0.1055429	0.27756738	2.3275040	20	4 14.8	19.6
459633 2013 JS_{11}	17.3	X	272.12052	336.09878	222.11770	11.15065	0.0210568	0.23560478	2.5962509	20	—	—
459634 2013 JX_{21}	18.7	X	18.68675	4.44282	194.21568	1.20910	0.1265552	0.27780035	2.3262025	20	4 16.9	20.7
459635 2013 JJ_{25}	18.0	X	298.80428	136.01746	126.94573	2.88300	0.1492346	0.26991495	2.3712905	20	3 1.3	21.1
459636 2013 JB_{28}	15.7	X	68.26575	189.25604	84.22857	17.97129	0.2352603	0.17522149	3.1628443	20	11 2.6	20.7
459637 2013 JJ_{28}	18.2	X	353.32321	277.53619	312.26155	4.29447	0.1885860	0.27610371	2.3357224	20	4 5.4	20.0
459638 2013 JA_{31}	17.1	X	276.34881	354.91758	205.73481	14.28842	0.0507761	0.23257313	2.6187640	20	—	—
459639 2013 JR_{31}	18.0	X	53.75326	150.12347	113.16972	7.54934	0.2288841	0.30579521	2.1819708	20	10 21.3	21.0
459640 2013 JE_{32}	17.9	X	39.69103	155.53832	127.79996	6.93258	0.1346539	0.30763325	2.1732709	20	10 16.9	20.4
459641 2013 JT_{33}	16.7	X	355.34184	134.70647	118.04099	24.60015	0.1720898	0.27934226	2.3176346	20	6 2.8	19.1
459642 2013 JY_{33}	17.3	X	213.88882	175.02095	112.80021	13.25082	0.1647519	0.23695508	2.5863782	20	1 8.9	21.5
459643 2013 JK_{36}	16.9	X	206.84740	45.98221	249.54273	13.62915	0.1042944	0.23796034	2.5790890	20	1 8.8	21.0
459644 2013 JC_{37}	17.5	X	279.07421	335.49799	292.51842	1.62514	0.1883753	0.25900462	2.4374238	20	2 8.9	21.1
459645 2013 JG_{37}	17.6	X	332.87302	50.86936	228.23982	3.67289	0.2105068	0.28260663	2.2997528	20	5 9.9	19.4
459646 2013 JM_{39}	18.2	X	13.35349	167.86815	62.25968	0.93538	0.1712112	0.28407489	2.2918217	20	5 29.9	19.8
459647 2013 JZ_{41}	16.8	X	274.39118	321.78973	252.44749	4.81889	0.1695937	0.24178937	2.5517880	20	—	—
459648 2013 JL_{42}	17.9	X	13.33729	43.45811	166.09462	8.67154	0.1604777	0.27779720	2.3262201	20	4 27.0	19.8
459649 2013 JU_{46}	16.4	X	252.31580	99.78160	97.19898	15.41431	0.1413082	0.22361179	2.6882702	20	—	—
459650 2013 JE_{48}	17.0	X	214.57906	224.03266	92.89359	15.40126	0.2740942	0.24332509	2.5410397	20	2 14.8	21.8
459651 2013 JG_{49}	17.0	X	131.64754	239.80973	45.93109	10.72348	0.1459834	0.21361937	2.7714622	20	—	—
459652 2013 JG_{53}	17.2	X	276.00200	233.72546	334.76993	3.96603	0.1094763	0.24147864	2.5539766	20	—	—
459653 2013 JB_{61}	17.9	X	303.25541	145.48434	70.23434	2.49916	0.0937465	0.25122957	2.4874568	20	1 15.2	21.1
459654 2013 KY_{3}	15.9	X	26.29003	272.12950	84.76058	10.51419	0.0877075	0.19173650	2.9785131	20	11 30.4	19.8
459655 2013 KM_{4}	17.7	X	9.18281	327.45930	219.70758	4.94439	0.1419114	0.26895319	2.3769402	20	3 8.1	19.9
459656 2013 KO_{4}	18.0	X	28.55579	143.89281	103.87551	3.27969	0.1241065	0.29351498	2.2424144	20	7 27.7	20.1
459657 2013 KP_{5}	17.4	X	328.59583	185.93232	88.65602	6.36358	0.1543710	0.27788854	2.3257103	20	5 4.9	19.5
459658 2013 KL_{7}	17.8	X	322.80502	62.01867	180.21376	2.21993	0.1637208	0.26517966	2.3994364	20	3 3.9	20.3
459659 2013 KN_{7}	15.9	X	57.98920	245.19009	60.50551	17.62158	0.1938284	0.18475683	3.0530627	20	11 19.8	20.2
459660 2013 KJ_{8}	16.6	X	353.62376	136.22398	102.30298	25.17903	0.1998166	0.27615205	2.3354498	20	5 9.2	19.1
459661 2013 KS_{10}	16.9	X	221.47249	131.79849	72.79838	10.40451	0.0658858	0.21418921	2.7665445	20	—	—
459662 2013 KM_{13}	18.0	X	34.52037	295.24002	235.01657	3.94419	0.1623515	0.27156390	2.3616817	20	4 6.3	20.0
459663 2013 KB_{15}	16.7	X	210.37591	236.50799	84.36629	16.42344	0.2759896	0.24208314	2.5497231	20	2 17.8	21.5
459664 2013 KU_{15}	18.0	X	319.67466	117.73181	120.50100	2.24299	0.1453120	0.26268940	2.4145768	20	2 27.0	20.8
459665 2013 KV_{15}	17.5	X	326.04516	167.83348	104.70679	12.99885	0.2031481	0.27372872	2.3492134	20	4 24.0	20.0
459666 2013 LQ	18.1	X	45.18068	345.28534	240.32370	2.60446	0.1742620	0.29461727	2.2368176	20	7 30.2	20.2
459667 2013 LC_{9}	17.4	X	355.89758	199.72266	86.49498	6.61414	0.1717996	0.29182029	2.2510876	20	7 28.5	18.9
459668 2013 LD_{14}	17.1	X	283.56750	107.23620	108.24379	9.34962	0.1111471	0.24031928	2.5621839	20	—	—
459669 2013 LT_{14}	17.8	X	318.05696	189.77304	71.98009	5.87476	0.2023349	0.27019825	2.3696327	20	3 21.1	20.5
459670 2013 LM_{16}	18.1	X	323.74815	101.31847	161.37981	1.77018	0.1609587	0.27193359	2.3595407	20	4 4.9	20.4
459671 2013 LS_{21}	17.4	X	306.00041	198.73593	78.27065	6.13363	0.1320354	0.26815579	2.3816499	20	4 5.3	20.2
459672 2013 LM_{22}	16.7	X	254.54443	145.40701	113.66459	19.47006	0.1661694	0.24453852	2.5326268	20	1 9.5	20.8
459673 2013 LQ_{22}	17.9	X	316.21595	4.98176	235.46965	5.05962	0.0690806	0.26165727	2.4209223	20	3 4.9	20.9
459674 2013 LS_{22}	16.8	X	85.87189	237.58882	94.05095	2.49022	0.1466286	0.20053589	2.8907329	20	—	—
459675 2013 LO_{24}	16.9	X	342.00478	38.75336	93.05068	14.85695	0.1016860	0.23268394	2.6179325	20	—	—
459676 2013 LO_{28}	18.3	X	349.38398	19.78526	184.29904	1.08227	0.1266766	0.26580877	2.3956490	20	2 28.6	20.8
459677 2013 LR_{32}	17.4	X	244.55953	128.62215	175.19333	13.46359	0.1804913	0.23580318	2.5947944	20	2 21.5	21.6
459678 2013 LJ_{33}	15.5	X	80.00005	34.51031	248.16316	16.09938	0.1727417	0.18157563	3.0886191	20	11 11.0	20.3
459679 2013 LS_{33}	17.7	X	20.38615	172.24177	78.21812	6.87407	0.2222887	0.28955214	2.2628279	20	8 2.6	19.4
459680 2013 LV_{33}	17.5	X	288.70078	172.90654	79.95093	2.25518	0.1614656	0.25534946	2.4606287	20	2 4.9	20.8

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Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
459681 2013 LL_{34}	17.7	X	321.01394	211.32413	46.77743	2.99848	0.1869143	0.26964966	2.3728455	20	3 21.2	20.3
459682 2013 ML_{2}	16.1	X	62.47799	176.53859	147.41286	11.07137	0.1070194	0.19153228	2.9806300	20	12 8.2	20.6
459683 2013 MY_{5}	19.7	X	45.83119	279.00643	102.89461	2.99641	0.4528802	0.46002414	1.6619411	20	—	—
459684 2013 MH_{6}	16.6	X	225.89528	71.64028	223.96782	14.31147	0.1815305	0.23986392	2.5654256	20	1 23.5	21.1
459685 2013 MO_{6}	16.6	X	210.77958	12.75105	216.47562	12.78567	0.1449706	0.21491092	2.7603473	20	—	—
459686 2013 MW_{8}	16.7	X	330.19920	269.95399	288.83082	13.57740	0.0846158	0.22905968	2.6454747	20	1 31.3	20.2
459687 2013 MX_{10}	16.0	X	88.17818	337.73115	292.96265	14.10296	0.0524757	0.17207832	3.2012428	20	10 15.6	21.0
459688 2013 NT_{8}	16.7	X	246.90593	71.91887	130.79925	8.45546	0.1646406	0.21276680	2.7788609	20	—	—
459689 2013 NG_{9}	16.5	X	202.88418	31.94027	268.97314	8.02398	0.1643160	0.22614795	2.6681338	20	1 15.2	20.8
459690 2013 NT_{12}	16.3	X	10.83498	129.33476	286.73370	14.31753	0.0695114	0.18137704	3.0908731	20	—	—
459691 2013 NY_{12}	17.0	X	203.27252	26.71219	288.05544	12.00005	0.1701244	0.23243167	2.6198264	20	1 30.1	21.4
459692 2013 NK_{13}	16.9	X	229.90211	339.32009	290.45728	16.23876	0.1692048	0.22928277	2.6437584	20	1 2.9	21.1
459693 2013 NR_{15}	16.9	X	164.62895	48.05340	300.20926	8.69171	0.1064857	0.22329503	2.6908119	20	2 2.8	20.8
459694 2013 NR_{16}	16.1	X	326.48181	273.56058	159.84162	11.85257	0.1250363	0.17420197	3.1751726	20	12 6.1	20.2
459695 2013 NY_{16}	16.9	X	183.91936	127.69365	268.88902	6.31003	0.0934916	0.24770805	2.5109764	20	4 19.3	20.8
459696 2013 NW_{20}	16.1	X	41.52082	187.15435	301.60088	21.42149	0.0776278	0.23655015	2.5893290	20	2 11.9	19.3
459697 2013 NV_{23}	15.8	X	325.15995	159.19026	302.80589	27.57518	0.1547138	0.18156400	3.0887509	20	—	—
459698 2013 OV_{8}	16.4	X	284.50588	154.83810	275.49745	8.70917	0.0081738	0.15477456	3.4356032	20	10 2.8	21.4
459699 2013 OZ_{9}	17.0	X	206.08473	349.02773	323.32445	11.34838	0.2412156	0.22587288	2.6702996	20	2 2.5	21.6
459700 2013 PG_{11}	15.9	X	75.10211	352.21741	334.10440	16.81691	0.2032284	0.17290310	3.1910544	20	12 31.6	21.1
459701 2013 PC_{13}	16.1	X	69.01052	229.10306	90.89865	10.97128	0.0166795	0.17274334	3.1930215	20	11 25.3	20.7
459702 2013 PZ_{13}	16.5	X	277.18521	295.98406	323.38116	11.69480	0.1470618	0.23108354	2.6300058	20	2 5.4	20.3
459703 2013 PR_{16}	16.2	X	142.31946	305.51470	336.33379	18.12062	0.1914795	0.18546553	3.0452801	20	—	—
459704 2013 PC_{22}	16.7	X	161.16013	310.57218	324.83579	7.95439	0.0232261	0.18374650	3.0642439	20	—	—
459705 2013 PE_{23}	17.1	X	219.84574	112.37872	170.78483	11.55151	0.1602167	0.21656732	2.7462544	20	1 9.9	21.8
459706 2013 PR_{25}	16.4	X	219.48292	27.93487	273.31841	11.75980	0.1598875	0.22298527	2.6933033	20	1 28.3	20.9
459707 2013 PQ_{30}	16.7	X	21.62001	271.14648	171.27770	11.09915	0.0575630	0.19161274	2.9797955	20	—	—
459708 2013 PM_{32}	16.6	X	120.76518	169.28843	193.19523	8.61561	0.0821849	0.20061004	2.8900206	20	1 3.2	20.8
459709 2013 PQ_{34}	16.6	X	24.34840	112.76514	296.65013	9.20212	0.1297357	0.18275797	3.0752836	20	—	—
459710 2013 PZ_{35}	16.7	X	155.84983	335.60942	348.61042	5.46133	0.0558891	0.20580752	2.8411569	20	—	—
459711 2013 PY_{36}	16.2	X	233.34086	176.97482	88.35531	14.57622	0.0590497	0.21775237	2.7362816	20	1 5.6	20.2
459712 2013 PD_{37}	17.4	X	245.57357	7.68928	278.15645	3.86450	0.2398900	0.23379841	2.6096064	20	1 29.7	21.9
459713 2013 PM_{39}	16.1	X	199.24814	236.61471	344.34630	16.31481	0.1177077	0.18202814	3.0834982	20	12 18.5	21.1
459714 2013 PY_{40}	17.1	X	350.79386	194.26636	231.42225	6.96156	0.0727674	0.17643443	3.1483318	20	12 29.3	21.2
459715 2013 PU_{41}	15.9	X	277.28143	165.20380	338.29890	18.81351	0.1307707	0.17309844	3.1886531	20	12 13.8	20.4
459716 2013 PB_{45}	15.9	X	254.16226	209.88284	299.22328	15.69245	0.1668085	0.18023706	3.1038923	20	11 13.1	20.5
459717 2013 PE_{46}	17.0	X	25.49403	262.08481	162.10603	13.24560	0.0755812	0.19331635	2.9622633	20	—	—
459718 2013 PJ_{46}	16.8	X	278.57514	237.36548	295.83104	8.56714	0.0088115	0.19768022	2.9185059	20	—	—
459719 2013 PQ_{46}	17.1	X	95.66217	88.29106	268.20569	4.25878	0.0384219	0.19705789	2.9246473	20	—	—
459720 2013 PC_{48}	16.9	X	25.14551	225.66252	344.25415	2.47787	0.0700364	0.25116252	2.4878994	20	5 13.8	19.6
459721 2013 PF_{49}	16.8	X	200.18260	81.63716	190.55857	7.22381	0.1836484	0.21004273	2.8028355	20	—	—
459722 2013 PL_{49}	16.4	X	239.62780	298.62005	317.76618	12.40516	0.1259377	0.21739653	2.7392667	20	—	—
459723 2013 PA_{50}	16.1	X	256.01751	237.05877	299.88493	11.14648	0.1036238	0.18546855	3.0452471	20	—	—
459724 2013 PM_{50}	16.5	X	14.88573	120.10676	302.36511	11.48690	0.1380891	0.18027737	3.1034297	20	—	—
459725 2013 PA_{57}	16.6	X	226.87803	54.28895	172.64152	13.38670	0.1969192	0.21069084	2.7970846	20	—	—
459726 2013 PC_{59}	16.7	X	265.79625	290.87993	248.45096	7.60648	0.1073319	0.20005676	2.8953466	20	—	—
459727 2013 PN_{59}	17.1	X	82.41127	142.60331	229.92733	5.57182	0.0741600	0.19778480	2.9174770	20	—	—
459728 2013 PH_{65}	16.5	X	5.89324	323.73781	147.01537	36.16552	0.1504899	0.20505570	2.8480973	20	—	—
459729 2013 PQ_{71}	17.0	X	189.87714	180.55770	145.99423	5.78758	0.1624282	0.22056223	2.7129927	20	2 4.3	21.4
459730 2013 PJ_{73}	15.9	X	86.49155	51.75451	285.34937	9.77053	0.0881321	0.17667642	3.1454563	20	—	—
459731 2013 PS_{73}	16.4	X	212.75284	30.59549	279.99096	12.57396	0.1486400	0.22087942	2.7103948	20	2 2.4	20.9
459732 2013 QK	16.3	X	140.23490	8.84553	294.97840	7.45947	0.1629712	0.19583227	2.9368372	20	—	—
459733 2013 QM	16.0	X	20.82756	81.03877	308.22729	16.08480	0.1620739	0.17356119	3.1829828	20	—	—
459734 2013 QO_{2}	16.7	X	285.64559	303.65442	310.27607	12.52994	0.1437954	0.23769662	2.5809963	20	2 5.9	20.3
459735 2013 QV_{2}	17.6	X	6.53878	81.36266	201.33599	5.04529	0.1636851	0.28053671	2.3110513	20	8 10.7	19.5
459736 2013 QA_{6}	14.9	X	16.30054	29.29263	292.97981	16.74046	0.0289369	0.14675728	3.5596143	20	9 10.5	20.1
459737 2013 QT_{7}	16.4	X	48.64281	81.89145	282.74026	7.49665	0.0599249	0.17622747	3.1507962	20	12 29.2	20.7
459738 2013 QT_{9}	17.4	X	293.48987	97.86322	170.06026	13.11744	0.1408618	0.23976344	2.5661424	20	3 4.4	20.7
459739 2013 QE_{10}	16.7	X	114.35610	111.19305	174.48958	13.28299	0.1222761	0.17209540	3.2010310	20	12 12.9	22.0
459740 2013 QG_{10}	16.7	X	111.23898	326.50993	341.02642	8.87906	0.0631388	0.17694409	3.1422833	20	—	—
459741 2013 QA_{12}	17.1	X	14.22624	151.46915	236.04117	7.29137	0.0592906	0.17114891	3.2128218	20	12 12.4	21.4
459742 2013 QS_{16}	16.4	X	166.40319	338.76246	340.07645	8.03823	0.1957249	0.21027182	2.8007993	20	1 10.8	21.1
459743 2013 QD_{18}	16.3	X	112.28800	280.18153	350.29266	7.69550	0.0429499	0.16851130	3.2462605	20	11 14.1	21.2
459744 2013 QL_{18}	17.0	X	160.30209	171.91187	141.02575	2.68365	0.0528530	0.20369245	2.8607908	20	—	—
459745 2013 QS_{19}	16.6	X	318.36124	351.52257	134.43220	12.15442	0.0824642	0.18942424	3.0027028	20	—	—
459746 2013 QX_{24}	16.3	X	25.69007	25.45996	3.52041	10.56883	0.0455449	0.17423645	3.1747537	20	12 28.4	20.8
459747 2013 QW_{28}	16.6	X	96.93993	167.06806	156.73677	4.59634	0.0561710	0.17958376	3.1114155	20	—	—
459748 2013 QQ_{33}	16.3	X	276.84174	192.81253	307.47723	14.35483	0.0493937	0.17740820	3.1368007	20	12 21.7	20.7
459749 2013 QF_{35}	16.1	X	174.14489	297.19482	342.77243	14.78243	0.1771416	0.20059508	2.8901643	20	—	—
459750 2013 QP_{36}	15.5	X	134.86529	283.58820	338.39660	20.74602	0.1196827	0.17683679	3.1435543	20	11 30.9	20.9
459751 2013 QO_{37}	17.3	X	184.70932	198.60929	151.82623	6.68684	0.0893773	0.22706015	2.6609830	20	2 25.8	21.2
459752 2013 QL_{42}	16.7	X	95.62068	152.19393	157.78134	9.86858	0.0652867	0.17505268	3.1648773	20	12 18.5	21.5
459753 2013 QX_{44}	16.9	X	183.93402	75.42238	191.86730	5.65869	0.0274243	0.19702772	2.9249458	20	—	—
459754 2013 QD_{45}	17.3	X	257.55215	84.00844	182.73457	4.54117	0.1144833	0.22304656	2.6928099	20	1 27.2	21.4
459755 2013 QJ_{46}	16.8	X	216.98066	51.71642	238.93216	13.26855	0.2000922	0.22011379	2.7166762	20	1 13.5	21.6
459756 2013 QD_{48}	16.3	X	264.13058	278.17690	355.62220	13.26171	0.1159959	0.22421633	2.6834359	20	2 16.5	20.3
459757 2013 QJ_{51}	16.8	X	78.80059	244.75563	186.27817	4.27943	0.0498408	0.21250394	2.7811520	20	1 28.1	20.5
459758 2013 QC_{53}	16.8	X	176.68355	333.37198	347.32996	5.06256	0.0625278	0.21375497	2.7702900	20	1 13.2	20.8
459759 2013 QA_{54}	17.0	X	214.40764	302.78176	344.66564	10.00924	0.1584258	0.21913350	2.7247722	20	1 13.2	21.5
459760 2013 QK_{55}	15.8	X	119.03416	189.12877	133.00645	10.39988	0.0378465	0.18939735	3.0029870	20	—	—

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
459761 2013 QV_{56}	16.3	X	75.41975	220.35263	138.00189	10.95635	0.0609407	0.18230186	3.0804109	20	—	—
459762 2013 QJ_{57}	16.6	X	154.63606	246.32082	98.01798	4.79123	0.1033149	0.20925677	2.8098494	20	1 21.6	20.9
459763 2013 QE_{58}	17.8	X	268.03490	253.64063	18.17461	3.73062	0.2324027	0.23649702	2.5897167	20	2 2.9	21.9
459764 2013 QH_{58}	16.2	X	1.02923	273.01348	144.16080	10.04931	0.0793574	0.17411367	3.1762461	20	—	—
459765 2013 QF_{59}	16.7	X	110.76956	346.17532	346.43232	9.06957	0.1192733	0.18971828	2.9995994	20	—	—
459766 2013 QD_{64}	17.2	X	208.95285	15.36267	292.55929	2.61082	0.2238144	0.22649125	2.6654371	20	1 29.2	21.9
459767 2013 QC_{70}	16.8	X	214.91870	146.23663	171.24164	14.78481	0.1165999	0.22647187	2.6655891	20	2 14.1	21.0
459768 2013 QD_{70}	16.8	X	231.10987	318.23498	332.85797	12.61418	0.2454069	0.22934890	2.6432502	20	1 28.3	21.5
459769 2013 QQ_{70}	15.5	X	92.60307	13.15291	310.88491	26.45767	0.1330332	0.17341188	3.1848097	20	—	—
459770 2013 QC_{76}	16.1	X	308.41140	146.71994	309.31619	8.05468	0.0231792	0.17368118	3.1815168	20	12 8.4	20.5
459771 2013 QG_{76}	16.6	X	102.56267	355.21523	318.55488	8.67498	0.0714979	0.18050141	3.1008611	20	—	—
459772 2013 QT_{83}	16.5	X	207.77776	306.43466	355.59219	12.84011	0.2589983	0.22293048	2.6937446	20	1 25.9	21.5
459773 2013 QY_{91}	17.7	X	356.83323	318.10524	273.88417	3.32843	0.1159235	0.25739975	2.4475447	20	4 25.5	20.1
459774 2013 RD_{1}	15.7	X	4.04013	261.51197	175.26644	9.64882	0.1199651	0.17634743	3.1493671	20	—	—
459775 2013 RB_{5}	16.8	X	302.38246	263.61553	345.67697	5.84976	0.1407346	0.23370759	2.6102824	20	2 22.5	20.1
459776 2013 RU_{7}	17.2	X	328.49478	70.62252	168.37217	16.82088	0.1015383	0.24307633	2.5427731	20	3 22.7	20.1
459777 2013 RZ_{11}	16.5	X	97.15143	354.02197	317.81419	9.18138	0.0732031	0.17643542	3.1483200	20	12 23.2	21.3
459778 2013 RQ_{12}	16.8	X	162.41708	339.73999	316.16540	10.51148	0.0833505	0.19638535	2.9313207	20	—	—
459779 2013 RX_{12}	16.2	X	154.86198	113.12833	164.86251	10.37207	0.0853917	0.17929166	3.1147940	20	—	—
459780 2013 RO_{13}	16.6	X	281.11646	341.81816	180.74307	12.42969	0.0415161	0.18775398	3.0204845	20	—	—
459781 2013 RG_{17}	15.9	X	151.00095	273.16476	350.43777	15.56492	0.0524139	0.17553570	3.1590687	20	12 21.9	20.9
459782 2013 RB_{25}	17.4	X	242.90863	148.09815	132.69414	3.05388	0.1770657	0.22514603	2.6760436	20	1 26.4	21.7
459783 2013 RN_{26}	16.8	X	210.51352	171.47302	159.29048	9.66350	0.1407092	0.22420415	2.6835330	20	2 27.4	21.1
459784 2013 RN_{27}	16.3	X	136.64776	253.44175	42.94106	3.70762	0.1803931	0.17903190	3.1178061	20	—	—
459785 2013 RU_{30}	16.1	X	270.83073	310.79429	336.78650	7.32302	0.1136222	0.23515967	2.5995259	20	3 6.4	19.8
459786 2013 RK_{34}	16.5	X	113.29737	145.75716	182.31554	9.28583	0.0195502	0.18401847	3.0612240	20	—	—
459787 2013 RZ_{38}	16.0	X	76.09806	359.49927	337.00188	10.89951	0.0788132	0.17265725	3.1940828	20	12 29.9	20.8
459788 2013 RA_{44}	15.7	X	116.40983	354.26610	320.37528	10.64157	0.0539684	0.17902701	3.1178628	20	—	—
459789 2013 RR_{51}	16.4	X	231.25761	5.76370	270.37826	13.15379	0.2273547	0.22193944	2.7017576	20	1 8.9	21.1
459790 2013 RE_{52}	15.5	X	20.49586	230.01891	176.77538	27.18123	0.1993983	0.17089248	3.2160348	20	—	—
459791 2013 RB_{57}	15.8	X	28.87617	119.97187	334.15925	5.84838	0.0079104	0.19594975	2.9356633	20	—	—
459792 2013 RP_{57}	16.3	X	159.79212	315.50158	335.29423	7.55335	0.1015236	0.18978931	2.9988510	20	—	—
459793 2013 RY_{57}	16.6	X	123.12791	357.30276	324.75335	9.09067	0.0075922	0.18396159	3.0618550	20	—	—
459794 2013 RG_{60}	16.2	X	72.44606	44.42585	335.73315	10.77369	0.0419977	0.18592035	3.0403116	20	—	—
459795 2013 RP_{64}	16.8	X	151.03383	338.46196	356.35024	1.65596	0.0691189	0.20298031	2.8674781	20	1 3.6	20.8
459796 2013 RQ_{64}	16.4	X	61.69073	179.78782	171.07105	1.64413	0.0796298	0.17240473	3.1972010	20	12 29.5	20.9
459797 2013 RM_{67}	16.3	X	27.87631	70.28604	341.83650	9.34156	0.0243708	0.18161312	3.0881940	20	—	—
459798 2013 RO_{68}	16.1	X	72.49016	198.19466	174.42951	9.16942	0.0627405	0.18008854	3.1055986	20	—	—
459799 2013 RK_{69}	15.6	X	125.16775	64.47754	246.37548	15.62932	0.2119676	0.17726329	3.1385099	20	—	—
459800 2013 RN_{77}	16.2	X	359.61340	267.88341	172.37724	11.75640	0.0609070	0.18007823	3.1057171	20	—	—
459801 2013 RO_{77}	16.1	X	317.41512	296.36453	183.12089	11.01896	0.0663216	0.17523965	3.1626257	20	—	—
459802 2013 RE_{81}	16.1	X	101.80826	150.75251	181.48519	10.28968	0.0985416	0.17939509	3.1135967	20	—	—
459803 2013 RT_{81}	16.8	X	193.50125	129.67652	182.74736	5.76903	0.0340187	0.20929250	2.8095296	20	1 18.9	20.9
459804 2013 RA_{82}	16.3	X	95.41744	347.42809	354.51293	9.73950	0.0572970	0.17342956	3.1845932	20	—	—
459805 2013 RS_{85}	16.2	X	77.16719	26.77623	345.33539	8.42535	0.0592444	0.17846300	3.1244285	20	—	—
459806 2013 RS_{92}	15.4	X	226.81360	211.72711	9.60324	24.44688	0.0830127	0.17859974	3.1228335	20	—	—
459807 2013 RR_{94}	16.7	X	170.31096	71.31770	259.48459	2.82014	0.1991086	0.21124263	2.7922117	20	1 25.9	21.3
459808 2013 RT_{95}	15.5	X	135.99596	165.77965	123.62100	6.92286	0.0991149	0.17292089	3.1908354	20	—	—
459809 2013 RO_{96}	16.1	X	114.53073	207.27813	156.59188	11.78347	0.0847408	0.19143725	2.9816163	20	—	—
459810 2013 SN_{8}	16.0	X	25.04078	107.19902	280.20913	7.71056	0.0829011	0.17323102	3.1870260	20	12 29.6	20.2
459811 2013 SU_{17}	16.2	X	86.60426	168.09372	167.85488	12.47254	0.0836298	0.17392240	3.1785743	20	—	—
459812 2013 SP_{23}	16.9	X	191.94553	310.97168	8.91009	6.12556	0.0574289	0.20873599	2.8145210	20	1 30.2	21.1
459813 2013 SP_{30}	16.9	X	337.08776	307.18989	9.58329	23.82937	0.2268436	0.27358830	2.3500172	20	8 15.9	19.1
459814 2013 SM_{33}	17.0	X	186.71704	83.48512	213.03524	1.22754	0.0183265	0.19962027	2.8995657	20	—	—
459815 2013 SO_{33}	16.7	X	149.45340	110.58032	182.13315	9.60155	0.0812377	0.18540787	3.0459114	20	—	—
459816 2013 SB_{34}	16.4	X	182.33955	155.80082	168.07357	5.04736	0.0550234	0.20925209	2.8098913	20	1 21.6	20.6
459817 2013 SZ_{35}	16.5	X	213.22430	63.18285	174.15152	2.55281	0.0491413	0.18697860	3.0288292	20	—	—
459818 2013 SP_{36}	16.1	X	7.53651	45.27751	356.68605	9.24178	0.0184485	0.16798152	3.2530823	20	12 15.6	20.8
459819 2013 SW_{39}	16.9	X	264.27183	329.99242	308.24474	8.66130	0.0741750	0.23079046	2.6322319	20	2 20.0	20.8
459820 2013 SA_{40}	15.8	X	107.13000	17.70552	303.47151	17.56422	0.2239047	0.17819147	3.1276017	20	—	—
459821 2013 SH_{47}	16.7	X	179.39512	322.91190	357.57869	1.57182	0.0329599	0.20602360	2.8391700	20	1 14.6	20.6
459822 2013 SQ_{52}	15.9	X	186.61116	10.70651	289.89625	12.88357	0.1301607	0.20056039	2.8904975	20	1 4.2	20.4
459823 2013 SU_{52}	15.3	X	216.59717	323.97725	264.10190	14.55952	0.0304339	0.17811174	3.1285350	20	—	—
459824 2013 SP_{54}	16.3	X	182.23162	265.57176	5.36039	16.41053	0.1057383	0.18628219	3.0363733	20	—	—
459825 2013 SO_{62}	16.8	X	224.93104	143.42684	163.26563	5.20561	0.0977980	0.22063257	2.7124160	20	2 13.2	20.8
459826 2013 SW_{63}	16.0	X	136.88536	187.49412	106.49102	6.32632	0.0817312	0.17418766	3.1753465	20	—	—
459827 2013 SS_{64}	15.9	X	55.18532	198.52751	178.55036	12.99976	0.1324801	0.17635194	3.1493134	20	—	—
459828 2013 SW_{65}	16.4	X	212.40573	123.16214	184.94284	13.32855	0.0572366	0.21260551	2.7802662	20	2 1.9	20.7
459829 2013 SO_{67}	15.3	X	300.69702	134.11571	1.41234	26.05456	0.0872589	0.17447102	3.1719075	20	—	—
459830 2013 SH_{72}	17.1	X	214.44529	280.54653	9.05938	4.32357	0.0844982	0.21076883	2.7963947	20	1 16.4	21.3
459831 2013 SV_{72}	15.8	X	132.19423	226.95541	131.33785	10.26701	0.0761717	0.19699153	2.9253040	20	1 11.9	20.1
459832 2013 SW_{73}	16.4	X	189.40779	245.67666	3.23675	11.02599	0.0645592	0.18265435	3.0764465	20	—	—
459833 2013 ST_{75}	16.2	X	133.05959	103.17138	176.18318	10.98292	0.0801095	0.17252422	3.1957245	20	12 21.1	21.3
459834 2013 SO_{77}	16.5	X	74.04279	219.66774	174.23091	9.74657	0.0518833	0.19027007	2.9937974	20	—	—
459835 2013 SP_{83}	16.5	X	73.49413	146.69952	191.32449	8.99436	0.1851662	0.17094560	3.2153686	20	—	—
459836 2013 SW_{83}	16.3	X	256.57292	359.54866	274.01396	12.03998	0.1417430	0.22480035	2.6787862	20	1 29.8	20.6
459837 2013 SK_{85}	15.7	X	6.77905	105.53238	341.77847	24.92533	0.1451914	0.18099191	3.0952562	20	—	—
459838 2013 TP	16.8	X	219.33655	43.58237	263.34993	12.44881	0.2355119	0.22380641	2.6867115	20	2 1.1	21.6
459839 2013 TN_{2}	15.6	X	336.01412	278.02291	122.86695	10.44506	0.0796912	0.15309458	3.4606912	20	11 7.1	20.3
459840 2013 TP_{8}	16.4	X	220.06771	255.57019	35.19546	8.49789	0.1852763	0.21384787	2.7694877	20	1 22.1	21.1

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Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
459841 2013 TF_{13}	17.1	X	211.98528	126.50785	170.39505	5.09357	0.1484438	0.20906831	2.8115376	20	1 20.4	21.8
459842 2013 TG_{15}	15.6	X	13.63823	260.52420	150.63755	6.08409	0.0564889	0.16913496	3.2382755	20	—	—
459843 2013 TJ_{21}	17.0	X	298.45557	71.42266	158.87311	4.48709	0.0389649	0.21324997	2.7746618	20	2 9.7	20.9
459844 2013 TS_{28}	17.6	X	82.97648	89.20488	29.15148	23.25846	0.0856409	0.36343664	1.9446894	20	4 3.9	19.3
459845 2013 TT_{28}	17.6	X	253.64030	208.87702	198.15142	4.99663	0.1372362	0.25742600	2.4473783	20	7 19.7	21.0
459846 2013 TK_{33}	16.4	X	286.48622	273.67226	347.73135	10.75841	0.1470275	0.23249165	2.6193758	20	2 19.3	20.2
459847 2013 TP_{38}	16.0	X	17.11290	7.19122	47.18457	9.28640	0.0290436	0.16857602	3.2454296	20	—	—
459848 2013 TA_{46}	16.8	X	312.27519	307.43817	219.34032	2.60742	0.0593512	0.18628990	3.0362895	20	—	—
459849 2013 TN_{47}	14.2	X	222.86959	348.39607	13.97639	5.84066	0.1252414	0.08426248	5.1528388	20	4 23.0	21.4
459850 2013 TX_{47}	16.1	X	8.76200	74.76535	20.81130	10.35931	0.1007579	0.17703638	3.1411912	20	—	—
459851 2013 TS_{52}	15.9	X	123.40653	86.98185	242.43282	9.74618	0.1832275	0.18182436	3.0858017	20	—	—
459852 2013 TE_{67}	16.3	X	64.15887	130.67617	220.27747	9.22397	0.0698711	0.17644364	3.1482222	20	12 31.2	20.9
459853 2013 TD_{70}	16.4	X	249.69264	28.14452	188.18232	7.23683	0.0604173	0.18791359	3.0187739	20	—	—
459854 2013 TB_{79}	16.4	X	212.20322	263.13031	350.47936	7.03824	0.1338533	0.19606878	2.9344751	20	—	—
459855 2013 TJ_{79}	16.2	X	106.23736	16.57073	344.26418	9.24742	0.1056524	0.19107777	2.9853547	20	—	—
459856 2013 TU_{83}	16.1	X	314.44480	139.07622	357.23345	8.34737	0.0296037	0.17354534	3.1831767	20	—	—
459857 2013 TE_{104}	15.7	X	205.84018	26.05951	219.39999	9.44371	0.0361675	0.17553168	3.1591169	20	—	—
459858 2013 TO_{121}	17.3	X	179.49968	136.14908	195.24481	4.84140	0.1662379	0.21355865	2.7719875	20	1 31.8	22.0
459859 2013 TO_{124}	16.0	X	174.53035	56.74307	212.23056	10.56250	0.1666285	0.17874187	3.1211778	20	—	—
459860 2013 TY_{124}	15.7	X	159.56653	257.61039	24.36112	14.64975	0.2758861	0.18260546	3.0769956	20	—	—
459861 2013 TL_{126}	16.5	X	269.39018	279.94910	260.70407	2.44995	0.0083695	0.17840399	3.1251175	20	—	—
459862 2013 TW_{126}	16.3	X	201.73971	359.96466	309.18145	12.64157	0.1672479	0.21046099	2.7991208	20	1 26.9	20.9
459863 2013 TR_{129}	15.8	X	13.53703	304.56087	163.17784	13.11911	0.1118201	0.18998621	2.9967787	20	—	—
459864 2013 TG_{142}	16.4	X	125.99262	117.88596	188.20042	10.16982	0.0949920	0.17488297	3.1669244	20	—	—
459865 2013 XZ_{8}	9.5	X	353.18001	288.44697	266.69518	22.53370	0.3723310	0.02005588	13.4165725	20	3 5.5	18.9
459866 2013 YE_{54}	17.2	X	164.65406	170.68195	280.61467	4.36837	0.0916344	0.22527512	2.6750212	20	6 11.3	21.1
459867 2013 YE_{62}	16.5	X	120.44546	247.91213	289.45769	12.45858	0.1043055	0.22821543	2.6519951	20	8 11.5	20.5
459868 2013 YP_{96}	15.6	X	109.01997	272.38004	108.74735	26.19982	0.2619249	0.17480798	3.1678301	20	2 11.2	20.6
459869 2014 AQ_{4}	17.2	X	201.67573	90.79810	310.07851	7.31614	0.1622544	0.21684157	2.7439384	20	5 12.6	21.7
459870 2014 AT_{28}	12.0	X	28.07441	279.85985	262.58674	165.53754	0.4026838	0.02731241	10.9201682	20	6 28.9	20.8
459871 2014 ET_{6}	16.7	X	18.37812	355.54531	351.29514	15.24961	0.1435066	0.24255278	2.5464308	20	11 21.2	20.1
459872 2014 EK_{24}	23.3	X	181.17892	63.81387	340.56889	4.80453	0.0700995	0.97323471	1.0084576	20	—	—
459873 2014 FJ	17.4	X	135.87914	79.90661	84.66241	24.32876	0.0643770	0.36965050	1.9228343	20	9 10.9	20.4
459874 2014 GS_{32}	17.7	X	161.65035	223.49976	82.32670	3.57090	0.1988099	0.26620662	2.3932615	20	—	—
459875 2014 GR_{49}	17.9	X	335.58487	288.85772	123.66795	25.47891	0.0278206	0.39764977	1.8314802	20	—	—
459876 2014 HW_{37}	17.8	X	299.41862	136.50092	103.32892	4.82921	0.1380010	0.30401006	2.1905041	20	1 27.5	20.5
459877 2014 HL_{66}	17.9	X	180.18847	253.33538	68.87657	6.95875	0.2480661	0.27987792	2.3146764	20	1 20.9	21.8
459878 2014 HX_{123}	18.2	X	76.27740	188.52018	102.54698	24.55659	0.0665692	0.38891064	1.8588150	20	12 23.0	20.2
459879 2014 JH_{22}	17.6	X	221.17830	200.54314	83.73414	5.99347	0.2188338	0.27723221	2.3293796	20	1 6.0	21.4
459880 2014 JQ_{25}	18.5	X	178.82357	332.01315	185.23859	22.43007	0.1275537	0.37429734	1.9068867	20	10 9.5	20.6
459881 2014 JT_{30}	17.6	X	42.51265	208.46971	91.30126	25.33416	0.0520758	0.37305012	1.9111345	20	11 21.3	19.9
459882 2014 JQ_{37}	17.1	X	93.23318	250.73262	81.75901	12.09622	0.3065285	0.23487388	2.6016342	20	—	—
459883 2014 JX_{55}	15.9	X	144.41825	32.56320	271.86330	32.06932	0.1697551	0.23141636	2.6274836	20	—	—
459884 2014 KM_{34}	16.8	X	44.03891	169.48651	155.15741	22.93700	0.2300413	0.21100820	2.7942794	20	12 10.3	21.3
459885 2014 KN_{39}	18.0	X	15.13494	136.77810	259.90630	21.09772	0.0893149	0.40397495	1.8123125	20	—	—
459886 2014 KS_{45}	17.9	X	304.33442	268.71686	123.14457	26.85135	0.1479740	0.36699982	1.9320817	20	11 7.9	20.1
459887 2014 KG_{51}	18.0	X	230.24244	47.18487	249.82064	11.81239	0.1373887	0.28592813	2.2819080	20	1 25.6	21.6
459888 2014 KP_{78}	18.1	X	194.42368	59.01763	243.15156	4.04833	0.2127633	0.27223648	2.3577903	20	1 6.0	22.0
459889 2014 KC_{87}	18.1	X	0.03994	134.60060	256.94667	17.95516	0.1016156	0.39350670	1.8443130	20	—	—
459890 2014 KG_{92}	17.6	X	212.59800	230.40997	125.80329	7.80858	0.2075629	0.28288486	2.2982446	20	3 29.4	21.4
459891 2014 KM_{101}	17.8	X	245.19168	214.87974	87.75490	7.10888	0.1879408	0.29365967	2.2416777	20	2 19.1	21.3
459892 2014 LW	18.4	X	180.75538	175.43963	138.20693	3.19832	0.2034638	0.26914996	2.3757815	20	1 8.6	22.2
459893 2014 LE_{11}	16.5	X	106.85251	177.14149	109.77866	17.82100	0.2402715	0.21323001	2.7748350	20	12 20.7	21.4
459894 2014 LM_{11}	17.8	X	292.69833	6.64632	254.94202	6.19135	0.0776108	0.28766693	2.2727034	20	2 24.8	20.7
459895 2014 LS_{12}	16.5	X	94.42492	133.66208	220.15569	3.97487	0.2479804	0.24120822	2.5558850	20	—	—
459896 2014 LJ_{16}	17.5	X	195.85092	200.17997	147.88173	6.58052	0.1319167	0.27209105	2.3586303	20	3 2.4	20.9
459897 2014 LF_{21}	15.8	X	147.13110	65.01295	257.43312	24.39621	0.1325466	0.23960163	2.5672975	20	—	—
459898 2014 MQ	18.0	X	328.55254	290.42146	115.25006	25.52488	0.1430728	0.38113906	1.8839979	20	—	—
459899 2014 MP_{2}	16.0	X	93.69219	301.30435	58.34118	7.67037	0.3508391	0.24045721	2.5612040	20	—	—
459900 2014 MA_{4}	17.9	X	206.29173	216.39023	113.06414	6.26390	0.1876028	0.28475097	2.2881926	20	2 17.9	21.6
459901 2014 MZ_{8}	17.8	X	246.69944	244.60983	121.03459	3.77454	0.2018684	0.30604012	2.1808065	20	5 9.8	21.0
459902 2014 ME_{11}	17.7	X	275.85603	26.38505	238.87414	6.28072	0.0923515	0.28484454	2.2876914	20	2 7.3	20.9
459903 2014 MN_{11}	16.9	X	104.94966	213.18775	129.60399	13.98732	0.2822463	0.22906008	2.6454717	20	—	—
459904 2014 MD_{12}	18.2	X	266.52526	17.85340	289.37599	3.36383	0.2161322	0.29424906	2.2386833	20	3 9.5	21.6
459905 2014 MH_{12}	17.3	X	151.65249	248.74132	113.40628	7.16766	0.1116114	0.26090098	2.4255985	20	2 3.6	20.6
459906 2014 MB_{13}	16.9	X	180.89270	44.84986	295.65223	5.78777	0.2131883	0.25911992	2.4367007	20	2 10.5	21.1
459907 2014 MP_{13}	18.0	X	274.19241	150.24968	125.65899	8.64056	0.1330528	0.28643755	2.2792017	20	2 18.4	21.1
459908 2014 MU_{17}	16.4	X	76.11207	252.33450	92.94637	29.89073	0.3626858	0.23294106	2.6160057	20	—	—
459909 2014 MK_{20}	17.7	X	190.01757	224.40624	121.57516	7.21668	0.1655243	0.27448788	2.3448799	20	2 24.8	21.3
459910 2014 MU_{20}	17.1	X	261.35363	29.72089	256.28051	9.17590	0.2133959	0.28508723	2.2863929	20	2 5.9	20.9
459911 2014 MO_{21}	17.5	X	175.32085	230.25542	82.49623	10.61805	0.2308718	0.26198716	2.4188896	20	1 5.7	21.4
459912 2014 MS_{22}	16.3	X	154.34587	9.99246	265.98192	13.38784	0.2035071	0.22890012	2.6467040	20	—	—
459913 2014 MH_{24}	17.6	X	155.81980	217.88221	125.43092	3.17866	0.1918897	0.25511089	2.4621625	20	1 23.2	21.2
459914 2014 MN_{24}	17.1	X	97.68643	236.02517	112.79699	14.15069	0.1854447	0.22988584	2.6391327	20	—	—
459915 2014 MC_{27}	17.4	X	152.23252	263.95772	127.95952	22.07007	0.2994525	0.28364243	2.2941506	20	4 1.8	21.8
459916 2014 MP_{30}	18.5	X	192.66794	146.21723	207.19789	3.55040	0.1989530	0.28784654	2.2717579	20	3 4.3	22.1
459917 2014 ML_{38}	17.1	X	12.84826	236.55881	131.39290	5.87910	0.2612298	0.18772993	3.0207425	20	12 18.6	20.7
459918 2014 MT_{38}	17.1	X	213.26864	250.41125	87.24960	9.64870	0.2305148	0.27601796	2.3362061	20	3 8.5	21.2
459919 2014 MV_{38}	16.4	X	353.13930	266.79362	114.07354	22.31539	0.3708035	0.18003759	3.1061845	20	12 16.4	19.4
459920 2014 ME_{40}	16.5	X	91.75900	242.78131	91.69250	12.07524	0.0661304	0.21953143	2.7214786	20	—	—

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Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
459921 2014 MB_{42}	18.6	X	220.15426	10.05396	120.46480	25.09747	0.0749434	0.37052113	1.9198210	20	11 14.7	21.3
459922 2014 MV_{42}	16.5	X	95.66562	132.56286	196.05580	9.25789	0.1285142	0.21751636	2.7382605	20	—	—
459923 2014 MU_{46}	16.9	X	62.59171	139.24489	219.93651	11.16205	0.0692387	0.21839853	2.7308818	20	—	—
459924 2014 MF_{50}	17.0	X	193.54929	227.70516	122.76904	23.68870	0.2596616	0.27326895	2.3518477	20	3 9.8	21.4
459925 2014 ME_{51}	17.8	X	354.39383	115.76798	306.27817	18.43311	0.0323964	0.39017795	1.8547878	20	—	—
459926 2014 MJ_{51}	17.1	X	129.12168	189.71864	232.15995	11.55246	0.2221194	0.26939303	2.3743522	20	4 3.3	20.8
459927 2014 MF_{54}	17.3	X	75.31980	40.00117	326.95492	11.44071	0.2038254	0.22739454	2.6583737	20	—	—
459928 2014 ML_{56}	17.2	X	126.18024	218.91956	99.21152	4.91929	0.2092615	0.23049662	2.6344685	20	—	—
459929 2014 MV_{56}	17.0	X	75.93120	277.23967	103.53906	13.53538	0.2857876	0.22460192	2.6803638	20	—	—
459930 2014 MK_{59}	16.0	X	50.67200	18.42493	273.66487	13.24290	0.1753786	0.18334058	3.0687651	20	10 17.5	20.6
459931 2014 MZ_{60}	17.0	X	38.86809	59.24986	300.27913	14.94685	0.3454779	0.19690434	2.9261676	20	—	—
459932 2014 MA_{62}	16.8	X	20.41168	289.61422	116.14061	10.18672	0.1194064	0.21429065	2.7656714	20	—	—
459933 2014 MP_{63}	18.0	X	161.65416	193.73192	190.58073	4.83852	0.1720220	0.27183195	2.3601288	20	3 15.7	21.6
459934 2014 MN_{65}	16.3	X	32.66935	104.32889	232.16248	8.55476	0.0926658	0.18859238	3.0115261	20	11 12.5	20.3
459935 2014 NB_{1}	18.4	X	272.65513	139.77930	156.72867	4.30135	0.2211866	0.30128203	2.2037072	20	3 2.4	21.3
459936 2014 NY_{2}	16.0	X	94.51586	105.50590	250.83754	10.31321	0.2985794	0.24119638	2.5559687	20	—	—
459937 2014 NH_{12}	17.2	X	89.17316	317.11732	97.24751	7.25949	0.1362192	0.25888477	2.4381760	20	1 26.8	19.9
459938 2014 NH_{19}	16.2	X	287.98675	161.53299	261.37281	13.85350	0.1366853	0.17663534	3.1459440	20	9 12.1	20.6
459939 2014 NC_{21}	16.5	X	297.92970	155.86779	250.73708	13.80098	0.2484745	0.17114242	3.2129029	20	8 20.2	20.7
459940 2014 NR_{24}	16.9	X	115.52213	62.23783	274.74947	13.53976	0.1080885	0.23595360	2.5936915	20	—	—
459941 2014 NK_{27}	16.7	X	333.67053	233.62665	154.65781	7.48450	0.2367454	0.18406722	3.0606835	20	10 24.7	19.6
459942 2014 NY_{27}	15.9	X	307.94848	99.73483	285.05150	24.10931	0.1736033	0.17228269	3.1987106	20	8 14.9	20.2
459943 2014 NN_{29}	17.8	X	135.66718	238.48559	148.91943	6.66891	0.1138455	0.26530148	2.3987018	20	2 16.6	21.0
459944 2014 NE_{31}	17.8	X	245.56232	231.96451	130.25826	7.89307	0.1651690	0.30367440	2.1921180	20	5 9.5	21.0
459945 2014 NA_{34}	17.7	X	70.94780	137.79868	226.82310	3.23144	0.0965823	0.22699679	2.6614782	20	—	—
459946 2014 NM_{37}	17.9	X	228.23529	82.42865	272.78729	5.89190	0.1289637	0.28816774	2.2700695	20	4 8.8	21.4
459947 2014 NQ_{37}	17.3	X	207.96978	97.94921	273.02229	5.59327	0.1440973	0.28416797	2.2913212	20	4 8.4	20.9
459948 2014 NO_{41}	16.1	X	69.78521	92.23255	162.18633	26.26669	0.1862621	0.18188521	3.0851133	20	10 3.0	20.8
459949 2014 NR_{42}	15.5	X	323.79585	104.41769	274.91632	24.28350	0.1299203	0.17382186	3.1797998	20	9 5.0	20.0
459950 2014 ND_{46}	17.7	X	77.45681	188.17711	215.83377	7.05067	0.1848874	0.23546318	2.5972916	20	1 4.0	20.5
459951 2014 NQ_{49}	16.3	X	317.29132	132.10174	271.22903	15.56812	0.2228034	0.17593901	3.1542392	20	9 24.6	20.1
459952 2014 ND_{51}	18.0	X	94.14526	247.35194	133.27610	4.29627	0.1980483	0.23755224	2.5820419	20	1 1.9	21.1
459953 2014 NC_{54}	17.7	X	186.50224	246.28239	109.66279	7.19590	0.1480779	0.27070172	2.3666936	20	3 5.9	21.4
459954 2014 NH_{54}	16.9	X	155.20610	169.66204	115.21688	15.59410	0.1252856	0.22955651	2.6416563	20	—	—
459955 2014 NB_{55}	16.8	X	116.75761	254.02951	103.68084	13.11547	0.0271868	0.24070638	2.5594362	20	—	—
459956 2014 NK_{55}	17.0	X	100.77532	301.19334	91.46981	6.49861	0.1697475	0.24221560	2.5487934	20	1 22.9	20.1
459957 2014 NV_{55}	18.1	X	230.49784	300.49483	39.74773	4.83733	0.1673893	0.28408332	2.2917763	20	3 25.1	21.5
459958 2014 NS_{57}	17.2	X	163.22923	298.72650	41.74187	8.56339	0.2185296	0.25136543	2.4865604	20	1 31.9	21.4
459959 2014 NC_{59}	18.0	X	214.49595	56.96369	284.59873	4.67385	0.1958778	0.27669932	2.3323693	20	3 7.8	21.9
459960 2014 NW_{59}	17.9	X	246.91923	31.87947	321.62787	6.26104	0.1472935	0.29617580	2.2289637	20	4 24.9	21.1
459961 2014 NY_{59}	17.3	X	96.86306	252.73013	122.48270	10.06543	0.3312707	0.22738682	2.6584338	20	1 21.8	20.8
459962 2014 NN_{63}	16.3	X	107.85241	161.95042	241.05621	16.44555	0.2513011	0.23174987	2.6249622	20	2 18.9	20.4
459963 2014 NQ_{65}	18.0	X	275.76284	213.64456	94.70750	3.58526	0.1886932	0.30068249	2.2066356	20	3 27.1	20.9
459964 2014 OJ	17.7	X	146.13276	245.50534	125.64852	2.04447	0.1935386	0.25811801	2.4430021	20	2 17.3	21.4
459965 2014 OA_{1}	17.5	X	207.31496	199.67615	141.29307	9.22001	0.2201048	0.26984576	2.3716958	20	3 5.1	21.4
459966 2014 ON_{1}	17.5	X	259.77507	15.23569	316.28568	9.59358	0.1293940	0.29858267	2.2169692	20	4 9.2	20.8
459967 2014 OC_{3}	16.8	X	2.20213	43.89817	318.03762	14.84981	0.2621339	0.18246948	3.0785241	20	11 15.2	20.4
459968 2014 OU_{3}	16.5	X	23.39974	245.04017	102.17731	10.50681	0.0646067	0.19309320	2.9645451	20	11 14.2	20.6
459969 2014 OK_{5}	17.0	X	130.75789	271.61453	125.07086	8.15813	0.0875284	0.26166143	2.4208966	20	2 21.3	20.1
459970 2014 OX_{5}	18.1	X	199.54688	226.26161	128.94101	6.00910	0.2531917	0.27760801	2.3272769	20	3 16.4	22.1
459971 2014 ON_{6}	11.6	X	49.65631	195.45245	94.27613	3.94293	0.5655131	0.02026658	13.3234187	20	11 13.2	22.6
459972 2014 OB_{12}	17.7	X	190.93373	84.90405	309.27054	6.92134	0.0611187	0.29839478	2.2178997	20	4 20.4	20.8
459973 2014 ON_{12}	17.0	X	347.12809	279.31715	106.48045	7.11684	0.2238195	0.19058484	2.9905000	20	11 21.7	20.0
459974 2014 OB_{13}	17.3	X	120.04730	59.07388	304.28801	7.59039	0.1602733	0.24648990	2.5192424	20	1 7.7	20.6
459975 2014 OL_{19}	18.1	X	140.76538	284.64701	137.92925	5.60038	0.1244687	0.28429092	2.2906605	20	4 11.2	21.3
459976 2014 OV_{20}	18.1	X	191.06654	231.78880	127.33947	11.70914	0.1417320	0.27816215	2.3241850	20	3 14.5	21.7
459977 2014 OE_{23}	17.8	X	184.78048	219.27508	140.58377	4.46435	0.0795245	0.27768309	2.3268574	20	3 4.1	20.9
459978 2014 OE_{24}	18.3	X	141.38424	213.19659	163.92284	1.41242	0.1862731	0.25964374	2.4334222	20	2 18.7	21.9
459979 2014 OR_{27}	17.8	X	112.15541	83.03114	312.71124	5.45419	0.1324499	0.25679500	2.4513858	20	2 2.3	20.7
459980 2014 OB_{30}	17.2	X	0.12450	309.02421	107.56763	6.03789	0.0283498	0.22035742	2.7146734	20	—	—
459981 2014 OF_{33}	18.2	X	140.35253	349.67164	25.64471	3.17628	0.2107291	0.25770003	2.4456430	20	2 19.5	21.9
459982 2014 OM_{34}	18.3	X	168.49803	15.54782	6.02422	3.66285	0.1783803	0.27446919	2.3449863	20	3 19.8	22.0
459983 2014 OP_{35}	17.6	X	156.82361	250.69326	110.44015	6.51763	0.0952017	0.26395550	2.4068493	20	2 6.2	20.9
459984 2014 OB_{36}	18.4	X	159.68454	35.58709	333.31910	1.86779	0.2077470	0.26378930	2.4078602	20	2 27.3	22.2
459985 2014 OJ_{37}	18.0	X	167.63883	62.86370	309.43149	6.10447	0.1577053	0.27072830	2.3665387	20	3 4.0	21.6
459986 2014 OU_{37}	18.4	X	198.41906	269.94485	117.85192	6.01650	0.1371990	0.29233698	2.2484344	20	4 26.3	21.8
459987 2014 OD_{38}	18.1	X	188.01977	164.44027	113.03540	2.94892	0.1241399	0.24562957	2.5251215	20	—	—
459988 2014 OE_{38}	17.6	X	168.05808	73.99145	314.45046	6.62444	0.1242836	0.27901638	2.3194388	20	3 21.5	21.2
459989 2014 OX_{38}	18.0	X	200.80962	13.75579	337.08370	3.98352	0.1202946	0.27914757	2.3187120	20	3 8.9	21.5
459990 2014 OZ_{38}	16.7	X	95.13486	229.13715	108.45280	6.19865	0.1979227	0.22249755	2.6972377	20	—	—
459991 2014 OE_{39}	16.0	X	194.38975	339.29681	89.83893	3.75639	0.0209941	0.14578399	3.5754400	20	6 16.2	21.1
459992 2014 ON_{41}	17.7	X	118.05562	330.28241	89.65897	6.00045	0.2215071	0.26532420	2.3985649	20	3 26.9	21.1
459993 2014 OD_{48}	16.8	X	53.88436	236.07701	121.07531	10.22576	0.1269667	0.21199688	2.7855850	20	—	—
459994 2014 OU_{53}	18.5	X	239.13470	30.36949	313.83807	4.15130	0.1646223	0.29259091	2.2471333	20	4 3.6	21.8
459995 2014 OY_{67}	16.9	X	117.60940	187.62912	112.05161	7.31374	0.0090967	0.21717985	2.7410884	20	—	—
459996 2014 OD_{71}	17.3	X	22.96730	43.24496	63.21610	1.05586	0.1145209	0.24474131	2.5312276	20	—	—
459997 2014 OK_{71}	17.2	X	63.46195	77.01150	333.69045	10.84690	0.1968987	0.23098238	2.6307736	20	—	—
459998 2014 OD_{73}	17.1	X	219.43460	33.03203	335.95155	6.54070	0.2732036	0.27550133	2.3391258	20	4 12.1	21.2
459999 2014 OJ_{79}	16.5	X	353.57771	11.28950	338.25131	9.41827	0.1089263	0.18530342	3.0470560	20	9 30.3	20.2
460000 2014 OT_{79}	17.1	X	87.99715	67.66850	325.29211	11.66635	0.1571852	0.24573315	2.5244119	20	1 2.6	20.1