

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
412001 2012 KV ₃₅	15.9	X	302.86883	240.23282	206.72371	16.23228	0.1038856	0.18021867	3.1041036	20	11 17.7	19.9
412002 2012 KB ₃₆	16.4	X	4.09292	242.30201	205.09734	14.49221	0.1267764	0.20200210	2.8767280	20	—	—
412003 2012 KG ₄₄	15.9	X	275.25934	311.85218	215.53445	9.81078	0.0575200	0.19103172	2.9858345	20	—	—
412004 2012 LN ₇	16.0	X	347.00160	203.69690	211.39450	24.51702	0.0324537	0.17598894	3.1536425	20	12 8.2	20.6
412005 2012 LT ₂₆	15.7	X	153.21551	63.40555	126.38657	14.17199	0.1732820	0.17286947	3.1914682	20	10 3.7	21.2
412006 2012 MU	15.8	X	15.44157	281.42789	110.90414	10.26065	0.1053292	0.17783375	3.1317945	20	12 27.3	19.8
412007 2012 MS ₇	15.3	X	174.14605	126.83459	81.58337	10.99517	0.0610317	0.17230597	3.1984225	20	11 12.9	20.1
412008 2012 PU ₁₆	17.5	X	301.48177	18.75233	331.78579	20.32303	0.0451396	0.36963719	1.9228804	20	8 10.9	19.0
412009 2012 BX ₂	17.9	X	129.17284	90.42456	154.08657	22.81724	0.0735265	0.38982515	1.8559067	20	12 23.6	20.6
412010 2012 TC ₁₉	16.2	X	197.58327	55.13582	8.33313	25.10916	0.1938722	0.20897141	2.8124068	20	5 31.2	21.4
412011 2012 TX ₂₃₀	17.1	X	221.72650	6.32935	105.62283	2.78604	0.1053360	0.23027200	2.6361814	20	9 10.5	20.8
412012 2012 XB ₁₁₁	16.5	X	196.16442	169.86205	284.34593	6.93893	0.1875931	0.21147098	2.7902012	20	7 14.2	21.1
412013 2012 XX ₁₁₉	17.6	X	266.96319	231.39536	293.45376	16.42537	0.0515709	0.38346824	1.8763612	20	—	—
412014 2013 AE ₁₇	15.7	X	333.82687	3.56561	274.20007	8.08620	0.0575939	0.18433017	3.0577720	20	5 28.9	19.8
412015 2013 AV ₁₉	17.7	X	280.72285	209.97882	130.96078	19.69333	0.0931623	0.38164145	1.8823441	20	—	—
412016 2013 AO ₁₂₇	16.0	X	354.93463	133.28974	145.94852	10.54073	0.0775809	0.19203719	2.9754032	20	7 2.1	19.8
412017 2013 AQ ₁₆₉	16.0	X	339.96466	78.82645	181.26253	9.50652	0.0407622	0.17665392	3.1457234	20	5 18.1	20.3
412018 2013 BQ ₂₀	17.6	X	118.52938	179.51572	132.86394	23.28041	0.0442208	0.37989408	1.8881118	20	—	—
412019 2013 BX ₃₉	17.1	X	319.94303	282.53471	307.27601	18.84720	0.2662329	0.27882035	2.3205258	20	1 24.9	19.8
412020 2013 CT ₉	16.2	X	193.66280	36.09681	125.76136	14.28826	0.0658374	0.22126902	2.7072123	20	10 20.2	20.4
412021 2013 CR ₁₇	17.9	X	337.34640	140.99405	87.32289	3.29814	0.1589994	0.28367125	2.2939952	20	3 8.7	20.1
412022 2013 CD ₂₂	18.8	X	29.76895	256.91884	161.68905	23.76736	0.0825907	0.38897428	1.8586122	20	—	—
412023 2013 CE ₃₃	16.2	X	331.05975	284.11060	130.92845	22.46437	0.0628795	0.23274909	2.6174439	20	12 8.8	19.8
412024 2013 CX ₃₅	18.4	X	275.79996	331.09044	169.25214	22.53975	0.0705914	0.37446056	1.9063325	20	—	—
412025 2013 CE ₃₇	17.7	X	9.98017	307.28944	256.89091	4.46602	0.1429770	0.28985525	2.2612501	20	4 2.9	19.5
412026 2013 CO ₃₇	16.2	X	221.89871	316.99746	271.65728	15.84842	0.1512352	0.24424840	2.5346319	20	—	—
412027 2013 CO ₆₄	17.9	X	318.79734	58.99889	175.20132	3.82877	0.1808118	0.28087932	2.3091716	20	2 10.0	20.7
412028 2013 CP ₇₉	17.7	X	280.39510	210.80246	292.89527	18.05246	0.0268632	0.38016332	1.8872202	20	—	—
412029 2013 CK ₈₄	17.9	X	340.05264	33.40026	344.98914	19.01692	0.0212077	0.34536837	2.0119368	20	11 13.8	20.5
412030 2013 CK ₁₀₉	17.6	X	314.63013	105.10996	107.77643	7.25044	0.1902133	0.27083181	2.3659357	20	1 7.9	20.6
412031 2013 CA ₁₁₂	17.7	X	351.48581	247.75344	329.54263	7.17257	0.0597237	0.29120497	2.2542575	20	3 23.9	20.0
412032 2013 CJ ₁₁₃	17.6	X	1.72394	271.61824	343.75956	6.27558	0.1356006	0.30043478	2.2078484	20	6 13.7	19.3
412033 2013 CK ₁₁₇	18.1	X	36.71879	126.29984	93.90699	6.10759	0.0395747	0.30547268	2.1835064	20	6 15.9	20.3
412034 2013 CX ₁₄₃	18.5	X	2.67333	46.24135	211.29747	1.43765	0.0835594	0.30693481	2.1765665	20	6 18.5	20.4
412035 2013 CX ₁₄₄	18.3	X	4.84085	89.09228	156.30034	3.70926	0.1496958	0.30257363	2.1974314	20	6 4.9	19.8
412036 2013 CO ₁₅₃	18.3	X	281.46904	228.96174	24.18939	4.71307	0.1713470	0.27059728	2.3673025	20	1 26.0	21.7
412037 2013 CW ₁₆₃	17.8	X	344.03670	282.35404	2.02556	4.35496	0.1553663	0.30362660	2.1923481	20	6 23.6	19.2
412038 2013 CM ₁₇₃	17.4	X	212.75870	301.48056	338.43553	8.33020	0.0972252	0.25710345	2.4494248	20	—	—
412039 2013 CT ₁₇₃	18.3	X	87.43530	338.78835	160.47920	5.16474	0.0670664	0.29751567	2.2222666	20	5 9.8	20.9
412040 2013 CO ₁₈₄	17.5	X	24.42601	204.60787	7.07099	7.08137	0.1455815	0.29434688	2.2381873	20	5 19.0	19.4
412041 2013 CK ₁₉₁	17.2	X	299.37596	10.89790	191.17633	8.84950	0.1841230	0.25828294	2.4419620	20	—	—
412042 2013 CF ₂₀₂	18.2	X	283.44745	177.25786	66.51749	2.21245	0.1452409	0.27157378	2.3616244	20	1 17.9	21.5
412043 2013 DK ₁	18.2	X	341.67054	179.94889	62.45540	3.95810	0.1149470	0.29229048	2.2486728	20	4 12.8	20.1
412044 2013 DW ₂	17.1	X	328.06135	320.35964	267.16813	6.40522	0.1113594	0.28308979	2.2971353	20	2 23.1	19.7
412045 2013 DD ₇	17.8	X	355.28456	177.30472	54.87377	5.25489	0.1177849	0.29008893	2.2600356	20	4 22.9	19.6
412046 2013 DX ₈	18.0	X	357.59826	165.99183	66.62282	3.21305	0.1331440	0.29649017	2.2273879	20	4 26.8	19.7
412047 2013 DV ₁₁	17.8	X	21.58425	44.82374	304.67695	17.52910	0.0778949	0.35469765	1.9765016	20	12 27.7	20.0
412048 2013 EB ₃	17.7	X	89.07340	42.86399	109.30851	7.39539	0.0937118	0.30049285	2.2075639	20	6 4.4	20.2
412049 2013 ES ₇	18.6	X	346.61046	278.09562	312.71201	2.00537	0.1320496	0.28758558	2.2731319	20	3 30.4	20.7
412050 2013 EW ₉	16.5	X	238.91098	102.16957	112.32360	13.48997	0.2271398	0.23661741	2.5888382	20	—	—
412051 2013 ED ₁₀	17.0	X	275.45490	37.54141	244.27830	5.94282	0.1071135	0.27605476	2.3359985	20	2 27.6	20.3
412052 2013 EG ₁₃	17.8	X	250.67304	270.77555	15.46645	2.57900	0.1826615	0.27054233	2.3676231	20	2 4.6	21.4
412053 2013 EH ₁₃	18.7	X	46.52096	121.92135	134.04174	2.30199	0.0966095	0.32082181	2.1132950	20	9 8.9	20.6
412054 2013 EE ₂₀	18.2	X	349.86599	106.54926	325.50005	18.17070	0.1159097	0.37304428	1.9111545	20	—	—
412055 2013 ES ₂₁	17.8	X	288.35752	268.56416	339.13144	5.77188	0.1752462	0.26783557	2.3835479	20	1 26.1	21.1
412056 2013 EE ₂₆	17.5	X	28.13606	5.70359	166.42820	6.90241	0.0714299	0.28248402	2.3004182	20	3 23.4	19.6
412057 2013 EB ₂₇	17.4	X	252.96929	237.97070	52.07019	3.27292	0.1993568	0.26628890	2.3927685	20	2 11.2	21.1
412058 2013 EF ₃₁	17.3	X	295.75535	239.47811	64.96140	7.38820	0.1408491	0.28896715	2.2658808	20	4 25.4	19.8
412059 2013 EF ₃₈	17.2	X	339.28444	115.76587	126.73805	4.94730	0.2096270	0.28342118	2.2953444	20	3 26.9	19.1
412060 2013 EL ₄₀	18.3	X	41.82967	35.25948	189.08101	4.90293	0.1321366	0.30191480	2.2006270	20	7 14.9	20.4
412061 2013 EV ₄₀	17.7	X	239.46906	190.90019	141.43256	21.61352	0.0748141	0.29074876	2.2566150	20	4 4.3	21.1
412062 2013 EX ₆₂	17.8	X	301.30038	251.60188	358.93616	2.84253	0.1709292	0.27286636	2.3541604	20	2 13.2	20.7
412063 2013 ED ₈₀	18.6	X	23.33872	108.51780	124.72219	4.14831	0.0840852	0.30224621	2.1990181	20	6 18.5	20.7
412064 2013 EJ ₈₀	17.9	X	12.90650	236.78544	13.32754	7.14306	0.1008316	0.30350181	2.1929490	20	6 28.2	20.0
412065 2013 ET ₈₆	17.6	X	343.96412	137.49434	140.99120	7.22983	0.1308864	0.29850458	2.2173558	20	6 14.6	19.4
412066 2013 EV ₉₀	17.0	X	344.17386	21.09639	210.25009	11.03157	0.1817373	0.28437901	2.2901874	20	3 17.8	19.1
412067 2013 EJ ₉₂	17.2	X	298.77313	38.98194	176.45651	11.02822	0.1493012	0.26146391	2.4221157	20	—	—
412068 2013 ED ₁₀₂	17.5	X	337.73456	170.10517	64.32172	5.69017	0.1870506	0.27889478	2.2011130	20	3 16.5	19.6
412069 2013 EN ₁₀₈	18.2	X	325.27656	232.15744	357.09771	1.91842	0.1634493	0.27045365	2.3681406	20	2 18.7	20.9
412070 2013 EM ₁₁₁	17.4	X	279.44384	228.69820	53.35158	5.58506	0.2008161	0.27035744	2.3687024	20	2 27.6	20.9
412071 2013 EG ₁₁₉	17.7	X	358.52238	309.22098	307.22472	4.25591	0.0947357	0.29606714	2.2295091	20	6 7.8	19.7
412072 2013 EX ₁₁₉	17.6	X	312.06833	317.44933	265.18998	0.86200	0.1904978	0.26426984	2.4049404	20	1 18.5	20.7
412073 2013 EB ₁₂₀	17.4	X	327.86629	278.05551	315.65994	1.60294	0.1678397	0.27693286	2.3310579	20	2 26.5	19.8
412074 2013 ET ₁₂₀	17.5	X	0.									

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ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
412081 2013 FF ₁	18.1	X	11.67306	24.86395	8.99901	19.26684	0.0976717	0.36340133	1.9448154	20	—	—
412082 2013 FG ₄	17.2	X	293.27501	215.58592	74.24041	9.03457	0.1788874	0.28310689	2.2970428	20	3 29.4	20.2
412083 2013 FF ₁₃	16.5	X	171.99166	153.50232	104.03017	6.62796	0.1584914	0.22180817	2.7028235	20	—	—
412084 2013 FQ ₁₅	18.8	X	323.89780	301.92988	21.04825	5.15841	0.0115459	0.31268859	2.1497833	20	7 29.3	21.2
412085 2013 FE ₁₆	17.9	X	341.76865	161.04425	59.35751	2.96735	0.1596710	0.27665418	2.3326230	20	3 5.7	20.0
412086 2013 FU ₁₆	17.5	X	25.30111	339.83845	39.17669	21.85776	0.0913923	0.35384601	1.9796717	20	—	—
412087 2013 FE ₁₇	17.5	X	288.95342	168.69091	108.15795	7.22585	0.1176322	0.27247515	2.3564132	20	3 14.4	20.6
412088 2013 FY ₁₇	18.0	X	206.21832	223.54274	193.67309	6.00935	0.0720748	0.30626724	2.1797282	20	6 15.2	20.8
412089 2013 FV ₁₈	17.0	X	181.12279	191.44573	77.52181	9.17170	0.1643735	0.22627908	2.6671030	20	—	—
412090 2013 FB ₁₉	18.0	X	348.40066	206.95574	16.84784	3.83579	0.1401569	0.28003131	2.3138311	20	3 24.7	19.9
412091 2013 FY ₁₉	17.5	X	241.02927	216.09298	72.43210	4.01100	0.1089735	0.26194465	2.4191513	20	2 3.9	21.0
412092 2013 FH ₂₀	17.9	X	315.11937	233.64600	29.09570	7.30728	0.0828304	0.28259534	2.2998140	20	4 3.4	20.3
412093 2013 FL ₂₀	17.8	X	304.49889	132.58609	116.66384	2.21311	0.1496283	0.27086010	2.3657710	20	2 18.8	20.8
412094 2013 FX ₂₀	18.0	X	294.76486	80.91058	177.17402	6.51796	0.0771805	0.27240484	2.3568186	20	2 27.2	21.0
412095 2013 FC ₂₁	17.7	X	293.21937	111.05244	182.49127	2.24929	0.1339903	0.28259260	2.2998289	20	4 5.5	20.4
412096 2013 FZ ₂₁	16.9	X	196.94051	34.18478	200.77313	7.99474	0.0906691	0.22622906	2.6674961	20	—	—
412097 2013 FH ₂₃	18.1	X	343.19603	182.97877	34.41998	7.59333	0.1179352	0.27659209	2.3329721	20	3 11.9	20.6
412098 2013 FR ₂₃	17.7	X	17.41289	47.89273	217.48737	3.73287	0.1346610	0.30410923	2.1900279	20	8 4.6	19.6
412099 2013 FX ₂₄	18.2	X	265.43903	206.76493	50.32667	2.32157	0.1575860	0.25704705	2.4497831	20	1 16.8	21.9
412100 2013 FT ₂₅	17.4	X	329.92499	79.25196	139.49876	11.94647	0.1118361	0.27466492	2.3438722	20	2 19.0	20.0
412101 2013 FL ₂₆	16.1	X	146.19316	247.18511	75.95262	30.90925	0.2974602	0.23017268	2.6369397	20	—	—
412102 2013 GD ₅	17.7	X	171.81275	255.44015	27.96815	7.04791	0.1587017	0.23264892	2.6181952	20	—	—
412103 2013 GY ₅	17.5	X	206.12817	90.39062	168.91680	9.55515	0.1775115	0.23624898	2.5915291	20	—	—
412104 2013 GK ₆	17.9	X	262.63879	228.91369	69.61194	2.80670	0.1058024	0.27612903	2.3355796	20	3 10.4	21.1
412105 2013 GJ ₇	17.8	X	281.36638	319.70723	238.27608	3.95791	0.1588175	0.24593035	2.5230622	20	—	—
412106 2013 GE ₈	16.6	X	200.62825	245.46331	25.30989	30.36016	0.3051028	0.23561941	2.5961434	20	—	—
412107 2013 GD ₉	17.8	X	243.29563	279.19340	16.59651	1.59333	0.1855493	0.26446410	2.4037626	20	2 9.8	21.7
412108 2013 GB ₁₀	17.7	X	289.49755	125.80355	118.06446	3.49573	0.1694836	0.26223766	2.4173489	20	1 22.8	20.9
412109 2013 GH ₁₀	17.8	X	301.48171	242.46518	39.94145	6.72127	0.1098603	0.28188845	2.3036572	20	4 7.1	20.4
412110 2013 GY ₁₁	17.7	X	311.35346	20.15774	241.92467	6.25296	0.1485332	0.28569822	2.2831320	20	3 11.6	20.6
412111 2013 GF ₁₅	17.7	X	274.13550	279.54715	11.63999	1.22532	0.1877493	0.27427441	2.3460964	20	3 3.3	20.8
412112 2013 GD ₁₆	17.8	X	276.63949	188.42559	87.31465	3.62479	0.1949778	0.27105451	2.3646396	20	2 15.7	21.2
412113 2013 GC ₁₈	15.8	X	81.91215	248.57952	11.00969	10.56376	0.1196969	0.18786481	3.0192965	20	10 11.5	20.2
412114 2013 GL ₁₉	17.8	X	319.05356	107.91754	140.17490	8.09395	0.1820969	0.27659735	2.3329425	20	3 3.7	20.3
412115 2013 GF ₂₀	17.3	X	212.72078	41.45988	161.29808	4.38858	0.1079352	0.22142100	2.7059733	20	12 20.7	21.1
412116 2013 GK ₂₀	17.8	X	290.14489	165.08537	56.77718	3.24227	0.1090453	0.25683796	2.4511125	20	1 4.0	21.0
412117 2013 GB ₂₁	17.7	X	272.95229	155.54729	153.87055	3.47020	0.1599855	0.27907006	2.3191413	20	3 29.6	20.9
412118 2013 GS ₂₅	16.4	X	129.00040	202.98723	83.11732	15.00497	0.1611934	0.21539786	2.7561856	20	—	—
412119 2013 GU ₂₅	16.7	X	235.87851	230.44486	52.13197	16.87083	0.1513407	0.25735172	2.4478492	20	1 23.3	20.9
412120 2013 GW ₂₅	17.1	X	203.48099	146.62535	134.16718	13.09310	0.1600061	0.24106934	2.5568666	20	—	—
412121 2013 GO ₃₀	17.6	X	245.86119	100.00529	207.73823	3.84688	0.2052428	0.26563468	2.3966956	20	2 23.5	21.4
412122 2013 GQ ₃₀	16.6	X	92.69762	357.45066	251.76086	0.83276	0.2170220	0.18667909	3.0320680	20	10 20.3	21.4
412123 2013 GO ₃₅	18.2	X	83.01045	188.81317	3.15306	4.24752	0.1068680	0.30447439	2.1882765	20	7 28.3	20.8
412124 2013 GF ₃₇	16.7	X	227.27549	195.80676	98.57506	6.82046	0.1296514	0.25601465	2.4563647	20	1 27.9	20.5
412125 2013 GU ₃₉	16.7	X	359.49841	143.63876	102.71340	6.42224	0.1675454	0.28793315	2.2713023	20	5 25.3	18.3
412126 2013 GA ₄₂	17.6	X	327.45283	51.13790	194.98249	11.42524	0.1509886	0.27677229	2.3319594	20	3 16.4	20.1
412127 2013 GQ ₄₂	17.1	X	207.61847	250.08751	38.97952	4.96873	0.2284220	0.24095572	2.5576703	20	1 5.7	21.5
412128 2013 GY ₄₂	17.0	X	115.53963	249.58687	29.33377	8.33527	0.1652930	0.20478933	2.8505664	20	12 12.1	21.7
412129 2013 GS ₄₅	17.9	X	334.95524	60.33537	32.59405	22.28324	0.0252371	0.36621055	1.9348567	20	—	—
412130 2013 GY ₄₅	17.1	X	204.00645	345.22191	36.80504	6.53498	0.1780300	0.28360660	2.2943438	20	4 21.3	20.5
412131 2013 GS ₄₆	17.6	X	271.48271	235.01578	44.30537	1.91478	0.1699745	0.26935475	2.3745772	20	2 17.3	21.0
412132 2013 GK ₄₇	17.5	X	216.32273	158.18276	78.76944	4.82412	0.1479759	0.23207627	2.6225004	20	—	—
412133 2013 GP ₄₉	17.9	X	12.89212	50.52027	198.31437	5.81733	0.0423505	0.29835102	2.2181166	20	6 20.7	20.2
412134 2013 GV ₄₉	17.9	X	323.60947	62.67696	167.52820	1.87786	0.1404573	0.27111354	2.3642964	20	2 20.4	20.7
412135 2013 GW ₅₀	17.6	X	216.41419	273.88100	58.59534	4.29734	0.1875504	0.26580392	2.3956781	20	3 3.7	21.5
412136 2013 GE ₅₁	17.0	X	345.51179	164.50455	34.91993	7.68991	0.0585726	0.27111242	2.3643029	20	2 27.3	19.8
412137 2013 GX ₅₁	16.0	X	152.13475	282.27570	29.64559	30.18234	0.2553535	0.22962812	2.6411071	20	—	—
412138 2013 GG ₅₂	17.0	X	233.74544	234.80134	78.48368	13.13494	0.2345279	0.25558662	2.4591063	20	2 26.5	21.4
412139 2013 GB ₅₃	17.1	X	189.58087	277.50898	52.73907	8.98163	0.1598598	0.25246269	2.4793504	20	2 8.9	21.2
412140 2013 GO ₅₃	17.1	X	265.91407	133.66391	134.82223	2.96754	0.1960187	0.25656736	2.4528356	20	1 27.4	20.9
412141 2013 GH ₅₅	17.6	X	201.35222	237.30057	23.47573	4.13284	0.1416894	0.23636717	2.5906651	20	—	—
412142 2013 GD ₅₈	17.6	X	249.10893	315.33277	191.46789	22.23665	0.0451456	0.35383464	1.9797141	20	—	—
412143 2013 GN ₆₀	17.2	X	203.93902	196.17862	81.39312	5.15063	0.2171362	0.23960619	2.5672650	20	—	—
412144 2013 GF ₆₃	16.8	X	217.90944	87.82553	126.93989	25.41094	0.1256359	0.22121559	2.7076481	20	—	—
412145 2013 GV ₆₃	16.8	X	234.22059	321.72750	307.68237	3.26285	0.1821141	0.24442721	2.5333956	20	1 3.4	20.8
412146 2013 GA ₆₆	16.8	X	78.16172	97.80558	150.48102	6.10569	0.1477134	0.18193969	3.0844974	20	9 28.6	21.3
412147 2013 GX ₆₇	17.0	X	221.34020	286.10151	37.97328	5.32697	0.1744845	0.26345379	2.4099040	20	2 27.4	20.9
412148 2013 GH ₇₀	16.2	X	102.27635	11.20489	212.31084	12.06545	0.1874291	0.17547250	3.1598272	20	9 22.5	21.3
412149 2013 GE ₇₁	18.1	X	320.87699	195.65041	18.68826	1.52975	0.1418572	0.26394379	2.4069205	20	1 27.3	20.9
412150 2013 GF ₇₁	17.7	X	358.44569	350.66140	193.88849	4.73814	0.1635000	0.27021195	2.3695526	20	2 9.5	20.0
412151 2013 GK ₇₁	17.0	X	225.38555	51.89819	161.97255	8.85110	0.2057272	0.22234469	2.6984738	20	—	—
412152 2013 GK ₇₂	17.6	X	247.22104	357.35385	227.17785	3.62627	0.1076837	0.23708750	2.5854151	20	—	—
412153 2013 GV ₇₂	17.2	X	178.98249	144.51621	166.36537	7.46699	0.2242172	0.23851770	2.5750696	20	1 8.1	21.6
412154 2013 GG ₇₃	16.9	X	308.94373	197.40156	89.16280	7.06135	0.0988538	0.28466987	2.			

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
412161 2013 GA ₈₃	17.3	X	323.42105	246.17655	15.97439	2.6003	0.1881818	0.28116707	2.3075959	20	3 28.5	19.6
412162 2013 GA ₈₄	17.5	X	26.87657	302.45241	253.37791	5.25980	0.0561389	0.28350407	2.2948969	20	4 22.6	19.9
412163 2013 GB ₈₄	17.9	X	342.95037	222.25515	23.45801	6.53327	0.1359761	0.28230127	2.3014109	20	4 16.9	19.9
412164 2013 GO ₈₅	17.5	X	277.99265	8.96501	209.45463	16.56693	0.0850013	0.24710041	2.5150912	20	—	—
412165 2013 GP ₈₅	17.2	X	149.22492	67.89809	207.11973	6.98716	0.1890690	0.21261425	2.7801900	20	—	—
412166 2013 GR ₈₇	17.3	X	14.51616	170.28065	76.00117	7.58770	0.1427255	0.29151719	2.2526477	20	6 27.9	19.1
412167 2013 GW ₈₇	16.5	X	159.71932	214.67596	71.45236	11.09921	0.2853356	0.21963436	2.7206282	20	—	—
412168 2013 GW ₈₉	16.5	X	54.31889	62.65824	209.14963	6.65831	0.1980437	0.18009377	3.1055385	20	10 3.9	20.8
412169 2013 GX ₈₉	17.5	X	265.11868	263.89788	8.64330	3.01020	0.1772882	0.26004260	2.4309334	20	2 2.9	21.1
412170 2013 GR ₉₁	17.2	X	298.25372	166.87533	48.44185	1.08202	0.1687923	0.25600816	2.4564062	20	—	—
412171 2013 GF ₉₂	17.4	X	353.64039	271.17654	333.52931	2.56513	0.1222184	0.28590141	2.2820501	20	5 7.6	19.4
412172 2013 GY ₉₂	17.7	X	256.84395	137.69025	19.18297	20.21810	0.0584496	0.35765412	1.9655943	20	—	—
412173 2013 GS ₉₃	17.1	X	157.85460	236.80504	23.83154	8.92173	0.1275180	0.21692733	2.7432152	20	12 31.8	21.5
412174 2013 GV ₉₃	17.4	X	262.54632	246.88052	43.07063	2.96846	0.1658610	0.26532663	2.3985503	20	2 22.9	20.9
412175 2013 GE ₉₄	18.1	X	30.24310	295.39485	280.86270	2.72013	0.1092388	0.29476968	2.2360466	20	6 6.3	20.1
412176 2013 GL ₉₄	17.9	X	168.61846	85.75077	191.05795	22.30180	0.0571633	0.37159575	1.9161179	20	—	—
412177 2013 GO ₉₄	17.6	X	215.25154	33.33995	199.01323	4.37919	0.1960377	0.22859084	2.6490907	20	—	—
412178 2013 GW ₉₄	17.8	X	332.17732	53.28415	195.48009	5.82069	0.0827217	0.27959936	2.3162136	20	4 9.5	20.3
412179 2013 GL ₉₅	17.8	X	30.91521	349.89547	240.98265	3.03789	0.1148726	0.29613111	2.2291880	20	7 2.5	19.7
412180 2013 GD ₉₆	17.0	X	294.61010	108.76129	163.22412	7.90486	0.1886971	0.26846194	2.3798390	20	3 1.4	20.3
412181 2013 GO ₉₆	16.8	X	212.11218	131.37753	191.68804	14.19027	0.1858345	0.25956743	2.4338992	20	2 12.7	21.0
412182 2013 GZ ₉₆	17.8	X	341.46222	219.90289	50.45895	3.84385	0.1628498	0.28869095	2.2673258	20	5 21.5	19.2
412183 2013 GG ₉₇	17.8	X	52.55730	311.70662	260.13521	3.13112	0.1043842	0.30196797	2.2003687	20	7 9.6	20.1
412184 2013 GS ₉₇	17.0	X	237.60494	190.73270	18.83220	9.96663	0.1225584	0.23171131	2.6252534	20	—	—
412185 2013 GO ₉₇	17.8	X	289.87064	272.41061	212.84314	20.90419	0.0855219	0.36001165	1.9570038	20	—	—
412186 2013 GD ₉₈	18.1	X	227.49357	7.65060	196.48844	22.08370	0.0694775	0.36445003	1.9410828	20	—	—
412187 2013 GT ₉₉	17.4	X	217.56703	58.22847	186.92317	2.03130	0.1466552	0.23502883	2.6004906	20	—	—
412188 2013 GV ₉₉	16.8	X	350.49644	143.17072	98.52073	7.01799	0.0897340	0.28223405	2.3017763	20	5 3.3	19.1
412189 2013 GR ₁₀₀	17.3	X	331.45272	254.54398	34.56327	7.21636	0.1191344	0.29256545	2.2472636	20	6 4.3	19.3
412190 2013 GS ₁₀₀	17.3	X	325.23073	123.09785	126.15156	5.60098	0.1435247	0.27413665	2.3468823	20	3 23.3	19.7
412191 2013 GT ₁₀₀	17.1	X	311.70105	157.16327	84.80543	7.33899	0.1028371	0.26742309	2.3859982	20	2 29.8	20.1
412192 2013 GV ₁₀₀	17.5	X	84.73449	285.76430	211.00400	5.74125	0.1200239	0.28498996	2.2869132	20	5 10.3	20.2
412193 2013 GB ₁₀₁	17.1	X	195.80453	28.89168	183.98975	8.76559	0.1721308	0.21388425	2.7691736	20	12 7.5	21.5
412194 2013 GL ₁₀₁	15.6	X	45.94784	257.62829	29.72307	10.53349	0.0636069	0.18342579	3.0678146	20	9 27.6	19.9
412195 2013 GM ₁₀₁	17.2	X	229.48486	92.29967	200.13221	5.86269	0.1040415	0.25459492	2.4654880	20	1 26.2	20.9
412196 2013 GP ₁₀₁	17.2	X	320.16430	127.30062	97.48009	6.90022	0.0683238	0.26516550	2.3995218	20	2 23.0	20.1
412197 2013 GV ₁₀₁	17.1	X	251.62158	45.94960	210.92288	6.20484	0.1546101	0.24391529	2.5369391	20	1 4.1	21.1
412198 2013 GO ₁₀₁	15.6	X	69.28155	201.53220	63.90371	11.88435	0.1042679	0.17687229	3.1431337	20	10 7.2	20.2
412199 2013 GC ₁₀₂	17.4	X	275.58802	313.83882	349.84395	6.63365	0.1281909	0.28013344	2.3132687	20	3 26.8	20.4
412200 2013 GW ₁₀₃	18.1	X	312.04744	30.80835	179.58739	2.08737	0.1148929	0.25989600	2.4318474	20	1 14.1	21.1
412201 2013 GQ ₁₀₄	17.8	X	160.66469	69.22561	41.77643	5.70723	0.0818865	0.30506703	2.1854416	20	7 6.3	20.7
412202 2013 GE ₁₀₅	17.3	X	317.69107	184.39625	91.20521	6.70463	0.0951551	0.28374831	2.2935798	20	4 26.5	19.8
412203 2013 GH ₁₀₆	17.8	X	278.14581	218.34121	24.13808	2.59897	0.1541092	0.25711455	2.4493543	20	1 11.9	21.5
412204 2013 GJ ₁₀₆	17.0	X	192.39209	217.93789	54.97839	6.12268	0.2400091	0.22703536	2.6611767	20	—	—
412205 2013 GU ₁₀₇	16.7	X	264.36560	22.28937	209.81161	14.21697	0.1341545	0.24189899	2.5510169	20	—	—
412206 2013 GV ₁₀₇	17.6	X	55.77853	64.80044	170.97766	5.56817	0.1252862	0.30442520	2.1885123	20	8 24.3	20.0
412207 2013 GP ₁₀₈	16.5	X	235.08139	198.19242	54.96898	9.61110	0.1429579	0.23993594	2.5649123	20	—	—
412208 2013 GJ ₁₁₀	17.6	X	353.90515	151.45350	27.48098	7.35982	0.0623616	0.26628474	2.3927934	20	2 11.3	20.4
412209 2013 GP ₁₁₀	17.3	X	356.55257	6.16701	200.17976	8.78843	0.0949717	0.27265641	2.3553687	20	3 16.6	19.7
412210 2013 GD ₁₁₁	17.2	X	325.30046	108.19741	131.53738	2.11976	0.1151674	0.27161188	2.3614035	20	3 12.6	19.6
412211 2013 GM ₁₁₂	16.8	X	237.88585	283.99472	334.06835	2.88481	0.1936167	0.24010148	2.5637332	20	—	—
412212 2013 GV ₁₁₂	17.3	X	202.54960	162.51820	86.75396	2.32399	0.1582174	0.22633731	2.6666455	20	—	—
412213 2013 GD ₁₁₃	18.1	X	359.01451	119.49880	66.69562	4.49352	0.1500495	0.26805856	2.3822258	20	2 19.4	20.4
412214 2013 GK ₁₁₃	16.5	X	199.01566	233.35925	45.26316	10.76366	0.1662783	0.23071521	2.6328042	20	—	—
412215 2013 GD ₁₁₄	16.3	X	205.87176	262.88613	52.67779	4.87708	0.2667580	0.24122712	2.5557515	20	2 5.5	20.9
412216 2013 GJ ₁₁₄	15.6	X	44.50873	248.05925	60.50099	14.56910	0.2591359	0.17524947	3.1625075	20	11 15.5	20.1
412217 2013 GL ₁₁₄	17.1	X	258.51573	39.73118	204.03491	5.36460	0.1753758	0.24219428	2.5489431	20	—	—
412218 2013 GM ₁₁₄	17.2	X	308.84657	53.83785	189.47865	2.05601	0.1434106	0.26181626	2.4199421	20	2 17.7	20.2
412219 2013 GP ₁₁₅	17.6	X	245.87299	335.13721	290.54846	4.15657	0.0860324	0.25531014	2.4608813	20	1 12.4	20.9
412220 2013 GL ₁₁₆	16.8	X	166.18378	90.84730	166.92822	12.06939	0.1355757	0.22164353	2.7041618	20	—	—
412221 2013 GT ₁₂₁	18.2	X	359.93601	219.99305	346.98941	0.77178	0.1278284	0.27507771	2.3415267	20	3 22.5	20.0
412222 2013 GE ₁₂₅	16.4	X	100.59455	61.70120	141.02279	10.72719	0.1277117	0.17280762	3.1922296	20	8 23.7	21.1
412223 2013 GB ₁₂₈	17.9	X	340.32680	351.65483	223.98102	1.82433	0.1157668	0.26594131	2.3948529	20	3 1.5	20.6
412224 2013 GR ₁₃₄	18.4	X	119.21966	356.57710	172.18954	3.82501	0.0276949	0.30763075	2.1732827	20	7 31.3	20.8
412225 2013 GZ ₁₃₅	16.9	X	208.71984	218.43225	92.77501	3.42704	0.1349192	0.24517837	2.5282185	20	1 31.9	21.0
412226 2013 GB ₁₃₆	17.5	X	331.82397	150.19927	87.59032	5.53463	0.1223405	0.26919672	2.3755064	20	3 22.4	20.0
412227 2013 HC ₁	17.9	X	339.20084	81.68026	60.37044	21.89166	0.0622809	0.38183435	1.8817101	20	—	—
412228 2013 HH ₃	17.0	X	277.37387	6.81477	167.96850	16.03422	0.1363585	0.23366755	2.6105806	20	—	—
412229 2013 HY ₃	16.9	X	339.12979	187.59518	69.85656	6.03325	0.1397190	0.28505331	2.2865744	20	4 29.7	19.0
412230 2013 HA ₅	17.3	X	266.61944	183.72458	109.12665	7.47302	0.1403940	0.27196970	2.3593319	20	3 5.5	20.7
412231 2013 HM ₉	16.8	X	243.46130	129.26772	104.27605	14.63857	0.0451701	0.23983864	2.5656059	20	—	—
412232 2013 HV ₁₂	17.7	X	305.31978	133.78583	120.58539	6.49669	0.1389649	0.27001354	2.3707132	20	3 1.1	20.7
412233 2013 HY ₁₂	16.8	X	36.71988	24.18086	160.82391	22.82336	0.1944609	0.28126413	2.3070649	20	5 17.7	19.4
412234 2013 HT ₁₃	16.3	X	51.28182	273.99290	23.97902	11.20601	0.13290					

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
412241 2013 HY ₂₃	15.9 ^m	X	202.66729	178.10989	96.96471	14.93498	0.1566419	0.23120469	2.6290870	20	—	—
412242 2013 HE ₂₄	16.3	X	195.47344	174.90884	125.07906	15.47442	0.2512054	0.23103812	2.6303505	20	1 10.3	21.0
412243 2013 HA ₂₇	17.5	X	326.09892	44.45659	236.93872	2.96273	0.0508698	0.28710607	2.2756622	20	5 22.3	19.7
412244 2013 HC ₂₇	17.1	X	237.16050	228.05911	21.21927	5.16189	0.1501728	0.23975979	2.5661684	20	—	—
412245 2013 HG ₂₇	16.8	X	118.99175	131.35268	112.81377	6.05301	0.1827457	0.19126034	2.9834546	20	11 6.6	21.8
412246 2013 HF ₂₈	17.0	X	198.61974	189.38458	89.60432	13.16257	0.1660179	0.23213826	2.6220335	20	—	—
412247 2013 HL ₃₁	17.5	X	221.61925	262.95686	304.26258	5.01392	0.1075069	0.22428434	2.6828934	20	—	—
412248 2013 HT ₃₁	17.6	X	292.02363	357.70540	260.13455	5.56124	0.1016531	0.26766671	2.3845502	20	2 18.5	20.9
412249 2013 HF ₃₃	17.7	X	140.88953	164.77008	261.79820	5.93274	0.0773598	0.28034801	2.3120882	20	4 6.6	20.9
412250 2013 HF ₃₅	17.5	X	203.12530	274.76694	353.18926	6.18532	0.1063872	0.23613813	2.5923400	20	—	—
412251 2013 HP ₄₁	17.3	X	202.44362	223.46971	17.41111	13.37877	0.1563628	0.22536243	2.6743302	20	—	—
412252 2013 HJ ₄₆	18.1	X	53.06797	249.46255	296.28713	2.32178	0.1113439	0.29026637	2.2591144	20	5 30.8	20.4
412253 2013 HX ₅₁	17.2	X	127.55692	262.96837	17.48073	10.13990	0.1002782	0.21024358	2.8010502	20	12 24.9	21.7
412254 2013 HY ₅₇	17.8	X	145.26995	52.93778	326.44203	5.64584	0.0898644	0.26166563	2.4208707	20	2 15.1	21.0
412255 2013 HZ ₅₈	16.2	X	74.32221	305.44850	356.45984	8.83030	0.1016163	0.19970317	2.8987632	20	11 21.7	20.6
412256 2013 HK ₈₂	17.7	X	193.46971	198.92552	218.71974	5.15632	0.1407166	0.29621186	2.2287828	20	5 28.9	21.0
412257 2013 HL ₈₄	17.4	X	223.92023	323.00229	285.51772	2.18587	0.1851858	0.23656628	2.5892112	20	—	—
412258 2013 HC ₁₀₃	17.5	X	168.91348	95.01721	222.05007	4.08050	0.2175912	0.23637072	2.5906392	20	1 7.1	21.8
412259 2013 HF ₁₀₃	17.4	X	101.32396	287.94584	24.41693	9.09451	0.1629199	0.21097615	2.7945624	20	—	—
412260 2013 HK ₁₀₃	18.3	X	281.52614	10.12257	4.81619	2.33890	0.0843883	0.31054300	2.1596741	20	7 29.7	20.5
412261 2013 HB ₁₀₇	17.9	X	205.72975	89.91862	185.74001	2.61282	0.1410368	0.23852976	2.5749828	20	—	—
412262 2013 HY ₁₀₇	18.4	X	245.02288	177.26515	151.25492	1.58116	0.1974529	0.27179642	2.3603345	20	3 21.4	22.2
412263 2013 HA ₁₁₀	17.8	X	257.55183	293.05313	24.95481	1.40688	0.1777451	0.27178143	2.3604213	20	3 19.9	21.4
412264 2013 HL ₁₁₂	17.8	X	187.10389	191.36768	188.02723	5.22996	0.1326346	0.27606396	2.3359466	20	4 1.9	21.1
412265 2013 HY ₁₁₃	17.4	X	230.56697	298.03698	28.77129	5.51313	0.1303231	0.26774391	2.3840919	20	3 11.5	21.0
412266 2013 HT ₁₁₉	17.3	X	93.37982	224.88746	146.18947	2.26104	0.0990240	0.23526329	2.5987626	20	—	—
412267 2013 HV ₁₂₈	18.1	X	263.24995	321.39354	343.64693	4.16606	0.1495666	0.26992863	2.3712104	20	3 13.4	21.3
412268 2013 HG ₁₃₃	17.3	X	91.93839	80.69689	221.55402	10.24052	0.1003104	0.20567385	2.8423878	20	12 14.3	21.7
412269 2013 JN ₁	17.4	X	159.63913	197.10958	101.70735	5.17743	0.1414157	0.22899709	2.6459568	20	—	—
412270 2013 JL ₂	17.1	X	152.48170	112.46711	181.57275	2.72328	0.1837868	0.21855256	2.7295986	20	—	—
412271 2013 JQ ₃	17.5	X	50.02947	264.60457	279.74598	4.95279	0.0962075	0.28842256	2.2687322	20	5 20.3	19.9
412272 2013 JU ₃	16.7	X	128.56369	168.74998	73.04542	13.00019	0.2432161	0.19961569	2.8996101	20	11 14.5	21.8
412273 2013 JY ₄	17.6	X	61.67240	168.72937	28.31486	4.75733	0.0587905	0.29411333	2.2393720	20	6 23.3	20.0
412274 2013 JT ₅	16.6	X	50.68676	212.74030	114.82931	3.21253	0.2155237	0.18420296	3.0591796	20	12 10.3	21.0
412275 2013 JF ₆	17.1	X	184.74819	200.36846	50.66297	10.33150	0.1077734	0.21973224	2.7198202	20	—	—
412276 2013 JG ₆	16.4	X	168.29506	105.81043	130.67609	15.79956	0.1108727	0.20623589	2.8372213	20	12 13.6	21.0
412277 2013 JL ₆	17.3	X	142.52567	255.45347	44.54220	3.88929	0.1793253	0.21688248	2.7435933	20	—	—
412278 2013 JS ₈	17.3	X	232.66052	229.09960	30.57134	7.62342	0.1629182	0.23943252	2.5685062	20	—	—
412279 2013 JN ₁₀	17.0	X	217.10195	201.31264	52.03799	2.86053	0.1274650	0.23358952	2.6111619	20	—	—
412280 2013 JL ₁₁	17.5	X	207.15362	291.48150	50.72221	6.51720	0.1370449	0.26030513	2.4292986	20	3 9.6	21.3
412281 2013 JH ₁₁	17.5	X	235.83619	212.46481	55.83373	4.07719	0.1190320	0.24451179	2.5328114	20	1 5.7	21.3
412282 2013 JH ₁₃	18.4	X	51.60385	17.29581	151.16105	4.25354	0.0868881	0.27917211	2.3185761	20	4 30.2	20.9
412283 2013 JF ₁₄	16.9	X	140.26422	200.69610	144.17112	21.92998	0.0261789	0.23329121	2.6133875	20	—	—
412284 2013 JW ₁₅	17.1	X	314.40613	108.09203	102.62025	7.36740	0.0900124	0.25594473	2.4568120	20	1 23.1	20.0
412285 2013 JT ₁₈	16.2	X	69.29861	220.35584	65.33778	6.62641	0.0985205	0.18424120	3.0587564	20	10 28.3	20.5
412286 2013 JZ ₂₀	17.4	X	10.06025	173.34958	3.30849	7.39282	0.0559434	0.26332224	2.4107066	20	3 3.5	20.0
412287 2013 JN ₂₁	16.2	X	149.70137	186.91478	149.02504	22.12522	0.0579412	0.23447650	2.6045728	20	—	—
412288 2013 JW ₂₂	17.3	X	25.48888	186.75643	46.47291	8.80722	0.0704576	0.29270581	2.2465451	20	6 19.8	19.7
412289 2013 JC ₂₄	16.9	X	268.15967	353.34913	201.03617	5.73012	0.1068685	0.23142931	2.6273855	20	—	—
412290 2013 JD ₂₈	16.9	X	253.48332	74.87674	179.83433	8.59889	0.1143800	0.24340281	2.5404988	20	1 5.8	20.8
412291 2013 JD ₃₀	16.6	X	88.64337	174.96271	114.06867	5.91566	0.2235240	0.18850999	3.0124034	20	12 3.7	21.6
412292 2013 JH ₃₅	17.2	X	200.25788	207.19817	35.29648	1.73174	0.1653651	0.21917803	2.7244032	20	—	—
412293 2013 JH ₃₆	16.2	X	182.26875	168.22393	66.67547	9.61939	0.0844214	0.21239143	2.7821341	20	12 26.6	20.4
412294 2013 JP ₃₉	17.8	X	339.31739	329.58659	231.49776	7.58871	0.0229377	0.25936216	2.4351832	20	2 18.7	21.0
412295 2013 JV ₃₉	16.2	X	300.75782	222.40621	193.68845	11.67841	0.0591102	0.18176955	3.0864219	20	10 10.0	20.1
412296 2013 JS ₄₀	17.2	X	187.78402	127.64827	106.38825	9.33753	0.0746545	0.21183136	2.7870358	20	—	—
412297 2013 JY ₄₂	17.5	X	134.19763	85.31764	53.42802	6.60219	0.0806711	0.29925089	2.2136676	20	7 13.5	20.4
412298 2013 JC ₄₃	17.2	X	359.45281	355.84002	230.07147	6.82197	0.0476081	0.27778347	2.3262968	20	4 23.1	19.6
412299 2013 JT ₄₄	17.4	X	329.16870	219.65127	73.91935	3.88488	0.0958942	0.28733418	2.2744576	20	6 10.8	19.3
412300 2013 JJ ₄₆	17.3	X	189.85639	144.27823	188.60336	8.07910	0.1757392	0.24018538	2.5631361	20	2 8.5	21.6
412301 2013 JE ₄₇	17.2	X	246.11125	85.28201	129.56563	5.14736	0.1898651	0.23089275	2.6314544	20	—	—
412302 2013 JL ₄₈	16.3	X	46.28273	290.48325	46.59194	14.92148	0.1856442	0.19283795	2.9671606	20	12 12.6	20.6
412303 2013 JX ₄₈	16.6	X	246.31767	258.45478	53.32657	8.73335	0.1167652	0.26200446	2.4187831	20	3 12.8	20.2
412304 2013 JN ₄₉	17.9	X	22.49722	134.35520	60.50208	7.08300	0.1185538	0.27862965	2.3215845	20	4 20.7	20.0
412305 2013 JU ₄₉	17.0	X	193.52365	155.87714	53.57445	9.46916	0.1377912	0.21033054	2.8002781	20	12 2.0	21.3
412306 2013 JB ₅₁	16.9	X	93.93239	186.10351	96.31266	4.78335	0.1024335	0.19188197	2.9770076	20	11 21.3	21.3
412307 2013 JX ₅₂	17.4	X	95.53366	179.26968	2.09952	7.52978	0.0798350	0.30343326	2.1932793	20	7 26.9	20.2
412308 2013 JV ₅₅	16.5	X	94.70125	222.13274	90.85859	7.62013	0.2105694	0.19723100	2.9229357	20	—	—
412309 2013 JK ₅₇	17.2	X	110.78180	188.05922	116.79312	5.68736	0.1226811	0.20617555	2.8377749	20	—	—
412310 2013 JF ₅₈	16.1	X	78.11424	68.38702	207.42935	9.62804	0.0411290	0.18547416	3.0451857	20	10 17.3	20.5
412311 2013 JR ₅₈	17.1	X	235.39139	70.60221	220.53030	7.67001	0.0951246	0.25379745	2.4706499	20	1 30.1	20.9
412312 2013 JJ ₆₁	18.0	X	311.60682	173.02949	67.40115	1.91587	0.1138648	0.26214619	2.4179112	20	2 23.8	20.8
412313 2013 JT ₆₁	15.4	X	32.33437	234.86869	81.21609	10.63556	0.0794217	0.17903366	3.1177856	20	10 19.0	19.7
412314 2013 JW ₆₁	17.1	X	295.32245	192.80018	82.44823	7.30039	0.0976323	0.				

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
412321 2013 <i>KF</i> ₂	17.7	X	70.65953	120.20045	55.27392	5.00192	0.1586095	0.29000039	2.2604956	20	6 21.8	20.2
412322 2013 <i>KK</i> ₄	17.9	X	54.46776	122.32759	65.32114	4.79794	0.1051842	0.28963554	2.2623935	20	6 4.4	20.1
412323 2013 <i>KN</i> ₅	16.5	X	245.98458	196.32231	50.71324	6.62977	0.1392554	0.23665687	2.5885505	20	—	—
412324 2013 <i>KD</i> ₆	17.1	X	212.63983	192.39443	86.54765	4.05365	0.0597863	0.24022174	2.5628775	20	—	—
412325 2013 <i>KE</i> ₆	16.3	X	73.13600	220.99030	73.08593	7.15434	0.1502128	0.18834162	3.0141985	20	11 17.9	20.7
412326 2013 <i>KT</i> ₈	17.1	X	175.47427	247.14410	46.48192	2.92892	0.1833983	0.22822869	2.6518924	20	—	—
412327 2013 <i>KO</i> ₁₁	16.9	X	71.94704	154.83928	168.38987	1.25318	0.1558667	0.19075600	2.9887109	20	12 21.3	21.4
412328 2013 <i>KH</i> ₁₃	16.4	X	242.97977	32.81713	236.83148	6.83271	0.1649692	0.24157550	2.5532938	20	1 10.9	20.6
412329 2013 <i>KT</i> ₁₃	16.8	X	125.15792	99.64753	205.76080	14.23012	0.1606016	0.20510506	2.8476403	20	—	—
412330 2013 <i>KX</i> ₁₃	16.1	X	190.84293	221.08647	115.78391	14.37677	0.1951834	0.24279043	2.5447688	20	2 18.7	20.4
412331 2013 <i>KM</i> ₁₄	17.4	X	185.61194	227.07656	91.87456	4.45184	0.0379182	0.24150158	2.5538148	20	1 14.5	20.8
412332 2013 <i>KR</i> ₁₇	16.4	X	254.35366	34.96086	179.79937	13.52722	0.1083541	0.22931039	2.6435461	20	—	—
412333 2013 <i>KE</i> ₁₈	16.3	X	193.98437	35.80251	226.11226	11.34422	0.1526724	0.22501513	2.6770814	20	—	—
412334 2013 <i>KF</i> ₁₈	16.2	X	252.27915	160.82982	92.98550	13.93297	0.1122466	0.24147439	2.5540065	20	1 4.8	19.9
412335 2013 <i>KH</i> ₁₈	17.0	X	257.47133	69.90030	191.50895	9.65650	0.1379017	0.24414225	2.5353665	20	1 15.3	21.0
412336 2013 <i>LH</i>	16.8	X	101.36859	109.53272	129.57563	2.25690	0.1243291	0.17937461	3.1138336	20	10 8.5	21.4
412337 2013 <i>LS</i> ₁	16.2	X	200.84536	21.50233	235.31606	12.84157	0.1256996	0.22313351	2.6921103	20	—	—
412338 2013 <i>LQ</i> ₂	16.5	X	54.75450	88.98629	217.91654	15.43242	0.2448355	0.17725164	3.1386475	20	11 22.9	21.2
412339 2013 <i>LP</i> ₃	17.0	X	225.77718	29.95524	249.03601	5.61734	0.1199027	0.23960934	2.5672424	20	1 8.6	21.0
412340 2013 <i>LV</i> ₃	17.4	X	338.81800	84.06285	118.76506	2.13676	0.0550294	0.25897210	2.4376278	20	2 20.7	20.4
412341 2013 <i>LX</i> ₃	17.1	X	163.08716	204.34467	67.94557	6.10649	0.1226715	0.21424321	2.7660796	20	—	—
412342 2013 <i>LB</i> ₅	16.9	X	171.15729	207.09842	128.68921	4.15980	0.1079371	0.23852520	2.5750156	20	1 24.3	20.6
412343 2013 <i>LL</i> ₅	16.7	X	113.66749	288.63780	80.58940	11.27841	0.1053402	0.23053142	2.6342033	20	1 1.4	20.2
412344 2013 <i>LZ</i> ₇	16.0	X	155.88588	136.77761	232.63772	11.12692	0.2798321	0.23859945	2.5744814	20	2 26.8	20.7
412345 2013 <i>LL</i> ₈	16.3	X	87.78775	207.33395	105.64869	3.20224	0.2229710	0.19195726	2.9762291	20	12 29.2	21.1
412346 2013 <i>LN</i> ₈	16.7	X	327.14562	73.28240	95.89589	6.48577	0.1416089	0.24449837	2.5329041	20	—	—
412347 2013 <i>LR</i> ₈	16.6	X	182.99282	163.53258	152.48012	13.51319	0.1885214	0.23016634	2.6369881	20	1 16.5	21.1
412348 2013 <i>LV</i> ₉	16.4	X	87.63974	162.26831	84.23393	6.39854	0.1026582	0.17427093	3.1743349	20	10 2.2	21.1
412349 2013 <i>LD</i> ₁₀	16.6	X	219.60099	2.45499	245.11512	11.21080	0.1493604	0.22615166	2.6681047	20	—	—
412350 2013 <i>LF</i> ₁₁	15.9	X	80.95915	67.36815	219.59334	9.91323	0.0262244	0.18450629	3.0558258	20	10 25.0	20.2
412351 2013 <i>LO</i> ₁₁	16.4	X	58.64426	85.33195	209.49311	9.83120	0.2262058	0.17564565	3.1577503	20	11 10.4	21.0
412352 2013 <i>LI</i> ₁₄	17.1	X	155.65608	109.29812	172.20203	5.38030	0.1393169	0.21074428	2.7966118	20	—	—
412353 2013 <i>LF</i> ₁₅	17.0	X	255.02051	24.10043	190.57922	11.18618	0.0577329	0.22733189	2.6588621	20	—	—
412354 2013 <i>LP</i> ₁₅	17.7	X	17.60583	108.72642	72.18639	3.06796	0.1291648	0.26977900	2.3720871	20	3 20.4	19.8
412355 2013 <i>LT</i> ₁₅	16.6	X	48.01748	126.20352	187.56054	17.32200	0.1615985	0.17710812	3.1403428	20	11 13.9	21.1
412356 2013 <i>LV</i> ₁₅	15.7	X	197.18359	288.44666	207.17656	15.02185	0.0374137	0.17518064	3.1633359	20	9 7.3	20.6
412357 2013 <i>LV</i> ₁₉	16.6	X	86.73866	94.85340	198.63477	0.91792	0.1864779	0.18602872	3.0391308	20	12 2.9	21.4
412358 2013 <i>LF</i> ₂₀	16.4	X	193.88642	27.77549	235.61031	11.35398	0.1176777	0.22139616	2.7061757	20	—	—
412359 2013 <i>LN</i> ₂₀	17.5	X	79.76707	171.59131	46.45962	5.00731	0.0923362	0.30513514	2.1851164	20	8 30.7	20.1
412360 2013 <i>LZ</i> ₂₀	17.0	X	249.22278	1.06637	242.50008	3.92220	0.1753400	0.23844349	2.5756039	20	—	—
412361 2013 <i>LB</i> ₂₁	16.0	X	43.06862	67.69566	235.86254	15.01515	0.2234040	0.17379486	3.1801292	20	10 31.3	20.3
412362 2013 <i>LT</i> ₂₃	16.7	X	167.97418	76.94995	215.07646	13.33411	0.1892102	0.22045024	2.7139114	20	—	—
412363 2013 <i>LH</i> ₂₆	16.9	X	165.19590	105.10626	175.05799	6.31805	0.0358980	0.21476568	2.7615917	20	—	—
412364 2013 <i>LO</i> ₂₆	17.3	X	139.45128	101.27262	164.49858	7.51594	0.1718485	0.20142044	2.8822635	20	12 17.8	22.2
412365 2013 <i>LQ</i> ₂₉	16.8	X	301.12472	20.48050	173.10412	15.17668	0.1592383	0.24243919	2.5472261	20	—	—
412366 2013 <i>MZ</i> ₁	17.0	X	232.40492	64.21023	192.84631	10.52398	0.0964903	0.23345770	2.6121448	20	—	—
412367 2013 <i>MF</i> ₆	17.0	X	259.04305	44.65727	215.07007	11.07074	0.1687994	0.24515163	2.5284024	20	1 11.8	21.3
412368 2013 <i>MZ</i> ₁₀	16.1	X	26.06012	305.23237	89.38991	11.46787	0.1137583	0.18915308	3.0055718	20	—	—
412369 2013 <i>MK</i> ₁₁	16.1	X	352.52757	322.85888	85.88244	13.16018	0.0351432	0.18412709	3.0600199	20	12 11.2	20.2
412370 2013 <i>NY</i> ₆	16.3	X	18.57810	207.96216	264.83879	12.91711	0.1059233	0.22121357	2.7076647	20	—	—
412371 2013 <i>NC</i> ₁₃	16.3	X	228.12824	270.77042	271.15835	9.16386	0.0452282	0.18818589	3.0158612	20	12 13.8	20.6
412372 2013 <i>NO</i> ₁₉	16.1	X	68.97354	221.35886	123.12314	10.08506	0.1591595	0.18422358	3.0589514	20	—	—
412373 2013 <i>ND</i> ₂₁	15.7	X	24.62427	257.76874	120.14328	26.15388	0.1971805	0.17546012	3.1599758	20	—	—
412374 2013 <i>NY</i> ₂₁	16.9	X	125.88500	213.51771	80.10291	4.16583	0.0191687	0.19067159	2.9895929	20	—	—
412375 2013 <i>OO</i>	16.6	X	45.88161	159.14214	235.71312	4.90623	0.0791994	0.19927829	2.9028821	20	—	—
412376 2013 <i>OP</i> ₁₀	16.0	X	40.19508	168.87422	201.59557	17.23302	0.1786665	0.17818330	3.1276974	20	—	—
412377 2013 <i>OD</i> ₁₁	15.8	X	46.33712	134.41323	219.43778	15.07584	0.0821607	0.17778674	3.1323465	20	12 16.3	20.4
412378 2013 <i>PA</i> ₂₆	15.9	X	174.33996	127.49672	276.55038	13.50940	0.10194608	0.23260150	2.6185510	20	4 13.1	19.8
412379 2013 <i>PL</i> ₃₃	15.2	X	34.16812	219.01987	169.87280	27.76338	0.0641069	0.17529987	3.1619014	20	—	—
412380 2013 <i>PD</i> ₄₃	14.9	X	273.94886	348.82390	20.78188	11.83763	0.0630328	0.12223853	4.0209682	20	7 2.9	20.7
412381 2013 <i>PN</i> ₅₈	16.5	X	165.42366	13.44490	225.47601	8.28398	0.0821088	0.18486238	3.0519005	20	12 8.8	21.1
412382 2013 <i>PJ</i> ₆₂	15.8	X	203.81654	280.12698	281.01568	8.05440	0.0818711	0.18141744	3.0904142	20	12 2.9	20.4
412383 2013 <i>PB</i> ₆₉	16.1	X	40.76887	190.50829	155.20651	10.74176	0.2158991	0.17129145	3.2110391	20	12 18.2	20.7
412384 2013 <i>QK</i> ₂₂	16.2	X	116.34758	188.44581	141.05418	10.54011	0.0065628	0.18829061	3.0147429	20	—	—
412385 2013 <i>QE</i> ₄₇	16.6	X	76.65846	169.83163	164.38373	9.54303	0.0809634	0.17762988	3.1341904	20	12 27.9	21.3
412386 2013 <i>QK</i> ₅₆	13.6	X	158.59828	9.19737	22.40172	9.53025	0.0344494	0.08391906	5.1668871	20	3 28.4	20.6
412387 2013 <i>QB</i> ₅₉	16.3	X	270.31745	68.48941	136.90834	11.28529	0.0671315	0.20383648	2.8594430	20	—	—
412388 2013 <i>QR</i> ₇₆	15.9	X	199.33967	298.77997	251.18604	3.44623	0.1266478	0.17160976	3.2070672	20	11 9.5	20.8
412389 2013 <i>QG</i> ₈₂	15.9	X	314.07462	346.55958	154.88734	11.06997	0.0591149	0.19229557	2.9727373	20	—	—
412390 2013 <i>RG</i> ₅₇	15.5	X	327.75218	128.67811	194.46788	9.17261	0.1856338	0.12358791	3.9916463	20	7 3.5	20.4
412391 2013 <i>RM</i> ₇₈	15.7	X	178.01749	232.26367	353.51468	15.63360	0.1638627	0.17488917	3.1668496	20	11 25.9	21.2
412392 2013 <i>RV</i> ₈₅	15.9	X	126.70993	141.16195	233.08092	5.66085	0.0836309	0.19956181	2.9001320	20	1 24.1	20.1

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
412401 2014 BX ₃₇	17.8	X	67.95116	283.48645	323.80519	17.06431	0.0712334	0.37992713	1.8880023	20	9 22.7	20.0
412402 2014 BF ₃₉	17.2	X	223.65205	157.39893	318.56539	7.11705	0.1131853	0.24065319	2.5598134	20	9 14.4	20.9
412403 2014 BE ₄₇	18.0	X	293.54773	40.26175	144.85056	2.41272	0.0769136	0.29802700	2.2197240	20	—	—
412404 2014 BG ₅₇	16.7	X	81.30007	328.00727	163.79152	7.29097	0.2738072	0.18495953	3.0508316	20	5 25.6	21.2
412405 2014 BQ ₆₂	16.5	X	155.49469	215.94310	342.82286	14.78025	0.0462605	0.24260729	2.5460494	20	10 14.8	20.3
412406 2014 CU ₁₇	17.7	X	237.54704	151.29118	10.39495	1.82862	0.1202303	0.26399294	2.4066218	20	12 7.7	20.4
412407 2014 CY ₁₇	17.9	X	262.29717	58.27139	167.37142	2.98525	0.1327193	0.29139564	2.2532741	20	—	—
412408 2014 CD ₁₈	17.5	X	306.08820	200.66755	327.56451	7.31860	0.0913027	0.29459549	2.2369279	20	—	—
412409 2014 CN ₁₈	17.0	X	162.63265	343.52278	159.22766	14.31483	0.2071967	0.22140542	2.7061003	20	8 13.9	21.7
412410 2014 CV ₂₂	16.7	X	166.21303	332.14088	175.06086	12.18931	0.0835615	0.22800989	2.6535886	20	8 23.5	20.7
412411 2014 CW ₂₂	17.1	X	160.52113	324.43395	162.82168	9.16161	0.1558549	0.21857485	2.7294130	20	7 23.1	21.6
412412 2014 DT ₆	17.9	X	265.20456	109.52115	39.06228	1.95869	0.1286906	0.27247954	2.3563879	20	—	—
412413 2014 DE ₂₁	15.5	X	40.20764	222.40258	346.80525	10.23697	0.0534151	0.18946183	3.0023056	20	6 3.3	19.7
412414 2014 DF ₂₄	15.7	X	327.33561	30.15130	342.29895	29.00609	0.1178059	0.23660407	2.5889355	20	9 20.2	18.7
412415 2014 DH ₆₀	17.1	X	229.30859	1.29245	113.21826	4.99666	0.1788618	0.23985185	2.5655117	20	9 15.6	20.9
412416 2014 DU ₆₈	15.8	X	331.19772	115.78475	152.37019	11.24223	0.0882617	0.17943074	3.1131842	20	5 13.6	20.0
412417 2014 DV ₈₂	17.6	X	241.84085	240.36186	306.29719	4.04886	0.1632195	0.27416843	2.3467010	20	—	—
412418 2014 DF ₈₄	17.5	X	8.16549	302.32955	132.83906	4.60214	0.1068499	0.28427722	2.2907341	20	—	—
412419 2014 DZ ₉₄	16.3	X	160.21973	275.92642	191.88304	14.45110	0.1101310	0.20403040	2.8576309	20	6 26.9	21.0
412420 2014 DV ₉₇	17.5	X	196.50123	327.13997	160.73836	5.19676	0.1769219	0.23249278	2.6193673	20	8 27.6	21.8
412421 2014 DD ₁₁₈	16.1	X	57.44112	123.85977	12.71058	8.97624	0.1048842	0.17212606	3.2006508	20	4 3.2	20.1
412422 2014 DJ ₁₃₀	17.6	X	182.10432	118.24182	107.26943	2.38427	0.1342058	0.25802392	2.4435960	20	12 20.5	21.1
412423 2014 DU ₁₃₀	17.7	X	327.34172	340.96157	132.68172	3.58771	0.1183581	0.28257666	2.2999154	20	—	—
412424 2014 DK ₁₃₉	18.1	X	248.99698	5.39415	208.69649	0.85118	0.1538754	0.28505919	2.2865429	20	—	—
412425 2014 DF ₁₄₂	15.7	X	56.65864	318.62702	189.83384	16.86037	0.1595707	0.17838035	3.1253935	20	4 26.5	19.7
412426 2014 EV ₁	16.2	X	43.52561	331.68245	285.41433	5.90078	0.0965448	0.20822856	2.8190915	20	8 18.6	20.0
412427 2014 EA ₂	16.4	X	138.67652	245.56137	345.43395	16.70260	0.1941410	0.23439647	2.6051656	20	11 4.3	21.1
412428 2014 EN ₄	16.9	X	186.41256	288.44896	20.22050	23.35968	0.1674733	0.28854815	2.2680738	20	1 5.5	20.9
412429 2014 EQ ₄	17.2	X	190.76730	32.90457	143.58916	5.89926	0.1514943	0.24127875	2.5553869	20	10 27.3	21.2
412430 2014 EU ₁₁	16.7	X	89.00693	113.27242	107.99382	8.93256	0.1623146	0.21031796	2.8003897	20	9 14.2	21.0
412431 2014 EF ₁₇	17.6	X	196.78551	114.11061	103.89751	4.49524	0.1564155	0.26139657	2.4225317	20	12 25.1	21.1
412432 2014 EG ₃₁	13.7	X	213.59033	25.78561	137.48120	8.33654	0.2000973	0.08429480	5.1515218	20	10 23.5	20.7
412433 2014 EY ₃₇	17.1	X	204.65180	134.22467	117.11190	7.72754	0.0741082	0.27864168	2.3215177	20	—	—
412434 2014 EP ₄₇	16.3	X	91.68138	217.81934	14.95055	15.38527	0.1208280	0.22255165	2.6968006	20	9 27.1	20.3
412435 2014 EV ₄₇	17.4	X	292.83841	24.13130	124.15837	5.65841	0.1001920	0.27853050	2.3221354	20	—	—
412436 2014 EG ₅₀	15.6	X	233.71469	193.52057	304.47039	14.47929	0.0493559	0.24448831	2.5329735	20	11 1.5	19.3
412437 2014 FW ₂₁	17.2	X	179.06445	237.61236	271.16094	3.67601	0.2157436	0.23095930	2.6309489	20	9 3.7	21.7
412438 2014 FB ₂₅	16.5	X	173.45550	108.73316	342.00088	26.33521	0.2909655	0.21239979	2.7820611	20	6 23.5	22.1
412439 2014 FT ₃₄	16.8	X	209.08367	85.88390	89.38694	7.03252	0.1019494	0.25257671	2.4786042	20	11 20.7	20.2
412440 2014 FM ₃₅	17.0	X	247.32770	29.63612	223.91043	6.57251	0.1444641	0.30002998	2.2098338	20	—	—
412441 2014 FF ₃₇	16.7	X	111.81683	11.67294	147.51835	2.59247	0.1626901	0.19481880	2.9470136	20	7 16.6	21.3
412442 2014 FU ₄₀	17.7	X	256.84062	142.99893	112.33192	5.90242	0.1935076	0.28837363	2.2689888	20	—	—
412443 2014 FV ₄₆	17.4	X	107.48845	218.05360	49.92860	5.43268	0.1751520	0.23446794	2.6046362	20	11 28.1	21.5
412444 2014 FU ₄₉	16.6	X	179.99700	229.78166	326.77371	15.71844	0.1308847	0.24504233	2.5291542	20	11 3.3	20.9
412445 2014 FG ₅₆	15.5	X	294.14256	311.26854	350.78109	10.33574	0.0377447	0.17792262	3.1307516	20	5 4.5	20.0
412446 2014 FG ₆₂	16.1	X	54.03137	138.09744	46.27677	17.96121	0.1517595	0.17787332	3.1313300	20	6 2.7	20.2
412447 2014 GO ₄	16.7	X	4.35317	26.82102	233.87343	0.72163	0.2028692	0.18388835	3.0626679	20	6 26.2	19.7
412448 2014 GY ₄	17.5	X	205.10835	133.58980	7.77819	3.30225	0.1244364	0.23402731	2.6079045	20	9 27.0	21.4
412449 2014 GH ₅	16.2	X	62.28176	321.25692	188.40373	1.87180	0.0473426	0.17172363	3.2056494	20	4 19.6	20.6
412450 2014 GS ₁₄	16.5	X	65.79391	332.28474	200.18583	3.36730	0.1635324	0.18234895	3.0798806	20	6 9.3	20.7
412451 2014 GG ₁₅	16.8	X	205.70796	74.78640	38.12791	5.76174	0.0660584	0.21956872	2.7211704	20	8 28.5	20.8
412452 2014 GU ₃₁	17.7	X	277.50013	68.67893	110.27909	3.24693	0.1024504	0.27389266	2.3482759	20	—	—
412453 2014 GR ₃₆	16.0	X	240.31680	359.83480	74.82155	6.40891	0.0372257	0.21701697	2.7424597	20	8 24.7	19.8
412454 2014 GV ₃₆	16.2	X	70.99069	176.30690	119.65073	15.77249	0.1813519	0.22187809	2.7022557	20	11 30.3	20.5
412455 2014 GF ₃₉	16.8	X	174.46125	57.61698	52.57763	8.24920	0.2033538	0.21110922	2.7933879	20	7 16.5	21.6
412456 2014 GO ₃₉	17.4	X	220.44479	23.55995	192.83930	2.41286	0.1451918	0.26571755	2.3961972	20	—	—
412457 2014 GN ₄₂	17.4	X	180.40872	265.04626	21.86493	9.22281	0.2633627	0.26369046	2.4084618	20	—	—
412458 2014 GU ₄₆	17.6	X	215.12246	101.70489	138.77369	3.13787	0.1455734	0.26626108	2.3929351	20	—	—
412459 2014 GE ₄₈	15.4	X	37.51848	95.57349	109.42688	26.97542	0.1446287	0.17795461	3.1303763	20	6 11.4	19.5
412460 2014 HC ₁	16.4	X	210.13352	60.43844	65.70407	22.14639	0.1629430	0.22834542	2.6509885	20	9 22.2	21.0
412461 2014 HG ₁	17.0	X	101.84596	170.25247	107.48441	5.78846	0.0638415	0.23926315	2.5697182	20	11 30.1	20.6
412462 2014 HD ₆	17.9	X	230.43159	349.87622	239.75599	1.47191	0.1783788	0.27400802	2.3476167	20	—	—
412463 2014 HG ₆	17.6	X	216.09385	238.85564	10.52613	5.56423	0.1735705	0.27436704	2.3455684	20	—	—
412464 2014 HH ₆	16.6	X	125.67268	165.68782	73.60480	8.53473	0.0582616	0.22881196	2.6473838	20	11 7.4	20.4
412465 2014 HR ₆	17.0	X	127.91731	162.17238	90.12756	5.44646	0.1067066	0.23430570	2.6058384	20	11 26.9	21.1
412466 2014 HX ₆	16.7	X	114.80703	147.78120	83.71197	5.89841	0.0543304	0.22076018	2.7113706	20	10 15.5	20.6
412467 2014 HU ₁₆	17.8	X	261.06094	60.83728	214.22528	3.23842	0.1588817	0.30053974	2.2073343	20	1 27.8	21.1
412468 2014 HR ₂₂	16.8	X	128.65316	60.53974	168.66766	15.11316	0.1722720	0.22073295	2.7115936	20	11 1.9	21.4
412469 2014 HE ₂₅	17.5	X	106.86583	79.28851	171.17596	8.41202	0.2865657	0.21946532	2.7220251	20	11 12.7	22.4
412470 2014 HR ₂₅	17.3	X	163.89987	32.01290	197.26969	5.35946	0.1379342	0.24044315	2.5613039	20	12 3.9	21.3
412471 2014 HN ₃₃	17.1	X	200.55129	215.84934	76.48552	8.68545	0.1403483	0.27956852	2.3163839	20	—	—
412472 2014 HE ₅₂	16.0	X	0.68679	236.55348	45.21502	9.50711	0.0884276	0.19086223	2.9876018	20	7 17.1	19.8
412473 2014 HC ₉₃	17.4	X	269.96774	89.26365	135.18895	3.83441	0.0964658	0.28632335	2.2798077	20	—	—
412474 2014 HL ₁₂₄	17.4	X	183.15260	353.92016	127.95905	24.45367	0.0					

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
412481 2014 HQ ₁₉₄	16.7	X	148.53902	358.43010	220.11192	6.29802	0.1535634	0.23116236	2.6294079	20	11 4.5	21.0
412482 2014 HU ₁₉₄	15.8	X	33.42027	156.24343	60.08017	17.64238	0.2116065	0.17679369	3.1440652	20	6 21.9	19.5
412483 2014 HK ₁₉₅	16.3	X	70.18293	334.00608	212.21246	1.50472	0.1683472	0.18673937	3.0314154	20	7 3.7	20.4
412484 2014 JP	16.4	X	131.86138	129.15135	119.58258	14.00926	0.0380133	0.23704119	2.5857518	20	11 28.9	20.2
412485 2014 JW ₂	17.0	X	161.86388	53.37225	170.41983	4.37786	0.1378395	0.23510166	2.5999535	20	11 24.9	21.1
412486 2014 JL ₄	15.4	X	325.11468	127.04269	172.61274	15.72686	0.1986055	0.17312483	3.1883291	20	5 31.9	19.4
412487 2014 JB ₆	17.6	X	230.60705	149.86127	117.80149	3.97836	0.2415692	0.28092825	2.3089035	20	—	—
412488 2014 JE ₁₆	18.1	X	286.66348	44.45438	156.51343	2.77091	0.1166360	0.28667268	2.2779552	20	—	—
412489 2014 JY ₁₆	15.9	X	342.23337	181.40370	98.70010	11.26758	0.0680428	0.17996564	3.1070124	20	6 13.9	19.9
412490 2014 JZ ₁₈	16.8	X	352.08462	207.02497	192.84779	4.54618	0.1006967	0.24573404	2.5244058	20	12 22.7	19.7
412491 2014 JW ₁₉	17.3	X	195.39667	143.10700	137.60595	5.68019	0.1699916	0.27249884	2.3562767	20	—	—
412492 2014 JV ₂₀	17.3	X	230.27233	180.51030	96.06123	5.54104	0.1452228	0.28742136	2.2739977	20	1 3.5	20.6
412493 2014 JV ₂₆	17.1	X	198.46547	44.37484	125.63371	14.15667	0.1583099	0.23360957	2.6110126	20	10 28.9	21.4
412494 2014 JE ₃₃	17.2	X	140.05309	198.20921	69.99547	9.31296	0.1726517	0.24074969	2.5591292	20	12 27.3	21.3
412495 2014 JN ₆₀	16.9	X	116.95868	126.87000	147.74304	5.22758	0.2109196	0.22885730	2.6470341	20	12 14.9	21.5
412496 2014 JN ₇₀	17.2	X	173.64337	271.99815	48.42596	6.64633	0.1407064	0.27419922	2.3465253	20	1 5.9	20.7
412497 2014 JL ₇₇	16.4	X	11.68782	168.69076	141.47899	1.80137	0.1164951	0.19617668	2.9333990	20	9 13.7	19.9
412498 2014 KJ ₇	17.3	X	28.82085	6.53428	45.99722	6.62921	0.0923392	0.26359067	2.4090697	20	—	—
412499 2014 KC ₂₆	16.1	X	158.44694	358.99771	101.28298	8.24925	0.0844174	0.17506566	3.1647209	20	6 15.5	20.9
412500 2014 KR ₂₇	17.4	X	198.61108	11.29451	189.25043	16.65669	0.0680413	0.24236326	2.5477581	20	12 11.8	21.3
412501 2014 KT ₂₇	17.1	X	157.51185	12.85665	200.89548	11.62493	0.1285848	0.23623268	2.5916483	20	11 9.4	21.1
412502 2014 KY ₃₆	17.0	X	214.89492	34.59602	118.76548	13.96707	0.1754603	0.23628299	2.5912804	20	10 24.0	21.1
412503 2014 KT ₅₈	15.8	X	332.21343	219.51303	113.09134	12.66954	0.1108582	0.18343467	3.0677156	20	8 6.5	19.5
412504 2014 KA ₈₄	17.1	X	145.28976	301.75153	26.54571	2.63562	0.2509291	0.26702245	2.3883842	20	—	—
412505 2014 KM ₈₅	15.9	X	82.44701	217.67613	94.90409	11.41425	0.2277600	0.22834026	2.6510285	20	12 31.8	20.2
412506 2014 KJ ₈₆	15.5	X	353.45870	177.39759	129.70918	17.03378	0.2063067	0.17626735	3.1503209	20	8 8.7	18.7
412507 2014 KV ₈₉	15.9	X	357.28108	197.17335	71.07119	18.04472	0.1748662	0.17813212	3.1282964	20	6 19.6	19.4
412508 2014 KN ₉₀	16.9	X	202.28690	348.32700	249.94881	10.74943	0.1367803	0.23726560	2.5841211	20	—	—
412509 2014 LL ₉	17.9	X	291.74435	263.28384	139.65087	26.78836	0.1634028	0.36586759	1.9360657	20	10 19.9	19.9
412510 2014 LN ₁₁	17.2	X	290.60080	305.70912	128.11536	4.01743	0.0747545	0.22085479	2.7105962	20	10 26.4	20.6
412511 2014 LO ₁₅	17.1	X	170.62609	155.14251	173.66406	1.25359	0.1970561	0.25497322	2.4630487	20	1 19.3	21.1
412512 2014 LY ₂₆	17.4	X	258.52243	262.62262	83.89654	4.67254	0.2625143	0.29267682	2.2466935	20	4 20.9	20.9
412513 2014 MY ₂	16.9	X	74.65042	179.03438	209.57012	4.43626	0.1108518	0.26137502	2.4226648	20	—	—
412514 2014 MJ ₄	16.4	X	100.87578	206.27659	115.00121	9.57187	0.1121334	0.22496816	2.6774540	20	—	—
412515 2014 MM ₅	17.4	X	219.03046	145.48238	221.54288	0.52170	0.2468102	0.28512522	2.2861898	20	4 12.5	21.1
412516 2014 MM ₁₄	17.6	X	31.15379	341.34518	156.92767	6.90989	0.0226742	0.29056019	2.2575912	20	2 4.5	20.1
412517 2014 MS ₁₆	17.0	X	152.49792	142.58095	227.95063	0.27386	0.1953673	0.25550879	2.4596057	20	2 22.5	20.7
412518 2014 MD ₁₇	17.5	X	290.36233	135.18935	139.91779	4.74143	0.1433207	0.28615769	2.2806874	20	3 6.1	20.3
412519 2014 MN ₂₀	16.7	X	119.55713	222.53589	157.70348	7.15526	0.1427754	0.25407197	2.4688699	20	1 23.5	19.9
412520 2014 MV ₂₀	17.3	X	279.60034	312.94489	320.41340	7.86952	0.2063439	0.28586085	2.2822660	20	2 11.5	20.3
412521 2014 ML ₂₂	17.8	X	244.40793	41.19890	304.31128	5.31225	0.1788890	0.29130871	2.2537223	20	4 8.8	21.3
412522 2014 ME ₃₄	16.9	X	216.99102	216.94849	34.47276	7.44155	0.0785365	0.27434827	2.3456753	20	—	—
412523 2014 MO ₃₄	17.0	X	244.79301	179.99168	87.48011	5.52663	0.2022551	0.28172519	2.3045472	20	1 4.6	20.6
412524 2014 MY ₃₆	17.3	X	183.25107	235.06581	77.39430	3.53945	0.2038290	0.25637724	2.4540481	20	1 11.3	21.4
412525 2014 MH ₃₇	17.5	X	185.53832	135.64777	141.53036	5.27117	0.1864836	0.24191899	2.5508764	20	—	—
412526 2014 MT ₃₇	17.1	X	172.77622	7.31030	341.35454	6.74129	0.1381149	0.26030000	2.4293305	20	2 11.5	20.6
412527 2014 MW ₃₇	17.3	X	167.12877	242.76815	68.09115	2.20067	0.0761534	0.24186283	2.5512712	20	—	—
412528 2014 MX ₃₇	16.9	X	335.37433	104.83221	123.29834	7.68751	0.0490807	0.28377997	2.2934092	20	3 22.7	19.5
412529 2014 MY ₃₇	16.4	X	43.66627	312.96986	32.27857	2.35377	0.0934798	0.19679817	2.9272199	20	12 9.2	20.3
412530 2014 MN ₃₈	17.8	X	219.87536	10.47481	325.81480	4.61950	0.1232472	0.27924605	2.3181668	20	3 8.9	21.3
412531 2014 MS ₃₉	18.1	X	265.19155	283.15839	15.65739	4.25233	0.1849540	0.28849473	2.2683538	20	3 3.8	21.3
412532 2014 MS ₄₂	17.1	X	172.66113	113.42359	232.82869	5.60745	0.1608181	0.25621175	2.4551047	20	2 6.9	21.0
412533 2014 MH ₄₃	16.3	X	13.66569	161.58280	175.14975	10.93390	0.2299808	0.17668172	3.1453933	20	11 3.9	20.0
412534 2014 MN ₄₃	18.1	X	241.73259	78.99779	239.31225	5.71904	0.2409955	0.28456114	2.2892101	20	2 28.1	22.1
412535 2014 MR ₄₃	16.9	X	217.97724	101.08515	103.88483	15.68162	0.1298735	0.23485402	2.6017808	20	12 29.9	20.4
412536 2014 MF ₄₆	16.8	X	63.04020	299.70904	44.22216	5.17364	0.0996545	0.21697726	2.7427943	20	—	—
412537 2014 MR ₄₉	17.6	X	108.36860	261.88521	60.78830	3.89168	0.2092300	0.22670786	2.6637390	20	—	—
412538 2014 MN ₅₁	15.6	X	314.20291	207.47379	164.97264	19.60178	0.1241660	0.16963324	3.2319310	20	8 24.9	19.7
412539 2014 MQ ₅₂	18.3	X	323.01844	106.38883	174.67037	6.09610	0.2181688	0.30987454	2.1627789	20	4 19.8	20.1
412540 2014 MM ₅₃	16.2	X	41.87271	125.52970	139.92440	17.35018	0.2263636	0.17563489	3.1578792	20	9 17.5	20.4
412541 2014 MV ₆₂	15.6	X	188.80086	210.03734	303.71180	7.61265	0.0339332	0.18315102	3.0708822	20	9 21.2	20.1
412542 2014 MY ₆₂	15.9	X	67.86832	302.97699	311.02688	8.28054	0.0622793	0.17532519	3.1615970	20	9 6.4	20.5
412543 2014 MJ ₆₄	17.1	X	97.14278	238.55347	137.32834	16.01328	0.2275476	0.23405823	2.6076749	20	1 5.8	20.4
412544 2014 MK ₆₅	16.3	X	7.72531	157.23018	187.20350	10.63482	0.1655471	0.17860894	3.1227263	20	10 25.7	20.0
412545 2014 NW	17.7	X	315.27405	21.34921	161.30900	6.73740	0.0479187	0.27709413	2.3301533	20	—	—
412546 2014 NP ₁	18.0	X	194.19315	142.00664	158.10412	6.22793	0.1822225	0.26754568	2.3852693	20	1 2.8	21.8
412547 2014 NW ₁₂	17.3	X	249.16384	172.30115	94.87929	7.51267	0.0905038	0.27487681	2.3426675	20	1 15.0	20.5
412548 2014 NF ₂₀	16.5	X	183.23359	48.12689	222.42620	10.69611	0.1121827	0.23810098	2.5780733	20	—	—
412549 2014 ND ₂₄	17.5	X	336.50360	331.23542	217.71152	6.50681	0.0530724	0.27683764	2.3315923	20	1 23.9	20.3
412550 2014 NL ₂₅	17.4	X	329.71907	127.88482	136.63529	5.87812	0.2516247	0.31278003	2.1493643	20	3 31.1	19.1
412551 2014 NG ₂₉	15.9	X	65.95351	330.70027	262.27900	6.92464	0.0582864	0.16845653	3.2469640	20	8 7.5	20.6
412552 2014 NT ₃₀	16.5	X	150.01419	86.62045	139.62191	16.04655	0.2394445	0.21361505	2.7714996	20	11 16.6	21.7
412553 2014 NP ₃₃	17.7	X	174.54672	197.08646	165.91259	6.67050	0.1324869	0.27146136	2.3622764	20	2 28.3	21.2
412554 2014 NZ ₃₇	17.8	X	270.65577	161.855								

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
412561 2014 NS ₅₄	17.2	X	332.74626	175.12857	65.91579	6.94371	0.0697721	0.29355633	2.2422038	20	4 2.9	19.6
412562 2014 NH ₅₅	17.2	X	159.87114	284.79594	70.79601	4.18385	0.2305737	0.25501131	2.4628035	20	2 15.4	21.2
412563 2014 NH ₅₆	16.0	X	142.05339	191.67794	105.43124	12.28544	0.0659208	0.22401132	2.6850729	20	—	—
412564 2014 NX ₅₈	16.5	X	125.23051	175.56263	133.38076	14.28314	0.1661038	0.22446773	2.6814319	20	—	—
412565 2014 NY ₅₈	16.2	X	8.50558	24.16109	317.06300	15.16734	0.0934118	0.18113713	3.0936017	20	10 5.5	20.5
412566 2014 NE ₅₉	17.9	X	287.90993	173.94384	132.88082	5.30317	0.1847764	0.30034858	2.2082708	20	4 10.1	20.7
412567 2014 NM ₅₉	15.6	X	54.33902	299.57434	329.40181	15.59244	0.2058484	0.17855080	3.1234042	20	9 25.7	20.2
412568 2014 NU ₅₉	16.9	X	226.54310	174.87044	128.09229	6.79733	0.1286798	0.26865857	2.3786776	20	2 4.8	20.4
412569 2014 NX ₅₉	16.5	X	206.18085	173.83128	116.77806	7.17538	0.1224628	0.25381309	2.4705485	20	1 2.5	20.1
412570 2014 NQ ₆₀	17.5	X	240.87426	350.06562	312.16561	5.55993	0.2487949	0.27739887	2.3284465	20	2 10.5	21.6
412571 2014 NJ ₆₂	16.0	X	333.07424	25.23058	331.87948	6.08678	0.1867275	0.17573813	3.1566423	20	9 4.1	19.4
412572 2014 OD ₂	17.6	X	219.80553	194.41882	170.19403	3.44438	0.2327368	0.28378013	2.2934084	20	4 11.7	21.2
412573 2014 OD ₃	16.9	X	166.69865	209.91911	144.64754	7.75578	0.1264202	0.25903435	2.4372372	20	2 10.8	20.6
412574 2014 OE ₃	17.1	X	204.68002	235.60625	147.55968	6.24619	0.1684906	0.28388749	2.2928301	20	4 25.7	20.7
412575 2014 OK ₆	16.4	X	211.18000	61.43571	164.90451	8.26424	0.4409970	0.24233317	2.5479690	20	12 16.7	21.1
412576 2014 OD ₁₂	17.2	X	150.64303	126.38349	104.88985	5.50266	0.0519048	0.20912497	2.8110298	20	11 20.8	21.3
412577 2014 OA ₁₅	17.4	X	184.47939	232.86280	121.78599	7.76061	0.1446004	0.27385010	2.3485192	20	3 1.3	21.0
412578 2014 OG ₂₀	16.4	X	330.53638	231.92334	126.92705	10.11757	0.0556352	0.17801827	3.1296301	20	9 11.3	20.5
412579 2014 OC ₂₁	18.3	X	208.80142	172.73381	134.48942	1.95749	0.1877804	0.26736888	2.3863207	20	1 24.2	22.1
412580 2014 OE ₂₉	16.4	X	254.43325	53.12409	46.17950	1.26724	0.0592408	0.19145740	2.9814070	20	10 4.6	20.5
412581 2014 OF ₃₆	17.0	X	241.42147	73.63668	113.34101	6.02599	0.0716361	0.22888200	2.6468436	20	—	—
412582 2014 ON ₃₈	17.7	X	271.28060	174.16391	98.91967	1.99718	0.1854279	0.28477557	2.2880608	20	2 5.5	21.0
412583 2014 OR ₃₉	17.5	X	94.04909	68.66372	116.24415	13.01345	0.2241367	0.23777106	2.5804576	20	1 13.7	20.6
412584 2014 OO ₄₂	17.3	X	269.98778	296.91252	336.21910	6.82450	0.1336380	0.28299708	2.2976370	20	2 10.1	20.6
412585 2014 OK ₄₆	17.6	X	160.91180	313.32344	326.89713	3.04595	0.2195308	0.23721428	2.5844938	20	—	—
412586 2014 OV ₄₆	16.2	X	174.94641	99.32735	103.00488	6.97019	0.0220891	0.20393756	2.8584980	20	11 14.1	20.3
412587 2014 OU ₅₅	16.6	X	83.91304	258.71196	129.92882	7.54881	0.0494586	0.24102381	2.5571885	20	—	—
412588 2014 OL ₅₇	17.3	X	29.15029	9.55985	19.25661	4.59309	0.1207990	0.21252985	2.7809259	20	—	—
412589 2014 OE ₆₀	15.7	X	102.18472	273.31399	333.59967	11.74288	0.0217461	0.18675485	3.0312479	20	10 3.7	20.2
412590 2014 OC ₆₄	17.0	X	177.04608	30.86692	343.69673	9.56325	0.2540210	0.26977931	2.3720852	20	3 19.7	21.2
412591 2014 OS ₆₄	17.7	X	218.21158	272.70555	32.78029	2.83647	0.1827931	0.26810341	2.3819601	20	1 31.1	21.6
412592 2014 OG ₆₅	16.7	X	46.48815	36.55150	350.14435	4.64397	0.0637663	0.22048864	2.7135963	20	—	—
412593 2014 OH ₆₅	18.3	X	282.69807	350.89701	321.56025	6.66881	0.2283606	0.30288706	2.1959152	20	3 30.0	21.4
412594 2014 OH ₆₇	15.8	X	304.05967	286.05340	114.35984	10.63119	0.0879317	0.17864987	3.1222493	20	9 25.9	20.0
412595 2014 OF ₆₈	15.6	X	294.87501	323.30054	82.09496	3.84192	0.0577681	0.17724281	3.1387517	20	9 19.5	19.8
412596 2014 OL ₆₈	16.7	X	114.06381	210.25335	88.86449	5.07686	0.0240358	0.21500072	2.7595787	20	12 31.8	20.5
412597 2014 OU ₆₉	18.0	X	267.09012	139.01649	176.32503	2.76784	0.0942953	0.29352263	2.2423754	20	4 6.7	20.8
412598 2014 OW ₇₀	18.5	X	217.19571	247.62201	117.89205	4.11993	0.2025551	0.28604824	2.2812691	20	4 12.2	22.2
412599 2014 OY ₇₀	17.4	X	143.88634	168.63261	123.30322	4.93869	0.2392319	0.22902876	2.6457128	20	—	—
412600 2014 ON ₇₁	16.1	X	342.59415	17.27341	348.81717	8.89328	0.0414262	0.18033750	3.1027398	20	10 2.9	20.3
412601 2014 OX ₇₁	18.4	X	246.85728	352.12649	344.96056	2.42180	0.1780693	0.29055523	2.2576169	20	4 2.5	21.6
412602 2014 OL ₇₂	17.4	X	137.12498	214.52832	122.10267	6.56373	0.1754589	0.23724814	2.5842479	20	—	—
412603 2014 OW ₇₆	18.0	X	218.22816	290.97745	20.67481	2.03631	0.1918408	0.27508086	2.3415088	20	2 6.5	21.8
412604 2014 OT ₈₀	16.5	X	67.89577	23.63419	312.49098	14.33752	0.1369574	0.21427129	2.7658379	20	—	—
412605 2014 OK ₈₉	17.3	X	302.01689	303.19833	206.12185	3.62348	0.1067932	0.24106289	2.5569122	20	—	—
412606 2014 OG ₉₀	15.9	X	239.87600	308.60746	139.51666	10.88365	0.0561199	0.17849689	3.1240330	20	9 2.1	20.3
412607 2014 OA ₉₃	17.0	X	58.35866	189.76476	166.94284	6.05511	0.0545850	0.21748593	2.7385159	20	—	—
412608 2014 OS ₉₄	16.9	X	54.95559	275.40977	152.03637	15.02753	0.1355942	0.22836999	2.6507984	20	—	—
412609 2014 OH ₉₅	16.9	X	126.88338	5.60165	341.19215	7.47821	0.1964747	0.23263838	2.6182743	20	1 2.7	20.7
412610 2014 OO ₉₅	17.4	X	151.11617	237.17213	139.18881	6.39053	0.2035239	0.25338049	2.4733597	20	3 1.4	21.3
412611 2014 OG ₉₆	17.6	X	234.14536	310.31860	338.68451	8.44283	0.2349324	0.26530128	2.3987031	20	1 24.3	21.7
412612 2014 OE ₉₉	16.3	X	348.40182	218.51086	160.03966	12.74445	0.0744784	0.18240648	3.0792329	20	11 3.4	20.4
412613 2014 OT ₉₉	17.0	X	259.57611	68.88570	158.12557	6.43964	0.0350438	0.24339140	2.5405782	20	—	—
412614 2014 OA ₁₀₀	16.0	X	328.20710	73.85530	323.86008	15.14505	0.2273837	0.17892024	3.1191032	20	10 25.1	19.5
412615 2014 OH ₁₀₀	16.7	X	336.58000	288.17161	148.27086	6.76044	0.2211914	0.19517125	2.9434646	20	—	—
412616 2014 OG ₁₀₁	16.0	X	342.44173	216.72009	153.09690	28.20006	0.1991730	0.17190324	3.2034160	20	10 17.5	19.9
412617 2014 OP ₁₀₁	16.6	X	113.81161	44.80102	331.61244	16.77522	0.2354098	0.23645142	2.5900497	20	1 31.8	20.3
412618 2014 OA ₁₀₂	17.8	X	310.96128	117.30593	144.63868	8.44377	0.2206211	0.29356072	2.2421815	20	3 2.4	20.2
412619 2014 OM ₁₀₃	17.8	X	322.15199	67.20651	155.79341	10.26913	0.1884488	0.27902991	2.3193638	20	1 29.1	20.7
412620 2014 OT ₁₀₃	17.2	X	104.35718	110.74272	328.86611	7.53154	0.0758539	0.26558898	2.3969704	20	3 9.9	20.3
412621 2014 OW ₁₀₃	16.3	X	14.54904	182.36978	145.88676	10.58932	0.0802685	0.17360210	3.1824828	20	10 6.9	20.5
412622 2014 OY ₁₀₃	16.8	X	39.88785	314.10899	345.93943	11.70525	0.1217704	0.17512860	3.1639625	20	10 5.6	21.2
412623 2014 OT ₁₀₉	17.2	X	64.96653	40.62957	329.56875	11.03309	0.1302448	0.22252063	2.6970513	20	—	—
412624 2014 OX ₁₁₀	16.3	X	316.00912	59.83528	346.46928	7.06309	0.0531111	0.18635959	3.0355325	20	10 17.5	20.4
412625 2014 OS ₁₁₁	17.4	X	309.56080	232.83993	6.84922	5.87700	0.0971867	0.28652866	2.2787185	20	2 20.2	20.2
412626 2014 OZ ₁₁₉	17.0	X	206.80397	151.98439	84.14699	4.19566	0.0334838	0.23505775	2.6002773	20	—	—
412627 2014 OS ₁₃₀	17.6	X	178.65161	278.70084	48.40303	1.98769	0.1967197	0.25566044	2.4586330	20	1 24.9	21.5
412628 2014 OQ ₁₃₆	16.9	X	187.56944	73.57426	110.99914	6.11164	0.0571611	0.20294057	2.8678524	20	11 4.6	21.2
412629 2014 OO ₁₅₂	16.8	X	153.81340	308.24319	327.61858	10.49433	0.0513980	0.23013165	2.6372531	20	—	—
412630 2014 OY ₁₆₇	17.0	X	306.65176	58.10002	65.83546	9.01527	0.0881182	0.22763053	2.6565361	20	—	—
412631 2014 OG ₁₆₉	17.4	X	108.32161	255.23509	49.49574	7.10982	0.0499984	0.21845980	2.7303712	20	—	—
412632 2014 OW ₁₆₉	17.0	X	351.36690	25.56219	85.45949	10.67793	0.1561675	0.23831488	2.5765305	20	—	—
412633 2014 OA ₁₆₉	15.8	X	247.56156	357.58980	91.45339	14.62013	0.1225830	0.1752858	3.1353825	20	9 8.5	20.6
412634 2014 OU ₁₇₁	16.9	X	100.88576	299.53285	351.52137							

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
412641 2014 OH ₁₈₅	17.6	X	182.51763	30.02805	8.22721	4.90354	0.1871209	0.28316579	2.2967243	20	4 21.3	21.1
412642 2014 OJ ₁₈₅	15.0	X	105.88797	74.23882	107.05486	10.86292	0.0563070	0.15396818	3.4475883	20	7 24.3	20.0
412643 2014 OH ₁₈₆	15.8	X	77.70147	112.85775	124.39660	17.06803	0.1965364	0.17368624	3.1814549	20	9 23.7	20.8
412644 2014 OY ₁₈₆	17.2	X	145.56698	12.07806	300.38664	3.41436	0.2532854	0.22979626	2.6398186	20	—	—
412645 2014 OV ₁₈₇	16.3	X	39.41700	340.79979	337.73595	15.64952	0.1574100	0.17682353	3.1437114	20	10 29.8	20.8
412646 2014 OC ₁₈₈	15.9	X	5.78630	38.41498	328.91681	8.65931	0.0914169	0.17834405	3.1258176	20	11 7.9	20.0
412647 2014 OL ₁₈₈	17.5	X	263.36591	353.50251	312.78929	1.09760	0.1361548	0.27923966	2.3182022	20	3 15.8	20.6
412648 2014 OC ₁₈₉	16.4	X	82.46097	310.65452	350.22491	9.43832	0.0968137	0.18762306	3.0218894	20	11 26.6	21.1
412649 2014 OE ₁₈₉	18.0	X	203.45378	177.20464	174.48157	2.40794	0.1262895	0.26678025	2.3898296	20	3 14.2	21.5
412650 2014 OQ ₁₈₉	17.4	X	207.41952	186.63044	133.11258	2.26533	0.1957654	0.25873895	2.4390920	20	2 8.2	21.5
412651 2014 OW ₁₉₀	16.9	X	107.83269	172.36722	167.30003	4.89708	0.1167982	0.21506522	2.7590268	20	—	—
412652 2014 OH ₁₉₁	17.4	X	199.04465	154.53747	172.13735	2.69179	0.1912768	0.25576538	2.4579604	20	2 9.2	21.5
412653 2014 OK ₁₉₁	16.5	X	196.06111	270.32444	357.79706	3.21199	0.1193560	0.22675398	2.6633778	20	—	—
412654 2014 OU ₁₉₂	16.2	X	321.54070	252.64542	157.87747	11.02334	0.0340850	0.17680465	3.1439352	20	11 4.0	20.6
412655 2014 OP ₁₉₂	16.1	X	322.38598	256.13054	163.43961	16.21177	0.0290886	0.18139611	3.0906564	20	11 17.7	20.6
412656 2014 OU ₁₉₂	17.3	X	208.05181	228.32751	108.57044	3.52863	0.2025966	0.26519820	2.3993245	20	3 1.0	21.3
412657 2014 OC ₁₉₃	15.7	X	314.20676	268.48494	161.55019	17.35699	0.1125268	0.17821061	3.1273777	20	11 15.9	19.9
412658 2014 OH ₁₉₃	16.9	X	79.00779	121.21295	358.40809	11.92751	0.0932049	0.26277706	2.4140397	20	3 31.8	19.9
412659 2014 OD ₁₉₄	17.9	X	175.50704	275.48543	112.42463	2.25275	0.1879163	0.26619178	2.3933504	20	4 4.8	21.7
412660 2014 OU ₁₉₄	17.0	X	95.26549	250.97946	126.08494	2.71598	0.0812558	0.22510660	2.6763561	20	—	—
412661 2014 OA ₁₉₅	17.3	X	308.81517	297.00993	354.47674	6.89355	0.0846333	0.29373409	2.2412991	20	4 30.9	19.9
412662 2014 OC ₁₉₅	18.4	X	306.52491	167.75568	131.18416	3.09445	0.1796509	0.29951209	2.2123804	20	4 26.0	20.6
412663 2014 OP ₁₉₅	17.9	X	185.85924	244.39608	138.99189	1.89232	0.1900922	0.27038419	2.3685461	20	4 7.8	21.7
412664 2014 OH ₁₉₆	17.1	X	227.89745	358.81588	295.75707	2.56755	0.1843799	0.26102846	2.4248087	20	1 25.8	21.0
412665 2014 OQ ₁₉₆	16.6	X	23.95724	64.69431	339.61696	9.90652	0.1270766	0.20229225	2.8739765	20	—	—
412666 2014 OT ₁₉₆	17.5	X	277.87657	358.68134	296.19673	3.08239	0.1244951	0.28205744	2.3027370	20	3 17.7	20.6
412667 2014 OY ₁₉₆	17.0	X	203.24786	147.98873	167.61849	7.70603	0.1747071	0.25591161	2.4570239	20	1 29.5	21.1
412668 2014 OK ₁₉₇	15.3	X	324.92590	246.24060	167.68472	26.60848	0.1663156	0.17675116	3.1445696	20	11 11.3	19.4
412669 2014 OF ₁₉₈	16.2	X	77.74553	255.23540	162.87856	15.58262	0.1308855	0.23161880	2.6259523	20	1 16.5	19.5
412670 2014 OJ ₁₉₈	16.8	X	168.38198	33.03761	337.74928	14.41552	0.1396470	0.25843935	2.4409766	20	3 3.8	20.4
412671 2014 OM ₁₉₈	17.2	X	236.34315	331.74849	329.36565	5.87564	0.1459646	0.26447301	2.4037085	20	2 11.8	20.7
412672 2014 OU ₂₀₀	16.0	X	81.53496	322.29931	309.50673	5.48175	0.0521439	0.18377858	3.0638873	20	10 15.1	20.5
412673 2014 OG ₂₀₂	17.0	X	318.28207	15.94111	76.34991	4.57377	0.0617118	0.21420649	2.7663957	20	12 27.8	20.3
412674 2014 OW ₂₀₆	16.7	X	355.71425	285.51850	64.76934	2.49673	0.1012898	0.17319441	3.1874751	20	10 6.2	20.7
412675 2014 OB ₂₀₇	16.3	X	33.56373	91.96662	220.22588	14.78455	0.1962876	0.18008410	3.1056497	20	10 27.2	20.4
412676 2014 OW ₂₁₁	18.0	X	202.72293	37.14999	349.79332	3.68326	0.2165914	0.28433477	2.2904249	20	4 24.0	21.7
412677 2014 OM ₂₁₄	17.5	X	205.70179	5.83736	309.51423	6.16894	0.1555220	0.26751539	2.3854494	20	1 31.1	21.3
412678 2014 OX ₂₁₆	15.6	X	358.54024	238.93315	105.38702	17.79476	0.2283504	0.17993504	3.1073646	20	10 24.2	19.3
412679 2014 OO ₂₂₂	15.7	X	202.70214	41.51871	78.76055	10.29398	0.0414033	0.17513096	3.1639341	20	9 3.0	20.5
412680 2014 OL ₂₂₆	16.3	X	101.83304	128.14083	109.14242	12.29781	0.0489796	0.17913435	3.1166172	20	10 4.1	21.0
412681 2014 OB ₂₂₇	16.9	X	133.06348	252.23134	21.79929	7.88902	0.1778933	0.21428884	2.7656869	20	12 23.8	21.6
412682 2014 OY ₂₃₀	17.2	X	194.72308	195.71708	137.92816	2.86676	0.2271943	0.25891821	2.4379661	20	2 15.1	21.3
412683 2014 OK ₂₃₁	15.9	X	331.69891	254.71625	168.81044	10.34177	0.1745816	0.18257245	3.0773665	20	12 5.5	19.5
412684 2014 OT ₂₃₁	15.6	X	51.13988	348.46255	337.67310	10.05359	0.1034255	0.18481033	3.0524733	20	11 21.1	20.1
412685 2014 OV ₂₃₂	16.4	X	48.91040	134.00796	164.26397	15.86372	0.0900838	0.17086262	3.2164096	20	10 16.9	21.0
412686 2014 OP ₂₃₄	17.3	X	193.19869	106.25355	142.34653	11.33114	0.0902750	0.23518238	2.5993586	20	—	—
412687 2014 OW ₂₃₄	17.8	X	190.92394	19.57219	7.51916	4.80582	0.2092928	0.28081540	2.3095220	20	4 14.9	21.6
412688 2014 OT ₂₄₀	18.1	X	250.87760	272.89138	346.60846	1.55996	0.1051615	0.26745878	2.3857860	20	1 7.2	21.5
412689 2014 OF ₂₅₁	15.7	X	277.77482	77.15859	336.37775	15.34694	0.1557186	0.17280022	3.1923208	20	8 22.1	19.9
412690 2014 OC ₂₅₆	17.0	X	331.04294	14.99325	20.38738	4.80265	0.2397457	0.18422603	3.0589242	20	10 25.1	19.8
412691 2014 OU ₂₅₆	17.2	X	328.49299	103.33186	349.09673	10.83431	0.0278983	0.22141318	2.7060370	20	—	—
412692 2014 OF ₂₅₇	16.6	X	150.03659	266.84334	57.79798	7.56229	0.1861579	0.24451525	2.5327875	20	—	—
412693 2014 OL ₂₅₈	16.9	X	141.00039	201.55633	72.58076	7.03699	0.1059141	0.22151566	2.7052024	20	—	—
412694 2014 OS ₂₅₈	16.7	X	217.95171	102.89633	103.18326	14.23371	0.1338594	0.22932630	2.6434239	20	12 29.4	20.3
412695 2014 OQ ₂₅₉	15.8	X	342.06612	267.69397	93.75712	9.87749	0.0447587	0.18244354	3.0788159	20	10 4.4	20.0
412696 2014 OF ₂₇₄	16.8	X	198.50507	172.91375	70.69226	8.74212	0.1581543	0.23796514	2.5790543	20	—	—
412697 2014 OW ₂₇₆	15.8	X	24.14939	338.35914	332.83049	11.78620	0.1392574	0.17731020	3.1379564	20	9 28.9	19.8
412698 2014 OB ₂₇₇	17.1	X	256.70338	305.40546	331.88084	6.71484	0.0907928	0.27317253	2.3524011	20	2 6.1	20.3
412699 2014 OE ₂₇₇	17.6	X	182.13998	291.83912	32.42357	2.72570	0.2172669	0.25657564	2.4527829	20	1 25.6	21.6
412700 2014 OL ₂₇₇	17.6	X	137.97733	211.40716	80.53158	3.31704	0.1122639	0.22316882	2.6918263	20	—	—
412701 2014 OH ₂₇₉	16.5	X	337.79574	317.51757	72.83036	5.81608	0.1834616	0.18255675	3.0775429	20	11 3.0	19.7
412702 2014 OD ₂₈₀	16.7	X	340.02018	59.21108	344.86434	14.99690	0.1576322	0.19179414	2.9779163	20	11 20.9	20.4
412703 2014 OD ₂₈₆	17.6	X	353.46845	186.94906	34.02489	8.10049	0.0492922	0.29084566	2.2561137	20	4 7.4	19.9
412704 2014 OT ₂₉₂	17.2	X	114.74423	242.82904	75.30515	5.95907	0.1598412	0.22096177	2.7097213	20	—	—
412705 2014 OC ₂₉₃	16.3	X	334.73238	242.32467	171.28133	17.33044	0.1214910	0.18420864	3.0591167	20	11 28.3	20.3
412706 2014 OE ₂₉₄	17.6	X	198.98932	234.96211	187.93519	6.07488	0.0837892	0.29545205	2.2326024	20	6 13.6	20.6
412707 2014 OL ₂₉₄	17.0	X	65.25649	198.22644	171.28511	3.82149	0.1418467	0.20854691	2.8162129	20	—	—
412708 2014 OV ₂₉₄	18.3	X	328.69921	105.58746	166.49163	7.36175	0.2436681	0.3026021	2.1970123	20	4 12.8	19.9
412709 2014 OB ₂₉₅	17.5	X	145.45736	335.13678	350.30051	1.17395	0.2115559	0.23296653	2.6158150	20	—	—
412710 2014 OY ₂₉₅	15.8	X	289.42032	48.39664	348.71560	19.08891	0.0413192	0.15494369	3.4331026	20	9 1.4	20.5
412711 2014 OF ₂₉₆	17.4	X	140.14294	43.55058	10.16009	5.22528	0.1923100	0.25739797	2.4475560	20	4 4.2	21.1
412712 2014 OJ ₂₉₇	17.2	X	130.16475	319.46905	25.44045	5.53642	0.0763836	0.22771713	2.6558625	20	—	—
412713 2014 OA ₂₉₈	16.1	X	54.14548	40.98098	348.73173	6.14985	0.0329652	0.20987381	2.8			

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
412721 2014 <i>OP</i> ₃₂₉	15.5	X	157.26271	40.50075	109.35106	12.13131	0.0442102	0.16783402	3.2549880	20	8 14.9	20.3
412722 2014 <i>OR</i> ₃₃₃	15.7	X	16.00962	35.51873	354.82322	14.93801	0.1489290	0.20231312	2.8737789	20	—	—
412723 2014 <i>OX</i> ₃₃₃	18.3	X	267.14077	271.14631	57.72425	2.58194	0.0844097	0.28876616	2.2669321	20	4 27.6	21.1
412724 2014 <i>OM</i> ₃₃₄	17.8	X	266.11251	89.79581	150.76328	2.24661	0.0995399	0.26856188	2.3792485	20	—	—
412725 2014 <i>OT</i> ₃₃₉	17.7	X	135.26371	260.62888	120.48471	3.58242	0.2475628	0.25234584	2.4801157	20	2 25.7	21.5
412726 2014 <i>OO</i> ₃₄₁	17.2	X	277.64005	297.59981	316.64647	5.67528	0.1066310	0.27652542	2.3333471	20	1 28.5	20.4
412727 2014 <i>OX</i> ₃₄₃	16.0	X	353.63346	10.89728	322.14108	9.67961	0.1038368	0.17220829	3.1996319	20	9 6.7	20.1
412728 2014 <i>OA</i> ₃₄₄	15.4	X	312.53594	79.48467	137.45856	24.54694	0.2350398	0.17006932	3.2264039	20	9 2.3	19.2
412729 2014 <i>OG</i> ₃₄₄	16.5	X	230.27602	189.65830	313.76145	24.05703	0.1777642	0.28309408	2.2971121	20	3 4.6	20.3
412730 2014 <i>OR</i> ₃₄₆	16.7	X	339.70152	173.33173	254.57793	4.90569	0.0131962	0.21646499	2.7471199	20	12 24.8	20.4
412731 2014 <i>OV</i> ₃₄₆	17.7	X	39.24038	280.79135	201.09124	4.40895	0.0624257	0.26990888	2.3713260	20	1 28.2	20.4
412732 2014 <i>OT</i> ₃₄₇	17.4	X	233.84103	357.44131	206.14415	3.52547	0.1054425	0.23607933	2.5927705	20	—	—
412733 2014 <i>OY</i> ₃₄₉	17.0	X	168.36894	180.87408	148.00271	7.35706	0.1580613	0.25511195	2.4621557	20	1 14.1	20.7
412734 2014 <i>OF</i> ₃₅₃	17.0	X	54.37496	223.11704	153.94829	6.29950	0.0308091	0.22417384	2.6837749	20	—	—
412735 2014 <i>OD</i> ₃₅₅	18.4	X	184.87195	174.33894	155.14181	2.78833	0.1835125	0.26176663	2.4202480	20	1 30.9	22.4
412736 2014 <i>OV</i> ₃₅₅	17.1	X	244.29303	245.46251	318.06488	11.68500	0.1309746	0.23996650	2.5646945	20	—	—
412737 2014 <i>OT</i> ₃₅₈	16.1	X	172.90160	321.38285	317.39075	9.25002	0.0157425	0.22409805	2.6843800	20	—	—
412738 2014 <i>OA</i> ₃₅₉	17.7	X	167.66761	128.33101	187.21843	1.06501	0.0521107	0.24093473	2.5578188	20	—	—
412739 2014 <i>OS</i> ₃₅₉	16.7	X	157.22351	138.22775	147.65723	3.81986	0.1223440	0.22485942	2.6783171	20	—	—
412740 2014 <i>OY</i> ₃₅₉	17.7	X	252.42539	306.89236	301.59942	0.72258	0.1393341	0.25505575	2.4625174	20	—	—
412741 2014 <i>OE</i> ₃₆₀	15.7	X	294.96366	271.20622	158.65208	26.80314	0.1058978	0.17547556	3.1597906	20	10 17.8	20.1
412742 2014 <i>OK</i> ₃₆₀	16.5	X	234.71593	233.14982	346.62569	12.46788	0.1969267	0.23462265	2.6034911	20	—	—
412743 2014 <i>OV</i> ₃₆₀	16.6	X	235.26867	154.59170	342.65853	9.41689	0.0902220	0.18566605	3.0430871	20	10 18.8	21.0
412744 2014 <i>OD</i> ₃₆₂	17.5	X	68.29959	251.30314	165.73433	0.86522	0.1566041	0.24519428	2.5281092	20	—	—
412745 2014 <i>OX</i> ₃₆₂	17.7	X	241.74381	319.00987	339.20409	2.06756	0.1261455	0.27883560	2.3204412	20	2 12.9	20.9
412746 2014 <i>OO</i> ₃₆₃	16.7	X	343.35081	322.24452	58.89272	2.63408	0.0562631	0.19150815	2.9808803	20	10 28.4	20.4
412747 2014 <i>OB</i> ₃₆₇	17.9	X	299.33697	0.13544	345.51726	4.57311	0.1308409	0.31688422	2.1307654	20	7 6.3	19.8
412748 2014 <i>OD</i> ₃₆₇	17.3	X	206.39507	264.84488	34.28484	1.37419	0.1890489	0.25695883	2.4503438	20	1 14.1	21.2
412749 2014 <i>OV</i> ₃₆₈	17.3	X	279.96718	355.40953	146.51881	2.90339	0.0731550	0.22255955	2.6967368	20	—	—
412750 2014 <i>OV</i> ₃₆₉	17.0	X	339.68121	283.92751	106.79098	4.90489	0.1014960	0.19213387	2.9744049	20	11 7.3	20.6
412751 2014 <i>OC</i> ₃₇₀	17.0	X	82.61325	250.84654	60.28497	2.19695	0.1019551	0.19959047	2.8998543	20	12 14.1	21.3
412752 2014 <i>OE</i> ₃₇₀	17.5	X	193.21700	357.88111	354.14615	6.00688	0.1133395	0.26817257	2.3815506	20	3 4.8	20.9
412753 2014 <i>OF</i> ₃₇₄	15.9	X	17.32395	200.25612	93.17830	5.77157	0.1344792	0.17159911	3.2071999	20	8 31.6	19.8
412754 2014 <i>OF</i> ₃₇₅	16.7	X	97.61994	67.60351	309.23053	12.15208	0.1829550	0.23681893	2.5873694	20	1 1.3	19.9
412755 2014 <i>OA</i> ₃₇₆	16.2	X	321.08134	39.45488	327.75651	12.47337	0.0555531	0.17443065	3.1723969	20	9 2.9	20.4
412756 2014 <i>OE</i> ₃₇₇	17.4	X	300.29925	230.74589	357.65822	6.42843	0.0641643	0.27281311	2.3544667	20	1 30.5	20.4
412757 2014 <i>OU</i> ₃₇₇	17.5	X	306.77095	314.56814	267.88735	1.63113	0.1455605	0.27552147	2.3390119	20	1 15.7	20.4
412758 2014 <i>OU</i> ₃₇₈	16.5	X	13.71999	247.91393	132.80059	3.63600	0.1503313	0.19488229	2.9463735	20	12 21.4	20.2
412759 2014 <i>OJ</i> ₃₈₀	17.2	X	97.62845	40.63264	266.87089	5.42058	0.1094109	0.21629385	2.7485687	20	12 29.2	21.3
412760 2014 <i>OX</i> ₃₈₀	16.2	X	271.98584	235.84779	183.39103	6.92220	0.1621052	0.17189672	3.2034971	20	8 17.6	20.8
412761 2014 <i>OF</i> ₃₈₁	16.2	X	35.29017	6.29811	340.54490	8.44638	0.0997090	0.19130151	2.9830265	20	11 28.6	20.3
412762 2014 <i>OC</i> ₃₈₂	17.1	X	352.11210	225.39457	157.89991	2.37747	0.0880971	0.19762936	2.9190065	20	11 16.5	20.8
412763 2014 <i>OK</i> ₃₈₄	16.7	X	277.65679	188.92544	56.19650	6.61854	0.1697137	0.27069580	2.3667281	20	1 11.4	20.3
412764 2014 <i>OE</i> ₃₈₅	15.9	X	285.63585	254.25808	153.94876	10.30122	0.0863773	0.17786452	3.1314333	20	9 5.2	20.1
412765 2014 <i>OP</i> ₃₈₅	17.1	X	18.19485	290.63214	255.83975	7.12337	0.0643369	0.29282800	2.2459202	20	3 21.2	19.6
412766 2014 <i>OD</i> ₃₈₆	18.7	X	229.30214	221.41047	156.35688	4.6188	0.0835812	0.30456184	2.1878576	20	5 18.7	21.5
412767 2014 <i>OO</i> ₃₈₆	16.6	X	16.95630	104.76831	234.69180	3.26157	0.1442587	0.18678775	3.0308920	20	10 31.4	20.3
412768 2014 <i>OK</i> ₃₈₆	16.4	X	241.89693	176.91663	293.46788	8.38149	0.0236021	0.18783818	3.0195818	20	10 2.3	20.8
412769 2014 <i>OS</i> ₃₈₆	16.0	X	321.37926	111.38247	258.71274	6.89318	0.0286829	0.17770489	3.1333083	20	9 7.5	20.5
412770 2014 <i>OB</i> ₃₈₇	16.3	X	10.85811	85.06512	259.35169	6.80541	0.0622140	0.18883533	3.0089425	20	10 17.4	20.4
412771 2014 <i>OC</i> ₃₈₇	16.1	X	346.62575	181.37825	186.30123	6.38072	0.0547213	0.18782225	3.0197526	20	10 15.3	20.0
412772 2014 <i>OD</i> ₃₈₇	17.1	X	26.33308	202.11184	184.52965	3.69473	0.1041083	0.21151511	2.7898132	20	—	—
412773 2014 <i>ON</i> ₃₈₇	17.8	X	260.62654	196.34250	50.61901	3.77292	0.1966611	0.27019137	2.3696729	20	—	—
412774 2014 <i>OU</i> ₃₈₈	17.6	X	157.01752	221.63934	143.17011	7.15600	0.1241505	0.26270960	2.4144530	20	2 13.1	20.9
412775 2014 <i>OP</i> ₃₈₉	17.3	X	159.62295	76.48167	227.43410	0.83137	0.0477314	0.24148756	2.5539136	20	—	—
412776 2014 <i>OS</i> ₃₉₀	17.2	X	165.36021	256.48966	108.07306	3.08204	0.1918743	0.25916302	2.4364305	20	2 27.6	21.1
412777 2014 <i>PY</i> ₂	17.5	X	207.54834	169.05655	140.43219	5.89201	0.2113996	0.26639693	2.3921215	20	1 25.9	21.5
412778 2014 <i>PB</i> ₆	17.4	X	215.52071	189.75265	151.13850	6.77856	0.1416023	0.28231423	2.3013404	20	3 11.9	21.0
412779 2014 <i>PS</i> ₆	17.0	X	38.53248	127.26406	167.32688	6.14655	0.2619957	0.18272190	3.0756882	20	10 24.6	21.1
412780 2014 <i>PL</i> ₁₀	16.5	X	10.40179	315.72071	142.73035	15.60655	0.0552433	0.23662234	2.5888023	20	—	—
412781 2014 <i>PS</i> ₁₀	16.0	X	138.30915	46.43431	145.58562	9.82770	0.0441528	0.17488768	3.1668676	20	9 15.1	20.7
412782 2014 <i>PZ</i> ₁₁	16.2	X	22.69649	200.40141	145.78211	9.68643	0.1035793	0.18916361	3.0054602	20	11 15.9	20.3
412783 2014 <i>PY</i> ₁₂	17.2	X	173.08681	137.76405	161.87657	0.82381	0.1156898	0.24249979	2.5468017	20	—	—
412784 2014 <i>PX</i> ₁₃	17.0	X	93.96681	224.29386	148.11646	12.42031	0.1994357	0.22996076	2.6385595	20	—	—
412785 2014 <i>PQ</i> ₁₅	16.8	X	41.71957	44.76199	132.34154	1.25465	0.0625609	0.20299562	2.8673339	20	12 18.7	20.6
412786 2014 <i>PB</i> ₁₇	16.5	X	66.01049	329.20551	329.07783	8.95984	0.0606601	0.19008000	2.9957927	20	10 30.2	20.9
412787 2014 <i>PE</i> ₁₇	16.8	X	47.24875	209.80431	128.55305	3.94344	0.1006767	0.19749587	2.9203218	20	12 7.1	20.8
412788 2014 <i>PA</i> ₁₉	16.4	X	130.16532	258.89123	2.11313	6.32170	0.0170103	0.20179667	2.8786800	20	11 29.4	20.5
412789 2014 <i>PC</i> ₁₉	16.9	X	48.50528	338.75721	95.58955	4.28684	0.1319090	0.23719844	2.5846089	20	—	—
412790 2014 <i>PZ</i> ₂₀	17.9	X	261.32086	260.65208	357.92657	3.15633	0.1904095	0.27055943	2.3675233	20	1 10.6	21.7
412791 2014 <i>PT</i> ₂₁	17.1	X	121.57146	310.41042	337.09559	1.77933	0.0558875	0.21071031	2.7969123	20	12 26.4	21.3

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
412801 2014 PK ₂₇	17.4	X	134.61846	314.50960	76.42066	2.70286	0.2486464	0.25270412	2.4777710	20	3 8.7	21.3
412802 2014 PH ₂₈	16.6	X	351.98322	46.35759	337.72698	1.08583	0.1507571	0.18597755	3.0396882	20	11 18.2	19.9
412803 2014 PK ₂₈	16.8	X	65.68575	155.10533	139.45318	2.35473	0.0976628	0.18722263	3.0261967	20	11 3.5	21.1
412804 2014 PT ₂₈	17.1	X	202.41379	353.13264	324.34385	5.86460	0.1234485	0.26148369	2.4219936	20	1 31.5	20.9
412805 2014 PG ₂₉	17.7	X	241.12133	267.84744	2.27610	0.86800	0.1620124	0.26291849	2.4131740	20	1 8.6	21.5
412806 2014 PH ₂₉	16.4	X	332.31074	249.16361	143.14833	10.64824	0.2164081	0.17680156	3.1439719	20	10 26.5	19.7
412807 2014 PC ₃₀	18.1	X	257.64192	273.90450	348.64350	4.71529	0.2143880	0.27001564	2.3707009	20	1 11.0	22.0
412808 2014 PJ ₃₂	16.4	X	7.52436	252.29141	125.15399	10.21491	0.1417459	0.19079778	2.9882746	20	12 7.3	20.2
412809 2014 PV ₃₂	17.0	X	127.78027	217.28909	128.18174	11.07625	0.1283814	0.23606115	2.5929036	20	—	—
412810 2014 PP ₃₄	17.3	X	229.76091	227.30180	101.54287	6.84543	0.1265608	0.27806224	2.3247417	20	3 13.9	20.8
412811 2014 PA ₃₅	17.5	X	23.05914	290.48817	145.68640	7.82343	0.0798191	0.22972584	2.6403580	20	—	—
412812 2014 PL ₃₆	17.2	X	74.03043	24.79368	339.63354	0.89682	0.0874875	0.21953760	2.7214275	20	—	—
412813 2014 PU ₃₆	16.4	X	11.19769	337.24770	339.75040	1.64402	0.1812539	0.17137082	3.2100475	20	9 23.8	20.1
412814 2014 PN ₃₇	17.6	X	68.89208	304.58563	63.65885	1.51414	0.1433608	0.21541283	2.7560579	20	—	—
412815 2014 PT ₃₇	16.7	X	114.16988	201.85254	36.16094	1.30931	0.1363352	0.18542035	3.0457747	20	10 20.7	21.4
412816 2014 PG ₃₈	17.6	X	330.17189	141.08147	113.62443	8.54586	0.1863083	0.29950847	2.2123983	20	4 1.7	19.7
412817 2014 PO ₃₈	16.5	X	0.68067	280.48196	74.05319	2.52534	0.1583609	0.17859242	3.1229189	20	10 25.4	20.1
412818 2014 PE ₃₉	16.7	X	169.64020	136.47175	161.34558	15.03936	0.0847479	0.23308059	2.6149616	20	—	—
412819 2014 PQ ₃₉	16.3	X	11.68755	216.16400	163.09414	10.71258	0.0589172	0.19417603	2.9535136	20	12 6.2	20.4
412820 2014 PU ₃₉	15.8	X	353.31227	207.87181	157.06118	10.17821	0.0623281	0.17880065	3.1204937	20	10 22.3	20.0
412821 2014 PV ₃₉	16.9	X	60.61353	194.74851	146.87055	2.47577	0.0732820	0.20159290	2.8806195	20	12 23.6	21.0
412822 2014 PP ₄₀	18.4	X	143.19506	97.50350	321.12265	2.38749	0.1857514	0.26764609	2.3846727	20	4 11.5	21.9
412823 2014 PU ₄₀	17.1	X	36.96615	83.65806	331.65969	4.34235	0.0517929	0.22188298	2.7022160	20	—	—
412824 2014 PF ₄₁	16.6	X	68.72523	301.34691	344.27090	2.97251	0.1942803	0.18557861	3.0440429	20	11 6.1	21.3
412825 2014 PK ₄₁	16.3	X	282.74612	116.91973	350.26238	7.17602	0.0956070	0.19104065	2.9857414	20	11 13.6	20.3
412826 2014 PF ₄₂	16.1	X	114.15982	94.22502	151.55955	7.11053	0.0625165	0.18245563	3.0786799	20	10 26.6	20.7
412827 2014 PK ₄₂	15.7	X	284.91676	283.66551	152.42380	20.56137	0.0750911	0.17550412	3.1594478	20	10 15.3	20.2
412828 2014 PU ₄₄	16.0	X	341.54730	243.97805	136.81348	12.42367	0.1623707	0.18512971	3.0489617	20	11 1.1	19.6
412829 2014 PY ₄₄	17.6	X	113.26260	73.34422	308.05397	4.34904	0.1746001	0.24709536	2.5151255	20	1 23.9	20.7
412830 2014 PK ₄₅	17.0	X	37.54241	95.37577	317.83733	11.50544	0.1536090	0.22177676	2.7030787	20	—	—
412831 2014 PQ ₄₅	18.9	X	350.97841	105.25185	150.49708	1.49293	0.1666268	0.31183872	2.1536875	20	5 18.7	20.2
412832 2014 PB ₄₆	16.7	X	318.81731	195.13055	224.14577	1.59160	0.0462521	0.19244425	2.9712060	20	11 10.9	20.5
412833 2014 PN ₄₆	16.7	X	45.09915	308.61594	354.52988	4.06679	0.0996157	0.18304018	3.0721217	20	10 17.2	21.0
412834 2014 PQ ₄₆	16.0	X	46.93903	173.49789	121.29287	5.99170	0.1398090	0.18121692	3.0926935	20	10 18.6	20.2
412835 2014 PP ₄₈	16.2	X	35.89691	342.79832	348.77670	6.47710	0.1083134	0.18598787	3.0395758	20	11 10.2	20.3
412836 2014 PW ₄₈	17.4	X	166.08456	240.60467	57.84126	3.57373	0.1438059	0.23652513	2.5895116	20	—	—
412837 2014 PP ₄₉	18.4	X	357.82781	83.75362	157.55790	5.21174	0.1365397	0.30732515	2.1747232	20	5 12.9	20.0
412838 2014 PB ₅₀	17.8	X	287.04970	319.34924	289.46100	3.13078	0.1573796	0.27705369	2.3303801	20	1 25.4	20.9
412839 2014 PC ₅₀	16.3	X	13.61388	153.60187	163.43322	4.92513	0.1664895	0.17209781	3.2010011	20	9 27.7	20.1
412840 2014 PF ₅₀	16.5	X	11.58865	2.35850	358.58469	9.11101	0.0860913	0.18699950	3.0286035	20	11 9.9	20.5
412841 2014 PY ₅₀	16.2	X	56.87272	182.59560	121.31166	3.65665	0.0348931	0.18511926	3.0490765	20	10 26.9	20.5
412842 2014 PB ₅₂	17.2	X	325.25997	234.56077	326.53155	6.33789	0.0611891	0.25995054	2.4315072	20	1 29.2	20.2
412843 2014 PM ₅₂	16.5	X	62.62104	13.58130	255.33192	2.93259	0.1458391	0.17369390	3.1813614	20	10 1.6	21.0
412844 2014 PS ₅₂	17.3	X	66.87636	65.46683	313.30201	10.40977	0.1033174	0.21814460	2.7330007	20	—	—
412845 2014 PV ₅₂	16.7	X	59.08748	122.21928	174.52644	2.12748	0.0816715	0.18218470	3.0817134	20	10 25.8	21.0
412846 2014 PF ₅₃	17.3	X	276.11191	144.71479	120.69896	3.56601	0.0328599	0.26790383	2.3831430	20	2 21.5	20.2
412847 2014 PL ₅₃	16.4	X	227.22587	346.03446	166.93628	11.23287	0.0104189	0.18987810	2.9979160	20	11 15.4	20.8
412848 2014 PR ₅₃	17.3	X	52.05260	268.17603	163.70929	11.86542	0.0986323	0.23280320	2.6170383	20	—	—
412849 2014 PO ₅₄	17.0	X	28.03456	224.57998	103.36801	2.51696	0.1753677	0.18128174	3.0919562	20	11 6.6	21.0
412850 2014 PL ₅₅	16.7	X	74.24925	168.53421	160.83870	6.46957	0.0663934	0.20247533	2.8722439	20	12 23.8	20.9
412851 2014 PY ₅₅	16.5	X	84.92048	194.73650	153.03379	14.23345	0.1504564	0.21368102	2.7709291	20	—	—
412852 2014 PL ₅₆	18.0	X	222.97460	212.54600	151.16950	5.84881	0.1849394	0.28482146	2.2878151	20	4 16.7	21.6
412853 2014 PQ ₅₆	18.2	X	173.18434	44.33134	350.03641	7.00709	0.2761103	0.26777958	2.3838801	20	4 10.2	22.5
412854 2014 PT ₅₆	16.0	X	12.18961	45.54789	279.67166	4.16918	0.1656547	0.17079225	3.2172930	20	10 2.4	19.9
412855 2014 PU ₅₆	16.8	X	255.36274	335.69992	271.27462	3.41290	0.1592963	0.25731831	2.4480611	20	—	—
412856 2014 PY ₅₇	17.1	X	186.23294	346.51722	289.71003	4.23633	0.2447625	0.23965749	2.5668986	20	—	—
412857 2014 PK ₆₂	16.4	X	46.20216	247.45800	101.92069	10.71512	0.1594103	0.20673907	2.8326158	20	12 28.9	20.3
412858 2014 PD ₆₃	17.2	X	214.68641	290.72270	330.01263	10.36213	0.2442940	0.25451559	2.4660003	20	—	—
412859 2014 PH ₆₄	16.8	X	352.39622	234.59494	108.15299	3.28855	0.1214803	0.17392422	3.1785522	20	9 22.8	20.6
412860 2014 PX ₆₄	16.7	X	126.70273	199.84524	106.22269	6.53283	0.0495865	0.22374753	2.6871829	20	—	—
412861 2014 PO ₆₇	18.6	X	186.77482	38.26627	348.95409	4.15029	0.1538101	0.28473986	2.2882521	20	4 10.2	22.2
412862 2014 PV ₆₉	17.7	X	204.15418	29.90325	281.35407	1.30122	0.1966171	0.26485625	2.4013893	20	1 25.5	21.6
412863 2014 PH ₇₀	17.8	X	247.04225	185.34462	139.29155	4.61475	0.1857780	0.28789409	2.2715077	20	3 19.2	21.2
412864 2014 PJ ₇₀	15.9	X	69.16757	328.77885	151.65037	11.74457	0.0550688	0.18563586	3.0434171	20	10 13.2	20.4
412865 2014 QT	17.7	X	225.31052	144.06479	157.26591	2.56399	0.1993578	0.26627172	2.3928714	20	1 30.6	21.7
412866 2014 QC ₁	16.2	X	23.11354	210.20667	178.66770	10.71355	0.1536396	0.19930588	2.9026142	20	—	—
412867 2014 QF ₁	17.1	X	176.48791	61.85661	281.63958	5.62066	0.1533247	0.25565689	2.4586557	20	2 7.4	21.0
412868 2014 QO ₁	17.3	X	224.43670	137.13095	185.70242	6.34904	0.1397319	0.26928705	2.3749751	20	2 25.5	20.9
412869 2014 QP ₂	17.9	X	282.64191	347.63956	275.43836	1.94937	0.2987441	0.28272916	2.2990883	20	1 23.7	21.4
412870 2014 QL ₃	17.7	X	204.02397	65.63397	245.30489	3.62053	0.1973951	0.25881002	2.4386455	20	1 24.9	21.7
412871 2014 QB ₁₀	15.3	X	276.62832	244.02354	203.48325	15.86262	0.2104186	0.18123584	3.0924783	20	9 22.2	19.5
412872 2014 QR ₁₅	15.9	X	162.75948	319.16729	258.09575	10.01200	0.0427146	0.19727607	2.9224905	20	11 12.8	20.2
412873 2014 QV ₁₅	16.6	X	162.11874	1.97676	249.67797	8.07613	0.2418063	0.22299724	2.6932070	20	12 20.7	21.2
412874 2014 QK ₁₈	18.3	X	285.06090									

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
412881 2014 QD ₂₅	17.5	X	348.84930	320.71322	265.33052	4.67044	0.1531703	0.28886746	2.2664021	20	3 22.5	19.4
412882 2014 QZ ₂₅	17.1	X	100.23845	135.98009	186.87476	6.07397	0.0495678	0.20937905	2.8087553	20	—	—
412883 2014 QH ₂₈	17.4	X	92.75314	39.24015	343.47777	5.32020	0.0792842	0.22944043	2.6425471	20	—	—
412884 2014 QE ₃₀	17.1	X	183.09378	22.58483	252.68344	3.78049	0.0266207	0.22628209	2.6670793	20	—	—
412885 2014 QF ₃₀	16.7	X	76.43768	285.30036	137.27207	15.24646	0.1062841	0.23420155	2.6066109	20	1 17.6	19.9
412886 2014 QG ₃₃	17.1	X	161.53698	266.04162	89.25153	4.21542	0.2989435	0.25248502	2.4792042	20	2 20.6	21.5
412887 2014 QJ ₃₆	18.2	X	205.42367	199.21604	206.73063	2.26818	0.1612232	0.30023490	2.2088282	20	5 24.5	21.4
412888 2014 QM ₃₇	18.7	X	355.09527	71.84903	175.37973	2.39069	0.0817696	0.31017747	2.1613705	20	5 17.8	20.5
412889 2014 QX ₃₉	15.8	X	50.11820	17.88393	284.71184	10.24898	0.1173923	0.18430458	3.0580551	20	10 22.6	20.2
412890 2014 QT ₄₀	16.7	X	143.87124	151.88549	149.90318	13.35889	0.2918314	0.23077497	2.6323497	20	—	—
412891 2014 QX ₄₉	17.3	X	97.92817	216.49590	241.27759	5.76567	0.0817878	0.28107284	2.3081115	20	3 24.7	20.1
412892 2014 QJ ₅₂	17.3	X	33.48430	137.08225	216.47518	1.75560	0.0670497	0.20252019	2.8718197	20	12 4.6	21.2
412893 2014 QL ₅₄	17.3	X	339.35793	321.57231	231.30306	3.30043	0.0412299	0.27429739	2.3459654	20	2 5.2	20.1
412894 2014 QW ₆₂	17.1	X	197.56150	263.10259	315.94893	4.92221	0.0602311	0.22033342	2.7148706	20	12 29.2	20.9
412895 2014 QY ₆₄	17.6	X	53.17942	244.20719	146.50950	6.15737	0.0965355	0.22740808	2.6582682	20	—	—
412896 2014 QQ ₇₀	16.1	X	112.47227	277.45869	297.62316	14.43548	0.0760631	0.17817451	3.1278001	20	9 8.3	21.0
412897 2014 QE ₇₈	16.6	X	67.11683	38.47882	287.28489	8.85779	0.0943230	0.20348194	2.6827635	20	12 14.9	20.8
412898 2014 QW ₇₈	16.0	X	347.63757	200.32868	164.13395	12.67514	0.0588461	0.18283297	3.0744425	20	10 13.9	20.1
412899 2014 QW ₈₁	16.4	X	20.56089	170.64814	199.56376	5.52157	0.0914535	0.19863289	2.9091667	20	12 10.9	20.2
412900 2014 QV ₉₅	15.7	X	99.53989	292.23635	300.34418	13.09869	0.0329407	0.17306645	3.1890460	20	9 10.5	20.5
412901 2014 QV ₉₇	15.8	X	162.28224	356.71549	172.74282	12.26747	0.0784723	0.17440272	3.1727356	20	9 12.3	20.6
412902 2014 QX ₉₇	16.9	X	34.02561	198.31907	194.77003	5.56611	0.0603773	0.21482896	2.7610493	20	—	—
412903 2014 QS ₉₈	17.5	X	53.59423	193.91709	199.39744	5.87815	0.0327962	0.22518419	2.6757413	20	—	—
412904 2014 QK ₁₀₁	16.0	X	34.90534	145.06253	164.70495	10.54941	0.1291146	0.18125184	3.0922963	20	10 19.5	20.1
412905 2014 QH ₁₀₂	17.1	X	103.69353	81.34391	275.77316	4.72009	0.0823095	0.23199604	2.6231050	20	—	—
412906 2014 QG ₁₀₆	17.1	X	209.43845	173.74235	162.88693	7.40991	0.1407196	0.27305133	2.3530971	20	2 29.2	20.8
412907 2014 QA ₁₁₂	16.8	X	118.72322	88.85737	233.19100	4.47545	0.0497444	0.22436731	2.6822320	20	—	—
412908 2014 QH ₁₁₈	17.3	X	349.84438	194.22326	209.93257	1.06124	0.0976014	0.19268172	2.9687642	20	12 8.5	20.8
412909 2014 QV ₁₂₀	17.0	X	185.73460	217.09314	114.89062	1.83193	0.1618776	0.25715377	2.4491053	20	2 3.9	20.7
412910 2014 QE ₁₂₂	17.3	X	212.16842	312.19804	342.04320	2.09328	0.1728262	0.25636381	2.4541338	20	1 12.8	21.1
412911 2014 QY ₁₃₀	17.5	X	3.78731	173.08579	347.43168	2.09669	0.0948715	0.25661289	2.4525455	20	1 27.9	20.1
412912 2014 QY ₁₃₁	16.8	X	304.04845	82.75006	352.70214	8.21516	0.0946239	0.18435834	3.0574605	20	11 2.5	20.8
412913 2014 QA ₁₃₃	17.9	X	155.05119	281.28006	91.41151	2.45898	0.1865093	0.25555775	2.4592915	20	2 28.1	21.7
412914 2014 QR ₁₃₆	17.7	X	9.21395	44.17186	166.26780	6.88145	0.1563079	0.28884662	2.2665111	20	4 16.8	19.3
412915 2014 QT ₁₃₇	16.1	X	106.77942	245.45053	351.48752	12.16334	0.2076618	0.17970503	3.1100155	20	10 13.1	21.3
412916 2014 QR ₁₃₈	17.4	X	159.31795	38.79235	357.64833	5.79604	0.1325742	0.26578422	2.3957965	20	3 26.7	20.9
412917 2014 QS ₁₃₉	18.4	X	224.67648	289.85907	95.45748	0.54732	0.1226946	0.29262744	2.2469463	20	5 19.1	21.6
412918 2014 QD ₁₄₀	17.5	X	156.90976	46.90476	1.39584	6.00792	0.0682593	0.27253987	2.3560401	20	4 2.9	20.5
412919 2014 QK ₁₄₁	16.0	X	82.80878	189.60992	106.77590	3.36464	0.0696646	0.18886332	3.0086451	20	11 21.9	20.3
412920 2014 QX ₁₄₄	17.6	X	131.41414	239.04042	168.39885	5.85788	0.1145431	0.26015796	2.4302146	20	3 9.5	20.9
412921 2014 QK ₁₄₅	17.1	X	344.56740	275.26894	161.23605	11.80877	0.1051657	0.20409218	2.8570541	20	—	—
412922 2014 QL ₁₄₉	18.4	X	267.81467	303.55349	324.30655	0.27111	0.1880152	0.27353229	2.3503380	20	1 27.3	21.9
412923 2014 QC ₁₅₀	17.2	X	140.71430	325.92744	1.30918	3.98193	0.2319783	0.23246252	2.6195946	20	—	—
412924 2014 QD ₁₅₀	17.4	X	301.06640	119.36146	151.13245	5.38496	0.2271697	0.28967510	2.2621876	20	2 28.9	20.3
412925 2014 QF ₁₅₂	16.8	X	99.40886	118.22815	194.50021	7.94841	0.1988915	0.21130533	2.7916593	20	—	—
412926 2014 QS ₁₅₂	16.7	X	96.57093	83.14700	238.09399	7.53438	0.1648867	0.21201892	2.7853919	20	—	—
412927 2014 QZ ₁₅₂	16.4	X	20.80020	357.40233	38.65040	6.03838	0.0766585	0.19651576	2.9300236	20	—	—
412928 2014 QY ₁₇₀	17.3	X	22.96349	171.46335	219.96526	1.17317	0.1371007	0.19831682	2.9122569	20	—	—
412929 2014 QE ₁₇₂	17.1	X	110.92663	26.20210	312.96207	4.29904	0.0708960	0.22287901	2.6941593	20	—	—
412930 2014 QG ₁₇₂	16.7	X	2.06153	181.88673	229.86649	1.19949	0.0648690	0.20204567	2.8763144	20	—	—
412931 2014 QX ₁₇₅	16.1	X	12.90183	203.40571	145.23893	2.96299	0.1208396	0.17842649	3.1248547	20	11 2.6	20.0
412932 2014 QS ₁₇₉	18.1	X	243.35769	312.91532	10.65267	6.19102	0.1857152	0.27874080	2.3209673	20	3 14.7	21.6
412933 2014 QT ₁₇₉	16.6	X	4.92541	331.79521	119.02402	10.21887	0.0648744	0.21438590	2.7648521	20	—	—
412934 2014 QC ₁₈₀	16.2	X	333.36038	304.04331	81.01800	9.98766	0.1158282	0.18973473	2.9994261	20	10 22.9	19.9
412935 2014 QH ₁₈₈	16.9	X	312.48643	184.30796	316.64393	12.30097	0.0734970	0.22832269	2.6511645	20	—	—
412936 2014 QQ ₂₀₃	18.0	X	254.54623	68.98966	199.51020	1.86078	0.1693812	0.26869576	2.3784581	20	1 17.2	21.7
412937 2014 QD ₂₀₄	16.3	X	57.94595	35.29661	266.35782	2.37545	0.1689203	0.18718526	3.0265995	20	11 11.3	20.6
412938 2014 QY ₂₀₇	17.2	X	32.45073	106.51147	306.00350	3.10610	0.1075508	0.21681599	2.7441542	20	—	—
412939 2014 QY ₂₁₄	17.3	X	70.35488	235.06415	227.37522	2.01206	0.1352793	0.25657715	2.4527732	20	3 2.2	19.8
412940 2014 QS ₂₁₆	15.5	X	344.36324	175.90893	175.09398	10.79850	0.0627524	0.16923251	3.2370310	20	9 16.8	19.8
412941 2014 QY ₂₁₇	17.2	X	185.27368	90.54409	176.12601	11.34242	0.1838426	0.23412884	2.6071506	20	—	—
412942 2014 QZ ₂₂₄	17.1	X	334.98309	138.48470	276.65439	4.59309	0.2026503	0.18585066	3.0410716	20	12 1.0	20.1
412943 2014 QR ₂₂₅	16.7	X	175.09685	13.26737	200.14601	5.24642	0.0268145	0.19439300	2.9513155	20	11 24.2	21.0
412944 2014 QE ₂₂₇	16.6	X	320.96749	44.53995	19.90748	1.63011	0.0639243	0.18899984	3.0071961	20	11 18.9	20.3
412945 2014 QF ₂₂₇	16.3	X	333.40210	42.78234	356.98596	4.59769	0.1307509	0.18103033	3.0948183	20	11 3.0	20.0
412946 2014 QX ₂₂₈	17.8	X	172.81053	63.25246	290.48510	0.53897	0.0823102	0.25814271	2.4428463	20	2 13.1	21.1
412947 2014 QV ₂₂₉	15.9	X	271.04605	302.99451	169.48445	19.79609	0.1183840	0.18539453	3.0460576	20	11 5.9	20.2
412948 2014 QP ₂₃₀	16.2	X	2.08049	75.19210	342.45059	11.70944	0.1607572	0.19926593	2.9030021	20	—	—
412949 2014 QG ₂₃₈	16.7	X	82.11585	113.31153	153.43058	8.39599	0.1516286	0.17902417	3.1178959	20	10 26.3	21.5
412950 2014 QF ₂₄₀	16.6	X	132.50598	126.39410	107.82730	3.44410	0.0725779	0.18612923	3.0380365	20	11 1.3	21.1
412951 2014 QB ₂₄₁	17.4	X	245.95903	57.75427	158.94866	3.91270	0.0312863	0.22649315	2.6654221	20	—	—
412952 2014 QR ₂₄₄	15.4	X	290.04223	276.86892	105.53333	8.40018	0.1211881	0.15005656	3.5072447	20	8 1.7	20.1
412953 2014 QP ₂₄₅	15.7	X	109.00594	181.50109	97.01399	10.19653	0.0645184	0.19318953	2.9635596	20	11 30.2	20.1
412954 2014 QH ₂₅₉												

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
412961 2014 QS ₂₉₀	17.5	X	281.94615	200.59896	108.72667	8.69838	0.2570453	0.29602956	2.2296978	20	3 29.7	20.7
412962 2014 QO ₃₀₀	17.3	X	141.92764	277.09176	86.78969	2.33382	0.1112306	0.24389866	2.5370544	20	1 27.9	20.8
412963 2014 QS ₃₀₀	18.1	X	271.34549	156.00550	127.95771	5.66661	0.2291643	0.28012334	2.3133243	20	2 15.9	21.6
412964 2014 QW ₃₀₀	15.4	X	65.91356	142.71455	152.63515	17.69668	0.0620709	0.17716509	3.1396696	20	11 2.3	20.1
412965 2014 QX ₃₀₄	16.8	X	82.17782	238.14396	184.37026	14.73651	0.0723187	0.23811337	2.5779838	20	1 18.6	20.3
412966 2014 QU ₃₀₆	16.1	X	14.24602	18.13833	345.45595	13.28815	0.2269076	0.18193889	3.0845064	20	12 5.8	20.1
412967 2014 QA ₃₀₉	17.3	X	198.09071	205.09996	134.10716	1.94667	0.2012892	0.26308037	2.4121840	20	2 23.8	21.2
412968 2014 QG ₃₀₉	17.6	X	275.81137	341.31053	338.20846	6.50256	0.1561003	0.29226573	2.2487998	20	4 11.6	20.5
412969 2014 QU ₃₃₆	16.9	X	103.97907	211.55491	144.46571	5.75651	0.0918563	0.22177227	2.7031152	20	—	—
412970 2014 QV ₃₄₇	16.7	X	79.86056	215.81655	138.64001	9.59383	0.1580243	0.21364136	2.7712721	20	—	—
412971 2014 QJ ₃₅₁	17.1	X	65.98086	324.91849	147.71527	5.02964	0.0639150	0.25567872	2.4585158	20	3 1.6	20.0
412972 2014 QA ₃₅₁	16.1	X	314.53199	250.10462	161.27738	13.95617	0.0208614	0.17439305	3.1728528	20	10 27.4	20.6
412973 2014 QN ₃₆₀	16.2	X	86.51364	350.11066	349.26492	17.80073	0.1426793	0.20893723	2.8127135	20	—	—
412974 2014 P-L	17.0	X	69.62076	347.33788	2.38596	4.74711	0.2949687	0.20043081	2.8917432	20	—	—
412975 5055 T-2	17.3	X	74.45111	105.19366	297.12666	6.50487	0.3036721	0.21693673	2.7431359	20	1 21.2	20.2
412976 1987 WC	19.8	X	205.08993	308.35233	51.83145	15.84472	0.2338614	0.61988242	1.3622699	20	3 12.0	21.3
412977 1990 UO	19.5	X	291.72353	333.47688	205.62056	31.55583	0.729030	0.69935023	1.2570124	20	—	—
412978 1993 TB ₅	17.2	X	161.06875	112.47379	218.02747	28.64463	0.3350989	0.23510907	2.5998989	20	1 16.9	22.4
412979 1995 BH ₁₄	17.0	X	149.63034	167.65663	261.30630	1.56983	0.1505448	0.24423648	2.5347143	20	4 30.1	21.0
412980 1995 SL ₈₀	17.1	X	58.57488	182.85380	225.21596	1.55341	0.1019018	0.20913483	2.8109415	20	—	—
412981 1995 UE ₁₀	17.9	X	211.92434	112.69616	239.63156	0.72442	0.1944732	0.26218407	2.4176783	20	3 21.8	22.0
412982 1995 UN ₅₂	16.8	X	43.42277	67.60790	7.14222	4.73144	0.1410997	0.21031325	2.8004315	20	—	—
412983 1996 FO ₃	20.3	X	14.38399	162.68233	333.59560	5.81380	0.2905159	0.56868057	1.4428587	20	—	—
412984 1996 TJ ₃₂	17.5	X	127.00953	292.28719	51.17247	8.49861	0.2255350	0.22039426	2.7143709	20	1 3.8	21.5
412985 1997 CT ₁₂	16.6	X	6.28913	328.49898	141.64180	8.98918	0.1798765	0.20907866	2.8114449	20	—	—
412986 1997 SC ₁₄	16.3	X	39.78252	104.91644	225.53587	7.14091	0.1990453	0.17437467	3.1730758	20	11 26.8	20.7
412987 1997 WM ₂₉	16.0	X	320.56199	52.59530	68.00316	10.81035	0.2047378	0.17594133	3.1542114	20	—	—
412988 1998 AP ₁	16.8	X	96.77826	293.41818	110.55739	9.65666	0.1755705	0.22584661	2.6705067	20	2 5.2	20.2
412989 1998 HA ₁₁	17.4	X	7.13000	155.31637	60.39216	7.16571	0.0719964	0.26930170	2.3748890	20	4 23.7	19.8
412990 1998 HM ₃₁	17.3	X	96.17927	97.39612	79.03293	7.23227	0.1488848	0.27493051	2.3423624	20	7 26.7	20.5
412991 1998 TO ₂₄	15.7	X	286.03412	312.58395	21.58467	2.71700	0.2620229	0.12415298	3.9795253	20	5 7.1	21.4
412992 1998 VW ₄₀	16.1	X	52.23270	236.01768	65.70198	11.01764	0.0577316	0.17628752	3.1500806	20	10 22.4	20.5
412993 1998 VO ₄₈	17.1	X	192.52048	247.76581	101.10890	2.02104	0.1273329	0.24661475	2.5183921	20	3 2.5	20.8
412994 1999 GF ₅₆	18.0	X	120.60277	143.70741	6.19669	6.89818	0.0403591	0.29061525	2.2573061	20	7 7.6	20.9
412995 1999 LP ₂₈	20.1	X	71.36357	307.15692	87.95022	16.31347	0.0905086	0.73226284	1.2190590	20	—	—
412996 1999 ST ₁₆	17.1	X	65.12687	61.32719	300.61648	5.35126	0.3636297	0.19840124	2.9114307	20	—	—
412997 1999 TH ₄₃	17.9	X	171.67045	68.96572	349.06212	2.08989	0.1986662	0.26651429	2.3914192	20	5 8.0	21.8
412998 1999 TM ₈₄	17.5	X	269.02716	282.52716	21.89310	6.61749	0.1137666	0.26542463	2.3979598	20	3 25.5	20.6
412999 1999 TL ₁₂₉	17.4	X	170.95813	156.31273	191.78170	10.44382	0.2621071	0.25992863	2.4316439	20	2 12.5	21.7
413000 1999 TW ₂₆₁	17.8	X	202.03626	30.58387	339.74129	2.03550	0.2072681	0.26462803	2.4027697	20	4 4.1	21.7
413001 1999 UR ₃₀	17.9	X	198.20998	27.58234	57.45997	2.64183	0.2064064	0.27092257	2.3654072	20	7 6.1	21.7
413002 1999 VG ₂₂	18.7	X	208.66309	222.78604	271.30587	2.85082	0.3299134	0.46662634	1.6462276	20	9 25.4	20.4
413003 1999 VK ₁₁₉	17.9	X	226.91458	313.98122	0.97563	4.00478	0.0701083	0.26036979	2.4288964	20	2 24.1	21.2
413004 1999 VY ₁₂₁	18.1	X	218.46946	160.65566	190.58291	2.22961	0.2329303	0.26369611	2.4084274	20	3 24.9	22.1
413005 1999 VR ₁₂₄	16.6	X	279.31286	50.64003	59.09132	14.70203	0.0389620	0.18845921	3.0129446	20	11 20.6	20.6
413006 1999 VH ₁₅₄	16.6	X	239.76278	85.50678	308.89467	0.11490	0.1915904	0.12610260	3.9384018	20	6 9.0	22.7
413007 1999 VP ₁₈₁	18.0	X	151.34049	213.13114	212.59776	3.62718	0.2106929	0.26158455	2.4213709	20	5 1.4	21.7
413008 1999 VP ₁₉₇	17.8	X	189.38165	302.34461	83.45371	5.86043	0.3044416	0.26432196	2.4046243	20	4 16.3	22.2
413009 1999 VF ₂₁₀	17.9	X	120.06909	209.92022	84.07667	1.98769	0.1701436	0.25662391	2.4524753	20	3 12.7	21.1
413010 2000 CV ₃₉	17.0	X	175.12198	121.52523	289.34814	9.38068	0.3393045	0.25982892	2.4322659	20	5 2.1	21.7
413011 2000 FY ₇	15.6	X	297.25226	90.26839	10.94464	15.66791	0.0280832	0.17549649	3.1595393	20	11 26.9	20.3
413012 2000 GU ₁₄₉	16.5	X	216.46549	276.38034	5.44552	16.04252	0.1589457	0.23562176	2.5961261	20	1 6.9	21.0
413013 2000 HP ₄₅	18.1	X	7.21962	207.17864	39.20607	6.79162	0.2444698	0.29832568	2.2182421	20	6 18.7	19.1
413014 2000 NB ₈	17.7	X	77.34513	357.08892	222.34725	3.75400	0.0636303	0.29803908	2.2196640	20	8 19.3	20.3
413015 2000 QT ₁₁₄	16.4	X	115.47968	342.08890	356.74099	8.61147	0.2052595	0.21455660	2.7633854	20	—	—
413016 2000 QA ₂₂₁	17.5	X	290.20786	335.65858	349.98407	4.79702	0.1955611	0.28938988	2.2636737	20	5 4.7	20.2
413017 2000 QG ₂₃₁	17.0	X	127.52943	23.56219	325.01670	2.14509	0.1855428	0.21844896	2.7304616	20	1 5.8	20.9
413018 2000 SN ₉₃	16.6	X	119.89570	183.85120	213.80791	10.39255	0.3037662	0.22006065	2.7171135	20	3 6.9	21.1
413019 2000 SB ₉₄	17.6	X	223.51792	91.12042	279.33345	5.59294	0.1462883	0.28271699	2.2991542	20	4 23.9	21.1
413020 2000 SH ₁₃₀	15.8	X	171.87478	59.12296	250.94828	13.46653	0.1208743	0.21933969	2.7230643	20	—	—
413021 2000 SY ₁₆₂	19.4	X	227.43897	187.98545	213.25857	7.67065	0.4574854	0.28364464	2.2941387	20	5 22.1	23.8
413022 2000 SN ₂₅₀	17.3	X	94.81867	112.62610	239.09866	1.70623	0.1944525	0.21214455	2.7842921	20	—	—
413023 2000 TR ₃₁	16.3	X	91.73840	19.61638	356.99387	12.85416	0.1173504	0.21381125	2.7698038	20	—	—
413024 2000 TS ₅₁	18.1	X	219.38626	173.77351	199.27330	10.27637	0.2164335	0.28104407	2.3082691	20	4 22.7	21.7
413025 2000 UA ₄	17.4	X	208.28711	179.52032	231.09558	4.50222	0.2327714	0.28198777	2.3031163	20	5 30.1	21.3
413026 2000 UU ₃₈	17.2	X	253.61508	331.00371	40.94440	7.19226	0.2652037	0.28495670	2.2870911	20	5 16.9	20.7
413027 2000 UF ₅₉	16.8	X	103.20203	128.91708	237.22650	6.97079	0.3284881	0.21390454	2.7689985	20	1 17.9	20.8
413028 2000 UV ₇₂	15.9	X	115.02600	113.24628	234.39883	6.58370	0.2397321	0.21239145	2.7821339	20	—	—
413029 2000 UB ₁₀₉	16.8	X	48.90866	238.02287	196.24046	11.43633	0.2733827	0.21082501	2.7958978	20	1 6.6	19.4
413030 2000 WC ₆₆	16.9	X	171.81877	198.28903	243.90638	22.33243	0.2162296	0.27944942	2.3170420	20	6 8.4	20.8
413031 2000 WQ ₁₃₃	16.2	X	81.83740	102.16358	260.37679	14.71287	0.2773727	0.20931481	2.8093299	20	—	—
413032 2000 XF ₂₇	17.5	X	204.84971	359.62606	52.73659	9.24409	0.2356981	0.27892875	2.3199245	20	5 28.4	21.4
413033 2000 XJ ₅₃	17.2	X	176.84854	353.72365	81.90114	6.78615	0.1926019	0.27792296	2.3255183	20	6 5.0	20.9
413034 2000 YM ₂₃	18.3	X	194.96527	146.38519	263.81152	0.59437						

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
413041 2001 <i>PL</i> ₃₅	15.6	X	200.16639	22.39236	271.34341	24.89812	0.1094596	0.23512078	2.5998126	20	1 1.4	19.7
413042 2001 <i>PG</i> ₄₃	16.9	X	146.83778	237.02660	126.92777	17.75573	0.2229252	0.23448166	2.6045346	20	2 15.1	21.1
413043 2001 <i>QM</i> ₆₅	16.7	X	180.34571	155.61032	167.58338	20.18640	0.2351025	0.23495539	2.6010324	20	1 23.3	21.4
413044 2001 <i>QU</i> ₁₀₈	17.0	X	196.89967	72.94821	210.23373	28.62124	0.3622335	0.23431067	2.6058015	20	—	—
413045 2001 <i>QS</i> ₁₅₁	17.7	X	37.65501	250.26037	167.15618	21.96259	0.1406894	0.38308326	1.8776181	20	—	—
413046 2001 <i>QL</i> ₁₆₁	17.1	X	205.35860	303.45811	9.08132	2.36358	0.2126667	0.23805471	2.5784074	20	1 31.7	21.6
413047 2001 <i>QC</i> ₁₇₇	17.4	X	147.94571	145.85088	163.84267	4.96419	0.2878941	0.22867258	2.6484594	20	—	—
413048 2001 <i>QA</i> ₁₈₈	16.5	X	152.92535	50.65759	298.34375	10.94413	0.2143052	0.23255214	2.6189216	20	1 30.8	20.8
413049 2001 <i>QY</i> ₁₉₆	16.2	X	222.81642	266.49862	22.27655	11.37176	0.1815807	0.23747291	2.5826170	20	1 20.4	20.7
413050 2001 <i>QR</i> ₂₂₇	16.7	X	197.94796	107.69884	197.71837	11.36215	0.2006875	0.23558595	2.5963892	20	1 14.8	21.3
413051 2001 <i>QT</i> ₂₈₀	16.8	X	115.47941	269.47214	127.68308	13.65116	0.2835622	0.23245797	2.6196288	20	3 5.3	20.8
413052 2001 <i>QM</i> ₃₃₀	16.8	X	135.65500	19.35714	333.57407	13.13365	0.2666599	0.22823315	2.6518578	20	1 29.1	21.1
413053 2001 <i>RY</i> ₁₂	16.4	X	159.32032	357.20454	342.39900	15.09587	0.1405937	0.23235755	2.6203835	20	1 24.7	20.5
413054 2001 <i>RB</i> ₃₅	17.0	X	128.35233	173.04995	202.30521	3.75201	0.2445919	0.23286182	2.6165991	20	2 13.9	21.0
413055 2001 <i>RV</i> ₄₈	17.1	X	287.30200	295.94844	56.50613	20.58958	0.2091649	0.30457700	2.1877850	20	6 6.2	19.6
413056 2001 <i>RA</i> ₈₇	16.9	X	167.98416	0.37146	311.18224	2.80010	0.3250915	0.23134408	2.6280308	20	1 7.7	21.6
413057 2001 <i>RN</i> ₁₀₈	17.0	X	144.22896	4.91805	14.74828	3.13025	0.1924178	0.23525460	2.5988266	20	2 28.6	21.1
413058 2001 <i>RZ</i> ₁₂₀	17.8	X	290.13077	357.96714	18.02604	5.51442	0.1600275	0.30822557	2.1704857	20	8 4.1	19.7
413059 2001 <i>RU</i> ₁₂₁	16.5	X	167.56777	287.71940	3.00574	14.78757	0.1768938	0.22849295	2.6498473	20	—	—
413060 2001 <i>RM</i> ₁₃₂	18.3	X	316.19908	210.53883	119.03317	3.06074	0.1959216	0.30715094	2.1755454	20	7 1.5	19.5
413061 2001 <i>RX</i> ₁₄₅	17.7	X	22.40950	356.46171	291.90568	3.61851	0.1447963	0.31247351	2.1507697	20	9 23.7	19.7
413062 2001 <i>SA</i> ₂₃	17.0	X	133.76923	133.74374	182.60612	13.05313	0.2813953	0.22655806	2.6649130	20	—	—
413063 2001 <i>SC</i> ₃₆	17.1	X	145.42748	218.62088	140.58724	2.37160	0.1643561	0.23105881	2.6301935	20	2 1.7	20.9
413064 2001 <i>SG</i> ₈₈	17.4	X	151.86192	53.24182	289.06580	1.32586	0.2229229	0.23227180	2.6210284	20	1 23.6	21.4
413065 2001 <i>SE</i> ₉₆	17.6	X	125.55436	140.54597	122.26017	3.70876	0.2259848	0.22882175	2.6473083	20	1 11.3	21.5
413066 2001 <i>SG</i> ₁₁₆	17.1	X	137.12367	90.37399	294.67200	12.09085	0.3420607	0.23261502	2.6184496	20	3 5.8	21.8
413067 2001 <i>SF</i> ₁₁₇	17.3	X	119.28982	154.46735	224.93720	5.14656	0.3358218	0.23058892	2.6337654	20	2 17.1	21.5
413068 2001 <i>SH</i> ₁₂₁	17.3	X	122.44759	118.97658	261.24210	3.63096	0.2503588	0.23096979	2.6308693	20	2 12.4	21.2
413069 2001 <i>SR</i> ₁₂₂	16.7	X	102.62923	71.66948	345.01808	5.14044	0.0860588	0.23437339	2.6053367	20	2 14.4	20.0
413070 2001 <i>SE</i> ₁₇₅	16.8	X	93.84742	329.45664	100.80837	4.12121	0.3079611	0.22982337	2.6396109	20	3 26.3	20.4
413071 2001 <i>SR</i> ₁₈₄	17.4	X	202.97106	168.88194	165.68964	3.81036	0.1559910	0.23935520	2.5690594	20	2 23.5	21.4
413072 2001 <i>SD</i> ₂₄₈	17.4	X	86.05207	189.90257	189.83150	14.10833	0.2570839	0.22385090	2.6863555	20	—	—
413073 2001 <i>SE</i> ₂₆₄	16.2	X	137.68084	80.74399	9.71549	27.46135	0.3389708	0.23903529	2.5713510	20	5 9.1	21.3
413074 2001 <i>SL</i> ₃₀₆	17.5	X	135.02940	172.71859	211.50136	4.68659	0.1810050	0.23218490	2.6216824	20	2 21.7	21.4
413075 2001 <i>SW</i> ₃₀₆	16.5	X	150.57039	339.30104	1.85250	13.06352	0.2968319	0.22917098	2.6446181	20	1 31.7	21.2
413076 2001 <i>SF</i> ₃₁₂	17.5	X	96.38634	217.27823	185.42099	5.67736	0.1571028	0.22923998	2.6440874	20	1 28.0	20.9
413077 2001 <i>SK</i> ₃₂₁	16.4	X	201.86200	92.59234	212.37302	12.28401	0.2137498	0.23529919	2.5984983	20	1 16.9	21.1
413078 2001 <i>SZ</i> ₃₂₁	16.8	X	103.79346	134.45472	282.32791	6.79689	0.1625568	0.23185640	2.6241581	20	2 23.8	20.4
413079 2001 <i>SN</i> ₃₂₅	15.8	X	153.45168	116.33910	249.91336	11.93341	0.1956189	0.23547461	2.5972076	20	2 14.8	20.2
413080 2001 <i>TH</i> ₁₇	17.6	X	243.22976	105.08642	236.22709	5.20551	0.2094885	0.29636652	2.2280074	20	3 31.5	21.2
413081 2001 <i>TP</i> ₂₃	17.0	X	182.15947	325.39294	355.68442	1.45747	0.2385851	0.23223009	2.6213422	20	1 24.7	21.4
413082 2001 <i>TQ</i> ₁₀₂	16.7	X	148.49015	126.75918	229.82974	3.80744	0.1782021	0.23026199	2.6362578	20	2 1.7	20.7
413083 2001 <i>TL</i> ₁₀₃	18.0	X	13.72776	218.10631	219.34397	21.15434	0.0806712	0.37808748	1.8941216	20	—	—
413084 2001 <i>TJ</i> ₁₂₃	16.8	X	108.18072	109.41678	301.25018	5.70204	0.3349511	0.23010828	2.6374317	20	3 15.2	20.9
413085 2001 <i>TE</i> ₁₄₀	16.2	X	124.32934	229.67717	168.71740	22.02166	0.0578991	0.23450954	2.6043282	20	2 11.6	19.9
413086 2001 <i>TG</i> ₁₆₆	16.8	X	125.22462	134.33217	259.76280	10.33921	0.1927478	0.23015857	2.6370475	20	2 21.9	20.9
413087 2001 <i>TA</i> ₁₇₄	16.9	X	142.55904	164.95923	280.16577	4.72699	0.2861808	0.23669582	2.5882665	20	5 22.1	21.4
413088 2001 <i>TE</i> ₂₃₀	17.4	X	126.62078	180.45983	202.84045	7.60802	0.1252841	0.23092501	2.6312093	20	2 4.3	21.0
413089 2001 <i>TZ</i> ₂₅₄	17.1	X	176.39817	288.73331	52.93433	10.00824	0.0671381	0.23258265	2.6186925	20	2 8.1	21.2
413090 2001 <i>UH</i> ₁₁	15.8	X	65.52628	111.48879	27.31280	30.27568	0.3295659	0.23264858	2.6181977	20	5 10.3	19.3
413091 2001 <i>UV</i> ₁₆	18.2	X	222.72598	92.43336	30.73562	38.04648	0.5033049	0.30436731	2.1887898	20	9 19.6	22.9
413092 2001 <i>UM</i> ₁₈	17.4	X	98.65920	233.83244	180.25492	3.51406	0.1748544	0.22836819	2.6508123	20	2 18.2	20.9
413093 2001 <i>UF</i> ₃₁	17.4	X	85.31431	251.35309	166.34427	3.95882	0.2571959	0.22745460	2.6579057	20	2 17.9	20.6
413094 2001 <i>UK</i> ₃₇	18.3	X	298.26243	207.66617	142.73636	2.06661	0.2017019	0.30529713	2.1843433	20	6 27.0	20.2
413095 2001 <i>UC</i> ₅₆	17.6	X	274.09969	25.03917	7.95904	4.61388	0.0830086	0.30627828	2.1796759	20	8 15.7	19.8
413096 2001 <i>UY</i> ₆₀	18.0	X	256.24002	204.70148	212.52789	3.20832	0.1146866	0.30632672	2.1794461	20	8 15.4	20.5
413097 2001 <i>UB</i> ₇₈	16.3	X	154.59609	117.03418	194.79118	13.76022	0.1235510	0.22611877	2.6683634	20	—	—
413098 2001 <i>UW</i> ₉₁	16.4	X	152.29872	275.42145	61.93715	13.33689	0.1443118	0.22734944	2.6587253	20	1 12.8	20.6
413099 2001 <i>UL</i> ₉₆	17.2	X	119.76413	243.62050	159.71996	2.82111	0.1749997	0.23102082	2.6304818	20	3 1.4	21.0
413100 2001 <i>UE</i> ₁₀₆	17.2	X	57.55871	55.17866	39.49544	13.65925	0.2373922	0.22591629	2.6699575	20	2 26.7	20.1
413101 2001 <i>UC</i> ₁₃₄	17.3	X	79.63257	168.53055	267.73919	1.33033	0.1881230	0.22924495	2.6440492	20	2 22.6	20.3
413102 2001 <i>UK</i> ₁₃₄	16.7	X	101.50570	190.98529	216.98133	12.13989	0.1476887	0.22807520	2.6530820	20	2 6.4	20.5
413103 2001 <i>UT</i> ₁₄₂	17.8	X	54.37333	51.07238	49.43827	3.66113	0.3652925	0.22436219	2.6822727	20	3 16.3	19.9
413104 2001 <i>UM</i> ₁₆₂	16.8	X	69.00424	25.23613	63.56798	15.51416	0.2457485	0.22501786	2.6770597	20	3 14.0	20.2
413105 2001 <i>UM</i> ₁₆₃	18.0	X	253.58343	321.08215	52.83219	6.22751	0.1977840	0.29902739	2.2147705	20	5 27.5	21.0
413106 2001 <i>UV</i> ₁₇₆	17.2	X	87.43652	208.53071	212.41174	3.08167	0.1854184	0.22803021	2.6534309	20	2 12.9	20.4
413107 2001 <i>UM</i> ₁₉₆	16.9	X	105.08692	19.61197	40.77571	6.58997	0.1227278	0.22982003	2.6396366	20	3 1.8	20.5
413108 2001 <i>VN</i> ₄	17.3	X	305.16302	88.55587	250.35455	8.29598	0.1923682	0.30186024	2.2008922	20	6 22.9	19.0
413109 2001 <i>VZ</i> ₄	17.3	X	357.99107	177.02337	245.47113	21.43150	0.1545691	0.37342200	1.9098655	20	—	—
413110 2001 <i>VZ</i> ₄₉	17.0	X	115.70697	45.15015	338.78236	7.32621	0.3027491	0.22832871	2.6511178	20	2 18.7	21.0
413111 2001 <i>VS</i> ₆₁	16.2	X	103.50665	147.77117	251.92657	11.13733	0.1434557	0.				

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
413121 2001 WL ₅₆	17.1	X	95.87579	3.37474	35.59257	4.51904	0.2178228	0.22569689	2.6716875	20	2 4.6	20.5
413122 2001 WB ₁₀₂	18.0	X	216.04658	189.98098	229.40382	4.89903	0.1158373	0.29769752	2.2213615	20	6 26.1	21.0
413123 2001 XS ₁	19.0	X	87.40792	164.82449	266.92452	10.93765	0.5562158	0.22595439	2.6696574	20	4 15.6	23.5
413124 2001 XN ₂	17.3	X	310.66990	195.56656	293.62848	18.28038	0.0799483	0.37320925	1.9105913	20	—	—
413125 2001 XH ₅	17.4	X	280.18531	139.72394	230.03259	6.73904	0.1710434	0.30160860	2.2021162	20	6 30.8	19.7
413126 2001 XU ₈₈	16.2	X	152.46878	282.52522	103.35398	11.37800	0.3246584	0.23125436	2.6287105	20	3 27.6	21.1
413127 2001 XN ₉₁	16.5	X	25.80923	53.83819	61.42554	13.85115	0.2160545	0.22222195	2.6994674	20	1 6.2	19.0
413128 2001 XL ₁₀₄	17.6	X	299.18626	243.86656	263.35796	18.16880	0.0873199	0.37375093	1.9087448	20	—	—
413129 2001 XY ₁₄₂	18.0	X	99.20036	340.17325	78.05565	2.94957	0.2187553	0.22650554	2.6653249	20	3 4.3	21.5
413130 2001 XQ ₁₄₅	17.4	X	284.71411	92.00522	257.80144	4.86792	0.2168336	0.29922107	2.2138147	20	5 30.6	20.0
413131 2001 XB ₁₈₈	17.2	X	118.73248	160.72997	259.39346	5.49681	0.2546030	0.22767492	2.6561908	20	3 28.1	21.4
413132 2001 XR ₂₂₂	16.4	X	255.75163	220.07055	54.99029	11.57237	0.0160104	0.22982921	2.6395663	20	2 20.1	20.2
413133 2001 YU ₁	15.0	X	82.84000	68.01685	272.90748	29.89127	0.3773511	0.21626493	2.7488138	20	—	—
413134 2001 YY ₂₀	17.7	X	259.17442	158.68024	60.60939	23.23280	0.0336619	0.38174507	1.8820035	20	—	—
413135 2001 YZ ₂₅	16.8	X	24.30787	67.93439	70.27005	6.62028	0.1832121	0.22425792	2.6831041	20	2 8.2	19.4
413136 2001 YJ ₆₆	16.5	X	136.31675	322.49956	90.66257	16.78854	0.1835944	0.22954283	2.6417612	20	4 9.9	20.9
413137 2001 YA ₇₂	17.6	X	98.57627	17.15917	77.53002	7.90038	0.2909926	0.22825820	2.6516637	20	4 29.6	21.6
413138 2001 YV ₉₀	16.5	X	156.13196	274.06526	104.54622	13.15205	0.2916273	0.22972052	2.6403988	20	3 20.4	21.3
413139 2002 AU ₄₇	17.1	X	354.66980	204.21784	292.47365	1.80306	0.1973800	0.21609744	2.7502339	20	—	—
413140 2002 AE ₁₅₆	17.3	X	84.97808	98.85405	309.82429	11.04103	0.2969341	0.22078509	2.7111667	20	2 12.0	20.5
413141 2002 AW ₁₉₉	17.1	X	358.66525	106.15734	26.72574	2.99159	0.1309574	0.21735722	2.7395969	20	—	—
413142 2002 CT ₈₇	17.3	X	37.40324	92.63717	129.44463	6.63092	0.1239097	0.28485437	2.2876388	20	7 1.5	19.4
413143 2002 CH ₈₉	17.4	X	43.08986	242.60954	329.97239	6.19935	0.1907472	0.28286203	2.2983682	20	7 9.9	19.7
413144 2002 CL ₈₉	16.3	X	330.18567	167.90451	336.74702	8.88190	0.1014086	0.21084087	2.7957576	20	—	—
413145 2002 CT ₁₄₂	16.9	X	18.80662	176.03121	300.01547	8.40543	0.1448958	0.21717324	2.7414469	20	—	—
413146 2002 CP ₁₇₇	17.0	X	16.62473	351.22941	125.04859	9.66492	0.1282088	0.21634792	2.7481107	20	—	—
413147 2002 CO ₁₈₀	17.3	X	92.31701	84.54262	103.34181	3.79722	0.1038830	0.28954139	2.2628839	20	8 1.3	20.0
413148 2002 CQ ₂₄₉	17.4	X	31.19977	247.80009	344.04580	4.46257	0.1062134	0.28627529	2.2800630	20	7 3.7	19.6
413149 2002 CA ₂₅₇	18.0	X	155.35628	348.07134	140.77237	1.93616	0.1473977	0.29199236	2.2502031	20	7 25.0	21.3
413150 2002 ED ₉	16.4	X	24.28623	322.75782	171.07677	16.53314	0.2943661	0.21861935	2.7290426	20	1 27.1	18.6
413151 2002 ER ₂₃	17.0	X	179.75888	308.77315	333.10641	1.25243	0.0361588	0.20531597	2.8456898	20	—	—
413152 2002 ET ₆₇	16.8	X	9.11406	239.10722	350.49692	12.04125	0.1014603	0.27843757	2.3226521	20	5 10.9	19.4
413153 2002 EN ₁₁₃	17.3	X	162.28400	87.94755	12.48855	7.40260	0.0412183	0.28456359	2.2891970	20	6 20.5	20.3
413154 2002 EA ₁₂₈	17.6	X	51.97193	221.23247	345.70826	3.59624	0.1631565	0.28317231	2.2966890	20	7 11.3	19.9
413155 2002 FC ₃	17.4	X	334.75112	33.01053	358.29285	20.14686	0.0886252	0.35520831	1.9746069	20	12 14.2	19.7
413156 2002 GS ₄₅	16.8	X	291.68326	66.21042	209.27773	21.50838	0.2466909	0.26707066	2.3880968	20	2 18.0	20.8
413157 2002 GE ₅₉	17.7	X	302.85522	222.64253	95.51532	4.73784	0.2097370	0.26873688	2.3782155	20	2 21.6	20.7
413158 2002 GE ₆₄	16.6	X	177.69560	130.88777	99.23208	2.84770	0.2130410	0.19197468	2.9760490	20	12 5.0	21.7
413159 2002 GK ₁₀₃	17.2	X	102.36858	137.34167	38.42662	7.19389	0.1045801	0.28384126	2.2930791	20	7 29.6	20.4
413160 2002 GV ₁₂₄	17.2	X	97.41620	151.34854	5.24212	5.45146	0.0923836	0.28220300	2.3019451	20	6 21.1	20.1
413161 2002 GB ₁₈₄	17.7	X	308.59175	314.78817	293.58312	4.63284	0.1980544	0.26980946	2.3719085	20	2 13.9	20.6
413162 2002 GW ₁₈₈	17.6	X	310.80364	74.02545	190.18448	2.53944	0.1626475	0.27069227	2.3667487	20	3 16.2	20.3
413163 2002 LB ₅₉	15.7	X	123.60829	155.89917	94.92721	15.43673	0.1878020	0.18385467	3.0630419	20	11 19.1	20.9
413164 2002 LN ₅₉	15.6	X	46.88741	207.53012	137.61016	16.97370	0.1613885	0.17484515	3.1673812	20	12 19.1	20.3
413165 2002 NZ ₆₉	15.4	X	11.84173	101.20908	259.62699	11.89928	0.2926941	0.17198947	3.2023451	20	12 7.6	18.9
413166 2002 PY ₁₆₁	16.3	X	351.51429	268.88644	121.36443	7.42384	0.2056318	0.17274491	3.1930022	20	11 28.3	19.8
413167 2002 PX ₁₇₆	15.6	X	355.47543	232.53395	148.23377	23.42208	0.1285346	0.17369377	3.1813629	20	11 21.2	20.0
413168 2002 QA ₅₈	16.5	X	355.80557	156.45199	241.68669	3.92551	0.1571491	0.17341055	3.1848259	20	12 9.9	20.2
413169 2002 QL ₈₁	15.7	X	2.83516	237.90735	150.72321	26.99343	0.1897615	0.17215700	3.2002673	20	12 16.9	20.1
413170 2002 QN ₈₂	16.3	X	18.57919	358.27249	11.46028	8.89704	0.0755021	0.17358613	3.1826779	20	11 26.9	20.7
413171 2002 QP ₈₆	18.1	X	205.67409	149.39832	200.97272	1.89256	0.2090570	0.25577198	2.4579181	20	3 14.3	22.1
413172 2002 QR ₉₃	16.1	X	6.29240	274.16997	137.08920	11.31730	0.1320990	0.17718564	3.1394268	20	—	—
413173 2002 QJ ₉₅	15.7	X	354.46423	262.30984	129.95851	11.92500	0.0416993	0.17446574	3.1719715	20	11 24.7	20.2
413174 2002 QA ₉₆	16.1	X	68.97287	46.38363	261.63936	8.43939	0.0656373	0.17442250	3.1724958	20	11 15.1	20.7
413175 2002 QS ₉₆	18.1	X	210.06587	255.77897	91.58384	3.54332	0.2052881	0.25665901	2.4522517	20	3 16.5	22.2
413176 2002 QY ₁₀₃	17.7	X	190.06848	148.97467	217.53231	7.64987	0.1639567	0.25518594	2.4616798	20	3 18.9	21.8
413177 2002 QM ₁₁₂	17.5	X	301.00306	332.80390	309.60537	4.50525	0.1557327	0.26282994	2.4137160	20	3 27.3	20.5
413178 2002 QS ₁₁₆	18.0	X	184.80747	319.00195	57.41687	2.20754	0.1994151	0.25516715	2.4618006	20	3 30.2	22.1
413179 2002 QR ₁₃₉	16.0	X	357.55983	138.73838	253.62107	7.74326	0.1660746	0.17475370	3.1684860	20	12 6.8	19.8
413180 2002 RH ₁	15.7	X	47.80637	115.69492	235.37949	10.77024	0.1478603	0.17625183	3.1505059	20	12 23.3	20.3
413181 2002 RX ₇₃	16.0	X	80.17444	152.21301	166.69873	23.04887	0.1543060	0.17593348	3.1543053	20	12 22.3	21.3
413182 2002 RS ₂₃₅	16.4	X	5.72235	159.78173	214.04317	3.89056	0.1346845	0.17038703	3.2223919	20	11 22.2	20.3
413183 2002 RH ₂₄₃	17.1	X	170.88387	322.45020	64.60693	7.37103	0.0950649	0.25316647	2.4747534	20	3 29.7	20.8
413184 2002 RR ₂₄₇	16.4	X	50.28908	319.03639	0.57320	4.72455	0.1838150	0.17242984	3.1968905	20	11 22.4	21.0
413185 2002 RU ₂₅₀	16.8	X	23.12259	269.96350	114.79587	0.17011	0.1592118	0.17537086	3.1610480	20	—	—
413186 2002 RZ ₂₅₀	17.9	X	177.25361	211.86096	161.01037	1.70473	0.1924652	0.25359496	2.4719649	20	3 18.7	21.9
413187 2002 RO ₂₈₂	17.4	X	258.92033	45.15220	240.51153	8.69563	0.2267843	0.25617510	2.4553389	20	2 5.4	21.6
413188 2002 TC ₃₁₀	16.3	X	67.72121	271.16440	56.51379	13.18283	0.0812817	0.17106873	3.2138255	20	12 7.9	20.9
413189 2002 TK ₃₁₄	15.5	X	260.28350	60.39482	75.07239	14.80788	0.0387422	0.16806035	3.2520650	20	11 24.6	20.1
413190 2002 TE ₃₅₀	16.3	X	42.09892	66.31664	271.36810	9.74697	0.1086617	0.17310301	3.1885970	20	11 24.3	20.8
413191 2002 TO ₃₅₀	16.3	X	15.27424	108.17135	254.68808	8.01263	0.2150241	0.17106480	3.2138747	20	12 3.6	20.2
413192 2002 VY ₉₄	16.8	X	329.11703	233.25294	280.87673	9.13572	0.6572745	0.16863327	3.2446950	20	—	—
413193 2002 VL ₁₀₅	16.7	X	76.97020	193.54428	271.63941	4.75561	0.2135014	0.24147298	2.5540164	20	3 29.5	19.8
4												

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
413201 2003 AB ₇₉	17.1	X	106.62216	192.89729	239.61520	2.15559	0.0688107	0.23646656	2.5899391	20	3 6.3	20.5
413202 2003 AB ₈₂	16.2	X	41.36043	119.55391	50.53650	17.13162	0.2787093	0.23723371	2.5843527	20	5 13.1	18.2
413203 2003 AM ₈₂	15.6	X	118.30446	36.53778	70.58810	26.98697	0.2234392	0.24153668	2.5535673	20	5 26.4	19.6
413204 2003 BA ₁₄	17.2	X	28.65077	297.12184	198.84081	2.74330	0.2073990	0.23319695	2.6140916	20	2 8.6	19.4
413205 2003 BN ₅₄	17.3	X	78.73721	188.71390	279.94736	3.98340	0.2437096	0.23778413	2.5803630	20	4 11.9	20.4
413206 2003 BS ₆₄	16.7	X	162.12789	114.28548	291.91700	3.72861	0.2511657	0.24482311	2.5306638	20	4 16.6	21.1
413207 2003 BW ₇₀	17.5	X	107.99707	67.72183	344.68151	1.49456	0.2083161	0.23402168	2.6079464	20	3 3.6	20.9
413208 2003 BR ₈₃	16.9	X	51.91982	89.32321	66.53116	5.77868	0.2148295	0.23761798	2.5815657	20	5 3.4	19.4
413209 2003 FF ₃₅	16.8	X	11.46150	162.62732	0.11719	4.48962	0.1876872	0.22898113	2.6460797	20	2 14.0	19.1
413210 2003 FD ₉₃	16.5	X	228.46193	190.94831	30.28351	16.18076	0.1977700	0.21122651	2.7923538	20	—	—
413211 2003 GD ₂₈	17.4	X	58.66987	258.54414	358.60164	6.63586	0.1151913	0.30454260	2.1879498	20	9 27.7	20.1
413212 2003 GX ₃₅	16.8	X	11.31360	12.64648	128.77448	13.73503	0.2401370	0.22758145	2.6569180	20	1 6.9	19.2
413213 2003 GC ₄₅	17.9	X	128.43953	19.59807	133.06009	5.45438	0.0961485	0.30212727	2.1995952	20	7 26.5	20.8
413214 2003 HY ₆	16.9	X	31.44509	112.48573	25.12375	13.52206	0.1954062	0.22826948	2.6515764	20	2 27.3	19.5
413215 2003 JB ₁	18.0	X	274.40677	140.40547	195.26503	2.49624	0.1849898	0.28964687	2.2623345	20	5 1.8	20.7
413216 2003 MA	18.9	X	21.58346	158.22518	96.00277	21.95957	0.3200047	0.46860036	1.6416011	20	10 17.3	21.0
413217 2003 PW ₃	17.5	X	198.01866	344.83978	320.80302	17.21837	0.2911848	0.26497793	2.4006541	20	1 19.1	21.9
413218 2003 QU ₄₁	16.1	X	59.09359	25.33193	350.53610	9.22420	0.3100187	0.18872016	3.0101665	20	—	—
413219 2003 QV ₇₂	16.3	X	72.61784	115.56991	208.25783	9.48202	0.3559133	0.18716752	3.0267907	20	—	—
413220 2003 QY ₈₁	16.5	X	60.09545	10.21135	342.87263	1.95578	0.1759196	0.18796218	3.0182536	20	—	—
413221 2003 QM ₈₇	16.3	X	51.98877	258.63009	78.46718	11.93295	0.2746903	0.18437609	3.0572642	20	12 29.5	20.9
413222 2003 QM ₉₅	16.2	X	302.22072	134.52508	305.45088	8.17991	0.0683387	0.18062493	3.0994472	20	11 6.9	20.5
413223 2003 RT ₃	17.9	X	264.51796	331.44133	339.88750	6.49197	0.1248944	0.27520472	2.3408062	20	3 24.1	21.0
413224 2003 RF ₉	17.4	X	227.47191	138.58577	199.18391	8.75859	0.2287265	0.27258928	2.3557554	20	3 13.9	21.3
413225 2003 RD ₁₀	15.9	X	352.78939	71.65424	2.70752	10.76753	0.1367437	0.18423006	3.0588797	20	—	—
413226 2003 RC ₂₄	17.0	X	206.83538	53.25321	340.67838	23.28168	0.2524469	0.27582969	2.3372690	20	4 24.6	21.6
413227 2003 SP ₂₂	15.7	X	59.10693	301.52174	14.69551	26.86740	0.1750762	0.17915632	3.1163624	20	11 19.9	20.7
413228 2003 SM ₂₅	16.6	X	33.52749	193.75296	201.18618	8.68682	0.1789062	0.18651891	3.0338037	20	—	—
413229 2003 SE ₆₃	17.7	X	264.99097	69.92189	248.04628	3.47870	0.2303656	0.27585010	2.3371538	20	3 21.7	21.4
413230 2003 SB ₇₆	17.7	X	199.74537	306.89127	93.86402	1.39342	0.2048244	0.27330376	2.3516480	20	5 11.2	21.3
413231 2003 SS ₈₉	15.7	X	14.85066	201.19189	238.59122	9.93577	0.1010259	0.19057983	2.9905525	20	—	—
413232 2003 SX ₁₁₈	17.0	X	0.77211	260.97001	159.58932	2.21618	0.0699238	0.18517241	3.0484929	20	—	—
413233 2003 SB ₁₂₉	18.0	X	178.16333	133.11337	290.73149	4.60559	0.0859664	0.27565028	2.3382831	20	5 19.8	21.4
413234 2003 SF ₁₃₆	18.2	X	188.74163	145.66966	262.72795	2.33827	0.2255583	0.27352587	2.3503747	20	5 10.6	22.3
413235 2003 SW ₁₄₉	17.3	X	174.89347	358.88114	27.65545	9.39250	0.1983821	0.26834031	2.3805580	20	4 3.2	21.1
413236 2003 SQ ₁₅₄	16.1	X	16.49082	8.73195	9.09618	25.51469	0.2107966	0.18012887	3.1051351	20	12 26.9	20.6
413237 2003 SQ ₁₆₀	17.6	X	212.01852	274.91016	97.21762	4.48947	0.2555259	0.27236290	2.3570606	20	4 15.8	21.7
413238 2003 SM ₁₇₆	16.2	X	51.71101	330.11704	4.22483	13.62151	0.2237937	0.18289175	3.0737837	20	12 19.4	21.0
413239 2003 SA ₂₀₀	16.4	X	29.34919	160.29373	214.12450	18.32927	0.2868008	0.18127393	3.0920451	20	—	—
413240 2003 SE ₂₀₄	17.0	X	10.45570	247.25367	158.74828	0.93566	0.2676227	0.18260715	3.0769766	20	—	—
413241 2003 SU ₂₁₀	16.3	X	64.93881	131.58799	201.10094	15.96890	0.2167563	0.18463418	3.0544146	20	12 29.0	21.3
413242 2003 SU ₂₁₃	17.6	X	196.64897	13.67290	43.52509	7.28773	0.1733138	0.27443955	2.3451552	20	5 29.3	21.4
413243 2003 SC ₂₁₅	16.7	X	21.68668	338.82052	62.61927	9.67740	0.1245647	0.18732818	3.0250599	20	—	—
413244 2003 SE ₂₁₈	16.3	X	53.01635	306.64849	34.86526	3.69906	0.2081793	0.18126549	3.0921411	20	12 27.4	20.8
413245 2003 SA ₂₁₉	15.3	X	40.07521	60.66565	288.81921	20.86669	0.1222648	0.18118007	3.0931129	20	12 11.5	19.7
413246 2003 SO ₂₆₈	17.7	X	195.75091	28.60304	1.69017	6.28025	0.1153814	0.26998020	2.3709084	20	4 23.3	21.2
413247 2003 SY ₂₇₃	18.2	X	232.48584	223.74139	135.94980	2.96820	0.2351758	0.27391593	2.3481429	20	4 16.8	22.0
413248 2003 SX ₂₉₉	16.2	X	28.08242	323.03309	30.68973	7.27348	0.2029238	0.17923616	3.1154369	20	12 10.4	20.3
413249 2003 SS ₃₁₁	18.4	X	209.19253	171.09507	189.76223	2.39419	0.2134064	0.27062669	2.3671310	20	3 29.5	22.4
413250 2003 SW ₃₁₈	16.8	X	331.10010	235.94208	201.96081	7.96973	0.0713438	0.18432412	3.0578389	20	12 19.3	20.8
413251 2003 SJ ₃₁₉	18.4	X	252.22181	279.98505	36.67377	2.67698	0.2194894	0.27250176	2.3562598	20	3 12.1	22.0
413252 2003 SM ₃₂₂	15.6	X	45.71162	46.37526	286.67130	13.19867	0.2386384	0.17923724	3.1154243	20	12 13.3	20.1
413253 2003 SU ₃₂₅	16.9	X	120.81761	138.68196	31.722955	5.36547	0.0693313	0.27124485	2.3635332	20	4 21.1	21.0
413254 2003 SM ₃₂₈	17.2	X	80.46088	130.71227	280.01285	11.86797	0.1832366	0.19636130	2.9315599	20	1 24.8	19.9
413255 2003 SJ ₃₉₃	17.4	X	149.34311	339.02993	108.15908	5.03886	0.1678102	0.27005524	2.3704692	20	5 25.5	21.0
413256 2003 SL ₄₀₀	16.2	X	32.07508	208.83757	169.57281	17.21663	0.1811616	0.18174683	3.0866791	20	—	—
413257 2003 SH ₄₂₈	15.9	X	354.29947	48.12330	353.92901	26.87343	0.1406319	0.18176505	3.0864728	20	12 9.3	20.3
413258 2003 SR ₄₃₁	16.6	X	67.91361	167.25722	200.92096	1.56463	0.1255280	0.19008699	2.9957193	20	—	—
413259 2003 SO ₄₃₃	16.3	X	80.42192	70.25493	252.67202	7.89227	0.1358646	0.18587542	3.0408016	20	12 25.9	21.0
413260 2003 TL ₄	19.4	X	330.65854	321.94801	220.02503	12.18692	0.3814079	1.43990194	0.7766895	20	—	—
413261 2003 TJ ₁₇	15.5	X	65.12963	320.26613	34.05746	7.99783	0.1040011	0.18544336	3.0455228	20	—	—
413262 2003 TS ₂₁	18.1	X	219.25019	212.51962	157.66747	1.18625	0.1939295	0.27267434	2.3552655	20	4 19.9	21.9
413263 2003 TM ₂₄	16.4	X	358.25976	40.55932	346.96092	9.44505	0.0879384	0.17949961	3.1123878	20	11 22.9	20.6
413264 2003 TY ₃₄	15.9	X	153.42855	235.80486	359.67445	15.58659	0.0748631	0.17911185	3.1168782	20	11 16.6	21.0
413265 2003 TK ₃₆	16.5	X	121.93410	83.31497	225.99941	9.09588	0.0559853	0.18671329	3.0316977	20	—	—
413266 2003 TS ₄₁	16.2	X	345.87676	50.16477	0.75582	12.84844	0.0581784	0.18056384	3.1001463	20	12 2.4	20.5
413267 2003 TA ₄₅	16.2	X	67.11356	337.32055	349.07798	11.73958	0.0606168	0.18058356	3.0999207	20	12 4.4	20.9
413268 2003 TY ₄₇	16.5	X	21.37928	51.93722	329.12540	9.18812	0.0766754	0.18382626	3.0633575	20	12 19.4	20.7
413269 2003 TF ₅₄	16.4	X	24.48041	163.39204	172.11944	11.33991	0.0789096	0.17543391	3.1602906	20	10 29.4	20.7
413270 2003 UR ₃	17.5	X	204.06707	175.71224	268.93328	2.76827	0.1956147	0.27789588	2.3256694	20	7 11.4	21.0
413271 2003 UK ₁₅	16.2	X	20.40178	0.33172	18.92656	8.94262	0.1071002	0.18031757	3.1029684	20	12 18.2	20.4
413272 2003 UY ₁₈	17.6	X	177.38836	3.44541	44.39412	12.95015	0.2334124	0.26862234	2.3788915	20	5 1.6	21.4
413273 2003 UM ₃₆	17.1	X	240.29049	349.07005	346.97167	13.80077	0.2553415	0.27132252	2.3630822	20	3 20.2	21.2
413274 2003 UY ₄₇	16.4	X	72.1029									

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
413281 2003 <i>UL</i> ₈₀	18.2	X	213.04587	291.88066	87.39177	1.62481	0.2205377	0.27223847	2.3577788	20	4 25.1	22.0
413282 2003 <i>UO</i> ₈₉	17.8	X	248.50215	101.74681	296.41298	1.48106	0.1868667	0.28019908	2.3129074	20	6 26.2	21.0
413283 2003 <i>UX</i> ₁₀₈	16.2	X	329.26948	171.27025	221.48016	12.33589	0.1012428	0.17238338	3.1974650	20	10 16.4	20.3
413284 2003 <i>UG</i> ₁₁₀	16.0	X	303.75167	59.08069	52.20979	10.55645	0.1993460	0.17762947	3.1341951	20	12 9.2	19.4
413285 2003 <i>UB</i> ₁₁₃	17.3	X	176.55094	299.98768	75.82759	7.58653	0.1983821	0.26513693	2.3996942	20	3 25.0	21.3
413286 2003 <i>UN</i> ₁₁₅	17.4	X	229.00686	342.34464	334.07793	2.84511	0.2325352	0.26649189	2.3915533	20	2 20.2	21.5
413287 2003 <i>UE</i> ₁₂₈	17.6	X	159.32897	143.14177	278.63930	5.14239	0.1170503	0.26737681	2.3862735	20	4 26.4	21.2
413288 2003 <i>UL</i> ₁₃₂	15.0	X	39.97988	126.72661	240.04774	13.98595	0.2093201	0.18054810	3.1003265	20	—	—
413289 2003 <i>US</i> ₁₅₅	17.9	X	126.46732	329.43457	109.92358	4.53886	0.0554322	0.26655037	2.3912034	20	4 9.3	21.0
413290 2003 <i>UX</i> ₁₆₁	16.4	X	49.59914	132.10281	209.93622	13.63246	0.3000534	0.18136808	3.0909749	20	—	—
413291 2003 <i>UO</i> ₁₆₄	15.2	X	33.53540	312.54232	64.06362	10.52785	0.1083836	0.18129635	3.0917901	20	—	—
413292 2003 <i>UT</i> ₁₇₀	16.1	X	21.50419	157.30332	218.58244	17.04643	0.2036704	0.18006179	3.1059063	20	12 27.5	20.4
413293 2003 <i>UR</i> ₁₇₆	17.5	X	226.26698	275.02581	82.11342	2.32718	0.1987561	0.27142206	2.3625044	20	4 10.1	21.4
413294 2003 <i>UJ</i> ₁₇₇	17.7	X	70.65421	281.09816	49.89933	22.50452	0.0924763	0.35876149	1.9615475	20	—	—
413295 2003 <i>UN</i> ₁₇₈	16.8	X	57.67794	117.68491	227.40083	7.37866	0.1944370	0.18287227	3.0740020	20	—	—
413296 2003 <i>UZ</i> ₁₇₈	17.8	X	0.75555	149.38566	203.40467	21.72896	0.0923947	0.35146388	1.9886068	20	11 30.5	20.0
413297 2003 <i>UL</i> ₁₈₄	15.9	X	77.23919	111.48228	226.56418	14.90370	0.1650489	0.18353500	3.0665975	20	—	—
413298 2003 <i>UE</i> ₁₉₅	17.7	X	180.50996	34.57386	32.40901	6.81030	0.2188392	0.26959908	2.3731423	20	5 26.8	21.7
413299 2003 <i>UV</i> ₂₀₅	15.6	X	4.38148	174.49028	243.68192	17.39926	0.2617596	0.17996819	3.1069831	20	—	—
413300 2003 <i>UV</i> ₂₀₆	17.5	X	191.41343	155.80670	222.51167	10.64414	0.2284304	0.26711958	2.3878052	20	4 3.8	21.6
413301 2003 <i>UJ</i> ₂₁₉	16.2	X	340.63967	228.79738	225.34940	15.80070	0.1103656	0.18350015	3.0669858	20	—	—
413302 2003 <i>UV</i> ₂₂₂	15.5	X	30.36842	139.69217	241.20997	26.50513	0.2019130	0.18032103	3.1029287	20	—	—
413303 2003 <i>UC</i> ₂₂₃	16.5	X	144.58840	244.11925	237.76773	21.03915	0.3917084	0.26646060	2.3917405	20	7 7.8	21.5
413304 2003 <i>UR</i> ₂₂₉	15.9	X	358.48156	151.69697	236.44570	8.39691	0.1472816	0.17717648	3.1395351	20	12 1.9	19.6
413305 2003 <i>UE</i> ₂₃₀	18.0	X	194.19089	257.14553	132.51873	3.19917	0.2053036	0.26912617	2.3759215	20	4 23.1	21.8
413306 2003 <i>UQ</i> ₂₃₃	16.4	X	24.56374	168.71043	233.17326	6.65987	0.0964759	0.18342204	3.0678565	20	—	—
413307 2003 <i>UF</i> ₂₄₉	18.0	X	196.80665	56.73374	330.76412	2.52626	0.2597047	0.26979819	2.3719745	20	4 20.1	22.3
413308 2003 <i>UA</i> ₂₆₄	16.0	X	22.58853	324.93470	21.49023	17.62979	0.2173969	0.17627745	3.1502006	20	11 20.9	20.2
413309 2003 <i>UG</i> ₂₇₆	16.0	X	6.67710	174.93659	225.57240	10.45540	0.2652622	0.17961481	3.1110570	20	—	—
413310 2003 <i>UL</i> ₂₉₁	17.7	X	152.67970	269.46223	133.85081	1.75128	0.1901651	0.26325369	2.4111250	20	4 3.5	21.3
413311 2003 <i>UM</i> ₂₉₉	18.5	X	172.17194	279.64273	158.17062	1.28307	0.1516239	0.27177877	2.3604368	20	6 3.2	22.0
413312 2003 <i>UU</i> ₃₀₀	16.3	X	55.34766	77.34370	254.93687	5.08944	0.1612708	0.18001325	3.1064645	20	12 12.9	20.8
413313 2003 <i>UX</i> ₃₀₇	15.9	X	226.26721	177.11465	29.35517	10.47866	0.0396074	0.18600371	3.0394031	20	—	—
413314 2003 <i>UF</i> ₃₁₇	17.3	X	97.62182	353.29700	188.62782	22.91223	0.1340161	0.28049522	2.3112792	20	7 28.9	21.1
413315 2003 <i>UL</i> ₃₅₀	16.4	X	293.71413	67.60606	37.44446	9.64768	0.1390810	0.17965507	3.1105921	20	11 20.3	20.2
413316 2003 <i>UV</i> ₃₇₅	17.6	X	353.01782	60.82067	199.77380	6.38277	0.0898841	0.27975762	2.3153400	20	6 4.7	19.9
413317 2003 <i>UB</i> ₃₇₆	16.4	X	341.89594	229.30644	202.16215	5.86788	0.2171590	0.18336742	3.0684656	20	—	—
413318 2003 <i>UB</i> ₃₇₈	17.0	X	348.47017	37.84173	22.36981	3.89980	0.1201417	0.18330431	3.0691699	20	12 25.8	20.8
413319 2003 <i>UE</i> ₃₈₀	16.7	X	344.04104	43.05448	25.40617	9.89369	0.1273195	0.18288545	3.0738543	20	12 30.0	20.5
413320 2003 <i>UV</i> ₃₈₉	16.6	X	356.39734	199.69955	211.71993	7.25472	0.1249522	0.18037705	3.1022863	20	12 25.9	20.6
413321 2003 <i>WK</i> ₂	17.7	X	235.17390	61.75672	253.89406	3.37153	0.1543418	0.26440061	2.4041474	20	2 26.3	21.5
413322 2003 <i>WD</i> ₄	17.6	X	200.41535	311.92760	64.22220	6.35491	0.2513033	0.26775850	2.3840052	20	4 12.4	21.7
413323 2003 <i>WL</i> ₁₅	17.5	X	228.99087	108.92178	225.10449	6.35059	0.2704732	0.26863643	2.3788083	20	3 8.3	21.8
413324 2003 <i>WZ</i> ₂₈	15.6	X	324.16127	214.35493	254.69704	15.63634	0.1977415	0.17921600	3.1156705	20	—	—
413325 2003 <i>WB</i> ₅₅	17.3	X	358.83366	80.66661	331.69124	2.55750	0.3016293	0.17949649	3.1124239	20	—	—
413326 2003 <i>WL</i> ₆₂	17.8	X	194.85866	182.58625	225.63946	1.69438	0.2037319	0.26970009	2.3725497	20	5 16.4	21.7
413327 2003 <i>WK</i> ₆₇	15.8	X	3.89660	117.39082	246.78694	24.37522	0.2535544	0.17329323	3.1862632	20	11 22.1	19.3
413328 2003 <i>WV</i> ₈₆	15.6	X	5.70724	135.71283	256.89152	7.92902	0.2658330	0.17759848	3.1345597	20	—	—
413329 2003 <i>WY</i> ₉₆	15.8	X	40.58860	295.54008	54.25217	27.09945	0.2315762	0.17890953	3.1192276	20	12 22.3	20.5
413330 2003 <i>WN</i> ₁₀₈	15.6	X	271.25404	221.21854	253.55902	20.08003	0.1641479	0.17192983	3.2030858	20	10 22.7	20.2
413331 2003 <i>WA</i> ₁₁₃	17.0	X	194.56449	354.85246	43.12266	10.65393	0.1512227	0.26795036	2.3828671	20	5 3.6	20.6
413332 2003 <i>WU</i> ₁₁₃	16.2	X	34.21842	353.01168	49.64261	18.01702	0.3062526	0.18396157	3.0618551	20	—	—
413333 2003 <i>WN</i> ₁₁₃	17.6	X	135.27646	174.14528	276.20112	5.49049	0.1243470	0.26552716	2.3973425	20	5 9.2	21.1
413334 2003 <i>WV</i> ₁₂₄	15.2	X	3.88033	359.50086	70.95850	25.65536	0.2573612	0.17909108	3.1171193	20	—	—
413335 2003 <i>WJ</i> ₁₃₄	15.6	X	355.57071	358.63738	70.48004	11.03409	0.0775270	0.17897879	3.1184228	20	—	—
413336 2003 <i>WR</i> ₁₃₇	17.5	X	225.86518	160.26001	240.20014	5.37126	0.2383639	0.27317296	2.3523986	20	5 31.9	21.1
413337 2003 <i>WG</i> ₁₄₉	16.2	X	7.32879	127.61418	252.72696	8.55897	0.1999571	0.17614750	3.1517497	20	12 12.3	19.9
413338 2003 <i>WQ</i> ₁₅₈	17.5	X	122.25795	28.18817	64.44124	3.52933	0.1558414	0.26316946	2.4116395	20	5 3.0	20.8
413339 2003 <i>WY</i> ₁₆₀	17.8	X	187.89295	18.86642	75.19497	3.69353	0.1356006	0.27326652	2.3518616	20	7 11.2	21.2
413340 2003 <i>WB</i> ₁₆₂	15.9	X	314.77617	31.60269	63.50950	13.72492	0.0926803	0.17704730	3.1410620	20	12 13.6	19.9
413341 2003 <i>WM</i> ₁₈₀	16.1	X	251.94849	97.88336	71.81078	11.59603	0.1736888	0.17516840	3.1634832	20	12 6.8	20.6
413342 2003 <i>WM</i> ₁₈₃	18.0	X	214.61650	295.11104	78.66819	3.29435	0.1998353	0.26874885	2.3781449	20	4 21.0	21.8
413343 2003 <i>XA</i>	16.6	X	213.97617	74.42784	314.19696	8.37950	0.3275925	0.27238362	2.3569411	20	4 29.7	21.2
413344 2003 <i>XM</i> ₁	16.3	X	349.62161	23.90311	39.50170	15.88196	0.0663274	0.17817411	3.1278048	20	12 24.5	20.7
413345 2003 <i>XN</i> ₈	15.5	X	1.33496	77.23570	321.13011	15.03252	0.2394259	0.17723776	3.1388114	20	—	—
413346 2003 <i>XB</i> ₂₁	15.4	X	34.18723	323.84376	98.22471	28.82693	0.1933549	0.18112539	3.0937354	20	—	—
413347 2003 <i>XU</i> ₂₃	16.5	X	294.60108	52.59570	78.10521	2.06010	0.1374681	0.17681338	3.1438318	20	12 24.9	20.3
413348 2003 <i>XZ</i> ₃₅	16.0	X	331.12018	163.58271	282.44148	16.08113	0.2266076	0.17634205	3.1494312	20	—	—
413349 2003 <i>YJ</i> ₁₀	16.0	X	9.99112	86.75679	292.67210	13.53193	0.3367856	0.17637440	3.1490461	20	—	—
413350 2003 <i>YZ</i> ₂₀	17.5	X	77.49340	97.42174	286.90944	16.64602	0.1333619	0.36172527	1.9508183	20	—	—
413351 2003 <i>YW</i> ₄₅	16.8	X	344.85788	90.92072	345.31976	7.04862	0.3159019	0.17785508	3.1315441	20	—	—
413352 2003 <i>YQ</i> ₄₇	15.4	X	342.15882	16								

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
413361 2004 BG	16.2	X	347.71049	250.77135	251.44691	11.66005	0.4527705	0.17862797	3.1225045	20	—	—
413362 2004 BX ₂₀	17.8	X	147.31094	335.23694	106.50550	6.45970	0.1740048	0.26094572	2.4253212	20	5 17.6	21.6
413363 2004 BK ₂₆	15.6	X	31.17895	129.03452	302.39435	8.21247	0.0773176	0.17856291	3.1232629	20	—	—
413364 2004 BB ₃₅	18.5	X	140.65149	18.59294	76.28955	2.23258	0.1573569	0.26080345	2.4262031	20	5 25.4	22.1
413365 2004 BM ₆₉	16.2	X	288.64063	271.18402	239.31071	4.76759	0.3141991	0.16953274	3.2332081	20	12 14.1	19.7
413366 2004 BL ₉₄	16.2	X	293.47290	284.01758	205.00897	10.53201	0.3359383	0.16929545	3.2362286	20	11 22.7	19.7
413367 2004 BG ₁₄₀	18.2	X	115.08339	170.20655	292.22090	3.80282	0.1348823	0.25754057	2.4466524	20	5 3.4	21.6
413368 2004 CD ₁₂₈	16.0	X	157.65922	318.46786	19.16971	12.88422	0.2322120	0.23601159	2.5932666	20	1 27.8	20.5
413369 2004 FV ₁₃₅	17.0	X	289.11248	193.26352	4.60241	12.52532	0.0962993	0.23330808	2.6132615	20	—	—
413370 2004 GZ ₉	16.9	X	225.74307	231.44643	6.68737	5.59705	0.1678200	0.22300734	2.6931256	20	—	—
413371 2004 GN ₃₉	16.2	X	185.65550	358.93996	292.25890	11.95598	0.1473698	0.22548298	2.6733770	20	—	—
413372 2004 GQ ₃₉	16.6	X	235.66678	267.02474	338.97209	6.83333	0.2241587	0.22711941	2.6605201	20	—	—
413373 2004 GQ ₅₂	17.4	X	288.69335	188.83380	33.73631	6.76035	0.0792659	0.23523618	2.5989623	20	1 11.7	21.1
413374 2004 GH ₇₈	17.2	X	347.36386	168.86749	20.26343	8.07708	0.1327903	0.24086263	2.5583292	20	2 11.4	20.1
413375 2004 HA ₃	16.5	X	281.29034	165.28452	73.31796	5.56749	0.1469290	0.23488306	2.6015664	20	1 14.5	20.3
413376 2004 HT ₁₀	16.5	X	235.32870	219.74054	40.07734	13.86400	0.2056714	0.22754854	2.6571741	20	—	—
413377 2004 HE ₂₂	17.2	X	229.05811	47.77753	204.21543	12.55362	0.1163699	0.22819298	2.6526627	20	—	—
413378 2004 HY ₄₅	15.5	X	129.91841	63.31605	235.15375	34.40825	0.2580849	0.21213579	2.7843688	20	—	—
413379 2004 HD ₆₇	16.9	X	190.98674	235.91429	31.69761	7.13394	0.1945959	0.22258060	2.6965668	20	—	—
413380 2004 JB ₃	16.5	X	239.06969	0.37053	235.13216	11.41808	0.1393131	0.22543080	2.6737895	20	—	—
413381 2004 JD ₃₆	16.7	X	228.27012	34.74206	217.07361	13.20298	0.2103026	0.22480028	2.6787868	20	—	—
413382 2004 JR ₄₅	16.4	X	195.83739	24.39508	235.05485	8.72083	0.2573104	0.21906639	2.7253287	20	—	—
413383 2004 NS ₂₇	18.2	X	356.12879	69.65060	220.91626	1.41736	0.1826447	0.30822534	2.1704868	20	8 7.7	19.4
413384 2004 PN ₄₁	18.2	X	314.17979	118.70481	193.94495	0.77827	0.2396342	0.30189066	2.2007443	20	5 19.2	20.0
413385 2004 PM ₆₅	16.2	X	75.66675	20.45876	265.12715	7.61371	0.2187903	0.20021950	2.8937775	20	—	—
413386 2004 PL ₁₁₁	18.3	X	318.08232	290.33156	35.39330	1.98146	0.2561636	0.30396869	2.1907029	20	6 17.1	19.6
413387 2004 QS ₁₈	18.2	X	325.29142	327.12469	331.66810	4.04326	0.2185166	0.30237310	2.1984029	20	5 22.8	19.7
413388 2004 RX ₄₉	17.6	X	312.39540	326.59322	349.73081	3.76654	0.1832150	0.30121342	2.2040419	20	5 31.7	19.4
413389 2004 RH ₈₃	16.2	X	49.90472	233.52141	167.99571	11.09778	0.1557551	0.20344635	2.8630974	20	—	—
413390 2004 RG ₉₆	18.2	X	316.96440	98.12599	208.64234	5.02947	0.2537156	0.30221927	2.1991488	20	5 12.7	19.7
413391 2004 RZ ₁₅₂	17.8	X	255.91919	126.71851	261.00364	4.97262	0.1018712	0.30072834	2.2064113	20	7 3.9	20.3
413392 2004 RA ₁₅₆	16.6	X	63.61061	43.34985	334.62683	6.58006	0.0866457	0.20303452	2.8669677	20	—	—
413393 2004 RB ₁₆₄	18.2	X	257.77660	40.40446	353.42232	3.64311	0.1909631	0.29870580	2.2163599	20	7 1.5	20.9
413394 2004 RX ₁₇₃	17.7	X	221.53391	155.94188	204.31333	6.72851	0.1924716	0.29187563	2.2508031	20	4 7.7	21.3
413395 2004 RV ₂₀₆	16.2	X	113.71388	23.90422	280.57069	9.19896	0.2692595	0.20374027	2.8603431	20	—	—
413396 2004 RS ₂₅₆	17.9	X	254.68339	1.01153	359.03339	7.06144	0.1897778	0.29648206	2.2274285	20	5 8.5	21.2
413397 2004 RC ₂₅₈	18.3	X	302.08691	79.83046	245.17993	1.48952	0.1875441	0.30004680	2.2097414	20	5 26.2	20.3
413398 2004 RA ₃₁₈	17.7	X	9.24471	345.25994	296.49727	3.41253	0.1518044	0.30596093	2.1811828	20	8 18.9	19.4
413399 2004 RB ₃₂₅	16.3	X	81.82344	164.29871	218.19163	12.63326	0.0979562	0.20569084	2.8422312	20	—	—
413400 2004 RW ₃₄₃	18.0	X	269.87337	267.70352	96.72367	4.36103	0.2151177	0.29839562	2.2178955	20	6 1.4	20.6
413401 2004 RW ₃₄₆	18.0	X	267.09724	109.73221	249.57108	3.07552	0.1891784	0.29727075	2.2234870	20	5 24.8	20.7
413402 2004 SM ₃	17.6	X	252.60518	282.17885	115.28909	4.55145	0.1398221	0.30074888	2.2063109	20	7 7.9	20.3
413403 2004 TT ₂	18.4	X	261.23433	148.32465	237.33338	1.94010	0.1504621	0.29835944	2.2180749	20	6 30.5	20.8
413404 2004 TZ ₃₂	16.3	X	91.46385	120.29335	213.70011	11.35986	0.0611222	0.19744534	2.9208200	20	—	—
413405 2004 TC ₅₃	17.8	X	293.24461	99.42422	219.50245	4.52770	0.2493874	0.29482434	2.2357702	20	4 21.7	20.2
413406 2004 TU ₈₁	17.8	X	207.61898	78.47591	355.52658	5.43059	0.1013759	0.29677658	2.2259546	20	7 9.4	20.9
413407 2004 TK ₉₄	17.9	X	198.98924	231.13674	207.33806	6.76797	0.0416585	0.29565373	2.2315869	20	7 7.3	20.8
413408 2004 TP ₁₃₉	16.4	X	39.22971	159.61242	248.37742	7.92763	0.2035274	0.19967832	2.8990038	20	—	—
413409 2004 TR ₁₄₉	17.1	X	89.80951	62.49858	308.69593	1.00034	0.0800989	0.20329932	2.8645283	20	—	—
413410 2004 TR ₁₅₂	17.0	X	152.47156	298.58987	8.37107	1.90667	0.0309197	0.20368907	2.8608224	20	—	—
413411 2004 TR ₁₇₅	17.7	X	269.96234	94.26981	275.24393	1.25749	0.1573433	0.29731755	2.2232537	20	6 17.8	20.3
413412 2004 TG ₁₇₇	18.9	X	206.54272	245.93527	176.55390	1.20539	0.1768844	0.29349918	2.2424948	20	6 15.9	22.3
413413 2004 TW ₁₈₇	16.7	X	147.51839	47.20058	203.04613	9.80473	0.0564907	0.19345095	2.9608890	20	12 6.4	21.3
413414 2004 TT ₁₉₂	17.8	X	241.72278	19.68032	37.09312	3.06923	0.0443166	0.30056361	2.2072175	20	8 7.3	20.4
413415 2004 TD ₂₁₂	16.6	X	110.13997	294.26624	30.98459	12.34987	0.0522705	0.19801118	2.9152529	20	—	—
413416 2004 TL ₂₁₉	18.2	X	234.31173	221.63515	202.02721	3.11019	0.1168765	0.29863746	2.2166980	20	7 24.3	21.0
413417 2004 TH ₂₃₅	17.7	X	68.42087	344.61989	23.35409	18.38780	0.1021451	0.38606414	1.8679407	20	—	—
413418 2004 TA ₂₄₄	16.5	X	52.80950	355.82164	48.96868	7.04988	0.1380852	0.20004899	2.8954216	20	—	—
413419 2004 TB ₂₅₃	17.1	X	100.34495	85.05239	246.88324	0.47038	0.1751903	0.20088333	2.8873989	20	—	—
413420 2004 TC ₃₄₂	17.8	X	254.95079	330.59229	41.71059	6.73958	0.1764025	0.29478190	2.2359847	20	5 29.2	20.9
413421 2004 VA ₁₅	18.3	X	61.49824	332.17073	34.72200	17.80797	0.5838530	0.19887156	2.9068387	20	1 9.8	21.0
413422 2004 VF ₄₀	17.9	X	284.06576	276.90556	72.75118	2.29805	0.1816997	0.29571041	2.2313017	20	6 4.7	20.3
413423 2004 VW ₄₅	16.2	X	67.53128	297.11889	90.20346	6.77746	0.0756427	0.19775505	2.9177695	20	—	—
413424 2004 WL	17.8	X	262.55161	256.37842	90.56893	4.82518	0.1973642	0.29223371	2.2489640	20	5 2.8	20.8
413425 2004 XC ₂₀	15.6	X	328.35709	213.71056	256.01219	11.05863	0.1338000	0.18971721	2.9996107	20	—	—
413426 2004 XT ₄₉	17.4	X	258.76796	126.32678	251.67599	7.03061	0.1881067	0.29406809	2.2396017	20	6 10.3	20.1
413427 2004 XB ₈₁	15.6	X	349.85065	11.22897	89.07862	20.13664	0.2114917	0.19042086	2.9922166	20	—	—
413428 2004 XH ₁₄₆	15.9	X	22.07523	322.10966	98.78842	11.72251	0.2713209	0.19130341	2.9830068	20	—	—
413429 2004 XN ₁₄₇	17.7	X	269.66918	292.02593	79.69187	5.56315	0.2036774	0.29469910	2.2364036	20	6 12.9	20.3
413430 2004 XT ₁₆₀	16.6	X	354.74216	137.95058	297.73903	16.65266	0.2527728	0.18819658	3.0157469	20	—	—
413431 2004 YB ₁₉	16.4	X	302.14270	180.95993	289.25766	3.91129	0.1288811	0.18135172	3.0911608	20	12 13.2	20.1
413432 2004 YL ₁₉	16.1	X	320.60781	350.25192	110.97069	16.50119	0.2057106	0.18376727	3.0640130	20	—	—
413433 2004 YB ₂₂	16.2	X	11.31048	307.80746	116.76866	11.33717	0.2069890	0.18745634	3.0236809	20	—	—
413434 2005 AB ₁₄	15.7	X	282.77539	189.79509	319.07869	22.44862	0.3185331	0.18151354	3.0893233	20	12 2.9	19.7
413435 2005 AW ₃₄												

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
413441 2005 BT ₂₄	17.6	X	92.53382	25.90680	118.92081	4.19313	0.1763353	0.27567892	2.3381211	20	6 10.6	20.6
413442 2005 CJ ₂₂	15.7	X	213.48892	320.10927	244.73097	13.27929	0.2308648	0.17486689	3.1671186	20	12 1.6	20.8
413443 2005 CX ₂₆	15.6	X	283.14507	159.37471	331.94564	9.77799	0.1743218	0.17779576	3.1322406	20	12 1.8	19.6
413444 2005 CC ₃₂	15.8	X	317.29844	348.62927	122.39434	5.68353	0.1108430	0.18049503	3.1009342	20	—	—
413445 2005 CK ₄₄	17.4	X	8.95705	257.06984	335.05124	6.20494	0.0868392	0.27260397	2.3556708	20	5 17.8	19.9
413446 2005 CP ₄₄	16.1	X	310.64328	312.43473	141.11846	11.79748	0.2152266	0.17826071	3.1267918	20	12 1.9	19.6
413447 2005 CA ₅₀	16.9	X	67.10284	17.15664	141.24189	7.56609	0.0581523	0.27203477	2.3589556	20	5 7.8	19.8
413448 2005 CD ₅₅	16.8	X	5.23162	336.95162	69.09249	2.25202	0.1912253	0.18085709	3.0967942	20	—	—
413449 2005 CS ₆₄	18.1	X	116.59556	139.12912	4.84151	2.66949	0.1802069	0.27856659	2.3219348	20	7 7.7	21.6
413450 2005 EO ₆	18.1	X	133.98301	118.24743	2.37660	2.50739	0.1623854	0.27622286	2.3350506	20	6 22.3	21.5
413451 2005 EW ₂₇	16.6	X	25.23778	210.47516	345.89702	11.55621	0.1834448	0.26755096	2.3852379	20	4 25.6	18.8
413452 2005 EE ₃₄	17.1	X	88.60402	349.23252	166.57601	23.44002	0.1653798	0.27446532	2.3450083	20	6 20.7	20.8
413453 2005 EF ₆₅	17.1	X	11.34101	217.68897	348.59877	6.85992	0.0887066	0.26682679	2.3895517	20	4 12.2	19.5
413454 2005 EZ ₁₁₇	16.4	X	276.33613	121.91893	17.55747	2.32540	0.2600518	0.17424236	3.1746820	20	11 27.4	20.2
413455 2005 EY ₁₄₆	17.4	X	302.82615	234.70016	12.06344	8.41356	0.1903511	0.25695010	2.4503993	20	2 12.1	20.7
413456 2005 ER ₁₅₁	18.1	X	330.57540	292.13391	178.25211	21.11540	0.0875129	0.37154973	1.9162761	20	—	—
413457 2005 EN ₁₅₃	17.2	X	283.27055	101.96192	34.41010	22.29885	0.0626586	0.36965165	1.9228303	20	—	—
413458 2005 EN ₁₆₁	17.4	X	42.74416	141.42209	31.57172	4.68007	0.0689968	0.26437202	2.4043207	20	4 19.1	20.1
413459 2005 EH ₁₆₉	17.0	X	323.46388	157.87906	96.31946	6.24463	0.2039632	0.26498088	2.4006363	20	3 19.5	19.6
413460 2005 EB ₁₉₀	16.2	X	216.36959	316.26551	230.81080	2.34202	0.0942519	0.17512733	3.1639779	20	11 27.7	20.7
413461 2005 EX ₂₀₁	15.7	X	265.22984	114.79282	65.66777	20.02685	0.1239489	0.18014992	3.1048932	20	—	—
413462 2005 ER ₂₁₂	15.7	X	288.34735	111.49009	18.74729	26.65385	0.2771378	0.17514237	3.1637967	20	11 14.8	19.8
413463 2005 EX ₂₅₆	17.8	X	84.10038	177.43021	330.47034	2.22140	0.1111648	0.26933960	2.3746662	20	5 23.1	20.6
413464 2005 EL ₂₆₀	18.3	X	65.19428	139.00056	34.08807	5.96757	0.1726404	0.26844354	2.3799477	20	6 11.1	21.0
413465 2005 EF ₂₉₉	16.6	X	337.95188	34.44129	52.34885	1.20201	0.1632554	0.18065725	3.0990776	20	—	—
413466 2005 EA ₃₁₃	15.9	X	353.37933	52.89073	357.59319	15.22088	0.2076560	0.17581016	3.1557801	20	12 29.4	19.8
413467 2005 GL ₃₁	17.1	X	16.65630	49.65617	123.99205	5.60317	0.1358406	0.26047720	2.4282286	20	3 8.9	19.3
413468 2005 GY ₄₁	18.0	X	60.48980	347.79737	167.56180	2.49516	0.1512061	0.27051348	2.3677914	20	5 5.3	20.3
413469 2005 GN ₇₅	17.9	X	301.74730	283.45416	203.61589	20.44254	0.1015309	0.36811959	1.9281616	20	—	—
413470 2005 GM ₁₁₀	17.7	X	54.03173	141.75685	22.61840	3.11952	0.1178086	0.26339921	2.4102369	20	5 1.2	20.0
413471 2005 GZ ₁₁₅	18.0	X	85.16216	4.43331	148.89968	2.61385	0.1133071	0.26864506	2.3787573	20	6 3.0	20.8
413472 2005 GZ ₁₁₇	17.7	X	134.44663	292.57245	154.30246	3.44847	0.0293977	0.26524943	2.3990156	20	4 25.7	20.7
413473 2005 GZ ₁₂₅	17.7	X	155.69562	80.76927	23.21307	2.76073	0.1382689	0.27745759	2.3281179	20	6 20.9	21.1
413474 2005 GW ₁₅₀	17.6	X	27.43725	133.43705	65.34639	7.41010	0.0543552	0.26281259	2.4138222	20	5 2.3	20.2
413475 2005 GP ₁₆₁	16.9	X	325.62194	125.48676	119.33726	6.59868	0.1016221	0.26036389	2.4289331	20	3 26.4	19.7
413476 2005 GS ₁₈₀	17.9	X	2.50242	94.89207	90.65417	2.42596	0.1171494	0.25899303	2.4374965	20	2 28.8	20.4
413477 2005 GR ₁₈₂	17.4	X	47.57870	89.29574	62.87502	3.91479	0.1429167	0.26204640	2.4185250	20	4 7.0	19.7
413478 2005 JL ₂	17.0	X	294.98290	234.41864	20.37422	4.75877	0.1570013	0.25668386	2.4520934	20	2 16.3	20.3
413479 2005 JO ₂₂	16.5	X	150.15759	264.22102	50.70253	29.02660	0.3519585	0.23183822	2.6242953	20	—	—
413480 2005 JO ₂₈	16.9	X	95.40702	1.59690	87.11305	15.43221	0.0626662	0.25298995	2.4759044	20	3 20.2	20.4
413481 2005 JH ₈₄	17.9	X	189.51533	218.10324	24.69656	20.38552	0.0456888	0.36762373	1.9298950	20	—	—
413482 2005 JU ₁₄₅	17.3	X	107.38786	128.27011	48.40798	11.27871	0.2404678	0.27448547	2.3448936	20	8 21.3	21.3
413483 2005 JB ₁₅₂	17.9	X	21.23014	353.85142	205.29976	2.18517	0.1321698	0.26623143	2.3931128	20	4 24.3	19.9
413484 2005 LQ ₂₈	17.0	X	182.64621	25.61185	232.17097	5.63266	0.1579190	0.22783415	2.6549530	20	—	—
413485 2005 ME ₃₀	16.2	X	299.80435	86.91979	257.30875	6.35750	0.2837113	0.12452726	3.9715475	20	6 2.3	21.3
413486 2005 MW ₃₈	17.1	X	142.07636	228.52312	129.56876	6.48175	0.1984543	0.23116567	2.6293829	20	1 31.6	21.2
413487 2005 NG ₅	17.3	X	189.27138	215.36113	120.73309	10.90910	0.0885285	0.23869787	2.5737737	20	2 12.7	21.1
413488 2005 NU ₃₅	16.8	X	173.60966	140.70551	213.54637	6.80616	0.1650802	0.23815230	2.5777029	20	2 19.2	21.1
413489 2005 NO ₄₀	17.3	X	191.75940	174.74360	126.50140	3.11562	0.1829935	0.23450927	2.6043301	20	1 6.5	21.5
413490 2005 NR ₆₇	15.6	X	292.52108	103.39622	246.70564	1.85880	0.2205945	0.12611052	3.9382369	20	6 9.3	21.0
413491 2005 NK ₇₀	17.0	X	165.82136	358.35515	311.87290	12.53801	0.1707288	0.22916475	2.6446661	20	—	—
413492 2005 OZ ₁₇	16.5	X	159.44998	13.36803	308.24696	12.05842	0.1403404	0.22784854	2.6548412	20	—	—
413493 2005 OA ₂₂	16.9	X	186.69710	312.81127	328.08176	10.52900	0.2212233	0.22853704	2.6495065	20	—	—
413494 2005 PU ₁₁	17.1	X	150.68747	919.93699	9.72925	2.14641	0.3046501	0.22766164	2.6562940	20	1 15.4	21.5
413495 2005 QZ ₃	16.8	X	150.90166	325.08208	348.08079	9.25250	0.2029410	0.22457513	2.6805770	20	—	—
413496 2005 QQ ₅	16.7	X	119.14175	195.88052	137.86801	15.23403	0.2592515	0.22290087	2.6939831	20	—	—
413497 2005 QZ ₅	16.9	X	112.75993	65.10207	317.52418	5.16521	0.1554372	0.22721674	2.6597603	20	1 25.6	20.4
413498 2005 QZ ₁₅	17.4	X	132.52596	151.76037	214.89705	1.01600	0.2108645	0.22811279	2.6527905	20	2 2.8	21.3
413499 2005 QR ₃₅	17.0	X	166.06129	204.95677	132.83486	5.16153	0.1050573	0.22971350	2.6404526	20	1 22.3	20.7
413500 2005 QS ₃₈	17.2	X	190.87895	121.98094	187.63871	2.58066	0.0886688	0.23135109	2.6279778	20	1 12.2	21.0
413501 2005 QU ₆₄	16.4	X	186.06127	314.55195	351.31063	14.06861	0.1853356	0.23002888	2.6380385	20	1 10.9	21.0
413502 2005 QY ₇₂	16.3	X	139.86909	14.16162	346.37561	12.38543	0.1761339	0.22726496	2.6593841	20	2 2.9	20.4
413503 2005 QM ₈₄	16.8	X	155.71037	20.22384	318.94656	4.72964	0.0414946	0.22772935	2.6557675	20	1 7.4	20.5
413504 2005 QC ₁₂₆	17.3	X	89.53744	277.52873	162.50443	4.98757	0.1805834	0.23116335	2.6294005	20	3 12.6	20.4
413505 2005 QB ₁₂₈	17.2	X	137.97403	27.62118	356.36150	9.77064	0.3039510	0.23038819	2.6352950	20	3 8.9	21.7
413506 2005 QB ₁₂₉	17.1	X	100.21711	354.60419	13.40959	6.39134	0.0472532	0.22260461	2.6963729	20	—	—
413507 2005 QD ₁₃₀	17.1	X	98.97765	216.22937	140.43856	7.16171	0.0545795	0.22011235	2.7166881	20	—	—
413508 2005 QF ₁₃₂	16.8	X	177.80107	289.37522	11.82178	9.30614	0.0800093	0.22625710	2.6672757	20	—	—
413509 2005 QG ₁₇₅	17.5	X	158.65611	90.06787	194.97286	6.63476	0.3360008	0.22378747	2.6868631	20	—	—
413510 2005 RP ₉	16.2	X	121.09953	20.51784	347.27350	14.20640	0.1153470	0.22473012	2.6793443	20	1 15.2	20.1
413511 2005 RS ₂₄	16.3	X	105.20612	245.45373	185.20507	38.77376	0.1855700	0.23172374	2.6251595	20	3 20.3	20.1
413512 2005 RT ₄₄	16.0	X	39.39107	199.69597	260.38973	15.97485	0.2055842	0.21993806	2.7181231	20	1 12.1	18.6
413513 2005 RR ₄₇	17.4	X	71.02242	16.92547	71.24758	4.52393	0.1699351	0.22587293	2.6702992	20	2 25.8	20.4
413514 2005 RX ₄₇	17.2	X	126.35320	180.37918	134.60							

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
413521 2005 SY ₃₉	17.4	X	73.22162	75.76482	10.37135	2.05067	0.1792588	0.22543287	2.6737731	20	2 26.3	20.4
413522 2005 SE ₄₀	17.3	X	192.16493	298.35070	27.13654	2.14487	0.1342035	0.23048660	2.6345448	20	2 4.4	21.4
413523 2005 SX ₄₀	17.0	X	155.28418	151.44975	175.37889	2.29190	0.2157235	0.22505848	2.6767376	20	1 8.5	21.3
413524 2005 SC ₄₄	16.8	X	137.13095	147.04269	220.25322	5.35784	0.0727538	0.22541123	2.6739443	20	1 22.5	20.5
413525 2005 SK ₅₄	17.0	X	106.32905	352.29805	21.36731	6.47915	0.0468227	0.22049731	2.7135251	20	—	—
413526 2005 SX ₅₈	17.3	X	173.03977	120.61245	197.41174	3.21971	0.1534535	0.22547273	2.6734580	20	1 9.1	21.6
413527 2005 SW ₆₃	17.2	X	95.42003	179.19442	193.74969	6.56048	0.0544758	0.21900079	2.7258729	20	—	—
413528 2005 SO ₇₆	16.9	X	75.41543	50.59119	15.53937	5.38940	0.1629146	0.22387006	2.6862023	20	2 2.1	20.0
413529 2005 SX ₈₃	16.6	X	195.85215	270.20430	9.05949	13.81636	0.1065489	0.22301179	2.6930898	20	—	—
413530 2005 SQ ₈₅	16.8	X	89.70193	29.84610	19.80868	5.17853	0.0130496	0.22491899	2.6778442	20	1 10.7	20.5
413531 2005 SW ₈₈	16.9	X	101.40087	143.25329	234.83437	2.92036	0.1344335	0.22025348	2.7155275	20	1 2.7	20.3
413532 2005 SS ₉₃	16.9	X	88.27529	17.49142	22.64367	10.83877	0.1288785	0.22041646	2.7141887	20	1 14.6	20.5
413533 2005 SC ₁₀₀	17.1	X	42.87107	172.72125	272.84065	2.87254	0.0892358	0.22019740	2.7159885	20	—	—
413534 2005 SC ₁₀₄	15.9	X	231.71687	243.28441	18.31745	21.74548	0.0070506	0.22301927	2.6930296	20	1 2.0	20.1
413535 2005 SU ₁₀₉	17.2	X	142.41120	326.68874	6.30248	2.90394	0.0746150	0.22077413	2.7112564	20	—	—
413536 2005 SQ ₁₂₁	16.7	X	138.91159	122.82791	222.70969	5.26528	0.0402935	0.22353530	2.6888834	20	—	—
413537 2005 SU ₁₂₉	17.5	X	59.14371	13.91589	29.80634	3.54912	0.0983349	0.21595699	2.7514262	20	—	—
413538 2005 SJ ₁₃₁	18.0	X	57.46580	152.82023	254.20509	0.69271	0.2149890	0.21588516	2.7520365	20	—	—
413539 2005 SO ₁₃₁	17.7	X	33.35502	91.04203	358.89457	1.58899	0.1737684	0.21768034	2.7368852	20	—	—
413540 2005 SO ₁₄₂	17.1	X	47.57816	297.14728	171.31793	12.84582	0.1568173	0.22545127	2.6736277	20	2 6.4	20.0
413541 2005 SX ₁₄₆	17.2	X	109.32566	186.59888	193.27765	5.71345	0.0399855	0.22197881	2.7014382	20	1 1.0	20.9
413542 2005 SM ₁₅₉	16.9	X	77.87792	129.23256	235.99081	6.69154	0.1591915	0.21548971	2.7554023	20	—	—
413543 2005 SQ ₁₆₁	16.7	X	219.73176	247.68009	5.32819	14.77660	0.1599828	0.22414025	2.6840431	20	—	—
413544 2005 SM ₁₇₄	17.1	X	95.35853	103.97111	311.62578	5.11426	0.0640857	0.22656889	2.6648281	20	1 31.4	20.6
413545 2005 SL ₁₇₆	16.8	X	189.63893	290.38092	359.79590	12.76505	0.1154787	0.22370306	2.6875389	20	—	—
413546 2005 SC ₁₇₈	17.1	X	64.45072	70.18962	343.32087	6.02454	0.0973360	0.21990643	2.7183838	20	—	—
413547 2005 SS ₁₇₈	16.8	X	71.70427	210.64985	196.29113	12.85273	0.1526178	0.22023321	2.7156941	20	—	—
413548 2005 SJ ₁₈₀	17.5	X	125.90077	329.77488	7.40889	5.97492	0.0591480	0.22121331	2.7076668	20	—	—
413549 2005 SJ ₁₈₂	17.3	X	88.12039	165.16009	211.61565	6.93452	0.0815536	0.21778090	2.7360426	20	—	—
413550 2005 SG ₁₈₉	16.7	X	335.31329	118.25274	24.74214	8.60340	0.0942034	0.21801746	2.7340631	20	—	—
413551 2005 SZ ₂₀₈	17.1	X	345.24265	156.83479	3.33377	2.62095	0.1517203	0.22367488	2.6877647	20	—	—
413552 2005 SZ ₂₁₈	16.7	X	56.22251	351.74247	39.60518	10.33616	0.2892651	0.21185386	2.7868385	20	—	—
413553 2005 SR ₂₂₁	15.9	X	124.79965	64.50076	289.23830	13.27908	0.1215203	0.21952806	2.7215064	20	—	—
413554 2005 SY ₂₃₂	17.0	X	84.79708	353.89670	33.52549	5.90507	0.0731398	0.21679889	2.7442985	20	—	—
413555 2005 SO ₂₃₆	16.9	X	162.39857	103.81541	229.39514	5.05202	0.0319789	0.22255385	2.6967828	20	1 6.5	20.7
413556 2005 SZ ₂₄₇	17.2	X	100.46025	154.41116	210.39605	5.65720	0.0902428	0.21808333	2.7335126	20	—	—
413557 2005 SJ ₂₅₅	17.1	X	138.57921	93.86175	280.80425	2.00178	0.1574109	0.22960774	2.6412633	20	2 12.5	20.9
413558 2005 ST ₂₆₆	17.1	X	91.54758	164.12772	244.34835	2.75052	0.1003275	0.22532185	2.6746514	20	1 21.7	20.6
413559 2005 SN ₂₇₁	16.6	X	130.42748	332.48922	13.45897	5.40013	0.0816099	0.22107574	2.7087899	20	—	—
413560 2005 ST ₂₈₄	17.2	X	153.40874	310.21759	105.14501	7.04309	0.2021397	0.23500413	2.6006728	20	4 23.6	21.5
413561 2005 SB ₂₉₀	16.7	X	47.79349	232.24068	199.26290	8.82321	0.1361686	0.21917211	2.7245522	20	—	—
413562 2005 TU ₃₆	16.5	X	159.47749	332.07188	329.71734	12.50307	0.3059717	0.22438262	2.6821099	20	—	—
413563 2005 TG ₄₅	17.6	X	229.36967	230.41936	273.43558	23.33621	0.3722076	1.75223882	0.6814079	20	—	—
413564 2005 TW ₅₃	17.0	X	99.71813	330.47765	41.91085	5.41767	0.1769927	0.22119021	2.7078553	20	—	—
413565 2005 TY ₅₅	16.7	X	83.66703	244.07505	156.41853	5.42296	0.1630796	0.22098457	2.7095349	20	1 10.1	20.0
413566 2005 TH ₈₆	17.3	X	76.13206	149.81175	278.37003	1.16137	0.0609907	0.22305534	2.6927393	20	1 21.3	20.8
413567 2005 TY ₉₁	16.0	X	54.87961	91.71720	357.75806	21.22643	0.1303098	0.22426026	2.6830854	20	2 2.8	19.4
413568 2005 TC ₁₀₃	16.9	X	174.90556	263.81038	112.10196	6.72150	0.3244102	0.23375323	2.6099427	20	3 28.2	21.8
413569 2005 TA ₁₁₉	17.1	X	93.84502	46.90540	1.57073	3.07648	0.1446283	0.22372716	2.6873459	20	2 2.4	20.4
413570 2005 TD ₁₂₂	17.2	X	76.19220	30.20868	34.07094	3.22850	0.0996703	0.22319516	2.6916146	20	1 22.2	20.4
413571 2005 TF ₁₂₆	17.0	X	127.78560	166.03283	204.60207	5.43896	0.0233947	0.22322750	2.6913546	20	1 9.6	20.8
413572 2005 TO ₁₃₉	16.9	X	78.10108	340.50423	69.81945	3.50477	0.0663610	0.22140890	2.7060719	20	1 2.3	20.2
413573 2005 TT ₁₅₇	16.5	X	46.81672	246.81309	210.92833	10.21204	0.1316115	0.22226719	2.6991011	20	1 19.1	19.7
413574 2005 TX ₁₅₉	17.0	X	187.78028	49.89122	247.48597	4.21483	0.1576705	0.22403252	2.6849034	20	—	—
413575 2005 TQ ₁₇₈	16.7	X	115.81137	162.60436	215.99831	13.24322	0.1716653	0.22582264	2.6706956	20	1 22.4	20.7
413576 2005 UZ ₂	16.5	X	107.42344	92.89334	290.33957	7.82368	0.1012755	0.22606876	2.6687569	20	1 11.5	20.1
413577 2005 UL ₅	20.3	X	296.92562	127.74606	58.90923	14.31760	0.5697145	1.08791316	0.9362818	20	—	—
413578 2005 UM ₆	18.7	X	302.08212	325.77690	256.89652	5.62107	0.0786177	0.42812416	1.7435038	20	—	—
413579 2005 UB ₁₄	17.3	X	6.57534	267.11371	192.22705	7.72831	0.0699745	0.21591685	2.7517672	20	—	—
413580 2005 UV ₂₁	16.4	X	192.33101	260.16253	16.54741	6.34992	0.0411570	0.21694260	2.7430864	20	—	—
413581 2005 UX ₄₃	16.9	X	60.19977	185.70435	232.56613	5.22417	0.2067050	0.21772072	2.7365467	20	—	—
413582 2005 UY ₄₄	17.0	X	59.73087	226.53728	183.83949	6.00262	0.0354437	0.21525435	2.7574105	20	—	—
413583 2005 UN ₄₉	16.9	X	99.52491	16.27010	355.29696	7.90733	0.1841865	0.21815419	2.7329205	20	—	—
413584 2005 UG ₆₀	16.0	X	42.18211	184.76622	235.75551	12.90576	0.1510693	0.21278541	2.7786989	20	—	—
413585 2005 UT ₆₁	17.1	X	175.05141	219.50427	60.33510	3.13348	0.0221022	0.21137244	2.7910684	20	—	—
413586 2005 UF ₇₀	16.0	X	159.06747	26.60669	289.28115	11.24746	0.1583163	0.22197700	2.7014529	20	—	—
413587 2005 UO ₈₃	17.1	X	123.68745	286.95291	39.22097	4.26406	0.0950205	0.21449681	2.7638989	20	—	—
413588 2005 UP ₈₃	17.0	X	174.64178	91.82910	213.79747	8.00687	0.1644309	0.22178815	2.7029862	20	—	—
413589 2005 UE ₈₇	16.9	X	2.66796	81.52378	58.00699	4.87876	0.0697602	0.22115078	2.7081771	20	1 7.5	20.2
413590 2005 UF ₉₈	16.7	X	49.37182	299.84097	83.05521	5.31385	0.1139523	0.20864817	2.8153106	20	—	—
413591 2005 UX ₁₀₄	16.5	X	134.63930	110.92265	198.62590	6.04710	0.0226451	0.20935475	2.8089726	20	—	—
413592 2005 UO ₁₀₈	17.1	X	104.04543	275.31979	52.75532	14.05889	0.3239540	0.21579661	2.7527893	20	—	—
413593 2005 US ₁₀₉	16.4	X	114.61842	277.35674	40.43132	13.26083	0.2085130	0.21022181	2.8012436	20	—	—
413594 2005 UO ₁₁₁	17.0	X	127.37748	90.77040	247.52037	8.36730	0.2258662	0.21666195	2.7454547	20	—	—
413595 2005 UH ₁₁₃	17.0	X	59.54098	152.04489	254.53653	3.13512	0.0675938	0.21281530	2.778			

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>			
413601	2005	UW ₁₇₁	16.7	X	74.74441	326.14612	50.13286	6.87375	0.0740198	0.21163113	2.7887935	20	—	—	
413602	2005	UZ ₁₇₁	17.1	X	19.51995	53.68333	53.77652	2.90414	0.0371281	0.21688174	2.7435996	20	—	—	
413603	2005	UU ₁₈₄	17.1	X	128.81661	299.22393	61.63169	6.91317	0.0542096	0.21810696	2.7333151	20	1	5.2	20.8
413604	2005	UM ₁₉₅	17.2	X	35.48736	31.53198	68.06178	4.98099	0.0889751	0.21782034	2.7357124	20	1	5.2	20.3
413605	2005	UB ₂₀₃	16.8	X	238.73330	148.38821	63.69244	5.35815	0.0151248	0.21108256	2.7936231	20	—	—	
413606	2005	UG ₂₀₄	17.3	X	53.03997	337.31707	62.26006	3.49313	0.0566311	0.21143095	2.7905535	20	—	—	
413607	2005	UK ₂₁₂	16.9	X	107.35032	276.48046	62.30605	6.92999	0.0742341	0.21089435	2.7952850	20	—	—	
413608	2005	UB ₂₂₂	16.9	X	276.36216	305.31759	277.83987	2.77823	0.0411677	0.22161674	2.7043797	20	1	3.7	20.5
413609	2005	UP ₂₂₅	17.2	X	5.05228	120.60881	350.86158	3.62038	0.0562590	0.21642999	2.7474160	20	—	—	
413610	2005	UH ₂₂₈	16.9	X	58.13450	222.89404	191.87250	3.46792	0.0899619	0.21508764	2.7588351	20	—	—	
413611	2005	UJ ₂₃₃	17.1	X	318.18969	310.61823	209.64493	12.84711	0.1454274	0.21301026	2.7767431	20	—	—	
413612	2005	UV ₂₃₃	16.7	X	139.78186	153.00172	178.76021	5.05503	0.1688797	0.21802872	2.7339690	20	—	—	
413613	2005	UR ₂₅₇	17.1	X	37.96139	228.82301	191.85981	3.53660	0.0890230	0.21305237	2.7763772	20	—	—	
413614	2005	UQ ₂₆₁	15.8	X	68.85909	174.48152	236.32864	15.79331	0.0543054	0.21374251	2.7703977	20	—	—	
413615	2005	UD ₂₆₂	17.1	X	133.20753	172.12432	161.25001	2.36335	0.0892837	0.21761737	2.7374131	20	—	—	
413616	2005	UE ₂₆₂	16.9	X	96.51083	325.79763	44.98545	5.67902	0.0603408	0.21860061	2.7291986	20	—	—	
413617	2005	UU ₂₇₅	16.9	X	84.60985	357.65193	30.00973	6.33644	0.0509658	0.21823603	2.7322373	20	—	—	
413618	2005	UO ₂₈₂	17.2	X	66.36398	303.31979	100.71595	3.02048	0.0654015	0.21652266	2.7466320	20	—	—	
413619	2005	UY ₂₈₈	17.3	X	265.90102	200.41098	11.27276	6.15537	0.1139429	0.21509866	2.7587409	20	—	—	
413620	2005	US ₂₉₃	16.8	X	324.67714	230.80288	273.18504	3.48747	0.0115255	0.21398445	2.7683091	20	—	—	
413621	2005	UE ₂₉₆	17.1	X	23.94639	54.60799	48.19444	8.33456	0.1870162	0.21447565	2.7640807	20	—	—	
413622	2005	UG ₃₀₇	17.0	X	345.15688	287.44421	233.64493	6.47367	0.1655164	0.21741493	2.7391121	20	—	—	
413623	2005	UM ₃₁₀	17.1	X	107.66732	188.62216	185.03304	6.07926	0.0808686	0.22124535	2.7074053	20	—	—	
413624	2005	UB ₃₁₄	16.6	X	82.31057	192.92757	186.20326	13.33367	0.1539434	0.21605642	2.7505820	20	—	—	
413625	2005	UP ₃₁₅	17.0	X	129.10572	291.66311	65.40410	6.89129	0.0412686	0.21843807	2.7305523	20	—	—	
413626	2005	UQ ₃₂₃	16.5	X	63.15203	23.93555	59.62764	6.07798	0.0525090	0.22075464	2.7114160	20	1	24.1	19.9
413627	2005	UK ₃₅₀	17.1	X	78.85107	80.09637	268.43812	3.71863	0.1689633	0.21143974	2.7904760	20	—	—	
413628	2005	UV ₃₅₃	15.9	X	115.40052	114.69867	250.28000	12.51933	0.1918514	0.21925547	2.7237616	20	1	10.4	19.9
413629	2005	UR ₃₆₇	16.6	X	56.39735	31.69970	56.61996	13.38537	0.1640655	0.21956995	2.7211602	20	2	3.7	19.8
413630	2005	UK ₃₇₄	17.0	X	211.95893	343.83422	248.90475	3.27381	0.0166742	0.20831122	2.8183458	20	—	—	
413631	2005	UE ₃₇₉	16.6	X	227.22927	20.10128	209.29198	13.26584	0.1341223	0.21468220	2.7623075	20	—	—	
413632	2005	UA ₃₈₃	17.2	X	141.70300	147.17260	168.88428	3.54061	0.1889636	0.21654959	2.7464043	20	—	—	
413633	2005	UC ₃₈₈	16.5	X	62.27545	7.27634	53.08405	6.44745	0.0689606	0.21842677	2.7306464	20	—	—	
413634	2005	UQ ₃₉₁	17.3	X	235.70772	22.65507	150.46203	2.51904	0.0137864	0.20508386	2.8478365	20	12	20.8	21.2
413635	2005	UO ₄₁₆	17.4	X	155.02099	241.83218	76.71642	5.52190	0.0403528	0.21714289	2.7413994	20	—	—	
413636	2005	UL ₄₁₇	16.8	X	147.23839	158.15021	194.27527	5.77400	0.0880803	0.22251337	2.6971099	20	1	18.3	20.8
413637	2005	UL ₄₂₄	17.3	X	82.43121	116.94221	237.39361	1.55751	0.1112342	0.21156792	2.7893489	20	—	—	
413638	2005	UH ₄₃₉	16.4	X	121.33686	83.20854	334.90955	11.72831	0.2602181	0.22958628	2.6414279	20	3	26.9	20.7
413639	2005	UR ₄₄₂	16.9	X	66.10905	345.71282	64.83282	4.25534	0.0933471	0.21739196	2.7393051	20	—	—	
413640	2005	UV ₄₄₂	16.9	X	25.36561	203.60681	229.47814	3.32833	0.1811548	0.21226986	2.7831963	20	—	—	
413641	2005	UO ₄₇₅	16.6	X	43.59149	29.88765	28.01023	14.46286	0.1144535	0.21324288	2.7747234	20	—	—	
413642	2005	UC ₄₈₃	16.9	X	87.94425	342.68862	61.60240	6.10773	0.1579048	0.22091747	2.7100835	20	1	22.6	20.2
413643	2005	UX ₄₉₁	16.7	X	130.98228	289.50639	70.81534	16.79960	0.1978347	0.22229524	2.6988739	20	1	27.0	21.0
413644	2005	UC ₄₉₈	16.3	X	169.24931	200.60787	128.15623	11.25297	0.1753034	0.22440074	2.6819656	20	1	20.2	20.7
413645	2005	UV ₅₁₉	18.0	X	145.42958	106.66832	175.75080	3.32360	0.2573549	0.21820883	2.7324643	20	—	—	
413646	2005	VR ₄	16.6	X	136.31807	105.57210	238.10757	10.15131	0.1194099	0.22037786	2.7145056	20	—	—	
413647	2005	VS ₇	16.2	X	37.40305	24.70448	211.01383	12.29101	0.0978977	0.21698552	2.7427247	20	—	—	
413648	2005	VZ ₇	16.9	X	106.98998	326.37175	44.90561	6.74967	0.0669809	0.21815894	2.7328809	20	—	—	
413649	2005	VU ₁₂	16.8	X	25.64663	186.07501	258.65996	3.08422	0.0755583	0.21453116	2.7636039	20	—	—	
413650	2005	VF ₁₄	16.7	X	161.22991	232.07762	61.33725	7.79613	0.0879902	0.21251962	2.7810152	20	—	—	
413651	2005	VA ₁₉	17.9	X	85.55273	48.36694	23.91783	1.49073	0.1332449	0.22386078	2.6862765	20	2	19.6	21.3
413652	2005	VW ₁₉	16.9	X	128.67718	148.59664	204.90321	5.97114	0.1380260	0.21978179	2.7194113	20	1	5.7	20.8
413653	2005	VP ₂₂	17.1	X	142.70235	259.96046	53.79469	9.72097	0.2459687	0.21818613	2.7326539	20	—	—	
413654	2005	VB ₃₅	16.6	X	354.25838	169.57230	347.76637	3.01571	0.1934949	0.22085864	2.7105648	20	1	3.6	19.4
413655	2005	VP ₃₅	16.8	X	340.50689	283.87303	229.15752	12.22554	0.1539244	0.21810282	2.7333496	20	—	—	
413656	2005	VU ₅₃	16.7	X	113.80720	343.96549	1.43979	6.33358	0.0646176	0.21534274	2.7566559	20	—	—	
413657	2005	VW ₅₇	16.7	X	80.73213	307.71663	77.05487	13.33473	0.1250419	0.21270337	2.7794133	20	—	—	
413658	2005	VW ₅₈	16.5	X	107.26157	101.25213	265.39004	5.16645	0.0706733	0.21733658	2.7397704	20	—	—	
413659	2005	VL ₆₁	16.9	X	14.76750	279.59206	175.03396	7.02245	0.2809114	0.21065351	2.7974151	20	—	—	
413660	2005	VO ₇₄	16.4	X	55.83221	212.42580	228.79412	14.12434	0.1591832	0.21587325	2.7521377	20	1	15.3	19.7
413661	2005	VQ ₇₄	17.1	X	9.92978	25.62924	83.97493	6.89081	0.1242616	0.21194364	2.7860514	20	—	—	
413662	2005	VL ₇₆	16.3	X	167.99962	107.48816	264.28485	14.54024	0.2384815	0.23403347	2.6078587	20	3	5.1	21.1
413663	2005	VP ₉₂	17.3	X	113.08781	122.76253	203.92688	4.53447	0.0574887	0.21017721	2.8016398	20	—	—	
413664	2005	VA ₉₉	17.0	X	322.62679	358.55345	179.92696	4.99393	0.0513299	0.22083347	2.7107707	20	1	3.5	20.6
413665	2005	VD ₉₉	16.8	X	70.17177	285.79889	112.31205	3.46120	0.0765570	0.21555176	2.7548735	20	—	—	
413666	2005	VJ ₁₁₉	10.7	X	19.43568	246.27751	301.50229	6.94349	0.6804737	0.00466740	35.4611523	20	7	2.4	23.6
413667	2005	VK ₁₂₇	17.7	X	51.63790	274.38902	153.03303	3.81004	0.1842477	0.21877600	2.7277398	20	—	—	
413668	2005	VG ₁₂₈	17.0	X	108.35037	302.89712	80.37901	3.04383	0.0997618	0.22338286	2.6901066	20	1	13.3	20.4
413669	2005	WK ₁₉	16.7	X	9.28994	357.93841	135.17861	10.01798	0.2494928	0.21338280	2.7735103	20	—	—	
413670	2005	WS ₂₁	16.5	X	203.71790	356.62586	281.39852	3.25072	0.0391276	0.21465879	2.7625083	20	—	—	
413671	2005	WN ₃₁	17.3	X	9.28715	172.31798	293.34739	3.01211	0.0						

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
413681 2005 WC ₁₃₆	17.1	X	0.87739	9.72238	67.09480	2.99194	0.0511020	0.20501947	2.8484328	20	—	—
413682 2005 WM ₁₅₂	16.7	X	75.76631	302.53627	62.81321	12.25140	0.1755599	0.20881601	2.8138019	20	—	—
413683 2005 WR ₁₇₀	17.0	X	70.15756	308.20372	80.85509	12.22871	0.2497292	0.21180630	2.7872556	20	—	—
413684 2005 WL ₁₇₃	17.5	X	88.34877	315.14210	88.15108	4.54495	0.1969674	0.21738762	2.7393415	20	1 27.9	20.8
413685 2005 WL ₂₁₁	17.1	X	69.31457	335.55384	74.72423	5.09214	0.0997896	0.21299633	2.7768642	20	—	—
413686 2005 XR ₂₃	17.0	X	13.42799	60.09614	56.73595	15.57491	0.2504627	0.21163824	2.7887309	20	—	—
413687 2005 XR ₃₄	17.2	X	78.49317	262.48661	143.18619	0.43242	0.0781644	0.21287033	2.7779598	20	—	—
413688 2005 XF ₄₃	17.1	X	320.44558	129.13367	40.06780	4.03928	0.0391124	0.21389333	2.7690952	20	—	—
413689 2005 XB ₅₂	16.5	X	43.88195	31.07158	72.07583	9.97736	0.1798748	0.21419830	2.7664662	20	2 1.3	19.4
413690 2005 XS ₅₈	17.1	X	62.09066	169.03623	264.43432	3.16631	0.0322023	0.21587075	2.7521590	20	1 7.2	20.7
413691 2005 XP ₆₃	17.2	X	40.84193	3.61211	6.91225	1.70572	0.0822470	0.20032809	2.8927316	20	—	—
413692 2005 XX ₆₄	16.4	X	89.19189	193.63154	218.12941	8.25586	0.1369086	0.21728463	2.7402071	20	1 27.4	20.0
413693 2005 XX ₈₃	16.8	X	87.77198	214.85788	222.44632	11.03623	0.3303681	0.21827873	2.7318809	20	3 27.4	20.7
413694 2005 XA ₁₁₁	16.8	X	8.84055	290.94141	142.60381	6.90657	0.2240019	0.19563233	2.9388379	20	—	—
413695 2005 YH ₂	17.2	X	102.38613	19.48579	357.25670	1.98796	0.1086293	0.21522841	2.7576321	20	—	—
413696 2005 YP ₂	17.2	X	27.68621	26.28681	62.05981	5.75930	0.1306642	0.21219679	2.7838351	20	—	—
413697 2005 YA ₁₄	17.2	X	60.71069	132.80878	292.06514	1.81229	0.2099508	0.21067729	2.7972046	20	1 13.3	19.8
413698 2005 YS ₂₃	16.8	X	94.75685	1.83479	105.57358	16.01126	0.1397183	0.22338941	2.6900540	20	4 26.6	20.8
413699 2005 YW ₂₃	16.9	X	33.65266	308.02007	107.43130	3.20257	0.0419307	0.20232215	2.8736934	20	—	—
413700 2005 YH ₃₂	16.5	X	120.93221	286.54123	309.46985	8.99981	0.1090904	0.17978163	3.1091321	20	10 17.9	21.6
413701 2005 YR ₃₄	16.1	X	194.73110	291.97719	270.49003	5.70762	0.2125892	0.18563185	3.0434608	20	11 15.3	21.2
413702 2005 YQ ₄₄	16.6	X	23.94379	324.66719	117.17682	8.60993	0.1135272	0.20602528	2.8391546	20	—	—
413703 2005 YY ₅₉	17.3	X	54.06671	37.91244	42.65489	7.36165	0.2833428	0.21903435	2.7259444	20	2 1.8	19.7
413704 2005 YK ₆₈	16.7	X	276.48045	226.84451	302.67188	6.41470	0.1626710	0.19837998	2.9116387	20	—	—
413705 2005 YW ₇₅	16.5	X	92.69669	251.72618	86.13987	8.44095	0.0382169	0.19970074	2.8987867	20	—	—
413706 2005 YK ₈₅	16.9	X	43.00078	295.44196	98.33684	7.25666	0.1220212	0.20157426	2.8807971	20	—	—
413707 2005 YU ₁₄₃	16.8	X	111.22596	313.46120	104.55393	4.57154	0.1901642	0.21807419	2.7335889	20	3 15.6	20.7
413708 2005 YV ₁₆₂	17.3	X	53.57407	216.69825	225.51547	2.22351	0.1708732	0.21263837	2.7799797	20	1 18.0	20.2
413709 2005 YW ₁₆₅	16.3	X	41.66708	327.93939	76.67388	7.33945	0.0656897	0.20309186	2.8664280	20	—	—
413710 2005 YA ₁₆₉	17.1	X	11.29828	63.94639	55.68815	4.59962	0.0506627	0.21039448	2.7997107	20	—	—
413711 2005 YG ₁₉₂	18.2	X	242.40754	325.49534	302.38496	19.19096	0.0621464	0.41590227	1.7774956	20	—	—
413712 2005 YM ₂₃₇	14.2	X	203.26080	155.96524	203.88540	2.75460	0.0063835	0.08489340	5.1272767	20	4 7.9	21.1
413713 2005 YX ₂₃₇	16.7	X	65.87535	96.70895	286.13381	13.55915	0.1621533	0.20312096	2.8661542	20	—	—
413714 2005 YC ₂₈₂	16.5	X	150.76659	91.35083	270.77497	11.33709	0.2943640	0.22362078	2.6881981	20	2 16.3	21.3
413715 2006 AB ₁₈	18.3	X	143.77155	32.78467	126.27422	3.19190	0.0986544	0.30842589	2.1695459	20	8 24.4	21.1
413716 2006 AO ₅₁	16.2	X	73.57669	254.88277	116.25831	11.27274	0.1307445	0.20264265	2.8706625	20	—	—
413717 2006 AV ₁₀₀	17.2	X	285.72004	165.95900	345.21673	1.69336	0.1142320	0.19519388	2.9435840	20	—	—
413718 2006 AH ₁₀₄	17.5	X	38.95201	263.13377	173.68730	1.48274	0.1157248	0.20537478	2.8451465	20	—	—
413719 2006 BF ₂₆	16.7	X	70.24037	325.49808	153.09381	10.02825	0.1919118	0.21786063	2.7353750	20	4 11.2	20.1
413720 2006 BH ₃₆	16.6	X	117.22241	209.95221	109.09201	13.12029	0.0758429	0.19902969	2.9052988	20	—	—
413721 2006 BF ₆₇	16.2	X	71.71636	202.31407	122.10040	11.60335	0.1025629	0.18821362	3.0155650	20	12 16.9	20.8
413722 2006 BO ₇₀	16.1	X	123.25865	259.68990	349.23698	9.01322	0.0926973	0.18047829	3.1011259	20	11 4.7	21.0
413723 2006 BK ₇₄	17.0	X	358.58823	87.13511	344.23486	7.64271	0.0652352	0.19489332	2.9462623	20	—	—
413724 2006 BY ₈₀	16.1	X	240.92699	169.28457	353.43263	10.48473	0.0859472	0.18491247	3.0513492	20	11 27.0	20.5
413725 2006 BV ₁₀₈	16.6	X	112.23231	299.79125	100.74843	3.92440	0.2262519	0.21495535	2.7599669	20	2 28.4	20.6
413726 2006 BF ₁₁₃	17.0	X	63.77396	307.82810	93.90769	1.28692	0.1331162	0.20330862	2.8643903	20	—	—
413727 2006 BK ₁₁₇	16.8	X	191.91151	251.95937	312.24642	3.55353	0.0699203	0.18346007	3.0674324	20	11 24.9	21.5
413728 2006 BD ₁₂₁	16.5	X	320.89890	285.67973	162.96995	10.68947	0.0707123	0.18915583	3.0055427	20	12 19.9	20.5
413729 2006 BX ₁₂₇	17.8	X	345.54141	313.84808	288.31386	2.59174	0.1809229	0.28655643	2.2785712	20	4 8.8	19.7
413730 2006 BD ₁₃₉	16.5	X	228.02910	215.92530	327.14524	7.97504	0.0760757	0.18555110	3.0443438	20	12 9.7	20.9
413731 2006 BF ₁₅₅	18.0	X	276.98585	294.55228	112.99181	4.18775	0.0969355	0.31100292	2.1575444	20	9 11.3	20.0
413732 2006 BX ₁₆₂	16.6	X	341.42985	139.42998	316.99299	11.21965	0.1000734	0.19625535	2.9326150	20	—	—
413733 2006 BM ₁₇₅	16.4	X	55.12465	337.19592	1.92006	9.12586	0.0954615	0.18711945	3.0273090	20	12 12.8	20.9
413734 2006 BY ₁₈₀	17.1	X	358.87410	551.52667	133.28037	9.06122	0.1562872	0.20392024	2.8586599	20	—	—
413735 2006 BO ₂₀₅	18.1	X	335.94414	129.77187	142.89214	4.04450	0.1298645	0.29566914	2.2315094	20	5 18.6	20.0
413736 2006 BT ₂₀₈	17.1	X	0.28947	207.47554	238.99645	1.22014	0.0597257	0.19870567	2.9084563	20	—	—
413737 2006 BL ₂₁₆	16.4	X	88.12037	355.09714	101.75721	13.44197	0.1779827	0.21899749	2.7259002	20	4 9.5	20.3
413738 2006 BU ₂₂₉	17.6	X	18.46567	16.18555	59.31637	3.17873	0.2502792	0.20350217	2.8625737	20	—	—
413739 2006 BO ₂₃₂	15.9	X	269.72899	184.03024	332.82934	13.84545	0.0522072	0.19302147	2.9652795	20	—	—
413740 2006 BG ₂₃₆	16.1	X	190.20169	221.50126	1.45088	8.13639	0.0182550	0.18959140	3.0009376	20	12 22.2	20.5
413741 2006 BN ₂₄₃	17.6	X	43.41728	242.77185	347.22278	6.42829	0.1435047	0.29733662	2.2231586	20	7 31.7	19.8
413742 2006 BZ ₂₄₇	17.4	X	320.18326	338.87009	339.64653	6.95205	0.1776862	0.29982077	2.2108617	20	6 24.3	19.2
413743 2006 BK ₂₅₀	16.0	X	291.08932	162.08870	330.29599	8.35776	0.1488600	0.19134387	2.9825862	20	12 25.7	19.6
413744 2006 BP ₂₆₄	17.4	X	284.90490	21.42426	344.72561	5.97238	0.0579642	0.30182137	2.2010812	20	7 26.0	19.7
413745 2006 BS ₂₇₀	16.5	X	36.31972	234.41403	301.26523	8.88879	0.2040071	0.21594505	2.7515277	20	4 25.6	19.5
413746 2006 BE ₂₇₉	17.1	X	303.96384	154.09673	340.61313	4.78954	0.0762095	0.19196813	2.9761167	20	—	—
413747 2006 CP ₅	16.5	X	11.67639	106.65230	271.72618	7.92116	0.1328876	0.18982733	2.9984505	20	12 11.6	20.2
413748 2006 CS ₁₄	16.5	X	66.45267	292.91735	141.87935	7.89587	0.2387205	0.21177487	2.7875314	20	2 10.5	19.5
413749 2006 CN ₂₄	15.9	X	116.12539	326.89098	316.20537	9.97837	0.0643732	0.18776613	3.0203542	20	12 10.2	20.5
413750 2006 CS ₃₄	16.9	X	334.46870	301.66113	157.39818	5.45230	0.1586074	0.19700700	2.9251509	20	—	—
413751 2006 CT ₄₁	15.9	X	18.79418	66.10957	327.58884	9.33751	0.1246327	0.18804417	3.0173763	20	—	—
413752 2006 DB ₁₄	16.2	X	241.76361	177.72307	15.71752	9.42267	0.0925245	0.18933388	3.0036580	20	—	—
413753 2006 DT ₂₃	16.2	X	164.09861	69.74407	152.13812	11.14288	0.0696474	0.17962558	3.1109325	20	11 19.7	21.1
413754 2006 DK ₂₆	18.5	X	82.83835	41.26310	162.18448	2.55757	0.0841661	0.30031224	2.2084489	20	8 8.2	21.2
413755 2006 DS _{30</}												

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
413761 2006 DL ₁₅₆	16.6	X	186.78709	94.48511	132.25015	3.45219	0.0710888	0.18420224	3.0591876	20	12 17.0	21.1
413762 2006 DK ₁₆₆	16.4	X	71.82535	318.35737	9.46662	9.86395	0.0685955	0.18129410	3.0918158	20	12 13.6	21.0
413763 2006 DX ₁₈₃	17.6	X	58.07167	118.71783	115.05214	3.30246	0.1026603	0.29724339	2.2236234	20	8 21.7	19.9
413764 2006 DT ₁₉₅	16.0	X	280.49710	157.65448	358.69805	13.33362	0.1032330	0.19212844	2.9744610	20	—	—
413765 2006 DN ₂₀₅	16.8	X	293.74059	120.39415	339.77393	9.79225	0.0447440	0.18478125	3.0527936	20	11 23.6	21.1
413766 2006 DD ₂₁₅	16.6	X	325.47414	85.93812	357.49032	9.50449	0.0920046	0.18612443	3.0380887	20	12 18.6	20.5
413767 2006 EY ₂	18.2	X	221.17071	332.66496	102.47425	1.91469	0.1280006	0.30527443	2.1844516	20	7 24.4	21.0
413768 2006 EL ₁₅	18.6	X	199.03702	303.69311	162.77690	4.36445	0.0881246	0.30358924	2.1925279	20	8 14.3	21.4
413769 2006 EV ₄₀	16.7	X	311.84929	76.81203	43.75346	2.41464	0.0319613	0.18777236	3.0202874	20	—	—
413770 2006 FA ₂₀	17.6	X	114.18433	139.34922	26.10808	7.37218	0.0468179	0.29305338	2.2447685	20	7 23.7	20.5
413771 2006 FW ₂₇	16.2	X	331.28539	231.35707	199.84560	10.72784	0.0774156	0.17803185	3.1294708	20	12 10.1	20.3
413772 2006 EY ₂₉	17.6	X	68.42066	163.53768	34.50358	4.03975	0.1032961	0.29020468	2.2594346	20	7 13.9	20.1
413773 2006 GU ₃₃	15.9	X	38.85826	349.19743	12.58627	10.43804	0.0940609	0.17959718	3.1112605	20	12 18.9	20.3
413774 2006 GM ₄₆	17.6	X	36.07360	11.09709	202.50731	11.30274	0.1677060	0.28580497	2.2825635	20	6 21.8	19.9
413775 2006 GF ₅₁	15.6	X	267.88584	19.19585	136.19628	20.27406	0.2246700	0.18447701	3.0561492	20	12 9.4	19.8
413776 2006 GS ₅₄	16.4	X	278.77258	69.24432	46.07318	9.52101	0.0433503	0.17614436	3.1517872	20	11 22.5	20.7
413777 2006 HU ₅	17.5	X	29.13871	182.85764	53.95241	3.41213	0.1746245	0.28736620	2.2742887	20	7 19.2	19.5
413778 2006 HZ ₆	15.2	X	196.67287	158.69556	76.27306	20.58413	0.1763570	0.18087908	3.0965433	20	12 25.7	20.3
413779 2006 HR ₁₅	16.0	X	343.40321	40.98432	57.67001	7.02413	0.0729631	0.18560992	3.0437006	20	—	—
413780 2006 HS ₂₅	17.2	X	256.38256	315.26382	63.13552	7.41128	0.1203507	0.28747309	2.2737249	20	6 17.3	20.1
413781 2006 HY ₂₇	17.4	X	149.96572	346.22192	110.24934	7.44024	0.0649338	0.28436130	2.2902825	20	6 1.5	20.4
413782 2006 HG ₂₈	15.8	X	179.31907	69.86691	158.52989	16.03242	0.0397690	0.17264297	3.1942589	20	12 12.5	20.8
413783 2006 HX ₃₂	15.7	X	159.52063	38.17730	216.00920	8.63124	0.1372853	0.17568171	3.1573181	20	12 17.1	20.8
413784 2006 HA ₄₅	16.0	X	171.42799	36.48003	192.64107	15.77945	0.1398519	0.17735794	3.1373932	20	11 30.6	21.2
413785 2006 HE ₄₆	15.7	X	350.51658	62.58070	113.82323	14.04913	0.1192055	0.20408620	2.8571100	20	2 5.5	19.1
413786 2006 HA ₅₃	15.5	X	227.15281	130.37331	75.10449	10.28973	0.0974823	0.18282871	3.0744902	20	—	—
413787 2006 HH ₆₈	18.0	X	310.67623	239.91212	31.66403	4.01961	0.1586619	0.27694787	2.3309737	20	3 27.9	20.6
413788 2006 HE ₇₂	17.3	X	146.70345	63.87647	92.62524	6.92902	0.1241329	0.29733094	2.2231869	20	8 25.7	20.5
413789 2006 HP ₈₇	16.2	X	278.76577	111.47017	25.75404	8.63158	0.0425011	0.18251152	3.0780514	20	12 21.2	20.5
413790 2006 HZ ₈₇	16.3	X	92.84927	275.31249	20.63943	9.45300	0.0692008	0.17474502	3.1685910	20	11 26.9	21.2
413791 2006 HK ₈₈	16.4	X	328.78904	86.52854	18.64080	11.72027	0.0873104	0.18691137	3.0295555	20	—	—
413792 2006 HU ₁₀₁	17.4	X	326.52583	164.19601	113.36314	4.28014	0.2222826	0.27947891	2.3168790	20	4 23.7	19.4
413793 2006 HU ₁₀₃	16.2	X	209.45224	42.94969	138.97442	13.71507	0.0505433	0.17115792	3.2127089	20	11 21.9	21.1
413794 2006 HS ₁₀₇	15.6	X	195.92902	160.31421	66.12484	13.70347	0.0872518	0.17855331	3.1233749	20	12 22.8	20.4
413795 2006 HB ₁₁₉	16.1	X	275.80778	287.84011	202.72725	14.92271	0.0415587	0.17642379	3.1484583	20	12 8.6	20.6
413796 2006 HH ₁₅₁	18.1	X	306.68288	182.55753	79.32076	1.22188	0.2068121	0.27593680	2.3366642	20	2 29.4	21.0
413797 2006 HG ₁₅₂	16.0	X	161.04280	33.31317	223.61741	20.91119	0.0406880	0.17619486	3.1511850	20	12 22.5	20.9
413798 2006 HQ ₁₅₃	16.0	X	348.74729	0.37019	52.68596	11.56129	0.0721227	0.17375999	3.1805547	20	12 9.7	20.2
413799 2006 JN ₁	16.1	X	107.24825	61.26406	232.96878	12.09412	0.0507857	0.17279384	3.1923994	20	12 10.2	20.8
413800 2006 JK ₃	15.6	X	184.26018	352.51534	220.28156	14.08428	0.1076603	0.17458083	3.1705773	20	11 24.2	20.6
413801 2006 JG ₁₀	17.2	X	131.68555	109.99302	43.71726	6.45487	0.1364797	0.29374611	2.2412380	20	8 5.7	20.5
413802 2006 JT ₁₂	16.6	X	283.20118	64.25970	99.16567	7.61042	0.1402804	0.18419674	3.0592485	20	—	—
413803 2006 JE ₃₁	15.7	X	280.49778	73.33879	77.39250	12.29707	0.1213291	0.18200482	3.0837616	20	12 31.5	19.6
413804 2006 JW ₃₃	16.2	X	270.72887	82.76380	55.24144	9.25358	0.1056550	0.17573171	3.1348576	20	12 2.3	20.4
413805 2006 JC ₄₄	15.4	X	81.42733	239.23961	60.25178	13.94806	0.0535027	0.16883421	3.2421200	20	11 18.0	19.9
413806 2006 JH ₄₉	17.9	X	268.27923	283.88383	60.24334	7.90991	0.1378492	0.28262910	2.2996309	20	5 13.1	20.6
413807 2006 KQ ₁₈	15.5	X	41.31335	128.98010	112.30545	11.29033	0.0523653	0.16851682	3.2461896	20	11 11.7	20.2
413808 2006 KX ₃₀	18.1	X	262.28438	269.85446	63.99355	2.46949	0.1147663	0.27852299	3.2221772	20	4 24.5	21.0
413809 2006 KF ₄₅	16.1	X	109.89800	148.67821	140.28631	16.64524	0.0581814	0.17341748	3.1847411	20	12 10.3	21.1
413810 2006 KZ ₆₈	15.7	X	203.09655	78.57531	108.94622	13.85090	0.1007481	0.17057026	3.2200839	20	11 17.1	20.8
413811 2006 KA ₇₆	15.9	X	221.69597	293.54899	243.61034	14.47393	0.2116497	0.17571858	3.1568765	20	11 8.2	20.8
413812 2006 KN ₈₇	17.4	X	118.12059	112.92815	60.75419	8.75652	0.0294674	0.29259224	2.2471264	20	8 9.6	20.3
413813 2006 KM ₁₀₀	18.2	X	173.69074	74.81220	234.99174	20.04992	0.0926193	0.39555734	1.8379333	20	—	—
413814 2006 LF ₃	16.1	X	323.68108	330.01949	136.32275	12.18141	0.0580155	0.17960395	3.1111823	20	—	—
413815 2006 PO ₈	17.6	X	222.61306	69.70047	270.59059	0.82270	0.1938143	0.26217445	2.4177375	20	3 16.1	21.5
413816 2006 PE ₁₁	17.4	X	233.47046	6.44634	321.59838	1.80495	0.2238494	0.26095170	2.4252841	20	3 9.0	21.5
413817 2006 PN ₁₆	16.5	X	186.17397	5.98503	350.92649	14.25318	0.2627551	0.25459272	2.4655022	20	3 8.6	20.9
413818 2006 QC ₇	17.6	X	199.92578	224.09046	126.68578	3.43987	0.2081778	0.25631823	2.4544247	20	3 11.7	21.8
413819 2006 QU ₁₇	17.8	X	201.23760	204.18555	168.60773	3.73168	0.1950683	0.26081484	2.4261325	20	4 8.3	21.8
413820 2006 QR ₈₉	19.5	X	53.06102	263.77970	166.37179	9.23948	0.3672974	0.37969306	1.8887781	20	—	—
413821 2006 QY ₁₀₄	17.1	X	185.37486	99.78641	332.46559	19.99079	0.3702530	0.26296942	2.4128624	20	6 4.3	22.2
413822 2006 QO ₁₃₃	17.7	X	233.05536	55.40302	257.12025	4.33293	0.2108331	0.25864100	2.4397078	20	2 18.2	21.9
413823 2006 QJ ₁₃₄	16.7	X	178.36375	99.18536	256.05561	12.42372	0.2554433	0.25218329	2.4811813	20	2 23.4	21.3
413824 2006 QH ₁₄₆	17.8	X	248.97059	305.66919	358.30539	2.10201	0.2204445	0.25965071	2.4333788	20	2 22.9	21.6
413825 2006 QN ₁₄₇	17.9	X	157.72960	259.85065	152.78094	4.68703	0.1754355	0.25556017	2.4592760	20	4 20.4	21.8
413826 2006 QR ₁₆₂	17.4	X	138.31249	121.14995	193.68912	6.99536	0.1985793	0.23826650	2.5768792	20	—	—
413827 2006 RH ₂₅	17.6	X	122.38785	214.97165	247.97472	3.81133	0.1290992	0.26223637	2.4173569	20	5 13.1	20.8
413828 2006 RS ₃₃	17.6	X	185.90548	24.76315	359.79736	1.52590	0.2238762	0.25728119	2.4482966	20	4 9.2	21.8
413829 2006 RK ₅₈	17.2	X	5.01320	216.36158	356.73602	2.31275	0.1322124	0.25916222	2.4364355	20	4 12.4	19.3
413830 2006 RV ₆₇	18.4	X	196.25841	126.75392	234.63680	1.90583	0.2060664	0.25632956	2.4543524	20	3 19.6	22.6
413831 2006 RG ₈₀	18.2	X	158.11849	34.19948	20.30849	2.93998	0.1822932	0.25491755	2.4634073	20	4 21.5	21.9
413832 2006 RR ₁₂₂	17.9	X	269.63960	282.45430	16.83449	2.40005	0.1767172	0.26116692	2.4239516	20	3 11.6	21.5
413833 2006 SJ ₂₀	18.0	X	216.41846	174.41215	172.92034	5.56465	0.0765496	0.25623036	2.4549859	20	3	

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
413841 2006 SY ₁₁₆	17.9	X	148.47949	338.08206	25.89457	5.01260	0.0886509	0.24304583	2.5429858	20	2 3.3	21.5
413842 2006 SU ₁₈₆	18.1	X	1.66052	12.70448	23.67526	24.15747	0.0924265	0.36275058	1.9471406	20	—	—
413843 2006 SF ₂₀₁	15.9	X	280.65343	149.12561	215.69794	2.34656	0.1473612	0.12405638	3.9815910	20	6 22.6	21.4
413844 2006 SA ₂₁₀	18.2	X	138.01393	312.86460	137.66385	1.07928	0.2672928	0.25431203	2.4673160	20	5 24.9	22.3
413845 2006 SN ₂₃₅	18.0	X	207.08103	180.42933	164.50380	5.25099	0.1931553	0.25699987	2.4500829	20	3 9.5	22.1
413846 2006 SB ₂₄₇	17.2	X	101.01124	78.47869	13.70067	4.99702	0.0477021	0.25333594	2.4736496	20	3 21.8	20.4
413847 2006 SQ ₃₄₃	16.9	X	307.84975	50.66199	211.31086	15.46993	0.1074721	0.25644802	2.4535966	20	3 15.9	20.1
413848 2006 ST ₃₅₄	17.9	X	267.63160	270.96513	199.56896	20.75177	0.0711778	0.35783961	1.9649150	20	12 17.9	20.1
413849 2006 SL ₃₆₁	17.4	X	137.57017	205.18270	199.51077	9.50606	0.1607642	0.24593663	2.5230193	20	3 17.7	21.2
413850 2006 SY ₃₉₂	16.6	X	242.24344	221.35728	53.84259	13.95151	0.1407402	0.23963649	2.5670486	20	1 22.2	20.8
413851 2006 SD ₃₉₉	18.2	X	179.09638	151.41861	210.61905	5.03205	0.1945059	0.25087670	2.4897887	20	3 5.4	22.3
413852 2006 SX ₃₉₉	18.3	X	171.15843	132.53276	197.45953	7.68263	0.2407404	0.24436509	2.5338250	20	1 23.3	22.7
413853 2006 SA ₄₀₇	16.0	X	300.01111	299.17842	25.81704	3.04013	0.2427452	0.12463366	3.9692869	20	5 15.9	21.3
413854 2006 TL ₃₈	18.3	X	167.72719	93.77562	239.51813	0.66425	0.2266795	0.24218055	2.5490394	20	1 25.5	22.4
413855 2006 TM ₃₈	17.6	X	152.06953	175.32783	207.44335	4.12304	0.1766131	0.24585143	2.5236021	20	3 6.3	21.5
413856 2006 TS ₄₈	17.6	X	170.93824	305.80742	40.13337	15.57964	0.1589891	0.24359042	2.5391942	20	2 15.6	21.9
413857 2006 TW ₈₀	17.2	X	184.35904	80.42439	255.15268	4.94868	0.1734450	0.24541093	2.5266211	20	2 6.6	21.4
413858 2006 TT ₁₀₄	17.8	X	27.73000	328.96489	37.46736	21.42180	0.0910064	0.36287139	1.9467084	20	—	—
413859 2006 UO ₄₀	17.9	X	30.20418	14.41636	49.49875	22.92763	0.1001901	0.37171987	1.9156913	20	—	—
413860 2006 UJ ₄₁	17.7	X	142.47189	170.47045	221.14823	11.47583	0.1824938	0.24483329	2.5305936	20	3 5.9	21.8
413861 2006 UY ₅₀	15.9	X	282.44151	26.26231	324.14210	2.00141	0.2653664	0.12559168	3.9490758	20	5 21.8	21.4
413862 2006 UY ₅₄	15.3	X	282.52825	86.22206	264.49558	6.34052	0.2848539	0.12509447	3.9595332	20	5 19.6	21.1
413863 2006 UE ₇₅	17.7	X	14.35861	69.18914	30.28048	21.10880	0.1366672	0.37837409	1.8931649	20	—	—
413864 2006 UJ ₉₉	18.1	X	178.12654	157.21747	183.13236	4.94216	0.2239874	0.24530358	2.5273582	20	2 9.8	22.5
413865 2006 UV ₁₁₃	15.9	X	285.76873	5.74501	345.98630	1.17060	0.2246508	0.12504780	3.9605182	20	6 2.0	21.3
413866 2006 UV ₁₁₅	18.2	X	341.23565	237.00975	206.09755	20.82077	0.0909418	0.36787269	1.9290242	20	—	—
413867 2006 UW ₁₂₆	17.9	X	167.30131	340.69334	0.95521	4.03819	0.0777411	0.24159320	2.5531691	20	1 25.9	21.5
413868 2006 UE ₁₄₂	17.6	X	162.79213	339.80760	8.28626	6.44940	0.1426329	0.24122994	2.5557316	20	2 3.8	21.4
413869 2006 UZ ₁₅₀	18.3	X	149.95393	128.24573	245.10054	5.35513	0.2694698	0.24561015	2.5252547	20	2 27.8	22.6
413870 2006 UN ₂₀₈	17.1	X	293.59222	269.71589	240.00337	20.88827	0.0679539	0.36929117	1.9240814	20	—	—
413871 2006 UU ₂₀₈	17.9	X	135.29992	333.84034	65.55308	2.71428	0.2075178	0.24494091	2.5298523	20	3 16.4	21.7
413872 2006 UY ₂₁₈	17.4	X	228.88044	243.61661	146.23266	3.85614	0.1545450	0.26468300	2.4024371	20	5 28.2	21.0
413873 2006 UA ₂₅₅	17.8	X	72.14830	38.36080	70.70765	1.79081	0.0931999	0.24313422	2.5423694	20	3 12.0	20.7
413874 2006 UQ ₂₆₂	17.1	X	44.87995	91.11343	49.87272	15.14795	0.1122832	0.24299410	2.5433467	20	3 22.7	20.2
413875 2006 UP ₂₆₅	16.2	X	158.93617	61.69193	240.94740	12.69607	0.0843712	0.23208345	2.6224463	20	—	—
413876 2006 UM ₂₆₉	17.7	X	68.14031	341.41732	43.31211	22.02282	0.0909194	0.37314383	1.9108146	20	—	—
413877 2006 UL ₂₇₁	17.6	X	188.04711	315.79086	39.33184	2.35041	0.1572024	0.24712070	2.5149535	20	3 6.7	21.5
413878 2006 UL ₂₈₃	17.6	X	74.70362	96.18283	32.74006	5.22588	0.2301815	0.24581026	2.5238839	20	4 28.7	20.6
413879 2006 UN ₃₃₅	17.2	X	29.05450	97.72888	46.67571	16.03145	0.2326421	0.23724837	2.5842462	20	3 6.4	19.7
413880 2006 VX ₆	17.4	X	128.00649	177.71484	234.63951	14.41013	0.2304266	0.24373012	2.5382238	20	3 21.6	21.6
413881 2006 VX ₃₀	17.1	X	145.40181	113.40269	245.37009	14.46407	0.2483236	0.24010824	2.5636850	20	2 2.4	21.5
413882 2006 VX ₄₉	17.3	X	163.78511	293.58909	58.02019	7.99224	0.1525829	0.23986493	2.5654184	20	2 11.6	21.4
413883 2006 VQ ₅₉	16.4	X	225.52867	233.22211	66.80691	13.79878	0.0923679	0.24198453	2.5504157	20	2 8.7	20.4
413884 2006 VR ₆₃	17.4	X	146.06659	107.46607	247.22573	2.88456	0.1519059	0.23833612	2.5763773	20	1 31.1	21.5
413885 2006 VV ₆₈	17.3	X	175.64213	113.40171	243.56233	2.50332	0.1824078	0.24244959	2.5471533	20	2 23.5	21.2
413886 2006 VK ₇₇	17.4	X	118.44884	329.45489	115.85436	2.40165	0.1671812	0.24670751	2.5177608	20	4 21.6	20.9
413887 2006 VT ₈₁	18.5	X	302.91054	92.35474	30.25059	20.73033	0.0868296	0.36862505	1.9263986	20	—	—
413888 2006 VH ₉₄	16.9	X	64.30164	209.76076	249.42569	9.54574	0.1272855	0.23668526	2.5883435	20	2 14.8	20.0
413889 2006 VJ ₁₀₄	17.4	X	160.12556	51.29224	329.08661	1.76935	0.1736285	0.24599869	2.5225949	20	3 11.6	21.5
413890 2006 VN ₁₀₉	17.9	X	99.18880	216.06244	207.06660	3.87425	0.1844542	0.23989430	2.5652091	20	3 1.1	21.3
413891 2006 VV ₁₁₉	17.1	X	158.64775	252.68208	60.30780	4.41242	0.2374995	0.23391133	2.6087665	20	—	—
413892 2006 VC ₁₂₄	16.7	X	22.14775	135.10839	46.90758	5.42662	0.2406877	0.24139624	2.5545577	20	4 8.9	18.5
413893 2006 VV ₁₃₅	17.4	X	7.24293	209.74317	291.24821	1.06934	0.1553503	0.23266629	2.6180649	20	1 5.7	20.0
413894 2006 VH ₁₃₉	17.3	X	353.97114	186.50186	242.02459	19.69285	0.1155199	0.36387904	1.9431128	20	—	—
413895 2006 VW ₁₄₃	16.7	X	138.50393	104.01806	269.54566	13.72516	0.1334506	0.24193988	2.5507295	20	2 2.8	20.5
413896 2006 VU ₁₄₅	17.0	X	160.37005	45.48037	326.32436	8.98050	0.2100348	0.24601183	2.5225051	20	3 2.5	21.0
413897 2006 VO ₁₆₉	16.8	X	161.93125	289.80388	76.40635	2.84211	0.1823688	0.24163991	2.5528400	20	2 27.6	20.9
413898 2006 WM ₅	17.1	X	79.55692	209.27045	225.32596	13.68545	0.0488622	0.23738407	2.5832613	20	1 25.8	20.7
413899 2006 WN ₅	15.9	X	294.20246	169.92063	174.88550	4.39412	0.2730530	0.12261766	4.0126754	20	5 29.1	21.4
413900 2006 WO ₆	17.5	X	163.32475	145.27357	191.27648	5.49825	0.1645486	0.23802234	2.5786411	20	1 20.7	21.6
413901 2006 WS ₇	17.7	X	66.19173	301.64362	145.94773	3.64276	0.1707536	0.23595679	2.5936681	20	2 12.7	20.2
413902 2006 WL ₁₆	17.0	X	88.68465	196.16547	278.13488	3.91931	0.1885456	0.24430194	2.5342616	20	4 24.6	20.3
413903 2006 WQ ₂₂	17.7	X	99.12338	6.33289	85.25454	7.76792	0.2780850	0.24122253	2.5557839	20	4 24.8	21.4
413904 2006 WU ₂₃	17.1	X	123.31498	339.63759	83.89665	16.24896	0.1543580	0.24255687	2.5464022	20	4 4.8	21.1
413905 2006 WX ₂₆	17.3	X	10.41851	177.84549	243.33453	17.96755	0.0915165	0.36593778	1.9358181	20	—	—
413906 2006 WF ₂₇	16.7	X	138.38360	30.22163	5.10873	14.89601	0.1703875	0.23962622	2.5671219	20	3 12.4	20.5
413907 2006 WO ₂₉	16.2	X	162.23744	254.52718	116.46920	28.30669	0.3712521	0.23944049	2.5684492	20	3 21.5	21.5
413908 2006 WK ₄₀	17.2	X	212.04537	60.13312	218.36029	11.15819	0.0524350	0.23227301	2.6210193	20	—	—
413909 2006 WX ₄₀	16.4	X	166.09484	143.91535	223.81281	13.52299	0.1216502	0.24281478	2.5445987	20	2 22.7	20.5
413910 2006 WD ₅₀	16.9	X	197.27205	216.49901	121.75213	3.68385	0.1585369	0.24396090	2.5366228	20	2 23.6	20.9
413911 2006 WT ₆₁	17.0	X	103.47687	332.82229	85.01586	11.99617	0.2550376	0.23825886	2.5769343	20	3 17.9	20.8
413912 2006 WM ₆₉	16.0	X	44.64320	177.32017	283.11455	16.69225	0.1165781	0.22645524	2.6657196	20	1 18.0	19.0
413913 2006 WL ₇₄	17.2	X	169.52534	296.46582	50.74441	8.15254	0.2149659	0.24277597	2.5448699	20	2 15.4	21.5
413914 2006 WB<												

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
413921 2006 WK ₁₅₁	17.2	X	39.95569	141.43032	21.80043	5.01738	0.1931676	0.24252901	2.5465971	20	4 15.1	19.4
413922 2006 WC ₁₅₂	15.8	X	296.47952	122.99916	218.35276	1.63655	0.2190396	0.12244282	4.0164945	20	6 4.2	21.1
413923 2006 WJ ₁₅₅	16.7	X	324.42629	170.59945	60.22240	9.82775	0.0376067	0.24594895	2.5229350	20	3 18.2	20.0
413924 2006 WU ₁₆₆	16.7	X	202.22198	220.60612	67.82415	16.62538	0.1610910	0.23428336	2.6060040	20	—	—
413925 2006 WJ ₁₇₁	16.7	X	288.47330	138.76559	72.33395	12.26201	0.0955687	0.23169053	2.6254104	20	—	—
413926 2006 WU ₁₈₁	16.4	X	21.51910	247.60537	243.88982	12.31024	0.0251522	0.23567346	2.5957464	20	1 19.4	20.0
413927 2006 WW ₁₉₂	17.6	X	128.77769	200.04239	187.07199	0.88498	0.1852888	0.23875398	2.5733704	20	2 20.1	21.4
413928 2006 XV ₂	17.1	X	37.67832	291.76714	237.06344	11.67081	0.1060422	0.24253953	2.5465235	20	4 6.1	20.1
413929 2006 XE ₁₀	16.7	X	60.61941	223.49031	274.69912	9.08487	0.1715090	0.23924822	2.5698251	20	4 9.8	19.8
413930 2006 XW ₁₀	16.7	X	112.78685	125.58714	283.39390	9.79253	0.1766992	0.23594519	2.5937531	20	2 24.7	20.4
413931 2006 XB ₁₆	17.4	X	132.61625	339.48929	93.23550	4.32525	0.2361232	0.24449682	2.5329147	20	4 27.3	21.5
413932 2006 XL ₃₅	17.2	X	110.43494	331.39576	94.67403	14.71816	0.1470711	0.23771643	2.5808529	20	3 23.1	21.1
413933 2006 XR ₃₈	17.0	X	125.59495	319.97051	81.36916	3.38519	0.2354429	0.23712766	2.5851232	20	3 13.3	20.9
413934 2006 XD ₃₉	17.3	X	90.30270	306.77031	99.09724	6.22923	0.1570078	0.22934447	2.6432842	20	1 25.7	20.4
413935 2006 XS ₄₉	16.6	X	313.87234	74.24516	111.14617	14.44724	0.0715018	0.22468485	2.6797042	20	—	—
413936 2006 XO ₅₁	17.1	X	40.12452	129.89907	254.90920	22.92625	0.0818201	0.36693685	1.9323027	20	—	—
413937 2006 XN ₇₀	16.8	X	151.89444	32.84022	289.31139	5.42999	0.0226686	0.22147559	2.7055287	20	—	—
413938 2006 XS ₇₀	17.1	X	117.94835	263.40141	135.16649	3.57787	0.0937135	0.23222875	2.6213523	20	2 11.3	20.4
413939 2006 YY ₆	17.1	X	55.06033	232.18745	222.09332	12.69054	0.2551499	0.23309159	2.6148793	20	2 7.6	19.7
413940 2006 YA ₁₃	17.0	X	57.88279	38.92268	85.78619	5.13924	0.2523115	0.23334636	2.6129756	20	4 7.2	19.6
413941 2006 YP ₁₉	17.6	X	74.73432	157.18339	305.03413	3.17295	0.1487190	0.23440288	2.6051182	20	3 13.5	20.6
413942 2006 YW ₂₁	17.0	X	97.05655	326.61079	82.21932	6.98526	0.1696064	0.23297984	2.6157154	20	2 11.0	20.4
413943 2006 YD ₃₅	16.4	X	267.52685	160.01675	84.93376	9.23174	0.1412407	0.22532285	2.6746434	20	1 9.7	20.5
413944 2006 YE ₄₆	16.6	X	86.08880	314.91593	108.02952	14.00525	0.1618727	0.23220761	2.6215114	20	2 13.1	19.9
413945 2006 YG ₄₇	16.6	X	92.76831	195.54814	260.75587	4.68148	0.0579637	0.23827478	2.5768195	20	3 18.6	20.0
413946 2006 YW ₄₈	17.1	X	70.77737	319.29022	99.57541	23.99864	0.0665016	0.36963223	1.9228976	20	—	—
413947 2007 AD	17.2	X	30.18823	105.96483	50.85623	5.87513	0.1154550	0.23620690	2.5918369	20	3 14.6	20.0
413948 2007 AK ₇	17.3	X	107.51612	302.96854	128.83422	4.23772	0.1296974	0.23665815	2.5885411	20	3 18.3	20.8
413949 2007 AH ₁₄	17.1	X	132.93875	117.14699	269.18526	3.65248	0.3538692	0.23831273	2.5765459	20	3 8.6	21.6
413950 2007 AS ₂₉	16.8	X	203.21839	301.99357	305.89142	3.57163	0.0151183	0.21324075	2.7747419	20	—	—
413951 2007 BF ₁₂	16.6	X	177.27348	167.17643	115.85720	10.86915	0.0518609	0.21484067	2.7609490	20	—	—
413952 2007 BP ₁₄	17.6	X	62.12628	136.66732	347.52607	3.03539	0.1124972	0.23376328	2.6098679	20	3 19.6	20.7
413953 2007 BM ₄₀	16.4	X	108.56644	88.25619	307.72251	9.94227	0.1218236	0.22752435	2.6573624	20	1 27.9	19.9
413954 2007 BF ₄₃	17.3	X	22.09533	16.00507	121.43307	1.74585	0.0506253	0.22802907	2.6534398	20	2 1.5	20.3
413955 2007 BZ ₄₅	15.9	X	359.88827	201.97821	313.36671	12.88907	0.2287759	0.22306500	2.6926615	20	1 7.3	18.6
413956 2007 BA ₄₇	17.3	X	22.33466	112.67249	1.23679	4.96984	0.0746686	0.22129971	2.7069620	20	1 3.3	20.5
413957 2007 BJ ₅₀	16.4	X	347.63312	44.08197	119.60407	15.20387	0.1660863	0.22358462	2.6884880	20	1 3.9	19.4
413958 2007 BM ₉₇	17.4	X	2.88183	191.11618	318.03474	1.15014	0.1448238	0.22558027	2.6726082	20	1 12.2	20.0
413959 2007 BS ₁₀₁	17.1	X	24.67100	359.90176	155.35693	7.90151	0.2174661	0.23063015	2.6334515	20	3 2.3	19.0
413960 2007 BB ₁₀₂	16.1	X	28.76606	192.79392	278.05825	11.23042	0.1234518	0.22234630	2.6984608	20	1 7.2	19.0
413961 2007 CU	16.8	X	134.26635	308.26869	86.62671	10.14830	0.1403532	0.24119829	2.5559552	20	3 6.5	20.7
413962 2007 CP ₂₁	16.0	X	1.22771	203.52505	288.35481	12.98724	0.1311464	0.22152980	2.7050873	20	—	—
413963 2007 CL ₂₇	16.6	X	77.20519	99.01639	348.77079	12.00448	0.1591503	0.23199736	2.6230950	20	3 2.2	19.5
413964 2007 CB ₂₉	17.1	X	77.29033	120.34148	305.67941	4.96777	0.0637283	0.22633095	2.6666954	20	1 20.2	20.5
413965 2007 CG ₃₀	16.9	X	204.02856	109.54871	138.29023	5.10877	0.0182700	0.21289630	2.7777339	20	—	—
413966 2007 CC ₃₂	16.7	X	120.25582	31.97376	320.78130	5.48857	0.0466927	0.21776065	2.7362122	20	—	—
413967 2007 CM ₃₈	17.3	X	78.34633	157.18198	289.51558	1.23723	0.1877351	0.23120956	2.6290501	20	3 5.4	20.3
413968 2007 CM ₄₀	17.0	X	41.07792	97.14557	54.68686	5.58868	0.1624305	0.23466663	2.6031658	20	3 31.2	19.6
413969 2007 DN ₇	16.6	X	68.55510	69.22545	48.25872	8.94273	0.2093834	0.23348667	2.6119287	20	4 8.4	19.6
413970 2007 DM ₁₉	16.9	X	75.84844	39.94512	348.90898	3.44988	0.0804356	0.21323223	2.7748157	20	—	—
413971 2007 DP ₂₃	17.4	X	102.18827	247.54162	162.62975	4.82435	0.1649993	0.22549400	2.6732899	20	2 16.9	20.9
413972 2007 DB ₂₈	17.0	X	63.32425	286.47240	145.94624	9.51512	0.1067166	0.21960372	2.7208813	20	1 13.3	20.2
413973 2007 DR ₂₉	16.4	X	345.18528	336.84275	153.97648	9.04450	0.0789971	0.21412037	2.7671374	20	—	—
413974 2007 DX ₄₂	16.2	X	263.68695	260.38328	300.92073	6.47681	0.1641703	0.21088789	2.7953420	20	—	—
413975 2007 DL ₅₄	16.8	X	96.88691	227.22736	148.73878	9.23957	0.1273194	0.21492589	2.7602192	20	—	—
413976 2007 DQ ₅₈	17.1	X	20.68264	125.17923	341.44410	4.34039	0.0658961	0.21638229	2.7478197	20	—	—
413977 2007 DV ₅₈	17.3	X	35.46300	306.67026	165.09324	3.80654	0.0353064	0.22035929	2.7146581	20	1 18.7	20.8
413978 2007 DH ₇₄	17.0	X	312.36126	8.14113	158.40537	3.41542	0.0276604	0.21392610	2.7688124	20	—	—
413979 2007 DX ₉₈	16.6	X	47.87394	307.40591	146.80595	7.22268	0.0868794	0.22203060	2.7010181	20	1 15.7	19.8
413980 2007 DK ₁₀₉	17.3	X	14.05562	299.86536	168.80135	8.84281	0.2459692	0.21995941	2.7179472	20	—	—
413981 2007 DG ₁₁₆	16.2	X	283.69355	148.51306	45.17740	13.23862	0.0887219	0.21194791	2.7860140	20	—	—
413982 2007 EV ₁₄	16.8	X	283.78346	9.91243	157.18701	9.67459	0.0480219	0.20933547	2.8091451	20	—	—
413983 2007 EA ₂₈	17.1	X	103.04365	81.25080	308.78577	4.25677	0.0727524	0.22379194	2.6868273	20	1 10.9	20.7
413984 2007 ES ₃₀	17.2	X	140.84692	281.03163	140.83021	7.12211	0.3032644	0.24061492	2.5600847	20	4 26.7	21.7
413985 2007 ED ₄₄	16.9	X	348.95757	305.65369	199.52732	3.46215	0.0445722	0.21446869	2.7641405	20	—	—
413986 2007 EY ₅₇	16.3	X	43.50671	346.26668	137.12733	13.36084	0.2195815	0.22789214	2.6545026	20	2 29.9	18.7
413987 2007 EZ ₇₅	17.4	X	69.44520	289.66271	187.43200	11.32228	0.2164309	0.22842697	2.6503575	20	4 8.6	20.4
413988 2007 EV ₇₆	17.0	X	4.17763	130.03231	349.68656	8.41184	0.1922052	0.21498445	2.7597179	20	—	—
413989 2007 EL ₈₈	19.0	X	344.55346	116.14248	198.45910	30.84111	0.5219365	0.83194591	1.1196252	20	3 21.7	19.1
413990 2007 EZ ₁₀₇	16.3	X	87.37881	258.41238	126.19356	15.97940	0.2672571	0.18033323	3.1027887	20	11 25.4	21.7
413991 2007 EW ₁₀₈	16.7	X	41.15953	64.94188	25.70733	8.54171	0.1514176	0.21602824	2.7508212	20	1 5.7	19.7
413992 2007 EH ₁₁₄	15.3	X	46.53163	287.33063	33.57190	26.26582	0.2439645	0.17480876	3.1678206	20	11 22.5	20.1
413993 2007 EC ₁₂₅	16.7	X	52.37000	88.93890	353.09821	6.30253	0.0291032	0.21639552	2.7477078	20	1 5.9	20.3
413994 2007 EE ₁₅₀	17.2	X	343.45081	345.20875	129.78187	5.13402	0.1247475	0.21038446	2.7997996			

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
414001 2007 FQ ₂₃	16.4	X	87.67213	230.93145	21.52328	8.02405	0.1636367	0.17735654	3.1374098	20	10 13.4	21.2
414002 2007 FP ₄₈	17.4	X	346.19294	132.86177	13.29979	5.12557	0.1033578	0.21502145	2.7594012	20	—	—
414003 2007 FC ₄₉	16.9	X	22.15686	92.57130	24.74716	7.46590	0.1413301	0.21426030	2.7659325	20	1 7.5	20.0
414004 2007 GP ₁₇	16.5	X	150.29969	218.97106	16.31815	9.71310	0.0381025	0.18560835	3.0437177	20	11 17.3	21.0
414005 2007 GR ₂₇	16.5	X	347.04553	291.84567	200.75922	24.50649	0.1401028	0.20993728	2.8037740	20	—	—
414006 2007 GO ₃₂	16.3	X	232.50650	31.89955	208.96949	14.69267	0.0930879	0.20472108	2.8511999	20	—	—
414007 2007 GJ ₄₆	15.8	X	94.92945	238.66318	44.07780	17.18701	0.2068518	0.17867778	3.1219241	20	11 25.8	21.0
414008 2007 GN ₄₉	16.7	X	79.20050	276.35238	190.01682	27.32467	0.4073075	0.23488677	2.6015391	20	5 8.7	20.7
414009 2007 GR ₅₇	16.3	X	79.46786	211.02781	82.64630	6.07067	0.1022755	0.18162048	3.0881105	20	11 17.6	20.8
414010 2007 GJ ₇₁	15.7	X	116.20320	240.60546	47.89052	17.03233	0.1499433	0.18516096	3.0486186	20	12 18.8	20.8
414011 2007 GO ₇₃	16.8	X	325.67573	93.36418	83.46840	8.65389	0.1634875	0.21266362	2.7797596	20	—	—
414012 2007 GT ₇₄	16.7	X	146.27672	228.45987	43.63291	2.72674	0.1022253	0.19074395	2.9888368	20	12 29.3	21.3
414013 2007 HZ ₃₃	16.9	X	204.58889	304.11318	269.74114	0.75316	0.0871511	0.19195582	2.9762440	20	12 20.8	21.2
414014 2007 HB ₃₆	16.8	X	269.03445	105.83162	56.17595	6.49662	0.0537197	0.19434275	2.9518241	20	—	—
414015 2007 HN ₄₁	16.0	X	107.90552	225.81271	64.13681	9.96929	0.1126569	0.18419586	3.0592582	20	12 12.0	20.7
414016 2007 HZ ₄₄	16.7	X	34.88730	30.83313	33.39356	9.69467	0.1248061	0.20483338	2.8501577	20	—	—
414017 2007 HG ₆₄	16.5	X	10.82158	102.27252	48.49395	10.53589	0.1205668	0.21837711	2.7310604	20	1 30.2	19.3
414018 2007 HP ₆₇	15.9	X	276.65385	115.44768	43.97305	11.28923	0.0599496	0.19963120	2.8994599	20	—	—
414019 2007 HT ₇₂	17.0	X	180.97187	7.70027	209.92753	10.97234	0.0913972	0.18770811	3.0209766	20	11 30.1	21.7
414020 2007 HA ₉₃	18.4	X	315.39525	213.16776	89.78615	2.76998	0.1925400	0.30289518	2.9588760	20	5 15.2	20.1
414021 2007 HH ₉₇	16.2	X	340.79154	106.70758	66.14066	12.95397	0.1950519	0.21266822	2.7797196	20	1 3.1	19.6
414022 2007 JW ₄₄	16.1	X	15.17301	122.03301	235.83506	20.74412	0.1608630	0.17503774	3.1650573	20	11 20.8	19.9
414023 2007 LA ₄	16.2	X	106.30251	187.93118	93.55865	9.21535	0.1689660	0.17903784	3.1177372	20	12 4.7	21.3
414024 2007 LB ₁₁	16.3	X	35.07633	251.94831	84.39355	10.85506	0.0915588	0.17668483	3.1453565	20	11 15.3	20.6
414025 2007 LO ₁₅	16.3	X	164.16859	17.67190	209.97383	22.53388	0.0999274	0.18202920	3.0834862	20	11 23.6	21.3
414026 Bochonko	17.6	X	283.44215	15.92339	335.70358	7.06481	0.2075701	0.29534519	2.2331409	20	5 31.7	20.2
414027 2007 MF ₁₃	15.3	X	66.40563	203.07805	113.13626	18.90596	0.1878729	0.17832777	3.1260079	20	12 11.4	20.2
414028 2007 MD ₂₇	17.9	X	310.58114	87.14215	241.13536	4.20927	0.1632589	0.29510885	2.2343329	20	6 21.5	19.6
414029 2007 OK ₁	17.8	X	327.06742	133.54702	162.88161	7.80525	0.2250991	0.29641807	2.2277491	20	5 25.7	19.5
414030 2007 PC ₅	17.9	X	285.86440	182.88177	142.28490	8.01885	0.2575014	0.29289967	2.2455538	20	4 23.7	20.9
414031 2007 PM ₂₈	17.9	X	291.20161	155.07536	176.04874	5.12267	0.2008349	0.29383736	2.2407739	20	5 16.7	20.4
414032 2007 PJ ₃₄	17.4	X	285.34441	213.02480	107.30844	7.33531	0.2663292	0.29249123	2.2476438	20	4 15.6	20.5
414033 2007 QT ₅	18.1	X	303.58120	159.13918	151.38721	4.50228	0.2298643	0.29276534	2.2462406	20	4 30.4	20.6
414034 2007 RE ₂₈	17.9	X	234.78678	271.99753	108.83029	4.83948	0.2458526	0.28762333	2.2729331	20	5 14.9	21.5
414035 2007 RX ₃₆	17.8	X	241.46786	17.70227	14.64255	2.94819	0.2180097	0.28850449	2.2683026	20	6 6.4	21.2
414036 2007 RH ₅₆	18.0	X	238.68085	36.73929	338.99228	7.61735	0.1650770	0.28628732	2.2799989	20	5 14.9	21.4
414037 2007 RK ₆₄	17.7	X	198.59564	88.08230	347.96013	5.70306	0.1063918	0.29195986	2.2503701	20	6 30.6	20.8
414038 2007 RG ₈₆	18.1	X	204.61472	193.77552	162.00301	1.20472	0.2095003	0.27668158	2.3324690	20	3 19.4	22.0
414039 2007 RL ₁₀₄	18.0	X	258.98603	243.78140	138.98561	2.79733	0.1790294	0.29344808	2.2427552	20	6 18.8	21.0
414040 2007 RA ₁₀₅	18.1	X	259.31848	239.72423	160.59422	7.40308	0.0989925	0.29747512	2.2224685	20	7 27.4	20.8
414041 2007 RY ₁₁₈	18.0	X	274.61767	314.42757	34.12118	2.16093	0.2524665	0.29001395	2.2604251	20	5 9.7	21.1
414042 2007 RX ₁₃₃	17.8	X	291.88075	336.38192	2.20675	1.15098	0.1272862	0.29318816	2.2440805	20	6 9.9	20.3
414043 2007 RB ₁₄₆	17.4	X	248.50336	26.89893	345.40804	5.27662	0.2111615	0.28887735	2.2663504	20	5 16.9	20.8
414044 2007 RK ₁₅₉	17.3	X	143.84926	113.85646	7.43079	8.21281	0.1311613	0.28904735	2.2654617	20	7 3.0	20.7
414045 2007 RY ₁₆₁	17.7	X	92.53736	127.43828	42.85922	5.07397	0.0755916	0.28712627	2.2755555	20	7 2.4	20.4
414046 2007 RY ₁₆₃	17.6	X	128.36151	321.71889	200.94728	6.32237	0.0628365	0.29757638	2.2219643	20	8 4.8	20.6
414047 2007 RW ₁₉₇	18.2	X	277.62950	278.43154	85.69583	0.61826	0.1543967	0.29582682	2.2307163	20	6 21.7	20.4
414048 2007 RD ₂₀₉	18.3	X	155.34580	287.41371	151.08304	5.21232	0.1698768	0.27878509	2.3207214	20	5 20.4	22.0
414049 2007 RQ ₂₁₀	18.1	X	282.66277	14.44946	317.85799	3.45629	0.0841155	0.29122358	2.2541615	20	5 23.5	20.6
414050 2007 RC ₂₁₁	16.3	X	349.49225	217.82837	170.61634	10.16118	0.0591727	0.16195526	3.3332867	20	11 10.7	20.8
414051 2007 RC ₂₁₃	17.5	X	236.18609	49.47445	339.70146	6.45426	0.1121082	0.29015678	2.2596833	20	6 7.4	20.7
414052 2007 RY ₂₂₈	17.7	X	251.62807	9.96293	3.77265	4.47813	0.1702377	0.29138418	2.2533331	20	5 27.9	20.8
414053 2007 RL ₂₅₀	17.9	X	229.94225	133.26929	239.39732	5.41040	0.1520539	0.28419403	2.2911811	20	5 7.2	21.1
414054 2007 RZ ₂₆₄	18.3	X	168.54840	72.34727	340.94341	5.55486	0.1361708	0.27932007	2.3177573	20	4 24.9	21.8
414055 2007 RL ₂₇₀	17.4	X	207.95080	355.52767	42.05192	3.25075	0.1890784	0.27666112	2.3325840	20	5 14.3	21.0
414056 2007 RW ₂₇₀	17.7	X	321.49027	75.51096	216.54549	6.60958	0.1350012	0.28917339	2.2648033	20	5 19.9	19.8
414057 2007 RK ₂₈₄	18.1	X	294.06753	333.16187	331.43909	4.13776	0.1535932	0.28692513	2.2766188	20	4 16.7	20.8
414058 2007 RY ₂₈₅	18.0	X	207.40709	153.06843	240.40873	1.90575	0.1847467	0.27644921	2.3337759	20	5 8.8	21.7
414059 2007 RM ₂₉₅	17.4	X	58.96231	189.02892	16.34862	4.26190	0.1061734	0.28671920	2.2770788	20	7 10.6	19.9
414060 2007 RC ₃₀₂	17.9	X	118.40047	304.34293	194.50541	21.30345	0.2665968	0.27984119	2.3148789	20	7 6.5	22.2
414061 2007 RF ₃₁₈	17.7	X	283.53666	141.26708	262.40138	4.41563	0.1570175	0.30120312	2.2040921	20	8 31.1	19.7
414062 2007 SE ₁₇	17.7	X	296.94217	274.86695	12.88184	8.23368	0.1655751	0.28646836	2.2790382	20	3 28.3	20.4
414063 2007 SG ₁₇	18.0	X	228.64177	34.14468	15.42222	7.95468	0.1272521	0.29162650	2.2520847	20	6 26.5	21.2
414064 2007 SM ₁₉	18.0	X	248.02272	248.68050	96.73255	6.24595	0.2568631	0.28367673	2.2939656	20	4 12.1	21.7
414065 2007 SO ₁₉	18.2	X	104.07833	357.22767	156.24724	1.84963	0.0383500	0.28558811	2.2837188	20	6 17.8	21.0
414066 2007 SZ ₂₀	18.2	X	237.01169	272.81974	97.80839	3.57405	0.2293513	0.28419669	2.2911668	20	5 4.8	21.7
414067 2007 SB ₂₂	17.2	X	326.36151	221.38119	59.60305	5.62122	0.1932818	0.28824600	2.2696585	20	5 2.2	18.9
414068 2007 TX ₂₀	18.4	X	205.73326	71.20285	353.32178	3.02950	0.1710779	0.28504679	2.2866092	20	6 17.9	22.0
414069 2007 TM ₃₀	18.0	X	212.50568	140.62545	193.95178	1.58855	0.2487063	0.27292109	2.3538457	20	2 28.1	22.1
414070 2007 TS ₃₃	18.1	X	180.25359	33.02959	40.62988	2.78537	0.2130380	0.27906033	2.3191953	20	6 5.0	21.9
414071 2007 TN ₅₄	17.9	X	209.27526	322.79994	91.47715	1.34230	0.1842199	0.28296055	2.2978347	20	6 7.0	21.5
414072 2007 TD ₅₇	17.9	X	209.51831	216.96111	214.82942	2.26499	0.1743093	0.28527120	2.2854099	20	7 1.2	21.2
414073 2007 TJ ₅₈	17.5	X	293.61005	283.18731	29.35243	3.33601	0.2005434	0.28475343	2.2881794	20	4 21.8	19.9

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
414081 2007 TV ₁₂₂	17.8	X	279.46793	123.63868	185.96760	4.62249	0.1667690	0.28132516	2.3067313	20	4 4.9	20.7
414082 2007 TN ₁₂₃	18.6	X	206.03450	261.63406	113.70893	1.69568	0.1988089	0.27684149	2.3315707	20	4 14.9	22.3
414083 2007 TZ ₁₂₆	18.5	X	258.88213	316.56742	51.81707	2.72977	0.1553778	0.28659764	2.2783528	20	6 1.1	21.2
414084 2007 TY ₁₅₃	17.2	X	307.00317	35.96931	267.74742	4.33611	0.1398703	0.28735664	2.2743392	20	5 9.3	19.7
414085 2007 TG ₁₅₆	17.1	X	284.10400	81.13397	225.17848	9.73592	0.2087406	0.28365799	2.2940667	20	3 27.9	20.3
414086 2007 TV ₁₆₅	17.3	X	176.42095	88.93768	15.85415	6.05674	0.1187159	0.28625866	2.2801511	20	7 15.8	20.7
414087 2007 TY ₁₆₆	17.4	X	170.48397	65.20093	8.13675	5.36080	0.1623597	0.27904750	2.3192663	20	5 25.3	21.0
414088 2007 TQ ₁₇₇	18.0	X	256.51367	138.39173	194.33953	5.29652	0.1992368	0.28098575	2.3085885	20	4 5.9	21.4
414089 2007 TL ₁₈₁	17.1	X	284.79874	266.46551	77.47485	7.24952	0.1621969	0.28946742	2.2632694	20	5 31.9	19.4
414090 2007 TS ₁₉₂	17.2	X	145.16114	187.76034	305.23271	2.11794	0.0936420	0.28702937	2.2760676	20	7 17.9	20.4
414091 2007 TA ₁₉₉	18.1	X	170.27547	208.51702	260.78978	1.49605	0.1591491	0.28464281	2.2887722	20	7 13.3	21.5
414092 2007 TG ₂₁₂	17.0	X	347.42901	280.17844	2.48469	8.25282	0.0588614	0.28674814	2.2775556	20	6 30.7	19.5
414093 2007 TD ₂₁₃	17.7	X	16.54788	341.04431	282.13619	3.72577	0.1152934	0.28911020	2.2651333	20	7 26.7	19.7
414094 2007 TD ₂₁₆	18.1	X	212.47337	67.16393	1.26900	2.34303	0.1271598	0.28522633	2.2856495	20	7 3.9	21.3
414095 2007 TF ₂₂₂	18.2	X	165.17198	226.34920	184.53916	4.25921	0.1365598	0.27418884	2.3465845	20	4 21.7	21.6
414096 2007 TD ₂₂₉	18.1	X	167.77332	237.19413	219.22574	1.63196	0.1436996	0.28082646	2.3094613	20	6 23.4	21.5
414097 2007 TH ₂₃₁	18.1	X	158.92955	65.06547	36.53304	6.35945	0.0582875	0.28388682	2.2928337	20	6 18.2	21.2
414098 2007 TT ₂₄₂	17.7	X	279.89406	136.15318	267.84324	4.87668	0.1577433	0.29811009	2.2193115	20	8 24.1	19.9
414099 2007 TR ₂₄₃	17.5	X	234.59454	120.02286	254.34512	5.84386	0.1736211	0.28383438	2.2931161	20	5 9.9	21.0
414100 2007 TG ₂₆₈	17.8	X	232.95473	309.04357	31.25249	6.36034	0.1922597	0.27772847	2.3265603	20	3 26.5	21.4
414101 2007 TF ₂₈₁	17.7	X	292.83802	125.48673	209.57029	6.95490	0.1552696	0.29110148	2.2547918	20	6 1.7	20.1
414102 2007 TJ ₂₉₈	17.9	X	247.83830	260.36083	89.14155	1.73837	0.2481191	0.28190958	2.3035422	20	4 15.5	21.5
414103 2007 TQ ₃₁₈	17.6	X	261.78943	115.72977	211.59416	4.22822	0.1504013	0.27793543	2.3254487	20	4 9.5	20.9
414104 2007 TX ₃₂₀	18.3	X	216.10410	58.32784	359.10156	2.87487	0.1379707	0.28840433	2.2688278	20	6 21.6	21.4
414105 2007 TT ₃₃₂	18.1	X	171.82334	138.09612	333.87001	1.65790	0.1573893	0.28360039	2.2943773	20	7 18.8	21.7
414106 2007 TK ₃₈₅	18.3	X	270.08195	291.63518	12.83953	2.11373	0.2105752	0.28083499	2.3094146	20	3 13.2	21.5
414107 2007 TS ₃₈₆	17.8	X	258.00868	76.67381	240.13997	0.76077	0.2014024	0.27629108	2.3346663	20	3 17.5	21.3
414108 2007 TM ₄₀₁	17.7	X	295.10347	345.78752	346.61309	2.47084	0.1530359	0.29237258	2.2482518	20	5 31.6	19.9
414109 2007 TZ ₄₄₈	17.6	X	242.18808	200.34690	126.48636	3.12045	0.2273901	0.27773196	2.3265844	20	3 15.2	21.3
414110 2007 UM ₁₈	17.2	X	228.44554	309.67822	47.11559	9.97246	0.2332176	0.28121223	2.3073488	20	4 11.1	21.0
414111 2007 UR ₂₁	17.9	X	280.57181	106.01676	206.64887	4.45845	0.1546292	0.27986931	2.3147239	20	4 11.8	20.6
414112 2007 UD ₂₃	16.9	X	278.38276	255.71807	63.04714	6.02376	0.1791134	0.28209178	2.3025501	20	4 16.2	19.9
414113 2007 UQ ₂₉	18.2	X	270.95542	154.36402	170.35144	2.18493	0.2168984	0.28428255	2.2907054	20	4 8.8	21.5
414114 2007 UM ₃₃	17.7	X	225.45042	111.81401	261.04452	5.08393	0.1476865	0.27968853	2.3157213	20	4 30.0	21.3
414115 2007 UW ₃₄	17.3	X	214.53349	26.17817	15.91170	7.25843	0.1087938	0.28075477	2.3098545	20	5 30.2	20.7
414116 2007 UG ₃₅	17.8	X	241.85519	294.62588	84.26976	4.92331	0.1595043	0.28640027	2.2793994	20	5 26.6	21.0
414117 2007 UE ₄₉	18.3	X	220.59783	311.50129	82.69999	0.98199	0.2038596	0.28065880	2.3103810	20	5 21.2	21.7
414118 2007 UZ ₄₉	18.1	X	198.37867	214.10829	195.82912	5.50438	0.1632001	0.27778614	2.3262818	20	5 23.5	21.7
414119 2007 UN ₆₃	18.3	X	248.58065	152.40031	209.87988	1.93273	0.2187220	0.28484748	2.2876757	20	5 4.8	21.6
414120 2007 UG ₆₈	17.7	X	218.27123	315.92842	66.68553	7.13393	0.1288849	0.28025709	2.3125882	20	5 9.1	21.1
414121 2007 UF ₆₈	17.8	X	84.81962	99.39566	40.00508	1.86250	0.1269874	0.27022319	2.3694869	20	5 14.9	20.6
414122 2007 UN ₆₈	17.7	X	262.10469	232.54182	97.85154	2.77551	0.2409194	0.28213771	2.3023002	20	4 5.6	21.1
414123 2007 UQ ₈₇	18.4	X	159.71626	205.08528	264.81376	2.01807	0.1439587	0.27946465	2.3169578	20	7 3.3	21.8
414124 2007 UQ ₁₃₁	17.6	X	86.11353	124.89143	67.62641	4.70695	0.1845406	0.28179649	2.3041584	20	8 11.7	20.7
414125 2007 UP ₁₃₈	18.0	X	207.80547	329.64966	66.27926	6.11330	0.1643226	0.28008603	2.3135297	20	5 13.8	21.4
414126 2007 UR ₁₃₉	17.2	X	257.51518	11.76991	316.16459	3.18375	0.2808424	0.27868530	2.3212755	20	3 23.1	20.9
414127 2007 VR ₉	18.0	X	254.22358	115.28893	228.84206	7.98396	0.2360905	0.28096242	2.3087163	20	4 13.4	21.5
414128 2007 VS ₄₃	17.8	X	277.36740	19.82165	285.91946	5.85392	0.1920499	0.27868113	2.3212986	20	3 21.2	21.3
414129 2007 VL ₅₀	17.7	X	196.73493	151.46894	258.34186	6.29380	0.0863046	0.27834534	2.3231651	20	5 22.7	20.8
414130 2007 VJ ₅₁	18.5	X	150.24532	83.35805	348.36230	2.81067	0.1718271	0.27145152	2.3623334	20	5 4.3	22.1
414131 2007 VA ₅₇	17.8	X	251.43893	233.42885	122.73189	4.12859	0.1979185	0.28180441	2.3041152	20	5 3.4	21.1
414132 2007 VJ ₆₂	17.8	X	126.87803	180.44776	263.72715	3.61651	0.1152755	0.26754833	2.3852536	20	4 20.1	21.2
414133 2007 VG ₆₅	17.8	X	78.55568	89.45285	54.73341	3.44395	0.0904334	0.26710348	2.3879012	20	5 7.0	20.6
414134 2007 VQ ₈₄	16.7	X	145.53503	36.46249	70.81665	25.32108	0.2434785	0.27276642	2.3547354	20	6 17.7	20.8
414135 2007 VU ₁₀₂	17.8	X	316.73791	260.50579	44.48316	4.74007	0.1487481	0.28936057	2.2638266	20	5 28.1	19.9
414136 2007 VB ₁₄₅	18.1	X	238.40032	192.37272	162.17598	2.84735	0.2137134	0.27800209	2.3250770	20	4 16.4	21.7
414137 2007 VC ₁₆₆	18.0	X	273.26360	245.37750	77.46846	3.41510	0.2271257	0.27938216	2.3174139	20	4 8.9	21.3
414138 2007 VB ₂₁₇	17.5	X	8.88778	186.72466	49.39954	8.69160	0.0888805	0.27539395	2.3397338	20	5 25.3	19.7
414139 2007 VY ₂₂₃	17.6	X	216.14264	339.35466	58.09743	10.74866	0.1225127	0.28176801	2.3043136	20	5 25.7	20.8
414140 2007 VL ₂₃₉	18.5	X	131.60493	181.79935	227.80735	2.54055	0.1507284	0.26259596	2.4151495	20	3 15.6	21.9
414141 2007 VQ ₂₄₇	18.1	X	250.87728	182.35791	168.02533	5.66245	0.1477765	0.28024325	2.3126644	20	4 30.5	21.4
414142 2007 VQ ₂₅₆	18.1	X	170.09294	269.61776	175.29426	5.95781	0.0574384	0.27973474	2.3154662	20	6 9.6	21.3
414143 2007 VR ₂₇₃	18.4	X	180.95635	283.40420	167.22854	4.40329	0.1233623	0.28121301	2.3073445	20	6 29.2	21.9
414144 2007 VC ₂₈₅	17.3	X	292.55716	202.94626	75.19111	7.13304	0.1061218	0.26946653	2.3739204	20	3 23.7	20.3
414145 2007 VB ₂₉₂	18.3	X	167.08340	273.57695	150.63063	1.36466	0.1685327	0.27205536	2.3588366	20	5 12.0	21.8
414146 2007 VU ₂₉₃	17.9	X	112.39140	7.46779	110.54934	3.57511	0.1217684	0.27103011	2.3647815	20	5 21.8	21.0
414147 2007 VH ₃₁₀	17.4	X	186.40543	108.66781	296.22997	4.95739	0.1113602	0.26702274	2.3883825	20	5 2.8	20.9
414148 2007 VE ₃₁₃	18.5	X	116.69055	199.02361	291.09734	1.26666	0.1708020	0.27188056	2.3598475	20	6 17.4	21.9
414149 2007 VJ ₃₃₅	17.6	X	58.71461	94.93959	87.89835	8.28991	0.1401187	0.27052302	2.3677357	20	6 10.5	20.0
414150 2007 WK ₅	18.0	X	234.70960	296.58119	58.69865	3.71876	0.1977606	0.27755318	2.3275833	20	4 15.3	21.6
414151 2007 WG ₁₁	17.5	X	171.66243	314.59170	129.09393	5.55660	0.1964700	0.27683945	2.3315822	20	6 11.3	21.2
414152 2007 WM ₂₆	17.4	X	352.39760	177.18586	71.27134	7.35392	0.0792739	0.27729625	2.3290209	20	5 15.9	19.7
414153 2007 WK ₂₈	18.3	X	188.62993	357.69328	22.91918							

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
414161 2007 YO ₄₅	17.5	X	113.77986	318.84921	144.66586	1.59150	0.1409183	0.26095118	2.4252874	20	5 6.1	20.8
414162 2007 YD ₇₀	16.7	X	339.57823	266.77947	296.79824	15.17119	0.0565706	0.25235742	2.4800399	20	2 17.4	19.9
414163 2008 AF ₁₃	17.9	X	169.59909	182.47748	259.58638	3.63901	0.1317223	0.27005850	2.3704501	20	6 5.7	21.4
414164 2008 AW ₃₂	17.5	X	196.12191	330.39001	89.36362	3.46291	0.1907720	0.27383457	2.3486080	20	6 1.8	21.1
414165 2008 AS ₆₁	18.2	X	188.93698	240.02647	160.16671	2.43349	0.2049426	0.26764469	2.3846810	20	5 1.8	22.0
414166 2008 AU ₆₇	16.2	X	199.53032	296.16627	309.18677	13.88137	0.1053089	0.22648986	2.6654480	20	—	—
414167 2008 AX ₈₂	17.8	X	67.91038	49.66501	66.56287	2.31433	0.1258339	0.25453385	2.4658824	20	3 19.0	20.5
414168 2008 AB ₈₉	17.5	X	46.14980	248.20892	266.45295	0.42097	0.1269040	0.25591125	2.4570263	20	4 4.6	19.9
414169 2008 AA ₉₁	17.9	X	219.05216	135.81009	222.16211	1.56422	0.2494496	0.26718365	2.3874235	20	4 1.7	21.8
414170 2008 AS ₉₇	18.3	X	171.15379	67.81570	2.76063	2.14641	0.1967382	0.26882433	2.3776997	20	5 23.8	22.1
414171 2008 AG ₉₉	18.0	X	170.33455	54.02001	27.24416	2.85742	0.1759969	0.26963580	2.3729268	20	6 5.7	21.8
414172 2008 AR ₁₀₂	17.9	X	111.99749	125.39215	353.37683	3.68351	0.1544548	0.26167095	2.4208379	20	5 24.8	21.3
414173 2008 AU ₁₂₈	18.5	X	101.42480	107.84230	19.83310	1.77507	0.1349124	0.26348297	2.4097261	20	5 22.1	21.5
414174 2008 AK ₁₃₅	17.1	X	54.81061	111.07482	32.62910	7.91232	0.0715308	0.25498898	2.4629473	20	3 30.5	20.0
414175 2008 BE ₁₄	17.9	X	134.00042	352.51735	106.13436	5.51388	0.1868527	0.26352024	2.4094989	20	5 26.8	21.6
414176 2008 BK ₃₂	17.4	X	97.88139	330.97849	152.77321	11.47453	0.1048988	0.25613563	2.4555911	20	5 11.9	20.8
414177 2008 BE ₃₈	17.3	X	311.42549	44.64056	163.08054	6.22388	0.1211475	0.23982724	2.5656872	20	1 12.2	20.6
414178 2008 CW	18.5	X	157.63897	73.37842	6.75597	1.49675	0.1617345	0.26762435	2.3848019	20	5 22.7	22.1
414179 2008 CA ₄	17.7	X	119.57391	21.98263	81.39180	3.33495	0.1533834	0.26168257	2.4207662	20	5 14.2	21.0
414180 2008 CO ₆	17.9	X	55.18540	182.93070	37.70395	0.82813	0.1203043	0.25969257	2.4331172	20	4 28.3	20.5
414181 2008 CJ ₃₃	18.3	X	138.57922	54.51199	39.34295	1.77487	0.1534052	0.26216633	2.4177874	20	5 21.3	21.7
414182 2008 CF ₃₉	17.7	X	215.23626	285.10284	131.62506	6.05327	0.1992233	0.27349832	2.3505326	20	6 15.4	21.4
414183 2008 CS ₆₅	17.9	X	81.81820	254.47539	241.26141	1.45782	0.1659364	0.25769146	2.4456972	20	5 12.3	20.7
414184 2008 CR ₈₁	16.7	X	305.57657	64.04013	138.19796	16.21785	0.0849422	0.23844729	2.5755765	20	1 4.3	20.3
414185 2008 CE ₁₀₉	17.2	X	232.75299	34.77407	201.67792	2.96737	0.1384806	0.22493425	2.6777230	20	—	—
414186 2008 CN ₁₀₉	17.2	X	273.44606	276.44136	306.44580	4.90337	0.0645517	0.23310316	2.6147927	20	—	—
414187 2008 CL ₁₃₇	15.9	X	197.29583	348.41348	347.59726	8.87379	0.1874480	0.24422679	2.5347815	20	2 21.8	20.0
414188 2008 CZ ₁₄₁	16.3	X	193.34846	160.26563	163.40455	32.44995	0.0571658	0.23878002	2.5731833	20	1 29.7	20.5
414189 2008 CG ₁₅₉	17.8	X	138.20194	35.61809	54.67317	3.78476	0.2081837	0.26039089	2.4287652	20	5 20.5	21.7
414190 2008 CH ₁₇₁	17.1	X	214.03223	69.34543	221.71002	4.58647	0.1630023	0.23672601	2.5880465	20	1 12.0	21.3
414191 2008 CS ₁₇₄	16.4	X	256.92015	93.82344	181.36965	9.51555	0.1672762	0.24235003	2.5478508	20	1 29.3	20.6
414192 2008 CU ₁₉₂	17.6	X	262.36771	325.16952	307.38184	3.04518	0.0623995	0.24568753	2.5247244	20	2 11.7	20.9
414193 2008 CZ ₁₉₇	17.2	X	238.25851	252.36445	356.13896	7.60534	0.1612133	0.22615909	2.6680462	20	—	—
414194 2008 CB ₂₀₀	16.9	X	223.03641	251.51100	2.94534	10.87722	0.0850398	0.22666991	2.6640363	20	—	—
414195 2008 CC ₂₁₀	17.9	X	156.88496	84.29938	354.42710	2.09509	0.1810209	0.26336180	2.4104652	20	5 20.8	21.8
414196 2008 CK ₂₁₀	16.9	X	214.37790	263.79965	341.32535	10.46332	0.1526511	0.22454947	2.6807812	20	—	—
414197 2008 CD ₂₁₅	17.1	X	286.19974	299.38115	268.70706	3.99642	0.2023157	0.23305294	2.6151684	20	—	—
414198 2008 DE ₆	18.1	X	128.44446	121.97964	329.09642	4.38178	0.1962026	0.26218906	2.4176477	20	5 9.5	21.9
414199 2008 DT ₁₅	14.9	X	218.24510	150.63166	356.54759	13.39286	0.2109337	0.12659152	3.9282548	20	9 25.9	21.2
414200 2008 DW ₁₅	17.0	X	318.21236	208.77866	11.06935	10.63962	0.0599095	0.24472276	2.5313555	20	2 19.5	20.3
414201 2008 DU ₃₆	17.0	X	242.17088	50.35916	177.76914	9.59748	0.0481736	0.22645916	2.6656888	20	—	—
414202 2008 DU ₄₃	17.1	X	59.90619	61.72801	4.88677	14.50861	0.0869550	0.23205645	2.6226497	20	—	—
414203 2008 DE ₆₆	16.6	X	279.86511	222.99921	346.20120	12.51929	0.1238641	0.22753889	2.6572492	20	—	—
414204 2008 DF ₆₆	18.2	X	196.30977	254.34385	352.29657	20.87141	0.0169941	0.37979232	1.8884490	20	—	—
414205 2008 DB ₆₇	17.0	X	90.57531	102.40041	343.33791	10.78738	0.1059479	0.24366303	2.5386897	20	3 7.6	20.1
414206 2008 DX ₇₇	17.6	X	215.96450	256.38246	6.30383	7.14046	0.0241996	0.23096203	2.6309282	20	—	—
414207 2008 DQ ₇₈	17.3	X	330.08230	4.70415	158.69381	9.29842	0.0516745	0.23340404	2.6125451	20	—	—
414208 2008 ET ₆	16.7	X	284.12445	187.69470	69.67203	9.40463	0.1140380	0.24132166	2.5550840	20	2 16.5	20.4
414209 2008 EY ₁₅	16.7	X	160.29565	199.13070	176.06274	10.55865	0.1177874	0.23972894	2.5663885	20	3 1.3	20.7
414210 2008 EN ₁₆	16.8	X	49.50867	94.91728	4.16428	22.09211	0.1027983	0.23626702	2.5913972	20	2 3.1	20.2
414211 2008 EY ₁₉	16.0	X	159.65705	18.02884	0.06667	11.03033	0.1465827	0.24197615	2.5504746	20	3 8.8	19.9
414212 2008 EN ₂₂	16.7	X	246.94420	75.86759	163.81560	5.45744	0.1094296	0.23057780	2.6338501	20	—	—
414213 2008 EN ₄₂	16.6	X	186.38555	260.23852	21.73058	13.14817	0.1752405	0.21914294	2.7246940	20	—	—
414214 2008 ES ₄₄	17.1	X	175.87497	250.12388	73.36354	2.06470	0.0210339	0.23098846	2.6307275	20	1 9.0	20.7
414215 2008 EF ₄₆	16.4	X	177.25637	101.07455	248.63435	7.55015	0.1067201	0.23613219	2.5923835	20	2 13.6	20.4
414216 2008 EE ₇₀	17.1	X	163.59185	87.32349	358.57834	21.81043	0.2555821	0.26838473	2.3802954	20	6 2.8	21.7
414217 2008 EN ₇₄	17.2	X	259.72750	77.48453	135.91265	3.21940	0.1417669	0.22519432	2.6756610	20	—	—
414218 2008 EZ ₈₂	17.6	X	301.66637	190.33078	342.78926	19.30663	0.0568443	0.38971426	1.8562588	20	—	—
414219 2008 EE ₁₂₆	17.3	X	197.83022	266.71560	352.88564	1.91108	0.0473969	0.22054861	2.7131043	20	—	—
414220 2008 EL ₁₅₂	17.0	X	308.13184	156.95779	70.76220	7.49406	0.1137800	0.23876942	2.5732594	20	2 7.3	20.4
414221 2008 EP ₁₆₅	16.8	X	235.36269	214.38416	40.21450	10.29520	0.2126045	0.22585084	2.6704733	20	—	—
414222 2008 FZ ₆	16.7	X	348.10914	14.04009	147.80477	13.88834	0.1284155	0.23404618	2.6077643	20	1 4.6	19.9
414223 2008 FV ₇	16.8	X	122.47007	181.30521	178.25192	13.10896	0.0489883	0.23182979	2.6243588	20	—	—
414224 2008 FA ₁₈	18.1	X	110.21746	177.02492	173.10593	21.45456	0.1048953	0.38677133	1.8656630	20	—	—
414225 2008 FS ₂₀	17.6	X	43.72467	35.40280	88.69668	5.56380	0.1806265	0.24085919	2.5583536	20	2 25.3	19.9
414226 2008 FX ₂₈	17.7	X	92.84597	241.94795	241.32426	1.71339	0.1435121	0.25589044	2.4571594	20	5 6.4	20.8
414227 2008 FG ₄₁	16.9	X	147.83228	284.69803	54.85420	7.02783	0.0560805	0.22546885	2.6734887	20	—	—
414228 2008 FB ₅₁	16.4	X	181.22719	330.90170	18.09731	11.42822	0.0302118	0.23796830	2.5790314	20	2 21.2	20.1
414229 2008 FV ₅₄	16.7	X	332.74865	148.91235	29.47362	7.99994	0.0534466	0.23223553	2.6213013	20	1 16.7	20.2
414230 2008 FM ₆₉	17.0	X	27.58202	95.39615	42.74016	12.89132	0.1231286	0.23627676	2.5913260	20	2 16.2	20.0
414231 2008 FF ₇₀	16.6	X	265.93726	192.66805	40.56674	10.14022	0.1084892	0.22476201	2.6790909	20	—	—
414232 2008 FL ₇₀	16.9	X	339.80741	144.41507	32.57797	14.75728	0.0570674	0.23079650	2.6321860	20	1 27.6	20.6
414233 2008 FS ₇₂	17.0	X	220.44139	96.12699	180.81235	15.77243	0.0650764	0.22766830	2.6562422	20	1 2.9	21.2
414234 2008 FA ₇₄	17.3	X	2.53181	130.55987	38.84103	15.34213	0.0353267	0.23717919	2.5847487			

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
414241 2008 <i>FY</i> ₁₃₁	17.6	X	156.65810	355.18287	102.67166	2.27200	0.1498740	0.25756530	2.4464958	20	6 13.9	21.3
414242 2008 <i>FS</i> ₁₃₅	17.1	X	37.28322	256.32108	215.67453	14.51198	0.0766592	0.23153419	2.6265920	20	1 16.9	20.6
414243 2008 <i>GW</i> ₁₇	16.8	X	95.38139	292.47150	162.95139	10.16988	0.0433563	0.24221757	2.5487796	20	3 19.5	20.1
414244 2008 <i>GO</i> ₂₁	15.7	X	285.07711	160.05931	66.81092	16.53177	0.2169407	0.22849153	2.6498583	20	—	—
414245 2008 <i>GA</i> ₂₄	17.0	X	102.35104	48.24832	32.48852	16.55229	0.0623305	0.24187492	2.5511862	20	3 18.8	20.5
414246 2008 <i>GN</i> ₂₆	16.9	X	94.18392	4.30246	36.51287	12.31839	0.0463500	0.22603796	2.6689993	20	1 10.1	20.6
414247 2008 <i>GS</i> ₃₀	17.3	X	226.71894	167.21763	98.98393	2.78822	0.0353512	0.22906504	2.6454335	20	—	—
414248 2008 <i>GT</i> ₃₁	16.7	X	4.86672	334.32083	173.06192	11.60682	0.1214945	0.23343184	2.6123377	20	1 12.1	19.8
414249 2008 <i>GC</i> ₃₂	13.7	X	324.60199	187.68358	66.84455	17.91594	0.0318449	0.08230815	5.2340857	20	4 28.8	20.6
414250 2008 <i>GH</i> ₃₆	16.3	X	115.05903	6.60359	58.93773	16.20567	0.0900375	0.23706062	2.5856105	20	3 21.8	20.1
414251 2008 <i>GY</i> ₃₆	16.2	X	262.13693	164.11720	53.16421	14.67934	0.1879127	0.22196896	2.7015181	20	—	—
414252 2008 <i>GN</i> ₃₇	16.3	X	123.79257	327.46798	51.85650	12.33972	0.0101727	0.22621716	2.6675897	20	1 15.9	20.1
414253 2008 <i>GY</i> ₄₁	16.7	X	194.22075	172.52051	85.63370	4.76409	0.0558290	0.21608392	2.7503486	20	—	—
414254 2008 <i>GC</i> ₇₅	17.1	X	318.81485	58.98349	108.03657	5.82313	0.0768583	0.22619793	2.6677408	20	—	—
414255 2008 <i>GD</i> ₇₇	17.0	X	168.37655	167.50478	105.17418	6.32948	0.0464358	0.21233258	2.7826481	20	—	—
414256 2008 <i>GJ</i> ₇₇	13.8	X	215.92889	284.20710	90.93792	10.82684	0.0372668	0.08336350	5.1898175	20	5 10.1	20.9
414257 2008 <i>GT</i> ₇₇	16.7	X	74.69707	339.66560	81.92055	6.35181	0.0338381	0.22646548	2.6656393	20	1 7.6	20.1
414258 2008 <i>GD</i> ₇₈	16.1	X	281.99334	183.68941	52.01147	14.10733	0.1964806	0.22943179	2.6426135	20	1 7.2	20.3
414259 2008 <i>GH</i> ₈₇	17.9	X	126.12283	12.89949	107.29735	3.64357	0.2352981	0.25979323	2.4324887	20	6 19.2	21.9
414260 2008 <i>GQ</i> ₈₈	17.4	X	121.32409	310.03321	89.16907	3.28560	0.0258051	0.23391589	2.6087326	20	2 7.2	20.8
414261 2008 <i>GV</i> ₈₈	17.1	X	114.60768	164.17418	198.39150	9.15414	0.0647015	0.22371489	2.6874442	20	—	—
414262 2008 <i>GN</i> ₉₂	18.8	X	96.33421	123.95550	199.65735	21.31698	0.0902139	0.37153895	1.9163132	20	—	—
414263 2008 <i>GP</i> ₁₀₅	17.0	X	130.88315	307.69376	90.51840	6.54736	0.2076056	0.23965649	2.5669057	20	3 12.9	21.0
414264 2008 <i>GN</i> ₁₁₁	17.9	X	221.25776	53.73137	198.94208	21.11661	0.0571215	0.38430975	1.8736211	20	—	—
414265 2008 <i>GC</i> ₁₁₃	16.3	X	349.41135	100.71016	105.07005	13.52055	0.1204090	0.24032268	2.5621598	20	3 13.6	19.4
414266 2008 <i>GW</i> ₁₂₁	17.4	X	172.63532	334.03655	114.34018	3.50169	0.1707991	0.25993930	2.4315773	20	6 17.5	21.3
414267 2008 <i>GW</i> ₁₂₃	17.1	X	207.26309	254.42189	358.73790	8.48284	0.1422914	0.21873566	2.7280751	20	—	—
414268 2008 <i>HP</i>	17.1	X	349.16567	144.51391	24.01040	11.37484	0.1054772	0.23546769	2.5972585	20	1 21.7	20.4
414269 2008 <i>HW</i> ₁₁	16.9	X	255.45697	170.00061	52.68481	10.01936	0.1528559	0.22221115	2.6995548	20	—	—
414270 2008 <i>HG</i> ₂₁	16.2	X	348.95436	325.87664	222.19059	26.58244	0.2000261	0.23535813	2.5980644	20	1 22.0	19.7
414271 2008 <i>HR</i> ₂₂	17.2	X	165.81400	80.78828	215.97903	5.01806	0.0685469	0.21951403	2.7216224	20	—	—
414272 2008 <i>HZ</i> ₃₂	17.6	X	35.14545	81.90185	77.79058	5.44407	0.1669508	0.24262759	2.5459073	20	3 31.1	20.0
414273 2008 <i>JC</i> ₄	15.1	X	31.52353	46.36833	235.11654	22.08468	0.1773494	0.17708175	3.1406546	20	9 2.3	19.5
414274 2008 <i>JR</i> ₈	16.6	X	207.28859	220.60296	61.55880	9.24028	0.1619029	0.22623190	2.6674738	20	—	—
414275 2008 <i>JO</i> ₂₁	13.8	X	297.39430	213.59381	66.06785	23.38733	0.0558965	0.08068919	5.3038652	20	4 25.7	20.8
414276 2008 <i>JF</i> ₃₂	15.8	X	102.20860	347.15210	300.13101	16.19242	0.2766385	0.19634867	2.9316857	20	12 16.6	21.1
414277 2008 <i>JU</i> ₃₄	16.9	X	142.78041	150.68971	171.40161	9.95497	0.1120249	0.21170976	2.7881029	20	—	—
414278 2008 <i>JV</i> ₃₅	16.6	X	113.89712	324.45829	61.36431	7.01899	0.0723372	0.22358534	2.6884822	20	1 20.6	20.3
414279 2008 <i>KB</i> ₂₆	17.4	X	87.63354	254.28944	70.36689	23.68832	0.0688398	0.36613355	1.9351280	20	—	—
414280 2008 <i>KA</i> ₃₆	16.9	X	338.28253	96.00044	82.98206	7.90403	0.1178695	0.23138382	2.6277299	20	1 15.3	20.0
414281 2008 <i>KA</i> ₄₃	16.3	X	322.94770	86.15060	131.18641	13.98702	0.2143746	0.23313104	2.6145843	20	1 27.5	19.5
414282 2008 <i>MN</i> ₃	15.1	X	47.68982	309.98485	23.59602	27.35061	0.2338750	0.17451768	3.1713421	20	12 7.4	20.1
414283 2008 <i>MW</i> ₄	16.9	X	53.96026	80.55588	229.23811	12.07190	0.3504574	0.18114170	3.0935496	20	12 8.0	21.8
414284 2008 <i>ML</i> ₅	15.2	X	42.15638	219.12074	124.83112	18.18662	0.1991443	0.17918158	3.1160695	20	12 18.6	19.8
414285 2008 <i>OY</i>	17.3	X	203.95477	72.68726	127.11152	23.38374	0.0673226	0.35722934	1.9671522	20	—	—
414286 2008 <i>OC</i> ₆	18.6	X	33.41728	295.85280	177.60171	21.84470	0.1992434	0.11154689	0.9229628	20	—	—
414287 2008 <i>OB</i> ₉	17.7	X	347.89550	238.59078	202.69754	13.49496	0.7586639	0.17167858	3.2062101	20	—	—
414288 2008 <i>OD</i> ₁₆	16.6	X	30.44965	77.11884	285.33190	4.00052	0.1770376	0.18273033	3.0755936	20	12 22.2	20.7
414289 2008 <i>PU</i> ₇	15.8	X	77.58679	29.10525	285.34347	10.32019	0.1248484	0.18381268	3.0635084	20	12 12.1	20.4
414290 2008 <i>PY</i> ₁₄	16.2	X	38.21217	21.06586	323.27391	15.40292	0.2058158	0.17892583	3.1190382	20	12 13.2	20.8
414291 2008 <i>PF</i> ₂₂	15.5	X	25.55399	15.64029	336.71315	26.95087	0.1456781	0.17315024	3.1880172	20	11 16.7	20.3
414292 2008 <i>QE</i> ₁	16.2	X	20.41205	205.34072	148.11877	16.20947	0.2590597	0.17420132	3.1751805	20	12 9.9	20.5
414293 2008 <i>QE</i> ₆	16.1	X	102.94270	65.36917	231.69627	9.23665	0.0852261	0.18332871	3.0688975	20	12 13.8	20.8
414294 2008 <i>QC</i> ₁₂	16.6	X	77.23432	175.79536	151.15400	3.81937	0.2350687	0.18437440	3.0572829	20	—	—
414295 2008 <i>QJ</i> ₂₁	15.5	X	43.32006	14.88565	323.75801	21.86324	0.1782006	0.17704843	3.1410487	20	12 7.4	20.3
414296 2008 <i>QJ</i> ₄₄	15.4	X	65.62840	261.16494	74.05310	17.55767	0.2140046	0.18080496	3.0973895	20	—	—
414297 2008 <i>QY</i> ₄₅	16.4	X	37.64372	87.25016	251.37881	14.68404	0.2746276	0.17632369	3.1496499	20	12 14.4	20.8
414298 2008 <i>RT</i> ₁	15.9	X	343.39275	84.02861	358.61371	15.48974	0.0727745	0.18235718	3.0797878	20	—	—
414299 2008 <i>RV</i> ₁₁	16.6	X	113.64972	270.17138	12.57196	9.50840	0.0302407	0.17808020	3.1289044	20	12 1.5	21.3
414300 2008 <i>RQ</i> ₁₃	16.0	X	121.60837	68.06834	190.80562	16.19066	0.1372545	0.17724958	3.1386718	20	11 21.3	21.2
414301 2008 <i>RS</i> ₁₈	16.6	X	84.66562	130.17954	195.34211	10.31349	0.0654029	0.18147756	3.0897316	20	12 25.2	21.3
414302 2008 <i>RC</i> ₂₆	16.0	X	359.75093	172.15847	227.70963	16.23106	0.1279824	0.17983211	3.1085502	20	12 16.3	20.0
414303 2008 <i>RX</i> ₂₉	16.5	X	44.98096	6.81114	353.74274	1.26082	0.1132340	0.17961669	3.1110351	20	12 28.1	20.7
414304 2008 <i>RA</i> ₃₃	16.4	X	331.89388	238.62514	203.31023	4.90169	0.1755467	0.17755283	3.1350970	20	12 26.4	20.0
414305 2008 <i>RC</i> ₄₃	15.9	X	262.09229	121.91824	8.10212	15.07392	0.0510877	0.17349826	3.1837525	20	11 13.6	20.6
414306 2008 <i>RR</i> ₄₅	16.3	X	258.78198	143.11350	13.21284	10.26925	0.0845978	0.17944414	3.1130293	20	12 11.6	20.7
414307 2008 <i>RQ</i> ₅₃	16.4	X	8.92584	217.77033	182.63981	13.93958	0.1624094	0.18073884	3.0981448	20	—	—
414308 2008 <i>RJ</i> ₇₆	16.4	X	47.85669	281.19589	90.81069	6.94357	0.1681671	0.18419750	3.0592401	20	—	—
414309 2008 <i>RF</i> ₇₉	16.2	X	353.83843	75.89698	321.44089	11.09526	0.1681364	0.17669481	3.1452381	20	12 6.7	20.1
414310 2008 <i>RM</i> ₈₅	16.0	X	29.84779	158.13661	198.84283	10.15100	0.2237185	0.17569801	3.1571230	20	12 19.5	20.3
414311 2008 <i>RV</i> ₈₉	16.4	X	275.26314	137.85553	337.78508	8.48179	0.0450488	0.17221127	3.1995950	20	11 15.4	21.0
414312 2008 <i>RU</i> ₉₉	15.7	X	22.36392	20.60302	3.97886	13.92706	0.064					

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
414321 2008 RA ₁₄₁	15.4	X	104.10446	262.27556	7.85485	25.34168	0.2411943	0.17965308	3.1106151	20	11 14.3	21.0
414322 2008 RP ₁₄₁	17.1	X	349.65791	51.79725	2.35356	1.57308	0.1721826	0.17749948	3.1357252	20	12 22.7	20.7
414323 2008 RD ₁₄₆	16.3	X	59.13968	90.81884	209.24872	16.31091	0.2419712	0.17225328	3.1990747	20	11 18.6	21.1
414324 2008 SS ₈	16.2	X	34.76246	6.87120	338.03457	10.02694	0.1848269	0.17559444	3.1583642	20	12 4.3	20.6
414325 2008 SG ₂₅	15.6	X	106.54528	271.54313	5.76254	25.48242	0.2241155	0.17950606	3.1123133	20	11 24.6	21.3
414326 2008 SU ₂₈	16.2	X	46.63900	41.14098	309.93935	2.94039	0.1084288	0.17627276	3.1502564	20	12 17.2	20.5
414327 2008 SC ₆₄	16.3	X	64.87531	117.80699	232.44053	16.93608	0.1398407	0.18524355	3.0477124	20	—	—
414328 2008 SH ₇₇	16.0	X	296.36898	111.40802	1.03599	19.39465	0.1866924	0.17427509	3.1742845	20	11 21.8	20.1
414329 2008 SD ₉₀	15.9	X	39.32152	328.52137	2.33752	12.87269	0.0911256	0.16932790	3.2358151	20	11 5.7	20.5
414330 2008 SR ₉₇	16.7	X	42.95476	166.43394	209.97710	9.97010	0.1227575	0.17865368	3.1222049	20	—	—
414331 2008 SY ₁₁₃	16.4	X	61.02577	300.84197	37.11515	10.75863	0.1002917	0.17606700	3.1527103	20	12 16.2	21.1
414332 2008 SZ ₁₃₃	16.6	X	332.87667	248.65926	181.36203	8.52928	0.2269161	0.17760154	3.1345238	20	12 15.3	19.9
414333 2008 SN ₁₅₁	15.3	X	123.99520	252.07554	10.84485	26.56396	0.0692185	0.17414918	3.1758142	20	11 12.5	20.5
414334 2008 SC ₁₇₀	16.3	X	107.76233	73.14761	199.56093	8.87762	0.0517703	0.17552839	3.1591565	20	11 17.3	20.9
414335 2008 SB ₁₉₂	16.5	X	336.53948	326.41912	95.73194	3.39488	0.1938573	0.17036374	3.2226856	20	12 7.9	19.8
414336 2008 SX ₂₁₄	16.9	X	332.44438	252.86787	181.68455	1.28954	0.0812904	0.17703415	3.1412176	20	12 15.3	20.9
414337 2008 SC ₂₁₈	15.2	X	20.13790	84.58634	247.48389	19.16605	0.1917588	0.16500942	3.2920283	20	10 25.8	19.5
414338 2008 SD ₂₁₉	15.9	X	353.57877	159.06899	230.29523	5.15619	0.1185360	0.17215959	3.2002352	20	11 21.6	19.8
414339 2008 SK ₂₂₃	16.0	X	132.06721	271.66377	346.29669	8.61147	0.0534225	0.17553027	3.1591340	20	11 22.8	20.9
414340 2008 SH ₂₄₅	15.9	X	145.25488	41.94030	211.03133	21.74041	0.0627671	0.17711244	3.1401498	20	12 3.3	20.9
414341 2008 SQ ₂₅₂	16.8	X	11.57966	232.72034	160.38054	2.36886	0.1820682	0.17491262	3.1665665	20	12 31.8	20.7
414342 2008 SB ₂₅₃	16.5	X	344.83906	88.15053	305.62799	2.35040	0.1505101	0.16836458	3.2481461	20	11 12.8	20.3
414343 2008 SK ₂₇₈	16.3	X	1.22971	117.31695	280.33631	5.08804	0.1399844	0.17377250	3.1804020	20	12 16.2	20.3
414344 2008 SX ₂₈₂	16.2	X	358.58078	204.95406	202.05299	17.50441	0.2281026	0.17649095	3.1476595	20	—	—
414345 2008 SW ₂₈₆	15.3	X	23.24560	108.64643	263.70858	14.28933	0.2653591	0.17484963	3.1673271	20	—	—
414346 2008 SV ₂₈₇	15.9	X	212.38058	304.08337	239.91664	4.83313	0.0728384	0.17048607	3.2211438	20	11 21.2	20.6
414347 2008 SK ₃₀₃	16.2	X	89.94297	72.52054	209.40809	25.14956	0.3118755	0.17764598	3.1340009	20	11 30.5	21.8
414348 2008 SD ₃₀₈	16.2	X	33.40659	125.60461	217.17211	17.08520	0.2202395	0.17228575	3.1986728	20	12 5.8	20.6
414349 2008 TQ ₈	15.9	X	243.82199	337.58502	179.96386	9.16608	0.0533560	0.17433334	3.1733346	20	11 30.4	20.5
414350 2008 TJ ₁₈	15.9	X	152.21186	37.93629	221.35213	18.62384	0.0304442	0.17258008	3.1905349	20	12 16.3	20.8
414351 2008 TD ₃₁	16.2	X	312.66506	87.70686	33.73948	7.10726	0.1517431	0.17661600	3.1461737	20	—	—
414352 2008 TB ₃₂	16.6	X	50.29883	205.15062	143.79125	1.56673	0.0405444	0.17283789	3.1918569	20	12 9.2	21.0
414353 2008 TO ₄₄	16.3	X	14.04563	341.15164	35.95652	1.57631	0.1572692	0.16966237	3.2315610	20	12 10.8	20.3
414354 2008 TP ₅₀	16.4	X	8.02353	195.00114	194.45902	9.11700	0.1099739	0.17363150	3.1821235	20	12 13.0	20.6
414355 2008 TO ₅₆	16.8	X	28.73042	169.71776	200.10300	9.30309	0.0725508	0.17354000	3.1832420	20	12 12.2	21.2
414356 2008 TB ₇₅	15.9	X	342.03615	137.95594	214.57268	9.23085	0.0400580	0.15565798	3.4225919	20	9 10.5	20.6
414357 2008 TL ₇₉	15.8	X	262.82034	126.80702	24.68034	11.32579	0.0929202	0.17657955	3.1466066	20	12 7.7	20.2
414358 2008 TL ₉₅	16.1	X	185.11193	13.97276	215.77520	17.32232	0.0547214	0.18042558	3.1017299	20	12 18.0	20.9
414359 2008 TW ₁₀₆	16.2	X	117.43197	229.57775	27.28788	16.43583	0.2077445	0.17454250	3.1710415	20	11 13.3	21.6
414360 2008 TH ₁₁₂	15.6	X	344.24294	229.68730	214.03857	26.38711	0.1890815	0.17562814	3.1579601	20	—	—
414361 2008 TE ₁₂₆	15.7	X	16.64805	7.48948	356.13284	11.09780	0.0680225	0.17048000	3.2212203	20	11 13.7	20.2
414362 2008 TF ₁₂₈	16.3	X	299.84801	252.52574	214.36993	15.79622	0.1218215	0.17285064	3.1916999	20	12 3.8	20.4
414363 2008 TU ₁₄₉	16.3	X	62.78684	288.43543	23.85899	12.39071	0.1283394	0.17278503	3.1925079	20	11 19.1	21.0
414364 2008 TZ ₁₄₉	16.4	X	66.45020	301.20766	40.36418	5.30507	0.1269192	0.17933699	3.1142691	20	12 31.6	21.0
414365 2008 TC ₁₉₁	16.4	X	336.04191	251.30363	182.90380	1.21185	0.0914855	0.17406597	3.1768263	20	12 19.6	20.3
414366 2008 UG ₉	16.3	X	26.22361	178.83618	192.69341	11.39197	0.1038471	0.17617518	3.1514196	20	12 15.8	20.7
414367 2008 UO ₁₅	16.2	X	329.35882	247.10796	201.37015	15.12795	0.2683935	0.17353215	3.1833379	20	12 29.9	19.5
414368 2008 UN ₆₈	16.1	X	288.14283	37.35357	94.91994	6.28398	0.1437841	0.17434335	3.1734558	20	12 15.4	20.1
414369 2008 UO ₉₂	15.6	X	75.09295	255.73302	64.03455	16.93410	0.2497568	0.17678130	3.1442121	20	12 25.7	20.8
414370 2008 UU ₁₁₃	15.9	X	68.31209	95.24979	229.42041	18.10768	0.1284287	0.17147537	3.2087426	20	12 11.5	20.8
414371 2008 UD ₁₃₄	15.6	X	123.37214	3.51849	226.81703	13.67880	0.0278190	0.15799532	3.3887529	20	10 6.7	20.7
414372 2008 UP ₂₀₄	15.9	X	27.17597	148.39889	242.71057	16.26347	0.2047529	0.17930026	3.1146943	20	—	—
414373 2008 UT ₂₃₆	16.3	X	50.90812	106.68193	228.12607	8.69301	0.0884314	0.17159385	3.2072654	20	11 29.5	20.7
414374 2008 UO ₂₄₉	15.6	X	350.47734	53.58338	28.35603	18.75347	0.2025559	0.17912594	3.1167148	20	—	—
414375 2008 UQ ₂₅₁	16.2	X	55.02304	296.89734	37.80814	5.89563	0.1279098	0.16963907	3.2318569	20	12 8.1	20.8
414376 2008 UB ₂₅₃	15.2	X	94.03207	266.54123	25.77928	25.75723	0.2296410	0.17881507	3.1203260	20	12 3.4	20.7
414377 2008 UW ₂₉₀	15.6	X	243.78198	293.40575	242.99989	9.48750	0.0514427	0.17407358	3.1767337	20	12 21.3	20.1
414378 2008 UV ₃₀₉	15.7	X	287.52628	170.77085	319.96512	6.86138	0.0123537	0.17809680	3.1287100	20	12 26.8	20.2
414379 2008 UR ₃₃₈	18.2	X	159.31803	143.09534	25.79611	1.94276	0.0581629	0.31801061	2.1257310	20	9 27.7	20.9
414380 2008 UH ₃₄₆	18.1	X	244.04374	331.17254	92.63468	5.84632	0.1123625	0.30811990	2.1709820	20	8 11.1	20.6
414381 2008 US ₃₆₁	16.1	X	23.52736	107.44689	260.64790	10.73484	0.0862260	0.17220267	3.1997015	20	12 4.5	20.4
414382 2008 UU ₃₆₃	15.1	X	70.54892	201.07730	98.81223	20.40007	0.1905117	0.16930713	3.2360798	20	11 27.2	20.2
414383 2008 UW ₃₆₈	15.4	X	294.21075	339.90521	80.41944	11.88885	0.0827482	0.15605851	3.4167333	20	10 5.4	20.2
414384 2008 VA ₇₃	15.3	X	346.38865	276.98085	68.02237	17.14555	0.0856682	0.15303943	3.4615225	20	9 20.0	20.1
414385 2008 WT ₉	16.4	X	31.50737	12.41837	79.52454	2.92959	0.1541640	0.18422196	3.0589692	20	—	—
414386 2008 WT ₁₄	15.5	X	43.05944	106.41423	229.31133	23.69009	0.1514903	0.16932910	3.2357999	20	11 28.8	20.0
414387 2008 WO ₉₁	17.2	X	119.75870	45.90012	115.05895	5.02856	0.1073761	0.29511330	2.2343105	20	7 28.8	20.2
414388 2008 WF ₁₃₀	18.7	X	285.86131	42.55875	325.56085	1.09967	0.1214027	0.31282905	2.1491398	20	7 19.2	20.8
414389 2008 XD ₅₁	15.8	X	335.06367	212.25517	269.50102	9.97046	0.1228453	0.17446461	3.1719852	20	—	—
414390 2008 YM ₄₈	17.7	X	118.03290	105.82870	79.93022	2.25716	0.0824475	0.30221072	2.1991903	20	8 30.4	20.4
414391 2008 YM ₅₄	17.2	X	104.23301	102.56576	83.97327	5.12212	0.0593507	0.29832356	2.2182527	20	8 11.4	19.9
414392 2008 YK ₁₁₆	18.0	X	191.83288	12.69540	105.83501	5.22101	0.0780224	0.30740167	2.1743623	20	8 26.5	20.8
414393 2008 YK ₁₄₉	18.7	X	289.14609	295.35764	83.92646	1.80260	0.1939838					

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
414401 2009 BY ₃₈	17.5	X	319.68655	139.33526	123.96368	7.38945	0.1442704	0.27817062	2.3241378	20	4 4.5	20.0
414402 2009 BV ₃₉	17.6	X	329.18776	155.84698	109.86652	5.50073	0.1423721	0.28092487	2.3089220	20	4 24.3	19.8
414403 2009 BY ₄₆	18.0	X	117.20256	2.83328	159.36379	4.14505	0.1195846	0.29277231	2.2462050	20	7 27.5	21.1
414404 2009 BK ₄₇	17.5	X	36.58443	248.61898	313.83847	5.58314	0.1388323	0.28071175	2.3100905	20	5 30.3	19.8
414405 2009 BC ₆₉	17.5	X	187.27297	121.89430	319.87259	6.08491	0.0713040	0.29354192	2.2422772	20	6 26.7	20.5
414406 2009 BL ₇₄	17.7	X	72.79971	45.85481	153.92769	5.34386	0.1881992	0.29006857	2.2601413	20	8 4.1	20.5
414407 2009 BE ₈₇	17.5	X	25.37707	293.86403	330.31908	2.65355	0.1540027	0.29475118	2.2361401	20	8 22.3	19.4
414408 2009 BJ ₁₀₇	18.1	X	240.26960	135.81966	269.52258	0.89469	0.0728415	0.29872959	2.2162422	20	7 12.8	20.6
414409 2009 BW ₁₁₀	17.3	X	16.38414	146.84077	93.59688	3.48563	0.1743203	0.28136955	2.3064886	20	6 25.1	18.9
414410 2009 BJ ₁₁₁	17.2	X	164.36814	129.69563	355.49347	5.55787	0.0805351	0.29591554	2.2302705	20	7 31.8	20.1
414411 2009 BP ₁₁₂	18.1	X	135.23174	343.06813	149.50642	5.54770	0.1747492	0.28784066	2.2717888	20	7 10.4	21.5
414412 2009 BW ₁₄₈	17.5	X	3.91138	245.76782	323.90237	6.63468	0.0577857	0.27976937	2.3152751	20	4 3.0	20.0
414413 2009 BT ₁₅₀	17.2	X	134.39368	270.40694	259.04563	4.28549	0.0490007	0.30114973	2.2043526	20	8 22.1	20.0
414414 2009 BN ₁₅₁	17.6	X	123.30196	13.89864	161.83803	5.44541	0.0854158	0.29292599	2.2454193	20	8 20.1	20.4
414415 2009 BN ₁₆₉	18.2	X	109.03996	348.66214	151.14081	2.59526	0.1456325	0.28187707	2.3037192	20	6 19.5	21.4
414416 2009 CF ₁₁	17.9	X	108.04881	320.94565	254.45854	3.79218	0.0778427	0.30256678	2.1974646	20	9 25.2	20.8
414417 2009 BE ₂₆	17.5	X	37.52248	233.36506	4.29909	3.94558	0.1147745	0.28921378	2.2645925	20	7 26.9	19.8
414418 2009 CA ₃₂	17.9	X	327.70529	240.47222	4.66352	2.12528	0.1432488	0.27193065	2.3595577	20	3 19.2	20.4
414419 2009 CR ₃₄	17.9	X	64.98429	189.40164	20.10694	3.93279	0.1127924	0.29229924	2.2486279	20	7 28.4	20.5
414420 2009 CS ₅₄	17.7	X	218.95490	252.70305	135.19397	6.31899	0.1159724	0.28896398	2.2658974	20	5 18.7	21.0
414421 2009 CA ₆₅	18.2	X	8.43653	70.87454	125.24884	1.98287	0.1236187	0.27230831	2.3573756	20	3 24.5	20.2
414422 2009 DV ₁	18.3	X	195.18711	290.51942	162.76444	1.78054	0.1066664	0.29786970	2.2205054	20	7 20.2	21.1
414423 2009 DS ₇	17.9	X	75.38361	200.43397	171.57613	3.25197	0.1286071	0.27971916	2.3155522	20	5 27.8	20.6
414424 2009 DW ₇	17.6	X	185.76548	146.97291	329.05177	4.79898	0.0825807	0.29740329	2.2228264	20	8 12.5	20.4
414425 2009 DT ₁₈	17.8	X	357.18254	48.55580	164.68418	8.08432	0.0630940	0.27342762	2.3509377	20	4 2.9	20.3
414426 2009 DF ₁₉	17.3	X	198.92567	317.99010	359.07102	5.80095	0.2027933	0.25716826	2.4490133	20	1 30.9	21.5
414427 2009 DU ₂₉	17.9	X	250.94033	139.87134	155.26868	1.96440	0.1904571	0.26326897	2.4110318	20	2 15.0	21.6
414428 2009 DE ₃₆	17.6	X	304.73629	4.37115	255.27951	0.48064	0.1606570	0.26605742	2.3941561	20	3 2.2	20.3
414429 2009 DC ₄₃	17.8	X	208.45359	172.83225	84.26079	20.84208	0.4897666	0.40795051	1.8005191	20	—	—
414430 2009 DD ₅₈	17.8	X	50.75680	108.90460	119.57416	2.94363	0.1165458	0.28757788	2.2731725	20	8 2.9	20.1
414431 2009 DP ₇₁	17.6	X	139.45603	156.83744	354.61803	5.80175	0.1165250	0.29377510	2.2410905	20	8 9.3	20.7
414432 2009 DM ₇₄	17.2	X	350.97557	234.62144	18.07337	2.30210	0.1829302	0.27837349	2.3230085	20	5 11.9	18.6
414433 2009 DM ₇₇	17.5	X	256.13336	82.74990	322.48874	8.91291	0.0871464	0.30060816	2.2069993	20	8 3.6	19.9
414434 2009 DA ₈₀	17.5	X	87.30005	121.64579	44.19408	2.41921	0.0957756	0.28361510	2.2942980	20	6 21.1	20.1
414435 2009 DH ₁₁₂	17.9	X	144.59038	149.44764	338.74081	1.56094	0.0515624	0.29085874	2.2560461	20	7 8.4	20.8
414436 2009 DN ₁₁₇	17.9	X	166.96654	334.52983	151.12128	4.73726	0.0930284	0.29506427	2.2345580	20	8 1.9	20.9
414437 2009 DO ₁₁₉	17.8	X	265.18737	280.89183	340.67150	5.93064	0.1054947	0.25954019	2.4340695	20	1 27.3	21.2
414438 2009 DQ ₁₂₀	17.8	X	212.10516	98.15937	166.02713	4.93594	0.2564992	0.24253910	2.5465266	20	—	—
414439 2009 DQ ₁₂₂	17.9	X	177.44909	68.65822	16.79846	2.97500	0.1129658	0.28757760	2.2731740	20	6 18.7	21.2
414440 2009 DB ₁₃₂	17.3	X	143.87164	128.89458	16.42249	8.31180	0.0996916	0.29374096	2.2412641	20	8 6.8	20.5
414441 2009 DG ₁₃₈	18.3	X	331.34331	62.82774	185.16261	6.09223	0.0647579	0.27262327	2.3555596	20	4 10.5	21.0
414442 2009 EK ₂₀	17.4	X	17.30871	211.40712	40.00514	5.70958	0.1322228	0.28260194	2.2997782	20	7 12.1	19.5
414443 2009 EB ₂₉	18.2	X	21.00854	17.32611	199.48572	2.25511	0.1257583	0.27567682	2.3381330	20	5 21.8	20.1
414444 2009 FC ₂	17.9	X	211.57681	327.06140	122.80254	2.27221	0.0976767	0.29609553	2.2293666	20	8 5.4	20.8
414445 2009 FR ₂₃	17.3	X	61.58389	167.86302	18.33875	5.66789	0.1064336	0.27856843	2.3219246	20	6 13.7	19.9
414446 2009 FJ ₂₉	17.1	X	125.01131	345.32250	93.04940	8.64444	0.0509693	0.27171514	2.3608052	20	4 7.5	20.2
414447 2009 FM ₅₀	17.2	X	91.67565	98.63138	80.13097	5.26007	0.0547756	0.28465946	2.2886829	20	7 10.2	19.8
414448 2009 FG ₆₀	18.1	X	197.56195	319.90580	127.52427	4.51085	0.1371867	0.29094629	2.2559355	20	7 12.6	21.2
414449 2009 FD ₆₁	18.0	X	125.97769	121.72740	350.66606	3.45818	0.0687821	0.27864770	2.3214842	20	5 22.5	20.9
414450 2009 FJ ₇₃	17.7	X	65.14179	343.87759	178.85214	1.32450	0.1288967	0.27368478	2.3494649	20	5 19.9	20.3
414451 2009 FN ₇₆	17.5	X	329.48920	119.59888	143.87044	3.97373	0.0709214	0.27064458	2.3670267	20	4 30.7	20.2
414452 2009 GS	17.7	X	44.52414	20.77392	176.20337	5.96424	0.1744064	0.27628200	2.3347174	20	6 13.6	20.0
414453 2009 HB ₄	17.9	X	280.40977	148.35854	121.01937	5.55824	0.1670114	0.25959679	2.4337157	20	2 15.7	21.3
414454 2009 HX ₁₂	17.5	X	112.57402	336.93407	181.74880	5.97967	0.0642924	0.28453417	2.2893548	20	7 7.6	20.5
414455 2009 HO ₁₇	18.0	X	223.55894	109.70397	204.97377	8.69805	0.1361983	0.25499036	2.4629384	20	2 14.5	21.9
414456 2009 HR ₁₇	17.6	X	73.57291	132.08662	33.51594	6.97659	0.0482994	0.27456274	2.3444537	20	5 22.1	20.3
414457 2009 HV ₁₈	17.5	X	353.58515	96.32921	97.39770	6.17977	0.1123767	0.25864091	2.4397083	20	2 26.9	20.1
414458 2009 HH ₂₆	17.4	X	191.08358	257.46157	195.51964	4.33915	0.1171377	0.28709103	2.2757417	20	7 13.4	20.7
414459 2009 HP ₃₄	17.9	X	130.57594	114.30741	35.73766	5.35869	0.1352406	0.28687724	2.2768722	20	7 29.2	21.3
414460 2009 HL ₃₇	17.0	X	299.36686	250.98613	42.93084	11.53324	0.0993769	0.26769661	2.3843727	20	4 22.9	19.7
414461 2009 HC ₄₅	17.1	X	335.97150	183.16752	43.12823	13.28305	0.1176801	0.26253798	2.4155051	20	3 18.3	19.9
414462 2009 HB ₄₆	17.5	X	17.20599	142.42543	34.72692	5.66548	0.1641843	0.26397045	2.4067585	20	3 14.9	19.4
414463 2009 HL ₅₀	17.3	X	293.24763	175.36423	125.15805	6.45775	0.0430545	0.27015556	2.3698823	20	5 4.0	20.2
414464 2009 HA ₆₇	17.9	X	202.63763	247.78157	194.15554	4.67121	0.1287803	0.29090982	2.2557820	20	7 10.5	21.1
414465 2009 HK ₉₅	16.6	X	223.36942	270.76276	21.88701	17.46854	0.3111488	0.24265087	2.5457445	20	1 25.2	21.6
414466 2009 KQ ₇	17.6	X	331.87100	166.69043	53.98109	2.17372	0.1409513	0.26083047	2.4260356	20	2 22.9	20.1
414467 2009 KD ₁₄	17.3	X	169.36677	18.72719	90.69746	25.94145	0.2067882	0.28383905	2.2930910	20	7 11.8	21.2
414468 2009 KM ₁₄	13.2	X	192.75141	234.40637	145.64441	18.30265	0.0526354	0.08251045	5.2255270	20	4 23.6	20.5
414469 2009 KK ₂₃	17.6	X	150.43962	349.38070	105.82802	7.59346	0.0761969	0.27240451	2.3568206	20	6 1.1	20.8
414470 2009 MQ ₈	16.2	X	131.10861	233.30167	107.41080	15.12210	0.2248657	0.22125376	2.7073367	20	1 4.1	20.1
414471 2009 OP ₂	16.1	X	138.14833	52.04080	298.43983	16.54019	0.2224712	0.22380479	2.6867245	20	1 21.6	20.3
414472 2009 OH ₃	16.8	X	175.33543	350.74283	294.55722	6.22601	0.2307474	0.22277153	2.6950258	20	—	—
414473 2009 OQ ₄	17.2	X	213.29505	165.73223	135.92183	8.10796	0.2275385	0.23529688	2.5985153	20	1 24.3	

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
414481 2009 <i>PP</i> ₂₁	16.8	X	125.96830	114.98263	219.12957	13.32969	0.1262473	0.21363342	2.7713407	20	—	—
414482 2009 <i>QC</i> ₃	17.1	X	100.69089	187.14474	180.70450	5.45663	0.0455485	0.21601710	2.7509157	20	—	—
414483 2009 <i>QD</i> ₁₅	16.4	X	74.91742	60.44885	346.03411	12.10827	0.1246230	0.21340844	2.7732881	20	1 3.3	19.9
414484 2009 <i>QF</i> ₃₂	17.8	X	96.90010	25.71902	336.27324	3.67374	0.2124257	0.21311881	2.7758002	20	—	—
414485 2009 <i>QR</i> ₃₅	16.5	X	187.18256	163.12974	136.28337	5.13135	0.0683126	0.22222402	2.6994506	20	—	—
414486 2009 <i>QE</i> ₅₃	16.2	X	102.59351	56.57368	301.44965	9.73078	0.1464084	0.21036549	2.7999679	20	—	—
414487 2009 <i>QV</i> ₅₄	17.0	X	68.08964	184.06318	176.31042	10.00814	0.0454846	0.20412134	2.8567820	20	—	—
414488 2009 <i>QS</i> ₅₇	16.2	X	52.26278	91.94364	339.21341	12.44128	0.1906910	0.21088198	2.7953942	20	1 5.6	19.2
414489 2009 <i>QT</i> ₅₈	16.4	X	1.89619	131.46577	320.25838	2.82632	0.0602376	0.20924491	2.8099555	20	—	—
414490 2009 <i>QG</i> ₆₀	16.9	X	106.68289	142.26373	201.86446	9.10508	0.2323051	0.21114071	2.7931102	20	—	—
414491 2009 <i>RP</i> ₄	16.8	X	117.57510	148.32782	184.55117	7.82901	0.2252330	0.21188429	2.7865717	20	—	—
414492 2009 <i>RK</i> ₇	16.7	X	168.37785	102.48845	202.01342	11.95722	0.2198283	0.21866322	2.7286722	20	—	—
414493 2009 <i>RG</i> ₈	16.7	X	15.90769	277.59316	202.43973	6.90553	0.1813634	0.21166699	2.7884785	20	—	—
414494 2009 <i>RW</i> ₁₀	17.2	X	84.20827	5.44306	330.39598	1.27134	0.0950171	0.19895802	2.9059965	20	—	—
414495 2009 <i>RT</i> ₁₂	16.6	X	118.18345	183.99667	183.23809	11.82823	0.1209262	0.21416048	2.7667919	20	1 8.4	20.7
414496 2009 <i>RE</i> ₁₅	16.6	X	85.58745	219.04273	183.32596	4.53013	0.0728564	0.21284150	2.7782107	20	1 4.5	20.2
414497 2009 <i>RK</i> ₂₁	16.6	X	35.24705	270.95738	171.73928	21.76422	0.0653324	0.21834188	2.7313541	20	—	—
414498 2009 <i>RC</i> ₄₇	17.2	X	87.51591	44.43615	310.00872	1.10774	0.0777302	0.20273684	2.8697734	20	—	—
414499 2009 <i>RX</i> ₄₈	17.3	X	76.55970	323.95797	24.19882	2.21353	0.0741729	0.19798538	2.9155062	20	—	—
414500 2009 <i>RZ</i> ₇₀	18.3	X	127.69715	159.23103	223.27125	20.47251	0.1291568	0.40608706	1.8060230	20	1 1.7	20.2
414501 2009 <i>RK</i> ₇₆	16.1	X	93.26395	82.62398	276.46386	12.81334	0.0682562	0.20925801	2.8098382	20	—	—
414502 2009 <i>SE</i> ₁	13.3	X	301.05796	60.24500	228.20431	28.03129	0.0546868	0.08437171	5.1483907	20	5 1.3	20.0
414503 2009 <i>SX</i> ₈	17.1	X	70.64127	148.43807	227.88799	4.19177	0.2724689	0.20561644	2.8429169	20	—	—
414504 2009 <i>SZ</i> ₁₁	17.2	X	104.94792	157.92295	191.53901	4.07061	0.0789021	0.20965192	2.8063176	20	—	—
414505 2009 <i>SL</i> ₁₂	16.8	X	47.16140	280.36666	183.27637	7.26823	0.0599763	0.22140501	2.7061036	20	1 24.5	20.2
414506 2009 <i>SP</i> ₁₄	17.1	X	97.62873	102.93215	239.49025	3.74393	0.1690229	0.20619483	2.8375980	20	—	—
414507 2009 <i>SF</i> ₁₆	16.3	X	135.55442	303.73124	18.45943	13.50207	0.2006469	0.21240233	2.7820389	20	—	—
414508 2009 <i>SF</i> ₁₇	17.3	X	94.99473	178.84854	185.44888	3.54118	0.1081047	0.21117733	2.7927872	20	—	—
414509 2009 <i>SZ</i> ₂₀	15.4	X	75.22783	245.99295	159.53603	42.78012	0.2198441	0.21181430	2.7871855	20	1 17.8	19.4
414510 2009 <i>SE</i> ₂₇	16.2	X	270.12835	195.35485	8.53111	9.20310	0.0943236	0.21177683	2.7875142	20	—	—
414511 2009 <i>SK</i> ₂₉	17.0	X	133.31932	159.42992	178.04070	3.43809	0.0974622	0.21092215	2.7950394	20	—	—
414512 2009 <i>SH</i> ₃₀	17.0	X	96.76675	303.95287	40.73388	2.49126	0.0738178	0.20296333	2.8676380	20	—	—
414513 2009 <i>SJ</i> ₃₀	17.0	X	107.79874	183.47882	146.70250	2.69513	0.0666777	0.20237270	2.8732149	20	—	—
414514 2009 <i>SU</i> ₃₇	16.4	X	127.88283	51.26584	206.35742	15.40561	0.1233611	0.18899000	3.0073006	20	11 26.1	21.3
414515 2009 <i>SB</i> ₄₀	16.9	X	69.03899	301.56624	19.78132	9.52635	0.0678582	0.18841663	3.0133985	20	12 3.4	21.4
414516 2009 <i>SC</i> ₄₀	17.1	X	78.11900	64.42014	283.08730	1.01287	0.1066545	0.19752823	2.9200028	20	—	—
414517 2009 <i>SY</i> ₄₀	17.4	X	120.15716	180.34684	193.50074	2.58398	0.1076281	0.21877509	2.7277473	20	1 17.2	21.2
414518 2009 <i>SU</i> ₄₃	16.8	X	132.63903	35.86367	246.05350	5.00322	0.1633471	0.19675151	2.9276827	20	12 29.1	21.6
414519 2009 <i>SU</i> ₅₀	17.2	X	106.53939	162.46859	162.27766	2.30626	0.0901850	0.20398832	2.8580239	20	—	—
414520 2009 <i>SL</i> ₅₃	17.1	X	101.22534	160.40831	197.17367	13.46289	0.2414286	0.20924369	2.8099665	20	—	—
414521 2009 <i>SU</i> ₅₃	16.3	X	86.55355	337.05709	25.08747	10.46602	0.1026098	0.20439093	2.8542694	20	—	—
414522 2009 <i>SF</i> ₅₄	16.3	X	84.28377	258.27777	30.04513	11.53605	0.1088580	0.18689263	3.0297579	20	11 15.1	20.9
414523 2009 <i>SR</i> ₆₇	17.0	X	78.97654	240.89071	68.60088	4.98493	0.2215592	0.19188587	2.9769673	20	12 18.3	21.7
414524 2009 <i>SE</i> ₇₁	17.3	X	173.32039	15.35932	316.09196	1.76442	0.0446387	0.22159608	2.7045479	20	1 19.3	21.2
414525 2009 <i>SM</i> ₇₅	16.8	X	120.62572	349.92018	67.25884	6.29905	0.1583909	0.22239189	2.6980920	20	3 21.7	20.8
414526 2009 <i>SO</i> ₇₈	16.2	X	252.14707	341.83649	231.12048	7.85463	0.0792507	0.21042685	2.7994236	20	—	—
414527 2009 <i>SB</i> ₈₂	16.9	X	136.65563	341.05254	354.67168	5.80835	0.0374308	0.21449111	2.7639479	20	—	—
414528 2009 <i>SV</i> ₈₆	16.9	X	128.96937	221.74240	110.51052	1.67460	0.1577545	0.21265243	2.7798572	20	—	—
414529 2009 <i>SX</i> ₉₆	15.5	X	86.67243	22.24228	262.65619	9.92277	0.0923795	0.18986944	2.9980072	20	11 13.1	20.0
414530 2009 <i>SV</i> ₉₈	15.9	X	149.78435	13.32187	274.97635	11.96591	0.1270792	0.21148099	2.7901132	20	—	—
414531 2009 <i>SL</i> ₉₉	17.0	X	98.79749	148.68159	190.81105	12.40913	0.1796147	0.20473302	2.8510891	20	—	—
414532 2009 <i>SM</i> ₁₀₃	16.8	X	90.56205	26.21800	300.33271	12.69821	0.5543749	0.20572556	2.8419115	20	—	—
414533 2009 <i>SS</i> ₁₁₄	17.1	X	41.19895	182.11405	248.18607	4.27110	0.0654524	0.20928055	2.8096365	20	—	—
414534 2009 <i>SZ</i> ₁₂₁	16.6	X	100.76225	156.22486	204.84421	5.25015	0.1416580	0.20845686	2.8170329	20	—	—
414535 2009 <i>SH</i> ₁₃₁	17.0	X	58.20040	320.70910	73.80371	3.21741	0.1010206	0.20267278	2.8703781	20	—	—
414536 2009 <i>SK</i> ₁₃₂	17.4	X	39.49044	248.24809	139.24573	3.25482	0.1056491	0.19689007	2.9263089	20	—	—
414537 2009 <i>SZ</i> ₁₃₅	16.5	X	29.73908	143.59645	207.73692	8.30795	0.0861912	0.18540853	3.0459042	20	11 26.2	20.7
414538 2009 <i>SY</i> ₁₄₄	17.3	X	68.66370	325.34629	90.43873	1.82685	0.0670134	0.21481101	2.7612031	20	—	—
414539 2009 <i>SJ</i> ₁₅₁	16.2	X	358.88361	143.93652	287.36133	1.13357	0.0382965	0.19970719	2.8987243	20	—	—
414540 2009 <i>SZ</i> ₁₅₃	17.4	X	28.21573	238.46839	180.86282	1.49045	0.1656926	0.20145013	2.8819804	20	—	—
414541 2009 <i>SX</i> ₁₅₄	16.8	X	161.12424	94.35188	167.74603	11.29499	0.1016509	0.20615374	2.8379750	20	—	—
414542 2009 <i>SN</i> ₁₅₆	16.4	X	237.51766	209.93044	18.33269	14.57825	0.1019292	0.20988236	2.8042631	20	—	—
414543 2009 <i>SO</i> ₁₅₈	17.1	X	4.98870	72.70442	346.54026	5.65070	0.1796905	0.19274054	2.9681601	20	—	—
414544 2009 <i>SW</i> ₁₆₆	16.5	X	156.37498	335.11834	26.82396	14.96417	0.1550327	0.22220072	2.6996393	20	2 22.9	21.0
414545 2009 <i>SN</i> ₁₆₈	16.7	X	41.77493	287.70677	150.18323	7.29173	0.0786536	0.21388715	2.7691486	20	—	—
414546 2009 <i>SR</i> ₁₆₉	16.4	X	146.72754	308.21334	358.03474	14.24616	0.1017553	0.21100277	2.7943274	20	—	—
414547 2009 <i>SZ</i> ₁₈₄	16.4	X	136.96264	23.31994	242.99952	5.66883	0.1933393	0.19595666	2.9355943	20	12 15.3	21.4
414548 2009 <i>SU</i> ₁₈₈	16.0	X	190.24035	214.73135	59.41706	10.15667	0.1161353	0.20820973	2.8192616	20	—	—
414549 2009 <i>SA</i> ₁₉₁	17.1	X	93.47576	14.11899	309.86414	4.00985	0.1104093	0.19916136	2.9040182	20	—	—
414550 2009 <i>SL</i> ₂₁₅	17.1	X	44.96366	219.16299	188.41010	9.13182	0.1319190	0.20442055	2.8539937	20	—	—
414551 2009 <i>ST</i> ₂₁₇	17.4	X	135.52215	109.82244	199.07573	7.04428	0.2150667	0.21175073	2.7877432	20	—	—
414552 2009 <i>SD</i> ₂₃₉	17.1	X	68.95848	146.31172	237.48492	5.34622	0.2730481	0.20579599	2.8412631	20	—	—
414553 2009 <i>SP</i> ₂₄₁	15.2	X	230.94388	221.94370	238.76344	18.12904	0.1117981	0.16981748	3.2295930	20		

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
414561 2009 SW ₂₉₉	16.0	X	224.49651	190.87162	29.72251	9.60344	0.0692581	0.20453013	2.8529743	20	—	—
414562 2009 SU ₃₀₀	16.2	X	323.79760	297.64309	175.97941	4.92546	0.1186437	0.19952590	2.9004799	20	—	—
414563 2009 SY ₃₀₀	17.2	X	28.81391	288.01813	174.09238	2.83771	0.1484991	0.21081639	2.7959740	20	—	—
414564 2009 SM ₃₀₅	16.2	X	232.83022	261.83205	330.25635	13.38799	0.0734427	0.21403741	2.7678524	20	—	—
414565 2009 SV ₃₁₆	16.6	X	320.74174	163.66006	5.53690	18.29501	0.0787952	0.21721418	2.7407995	20	—	—
414566 2009 SM ₃₂₀	16.5	X	104.42389	137.48235	230.34624	12.64175	0.2103191	0.21230150	2.7829197	20	1 4.7	20.4
414567 2009 SA ₃₂₃	15.6	X	210.10692	175.71168	20.65420	10.11288	0.0637134	0.19003738	2.9962407	20	12 6.6	20.1
414568 2009 ST ₃₂₅	18.1	X	26.04746	224.10188	186.13276	22.21274	0.0756902	0.38234697	1.8800278	20	—	—
414569 2009 SB ₃₃₁	16.3	X	113.07661	322.11007	14.37054	13.77177	0.1957464	0.20940328	2.8085386	20	—	—
414570 2009 SW ₃₃₁	16.4	X	116.77702	299.82337	94.20511	10.70433	0.2146482	0.21460219	2.7629940	20	2 26.2	20.6
414571 2009 SZ ₃₃₂	18.0	X	88.45148	131.86283	182.32271	22.69109	0.0795949	0.37988572	1.8881395	20	—	—
414572 2009 SZ ₃₅₀	16.1	X	221.28115	177.50230	51.17621	10.64306	0.0165451	0.20269551	2.8701635	20	—	—
414573 2009 SO ₃₅₄	16.4	X	230.77908	130.93888	43.67992	6.50104	0.0815217	0.18461773	3.0545960	20	12 1.8	20.8
414574 2009 SX ₃₅₅	16.9	X	348.45568	52.53610	31.60758	4.30966	0.1209938	0.19038131	2.9926310	20	—	—
414575 2009 SU ₃₅₆	16.1	X	64.33367	273.24677	33.68068	12.95442	0.1668785	0.18364137	3.0654132	20	11 21.8	20.7
414576 2009 SE ₃₅₇	16.9	X	33.87336	263.18388	204.67036	8.51148	0.1893181	0.21059683	2.7979170	20	1 14.8	19.8
414577 2009 SO ₃₅₇	16.0	X	69.03635	257.59086	44.33517	8.88754	0.1162677	0.18053360	3.1004925	20	11 15.9	20.6
414578 2009 SF ₃₅₈	17.1	X	62.07477	163.00077	221.39144	1.28027	0.0774746	0.20314566	2.8659219	20	—	—
414579 2009 SG ₃₆₀	16.0	X	349.63369	353.39116	63.61927	10.12115	0.0994575	0.18835096	3.0140989	20	12 22.8	19.8
414580 2009 ST ₃₆₂	16.5	X	23.86989	141.68079	202.33086	6.00150	0.1818942	0.18567246	3.0430170	20	11 22.7	20.3
414581 2009 SY ₃₆₃	16.2	X	295.08237	264.91545	182.74104	10.04986	0.0374905	0.18429088	3.0582066	20	11 14.9	20.4
414582 2009 TB ₉	17.5	X	48.66462	356.30273	34.58595	21.93830	0.0758882	0.38396421	1.8747451	20	—	—
414583 2009 TK ₁₈	16.7	X	29.06228	351.26790	4.47763	6.70658	0.2269105	0.18938893	3.0030760	20	12 21.1	20.8
414584 2009 TH ₄₂	16.6	X	63.76199	171.50143	215.76829	9.38628	0.0444402	0.20040079	2.8920320	20	—	—
414585 2009 UJ ₁₈	15.4	X	324.59998	209.46248	197.43848	29.19800	0.2604978	0.17821215	3.1273598	20	10 24.6	18.3
414586 2009 UV ₁₈	16.0	X	300.17331	62.66681	86.78130	8.34102	0.6326326	0.17425046	3.1745836	20	11 7.5	18.8
414587 2009 UP ₂₃	16.3	X	261.07411	97.29316	35.33174	9.40927	0.0991643	0.18400673	3.0613542	20	11 14.8	20.5
414588 2009 US ₂₇	16.2	X	314.84340	117.15936	78.38054	6.39661	0.0082058	0.21202941	2.7853000	20	1 24.1	20.0
414589 2009 UJ ₂₉	17.6	X	31.76199	26.45796	43.43117	7.07160	0.2102339	0.19892173	2.9063499	20	—	—
414590 2009 UJ ₃₁	17.1	X	33.53446	145.51340	234.31854	2.35328	0.1418191	0.19035548	2.9929018	20	—	—
414591 2009 UO ₃₃	16.8	X	67.60473	302.02694	51.60127	11.56212	0.0683283	0.19078828	2.9883738	20	—	—
414592 2009 UM ₃₉	16.9	X	346.05815	265.26561	186.54301	2.04846	0.1981280	0.19005796	2.9960243	20	—	—
414593 2009 UJ ₄₀	17.0	X	84.15955	203.92321	187.93027	4.86892	0.0345813	0.21383927	2.7695619	20	—	—
414594 2009 UJ ₅₃	15.5	X	40.80662	297.41909	47.89654	17.26657	0.2013868	0.18464982	3.0542420	20	12 16.1	20.0
414595 2009 UF ₅₇	16.9	X	48.68745	55.00311	348.49474	1.83614	0.0158673	0.19901370	2.9054544	20	—	—
414596 2009 UE ₆₀	17.3	X	67.47709	204.05310	171.31353	6.04774	0.1785814	0.20291724	2.8680722	20	—	—
414597 2009 UY ₇₁	16.7	X	86.87762	274.04811	85.38552	3.20634	0.0791342	0.20286659	2.8685496	20	—	—
414598 2009 UZ ₈₁	16.1	X	248.37367	100.76479	34.93430	9.78339	0.1265146	0.17881898	3.1202805	20	10 29.9	20.4
414599 2009 UF ₈₉	16.0	X	355.57705	224.78967	240.75919	13.93807	0.2411543	0.19716520	2.9235860	20	—	—
414600 2009 UF ₈₉	16.1	X	325.45204	90.42817	26.94340	13.32278	0.1074922	0.19424597	2.9528046	20	—	—
414601 2009 UE ₁₀₂	16.4	X	32.05806	23.84803	51.70195	15.95750	0.1221859	0.20179242	2.8787204	20	—	—
414602 2009 UJ ₁₀₅	16.4	X	69.17655	159.79845	227.08623	12.73228	0.1856879	0.19981668	2.8976653	20	—	—
414603 2009 UL ₁₀₆	17.1	X	351.96593	35.88176	41.10873	1.26109	0.1500128	0.18841110	3.0134574	20	—	—
414604 2009 UM ₁₀₆	15.8	X	257.65369	88.18557	53.99044	16.33100	0.1982868	0.17611169	3.1521770	20	11 8.8	20.1
414605 2009 UO ₁₀₆	16.5	X	34.49309	110.00226	236.54223	9.01138	0.1992109	0.18222843	3.0812384	20	12 11.1	20.6
414606 2009 UG ₁₀₈	15.7	X	138.45170	172.23555	54.78222	13.48456	0.0615847	0.17440776	3.1726745	20	10 29.0	20.5
414607 2009 US ₁₀₈	16.2	X	349.75361	2.68061	50.99725	12.01718	0.0768525	0.18509490	3.0493440	20	12 15.3	20.2
414608 2009 UL ₁₁₅	17.1	X	359.45890	212.28583	181.58233	3.46976	0.0337270	0.18881471	3.0091615	20	12 3.2	21.2
414609 2009 UM ₁₃₂	15.4	X	345.30926	154.22743	239.97554	26.85119	0.1276839	0.18171489	3.0870408	20	11 17.5	18.9
414610 2009 UF ₁₃₄	16.3	X	113.64796	243.09184	45.50401	12.10263	0.0785323	0.18961680	3.0006696	20	12 14.5	21.0
414611 2009 UT ₁₄₀	16.3	X	274.38776	223.86737	258.80736	8.63325	0.0369458	0.18058769	3.0998734	20	11 28.2	20.4
414612 2009 UO ₁₄₃	17.0	X	297.44386	51.90646	76.42896	2.11492	0.2158078	0.18425548	3.0585983	20	12 21.6	20.2
414613 2009 UH ₁₄₄	16.3	X	322.23784	216.85212	219.87432	6.14282	0.1103169	0.18155602	3.0888415	20	12 4.3	20.1
414614 2009 UM ₁₄₄	15.9	X	289.89586	90.09823	2.72503	16.85785	0.1700178	0.17951801	3.1121752	20	10 21.6	19.9
414615 2009 UP ₁₄₇	15.7	X	69.15622	256.83883	58.56480	13.81219	0.1901174	0.18225649	3.0809221	20	12 10.2	20.4
414616 2009 US ₁₄₇	16.2	X	320.83142	190.82019	249.03493	9.61566	0.0370338	0.18102364	3.0948946	20	12 6.6	20.4
414617 2009 UU ₁₅₀	15.9	X	62.29393	261.71287	54.59338	12.32803	0.0663468	0.18105952	3.0944857	20	11 19.3	20.2
414618 2009 UQ ₁₅₁	16.0	X	339.42819	340.54223	84.35975	11.91348	0.2080827	0.17739044	3.1370100	20	12 20.5	19.2
414619 2009 UU ₁₅₄	16.9	X	8.91219	160.09351	228.96027	10.65544	0.1269889	0.18973895	2.9993816	20	12 19.7	20.7
414620 2009 VU ₃	16.2	X	315.89755	81.61090	36.27174	10.48530	0.0716806	0.19114302	2.9846752	20	—	—
414621 2009 VN ₅	15.7	X	340.44967	153.69214	241.95006	14.90063	0.1061616	0.18032411	3.1028934	20	11 9.4	19.5
414622 2009 VS ₁₁	16.8	X	2.88246	145.61821	256.91592	1.70524	0.0667126	0.18672983	3.0315187	20	12 20.5	20.7
414623 2009 VK ₁₂	16.6	X	70.58414	337.63830	38.98282	12.45059	0.0767496	0.19841596	2.9112868	20	—	—
414624 2009 VR ₁₂	17.1	X	90.72313	346.29289	357.26243	1.71198	0.1040924	0.19656616	2.9295228	20	—	—
414625 2009 VT ₁₈	16.7	X	60.54428	105.39370	254.18161	7.20302	0.0238961	0.18953678	3.0015141	20	—	—
414626 2009 VK ₁₉	17.2	X	326.73714	285.45573	169.97084	0.93214	0.1681810	0.18479360	3.0526577	20	—	—
414627 2009 VM ₂₀	16.9	X	314.55706	69.82556	8.66455	5.73186	0.0217546	0.18370430	3.0647132	20	11 26.5	21.2
414628 2009 VO ₂₂	16.1	X	247.96515	316.19517	190.87792	3.30957	0.1332410	0.17655352	3.1469159	20	11 11.6	20.5
414629 2009 VX ₂₄	16.5	X	99.43833	111.14787	221.23408	12.17720	0.1437695	0.20470121	2.8513844	20	—	—
414630 2009 VM ₂₉	15.5	X	189.91916	180.67255	51.17059	11.52283	0.1001497	0.18885468	3.0087369	20	12 24.1	20.2
414631 2009 VZ ₃₁	17.2	X	46.48418	221.91742	171.99631	2.24011	0.0930609	0.19712240	2.9240091	20	—	—
414632 2009 VW ₃₄	16.5	X	273.22982	116.46945	42.27384	15.44322	0.2398645	0.18498523	3.0505491	20	12 13.1	20.4
414633 2009 VJ ₃₇	16.2	X	63.34301	91.13317	274.06533	2.43984	0.1890179	0.19426113	2.9526510	20	—	—
414634 2009 VL ₃₇	16.1	X	15.88453	6.61193	51.25495	10.84631	0.0970484	0.19145868	2.9813938	20	—	

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414641 2009 VM ₆₂	16.6	X	42.62997	327.66256	62.53867	11.33932	0.1034443	0.19159085	2.9800224	20	—	—
414642 2009 VA ₆₄	16.4	X	30.11594	164.29967	242.81278	7.38312	0.1376497	0.19091280	2.9870742	20	—	—
414643 2009 VT ₆₄	16.6	X	66.98906	350.23500	37.40144	8.14141	0.0519421	0.19806305	2.9147439	20	—	—
414644 2009 VX ₆₄	17.0	X	31.43527	100.49569	294.04976	4.12024	0.1343126	0.19089371	2.9872734	20	—	—
414645 2009 VP ₆₆	15.9	X	135.16644	9.25591	258.82261	8.14979	0.0409174	0.18348895	3.0671106	20	12 11.5	20.4
414646 2009 VV ₆₇	16.4	X	9.81452	153.10370	251.51789	8.30041	0.1483483	0.18655082	3.0334577	20	—	—
414647 2009 VX ₆₇	17.3	X	351.38174	70.49420	344.24027	1.75449	0.1539276	0.18371874	3.0645526	20	12 26.8	21.0
414648 2009 VA ₆₉	16.6	X	348.40056	150.97546	261.82889	8.30101	0.1154153	0.18127423	3.0920417	20	12 15.2	20.4
414649 2009 VG ₇₁	16.2	X	18.72591	356.51902	60.79635	11.04904	0.1018026	0.18923656	3.0046878	20	—	—
414650 2009 VL ₈₀	16.5	X	57.04191	258.21116	96.81808	14.39517	0.2690296	0.19529425	2.9422286	20	—	—
414651 2009 VU ₈₁	16.1	X	321.04264	54.00042	49.50517	11.55355	0.0436464	0.18786235	3.0193228	20	—	—
414652 2009 VF ₈₃	16.3	X	353.05451	177.93201	261.19093	8.43834	0.0421115	0.19208639	2.9748951	20	—	—
414653 2009 VF ₉₄	16.7	X	16.06619	39.74442	50.23056	2.95941	0.0828072	0.19734461	2.9218138	20	—	—
414654 2009 VJ ₉₄	16.8	X	47.15805	3.12181	61.33304	2.99266	0.0668713	0.20156775	2.8808591	20	—	—
414655 2009 VR ₁₀₃	16.3	X	356.30407	317.08440	91.57218	12.65336	0.2381323	0.17792560	3.1307166	20	—	—
414656 2009 VT ₁₁₆	16.1	X	67.74460	268.61814	54.57391	10.82409	0.0969760	0.18642155	3.0348599	20	12 8.2	20.5
414657 2009 WR ₄	16.3	X	51.78534	276.27446	66.58472	17.38274	0.1431525	0.18575319	3.0421354	20	12 19.1	20.7
414658 2009 WZ ₉	15.8	X	344.51847	204.56036	226.08008	16.01860	0.2417745	0.18446523	3.0562793	20	—	—
414659 2009 WM ₁₁	16.8	X	328.77946	197.67355	227.23496	4.35705	0.2001043	0.18026903	3.1035253	20	11 29.8	19.9
414660 2009 WV ₂₆	16.2	X	313.79037	203.32520	245.94855	9.21120	0.0473655	0.18283671	3.0744006	20	12 9.0	20.2
414661 2009 WB ₃₁	16.3	X	11.25043	176.49692	248.11708	8.03194	0.0928782	0.18939840	3.0029759	20	—	—
414662 2009 WM ₃₄	15.7	X	328.20656	242.21486	248.82984	14.22988	0.0762015	0.19165104	2.9793985	20	—	—
414663 2009 WV ₃₄	16.7	X	321.38147	34.24407	53.62660	1.90791	0.1499608	0.17843687	3.1247335	20	12 15.2	20.3
414664 2009 WX ₃₄	16.4	X	327.94411	354.29727	112.17532	3.85238	0.2372339	0.17933453	3.1142976	20	—	—
414665 2009 WR ₃₈	16.5	X	85.14864	276.54020	62.92763	9.82158	0.1251376	0.19034682	2.9929926	20	—	—
414666 2009 WH ₃₉	16.2	X	66.97416	74.62855	255.79128	9.89710	0.0777133	0.18175662	3.0865683	20	12 13.4	20.6
414667 2009 WZ ₄₂	17.2	X	289.35227	282.38743	253.35723	17.92035	0.0596349	0.38025590	1.8689139	20	—	—
414668 2009 WQ ₄₄	16.6	X	65.01292	139.67199	229.06760	8.00327	0.0542753	0.19233853	2.9722946	20	—	—
414669 2009 WQ ₆₉	15.9	X	52.78190	103.88412	258.45457	11.83386	0.1932922	0.19242585	2.9713954	20	—	—
414670 2009 WM ₇₀	15.6	X	189.99607	333.71692	235.16517	16.51623	0.1605910	0.17901779	3.1179699	20	11 21.9	20.6
414671 2009 WT ₇₃	16.3	X	42.28219	132.28222	234.16540	10.21636	0.0722064	0.18514411	3.0488036	20	12 26.7	20.7
414672 2009 WB ₇₈	16.2	X	343.25898	93.33231	305.59562	4.07626	0.0110767	0.17545323	3.1600587	20	11 12.7	20.7
414673 2009 WM ₈₁	15.7	X	273.95650	90.56386	76.87742	26.58369	0.2066909	0.18019958	3.1043227	20	12 28.8	19.6
414674 2009 WN ₈₃	16.6	X	271.54170	190.73690	315.83732	4.53897	0.1568127	0.18246635	3.0785593	20	12 8.6	20.5
414675 2009 WO ₈₅	15.7	X	84.95064	320.53922	43.50453	12.74430	0.0713250	0.19549014	2.9402628	20	—	—
414676 2009 WA ₈₇	16.2	X	71.80805	292.69734	18.03526	4.87323	0.1316882	0.18007611	3.1057416	20	11 30.8	20.8
414677 2009 WX ₈₇	16.3	X	88.36401	282.45425	41.71792	8.82972	0.0976309	0.18648938	3.0341239	20	—	—
414678 2009 WM ₁₀₇	16.6	X	40.13636	283.12986	78.94935	4.01092	0.1398654	0.18837063	3.0138890	20	12 29.9	20.7
414679 2009 WT ₁₁₇	15.8	X	185.58099	175.28069	56.35798	13.43671	0.1010167	0.18574868	3.0421846	20	12 18.3	20.5
414680 2009 WV ₁₂₃	16.3	X	285.21328	260.29178	234.01527	4.05234	0.0864818	0.18343248	3.0677401	20	12 22.2	20.2
414681 2009 WB ₁₂₅	16.5	X	270.87871	311.81077	162.32807	0.69942	0.1602751	0.17385840	3.1793543	20	10 26.6	20.8
414682 2009 WY ₁₂₈	16.0	X	236.49683	97.36845	54.01764	14.53781	0.1470921	0.17552597	3.1591856	20	11 2.9	20.6
414683 2009 WH ₁₃₁	16.9	X	294.29458	346.47329	134.25304	1.90590	0.1513054	0.17934131	3.1142190	20	12 11.4	20.5
414684 2009 WJ ₁₃₁	16.5	X	39.01825	220.49569	128.22214	2.03619	0.1688549	0.17994725	3.1072240	20	12 14.6	20.8
414685 2009 WR ₁₃₅	16.9	X	52.70634	286.14498	80.17839	2.90395	0.1115445	0.19179522	2.9779052	20	—	—
414686 2009 WH ₁₃₉	16.0	X	7.50892	353.39289	20.50696	11.44851	0.1851095	0.18212501	3.0824047	20	12 1.8	19.8
414687 2009 WO ₁₄₀	15.9	X	309.21611	61.25112	70.57609	17.60599	0.1757542	0.18933371	3.0036598	20	—	—
414688 2009 WN ₁₅₁	16.8	X	107.35949	251.32151	96.52971	7.22066	0.0683221	0.19896898	2.9058897	20	—	—
414689 2009 WS ₁₅₃	15.5	X	229.07230	111.71930	40.46082	22.06004	0.0437173	0.17619617	3.1511693	20	11 5.9	20.1
414690 2009 WO ₁₅₄	16.1	X	70.93789	301.14151	15.92732	10.24506	0.1331656	0.18330153	3.0692009	20	12 7.4	20.8
414691 2009 WO ₁₅₅	16.0	X	339.86697	328.92382	96.58867	11.11508	0.0735178	0.18269108	3.0760341	20	12 16.5	20.0
414692 2009 WF ₁₅₆	17.9	X	12.71242	316.10905	70.57351	3.59369	0.3478060	0.18648377	3.0341847	20	—	—
414693 2009 WC ₁₅₉	15.9	X	340.14569	188.19640	241.24325	15.67564	0.0920896	0.18129954	3.0917539	20	12 20.9	19.9
414694 2009 WZ ₁₆₀	16.6	X	320.72982	201.40509	279.12207	3.16827	0.1863640	0.18766414	3.0214484	20	—	—
414695 2009 WL ₁₆₁	16.0	X	279.48727	105.16851	52.49273	10.03703	0.0783848	0.18737826	3.0245208	20	—	—
414696 2009 WV ₁₆₂	16.5	X	340.61567	24.04859	63.35609	11.30573	0.1502629	0.18641963	3.0348807	20	—	—
414697 2009 WH ₁₆₃	16.1	X	13.05355	146.48430	256.39801	7.73731	0.0512542	0.18488582	3.0516425	20	12 31.5	20.2
414698 2009 WR ₁₆₃	16.7	X	37.42303	55.85064	294.88209	3.59690	0.1245304	0.17971913	3.1098529	20	12 8.4	20.8
414699 2009 WC ₁₆₆	16.5	X	38.18583	304.72819	74.17337	9.66276	0.0954400	0.18491749	3.0512940	20	—	—
414700 2009 WB ₁₆₉	16.3	X	12.92470	306.26729	81.61495	12.35507	0.1033297	0.18316128	3.0707675	20	12 19.3	20.2
414701 2009 WJ ₁₇₀	16.4	X	296.75839	79.78680	52.95607	12.43745	0.2634133	0.18090035	3.0963006	20	12 17.9	19.6
414702 2009 WK ₁₇₀	16.1	X	63.28421	289.27662	49.59491	9.69388	0.0763329	0.18310674	3.0713772	20	12 18.7	20.5
414703 2009 WY ₁₇₃	16.6	X	300.13013	116.61738	11.02361	4.87577	0.0880142	0.18313284	3.0710854	20	—	—
414704 2009 WF ₁₈₂	16.0	X	280.16378	72.36480	63.84478	22.01645	0.1306917	0.17936340	3.1139633	20	12 9.2	20.0
414705 2009 WM ₁₈₄	16.5	X	314.35239	11.37849	72.44857	6.54832	0.1401124	0.18054500	3.1003620	20	11 28.9	19.9
414706 2009 WN ₁₉₀	17.2	X	1.91940	179.49314	227.57085	0.65644	0.1538611	0.18408193	3.0605204	20	—	—
414707 2009 WX ₁₉₆	15.7	X	330.00989	39.51353	44.94563	12.79695	0.1254872	0.18439482	3.0570573	20	12 27.1	19.5
414708 2009 WV ₂₀₂	16.1	X	340.18419	56.28569	56.98312	13.68783	0.1355808	0.19307865	2.9646940	20	—	—
414709 2009 WL ₂₀₉	16.2	X	78.86480	176.07175	175.32524	16.23791	0.2474682	0.19567426	2.9384181	20	—	—
414710 2009 WS ₂₁₂	16.6	X	50.71479	296.23000	38.97063	5.84267	0.1660384	0.18046438	3.1012853	20	12 11.3	21.0
414711 2009 WP ₂₁₄	16.4	X	44.29158	102.15782	245.35445	10.23111	0.1920997	0.18212398	3.0824163	20	12 22.5	20.8
414712 2009 WB ₂₁₈	16.7	X	2.84988	201.08456	230.87166	10.65128	0.2627006	0.18814099	3.0163410	20	—	—
414713 2009 WQ ₂₁₈	16.3	X	24.49113	276.06950	247.52270	9.05647	0.0697334	0.21760511	2.7375159	20	3 7.4	19.9
414714 2009 WE ₂₂₃	17.5	X	5.11462	200.18098	220.10847	1.14712	0.2975961	0.18793755	3.0185173	20	—	—
414715												

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
414721 2009 <i>WN</i> ₂₅₆	15.6 ^m	X	18.91933	302.23721	75.33892	18.03960	0.1346289	0.18143865	3.0901734	20	12 17.9	19.5
414722 2009 <i>XP</i> ₃	16.5	X	4.45179	202.16677	238.36679	5.03123	0.1892492	0.18967773	3.0000269	20	—	—
414723 2009 <i>XB</i> ₅	17.1	X	330.33974	240.15781	190.74356	1.48520	0.1424423	0.17949531	3.1124375	20	12 9.5	20.6
414724 2009 <i>XU</i> ₇	15.8	X	4.74300	353.07030	65.11240	12.58921	0.0883208	0.18562501	3.0435357	20	—	—
414725 2009 <i>XP</i> ₁₁	16.1	X	343.30466	297.80047	125.04824	10.84970	0.1940270	0.18203540	3.0834161	20	12 26.6	19.6
414726 2009 <i>XO</i> ₁₃	16.4	X	26.11708	162.72944	234.59059	8.42168	0.1522751	0.18669755	3.0318680	20	—	—
414727 2009 <i>XN</i> ₂₀	16.3	X	336.35065	282.02968	138.67308	1.99821	0.1682959	0.17495207	3.1660905	20	12 6.4	19.9
414728 2009 <i>XS</i> ₂₂	15.7	X	297.04997	138.75674	318.88740	27.23707	0.1656063	0.17391717	3.1786381	20	10 30.9	20.2
414729 2009 <i>YH</i> ₁	16.3	X	348.74198	144.84978	238.39065	9.66933	0.1066853	0.17969639	3.1101153	20	11 6.6	20.2
414730 2009 <i>YH</i> ₅	16.4	X	351.92040	120.81277	318.13471	2.43452	0.2669950	0.18225129	3.0809806	20	—	—
414731 2009 <i>YH</i> ₁₉	16.2	X	345.02592	96.38265	6.70965	10.41159	0.1641666	0.18773359	3.0207032	20	—	—
414732 2009 <i>YS</i> ₂₃	15.6	X	297.86743	23.32508	100.47299	15.01834	0.1465507	0.18066363	3.0990047	20	12 22.3	19.3
414733 2010 <i>AO</i> ₁₈	16.8	X	338.81700	59.56167	24.52958	1.52030	0.1611810	0.17992628	3.1074655	20	—	—
414734 2010 <i>AO</i> ₂₃	16.3	X	329.94554	149.98867	293.43335	9.66747	0.2033668	0.17485926	3.1672108	20	12 25.2	19.7
414735 2010 <i>AH</i> ₅₉	15.2	X	329.82671	325.67538	103.89035	29.72752	0.1779966	0.17308351	3.1888365	20	12 10.9	19.0
414736 2010 <i>AD</i> ₆₆	15.8	X	356.70906	288.17269	119.26889	19.51729	0.1419285	0.17266591	3.1939760	20	12 22.9	19.9
414737 2010 <i>AU</i> ₇₆	15.4	X	1.19622	284.90891	97.89108	26.44652	0.2632837	0.17364074	3.1820106	20	12 15.4	19.0
414738 2010 <i>AB</i> ₇₇	15.9	X	331.52148	7.60337	117.77741	13.01921	0.2626206	0.18388280	3.0627295	20	—	—
414739 2010 <i>AL</i> ₇₇	15.9	X	353.31472	325.51181	80.52552	11.75970	0.2108262	0.17585627	3.1552284	20	12 22.0	19.3
414740 2010 <i>BP</i> ₄	15.4	X	267.35168	244.32320	311.99323	16.99054	0.0871169	0.17976637	3.1093080	20	—	—
414741 2010 <i>CZ</i> ₅₅	16.8	X	329.12781	235.03726	235.08131	6.78777	0.2193650	0.17868955	3.1217870	20	—	—
414742 2010 <i>CZ</i> ₇₅	17.3	X	29.74218	224.03823	158.17582	23.49796	0.0838589	0.35714556	1.9674598	20	—	—
414743 2010 <i>CG</i> ₁₃₂	15.7	X	345.08889	287.44512	125.27377	17.23550	0.1407826	0.18194600	3.0844261	20	12 14.5	19.6
414744 2010 <i>DK</i> ₅₇	16.6	X	20.26458	29.73311	25.90892	1.55443	0.1452332	0.19053304	2.9910421	20	—	—
414745 2010 <i>EX</i> ₁₃	15.1	X	53.31337	233.74812	93.71065	20.14978	0.1050860	0.17488118	3.1669460	20	11 29.9	19.7
414746 2010 <i>EH</i> ₂₀	18.0	X	106.63882	207.66601	120.69214	23.85756	0.5221940	0.23183973	2.6242838	20	1 1.1	22.1
414747 2010 <i>EL</i> ₂₈	16.3	X	343.77500	170.08828	275.25337	6.44788	0.2362375	0.18478475	3.0527551	20	—	—
414748 2010 <i>EW</i> ₁₂₄	15.6	X	339.72907	96.85130	19.73986	25.60061	0.3136929	0.17432619	3.1736641	20	—	—
414749 2010 <i>FC</i> ₅₆	17.3	X	327.19846	275.34915	196.82806	21.16730	0.0814120	0.35915033	1.9601315	20	—	—
414750 2010 <i>FV</i> ₇₃	17.8	X	299.04424	14.59989	263.73624	4.25851	0.2123460	0.27964876	2.3159408	20	3 8.5	20.9
414751 2010 <i>FV</i> ₉₇	18.7	X	357.61396	273.25042	14.23085	5.76461	0.2281517	0.31343712	2.1463593	20	8 17.3	19.6
414752 2010 <i>GN</i> ₁	15.7	X	265.12025	199.78253	286.82287	11.68735	0.0618185	0.16876879	3.2429577	20	11 13.3	20.4
414753 2010 <i>GK</i> ₂₈	17.5	X	348.87456	141.55584	121.51981	6.77925	0.1409823	0.29726304	2.2235254	20	5 30.1	19.3
414754 2010 <i>GN</i> ₅₉	15.9	X	333.93837	62.26987	63.43415	16.63818	0.1905206	0.18441094	3.0568791	20	—	—
414755 2010 <i>GK</i> ₉₂	17.2	X	268.63387	199.31214	108.97257	6.79470	0.2500884	0.27496151	2.3421864	20	3 15.8	20.8
414756 2010 <i>GD</i> ₁₀₃	18.3	X	28.59612	26.00342	248.53263	2.05050	0.1795276	0.31471799	2.1405317	20	9 20.6	20.2
414757 2010 <i>GH</i> ₁₃₀	18.4	X	302.01047	271.01738	18.50205	7.63654	0.2101280	0.29506490	2.2345548	20	3 30.2	21.0
414758 2010 <i>GS</i> ₁₃₁	18.5	X	278.05551	261.57407	25.14965	3.67492	0.2250770	0.28354920	2.2946534	20	2 26.8	21.8
414759 2010 <i>JP</i>	17.7	X	265.86395	234.22879	70.26638	6.02084	0.2753034	0.27917011	2.3185872	20	3 6.0	21.4
414760 2010 <i>JM</i> ₄₇	17.8	X	42.15558	71.76287	179.43601	5.65806	0.1561368	0.30995520	2.1624036	20	9 1.8	19.9
414761 2010 <i>JH</i> ₇₄	18.2	X	315.40241	94.38649	219.36539	5.08992	0.2069950	0.29815665	2.2190805	20	5 30.6	20.1
414762 2010 <i>KZ</i> ₁₀₄	17.7	X	255.22880	79.97336	207.69048	3.96608	0.2258777	0.26368348	2.4085043	20	2 6.0	21.7
414763 2010 <i>KH</i> ₁₂₁	16.9	X	266.55581	308.90543	68.61410	23.71374	0.1996067	0.28280732	2.2986647	20	6 15.3	20.0
414764 2010 <i>LE</i> ₁	16.9	X	165.39888	188.70464	133.98797	12.63062	0.2821307	0.25434622	2.4670949	20	1 13.3	21.1
414765 2010 <i>LW</i> ₃₃	16.6	X	114.01868	82.38893	234.15646	11.75907	0.2847935	0.23405054	2.6077320	20	—	—
414766 2010 <i>MN</i> ₂	16.2	X	237.34354	207.66228	152.30347	18.46685	0.1565377	0.18724674	3.0259370	20	5 4.4	21.3
414767 2010 <i>MC</i> ₂₇	16.7	X	229.07092	30.96743	294.24712	6.95207	0.2519902	0.26136671	2.4227161	20	2 27.8	21.0
414768 2010 <i>MF</i> ₉₀	17.3	X	239.12707	240.78009	79.30369	3.03540	0.2349453	0.26231910	2.4168486	20	3 5.3	21.3
414769 2010 <i>NI</i> ₂₁	17.6	X	254.06515	95.91423	233.18538	4.31072	0.1269778	0.26617223	2.3934676	20	4 5.5	21.0
414770 2010 <i>OZ</i> ₃₀	16.8	X	60.03530	86.43424	301.10391	14.28055	0.2018916	0.22157392	2.7047282	20	—	—
414771 2010 <i>OW</i> ₄₆	17.2	X	129.72381	130.81492	263.72518	10.08263	0.1390915	0.24292658	2.5438180	20	2 19.8	21.1
414772 2010 <i>OC</i> ₁₀₃	18.9	X	326.47408	178.28901	17.96139	23.10674	0.6719319	0.75491205	1.1945522	20	—	—
414773 2010 <i>OP</i> ₁₁₂	18.1	X	145.21478	325.24702	54.74844	14.09554	0.2800180	0.24367657	2.5385957	20	3 13.9	22.6
414774 2010 <i>PO</i> ₂₄	18.0	X	169.86504	146.46403	205.29557	3.62946	0.2542154	0.25307924	2.4753220	20	2 17.5	22.3
414775 2010 <i>PN</i> ₅₆	17.2	X	133.10772	321.92716	39.25210	5.29454	0.1247957	0.23424679	2.6062753	20	1 18.3	20.9
414776 2010 <i>PE</i> ₅₉	17.6	X	303.33444	337.03437	288.17221	3.93703	0.1303711	0.27218962	2.3580609	20	3 10.1	20.6
414777 2010 <i>PX</i> ₆₀	17.1	X	219.95274	0.35473	322.63098	6.17629	0.1317446	0.25987105	2.4320030	20	2 23.1	20.7
414778 2010 <i>PQ</i> ₆₁	17.3	X	230.63140	168.88876	155.59764	3.98631	0.2410163	0.26402051	2.4064542	20	3 2.2	21.2
414779 2010 <i>PN</i> ₇₄	18.2	X	240.25123	31.26364	253.60608	1.39455	0.2227721	0.26170622	2.4206204	20	1 22.9	22.1
414780 2010 <i>PV</i> ₇₇	17.7	X	237.57995	24.61995	290.43934	1.42228	0.2099071	0.26506762	2.4001125	20	2 25.9	21.6
414781 2010 <i>QM</i> ₁	18.1	X	235.05851	152.47302	160.69756	2.34348	0.2260490	0.26463433	2.4027316	20	2 21.3	21.9
414782 2010 <i>QH</i> ₃	18.1	X	245.53157	129.72697	212.41455	0.62771	0.2127806	0.27205457	2.3588412	20	4 6.5	21.8
414783 2010 <i>QD</i> ₄	17.8	X	175.84521	211.55714	148.98004	2.14636	0.2105199	0.25556738	2.4592297	20	3 3.0	21.7
414784 2010 <i>RT</i> ₂₅	17.1	X	276.54148	124.91442	192.57837	6.65974	0.1338765	0.27206050	2.3588069	20	4 17.8	20.1
414785 2010 <i>RA</i> ₄₀	17.3	X	190.03396	143.30281	228.82302	6.44288	0.2250183	0.26054482	2.4278085	20	3 26.4	21.5
414786 2010 <i>RE</i> ₄₈	17.7	X	173.52205	218.91205	194.40547	2.96762	0.1573136	0.26235440	2.4166318	20	5 3.9	21.4
414787 2010 <i>RE</i> ₅₇	17.4	X	297.78051	285.72223	326.16658	8.14628	0.1767052	0.26379047	2.4078530	20	2 10.8	20.7
414788 2010 <i>RW</i> ₅₉	17.3	X	288.65302	78.64143	195.41885	10.50462	0.1954528	0.26517271	2.3994783	20	2 22.9	20.7
414789 2010 <i>RY</i> ₈₀	17.8	X	174.66050	24.50694	342.26469	4.98139	0.1534231	0.25467353	2.4649806	20	3 6.8	21.6
414790 2010 <i>RE</i> ₁₀₆	17.3	X	64.24702	332.75391	192.65118	6.37381	0.10587822	0.26384163	2.4075418	20	5 12.1	20.1
414791 2010 <i>RD</i> ₁₂₆	17.5	X	252.48638	219.08020	74.39558	3.12401	0.2258653	0.26096198	2.4252205	20	2 13.5	21.4
414792 2010 <i>RO</i> ₁₃₄	17.5	X	1									

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
414801 2010 <i>SL</i> ₁₈	18.1	X	182.69367	134.63321	192.39127	8.10436	0.2267268	0.24677196	2.5173224	20	1 27.8	22.5
414802 2010 <i>SK</i> ₁₉	17.8	X	137.60259	310.26444	134.73834	2.53812	0.1426656	0.25807339	2.4432837	20	5 8.9	21.4
414803 2010 <i>SS</i> ₂₃	18.5	X	174.08928	136.81993	286.85068	0.41720	0.1720587	0.26772029	2.3842321	20	5 17.5	22.3
414804 2010 <i>SN</i> ₂₉	17.8	X	172.28294	245.32751	163.44027	5.75218	0.1183761	0.26174511	2.4203806	20	4 27.1	21.4
414805 2010 <i>SB</i> ₃₅	17.8	X	195.19370	180.20439	165.77568	3.55255	0.0192183	0.25330863	2.4738274	20	2 26.9	21.1
414806 2010 <i>SP</i> ₃₇	18.5	X	215.98767	176.83651	186.91422	4.60443	0.1890764	0.26668594	2.3903929	20	4 9.3	22.4
414807 2010 <i>TW</i> ₁₅	17.0	X	177.68562	291.10963	340.38123	8.51888	0.1047309	0.22789057	2.6545147	20	—	—
414808 2010 <i>TF</i> ₁₆	16.9	X	311.35300	270.22356	319.67421	5.69836	0.0937531	0.25228891	2.4804888	20	2 12.7	19.8
414809 2010 <i>TR</i> ₂₀	17.6	X	66.42464	162.03968	8.24032	2.26145	0.1491163	0.26442771	2.4039831	20	6 5.0	20.3
414810 2010 <i>TQ</i> ₂₅	17.7	X	255.32208	42.69906	246.20174	2.82029	0.1528663	0.26015850	2.4302113	20	2 13.5	21.3
414811 2010 <i>TS</i> ₂₇	17.1	X	234.44102	252.55531	349.94650	6.91599	0.1728499	0.23887503	2.5725010	20	—	—
414812 2010 <i>TD</i> ₃₆	16.3	X	70.82078	190.67739	212.45282	12.91805	0.1523597	0.22810940	2.6528168	20	—	—
414813 2010 <i>TR</i> ₆₀	17.3	X	280.47368	228.88537	344.10039	3.88351	0.0524909	0.24067935	2.5596279	20	—	—
414814 2010 <i>TL</i> ₇₉	17.9	X	79.76602	248.23199	186.68752	8.32950	0.1402942	0.23934248	2.5691503	20	2 10.4	21.1
414815 2010 <i>TX</i> ₁₂₆	17.3	X	229.62323	194.03234	111.96593	2.98180	0.1833746	0.25338042	2.4733601	20	2 11.5	21.2
414816 2010 <i>TN</i> ₁₂₇	17.1	X	254.33711	277.94592	55.51799	6.68511	0.0817842	0.26457153	2.4031118	20	4 20.2	20.4
414817 2010 <i>TD</i> ₁₄₉	17.0	X	64.01024	26.05791	44.40834	14.51044	0.2392035	0.22930331	2.6436005	20	2 1.9	20.0
414818 2010 <i>UR</i> ₁₁	16.5	X	170.36090	108.33989	199.90250	9.58096	0.0967322	0.23288561	2.6164209	20	—	—
414819 2010 <i>UV</i> ₁₄	16.9	X	96.86962	23.21461	52.43852	12.83575	0.1662773	0.23838631	2.5760157	20	3 20.4	20.5
414820 2010 <i>UF</i> ₂₁	16.8	X	166.47652	298.82886	60.87157	14.35820	0.2032021	0.24208420	2.5497157	20	3 2.0	21.3
414821 2010 <i>UV</i> ₂₆	17.2	X	13.99054	88.32673	46.81926	9.54641	0.0666640	0.23192429	2.6236459	20	1 18.1	20.5
414822 2010 <i>UF</i> ₂₇	17.6	X	110.56902	184.84768	227.40090	3.58501	0.2039117	0.23820481	2.5773241	20	3 3.7	21.1
414823 2010 <i>UC</i> ₃₄	16.6	X	125.58931	338.39302	22.36252	15.39465	0.1567725	0.23348006	2.6119780	20	1 15.8	20.6
414824 2010 <i>UG</i> ₃₆	17.3	X	88.37666	118.74583	305.74345	4.67022	0.1445270	0.23247138	2.6195281	20	2 12.5	20.4
414825 2010 <i>UP</i> ₃₉	17.1	X	145.77363	326.03537	24.90302	9.84721	0.1390910	0.23761763	2.5815682	20	1 22.4	21.0
414826 2010 <i>UZ</i> ₄₄	17.1	X	202.71005	65.32771	243.78588	12.06717	0.1833168	0.24405719	2.5359556	20	1 20.6	21.5
414827 2010 <i>UV</i> ₄₉	17.4	X	63.09625	250.03652	205.08534	12.94075	0.1261125	0.23665384	2.5885726	20	2 7.5	20.6
414828 2010 <i>UM</i> ₅₄	17.5	X	134.56909	48.12879	293.02116	2.65623	0.1385573	0.23012477	2.6373056	20	—	—
414829 2010 <i>UF</i> ₅₉	16.4	X	331.24383	307.20315	255.23045	10.71267	0.1922739	0.23263135	2.6183270	20	1 20.8	19.8
414830 2010 <i>UC</i> ₆₀	17.5	X	112.03895	111.60121	276.67163	1.32683	0.2400755	0.23268829	2.6179449	20	2 10.9	21.3
414831 2010 <i>UX</i> ₆₀	17.8	X	91.51472	54.35864	10.99238	4.24659	0.2011246	0.23707929	2.5854748	20	2 28.3	21.0
414832 2010 <i>UF</i> ₇₅	16.9	X	87.25839	104.34403	318.79779	6.24295	0.1303252	0.23514265	2.5996513	20	2 7.3	20.0
414833 2010 <i>UY</i> ₇₆	16.8	X	159.71821	353.35786	2.11554	4.78192	0.2189492	0.23956677	2.5675465	20	2 15.4	21.0
414834 2010 <i>UY</i> ₇₇	17.2	X	150.97740	100.59470	260.35797	10.44336	0.1684483	0.23594280	2.5937706	20	2 5.3	21.4
414835 2010 <i>UV</i> ₇₈	17.1	X	53.07095	242.81131	268.10273	7.62895	0.1925381	0.24422930	2.5347641	20	4 19.5	19.9
414836 2010 <i>UE</i> ₈₀	16.8	X	202.81971	278.24607	25.64302	15.32850	0.0929330	0.23655800	2.5892717	20	1 21.6	21.0
414837 2010 <i>UY</i> ₉₃	16.6	X	230.56899	352.23011	257.35077	13.37085	0.1078460	0.22632957	2.6667063	20	—	—
414838 2010 <i>UY</i> ₉₆	16.9	X	92.82293	181.84422	218.37277	11.62762	0.1820008	0.23043949	2.6349039	20	1 21.4	20.4
414839 2010 <i>UZ</i> ₉₉	17.4	X	300.47256	147.61261	136.36848	1.99281	0.1774506	0.26781576	2.3836654	20	3 28.1	20.3
414840 2010 <i>UD</i> ₁₀₅	17.1	X	157.75755	95.76199	188.62854	5.07407	0.1409456	0.22030524	2.7151021	20	—	—
414841 2010 <i>VF</i> ₂₂	17.3	X	152.15906	291.97232	43.45368	4.68407	0.0605503	0.22904416	2.6455942	20	—	—
414842 2010 <i>VP</i> ₂₆	17.4	X	81.23389	199.48473	237.78555	1.65073	0.0690297	0.23325143	2.6136845	20	2 8.0	20.7
414843 2010 <i>VR</i> ₃₀	16.3	X	130.89067	143.19352	192.94125	12.51055	0.1241881	0.22975852	2.6401076	20	—	—
414844 2010 <i>VS</i> ₃₀	17.1	X	152.95483	132.57142	202.15337	7.19278	0.1864649	0.23464950	2.6032924	20	1 10.9	21.3
414845 2010 <i>VH</i> ₃₁	17.5	X	137.55738	177.14006	202.07446	8.26595	0.1701251	0.23989529	2.5652020	20	2 15.3	21.4
414846 2010 <i>VE</i> ₄₇	17.1	X	198.64105	32.72225	279.62218	2.75570	0.1532791	0.23705886	2.5856233	20	1 24.2	21.1
414847 2010 <i>VN</i> ₄₉	17.1	X	122.28083	329.51105	26.57050	12.48192	0.2043468	0.23111345	2.6297789	20	1 11.5	21.1
414848 2010 <i>VV</i> ₅₁	16.9	X	200.26364	64.99581	210.92632	6.98583	0.1515421	0.22919813	2.6444092	20	—	—
414849 2010 <i>VO</i> ₆₁	17.1	X	19.19532	47.66342	25.47335	6.39824	0.0690881	0.21459528	2.7630534	20	—	—
414850 2010 <i>VK</i> ₆₃	16.1	X	283.54675	140.19965	35.38942	12.95798	0.0801215	0.21712014	2.7415908	20	—	—
414851 2010 <i>VF</i> ₆₅	17.4	X	135.54311	64.07300	323.61136	3.56224	0.1650686	0.23901033	2.5715300	20	2 25.4	21.1
414852 2010 <i>VS</i> ₇₀	17.0	X	69.93380	54.86119	5.84000	5.33302	0.1916136	0.22859187	2.6490828	20	1 19.2	19.8
414853 2010 <i>VD</i> ₈₀	17.4	X	319.47427	151.69958	56.77152	6.34101	0.0713233	0.23991274	2.5650776	20	2 3.3	20.7
414854 2010 <i>VO</i> ₈₀	16.9	X	312.91662	156.42408	57.77954	9.21369	0.1048958	0.23960458	2.5672764	20	1 28.3	20.4
414855 2010 <i>VN</i> ₈₂	17.5	X	71.08245	43.85827	42.33009	3.81894	0.2520489	0.23396027	2.6084027	20	3 5.8	20.2
414856 2010 <i>VS</i> ₈₃	16.9	X	32.85724	263.01005	239.76202	10.80051	0.1351186	0.23526683	2.5987365	20	2 20.3	20.0
414857 2010 <i>VO</i> ₈₄	17.6	X	69.29416	175.87480	250.30546	2.72616	0.1585009	0.22732999	2.6588769	20	1 19.1	20.5
414858 2010 <i>VD</i> ₈₆	16.9	X	148.65012	305.40078	62.74718	7.32091	0.3271824	0.24109414	2.5566912	20	3 1.9	21.5
414859 2010 <i>VG</i> ₈₉	17.4	X	99.80923	96.26217	295.18620	2.98141	0.2151016	0.22992902	2.6388023	20	1 28.1	20.8
414860 2010 <i>VW</i> ₈₉	16.5	X	135.67178	266.21391	54.37990	13.13243	0.2717999	0.22515212	2.6759954	20	—	—
414861 2010 <i>VQ</i> ₉₅	17.4	X	244.61571	233.34027	41.31169	4.68364	0.0269191	0.23816838	2.5775869	20	1 30.6	21.0
414862 2010 <i>VM</i> ₁₀₂	17.4	X	252.65348	45.74908	196.02048	1.03813	0.0578590	0.22797380	2.6538686	20	—	—
414863 2010 <i>VU</i> ₁₀₂	16.8	X	176.12152	119.03257	230.78919	9.43757	0.1746943	0.24210109	2.5495971	20	2 14.8	21.1
414864 2010 <i>VE</i> ₁₀₈	17.6	X	134.24749	216.13784	167.40469	4.22614	0.1310287	0.23951616	2.5679082	20	2 14.7	21.2
414865 2010 <i>VA</i> ₁₁₅	17.1	X	128.35738	51.07401	352.96257	4.38508	0.2243790	0.24117257	2.5561369	20	3 15.9	20.9
414866 2010 <i>VT</i> ₁₁₇	16.8	X	110.42958	14.90715	352.62302	5.22931	0.0603335	0.22434131	2.6824392	20	—	—
414867 2010 <i>VV</i> ₁₁₈	16.5	X	205.69970	6.96999	282.99032	5.50844	0.0012157	0.22799388	2.6537128	20	1 2.9	19.8
414868 2010 <i>VP</i> ₁₃₁	17.0	X	76.35516	2.27275	69.12611	14.11028	0.1474595	0.23367140	2.6105520	20	2 9.6	20.3
414869 2010 <i>VB</i> ₁₅₂	17.1	X	169.51866	236.38425	90.04093	7.30786	0.2824648	0.23999010	2.5645263	20	1 23.2	21.5
414870 2010 <i>VW</i> ₁₆₃	16.6	X	113.87954	107.83286	251.63749	11.75306	0.1969479	0.22706289	2.6609616	20	1 2.2	20.2
414871 2010 <i>VG</i> ₁₆₇	17.3	X	124.69910	137.44266	187.30444	1.33178	0.0298216	0.21851778	2.7298882	20	—	—
414872 2010 <i>VJ</i> ₁₇₁	16.6	X	339.55193	130								

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
414881 2010 VY ₂₁₈	16.7	X	93.54212	175.32492	231.66265	11.19819	0.1831335	0.22969948	2.6405600	20	1 30.8	20.3
414882 2010 VV ₂₁₉	17.8	X	86.81076	82.73581	349.98653	2.64032	0.1123792	0.23810576	2.5780388	20	2 16.7	20.9
414883 2010 WR ₅	16.5	X	330.25659	270.61132	261.84656	10.20607	0.2065030	0.22297614	2.6933768	20	—	—
414884 2010 WR ₂₁	17.6	X	81.21346	15.83199	53.01529	1.17140	0.0809202	0.23122967	2.6288977	20	1 30.9	20.9
414885 2010 WP ₃₂	17.9	X	98.76931	157.66617	202.92946	1.71348	0.0893478	0.21922000	2.7240554	20	—	—
414886 2010 WB ₄₆	16.7	X	222.05040	249.70451	71.83492	18.17016	0.0454656	0.24143178	2.5543070	20	3 10.5	20.7
414887 2010 WM ₄₉	16.9	X	17.04010	246.56410	263.97441	2.39475	0.0859641	0.23298768	2.6156567	20	2 8.6	20.0
414888 2010 WG ₅₀	17.1	X	153.42469	295.25020	79.04205	2.54024	0.1710952	0.23934118	2.5691597	20	2 28.9	21.1
414889 2010 WX ₅₀	17.0	X	256.07504	220.38070	49.54190	6.66782	0.1267148	0.24437555	2.5337527	20	1 28.9	20.9
414890 2010 WE ₆₇	16.6	X	75.84305	136.22614	272.94326	4.96213	0.0775668	0.22387213	2.6861857	20	—	—
414891 2010 XO ₁₂	17.4	X	94.86657	349.58115	82.95500	7.80905	0.2890022	0.23316626	2.6143210	20	3 29.6	21.1
414892 2010 XS ₁₅	17.3	X	48.51582	79.87392	69.75597	3.29626	0.1060570	0.24223324	2.5486697	20	4 2.4	20.0
414893 2010 XF ₁₆	17.1	X	11.93789	42.58301	64.25865	5.91712	0.0685755	0.22124673	2.7073941	20	—	—
414894 2010 XE ₁₉	16.3	X	86.88321	3.89360	96.61877	15.54143	0.0482934	0.23941391	2.5686394	20	3 23.1	20.0
414895 2010 XR ₂₀	17.0	X	84.80740	340.67337	103.03045	7.72755	0.2432917	0.23144013	2.6273037	20	3 24.6	20.4
414896 2010 XP ₂₂	17.6	X	74.90884	6.20671	65.66481	5.43846	0.0480831	0.23120749	2.6290658	20	1 22.7	20.9
414897 2010 XG ₂₄	17.3	X	89.91517	296.57628	117.73933	7.26549	0.2115930	0.23179057	2.6246549	20	2 13.9	20.4
414898 2010 XW ₃₇	17.3	X	137.77015	97.35215	40.65070	3.25668	0.1571297	0.25631166	2.4544666	20	7 18.9	21.2
414899 2010 XJ ₃₈	17.0	X	30.61181	32.88052	76.47482	6.07952	0.1154950	0.21954735	2.7213469	20	1 10.1	20.1
414900 2010 XV ₃₈	17.1	X	124.09881	166.80913	208.73337	4.00412	0.2668979	0.23356234	2.6113645	20	2 9.9	21.2
414901 2010 XT ₃₉	17.1	X	82.49745	293.86742	201.87715	7.86654	0.1889366	0.24543025	2.5264885	20	5 18.4	20.4
414902 2010 XD ₄₂	16.8	X	211.82729	160.33415	105.17022	5.67293	0.0199799	0.21265339	2.7798488	20	—	—
414903 2010 XT ₄₅	17.4	X	7.90013	88.93016	202.46523	13.62866	0.2777486	0.48463054	1.6051989	20	11 14.0	18.4
414904 2010 XN ₆₄	17.1	X	101.86531	289.45278	82.62967	6.96818	0.0600546	0.22230105	2.6988270	20	—	—
414905 2010 XR ₆₄	16.6	X	105.27124	284.35497	293.53189	7.30062	0.0465937	0.22311705	2.6922427	20	—	—
414906 2010 XK ₆₉	17.3	X	12.68702	316.28115	130.69316	6.00475	0.0761504	0.21474319	2.7617845	20	—	—
414907 2010 XN ₇₁	16.8	X	131.01840	107.77907	277.34599	10.41508	0.1911318	0.23430718	2.6058274	20	2 17.0	20.9
414908 2010 XH ₇₆	17.4	X	88.20105	210.51312	208.94289	2.97840	0.1516243	0.23018914	2.6368140	20	2 6.7	20.6
414909 2010 XL ₇₆	16.4	X	135.03999	153.05448	259.97538	9.40920	0.1161969	0.23992712	2.5649751	20	3 6.5	20.3
414910 2010 XB ₈₄	17.4	X	98.86696	260.03557	169.14641	4.32954	0.2146528	0.23487260	2.6016437	20	3 15.2	20.7
414911 2010 YE ₁	17.5	X	61.34049	343.22131	122.07993	4.77580	0.1820078	0.22736922	2.6585711	20	3 4.8	20.3
414912 2010 YN ₂	17.0	X	145.24306	305.42269	36.79637	7.26859	0.0759085	0.21735864	2.7395850	20	1 4.9	21.0
414913 2010 YY ₄	17.3	X	95.92245	237.55032	235.85474	6.38690	0.1519630	0.24284741	2.5443707	20	4 28.2	20.7
414914 2011 AF ₉	17.2	X	79.68968	334.92569	113.36612	5.24543	0.2169493	0.22914771	2.6447971	20	3 17.7	20.4
414915 2011 AR ₉	16.4	X	337.62987	45.83440	105.17932	5.92439	0.0166977	0.21400726	2.7681124	20	—	—
414916 2011 AU ₁₁	16.9	X	72.41998	326.85507	110.65885	7.30477	0.0303164	0.22085038	2.7106324	20	1 25.7	20.4
414917 2011 AA ₂₀	16.8	X	315.95922	4.05920	131.66934	6.47531	0.2564625	0.20043687	2.8916850	20	—	—
414918 2011 AX ₂₇	16.7	X	330.18156	207.67345	288.82522	6.47993	0.1400903	0.20499713	2.8486397	20	—	—
414919 2011 AP ₃₁	16.2	X	59.32875	291.75216	104.85103	15.09885	0.1264628	0.20864613	2.8153290	20	—	—
414920 2011 AG ₃₃	17.0	X	99.09667	297.99433	93.35486	6.94052	0.0474917	0.21589902	2.7519187	20	1 5.1	20.5
414921 2011 AX ₃₄	17.1	X	42.13078	250.94072	248.11324	7.16068	0.1950392	0.22678381	2.6631442	20	3 12.3	19.8
414922 2011 AT ₃₆	16.1	X	130.81259	146.08942	133.44894	11.02407	0.0494283	0.18501821	3.0501866	20	12 21.5	20.7
414923 2011 AT ₃₉	16.1	X	231.08695	270.03012	272.07469	9.45205	0.0216680	0.18972344	2.9995451	20	12 21.2	20.2
414924 2011 AC ₄₁	15.6	X	67.01987	245.20604	92.26515	11.40668	0.1251962	0.19193846	2.9764234	20	12 29.7	19.9
414925 2011 AG ₄₅	17.1	X	144.09377	287.50391	126.21449	13.60664	0.2416813	0.23826652	2.5768791	20	4 18.6	21.6
414926 2011 AP ₄₅	16.6	X	55.05041	310.19361	122.52837	9.84231	0.1895416	0.21453574	2.7635645	20	1 9.5	19.4
414927 2011 AG ₄₉	16.1	X	309.88481	35.60235	123.15959	9.07390	0.2430555	0.20355040	2.8621216	20	—	—
414928 2011 AM ₄₉	17.5	X	99.23134	346.08464	49.55039	5.34180	0.0851188	0.21952297	2.7215484	20	1 16.3	21.1
414929 2011 AV ₅₂	15.9	X	279.60024	58.74238	84.52207	5.64683	0.0798824	0.18933615	3.0036340	20	12 27.9	19.6
414930 2011 AH ₅₇	15.4	X	218.88228	185.37489	315.38460	12.86692	0.0624410	0.17331648	3.1859782	20	10 2.9	20.3
414931 2011 AQ ₆₃	16.0	X	195.75325	79.53473	131.61316	11.91884	0.0354508	0.18337841	3.0683431	20	12 12.8	20.6
414932 2011 AC ₆₆	15.8	X	136.58608	312.87958	309.83199	8.42197	0.0738965	0.18253637	3.0777720	20	12 6.5	20.6
414933 2011 AH ₆₇	16.9	X	98.93790	194.79539	142.47516	2.19971	0.0868935	0.20091191	2.8871250	20	—	—
414934 2011 AW ₆₉	16.7	X	207.89357	240.96723	237.98060	9.49498	0.0603862	0.19119270	2.9841583	20	12 21.9	21.1
414935 2011 AD ₇₅	16.6	X	52.31433	115.03824	293.94468	14.31113	0.1913179	0.21136267	2.7911543	20	—	—
414936 2011 BJ ₁	17.1	X	56.13898	104.14814	293.28791	6.90444	0.2182516	0.21061395	2.7977654	20	—	—
414937 2011 BV ₁₆	17.3	X	71.55814	308.17622	107.09458	5.40997	0.0642414	0.21465178	2.7625685	20	—	—
414938 2011 BK ₇	17.6	X	57.37054	85.39896	321.54802	1.32832	0.2408846	0.21354687	2.7720895	20	—	—
414939 2011 BC ₁₇	16.5	X	8.39334	318.71124	148.07796	9.85056	0.2088053	0.20951684	2.8075237	20	—	—
414940 2011 BN ₂₇	16.9	X	154.89618	135.88023	281.86296	4.49838	0.2628716	0.24061088	2.5601134	20	4 25.8	21.4
414941 2011 BX ₃₄	16.1	X	149.05865	303.37212	312.47204	9.24315	0.0948347	0.18199253	3.0839003	20	12 11.1	21.0
414942 2011 BX ₄₅	16.3	X	225.61592	63.11481	108.83733	12.46692	0.0955760	0.17941998	3.1133087	20	11 23.7	21.0
414943 2011 BS ₅₃	16.0	X	186.95478	268.31507	320.50666	9.75246	0.0538644	0.18657162	3.0332322	20	12 21.9	20.6
414944 2011 BM ₅₅	16.7	X	36.21357	136.14450	267.84281	6.56047	0.0732681	0.20104103	2.8858887	20	—	—
414945 2011 BR ₅₆	17.0	X	53.53659	1.94789	77.50393	8.42130	0.1176994	0.21393008	2.7687780	20	1 10.2	20.2
414946 2011 BG ₅₇	16.9	X	335.97955	92.87916	77.02560	8.59154	0.1619130	0.21145037	2.7903826	20	—	—
414947 2011 BH ₇₀	16.8	X	83.53202	297.87027	110.74923	9.83103	0.1465196	0.21751990	2.7382308	20	1 19.6	20.1
414948 2011 BM ₇₀	16.2	X	218.68671	355.97945	168.33836	10.32419	0.1479637	0.17397675	3.1779123	20	10 30.8	21.1
414949 2011 BK ₈₄	16.9	X	14.40387	85.86853	49.10608	4.84131	0.1562774	0.21449758	2.7638923	20	1 16.4	19.8
414950 2011 BU ₈₅	16.2	X	170.49170	138.77709	121.31847	11.24122	0.0671137	0.19024273	2.9940841	20	—	—
414951 2011 BF ₉₈	16.1	X	71.92363	234.42817	101.73413	10.15664	0.0717677	0.18893432	3.0078914	20	12 26.8	20.5
414952 2011 BU ₁₀₀	16.6	X	224.05136	21.79486	166.12650	2.81155	0.1375800	0.18040723	3.1019402	20	12 3.3	21.2
414953 2011 BO ₁₀₁	17.0	X	35.74867	0.00541	90.80779	4.52618	0.1160653	0.21182090	2.7817276	20	—	—
414954 2011 BF ₁₁₆	17.4	X	46.19039	328.84179	118.98446	4.13039	0.1497033	0.21657844	2.7461604	20		

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
414961 2011 CS ₅	16.3	X	336.41417	317.42931	122.13990	10.08915	0.1020778	0.19100834	2.9860781	20	—	—
414962 2011 CD ₇	16.7	X	40.81347	138.03280	310.09162	9.05907	0.1880872	0.21147749	2.7901440	20	1 4.2	19.4
414963 2011 CV ₉	16.1	X	228.12911	36.18573	128.02183	9.72360	0.0629410	0.17986006	3.1082281	20	11 21.2	20.7
414964 2011 CY ₉	16.3	X	245.04622	198.31604	322.70145	9.22742	0.0572878	0.18379730	3.0636792	20	12 5.3	20.8
414965 2011 CQ ₁₅	17.1	X	300.80948	86.74155	12.36708	4.43932	0.1402609	0.18543966	3.0455634	20	11 26.2	20.8
414966 2011 CX ₂₂	16.4	X	53.89627	70.41046	286.29680	7.11736	0.0487026	0.18635963	3.0355321	20	12 27.0	20.5
414967 2011 CK ₃₄	16.8	X	40.68613	122.61947	318.97456	7.07513	0.2242595	0.21077191	2.7963674	20	—	—
414968 2011 CP ₃₇	16.7	X	322.50739	68.04986	0.00369	2.89209	0.0946919	0.18403067	3.0610887	20	11 23.5	20.5
414969 2011 CP ₅₀	16.2	X	279.33461	205.43605	273.62878	7.69066	0.1684857	0.18448724	3.0560362	20	11 13.3	20.1
414970 2011 CN ₆₉	17.3	X	82.78270	222.59667	277.20146	2.08840	0.1640463	0.23525755	2.5988049	20	5 19.2	20.7
414971 2011 CY ₇₈	16.8	X	305.76551	263.46797	195.21100	5.32084	0.1250579	0.18522129	3.0479566	20	12 6.4	20.5
414972 2011 CP ₈₅	16.7	X	188.04306	41.66040	167.76485	9.53766	0.0601264	0.17628747	3.1500812	20	11 28.8	21.5
414973 2011 CH ₈₈	16.7	X	339.44287	298.67262	151.26800	9.20480	0.1060265	0.19080889	2.9881586	20	—	—
414974 2011 CP ₁₀₆	16.5	X	200.94708	190.42813	332.13871	4.10758	0.0422479	0.16813668	3.2510806	20	10 15.2	21.3
414975 2011 CP ₁₀₈	17.1	X	61.21040	79.95065	272.46771	2.99602	0.1545640	0.18379542	3.0637002	20	—	—
414976 2011 DJ ₁	16.0	X	343.66513	87.23418	329.62220	9.10902	0.0765436	0.17947355	3.1126891	20	12 9.4	20.1
414977 2011 DD ₃	17.5	X	21.82723	110.21239	161.61631	2.93988	0.2326730	0.21419113	2.9665280	20	1 16.0	19.8
414978 2011 DY ₁₁	16.5	X	331.93395	297.90883	198.96981	2.53200	0.1127259	0.19630327	2.9321377	20	—	—
414979 2011 DN ₁₂	16.0	X	355.38016	86.11758	7.06495	8.11068	0.0596572	0.19661544	2.9290332	20	—	—
414980 2011 DB ₂₁	16.4	X	332.09451	93.16809	136.17813	3.52937	0.0597986	0.22681938	2.6628658	20	3 22.0	19.6
414981 2011 DR ₂₂	16.6	X	290.56642	343.27293	159.80679	6.88376	0.2026416	0.18610979	3.0382481	20	12 30.1	20.0
414982 2011 DX ₂₂	16.1	X	243.14434	139.37400	54.92887	3.06683	0.1016582	0.18235221	3.0798438	20	—	—
414983 2011 DU ₃₇	15.9	X	312.10120	239.28469	169.99002	8.08393	0.1538983	0.17091016	3.2158130	20	10 8.9	19.6
414984 2011 EB ₃	16.3	X	280.14723	155.94371	349.20882	16.80259	0.1931158	0.18392472	3.0622642	20	12 14.6	20.4
414985 2011 EM ₆	16.1	X	231.23819	307.46830	202.80117	14.70898	0.1935441	0.17364218	3.1819931	20	10 19.7	20.8
414986 2011 EW ₁₂	15.8	X	231.29855	150.78281	39.33867	10.03690	0.0793041	0.18389087	3.0626399	20	12 21.2	20.2
414987 2011 EN ₂₃	15.8	X	350.15180	54.34755	28.18933	10.51812	0.0883731	0.18761935	3.0219292	20	—	—
414988 2011 EX ₂₃	16.7	X	284.60754	329.18183	154.05464	12.11939	0.1633771	0.18286441	3.0740901	20	11 30.9	20.7
414989 2011 ES ₄₇	16.0	X	194.75671	84.21734	126.76351	13.98292	0.0379192	0.17639323	3.1488219	20	12 10.4	20.7
414990 2011 EM ₅₁	21.9	X	327.04427	142.20053	134.18321	1.86493	0.3349963	0.64944206	1.3206136	20	2 8.6	22.3
414991 2011 EO ₇₃	15.6	X	271.64428	143.60204	347.80867	27.44039	0.1437451	0.17753569	3.1352988	20	11 7.6	20.3
414992 2011 EK ₇₇	16.6	X	309.91723	210.90929	288.36465	1.24475	0.1757122	0.19157541	2.9801826	20	—	—
414993 2011 EA ₇₈	17.0	X	74.66206	293.22398	188.41794	28.20939	0.3883317	0.22846868	2.6500349	20	5 20.7	21.1
414994 2011 ES ₈₀	16.5	X	297.28637	203.70312	276.16291	4.95157	0.2373362	0.18567070	3.0430363	20	12 7.8	19.5
414995 2011 EO ₈₄	16.3	X	284.20285	84.65207	46.38180	4.76987	0.0989550	0.17878873	3.1206324	20	12 13.9	20.4
414996 2011 FJ	15.7	X	24.60385	253.08485	148.01739	21.52650	0.1112530	0.18520642	3.0481198	20	—	—
414997 2011 FN ₂₈	16.0	X	251.12699	314.74756	199.74084	16.65800	0.1921246	0.17717047	3.1396060	20	11 17.0	20.5
414998 2011 FA ₃₅	17.1	X	304.28755	37.41925	113.75661	4.07147	0.1250292	0.18949161	3.0019910	20	—	—
414999 2011 FJ ₅₅	16.4	X	287.76263	27.24433	111.02632	2.31465	0.1347055	0.18378983	3.0637623	20	12 26.2	20.2
415000 2011 FB ₅₆	16.0	X	309.37075	340.83097	159.02022	11.94717	0.0606708	0.18899193	3.0072801	20	—	—
415001 2011 FS ₆₀	16.9	X	285.09484	322.39045	160.36440	0.99052	0.1343494	0.17597979	3.1537519	20	11 30.6	20.8
415002 2011 FN ₆₃	16.9	X	310.69632	7.48347	112.45538	2.78439	0.1833477	0.18595198	3.0399668	20	—	—
415003 2011 FP ₈₉	15.7	X	16.20855	11.58441	50.65107	10.20804	0.1068180	0.18822831	3.0154080	20	—	—
415004 2011 FC ₁₀₂	17.2	X	55.31926	226.16028	225.90413	7.15920	0.1923102	0.21573808	2.7532872	20	2 3.2	20.2
415005 2011 FM ₁₀₅	16.9	X	61.54477	356.27266	104.69427	5.05019	0.2401571	0.21845493	2.7304118	20	3 10.5	19.8
415006 2011 FS ₁₄₇	15.5	X	198.39430	139.40802	77.30951	15.47353	0.1292482	0.17896026	3.1186382	20	12 10.9	20.3
415007 2011 GW ₂₀	15.4	X	311.55831	142.74254	247.26153	8.60200	0.0302351	0.15184247	3.4796899	20	9 15.3	20.4
415008 2011 GS ₅₈	16.1	X	336.65054	64.04105	45.10860	11.15917	0.1996365	0.18752555	3.0229369	20	—	—
415009 2011 GE ₆₇	15.5	X	322.02337	93.15127	69.66322	13.92894	0.0553057	0.18550966	3.0447972	20	—	—
415010 2011 HF ₂₂	15.8	X	267.02637	300.42167	207.38681	26.01493	0.2320970	0.17408147	3.1766377	20	11 21.4	20.2
415011 2011 HL ₃₄	16.0	X	248.26910	318.81923	213.88038	9.49349	0.1736691	0.17631711	3.1497282	20	12 6.7	20.6
415012 2011 HR ₃₆	15.8	X	290.50905	84.43724	58.60575	16.69384	0.0921618	0.17644613	3.1481926	20	—	—
415013 2011 HV ₆₄	15.7	X	332.70724	39.69403	63.61875	21.89373	0.0972817	0.17928797	3.1148367	20	—	—
415014 2011 HD ₆₆	16.1	X	183.40050	184.58687	43.72396	7.20528	0.0259008	0.17117294	3.2125210	20	12 15.3	20.8
415015 2011 HR ₈₅	16.3	X	297.79862	96.47577	48.40105	7.92959	0.1153817	0.18221437	3.0813969	20	—	—
415016 2011 HT ₈₈	16.2	X	286.52733	59.62898	57.49645	19.56927	0.1341732	0.17019946	3.2247590	20	11 23.3	20.3
415017 2011 HS ₉₃	15.3	X	336.38924	208.90173	113.88684	4.93929	0.0795869	0.12468283	3.9682431	20	7 26.3	20.5
415018 2011 HC ₉₈	16.3	X	333.69749	25.64668	54.48147	28.18503	0.1282363	0.17705033	3.1410262	20	12 21.1	20.4
415019 2011 HJ ₁₀₂	15.8	X	304.04663	244.78281	173.10507	15.25829	0.0848073	0.15548116	3.4251863	20	10 11.5	20.3
415020 2011 JO ₂	15.2	X	185.97717	174.10191	91.74175	27.86780	0.1032005	0.17507635	3.1645920	20	—	—
415021 2011 JJ ₁₆	15.9	X	308.19926	72.14899	52.92779	16.51415	0.1955077	0.17858931	3.1229551	20	—	—
415022 2011 MP ₁₀	17.2	X	25.99448	260.21165	126.91939	24.07536	0.1002457	0.36251028	1.9480009	20	—	—
415023 2011 NC ₂	13.9	X	278.58668	352.32051	300.44931	7.85742	0.0867209	0.08427424	5.1523595	20	4 2.7	20.8
415024 2011 QS ₅₁	17.0	X	91.05195	47.21283	250.50738	17.90110	0.0577851	0.35066789	1.9916150	20	—	—
415025 2011 QJ ₈₀	18.4	X	336.43591	205.52149	218.06807	9.59151	0.1752967	0.34749599	2.0037161	20	—	—
415026 2011 QT ₈₅	13.7	X	269.80945	253.32174	72.36841	7.05434	0.0513804	0.08399809	5.1636457	20	5 9.3	20.6
415027 2011 SG ₅	18.2	X	326.71099	26.56510	229.80971	26.62440	0.3862897	0.65758498	1.3096888	20	—	—
415028 2011 SF ₁₈₇	17.5	X	338.58371	267.86257	359.85178	6.47879	0.1607659	0.30700388	2.1762401	20	5 6.9	19.2
415029 2011 UL ₂₁	15.8	X	260.20489	284.79074	275.55402	34.85378	0.6528992	0.31874424	2.1224680	20	12 19.6	16.8
415030 2011 UA ₃₅₄	16.9	X	0.99707	352.80759	238.35632	6.90039	0.1037023	0.28980957	2.2614877	20	5 1.5	18.7
415031 2011 WC ₁₃	17.1	X	281.17853	198.66554	67.23237	8.86022	0.1915751	0.27602322	2.3361764	20	2 9.7	20.6
415032 2011 WK ₇₅	18.1	X	332.81973	50.20509	266.11158	4.71344	0.1465087	0.31134614	2.1559585	20	7 24.5	19.5
415033 2011 WT ₇₇	17.9	X	199.16578	239.72339	202.67532	5.21199	0.0750781	0.29946492	2.2126127	20	7 11.1	20.8
415034 2011 WB ₁₄₁	18.6	X	292.76952	4.06153	356.92815	2.10291	0.2099094	0.31020694	2			

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ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
415041 2011 YL ₄₈	16.9	X	336.80021	167.86823	30.27407	6.76623	0.0766057	0.25218354	2.4811797	20	2 12.2	19.9
415042 2011 YY ₅₈	18.3	X	113.95844	358.95910	102.59311	2.21845	0.1445308	0.26868991	2.3784926	20	5 4.1	21.4
415043 2011 YC ₅₉	17.6	X	163.83734	139.72217	298.98426	6.74252	0.0722890	0.27759127	2.3273704	20	5 22.6	20.8
415044 2011 YG ₆₁	17.6	X	114.37408	255.29639	251.88700	5.83109	0.0494851	0.28295824	2.2978472	20	6 24.3	20.4
415045 2011 YQ ₆₆	17.3	X	257.99678	12.36372	337.68698	7.81750	0.1308284	0.28130718	2.3068295	20	5 5.4	20.5
415046 2011 YO ₆₇	17.5	X	147.33226	141.06151	320.44957	6.92270	0.0684003	0.27785125	2.3259184	20	6 3.4	20.7
415047 2011 YP ₇₃	18.2	X	88.80627	42.49314	84.39542	2.40203	0.1309324	0.26667931	2.3904326	20	5 4.4	21.0
415048 2011 YC ₇₄	18.3	X	243.74254	350.07606	38.28722	7.58336	0.1407788	0.29481778	2.2358033	20	6 12.0	21.3
415049 2011 YA ₇₉	17.8	X	226.44719	49.15119	30.14442	4.99217	0.1100747	0.29843096	2.2177204	20	8 9.9	20.6
415050 2012 AK ₂	18.1	X	175.12067	206.11077	264.85317	4.35301	0.0942186	0.29212316	2.2495314	20	7 21.4	21.1
415051 2012 AX ₅	17.3	X	43.51329	241.91231	274.18940	3.05329	0.1216213	0.25967298	2.4332396	20	3 30.2	19.8
415052 2012 AW ₆	16.8	X	90.59789	213.75870	272.03881	5.54528	0.0668155	0.26652951	2.3913282	20	4 21.9	19.7
415053 2012 AR ₁₂	17.0	X	98.07186	174.44600	2.31402	8.50615	0.1315210	0.28278776	2.2987706	20	7 29.4	20.2
415054 2012 AE ₂₄	17.8	X	232.58780	88.67451	299.89593	5.97812	0.1244953	0.28680094	2.2772283	20	5 31.9	20.9
415055 2012 BC	17.4	X	358.20205	101.92115	96.66549	2.46176	0.1405704	0.25716988	2.4490030	20	3 9.4	19.7
415056 2012 BC ₁₀	17.8	X	55.93532	344.58020	182.68943	4.89360	0.1658488	0.26052276	2.4279455	20	5 18.6	20.4
415057 2012 BV ₁₁	17.7	X	211.78198	324.24768	91.93807	4.51455	0.1300086	0.28626352	2.2801253	20	6 15.7	20.9
415058 2012 BH ₁₉	16.8	X	294.78287	120.56045	78.18099	6.63794	0.0832497	0.23532333	2.5983206	20	—	—
415059 2012 BP ₂₂	17.4	X	174.49114	312.28001	140.39825	8.65359	0.0687772	0.28510191	2.2863145	20	6 25.8	20.6
415060 2012 BH ₂₆	17.7	X	212.79619	10.04839	47.86239	7.16766	0.1757913	0.28818202	2.2699944	20	6 15.4	21.2
415061 2012 BW ₂₇	17.9	X	97.34763	121.11453	0.81545	2.83418	0.1333427	0.26369669	2.4084239	20	5 8.0	21.0
415062 2012 BM ₄₄	16.9	X	35.68809	176.19578	342.74231	2.06644	0.1375246	0.25705121	2.4497566	20	3 22.7	19.0
415063 2012 BO ₄₄	18.2	X	174.26706	98.16390	347.10481	2.24782	0.0832210	0.28286401	2.2983575	20	6 14.7	21.3
415064 2012 BD ₅₁	17.0	X	251.15420	181.30088	130.91580	6.76532	0.1907298	0.26571025	2.3962411	20	3 9.1	20.7
415065 2012 BH ₅₃	17.6	X	222.42791	260.30111	130.32873	4.70467	0.1482944	0.27725919	2.3292285	20	5 23.2	21.0
415066 2012 BV ₅₄	17.5	X	121.49703	20.80046	95.39190	2.56173	0.1329744	0.26888252	2.3773566	20	5 31.0	20.6
415067 2012 BE ₅₅	18.0	X	132.53746	347.11477	120.18094	6.48255	0.1972327	0.27093530	2.3653332	20	6 6.5	21.7
415068 2012 BL ₅₆	17.8	X	117.67404	95.05576	50.65721	2.61956	0.1048662	0.27479541	2.3431301	20	7 3.3	20.9
415069 2012 BZ ₅₆	17.1	X	99.97968	224.81031	275.81825	1.42204	0.1129009	0.26942939	2.3741386	20	6 4.5	20.1
415070 2012 BS ₅₉	17.8	X	91.21942	70.63277	8.90460	2.88133	0.1675048	0.25568834	2.4584541	20	3 9.6	20.7
415071 2012 BU ₆₂	17.0	X	7.20213	314.89715	245.34325	3.01182	0.1043885	0.26051389	2.4280006	20	3 27.9	19.5
415072 2012 BJ ₆₅	18.0	X	221.57598	246.36261	154.30602	5.27593	0.0602535	0.28399697	2.2922408	20	6 12.3	21.0
415073 2012 BE ₆₇	17.8	X	131.68139	245.48341	165.30259	2.96798	0.0746017	0.25783840	2.4447680	20	3 9.4	21.1
415074 2012 BF ₇₀	17.8	X	29.15859	82.70973	47.30083	2.32409	0.0624691	0.24523147	2.5278536	20	1 30.7	20.8
415075 2012 BS ₇₂	18.5	X	199.08700	0.99682	88.99582	1.91713	0.1954261	0.29260403	2.2470661	20	7 14.8	21.9
415076 2012 BR ₈₀	18.2	X	175.68011	16.40591	84.31109	2.37433	0.1434873	0.28716415	2.2753554	20	7 7.7	21.6
415077 2012 BQ ₈₂	18.0	X	156.39047	350.36676	118.08775	4.61773	0.0704152	0.28181037	2.3040827	20	6 25.6	21.1
415078 2012 BN ₈₈	17.3	X	48.60659	72.71413	29.45106	3.62808	0.0356492	0.24408741	2.5357463	20	1 21.9	20.5
415079 2012 BH ₉₃	17.4	X	84.66715	65.86070	105.31249	7.33552	0.0532728	0.27625198	2.3348865	20	6 18.2	20.3
415080 2012 BR ₉₈	17.6	X	40.47788	79.93728	122.46213	2.19362	0.0485987	0.27246532	2.3564699	20	5 26.9	20.2
415081 2012 BX ₉₉	17.8	X	98.76448	115.21771	24.69737	1.63971	0.1153293	0.27111499	2.3642879	20	6 2.0	20.7
415082 2012 BW ₁₀₉	17.2	X	58.72739	68.63118	116.65996	5.97408	0.1504579	0.26807501	2.3821284	20	6 16.1	19.8
415083 2012 BH ₁₁₀	17.4	X	234.29344	337.37616	313.00296	2.45616	0.1455898	0.24162177	2.5529678	20	1 29.9	21.5
415084 2012 BO ₁₁₁	17.4	X	64.61893	358.93514	104.26517	2.64806	0.1821395	0.25782658	2.4448427	20	4 24.7	19.9
415085 2012 BZ ₁₁₁	17.4	X	102.10801	165.19764	130.33096	3.74495	0.1233816	0.26347009	2.4098047	20	5 3.1	20.5
415086 2012 BT ₁₁₂	18.4	X	103.71483	25.61414	314.27583	1.55677	0.1217272	0.27456100	2.3444635	20	7 7.8	21.6
415087 2012 BD ₁₁₃	17.1	X	308.21227	252.02343	299.17601	2.79771	0.0505628	0.23333164	2.6130856	20	—	—
415088 2012 BF ₁₂₀	18.1	X	124.59889	164.62993	304.03023	1.59841	0.1356462	0.27168746	2.3609656	20	5 23.9	21.3
415089 2012 BR ₁₂₄	17.3	X	96.07151	319.48420	143.51767	6.38808	0.0590565	0.25948616	2.4344073	20	4 1.8	20.3
415090 2012 BM ₁₂₇	17.4	X	40.24185	206.18854	330.05121	1.75372	0.0901492	0.26359156	2.4090642	20	4 20.9	20.1
415091 2012 BG ₁₃₀	17.9	X	124.77135	28.41271	99.50736	2.30132	0.1291690	0.27467895	2.3437924	20	6 19.3	21.3
415092 2012 BY ₁₃₄	17.4	X	134.75662	42.29103	80.84325	7.61793	0.1921171	0.27667056	2.3325309	20	6 28.4	21.1
415093 2012 BW ₁₄₀	17.7	X	167.22296	269.00089	151.39464	12.39595	0.1619522	0.27052269	2.3673777	20	5 10.5	21.6
415094 2012 BR ₁₄₈	16.7	X	247.42893	348.17428	255.80316	3.06223	0.1248465	0.22910779	2.6451044	20	—	—
415095 2012 BN ₁₅₁	17.5	X	164.89193	125.45711	311.40007	6.27776	0.0924543	0.27910308	2.3189584	20	5 21.9	20.8
415096 2012 BY ₁₅₁	17.1	X	153.27399	358.59245	106.17706	6.97371	0.0649727	0.27437955	2.3454970	20	6 16.4	20.3
415097 2012 BG ₁₅₂	17.0	X	86.42585	255.36480	240.06449	5.93120	0.0679580	0.26542245	2.3979730	20	5 1.4	19.8
415098 2012 CR ₆	17.6	X	111.04694	220.04776	233.11148	2.49653	0.0908937	0.26134637	2.4228419	20	4 10.2	20.8
415099 2012 CT ₈	18.7	X	169.18025	274.56622	169.45855	2.12976	0.1630296	0.27920393	2.3184000	20	6 8.7	22.4
415100 2012 CC ₁₃	17.4	X	212.03434	287.93910	123.40108	7.34051	0.0878772	0.27899026	2.3195836	20	6 12.9	20.6
415101 2012 CF ₁₃	16.9	X	303.40549	161.37900	0.24610	5.84140	0.0201235	0.22312753	2.6921584	20	—	—
415102 2012 CD ₁₅	17.4	X	321.68268	231.72975	324.58529	8.06807	0.1073548	0.23842191	2.5757593	20	1 15.3	20.6
415103 2012 CT ₁₅	17.6	X	110.68526	195.52269	293.49859	3.06595	0.1766943	0.27143175	2.3624482	20	6 9.8	21.0
415104 2012 CU ₂₀	17.1	X	284.76589	305.96746	263.45329	6.74791	0.2236642	0.22601685	2.6691655	20	—	—
415105 2012 CF ₂₃	16.5	X	284.55449	299.82982	298.08714	11.82218	0.0667316	0.24120327	2.5559200	20	1 25.0	19.9
415106 2012 CP ₃₀	17.6	X	39.21468	180.74035	329.95863	3.85961	0.0482237	0.25450129	2.4660927	20	3 10.9	20.6
415107 2012 CG ₃₄	17.2	X	138.11359	254.76005	146.32295	4.64304	0.1746400	0.25720586	2.4487746	20	3 16.9	20.8
415108 2012 CK ₃₄	17.8	X	223.23612	86.37299	345.75728	2.17601	0.1580416	0.29316293	2.2442092	20	7 18.8	21.0
415109 2012 CR ₃₅	17.6	X	98.11365	167.86415	321.13267	3.18311	0.0804917	0.26574345	2.3960415	20	5 10.3	20.7
415110 2012 CS ₄₁	16.3	X	162.48004	152.34659	135.81294	14.18220	0.1547968	0.21539841	2.7561809	20	—	—
415111 2012 CY ₄₇	18.5	X	157.40673	108.64880	3.57926	6.40197	0.1908444	0.27960334	2.3161916	20	7 6.2	22.3
415112 2012 CZ ₄₇	17.8	X	79.57973	102.06032	52.71793	3.28607	0.1198536	0.26344567	2.4099536	20	5 28.4	20.7
415113 2012 CV ₅₀	17.6	X	120.99585	330.36609	167.83739	4.89333	0.0906778	0.27436484	2.3455809	20	6 25.0	20.8
415114 2012 CB ₅₂												

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
415121 2012 DG ₁₉	17.0	X	311.01471	39.21688	169.64456	11.01792	0.0679010	0.23236485	2.6203287	20	1 21.4	20.7
415122 2012 DE ₂₂	17.5	X	74.38778	89.67747	67.72764	5.52052	0.1635555	0.26163026	2.4210889	20	6 1.1	20.2
415123 2012 DH ₂₇	17.9	X	52.11595	154.94608	332.15967	4.09869	0.1924692	0.24606655	2.5221311	20	3 14.8	20.1
415124 2012 DX ₂₉	16.8	X	114.06194	16.23256	7.59341	11.77836	0.0395395	0.22759356	2.6568237	20	1 14.4	20.6
415125 2012 DN ₃₂	16.7	X	203.54579	222.10838	353.42292	10.66788	0.1392046	0.19854127	2.9100616	20	12 17.2	21.3
415126 2012 DG ₃₅	17.5	X	177.90887	58.99290	13.29256	5.98732	0.1634413	0.27330049	2.3516667	20	5 31.2	21.2
415127 2012 DH ₃₅	17.3	X	297.01980	111.69069	84.07242	3.38262	0.1388887	0.22550923	2.6731695	20	—	—
415128 2012 DM ₃₆	16.7	X	155.14080	272.86717	336.69794	7.15874	0.1197502	0.19216471	2.9740868	20	12 10.8	21.5
415129 2012 DS ₃₆	17.9	X	12.14599	181.33858	307.09505	1.38219	0.1388204	0.23533831	2.5982103	20	—	—
415130 2012 DA ₃₈	15.9	X	118.11893	241.45171	40.20454	11.06401	0.1159056	0.19456891	2.9495363	20	12 13.6	20.6
415131 2012 DP ₃₈	16.4	X	36.22981	108.66890	350.14312	21.83952	0.0206520	0.22998554	2.6383700	20	1 6.9	20.3
415132 2012 DS ₃₈	18.0	X	137.82202	73.14268	35.16527	3.53343	0.1303520	0.26992924	2.3712068	20	6 6.8	21.5
415133 2012 DY ₃₉	17.2	X	3.24572	306.61253	195.76423	6.28441	0.1312233	0.23036417	2.6354782	20	1 2.9	20.2
415134 2012 DJ ₄₆	17.6	X	26.91151	79.96468	44.74573	2.01808	0.1180547	0.23306263	2.6150959	20	1 21.6	20.5
415135 2012 DO ₅₄	18.4	X	220.89402	255.66121	161.96312	10.66768	0.3372010	0.28822202	2.2697844	20	6 13.5	22.6
415136 2012 DG ₅₅	17.8	X	103.43791	114.31787	8.01715	3.31879	0.1494252	0.26377943	2.4079203	20	5 18.8	21.1
415137 2012 DJ ₅₇	16.9	X	14.79780	330.24133	148.16098	5.10972	0.0578628	0.22694497	2.6618833	20	—	—
415138 2012 DE ₅₉	17.3	X	162.55608	287.25022	145.73063	5.76090	0.1992726	0.26849641	2.3796353	20	5 21.4	21.2
415139 2012 DM ₆₁	17.7	X	73.76521	82.04613	41.49974	6.82967	0.0784152	0.25440211	2.4667336	20	4 1.5	20.6
415140 2012 DV ₆₁	15.5	X	98.62470	46.44492	241.86018	9.10693	0.1156842	0.18956468	3.0021195	20	12 2.9	20.1
415141 2012 DF ₆₅	16.7	X	166.08079	209.41119	142.02388	3.29138	0.2340953	0.23935610	2.5690529	20	2 15.5	21.0
415142 2012 DY ₇₆	16.8	X	271.59006	267.39027	276.68690	3.81057	0.0493881	0.21287862	2.7778877	20	—	—
415143 2012 DC ₈₂	17.6	X	163.28371	115.02204	337.11607	2.26607	0.155307	0.27376750	2.3489915	20	6 13.1	21.1
415144 2012 DC ₈₆	17.4	X	107.35415	110.83310	340.19592	5.97824	0.1009172	0.25613137	2.4556184	20	4 2.9	20.6
415145 2012 DS ₉₃	17.4	X	343.37137	334.20365	162.43032	1.87994	0.0326831	0.22466183	2.6798873	20	—	—
415146 2012 DM ₉₅	17.2	X	241.50314	271.50864	333.68482	4.60528	0.1207344	0.22405223	2.6847460	20	—	—
415147 2012 EV ₃	17.5	X	18.28271	184.28255	311.79741	4.05716	0.1654381	0.23760711	2.5816444	20	1 18.2	19.9
415148 2012 EJ ₁₇	15.1	X	112.98558	195.28638	57.98963	13.11655	0.0905793	0.17803485	3.1294358	20	11 4.2	19.9
415149 2012 FN ₂	18.1	X	138.44187	138.40037	341.07087	1.06089	0.1276685	0.27399808	2.3476735	20	6 22.9	21.4
415150 2012 FR ₂	17.1	X	309.70802	175.53726	333.36761	4.83402	0.1047084	0.21882870	2.7273017	20	—	—
415151 2012 FS ₈	17.0	X	197.78168	314.67029	330.37577	4.91020	0.0456024	0.22398735	2.6852644	20	—	—
415152 2012 FU ₁₈	16.4	X	48.14001	172.40448	142.46597	1.67438	0.1245906	0.17913719	3.1165843	20	11 9.0	20.6
415153 2012 FE ₁₉	17.1	X	139.51770	294.80821	29.90928	4.81533	0.0707632	0.21434854	2.7651734	20	—	—
415154 2012 FK ₂₅	16.8	X	283.55470	173.84236	29.66571	7.04364	0.0185611	0.22223807	2.6993369	20	—	—
415155 2012 FP ₂₅	16.9	X	320.78037	172.50827	23.36900	12.69259	0.0659131	0.23199188	2.6231363	20	1 23.6	20.6
415156 2012 FQ ₂₅	16.7	X	67.56820	74.27312	8.51283	22.16780	0.0770159	0.23442370	2.6049639	20	2 8.0	20.3
415157 2012 FE ₂₆	16.9	X	63.60572	204.48021	185.23264	6.10631	0.0438848	0.21111979	2.7932947	20	—	—
415158 2012 FL ₂₈	17.3	X	123.16420	310.56432	55.85725	7.12020	0.0455962	0.22079173	2.7111123	20	1 3.5	21.0
415159 2012 FD ₃₂	16.6	X	319.35954	9.50330	171.09168	14.12866	0.1892351	0.22520073	2.6756103	20	—	—
415160 2012 FE ₃₅	17.0	X	266.38473	173.04414	41.46926	7.02546	0.0013647	0.21851993	2.7298703	20	—	—
415161 2012 FS ₃₆	17.2	X	83.38374	323.25344	53.93506	6.80909	0.0832559	0.21191733	2.7862820	20	—	—
415162 2012 FR ₃₈	17.2	X	66.96394	196.89703	297.42092	5.29714	0.0733352	0.25272021	2.4776659	20	3 31.2	20.3
415163 2012 FX ₃₈	16.8	X	70.94710	152.50951	264.60552	4.42576	0.0068727	0.22664368	2.6642418	20	—	—
415164 2012 FB ₄₄	16.4	X	15.17693	7.28122	15.89636	10.32265	0.0704543	0.18603766	3.0390334	20	12 12.1	20.6
415165 2012 FD ₄₅	17.7	X	152.64528	336.41399	134.32638	1.99787	0.1387873	0.27344341	2.3508472	20	6 26.8	21.2
415166 2012 FJ ₅₀	18.1	X	128.05721	14.27117	73.91077	3.59474	0.1673990	0.25869856	2.4393458	20	5 5.0	21.6
415167 2012 FF ₅₂	17.0	X	192.11948	115.56067	173.50635	5.53819	0.0533338	0.22005728	2.7171413	20	—	—
415168 2012 FV ₅₂	16.5	X	123.56718	54.92226	171.87546	9.12713	0.1502653	0.17366127	3.1817598	20	10 17.2	21.7
415169 2012 FW ₅₃	16.8	X	131.38869	169.09831	128.85012	5.66899	0.0784823	0.19729671	2.9222867	20	—	—
415170 2012 FD ₆₁	18.4	X	114.33053	4.48135	102.44699	2.30015	0.1356837	0.25682479	2.4511963	20	5 10.9	21.9
415171 2012 FW ₆₇	17.9	X	131.49741	80.90847	47.76632	3.29337	0.1353173	0.26666110	2.3905414	20	6 28.3	21.4
415172 2012 FL ₆₈	17.6	X	114.32191	94.90676	39.16838	8.32381	0.1096070	0.26551426	2.3974201	20	6 12.2	20.9
415173 2012 FS ₇₀	15.6	X	321.06680	63.43646	46.12863	12.53569	0.0323092	0.20268839	2.8702306	20	—	—
415174 2012 FX ₇₀	17.3	X	319.36288	163.10439	15.08774	2.42085	0.0652755	0.22255763	2.6967523	20	—	—
415175 2012 FC ₇₂	16.8	X	328.77535	348.71385	194.82100	15.56610	0.2119482	0.22923135	2.6441538	20	—	—
415176 2012 FE ₇₂	16.5	X	328.97113	328.62651	212.70645	12.93462	0.1836885	0.22379408	2.6868102	20	—	—
415177 2012 FZ ₇₂	17.3	X	115.94386	22.15404	90.26810	5.52139	0.1456732	0.26214875	2.4178955	20	5 21.6	20.6
415178 2012 FG ₇₅	16.1	X	78.63798	30.86621	20.91624	22.36121	0.0274926	0.22551361	2.6731349	20	—	—
415179 2012 FM ₇₆	16.1	X	124.77974	252.60931	3.27636	9.96219	0.1513476	0.17956979	3.1115769	20	11 17.1	21.2
415180 2012 FY ₇₇	15.9	X	265.79264	246.98661	329.74528	13.25344	0.0284062	0.22012707	2.7165669	20	—	—
415181 2012 FF ₇₈	15.5	X	105.78061	240.56500	26.67929	24.46713	0.1133500	0.17305524	3.1891838	20	11 6.8	20.6
415182 2012 GA ₈	16.5	X	312.90672	12.79128	200.42162	12.67394	0.2228909	0.22941277	2.6427596	20	1 6.8	20.4
415183 2012 GR ₄	16.9	X	344.51082	151.18927	25.30788	4.17784	0.1829393	0.23208875	2.6224064	20	1 12.2	19.8
415184 2012 GZ ₈	16.7	X	273.82741	288.68029	216.32682	6.17070	0.0686233	0.19813269	2.9140609	20	12 25.6	20.6
415185 2012 GT ₉	17.3	X	44.13203	123.73790	7.87269	3.03258	0.0912174	0.23839789	2.5759323	20	2 27.9	20.2
415186 2012 GP ₁₀	16.2	X	119.53763	51.25703	199.86195	9.10751	0.0972979	0.17651598	3.1473620	20	11 7.5	21.0
415187 2012 GE ₁₁	16.6	X	153.80673	191.28118	202.16852	8.14887	0.0876831	0.24034415	2.5620072	20	3 14.2	20.3
415188 2012 GZ ₁₂	16.4	X	225.99189	329.05640	202.83996	9.35360	0.0409208	0.18843608	3.0131911	20	11 30.6	20.7
415189 2012 GB ₁₄	16.7	X	95.02152	230.87267	206.43788	13.63841	0.1207263	0.23787676	2.5796931	20	3 2.1	20.2
415190 2012 GX ₁₅	15.7	X	94.64977	283.54541	21.64613	12.88451	0.1030280	0.18361855	3.0656672	20	12 15.0	20.6
415191 2012 GO ₂₀	16.3	X	199.75617	175.64732	78.23897	11.65313	0.0625439	0.20269617	2.8701573	20	—	—
415192 2012 GG ₂₄	16.9	X	328.36334	358.09747	180.21437	13.20200	0.1076472	0.22593250	2.6698298	20	1 1.4	20.7
415193 2012 GQ ₂₄	16.6	X	8.10317	164.76696	10.13809	9.05522	0.1004220	0.23855566	2.5747965	20	2 29.9	19.5
415194 2012 GS ₂₄	17.6	X	113.85871	47.49287	58.08442	2.30145	0.1447594	0.25500367	2.4628526	20	5 9.2	21.1

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
415201 2012 HW	17.4	X	0.67069	248.94699	260.45267	2.26948	0.1447275	0.22995250	2.6386227	20	1 7.3	20.2
415202 2012 HH ₁₁	16.3	X	142.26057	205.65667	143.89692	7.13415	0.0816709	0.21576646	2.7530457	20	1 10.3	20.3
415203 2012 HT ₁₂	15.8	X	342.12023	301.11056	93.49277	12.52934	0.0393447	0.17224738	3.1991478	20	11 11.5	20.2
415204 2012 HZ ₁₄	16.1	X	122.86860	214.40001	69.56975	11.66087	0.0896318	0.18941710	3.0027782	20	12 19.5	20.7
415205 2012 HG ₁₇	15.9	X	130.08039	156.23393	101.26056	10.43380	0.0541916	0.17517101	3.1634518	20	11 24.5	20.7
415206 2012 HU ₁₈	16.4	X	50.46026	354.69526	115.15747	15.35786	0.2013672	0.22685009	2.6626255	20	2 24.5	19.1
415207 2012 HP ₂₉	17.0	X	352.43626	340.65365	124.47217	3.06094	0.0226417	0.20321576	2.8652627	20	—	—
415208 2012 HA ₃₂	16.8	X	28.34651	56.92341	107.00980	13.09896	0.1190618	0.23657383	2.5891562	20	3 25.6	19.9
415209 2012 HC ₃₅	16.2	X	137.80239	191.69817	74.31212	10.13990	0.0219236	0.18701575	3.0284281	20	12 12.3	20.5
415210 2012 HW ₃₈	16.6	X	134.16062	59.60262	229.55512	15.43401	0.0417868	0.18513097	3.0489479	20	—	—
415211 2012 HJ ₃₉	15.8	X	177.08377	17.93089	218.32477	21.01416	0.2385659	0.18356554	3.0662574	20	12 8.3	21.3
415212 2012 HV ₄₀	16.3	X	324.40164	144.16273	359.76727	12.84296	0.0819225	0.21270793	2.7793736	20	—	—
415213 2012 HX ₄₃	15.4	X	92.84877	247.90645	40.53281	11.76369	0.0688653	0.17504265	3.1649982	20	11 18.7	20.0
415214 2012 HQ ₄₄	16.8	X	8.51202	115.98784	35.74446	2.87506	0.0725670	0.22879231	2.6475354	20	1 31.1	20.0
415215 2012 HV ₄₉	15.9	X	113.89260	229.74571	50.01495	11.41347	0.1362110	0.17685426	3.1433473	20	12 5.3	21.0
415216 2012 HW ₄₉	15.8	X	148.71793	206.31595	74.45120	11.92175	0.0651047	0.18793653	3.0185283	20	—	—
415217 2012 HT ₅₄	16.4	X	337.52783	98.17528	53.16855	12.43534	0.0932840	0.21277941	2.7787511	20	—	—
415218 2012 HC ₅₆	17.1	X	11.56177	324.82378	211.69728	14.69155	0.0871862	0.23801492	2.5786947	20	3 1.5	20.4
415219 2012 HO ₆₀	15.7	X	112.68341	242.73766	45.20113	11.91890	0.0698352	0.18158961	3.0884605	20	12 10.5	20.4
415220 2012 HE ₆₁	15.7	X	154.95017	229.12763	41.73114	11.19239	0.0614099	0.19001415	2.9964848	20	—	—
415221 2012 HT ₆₂	16.5	X	43.15434	230.40955	191.69093	4.12312	0.0582905	0.20855779	2.8161240	20	—	—
415222 2012 HL ₆₅	15.6	X	27.07760	283.81044	111.90115	15.37938	0.0734054	0.18655955	3.0333631	20	—	—
415223 2012 HM ₆₅	16.5	X	21.47129	302.51517	190.01897	11.54321	0.1429467	0.22386311	2.6862578	20	1 20.9	19.7
415224 2012 HH ₆₆	15.6	X	54.25578	241.18767	89.41623	10.35042	0.0734001	0.17459780	3.1703718	20	11 28.1	20.0
415225 2012 HP ₆₆	16.9	X	75.41376	256.95316	231.72202	11.77344	0.1540579	0.24161490	2.5530162	20	4 20.2	20.1
415226 2012 HM ₆₇	16.8	X	54.43032	283.62469	170.87505	7.54270	0.1405797	0.22172460	2.7035026	20	1 30.3	19.9
415227 2012 HH ₆₈	15.9	X	312.01332	87.54278	89.61615	16.56654	0.0669646	0.21164587	2.7886640	20	—	—
415228 2012 HS ₇₂	17.4	X	50.91473	86.53207	73.10894	12.30735	0.1500539	0.24642796	2.5196645	20	4 29.5	20.2
415229 2012 HM ₇₃	16.0	X	183.45342	155.04012	77.74421	11.70264	0.0464439	0.18467164	3.0540015	20	12 22.2	20.5
415230 2012 HT ₇₅	16.7	X	16.44128	13.67799	91.5106	5.98369	0.0828093	0.21629645	2.7485467	20	—	—
415231 2012 HY ₇₅	16.8	X	126.31766	276.57394	79.59230	7.17748	0.0424683	0.21226344	2.7832523	20	—	—
415232 2012 HS ₇₈	16.1	X	204.37585	323.32268	237.48255	15.66164	0.1173927	0.18387013	3.0628702	20	11 30.5	20.7
415233 2012 HL ₇₉	15.7	X	122.02121	220.23243	70.17642	10.15383	0.0589657	0.17948361	3.1125728	20	12 23.1	20.4
415234 2012 JB ₁	15.7	X	30.38015	280.93746	70.21985	16.22465	0.2220070	0.17100345	3.2146434	20	12 11.2	19.9
415235 2012 JZ ₃	16.7	X	250.60326	310.08459	205.04441	9.02362	0.0307523	0.18279391	3.0748805	20	12 9.8	21.0
415236 2012 JF ₉	17.5	X	5.73527	94.78214	61.36698	3.32798	0.1016307	0.22464484	2.6800223	20	1 31.6	20.7
415237 2012 JV ₁₂	15.5	X	10.61552	310.57274	65.66247	14.84811	0.1532330	0.17798233	3.1300513	20	12 5.9	19.4
415238 2012 JE ₁₃	16.0	X	228.13647	112.65546	61.61925	10.61833	0.0459807	0.18045386	3.1014059	20	12 2.3	20.4
415239 2012 JW ₁₆	15.9	X	18.58537	324.26060	51.48972	14.88641	0.0922609	0.18059203	3.0998237	20	12 8.4	20.0
415240 2012 JQ ₁₉	16.4	X	322.28588	135.18811	63.57682	12.26163	0.1295728	0.22430320	2.6827430	20	1 19.1	20.0
415241 2012 JR ₂₀	15.7	X	65.04529	314.57746	52.80159	10.38245	0.0542260	0.18746353	3.0236036	20	—	—
415242 2012 JE ₂₃	16.0	X	136.23544	44.20886	232.76344	16.58324	0.1856762	0.17937530	3.1138256	20	12 22.6	21.4
415243 2012 JN ₂₅	16.3	X	170.44712	218.72085	50.19946	4.52205	0.0563307	0.19093304	2.9868631	20	—	—
415244 2012 JO ₃₃	16.4	X	338.26332	222.37698	257.39049	4.82612	0.0809367	0.20339210	2.8636064	20	—	—
415245 2012 JD ₃₉	16.3	X	296.17622	319.67163	187.21394	12.27630	0.0896111	0.19897382	2.9058426	20	—	—
415246 2012 JD ₄₁	15.7	X	66.75434	261.28775	63.15739	14.48257	0.1377785	0.17567044	3.1574533	20	12 11.2	20.4
415247 2012 JH ₄₂	16.6	X	24.89670	56.03903	57.89237	3.21670	0.0215302	0.21493829	2.7601130	20	1 9.3	20.3
415248 2012 JM ₄₃	16.4	X	221.33353	313.73273	218.13724	11.00318	0.0143340	0.17968588	3.1102365	20	11 26.5	20.9
415249 2012 JV ₄₄	16.2	X	291.44114	31.18272	65.83329	10.27767	0.0609628	0.17519805	3.1631263	20	11 16.4	20.5
415250 2012 JX ₄₇	16.0	X	51.17474	266.89143	59.85808	11.69937	0.0913664	0.17264122	3.1942805	20	11 20.6	20.4
415251 2012 JB ₅₃	16.3	X	123.74919	173.16344	88.54724	3.73760	0.0657496	0.17451947	3.1713204	20	11 21.6	21.0
415252 2012 JC ₅₈	16.6	X	1.26604	270.36580	156.00193	9.40414	0.0983373	0.19521607	2.9430097	20	—	—
415253 2012 JB ₆₁	16.6	X	194.92021	117.32535	140.96158	2.74194	0.0192348	0.20111586	2.8851729	20	—	—
415254 2012 JB ₆₃	16.5	X	164.17580	190.48584	45.23507	1.69675	0.1075113	0.18114698	3.0934895	20	12 2.0	21.3
415255 2012 KK ₁₉	16.7	X	76.64961	227.57511	112.96519	3.76353	0.1198717	0.18324971	3.0697795	20	—	—
415256 2012 KG ₂₂	17.0	X	320.52035	292.42228	206.83810	14.54795	0.0949358	0.20569698	2.8421747	20	—	—
415257 2012 KY ₂₂	17.2	X	14.28252	79.33126	82.32683	5.59723	0.2155134	0.23521627	2.5991089	20	2 16.7	19.3
415258 2012 KW ₂₃	16.4	X	205.70367	1.73549	198.69705	1.36841	0.0950628	0.18153630	3.0890651	20	12 3.3	21.0
415259 2012 KA ₂₆	17.5	X	31.38523	310.11670	180.71554	2.33703	0.0941963	0.22771391	2.6558875	20	2 6.4	20.5
415260 2012 KR ₂₈	16.5	X	178.48249	86.11206	193.60688	9.34845	0.0743140	0.19827551	2.9126613	20	—	—
415261 2012 KK ₃₀	16.6	X	86.02731	144.86516	189.90021	10.43140	0.0595118	0.18019148	3.1044158	20	—	—
415262 2012 KQ ₄₉	16.0	X	117.08205	152.65227	148.74135	6.08914	0.0405084	0.17940268	3.1135088	20	12 29.9	20.6
415263 2012 LT ₁₂	15.6	X	112.62012	177.87316	119.33276	11.12763	0.0757722	0.17700692	3.1415397	20	12 22.4	20.4
415264 2012 LM ₁₄	16.3	X	182.92937	25.66124	187.43779	17.27919	0.1018743	0.17566310	3.1575412	20	11 25.0	21.4
415265 2012 RB ₅	13.6	X	5.24871	192.77181	13.49624	21.83269	0.0138964	0.08280890	5.2129636	20	4 14.4	20.5
415266 2013 BA	17.3	X	353.60537	245.87180	119.15936	25.72155	0.0974077	0.35670102	1.9690942	20	12 15.5	19.6
415267 2013 BQ ₄₅	18.3	X	355.34075	235.46945	339.20066	15.60351	0.4747626	0.27399564	2.3476874	20	1 27.2	20.1
415268 2013 CM ₈₉	17.4	X	303.57999	35.83675	8.17743	19.49929	0.0793390	0.34746354	2.0038408	20	10 26.7	19.3
415269 2013 CO ₁₆₅	17.6	X	278.81604	258.03679	359.38306	1.49498	0.1522349	0.26825166	2.3810825	20	1 29.9	21.0
415270 2013 CT ₁₇₀	17.9	X	285.35526	123.35078	174.03367	6.50265	0.1570942	0.29104954	2.2550600	20	3 27.5	20.7
415271 2013 CA ₁₉₀	17.4	X	286.66271	318.13825	307.51850	6.88333	0.0904004	0.28402460	2.2920922	20	2 22.5	20.2
415272 2013 EB ₈	18.4	X	303.35855	26.78718	252.52103	2.01485	0.1218089	0.28534238	2.2850298	20	3 16.3	21.1
415273 2013 EV ₁₄	18.0	X	1.51874	295.25678	353.03255	3.86930	0.277945	0.31343782	2.1463561	20	8 19.5	19.1
415274 2013 EL ₄₅	18.6	X	39.48758	297.86295	310.64009	1.79310	0.0					

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ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
415281 2013 <i>FA</i> ₁₅	15.9 ^m	X	55.16770	101.32323	159.08450	25.25454	0.2332974	0.17481040	3.1678008	20	9 28.9	20.5
415282 2013 <i>FK</i> ₁₆	17.9	X	333.58833	247.65191	19.30328	6.97724	0.1566810	0.28721013	2.2751125	20	4 27.8	19.9
415283 2013 <i>FU</i> ₁₉	18.1	X	348.93459	226.27221	89.80278	3.02387	0.1905983	0.31115079	2.1568608	20	9 10.7	19.2
415284 2013 <i>FS</i> ₂₀	17.7	X	5.07289	124.75232	136.38387	2.40082	0.2051832	0.29558500	2.2319329	20	7 7.9	18.9
415285 2013 <i>FN</i> ₂₃	17.8	X	312.92697	238.52876	28.50428	2.73495	0.1903158	0.27747572	2.3280165	20	3 19.2	20.4
415286 2013 <i>GX</i> ₃	17.9	X	304.48284	157.60793	118.11446	0.43885	0.1970888	0.27975289	2.3153661	20	3 17.2	20.6
415287 2013 <i>GR</i> ₈	17.4	X	328.26816	116.83777	159.16762	7.17418	0.2215714	0.28623433	2.2802803	20	4 24.9	19.3
415288 2013 <i>GS</i> ₈	17.5	X	217.15161	77.79634	142.99846	4.54556	0.1689191	0.22869082	2.6483185	20	—	—
415289 2013 <i>GK</i> ₂₇	17.8	X	44.45280	159.85876	58.79995	5.65206	0.0942562	0.30010791	2.2094513	20	7 5.2	20.0
415290 2013 <i>GF</i> ₄₀	17.5	X	290.26946	212.25360	68.01114	2.92727	0.1980873	0.27178386	2.3604073	20	3 7.3	20.6
415291 2013 <i>GG</i> ₄₄	17.7	X	350.52046	157.51933	138.61252	3.92397	0.1730457	0.30035607	2.2082341	20	8 1.3	18.8
415292 2013 <i>GL</i> ₄₄	17.4	X	297.67345	155.61194	155.97750	4.28452	0.1551700	0.28698179	2.2763192	20	5 6.0	19.9
415293 2013 <i>GV</i> ₄₇	17.2	X	185.67203	209.66794	74.60396	5.53333	0.1904699	0.23450992	2.6043254	20	—	—
415294 2013 <i>GU</i> ₅₃	17.7	X	327.00891	202.45032	60.70713	5.99436	0.1424403	0.28008386	2.3135417	20	4 15.6	19.9
415295 2013 <i>GW</i> ₆₃	17.4	X	347.61411	24.71955	250.88879	3.61877	0.1604678	0.29129021	2.2538177	20	6 15.6	18.9
415296 2013 <i>GG</i> ₆₈	17.7	X	222.69558	158.78560	48.29710	21.88426	0.0653976	0.36886650	1.9255579	20	—	—
415297 2013 <i>GL</i> ₇₀	17.0	X	284.92558	337.38213	271.58812	2.93607	0.1505339	0.26167706	2.4208002	20	1 25.9	20.4
415298 2013 <i>GH</i> ₇₂	16.8	X	186.85229	248.99941	27.05768	17.60402	0.2076028	0.22691680	2.6621036	20	—	—
415299 2013 <i>GE</i> ₇₉	17.4	X	254.69800	188.15392	60.27433	8.20440	0.1212214	0.24556395	2.5255714	20	—	—
415300 2013 <i>GD</i> ₈₁	18.0	X	333.20376	142.56885	103.84848	2.15862	0.1581850	0.27727237	2.2591546	20	3 29.0	20.2
415301 2013 <i>GS</i> ₈₁	18.0	X	353.87434	211.21822	33.36870	1.79972	0.1367625	0.28673690	2.2776151	20	5 8.0	19.8
415302 2013 <i>GX</i> ₈₃	17.4	X	268.28506	234.09533	33.03831	1.72183	0.1647993	0.26007785	2.4307137	20	1 31.1	21.1
415303 2013 <i>GX</i> ₈₅	17.4	X	317.32515	158.41082	139.44891	4.55908	0.1136898	0.28656403	2.2785310	20	5 25.4	19.6
415304 2013 <i>GH</i> ₈₉	17.5	X	257.52354	301.98737	339.34196	5.78665	0.1134341	0.26131658	2.4230260	20	2 11.6	20.8
415305 2013 <i>GK</i> ₉₂	17.3	X	61.77340	153.94972	101.62373	4.31036	0.0930737	0.31407459	2.1434541	20	10 1.0	19.7
415306 2013 <i>GJ</i> ₉₉	17.7	X	286.98919	306.24791	207.07034	21.17045	0.0711311	0.36754876	1.9301575	20	—	—
415307 2013 <i>GT</i> ₁₀₄	17.3	X	281.02411	259.92737	31.92992	7.12609	0.1606980	0.27236149	2.3570687	20	3 17.8	20.5
415308 2013 <i>GA</i> ₁₀₉	17.4	X	228.36215	231.39932	20.37698	7.67271	0.1599421	0.23868256	2.5738837	20	—	—
415309 2013 <i>GF</i> ₁₂₀	17.7	X	210.83840	328.98503	4.77151	6.81396	0.0897402	0.26660002	2.3909065	20	3 1.0	21.2
415310 2013 <i>GM</i> ₁₂₀	16.5	X	183.95795	196.51998	65.37840	11.88275	0.0667478	0.22090556	2.7101809	20	—	—
415311 2013 <i>GU</i> ₁₂₇	17.6	X	263.32532	229.34229	103.47600	8.05244	0.1443335	0.27821999	2.3238628	20	4 23.9	20.8
415312 2013 <i>GV</i> ₁₃₀	16.9	X	231.28051	199.03566	40.11600	14.11449	0.2058891	0.23117200	2.6293348	20	—	—
415313 2013 <i>HD</i> ₁	16.2	X	132.12247	209.69555	108.65875	12.99689	0.2785037	0.21447765	2.7640635	20	—	—
415314 2013 <i>HZ</i> ₆	17.8	X	281.01495	75.45741	124.87893	9.63562	0.1090877	0.23846503	2.5754488	20	—	—
415315 2013 <i>HP</i> ₁₂	17.5	X	326.60824	174.42439	76.60988	6.54004	0.1374197	0.27716986	2.3297289	20	3 30.3	20.0
415316 2013 <i>HC</i> ₁₃	17.2	X	235.15079	212.00139	104.55023	7.35629	0.1262358	0.26484598	2.4014514	20	3 4.6	20.8
415317 2013 <i>HP</i> ₁₄	16.1	X	190.23613	162.49654	95.61747	16.97860	0.3006447	0.21632105	2.7483383	20	—	—
415318 2013 <i>HS</i> ₁₄	17.2	X	202.61692	246.84831	42.89809	9.30001	0.1515598	0.23806273	2.5783494	20	1 1.4	21.5
415319 2013 <i>HZ</i> ₁₄	17.2	X	354.50786	327.38774	102.04183	23.98490	0.0791128	0.36313327	1.9457723	20	—	—
415320 2013 <i>HW</i> ₁₅	17.4	X	304.00230	305.13777	306.88404	5.53027	0.1158185	0.26532197	2.3985783	20	2 25.6	20.4
415321 2013 <i>HZ</i> ₁₅	17.1	X	278.70411	246.83608	45.99414	5.88300	0.1284807	0.26610861	2.3938490	20	3 21.2	20.4
415322 2013 <i>HF</i> ₁₇	17.9	X	2.38951	266.67801	329.25994	1.86698	0.1909632	0.28168897	2.3047447	20	5 11.1	19.2
415323 2013 <i>HG</i> ₁₇	17.0	X	150.09337	233.88126	36.83068	14.41542	0.3279574	0.20551176	2.8438822	20	12 29.7	22.5
415324 2013 <i>HB</i> ₁₉	16.9	X	200.05034	47.52667	215.21820	13.05076	0.2295607	0.22728009	2.6592660	20	—	—
415325 2013 <i>HO</i> ₂₁	17.3	X	246.20665	207.83857	104.29961	2.55227	0.1880629	0.26307623	2.4122092	20	3 4.0	21.0
415326 2013 <i>HD</i> ₂₂	17.8	X	303.83877	22.13449	241.08812	1.44046	0.1921258	0.27102863	2.3647901	20	2 28.9	20.9
415327 2013 <i>HA</i> ₂₄	17.1	X	357.75779	19.05839	225.25129	22.81780	0.1896574	0.28281542	2.2986208	20	5 15.1	18.5
415328 2013 <i>HC</i> ₄₀	17.8	X	259.05515	103.65423	243.23145	5.75645	0.1250638	0.28804429	2.2707180	20	5 5.7	20.7
415329 2013 <i>HW</i> ₄₂	18.3	X	272.43011	301.80003	356.20163	6.41774	0.1141938	0.27258547	2.3557774	20	3 18.9	21.5
415330 2013 <i>HS</i> ₅₃	18.5	X	240.96069	83.57188	238.30316	6.23229	0.1365428	0.27132208	2.3630847	20	3 10.1	22.2
415331 2013 <i>HC</i> ₅₄	17.8	X	279.67465	37.71218	238.22600	4.42724	0.2118472	0.26535996	2.3983494	20	2 14.5	21.4
415332 2013 <i>HN</i> ₅₅	17.3	X	79.77301	294.42910	13.03135	14.49001	0.2931931	0.19568800	2.9382805	20	12 22.8	22.5
415333 2013 <i>HX</i> ₅₇	17.9	X	293.06378	319.27470	329.98373	3.83320	0.2274033	0.27385411	2.3484963	20	3 15.6	21.0
415334 2013 <i>HQ</i> ₆₈	17.8	X	184.40429	358.41030	320.95253	2.94732	0.2347344	0.24190418	2.5509804	20	1 22.8	22.0
415335 2013 <i>HT</i> ₇₀	18.2	X	347.30467	92.80896	238.62569	1.67851	0.1721370	0.31317262	2.1475677	20	9 29.7	19.4
415336 2013 <i>HP</i> ₇₇	18.0	X	263.73506	321.37093	12.81300	5.59491	0.2031346	0.28056137	2.3109159	20	4 14.2	21.2
415337 2013 <i>HA</i> ₁₀₉	17.9	X	226.85527	115.87438	197.02478	5.89778	0.1765964	0.25872498	2.4391798	20	2 14.8	21.9
415338 2013 <i>HW</i> ₁₁₀	17.7	X	283.53934	126.39662	205.05918	4.49645	0.1527323	0.28943219	2.2634531	20	5 13.4	20.2
415339 2013 <i>HV</i> ₁₁₉	17.8	X	220.87055	271.77682	66.67618	3.27672	0.2043476	0.26575307	2.3959837	20	3 13.9	21.7
415340 2013 <i>HR</i> ₁₂₅	17.2	X	141.95607	91.68745	231.53670	11.42895	0.2703650	0.22648515	2.6654849	20	—	—
415341 2013 <i>JP</i>	17.6	X	329.97586	240.54787	215.72731	19.94673	0.1059776	0.35558923	1.9731964	20	—	—
415342 2013 <i>JU</i>	17.5	X	25.00106	155.73776	104.79044	6.27250	0.1665740	0.30210510	2.1997028	20	8 21.2	19.4
415343 2013 <i>JE</i> ₃	17.5	X	53.27042	249.52409	320.38194	5.66001	0.0871250	0.29706853	2.2244959	20	7 5.4	19.8
415344 2013 <i>JL</i> ₄	16.8	X	146.12010	230.12887	66.27857	8.69390	0.2015831	0.21173349	2.7878945	20	—	—
415345 2013 <i>JJ</i> ₂₁	17.5	X	335.43754	37.28409	196.48557	11.69873	0.2074451	0.26942988	2.3741357	20	3 2.4	19.9
415346 2013 <i>JU</i> ₂₄	17.6	X	282.42455	227.77220	62.56473	3.60068	0.1204945					

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
415361 2013 <i>KR</i> ₃	15.3	X	23.97127	224.06207	109.66309	18.52471	0.2287416	0.17513261	3.1639142	20	11 19.9	19.6
415362 2013 <i>KV</i> ₃	16.7	X	249.93975	105.92742	144.69572	15.27221	0.1093777	0.24078938	2.5588481	20	—	—
415363 2013 <i>KQ</i> ₅	17.5	X	51.11147	35.87569	210.59992	6.23534	0.0267266	0.30211819	2.1996393	20	8 13.9	20.1
415364 2013 <i>KM</i> ₉	17.0	X	63.81618	93.73176	205.94128	23.91808	0.3614773	0.17517502	3.1634035	20	12 4.6	22.4
415365 2013 <i>KW</i> ₉	17.1	X	289.77527	43.43630	239.75328	8.94795	0.1027402	0.26842857	2.3800362	20	3 19.1	20.4
415366 2013 <i>KB</i> ₁₂	16.9	X	260.50315	231.54393	97.91471	7.77170	0.0524894	0.27408704	2.3471655	20	4 28.0	20.0
415367 2013 <i>KJ</i> ₁₃	17.0	X	288.18976	156.57695	68.26284	10.15289	0.0726419	0.24557123	2.5255214	20	1 12.7	20.5
415368 2013 <i>KO</i> ₁₄	16.8	X	221.70058	270.38845	59.60813	7.41797	0.1107835	0.26107060	2.4245477	20	3 9.9	20.5
415369 2013 <i>KJ</i> ₁₆	17.7	X	292.15376	214.28759	45.80076	2.81291	0.1746666	0.26017078	2.4301349	20	2 16.3	21.0
415370 2013 <i>LG</i>	17.3	X	202.48044	106.49831	160.60849	1.89864	0.0569068	0.22820430	2.6520813	20	—	—
415371 2013 <i>LU</i> ₁	17.0	X	155.09854	242.24995	49.56485	9.11000	0.1850069	0.21502206	2.7593961	20	—	—
415372 2013 <i>LH</i> ₂	18.3	X	80.00822	123.00983	83.50631	2.40937	0.0705191	0.30107683	2.2047084	20	8 8.0	20.9
415373 2013 <i>LN</i> ₁₂	17.4	X	265.33072	106.87434	208.84128	5.89630	0.1217449	0.26487173	2.4012957	20	4 2.1	20.5
415374 2013 <i>LT</i> ₁₂	16.6	X	90.18963	175.60644	130.32141	5.94676	0.2357674	0.18938776	3.0030884	20	12 24.4	21.7
415375 2013 <i>LT</i> ₁₆	17.0	X	157.45035	219.68173	99.18409	7.03255	0.2196597	0.22154760	2.7049424	20	1 2.1	21.1
415376 2013 <i>LG</i> ₂₃	17.0	X	182.44213	75.53914	222.38657	12.64354	0.1875573	0.22518294	2.6757512	20	—	—
415377 2013 <i>LS</i> ₂₄	17.1	X	141.42907	154.40987	209.64784	11.17475	0.0907034	0.23623837	2.5910667	20	1 22.6	20.9
415378 2013 <i>LF</i> ₂₆	17.2	X	267.40174	227.60585	92.50471	6.93605	0.1182773	0.26697265	2.3886813	20	4 15.3	20.5
415379 2013 <i>LY</i> ₂₆	16.5	X	44.17015	145.53162	180.30084	15.59244	0.2044477	0.17960611	3.1111573	20	11 30.0	21.1
415380 2013 <i>LA</i> ₂₇	17.1	X	234.37493	226.46448	151.47545	12.64522	0.0360721	0.28193345	2.3034121	20	6 1.8	20.3
415381 2013 <i>LO</i> ₃₂	17.1	X	132.56773	90.06950	200.87815	14.38516	0.1488761	0.20559501	2.8431144	20	—	—
415382 2013 <i>MW</i> ₁	17.4	X	282.68554	40.64785	171.45973	7.59549	0.1879527	0.24110561	2.5566102	20	—	—
415383 2013 <i>MN</i> ₇	17.7	X	64.29684	148.32093	77.53132	3.72717	0.1068496	0.29965649	2.2116696	20	8 21.0	20.2
415384 2013 <i>MZ</i> ₉	15.7	X	53.24902	252.44414	92.46203	8.96375	0.1517703	0.17782417	3.1319070	20	12 23.7	20.2
415385 2013 <i>NO</i> ₂	16.2	X	117.48331	199.98574	128.19091	5.71341	0.1141029	0.19989201	2.8969373	20	—	—
415386 2013 <i>NM</i> ₅	16.3	X	161.34536	112.64097	104.86708	5.46117	0.1088128	0.18102717	3.0948543	20	11 10.0	21.1
415387 2013 <i>NO</i> ₅	16.3	X	12.32486	296.92821	107.86275	10.20114	0.0369546	0.18967013	3.0001071	20	—	—
415388 2013 <i>NQ</i> ₁₀	15.6	X	13.42184	283.79185	86.86321	10.52422	0.0237119	0.18096116	3.0956069	20	11 21.3	19.9
415389 2013 <i>NW</i> ₁₁	15.2	X	65.44695	218.49620	104.47646	29.57760	0.2317150	0.17520472	3.1630460	20	12 21.9	20.2
415390 2013 <i>ND</i> ₁₂	15.9	X	327.56924	246.34831	294.34564	11.99636	0.1624810	0.23143491	2.6273432	20	—	—
415391 2013 <i>NM</i> ₁₂	16.0	X	251.08990	247.15293	273.54986	11.64262	0.0643892	0.18928163	3.0042109	20	12 13.8	20.2
415392 2013 <i>NP</i> ₁₂	16.8	X	253.85566	306.27966	262.94703	5.15366	0.1175601	0.21356950	2.7718936	20	—	—
415393 2013 <i>NB</i> ₁₃	16.8	X	99.59109	26.71165	347.11466	5.79566	0.0341771	0.21536967	2.7564261	20	—	—
415394 2013 <i>NG</i> ₁₃	16.7	X	140.81634	179.10464	81.95283	11.58413	0.0600859	0.18938478	3.0031199	20	12 10.9	21.1
415395 2013 <i>NJ</i> ₁₆	17.3	X	60.93196	275.39845	250.49934	5.16068	0.0735961	0.25586583	2.4573170	20	5 8.2	20.2
415396 2013 <i>NV</i> ₁₆	16.8	X	305.67603	286.44531	281.74694	10.15791	0.1368392	0.23109255	2.6299374	20	1 5.5	20.3
415397 2013 <i>OG</i> ₄	15.0	X	89.60246	176.04205	109.05615	20.73180	0.1483656	0.17495057	3.1661086	20	11 26.3	20.2
415398 2013 <i>OW</i> ₈	17.1	X	288.01873	29.74619	212.01108	5.04966	0.0943718	0.23692850	2.5865716	20	1 29.9	20.8
415399 2013 <i>OY</i> ₈	16.6	X	105.20945	76.63235	210.54058	4.40171	0.1387890	0.17971621	3.0988865	20	12 7.9	21.4
415400 2013 <i>OZ</i> ₈	16.0	X	142.11882	244.17137	2.24182	11.11181	0.1232562	0.17798431	3.1300281	20	11 20.4	21.1
415401 2013 <i>ON</i> ₉	14.8	X	51.77484	215.05548	106.27250	19.62055	0.1078333	0.17190814	3.2033551	20	11 22.8	19.6
415402 2013 <i>OO</i> ₉	16.0	X	136.20963	182.65275	104.13086	11.55030	0.2043524	0.19530439	2.9421268	20	—	—
415403 2013 <i>PF</i> ₄	15.6	X	116.79215	38.76388	256.47891	9.21889	0.1041916	0.17702412	3.1413361	20	12 24.9	20.5
415404 2013 <i>PB</i> ₁₁	16.0	X	162.82197	320.36903	259.94867	12.84894	0.1331166	0.17743564	3.1364773	20	11 10.4	21.1
415405 2013 <i>PT</i> ₁₇	16.7	X	113.86206	86.53824	268.42169	0.95959	0.0769584	0.20353953	2.8622235	20	—	—
415406 2013 <i>PD</i> ₁₉	17.3	X	38.62058	19.19974	185.50836	2.27110	0.1221674	0.26426053	2.4049969	20	6 5.7	19.7
415407 2013 <i>PJ</i> ₂₂	16.3	X	204.83987	0.61925	197.54392	10.24152	0.0435991	0.17561096	3.1581662	20	12 4.5	21.0
415408 2013 <i>PO</i> ₂₅	15.8	X	319.06131	249.20134	246.54176	8.98076	0.0472733	0.18703327	3.0282389	20	—	—
415409 2013 <i>PA</i> ₄₆	16.0	X	165.33216	316.55036	297.93972	10.94153	0.1124837	0.18903519	3.0068212	20	12 26.8	20.8
415410 2013 <i>PL</i> ₄₇	16.5	X	168.52635	146.68345	261.12618	3.89568	0.1229342	0.24095224	2.5576949	20	4 19.7	20.5
415411 2013 <i>PY</i> ₄₉	16.1	X	322.58110	243.00016	229.74249	7.52980	0.0583079	0.18370524	3.0647027	20	—	—
415412 2013 <i>PQ</i> ₅₂	15.5	X	254.93713	246.81741	274.27323	8.20385	0.0421800	0.17671532	3.1449947	20	12 18.9	19.7
415413 2013 <i>PX</i> ₅₇	15.9	X	263.84822	224.64837	264.69290	9.51654	0.0174549	0.17736549	3.1373042	20	11 24.5	20.4
415414 2013 <i>PJ</i> ₅₈	16.1	X	110.70765	53.50751	245.03255	6.57068	0.1194115	0.18375089	3.0641951	20	12 25.1	21.0
415415 2013 <i>PP</i> ₆₀	16.5	X	232.45473	48.84044	188.01725	8.21569	0.1259120	0.21121444	2.7924601	20	—	—
415416 2013 <i>PR</i> ₆₂	17.1	X	166.43887	228.88105	276.14619	5.83214	0.0449993	0.28538024	2.2848277	20	8 26.4	20.2
415417 2013 <i>PS</i> ₆₂	16.8	X	35.52392	313.17017	200.24097	6.46672	0.1071983	0.23700020	2.5860499	20	3 13.9	19.6
415418 2013 <i>PN</i> ₆₄	16.6	X	90.55916	153.89848	189.24705	10.22205	0.1101948	0.19008970	2.9956909	20	—	—
415419 2013 <i>PG</i> ₆₅	16.3	X	330.74918	187.93825	288.38133	8.51274	0.0292401	0.19576713	2.9374887	20	—	—
415420 2013 <i>PT</i> ₇₁	16.2	X	94.58617	340.49293	317.56897	10.00295	0.0866007	0.17560437	3.1582451	20	12 3.9	21.1
415421 2013 <i>QN</i>	16.8	X	39.01430	247.99848	185.74139	6.55371	0.0450455	0.20316950	2.8656977	20	—	—
415422 2013 <i>QA</i> ₇	16.4	X	132.97256	33.66238	312.12926	14.41631	0.1506065	0.20304114	2.8669054	20	1 8.0	20.7
415423 2013 <i>QM</i> ₇	15.7	X	259.25820	237.28290	275.33097	9.09178	0.0589375	0.17643377	3.1483396	20	12 11.7	20.0
415424 2013 <i>QV</i> ₁₁	16.4	X	346.38610	205.80740	239.87859	7.22285	0.0437137	0.18342492	3.0678243	20	—	—
415425 2013 <i>QZ</i> ₁₁	16.3	X	312.09723	283.44811	209.30274	8.22378	0.0431834	0.18927164	3.0043165	20	—	—
415426 2013 <i>QP</i> ₁₆	17.3	X	192.98194	225.73343	292.24171	8.18961	0.0315891	0.29605902	2.2295499	20	10 20.4	20.2
415427 2013 <i>QQ</i> ₁₈	16.7	X	349.96204	142.78940	339.06005	1.30411	0.0800052	0.20187622	2.8779237	20	—	—
415428 2013 <i>QC</i> ₃₀	16.1	X	115.14145	316.21875	327.46661	7.71403	0.2380927	0.18254996	3.0776192	20	12 17.3	21.5
415429 2013 <i>QM</i> ₃₂	16.6	X	183.05685	351.47496	145.44096	23.80880	0.1455559	0.28423941	2.2909372	20	9 3.4	20.0
415430 2013 <i>QH</i> ₄₀	15.8	X	170.35305	309.09659	312.70462	9.92506	0.0675885	0.18835541	3.0140514	20	—	—
415431 2013 <i>QM</i> ₆₃	16.8	X	254.15129	230.09568	27.40836	1.92174	0.0233706	0.22201321	2.7011592	20	1 22.3	20.4
415432 2013 <i>QP</i> ₆₃	16.8	X	215.05178	96.77373	316.72866	5.56424	0.0908617					

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
415441 2013 SQ ₄₃	16.1	X	176.09328	261.23610	106.05732	7.41707	0.0557018	0.21756370	2.7378633	20	3 10.9	20.2
415442 2013 SD ₅₃	16.5	X	124.37433	207.83969	163.68183	6.55454	0.0931872	0.20184052	2.8782630	20	1 19.7	20.7
415443 2013 SQ ₆₂	16.5	X	101.21341	326.26549	60.24201	2.93145	0.0924339	0.19750099	2.9202713	20	1 11.8	20.5
415444 2013 SV ₈₅	13.4	X	158.01071	333.21764	92.08701	6.11075	0.0539537	0.08384373	5.1699816	20	5 5.4	20.5
415445 2013 SX ₈₅	15.4	X	280.45392	285.62573	285.33248	13.21203	0.0486678	0.18656024	3.0333556	20	—	—
415446 2013 TX	16.2	X	6.91050	57.38013	63.23296	5.78303	0.0893951	0.19012158	2.9953559	20	—	—
415447 2013 TA ₈	15.4	X	195.10215	356.12822	247.57083	10.65493	0.1740726	0.18318377	3.0705161	20	—	—
415448 2013 TB ₃₂	16.4	X	247.53055	138.16746	159.48859	4.18846	0.0734186	0.21934019	2.7230601	20	2 28.5	20.4
415449 2013 TG ₃₉	13.7	X	185.81444	201.33871	204.94117	11.14292	0.0531137	0.08238903	5.2306596	20	5 11.5	20.8
415450 2013 TT ₅₀	15.9	X	29.43237	210.45931	222.16566	1.31583	0.0105744	0.18083144	3.0970872	20	—	—
415451 2013 TP ₅₃	16.2	X	67.23109	271.15284	231.45014	11.28727	0.1215941	0.21739977	2.7329394	20	4 23.7	19.6
415452 2013 TP ₆₅	15.8	X	252.24370	262.21248	293.32541	7.75251	0.0893750	0.18395608	3.0619160	20	—	—
415453 2013 TX ₈₈	15.3	X	187.42496	23.50537	237.77202	7.11174	0.0090509	0.17242584	3.1969399	20	—	—
415454 2013 TL ₁₀₅	13.8	X	166.94881	52.67858	1.37761	5.69618	0.0870291	0.08230258	5.2343217	20	4 29.7	21.2
415455 2013 UQ ₁₂	15.8	X	33.92980	338.11070	110.35444	10.36893	0.0765107	0.18211730	3.0824917	20	—	—
415456 2014 HQ ₁₂	15.8	X	233.08870	94.35348	174.52354	1.57152	0.1795958	0.12219608	4.0218994	20	1 15.8	22.1
415457 2014 HL ₄₁	14.9	X	231.20979	207.03435	58.94264	3.84141	0.1956506	0.12692144	3.7201444	20	1 10.5	21.3
415458 2014 HQ ₁₅₁	16.8	X	283.48098	31.32738	25.46249	3.59208	0.0804508	0.21481969	2.7611288	20	9 20.2	20.1
415459 2014 KE ₉₂	16.2	X	148.52931	207.97826	118.32188	15.85530	0.2035713	0.24293330	2.5437710	20	—	—
415460 2014 MS ₆	17.6	X	329.73891	87.23399	271.44903	18.12816	0.1311752	0.34313502	2.0206574	20	9 29.2	19.6
415461 2014 MU ₁₂	16.9	X	69.16290	86.90485	233.30011	1.98466	0.1795883	0.19950968	2.9006372	20	12 19.2	21.2
415462 2014 MM ₃₅	15.9	X	92.69897	166.32945	81.13684	16.29985	0.1013154	0.20362931	2.8613821	20	10 17.9	20.4
415463 2014 MJ ₃₇	18.1	X	271.28904	356.89070	273.52750	1.59034	0.1876295	0.28019062	2.3129539	20	2 1.7	21.3
415464 2014 MY ₄₃	17.8	X	184.50354	61.64925	280.79628	2.88747	0.2198490	0.26217590	2.4177286	20	2 15.9	21.8
415465 2014 MA ₅₃	17.8	X	244.56497	137.69857	187.93480	5.91044	0.2058582	0.28660131	2.2783334	20	3 14.7	21.3
415466 2014 ME ₆₄	17.4	X	275.70109	160.50887	124.77942	6.39760	0.1871864	0.29009864	2.2599852	20	2 25.9	20.5
415467 2014 NX ₃₇	18.2	X	241.63125	37.09013	258.19328	0.75875	0.1884018	0.27380928	2.3487526	20	2 5.9	21.9
415468 2014 NZ ₄₃	16.2	X	140.83444	344.04338	260.49814	14.18415	0.0984687	0.20351942	2.8624120	20	11 23.6	20.7
415469 2014 NL ₅₈	16.9	X	119.25669	269.15396	91.27238	10.72332	0.2052661	0.23636228	2.5907009	20	1 10.8	20.5
415470 2014 OR ₃	16.8	X	53.21121	227.82655	133.86347	5.67796	0.0834254	0.21235866	2.7824203	20	—	—
415471 2014 OL ₈₇	16.0	X	156.35226	260.29726	215.97938	5.01643	0.0701849	0.15338110	3.4563801	20	7 1.0	21.2
415472 2014 OE ₉₃	17.8	X	247.52324	128.81392	172.62249	3.98989	0.1722615	0.28372001	2.2937323	20	2 18.4	21.4
415473 2014 OC ₁₁₂	16.9	X	217.88817	197.42698	129.38729	10.43098	0.3072831	0.26767459	2.3845034	20	2 24.3	21.2
415474 2014 OD ₁₈₂	17.2	X	213.13109	307.94507	34.63909	6.78375	0.1246528	0.27801623	2.3249982	20	3 14.2	20.6
415475 2014 OF ₁₉₀	17.0	X	88.85655	81.56822	327.31959	2.81892	0.1375213	0.23220151	2.6215573	20	1 23.8	20.0
415476 2014 OC ₁₉₁	17.6	X	215.20776	144.28514	173.61255	3.02731	0.1643141	0.25979041	2.4325063	20	2 11.9	21.4
415477 2014 OQ ₁₉₁	16.3	X	1.06014	324.68522	39.69822	1.53283	0.1451983	0.17364673	3.1819375	20	11 4.4	20.1
415478 2014 OP ₁₉₄	17.4	X	207.81252	200.89914	107.37356	2.08548	0.1776484	0.25471414	2.4647186	20	1 26.2	21.3
415479 2014 OE ₁₉₅	17.6	X	190.00670	290.70829	358.00116	5.74731	0.2309114	0.24159996	2.5531214	20	—	—
415480 2014 OI ₁₉₅	17.0	X	136.22415	185.45729	158.39564	6.71563	0.2379844	0.23440130	2.6051299	20	1 11.8	21.1
415481 2014 OU ₁₉₅	17.3	X	176.17169	28.79340	345.00797	4.92174	0.1811174	0.26345217	2.4099139	20	3 14.5	20.8
415482 2014 OS ₁₉₆	16.6	X	359.29188	220.05981	178.45617	7.66967	0.2217634	0.18578198	3.0418211	20	12 28.0	20.1
415483 2014 OZ ₂₀₆	15.8	X	60.33350	353.81610	294.73964	7.41761	0.1212624	0.17971948	3.1098489	20	10 18.3	20.3
415484 2014 OY ₂₂₉	18.3	X	342.01091	117.67006	179.04952	1.51560	0.1494392	0.31170219	2.1543164	20	7 11.9	19.4
415485 2014 OC ₂₃₁	17.1	X	144.89498	90.88548	356.65257	6.72001	0.0739133	0.28139635	2.3063422	20	5 10.6	20.4
415486 2014 OR ₂₇₁	17.0	X	89.37383	286.23839	93.07407	12.51812	0.2140347	0.23243570	2.6197961	20	—	—
415487 2014 OO ₂₈₇	16.6	X	260.91699	213.13657	65.03957	8.07186	0.1058597	0.27412388	2.3469552	20	2 12.9	20.0
415488 2014 OZ ₂₉₁	17.8	X	286.06654	240.88043	32.89135	7.10657	0.1747110	0.28704900	2.2759638	20	2 26.1	20.9
415489 2014 OY ₂₉₃	16.9	X	143.54055	144.87008	176.97568	18.23335	0.0529784	0.22728491	2.6592284	20	—	—
415490 2014 OC ₂₉₅	18.7	X	214.17695	28.94256	343.43255	3.59138	0.1484553	0.28125526	2.3071134	20	4 17.8	22.2
415491 2014 OC ₂₉₆	18.3	X	268.66281	138.73181	148.47987	2.86753	0.2047804	0.27715334	2.3298214	20	2 19.4	21.9
415492 2014 OD ₂₉₈	17.0	X	75.52999	11.08300	341.66047	1.28662	0.0822191	0.20399169	2.8579923	20	—	—
415493 2014 OG ₂₉₉	17.6	X	141.74734	241.32722	171.70593	5.18587	0.0971288	0.26254500	2.4154620	20	3 27.3	20.9
415494 2014 OS ₂₉₉	16.7	X	10.74302	14.84154	343.29559	0.33182	0.1761182	0.17518338	3.1633029	20	11 16.1	20.6
415495 2014 OC ₃₅₈	16.4	X	286.34110	3.98427	145.61409	12.62617	0.0398838	0.21216174	2.7841417	20	—	—
415496 2014 OL ₃₅₉	17.3	X	153.84331	143.40127	148.97853	6.16946	0.1229577	0.22618537	2.6678395	20	—	—
415497 2014 OE ₃₇₃	15.6	X	0.54136	206.53767	144.97413	16.36418	0.1151106	0.18188663	3.0850973	20	10 22.9	19.7
415498 2014 OG ₃₇₅	18.1	X	222.81299	161.65922	121.54751	2.26715	0.1796509	0.26424193	2.4051097	20	1 7.6	22.0
415499 2014 OB ₃₇₆	16.8	X	75.15797	271.78942	65.36021	4.23253	0.0952236	0.21409858	2.7673251	20	—	—
415500 2014 OC ₃₇₈	17.4	X	220.13624	112.41438	159.79612	1.57198	0.1562128	0.25492830	2.4633380	20	—	—
415501 2014 PO ₇	16.9	X	9.41632	74.33707	296.94608	8.60608	0.0314905	0.19981187	2.8977118	20	11 18.1	20.9
415502 2014 PY ₇	17.1	X	180.26132	310.83111	308.93409	10.65908	0.1568849	0.23503619	2.6004363	20	—	—
415503 2014 PN ₂₄	18.9	X	222.44446	53.18247	327.93026	1.25707	0.2344351	0.29159059	2.2522696	20	5 3.2	22.4
415504 2014 PU ₃₂	17.0	X	335.07721	0.15386	95.39755	4.91419	0.0594021	0.21444715	2.7643256	20	—	—
415505 2014 PH ₃₉	17.7	X	193.59054	85.95461	195.56778	3.01781	0.1547559	0.24222898	2.5486996	20	—	—
415506 2014 PP ₃₉	16.7	X	95.45131	103.55518	180.71951	2.06233	0.0644782	0.19365229	2.9588365	20	11 21.5	21.0
415507 2014 PG ₄₁	16.7	X	9.18479	111.54126	337.41254	11.34424	0.1300623	0.22000935	2.7175359	20	—	—
415508 2014 PG ₄₈	17.1	X	16.32082	276.31064	143.21360	9.58699	0.1556297	0.21089986	2.7952362	20	—	—
415509 2014 PM ₄₈	16.7	X	152.86698	137.32711	116.00066	3.27978	0.0345757	0.20606240	2.8388137	20	12 18.6	20.6
415510 2014 PA ₅₅	15.8	X	46.43242	149.85014	151.61839	9.63849	0.0722686	0.17481459	3.1677503	20	10 15.7	20.2
415511 2014 PG ₅₆	17.1	X	167.31340	163.94206	152.63950	9.53166	0.1826613	0.24292947	2.5437977	20	1 2.1	21.2
415512 2014 PH ₅₆	17.3	X	175.67260	24.91534	173.62477	1.61601	0.1647705	0.23988577	2.5652698	20	—	—
415513 2014 PB ₆₃	18.2	X	286.94281	147.14291	234.49762	5.82942	0.1731611	0.29353696	2.2423024	20	3 6.2	21.0
415514 2014 PC ₆₅	17.4	X	129.81014	10.39317	332.77686	5.12010	0.1611					

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
415521 2014 QP ₂₅	16.6	X	114.31505	310.46654	303.83533	7.89867	0.1739963	0.19130055	2.9830365	20	11 9.4	21.6
415522 2014 QK ₂₈	17.0	X	4.89977	350.88766	6.76638	0.11142	0.2108211	0.17629384	3.1500054	20	11 10.4	20.4
415523 2014 QC ₃₂	16.7	X	248.39656	243.14249	103.95981	10.36949	0.1730872	0.28665259	2.2780616	20	4 23.9	20.2
415524 2014 QF ₃₂	16.8	X	174.68140	318.85815	11.08704	15.34418	0.1986341	0.25473723	2.4645697	20	1 30.2	21.1
415525 2014 QO ₃₅	17.9	X	286.70600	2.39418	302.62270	6.21916	0.0294715	0.30098116	2.2051756	20	4 25.6	20.5
415526 2014 QS ₄₀	17.4	X	275.14631	344.22339	304.76837	4.67296	0.1283266	0.28474938	2.2882011	20	3 5.4	20.4
415527 2014 QA ₅₀	16.9	X	101.33045	187.69713	158.06449	11.73875	0.0623577	0.23117448	2.6293160	20	—	—
415528 2014 QV ₅₈	18.0	X	205.05918	128.63240	161.33850	8.91292	0.1715588	0.25769173	2.4456956	20	—	—
415529 2014 QC ₆₃	17.8	X	64.71102	146.09101	171.07955	6.12228	0.0928251	0.26652767	2.3913392	20	2 15.9	20.3
415530 2014 QS ₇₁	16.4	X	10.85606	187.82755	164.07488	12.22344	0.1487597	0.18672825	3.0315357	20	11 11.2	20.3
415531 2014 QM ₇₂	17.3	X	151.70072	189.82766	172.12325	7.91313	0.1698225	0.25612168	2.4556803	20	2 7.6	21.1
415532 2014 QA ₉₄	15.9	X	274.41814	141.76414	270.38467	8.30624	0.0169724	0.16859216	3.2452225	20	8 29.9	20.6
415533 2014 QO ₁₀₄	17.1	X	54.35391	129.03780	241.61280	3.94704	0.0784247	0.21393986	2.7686937	20	—	—
415534 2014 QD ₁₁₅	17.3	X	108.43541	18.40441	325.54569	9.14513	0.2119491	0.22535327	2.6744027	20	—	—
415535 2014 QN ₁₁₅	18.0	X	106.40002	127.48380	329.90702	3.76888	0.1477315	0.27241776	2.3567441	20	4 16.7	21.1
415536 2014 QO ₁₁₆	16.5	X	77.57930	114.24533	179.65375	8.48494	0.0727785	0.18849204	3.0125947	20	11 14.3	20.9
415537 2014 QK ₁₂₀	16.9	X	330.51040	51.33878	350.50813	9.49479	0.2216798	0.17761508	3.1243645	20	10 27.5	20.2
415538 2014 QV ₁₂₉	17.5	X	232.53479	319.33566	339.68814	5.68375	0.1371443	0.26522002	2.3991930	20	2 6.5	21.1
415539 2014 QW ₁₃₀	17.1	X	292.74876	317.13617	162.60250	2.25484	0.0179909	0.20292219	2.8680255	20	12 25.5	21.0
415540 2014 QH ₁₃₈	17.6	X	59.19829	200.06727	350.92202	7.68582	0.0520000	0.29751777	2.2222561	20	6 7.7	20.2
415541 2014 QY ₁₃₈	16.8	X	102.97474	314.64948	357.04108	1.58099	0.0501174	0.20400911	2.8578297	20	—	—
415542 2014 QF ₁₃₉	18.5	X	16.37469	71.86308	157.62901	5.30723	0.0935871	0.29873018	2.2162393	20	5 31.5	20.5
415543 2014 QU ₁₄₀	18.3	X	189.80408	30.56236	33.12267	2.90172	0.1010438	0.29330995	2.2434593	20	6 2.4	21.3
415544 2014 QO ₁₅₀	16.8	X	166.14531	229.61998	15.24108	9.13738	0.1690929	0.20989210	2.8041763	20	12 16.4	21.6
415545 2014 QJ ₁₅₂	17.4	X	192.34247	55.30725	271.04687	1.25562	0.1836168	0.25690891	2.4506612	20	2 3.1	21.3
415546 2014 QB ₁₇₂	16.6	X	26.86896	98.44336	237.67297	2.23551	0.0853110	0.18204430	3.0833157	20	11 1.7	20.6
415547 2014 QL ₁₇₅	16.0	X	326.49725	36.47553	353.98839	15.95681	0.0726639	0.17445303	3.1721256	20	10 7.4	20.3
415548 2014 QH ₁₇₇	17.8	X	93.67777	311.27528	114.28284	4.91023	0.2345525	0.24128685	2.5553297	20	3 7.9	21.0
415549 2014 QF ₁₇₈	16.7	X	228.82979	79.06935	162.47459	14.47396	0.0706766	0.23431368	2.6057792	20	—	—
415550 2014 QZ ₁₉₀	17.3	X	238.66951	160.60697	176.71874	4.12189	0.2273737	0.28591315	2.2819877	20	3 24.1	20.8
415551 2014 QG ₁₉₁	16.2	X	313.17181	84.09192	311.93638	9.04630	0.0724824	0.17523051	3.1627357	20	9 25.1	20.5
415552 2014 QK ₁₉₆	17.5	X	123.32418	162.24310	277.74384	5.96418	0.0670857	0.27615141	2.3354534	20	3 31.9	20.7
415553 2014 QW ₂₀₁	17.2	X	152.79699	131.14870	171.84281	10.82269	0.0366507	0.22878491	2.6475925	20	—	—
415554 2014 QK ₂₁₀	16.2	X	237.49346	323.25021	154.98832	11.31627	0.0314894	0.17908664	3.1171707	20	10 11.8	20.7
415555 2014 QG ₂₁₂	15.7	X	318.73207	17.87028	339.85807	9.65372	0.0902479	0.15882305	3.3769687	20	8 17.3	20.1
415556 2014 QX ₂₁₃	17.0	X	329.14676	324.92632	196.31827	4.67900	0.1740464	0.24359662	2.5391511	20	—	—
415557 2014 QD ₂₁₇	17.6	X	142.37875	38.77207	307.15357	5.01956	0.1123160	0.24204086	2.5500200	20	1 6.2	21.1
415558 2014 QD ₂₂₁	16.9	X	359.01584	100.19340	289.19923	8.49765	0.1475111	0.19101609	2.9859974	20	12 8.1	20.4
415559 2014 QZ ₂₂₃	17.6	X	123.05093	66.70270	304.39918	3.44632	0.0964405	0.24248937	2.5468747	20	1 12.5	20.7
415560 2014 QK ₂₂₄	17.2	X	251.24409	291.80783	227.36190	4.63026	0.0184656	0.20533967	2.8454709	20	12 22.2	21.1
415561 2014 QB ₂₂₆	17.7	X	177.82106	50.51055	317.72268	4.27319	0.1198870	0.26597855	2.3946294	20	3 8.1	21.3
415562 2014 QG ₂₂₉	16.9	X	295.20048	114.86671	134.68043	3.74381	0.3006702	0.16727110	3.2622865	20	9 11.6	20.7
415563 2014 QQ ₂₃₃	17.3	X	197.37187	106.10813	132.43956	4.15666	0.0300631	0.21654139	2.7464736	20	—	—
415564 2014 QD ₂₃₄	17.3	X	81.18219	52.19718	356.67801	11.69412	0.0701770	0.23769537	2.5810053	20	1 3.4	20.7
415565 2014 QQ ₂₃₅	16.7	X	344.53405	86.42481	2.97898	6.16534	0.0081053	0.21275346	2.7789771	20	—	—
415566 2014 QY ₂₃₉	17.4	X	359.76868	270.04251	165.84950	6.58946	0.0273068	0.21320108	2.7750860	20	—	—
415567 2014 QS ₂₄₀	18.2	X	172.39787	291.72013	87.75828	2.09124	0.2244525	0.26479218	2.4017766	20	3 24.1	22.1
415568 2014 QX ₂₄₄	15.6	X	102.49823	211.47856	55.55298	10.57877	0.0429655	0.18458574	3.0549489	20	11 5.6	20.1
415569 2014 QR ₂₄₇	16.5	X	52.75771	241.36147	46.90379	7.02859	0.2529541	0.17856960	3.1231850	20	10 30.9	20.9
415570 2014 QG ₂₆₁	15.8	X	73.24422	256.20226	21.46681	17.21719	0.1889320	0.18217501	3.0818406	20	10 29.2	20.5
415571 2014 QB ₂₆₅	16.1	X	339.49644	274.16181	135.39604	18.14278	0.2429099	0.17991362	3.1076113	20	12 7.6	19.5
415572 2014 QO ₂₆₆	17.3	X	235.28976	287.41317	93.19383	9.66812	0.2605674	0.28920139	2.2646572	20	5 15.2	21.0
415573 2014 QQ ₂₆₇	17.7	X	212.44508	137.21679	227.61653	4.46138	0.1792018	0.28027699	2.3124788	20	4 5.6	21.4
415574 2014 QD ₂₇₅	18.1	X	332.86031	251.67580	14.87448	6.20115	0.1524275	0.29737625	2.2229611	20	4 25.5	19.9
415575 2014 QL ₂₇₅	17.9	X	314.26237	226.51163	50.30890	2.76313	0.1509665	0.29032142	2.2588289	20	4 10.3	20.3
415576 2014 QC ₂₇₇	16.5	X	24.40767	191.60607	142.99994	9.89535	0.1063085	0.18787988	3.0191350	20	11 4.4	20.6
415577 2014 QU ₂₇₇	15.8	X	166.16054	251.29621	328.43757	8.58684	0.0231925	0.20268722	2.8702417	20	11 20.3	20.0
415578 2014 QU ₂₈₂	16.9	X	181.98240	175.23377	102.37103	12.90895	0.1679786	0.23739351	2.5831928	20	—	—
415579 2014 QY ₂₈₉	16.9	X	172.54501	254.97750	52.88743	11.23059	0.1243241	0.24225118	2.5485438	20	—	—
415580 2014 QJ ₃₀₀	17.1	X	59.08875	337.64503	2.96345	1.32046	0.0815664	0.19513714	2.9438076	20	12 20.1	21.2
415581 2014 QM ₃₀₀	17.6	X	289.75533	265.19311	14.55616	2.76540	0.1584450	0.28408084	2.2917897	20	3 9.4	20.6
415582 2014 QR ₃₀₀	17.4	X	52.17575	352.46891	63.39674	3.45154	0.1739547	0.21905914	2.7253888	20	—	—
415583 2014 QU ₃₀₁	17.2	X	68.15241	254.90574	118.19725	2.85313	0.0894943	0.21192606	2.7862054	20	—	—
415584 2014 QS ₃₀₂	17.1	X	254.00816	126.08739	201.91933	8.08723	0.1854686	0.28563770	2.2834545	20	3 28.3	20.5
415585 2014 QT ₃₀₂	15.4	X	52.31979	8.51010	286.67674	9.70867	0.2089659	0.17664601	3.1458173	20	10 28.4	20.0
415586 2014 QC ₃₀₇	16.0	X	356.14221	346.99863	20.68711	5.22646	0.0693523	0.17426544	3.1744016	20	10 25.6	20.2
415587 2014 QD ₃₀₈	16.0	X	310.89412	319.43723	153.45087	3.22833	0.0619755	0.19911199	2.9044982	20	—	—
415588 2014 QP ₃₀₈	16.1	X	50.53849	303.96399	319.96309	8.88433	0.0486211	0.16969106	3.2311968	20	8 26.6	20.6
415589 2014 QT ₃₀₈	18.3	X	181.23007	14.47370	35.34830	3.22019	0.1453409	0.28033605	2.3121539	20	5 5.5	21.7
415590 2014 QX ₃₀₉	16.3	X	52.21118	15.88339	38.30469	12.60859	0.1697934	0.23815069	2.5777146	20	—	—
415591 2014 QQ ₃₁₀	15.5	X	54.42077	37.91320	277.99682	12.17725	0.0863849	0.18463229	3.0544353	20	11 10.8	19.9
415592 2014 QK ₃₁₁	16.8	X	161.99499	145.43458	81.85969	12.75408	0.1422347	0.21715309	2.7413135	20	11 26.6	21.3
415593 2014 QE ₃₁₂	17.1	X	15.35669	184.82722	189.18968	1.76353	0.0773856	0.20362289	2.8614422	20</		

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
415601 2014 QK ₃₄₄	16.9	X	51.88428	203.66817	166.98146	8.75295	0.0703371	0.21412838	2.7670684	20	—	—
415602 2014 QK ₃₄₅	16.6	X	95.58976	320.71117	77.40735	13.44967	0.1723652	0.24138559	2.5546328	20	1 24.6	19.8
415603 2014 QN ₃₄₈	15.9	X	164.62160	223.46452	350.71222	9.59258	0.0782296	0.18696978	3.0289244	20	11 5.8	20.7
415604 2014 QV ₃₄₈	17.9	X	151.92392	278.63124	167.04411	4.56839	0.1872541	0.27895065	2.3198031	20	5 26.9	21.6
415605 2014 QX ₃₄₈	18.2	X	186.10780	246.88181	171.52462	2.86228	0.1418508	0.28589336	2.2820930	20	5 22.7	21.5
415606 2014 QG ₃₅₀	18.0	X	144.53636	98.75145	8.52120	7.80421	0.0417557	0.29332609	2.2433769	20	6 5.5	20.9
415607 2014 QP ₃₅₁	17.1	X	68.13366	241.21445	126.03540	5.20984	0.1147068	0.20847131	2.8169028	20	—	—
415608 2014 QB ₃₅₃	15.7	X	130.98241	53.22125	352.50054	10.87529	0.0833697	0.16976370	3.2302750	20	10 4.4	20.0
415609 2014 QK ₃₅₃	17.6	X	191.16525	175.15387	166.21717	2.40454	0.2173669	0.26067667	2.4269897	20	2 20.7	21.8
415610 2014 QK ₃₅₄	17.1	X	112.01608	52.32622	263.31558	0.97304	0.0819827	0.20883116	2.8136659	20	—	—
415611 2014 QS ₃₅₄	16.5	X	45.04776	165.68011	174.49151	1.56582	0.1003536	0.18695747	3.0290573	20	12 3.9	20.7
415612 2014 QP ₃₅₅	16.1	X	193.27618	43.76798	159.22734	2.74095	0.0153786	0.18990298	2.9976542	20	12 2.6	20.3
415613 2014 QW ₃₅₇	18.2	X	213.64152	356.51461	330.94446	0.94506	0.2007451	0.26460541	2.4029067	20	2 21.9	22.0
415614 2014 QK ₃₅₈	16.9	X	40.53201	216.18547	194.88460	5.58351	0.0181647	0.21372555	2.7705442	20	—	—
415615 2014 QA ₃₅₉	17.3	X	159.07842	180.45840	198.27389	4.14324	0.0835521	0.25588650	2.4571847	20	2 28.9	20.8
415616 2014 QL ₃₅₉	17.2	X	18.29500	216.75563	178.85220	5.58660	0.0749791	0.19603669	2.9347952	20	—	—
415617 2014 QP ₃₅₉	16.8	X	40.62421	113.85960	295.80009	1.70070	0.0925039	0.21173960	2.7878410	20	—	—
415618 2014 QD ₃₆₀	16.3	X	95.72821	359.12499	280.35325	1.82651	0.0806956	0.18314237	3.0709788	20	11 14.8	20.9
415619 2014 QX ₃₆₀	18.3	X	149.46482	262.78222	146.67021	2.39325	0.1603377	0.26236101	2.4165912	20	4 6.2	21.9
415620 2014 QG ₃₆₁	18.4	X	287.22716	105.02253	189.75257	6.44558	0.1388479	0.28521716	2.2856985	20	3 28.7	21.3
415621 2014 QM ₃₆₁	18.2	X	220.08430	153.20599	173.53896	2.23315	0.2210123	0.26779953	2.3837617	20	2 25.4	22.2
415622 2014 QJ ₃₆₇	16.1	X	60.19193	182.20783	166.47733	12.47057	0.1318151	0.19047164	2.9916848	20	—	—
415623 2014 QM ₃₆₇	15.9	X	334.89309	254.47106	177.77377	22.43526	0.0846332	0.18218158	3.0817666	20	12 18.2	20.3
415624 2014 QW ₃₇₀	15.6	X	81.94194	122.14746	148.81235	10.88281	0.1288147	0.17802623	3.1295367	20	10 29.3	20.4
415625 2014 QD ₃₇₁	17.7	X	273.81473	122.09132	46.89570	1.80882	0.1590340	0.26711942	2.3878062	20	1 26.2	21.1
415626 2014 QF ₃₇₁	17.9	X	151.45215	274.84776	138.80185	2.08477	0.1152697	0.26850992	2.3795554	20	4 9.8	21.3
415627 2014 QJ ₃₇₁	15.8	X	293.93731	287.70533	165.84769	26.97570	0.1603294	0.17889950	3.1193442	20	11 9.0	20.1
415628 2014 QV ₃₇₁	17.2	X	300.71877	163.10310	74.40052	3.69517	0.1401890	0.26691917	2.3890003	20	1 31.9	20.4
415629 2014 QX ₃₇₁	18.1	X	260.38469	327.41950	19.12127	6.28882	0.1907360	0.29504713	2.2346445	20	4 27.6	21.2
415630 2014 QR ₃₇₄	17.1	X	27.57065	75.40625	7.11835	8.94829	0.1708611	0.21831349	2.7315910	20	—	—
415631 2014 QM ₃₇₇	16.5	X	273.17489	283.41980	206.04000	9.40831	0.0443829	0.19129436	2.9831008	20	12 7.3	20.6
415632 2014 QX ₃₇₇	16.4	X	38.22061	139.63888	201.21180	7.14094	0.1449523	0.18414813	3.0597869	20	12 2.3	20.6
415633 2014 QJ ₃₇₈	15.6	X	358.18814	171.70228	186.35973	11.23879	0.0615456	0.17120398	3.2121326	20	10 17.1	19.9
415634 2014 QX ₃₇₈	17.0	X	51.13504	169.29827	189.89625	7.98138	0.0861446	0.19687838	2.9264248	20	—	—
415635 2014 QY ₃₇₈	15.4	X	237.34830	308.58821	185.75747	12.61445	0.0894127	0.17424056	3.1747037	20	10 21.2	19.9
415636 2014 QJ ₃₇₉	17.5	X	124.82045	75.28681	296.36917	1.90832	0.0475550	0.23570025	2.5955497	20	1 9.5	21.0
415637 2014 QL ₃₇₉	16.7	X	222.58279	62.40814	106.0982	10.07242	0.0758746	0.23237713	2.6202363	20	—	—
415638 2014 QW ₃₇₉	16.6	X	61.83485	140.52549	178.69180	8.30132	0.1859919	0.18797593	3.0181064	20	12 9.9	21.2
415639 2014 QM ₃₈₀	15.8	X	280.23854	107.55091	349.00677	10.84753	0.0594835	0.17681413	3.1438229	20	10 27.3	20.3
415640 2014 QT ₃₈₄	17.2	X	77.17965	218.20540	147.27773	3.96583	0.1047787	0.21370455	2.7707257	20	—	—
415641 2014 QD ₃₈₅	16.6	X	27.85500	356.89161	359.42817	12.17916	0.1251253	0.18502419	3.0501208	20	12 1.8	20.9
415642 2014 QE ₃₈₅	15.9	X	316.96559	54.65023	9.22917	4.49342	0.1100535	0.17806872	3.1290389	20	11 7.0	19.6
415643 2014 QU ₃₈₆	18.7	X	217.33879	201.60794	174.39663	3.45112	0.1668708	0.28210507	2.3024778	20	4 27.1	22.2
415644 2014 QY ₃₈₇	15.9	X	91.39408	277.40779	338.00940	8.77049	0.0697650	0.18053873	3.1004338	20	10 7.7	20.6
415645 2014 QV ₃₈₉	15.8	X	79.95937	4.62990	295.19289	2.44833	0.0657061	0.18607871	3.0385864	20	11 20.5	20.1
415646 2014 QT ₃₉₃	16.2	X	328.61202	285.69219	128.64017	11.02521	0.0750663	0.18065458	3.0991081	20	11 18.9	20.3
415647 2014 QQ ₃₉₅	16.3	X	10.74463	8.70648	342.88606	8.96448	0.0925170	0.17419744	3.1752276	20	10 25.2	20.6
415648 2014 QE ₃₉₇	17.1	X	171.56655	296.95940	329.52799	1.89758	0.1451622	0.21611888	2.7500520	20	—	—
415649 2014 QG ₄₀₂	17.7	X	186.27608	281.71644	118.24101	6.79886	0.1132460	0.28394767	2.2925061	20	4 30.5	21.1
415650 2014 QB ₄₀₃	17.3	X	95.03719	68.57259	351.51112	14.10121	0.0864910	0.24090661	2.5580178	20	2 11.2	20.6
415651 2014 QG ₄₀₃	15.7	X	280.14816	270.93763	196.69389	12.67585	0.0878446	0.17766827	3.1337388	20	11 12.3	19.9
415652 2014 QK ₄₀₅	16.8	X	30.09252	141.61840	292.11614	4.30028	0.1983018	0.21637295	2.7478988	20	—	—
415653 2014 QG ₄₀₆	17.7	X	128.75627	198.65923	178.51205	12.43441	0.1967998	0.24350668	2.5397762	20	2 6.5	21.6
415654 2014 QR ₄₀₈	16.7	X	171.24188	268.73388	359.38396	11.76273	0.2579640	0.22311027	2.6922972	20	—	—
415655 2014 QV ₄₀₉	17.2	X	337.41915	346.77883	231.97846	5.04917	0.0093529	0.28440413	2.2900526	20	3 10.9	20.1
415656 2014 QF ₄₁₀	17.8	X	144.34327	257.44529	159.12990	5.51159	0.1945198	0.26926661	2.3750953	20	4 13.4	21.4
415657 2014 QN ₄₁₀	17.1	X	138.84373	110.66339	335.48175	8.96940	0.1975850	0.28082348	2.3094777	20	5 11.4	20.8
415658 2014 QO ₄₁₀	17.3	X	160.44986	273.87575	149.32174	3.58630	0.1700640	0.28123599	2.3072188	20	5 5.1	20.8
415659 2014 QT ₄₁₀	18.0	X	237.46826	2.33674	336.23082	3.35433	0.1493506	0.28536793	2.2848934	20	3 28.1	21.4
415660 2014 QF ₄₁₄	16.6	X	95.49093	350.43979	351.04513	8.73837	0.1178727	0.21885088	2.7271175	20	—	—
415661 2014 QW ₄₁₈	16.3	X	64.66710	39.55535	258.07341	3.78319	0.1518929	0.18002377	3.1063436	20	11 10.3	20.8
415662 2014 QK ₄₁₉	18.0	X	126.45799	108.59972	312.43967	2.03319	0.2060818	0.25235744	2.4800398	20	3 31.8	21.8
415663 2014 QZ ₄₁₉	17.0	X	349.71279	312.67622	121.58305	3.11294	0.0441449	0.20354408	2.8621808	20	—	—
415664 2014 QT ₄₂₀	16.3	X	11.72140	300.63649	116.13696	3.11681	0.1120749	0.20222813	2.8745840	20	—	—
415665 2014 QG ₄₂₅	17.3	X	238.01161	98.57394	163.71398	15.88108	0.1118326	0.25300641	2.4757970	20	—	—
415666 2014 QJ ₄₂₇	17.2	X	23.24506	332.31586	6.35574	3.86192	0.1643062	0.17995987	3.1070788	20	11 9.4	21.1
415667 2014 QK ₄₂₇	17.0	X	292.67361	14.79920	168.13641	15.03039	0.0657934	0.23244771	2.6197059	20	—	—
415668 2014 QC ₄₂₈	16.8	X	37.17769	3.14337	343.88273	9.98866	0.1029114	0.18850130	3.0124960	20	11 30.9	21.1
415669 2014 QN ₄₃₅	17.7	X	262.77275	199.39103	141.13392	3.97440	0.1843704	0.29103496	2.2551353	20	4 25.9	20.8
415670 2014 QO ₄₃₅	17.0	X	24.08592	268.86509	160.88105	8.72972	0.2687077	0.20241140	2.8728486	20	—	—
415671 2014 RR ₉	16.3	X	174.56400	30.56543	207.03314	8.51013	0.0666161	0.19934589	2.9022258	20	12 20.1	20.7
415672 2014 RH ₁₃	15.8	X	36.83593	86.17014	243.72010	12.68607	0.2028528	0.18664151	3.0324750	20	11 25.4	19.9
415673 2014 RP ₁₆	16.3	X	55.36746	145.39170	190.27644	16.31497	0.2140912	0.19701159	2.9251055			

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
415681 2014 <i>RP</i> ₂₃	17.0	X	158.05368	95.31564	315.86286	5.59115	0.0876265	0.27733943	2.3287792	20	4 7.3	20.3
415682 2014 <i>RX</i> ₂₄	18.0	X	269.85731	50.77689	270.91997	2.46387	0.1185886	0.29194970	2.2504223	20	4 14.1	20.8
415683 2014 <i>RH</i> ₃₀	17.3	X	79.25922	34.68782	345.01632	5.87301	0.0634765	0.22539027	2.6741100	20	—	—
415684 2014 <i>RS</i> ₃₁	16.3	X	35.05213	154.02654	180.90734	5.42593	0.1580074	0.18083058	3.0970969	20	11 22.5	20.4
415685 2014 <i>RY</i> ₃₃	16.0	X	91.84594	301.84484	3.03141	14.76230	0.1519811	0.20133779	2.8830523	20	12 20.3	20.8
415686 2014 <i>RL</i> ₄₈	15.7	X	71.96614	272.45857	32.62351	13.15851	0.1638730	0.18025630	3.1036715	20	11 26.5	20.5
415687 2014 <i>SU</i> ₅₄	16.9	X	217.11879	259.17157	22.90373	7.81845	0.2440786	0.25553751	2.4594214	20	1 3.3	21.3
415688 5113 <i>T</i> ₋₂	16.7	X	90.01983	147.62763	239.45312	8.90376	0.2537424	0.21730832	2.7400079	20	1 15.4	20.1
415689 1991 <i>JN</i>	18.3	X	273.61204	3.85519	212.24422	25.61371	0.1354792	0.39803266	1.8303055	20	—	—
415690 1992 <i>UB</i>	16.4	X	42.31916	294.56176	70.58635	16.24380	0.5676484	0.18018484	3.1044920	20	—	—
415691 1993 <i>SM</i> ₆	17.3	X	189.32243	5.48563	359.43829	3.54242	0.2804059	0.24137495	2.5547079	20	3 20.7	22.0
415692 1995 <i>SO</i> ₉	17.4	X	112.23006	23.61920	0.66094	4.21724	0.0797800	0.21487617	2.7606449	20	1 18.8	21.2
415693 1995 <i>SC</i> ₃₄	17.2	X	67.53293	219.93345	170.14103	3.62443	0.0836110	0.21033480	2.8002402	20	—	—
415694 1995 <i>SP</i> ₄₂	18.5	X	158.65833	315.70532	123.40284	2.06254	0.1563445	0.26334632	2.4105596	20	5 23.0	22.1
415695 1996 <i>GE</i> ₂	15.6	X	193.66050	299.24373	15.18924	28.15406	0.2493237	0.23665436	2.5885687	20	2 7.4	20.7
415696 1996 <i>GC</i> ₅	17.7	X	16.38056	238.76405	45.08773	5.63465	0.1821124	0.29522145	2.2337648	20	9 14.3	19.6
415697 1996 <i>TY</i> ₁₆	16.1	X	150.05908	324.83290	328.14632	10.08639	0.1257505	0.17736914	3.1372612	20	—	—
415698 1996 <i>TD</i> ₃₁	17.5	X	311.22841	292.47900	33.52079	9.18419	0.2427568	0.28126348	2.3070685	20	6 1.8	19.6
415699 1996 <i>XL</i> ₈	17.5	X	218.86979	131.07196	279.95844	8.13396	0.1236710	0.27655707	2.3331691	20	6 16.9	20.8
415700 1996 <i>XU</i> ₂₃	16.4	X	87.55816	142.26577	244.98699	13.02117	0.1225669	0.21682588	2.7440707	20	—	—
415701 1997 <i>EJ</i> ₁	16.7	X	285.95918	296.80145	290.99742	6.59644	0.0786861	0.21043109	2.7993859	20	1 17.7	20.6
415702 1997 <i>SD</i> ₁₄	16.2	X	341.86393	87.99774	358.29317	10.14677	0.2186453	0.17797474	3.1301403	20	—	—
415703 1997 <i>US</i> ₂₄	16.9	X	165.41881	147.29394	213.35782	3.29104	0.2238067	0.23791871	2.5793898	20	2 24.1	21.2
415704 1998 <i>BY</i> ₅	17.6	X	2.35432	47.06727	121.77678	4.47838	0.1137919	0.22464585	2.6800143	20	2 10.7	20.7
415705 1998 <i>HD</i> ₁₀	16.3	X	340.35277	170.04182	43.30935	14.14268	0.1401194	0.22118051	2.7079345	20	3 10.9	19.7
415706 1998 <i>RR</i> ₂₁	16.3	X	77.45912	156.54979	185.45192	5.29953	0.2469936	0.18975039	2.9992611	20	—	—
415707 1998 <i>SM</i> ₅₀	16.8	X	91.36106	347.11050	25.44264	8.13261	0.1560158	0.19246691	2.9709727	20	—	—
415708 1998 <i>SY</i> ₉₇	16.8	X	62.22116	203.54571	128.59401	1.35626	0.4141137	0.18708986	3.0276283	20	—	—
415709 1998 <i>UK</i> ₁₂	16.0	X	57.64410	10.38493	30.68380	3.99956	0.2818973	0.19098386	2.9863332	20	—	—
415710 1998 <i>WC</i> ₂	18.5	X	85.99784	270.27484	208.43953	26.59628	0.5613590	0.24158794	2.5532062	20	6 12.2	23.4
415711 1998 <i>WT</i> ₇	19.0	X	104.67954	235.95178	248.27123	40.70017	0.1099982	0.79721859	1.1519079	20	—	—
415712 1998 <i>WL</i> ₃₈	15.9	X	259.22036	48.45772	53.00667	20.62900	0.1102592	0.17614348	3.1517977	20	10 12.4	20.5
415713 1998 <i>XX</i> ₂	19.9	X	102.17592	153.02571	74.43210	6.97264	0.3672967	1.54383415	0.7414280	20	—	—
415714 1998 <i>YZ</i> ₁₉	17.0	X	153.19230	82.74441	314.64346	3.57560	0.2173601	0.24314545	2.5422912	20	3 28.1	21.2
415715 1999 <i>AU</i> ₂₃	18.0	X	274.85001	117.96161	293.56065	20.44243	0.4100618	0.30970630	2.1635621	20	7 15.7	20.6
415716 1999 <i>CV</i> ₁₃₄	16.2	X	353.62724	167.25949	323.40573	9.97569	0.1090411	0.18284376	3.0743216	20	—	—
415717 1999 <i>CR</i> ₁₄₀	15.5	X	201.51690	289.47378	333.43558	15.20948	0.2078690	0.17592439	3.1544140	20	—	—
415718 1999 <i>FS</i> ₈₇	18.2	X	169.23203	130.67837	358.59886	5.44595	0.0643902	0.29505340	2.2346129	20	8 12.8	21.1
415719 1999 <i>HN</i> ₇	17.1	X	357.89757	152.12321	34.39416	5.60394	0.2122896	0.23094694	2.6310428	20	2 18.6	19.6
415720 1999 <i>RU</i> ₂₁₅	7.3	X	53.74822	328.05649	14.25147	7.72969	0.0720378	0.00349293	43.0206052	20	11 4.5	23.5
415721 1999 <i>SC</i>	17.9	X	230.02310	330.40328	359.39475	5.06542	0.2963836	0.26594083	2.3948558	20	3 6.4	22.1
415722 1999 <i>TV</i> ₆₇	16.8	X	82.82895	202.51113	190.36112	3.21693	0.2034668	0.20146333	2.8818545	20	1 9.3	20.3
415723 1999 <i>TL</i> ₁₃₄	17.5	X	217.15126	6.32919	353.31134	3.00553	0.2540077	0.26644068	2.3918596	20	4 2.0	21.5
415724 1999 <i>TL</i> ₁₇₁	16.9	X	237.93051	156.16747	207.37665	6.47429	0.1634101	0.26827953	2.3809176	20	5 1.6	20.3
415725 1999 <i>TS</i> ₂₉₄	17.9	X	186.87666	54.27266	4.62086	5.65813	0.0844337	0.26762517	2.3847970	20	5 22.6	21.3
415726 1999 <i>TC</i> ₃₀₅	17.6	X	211.07942	176.94643	211.63000	2.36330	0.1946355	0.26670827	2.3902595	20	5 5.9	21.4
415727 1999 <i>TQ</i> ₃₃₆	18.3	X	234.13731	345.17759	355.07821	1.24873	0.1918332	0.26587630	2.3952433	20	3 26.4	22.0
415728 1999 <i>UF</i> ₃₃	18.7	X	181.01971	188.53008	221.11423	0.79271	0.1890691	0.26497916	2.4006466	20	5 6.1	22.6
415729 1999 <i>UL</i> ₄₆	16.9	X	66.61871	165.20787	235.35735	14.01977	0.4258963	0.20062056	2.8899196	20	1 25.5	20.1
415730 1999 <i>VS</i> ₄₆	17.0	X	167.77626	357.85635	44.69606	24.98278	0.2297955	0.26170528	2.4206262	20	4 22.0	21.2
415731 1999 <i>VY</i> ₉₅	16.8	X	214.47757	307.94728	37.08049	7.98109	0.2501170	0.26406844	2.4061630	20	3 17.2	21.0
415732 1999 <i>YH</i> ₁₀₄	15.9	X	63.38331	31.60945	53.83766	13.07634	0.0669368	0.20421796	2.8558809	20	2 3.1	19.8
415733 1999 <i>VF</i> ₁₄₉	16.2	X	350.11015	333.25851	73.76676	9.97769	0.1125716	0.18969713	2.9998224	20	12 12.6	19.8
415734 1999 <i>VO</i> ₁₅₃	16.5	X	65.42579	333.44425	74.02520	6.44121	0.1048527	0.19975893	2.8982237	20	—	—
415735 1999 <i>WN</i> ₁₅	17.3	X	216.33658	136.15082	223.69195	2.58073	0.2095355	0.21681506	2.7441620	20	4 5.3	21.9
415736 1999 <i>XP</i> ₁₄₇	17.3	X	149.10228	49.68424	65.86810	7.39759	0.0723133	0.26648453	2.3915973	20	6 26.0	20.6
415737 1999 <i>YH</i> ₈	18.0	X	150.75163	351.77548	96.78590	2.65423	0.1437110	0.25949740	2.4343371	20	5 26.8	21.7
415738 1999 <i>YP</i> ₁₈	18.3	X	197.36259	80.54935	290.89140	1.20196	0.2030009	0.25738680	2.4476268	20	4 1.9	22.2
415739 2000 <i>CW</i> ₆₄	16.9	X	99.49718	42.73466	123.29900	9.70460	0.1419400	0.25897373	2.4376176	20	7 12.9	20.2
415740 2000 <i>DU</i> ₁	17.4	X	205.77650	253.08822	151.73343	3.04102	0.1697469	0.25979724	2.4324637	20	5 23.7	21.2
415741 2000 <i>DY</i> ₁₁₃	16.4	X	325.35282	322.70522	144.22968	7.05982	0.2541323	0.18712174	3.0272844	20	—	—
415742 2000 <i>DP</i> ₁₁₄	17.4	X	113.56313	26.38004	147.37811	1.90070	0.1899720	0.26110209	2.4243528	20	8 12.6	21.1
415743 2000 <i>EN</i> ₇₈	15.9	X	288.16463	10.00680	141.01727	11.93054	0.1655696	0.18434716	3.0575841	20	—	—
415744 2000 <i>EA</i> ₁₆₀	16.8	X	286.92446	3.01863	175.78980	5.00944	0.2163606	0.18604394	3.0389650	20	—	—
415745 2000 <i>GV</i> ₁₄₇	19.3	X	231.02359	216.06015	68.68725	10.56500	0.4566038	0.42705802	1.7464043	20	—	—
415746 2000 <i>JN</i> ₁₀	17.8	X	299.51237	254.61101	47.13042	21.45394	0.4295724	0.29061772	2.2572933	20	3 24.3	21.5
415747 2000 <i>JD</i> ₉₄	17.9	X	78.96448	51.59919	12.53951	21.16838	0.0726787	0.38647076	1.8666302	20	—	—
415748 2000 <i>KJ</i> ₃₈	15.6	X	254.21797	142.35340	85.24253	10.15098	0.0382342	0.18064916	3.0991701	20	—	—
415749 2000 <i>KE</i> ₇₀	15.7	X	293.93074	134.12890	88.29903	25.49646	0.1016169	0.23675511	2.5878344	20	1 12.8	19.4
415750 2000 <i>LW</i> ₂₉	15.6	X	102.78880	229.91349	87.55430	17.06032	0.0834409	0.17101690	3.2144748	20	—	—
415751 2000 <i>NE</i> ₄	17.8	X	2.79250	60.76381	225.61370	2.24392	0.1672657	0.29662582	2.2267088	20	8 12.6	19.3
415752 2000 <i>OB</i> ₂₂	16.9	X	104.86472	195.23524	154.50692	17.32044	0.5307520	0.21257029	2.7805733	20		

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
415761 2000 <i>SF</i> ₂₃	17.9	X	267.22634	312.90485	15.93497	13.25866	0.3883317	0.28500639	2.2868253	20	3 26.0	21.8
415762 2000 <i>SL</i> ₃₁	17.5	X	316.56395	6.95749	354.00980	6.49925	0.1340371	0.29456596	2.2370774	20	9 4.1	19.2
415763 2000 <i>SQ</i> ₆₉	17.0	X	287.34389	332.15763	39.55998	7.69480	0.1244199	0.29031395	2.2588676	20	7 27.7	19.5
415764 2000 <i>SD</i> ₇₀	16.4	X	77.24403	15.08635	16.06108	8.17113	0.2295642	0.21308232	2.7761170	20	—	—
415765 2000 <i>SM</i> ₁₂₉	16.3	X	124.00499	88.67683	290.21588	15.04351	0.2838956	0.22000655	2.7175590	20	2 13.4	20.7
415766 2000 <i>SG</i> ₁₇₄	17.3	X	271.56299	35.22222	311.75583	8.02326	0.2136085	0.28598368	2.2816125	20	5 6.4	20.6
415767 2000 <i>SZ</i> ₁₈₂	18.8	X	270.86252	349.17122	356.73054	4.69000	0.2398424	0.28649279	2.2789087	20	5 2.1	21.9
415768 2000 <i>SP</i> ₂₂₈	17.6	X	256.59602	21.31354	17.73413	5.74830	0.2069688	0.28804045	2.2707382	20	7 5.6	20.6
415769 2000 <i>SU</i> ₂₆₆	16.3	X	107.07316	183.96286	213.14452	8.88227	0.2939304	0.21786438	2.7353437	20	2 22.2	20.4
415770 2000 <i>SJ</i> ₃₄₂	18.1	X	277.50733	353.53134	19.84893	7.11817	0.1375341	0.28987977	2.2611226	20	7 9.8	20.8
415771 2000 <i>TT</i> ₂₆	17.8	X	253.99483	359.38374	43.15629	6.26503	0.2401259	0.28855552	2.2680352	20	7 2.3	20.9
415772 2000 <i>TX</i> ₆₇	17.9	X	273.46900	99.94623	273.06127	1.88297	0.2483137	0.28827081	2.2695283	20	6 12.8	20.6
415773 2000 <i>UQ</i> ₃₃	16.8	X	135.10350	309.82175	56.26994	14.19476	0.2998071	0.21771047	2.7366326	20	2 20.9	21.6
415774 2000 <i>UY</i> ₆₂	16.7	X	64.04753	147.58519	240.38435	8.55195	0.2681108	0.20961960	2.8066060	20	—	—
415775 2000 <i>UH</i> ₉₃	16.4	X	103.77023	120.49778	257.30581	8.20240	0.1960642	0.21404608	2.7677777	20	1 14.6	20.1
415776 2000 <i>VQ</i> ₁	17.7	X	205.46154	74.08631	48.83185	5.66666	0.3349431	0.28699115	2.2762697	20	8 25.8	21.7
415777 2000 <i>VR</i> ₆	17.6	X	215.78215	18.69351	44.78615	7.52601	0.2611008	0.28362469	2.2942462	20	6 20.1	21.4
415778 2000 <i>VG</i> ₁₉	16.5	X	110.42712	9.89601	38.54119	11.01268	0.2285898	0.21771579	2.7365881	20	3 10.9	20.6
415779 2000 <i>WA</i> ₃	15.7	X	112.88358	122.10681	259.65156	31.64589	0.3369101	0.21507509	2.7589424	20	2 2.6	20.6
415780 2000 <i>WO</i> ₁₀	17.8	X	175.61101	356.12870	84.57885	15.20430	0.4242349	0.27722240	2.3294345	20	6 11.1	22.3
415781 2000 <i>WY</i> ₁₀	16.2	X	111.29190	342.53068	101.86710	9.33829	0.0572589	0.21622354	2.7491645	20	4 3.1	20.1
415782 2000 <i>WP</i> ₁₄	17.4	X	274.46347	109.14671	269.03147	4.43340	0.1927291	0.28630344	2.2799133	20	6 30.8	19.8
415783 2000 <i>WM</i> ₂₇	18.4	X	239.61149	336.35632	56.60005	3.22537	0.1217543	0.28394199	2.2925367	20	6 8.2	21.8
415784 2000 <i>WS</i> ₅₁	17.2	X	114.97629	337.24957	61.12429	11.28591	0.2266493	0.21624345	2.7489958	20	3 3.9	21.5
415785 2000 <i>WH</i> ₇₄	17.2	X	243.21341	143.79263	280.61105	5.09854	0.1351297	0.28721364	2.2750940	20	8 2.3	20.0
415786 2000 <i>WT</i> ₉₃	16.7	X	81.32766	352.23361	70.97580	9.22203	0.2996305	0.21305890	2.7763205	20	3 4.7	20.3
415787 2000 <i>WK</i> ₁₃₉	17.4	X	273.52545	166.96471	245.82713	5.94610	0.1603184	0.29020813	2.2594167	20	8 24.2	19.9
415788 2000 <i>WZ</i> ₁₇₆	18.4	X	212.60305	299.25549	111.11355	2.53040	0.2510251	0.28160862	2.3051831	20	6 1.7	22.1
415789 2000 <i>WO</i> ₁₉₃	16.8	X	262.15004	359.15465	243.87560	8.63518	0.0239484	0.21821277	2.7324315	20	1 12.3	20.6
415790 2000 <i>XF</i> ₃	16.5	X	90.75380	36.53088	353.17364	8.98478	0.2668972	0.21265425	2.7798413	20	1 27.5	20.1
415791 2001 <i>AR</i> ₂₁	17.3	X	79.86573	128.07097	298.44353	11.09593	0.3523769	0.21204339	2.7851775	20	3 5.2	21.0
415792 2001 <i>AS</i> ₄₉	18.2	X	150.17895	202.96564	278.98147	5.61368	0.0784747	0.27618820	2.3352460	20	7 6.9	21.4
415793 2001 <i>BT</i> ₂	16.8	X	156.89437	49.01702	111.23087	24.98644	0.2471435	0.27968973	2.3157146	20	9 12.8	21.2
415794 2001 <i>BR</i> ₃₂	16.1	X	146.93603	78.45251	138.63120	27.03513	0.4741373	0.22881806	2.6473367	20	11 8.3	22.1
415795 2001 <i>CE</i> ₄₉	17.1	X	136.08503	239.65619	312.98348	22.91060	0.1902149	0.28091436	2.3089796	20	9 15.8	21.3
415796 2001 <i>DD</i> ₁₀₂	17.4	X	170.96730	62.59227	98.03379	6.97564	0.2150746	0.28115992	2.3076350	20	9 21.6	21.2
415797 2001 <i>EP</i> ₁₈	16.9	X	182.15648	196.27585	345.96008	20.76169	0.1648747	0.28514869	2.2860644	20	10 18.8	20.7
415798 2001 <i>FB</i> ₁₅₀	16.7	X	46.14792	162.58657	358.24853	21.96988	0.2157228	0.26090882	2.4255499	20	4 15.7	19.2
415799 2001 <i>FY</i> ₁₉₃	16.2	X	37.45438	101.45321	96.04782	14.88729	0.2884323	0.21159104	2.7891457	20	6 18.9	19.0
415800 2001 <i>FA</i> ₂₀₄	18.3	X	213.21185	83.18077	289.41844	0.38828	0.1984139	0.26395696	2.4068405	20	4 17.1	22.2
415801 2001 <i>FF</i> ₂₀₅	17.0	X	342.64197	69.21591	12.53144	1.19583	0.0447678	0.18950813	3.0018166	20	—	—
415802 2001 <i>JT</i> ₂	17.3	X	328.87548	231.79449	58.90831	43.38594	0.3321712	0.31058224	2.1594922	20	5 9.3	19.1
415803 2001 <i>MY</i> ₂₅	17.5	X	184.31244	73.76013	230.62864	16.59364	0.3315932	0.23767103	2.5811815	20	1 6.5	22.5
415804 2001 <i>OW</i> ₁₅	17.0	X	127.01844	32.96241	335.78317	7.57379	0.2312066	0.23340217	2.6125591	20	2 3.2	20.8
415805 2001 <i>OW</i> ₂₂	17.2	X	97.18006	135.56631	244.11842	19.92789	0.0780614	0.38586123	1.8685955	20	—	—
415806 2001 <i>PS</i>	16.5	X	187.35298	187.52669	182.11975	7.63064	0.2900448	0.24210967	2.5495368	20	3 25.1	21.0
415807 2001 <i>PH</i> ₂₄	16.1	X	164.74820	41.07986	345.80729	15.30934	0.2602431	0.23881532	2.5729297	20	3 24.9	20.6
415808 2001 <i>PY</i> ₃₀	16.8	X	124.45187	259.50857	125.41891	26.72791	0.3384556	0.23282164	2.6169001	20	3 5.5	21.4
415809 2001 <i>PX</i> ₃₁	16.6	X	252.45205	278.80641	35.65841	10.49272	0.2135593	0.24576725	2.5241784	20	3 15.4	20.7
415810 2001 <i>PD</i> ₃₇	16.5	X	207.14592	314.75874	6.93529	13.68378	0.1081381	0.23932146	2.5693008	20	2 17.4	20.6
415811 2001 <i>PK</i> ₄₉	17.6	X	168.11869	99.42956	222.36178	14.95689	0.4047417	0.23285492	2.6166508	20	1 18.9	22.9
415812 2001 <i>PT</i> ₅₂	16.6	X	136.63953	348.05319	17.30047	6.58979	0.2519254	0.23351945	2.6116843	20	2 11.6	20.8
415813 2001 <i>PT</i> ₆₅	16.2	X	111.14320	121.29710	280.99062	20.51790	0.1887880	0.23045713	2.6347694	20	2 12.0	20.2
415814 2001 <i>PQ</i> ₆₇	17.0	X	215.93603	320.61434	16.75523	11.49850	0.2755361	0.24210320	2.5495823	20	3 10.3	21.6
415815 2001 <i>QY</i> ₄₈	17.4	X	197.86544	20.20892	326.02237	1.91475	0.2324977	0.24055371	2.5605190	20	3 4.3	21.7
415816 2001 <i>QT</i> ₇₁	17.3	X	177.28445	160.65886	164.38789	12.39578	0.1995613	0.23602362	2.5931784	20	1 21.6	21.8
415817 2001 <i>QW</i> ₈₉	17.2	X	158.44554	68.94014	290.50937	15.28089	0.2727587	0.23342386	2.6123973	20	2 16.2	21.9
415818 2001 <i>QX</i> ₁₅₁	16.2	X	151.32103	82.13233	312.65394	27.67613	0.3622255	0.23422376	2.6064461	20	3 17.3	21.5
415819 2001 <i>QY</i> ₁₅₁	15.8	X	142.17372	110.20312	255.15709	28.71918	0.3041325	0.23094124	2.6310860	20	2 5.1	20.8
415820 2001 <i>QJ</i> ₁₅₄	16.9	X	195.00534	310.09745	13.63017	14.42617	0.1526884	0.23589820	2.5940975	20	2 9.9	21.3
415821 2001 <i>QS</i> ₁₆₆	16.7	X	194.28856	322.66753	10.53029	9.49627	0.1743969	0.23887397	2.5725086	20	2 18.2	21.0
415822 2001 <i>QG</i> ₁₇₀	16.0	X	178.79068	32.35457	293.57868	18.56108	0.2462174	0.23372974	2.6101175	20	1 25.6	20.5
415823 2001 <i>QE</i> ₁₇₂	16.4	X	144.31195	93.77226	298.69479	12.72548	0.1848427	0.23747463	2.5826045	20	3 7.4	20.7
415824 2001 <i>QD</i> ₁₈₆	16.6	X	163.19330	101.08214	263.80349	11.36037	0.2994731	0.23557334	2.5964818	20	2 27.1	21.5
415825 2001 <i>QL</i> ₂₃₉	16.9	X	211.80497	332.81782	344.52246	7.24260	0.2028022	0.23912206	2.5707289	20	2 11.9	21.2
415826 2001 <i>QK</i> ₂₄₅	16.6	X	177.51493	9.40930	358.27979	13.83199	0.2553674	0.23726727	2.5841090	20	3 15.9	21.1
415827 2001 <i>QX</i> ₂₅₃	16.9	X	110.03343	249.72628	114.99788	9.15594	0.1798593	0.22964291	2.6409937	20	1 2.3	20.2
415828 2001 <i>QL</i> ₂₆₆	16.4	X	173.38869	76.12738	279.21850	11.75694	0.2059768	0.23834905	2.5762842	20	2 19.7	20.9
415829 2001 <i>QJ</i> ₂₆₇	16.9	X	140.16359	207.75671	162.92928	14.23808	0.2819163	0.23353399	2.6115759	20	2 20.3	21.3
415830 2001 <i>RV</i> ₄	17.0	X	150.73473	40.36545	312.07306	7.18028	0.2013216	0.23320811	2.6140082	20	2 1.8	20.9
415831 2001 <i>RO</i> ₇	17.4	X	181.84022	347.33185	348.68308	0.55901	0.2097453					

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
415841 2001 RS ₁₅₀	18.2	X	339.21081	156.36148	164.15725	8.75328	0.2788520	0.30979403	2.1631536	20	8 21.6	18.3
415842 2001 SM ₇	17.4	X	139.66263	236.56307	153.45167	4.01617	0.1836563	0.23594435	2.5937593	20	3 6.5	21.3
415843 2001 SM ₁₈	16.6	X	127.57145	45.23591	5.91682	14.03793	0.1859882	0.23474017	2.6026220	20	3 21.4	20.6
415844 2001 SD ₆₀	16.9	X	161.69645	104.79289	241.89052	5.02471	0.3069446	0.23361861	2.6109452	20	2 9.1	21.7
415845 2001 SC ₆₅	16.8	X	124.76570	213.22201	196.20270	13.63770	0.2515201	0.23169992	2.6253394	20	3 21.4	21.0
415846 2001 SA ₆₉	16.6	X	145.97941	8.21885	44.18533	11.97585	0.2821116	0.23435938	2.6054405	20	4 17.5	21.1
415847 2001 SF ₇₄	16.7	X	173.20320	89.37611	256.29243	5.99927	0.2099463	0.23377942	2.6097478	20	2 11.3	21.1
415848 2001 SQ ₇₈	17.3	X	174.10026	45.19254	1.14426	2.16817	0.1871578	0.24138232	2.5546559	20	4 25.9	21.5
415849 2001 SR ₇₉	16.9	X	131.72392	81.24838	315.08987	7.83022	0.1922859	0.23643548	2.5901661	20	3 4.4	20.8
415850 2001 SA ₈₂	15.3	X	57.97626	32.84364	323.28065	8.60464	0.1381794	0.16845151	3.2470285	20	—	—
415851 2001 SH ₉₇	17.5	X	217.34483	352.05595	323.22628	3.74286	0.1139279	0.23771467	2.5808656	20	2 14.4	21.4
415852 2001 SN ₉₇	18.6	X	308.45863	12.81943	323.45296	2.63523	0.1540460	0.30640793	2.1790610	20	7 3.5	20.2
415853 2001 SM ₁₀₃	17.3	X	146.29776	48.42734	310.35186	5.22402	0.2973492	0.23189437	2.6238716	20	2 12.8	21.6
415854 2001 ST ₁₀₃	16.9	X	216.32342	333.75979	350.01643	4.35402	0.0674121	0.23777964	2.5803955	20	2 25.6	20.6
415855 2001 SA ₁₁₇	16.6	X	210.13626	347.36265	324.05122	10.91044	0.1565113	0.23740554	2.5831055	20	2 3.6	20.7
415856 2001 SB ₁₂₄	17.5	X	162.18809	85.18678	273.15042	3.42621	0.2374176	0.23535313	2.5981012	20	2 19.6	22.0
415857 2001 SM ₁₃₂	17.1	X	164.90256	10.50742	334.03007	3.96835	0.1633966	0.23327654	2.6134970	20	2 3.0	21.1
415858 2001 SA ₁₃₇	18.1	X	328.50355	27.46516	340.03651	2.12335	0.1729267	0.31216337	2.1521940	20	10 17.3	19.4
415859 2001 SE ₁₄₂	16.7	X	216.51737	305.64484	341.17323	11.03741	0.1618291	0.23444251	2.6048246	20	1 12.6	21.0
415860 2001 ST ₁₅₀	17.0	X	148.20256	25.34660	327.11541	3.15122	0.2216663	0.23116556	2.6293837	20	2 1.9	21.0
415861 2001 SO ₁₅₉	17.9	X	335.82375	6.62247	341.36877	5.02846	0.1653606	0.31080435	2.1584633	20	9 28.7	19.1
415862 2001 SV ₁₅₉	16.5	X	186.18235	127.21062	215.71474	11.88558	0.2088100	0.23509591	2.5999959	20	2 16.6	21.1
415863 2001 SQ ₁₆₄	17.7	X	124.21997	11.95243	15.36175	5.71296	0.2729341	0.23011243	2.6374000	20	2 28.5	21.8
415864 2001 SH ₁₇₂	17.2	X	205.03239	0.96511	9.27816	3.95379	0.1571303	0.24179776	2.5517289	20	4 8.8	21.3
415865 2001 SE ₁₇₃	18.5	X	305.16207	194.14901	166.65719	2.76826	0.1810282	0.30738508	2.1744405	20	8 2.8	19.9
415866 2001 SP ₁₉₄	15.5	X	186.88392	273.35507	359.38147	13.86388	0.1890716	0.17623575	3.1506975	20	—	—
415867 2001 SR ₁₉₆	15.6	X	95.73741	327.07519	0.75356	10.41992	0.0457540	0.16850483	3.2463436	20	—	—
415868 2001 SJ ₂₁₆	16.0	X	82.23789	211.38416	152.75641	2.94083	0.0950344	0.17148749	3.2085914	20	—	—
415869 2001 SD ₂₆₈	17.2	X	138.88919	207.52848	169.29206	3.53896	0.3143881	0.23098845	2.6307275	20	2 29.9	21.7
415870 2001 SA ₂₇₆	16.7	X	138.29232	103.21501	325.67451	28.39900	0.3639774	0.23499349	2.6007513	20	4 18.6	22.1
415871 2001 SM ₂₇₈	17.1	X	150.06822	112.98315	240.40766	5.22022	0.3583952	0.23123005	2.6288948	20	2 11.9	21.8
415872 2001 SN ₂₈₂	18.0	X	337.34537	298.72912	46.34432	3.18252	0.2301002	0.31175011	2.1540956	20	10 7.6	18.8
415873 2001 SY ₂₉₃	17.1	X	173.71736	321.46675	5.35062	9.65056	0.1647085	0.23258368	2.6186848	20	1 23.3	21.4
415874 2001 SZ ₂₉₅	17.3	X	131.19910	191.12495	205.75452	4.28154	0.1909298	0.23480072	2.6021746	20	3 5.6	21.2
415875 2001 SE ₂₉₇	17.1	X	139.34988	52.20375	340.60800	1.81724	0.1620170	0.23570097	2.5955444	20	3 7.0	21.0
415876 2001 SY ₃₀₂	17.4	X	138.55546	75.99464	344.76135	8.42604	0.1552640	0.23861761	2.5743507	20	4 6.6	21.4
415877 2001 SC ₃₁₂	16.5	X	224.00789	311.98946	336.63228	12.56967	0.2184095	0.23636951	2.5906480	20	1 20.4	21.1
415878 2001 SR ₃₂₃	16.5	X	191.94393	69.35979	233.22484	11.67562	0.1967903	0.23233344	2.6205648	20	1 7.1	21.0
415879 2001 SV ₃₂₄	17.0	X	161.60578	156.68986	229.16564	4.17715	0.2568456	0.23774098	2.5806752	20	3 23.6	21.4
415880 2001 SZ ₃₂₈	17.6	X	161.12342	236.89880	137.63462	1.58107	0.1874450	0.23728477	2.5839819	20	3 7.7	21.7
415881 2001 ST ₃₃₇	17.1	X	152.81766	18.73575	24.36269	3.37001	0.1638568	0.23833906	2.5763561	20	4 2.5	21.0
415882 2001 SJ ₃₄₀	15.6	X	320.23983	169.09339	218.44602	16.02560	0.1536488	0.15582350	3.4201678	20	9 15.3	20.0
415883 2001 SU ₃₅₃	17.2	X	195.68230	37.32123	299.65592	2.51191	0.1523125	0.23661610	2.5888478	20	2 19.8	21.4
415884 2001 TU	16.6	X	152.66506	113.97370	236.12415	27.88399	0.4002118	0.23227132	2.6210320	20	2 3.5	22.0
415885 2001 TG ₁₇	17.4	X	337.63382	326.68128	352.74143	7.70294	0.2309582	0.30760799	2.1733899	20	8 15.8	18.2
415886 2001 TY ₂₅	17.3	X	146.85199	358.06556	332.05328	4.06110	0.3024033	0.22866119	2.6485473	20	1 12.8	21.6
415887 2001 TV ₂₈	16.6	X	125.99311	206.84291	230.50625	13.06554	0.2356653	0.23432565	2.6056905	20	4 24.6	20.7
415888 2001 TD ₅₈	16.7	X	91.23024	162.58754	205.42695	12.71252	0.1006583	0.22337787	2.6901466	20	—	—
415889 2001 TJ ₈₅	17.0	X	157.64890	168.07874	214.69944	2.99865	0.2451300	0.23452914	2.6041830	20	3 16.9	21.4
415890 2001 TK ₉₀	17.2	X	158.40520	95.06644	261.68828	4.68636	0.2971984	0.23311188	2.6147275	20	2 17.9	21.9
415891 2001 TS ₉₂	17.3	X	174.99995	14.62874	2.91679	9.92898	0.2127460	0.23709342	2.5853721	20	3 23.8	21.5
415892 2001 TR ₉₇	16.4	X	161.53334	115.88357	215.87983	27.45829	0.2655935	0.23013873	2.6371990	20	1 15.7	21.5
415893 2001 TR ₉₉	17.0	X	175.00556	123.23398	220.59305	10.06310	0.2551252	0.23398418	2.6082250	20	2 11.2	21.7
415894 2001 TH ₁₄₀	16.8	X	204.42659	244.80746	67.52873	5.37651	0.2719914	0.23702490	2.5858703	20	1 31.9	21.6
415895 2001 TK ₁₄₅	16.9	X	100.71894	8.71556	68.69891	6.60652	0.2326383	0.23192586	2.6236341	20	4 2.8	20.6
415896 2001 TH ₁₈₁	17.9	X	129.31918	54.62414	353.70511	3.27064	0.2545255	0.23256493	2.6188255	20	3 25.3	22.0
415897 2001 TW ₁₈₅	17.5	X	128.54006	146.28679	262.17979	2.71548	0.1925682	0.23277838	2.6172244	20	3 17.5	21.5
415898 2001 TT ₁₉₂	16.7	X	133.78278	354.21748	26.30231	10.33121	0.3067537	0.22918518	2.6445088	20	3 5.2	21.2
415899 2001 TS ₁₉₈	17.0	X	136.47429	336.04491	73.55100	6.97077	0.3069445	0.23476451	2.6024422	20	4 9.4	21.5
415900 2001 TM ₂₀₆	16.9	X	173.18945	263.11309	124.24708	14.14833	0.2425526	0.23689266	2.5868325	20	4 10.1	21.6
415901 2001 TS ₂₁₅	16.8	X	138.14602	130.23879	235.22290	17.09259	0.2262892	0.22975111	2.6401644	20	2 2.0	21.3
415902 2001 TJ ₂₁₉	17.1	X	153.16966	197.84818	162.74086	4.31632	0.2302556	0.23202066	2.6229194	20	2 15.6	21.4
415903 2001 TB ₂₂₃	17.9	X	140.06193	67.93923	315.47859	2.96973	0.1956111	0.23245068	2.6196835	20	2 28.2	22.0
415904 2001 TZ ₂₂₇	16.5	X	191.30795	70.33329	296.25729	13.29575	0.3336973	0.24104586	2.5570326	20	3 17.5	21.6
415905 2001 TU ₂₆₂	17.1	X	128.55074	186.38760	200.79874	13.60624	0.1635612	0.23301453	2.6154558	20	2 14.4	21.1
415906 2001 TW ₂₆₂	16.5	X	105.07599	230.18325	226.24416	7.41879	0.1062612	0.23723050	2.5843760	20	4 9.9	20.1
415907 2001 UU ₂₁	16.6	X	86.21484	198.97335	223.28486	12.25079	0.2711552	0.22928714	2.6437248	20	2 22.6	20.1
415908 2001 UP ₂₃	16.4	X	133.83373	55.06422	341.83798	11.37590	0.1843237	0.23289349	2.6163619	20	3 8.2	20.4
415909 2001 UL ₂₈	17.4	X	148.86409	349.61419	40.25132	6.33752	0.3292176	0.23434998	2.6055102	20	3 26.5	22.0
415910 2001 UB ₂₉	17.0	X	186.01983	321.63416	43.57576	7.37976	0.2868107	0.23773310	2.5807323	20	3 21.9	21.8
415911 2001 UY ₄₁	16.8	X	120.96254	2.83550	58.05856	4.46410	0.2187353	0.23237699	2.6202373	20	3 31.5	20.8
415912 2001 UH ₆₂	17.1	X	175.49940	9.72559	23.94245	8.43112	0.1646559	0.23803483	2.5785509	20	4 11.7	21.0
415913 2001 UQ ₆₃	18.2	X	325.18224	5.67809	333.19994	1.61932	0.2371548	0.30774494	2.1			

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>		
415921	2001	UK ₁₆₀	17.0	X	152.63832	314.21778	51.15523	13.84775	0.2993879	0.23109740	2.6299007	20	3 4.0	21.8
415922	2001	UV ₁₈₇	16.5	X	264.63294	286.34271	35.49652	14.61833	0.0186609	0.23993385	2.5649271	20	4 25.9	19.8
415923	2001	US ₁₉₀	17.2	X	145.35875	98.52472	9.99037	12.55874	0.2646991	0.24209278	2.5496554	20	6 21.6	21.9
415924	2001	UD ₁₉₈	18.7	X	345.14092	23.18840	302.52821	1.88946	0.2101940	0.30988875	2.1627127	20	9 16.9	19.8
415925	2001	UG ₂₁₀	17.4	X	141.77902	168.78225	212.91076	3.21148	0.1223337	0.23326547	2.6135797	20	2 19.8	21.3
415926	2001	UA ₂₁₄	17.7	X	98.77023	238.11813	188.02496	4.58238	0.1534642	0.23032630	2.6357670	20	3 1.3	21.2
415927	2001	UG ₂₁₅	18.5	X	262.27010	9.41625	209.08621	21.83356	0.0102955	0.38386698	1.8750616	20	—	—
415928	2001	UZ ₂₂₈	17.2	X	153.59144	263.34761	48.63672	11.49973	0.1115344	0.22612856	2.6682863	20	—	—
415929	2001	VV ₄₈	16.5	X	91.18992	161.17415	269.94872	7.74638	0.3063665	0.22530109	2.6748156	20	3 17.9	20.3
415930	2001	VL ₄₉	16.7	X	127.73473	140.18418	249.98078	11.20807	0.3035936	0.23122420	2.6289391	20	3 1.6	21.3
415931	2001	VQ ₅₈	15.8	X	173.73399	91.60052	251.78007	13.45892	0.1347499	0.23074918	2.6325458	20	2 2.7	20.1
415932	2001	VS ₆₈	16.2	X	122.65018	123.21094	272.96706	11.76696	0.2610816	0.22991301	2.6389248	20	2 28.6	20.5
415933	2001	VV ₇₈	18.0	X	27.69686	191.16566	247.34382	18.60644	0.0817803	0.37847260	1.8928364	20	—	—
415934	2001	VG ₁₀₃	16.8	X	91.46867	151.43879	245.86490	11.93600	0.1637528	0.22439105	2.6820427	20	1 14.6	20.3
415935	2001	VF ₁₁₂	17.3	X	148.04216	24.57879	343.84813	2.04148	0.3118055	0.23065359	2.6332731	20	2 27.1	21.9
415936	2001	WP ₅	16.7	X	135.20320	340.81239	71.99070	15.08656	0.2818513	0.23320503	2.6140312	20	4 14.4	21.3
415937	2001	WB ₆	17.5	X	121.56674	205.15297	225.92271	3.98876	0.2666586	0.23296260	2.6158444	20	4 16.2	21.7
415938	2001	WA ₉	17.3	X	128.27746	294.10973	90.13062	5.85458	0.3105708	0.22925472	2.6439741	20	3 3.9	21.6
415939	2001	WH ₁₁	17.6	X	153.40136	298.61969	84.71197	6.69056	0.3002776	0.23317945	2.6142224	20	3 21.8	22.3
415940	2001	WC ₂₁	17.1	X	148.73585	107.79435	250.74136	5.07895	0.2272943	0.22974197	2.6402344	20	2 7.9	21.5
415941	2001	WK ₄₁	15.7	X	153.54836	131.35438	248.86031	13.11024	0.3506000	0.22987158	2.6392419	20	3 11.9	20.9
415942	2001	WW ₄₁	16.7	X	175.86986	301.55136	39.92578	14.11546	0.2731418	0.23387287	2.6090525	20	2 8.8	21.5
415943	2001	WM ₅₄	16.7	X	163.43659	300.68852	30.93631	8.29074	0.1995959	0.22954417	2.6417509	20	2 2.2	21.1
415944	2001	WY ₅₆	17.2	X	95.33009	34.85084	47.91749	4.71796	0.2047427	0.22990158	2.6390123	20	3 29.0	20.7
415945	2001	WQ ₉₁	16.1	X	152.01731	314.83331	42.87886	12.41423	0.2075745	0.22837409	2.6507666	20	2 15.9	20.6
415946	2001	WD ₉₆	17.4	X	138.42847	280.80674	66.00671	4.73361	0.3486312	0.22667100	2.6640277	20	1 30.3	22.0
415947	2001	WS ₉₇	16.4	X	218.24114	249.40417	82.94913	13.00051	0.2375308	0.23786479	2.5797797	20	3 10.1	21.1
415948	2001	WE ₁₀₂	17.3	X	122.82006	26.83948	33.74642	6.70211	0.2073298	0.23084722	2.6318004	20	3 31.6	21.3
415949	2001	XY ₁₀	19.3	X	354.36075	219.67428	92.94154	30.99483	0.3872883	1.21117025	0.8716308	20	—	—
415950	2001	XZ ₁₃	16.4	X	61.44258	169.15288	290.06613	12.98510	0.2088520	0.22418512	2.6836849	20	2 22.1	19.4
415951	2001	XU ₁₇	16.7	X	124.49957	126.03676	282.97707	10.81565	0.2919246	0.22916063	2.6446978	20	3 20.1	21.3
415952	2001	XG ₃₁	17.6	X	69.97383	260.78657	91.72746	24.30668	0.0999160	0.37331488	1.9102308	20	—	—
415953	2001	XM ₃₁	17.6	X	119.25430	277.59199	113.12417	24.82073	0.1958063	0.38381765	1.8752223	20	1 24.3	18.9
415954	2001	XZ ₃₈	16.7	X	97.85169	39.69365	45.77450	14.04750	0.2391488	0.22840108	2.6505578	20	4 11.9	20.5
415955	2001	XY ₃₉	15.1	X	298.33937	249.80278	281.22881	28.55886	0.3401225	0.21212057	2.7845019	20	—	—
415956	2001	XY ₇₅	17.2	X	158.35033	273.84364	96.99044	6.09503	0.3041831	0.23311566	2.6146993	20	3 10.2	21.9
415957	2001	XG ₁₀₂	16.6	X	140.55048	344.37186	51.50075	15.34773	0.1913284	0.23289606	2.6163427	20	3 23.1	21.0
415958	2001	XO ₁₀₃	17.6	X	61.43452	100.36052	261.81225	19.43713	0.0963082	0.37204783	1.9145654	20	—	—
415959	2001	XP ₁₁₀	17.0	X	103.55761	336.73490	95.78913	5.55951	0.2075240	0.23068394	2.6330422	20	3 27.3	20.7
415960	2001	XV ₁₁₂	16.2	X	153.82068	136.88158	245.61201	12.52601	0.2710676	0.23092541	2.6312063	20	3 10.7	21.0
415961	2001	XK ₁₃₇	16.1	X	136.94303	195.24960	254.34105	21.26689	0.0472647	0.23538988	2.5978308	20	5 2.2	19.9
415962	2001	XL ₁₃₉	16.5	X	93.24207	34.97598	83.80741	14.59279	0.1307567	0.23206865	2.6225578	20	5 5.3	20.2
415963	2001	XN ₁₄₂	17.0	X	74.05904	223.97898	248.65015	12.73097	0.2176300	0.22815514	2.6524622	20	4 4.2	20.4
415964	2001	XE ₁₈₂	16.8	X	73.02618	199.41995	271.27920	12.71750	0.2293443	0.22556690	2.6727139	20	3 31.1	20.4
415965	2001	XA ₂₀₆	16.6	X	74.75673	30.38603	92.18675	14.72262	0.2039451	0.22952998	2.6418598	20	4 28.4	20.1
415966	2001	XY ₂₁₄	15.8	X	20.39948	276.08475	292.78696	23.96921	0.2832926	0.22713984	2.6603606	20	5 21.5	18.4
415967	2001	XG ₂₁₈	16.6	X	71.42990	201.72671	249.24148	13.13281	0.1603375	0.22765366	2.6563561	20	2 19.2	20.1
415968	2001	XO ₂₁₈	17.2	X	106.03511	172.07247	254.75119	12.70230	0.2539650	0.22968668	2.6406581	20	3 19.9	21.4
415969	2001	XJ ₂₂₁	16.8	X	140.60731	125.90438	250.20171	10.56887	0.2193239	0.23011315	2.6373945	20	2 18.0	21.2
415970	2001	XW ₂₂₄	16.2	X	144.15063	78.26030	257.37467	25.96969	0.2308097	0.22454775	2.6807948	20	1 5.8	20.7
415971	2001	XF ₂₂₈	16.9	X	139.10183	147.89644	260.43449	16.59965	0.1593364	0.23145148	2.6272178	20	3 17.9	21.3
415972	2001	XH ₂₄₈	17.8	X	109.89324	175.13653	282.76933	4.18279	0.2752444	0.22989780	2.6390412	20	5 9.4	22.0
415973	2001	XM ₂₆₂	16.3	X	52.83070	245.27629	241.75200	11.16214	0.0769567	0.22963059	2.6410881	20	2 28.9	19.8
415974	2001	YV ₁	17.6	X	331.66800	104.38070	84.81749	23.48531	0.2029919	0.38113399	1.8840149	20	—	—
415975	2001	YS ₂	17.1	X	149.78394	272.64993	249.12545	21.78156	0.2586529	0.29763766	2.2216593	20	8 22.8	21.5
415976	2001	YU ₂₉	16.8	X	125.66931	96.48496	272.35334	3.41248	0.1689565	0.22487225	2.6782152	20	1 24.6	20.5
415977	2001	YZ ₇₁	15.7	X	336.33484	241.70693	296.26914	11.91703	0.2987615	0.21724743	2.7405198	20	—	—
415978	2001	YL ₇₃	16.4	X	72.50547	189.25915	284.72663	10.90636	0.1444555	0.22607017	2.6687458	20	3 21.2	20.0
415979	2001	YX ₈₂	16.7	X	143.26873	132.41803	300.72887	10.47957	0.1667423	0.23185649	2.6241574	20	4 26.6	21.1
415980	2001	YZ ₉₀	17.5	X	201.45056	55.01291	89.95216	6.24945	0.3004704	0.30091356	2.2055059	20	9 23.8	21.2
415981	2001	YK ₉₈	17.9	X	135.02863	188.87230	241.49198	4.76133	0.3006441	0.23298675	2.6156637	20	4 29.3	22.5
415982	2001	YN ₉₉	17.5	X	111.20264	193.73423	240.12363	2.66664	0.2550748	0.22925614	2.6439631	20	4 8.5	21.5
415983	2001	YB ₁₁₆	17.8	X	0.13278	213.68642	299.57411	17.50476	0.0856088	0.37939747	1.8897590	20	—	—
415984	2001	YH ₁₃₃	15.8	X	33.81652	277.39560	269.02164	27.11865	0.2195182	0.23103342	2.6303862	20	5 10.2	18.8
415985	2001	YH ₁₃₄	16.6	X	158.66095	124.04882	291.47070	10.31720	0.1621016	0.23475783	2.6024916	20	4 18.6	21.0
415986	2002	AT ₅	18.1	X	69.91863	179.84236	332.69934	25.79640	0.5420225	0.22552185	2.6730698	20	7 19.9	22.8
415987	2002	AE ₉	19.0	X	79.25787	129.18698	127.47325	37.89272	0.4362038	0.82913235	1.1221566	20	—	—
415988	2002	AU ₁₅	17.6	X	71.59163	1.55958	119.30508	34.82696	0.0331527	0.38930520	1.8575588	20	3 6.6	19.9
415989	2002	AC ₁₉	16.4	X	152.03170	13.77550	26.15482	12.78438	0.1649804	0.23048102	2.6345873	20	3 31.4	20.6
415990	2002	AJ ₂₁												