

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>		
444001	2003	YN <sub>80</sub>	16.1	X	20.21821	97.12100	301.35442	13.98347	0.1320647	0.23398037	2.6082533	20	—	—
444002	2003	YG <sub>117</sub>	16.3	X	40.18879	332.10217	77.97681	12.90494	0.1355106	0.23925191	2.5697987	20	—	—
444003	2003	YY <sub>120</sub>	16.0	X	184.35488	219.59024	313.07733	28.51067	0.2136278	0.21659401	2.7460288	20	9 20.1	21.2
444004	2004	AS <sub>1</sub>	20.5	X	191.14119	262.08294	322.54529	17.21545	0.1744381	0.88982492	1.0705320	20	—	—
444005	2004	BA <sub>65</sub>	16.8	X	281.95515	164.52219	312.62258	12.26280	0.1008246	0.22752933	2.6573237	20	12 6.1	20.2
444006	2004	BF <sub>91</sub>	16.6	X	282.02583	175.19090	312.54794	7.32577	0.1725341	0.22718705	2.6599920	20	12 12.8	19.5
444007	2004	BU <sub>99</sub>	17.1	X	205.87291	165.74797	359.37852	9.38026	0.2070535	0.21629287	2.7485771	20	10 15.2	21.6
444008	2004	BE <sub>126</sub>	16.7	X	17.48915	282.16372	117.10510	13.10366	0.1755209	0.23356747	2.6113263	20	—	—
444009	2004	BK <sub>144</sub>	17.5	X	10.18503	301.23607	115.14864	3.54657	0.0982797	0.23258947	2.6186413	20	—	—
444010	2004	CO <sub>12</sub>	18.0	X	354.53681	108.49301	315.72524	3.74540	0.2643457	0.23343299	2.6123291	20	—	—
444011	2004	CY <sub>27</sub>	16.6	X	186.45242	218.10255	325.24019	10.64777	0.1702779	0.21913222	2.7247828	20	10 19.8	21.2
444012	2004	CB <sub>89</sub>	17.4	X	34.29707	317.15497	105.35316	8.14795	0.2907789	0.24026169	2.5625933	20	—	—
444013	2004	DM <sub>8</sub>	17.6	X	33.03275	209.78757	337.05735	6.12318	0.0528236	0.31327259	2.1471108	20	4 15.5	19.7
444014	2004	DW <sub>11</sub>	17.2	X	11.94556	130.19256	315.59294	5.33469	0.3258787	0.23791409	2.5794232	20	—	—
444015	2004	DH <sub>54</sub>	17.2	X	242.56139	103.47471	26.81712	1.25122	0.0488952	0.21957662	2.7211051	20	11 3.9	20.9
444016	2004	EQ <sub>60</sub>	16.9	X	270.59202	120.74375	11.38820	13.33123	0.1722787	0.22340135	2.6899581	20	11 24.3	20.3
444017	2004	ER <sub>92</sub>	16.7	X	19.66864	26.97748	340.41780	5.66616	0.0772120	0.21906398	2.7253486	20	12 8.6	20.2
444018	2004	EU <sub>95</sub>	7.0	X	28.88219	127.32630	65.62428	2.82071	0.0457256	0.00334000	44.3239644	20	5 5.0	23.3
444019	2004	FJ <sub>94</sub>	18.1	X	250.53519	36.39949	185.04312	6.24870	0.1808970	0.29026400	2.2591267	20	—	—
444020	2004	FU <sub>94</sub>	17.9	X	227.66479	68.54198	142.38600	4.28941	0.1736101	0.28643235	2.2792292	20	—	—
444021	2004	FL <sub>131</sub>	16.2	X	315.53313	120.73395	35.53510	31.74322	0.2587775	0.23122672	2.6289200	20	—	—
444022	2004	FP <sub>149</sub>	16.7	X	207.95429	330.90566	199.67097	12.46516	0.1270009	0.21793605	2.7347439	20	11 4.1	20.8
444023	2004	GH <sub>13</sub>	17.1	X	269.82325	301.99019	296.84954	7.77669	0.1148609	0.29452653	2.2372771	20	—	—
444024	2004	GD <sub>14</sub>	16.8	X	190.44406	234.22813	41.91871	22.95406	0.2452486	0.28399853	2.2922324	20	—	—
444025	2004	HJ <sub>79</sub>	6.9	X	268.16005	277.35022	45.30538	3.31691	0.0487977	0.00336010	44.1469834	20	5 5.5	23.4
444026	2004	JC <sub>44</sub>	17.7	X	195.43278	84.46717	175.69779	6.85543	0.2559778	0.28174562	2.3044358	20	—	—
444027	2004	KK <sub>14</sub>	15.8	X	120.64758	31.47670	213.67551	14.56538	0.0949500	0.20536101	2.8452737	20	11 5.5	20.2
444028	2004	LB <sub>10</sub>	17.0	X	305.09234	74.87825	276.83918	13.78409	0.3570321	0.18109002	3.0941381	20	6 8.3	20.9
444029	2004	NJ <sub>11</sub>	17.7	X	155.41694	309.38201	7.75457	2.43558	0.2547354	0.27694832	2.3309711	20	—	—
444030	2004	NI <sub>33</sub>	4.8	X	42.91911	39.65472	240.90044	31.22920	0.1559165	0.00340199	43.7838654	20	8 19.3	20.8
444031	2004	PQ <sub>16</sub>	17.1	X	148.68480	251.84069	77.96111	5.93526	0.2947434	0.27685132	2.3315156	20	1 7.3	20.7
444032	2004	PE <sub>26</sub>	17.5	X	111.48412	4.09992	324.14792	23.76109	0.1839188	0.26954646	2.3734511	20	—	—
444033	2004	PE <sub>29</sub>	18.0	X	122.26494	61.97983	306.25817	5.02796	0.1826163	0.27664744	2.3326609	20	1 14.6	20.8
444034	2004	PH <sub>29</sub>	17.6	X	148.79402	31.06047	280.68954	3.23370	0.1773840	0.27480537	2.3430735	20	—	—
444035	2004	PL <sub>32</sub>	15.9	X	1.41530	169.49712	120.32317	12.81658	0.1640636	0.18326072	3.0696565	20	7 30.7	19.1
444036	2004	PH <sub>45</sub>	17.9	X	125.41484	313.18470	11.13235	4.07835	0.2344347	0.27047415	2.3680209	20	—	—
444037	2004	PG <sub>51</sub>	16.2	X	335.88125	341.51655	333.19732	17.50861	0.2736827	0.18246053	3.0786248	20	7 9.7	19.4
444038	2004	PC <sub>77</sub>	16.4	X	325.07359	211.66722	150.71499	20.10857	0.2723030	0.18497129	3.0507023	20	8 19.6	19.0
444039	2004	PJ <sub>83</sub>	15.8	X	9.39480	318.07293	354.86269	10.95604	0.1669984	0.18491049	3.0513710	20	9 16.6	19.3
444040	2004	PR <sub>111</sub>	15.8	X	313.14233	92.46178	286.91043	24.89726	0.2280985	0.18422134	3.0589762	20	8 11.9	19.5
444041	2004	PF <sub>114</sub>	18.4	X	104.03999	262.44923	105.02681	2.18132	0.2128673	0.27220735	2.3579585	20	—	—
444042	2004	PS <sub>114</sub>	17.7	X	114.73374	100.66272	245.90291	5.82057	0.1855161	0.27092099	2.3654165	20	—	—
444043	2004	QR <sub>5</sub>	17.2	X	349.08960	158.89198	167.38033	22.72649	0.0795988	0.37103626	1.9180436	20	10 1.8	18.6
444044	2004	QR <sub>10</sub>	17.5	X	152.39459	199.94320	121.06157	11.90636	0.2538690	0.27457286	2.3443960	20	—	—
444045	2004	QY <sub>26</sub>	18.2	X	298.32425	319.98651	349.90943	18.85862	0.0868145	0.36072935	1.9544407	20	5 1.1	20.5
444046	2004	QX <sub>28</sub>	16.5	X	301.12863	23.24133	328.89439	9.79953	0.0706353	0.17788296	3.1312169	20	7 19.4	20.8
444047	2004	RD <sub>30</sub>	18.0	X	119.78100	181.00767	175.86942	2.29349	0.2536966	0.27313196	2.3526340	20	1 6.9	21.0
444048	2004	RG <sub>42</sub>	16.5	X	317.84524	313.42888	20.53507	10.42746	0.2026652	0.17551165	3.1593573	20	7 3.1	20.3
444049	2004	RQ <sub>42</sub>	17.6	X	138.84062	53.51974	276.91243	1.02818	0.2340034	0.27233176	2.3572403	20	—	—
444050	2004	RY <sub>43</sub>	18.2	X	122.73724	139.94571	177.36230	0.96202	0.2000346	0.26888776	2.3773258	20	—	—
444051	2004	RP <sub>46</sub>	15.9	X	286.95544	18.27809	349.22536	14.95134	0.0955276	0.17741047	3.1367740	20	7 18.5	20.4
444052	2004	RA <sub>47</sub>	18.2	X	112.35823	214.48211	159.75962	2.20841	0.2054089	0.27321946	2.3521317	20	1 13.1	20.8
444053	2004	RK <sub>75</sub>	17.4	X	138.88408	163.24763	156.49444	6.24970	0.2409601	0.27077526	2.3662651	20	—	—
444054	2004	RC <sub>84</sub>	18.2	X	333.45097	292.72089	347.39362	17.83099	0.0752446	0.36053836	1.9550974	20	5 22.5	20.3
444055	2004	RU <sub>106</sub>	16.1	X	299.22736	139.45815	241.18252	4.81554	0.1836741	0.18111688	3.0938322	20	8 4.1	20.0
444056	2004	RG <sub>129</sub>	16.3	X	350.62034	328.96546	342.63779	9.43572	0.0598090	0.18031486	3.1029995	20	8 9.5	20.3
444057	2004	RH <sub>136</sub>	16.0	X	323.14992	18.65722	317.30025	16.92859	0.2076426	0.17917753	3.1161165	20	7 17.9	19.5
444058	2004	RH <sub>150</sub>	16.5	X	313.69479	342.25802	49.81915	1.05035	0.1806291	0.18469680	3.0537242	20	9 17.9	20.0
444059	2004	RO <sub>153</sub>	17.8	X	98.50271	128.78600	220.88200	8.01933	0.2280572	0.26771985	2.3842347	20	—	—
444060	2004	RU <sub>162</sub>	18.0	X	105.50625	174.63728	194.82954	5.28035	0.1712845	0.27151980	2.3619374	20	—	—
444061	2004	RK <sub>166</sub>	18.2	X	133.20428	349.59114	329.99433	0.54331	0.2055161	0.27165523	2.3611523	20	—	—
444062	2004	RQ <sub>167</sub>	17.6	X	138.16767	208.66466	134.24993	8.81253	0.2109308	0.27412395	2.3469548	20	1 4.2	20.8
444063	2004	RC <sub>179</sub>	17.2	X	132.97344	68.58105	257.02088	6.13202	0.2294192	0.27082647	2.3659668	20	—	—
444064	2004	RN <sub>182</sub>	16.0	X	322.47283	343.54121	345.38942	17.28511	0.1712472	0.17767146	3.1337013	20	7 12.8	19.9
444065	2004	RE <sub>184</sub>	16.8	X	273.91681	79.79372	302.48903	8.53552	0.2608489	0.17590768	3.1546137	20	6 22.0	21.4
444066	2004	RX <sub>213</sub>	16.6	X	129.84829	83.58069	245.53254	11.82518	0.2553907	0.26958973	2.3731972	20	—	—
444067	2004	RX <sub>218</sub>	15.8	X	284.94329	54.33004	355.40906	26.51865	0.1847144	0.17836484	3.1255746	20	8 30.8	20.0
444068	2004	RE <sub>226</sub>	17.8	X	127.30596	166.22433	182.53444	5.30821	0.2669116	0.27166377	2.3611028	20	1 6.8	21.1
444069	2004	RN <sub>228</sub>	16.3	X	252.82107	59.11564	2.41672	8.22870	0.1599435	0.17454273	3.1710387	20	8 2.1	21.0
444070	2004	RT <sub>241</sub>	16.8	X	9.06184	126.69138	174.95441	1.02682	0.1616499	0.18282879	3.0744894	20	8 30.2	20.1
444071														

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
444081 2004 SO <sub>3</sub>	18.5	X	284.50728	147.73135	190.32313	21.33811	0.0668572	0.36093594	1.9536614	20	6 9.5	21.0
444082 2004 SB <sub>21</sub>	16.7	X	133.58691	260.00901	35.27275	21.98316	0.2559665	0.26630805	2.3926537	20	—	—
444083 2004 SY <sub>23</sub>	17.6	X	352.06266	252.72226	186.06024	4.86956	0.1976141	0.25778590	2.4450999	20	—	—
444084 2004 SC <sub>24</sub>	16.8	X	343.70011	290.07496	20.66079	12.26518	0.3658738	0.17975319	3.1094600	20	7 17.9	19.1
444085 2004 SU <sub>39</sub>	16.1	X	290.12715	346.06318	18.06961	15.83339	0.2602161	0.17489623	3.1667644	20	6 17.1	20.7
444086 2004 SV <sub>46</sub>	15.8	X	303.49766	2.73668	350.84946	12.40694	0.1249833	0.17632302	3.1496578	20	7 19.1	20.0
444087 2004 SY <sub>46</sub>	15.9	X	286.97579	136.94218	267.89870	8.88611	0.1969365	0.17832893	3.1259943	20	8 13.1	20.1
444088 2004 SO <sub>51</sub>	16.2	X	286.96067	353.42712	13.20507	15.55699	0.2766976	0.17502102	3.1652589	20	6 13.2	20.9
444089 2004 SH <sub>58</sub>	17.3	X	122.30056	331.54949	24.20100	7.52100	0.2344994	0.27040355	2.3684331	20	1 7.6	20.5
444090 2004 TW <sub>10</sub>	17.7	X	232.36516	117.67486	263.31007	17.12412	0.0938913	0.35789236	1.9647220	20	5 23.8	20.0
444091 2004 TG <sub>14</sub>	17.8	X	107.92672	297.07766	41.98577	7.41621	0.2516442	0.26619231	2.3933472	20	—	—
444092 2004 TX <sub>23</sub>	17.8	X	147.66374	2.37456	295.86118	1.64032	0.2022905	0.26858169	2.3791315	20	—	—
444093 2004 TV <sub>25</sub>	15.9	X	145.59295	300.72605	203.39771	9.05056	0.0339931	0.17345987	3.1842222	20	7 20.9	20.7
444094 2004 TA <sub>29</sub>	17.5	X	278.04779	170.89597	23.42265	8.11456	0.0649636	0.26930962	2.3748425	20	—	—
444095 2004 TF <sub>33</sub>	18.5	X	38.87923	118.44427	318.37457	1.53670	0.1915154	0.26578230	2.3958080	20	—	—
444096 2004 TE <sub>34</sub>	16.5	X	292.14317	185.08891	204.18632	9.36229	0.1444489	0.17748124	3.1359401	20	8 8.8	20.8
444097 2004 TX <sub>34</sub>	16.0	X	282.38911	357.51773	32.03671	3.70792	0.1742713	0.17604177	3.1530116	20	7 25.7	20.2
444098 2004 TC <sub>36</sub>	16.1	X	247.60862	86.77375	20.13704	15.26495	0.2285718	0.18045966	3.1013394	20	9 16.0	20.9
444099 2004 TG <sub>36</sub>	17.1	X	296.97295	117.14491	256.22836	0.28524	0.2041627	0.17613421	3.1519083	20	7 19.9	21.2
444100 2004 TQ <sub>40</sub>	16.9	X	300.55410	137.10984	234.18008	0.36801	0.2014546	0.17693936	3.1423394	20	7 23.3	20.6
444101 2004 TY <sub>40</sub>	18.0	X	136.87119	121.27215	193.79564	3.08000	0.1046296	0.26674918	2.3900151	20	—	—
444102 2004 TJ <sub>49</sub>	18.0	X	53.95313	347.21090	52.10607	2.82414	0.2316477	0.26303311	2.4124729	20	—	—
444103 2004 TG <sub>51</sub>	18.1	X	53.33570	82.38146	306.00728	1.57994	0.1993296	0.26085310	2.4258953	20	—	—
444104 2004 TZ <sub>56</sub>	16.8	X	292.77441	171.05645	209.44880	5.69444	0.2674556	0.17649527	3.1476082	20	7 11.6	20.9
444105 2004 TR <sub>59</sub>	16.8	X	312.08325	308.52896	76.38494	1.88740	0.1698925	0.18148473	3.0896502	20	9 6.2	20.4
444106 2004 TX <sub>68</sub>	16.4	X	282.52022	29.75240	33.65863	14.27777	0.2869162	0.18010880	3.1053658	20	8 28.1	20.7
444107 2004 TF <sub>88</sub>	18.3	X	147.33936	135.90068	162.36350	2.75370	0.2217528	0.26855807	2.3792710	20	—	—
444108 2004 TQ <sub>92</sub>	16.5	X	333.89389	97.84255	228.62301	3.66756	0.1299802	0.17665830	3.1456713	20	7 23.5	19.8
444109 2004 TF <sub>111</sub>	16.1	X	270.55752	238.60121	208.14903	13.84465	0.3311861	0.18021404	3.1041567	20	8 24.1	20.8
444110 2004 TH <sub>112</sub>	16.0	X	337.97831	306.57467	28.47115	18.78579	0.2572818	0.17939907	3.1135506	20	8 24.1	19.3
444111 2004 TP <sub>119</sub>	16.0	X	287.04473	94.91826	293.39659	8.69576	0.0887028	0.17838112	3.1253845	20	8 9.7	20.1
444112 2004 TR <sub>119</sub>	16.1	X	326.74230	148.77013	222.27691	14.72156	0.2369415	0.18261957	3.0768371	20	9 2.9	19.5
444113 2004 TX <sub>121</sub>	18.0	X	96.41857	208.02099	145.20190	1.77594	0.2053762	0.26572487	2.3961532	20	—	—
444114 2004 TT <sub>132</sub>	15.9	X	323.38526	98.33627	234.33265	14.70571	0.2544997	0.17659456	3.1464283	20	7 1.4	19.4
444115 2004 TM <sub>143</sub>	15.8	X	30.02930	75.15329	215.62481	9.50861	0.0119384	0.17718515	3.1394326	20	8 27.8	20.4
444116 2004 TK <sub>151</sub>	16.2	X	278.99340	232.33623	207.32893	8.49050	0.1187472	0.18377148	3.0639662	20	9 30.8	20.2
444117 2004 TX <sub>156</sub>	16.7	X	314.53523	330.76272	27.63094	9.49913	0.1058013	0.17752798	3.1353895	20	8 15.3	20.8
444118 2004 TE <sub>159</sub>	17.7	X	54.75076	133.01368	230.65870	4.17833	0.1138478	0.25755171	2.4465819	20	—	—
444119 2004 TJ <sub>163</sub>	16.1	X	303.37906	163.84238	205.61112	8.84657	0.0811817	0.17491284	3.1665639	20	8 7.9	20.5
444120 2004 TW <sub>178</sub>	15.7	X	358.01556	294.01804	12.09177	9.68653	0.0894159	0.17904381	3.1176678	20	8 16.0	19.7
444121 2004 TO <sub>183</sub>	16.0	X	287.15037	154.42378	208.49555	15.45263	0.0793537	0.17329987	3.1861819	20	7 7.7	20.7
444122 2004 TZ <sub>193</sub>	16.4	X	259.41008	114.07758	279.95924	3.19172	0.1772708	0.17104889	3.2140740	20	6 30.9	21.0
444123 2004 TQ <sub>197</sub>	17.8	X	53.56314	198.07786	199.35305	6.16898	0.2094852	0.26299197	2.4127245	20	—	—
444124 2004 TR <sub>207</sub>	15.7	X	271.59067	335.15424	49.03177	15.65277	0.1776044	0.17016117	3.2252427	20	7 2.7	20.5
444125 2004 TF <sub>212</sub>	16.0	X	297.88638	11.19101	30.67438	29.33289	0.2128558	0.17896527	3.1185799	20	9 15.8	20.3
444126 2004 TT <sub>215</sub>	18.1	X	135.99693	72.95151	242.81446	2.48675	0.1424605	0.26709911	2.3879272	20	—	—
444127 2004 TW <sub>234</sub>	15.3	X	220.39069	72.57101	18.58078	18.50671	0.1197602	0.17122723	3.2118419	20	8 13.9	20.5
444128 2004 TY <sub>269</sub>	17.1	X	254.83444	296.50987	139.80744	2.42666	0.1582078	0.17672536	3.1448755	20	8 20.8	21.5
444129 2004 TM <sub>272</sub>	17.8	X	63.39194	162.99336	240.55993	4.32681	0.2256744	0.26419335	2.4054045	20	—	—
444130 2004 TZ <sub>310</sub>	15.8	X	328.09806	336.76714	19.26548	18.22423	0.2112395	0.17820275	3.1274698	20	9 1.5	19.3
444131 2004 TR <sub>334</sub>	16.9	X	255.63729	252.94857	172.65108	9.69690	0.2796835	0.17671849	3.1449571	20	7 22.3	21.9
444132 2004 TV <sub>343</sub>	16.0	X	296.89012	157.38190	223.54319	10.38392	0.0749235	0.17436908	3.1731436	20	8 12.9	20.4
444133 2004 TH <sub>344</sub>	18.1	X	32.66335	243.65697	180.96360	3.08850	0.2271390	0.26226707	2.4171682	20	—	—
444134 2004 TL <sub>366</sub>	17.8	X	22.56287	19.75185	33.26966	0.91878	0.2110489	0.25846183	2.4408351	20	—	—
444135 2004 UB <sub>11</sub>	17.8	X	78.36321	335.67125	63.22912	12.45842	0.2450118	0.26782119	2.3836332	20	—	—
444136 2004 VX <sub>1</sub>	17.3	X	97.39701	115.84120	294.70253	3.47019	0.2187112	0.27212101	2.3584572	20	2 12.3	19.8
444137 2004 VZ <sub>2</sub>	17.3	X	79.70568	172.52542	211.45699	5.52317	0.1234118	0.26445652	2.4038085	20	—	—
444138 2004 VE <sub>15</sub>	15.1	X	274.70985	291.56233	101.42224	18.77384	0.1592571	0.17114300	3.2128957	20	7 20.9	19.6
444139 2004 VK <sub>15</sub>	16.4	X	311.25272	277.17307	77.90550	6.27286	0.1555343	0.17398687	3.1777891	20	7 26.9	20.3
444140 2004 VR <sub>21</sub>	17.7	X	72.61225	354.60911	66.19006	4.17687	0.2186938	0.26742591	2.3859815	20	1 17.8	19.7
444141 2004 VX <sub>39</sub>	18.1	X	34.52083	280.52614	153.90405	1.43877	0.1894765	0.26230420	2.4169401	20	—	—
444142 2004 VO <sub>41</sub>	16.6	X	260.55094	343.48691	74.42534	1.87968	0.1934250	0.17264345	3.1942531	20	7 30.6	21.1
444143 2004 VT <sub>49</sub>	16.5	X	313.22733	169.23026	209.79810	10.23597	0.2135001	0.17695407	3.1421652	20	8 19.9	20.1
444144 2004 VO <sub>51</sub>	17.6	X	43.64302	269.85714	152.27172	3.21815	0.1488009	0.26244080	2.4161013	20	—	—
444145 2004 VC <sub>54</sub>	16.2	X	304.64203	116.47217	257.84217	14.17632	0.3393510	0.17737291	3.1372168	20	7 8.8	20.1
444146 2004 WO <sub>4</sub>	17.7	X	94.28766	267.80757	82.42263	2.73983	0.2153093	0.26201517	2.4187172	20	—	—
444147 2004 XZ <sub>14</sub>	17.9	X	97.02981	324.74103	63.95127	3.44606	0.2226163	0.26639812	2.3921144	20	1 15.7	20.4
444148 2004 XR <sub>47</sub>	17.8	X	46.22666	7.75234	21.56084	3.80294	0.1950987	0.25521042	2.4615223	20	—	—
444149 2004 YT	17.7	X	33.59447	127.58196	266.08490	1.63331	0.2138585	0.25669094	2.4520483	20	—	—
444150 2004 YW <sub>10</sub>	17.8	X	78.48330	147.02019	241.56998	5.21464	0.1493081	0.26346987	2.4098060	20	—	—
444151 2005 EE <sub>138</sub>	17.0	X	189.47032	128.22438	60.87890	6.67941	0.1978071	0.23014938	2.6371177	20	11 4.2	21.3
444152 2005 EF <sub>177</sub>	16.5	X	197.93839	195.23470	12.41283	21.89208	0.0429696	0.23228781	2.6209080	20	12 17.9	20.6
444153 2005 ET <sub>178</sub>	17.3	X	163.37725	21.73113	187.66530	7.51107	0.1371400	0.22919023	2.6444700	20	11 8.4	21.4
444154 2005 EY <sub>187</sub>	17.2	X	73.23979	264.51277	4.31134	3.54652	0.1843559	0.21802557	2.733			

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>		
444161	2005	GP <sub>125</sub>	16.6	X	149.74535	318.29875	212.35923	13.72685	0.1786725	0.21733536	2.7397806	20	9 2.7	21.4
444162	2005	GN <sub>129</sub>	16.8	X	158.92154	83.59266	89.18824	5.51584	0.0470670	0.21782492	2.7356740	20	9 21.2	20.7
444163	2005	GU <sub>173</sub>	18.0	X	239.97666	220.18413	49.83801	7.99034	0.2461248	0.31097330	2.1576814	20	—	—
444164	2005	JN <sub>4</sub>	16.8	X	218.20311	107.49210	114.60749	14.22168	0.0675387	0.23401602	2.6079884	20	—	—
444165	2005	JY <sub>47</sub>	17.3	X	37.41492	259.51687	56.68901	10.41307	0.2895763	0.21358480	2.7717613	20	11 27.0	21.0
444166	2005	JY <sub>78</sub>	16.7	X	146.15553	303.39693	233.66283	12.54573	0.1256293	0.21542459	2.7559576	20	9 4.9	21.3
444167	2005	JF <sub>89</sub>	16.3	X	97.58410	91.46055	236.22626	11.38345	0.1363678	0.22888097	2.6468516	20	—	—
444168	2005	JP <sub>97</sub>	17.1	X	316.43487	285.66038	175.31520	4.31493	0.1051356	0.23214236	2.6220026	20	—	—
444169	2005	JO <sub>106</sub>	17.0	X	69.81920	198.15660	105.36115	11.40863	0.2263928	0.21695527	2.7429797	20	12 9.3	21.3
444170	2005	JZ <sub>135</sub>	16.5	X	175.49933	36.60991	191.29557	14.09965	0.1832894	0.22985222	2.6393901	20	12 8.7	21.0
444171	2005	KC <sub>1</sub>	18.3	X	219.60620	129.87038	164.71603	5.37080	0.1940686	0.30964897	2.1638291	20	1 12.6	21.7
444172	2005	LO <sub>4</sub>	17.6	X	63.25039	75.34608	182.73167	5.90330	0.2772165	0.21128698	2.7918209	20	10 13.8	21.8
444173	2005	NE <sub>81</sub>	18.7	X	200.29056	208.65391	107.43667	2.53843	0.1855784	0.30388504	2.1911049	20	1 24.0	21.9
444174	2005	NZ <sub>104</sub>	16.8	X	64.39878	308.37039	278.81284	3.92451	0.0556274	0.19903521	2.9052451	20	8 1.9	20.7
444175	2005	OH <sub>5</sub>	17.8	X	213.04882	355.39986	300.21586	5.42049	0.2016485	0.30274872	2.1965841	20	1 10.2	21.4
444176	2005	OA <sub>20</sub>	17.6	X	167.16835	18.53735	324.85113	7.35533	0.2303854	0.29958649	2.2120141	20	2 1.5	20.9
444177	2005	QA <sub>1</sub>	18.4	X	196.14457	339.23845	315.24879	4.52313	0.2269017	0.29946123	2.2126309	20	—	—
444178	2005	QP <sub>1</sub>	16.6	X	89.63554	88.04999	213.28751	4.18284	0.1444610	0.21320953	2.7750127	20	12 16.2	21.0
444179	2005	QV <sub>40</sub>	17.3	X	3.82580	16.16598	315.04094	14.70806	0.2555093	0.20015996	2.8943513	20	10 7.0	20.6
444180	2005	QZ <sub>120</sub>	16.7	X	292.35868	86.42505	327.62031	5.74694	0.0552832	0.20019651	2.8939991	20	9 26.8	20.6
444181	2005	QY <sub>121</sub>	17.1	X	324.61897	35.60244	338.52524	11.03860	0.2147075	0.19722571	2.9229880	20	9 12.3	19.9
444182	2005	QB <sub>180</sub>	17.6	X	194.56041	241.43818	81.77137	5.96839	0.2366213	0.30051043	2.2074778	20	1 31.1	21.3
444183	2005	QH <sub>187</sub>	18.0	X	75.39408	184.96505	21.98197	4.60941	0.1317386	0.29065511	2.2570997	20	—	—
444184	2005	RY <sub>12</sub>	18.2	X	89.72342	42.46162	345.92513	8.49074	0.1256932	0.29109836	2.2548079	20	—	—
444185	2005	SR <sub>1</sub>	19.1	X	189.38183	135.86971	147.39059	3.26194	0.0988032	0.29763184	2.2216883	20	—	—
444186	2005	SC <sub>15</sub>	18.6	X	103.08457	199.53310	212.03399	2.93084	0.1437731	0.29429408	2.2384550	20	2 5.7	21.0
444187	2005	SH <sub>25</sub>	18.0	X	173.14653	271.90142	47.68594	4.08483	0.2133678	0.29577688	2.2309675	20	1 7.1	21.4
444188	2005	SN <sub>28</sub>	16.5	X	248.54315	70.36585	349.76947	9.04357	0.2026801	0.18705931	3.0279579	20	8 3.7	20.9
444189	2005	SR <sub>41</sub>	17.7	X	202.74445	306.04534	341.57495	5.29473	0.1871726	0.29419850	2.2389398	20	—	—
444190	2005	SF <sub>57</sub>	16.6	X	247.34294	70.49100	12.00599	9.34925	0.0485998	0.19300608	2.9654371	20	9 8.3	20.7
444191	2005	SF <sub>64</sub>	16.5	X	299.98308	164.96700	195.20272	8.73204	0.1144454	0.18752958	3.0228936	20	7 19.3	20.6
444192	2005	SW <sub>66</sub>	17.3	X	340.30544	311.75984	11.86359	4.64965	0.1141730	0.19049376	2.9914532	20	8 9.4	20.8
444193	2005	SE <sub>71</sub>	18.1	X	36.95776	78.26874	39.11898	24.83245	0.1944511	0.89105890	1.0695435	20	—	—
444194	2005	SM <sub>80</sub>	17.7	X	242.68986	248.08452	11.57379	7.91688	0.1537164	0.29718638	2.2239078	20	—	—
444195	2005	SQ <sub>90</sub>	17.9	X	199.89589	270.85655	27.01499	2.49325	0.1801933	0.29438133	2.2380127	20	1 2.1	21.2
444196	2005	SO <sub>93</sub>	17.7	X	92.01429	48.40298	20.60678	5.40654	0.1476972	0.29281837	2.2459694	20	2 18.3	20.0
444197	2005	SK <sub>108</sub>	18.6	X	165.26725	130.98368	196.41555	2.83228	0.2437573	0.29422410	2.2388099	20	1 11.4	22.2
444198	2005	SZ <sub>121</sub>	18.1	X	181.61322	19.59541	307.44277	2.54148	0.1963993	0.29241103	2.2227878	20	1 22.2	21.3
444199	2005	SQ <sub>146</sub>	17.1	X	266.61944	8.83126	29.02474	3.42518	0.1882489	0.18552499	3.0446295	20	7 14.0	21.4
444200	2005	SM <sub>156</sub>	16.9	X	16.24664	165.80382	167.17804	2.19798	0.0864372	0.19735778	2.9216838	20	10 17.9	20.7
444201	2005	SK <sub>181</sub>	17.7	X	323.92881	219.14689	267.81916	2.37986	0.0691733	0.28134389	2.3066289	20	—	—
444202	2005	SH <sub>233</sub>	16.2	X	159.41246	93.24050	33.30707	5.36746	0.1008312	0.17850649	3.1239209	20	7 20.7	21.1
444203	2005	SV <sub>235</sub>	17.0	X	352.05883	110.59697	218.13283	11.94034	0.1264252	0.19140419	2.9819596	20	8 31.0	20.7
444204	2005	SE <sub>252</sub>	17.7	X	148.79488	48.38743	347.74560	5.90347	0.1510532	0.30095503	2.2053032	20	3 14.2	20.6
444205	2005	SM <sub>285</sub>	15.9	X	251.51077	269.73842	180.60788	22.24666	0.0770808	0.19053590	2.9910121	20	9 15.6	20.2
444206	2005	SC <sub>291</sub>	17.6	X	297.71182	174.16189	212.60349	1.86040	0.1263558	0.18973325	2.9994417	20	8 20.4	21.2
444207	2005	SK <sub>293</sub>	16.1	X	354.19487	61.93148	270.80613	8.94876	0.1184428	0.19411047	2.9541785	20	9 8.9	19.7
444208	2005	TR <sub>34</sub>	17.1	X	13.36918	187.59431	148.97281	2.63638	0.0843910	0.19889242	2.9066354	20	10 18.9	20.7
444209	2005	TU <sub>54</sub>	18.0	X	113.02676	166.81179	217.86894	4.72414	0.1065474	0.29217658	2.2492572	20	1 8.2	20.6
444210	2005	TP <sub>57</sub>	17.5	X	252.33282	203.11438	34.20133	5.05599	0.0905205	0.28977228	2.2616817	20	—	—
444211	2005	TL <sub>58</sub>	17.7	X	293.45300	14.43726	40.64846	2.71157	0.1544635	0.19331457	2.9622815	20	9 19.4	21.1
444212	2005	TH <sub>68</sub>	16.9	X	8.84928	277.19275	34.79094	10.21688	0.2368682	0.19295360	2.9659748	20	9 28.6	20.0
444213	2005	TC <sub>78</sub>	17.8	X	302.15116	275.89707	84.27735	0.63478	0.2059967	0.18988818	2.9978100	20	7 11.2	21.2
444214	2005	TY <sub>78</sub>	17.4	X	285.17556	22.28963	25.89417	2.27178	0.1616197	0.19048347	2.9915610	20	8 26.5	21.2
444215	2005	TM <sub>83</sub>	18.1	X	120.73399	40.44401	351.13574	4.08825	0.1751756	0.29361937	2.2418828	20	2 9.8	20.9
444216	2005	TG <sub>87</sub>	18.2	X	27.90842	327.76481	140.10380	1.46588	0.1868758	0.28791369	2.2714046	20	—	—
444217	2005	TN <sub>112</sub>	18.0	X	344.72142	255.86349	209.66233	6.39973	0.0100376	0.28289734	2.2981770	20	—	—
444218	2005	TE <sub>119</sub>	16.7	X	21.59580	30.22958	280.43094	0.81500	0.0574878	0.19428284	2.9524310	20	9 21.6	20.5
444219	2005	TW <sub>120</sub>	17.1	X	313.55007	348.73817	40.31132	2.58785	0.1034302	0.19444012	2.9508386	20	9 23.1	20.6
444220	2005	TT <sub>122</sub>	17.3	X	352.51967	137.01670	171.32537	1.38192	0.1468592	0.18991997	2.9974754	20	8 8.1	20.7
444221	2005	TJ <sub>137</sub>	18.0	X	216.93962	248.43503	30.00432	5.84576	0.1953550	0.29638402	2.2279197	20	—	—
444222	2005	TM <sub>180</sub>	16.5	X	294.26937	203.07236	181.38525	10.32447	0.0832063	0.19007521	2.9958431	20	8 16.6	20.6
444223	2005	TN <sub>187</sub>	16.1	X	249.72938	202.91489	218.43886	8.86353	0.0294815	0.18651309	3.0338668	20	8 10.9	20.5
444224	2005	TO <sub>194</sub>	16.1	X	242.77267	157.40147	270.69275	12.72480	0.2048947	0.18435330	3.0575162	20	7 20.6	20.9
444225	2005	US <sub>5</sub>	18.5	X	250.48462	233.96018	196.61970	21.44075	0.1556233	0.38909850	1.8582166	20	8 27.4	20.6
444226	2005	UN <sub>6</sub>	17.8	X	11.05145	18.58872	234.96296	20.54838	0.0872841	0.37871683	1.8920226	20	6 28.4	19.4
444227	2005	UA <sub>32</sub>	15.9	X	285.57038	182.18184	216.35393	13.23770	0.1017493	0.18810449	3.0167312	20	8 16.9	20.2
444228	2005	UY <sub>42</sub>	16.5	X	295.40099	180.12493	199.37815	8.50874	0.0633158	0.18720321	3.0264060	20	8 13.4	20.7
444229	2005	UJ <sub>47</sub>	18.0	X	149.25532	127.55981	235.18772	4.14014	0.1971159	0.29425414	2.2386575	20	2 4.3	21.2
444230	2005	UH <sub>71</sub>	18.0	X	91.73559	139.47261	281.03619	5.60060	0.					

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>		
444241	2005	US <sub>144</sub>	16.8	X	354.15456	40.35317	285.44810	2.69896	0.1745064	0.19063033	2.9900243	20	9 5.5	20.0
444242	2005	US <sub>149</sub>	18.5	X	139.96601	104.88681	264.37398	1.50813	0.1737244	0.29222861	2.2489902	20	2 1.6	21.3
444243	2005	UU <sub>149</sub>	17.1	X	206.48807	110.65290	20.53230	2.49792	0.0842220	0.18873616	3.0099964	20	9 14.4	21.6
444244	2005	UD <sub>154</sub>	16.4	X	13.32815	52.59149	236.61126	9.78096	0.0332617	0.18241530	3.0791337	20	8 5.6	20.8
444245	2005	UF <sub>159</sub>	18.0	X	304.89494	146.86086	210.58505	20.83279	0.0644850	0.38719351	1.8643066	20	8 16.9	20.1
444246	2005	UG <sub>165</sub>	18.3	X	12.21310	62.63628	36.49546	5.85937	0.1172581	0.28201424	2.3029722	20	—	—
444247	2005	UA <sub>169</sub>	16.0	X	35.70292	35.74433	230.41642	15.49021	0.0324972	0.18352328	3.0667282	20	8 4.1	20.5
444248	2005	UM <sub>171</sub>	16.3	X	328.51041	106.39884	232.49712	9.26965	0.0704725	0.18482040	3.0523625	20	8 6.4	20.4
444249	2005	UA <sub>179</sub>	16.5	X	283.76183	186.77740	219.16492	9.49676	0.0962305	0.18722908	3.0261272	20	8 25.9	20.7
444250	2005	US <sub>183</sub>	18.9	X	90.55353	346.56269	45.86711	3.52422	0.2136884	0.28610405	2.2809725	20	1 3.5	20.8
444251	2005	UX <sub>191</sub>	17.3	X	295.98788	80.66524	322.61497	0.78938	0.1914254	0.18937877	3.0031834	20	8 31.2	20.7
444252	2005	UG <sub>193</sub>	17.0	X	351.12127	134.97870	201.12587	10.60858	0.0448500	0.19182706	2.9775757	20	9 7.8	21.1
444253	2005	UT <sub>195</sub>	17.0	X	43.61518	124.61479	178.11047	1.82016	0.1105205	0.19733714	2.9218876	20	10 20.5	20.8
444254	2005	UL <sub>206</sub>	17.4	X	284.97888	326.33723	77.06688	2.15448	0.1901709	0.19034721	2.9929884	20	8 15.2	21.2
444255	2005	UB <sub>212</sub>	17.4	X	340.78995	259.62735	82.44021	3.15515	0.1651697	0.18928072	3.0042205	20	9 4.3	20.6
444256	2005	US <sub>219</sub>	17.0	X	273.83276	143.54048	264.89880	4.20915	0.1590178	0.18721839	3.0262424	20	8 8.3	21.2
444257	2005	UG <sub>224</sub>	18.3	X	13.17296	94.43422	13.47743	4.64264	0.1159346	0.28359755	2.2943926	20	—	—
444258	2005	UU <sub>232</sub>	18.4	X	58.30857	210.56187	221.75227	6.70881	0.0711272	0.28561584	2.2835710	20	—	—
444259	2005	UT <sub>236</sub>	16.9	X	302.82461	190.77626	178.51454	4.84020	0.1490453	0.18566500	3.0430986	20	7 31.9	20.6
444260	2005	UA <sub>238</sub>	18.2	X	185.07741	126.95642	178.41427	5.27039	0.1190005	0.28785784	2.2716984	20	—	—
444261	2005	UX <sub>240</sub>	18.0	X	161.32980	165.70083	183.95021	6.14414	0.1255898	0.29202453	2.2500379	20	1 24.3	21.1
444262	2005	UX <sub>244</sub>	17.6	X	133.23270	22.77971	316.76940	3.93937	0.2391362	0.28609678	2.2810111	20	—	—
444263	2005	UD <sub>258</sub>	17.6	X	322.67518	189.26563	172.99948	2.30232	0.2120893	0.19047586	2.9916406	20	8 21.5	20.5
444264	2005	UU <sub>265</sub>	17.8	X	274.22803	247.75692	151.91723	1.87789	0.1621384	0.18443847	3.0565749	20	7 28.9	22.1
444265	2005	UT <sub>269</sub>	17.1	X	342.26318	294.09459	33.66110	15.54661	0.2124476	0.19107153	2.9854197	20	8 25.2	20.4
444266	2005	UD <sub>296</sub>	17.2	X	277.78590	10.63398	47.97799	2.51116	0.0904954	0.18864511	3.0109648	20	9 9.3	21.1
444267	2005	UT <sub>297</sub>	17.0	X	191.65176	82.12588	38.24931	1.07209	0.1015692	0.18188317	3.0851364	20	8 14.2	21.7
444268	2005	UQ <sub>299</sub>	16.5	X	248.04971	34.82979	53.86311	11.52775	0.0664332	0.18831312	3.0145026	20	9 17.5	20.9
444269	2005	UT <sub>311</sub>	17.4	X	337.61436	32.00051	42.33815	9.13469	0.1890840	0.19501236	2.9450633	20	10 2.9	20.4
444270	2005	UA <sub>322</sub>	18.3	X	70.18579	322.70032	17.76373	2.98967	0.1720500	0.28331149	2.2959368	20	—	—
444271	2005	UV <sub>325</sub>	17.9	X	244.61749	54.51638	198.44866	7.53878	0.1024848	0.29176263	2.2513842	20	—	—
444272	2005	US <sub>332</sub>	17.3	X	3.26891	134.29414	182.53069	2.87371	0.1078156	0.19042644	2.9921582	20	9 6.1	21.0
444273	2005	UK <sub>333</sub>	17.3	X	288.88930	216.46114	173.66309	2.95290	0.0684621	0.18571702	3.0425303	20	8 19.5	21.2
444274	2005	UP <sub>335</sub>	16.4	X	352.25674	94.50901	258.57442	9.64153	0.1216138	0.19382703	2.9570579	20	10 4.1	20.1
444275	2005	UM <sub>336</sub>	16.6	X	195.27475	355.62448	127.67828	2.21675	0.1318258	0.18397051	3.0617560	20	8 19.9	21.3
444276	2005	UX <sub>349</sub>	15.4	X	342.11612	45.43291	249.82677	9.32455	0.1806339	0.18338812	3.0682348	20	6 27.6	18.7
444277	2005	UT <sub>380</sub>	16.9	X	327.69290	159.13619	200.51115	6.12771	0.1818798	0.19010694	2.9955097	20	8 29.2	20.0
444278	2005	UQ <sub>384</sub>	16.5	X	276.25472	153.35622	251.00247	8.87449	0.0982617	0.18505693	3.0497611	20	8 12.8	20.8
444279	2005	UO <sub>424</sub>	16.6	X	302.78162	133.19791	217.67190	3.65279	0.1659124	0.18508195	3.0494862	20	7 4.9	20.4
444280	2005	UK <sub>426</sub>	17.3	X	268.98563	95.45971	323.06777	0.55826	0.1068157	0.18730354	3.0253251	20	8 24.3	21.4
444281	2005	UX <sub>429</sub>	16.4	X	264.96772	3.34006	40.05007	9.13504	0.1076802	0.18328251	3.0694133	20	8 2.3	20.8
444282	2005	UF <sub>431</sub>	16.8	X	216.47777	222.62844	244.98054	5.88318	0.0782872	0.18539083	3.0460981	20	8 23.9	21.4
444283	2005	UT <sub>436</sub>	16.6	X	146.35876	323.21765	216.12479	10.71630	0.0467995	0.19049362	2.9914547	20	9 4.9	21.2
444284	2005	UF <sub>442</sub>	17.5	X	38.35836	155.00324	284.17620	5.83825	0.1991669	0.28218350	2.3020512	20	—	—
444285	2005	UB <sub>446</sub>	16.4	X	282.23674	154.56197	269.14724	6.11151	0.1957947	0.19271619	2.9684102	20	9 2.4	20.3
444286	2005	UH <sub>460</sub>	17.0	X	346.92811	83.42408	264.71863	3.50021	0.2462688	0.19138032	2.9822076	20	9 25.6	19.8
444287	2005	UV <sub>469</sub>	16.7	X	60.77159	227.12549	334.33457	4.11627	0.0793709	0.17421529	3.1750108	20	6 27.3	21.0
444288	2005	UE <sub>473</sub>	17.0	X	331.11068	84.01369	249.18675	12.92225	0.2014470	0.18491603	3.0513100	20	7 24.2	20.4
444289	2005	UE <sub>476</sub>	18.0	X	128.50630	85.47496	333.04894	4.35104	0.1535098	0.29798131	2.2199509	20	3 21.0	21.0
444290	2005	UP <sub>489</sub>	16.3	X	283.26477	38.79280	357.78476	11.49270	0.1553376	0.18785062	3.0194485	20	8 12.1	20.3
444291	2005	UY <sub>495</sub>	15.9	X	214.54658	138.53802	282.78850	8.02596	0.0632696	0.18080774	3.0973577	20	6 28.2	20.5
444292	2005	UY <sub>511</sub>	17.1	X	261.90252	191.65521	233.36411	9.54775	0.0855180	0.18625888	3.0366266	20	8 22.1	21.5
444293	2005	UO <sub>511</sub>	17.3	X	203.15877	59.77025	44.65834	1.79276	0.1286860	0.17976694	3.1093015	20	8 4.7	22.2
444294	2005	UM <sub>513</sub>	17.9	X	163.13803	346.20413	358.13423	1.85549	0.1275795	0.29256801	2.2472505	20	1 21.4	21.0
444295	2005	UM <sub>515</sub>	16.3	X	224.30010	274.22764	144.44412	12.43207	0.0764427	0.17863515	3.1224208	20	7 4.5	21.1
444296	2005	UV <sub>517</sub>	16.7	X	276.24083	270.57949	146.49898	9.42933	0.0568256	0.19096985	2.9864793	20	9 10.5	20.7
444297	2005	UH <sub>526</sub>	17.2	X	283.65801	237.39171	175.86477	6.02956	0.2124674	0.18866870	3.0107138	20	8 20.6	21.0
444298	2005	UF <sub>527</sub>	18.9	X	106.95038	80.87405	289.20150	1.83888	0.2001391	0.28472128	2.2883516	20	—	—
444299	2005	VO <sub>13</sub>	16.9	X	330.69668	18.19685	33.08868	11.67787	0.0889285	0.19885882	2.9069629	20	11 17.4	20.4
444300	2005	VC <sub>34</sub>	16.1	X	301.11380	144.65528	224.60929	9.10481	0.0523274	0.18297743	3.0728241	20	8 8.1	20.5
444301	2005	VO <sub>51</sub>	17.7	X	259.11511	172.07416	269.56550	1.99768	0.1746472	0.18964702	3.0003508	20	8 30.6	21.8
444302	2005	VD <sub>66</sub>	16.3	X	307.20855	168.84988	208.31664	11.17459	0.0267584	0.18855730	3.0118996	20	8 30.1	20.5
444303	2005	VA <sub>68</sub>	17.7	X	203.10342	162.79361	108.86609	3.66082	0.1399180	0.28445261	2.2897923	20	—	—
444304	2005	VD <sub>68</sub>	16.9	X	281.88081	253.30654	127.20023	3.43933	0.1612134	0.18315348	3.0708547	20	7 14.3	21.0
444305	2005	VM <sub>76</sub>	16.0	X	336.39729	115.73936	248.30206	9.34051	0.0317329	0.19105715	2.9855695	20	9 21.3	20.2
444306	2005	VX <sub>80</sub>	16.2	X	324.31040	129.88181	241.47855	8.39641	0.0601168	0.18763793	3.0217298	20	9 12.7	20.3
444307	2005	VF <sub>92</sub>	17.8	X	26.13727	97.28107	71.35895	2.86740	0.0955588	0.29653558	2.2271605	20	3 13.9	19.7
444308	2005	VE <sub>94</sub>	16.5	X	162.02117	168.85450	342.88435	2.89537	0.1501089	0.18029323	3.1032476	20	8 22.8	21.5
444309	2005	VE <sub>99</sub>	16.4	X	263.26703	212.58296	190.97143	10.59895	0.2858618	0.18187810	3.0851938	20	7 2.6	21.3
444310	2005													

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>		
444321	2005	WX <sub>19</sub>	16.7	X	260.58685	112.59754	281.58285	4.22221	0.1451780	0.17987877	3.1080126	20	7 7.1	21.2
444322	2005	WR <sub>21</sub>	18.5	X	136.10131	101.42063	261.32823	3.51528	0.1914306	0.28897178	2.2658566	20	1 22.1	21.4
444323	2005	WX <sub>25</sub>	17.7	X	130.28477	316.36437	50.52881	7.48091	0.1351874	0.28708611	2.2757677	20	1 15.1	20.6
444324	2005	WB <sub>30</sub>	18.5	X	128.77174	47.22021	331.03224	1.84184	0.2225411	0.28982632	2.2614006	20	2 7.9	21.5
444325	2005	WV <sub>30</sub>	18.6	X	76.88241	8.04169	17.64500	2.55772	0.1315594	0.27958534	2.3162910	20	—	—
444326	2005	WL <sub>35</sub>	18.1	X	162.27735	332.71721	9.65766	0.21080	0.2768595	0.29162572	2.2520888	20	1 30.6	21.8
444327	2005	WL <sub>38</sub>	16.8	X	269.79855	344.50999	51.68769	1.93142	0.1823930	0.18146946	3.0898235	20	7 16.1	21.2
444328	2005	WR <sub>40</sub>	17.6	X	86.02946	357.97218	74.41370	5.68432	0.1113069	0.28769352	2.2725633	20	2 8.2	20.0
444329	2005	WY <sub>42</sub>	16.9	X	289.54125	353.33561	49.21759	3.24375	0.1093405	0.18661974	3.0327107	20	9 2.5	20.8
444330	2005	WE <sub>47</sub>	16.3	X	320.65478	79.49669	259.87739	8.24580	0.0963904	0.18046762	3.1012482	20	7 25.0	20.3
444331	2005	WT <sub>57</sub>	18.1	X	141.16881	3.97454	3.70677	3.17786	0.1909436	0.29110867	2.2547546	20	2 4.5	21.1
444332	2005	WH <sub>65</sub>	16.9	X	336.05805	94.47143	243.37696	8.44515	0.1853789	0.18968462	2.9999542	20	8 12.8	20.2
444333	2005	WG <sub>69</sub>	16.6	X	213.06950	350.38056	81.35871	2.94422	0.2301070	0.17588693	3.1548618	20	6 29.7	21.9
444334	2005	WB <sub>72</sub>	18.3	X	77.10324	291.56097	142.88456	4.51841	0.2031142	0.28902343	2.2655867	20	2 12.8	19.9
444335	2005	WH <sub>81</sub>	16.0	X	296.22105	120.91857	264.36083	7.87413	0.0567102	0.18272463	3.0756576	20	8 21.4	20.2
444336	2005	WV <sub>85</sub>	16.3	X	327.75869	85.85544	241.44617	13.82387	0.0910172	0.18101800	3.0949588	20	7 18.7	20.5
444337	2005	WR <sub>89</sub>	16.0	X	317.02054	144.00985	241.93129	9.60792	0.1127119	0.19003905	2.9962231	20	9 17.5	19.9
444338	2005	WD <sub>98</sub>	17.0	X	225.13068	149.11881	303.01526	0.31689	0.2648830	0.17958234	3.1114319	20	7 30.3	22.0
444339	2005	WF <sub>109</sub>	17.7	X	73.92773	194.09045	240.44701	5.00923	0.1471137	0.28662077	2.2782302	20	1 23.0	19.7
444340	2005	WP <sub>112</sub>	16.7	X	140.76534	8.75941	261.03703	7.28832	0.1665211	0.26148941	2.4219582	20	—	—
444341	2005	WY <sub>112</sub>	16.4	X	211.98832	307.71596	136.04031	10.88005	0.1936732	0.17654493	3.1470179	20	7 13.5	21.6
444342	2005	WE <sub>118</sub>	15.8	X	270.28288	125.07822	281.00806	7.84526	0.0643324	0.18373418	3.0643808	20	8 13.3	20.1
444343	2005	WG <sub>124</sub>	16.8	X	208.13588	228.68596	233.29492	1.60609	0.0852529	0.18334591	3.0687057	20	8 8.9	21.5
444344	2005	WY <sub>130</sub>	16.4	X	62.54821	353.46287	247.26746	4.21922	0.0795124	0.18030328	3.1031323	20	8 17.8	20.8
444345	2005	WY <sub>131</sub>	17.0	X	213.23865	50.00163	72.39026	2.10021	0.1363258	0.18477059	3.0529111	20	9 6.1	21.8
444346	2005	WM <sub>138</sub>	17.3	X	276.23342	44.24136	346.57314	0.44147	0.1361720	0.18205740	3.0831678	20	7 24.2	21.4
444347	2005	WT <sub>141</sub>	16.5	X	247.12203	137.56456	285.62369	10.17274	0.1241941	0.17666351	3.1456096	20	7 29.1	21.2
444348	2005	WB <sub>144</sub>	17.3	X	341.53264	90.62094	261.45593	8.40503	0.2733837	0.19062946	2.9900334	20	9 14.5	20.0
444349	2005	WN <sub>145</sub>	17.2	X	244.12710	52.22983	4.77446	1.14425	0.1591095	0.17913002	3.1166675	20	7 15.7	21.9
444350	2005	WP <sub>152</sub>	16.5	X	340.84966	296.74929	67.33264	11.21006	0.1206493	0.18978322	2.9989151	20	10 8.9	20.2
444351	2005	WZ <sub>153</sub>	18.1	X	60.68905	266.96834	146.07296	4.56700	0.1926143	0.28290879	2.2981150	20	—	—
444352	2005	WN <sub>158</sub>	16.3	X	257.63408	119.98073	308.13184	3.72342	0.3284999	0.18241499	3.0791371	20	7 23.7	21.1
444353	2005	WH <sub>169</sub>	16.3	X	332.65864	298.81280	81.44172	11.76602	0.1896897	0.19143481	2.9816416	20	10 17.1	19.6
444354	2005	WK <sub>198</sub>	16.1	X	247.16544	159.03061	250.43376	8.46596	0.1496531	0.18059215	3.0998224	20	7 9.3	20.9
444355	2005	XH <sub>9</sub>	16.1	X	352.79627	66.20303	278.24435	10.33930	0.1485557	0.18906120	3.0065455	20	9 22.2	19.8
444356	2005	XT <sub>15</sub>	16.6	X	284.22234	153.66293	243.92912	9.05585	0.0800983	0.18418727	3.0593534	20	8 17.2	21.0
444357	2005	XP <sub>17</sub>	16.1	X	278.47389	297.57723	95.33469	10.62781	0.0861368	0.17836705	3.1255489	20	8 8.1	20.5
444358	2005	XB <sub>21</sub>	16.0	X	138.72603	309.69908	234.60800	11.07254	0.0287478	0.18670185	3.0318215	20	8 30.7	20.6
444359	2005	XL <sub>26</sub>	17.3	X	326.10615	293.88089	97.87298	9.09214	0.3166710	0.19088915	2.9873209	20	10 11.9	19.6
444360	2005	XM <sub>27</sub>	17.1	X	310.32146	336.83929	63.70943	1.07568	0.2721980	0.18741225	3.0241552	20	9 11.8	20.0
444361	2005	XH <sub>37</sub>	16.5	X	299.37939	326.12203	48.81436	1.54059	0.2292099	0.18137512	3.0908950	20	7 22.7	20.1
444362	2005	XA <sub>47</sub>	15.9	X	9.09753	279.90466	61.05048	12.72160	0.2097279	0.19290281	2.9664954	20	11 3.2	19.2
444363	2005	XZ <sub>50</sub>	17.0	X	289.66493	355.36415	64.51253	8.73314	0.1241213	0.18622251	3.0370219	20	9 26.5	21.0
444364	2005	XA <sub>58</sub>	17.8	X	75.92208	134.67151	282.96780	7.65651	0.1135530	0.28388687	2.2928335	20	—	—
444365	2005	XC <sub>61</sub>	17.3	X	224.65002	313.44012	137.92655	1.78935	0.1550805	0.18019923	3.1043268	20	8 7.3	22.2
444366	2005	XP <sub>72</sub>	16.4	X	266.86148	130.31534	289.09002	12.21497	0.2033524	0.18240788	3.0792171	20	8 5.2	20.9
444367	2005	XE <sub>90</sub>	18.4	X	60.88411	1.21041	86.28938	4.33509	0.1018050	0.28375656	2.2935354	20	1 16.1	20.5
444368	2005	YD <sub>2</sub>	18.5	X	120.92804	350.14162	30.16684	3.34121	0.2194604	0.28879875	2.2667616	20	2 2.4	21.3
444369	2005	YU <sub>2</sub>	15.3	X	314.48314	185.24408	295.96017	15.31702	0.0863522	0.20329262	2.8645405	20	—	—
444370	2005	YH <sub>44</sub>	15.8	X	228.95033	229.73277	242.88599	8.23932	0.0291039	0.18573879	3.0422925	20	9 18.9	20.2
444371	2005	YE <sub>62</sub>	16.0	X	337.14729	228.08231	98.38951	10.05498	0.1859060	0.17674717	3.1446169	20	8 2.5	19.4
444372	2005	YW <sub>65</sub>	16.4	X	302.45396	248.90553	102.08905	10.99379	0.2468986	0.17753083	3.1353560	20	6 21.9	20.2
444373	2005	YL <sub>66</sub>	18.5	X	88.25178	12.25066	39.73698	2.41372	0.1880050	0.28276947	2.2988698	20	1 25.3	20.6
444374	2005	YZ <sub>68</sub>	17.9	X	1.91540	160.40282	332.54377	1.69294	0.1415562	0.27778704	2.3262769	20	—	—
444375	2005	YJ <sub>69</sub>	16.8	X	261.34063	115.08018	304.52064	3.75300	0.1189528	0.17852399	3.1237169	20	8 12.6	21.1
444376	2005	YA <sub>71</sub>	15.7	X	181.02106	43.93400	107.23770	17.89269	0.1736812	0.17754679	3.1351681	20	9 13.3	21.1
444377	2005	YL <sub>83</sub>	18.5	X	28.22865	281.42587	189.82585	1.62157	0.1824199	0.27908435	2.3190622	20	—	—
444378	2005	YU <sub>87</sub>	16.9	X	241.55697	165.25362	268.28860	2.17962	0.1199551	0.17770307	3.1333297	20	8 6.3	21.6
444379	2005	YO <sub>92</sub>	18.3	X	125.40825	123.61292	281.40358	6.80480	0.2477026	0.28959102	2.2626254	20	3 9.4	21.7
444380	2005	YJ <sub>99</sub>	16.5	X	160.82356	82.98613	45.83661	2.20418	0.0699729	0.17150387	3.2083872	20	7 23.2	21.3
444381	2005	YY <sub>113</sub>	16.7	X	317.06786	293.06406	70.04237	5.94125	0.1929637	0.17968231	3.1102777	20	8 14.7	20.2
444382	2005	YJ <sub>114</sub>	18.0	X	296.15851	138.37405	33.51118	2.00182	0.1252230	0.27029280	2.3698000	20	—	—
444383	2005	YN <sub>119</sub>	15.7	X	341.69376	29.62189	304.68880	10.74151	0.2115002	0.17715127	3.1398329	20	8 18.6	19.0
444384	2005	YT <sub>125</sub>	16.3	X	324.37130	281.66843	82.31194	7.27406	0.1258261	0.18125273	3.0922861	20	9 6.3	20.1
444385	2005	YT <sub>134</sub>	17.5	X	59.41334	117.22197	328.59447	6.70495	0.1568261	0.28207111	2.3026626	20	1 16.9	19.4
444386	2005	YY <sub>150</sub>	17.3	X	308.29875	172.87445	301.26198	12.87124	0.1127323	0.26396907	2.4067669	20	—	—
444387	2005	YA <sub>156</sub>	15.7	X	276.82681	121.91350	268.62406	10.07888	0.0568228	0.17551074	3.1593682	20	8 1.8	20.1
444388	2005	YG <sub>176</sub>	18.0	X	227.85063	102.26869	95.62375	2.27080	0.1303550	0.26191495	2.4193342	20	—	—
444389	2005	YA <sub>180</sub>	18.9	X	73.85519	91.59199	352.87833	1.49995	0.2443668	0.28411838	2.2915878	20	2 25.8	20.7
444390	2005	YX <sub>187</sub>	18.4	X	1.									

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
444401 2005 YU <sub>286</sub>	17.7	X	138.83933	85.82626	286.64696	4.96953	0.1213438	0.28762967	2.2728996	20	1 29.1	20.7
444402 2006 AE <sub>8</sub>	15.9	X	252.84823	309.45017	142.50564	19.64811	0.2947255	0.18202678	3.0835135	20	8 21.5	20.6
444403 2006 AK <sub>30</sub>	18.3	X	109.67307	153.18353	247.09566	3.71603	0.1830411	0.28470120	2.2884592	20	2 7.0	21.0
444404 2006 AO <sub>31</sub>	15.8	X	215.42429	125.45949	297.65499	20.96315	0.1949760	0.17127586	3.2112339	20	6 23.8	21.2
444405 2006 AV <sub>31</sub>	16.4	X	255.94520	122.51950	308.60323	15.52765	0.1921738	0.17945896	3.1128578	20	8 9.6	20.9
444406 2006 AO <sub>35</sub>	18.1	X	40.58345	347.35081	119.91134	6.25762	0.0903255	0.27969120	2.3157065	20	1 8.9	20.4
444407 2006 AR <sub>35</sub>	18.5	X	10.74775	318.88589	129.97468	1.91276	0.1585524	0.27186365	2.3599454	20	—	—
444408 2006 AL <sub>40</sub>	16.2	X	280.52560	310.87009	122.72908	14.35479	0.0886729	0.18264742	3.0765243	10	6 7.7	20.5
444409 2006 AY <sub>46</sub>	18.6	X	3.69411	257.52916	126.14647	2.08472	0.1279315	0.27515605	2.3410823	20	—	—
444410 2006 AD <sub>49</sub>	15.4	X	296.08744	95.26005	287.03236	16.61826	0.0588975	0.17983432	3.1085248	20	8 14.3	19.8
444411 2006 AR <sub>51</sub>	17.9	X	63.64128	92.70322	284.14701	2.18270	0.0628379	0.26876515	2.3780487	20	—	—
444412 2006 AQ <sub>53</sub>	17.9	X	132.92426	57.02093	289.09947	6.53402	0.1387263	0.27621497	2.3350951	20	—	—
444413 2006 AH <sub>55</sub>	18.0	X	114.30545	128.00302	263.22882	5.69108	0.1310643	0.28240223	2.3008623	20	1 24.3	20.7
444414 2006 AQ <sub>56</sub>	15.4	X	29.58312	327.83637	291.14396	14.50357	0.0947425	0.17087336	3.2162748	20	7 27.5	19.6
444415 2006 AK <sub>65</sub>	17.7	X	151.45108	307.06355	280.73119	1.16445	0.1391225	0.25247232	2.4792874	20	11 21.7	21.5
444416 2006 BQ <sub>8</sub>	17.8	X	337.87012	347.85648	305.69803	18.33759	0.0626478	0.37145130	1.9166146	20	7 8.4	19.3
444417 2006 BP <sub>13</sub>	16.3	X	302.27347	62.10165	307.70113	4.21653	0.1411626	0.17718041	3.1394886	20	8 2.1	20.1
444418 2006 BM <sub>30</sub>	15.6	X	245.36952	294.57817	124.72499	13.96957	0.1222246	0.17182636	3.2043714	20	7 23.6	20.3
444419 2006 BR <sub>34</sub>	17.2	X	275.40743	74.96533	318.16924	6.96700	0.2831573	0.17713429	3.1400335	20	7 4.7	21.7
444420 2006 BQ <sub>35</sub>	18.3	X	329.54665	150.44410	355.24877	3.29085	0.1086181	0.27150709	2.3620111	20	—	—
444421 2006 BC <sub>39</sub>	18.2	X	22.34510	12.73624	107.99870	3.55056	0.1369179	0.27837867	2.3229797	20	—	—
444422 2006 BJ <sub>49</sub>	18.3	X	225.29252	178.85979	28.38838	1.91684	0.1230879	0.26164470	2.4209998	20	—	—
444423 2006 BE <sub>57</sub>	17.8	X	356.13891	142.34610	309.28954	6.25983	0.0484810	0.26856203	2.3792476	20	—	—
444424 2006 BM <sub>65</sub>	17.9	X	197.33462	197.63366	27.02491	1.40344	0.1341713	0.25998148	2.4313143	20	—	—
444425 2006 BV <sub>65</sub>	18.5	X	233.69500	112.97424	86.13504	2.22613	0.1114591	0.26141129	2.4224407	20	—	—
444426 2006 BC <sub>79</sub>	17.6	X	91.77908	77.86072	336.61772	22.44040	0.2525678	0.27995383	2.3142580	20	2 17.9	20.1
444427 2006 BN <sub>87</sub>	18.4	X	51.18009	93.30286	344.40451	3.02254	0.1853854	0.27697742	2.3308078	20	—	—
444428 2006 BN <sub>137</sub>	18.6	X	64.18973	164.87222	258.53817	1.51786	0.1955031	0.27633074	2.3344429	20	—	—
444429 2006 BE <sub>140</sub>	17.9	X	3.54527	170.27571	307.42340	1.77026	0.1555464	0.27262266	2.3555631	20	—	—
444430 2006 BD <sub>144</sub>	16.3	X	242.76565	309.71743	170.88412	12.94574	0.3149363	0.18391263	3.0623983	20	9 13.1	21.2
444431 2006 BV <sub>168</sub>	17.4	X	315.35492	31.16939	142.98020	4.03270	0.1695347	0.26969609	2.3725732	20	—	—
444432 2006 BF <sub>179</sub>	18.2	X	25.02446	61.57225	30.96674	0.78327	0.1116728	0.27296637	2.3535854	20	—	—
444433 2006 BE <sub>180</sub>	17.5	X	132.62945	170.00678	101.54352	2.59407	0.1608509	0.25406146	2.4689380	12	27.6	21.2
444434 2006 BU <sub>184</sub>	18.8	X	42.22730	42.71080	54.11546	2.13455	0.1508395	0.27824455	2.3237261	20	—	—
444435 2006 BK <sub>194</sub>	15.8	X	235.24994	275.96560	144.80598	26.20164	0.2775523	0.17228782	3.1986471	20	7 1.7	21.5
444436 2006 BF <sub>205</sub>	16.4	X	275.79037	275.15936	143.28584	10.89897	0.0989670	0.17566678	3.1574971	20	9 3.4	20.7
444437 2006 BJ <sub>228</sub>	17.5	X	275.23914	184.37476	20.26282	2.31612	0.1541487	0.26966374	2.3727629	20	—	—
444438 2006 BM <sub>228</sub>	16.9	X	218.45786	135.95715	329.09448	9.66176	0.1886349	0.17686512	3.1432186	20	8 15.5	22.0
444439 2006 BK <sub>247</sub>	17.8	X	32.13754	321.13259	132.95338	4.29877	0.1718973	0.27460392	2.3442192	20	—	—
444440 2006 BO <sub>247</sub>	18.0	X	310.54282	44.26654	117.70363	2.09559	0.1174183	0.26840421	2.3801802	20	—	—
444441 2006 BN <sub>264</sub>	17.9	X	13.44911	114.21310	339.70458	9.50013	0.1015084	0.26811868	2.3818697	20	—	—
444442 2006 BC <sub>282</sub>	18.5	X	19.51728	25.26667	35.20541	2.92016	0.1811180	0.26510343	2.3998963	20	—	—
444443 2006 CV <sub>11</sub>	18.3	X	13.09276	209.02447	269.57533	0.52301	0.1367176	0.27520497	2.3408048	20	—	—
444444 2006 CF <sub>67</sub>	18.1	X	354.08540	31.63392	87.20502	3.32712	0.1737306	0.26900416	2.3766399	20	—	—
444445 2006 DB <sub>22</sub>	17.9	X	353.87023	326.57266	144.55539	6.95020	0.0802484	0.26674452	2.3900430	20	—	—
444446 2006 DH <sub>45</sub>	17.9	X	173.91251	311.17005	150.18366	24.49833	0.0347338	0.36973039	1.9225573	20	7 12.9	20.4
444447 2006 DR <sub>80</sub>	16.0	X	219.16696	283.49993	170.40927	10.68520	0.0756451	0.16781640	3.2552158	20	8 9.7	20.9
444448 2006 DY <sub>127</sub>	16.2	X	269.76698	76.16420	335.73148	8.78623	0.1435888	0.17517748	3.1633739	20	8 11.5	20.5
444449 2006 DS <sub>137</sub>	17.7	X	101.80384	296.91887	74.56878	3.30007	0.1051351	0.26757010	2.3851242	20	—	—
444450 2006 DS <sub>149</sub>	17.8	X	249.98083	236.94732	305.26348	2.28015	0.1285137	0.25701912	2.4499606	20	—	—
444451 2006 DT <sub>151</sub>	17.6	X	243.66003	128.68449	342.27064	4.54724	0.0537055	0.25849159	2.4406477	20	—	—
444452 2006 EG <sub>183</sub>	18.5	X	204.85621	89.75786	359.88197	19.38488	0.1102486	0.37157371	1.9161937	20	8 11.1	21.1
444453 2006 DK <sub>192</sub>	17.2	X	268.68786	160.69635	13.15831	11.97080	0.1707093	0.25827586	2.4420066	20	—	—
444454 2006 DK <sub>199</sub>	17.7	X	40.29869	223.25306	1.88054	21.21587	0.0563894	0.36356467	1.9442328	20	7 13.4	20.1
444455 2006 DG <sub>206</sub>	18.5	X	68.14084	46.81184	23.48813	1.73458	0.1657709	0.27629489	2.3346448	20	1 12.6	20.3
444456 2006 EK <sub>6</sub>	18.6	X	51.05381	57.08548	26.84902	1.76127	0.1512743	0.27450906	2.3447592	20	—	—
444457 2006 EB <sub>21</sub>	17.4	X	138.48302	313.50900	344.39275	4.63583	0.1067582	0.25920578	2.4361625	20	—	—
444458 2006 EH <sub>21</sub>	18.0	X	64.18643	274.01587	132.18704	2.14068	0.1767188	0.27108484	2.3644632	20	—	—
444459 2006 EJ <sub>37</sub>	18.3	X	231.08275	68.88316	4.68317	20.33194	0.1102085	0.37275342	1.9121485	20	8 23.9	20.6
444460 2006 EB <sub>48</sub>	15.7	X	302.93649	15.53306	10.04033	15.35164	0.2662465	0.17351267	3.1835763	20	8 12.1	19.6
444461 2006 EV <sub>66</sub>	17.0	X	236.06179	203.10088	5.94088	10.03748	0.0316315	0.26077571	2.4263752	20	—	—
444462 2006 EC <sub>68</sub>	18.4	X	34.86421	73.53620	352.15466	3.09168	0.1094683	0.26751513	2.3854509	20	—	—
444463 2006 EY <sub>72</sub>	18.1	X	326.48622	279.64250	195.82582	4.26331	0.1185019	0.26026457	2.4295510	20	—	—
444464 2006 FU <sub>10</sub>	16.1	X	191.10554	324.74504	161.80576	14.98612	0.2303647	0.17278356	3.1925260	20	8 13.6	21.6
444465 2006 FA <sub>21</sub>	18.3	X	135.76395	168.99966	341.09274	18.74950	0.0698508	0.37157329	1.9161951	20	8 11.3	20.5
444466 2006 GL <sub>31</sub>	17.6	X	22.95286	46.68604	211.37777	21.02911	0.0516144	0.36063779	1.9547380	20	7 22.0	20.1
444467 2006 HS <sub>57</sub>	17.9	X	269.69722	321.45577	49.47946	22.59826	0.0853125	0.35953786	1.9587227	20	7 4.9	20.3
444468 2006 HJ <sub>58</sub>	16.2	X	72.12108	268.75382	48.00821	28.90262	0.3475839	0.23482174	2.6020193	20	—	—
444469 2006 JG <sub>4</sub>	17.4	X	109.72448	221.00179	57.49439	5.14598	0.2826691	0.23814485	2.5777567	20	12 16.8	22.1
444470 2006 KJ <sub>26</sub>	17.3	X	83.85680	205.50738	87.79538	13.34961	0.1612454	0.23730545	2.5838318	20	12 7.6	21.2
444471 2006 KX <sub>58</sub>	17.3	X	149.12053	11.98692	220.71820	12.74881	0.1132001	0.23922461	2.5699942	20	11 24.6	21.3
444472 2006 KD <sub>103</sub>	17.1	X	141.35645	65.60338	161.72748	13.60989	0.2120370	0.23659607	2.5889940	20	11 12.8	21.7
444473 2006 KB <sub>105</sub>	17.5	X	136.44743	103.34489	167.20473	11.67098	0.1087952	0.24116852	2.5561655	20	12 27.9	21.6
444474 2006 KL <sub>142</sub>	18.0	X	50.48859	124.25357	261.94406	1.16470	0.0802901	0.24734567	2.5134283	20	—	—
444475 2006 PD <sub>2</sub>	16.2	X	9									

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
444481 2006 QG <sub>105</sub>	17.0	X	358.53953	91.75967	315.77565	11.36487	0.1934965	0.22535540	2.6743859	20	—	—
444482 2006 QK <sub>118</sub>	16.4	X	40.81087	342.56017	299.32130	7.88702	0.2082419	0.21468360	2.7622955	20	10 2.9	20.1
444483 2006 QY <sub>118</sub>	17.6	X	29.66246	137.05474	191.04241	10.41145	0.3111176	0.22022809	2.7157362	20	12 8.4	21.4
444484 2006 QV <sub>144</sub>	17.0	X	43.58798	117.86216	224.82692	11.49250	0.2878014	0.22308920	2.6924668	20	—	—
444485 2006 QY <sub>144</sub>	17.0	X	18.28408	83.74141	296.58970	5.80539	0.2505278	0.22246248	2.6975212	20	—	—
444486 2006 QU <sub>147</sub>	17.2	X	40.25849	168.50586	152.39712	5.43227	0.1099428	0.21804710	2.7338153	20	11 13.7	20.9
444487 2006 QW <sub>157</sub>	17.1	X	88.77198	18.57827	329.86141	3.17380	0.0834289	0.23398063	2.6082514	20	—	—
444488 2006 QJ <sub>185</sub>	17.2	X	338.61558	19.40355	351.69029	4.24442	0.0795175	0.21345970	2.7728441	20	10 11.8	20.5
444489 2006 QZ <sub>186</sub>	16.3	X	74.42184	341.69683	341.07682	11.30019	0.0846005	0.22806110	2.6531913	20	12 24.6	20.3
444490 2006 RT <sub>2</sub>	16.4	X	76.92037	304.49972	14.37433	13.17982	0.2678290	0.22718644	2.6599968	20	—	—
444491 2006 RY <sub>3</sub>	17.1	X	325.34622	240.25014	177.83832	8.99108	0.2391386	0.21732043	2.7399061	20	11 29.8	19.5
444492 2006 RR <sub>17</sub>	16.8	X	15.77482	178.16204	212.63241	13.91875	0.2527518	0.22247055	2.6974560	20	—	—
444493 2006 RE <sub>20</sub>	17.1	X	1.47893	247.05977	173.74206	11.83514	0.2790124	0.22441935	2.6818173	20	—	—
444494 2006 RY <sub>20</sub>	17.6	X	333.82284	218.03723	197.45234	1.94298	0.1890789	0.21849770	2.7300554	20	12 11.7	20.1
444495 2006 RQ <sub>22</sub>	17.2	X	351.78034	160.13635	207.54854	10.01432	0.3282465	0.21450547	2.7638246	20	11 29.6	19.5
444496 2006 RL <sub>32</sub>	17.0	X	24.20920	172.47434	199.56581	5.65084	0.0738995	0.22133518	2.7066727	20	12 15.9	20.7
444497 2006 RR <sub>41</sub>	17.1	X	340.15883	23.15123	5.25394	4.14360	0.0445831	0.21536069	2.7565028	20	11 6.6	20.6
444498 2006 RG <sub>53</sub>	16.7	X	259.85319	79.23100	26.27333	6.08829	0.0665376	0.21201280	2.7854455	20	10 21.6	20.3
444499 2006 RW <sub>54</sub>	16.9	X	45.73189	187.30904	176.32547	2.77878	0.1734571	0.22364439	2.6880090	20	—	—
444500 2006 RJ <sub>57</sub>	17.5	X	34.71759	111.63116	270.09644	4.09574	0.2443815	0.22824158	2.6517925	20	—	—
444501 2006 RQ <sub>70</sub>	17.4	X	296.12838	271.90710	185.62816	1.20170	0.0474747	0.22116118	2.7080923	20	12 5.2	20.9
444502 2006 RU <sub>79</sub>	17.1	X	348.15005	239.82900	165.52679	5.13680	0.1144812	0.22034178	2.7148019	20	12 17.6	20.2
444503 2006 RZ <sub>80</sub>	16.5	X	188.60532	160.99082	9.34813	4.96945	0.0608001	0.21494496	2.7600559	20	10 17.5	20.6
444504 2006 RM <sub>87</sub>	17.4	X	66.59638	262.81832	15.29210	6.20292	0.2770296	0.21801396	2.7340923	20	11 8.9	21.7
444505 2006 RT <sub>93</sub>	17.1	X	346.55107	36.36474	336.29688	2.80370	0.1057470	0.21282594	2.7783461	20	10 27.8	20.4
444506 2006 SA <sub>2</sub>	16.9	X	15.11350	171.25374	216.69704	12.44598	0.1851047	0.22318115	2.6917272	20	—	—
444507 2006 SY <sub>13</sub>	17.4	X	355.73233	204.64831	188.53418	2.92457	0.0937570	0.21991711	2.7182958	20	12 10.9	20.6
444508 2006 SN <sub>26</sub>	16.6	X	327.89165	92.36730	337.55835	12.36149	0.1925650	0.21907342	2.7252703	20	12 20.8	19.5
444509 2006 ST <sub>26</sub>	18.1	X	358.37471	7.34881	7.38179	9.28344	0.2878463	0.21725820	2.7404293	20	12 16.2	21.0
444510 2006 SZ <sub>33</sub>	16.6	X	12.83619	101.28815	305.50205	4.46861	0.1209774	0.22569589	2.6716954	20	—	—
444511 2006 SG <sub>34</sub>	16.2	X	68.37278	324.64994	335.53750	12.20225	0.1647646	0.22023809	2.7156540	20	11 23.8	20.5
444512 2006 SH <sub>54</sub>	16.5	X	13.49010	54.37700	277.12908	14.20458	0.1621102	0.21513053	2.7584684	20	10 18.8	20.0
444513 2006 SE <sub>55</sub>	16.8	X	66.28316	286.80502	37.17677	12.30741	0.3524235	0.22483996	2.6784716	20	—	—
444514 2006 SB <sub>63</sub>	17.2	X	337.56135	42.68342	26.29691	18.79913	0.2918670	0.21806032	2.7337048	20	—	—
444515 2006 SL <sub>65</sub>	17.0	X	294.06406	279.73147	184.93928	23.76413	0.2871282	0.21647744	2.7470146	20	11 17.2	19.9
444516 2006 SW <sub>65</sub>	17.4	X	27.40503	154.79360	180.99340	10.78918	0.1555326	0.22111956	2.7084321	20	11 23.2	21.0
444517 2006 SW <sub>68</sub>	17.2	X	112.48446	66.82824	166.11531	3.62693	0.0350407	0.21327711	2.7744265	20	10 9.8	21.0
444518 2006 SD <sub>79</sub>	16.3	X	35.25956	1.74121	320.49749	25.10981	0.0853609	0.21525621	2.7573947	20	10 18.7	20.6
444519 2006 SH <sub>81</sub>	17.7	X	352.51732	221.97661	190.13935	7.21262	0.1405909	0.22110738	2.7085315	20	—	—
444520 2006 SR <sub>90</sub>	17.0	X	333.19304	30.17741	7.60902	3.14157	0.0955897	0.21363400	2.7713357	20	11 8.8	20.1
444521 2006 SP <sub>92</sub>	17.2	X	14.50597	153.45531	203.85771	6.14675	0.0644500	0.21462742	2.7627776	20	11 17.2	20.7
444522 2006 SE <sub>98</sub>	17.0	X	308.44609	244.81867	195.37774	2.59957	0.1861182	0.21452741	2.7636361	20	11 22.1	19.6
444523 2006 SF <sub>98</sub>	17.3	X	346.60535	178.79692	196.52663	6.00702	0.0664829	0.21237956	2.7822377	20	10 31.0	20.6
444524 2006 SY <sub>107</sub>	16.5	X	348.27072	19.36947	32.28453	15.26676	0.1398582	0.22149433	2.7053760	20	12 29.2	19.9
444525 2006 SW <sub>114</sub>	17.4	X	321.61720	61.14704	0.98882	5.65372	0.0530138	0.21845547	2.7304073	20	11 23.2	20.9
444526 2006 SA <sub>116</sub>	16.8	X	19.24215	242.71366	122.35525	9.70677	0.3022795	0.21948980	2.7218226	20	—	—
444527 2006 SP <sub>130</sub>	16.9	X	44.80559	327.68725	6.31887	8.17765	0.2321701	0.21892283	2.7265199	20	12 20.8	21.0
444528 2006 SN <sub>148</sub>	17.5	X	353.57288	23.60121	13.88813	5.65274	0.0823373	0.22016496	2.7162553	20	12 11.3	20.9
444529 2006 SL <sub>149</sub>	17.6	X	23.17369	129.79571	211.09790	7.90504	0.0603233	0.21422974	2.7661955	20	11 7.1	21.1
444530 2006 SV <sub>156</sub>	17.3	X	292.43622	246.12267	201.77495	2.03104	0.0241544	0.21920941	2.7241432	20	11 19.1	20.7
444531 2006 SR <sub>163</sub>	17.5	X	345.55171	230.43130	126.64725	1.42314	0.0830560	0.20894724	2.8126236	20	10 4.9	20.9
444532 2006 ST <sub>165</sub>	17.3	X	16.39474	53.81929	308.70543	5.21714	0.0244906	0.21952052	2.7215687	20	11 20.4	20.9
444533 2006 SA <sub>169</sub>	16.7	X	307.94211	121.79252	307.26154	2.78286	0.1516767	0.21610931	2.7501332	20	11 6.5	19.7
444534 2006 SX <sub>179</sub>	17.4	X	244.45411	51.50379	69.63565	0.93668	0.0223314	0.21485747	2.7608051	20	10 28.9	20.9
444535 2006 SB <sub>182</sub>	17.4	X	12.87906	257.74401	151.70464	12.48662	0.2779802	0.22274484	2.6952411	20	—	—
444536 2006 SM <sub>185</sub>	17.2	X	19.02407	174.28166	237.70751	4.19674	0.1574324	0.22458417	2.6805050	20	—	—
444537 2006 SF <sub>199</sub>	17.2	X	26.62859	119.38511	196.05270	3.95159	0.0664143	0.21205395	2.7850851	20	10 9.6	20.6
444538 2006 SR <sub>207</sub>	16.4	X	358.86656	165.05615	214.78382	9.60930	0.2502203	0.21569511	2.7536528	20	12 17.8	19.4
444539 2006 SV <sub>220</sub>	17.4	X	346.66377	160.27680	184.13551	3.55091	0.1063256	0.21203586	2.7852435	20	9 19.9	20.4
444540 2006 SW <sub>229</sub>	17.4	X	323.52548	189.65193	222.43427	5.51057	0.0351390	0.21709969	2.7417630	20	11 14.3	20.9
444541 2006 SC <sub>242</sub>	17.2	X	17.37891	341.24725	27.74775	5.17290	0.1265968	0.21998720	2.7177183	20	12 15.0	20.7
444542 2006 SZ <sub>246</sub>	17.3	X	251.74679	1.13502	102.63601	1.23079	0.0215979	0.21446525	2.7641701	20	10 16.5	21.1
444543 2006 SU <sub>249</sub>	16.7	X	1.28178	197.00973	198.23028	13.89671	0.1232430	0.22004519	2.7172408	20	12 24.6	20.3
444544 2006 SS <sub>257</sub>	17.6	X	312.58063	205.83674	225.55837	2.10194	0.1996777	0.21434283	2.7652225	20	11 16.9	20.3
444545 2006 SR <sub>262</sub>	17.4	X	0.28544	150.21385	194.55884	3.81407	0.1336531	0.20930192	2.8094452	20	10 16.0	20.6
444546 2006 SK <sub>265</sub>	16.6	X	303.41090	102.63287	300.20538	4.92433	0.0238019	0.20824067	2.8189823	20	10 1.5	20.4
444547 2006 ST <sub>266</sub>	17.2	X	340.26724	51.07890	347.02261	5.23578	0.0633956	0.21473553	2.7618502	20	11 18.4	20.6
444548 2006 SM <sub>294</sub>	17.8	X	327.06275	198.04027	212.95670	3.79306	0.2044693	0.21565391	2.7540035	20	11 20.3	20.1
444549 2006 SB <sub>298</sub>	17.5	X	5.16869	328.50418	22.09275	4.28772	0.1522644	0.21309374	2.7760179	20	11 3.5	20.7
444550 2006 SQ <sub>299</sub>	17.4	X	344.64309	40.78015	17.01439	6.40171	0.0688220	0.22185372	2.7024535	20	12 24.5	20.8
444551 2006 SO <sub>306</sub>	17.6	X	351.02303	240.99355	158.87848	4.29649	0.0761810	0.21641448	2.7475472	20	12 10.1	21.0
444552 2006 SU <sub>307</sub>	16.9	X	26.21308	7.15702	349.44631	5.94761	0.1435441	0.21883038	2.7272878	20	12 13.5	20.5
444553 2006 SR <sub>317</sub>	17.4	X	26.48645	237.33284	80.64358	2.58124	0.2063762	0.21343730	2.7730381	20	11 3.6	20.8
444554 200												

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
444561 2006 SN <sub>367</sub>	16.4	X	39.36204	306.04476	47.65074	13.11758	0.2843706	0.22335623	2.6903204	20	—	—
444562 2006 SP <sub>368</sub>	16.7	X	2.63952	156.71065	223.69930	8.55636	0.2046231	0.21722046	2.7407467	20	12 18.6	19.8
444563 2006 SU <sub>401</sub>	17.0	X	42.53358	285.98919	52.94731	7.01325	0.0678240	0.21532176	2.7568350	20	11 30.3	20.6
444564 2006 SW <sub>407</sub>	17.6	X	331.44146	43.83460	336.42658	4.56471	0.0963378	0.21008295	2.8024778	20	10 11.4	20.9
444565 2006 TG <sub>19</sub>	16.7	X	36.57409	134.66682	225.42918	4.67440	0.0963073	0.21868412	2.7285038	20	12 24.6	20.4
444566 2006 TY <sub>19</sub>	17.5	X	358.25528	165.37125	217.85543	8.78323	0.2123802	0.21558806	2.7545643	20	12 15.6	20.6
444567 2006 TX <sub>30</sub>	16.9	X	12.90521	310.24362	31.04434	8.49716	0.2627249	0.21352557	2.7722738	20	11 20.1	20.0
444568 2006 TH <sub>33</sub>	17.1	X	304.20804	240.40166	200.47449	2.91722	0.0816380	0.21450612	2.7638190	20	11 21.9	20.4
444569 2006 TE <sub>47</sub>	17.1	X	303.05221	8.06036	49.99392	4.37951	0.0879926	0.20858378	2.8158900	20	10 19.5	20.4
444570 2006 TD <sub>54</sub>	16.7	X	22.03229	289.30887	59.88533	7.38875	0.0651791	0.21150782	2.7898773	20	11 16.0	20.4
444571 2006 TZ <sub>65</sub>	17.5	X	343.12167	156.44690	200.32935	13.77181	0.2033233	0.20969008	2.8059771	20	10 3.8	20.1
444572 2006 TJ <sub>67</sub>	17.0	X	338.91325	70.89595	317.04326	6.80913	0.2208658	0.21322205	2.7749041	20	11 9.9	19.6
444573 2006 TB <sub>70</sub>	16.0	X	312.86385	207.33685	226.54360	16.22954	0.0766076	0.21625766	2.7488754	20	11 26.5	19.4
444574 2006 TC <sub>70</sub>	16.3	X	315.15573	61.20209	10.81766	24.95469	0.1833031	0.21422811	2.7662096	20	11 12.4	19.6
444575 2006 TK <sub>71</sub>	16.7	X	65.51411	354.51937	349.97763	3.59064	0.1078443	0.22352863	2.6889369	20	—	—
444576 2006 TE <sub>73</sub>	16.5	X	0.92951	131.90257	254.13430	5.56790	0.1470866	0.21634315	2.7481512	20	12 14.9	19.7
444577 2006 TD <sub>84</sub>	17.5	X	339.55900	81.92190	316.81738	3.88865	0.2620595	0.21396438	2.7684821	20	11 24.6	20.5
444578 2006 TG <sub>93</sub>	17.3	X	339.68209	35.87068	343.80458	3.65452	0.2087184	0.21131669	2.7915593	20	10 30.3	19.8
444579 2006 TN <sub>97</sub>	17.2	X	286.08412	76.49119	21.46577	8.27558	0.1795225	0.21063939	2.7975401	20	11 1.7	20.4
444580 2006 TU <sub>100</sub>	17.2	X	340.41949	151.65907	231.08184	7.46584	0.1977391	0.21158828	2.7891700	20	11 6.0	19.9
444581 2006 TC <sub>104</sub>	16.5	X	328.43671	9.00356	39.33192	9.67848	0.1481430	0.21256405	2.7806277	20	11 15.5	19.5
444582 2006 TH <sub>105</sub>	16.5	X	10.71079	317.47537	27.49957	12.03645	0.2933916	0.21762023	2.7373891	20	—	—
444583 2006 TH <sub>122</sub>	17.0	X	287.84685	202.85188	238.94504	4.11604	0.0914918	0.21001553	2.8030775	20	10 25.8	20.5
444584 2006 UK	20.2	X	112.45399	252.19972	244.04914	4.74637	0.5389325	0.53957942	1.4942817	20	7 23.9	22.7
444585 2006 UU <sub>18</sub>	17.1	X	351.65662	116.43983	226.08709	7.74364	0.2706430	0.21011168	2.8022223	20	10 7.6	19.5
444586 2006 UA <sub>21</sub>	17.0	X	271.95368	96.42537	4.99189	4.12845	0.0222273	0.21397423	2.7683972	20	11 6.8	20.8
444587 2006 UN <sub>26</sub>	17.6	X	299.97722	197.60517	221.47136	4.44818	0.1446168	0.20929620	2.8094964	20	10 8.2	20.6
444588 2006 UJ <sub>39</sub>	17.6	X	357.55247	28.14871	33.74918	5.79976	0.0751130	0.22113072	2.7083409	20	—	—
444589 2006 UF <sub>52</sub>	17.0	X	243.02097	298.60615	148.66195	2.65756	0.0209435	0.20455058	2.8527841	20	9 12.2	20.8
444590 2006 UQ <sub>78</sub>	17.1	X	344.38914	150.64001	226.75463	8.69478	0.2095737	0.21221691	2.7836592	20	11 8.4	19.5
444591 2006 UA <sub>80</sub>	16.4	X	318.30244	23.49996	46.12000	9.24857	0.0817303	0.21555768	2.7548231	20	11 27.6	19.6
444592 2006 UW <sub>81</sub>	17.3	X	316.01035	3.93816	69.07803	5.77547	0.1095275	0.21306093	2.7763028	20	11 28.5	20.3
444593 2006 UX <sub>112</sub>	17.1	X	307.85368	85.11635	337.37959	1.53579	0.0524529	0.21344325	2.7729866	20	11 3.5	20.6
444594 2006 UQ <sub>121</sub>	17.3	X	325.14174	214.18728	180.36507	4.39359	0.0778072	0.21104184	2.7939824	20	10 23.7	20.6
444595 2006 UA <sub>123</sub>	17.9	X	359.03816	142.18184	198.30957	6.88917	0.1057908	0.20890320	2.8130189	20	10 4.7	21.2
444596 2006 UD <sub>129</sub>	17.0	X	286.87688	79.94231	27.91434	4.55734	0.0300245	0.21629918	2.7485236	20	12 4.9	20.7
444597 2006 UU <sub>141</sub>	17.1	X	350.64404	337.05498	27.92704	10.33193	0.2255477	0.21021933	2.8012656	20	11 3.4	19.8
444598 2006 UC <sub>148</sub>	17.0	X	28.49475	342.89294	16.88817	7.62664	0.1188192	0.21262310	2.7043280	20	12 17.6	20.6
444599 2006 UP <sub>155</sub>	17.1	X	332.79191	312.03289	94.52045	3.43109	0.2020526	0.21479555	2.7613356	20	11 26.3	19.7
444600 2006 UP <sub>205</sub>	17.0	X	218.94584	70.69147	62.47919	1.05216	0.0142291	0.20987306	2.8043459	20	10 12.3	20.8
444601 2006 UD <sub>212</sub>	17.1	X	352.81971	93.65036	285.05247	3.77957	0.1822941	0.21172428	2.7879754	20	11 23.5	20.1
444602 2006 UB <sub>218</sub>	17.0	X	337.37880	120.15050	260.14387	4.74940	0.0380078	0.20957942	2.8069647	20	10 19.8	20.6
444603 2006 UQ <sub>222</sub>	16.3	X	345.27793	6.79584	43.78544	15.50685	0.1420459	0.21605588	2.7505866	20	12 19.3	19.6
444604 2006 UT <sub>226</sub>	16.5	X	353.04114	336.78573	28.58128	6.62319	0.0784375	0.21101807	2.7941923	20	10 26.9	20.0
444605 2006 UP <sub>248</sub>	17.1	X	312.17148	200.86510	208.78268	4.30891	0.1642024	0.21009373	2.8023819	20	10 16.5	20.1
444606 2006 UJ <sub>254</sub>	17.5	X	289.63767	209.35175	194.01549	1.61015	0.0655791	0.20335075	2.8639946	20	9 9.9	21.1
444607 2006 UL <sub>270</sub>	16.5	X	260.66905	90.36968	48.39651	15.10820	0.2004426	0.21131630	2.7915627	20	11 13.9	20.1
444608 2006 UJ <sub>274</sub>	17.1	X	317.05895	32.05340	33.48270	5.12290	0.0608677	0.21650610	2.7467721	20	11 21.2	20.5
444609 2006 UF <sub>288</sub>	16.8	X	33.12554	295.53597	56.00986	17.87618	0.2360943	0.21531449	2.7568970	20	12 27.9	20.8
444610 2006 US <sub>295</sub>	17.7	X	321.17057	63.15210	352.98556	0.35314	0.1388789	0.21934309	2.7230362	20	11 15.9	20.6
444611 2006 UH <sub>329</sub>	17.3	X	347.30830	221.17998	178.41898	9.09825	0.2978220	0.21312800	2.7757204	20	12 28.8	20.0
444612 2006 UJ <sub>336</sub>	16.5	X	19.11907	310.26802	66.82809	9.73169	0.1419466	0.21729355	2.7401320	20	12 29.7	20.0
444613 2006 VQ <sub>1</sub>	16.4	X	284.94833	123.24699	323.74723	8.18594	0.1736900	0.21272842	2.7791951	20	10 14.4	19.8
444614 2006 VF <sub>12</sub>	17.0	X	328.44348	147.45247	227.24266	7.23918	0.0519164	0.20342569	2.8632912	20	9 27.9	20.8
444615 2006 VT <sub>24</sub>	17.1	X	327.31669	195.40528	219.18212	4.40816	0.1785754	0.21186466	2.7867438	20	11 24.0	19.8
444616 2006 VT <sub>29</sub>	16.8	X	10.03776	3.49916	55.01104	16.22298	0.3819441	0.22080567	2.7109982	20	—	—
444617 2006 VG <sub>45</sub>	16.8	X	317.03189	173.93769	252.88628	3.05706	0.0549216	0.21509848	2.7587424	20	11 23.2	20.2
444618 2006 VR <sub>61</sub>	19.0	X	211.96584	92.99345	254.09128	1.26182	0.1482049	0.32252667	2.1058413	20	3 11.4	22.2
444619 2006 WV <sub>82</sub>	16.8	X	41.08653	75.66925	256.17006	3.26749	0.0745924	0.21193344	2.7861408	20	11 20.0	20.4
444620 2006 VT <sub>88</sub>	17.0	X	52.81463	21.53170	292.68631	3.38767	0.0661011	0.21071667	2.7968561	20	11 10.4	20.8
444621 2006 VU <sub>100</sub>	16.3	X	40.36686	266.97759	61.93171	14.62053	0.1740219	0.21403250	2.7678947	20	11 30.0	20.0
444622 2006 VR <sub>107</sub>	16.5	X	322.38961	334.11154	84.24702	9.44429	0.1912147	0.21300162	2.7768182	20	11 20.9	19.1
444623 2006 VJ <sub>154</sub>	16.9	X	327.87421	224.83055	234.48822	7.76609	0.0987024	0.22019966	2.7159699	20	—	—
444624 2006 VJ <sub>170</sub>	16.6	X	342.99626	289.36457	116.85420	8.55087	0.2307074	0.21352206	2.7723042	20	12 20.2	19.2
444625 2006 VU <sub>170</sub>	16.3	X	334.43322	289.11422	104.39399	14.38140	0.1492637	0.20241105	2.8728519	20	11 10.5	19.7
444626 2006 VV <sub>172</sub>	17.2	X	32.75907	95.57823	224.65375	12.10620	0.2177121	0.21263379	2.7800196	20	9 16.5	20.8
444627 2006 WU <sub>1</sub>	18.9	X	137.23443	208.98587	332.23473	2.90992	0.3554463	0.41216297	1.7882301	20	11 26.5	22.0
444628 2006 WQ <sub>1</sub>	19.3	X	269.20722	205.21199	111.81878	14.41116	0.2404609	0.55025604	1.4748896	20	3 10.1	20.9
444629 2006 WD <sub>30</sub>	16.2	X	323.67383	345.55552	75.24462	13.01950	0.1067800	0.21444365	2.7643557	20	11 26.3	19.4
444630 2006 WH <sub>39</sub>	17.3	X	33.27780	122.53606	227.85991	7.41843	0.3045544	0.21630704	2.7484570	20	—	—
444631 2006 WL <sub>51</sub>	16.2	X	35.65940	359.59380	252.86292	9.20994	0.0634210	0.19013157	2.9952510	20	7 24.8	20.3
444632 2006 WX <sub>69</sub>	17.3	X	290.19021	49.03150	13.02144	6.02414	0.0874634	0.20868620	2.8149686	20	10 4.3	20.8
444633 2006 WL <sub>71</sub>	17.2	X	28.01926	305.68508	34.28778	3.99357	0.0995371					



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Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
444641 2006 XU <sub>37</sub>	16.6	X	219.96451	324.74395	106.59859	6.74694	0.0894948	0.18562134	3.0435757	20	7 14.9	21.1
444642 2006 XO <sub>59</sub>	16.1	X	109.55225	230.25597	308.75610	7.89175	0.0818312	0.18225646	3.0809224	20	7 30.3	20.4
444643 2006 YW <sub>10</sub>	16.8	X	228.82434	309.50444	113.91104	3.96378	0.0817303	0.18468483	3.0538561	20	7 15.5	21.3
444644 2006 YZ <sub>31</sub>	16.0	X	150.45108	172.76999	313.87503	8.67749	0.0366640	0.17861285	3.1222608	20	7 8.2	20.6
444645 2006 YJ <sub>52</sub>	16.3	X	267.63025	72.34413	321.04114	9.22026	0.1010695	0.18691945	3.0294682	20	7 22.9	20.5
444646 2006 YQ <sub>52</sub>	17.8	X	268.59120	292.71176	285.66754	7.35906	0.0775779	0.29541244	2.2328019	20	—	—
444647 2006 YW <sub>53</sub>	18.5	X	54.28498	142.43004	292.33060	3.00747	0.0786216	0.29715727	2.2240530	20	—	—
444648 2007 BR <sub>9</sub>	15.9	X	311.57820	207.79672	111.73592	10.95089	0.0885180	0.17679118	3.1440950	20	6 18.1	20.1
444649 2007 BV <sub>9</sub>	16.5	X	203.10441	98.62413	335.84788	8.49640	0.0354852	0.17834958	3.1257530	20	7 4.6	21.1
444650 2007 BL <sub>13</sub>	16.8	X	130.41193	171.54661	348.93149	4.56382	0.0658787	0.17993417	3.1073746	20	7 30.0	21.3
444651 2007 BY <sub>15</sub>	16.2	X	353.86484	15.54651	316.66645	10.03340	0.1842996	0.19012172	2.9953545	20	9 11.9	19.4
444652 2007 BO <sub>21</sub>	16.2	X	103.73160	206.01628	317.76991	6.64310	0.1290378	0.17599910	3.1535211	20	7 10.3	20.8
444653 2007 BP <sub>26</sub>	18.1	X	27.29601	80.75748	106.92026	1.25328	0.0966524	0.31192732	2.1532797	20	4 12.9	19.6
444654 2007 BT <sub>65</sub>	18.2	X	266.48967	51.28551	145.23101	2.92491	0.1390243	0.28469648	2.2884845	20	—	—
444655 2007 BA <sub>71</sub>	17.9	X	223.87904	58.66869	151.26784	12.17618	0.1457832	0.27846564	2.3224960	20	—	—
444656 2007 BP <sub>78</sub>	16.2	X	331.81661	63.02707	309.48634	8.43949	0.0635985	0.19331239	2.9623037	20	9 25.9	20.2
444657 2007 CY <sub>12</sub>	17.7	X	74.64878	215.67532	292.82865	4.44452	0.1304424	0.30682643	2.1770791	20	3 22.4	19.4
444658 2007 CX <sub>19</sub>	16.9	X	259.23216	297.96336	159.95163	5.96911	0.1972446	0.19721840	2.9230602	20	9 19.9	20.8
444659 2007 CG <sub>23</sub>	16.6	X	85.67772	57.78368	161.26584	4.55087	0.0891402	0.18051088	3.1007526	20	8 22.1	21.0
444660 2007 CL <sub>31</sub>	16.7	X	87.31425	76.41062	145.46151	3.36732	0.0371277	0.18304184	3.0721032	20	8 21.3	20.9
444661 2007 CY <sub>39</sub>	16.5	X	214.91669	153.07873	319.68552	9.62808	0.0678397	0.18732847	3.0250568	20	8 30.7	20.9
444662 2007 CC <sub>40</sub>	16.1	X	309.34012	53.99422	319.99106	12.48814	0.0955716	0.18690013	3.0296769	20	8 24.0	19.9
444663 2007 CE <sub>40</sub>	15.8	X	60.21701	258.07755	321.69671	6.80159	0.0555687	0.17516807	3.1634872	20	7 17.5	20.2
444664 2007 CN <sub>58</sub>	15.6	X	79.93978	202.26372	12.23883	10.84893	0.0735398	0.18075524	3.0979574	20	8 11.9	20.1
444665 2007 CR <sub>67</sub>	16.8	X	67.83150	85.41205	113.77964	2.24358	0.1106416	0.17290416	3.1910412	20	7 8.2	21.2
444666 2007 DV <sub>2</sub>	16.0	X	82.63326	188.17814	21.17595	5.36462	0.1040312	0.17643653	3.1483068	20	8 10.4	20.5
444667 2007 DS <sub>18</sub>	16.4	X	103.85794	209.10855	340.20402	8.04774	0.0739620	0.17585023	3.1553007	20	8 5.9	21.0
444668 2007 DP <sub>22</sub>	16.8	X	235.31625	298.76819	158.73835	5.11439	0.2113547	0.18885127	3.0087732	20	8 20.1	21.4
444669 2007 DS <sub>22</sub>	17.7	X	212.47032	287.06968	342.23271	6.45278	0.1018940	0.28700672	2.2761874	20	—	—
444670 2007 DK <sub>23</sub>	16.2	X	65.46196	236.03185	331.25493	4.91321	0.0887146	0.17066617	3.2188772	20	7 12.9	20.6
444671 2007 DT <sub>26</sub>	15.6	X	1.44954	296.35304	359.68200	8.97543	0.0917827	0.17454281	3.1710377	20	8 6.7	19.7
444672 2007 DX <sub>29</sub>	16.1	X	174.72925	331.68676	151.49712	11.59258	0.2435378	0.17980149	3.1089032	20	7 28.6	21.7
444673 2007 DU <sub>30</sub>	16.2	X	168.44363	320.07933	157.01047	11.29774	0.1448876	0.17585828	3.1552044	20	7 16.1	21.4
444674 2007 DJ <sub>32</sub>	15.7	X	23.72703	262.94804	351.83036	11.02853	0.0745169	0.16983264	3.2294008	20	7 15.5	20.1
444675 2007 DS <sub>42</sub>	17.7	X	11.96081	28.05957	138.79025	2.72365	0.1703087	0.30103222	2.2049262	20	2 3.4	19.0
444676 2007 DQ <sub>45</sub>	16.1	X	114.33192	228.12001	302.04114	8.72700	0.0213898	0.18134027	3.0912909	20	7 17.9	20.5
444677 2007 DL <sub>65</sub>	16.2	X	271.57768	41.59273	334.67336	16.81832	0.0224923	0.17553490	3.1590784	20	7 20.0	20.8
444678 2007 DO <sub>67</sub>	18.4	X	347.17160	138.19284	14.25670	2.21239	0.1478071	0.29324697	2.2437804	20	—	—
444679 2007 DR <sub>69</sub>	16.0	X	185.26855	136.62372	345.98601	11.22555	0.1136993	0.18072541	3.0982983	20	8 12.2	20.9
444680 2007 DM <sub>70</sub>	16.9	X	86.80856	186.94424	32.37488	2.12017	0.0568345	0.17667122	3.1455181	20	8 20.4	21.3
444681 2007 DO <sub>83</sub>	16.2	X	215.73024	80.29782	350.42119	8.66952	0.0443490	0.17657532	3.1466569	20	7 14.8	20.9
444682 2007 DV <sub>89</sub>	16.1	X	230.05924	62.82421	345.22088	15.58663	0.0756735	0.17492767	3.1663850	20	6 29.8	21.1
444683 2007 DY <sub>90</sub>	16.6	X	309.65560	63.41619	335.40439	8.23732	0.1046813	0.19111300	2.9849878	20	9 25.5	20.4
444684 2007 DZ <sub>102</sub>	16.6	X	307.88497	32.53552	342.68865	16.81346	0.2140292	0.18520163	3.0481723	20	8 14.1	20.1
444685 2007 DO <sub>107</sub>	17.8	X	204.37395	100.48469	137.15391	4.66711	0.1028820	0.28373423	2.2936557	20	—	—
444686 2007 DP <sub>113</sub>	16.0	X	67.55352	225.70122	349.98197	9.01553	0.0532448	0.17030801	3.2233886	20	7 22.8	20.5
444687 2007 DH <sub>116</sub>	15.7	X	162.34629	125.97735	11.78199	27.48276	0.1407438	0.17842166	3.1249111	20	8 20.2	21.2
444688 2007 EL <sub>2</sub>	18.3	X	289.40977	32.91159	177.79586	3.56009	0.0857474	0.29054618	2.2576638	20	—	—
444689 2007 EP <sub>9</sub>	16.1	X	259.27729	59.00942	353.37055	10.78378	0.0959536	0.18179219	3.0861656	20	8 8.3	20.6
444690 2007 EQ <sub>17</sub>	16.7	X	146.25202	172.52298	355.16828	0.26065	0.0331274	0.17844578	3.1246295	20	8 23.1	21.2
444691 2007 EP <sub>20</sub>	18.0	X	233.77598	235.42752	348.08447	5.96046	0.1923642	0.28050900	2.3112035	20	—	—
444692 2007 EK <sub>32</sub>	17.7	X	181.44422	240.40924	260.69394	3.91491	0.1894022	0.27669083	2.3324170	20	—	—
444693 2007 EM <sub>33</sub>	16.1	X	75.60678	223.69195	333.44056	10.94523	0.0419739	0.17135844	3.2102021	20	7 7.4	20.7
444694 2007 EQ <sub>37</sub>	17.6	X	231.90701	261.54303	343.05260	5.72495	0.1214283	0.28280389	2.2986832	20	—	—
444695 2007 EY <sub>41</sub>	18.0	X	234.42534	215.69850	357.76035	3.60604	0.1839135	0.27704644	2.3304207	20	—	—
444696 2007 EB <sub>56</sub>	16.2	X	331.77536	183.09989	151.13382	10.82674	0.1021148	0.17473078	3.1687631	20	8 5.4	20.2
444697 2007 EX <sub>67</sub>	16.4	X	181.48568	120.15026	5.76022	11.57240	0.0941622	0.17780781	3.1320991	20	8 14.5	21.3
444698 2007 EX <sub>69</sub>	17.7	X	183.20603	131.15197	159.03070	5.77785	0.1683874	0.28005151	2.3137198	20	—	—
444699 2007 EA <sub>77</sub>	16.3	X	165.43963	331.70517	171.84434	9.83360	0.0523771	0.17626230	3.1503811	20	8 13.6	21.0
444700 2007 EY <sub>80</sub>	16.3	X	239.69778	123.00385	323.01126	11.10579	0.0538231	0.18671086	3.0317240	20	8 28.4	20.7
444701 2007 EZ <sub>81</sub>	16.3	X	189.74555	322.55643	170.73337	10.22232	0.0795574	0.18116750	3.0932559	20	8 27.8	21.1
444702 2007 EG <sub>89</sub>	16.0	X	64.18838	62.70695	162.03238	5.51200	0.1351891	0.17377880	3.1803252	20	8 8.2	20.5
444703 2007 EY <sub>95</sub>	17.6	X	149.38602	242.98907	48.21557	4.33251	0.2299035	0.27122005	2.3636773	20	—	—
444704 2007 EA <sub>121</sub>	17.9	X	191.57563	303.74094	342.62790	7.26081	0.1112928	0.28746592	2.2737627	20	—	—
444705 2007 EX <sub>126</sub>	16.1	X	248.29449	74.95561	326.32996	10.24039	0.0528341	0.17876443	3.1209153	20	7 15.7	20.6
444706 2007 EW <sub>127</sub>	18.1	X	11.72136	129.63670	352.89444	7.43115	0.0467866	0.29143191	2.2530871	20	—	—
444707 2007 EA <sub>132</sub>	18.0	X	172.28387	87.83274	178.37022	1.23775	0.1624236	0.27343798	2.3508783	20	—	—
444708 2007 EJ <sub>133</sub>	16.7	X	100.84320	128.43790	64.90552	0.72312	0.1555722	0.17259931	3.1947975	20	8 15.1	21.6
444709 2007 EJ <sub>140</sub>	16.6	X	140.37532	352.91489	176.43823	9.72655	0.0395959	0.18021025	3.1042002	20	8 16.9	21.3
444710 2007 EV <sub>140</sub>	18.3	X	225.68531	352.57368	115.47009	2.93622	0.1751056	0.27447288	2.3449653	20	—	—
444711 2007 EG <sub>151</sub>	16.3	X	305.11737	10.58033	8.98392	11.94808	0.1491708	0.18172642	3.0869103	20	8 24.2	20.2
444712 2007 ES <sub>161</sub>	16.4	X	135.16632	201.35698	309.24086	9.43730	0.0458991	0.17822808	3.1271734	20	7 20.9	20.8
444713 2007 EE <sub>186</sub>	16.1	X	284.71269	32.46958	9.89264	11.76657	0.1213282	0.18436589	3.0573770	20	8 27.1	20.2
444714 2007 EH <sub>190</sub>	17.8	X	175.82860	111.46617</								

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
444721 2007 <i>FP</i> <sub>1</sub>	18.2	X	234.13696	79.23890	116.33049	4.15990	0.1266966	0.27630027	2.3346145	20	—	—
444722 2007 <i>FQ</i> <sub>6</sub>	16.3	X	245.96561	63.98911	356.64154	26.51295	0.1354887	0.17883649	3.1200768	20	8 5.9	21.3
444723 2007 <i>FA</i> <sub>16</sub>	18.2	X	240.18131	357.21281	201.27149	6.41348	0.1886187	0.27625038	2.3348955	20	—	—
444724 2007 <i>FM</i> <sub>16</sub>	16.6	X	203.36468	292.18589	156.83777	11.32191	0.0879831	0.17925436	3.1152260	20	7 17.7	21.5
444725 2007 <i>FA</i> <sub>20</sub>	16.1	X	265.38912	38.69319	356.77179	15.86631	0.2164838	0.17857982	3.1230658	20	7 7.7	21.0
444726 2007 <i>FY</i> <sub>25</sub>	17.5	X	221.21152	268.99024	349.27708	6.99316	0.1463046	0.28426748	2.2907864	20	—	—
444727 2007 <i>FN</i> <sub>27</sub>	16.1	X	27.08289	92.46320	178.66657	9.40916	0.0620419	0.17409292	3.1764984	20	8 5.1	20.4
444728 2007 <i>FO</i> <sub>47</sub>	17.7	X	168.80101	248.50823	28.23437	6.89658	0.0905599	0.27354628	2.3502578	20	—	—
444729 2007 <i>FQ</i> <sub>48</sub>	17.2	X	182.31133	324.07707	179.65216	0.70175	0.1341682	0.18172879	3.0868834	20	8 31.7	22.0
444730 2007 <i>GT</i> <sub>10</sub>	15.8	X	159.93705	157.71836	18.18948	19.38870	0.1665147	0.18227220	3.0807450	20	9 23.7	21.0
444731 2007 <i>GS</i> <sub>17</sub>	17.8	X	227.40152	242.64243	356.27499	4.49602	0.1159092	0.27703609	2.3304787	20	—	—
444732 2007 <i>GC</i> <sub>29</sub>	18.0	X	170.65098	81.84600	165.71195	2.79042	0.1581650	0.26671177	2.3902386	20	—	—
444733 2007 <i>GT</i> <sub>31</sub>	18.1	X	174.33698	247.21763	23.23767	1.79697	0.2252304	0.27164086	2.3612356	20	—	—
444734 2007 <i>GG</i> <sub>46</sub>	15.4	X	251.47899	31.06268	45.16853	21.71840	0.1122374	0.17372201	3.1810181	20	9 4.3	20.4
444735 2007 <i>GB</i> <sub>70</sub>	18.0	X	154.75444	243.27003	25.50069	3.31196	0.1530728	0.26956471	2.3733440	20	—	—
444736 2007 <i>HY</i> <sub>12</sub>	17.8	X	297.57197	12.54290	166.34525	8.53197	0.0897524	0.28278078	2.2988085	20	—	—
444737 2007 <i>HO</i> <sub>26</sub>	17.8	X	208.10466	184.11801	72.54755	2.24022	0.1566875	0.27543847	2.3394817	20	—	—
444738 2007 <i>HT</i> <sub>44</sub>	18.2	X	272.60830	160.66245	35.38113	5.07551	0.1599527	0.28052407	2.3111207	20	—	—
444739 2007 <i>HE</i> <sub>48</sub>	17.7	X	129.85974	140.72601	173.74897	2.65310	0.2213033	0.26766295	2.3845725	20	—	—
444740 2007 <i>HM</i> <sub>74</sub>	17.8	X	230.58756	91.83065	92.72724	3.86892	0.1171066	0.26735947	2.3863767	20	12 30.5	20.5
444741 2007 <i>HU</i> <sub>88</sub>	15.6	X	300.67441	358.11767	38.08364	27.98757	0.1224773	0.17460419	3.1702945	20	9 23.1	20.1
444742 2007 <i>HJ</i> <sub>93</sub>	18.6	X	256.03725	223.34500	22.29472	6.60720	0.0739166	0.28873618	2.2670891	20	—	—
444743 2007 <i>HO</i> <sub>93</sub>	16.7	X	183.44922	293.94713	179.48080	9.56513	0.0408191	0.17395816	3.1781386	20	7 27.1	21.5
444744 2007 <i>JP</i> <sub>40</sub>	18.1	X	151.41599	149.98595	140.45891	2.93457	0.2098849	0.26677063	2.3898871	20	—	—
444745 2007 <i>JF</i> <sub>43</sub>	5.3	X	300.74011	121.15575	207.48427	15.07196	0.1870337	0.00394920	39.6396940	20	5 30.7	21.0
444746 2007 <i>LR</i> <sub>9</sub>	18.5	X	187.82969	157.62916	111.98609	4.09742	0.1362103	0.27062676	2.3671306	20	—	—
444747 2007 <i>LW</i> <sub>26</sub>	16.8	X	118.74492	188.93918	106.43923	9.90763	0.2588274	0.26001300	2.4311178	20	—	—
444748 2007 <i>MB</i> <sub>19</sub>	16.9	X	151.68078	165.85880	126.45208	7.54087	0.1266247	0.26068687	2.4269264	20	—	—
444749 2007 <i>QU</i> <sub>10</sub>	17.1	X	262.16681	214.88499	317.38807	3.03531	0.1171721	0.25126707	2.4872093	20	—	—
444750 2007 <i>QL</i> <sub>15</sub>	18.5	X	59.90800	176.09003	173.72763	6.33039	0.1788360	0.24585037	2.5236094	20	—	—
444751 2007 <i>RZ</i> <sub>33</sub>	17.3	X	252.77477	174.90654	200.75440	21.50733	0.0713782	0.36592378	1.9358675	20	6 16.8	19.9
444752 2007 <i>RW</i> <sub>34</sub>	18.1	X	265.67521	56.63042	342.15811	20.77970	0.0974983	0.37700398	1.8977489	20	8 21.1	19.6
444753 2007 <i>RP</i> <sub>37</sub>	15.5	X	209.26710	211.68849	168.08770	3.09009	0.2717481	0.12495489	3.9624811	20	4 25.5	22.1
444754 2007 <i>RD</i> <sub>105</sub>	15.5	X	202.71057	227.74980	148.41323	3.51601	0.2418065	0.12492657	3.9630799	20	4 18.1	22.1
444755 2007 <i>RS</i> <sub>116</sub>	18.0	X	26.69937	67.18004	304.28162	1.91136	0.2090765	0.23957237	2.5675066	20	—	—
444756 2007 <i>RP</i> <sub>132</sub>	17.8	X	255.60119	166.86043	218.26264	19.43763	0.0835260	0.37058058	1.9196156	20	7 2.1	20.2
444757 2007 <i>RL</i> <sub>148</sub>	17.8	X	307.90335	137.56818	183.94165	22.89060	0.0746403	0.37214214	1.9142419	20	6 22.2	20.2
444758 2007 <i>RP</i> <sub>150</sub>	18.0	X	317.70538	184.36404	170.35681	21.63694	0.0809129	0.37795002	1.8945808	20	9 15.8	19.0
444759 2007 <i>RK</i> <sub>175</sub>	18.0	X	22.45698	9.88531	21.08008	14.38461	0.1894339	0.24102429	2.5571851	20	—	—
444760 2007 <i>RS</i> <sub>187</sub>	17.1	X	28.20428	293.58672	129.34324	15.11206	0.2714382	0.24306924	2.5428225	20	—	—
444761 2007 <i>RK</i> <sub>195</sub>	18.4	X	68.66493	326.06054	347.63813	4.50706	0.2509355	0.24113297	2.5564167	20	12 25.9	22.6
444762 2007 <i>RC</i> <sub>220</sub>	16.7	X	138.00366	246.57842	2.95800	13.66023	0.0364197	0.23728758	2.5839615	20	11 30.3	20.6
444763 2007 <i>RN</i> <sub>227</sub>	18.1	X	276.20993	205.69684	171.56679	22.07859	0.1118131	0.37254497	1.9128617	20	7 21.5	20.3
444764 2007 <i>RH</i> <sub>253</sub>	18.0	X	62.33720	237.65867	155.34460	1.30417	0.1723851	0.24674221	2.5175247	20	—	—
444765 2007 <i>RR</i> <sub>259</sub>	17.5	X	70.41624	296.95256	37.28747	13.07191	0.3243066	0.24155429	2.5534433	20	—	—
444766 2007 <i>RS</i> <sub>259</sub>	18.1	X	66.33160	310.01477	41.41077	6.74630	0.2911783	0.24226500	2.5484469	20	—	—
444767 2007 <i>RT</i> <sub>262</sub>	15.6	X	185.65496	126.03776	274.20921	1.59982	0.2692302	0.12504060	3.9606702	20	5 1.2	22.2
444768 2007 <i>RG</i> <sub>270</sub>	16.6	X	38.57763	187.49674	225.07157	15.76023	0.1834842	0.24196972	2.5505198	20	—	—
444769 2007 <i>RR</i> <sub>273</sub>	18.0	X	26.31389	31.94956	336.82555	2.97813	0.2079746	0.23861459	2.5743725	20	—	—
444770 2007 <i>RV</i> <sub>291</sub>	18.3	X	66.18955	180.56780	177.51196	2.13873	0.1460097	0.24579428	2.5239933	20	—	—
444771 2007 <i>RX</i> <sub>308</sub>	17.8	X	26.56415	217.20801	164.10902	11.62241	0.1076532	0.24221006	2.5488323	20	—	—
444772 2007 <i>RE</i> <sub>313</sub>	18.4	X	348.82613	114.15023	159.83321	23.48363	0.0634326	0.37186711	1.9151856	20	6 24.1	20.7
444773 2007 <i>SC</i> <sub>21</sub>	15.4	X	208.19603	114.21059	271.84300	7.47183	0.2476019	0.12516840	3.9579738	20	4 29.7	22.1
444774 2007 <i>TV</i> <sub>10</sub>	17.1	X	43.56078	346.85733	21.27939	17.58485	0.1597182	0.24119738	2.5559616	20	—	—
444775 2007 <i>TM</i> <sub>16</sub>	18.1	X	57.79988	334.05738	15.31097	30.32903	0.2835894	0.24347652	2.5399860	20	—	—
444776 2007 <i>TR</i> <sub>23</sub>	17.6	X	171.47860	94.26363	12.48839	19.49795	0.1414431	0.36625063	1.9347156	20	7 22.6	20.7
444777 2007 <i>TZ</i> <sub>24</sub>	17.6	X	319.08512	116.70628	180.32200	23.39619	0.0512958	0.36509551	1.9387942	20	6 6.3	20.0
444778 2007 <i>TY</i> <sub>32</sub>	17.6	X	24.67637	356.34690	35.55346	10.78551	0.1453088	0.23988083	2.5653051	20	—	—
444779 2007 <i>TP</i> <sub>36</sub>	17.9	X	57.26946	253.41284	59.88060	2.82184	0.3116588	0.24097398	2.5575410	20	12 20.9	22.0
444780 2007 <i>TZ</i> <sub>39</sub>	17.8	X	75.38315	316.05333	44.06515	4.29250	0.2152755	0.24584697	2.5236327	20	—	—
444781 2007 <i>TP</i> <sub>46</sub>	17.4	X	36.41341	329.78757	48.64492	6.38753	0.2251215	0.23922044	2.5700241	20	—	—
444782 2007 <i>TC</i> <sub>59</sub>	17.0	X	286.02485	255.23858	188.76150	13.69855	0.0669729	0.23467106	2.6031330	20	11 6.4	20.3
444783 2007 <i>TQ</i> <sub>63</sub>	17.7	X	53.69739	319.12274	36.86547	14.31603	0.2744770	0.24087722	2.5582245	20	—	—
444784 2007 <i>TC</i> <sub>64</sub>	17.4	X	312.80230	253.82452	186.51569	2.54146	0.0637896	0.23200221	2.6230584	20	12 9.6	20.4
444785 2007 <i>TR</i> <sub>82</sub>	17.6	X	83.92819	304.12909	21.03167	3.63512	0.1890165	0.24529649	2.5274068	20	—	—
444786 2007 <i>TL</i> <sub>85</sub>	15.9	X	208.62193	350.02296	66.85065	4.78837	0.2142048	0.12548466	3.9513207	20	6 7.1	22.3
444787 2007 <i>TM</i> <sub>106</sub>	18.2	X	51.80418	139.32880	198.00112	13.39315	0.2891874	0.24047748	2.5610601	20	—	—
444788 2007 <i>TN</i> <sub>121</sub>	18.1	X	35.20947	230.62298	144.19593	1.15654	0.2048514	0.23990364	2.5651425	20	—	—
444789 2007 <i>TO</i> <sub>124</sub>	18.2	X	359.89889	252.81292	150.33523	2.50901	0.1444307	0.23645668	2.5900113	20	—	—
444790 2007 <i>TO</i> <sub>136</sub>	17.7	X	22.59103	50.26306	315.49211	8.59629	0.2206910	0.23714852	2.5849716	20	—	—
444791 2007 <i>TR</i> <sub>160</sub>	16.2	X	42.37711	347.11791	30.65502	13.94165	0.1827142	0.23900627	2.5715591	20	—	—
444792 2007 <i>TK</i> <sub>187</sub>	15.9	X	235.71785	197.83139	172.34987	3.09919	0.3130782	0.12646071	3.9309632	20	4 30.8	22.5
444793 2007 <i>TB</i> <sub>202</sub>	18.4	X	55.4									

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
444801 2007 TZ <sub>277</sub>	18.4	X	19.11504	103.00838	256.60255	1.43101	0.1307719	0.23470416	2.6028882	20	12 10.4	21.5
444802 2007 TP <sub>330</sub>	17.5	X	41.37507	347.71061	22.45137	9.54011	0.1478466	0.23894251	2.5720166	20	—	—
444803 2007 TH <sub>356</sub>	17.0	X	85.87600	263.66442	5.94562	23.84910	0.3213771	0.23993489	2.5649197	20	11 13.3	21.9
444804 2007 TT <sub>398</sub>	18.3	X	49.83953	2.69971	3.67523	4.71970	0.2831129	0.24186315	2.5512690	20	—	—
444805 2007 TP <sub>427</sub>	18.5	X	47.98829	299.28972	76.29756	2.31061	0.1286467	0.24147584	2.5539963	20	—	—
444806 2007 TR <sub>427</sub>	17.6	X	49.16058	114.93818	207.35358	15.21709	0.1941041	0.23321642	2.6139461	20	12 9.7	21.5
444807 2007 TQ <sub>440</sub>	18.2	X	36.10342	20.88083	13.10908	8.97963	0.1635271	0.24285132	2.5443434	20	—	—
444808 2007 TR <sub>440</sub>	15.1	X	218.81692	317.51330	72.14270	8.61484	0.2698577	0.12525201	3.9562122	20	5 13.5	21.6
444809 2007 TT <sub>443</sub>	17.1	X	20.74159	17.62611	35.28584	10.92937	0.1256296	0.24469325	2.5315590	20	—	—
444810 2007 UT <sub>2</sub>	16.9	X	351.87585	219.98255	202.20104	33.06271	0.2977160	0.23516860	2.5994601	20	—	—
444811 2007 UD <sub>9</sub>	17.7	X	41.27398	217.00052	181.68180	9.23892	0.2047352	0.24568357	2.5247515	20	—	—
444812 2007 UO <sub>10</sub>	16.9	X	331.11820	195.37276	233.12935	17.17487	0.1630087	0.23327084	2.6135396	20	12 26.1	19.8
444813 2007 UW <sub>12</sub>	17.4	X	96.48971	268.51675	86.38950	2.44526	0.2001229	0.25497432	2.4630417	20	—	—
444814 2007 UB <sub>21</sub>	17.5	X	20.39848	166.55086	219.29979	4.87706	0.0886934	0.23797091	2.5790126	20	—	—
444815 2007 UJ <sub>23</sub>	18.2	X	77.46363	273.93214	52.23944	8.40196	0.3005227	0.24218110	2.5490355	20	—	—
444816 2007 UV <sub>23</sub>	17.7	X	55.02291	204.31828	131.53162	2.22956	0.2031545	0.23674044	2.5879412	20	—	—
444817 2007 UO <sub>33</sub>	16.3	X	26.04447	109.65178	300.43676	11.84720	0.1537760	0.24333214	2.5409907	20	—	—
444818 2007 UC <sub>52</sub>	17.3	X	356.09061	212.21438	218.67293	3.21035	0.2191451	0.23655462	2.5892964	20	—	—
444819 2007 US <sub>67</sub>	18.1	X	52.12161	137.63815	207.26268	7.85436	0.1756935	0.23959722	2.5673290	20	—	—
444820 2007 UW <sub>77</sub>	16.9	X	198.11808	10.78242	214.54767	13.44515	0.1151098	0.24361322	2.5390358	20	—	—
444821 2007 UO <sub>83</sub>	17.9	X	11.93697	218.97416	198.19142	0.43265	0.1522154	0.23932664	2.5692637	20	—	—
444822 2007 UN <sub>86</sub>	17.5	X	347.51895	215.25012	220.57135	11.21686	0.1635148	0.23653716	2.5894238	20	—	—
444823 2007 UC <sub>127</sub>	17.6	X	55.88993	305.88709	62.73011	9.07560	0.1832611	0.24118046	2.5560811	20	—	—
444824 2007 UQ <sub>135</sub>	17.7	X	355.41509	152.79049	246.67150	11.87695	0.2427281	0.23221464	2.6214585	20	—	—
444825 2007 UJ <sub>136</sub>	17.1	X	218.10827	168.74084	252.72251	20.02734	0.1089336	0.36660027	1.9334852	20	7 1.9	19.5
444826 2007 UX <sub>137</sub>	17.1	X	8.11958	25.57153	29.06677	14.11084	0.1603867	0.23789786	2.5795405	20	—	—
444827 2007 UM <sub>138</sub>	17.0	X	36.55055	54.38116	355.73925	5.10413	0.2023023	0.24263744	2.5458384	20	—	—
444828 2007 VH <sub>4</sub>	16.2	X	278.86281	215.71965	240.77815	21.21399	0.0453625	0.22859896	2.6490280	20	11 10.9	19.6
444829 2007 VB <sub>25</sub>	17.9	X	42.76512	236.41490	140.24592	6.30405	0.1290064	0.23840089	2.5759107	20	—	—
444830 2007 VJ <sub>38</sub>	16.6	X	65.29258	254.22349	121.42708	7.30412	0.1027519	0.24225594	2.5485105	20	—	—
444831 2007 VE <sub>64</sub>	17.7	X	64.18682	307.69250	51.25118	7.65249	0.2617590	0.24041355	2.5615141	20	—	—
444832 2007 VP <sub>65</sub>	18.7	X	16.39330	215.91550	196.79197	8.32015	0.3086194	0.24156120	2.5533946	20	—	—
444833 2007 VF <sub>66</sub>	17.8	X	24.26017	237.48903	156.09659	2.78383	0.1457369	0.23766276	2.5812414	20	—	—
444834 2007 VF <sub>67</sub>	17.7	X	43.21846	305.11126	66.21961	5.15610	0.1233072	0.23494953	2.6010757	20	—	—
444835 2007 VJ <sub>72</sub>	18.3	X	57.98142	128.61230	232.50893	3.76593	0.2975367	0.24069176	2.5595399	20	—	—
444836 2007 VN <sub>77</sub>	17.7	X	57.81861	114.87097	201.32637	1.75121	0.1840182	0.23239114	2.6201310	20	12 10.1	21.4
444837 2007 VM <sub>86</sub>	17.8	X	84.55212	61.87107	266.83094	4.81882	0.2866949	0.24417504	2.5351396	20	—	—
444838 2007 VM <sub>87</sub>	16.8	X	304.01663	217.65200	249.50049	12.23266	0.2042665	0.23173296	2.6250899	20	12 26.6	19.2
444839 2007 VW <sub>90</sub>	17.9	X	24.90204	147.62466	231.71338	8.84627	0.2133232	0.23789267	2.5795781	20	—	—
444840 2007 VF <sub>92</sub>	17.5	X	255.01888	118.52217	256.15871	18.22187	0.0873589	0.36237118	1.9484994	20	6 16.7	19.4
444841 2007 VK <sub>93</sub>	16.6	X	349.88874	124.23615	266.49303	12.69105	0.1881633	0.23079692	2.6321828	20	12 12.9	19.2
444842 2007 VN <sub>97</sub>	18.6	X	341.02228	55.23252	353.56902	3.44204	0.2725960	0.23129922	2.6283706	20	—	—
444843 2007 VJ <sub>98</sub>	18.0	X	61.70879	7.45853	345.33462	2.01429	0.2222992	0.24109566	2.5566804	20	—	—
444844 2007 VQ <sub>99</sub>	17.8	X	30.43456	359.09045	28.22275	6.37800	0.2763832	0.23849816	2.5752103	20	—	—
444845 2007 VN <sub>100</sub>	16.3	X	349.55959	1.91237	53.38537	14.33874	0.0781440	0.23169269	2.6253941	20	—	—
444846 2007 VW <sub>100</sub>	18.3	X	35.67317	358.12522	29.13509	3.38991	0.2625403	0.23891021	2.5722484	20	—	—
444847 2007 VJ <sub>112</sub>	17.2	X	74.83443	239.03880	60.52878	4.82268	0.1765249	0.23002908	2.6380370	20	12 5.5	21.3
444848 2007 VM <sub>158</sub>	18.1	X	4.50551	239.08227	166.05599	3.81174	0.0988846	0.23477589	2.6023580	20	—	—
444849 2007 VV <sub>167</sub>	17.5	X	23.63888	346.32059	44.24605	4.29100	0.1653081	0.23501293	2.6006079	20	—	—
444850 2007 VU <sub>179</sub>	17.6	X	42.75988	205.18788	157.22575	1.85939	0.2187575	0.23877846	2.5731945	20	—	—
444851 2007 VM <sub>185</sub>	16.7	X	44.90282	315.30676	47.66019	12.60012	0.0988606	0.23581422	2.5947133	20	—	—
444852 2007 VV <sub>185</sub>	17.6	X	47.07514	113.84332	228.80674	13.36154	0.1526255	0.23424491	2.6062892	20	12 26.0	21.5
444853 2007 VM <sub>186</sub>	16.5	X	20.88214	328.56501	55.21228	14.98156	0.1137032	0.23495340	2.6010471	20	—	—
444854 2007 VR <sub>188</sub>	16.2	X	66.45469	321.49416	42.31515	14.69002	0.0895672	0.24043854	2.5613367	20	—	—
444855 2007 VF <sub>201</sub>	18.1	X	79.58650	297.19758	44.19331	13.24675	0.1189532	0.24158649	2.5532164	20	—	—
444856 2007 VC <sub>203</sub>	17.7	X	335.67643	256.71864	201.18456	8.38814	0.1264614	0.23885251	2.5726626	20	—	—
444857 2007 VA <sub>215</sub>	17.5	X	298.19161	295.09421	173.56445	4.90173	0.2265473	0.22963999	2.6410161	20	12 14.2	19.8
444858 2007 VV <sub>219</sub>	17.7	X	59.73839	151.22913	235.64344	2.69045	0.1980720	0.24243749	2.5472380	20	—	—
444859 2007 VV <sub>230</sub>	17.7	X	20.14189	322.77228	57.85249	4.93775	0.2068208	0.23502468	2.6005212	20	—	—
444860 2007 VJ <sub>235</sub>	16.6	X	3.99376	174.97503	231.95662	7.04935	0.1868312	0.23430337	2.6058556	20	—	—
444861 2007 VG <sub>240</sub>	17.7	X	17.92197	161.43421	224.39527	8.37617	0.1297573	0.23716390	2.5848598	20	—	—
444862 2007 VK <sub>241</sub>	17.6	X	70.31652	282.12680	87.96358	11.20538	0.1879830	0.24533370	2.5271513	20	—	—
444863 2007 VQ <sub>242</sub>	17.1	X	6.61871	66.34490	346.62173	11.62060	0.1894916	0.23822330	2.5771907	20	—	—
444864 2007 VL <sub>255</sub>	17.8	X	2.57673	81.84289	306.34414	3.88668	0.1811877	0.23193308	2.6235797	20	12 30.7	20.7
444865 2007 VV <sub>255</sub>	18.1	X	50.64237	16.42822	358.69460	2.93708	0.2631638	0.24123915	2.5556666	20	—	—
444866 2007 VM <sub>257</sub>	17.2	X	41.64369	347.29084	24.94952	5.05237	0.1900356	0.23800208	2.5787874	20	—	—
444867 2007 VQ <sub>276</sub>	17.8	X	316.73823	114.73014	325.64581	3.96450	0.1469442	0.23226963	2.6210447	20	12 16.2	20.5
444868 2007 VB <sub>277</sub>	17.8	X	354.53575	165.59217	255.07662	6.96389	0.1075467	0.23711986	2.5851799	20	—	—
444869 2007 VA <sub>278</sub>	16.9	X	44.35073	282.07559	58.25879	13.59632	0.2836651	0.23594493	2.5937550	20	—	—
444870 2007 VX <sub>298</sub>	17.4	X	223.43201	309.47731	84.61325	23.52956	0.1011209	0.35943891	1.9590822	20	6 3.5	19.7
444871 2007 VB <sub>322</sub>	17.5	X	43.50360	198.92786	184.11721	6.03347	0.3080863	0.24005206	2.5640850	20	—	—
444872 2007 VF <sub>327</sub>	17.4	X	65.51419	70.82682	258.70726	2.99684	0.3142144	0.23685598	2.5870996	20	—	—
444873 2007 VV <sub>328</sub>	17.5	X	348.03881	217.11703	216.58713	3.17346	0.1878675	0.23401883	2.6079675	20	—	—
444874 2007 VB <sub>329</sub>	16.8	X	249.63427	244.30986	262.64956	11.97215	0.1949749	0.22652002	2.6652114	20	11 12.8	20.4
444875 2007 VV <sub>329</sub>	17.1	X	58.65556	100.38805	254.86105	3.12369	0.2806143	0.23952448	2.5678488	20	—	—
444876 2007 VL <sub>332</sub>												

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>		
444881	2007	WL <sub>8</sub>	17.0	X	332.34853	160.95836	291.98358	3.92824	0.1595352	0.23444455	2.6048094	20	—	—
444882	2007	WN <sub>14</sub>	17.7	X	355.23917	206.97455	190.35019	2.08589	0.2184867	0.23142262	2.6274362	20	—	—
444883	2007	WJ <sub>19</sub>	17.1	X	96.69662	245.02887	75.24166	16.83742	0.2800883	0.24090766	2.5580105	20	—	—
444884	2007	WO <sub>20</sub>	17.4	X	48.49379	296.60219	102.22557	3.97032	0.1726519	0.23427060	2.6060987	20	—	—
444885	2007	WZ <sub>24</sub>	16.0	X	231.94059	232.21077	142.65562	3.62052	0.2448676	0.12424048	3.9776567	20	5 8.0	22.4
444886	2007	WX <sub>37</sub>	17.8	X	23.27249	89.26117	358.04809	3.38933	0.2225251	0.24403313	2.5361223	20	—	—
444887	2007	WO <sub>44</sub>	16.4	X	64.40395	73.24806	283.50648	10.31263	0.2029103	0.24111552	2.5565401	20	—	—
444888	2007	WM <sub>54</sub>	16.9	X	309.73499	134.91431	295.89770	8.42055	0.2063002	0.21873447	2.7280850	20	11 7.6	19.6
444889	2007	WU <sub>59</sub>	16.6	X	12.47837	321.68069	82.33813	14.09735	0.1765082	0.22935136	2.6432313	20	—	—
444890	2007	WB <sub>60</sub>	15.7	X	59.12610	59.03994	169.11531	24.26578	0.2111671	0.17922221	3.1155986	20	8 16.8	20.2
444891	2007	XX <sub>15</sub>	17.3	X	12.02256	6.36861	43.41796	5.73707	0.2836794	0.23614586	2.5922835	20	—	—
444892	2007	XF <sub>26</sub>	17.4	X	63.39459	85.21081	275.79976	7.13235	0.2280970	0.24205078	2.5499503	20	—	—
444893	2007	XU <sub>27</sub>	17.0	X	7.45323	201.21308	243.29332	5.74771	0.3271037	0.23628947	2.5912330	20	—	—
444894	2007	XP <sub>34</sub>	17.3	X	26.38152	112.87705	277.80654	6.28742	0.2028978	0.23722871	2.5843890	20	—	—
444895	2007	XE <sub>43</sub>	16.6	X	99.50754	297.31505	266.63381	8.84541	0.0909051	0.20491938	2.8493602	20	8 18.3	21.0
444896	2007	XS <sub>51</sub>	17.2	X	50.45359	97.41521	292.26564	2.55929	0.2428983	0.24005781	2.5640441	20	—	—
444897	2007	XJ <sub>54</sub>	17.9	X	30.90118	52.11450	345.49921	4.31150	0.2713702	0.23656578	2.5892149	20	—	—
444898	2007	XA <sub>57</sub>	17.1	X	34.31451	289.81648	98.50974	8.70528	0.1767823	0.23753946	2.5821346	20	—	—
444899	2007	XG <sub>58</sub>	16.6	X	4.19665	324.11348	86.64359	14.17234	0.1725711	0.23083557	2.6318889	20	—	—
444900	2007	XJ <sub>59</sub>	16.7	X	37.65188	348.47078	61.18290	8.39143	0.2284681	0.23743722	2.5828757	20	—	—
444901	2007	YM <sub>34</sub>	17.4	X	56.76644	53.08407	297.93099	3.80856	0.2848777	0.23672962	2.5880202	20	—	—
444902	2007	YY <sub>40</sub>	16.6	X	46.29409	47.75770	352.85662	5.10146	0.1678296	0.23782948	2.5800349	20	—	—
444903	2007	YB <sub>51</sub>	17.5	X	300.69490	5.24247	110.85577	4.64329	0.1433426	0.22628033	2.6670931	20	—	—
444904	2007	YK <sub>52</sub>	17.0	X	40.30331	283.88803	67.45839	6.51209	0.0484042	0.22338592	2.6900820	20	12 12.5	20.6
444905	2007	YJ <sub>52</sub>	17.4	X	25.22182	23.20534	353.51333	4.87039	0.2274895	0.23968133	2.5667283	20	—	—
444906	2007	YD <sub>53</sub>	17.1	X	333.60533	136.53353	289.32946	7.74314	0.1475814	0.22420056	2.6835617	20	12 24.9	20.0
444907	2007	YE <sub>56</sub>	16.8	X	327.15134	158.17060	295.90364	4.19131	0.2731448	0.22965205	2.6409236	20	—	—
444908	2007	YF <sub>56</sub>	16.2	X	256.44147	203.11560	281.82084	18.39568	0.2825325	0.21741363	2.7391230	20	9 30.6	20.5
444909	2007	YV <sub>61</sub>	17.1	X	324.05959	335.84483	137.43575	14.30633	0.1414024	0.22630301	2.6669149	20	—	—
444910	2007	YM <sub>64</sub>	17.0	X	56.58137	78.31637	282.15269	1.63429	0.0773824	0.22702908	2.6612258	20	—	—
444911	2007	YT <sub>67</sub>	17.1	X	299.22082	69.14290	347.36644	3.40848	0.0811704	0.21937906	2.7227385	20	10 12.3	20.4
444912	2008	AD <sub>5</sub>	16.4	X	318.30977	155.54633	310.63417	14.34170	0.2769512	0.22947826	2.6422567	20	—	—
444913	2008	AT <sub>5</sub>	17.7	X	325.80752	237.06968	177.72161	2.21979	0.0916701	0.22892330	2.6465253	20	11 25.3	20.7
444914	2008	AZ <sub>13</sub>	17.0	X	286.44790	192.22689	265.51060	4.53901	0.0977071	0.21869895	2.7283804	20	11 15.2	20.4
444915	2008	AE <sub>18</sub>	17.9	X	342.58221	290.63924	127.84692	2.65998	0.3360379	0.22766645	2.6562566	20	—	—
444916	2008	AB <sub>30</sub>	17.7	X	1.17457	11.50594	20.34683	2.35752	0.2162367	0.22526261	2.6751202	20	—	—
444917	2008	AT <sub>41</sub>	17.4	X	337.95411	301.96956	153.91079	5.44411	0.2239835	0.23135453	2.6279517	20	—	—
444918	2008	AT <sub>52</sub>	17.2	X	21.92731	253.43615	119.91860	3.08604	0.0773964	0.22280980	2.6947172	20	12 20.9	20.6
444919	2008	AZ <sub>62</sub>	17.0	X	261.65866	242.65678	174.85363	1.89830	0.0812115	0.20399545	2.8579573	20	8 18.6	21.0
444920	2008	AL <sub>63</sub>	17.6	X	348.31649	171.67625	250.46471	3.92737	0.1886625	0.22769869	2.6560058	20	—	—
444921	2008	AC <sub>92</sub>	17.3	X	349.97932	57.42443	7.75891	3.06228	0.2492231	0.23003341	2.6380040	20	—	—
444922	2008	AA <sub>98</sub>	17.1	X	234.70769	139.67781	2.69781	3.64034	0.0316169	0.21505527	2.7591119	20	11 9.9	20.8
444923	2008	AK <sub>98</sub>	16.9	X	340.10081	341.75220	90.39638	4.87864	0.1494702	0.22568861	2.6717529	20	—	—
444924	2008	AT <sub>112</sub>	16.7	X	50.67894	14.32299	299.41815	12.88072	0.1421341	0.21482683	2.7610676	20	11 17.1	20.7
444925	2008	AF <sub>116</sub>	17.2	X	315.34348	274.60831	145.78846	8.00156	0.1112580	0.21684837	2.7438810	20	11 14.1	20.4
444926	2008	AK <sub>116</sub>	16.9	X	307.19661	93.48477	337.02585	8.64853	0.1703369	0.21859740	2.7292253	20	11 3.6	19.9
444927	2008	AE <sub>117</sub>	17.4	X	335.04930	77.67935	354.70539	6.70754	0.2604228	0.22749117	2.6576208	20	—	—
444928	2008	AD <sub>127</sub>	17.4	X	261.06041	162.37608	291.76061	1.58444	0.0528249	0.21317356	2.7753249	20	10 9.9	21.0
444929	2008	AD <sub>138</sub>	17.4	X	337.22759	279.37146	149.38466	7.46022	0.3920328	0.23068726	2.6330169	20	—	—
444930	2008	BM <sub>24</sub>	17.6	X	265.78249	123.77016	12.56895	1.95676	0.2156690	0.21948679	2.7218475	20	11 17.9	20.7
444931	2008	BS <sub>32</sub>	16.8	X	354.91196	341.20652	101.66266	7.03020	0.2707335	0.23218554	2.6216775	20	—	—
444932	2008	BO <sub>34</sub>	16.7	X	293.86029	307.67285	155.88401	9.68682	0.1229508	0.21610531	2.7501671	20	12 4.2	20.0
444933	2008	BA <sub>52</sub>	15.7	X	30.25935	282.77740	290.98613	12.57605	0.2368813	0.17883041	3.1201476	20	6 18.2	19.1
444934	2008	BF <sub>53</sub>	17.2	X	355.09493	252.05723	166.71665	12.96483	0.2508683	0.22542468	2.6738379	20	—	—
444935	2008	CQ <sub>1</sub>	19.4	X	230.54568	303.75797	290.32701	3.34303	0.4313247	0.30300072	2.1953661	20	—	—
444936	2008	CE <sub>3</sub>	16.6	X	11.02194	268.09364	154.80581	13.31243	0.2592910	0.23157242	2.6263030	20	—	—
444937	2008	CD <sub>17</sub>	16.6	X	91.99014	215.94093	319.55361	10.03020	0.1811243	0.18387914	3.0627702	20	7 19.3	21.2
444938	2008	CU <sub>23</sub>	17.5	X	299.17213	106.45084	315.17360	3.25338	0.1925500	0.21187112	2.7866871	20	10 4.2	20.5
444939	2008	CW <sub>26</sub>	16.9	X	241.52600	132.63807	0.52007	4.75275	0.0711572	0.21305270	2.7763743	20	10 31.3	20.7
444940	2008	CX <sub>40</sub>	17.5	X	243.74446	293.30722	194.61851	4.05285	0.2132667	0.21117041	2.7928482	20	10 8.5	21.3
444941	2008	CF <sub>46</sub>	16.1	X	68.34223	259.19883	336.66677	9.42900	0.0996479	0.18870753	3.0103008	20	8 25.3	20.3
444942	2008	CL <sub>48</sub>	17.4	X	274.94843	199.23904	281.25690	1.82344	0.2580560	0.21892600	2.7264936	20	11 4.0	20.5
444943	2008	CX <sub>57</sub>	17.7	X	320.41464	134.63436	269.78335	3.74403	0.1553675	0.21447601	2.7640776	20	10 25.6	20.7
444944	2008	CY <sub>60</sub>	17.4	X	214.39250	55.16146	108.33939	3.58408	0.1046064	0.20986700	2.8043999	20	11 3.7	21.5
444945	2008	CG <sub>71</sub>	16.6	X	108.65837	261.52256	291.53203	4.36079	0.2288697	0.19222016	2.9735147	20	8 28.7	21.6
444946	2008	CP <sub>83</sub>	16.6	X	336.75213	283.08402	138.23095	13.82276	0.1984889	0.21972349	2.7198924	20	12 27.8	19.4
444947	2008	CG <sub>92</sub>	17.4	X	313.09554	97.62715	351.79949	7.34871	0.3003314	0.22209257	2.7005157	20	12 15.3	19.3
444948	2008	CD <sub>101</sub>	17.0	X	333.01523	10.15251	54.28311	4.70383	0.0942872	0.22271555	2.6954774	20	12 17.4	20.0
444949	2008	CU <sub>107</sub>	16.9	X	333.24011	288.22859	174.67289	13.73446	0.1788034	0.22684648	2.6626537	20	—	—
444950	2008	CZ <sub>107</sub>	16.8	X	351.09877	298.49239	141.34331	13.17204	0.1694176	0.22496189	2.6775037	20	—	—
444951	2008	CT <sub>124</sub>	16.6	X	163.40652	219.26945	317.30256	7.91353</						

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
444961 2008 DP <sub>44</sub>	16.6	X	340.50413	173.72055	138.50998	11.70237	0.0905645	0.18886691	3.0086071	20	7 23.1	20.3
444962 2008 DG <sub>48</sub>	15.8	X	55.55526	237.09547	2.34241	11.90496	0.1909653	0.18453321	3.0555287	20	8 29.6	20.0
444963 2008 DX <sub>51</sub>	17.2	X	5.25959	3.99083	72.63589	7.04583	0.2288225	0.23370835	2.6102768	20	—	—
444964 2008 DX <sub>80</sub>	17.0	X	297.76506	314.21886	127.52679	1.30879	0.0422590	0.21264349	2.7799351	20	11 15.6	20.6
444965 2008 DJ <sub>87</sub>	15.7	X	348.13027	275.44917	13.32519	8.97612	0.0660292	0.18129135	3.0918470	20	7 5.3	19.8
444966 2008 DL <sub>87</sub>	16.8	X	85.24263	129.49585	69.23791	2.48185	0.0837105	0.18332171	3.0689757	20	7 27.2	21.2
444967 2008 ER <sub>9</sub>	18.2	X	219.10544	91.91799	328.29328	16.34788	0.1786591	0.35603126	1.9715629	20	6 30.1	21.1
444968 2008 EQ <sub>15</sub>	17.0	X	24.68980	273.39833	14.07757	10.83179	0.1117333	0.18654756	3.0334930	20	9 5.4	20.9
444969 2008 EO <sub>25</sub>	16.0	X	90.73902	124.22812	89.52839	7.22222	0.1455340	0.18693598	3.0292895	20	9 1.6	20.6
444970 2008 EL <sub>37</sub>	17.0	X	336.10155	85.63083	336.69533	9.52317	0.1013797	0.22124437	2.7074133	20	12 19.9	20.3
444971 2008 EF <sub>50</sub>	17.0	X	24.11978	157.16683	106.13695	2.32083	0.2071352	0.18361029	3.0657592	20	8 11.4	20.3
444972 2008 EN <sub>56</sub>	16.4	X	5.97314	104.79978	151.75228	10.80445	0.1726135	0.18189852	3.0849629	20	6 22.6	19.9
444973 2008 EX <sub>60</sub>	16.7	X	309.03484	258.13353	177.62362	8.81410	0.1419573	0.21061529	2.7977535	20	11 19.9	19.8
444974 2008 EA <sub>65</sub>	16.4	X	57.67086	246.14614	335.68193	9.18441	0.1780824	0.18187339	3.0852470	20	8 5.5	20.5
444975 2008 EL <sub>75</sub>	16.1	X	348.74553	133.29301	160.85890	10.69446	0.1266734	0.17816323	3.1279323	20	7 8.6	19.4
444976 2008 EL <sub>77</sub>	15.8	X	3.60795	276.86368	23.14943	10.85052	0.1374836	0.18426003	3.0585479	20	8 21.7	19.5
444977 2008 EH <sub>115</sub>	16.7	X	36.07702	248.89471	340.80806	11.66424	0.2610419	0.17558110	3.1585241	20	7 28.0	20.5
444978 2008 EW <sub>118</sub>	17.1	X	249.52961	311.61899	163.65244	8.97243	0.1404025	0.21087129	2.7954887	20	10 11.7	20.9
444979 2008 EY <sub>152</sub>	15.9	X	342.53256	104.64552	201.80736	22.62943	0.1261666	0.17990221	3.1077427	20	7 12.5	20.1
444980 2008 EO <sub>161</sub>	16.7	X	302.49606	250.32819	167.48146	2.20465	0.0559481	0.20328799	2.8645840	20	10 19.5	20.2
444981 2008 ET <sub>161</sub>	16.8	X	50.19906	64.15970	187.01512	5.31988	0.1199084	0.18533232	3.0467391	20	8 21.8	20.8
444982 2008 EC <sub>168</sub>	16.4	X	5.61728	67.37305	189.97496	16.54032	0.2050326	0.17294055	3.1905937	20	6 22.8	20.1
444983 2008 FD <sub>12</sub>	16.7	X	288.56108	272.11715	170.23764	8.98045	0.0997002	0.21088496	2.7953679	20	10 30.1	20.2
444984 2008 FR <sub>25</sub>	16.7	X	64.25774	67.21672	182.87878	9.57520	0.0963536	0.18561754	3.0436173	20	9 4.7	21.0
444985 2008 FR <sub>31</sub>	17.0	X	114.48500	33.94201	185.13881	2.79213	0.1065345	0.19710359	2.9241952	20	9 27.4	21.5
444986 2008 FV <sub>35</sub>	16.8	X	51.68782	51.54782	168.80865	6.12685	0.1217093	0.18138424	3.0907914	20	7 14.7	20.9
444987 2008 FW <sub>51</sub>	16.8	X	199.71427	311.64621	174.48276	8.36236	0.0981703	0.19452419	2.9499884	20	8 29.6	21.2
444988 2008 FM <sub>82</sub>	16.8	X	67.52202	66.21017	173.64994	5.34872	0.1671695	0.18571274	3.0425771	20	9 6.9	21.2
444989 2008 FP <sub>90</sub>	17.0	X	339.97127	273.77413	151.19079	8.08146	0.1637337	0.22126913	2.7072114	20	—	—
444990 2008 FO <sub>98</sub>	16.3	X	349.09822	265.26285	171.07220	10.74555	0.1262181	0.18605469	3.0388479	20	9 15.6	20.0
444991 2008 FH <sub>116</sub>	16.9	X	277.63630	243.95753	177.86856	12.11653	0.0409010	0.19610354	2.9341283	20	9 19.9	20.7
444992 2008 FX <sub>121</sub>	16.5	X	314.09767	168.70206	165.03890	14.09834	0.1408942	0.17917336	3.1161648	20	7 3.3	20.6
444993 2008 GR <sub>4</sub>	16.2	X	8.82827	91.64499	172.96371	14.95142	0.2580562	0.17819728	3.1275337	20	7 14.5	19.5
444994 2008 GG <sub>29</sub>	16.9	X	260.97889	71.07435	9.07181	11.94536	0.0221449	0.19682130	2.9269906	20	9 25.5	20.9
444995 2008 GV <sub>32</sub>	17.9	X	196.69762	245.03554	74.09554	7.92521	0.2325251	0.30706821	2.1759361	20	1 27.3	21.5
444996 2008 GV <sub>61</sub>	16.3	X	243.26821	273.74866	142.15070	10.37913	0.1057745	0.18469951	3.0536942	20	7 19.2	20.9
444997 2008 GW <sub>75</sub>	16.9	X	158.62928	171.05723	5.01813	2.37987	0.0646905	0.19371538	2.9581939	20	9 19.1	21.1
444998 2008 GR <sub>79</sub>	16.4	X	49.53371	53.63785	207.64633	8.20254	0.0552743	0.18183446	3.0856874	20	8 22.3	20.7
444999 2008 GG <sub>101</sub>	16.6	X	65.03456	168.75277	71.76161	2.08010	0.1274570	0.18140722	3.0905303	20	8 30.9	20.8
445000 2008 GX <sub>102</sub>	15.9	X	319.31280	301.98216	53.15932	16.61173	0.1379933	0.18111209	3.0938868	20	8 19.9	20.0
445001 2008 GT <sub>106</sub>	16.0	X	23.61312	203.80870	81.56184	2.81826	0.1640757	0.18143526	3.0902118	20	9 4.4	19.7
445002 2008 GV <sub>113</sub>	16.8	X	115.24648	208.53071	354.56561	0.78045	0.2165322	0.18948364	3.0020752	20	9 15.8	21.8
445003 2008 GZ <sub>119</sub>	16.1	X	27.85549	29.32007	195.29138	16.09161	0.1282482	0.17558204	3.1585129	20	6 14.4	20.3
445004 2008 GJ <sub>123</sub>	16.8	X	118.31662	203.10859	355.89905	8.73095	0.0932837	0.18989264	2.9977629	20	9 6.0	21.3
445005 2008 GA <sub>130</sub>	15.8	X	164.56008	270.18546	244.40604	9.70378	0.1289305	0.19056104	2.9907491	20	8 24.5	20.8
445006 2008 GQ <sub>137</sub>	15.8	X	352.81805	205.58012	94.74251	11.22304	0.0982719	0.17555767	3.1585882	20	7 27.7	19.8
445007 2008 HQ <sub>2</sub>	16.4	X	40.44102	255.71976	26.02094	2.21204	0.0865559	0.18797510	3.0181154	20	9 14.5	20.4
445008 2008 HJ <sub>2</sub>	15.8	X	32.98288	201.80332	54.31280	12.43152	0.1659919	0.17997726	3.1068786	20	8 15.7	19.8
445009 2008 HD <sub>11</sub>	16.5	X	66.44096	46.42093	178.73911	10.95116	0.1025944	0.17969573	3.1101229	20	8 5.9	21.0
445010 2008 HE <sub>18</sub>	16.4	X	59.73703	61.53015	175.03133	11.03732	0.1312295	0.17963243	3.1108534	20	8 16.4	20.8
445011 2008 HS <sub>20</sub>	16.7	X	7.86153	279.56991	34.99332	10.57186	0.0691973	0.18588263	3.0407229	20	9 12.2	20.7
445012 2008 HB <sub>26</sub>	16.6	X	45.84048	93.02543	166.60290	7.87730	0.1003138	0.17837484	3.1254578	20	8 23.5	20.7
445013 2008 HC <sub>37</sub>	16.3	X	68.00228	169.88651	53.86822	9.97783	0.0253605	0.17895800	3.1186644	20	7 30.8	20.8
445014 2008 HE <sub>41</sub>	16.7	X	41.91939	82.78142	200.48565	4.87243	0.1446232	0.18534368	3.0466146	20	9 25.1	20.7
445015 2008 HK <sub>51</sub>	16.2	X	352.36613	85.06078	217.76280	6.54375	0.1702024	0.17380115	3.1800525	20	7 27.4	19.9
445016 2008 HO <sub>60</sub>	16.4	X	57.67447	355.47053	188.76507	17.87139	0.1409826	0.16932028	3.2359122	20	6 9.8	21.0
445017 2008 HB <sub>65</sub>	16.2	X	347.14048	205.49284	121.56036	11.38667	0.0486553	0.18317176	3.0706504	20	8 24.8	20.2
445018 2008 JJ <sub>24</sub>	15.1	X	21.07116	24.86201	245.25705	27.48871	0.1765308	0.17527918	3.1621503	20	7 27.8	19.4
445019 2008 JG <sub>31</sub>	18.3	X	240.99113	61.12397	175.08425	3.93918	0.0895051	0.30154604	2.2024208	20	—	—
445020 2008 KB <sub>30</sub>	15.8	X	59.90795	71.82497	165.95016	16.09340	0.1860962	0.17670769	3.1450852	20	8 26.9	20.2
445021 2008 KK <sub>31</sub>	16.2	X	26.42303	85.83866	193.42229	9.98762	0.0311254	0.17874689	3.1211195	20	8 11.3	20.6
445022 2008 KE <sub>39</sub>	15.6	X	100.70421	8.80892	176.14544	13.01538	0.1091638	0.17494229	3.1662084	20	7 28.0	20.5
445023 2008 LN <sub>11</sub>	15.8	X	62.59535	336.82649	231.30595	11.33478	0.1363530	0.17311855	3.1884063	20	7 13.9	20.3
445024 2008 NT	17.9	X	159.61387	66.30738	287.08149	4.79087	0.2837149	0.29215392	2.2493735	20	2 10.0	21.7
445025 2008 NS <sub>1</sub>	17.5	X	66.17985	209.03039	307.77705	14.05080	0.8029563	0.26121433	2.4236583	20	8 7.8	22.5
445026 2008 OX <sub>3</sub>	17.5	X	184.44038	42.64733	264.38970	5.26230	0.1422465	0.29040830	2.2583783	20	—	—
445027 2008 PO <sub>8</sub>	18.0	X	125.26142	33.31824	218.55419	6.62982	0.2240483	0.28350578	2.2948877	20	1 1.9	21.0
445028 2008 PD <sub>20</sub>	18.8	X	140.07087	89.51100	221.08455	0.29012	0.1939702	0.27952727	2.3166118	20	—	—
445029 2008 QT <sub>9</sub>	18.0	X	111.62726	226.34564	160.12293	7.78914	0.1517552	0.28530529	2.2852278	20	1 17.2	20.7
445030 2008 QS <sub>37</sub>	17.7	X	145.60176	190.56707	154.70168	6.60591	0.2182086	0.28562641	2.2835147	20	1 13.6	20.9
445031 2008 QS <sub>39</sub>	17.9	X	160.46768	312.60009	351.86650	6.64010	0.1514416	0.27979113	2.3151551	20	—	—
445032 2008 RT <sub>14</sub>	18.0	X	127.19000	89.55010	286.75892	3.69310	0.1268250	0.28571472	2.2830441	20	1 21.2	20.9
445033 2008 RJ <sub>24</sub>	17.6	X	131.83582	52.51451	299.71041	5.86246	0.1545345	0.28088184	2.3091578	20	—	—
445034 2008												

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
445041 2008 RY <sub>128</sub>	17.1	X	353.78685	168.83209	347.21172	6.51295	0.0311043	0.28929704	2.2641580	20	1 7.2	19.7
445042 2008 RZ <sub>139</sub>	18.3	X	140.08772	106.32406	199.14799	6.21631	0.2410263	0.27856244	2.3219579	20	—	—
445043 2008 RM <sub>141</sub>	17.7	X	190.07806	357.52900	313.94596	4.53364	0.1549135	0.28976561	2.2617164	20	1 9.6	21.1
445044 2008 RY <sub>145</sub>	17.4	X	189.86003	314.14840	335.32912	6.99041	0.1256798	0.28226405	2.3016132	20	—	—
445045 2008 SO <sub>27</sub>	18.2	X	80.62926	191.85444	180.53834	1.02719	0.2031072	0.27288207	2.3540700	20	—	—
445046 2008 SL <sub>28</sub>	18.0	X	34.82006	103.26620	311.60226	2.98328	0.1650895	0.26896969	2.3768429	20	—	—
445047 2008 SP <sub>44</sub>	18.0	X	88.38857	8.23725	20.61747	7.36304	0.1141689	0.27593932	2.3366499	20	—	—
445048 2008 SK <sub>47</sub>	18.2	X	87.39899	234.22878	145.14991	1.45347	0.2011192	0.27398009	2.3477763	20	—	—
445049 2008 SZ <sub>52</sub>	18.1	X	23.75736	254.01657	182.88515	1.12320	0.1611722	0.27054282	2.3676202	20	—	—
445050 2008 SG <sub>56</sub>	18.2	X	24.89501	23.02175	42.76843	2.18653	0.1725279	0.26696413	2.3887321	20	—	—
445051 2008 SZ <sub>62</sub>	18.3	X	59.14239	132.21965	268.22101	1.21384	0.2068494	0.27251750	2.3561691	20	—	—
445052 2008 SW <sub>68</sub>	18.1	X	160.70957	11.06989	334.91791	2.30203	0.1837105	0.29114315	2.2545766	20	1 26.5	21.3
445053 2008 SM <sub>92</sub>	18.1	X	121.22844	143.93132	193.33144	4.32016	0.2430808	0.27648894	2.3335523	20	—	—
445054 2008 SG <sub>99</sub>	18.4	X	112.71445	318.01077	55.72615	5.27203	0.1714266	0.27873329	2.3210090	20	1 7.2	21.1
445055 2008 SV <sub>123</sub>	17.7	X	30.70864	223.91280	211.69904	1.80174	0.1076551	0.27061493	2.3671996	20	—	—
445056 2008 ST <sub>132</sub>	18.0	X	80.86394	96.95564	237.95005	1.87417	0.1946369	0.26404194	2.4063240	20	—	—
445057 2008 SL <sub>139</sub>	17.9	X	130.68633	359.22090	13.99169	6.65653	0.1545917	0.28654025	2.2786570	20	1 27.9	20.9
445058 2008 SO <sub>195</sub>	18.3	X	120.71725	176.76766	153.46255	1.55578	0.2003330	0.27305507	2.3530757	20	—	—
445059 2008 SK <sub>198</sub>	17.7	X	91.39052	180.35601	186.02598	6.94980	0.1546516	0.27086342	2.3657516	20	—	—
445060 2008 SE <sub>202</sub>	17.8	X	131.94416	38.49407	286.00254	1.19107	0.2102980	0.27467480	2.3438171	20	—	—
445061 2008 SH <sub>202</sub>	18.1	X	147.44081	279.12063	15.01403	4.02064	0.2330867	0.27245906	2.3565060	20	—	—
445062 2008 SO <sub>202</sub>	18.2	X	84.41336	200.68446	209.57906	3.85024	0.1675787	0.27750340	2.3278617	20	1 12.2	20.4
445063 2008 SS <sub>204</sub>	17.6	X	84.02428	209.74229	169.56756	5.27289	0.0754867	0.27064692	2.3670132	20	—	—
445064 2008 SF <sub>205</sub>	17.7	X	123.43312	142.70334	164.20119	5.17383	0.1142585	0.26506303	2.4001402	20	—	—
445065 2008 SO <sub>232</sub>	14.8	X	80.94381	241.68205	219.11044	7.74202	0.0930691	0.12339983	3.9957012	20	3 22.4	20.3
445066 2008 SD <sub>242</sub>	18.7	X	95.72068	215.64337	178.18928	2.19371	0.2087539	0.27951358	2.3166874	20	1 14.6	20.9
445067 2008 SA <sub>267</sub>	17.5	X	147.46238	71.80131	220.32443	5.26794	0.2330710	0.26988157	2.3714860	20	—	—
445068 2008 SE <sub>268</sub>	15.3	X	128.19379	277.73507	174.92807	3.24502	0.2210769	0.12547545	3.9515142	20	5 17.8	21.6
445069 2008 SD <sub>285</sub>	18.3	X	35.40016	76.17749	349.14809	3.63418	0.2074259	0.26725826	2.3869792	20	—	—
445070 2008 SE <sub>288</sub>	18.1	X	358.61203	30.54663	70.22721	3.48512	0.1681655	0.26661094	2.3908412	20	—	—
445071 2008 SP <sub>297</sub>	17.6	X	126.48184	53.76289	330.73574	6.73681	0.2069274	0.28716561	2.2753477	20	2 12.2	20.4
445072 2008 SO <sub>299</sub>	18.1	X	69.25126	323.17103	85.50213	2.35811	0.1816844	0.27437034	2.3455495	20	—	—
445073 2008 SE <sub>300</sub>	18.3	X	109.34981	29.74519	357.19505	4.55390	0.2313854	0.27957996	2.3163207	20	1 30.8	21.1
445074 2008 TE <sub>16</sub>	18.1	X	41.94970	173.50095	260.79200	1.82283	0.1584227	0.27474521	2.3434155	20	—	—
445075 2008 TB <sub>18</sub>	18.1	X	137.64790	337.63923	13.21845	2.04792	0.2128465	0.27984763	2.3148435	20	1 13.7	21.2
445076 2008 TP <sub>18</sub>	17.9	X	133.36482	4.70791	327.39749	0.81348	0.1863936	0.27470644	2.3436360	20	—	—
445077 2008 TJ <sub>27</sub>	18.6	X	57.64975	53.43218	2.33883	2.26362	0.2025151	0.27420221	2.3465082	20	—	—
445078 2008 TD <sub>39</sub>	18.3	X	73.86001	157.13987	242.28231	1.32620	0.2096328	0.27338246	2.3511967	20	—	—
445079 2008 TQ <sub>42</sub>	17.6	X	151.68515	61.92902	280.07818	6.61871	0.1343770	0.28277601	2.2988343	20	1 7.2	20.6
445080 2008 TY <sub>43</sub>	18.3	X	358.78548	235.97641	219.78531	5.73945	0.1774525	0.26434417	2.4044896	20	—	—
445081 2008 TL <sub>55</sub>	17.3	X	278.27653	174.13037	16.31259	7.43842	0.0477387	0.27398477	2.3477496	20	—	—
445082 2008 TJ <sub>74</sub>	17.9	X	105.47451	114.64964	223.57095	6.08841	0.1376155	0.26862458	2.3788782	20	—	—
445083 2008 TV <sub>87</sub>	18.1	X	123.92690	239.65011	79.17907	3.44937	0.2386289	0.27287181	2.3541290	20	—	—
445084 2008 TY <sub>87</sub>	17.9	X	92.97979	329.13601	50.65133	7.23989	0.1448288	0.27485085	2.3428150	20	—	—
445085 2008 TR <sub>96</sub>	17.6	X	64.82354	106.41075	331.33352	6.53007	0.1053550	0.28197169	2.3032039	20	1 10.3	19.9
445086 2008 TF <sub>109</sub>	18.0	X	21.06970	276.62493	173.97264	12.12088	0.1770169	0.27140965	2.3625764	20	—	—
445087 2008 TQ <sub>110</sub>	17.8	X	119.31112	26.30981	303.55342	3.13140	0.2380219	0.27474436	2.3434203	20	—	—
445088 2008 TW <sub>121</sub>	17.9	X	91.61983	116.78695	278.48817	5.48104	0.1896267	0.27800317	2.3250710	20	1 7.2	20.1
445089 2008 TV <sub>136</sub>	17.9	X	135.19078	316.12045	25.79357	8.06619	0.1096973	0.27668643	2.3324418	20	—	—
445090 2008 TF <sub>146</sub>	18.6	X	69.79485	259.58466	135.86436	1.71939	0.1806311	0.27388378	2.3483266	20	—	—
445091 2008 TQ <sub>161</sub>	18.3	X	33.55502	262.21794	172.07234	3.96321	0.1202253	0.26884917	2.3775532	20	—	—
445092 2008 TV <sub>161</sub>	18.3	X	349.28835	349.83209	93.30657	2.99778	0.1598259	0.26078614	2.4263105	20	—	—
445093 2008 TL <sub>166</sub>	18.0	X	144.59860	197.35760	131.03199	6.28722	0.2623294	0.28023744	2.3126963	20	—	—
445094 2008 TM <sub>174</sub>	17.7	X	10.44469	54.08893	27.21804	6.53420	0.0555882	0.26897518	2.3768106	20	—	—
445095 2008 TG <sub>175</sub>	18.2	X	95.88161	28.76422	3.70544	6.52626	0.1319977	0.27746165	2.3280952	20	1 1.9	20.8
445096 2008 TS <sub>179</sub>	17.7	X	107.87482	232.17670	121.10076	7.16717	0.2410994	0.27593779	2.3366586	20	—	—
445097 2008 TU <sub>181</sub>	18.1	X	104.50777	251.05390	175.05158	2.62999	0.0630777	0.28698812	2.2762857	20	2 16.9	20.7
445098 2008 UQ <sub>40</sub>	18.1	X	104.30688	313.53662	1.48039	1.32663	0.1976385	0.26354738	2.4093335	20	—	—
445099 2008 UG <sub>42</sub>	18.1	X	78.82568	326.63834	75.72082	2.24665	0.1902602	0.27400175	2.3476526	20	—	—
445100 2008 UL <sub>45</sub>	17.8	X	94.84961	197.16099	146.85760	1.79415	0.2047346	0.26998544	2.3708777	20	—	—
445101 2008 UR <sub>45</sub>	18.3	X	66.04690	20.07159	55.04210	2.41089	0.1549335	0.27846369	2.3225068	20	1 13.9	20.1
445102 2008 UO <sub>52</sub>	17.9	X	119.12790	311.79592	46.43820	7.66730	0.1492113	0.27318671	2.3523197	20	—	—
445103 2008 UO <sub>61</sub>	18.6	X	64.97147	63.21464	340.95211	2.13179	0.1832584	0.27078089	2.3662323	20	—	—
445104 2008 UR <sub>64</sub>	18.3	X	29.03202	96.62261	339.15843	3.78894	0.2047789	0.26686716	2.3893107	20	—	—
445105 2008 UE <sub>71</sub>	18.2	X	43.95880	268.05202	181.04906	4.84803	0.1966244	0.27484464	2.3428503	20	—	—
445106 2008 UE <sub>73</sub>	17.3	X	67.82900	43.29110	19.29808	8.29427	0.1402546	0.27348698	2.3505975	20	—	—
445107 2008 UU <sub>82</sub>	18.6	X	29.85500	80.04260	350.85087	4.36185	0.2284025	0.26558594	2.3969888	20	—	—
445108 2008 UU <sub>105</sub>	17.7	X	117.55159	124.72274	216.57734	6.34434	0.1295724	0.27538051	2.3398100	20	—	—
445109 2008 UW <sub>122</sub>	17.7	X	151.94697	356.52370	307.43294	5.02102	0.1035041	0.26890934	2.3771985	20	—	—
445110 2008 UB <sub>129</sub>	18.0	X	32.31858	231.58907	235.71220	5.95105	0.2678828	0.27296221	2.3536092	20	—	—
445111 2008 UL <sub>135</sub>	18.5	X	79.40482	12.14731	35.65012	1.69346	0.1841198	0.27511554	2.3413121	20	1 3.5	20.4
445112 2008 UM <sub>140</sub>	17.8	X	104.15018	213.96932	172.22896	0.63846	0.1563311	0.27664932	2.3326503	20	1 9.3	20.4
445113 2008 UZ <sub>151</sub>	18.4	X	13.33407	281.22655	157.64675	1.17359	0.1476257	0.26616430	2.3935151	20	—	—
445114 2008 UJ <sub>154</sub>	17.7	X	137.93007	290.50523	44.50570	2.83540	0.2032925	0.27490095	2.3425303	20	—	—
445115 2008 UB <sub>156</sub>	18.0	X	332.28065	244.74247	221.17469	0.65537	0.1484397	0.25838425	2.4413237	20	—	—
445116 2008 UK <sub>169</sub>	18.2	X	3									

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
445121 2008 <i>UL</i> <sub>256</sub>	18.5	X	71.73352	236.52932	179.72056	0.99085	0.1758784	0.27405631	2.3473410	20	—	—
445122 2008 <i>UN</i> <sub>263</sub>	18.6	X	69.13927	104.43295	301.09639	1.27202	0.2070098	0.27024802	2.3693417	20	—	—
445123 2008 <i>UQ</i> <sub>263</sub>	18.2	X	61.21334	26.53411	14.14841	1.20904	0.1829926	0.26706051	2.3881573	20	—	—
445124 2008 <i>UC</i> <sub>268</sub>	18.2	X	47.28771	25.65765	54.20092	3.12131	0.1757144	0.27291389	2.3538871	20	—	—
445125 2008 <i>UD</i> <sub>286</sub>	15.8	X	116.91207	305.61196	149.67234	3.47251	0.1451883	0.12315680	4.0009560	20	5 4.3	21.7
445126 2008 <i>UF</i> <sub>300</sub>	17.5	X	130.37084	351.30159	316.10493	2.72732	0.1324856	0.26544096	2.3978615	20	—	—
445127 2008 <i>UC</i> <sub>323</sub>	17.7	X	116.29619	59.23477	300.35446	4.69185	0.2626538	0.27505385	2.3416621	20	1 7.7	20.5
445128 2008 <i>UY</i> <sub>356</sub>	18.3	X	16.44429	68.17162	32.09565	2.31655	0.1305721	0.26711571	2.3878283	20	—	—
445129 2008 <i>VE</i> <sub>20</sub>	18.5	X	103.96723	263.53066	111.00329	2.39591	0.1847401	0.27394984	2.3479491	20	—	—
445130 2008 <i>VV</i> <sub>39</sub>	17.6	X	351.84022	206.99998	261.41985	6.28122	0.1670069	0.26209079	2.4182519	20	—	—
445131 2008 <i>VE</i> <sub>46</sub>	17.7	X	92.55483	246.38978	111.11880	6.56889	0.1395374	0.26758281	2.3850487	20	—	—
445132 2008 <i>VD</i> <sub>64</sub>	17.5	X	120.18647	30.74437	304.79045	11.54122	0.3144980	0.27658158	2.3330312	20	—	—
445133 2008 <i>WB</i> <sub>3</sub>	17.3	X	47.13744	48.69628	26.18363	6.96541	0.0790322	0.27365991	2.3496072	20	—	—
445134 2008 <i>WT</i> <sub>3</sub>	17.5	X	340.00291	81.93909	47.49691	5.11983	0.1843721	0.26664256	2.3906522	20	—	—
445135 2008 <i>WH</i> <sub>5</sub>	18.4	X	113.29949	165.86617	155.24728	1.62180	0.1914132	0.26819555	2.3814146	20	—	—
445136 2008 <i>WR</i> <sub>5</sub>	18.0	X	147.97024	187.21164	124.84828	3.00386	0.2141374	0.27319238	2.3522871	20	—	—
445137 2008 <i>WH</i> <sub>12</sub>	17.9	X	97.01312	298.57970	93.76386	3.72121	0.1957961	0.27698693	2.3307545	20	1 13.6	20.1
445138 2008 <i>WZ</i> <sub>23</sub>	18.3	X	98.33581	355.19626	6.73468	1.33287	0.1879179	0.27062328	2.3671509	20	—	—
445139 2008 <i>WD</i> <sub>38</sub>	18.1	X	116.64888	143.93809	195.23009	0.85710	0.2021716	0.26976058	2.3721950	20	—	—
445140 2008 <i>WR</i> <sub>42</sub>	17.1	X	162.67911	232.77983	48.39737	5.62048	0.1028790	0.26258571	2.4152124	20	—	—
445141 2008 <i>WO</i> <sub>77</sub>	18.4	X	22.01442	327.84545	126.09653	2.69111	0.1368513	0.26717602	2.3874690	20	—	—
445142 2008 <i>WY</i> <sub>89</sub>	18.0	X	46.76127	18.88069	39.19889	1.33507	0.1833896	0.26135516	2.4227875	20	—	—
445143 2008 <i>WX</i> <sub>94</sub>	18.1	X	24.73271	57.04800	29.58197	2.36285	0.1935514	0.26623862	2.3930697	20	—	—
445144 2008 <i>WL</i> <sub>97</sub>	17.7	X	61.33566	295.45346	113.59914	8.96421	0.1820821	0.27111083	2.3643121	20	—	—
445145 2008 <i>WZ</i> <sub>109</sub>	17.8	X	338.57080	111.16584	351.55100	1.68742	0.1397265	0.25866898	2.4395318	20	—	—
445146 2008 <i>WZ</i> <sub>129</sub>	18.4	X	78.90351	93.52193	291.67709	2.14116	0.2036207	0.26843130	2.3800201	20	—	—
445147 2008 <i>WG</i> <sub>130</sub>	18.4	X	45.30959	55.44838	24.82097	1.55682	0.1558508	0.26939450	2.3743436	20	—	—
445148 2008 <i>WF</i> <sub>133</sub>	18.1	X	60.00781	17.97271	34.80225	3.10790	0.1994045	0.26866734	2.3786258	20	—	—
445149 2008 <i>WT</i> <sub>135</sub>	18.0	X	349.11589	107.64087	340.01273	2.14438	0.1754947	0.25751440	2.4468182	20	—	—
445150 2008 <i>WM</i> <sub>139</sub>	16.9	X	10.33868	0.31835	94.30399	9.01178	0.1091151	0.26254275	2.4154758	20	—	—
445151 2008 <i>XA</i> <sub>3</sub>	18.3	X	10.22608	54.40044	47.41316	2.24587	0.2218601	0.26535285	2.3983922	20	—	—
445152 2008 <i>XQ</i> <sub>48</sub>	17.3	X	60.96898	319.71187	103.65799	11.59920	0.1842323	0.26653918	2.3912703	20	—	—
445153 2008 <i>XY</i> <sub>54</sub>	17.7	X	24.75676	325.80600	118.19720	3.32533	0.1505417	0.26391536	2.4070934	20	—	—
445154 2008 <i>YW</i>	18.3	X	36.07283	105.15572	305.26347	1.52319	0.2009925	0.26289469	2.4133196	20	—	—
445155 2008 <i>YS</i> <sub>7</sub>	17.6	X	30.10233	35.22175	45.90920	2.33435	0.2528982	0.26399375	2.4066168	20	—	—
445156 2008 <i>YH</i> <sub>31</sub>	17.8	X	3.74869	41.56317	45.20634	1.92617	0.1583365	0.25669535	2.4520202	20	—	—
445157 2008 <i>YW</i> <sub>38</sub>	16.4	X	107.06501	190.17911	79.99079	2.80518	0.0299341	0.23717452	2.5847826	20	11 23.1	19.9
445158 2008 <i>YT</i> <sub>50</sub>	17.5	X	359.61776	134.61765	322.48407	4.74893	0.1684134	0.25552815	2.4594814	20	—	—
445159 2008 <i>YT</i> <sub>74</sub>	17.7	X	82.72690	301.44603	84.50139	3.27352	0.2076377	0.26529357	2.3987495	20	—	—
445160 2008 <i>YP</i> <sub>109</sub>	17.2	X	92.38638	57.25779	291.88831	4.17765	0.0888815	0.26171030	2.4205952	20	—	—
445161 2008 <i>YU</i> <sub>122</sub>	17.5	X	22.13329	213.32329	147.29084	4.21644	0.0732032	0.24045796	2.5611987	20	12 9.4	20.7
445162 2008 <i>YM</i> <sub>137</sub>	17.7	X	38.07840	299.79131	135.00185	2.84157	0.1388662	0.26229491	2.4169971	20	—	—
445163 2008 <i>YY</i> <sub>151</sub>	17.1	X	191.52978	264.28881	291.50915	11.49177	0.0623697	0.23523265	2.5989882	20	11 24.6	21.0
445164 2008 <i>YF</i> <sub>152</sub>	17.1	X	146.74064	72.58808	114.17187	10.12863	0.1327156	0.22123437	2.7074949	20	9 28.3	21.5
445165 2008 <i>YD</i> <sub>157</sub>	17.6	X	152.28131	39.30361	175.54879	1.05195	0.1358642	0.22816812	2.6523616	20	11 3.5	21.8
445166 2008 <i>YO</i> <sub>157</sub>	18.0	X	348.25787	320.79248	146.50195	1.73796	0.1457901	0.25534264	2.4606725	20	—	—
445167 2008 <i>YQ</i> <sub>171</sub>	17.7	X	356.80680	100.01552	353.81526	3.44875	0.1468855	0.25549631	2.4596858	20	—	—
445168 2008 <i>AY</i> <sub>17</sub>	17.7	X	97.68821	102.91018	286.98100	9.79127	0.2271403	0.27036672	2.3686482	20	1 17.1	20.2
445169 2009 <i>AQ</i> <sub>28</sub>	18.2	X	11.77679	327.45479	111.18537	2.61983	0.1551846	0.25533224	2.4607393	20	—	—
445170 2009 <i>BJ</i> <sub>24</sub>	16.8	X	169.05566	261.10855	353.26622	6.32017	0.0774163	0.24049016	2.5609701	20	—	—
445171 2009 <i>BH</i> <sub>27</sub>	17.5	X	224.69146	125.73016	84.81565	4.08410	0.0663455	0.24650280	2.5191545	20	—	—
445172 2009 <i>BM</i> <sub>41</sub>	17.4	X	229.82297	197.59724	344.29588	6.05707	0.0711946	0.23842024	2.5757713	20	12 25.1	20.9
445173 2009 <i>BC</i> <sub>46</sub>	17.2	X	95.50317	68.12376	154.14874	7.95411	0.2269456	0.21051618	2.7986316	20	9 26.2	21.7
445174 2009 <i>BD</i> <sub>50</sub>	17.8	X	75.31816	87.67752	314.46543	9.95492	0.2273425	0.26362088	2.4088856	20	—	—
445175 2009 <i>BG</i> <sub>65</sub>	17.0	X	218.11618	217.83524	300.37686	3.63931	0.1621012	0.22956818	2.6415667	20	10 25.8	21.0
445176 2009 <i>BR</i> <sub>70</sub>	17.2	X	216.27503	67.29050	101.73274	8.33051	0.1450568	0.23454699	2.6040509	20	11 13.5	21.0
445177 2009 <i>BO</i> <sub>76</sub>	17.3	X	262.03418	12.88920	124.68681	6.33676	0.2449938	0.23618517	2.5919958	20	11 16.1	20.4
445178 2009 <i>BU</i> <sub>83</sub>	17.1	X	248.75587	55.66807	130.65470	12.58542	0.0772562	0.24593568	2.5230258	20	—	—
445179 2009 <i>BF</i> <sub>88</sub>	17.9	X	268.38676	116.23331	59.38732	1.36821	0.0744553	0.24704139	2.5154918	20	—	—
445180 2009 <i>BL</i> <sub>97</sub>	18.2	X	300.45978	326.35949	136.03992	2.82557	0.1332113	0.23830475	2.5766034	20	12 19.3	20.7
445181 2009 <i>BC</i> <sub>106</sub>	17.2	X	225.63690	340.09039	154.47317	5.65106	0.0950386	0.22653057	2.6651286	20	10 15.9	21.0
445182 2009 <i>BY</i> <sub>112</sub>	17.0	X	247.97460	143.84777	6.97156	9.62750	0.0693261	0.22933646	2.6433458	20	12 4.8	20.7
445183 2009 <i>BY</i> <sub>141</sub>	17.5	X	319.15503	131.84848	327.21295	8.26065	0.1465873	0.24421904	2.5348350	20	—	—
445184 2009 <i>BL</i> <sub>152</sub>	17.4	X	245.22399	181.28500	336.58416	3.94547	0.0351513	0.23761787	2.5815665	20	12 19.1	20.7
445185 2009 <i>BE</i> <sub>156</sub>	17.9	X	29.97245	54.12510	2.97369	2.16063	0.2044292	0.25470982	2.4647465	20	—	—
445186 2009 <i>BK</i> <sub>158</sub>	16.7	X	260.68806	298.06674	151.88152	11.70221	0.0383621	0.22207690	2.7006426	20	10 12.2	20.4
445187 2009 <i>BM</i> <sub>176</sub>	18.0	X	286.47683	158.10240	337.34899	4.32253	0.1675161	0.24044214	2.5613111	20	—	—
445188 2009 <i>BB</i> <sub>180</sub>	16.8	X	164.95961	228.24754	319.31917	6.25071	0.0616125	0.22550868	2.6731739	20	10 11.7	20.8
445189 2009 <i>BL</i> <sub>187</sub>	17.0	X	123.41737	48.89504	170.41820	8.32348	0.2375698	0.21458255	2.7631626	20	10 16.8	21.8
445190 2009 <i>CW</i> <sub>3</sub>	16.8	X	132.54237	232.05023	328.41703	13.91798	0.1310303	0.21903571	2.7255831	20	9 21.5	21.2
445191 2009 <i>CW</i> <sub>15</sub>	18.1	X	0.09383	285.18285	159.26716	2.97182	0.0618135	0.24632323	2.5203787	20	—	—
445192 2009 <i>CW</i> <sub>22</sub>	16.6	X	64.47182	350.85609	303.97249	13.77425	0.2750856	0.22442772	2.6817506	20	11 27.5	21.1
445193 2009 <i>CB</i> <sub>38</sub>	17.7	X	38.39990	214.74492	195.58815	4.36901	0.2618429	0.25712371	2.4492962</			

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
445201 2009 DT <sub>67</sub>	17.6	X	41.29630	290.31492	144.37228	7.15853	0.1199143	0.26024152	2.4296944	20	—	—
445202 2009 DG <sub>73</sub>	17.1	X	147.34096	203.46185	355.82620	3.09488	0.1289751	0.21746202	2.7387167	20	10 8.6	21.3
445203 2009 DG <sub>78</sub>	17.3	X	212.62610	170.29422	40.21177	4.85448	0.0645426	0.23929740	2.5694731	20	—	—
445204 2009 DS <sub>80</sub>	16.5	X	162.63196	213.89533	0.65969	12.60943	0.1123973	0.22398725	2.6852652	20	11 8.3	20.8
445205 2009 DZ <sub>98</sub>	17.1	X	165.22151	194.91700	47.98558	3.16443	0.1510339	0.22974833	2.6401857	20	12 18.3	21.2
445206 2009 DH <sub>100</sub>	17.3	X	219.96784	157.18400	26.04879	6.20919	0.1826445	0.23087910	2.6315581	20	11 26.1	21.3
445207 2009 DZ <sub>104</sub>	17.0	X	348.81188	266.41949	174.57277	11.65825	0.0581756	0.23750370	2.5823938	20	—	—
445208 2009 DB <sub>105</sub>	16.7	X	65.24857	308.35415	6.86290	13.77835	0.0887818	0.22187128	2.7023109	20	11 29.8	20.8
445209 2009 DL <sub>110</sub>	18.0	X	121.35170	356.71049	174.35188	23.04170	0.0853830	0.38067930	1.8855145	20	8 17.5	20.5
445210 2009 DR <sub>110</sub>	17.8	X	286.57941	162.54213	332.58801	1.52536	0.0871925	0.24028934	2.5623968	20	—	—
445211 2009 DC <sub>116</sub>	17.8	X	254.57638	169.36223	305.73059	1.19982	0.1446974	0.22974159	2.6402373	20	10 18.1	21.0
445212 2009 DA <sub>119</sub>	18.0	X	269.67378	163.00570	333.33223	0.76529	0.1815880	0.23588560	2.5941899	20	12 4.7	20.9
445213 2009 DP <sub>119</sub>	17.5	X	151.13073	64.45385	181.40264	2.43130	0.0311458	0.23003836	2.6379661	20	12 13.1	21.2
445214 2009 DG <sub>126</sub>	16.7	X	77.32117	259.11275	4.10455	8.56935	0.1388260	0.21007282	2.8025679	20	10 15.7	20.9
445215 2009 EN <sub>16</sub>	16.7	X	170.22281	57.14219	176.27342	10.22483	0.1426901	0.22984173	2.6394704	20	12 12.9	21.0
445216 2009 EL <sub>17</sub>	17.7	X	298.01340	99.21730	43.32651	3.61370	0.1365466	0.24429045	2.5343411	20	—	—
445217 2009 FH <sub>6</sub>	18.4	X	339.58410	31.86999	54.17035	2.30948	0.1158094	0.24201255	2.5502189	20	—	—
445218 2009 FS <sub>8</sub>	18.5	X	276.26825	206.11812	174.90757	20.96529	0.0930408	0.38054689	1.8859519	20	8 1.3	20.4
445219 2009 FQ <sub>9</sub>	17.3	X	114.91526	43.09106	175.78649	8.60577	0.0629126	0.21367707	2.7709633	20	9 26.9	21.4
445220 2009 FO <sub>34</sub>	16.7	X	319.01762	297.00534	163.51923	9.65380	0.1663577	0.23763067	2.5814738	20	—	—
445221 2009 FL <sub>36</sub>	17.0	X	354.25280	248.48086	168.91022	15.08926	0.1297555	0.23484784	2.6018265	20	—	—
445222 2009 FC <sub>52</sub>	17.3	X	209.94155	42.38087	87.85164	5.72848	0.0757161	0.21512571	2.7585096	20	9 23.7	21.3
445223 2009 FX <sub>58</sub>	17.2	X	116.47544	19.22655	193.43521	4.86303	0.0926613	0.21041967	2.7994872	20	9 21.6	21.3
445224 2009 FG <sub>63</sub>	16.9	X	51.77590	352.12980	25.10655	5.47927	0.0362217	0.23306841	2.6150527	20	—	—
445225 2009 FU <sub>64</sub>	17.2	X	340.97169	72.42633	19.14250	15.23436	0.1063350	0.23787001	2.5797419	20	—	—
445226 2009 FB <sub>73</sub>	18.2	X	266.06450	178.29175	199.98877	22.11904	0.0713324	0.37270183	1.9123250	20	7 10.2	20.7
445227 2009 HM <sub>6</sub>	16.6	X	29.15483	231.55585	133.06479	7.16167	0.0469861	0.22136379	2.7064396	20	12 15.2	20.3
445228 2009 HQ <sub>25</sub>	16.9	X	56.64459	185.08562	127.18351	7.02605	0.0245413	0.21935543	2.7229341	20	11 12.2	20.7
445229 2009 HK <sub>38</sub>	17.0	X	280.39398	329.13752	157.52681	11.05236	0.1506117	0.23301091	2.6154828	20	12 14.5	20.1
445230 2009 HD <sub>52</sub>	17.7	X	352.49397	262.40625	34.84271	22.29363	0.0385061	0.37421749	1.9071579	20	8 28.5	20.0
445231 2009 HK <sub>82</sub>	17.4	X	175.05219	251.43790	210.52841	21.88412	0.0592620	0.37017342	1.9210230	20	7 8.7	20.3
445232 2009 HQ <sub>82</sub>	17.8	X	285.12995	15.96510	33.21952	22.12460	0.0709148	0.38473605	1.8722369	20	10 21.1	18.8
445233 2009 HL <sub>91</sub>	15.9	X	330.23389	230.75158	57.97023	18.99571	0.2559414	0.18106035	3.0944762	20	5 16.4	19.1
445234 2009 HZ <sub>103</sub>	16.8	X	239.28525	327.95304	155.12338	8.49988	0.1715028	0.21507514	2.7589420	20	10 5.7	20.8
445235 2009 JZ <sub>2</sub>	16.7	X	356.57685	18.98644	34.78889	15.45376	0.1116531	0.22958151	2.6414645	20	—	—
445236 2009 JH <sub>14</sub>	17.4	X	342.57699	109.94743	200.44151	0.64525	0.2189175	0.18492130	3.0512520	20	7 19.6	20.4
445237 2009 KA	17.4	X	135.38790	263.11704	216.32239	21.06937	0.0912196	0.36218435	1.9491695	20	6 16.3	20.1
445238 2009 KN <sub>6</sub>	15.5	X	353.29596	228.21494	117.19135	24.36486	0.3993438	0.19090404	2.9871657	20	11 13.5	18.4
445239 2009 KS <sub>13</sub>	16.6	X	358.40070	152.22635	113.36061	9.42367	0.2150186	0.18420606	3.0591453	20	6 20.5	19.5
445240 2009 KW <sub>18</sub>	16.9	X	120.23222	80.08759	158.96854	8.78705	0.1577920	0.20998689	2.8033315	20	11 3.6	21.5
445241 2009 KU <sub>37</sub>	16.7	X	112.73984	171.70777	92.03895	6.57358	0.0569153	0.21340819	2.7732903	20	11 19.7	20.7
445242 2009 OY <sub>5</sub>	15.4	X	11.34559	339.61295	305.78938	16.51090	0.1907950	0.17916478	3.1162643	20	8 11.7	18.8
445243 2009 OZ <sub>13</sub>	16.5	X	4.73955	194.11331	121.56489	2.25791	0.1640928	0.18207514	3.0829675	20	9 11.8	19.9
445244 2009 OX <sub>22</sub>	15.9	X	300.70667	300.90520	53.71463	14.84237	0.2000871	0.17479786	3.1679524	20	6 30.9	20.1
445245 2009 OM <sub>23</sub>	15.5	X	353.62727	337.04571	324.82888	26.62731	0.0947225	0.17616345	3.1515595	20	8 4.1	19.5
445246 2009 PF <sub>2</sub>	15.9	X	0.44472	48.68255	253.60745	8.59500	0.1837268	0.17910210	3.1169914	20	8 11.7	19.4
445247 2009 QD	15.9	X	320.21737	33.68221	325.10189	16.18709	0.1413204	0.17845902	3.1244749	20	8 17.5	19.6
445248 2009 QF <sub>13</sub>	16.0	X	281.95833	225.80347	170.89013	17.04528	0.1028603	0.17347505	3.1840365	20	8 10.6	20.4
445249 2009 QX <sub>18</sub>	16.2	X	350.67411	142.47139	157.83197	28.16309	0.2945352	0.17424722	3.1746229	20	7 22.2	19.3
445250 2009 QR <sub>46</sub>	16.0	X	334.19449	344.83536	10.21620	10.70330	0.2165889	0.17738138	3.1371169	20	9 6.9	19.2
445251 2009 QU <sub>53</sub>	16.2	X	248.16252	172.38513	198.54748	6.86700	0.1727412	0.15726775	3.3991964	20	5 27.8	21.4
445252 2009 QO <sub>59</sub>	15.5	X	347.75959	71.29761	247.59842	11.76375	0.1609712	0.17447223	3.1718928	20	8 6.8	19.4
445253 2009 QA <sub>60</sub>	15.8	X	332.92663	341.74449	349.67535	15.44249	0.2218647	0.17527016	3.1622587	20	8 2.1	19.2
445254 2009 QO <sub>61</sub>	16.1	X	313.99278	123.31852	235.68031	10.43594	0.1906611	0.17346300	3.1841839	20	7 23.7	19.9
445255 2009 QB <sub>63</sub>	16.3	X	9.65759	274.50272	8.13996	11.29929	0.0730814	0.16878067	3.2428056	20	8 1.3	20.7
445256 2009 QG <sub>64</sub>	15.4	X	287.15636	247.62494	128.08241	19.57271	0.1521055	0.16994578	3.2279674	20	7 16.1	19.8
445257 2009 RY <sub>26</sub>	16.0	X	352.67788	105.80740	185.68159	21.98519	0.1899047	0.17184994	3.2040784	20	7 11.3	20.0
445258 2009 RD <sub>29</sub>	15.8	X	167.23458	146.75808	328.29066	6.34487	0.0634461	0.15880387	3.3772405	20	7 12.7	20.8
445259 2009 RR <sub>50</sub>	15.9	X	277.22751	315.08371	18.42371	7.12130	0.1336663	0.15375927	3.4507104	20	5 11.7	20.8
445260 2009 RN <sub>55</sub>	16.3	X	279.31941	356.31402	64.80386	3.36263	0.1285178	0.17183965	3.2042062	20	9 7.3	20.7
445261 2009 RL <sub>63</sub>	15.8	X	349.79071	91.99015	220.18725	14.50720	0.2909288	0.17540596	3.1606263	20	8 1.8	18.8
445262 2009 RP <sub>63</sub>	15.9	X	300.85523	195.07094	196.65335	18.08199	0.2268845	0.17536798	3.1610826	20	8 11.6	20.0
445263 2009 SX <sub>69</sub>	16.2	X	70.05295	75.09956	197.19042	6.20123	0.1457748	0.18354166	3.0665234	20	10 17.5	20.7
445264 2009 SU <sub>92</sub>	15.2	X	279.18541	36.78613	11.37624	26.62310	0.1522345	0.17131752	3.2107133	20	8 30.1	19.9
445265 2009 SZ <sub>97</sub>	15.5	X	151.58811	265.25317	217.01956	13.75169	0.1225310	0.15225348	3.4734247	20	7 3.9	21.1
445266 2009 SY <sub>161</sub>	15.6	X	337.62150	132.84269	182.01179	12.17771	0.1387875	0.17133302	3.2105197	20	7 16.6	19.6
445267 2009 SD <sub>229</sub>	19.5	X	221.96485	181.08177	124.08430	8.11989	0.4099395	0.32423080	2.0984560	20	1 26.6	23.6
445268 2009 SX <sub>291</sub>	16.1	X	349.14280	251.99982	69.39782	1.93769	0.1702361	0.17434918	3.1733851	20	8 19.4	19.4
445269 2009 SU <sub>325</sub>	18.9	X	214.19159	243.40044	71.90240	5.74860	0.3156686	0.32330833	2.1024457	20	2 4.5	22.7
445270 2009 SC <sub>329</sub>	16.1	X	302.79322	201.01735	188.37518	15.59313	0.3040252	0.17335306	3.1855301	20	7 30.9	20.1
445271 2009 SJ <sub>337</sub>	15.3	X	323.13224	341.95741	31.71453	16.33545	0.1793416	0.17567659	3.1573795	20	9 16.8	19.0
445272 2009 SS <sub>350</sub>	16.2	X	355.27440	293.57114	43.74264	12.00191	0.0783365	0.17420644	3.1751183	20	9 22.5	20.4
445273 2009 SL <sub>359</sub>	15.9	X	261.47706	332.34802	40.56756	11.23322	0.0932478	0.15458241	3.4384496	20	6 16.7	21.0



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Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
445281 2009 WM <sub>88</sub>	18.2	X	127.51132	155.40103	218.70226	3.65519	0.1424933	0.30358433	2.1925516	20	1 17.2	20.8
445282 2009 WB <sub>89</sub>	18.9	X	147.36063	235.96442	131.71086	2.14436	0.1849969	0.30796415	2.1717139	20	2 7.5	21.8
445283 2009 WJ <sub>89</sub>	18.2	X	303.72787	21.37072	145.28483	2.86750	0.0821214	0.28954319	2.2628746	20	—	—
445284 2009 WH <sub>138</sub>	18.5	X	117.56934	231.39154	180.13742	2.91227	0.1378877	0.31035480	2.1605471	20	2 23.5	20.8
445285 2009 WL <sub>153</sub>	17.8	X	235.06429	289.53522	301.32873	6.24889	0.0722549	0.29274545	2.2463424	20	—	—
445286 2009 WT <sub>163</sub>	18.2	X	144.13224	63.15618	288.50196	2.89356	0.1335468	0.30175227	2.2014172	20	1 7.9	20.9
445287 2009 WC <sub>169</sub>	15.7	X	112.74555	299.12079	150.84781	3.91955	0.2366967	0.12700606	3.9197024	20	5 3.3	21.7
445288 2009 WO <sub>217</sub>	15.4	X	261.24418	301.80980	70.76818	17.22383	0.1681097	0.15387969	3.4489099	20	6 6.7	20.5
445289 2009 XE <sub>19</sub>	17.3	X	7.30547	212.52047	282.54097	7.17722	0.0877803	0.29082022	2.2562453	20	—	—
445290 2009 XH <sub>22</sub>	18.4	X	170.89120	84.31237	298.05239	4.24939	0.2112683	0.31329146	2.1470246	20	3 19.7	21.8
445291 2010 AT <sub>24</sub>	17.7	X	92.15972	354.97775	93.35243	5.42267	0.1169581	0.30123482	2.2039375	20	3 12.0	20.1
445292 2010 AF <sub>26</sub>	18.2	X	70.86771	111.19590	322.16409	4.98461	0.1108703	0.29219039	2.2496021	20	1 12.1	20.1
445293 2010 AK <sub>27</sub>	17.6	X	353.72093	342.31331	140.14698	7.31779	0.1053988	0.28140734	2.3062822	20	—	—
445294 2010 AU <sub>49</sub>	17.4	X	201.08397	44.46440	177.67265	5.20998	0.1808705	0.26273670	2.4142869	20	12 31.9	20.9
445295 2010 AY <sub>76</sub>	17.4	X	308.94858	145.00335	74.23243	9.77937	0.0577080	0.29870206	2.2163784	20	1 26.3	20.1
445296 2010 AN <sub>104</sub>	17.2	X	68.11079	119.71608	303.15520	23.17784	0.1380957	0.27699951	2.3306839	20	1 1.4	19.7
445297 2010 BJ <sub>87</sub>	16.9	X	162.74406	22.85180	165.71300	11.91493	0.1166048	0.23317929	2.6142236	20	10 15.8	21.0
445298 2010 CZ <sub>21</sub>	18.3	X	306.94529	59.73654	116.90058	2.69235	0.1449768	0.27740512	2.3284115	20	—	—
445299 2010 CZ <sub>23</sub>	18.2	X	343.76726	2.44463	142.86475	4.65556	0.1271068	0.28477172	2.2880814	20	—	—
445300 2010 CS <sub>92</sub>	17.6	X	75.66463	15.46614	24.55478	2.80946	0.1904795	0.28040343	2.3117835	20	—	—
445301 2010 CZ <sub>114</sub>	17.9	X	260.30136	184.31739	349.26671	6.27457	0.0760716	0.26661509	2.3908165	20	—	—
445302 2010 CM <sub>124</sub>	17.6	X	44.96563	150.36115	287.51785	4.75320	0.1088970	0.28467861	2.2885803	20	—	—
445303 2010 CR <sub>131</sub>	17.0	X	172.66559	40.79682	162.48782	12.44966	0.2154022	0.23711433	2.5852201	20	11 9.0	21.5
445304 2010 CY <sub>163</sub>	17.7	X	294.44894	197.42275	349.56168	6.27127	0.0418513	0.28045844	2.3114812	20	—	—
445305 2010 DM <sub>56</sub>	19.9	X	14.08656	48.18379	349.62921	25.60183	0.2924194	0.66046210	1.3058825	20	—	—
445306 2010 DN <sub>79</sub>	17.7	X	108.01708	289.36958	318.54012	2.46645	0.1872134	0.23648589	2.5897980	20	11 4.9	22.0
445307 2010 EY <sub>8</sub>	15.7	X	115.94086	48.54265	42.14635	1.39824	0.1827414	0.12645601	3.9310606	20	4 30.6	21.7
445308 2010 ET <sub>20</sub>	17.7	X	351.25106	304.69848	168.41476	6.44557	0.0933887	0.27410921	2.3470389	20	—	—
445309 2010 EK <sub>42</sub>	17.8	X	197.36276	37.17898	188.81580	4.12585	0.1743955	0.25629921	2.4545461	20	—	—
445310 2010 EP <sub>87</sub>	17.5	X	289.65392	212.09395	24.00269	6.98534	0.0725017	0.27920735	2.3183811	20	1 25.1	20.5
445311 2010 ES <sub>108</sub>	17.9	X	316.30317	51.42232	121.24002	3.04739	0.1306643	0.27469665	2.3436916	20	—	—
445312 2010 EC <sub>110</sub>	17.9	X	357.55470	341.73830	160.67279	3.85445	0.1200714	0.28093854	2.3088471	20	—	—
445313 2010 EF <sub>132</sub>	17.4	X	170.29600	175.23211	60.06735	7.87571	0.0653955	0.24757240	2.5118935	20	12 23.5	21.0
445314 2010 EU <sub>139</sub>	17.7	X	275.29126	205.62147	341.69062	5.07703	0.1176576	0.26776146	2.3839877	20	—	—
445315 2010 FC <sub>15</sub>	17.7	X	164.36037	152.92911	48.75621	5.64387	0.1866838	0.23815919	2.5776532	20	10 29.8	21.8
445316 2010 FC <sub>27</sub>	17.9	X	214.30265	178.85660	58.22066	3.30190	0.1337293	0.26461586	2.4028434	20	—	—
445317 2010 FQ <sub>48</sub>	17.8	X	349.81702	121.58936	21.57284	7.48552	0.0402465	0.27635984	2.3342790	20	—	—
445318 2010 FF <sub>57</sub>	17.6	X	61.87712	81.03686	24.50705	6.07263	0.1342534	0.28957424	2.2627128	20	2 18.9	19.7
445319 2010 FN <sub>72</sub>	16.6	X	300.06421	217.77870	314.39915	22.24354	0.2228254	0.28046465	2.3114471	20	—	—
445320 2010 FW <sub>96</sub>	17.4	X	151.70426	18.47348	186.26914	7.08288	0.0973326	0.23531153	2.5984074	20	10 23.9	21.3
445321 2010 GU <sub>23</sub>	16.8	X	355.44534	317.24387	181.59172	24.85078	0.2441288	0.27710255	2.3301061	20	—	—
445322 2010 GX <sub>24</sub>	16.9	X	126.02605	67.12147	157.73024	13.62572	0.2089166	0.23154645	2.6264994	20	10 28.4	21.5
445323 2010 GS <sub>28</sub>	16.9	X	124.45515	74.42535	182.34563	29.42305	0.2950618	0.23527357	2.5986869	20	12 3.3	22.2
445324 2010 GC <sub>30</sub>	17.5	X	109.24687	253.19465	26.52386	2.98291	0.2033888	0.23715311	2.5849382	20	12 15.2	21.9
445325 2010 GS <sub>33</sub>	18.1	X	325.74894	1.40922	140.97149	3.25954	0.1419390	0.27287306	2.3541219	20	—	—
445326 2010 GK <sub>72</sub>	17.4	X	65.26326	119.59015	166.75340	14.07535	0.3582308	0.21567371	2.7538350	20	11 28.6	22.3
445327 2010 GD <sub>98</sub>	17.3	X	119.26428	228.22005	15.90876	4.65078	0.2236806	0.23278465	2.6171174	20	11 10.7	21.7
445328 2010 GE <sub>119</sub>	17.3	X	3.82134	87.98592	30.59680	7.22704	0.0525797	0.27085936	2.3657753	20	—	—
445329 2010 HL <sub>108</sub>	17.7	X	348.47872	331.61375	168.63090	5.69437	0.1672237	0.27404023	2.3474328	20	—	—
445330 2010 JM <sub>15</sub>	15.9	X	82.48256	183.79284	82.73447	18.29213	0.2183704	0.22784985	2.6548310	20	11 12.1	20.3
445331 2010 JT <sub>36</sub>	17.2	X	113.36321	91.34284	146.24929	8.80771	0.0708058	0.22820966	2.6520398	20	10 24.4	21.1
445332 2010 JD <sub>43</sub>	16.6	X	113.48086	9.27833	228.25902	13.35693	0.2524478	0.22810743	2.6528321	20	10 30.4	21.2
445333 2010 JL <sub>46</sub>	16.7	X	69.98264	225.10001	128.14872	13.07468	0.2745800	0.23745376	2.5827558	20	—	—
445334 2010 JP <sub>75</sub>	17.5	X	100.50552	108.96932	180.70561	8.35011	0.1517591	0.23395681	2.6084284	20	12 17.1	21.7
445335 2010 JR <sub>75</sub>	16.7	X	126.49375	76.30613	192.48938	14.95126	0.1423602	0.23830697	2.5765874	20	12 16.0	21.1
445336 2010 JP <sub>79</sub>	17.3	X	58.50856	128.61250	191.24946	12.61577	0.2689963	0.22723327	2.6596313	20	12 22.8	21.7
445337 2010 JL <sub>162</sub>	17.6	X	308.19989	300.81639	236.38215	1.96522	0.1048839	0.27066604	2.3669016	20	—	—
445338 2010 KU <sub>8</sub>	17.7	X	76.64209	80.03698	195.13307	7.77687	0.2693160	0.22335025	2.6903684	20	11 16.8	22.2
445339 2010 KR <sub>101</sub>	17.1	X	331.32468	57.92953	352.16000	6.84994	0.3240154	0.20539895	2.8449234	20	11 28.6	19.0
445340 2010 LT <sub>48</sub>	16.2	X	345.64166	55.01996	290.51190	10.16629	0.1190375	0.19810436	2.9143387	20	9 11.8	19.8
445341 2010 LU <sub>63</sub>	17.0	X	23.85160	174.15710	139.64141	13.25610	0.1867662	0.21611399	2.7500935	20	10 27.2	20.5
445342 2010 LM <sub>74</sub>	16.8	X	7.68621	355.49262	334.07022	8.44278	0.2313189	0.20087554	2.8874735	20	10 14.4	20.0
445343 2010 LB <sub>97</sub>	16.4	X	257.01833	207.40790	175.51042	9.28017	0.1087561	0.18075255	3.0979882	20	6 23.4	21.0
445344 2010 MQ <sub>23</sub>	16.2	X	27.48316	242.23061	113.60424	21.56545	0.1542778	0.21005843	2.8026959	20	12 16.8	20.1
445345 2010 MJ <sub>69</sub>	17.2	X	354.06865	120.89415	104.26672	3.56284	0.2536808	0.19301219	2.9653745	20	8 29.1	19.7
445346 2010 MS <sub>71</sub>	16.0	X	4.75883	281.68457	61.27688	10.37890	0.0898174	0.20004657	2.8954450	20	10 18.2	19.7
445347 2010 MQ <sub>76</sub>	16.7	X	299.54772	64.32206	312.16105	6.60571	0.0644961	0.18933031	3.0036959	20	8 17.4	20.7
445348 2010 MY <sub>84</sub>	16.2	X	252.42099	296.50492	107.12901	6.29098	0.0874325	0.18169742	3.0872386	20	7 17.5	20.6
445349 2010 MU <sub>107</sub>	16.9	X	318.70504	316.77189	352.24409	2.91744	0.1982035	0.18027732	3.1034302	20	5 30.3	20.7
445350 2010 MY <sub>110</sub>	16.6	X	326.85101	31.50002	303.45553	6.82374	0.2510895	0.18787644	3.0191719	20	7 17.0	19.5
445351 2010 NP <sub>12</sub>	16.7	X	224.40536	264.89592	151.16147	4.44024	0.1022225	0.17562144	3.1580404	20	6 28.8	21.6
445352 2010 NS <sub>23</sub>	16.2	X	64.47615	274.77163	298.33898	7.11261	0.1409562	0.17968502	3.1102464	20	7 26.5	20.4
445353 2010 NM <sub>71</sub>	16.7	X	293.09336	84.29862	304.10230	6.60332	0.0998042	0.18706044	3.0279457	20	8 18.4	20.7
445354 2010 NX <sub>80</sub>	16.7	X	269.03635	167.31234	226.59465	4.89049	0.1469987					

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445361 2010 OS <sub>33</sub>	16.9	X	299.95242	150.25146	229.39290	8.71721	0.1538517	0.18573709	3.0423111	20	8 7.1	20.9
445362 2010 OV <sub>33</sub>	16.8	X	258.13687	66.15499	340.88196	8.72025	0.2261251	0.17797785	3.1301039	20	7 11.5	21.6
445363 2010 OU <sub>40</sub>	15.8	X	72.24932	340.79943	243.25073	12.72089	0.0678000	0.18041796	3.1018172	20	8 4.0	20.4
445364 2010 OK <sub>59</sub>	16.1	X	320.72778	51.76971	313.25300	12.96411	0.1821783	0.18835942	3.0140086	20	8 21.9	19.4
445365 2010 ON <sub>90</sub>	15.7	X	226.03657	241.15407	192.31289	25.73597	0.2567884	0.17274224	3.1930351	20	7 6.1	21.5
445366 2010 OE <sub>98</sub>	16.1	X	292.93653	79.25842	334.45028	12.75585	0.1864128	0.18960880	3.0007540	20	9 8.2	19.6
445367 2010 OF <sub>112</sub>	16.0	X	323.00594	28.48399	329.10026	11.06107	0.1087550	0.18565507	3.0432071	20	8 24.0	19.6
445368 2010 OU <sub>120</sub>	15.2	X	245.04154	76.07599	19.11658	18.81264	0.2179595	0.18401324	3.0612820	20	9 4.0	20.1
445369 2010 OP <sub>126</sub>	16.3	X	65.39518	297.52082	341.24838	15.16140	0.2596866	0.21170889	2.7881105	20	10 31.6	20.9
445370 2010 PS <sub>10</sub>	16.0	X	186.03709	56.93686	165.61156	32.75382	0.3534503	0.23704951	2.5856913	20	12 4.9	21.4
445371 2010 PU <sub>26</sub>	16.6	X	124.97772	346.93276	301.56418	4.78408	0.2275335	0.22939917	2.6428640	20	—	—
445372 2010 PO <sub>27</sub>	16.2	X	237.62110	192.87873	221.87398	8.63272	0.0654001	0.17414687	3.1758424	20	7 14.2	20.9
445373 2010 PK <sub>30</sub>	16.7	X	284.97571	220.85305	209.11626	9.48000	0.2327263	0.18991656	2.9975112	20	9 8.9	20.5
445374 2010 PZ <sub>36</sub>	15.9	X	272.66016	71.16269	323.47755	9.16979	0.0059159	0.17924663	3.1153157	20	8 12.6	20.2
445375 2010 PG <sub>48</sub>	15.7	X	17.81873	244.48204	23.90104	16.28102	0.2052651	0.17895015	3.1187556	20	8 13.5	19.5
445376 2010 PC <sub>55</sub>	16.6	X	304.29487	84.14444	325.02168	9.64564	0.1484056	0.19122193	2.9838541	20	9 24.6	20.3
445377 2010 PU <sub>71</sub>	15.0	X	217.20540	212.10924	254.87454	27.21850	0.1865551	0.17985394	3.1028986	20	8 5.2	20.5
445378 2010 RQ <sub>26</sub>	15.9	X	285.74786	28.81537	348.29451	13.30312	0.1440185	0.18418379	3.0593918	20	7 22.2	20.1
445379 2010 RH <sub>61</sub>	17.1	X	294.99120	342.60251	8.09344	4.54034	0.2029756	0.17971958	3.1098476	20	6 16.9	21.2
445380 2010 RM <sub>65</sub>	18.0	X	184.40224	269.90292	185.36784	21.75589	0.0982019	0.38241703	1.8797982	20	7 12.5	20.9
445381 2010 RQ <sub>70</sub>	16.4	X	287.84484	22.13698	2.88856	10.29814	0.0984016	0.18676467	3.0311417	20	8 11.7	20.5
445382 2010 RV <sub>74</sub>	18.5	X	310.33322	170.99867	191.90335	26.17063	0.1461049	0.39085782	1.8526363	20	9 10.4	19.5
445383 2010 RD <sub>101</sub>	16.6	X	244.72473	230.29608	205.94975	10.83700	0.0834435	0.18657222	3.0332258	20	8 16.0	21.2
445384 2010 RG <sub>105</sub>	16.3	X	305.39917	11.63132	9.19164	10.03981	0.1006440	0.18877251	3.0096100	20	8 31.9	20.1
445385 2010 RO <sub>113</sub>	16.2	X	231.83606	238.25395	222.48378	9.72386	0.1059605	0.18900309	3.0071616	20	8 28.8	20.9
445386 2010 RG <sub>117</sub>	16.7	X	244.06188	272.52816	165.84151	8.49648	0.1147335	0.18461999	3.0545710	20	8 16.1	21.2
445387 2010 RH <sub>119</sub>	16.4	X	34.97861	132.35717	231.82729	11.50171	0.1383732	0.21409474	2.7673582	20	12 31.2	20.3
445388 2010 RF <sub>143</sub>	17.4	X	290.75979	129.13316	309.06615	4.10345	0.2423455	0.19803378	2.9150311	20	9 30.5	20.7
445389 2010 RE <sub>153</sub>	16.4	X	277.17324	37.21306	324.41608	8.26375	0.1135300	0.17758890	3.1346725	20	6 20.9	20.8
445390 2010 RM <sub>176</sub>	16.2	X	225.65902	80.45311	2.30636	9.21886	0.0986288	0.18197469	3.0841019	20	8 6.6	20.9
445391 2010 RF <sub>184</sub>	16.4	X	283.34303	131.09102	276.26613	8.31028	0.0711435	0.19175575	2.9783138	20	8 30.9	20.5
445392 2010 SU <sub>2</sub>	16.2	X	285.72288	171.27253	216.54535	13.44930	0.1154955	0.18249507	3.0782364	20	7 31.8	20.6
445393 2010 SZ <sub>5</sub>	16.3	X	89.64635	217.58964	357.41341	4.48767	0.0982885	0.17993271	3.1073915	20	8 24.3	20.8
445394 2010 SG <sub>11</sub>	16.8	X	351.55271	354.58469	327.98585	7.97560	0.0782162	0.18906944	3.0064581	20	8 24.4	20.5
445395 2010 SV <sub>18</sub>	17.6	X	324.56484	253.53035	117.22439	1.29745	0.2009298	0.19203951	2.9753792	20	9 9.4	20.4
445396 2010 SS <sub>26</sub>	17.1	X	321.63691	225.68727	217.65292	3.63928	0.0410312	0.21023494	2.8011269	20	12 19.7	20.6
445397 2010 TN <sub>10</sub>	16.7	X	332.93851	285.14864	11.70895	0.93204	0.1635722	0.18056085	3.1001806	20	6 13.5	20.1
445398 2010 TZ <sub>12</sub>	16.0	X	103.14911	328.98919	221.45936	9.30057	0.0372723	0.18061627	3.0995463	20	7 28.5	20.6
445399 2010 TE <sub>13</sub>	16.3	X	288.01472	347.57910	358.20772	11.66773	0.0561979	0.17558829	3.1584379	20	6 23.3	20.8
445400 2010 TQ <sub>22</sub>	17.0	X	233.18640	283.49364	191.67931	7.40736	0.1375985	0.19232134	2.9724717	20	9 16.9	21.5
445401 2010 TB <sub>23</sub>	16.7	X	340.76003	303.63089	24.66949	6.13377	0.1479149	0.18814211	3.0163289	20	8 16.8	20.1
445402 2010 TE <sub>23</sub>	17.4	X	304.80231	180.21636	183.01972	0.98244	0.1883131	0.18542203	3.0457564	20	7 22.0	20.9
445403 2010 TB <sub>31</sub>	16.2	X	227.94855	103.61915	9.78049	12.26732	0.0536045	0.19323194	2.9631259	20	9 21.9	20.3
445404 2010 TC <sub>34</sub>	17.0	X	243.29142	274.55267	170.41823	4.70662	0.2191177	0.18360708	3.0657949	20	8 10.9	21.7
445405 2010 TX <sub>37</sub>	16.2	X	291.03626	21.44060	4.65734	9.26221	0.1029036	0.18561771	3.0436154	20	8 16.5	20.3
445406 2010 TZ <sub>44</sub>	17.0	X	337.40053	319.62163	358.44492	1.02814	0.2148784	0.18521921	3.0479795	20	7 19.7	20.1
445407 2010 TO <sub>60</sub>	16.2	X	222.54793	119.86081	318.65121	7.46404	0.1507362	0.17935525	3.1140577	20	7 21.5	21.0
445408 2010 TO <sub>70</sub>	16.8	X	309.04662	115.63639	257.35703	2.08965	0.0618107	0.18957379	3.0011234	20	8 26.7	20.8
445409 2010 TJ <sub>79</sub>	16.5	X	279.26668	181.43749	213.36547	9.61692	0.1695860	0.18220239	3.0815319	20	7 25.3	20.9
445410 2010 TW <sub>81</sub>	16.9	X	243.15791	7.91195	63.34530	1.71062	0.1543641	0.17992708	3.1074563	20	8 2.4	21.5
445411 2010 TV <sub>87</sub>	16.8	X	302.03846	341.18032	37.64307	0.63974	0.0506771	0.18896166	3.0076012	20	8 26.7	20.8
445412 2010 TE <sub>91</sub>	16.9	X	338.79315	167.23644	185.55957	9.76112	0.0709091	0.19299364	2.9655646	20	9 13.7	20.7
445413 2010 TQ <sub>100</sub>	16.6	X	7.58987	191.65737	138.22127	2.81129	0.0502546	0.19489604	2.9462350	20	9 27.7	20.5
445414 2010 TD <sub>106</sub>	16.4	X	295.14159	30.56335	14.52282	9.86172	0.1042851	0.19172066	2.9786771	20	9 16.6	20.2
445415 2010 TV <sub>112</sub>	16.6	X	322.91306	335.06322	6.60365	6.31554	0.1380909	0.18483225	3.0522321	20	8 1.9	20.2
445416 2010 TT <sub>115</sub>	16.5	X	194.05992	272.91672	199.77890	13.47071	0.1681140	0.17736817	3.1372726	20	7 30.9	21.8
445417 2010 TY <sub>142</sub>	16.7	X	338.95785	84.43369	231.68927	12.25672	0.1809355	0.18231151	3.0803022	20	7 18.0	20.3
445418 2010 TL <sub>144</sub>	15.9	X	266.65154	171.05565	231.39832	10.23691	0.0855079	0.18000155	3.1065991	20	7 30.3	20.4
445419 2010 TZ <sub>147</sub>	16.9	X	89.64114	68.80541	258.22083	4.89930	0.0241872	0.21847802	2.7302194	20	—	—
445420 2010 TT <sub>166</sub>	16.4	X	286.43258	117.51687	265.85347	7.58903	0.0975670	0.18406952	3.0606579	20	8 1.2	20.5
445421 2010 TG <sub>168</sub>	16.8	X	223.62697	126.85071	325.50378	0.25631	0.1461843	0.17984694	3.1083793	20	8 8.3	21.7
445422 2010 TJ <sub>178</sub>	17.1	X	274.48707	231.43596	169.94899	1.81029	0.0925097	0.18667328	3.0321308	20	8 11.1	21.1
445423 2010 TU <sub>184</sub>	16.5	X	325.74247	331.08543	20.77661	9.34467	0.1459478	0.18723221	3.0260935	20	8 23.1	20.0
445424 2010 TL <sub>187</sub>	16.5	X	300.15728	34.25860	32.21185	10.27231	0.1176963	0.19853069	2.9101650	20	10 20.6	19.8
445425 2010 UL <sub>1</sub>	16.5	X	233.62739	94.28674	338.34007	4.79624	0.0766827	0.17951308	3.1122322	20	8 2.9	21.0
445426 2010 UJ <sub>10</sub>	15.9	X	328.72919	134.63329	216.99908	18.37620	0.1338447	0.18640451	3.0350447	20	8 17.4	20.0
445427 2010 UU <sub>16</sub>	15.4	X	308.53539	302.36687	58.89521	14.82878	0.0985521	0.17632171	3.1496735	20	8 11.7	19.7
445428 2010 UV <sub>21</sub>	15.3	X	219.32672	221.61943	225.55880	26.14433	0.1481007	0.17397078	3.1779850	20	7 19.8	20.8
445429 2010 UL <sub>25</sub>	16.2	X	290.60230	302.67870	83.98669	2.96810	0.1267205	0.17752487	3.1354261	20	8 9.8	20.2
445430 2010 UH <sub>32</sub>	16.1	X	305.09296	11.71299	1.94867	9.07896	0.0765522	0.18399181	3.0615197	20	8 23.5	20.1
445431 2010 UX <sub>34</sub>	16.4	X	234.83160	114.29041	310.65088	5.10881	0.1078759	0.17537632	3.1609825	20	7 21.2	21.0
445432 2010 UB <sub>42</sub>	16.5	X	272.75154	352.43807	39.77813	12.12725	0.0959157	0.18133992	3.0912949	20	7 31.4	21.0
445433 2010 UK <sub>44</sub>	15.8	X	181.75721	255.75317	235.13006	15.25420						

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
445441 2010 UY <sub>67</sub>	16.5	X	13.90714	314.88297	1.20716	10.20379	0.0504743	0.19088242	2.9873912	20	9 17.8	20.5
445442 2010 UP <sub>69</sub>	16.0	X	274.29633	194.51185	231.08556	9.60441	0.1679350	0.18393165	3.0621872	20	8 26.6	20.4
445443 2010 UH <sub>72</sub>	16.1	X	332.04224	173.77871	186.54116	10.31306	0.0816512	0.18929467	3.0040728	20	9 12.2	19.8
445444 2010 UP <sub>73</sub>	16.0	X	247.64786	39.37469	43.16414	10.70088	0.0947907	0.17850633	3.1239229	20	9 3.3	20.6
445445 2010 UK <sub>77</sub>	15.7	X	321.03900	352.89127	15.34233	16.08200	0.0659641	0.18631041	3.0360667	20	9 13.0	19.7
445446 2010 UM <sub>78</sub>	16.6	X	303.80343	55.18587	339.10329	8.68153	0.1523450	0.18827304	3.0149304	20	9 6.2	20.2
445447 2010 UY <sub>79</sub>	17.1	X	335.65110	295.81034	29.47525	15.83876	0.3202757	0.18448924	3.0560141	20	7 21.2	19.9
445448 2010 UA <sub>81</sub>	15.8	X	313.90317	306.85219	49.34357	17.03661	0.1552628	0.18093545	3.0959001	20	8 8.5	19.9
445449 2010 UZ <sub>87</sub>	16.5	X	277.19708	53.45299	7.05776	10.24532	0.230735	0.18554034	3.0444614	20	8 26.8	20.6
445450 2010 UE <sub>88</sub>	15.9	X	272.74522	9.51982	43.29857	12.24301	0.1154708	0.17908012	3.1172464	20	8 26.2	20.4
445451 2010 UJ <sub>101</sub>	16.6	X	296.81085	217.29874	174.19854	2.41125	0.1652294	0.18926106	3.0044285	20	8 20.1	20.1
445452 2010 UL <sub>107</sub>	15.6	X	59.64390	357.34508	268.22106	7.83647	0.0645162	0.18935691	3.0034146	20	9 11.3	19.9
445453 2010 VT <sub>5</sub>	16.8	X	319.79033	215.25261	161.52796	6.44006	0.2248795	0.18985927	2.9981142	20	9 4.4	19.8
445454 2010 VH <sub>10</sub>	16.2	X	258.58550	194.67395	233.61208	15.60080	0.2181991	0.17987857	3.1080149	20	8 1.2	21.1
445455 2010 VB <sub>14</sub>	16.8	X	322.20310	163.98550	218.36485	10.32313	0.1723488	0.19089519	2.9872580	20	9 19.0	20.2
445456 2010 VF <sub>15</sub>	16.3	X	314.93331	110.44272	246.91792	12.23628	0.1788020	0.18320746	3.0702515	20	7 28.6	20.2
445457 2010 VA <sub>16</sub>	16.6	X	325.20882	21.26224	357.20242	9.30782	0.0712316	0.19130592	2.9829807	20	9 26.9	20.4
445458 2010 VU <sub>19</sub>	15.6	X	319.69080	121.27389	231.94549	15.10815	0.1346217	0.18215988	3.0820113	20	8 3.6	19.7
445459 2010 VM <sub>20</sub>	15.4	X	229.82427	227.19428	222.28448	21.03185	0.1535567	0.17701177	3.1414823	20	8 2.9	20.7
445460 2010 VF <sub>37</sub>	15.8	X	278.25613	315.76210	85.59903	17.48093	0.2260764	0.17941050	3.1134184	20	8 1.6	20.2
445461 2010 VJ <sub>40</sub>	16.5	X	357.01764	331.40370	340.87291	5.90649	0.0149613	0.18185129	3.0854969	20	8 17.3	20.8
445462 2010 VU <sub>48</sub>	16.4	X	281.96872	289.74591	111.27209	2.85785	0.1726834	0.17778949	3.1323143	20	8 8.7	20.7
445463 2010 VD <sub>61</sub>	15.8	X	294.47052	310.74549	82.69974	13.24654	0.1218430	0.18158331	3.0885320	20	8 30.8	20.0
445464 2010 VE <sub>64</sub>	16.5	X	233.21775	13.60128	72.60588	11.82297	0.1382102	0.17775774	3.1326872	20	8 15.6	21.4
445465 2010 VV <sub>69</sub>	17.2	X	305.68786	126.97080	256.86685	2.57254	0.1829341	0.18538187	3.0461962	20	8 20.8	20.7
445466 2010 VQ <sub>73</sub>	17.0	X	315.43575	349.80235	37.03809	10.40246	0.1022378	0.19045729	2.9918350	20	9 25.8	20.7
445467 2010 VK <sub>77</sub>	16.1	X	277.03227	209.17877	176.69481	13.19276	0.1519307	0.17935242	3.1140904	20	7 14.4	20.6
445468 2010 VZ <sub>77</sub>	15.9	X	199.15003	273.73102	221.46743	14.06420	0.0285823	0.18370785	3.0646737	20	9 9.9	20.5
445469 2010 VG <sub>82</sub>	15.9	X	250.52015	34.56761	58.42110	17.69597	0.1408030	0.18458612	3.0549447	20	9 19.1	20.6
445470 2010 VG <sub>84</sub>	16.6	X	300.85403	119.28201	245.16664	4.45833	0.1389555	0.17591215	3.1545602	20	7 22.8	20.6
445471 2010 VO <sub>85</sub>	16.3	X	310.45488	122.83104	228.16761	8.61725	0.1404745	0.17965624	3.1105786	20	7 18.9	20.4
445472 2010 VA <sub>89</sub>	16.0	X	272.83114	341.25582	45.80833	11.16927	0.1546462	0.17343405	3.1845383	20	7 12.9	20.6
445473 2010 VZ <sub>98</sub>	4.8	X	358.57951	313.61630	117.31979	4.51347	0.7734215	0.00052769	151.6641161	20	11 17.9	20.2
445474 2010 VF <sub>101</sub>	17.3	X	319.13965	157.54090	188.15657	0.71544	0.1650480	0.17887454	3.1196344	20	7 25.8	20.9
445475 2010 VX <sub>107</sub>	15.3	X	318.76997	113.90139	234.22659	25.66027	0.0415660	0.17638896	3.1488728	20	7 29.8	20.2
445476 2010 VN <sub>113</sub>	16.7	X	304.77816	309.16553	101.41895	3.49514	0.3210404	0.19001670	2.9964581	20	9 7.7	19.8
445477 2010 VZ <sub>115</sub>	16.0	X	275.67838	334.44411	30.87016	12.98050	0.0982621	0.16993461	3.2281088	20	6 25.1	20.7
445478 2010 VF <sub>129</sub>	17.3	X	274.86263	279.95969	136.40118	2.12623	0.2295998	0.18411463	3.0601580	20	8 10.4	21.3
445479 2010 VR <sub>135</sub>	17.1	X	297.56796	304.02506	69.89807	2.25628	0.1676721	0.18021774	3.1041142	20	7 28.2	21.0
445480 2010 VM <sub>138</sub>	15.5	X	212.11129	175.69416	271.42096	10.04803	0.0355834	0.17525598	3.1624293	20	7 27.7	20.2
445481 2010 VH <sub>149</sub>	17.2	X	313.44619	130.41109	211.48679	9.50874	0.1764987	0.17630894	3.1498255	20	7 7.2	21.2
445482 2010 VN <sub>152</sub>	16.7	X	314.29413	153.43915	189.74426	5.05884	0.1910743	0.17363305	3.1821046	20	7 9.1	20.6
445483 2010 VS <sub>152</sub>	16.4	X	270.55409	187.61516	224.48215	9.00718	0.0901168	0.17613642	3.1518820	20	8 15.6	21.0
445484 2010 VG <sub>153</sub>	16.9	X	332.62995	19.02049	39.96532	10.98350	0.2837829	0.20025907	2.8933963	20	12 11.0	19.3
445485 2010 VU <sub>157</sub>	16.1	X	1.45129	65.36903	237.94558	15.51694	0.2041466	0.18232449	3.0801560	20	8 13.5	19.7
445486 2010 VQ <sub>162</sub>	17.3	X	259.61798	122.58253	314.98170	1.79303	0.1509527	0.18276826	3.0751681	20	8 29.3	21.4
445487 2010 VM <sub>173</sub>	16.5	X	347.40466	300.78587	56.48932	2.31524	0.2315463	0.18917136	3.0053782	20	10 11.8	19.2
445488 2010 VE <sub>175</sub>	15.9	X	89.73199	6.75517	221.19010	10.77634	0.0422890	0.17792696	3.1307006	20	8 27.8	20.6
445489 2010 VY <sub>175</sub>	15.8	X	215.12318	177.00519	269.88474	12.55594	0.0827616	0.17259150	3.1948940	20	7 25.9	20.7
445490 2010 VJ <sub>177</sub>	17.2	X	282.99276	51.42094	352.36007	0.57961	0.0740382	0.18213847	3.0822528	20	8 28.6	21.4
445491 2010 VH <sub>182</sub>	15.7	X	4.55351	9.84727	273.52274	8.25992	0.0682418	0.17453860	3.1710886	20	7 20.3	19.7
445492 2010 VZ <sub>184</sub>	16.7	X	283.16649	344.89083	43.19307	1.61458	0.1676583	0.17701953	3.1413905	20	7 25.3	20.9
445493 2010 VV <sub>187</sub>	15.8	X	350.09540	235.83029	81.28264	10.72484	0.1058702	0.18024296	3.1038247	20	8 18.3	19.7
445494 2010 VR <sub>189</sub>	16.4	X	320.30561	78.14726	246.84623	22.39200	0.2595623	0.17509743	3.1643380	20	6 14.3	19.9
445495 2010 VZ <sub>191</sub>	16.7	X	270.93456	298.07128	91.15785	2.53501	0.1789361	0.17444534	3.1722188	20	7 8.4	21.3
445496 2010 VG <sub>199</sub>	16.1	X	219.51196	209.69237	249.85561	9.27663	0.1874119	0.17728473	3.1382569	20	8 5.9	21.3
445497 2010 VG <sub>202</sub>	15.2	X	193.88472	215.84845	259.19063	25.59030	0.1241225	0.17290403	3.1910429	20	7 28.6	20.7
445498 2010 VR <sub>204</sub>	16.5	X	351.73455	106.48961	230.08691	7.07012	0.0680962	0.18744660	3.0237857	20	9 8.8	20.4
445499 2010 VU <sub>205</sub>	16.2	X	25.71285	294.82283	359.51720	9.99209	0.0937056	0.18755140	3.0226592	20	9 11.3	20.0
445500 2010 VH <sub>207</sub>	16.5	X	307.09443	115.31088	259.29991	8.98100	0.0581402	0.18601508	3.0392793	20	8 22.4	20.7
445501 2010 VJ <sub>207</sub>	16.7	X	297.47470	59.64264	339.12874	3.08129	0.1028300	0.18828029	3.0148530	20	9 8.6	20.3
445502 2010 VA <sub>209</sub>	16.0	X	315.77009	329.94742	23.33313	10.78692	0.0994085	0.17885030	3.1199162	20	8 11.6	20.1
445503 2010 VV <sub>210</sub>	16.0	X	11.64856	289.62310	347.66038	8.87454	0.0746039	0.17486742	3.1671121	20	7 27.1	20.2
445504 2010 VP <sub>211</sub>	15.9	X	219.85531	225.39692	224.94808	9.25477	0.0735575	0.17571032	3.1569755	20	8 5.1	20.8
445505 2010 VH <sub>212</sub>	15.8	X	296.64167	140.95230	238.17842	9.65222	0.0896359	0.17627637	3.1502135	20	8 8.8	20.2
445506 2010 WY <sub>3</sub>	16.7	X	242.64124	32.44021	21.93255	0.33467	0.1808192	0.17256875	3.1951748	20	7 7.9	21.7
445507 2010 WP <sub>6</sub>	16.3	X	326.30923	111.13728	219.22564	4.13700	0.0759458	0.17546572	3.1599086	20	7 24.0	20.4
445508 2010 WH <sub>8</sub>	15.9	X	293.38229	142.46554	248.96281	12.48632	0.1329336	0.17926674	3.1150826	20	8 12.7	20.2
445509 2010 WC <sub>11</sub>	15.9	X	230.40853	99.67019	344.48362	9.46397	0.0237426	0.17776628	3.1325869	20	8 20.8	20.3
445510 2010 WU <sub>13</sub>	16.4	X	22.05060	77.76750	86.53073	1.12102	0.1832146	0.19613449	2.9338196	20	11 18.2	19.9
445511 2010 WH <sub>15</sub>	15.7	X	322.90225	121.35259	238.95704	25.97497	0.1072038	0.18125664	3.0922417	20	8 14.7	20.2
445512 2010 WS <sub>22</sub>	16.6	X	174.16653	237.99432	247.85252	3.67317	0.1049454	0.16801783	3.2526136	20	7 31.7	21.6
445513 2010 WL <sub>30</sub>	15.8	X	260.7									

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>		
445521	2010	<i>XL</i> <sub>52</sub>	16.8	X	82.37160	296.50999	260.27911	20.47922	0.0510531	0.36652436	1.9337522	20	7 21.4	19.1
445522	2010	<i>XF</i> <sub>58</sub>	15.8	X	325.44834	80.31076	246.52694	7.69473	0.0878666	0.17481960	3.1676897	20	7 16.5	19.9
445523	2010	<i>XJ</i> <sub>64</sub>	16.7	X	304.04105	353.65835	16.22974	1.66559	0.1016438	0.18189528	3.0849995	20	8 11.4	20.5
445524	2010	<i>XM</i> <sub>68</sub>	16.2	X	262.34215	44.74704	70.26338	12.30014	0.3498872	0.18404961	3.0608787	20	9 27.9	20.9
445525	2010	<i>XK</i> <sub>88</sub>	15.7	X	303.96140	333.27410	64.92046	18.75152	0.1975051	0.17570160	3.1570799	20	9 15.9	19.8
445526	2011	<i>AL</i>	16.2	X	252.88891	310.25037	117.47668	9.37527	0.2625089	0.17075346	3.2177802	20	7 25.5	21.2
445527	2011	<i>AL</i> <sub>13</sub>	15.6	X	228.04856	163.87604	310.58822	14.44867	0.2231217	0.17367805	3.1815549	20	8 27.8	20.9
445528	2011	<i>AE</i> <sub>29</sub>	17.3	X	144.76396	174.89533	306.86229	18.55110	0.0716845	0.35574530	1.9726193	20	7 6.1	19.7
445529	2011	<i>AF</i> <sub>30</sub>	15.9	X	250.17298	328.19722	119.27600	14.74213	0.0982509	0.17050111	3.2209545	20	9 9.9	20.7
445530	2011	<i>AS</i> <sub>55</sub>	15.4	X	245.79781	221.03429	241.35557	10.17431	0.2731215	0.17469128	3.1692407	20	8 24.1	20.6
445531	2011	<i>BH</i> <sub>11</sub>	15.6	X	287.51997	116.80622	267.37859	25.26638	0.2228546	0.17807294	3.1289894	20	7 12.2	19.9
445532	2011	<i>BR</i> <sub>120</sub>	15.9	X	276.83298	86.50434	313.45947	13.41860	0.2082522	0.17038990	3.2223557	20	7 26.1	20.4
445533	2011	<i>BE</i> <sub>161</sub>	16.6	X	254.45211	272.75420	168.18918	15.92160	0.3658608	0.17870510	3.1216060	20	7 30.1	21.8
445534	2011	<i>CZ</i> <sub>86</sub>	15.2	X	109.45502	276.84660	166.91564	9.44283	0.1578256	0.12398652	3.9830865	20	4 15.8	21.1
445535	2011	<i>EL</i> <sub>24</sub>	17.8	X	205.78635	246.71110	112.15407	24.21340	0.1166474	0.34794509	2.0019916	20	6 4.1	21.1
445536	2011	<i>EP</i> <sub>24</sub>	18.6	X	251.75525	31.26205	189.23767	6.81085	0.1947867	0.29703358	2.2246704	20	—	—
445537	2011	<i>EP</i> <sub>66</sub>	18.2	X	225.31344	55.47302	167.37339	1.90167	0.1529181	0.29133861	2.2535681	20	—	—
445538	2011	<i>FL</i> <sub>23</sub>	17.9	X	187.28092	70.90545	162.50222	6.15892	0.2078420	0.27651398	2.3334114	20	12 31.9	21.4
445539	2011	<i>FK</i> <sub>25</sub>	18.0	X	178.58751	104.88856	178.26947	24.21391	0.2113049	0.28686627	2.2769302	20	—	—
445540	2011	<i>FR</i> <sub>47</sub>	18.4	X	243.03302	78.09346	169.98096	3.19240	0.1692143	0.29595957	2.2300493	20	—	—
445541	2011	<i>FW</i> <sub>86</sub>	17.9	X	236.91631	343.34067	285.40089	4.34028	0.1345072	0.30567226	2.1825558	20	—	—
445542	2011	<i>FZ</i> <sub>129</sub>	18.2	X	232.50967	264.73531	337.72983	4.21798	0.1293390	0.30013590	2.2093139	20	—	—
445543	2011	<i>FU</i> <sub>154</sub>	17.9	X	159.99005	167.40395	116.58895	6.46128	0.1623107	0.28160927	2.3051795	20	—	—
445544	2011	<i>GT</i>	18.2	X	219.58820	282.65844	341.69296	6.27822	0.1670946	0.29719541	2.2238628	20	—	—
445545	2011	<i>GX</i> <sub>1</sub>	18.0	X	243.16307	290.74060	325.40170	4.74264	0.1819724	0.30107819	2.2047018	20	—	—
445546	2011	<i>GV</i> <sub>48</sub>	18.0	X	261.62734	47.20996	195.82902	3.27141	0.1311076	0.30350517	2.1929328	20	—	—
445547	2011	<i>HT</i> <sub>13</sub>	18.2	X	191.00665	176.16767	112.61501	3.45051	0.1716334	0.29140050	2.2532490	20	—	—
445548	2011	<i>HW</i> <sub>18</sub>	17.7	X	186.50428	186.56483	101.58300	7.87418	0.2195444	0.28598808	2.2815891	20	—	—
445549	2011	<i>HU</i> <sub>84</sub>	18.0	X	247.62547	24.69582	227.32641	2.90533	0.0943871	0.29729572	2.2233625	20	—	—
445550	2011	<i>HD</i> <sub>89</sub>	18.5	X	302.96442	78.34274	138.85798	4.76275	0.1037693	0.30633276	2.1794174	20	1 4.8	21.1
445551	2011	<i>JE</i> <sub>9</sub>	17.4	X	187.30729	129.56180	117.25344	6.50287	0.0961952	0.27790314	2.3256289	20	—	—
445552	2011	<i>JX</i> <sub>30</sub>	18.2	X	247.75833	125.63341	105.33179	1.59171	0.1684608	0.29102341	2.2551950	20	—	—
445553	2011	<i>KV</i> <sub>8</sub>	18.6	X	149.14602	42.75511	236.66251	2.26332	0.2468320	0.27161337	2.3613949	20	—	—
445554	2011	<i>KZ</i> <sub>10</sub>	17.9	X	189.19213	34.35621	249.14137	6.95908	0.1065923	0.28506040	2.2865364	20	—	—
445555	2011	<i>KP</i> <sub>33</sub>	17.9	X	214.61364	33.64534	239.18638	5.43503	0.1065169	0.29023127	2.2592966	20	—	—
445556	2011	<i>KN</i> <sub>48</sub>	17.5	X	168.23981	182.45447	120.54980	6.79377	0.1294228	0.28446421	2.2897301	20	—	—
445557	2011	<i>LN</i> <sub>16</sub>	17.3	X	186.39244	56.85512	205.75368	21.81727	0.2049003	0.27607035	2.3359106	20	—	—
445558	2011	<i>OD</i> <sub>4</sub>	17.1	X	103.73635	210.07923	131.78890	13.48126	0.1977273	0.26157360	2.4214385	20	—	—
445559	2011	<i>OD</i> <sub>8</sub>	18.0	X	150.86332	260.81896	0.69198	1.46391	0.1572421	0.25918993	2.4362619	20	—	—
445560	2011	<i>OS</i> <sub>14</sub>	17.5	X	143.72399	28.42702	270.33725	4.85225	0.2349639	0.26632709	2.3925397	20	—	—
445561	2011	<i>OE</i> <sub>18</sub>	17.7	X	173.96265	147.96032	136.07589	3.21010	0.1638660	0.27025268	2.3693145	20	—	—
445562	2011	<i>OU</i> <sub>23</sub>	17.7	X	149.06492	218.04628	67.80423	3.03769	0.1935129	0.26551077	2.3974412	20	—	—
445563	2011	<i>OA</i> <sub>32</sub>	17.8	X	126.48832	269.71907	41.16510	3.04254	0.1602016	0.26350604	2.4095855	20	—	—
445564	2011	<i>OC</i> <sub>49</sub>	17.8	X	108.41992	84.84127	287.93759	4.94125	0.1336632	0.27071588	2.3666111	20	—	—
445565	2011	<i>QH</i> <sub>7</sub>	17.9	X	79.85256	90.12378	286.37820	5.56698	0.1803701	0.26077292	2.4263925	20	—	—
445566	2011	<i>QM</i> <sub>24</sub>	18.1	X	72.21544	127.77845	175.16373	8.67921	0.1662423	0.23878417	2.5731535	20	12 8.8	22.1
445567	2011	<i>QC</i> <sub>26</sub>	18.1	X	121.52161	38.92591	308.65013	3.52484	0.2339883	0.26716918	2.3875097	20	—	—
445568	2011	<i>QP</i> <sub>27</sub>	17.8	X	103.40632	196.48697	160.16199	2.34990	0.2479182	0.26182900	2.4198698	20	—	—
445569	2011	<i>QR</i> <sub>28</sub>	17.3	X	71.28438	49.98219	332.26194	5.45346	0.1572234	0.25799850	2.4437502	20	—	—
445570	2011	<i>QA</i> <sub>33</sub>	18.3	X	104.50562	235.84880	148.96479	2.89147	0.1990633	0.26689341	2.3891540	20	1 16.6	21.0
445571	2011	<i>QC</i> <sub>36</sub>	17.8	X	97.68224	178.26038	147.54461	2.67833	0.1550660	0.25145945	2.4859406	20	—	—
445572	2011	<i>QJ</i> <sub>38</sub>	17.6	X	139.80204	176.65446	151.11884	6.28006	0.1006249	0.26657435	2.3910600	20	—	—
445573	2011	<i>QG</i> <sub>42</sub>	16.9	X	57.26734	169.38323	130.49753	11.19943	0.1922257	0.23604928	2.5929905	20	11 24.1	20.8
445574	2011	<i>QI</i> <sub>55</sub>	17.8	X	51.63244	121.94761	201.90021	10.54137	0.1895849	0.23726975	2.5840910	20	12 14.6	21.7
445575	2011	<i>QY</i> <sub>57</sub>	17.5	X	334.33232	92.94838	319.67400	6.98032	0.1498473	0.23225422	2.6211606	20	12 10.2	20.2
445576	2011	<i>QL</i> <sub>59</sub>	18.6	X	37.07302	152.77969	200.66262	3.70101	0.2442866	0.23991526	2.5650597	20	—	—
445577	2011	<i>QJ</i> <sub>62</sub>	17.5	X	55.41193	8.75867	331.75775	11.76510	0.1949968	0.24045019	2.5612539	20	—	—
445578	2011	<i>QD</i> <sub>64</sub>	19.0	X	84.75757	150.15658	258.66008	1.43031	0.1774081	0.26633225	2.3925088	20	1 15.6	21.3
445579	2011	<i>QQ</i> <sub>66</sub>	17.4	X	164.20522	10.94904	274.12604	4.61827	0.0958371	0.26245768	2.4159978	20	—	—
445580	2011	<i>QD</i> <sub>69</sub>	17.9	X	91.95156	32.62550	324.01757	3.42909	0.1582978	0.25784858	2.4447036	20	—	—
445581	2011	<i>QL</i> <sub>74</sub>	18.0	X	72.13641	62.96635	350.90371	4.19457	0.1918640	0.26273802	2.4142788	20	1 3.4	20.1
445582	2011	<i>QG</i> <sub>80</sub>	18.1	X	63.92873	195.54606	131.06611	4.84236	0.2645905	0.24120292	2.5559225	20	—	—
445583	2011	<i>QC</i> <sub>84</sub>	17.7	X	46.17672	358.56651	342.86185	10.37437	0.1534877	0.24115166	2.5562846	20	12 27.6	21.4
445584	2011	<i>QU</i> <sub>87</sub>	18.4	X	59.32241	37.23908	322.25573	2.04126	0.2127164	0.24664102	2.5182133	20	—	—
445585	2011	<i>RW</i> <sub>3</sub>	18.4	X	37.29131	125.51700	233.24253	1.66467	0.2319079	0.23925917	2.5697467	20	—	—
445586	2011	<i>RN</i> <sub>15</sub>	17.5	X	8.21157	256.65162	228.43453	6.29588	0.0758012	0.27210371	2.3585572	20	—	—
445587	2011	<i>SA</i> <sub>14</sub>	17.1	X	172.09439	332.11073	223.48699	3.48870	0.1381087	0.23331042	2.6132440	20	10 29.9	21.0
445588	2011	<i>SE</i> <sub>23</sub>	16.3	X	304.39204	59.57929	9.62658	22.31568	0.0255190	0.22630355	2.6669107	20	11 3.6	20.1
445589	2011	<i>SJ</i> <sub>31</sub>	18.1	X	88.02960	112.39105	302.13224	0.98504	0.1594504	0.27046876	2.3680524	20	1 25.6	20.4
445590	2011	<i>SW</i> <sub>32</sub>	17											

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445601	2011	SR <sub>86</sub>	17.0	X	15.10753	189.34796	199.31136	13.67047	0.2225775	0.23542378	2.5975814	20	—	—	
445602	2011	ST <sub>87</sub>	17.2	X	51.79327	33.19943	329.12402	4.68859	0.0583905	0.23924728	2.5698319	20	—	—	
445603	2011	SP <sub>90</sub>	17.6	X	28.99740	21.89468	351.41607	3.23780	0.2036277	0.23515840	2.5995353	20	—	—	
445604	2011	SV <sub>91</sub>	16.3	X	11.19639	192.45571	205.99376	31.38896	0.0874581	0.23484315	2.6018612	20	—	—	
445605	2011	SK <sub>101</sub>	17.5	X	106.30046	322.34037	13.00556	5.84314	0.1513997	0.25430502	2.4673614	20	—	—	
445606	2011	SL <sub>109</sub>	17.0	X	76.61394	34.47591	6.64731	5.91002	0.1109050	0.26253998	2.4154928	20	—	—	
445607	2011	SP <sub>115</sub>	17.5	X	80.41988	155.45358	162.84339	7.03696	0.2487658	0.24293001	2.5437940	20	—	—	
445608	2011	SD <sub>118</sub>	17.7	X	80.05379	199.27256	208.79920	3.69347	0.1821591	0.26269014	2.4145722	20	1	7.4	20.0
445609	2011	ST <sub>128</sub>	17.4	X	328.23922	261.51201	160.99467	2.41158	0.0876738	0.22656672	2.6648451	20	12	8.6	20.4
445610	2011	ST <sub>134</sub>	17.3	X	87.03312	125.23465	187.64279	12.92359	0.1933873	0.24122678	2.5557539	20	—	—	
445611	2011	SG <sub>135</sub>	17.1	X	347.05224	190.82582	171.85375	2.67351	0.1165762	0.22068973	2.7119476	20	10	19.6	19.9
445612	2011	SM <sub>138</sub>	18.0	X	52.38227	153.24714	187.07799	2.11081	0.1329808	0.23698734	2.5861435	20	12	28.5	21.5
445613	2011	SX <sub>141</sub>	17.2	X	200.02426	220.77714	19.92683	2.97447	0.1368194	0.25040377	2.4929227	20	—	—	
445614	2011	SZ <sub>142</sub>	18.3	X	355.43822	56.51156	15.66524	3.88249	0.1651633	0.23867149	2.5739633	20	—	—	
445615	2011	SB <sub>147</sub>	17.6	X	57.52286	179.68996	162.58950	2.56930	0.0389672	0.23860908	2.5744121	20	12	25.3	21.1
445616	2011	SD <sub>155</sub>	17.5	X	70.65668	315.53603	11.17900	15.10892	0.1603371	0.24022329	2.5628664	20	—	—	
445617	2011	SP <sub>158</sub>	16.9	X	103.28959	308.80297	1.82818	13.04690	0.1721648	0.24427038	2.5344799	20	—	—	
445618	2011	SB <sub>178</sub>	17.1	X	327.36923	229.36073	219.81292	11.64683	0.1648567	0.23289700	2.6163357	20	—	—	
445619	2011	SX <sub>178</sub>	18.0	X	37.02878	142.27938	206.13207	12.06221	0.1676471	0.23278678	2.6171614	20	12	23.7	21.8
445620	2011	SY <sub>181</sub>	16.7	X	136.10008	251.26760	12.95254	12.64899	0.1556379	0.23714165	2.5850215	20	12	18.1	21.1
445621	2011	SE <sub>187</sub>	17.5	X	3.50585	187.91876	202.35431	7.19024	0.1851356	0.23244898	2.6196963	20	—	—	
445622	2011	SE <sub>190</sub>	17.0	X	335.59975	27.48341	23.75638	12.36304	0.1918488	0.22338563	2.6900843	20	12	8.9	19.8
445623	2011	SG <sub>193</sub>	17.4	X	333.90789	202.26786	239.89889	1.53064	0.1158381	0.23993305	2.5649328	20	—	—	
445624	2011	SE <sub>211</sub>	17.4	X	228.07590	262.81179	356.41398	5.36574	0.2046783	0.26961466	2.3730509	20	—	—	
445625	2011	SM <sub>212</sub>	17.0	X	74.40714	196.10371	217.39708	13.09325	0.1434095	0.26077690	2.4263678	20	—	—	
445626	2011	SR <sub>218</sub>	17.0	X	313.67892	250.91188	161.04894	12.86566	0.1640837	0.22133384	2.7066837	20	10	30.4	19.9
445627	2011	SD <sub>229</sub>	17.2	X	140.74904	228.69098	2.64990	6.01155	0.0297116	0.22122386	2.7075806	20	11	8.9	21.0
445628	2011	SO <sub>229</sub>	18.4	X	60.33674	274.70211	93.62414	13.74291	0.3629279	0.24438255	2.5337043	20	—	—	
445629	2011	SC <sub>230</sub>	16.9	X	319.05329	168.73046	240.45196	5.58312	0.0450906	0.22166299	2.7040035	20	11	4.3	20.3
445630	2011	SW <sub>232</sub>	18.0	X	75.33437	50.67781	304.49781	6.95133	0.1933029	0.25189165	2.4830962	20	—	—	
445631	2011	SS <sub>244</sub>	17.7	X	78.43491	320.09961	13.33517	4.19906	0.0955416	0.24243752	2.5472378	20	—	—	
445632	2011	SZ <sub>244</sub>	17.5	X	261.85289	127.03027	12.64854	4.36732	0.1271169	0.23500027	2.6007013	20	12	3.9	20.7
445633	2011	SM <sub>246</sub>	16.7	X	20.69204	206.42268	191.79726	13.40626	0.2469510	0.23560760	2.5962301	20	—	—	
445634	2011	SK <sub>250</sub>	17.8	X	97.01133	85.29599	297.51692	2.14979	0.2019416	0.25992463	2.4316688	20	1	5.0	20.3
445635	2011	SY <sub>257</sub>	17.3	X	9.98129	315.29102	12.20543	3.10209	0.0858065	0.21708370	2.7418977	20	10	4.6	20.6
445636	2011	SM <sub>258</sub>	16.9	X	279.58318	289.39621	215.93556	15.09996	0.0913090	0.23271430	2.6177048	20	—	—	
445637	2011	SM <sub>259</sub>	17.0	X	286.10722	31.04968	47.24058	5.83128	0.1508449	0.21201233	2.7854496	20	10	13.6	20.2
445638	2011	TR <sub>1</sub>	17.6	X	9.53497	189.94951	146.44894	4.90348	0.1169738	0.22043086	2.7140704	20	10	22.4	20.8
445639	2011	TL <sub>6</sub>	17.4	X	109.89168	119.64107	169.59119	9.18626	0.1218506	0.24156283	2.5533831	20	12	25.1	21.5
445640	2011	UX	17.2	X	75.61704	66.34877	259.41363	4.78582	0.0899773	0.23495490	2.6610361	20	12	30.8	20.9
445641	2011	UQ <sub>5</sub>	17.4	X	321.31170	238.26481	207.33207	2.60721	0.1690522	0.22673280	2.6635436	20	12	30.9	19.9
445642	2011	UT <sub>6</sub>	17.2	X	18.10697	187.08567	222.46894	8.67447	0.2110516	0.23664765	2.5886177	20	—	—	
445643	2011	UB <sub>10</sub>	17.6	X	331.45087	72.70176	314.75577	2.31276	0.2031282	0.21627163	2.7487570	20	10	24.8	20.1
445644	2011	UQ <sub>11</sub>	18.0	X	338.10543	234.03978	208.18771	4.68248	0.2813570	0.23703662	2.5857851	20	—	—	
445645	2011	UF <sub>12</sub>	17.3	X	64.54543	289.06290	40.98306	8.96165	0.3192148	0.23599150	2.5934137	20	—	—	
445646	2011	UZ <sub>16</sub>	17.4	X	38.61371	343.60438	35.94230	5.56534	0.2169879	0.23657613	2.5891394	20	—	—	
445647	2011	UH <sub>30</sub>	17.3	X	352.84367	151.26534	221.70072	12.81002	0.1985032	0.21942916	2.7223241	20	11	21.4	20.0
445648	2011	UV <sub>36</sub>	16.8	X	25.65071	303.83963	64.68259	8.71764	0.1123151	0.22697619	2.6616392	20	12	25.8	20.3
445649	2011	UE <sub>44</sub>	17.7	X	67.63391	83.35038	229.10480	9.88965	0.1348775	0.23210570	2.6222787	20	12	10.2	21.5
445650	2011	UK <sub>47</sub>	17.4	X	327.18682	76.51961	10.26315	3.14399	0.1254589	0.23084444	2.6318215	20	—	—	
445651	2011	UG <sub>48</sub>	17.2	X	325.70806	35.95540	30.86878	2.86127	0.0768244	0.22546058	2.6735541	20	12	9.0	20.2
445652	2011	UK <sub>49</sub>	17.5	X	321.55370	48.27572	44.33581	2.67994	0.1738391	0.22925897	2.6439414	20	—	—	
445653	2011	UU <sub>51</sub>	17.4	X	40.08161	209.51560	177.77225	3.34906	0.2015736	0.23918565	2.5702733	20	—	—	
445654	2011	UE <sub>54</sub>	16.2	X	73.66564	262.03891	48.69591	13.66842	0.0930200	0.22418690	2.6836707	20	12	6.5	20.2
445655	2011	UJ <sub>65</sub>	17.1	X	101.94049	33.99517	230.81272	14.61858	0.1286003	0.22934916	2.6432482	20	11	16.1	21.2
445656	2011	UD <sub>67</sub>	17.2	X	351.00259	235.34771	113.12810	4.45623	0.0992919	0.21481014	2.7612106	20	10	5.9	20.4
445657	2011	UZ <sub>70</sub>	17.5	X	347.61574	31.67105	68.84757	15.72810	0.3774033	0.22959960	2.6413257	20	—	—	
445658	2011	UV <sub>74</sub>	17.2	X	5.99893	232.54539	172.35564	2.01784	0.1701261	0.23333529	2.6130583	20	—	—	
445659	2011	UK <sub>75</sub>	17.4	X	353.97597	184.31464	169.40156	4.46654	0.0843551	0.21572852	2.7533685	20	10	15.8	20.7
445660	2011	UK <sub>76</sub>	16.9	X	15.43177	67.72209	307.82949	4.11150	0.0437079	0.22723267	2.6596360	20	12	11.3	20.3
445661	2011	UN <sub>76</sub>	16.8	X	322.39740	49.45941	4.63835	6.54829	0.0806038	0.22134584	2.7065859	20	11	14.1	20.1
445662	2011	UR <sub>77</sub>	17.5	X	7.76319	349.91556	4.95472	5.50245	0.0987689	0.21936286	2.7228726	20	11	7.2	20.7
445663	2011	UJ <sub>79</sub>	17.0	X	296.70448	89.60993	334.79191	2.96216	0.0528641	0.21597257	2.7512939	20	10	20.8	20.4
445664	2011	UA <sub>80</sub>	17.1	X	308.75909	115.39358	313.39675	1.93368	0.0368946	0.22113301	2.7083222	20	11	15.4	20.6
445665	2011	UO <sub>82</sub>	17.3	X	21.04723	69.24107	356.05464	3.83941	0.2714864	0.23951487	2.5679175	20	—	—	
445666	2011	UU <sub>83</sub>	16.7	X	259.20129	193.48692	237.31718	14.60290	0.1210955	0.20244643	2.8725171	20	8	20.1	21.0
445667	2011	UX <sub>84</sub>	17.1	X	67.03803	341.83773	17.89247	4.91590	0.2100866	0.23935488	2.5690617	20	—	—	
445668	2011	UQ <sub>86</sub>	16.9	X	33.75915	120.58018	235.37446	8.47001	0.1119893	0.22343109	2.6897194	20	12	19.3	20.5
445669	2011	UE <sub>88</sub>	16.5	X	48.74854	261.95635	60.75506	7.11664	0.0330977	0.21541582	2.7560324	20	11	13.8	20.2
445670	2011	UP <sub>90</sub>	16.3	X	356.48170	115.08737	280.60732</								

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>		
445681	2011	<i>UW</i> <sub>126</sub>	16.7	X	65.24892	264.49824	35.68729	11.97359	0.1771460	0.22324197	2.6912383	20	11 23.6	20.8
445682	2011	<i>UD</i> <sub>129</sub>	18.2	X	30.46981	121.42731	245.37654	4.26179	0.2429967	0.23198351	2.6231994	20	—	—
445683	2011	<i>UJ</i> <sub>139</sub>	17.4	X	50.87469	114.01709	230.25484	7.93021	0.1995520	0.23152450	2.6266653	20	—	—
445684	2011	<i>UP</i> <sub>140</sub>	16.8	X	0.64844	348.18839	23.88672	6.30634	0.0518058	0.21937445	2.7227767	20	11 14.5	20.3
445685	2011	<i>UG</i> <sub>145</sub>	16.5	X	110.22056	304.24247	2.63819	11.71670	0.2387640	0.24325029	2.5415606	20	—	—
445686	2011	<i>UD</i> <sub>147</sub>	17.2	X	310.81372	57.53967	20.14894	5.50403	0.0486620	0.22163749	2.7042110	20	11 29.2	20.6
445687	2011	<i>UJ</i> <sub>149</sub>	16.4	X	58.78419	136.81510	211.06248	11.30323	0.1832964	0.23501766	2.6005730	20	—	—
445688	2011	<i>UD</i> <sub>151</sub>	17.2	X	352.07139	30.70995	21.85477	13.70779	0.2582511	0.22879870	2.6474861	20	—	—
445689	2011	<i>UN</i> <sub>155</sub>	17.4	X	131.19743	56.63058	183.22280	4.28805	0.0158573	0.21512427	2.7585220	20	11 9.4	21.1
445690	2011	<i>UY</i> <sub>159</sub>	16.9	X	59.74788	179.28194	193.36202	13.90154	0.2024989	0.24085096	2.5584119	20	—	—
445691	2011	<i>UX</i> <sub>160</sub>	17.3	X	78.95490	299.08137	46.75785	5.36211	0.2263146	0.23987515	2.5653456	20	—	—
445692	2011	<i>UC</i> <sub>163</sub>	17.7	X	356.22785	177.43105	249.89517	3.91056	0.2749916	0.23226627	2.6210700	20	—	—
445693	2011	<i>UJ</i> <sub>166</sub>	17.4	X	53.72670	286.76811	88.44533	6.92017	0.2733882	0.23985057	2.5655208	20	—	—
445694	2011	<i>UB</i> <sub>172</sub>	17.1	X	20.38490	59.08077	346.14780	7.02537	0.1825311	0.23890687	2.5722724	20	—	—
445695	2011	<i>UG</i> <sub>173</sub>	17.3	X	293.40005	332.35122	131.48446	5.73604	0.1609915	0.22543790	2.6737334	20	12 2.5	20.1
445696	2011	<i>UK</i> <sub>174</sub>	17.1	X	35.74105	205.03893	183.66892	7.87795	0.1891067	0.23571456	2.5954447	20	—	—
445697	2011	<i>UC</i> <sub>176</sub>	17.4	X	12.65827	109.98622	255.99774	4.70678	0.0412248	0.22244389	2.6976715	20	11 23.7	20.9
445698	2011	<i>UP</i> <sub>182</sub>	17.2	X	5.80461	86.21827	260.11505	7.27348	0.2251354	0.21702737	2.7423721	20	11 9.8	20.1
445699	2011	<i>UB</i> <sub>184</sub>	17.3	X	327.90654	275.39585	132.95077	4.88557	0.1531100	0.22159484	2.7045579	20	11 20.3	20.0
445700	2011	<i>UC</i> <sub>188</sub>	17.1	X	300.36935	214.33430	213.23720	11.16719	0.1645212	0.22239235	2.6980883	20	10 22.6	19.9
445701	2011	<i>UA</i> <sub>191</sub>	17.5	X	34.26764	295.31604	68.24349	4.22655	0.0851025	0.22721999	2.6597349	20	12 26.9	21.1
445702	2011	<i>UG</i> <sub>193</sub>	16.8	X	31.68186	340.52075	42.46667	5.42577	0.1643850	0.23367252	2.6105436	20	—	—
445703	2011	<i>UJ</i> <sub>195</sub>	16.7	X	346.77269	54.89327	5.78761	7.85144	0.0540852	0.22982973	2.6395623	20	—	—
445704	2011	<i>UQ</i> <sub>196</sub>	16.9	X	39.26556	356.51672	339.24835	5.60014	0.0324270	0.22099815	2.7094239	20	11 17.0	20.5
445705	2011	<i>UK</i> <sub>197</sub>	16.7	X	51.62446	288.14949	37.46672	16.14285	0.1666141	0.22582691	2.6706620	20	12 8.6	20.7
445706	2011	<i>UL</i> <sub>198</sub>	17.2	X	26.07114	295.56187	60.49874	6.93820	0.0602216	0.22202707	2.7010467	20	12 1.4	20.7
445707	2011	<i>UR</i> <sub>198</sub>	17.2	X	37.05504	141.69393	214.76427	3.88471	0.1828455	0.22836196	2.6508605	20	—	—
445708	2011	<i>UP</i> <sub>210</sub>	17.3	X	57.96281	89.42931	230.08451	10.61792	0.2166267	0.23195134	2.6234419	20	12 17.4	21.3
445709	2011	<i>UN</i> <sub>243</sub>	17.3	X	233.03021	249.72555	233.40184	1.55918	0.0271202	0.21030078	2.8005422	20	10 14.7	21.2
445710	2011	<i>UO</i> <sub>245</sub>	17.1	X	42.45432	273.37131	58.98790	6.60101	0.1666141	0.22590830	2.6700204	20	12 8.7	20.6
445711	2011	<i>UN</i> <sub>252</sub>	16.9	X	268.16702	254.26166	220.51000	6.91816	0.1906704	0.21316485	2.7754004	20	10 26.6	20.4
445712	2011	<i>UN</i> <sub>255</sub>	17.5	X	359.13563	181.57587	228.86352	2.90622	0.1504551	0.23337301	2.6127767	20	—	—
445713	2011	<i>UV</i> <sub>260</sub>	17.1	X	69.59356	301.16651	24.33427	3.98985	0.2866278	0.23431774	2.6057491	20	—	—
445714	2011	<i>UC</i> <sub>261</sub>	17.2	X	38.07140	118.73766	252.85833	7.58052	0.1272387	0.23193610	2.6235569	20	—	—
445715	2011	<i>UA</i> <sub>265</sub>	17.2	X	318.19572	52.13139	346.80892	5.92577	0.0452241	0.21693342	2.7431638	20	10 17.9	20.8
445716	2011	<i>UV</i> <sub>266</sub>	17.5	X	354.06084	229.46908	182.27719	12.91260	0.2463276	0.22989469	2.6390650	20	—	—
445717	2011	<i>UC</i> <sub>269</sub>	16.8	X	312.04404	212.90530	267.68410	6.44213	0.0936620	0.23510541	2.5999259	20	—	—
445718	2011	<i>UN</i> <sub>279</sub>	16.9	X	3.23039	322.21333	49.81344	6.23256	0.0934523	0.21826103	2.7320287	20	11 23.3	20.2
445719	2011	<i>UA</i> <sub>282</sub>	17.1	X	319.57585	89.99957	302.67449	2.47785	0.0977239	0.21375859	2.7702587	20	10 9.9	20.2
445720	2011	<i>UA</i> <sub>283</sub>	17.5	X	312.89460	243.81200	188.02374	4.82792	0.0962270	0.22048043	2.7136637	20	11 25.1	20.7
445721	2011	<i>UN</i> <sub>283</sub>	17.1	X	279.77947	7.95136	89.97066	6.18079	0.1229879	0.21690726	2.7433843	20	11 4.5	20.5
445722	2011	<i>UO</i> <sub>287</sub>	17.0	X	183.33032	177.41851	11.07802	11.38151	0.0116942	0.22151959	2.7051704	20	11 5.9	20.9
445723	2011	<i>UC</i> <sub>289</sub>	17.7	X	272.42175	36.36262	126.35338	5.78647	0.1291157	0.23872368	2.5735882	20	—	—
445724	2011	<i>UA</i> <sub>297</sub>	17.6	X	303.09111	241.50657	202.13519	4.56691	0.1335913	0.22254523	2.6968525	20	11 23.0	20.5
445725	2011	<i>UB</i> <sub>299</sub>	17.4	X	349.09087	214.36830	208.38237	2.96308	0.1644029	0.22955391	2.6416763	20	—	—
445726	2011	<i>UC</i> <sub>300</sub>	16.6	X	298.71690	209.06370	220.32285	6.80931	0.0174255	0.21398836	2.7682753	20	11 2.7	20.3
445727	2011	<i>UY</i> <sub>302</sub>	17.5	X	275.59127	123.41017	6.10145	3.32994	0.1620106	0.22656176	2.6648840	20	12 4.7	20.6
445728	2011	<i>UU</i> <sub>310</sub>	17.2	X	270.95093	127.94482	355.65631	1.96068	0.0858917	0.22459244	2.6804392	20	11 29.4	20.4
445729	2011	<i>UO</i> <sub>322</sub>	16.4	X	348.87924	294.23048	115.16835	9.89628	0.1619568	0.22818766	2.6522102	20	—	—
445730	2011	<i>UM</i> <sub>325</sub>	17.6	X	93.93745	293.48665	15.87073	9.78818	0.1790310	0.23971197	2.5665097	20	—	—
445731	2011	<i>UB</i> <sub>336</sub>	17.4	X	337.83623	260.26436	171.30496	6.28338	0.2079179	0.23152473	2.6266636	20	—	—
445732	2011	<i>UC</i> <sub>347</sub>	17.5	X	336.08060	335.63787	71.66978	1.05319	0.0847568	0.22640068	2.6661478	20	11 30.2	20.5
445733	2011	<i>UK</i> <sub>359</sub>	17.5	X	103.20520	338.92063	331.73720	4.26199	0.2588125	0.24449613	2.5329195	20	—	—
445734	2011	<i>UQ</i> <sub>359</sub>	17.2	X	80.97931	131.09946	235.55451	14.16514	0.1605796	0.24314179	2.5423167	20	—	—
445735	2011	<i>UH</i> <sub>360</sub>	17.1	X	230.93984	262.88998	208.16458	3.25549	0.0560528	0.20930774	2.8093932	20	9 21.9	21.0
445736	2011	<i>UD</i> <sub>374</sub>	17.3	X	63.79080	305.07979	48.80688	9.69973	0.1784316	0.23828832	2.5767219	20	—	—
445737	2011	<i>UY</i> <sub>385</sub>	16.9	X	17.20100	1.53671	13.28657	5.48721	0.0806898	0.22324966	2.6911765	20	12 16.6	20.5
445738	2011	<i>UH</i> <sub>389</sub>	16.6	X	81.51952	333.61403	345.46895	13.55248	0.1761556	0.23487472	2.6016280	20	—	—
445739	2011	<i>UX</i> <sub>397</sub>	16.5	X	293.16902	174.42027	232.79815	12.00136	0.0950987	0.21200659	2.7854999	20	9 13.1	20.2
445740	2011	<i>UJ</i> <sub>405</sub>	17.1	X	9.12259	31.19072	0.37093	16.70859	0.1350031	0.23152067	2.6266943	20	—	—
445741	2011	<i>VS</i> <sub>7</sub>	16.9	X	24.34071	342.85900	27.93951	6.43426	0.1807776	0.22662375	2.6643980	20	—	—
445742	2011	<i>VG</i> <sub>13</sub>	17.1	X	50.19180	270.86705	83.77997	2.36254	0.0309632	0.22908498	2.6452800	20	12 28.3	20.5
445743	2011	<i>WE</i> <sub>2</sub>	16.8	X	57.35032	312.47748	78.76576	4.19510	0.2109057	0.24201589	2.5501954	20	—	—
445744	2011	<i>WO</i> <sub>14</sub>	17.0	X	358.21013	321.15660	90.10191	5.73968	0.3053282	0.22993753	2.6387372	20	—	—
445745	2011	<i>WS</i> <sub>24</sub>	17.0	X	312.82371	161.03395	262.04038	2.72091	0.0494840	0.21458288	2.7631598	20	11 11.9	20.5
445746	2011	<i>WL</i> <sub>30</sub>	17.9	X	346.97900	93.52226	290.90193	5.79508	0.1406421	0.22022876	2.7157307	20	11 18.3	20.9
445747	2011	<i>WV</i> <sub>36</sub>	17.2	X	23.28207	135.78416	215.54671	5.31427	0.0456350	0.22137751	2.7063277	20	11 20.2	20.6
445748	2011	<i>WS</i> <sub>39</sub>	17.3	X	17.75107	227.95803	177.90907	7.64066	0.2240926	0.23507368	2.6001599	20	—	—
445749	2011	<i>WT</i> <sub>42</sub>	15.9	X	218.49947	212.24662	259.73893							

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
445761 2011 WT <sub>97</sub>	17.1	X	184.20198	131.81670	83.74436	4.51763	0.0050694	0.22288031	2.6941488	20	12 15.4	20.8
445762 2011 WT <sub>103</sub>	16.3	X	19.72028	325.25307	288.84942	8.80804	0.0621240	0.18596884	3.0397831	20	7 5.9	20.2
445763 2011 WR <sub>105</sub>	16.3	X	262.19189	247.91401	256.41703	12.08215	0.0348410	0.22314960	2.6919809	20	12 20.1	19.7
445764 2011 WY <sub>112</sub>	16.7	X	17.19691	231.11103	178.56169	10.49910	0.2308531	0.23440491	2.6051031	20	—	—
445765 2011 WD <sub>114</sub>	17.0	X	33.78441	283.10868	125.52460	14.19732	0.2927200	0.24147430	2.5540071	20	—	—
445766 2011 WB <sub>115</sub>	16.3	X	61.83115	287.17919	90.66071	14.89798	0.1300214	0.23937035	2.5689509	20	—	—
445767 2011 WC <sub>115</sub>	17.1	X	356.99465	301.83053	90.95414	12.41933	0.2417142	0.22483092	2.6785434	20	—	—
445768 2011 WY <sub>118</sub>	16.7	X	327.21347	51.69234	31.66998	14.82855	0.0415394	0.22828257	2.6514751	20	—	—
445769 2011 WH <sub>136</sub>	15.9	X	236.96636	211.26526	265.82904	13.88173	0.0963639	0.20369488	2.8607680	20	9 24.3	20.3
445770 2011 WD <sub>137</sub>	17.6	X	17.11497	107.45683	228.53211	2.69086	0.1027542	0.21426160	2.7659213	20	10 27.9	21.1
445771 2011 WX <sub>142</sub>	17.5	X	351.91121	119.17079	262.48665	4.15670	0.1323172	0.21893028	2.7264581	20	11 22.8	20.5
445772 2011 WD <sub>143</sub>	17.6	X	260.70423	132.77303	328.36369	3.37970	0.0259624	0.21402259	2.7679801	20	10 21.9	21.3
445773 2011 WS <sub>151</sub>	17.0	X	88.39490	353.39544	327.21142	11.49340	0.1675501	0.23737702	2.5833124	20	—	—
445774 2011 XN <sub>3</sub>	16.4	X	38.31396	181.85604	236.61544	12.46692	0.2587629	0.24118486	2.5560501	20	—	—
445775 2011 YA	18.6	X	244.31979	226.67996	340.89895	5.25089	0.7557896	0.31972402	2.1181296	20	11 22.1	21.9
445776 2011 YP <sub>9</sub>	17.3	X	6.47255	179.05514	252.70069	3.88083	0.1930331	0.23397129	2.6083208	20	—	—
445777 2011 YU <sub>15</sub>	17.7	X	327.36629	89.19346	40.17363	5.65603	0.04835158	0.22481043	2.6787061	20	—	—
445778 2011 YW <sub>17</sub>	16.5	X	236.99216	117.59214	314.95151	4.19790	0.1394278	0.19256905	2.9699221	20	7 30.5	20.7
445779 2011 YU <sub>32</sub>	16.1	X	148.26862	331.00069	143.71600	7.23089	0.0784327	0.16698740	3.2659805	20	6 21.9	21.1
445780 2011 YP <sub>33</sub>	15.8	X	192.02152	6.73489	91.27143	11.61173	0.0436272	0.17505485	3.1648511	20	7 20.2	20.4
445781 2011 YR <sub>45</sub>	16.4	X	243.83088	349.60622	67.10976	6.77420	0.0602757	0.17907329	3.1173256	20	7 28.8	21.0
445782 2011 YJ <sub>48</sub>	16.9	X	239.81285	185.99948	252.57026	4.23081	0.1347254	0.18719463	3.0264985	20	8 8.6	21.5
445783 2011 YF <sub>53</sub>	17.1	X	315.74937	176.96853	273.99944	8.03977	0.1673358	0.21621539	2.7429336	20	12 23.1	19.8
445784 2011 YD <sub>57</sub>	16.9	X	278.17873	106.43939	305.80017	8.20844	0.0999145	0.19143588	2.9816305	20	8 27.7	21.0
445785 2011 YZ <sub>65</sub>	16.0	X	73.47652	339.44907	319.89021	11.29267	0.0480083	0.20152445	2.8812718	20	11 9.1	20.3
445786 2011 YR <sub>77</sub>	16.3	X	197.72437	141.94583	336.06767	8.56181	0.1219442	0.18155337	3.0888714	20	8 16.9	21.2
445787 2011 YA <sub>78</sub>	16.9	X	39.79759	272.75254	108.39217	14.99222	0.1465149	0.23408076	2.6075075	20	—	—
445788 2012 AN <sub>2</sub>	15.6	X	62.20124	330.80454	277.16942	8.01474	0.0523033	0.18127996	3.0919765	20	8 21.2	20.0
445789 2012 AK <sub>4</sub>	16.7	X	291.22782	319.48953	100.28975	1.72319	0.0966233	0.19915188	2.9041104	20	9 30.8	20.2
445790 2012 AY <sub>4</sub>	15.3	X	29.91554	358.30730	292.72671	23.36977	0.0173107	0.18412488	3.0600444	20	8 21.9	19.9
445791 2012 AN <sub>14</sub>	16.8	X	331.96366	276.45239	115.07390	10.63348	0.1346699	0.21204262	2.7851843	20	11 4.4	20.0
445792 2012 AF <sub>20</sub>	16.2	X	247.07050	316.09352	105.79905	12.08144	0.0791356	0.18197826	3.0840616	20	8 5.8	20.7
445793 2012 AO <sub>21</sub>	15.2	X	129.39645	219.69567	289.30090	15.60359	0.1295433	0.17019400	3.2248280	20	7 17.3	20.3
445794 2012 BD <sub>1</sub>	16.4	X	192.43379	152.57234	335.12028	11.80852	0.2072464	0.17916700	3.1162386	20	8 19.6	21.5
445795 2012 BC <sub>5</sub>	17.1	X	9.09301	104.99826	308.96405	4.14259	0.1163640	0.22109412	2.7086398	20	—	—
445796 2012 BN <sub>5</sub>	16.4	X	213.41336	131.81239	307.57364	8.50208	0.0629040	0.17552239	3.1592284	20	7 19.9	21.2
445797 2012 BB <sub>16</sub>	15.8	X	329.20952	41.57038	307.84853	10.00687	0.0471758	0.18205458	3.0831996	20	8 23.6	19.9
445798 2012 BV <sub>29</sub>	16.9	X	258.23696	117.61236	315.71148	8.02912	0.0946839	0.19095549	2.986291	20	8 29.9	21.0
445799 2012 BY <sub>29</sub>	16.7	X	199.34165	307.95175	141.17025	6.61262	0.1360782	0.17532335	3.1616190	20	7 11.5	21.7
445800 2012 BQ <sub>32</sub>	16.2	X	147.04964	167.80142	337.56643	8.50601	0.0256340	0.17477846	3.1681867	20	7 28.0	20.8
445801 2012 BD <sub>34</sub>	15.6	X	238.41943	168.68270	252.82538	8.29520	0.0438342	0.17479103	3.1680348	20	7 26.1	20.3
445802 2012 BD <sub>48</sub>	16.2	X	242.51770	42.81438	108.61650	14.05847	0.0438899	0.20556757	2.8433674	20	12 1.2	20.2
445803 2012 BN <sub>58</sub>	16.1	X	352.48974	15.55975	309.15122	11.64715	0.1173870	0.18501784	3.0501906	20	8 26.3	19.8
445804 2012 BJ <sub>67</sub>	16.4	X	216.22021	161.03542	286.42855	13.16818	0.0533724	0.17871818	3.1214537	20	7 31.4	21.0
445805 2012 BH <sub>76</sub>	16.8	X	266.32716	104.00749	321.30991	9.64709	0.1351636	0.18636339	3.0354912	20	8 24.2	21.0
445806 2012 BK <sub>81</sub>	16.8	X	210.06400	23.95988	101.96354	2.23523	0.1705839	0.18724590	3.0259460	20	9 4.6	21.6
445807 2012 BP <sub>81</sub>	16.7	X	317.41415	82.08224	308.72829	7.44581	0.0695335	0.19323916	2.9630521	20	9 28.6	20.5
445808 2012 BK <sub>84</sub>	16.4	X	343.24089	238.59293	75.15052	2.22947	0.0487199	0.17300012	3.1898611	20	7 30.2	20.5
445809 2012 BS <sub>86</sub>	16.4	X	317.20280	118.52996	312.44272	6.59047	0.2102535	0.21032447	2.8003320	20	11 22.8	19.1
445810 2012 BK <sub>89</sub>	17.3	X	301.79514	103.46695	11.02184	4.15291	0.1455320	0.21318494	2.7752261	20	12 28.6	20.2
445811 2012 BU <sub>90</sub>	16.3	X	243.70066	320.03040	138.33918	6.76455	0.0776253	0.18785115	3.0194429	20	9 18.3	20.5
445812 2012 BJ <sub>110</sub>	16.0	X	254.52631	90.94636	330.55282	10.12926	0.0566072	0.17739428	3.1369648	20	8 16.6	20.4
445813 2012 BH <sub>112</sub>	15.7	X	342.80496	27.97088	166.74801	2.98505	0.1317165	0.12532121	3.9547556	20	2 26.4	20.7
445814 2012 BO <sub>112</sub>	16.2	X	254.63617	110.23028	323.79851	8.26363	0.1263704	0.18294476	3.0731899	20	8 22.1	20.5
445815 2012 BF <sub>117</sub>	16.0	X	249.37390	124.87004	300.28475	8.68971	0.0801291	0.18138167	3.0908205	20	8 9.8	20.3
445816 2012 BH <sub>120</sub>	17.0	X	198.91084	219.03181	219.23948	1.86372	0.0752495	0.16779606	3.2554788	20	6 30.6	21.8
445817 2012 BM <sub>124</sub>	17.0	X	269.25699	357.03353	138.13503	10.75071	0.0748921	0.20930517	2.8094162	20	12 11.2	20.8
445818 2012 BR <sub>128</sub>	15.9	X	192.21584	130.02725	348.50114	9.92828	0.1715317	0.17705053	3.1410238	20	8 11.2	21.1
445819 2012 BF <sub>130</sub>	16.2	X	32.29486	168.50597	135.51611	13.28729	0.0595983	0.18155792	3.0888199	20	9 30.5	20.5
445820 2012 BQ <sub>131</sub>	15.3	X	228.99761	72.38225	343.78058	21.09101	0.0255749	0.17198722	3.2023732	20	7 18.8	20.2
445821 2012 BV <sub>135</sub>	16.8	X	341.81800	126.20166	253.88570	2.75432	0.1143295	0.20362824	2.8613921	20	10 28.5	20.0
445822 2012 BK <sub>139</sub>	16.5	X	194.53342	332.53802	169.28239	4.69650	0.0872878	0.18209283	3.0827678	20	9 13.1	21.1
445823 2012 BO <sub>151</sub>	15.8	X	331.32893	77.56029	301.36540	9.26544	0.0990818	0.19207279	2.9750355	20	10 1.9	19.6
445824 2012 BF <sub>152</sub>	16.1	X	298.76102	250.89412	145.62345	9.79281	0.0595721	0.18659463	3.0329829	20	9 14.5	20.1
445825 2012 CR <sub>2</sub>	17.3	X	274.40603	145.66181	291.92804	1.13742	0.1494062	0.19298277	2.9656759	20	9 19.3	21.0
445826 2012 CQ <sub>5</sub>	15.7	X	318.69630	284.38294	63.66944	10.02125	0.0879503	0.17461136	3.1702077	20	8 8.5	19.9
445827 2012 CV <sub>9</sub>	15.9	X	185.20704	331.36152	150.19004	10.12419	0.0330365	0.17379559	3.1801203	20	8 9.9	20.4
445828 2012 CW <sub>17</sub>	15.6	X	266.32329	263.19822	144.27237	16.07752	0.0671560	0.17697116	3.1419628	20	8 11.1	19.9
445829 2012 CG <sub>18</sub>	17.0	X	227.63646	288.03342	217.86370	2.16594	0.1387043	0.19787324	2.9166076	20	10 20.1	21.2
445830 2012 CL <sub>19</sub>	22.2	X	118.23097	295.32467	128.52650	2.86564	0.4412740	0.50514261	1.5614451	20	4 12.4	23.5
445831 2012 CR <sub>33</sub>	16.1	X	236.43245	137.83060	304.88794	8.39439	0.1281295	0.17977303	3.1092312	20	8 10.8	20.7
445832 2012 CU <sub>40</sub>	16.2	X	223.32871	90.42745	341.75555	6.65926	0.0923096	0.16988686	3.2287135	20	7 19.9	21.2
445833 2012 CT <sub>41</sub>	16.5	X	316.37516	278.45995	122.14775	3.16106	0.1237412	0.19167573	2.9791426			

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>		
445841	2012	DT <sub>25</sub>	16.7	X	254.00327	269.94315	163.22914	15.52900	0.2976637	0.17862630	3.1225240	20	7 27.9	21.8
445842	2012	DA <sub>31</sub>	15.9	X	169.72085	102.16602	63.04473	13.39874	0.1105433	0.18102230	3.0949098	20	9 22.5	21.0
445843	2012	DB <sub>54</sub>	16.9	X	0.41745	55.64540	20.91294	32.96132	0.3768940	0.22554424	2.6728929	20	—	—
445844	2012	DS <sub>55</sub>	15.8	X	184.19568	144.53428	340.82131	13.81205	0.1559166	0.17035772	3.2227615	20	8 12.7	21.1
445845	2012	DD <sub>56</sub>	16.4	X	202.78502	305.15954	176.18269	5.03340	0.1644718	0.17543498	3.1602777	20	8 20.9	21.4
445846	2012	DP <sub>89</sub>	16.7	X	286.84519	126.80919	23.73417	9.82901	0.2168771	0.21042027	2.7994819	20	—	—
445847	2012	ET <sub>16</sub>	16.3	X	240.09520	336.75062	154.78406	15.98452	0.1248891	0.18635917	3.0355371	20	10 21.1	20.9
445848	2012	FX <sub>26</sub>	15.6	X	28.50344	157.55222	11.98882	8.35647	0.0742872	0.12633833	3.9335013	20	4 3.6	20.7
445849	2012	FO <sub>45</sub>	16.7	X	222.30949	39.05413	96.38930	5.65988	0.2639807	0.18588532	3.0409117	20	9 21.0	21.7
445850	2012	FF <sub>63</sub>	16.3	X	242.92931	65.66042	48.12341	12.00229	0.1814220	0.18374235	3.0642900	20	9 26.1	21.0
445851	2012	FC <sub>75</sub>	15.7	X	222.83216	81.75556	30.11968	13.27470	0.0706419	0.17589373	3.1547804	20	9 13.9	20.4
445852	2012	FU <sub>81</sub>	15.4	X	321.65506	7.59680	49.59471	16.13295	0.0563583	0.18893653	3.0078679	20	11 11.3	19.2
445853	2012	GH <sub>32</sub>	15.8	X	225.56260	295.56571	189.46027	13.70944	0.1868811	0.17902521	3.1178838	20	9 13.6	20.8
445854	2012	HT <sub>20</sub>	18.0	X	252.41975	224.30945	198.02798	23.89546	0.0438712	0.39399166	1.8427993	20	9 10.2	19.8
445855	2012	HG <sub>42</sub>	15.8	X	220.89598	63.42492	43.17568	10.03438	0.1964044	0.17073836	3.2179699	20	8 22.6	21.1
445856	2012	HD <sub>56</sub>	16.6	X	217.76109	278.42543	214.59062	4.92917	0.2193870	0.17795650	3.1303541	20	9 12.8	21.7
445857	2012	MR <sub>6</sub>	17.5	X	300.79690	106.49164	246.69122	18.36875	0.0963787	0.37829129	1.8934412	20	7 24.9	19.4
445858	2012	OL	17.5	X	181.65300	146.10034	302.69790	19.33114	0.0749804	0.36588850	1.9359919	20	7 4.9	19.8
445859	2012	SX <sub>46</sub>	18.3	X	175.07503	169.30270	184.84468	2.84191	0.1126480	0.31526583	2.1380512	20	2 10.8	21.3
445860	2012	TC <sub>51</sub>	18.4	X	87.15097	52.50588	349.41528	5.11741	0.1158903	0.29581215	2.2307901	20	—	—
445861	2012	TU <sub>10</sub>	17.9	X	29.60760	246.41290	211.91178	6.06849	0.0961398	0.28973549	2.2618732	20	—	—
445862	2012	TU <sub>54</sub>	17.5	X	22.09409	176.38503	316.33869	5.01697	0.0978053	0.29643591	2.2276597	20	1 9.9	19.6
445863	2012	TS <sub>57</sub>	18.2	X	61.77912	67.21897	9.02100	3.33365	0.0873272	0.29453809	2.2372185	20	—	—
445864	2012	TH <sub>66</sub>	18.0	X	94.46268	35.86808	30.67608	4.83909	0.1199240	0.30040942	2.2079726	20	2 12.5	20.2
445865	2012	TC <sub>69</sub>	18.7	X	135.66034	207.03407	190.30947	1.84030	0.1207880	0.30889532	2.1673472	20	2 25.1	21.3
445866	2012	TN <sub>87</sub>	18.6	X	33.47392	61.66763	24.02492	4.59083	0.1341018	0.28783197	2.2718345	20	—	—
445867	2012	TQ <sub>120</sub>	18.4	X	316.27372	249.57255	323.10457	4.21927	0.0430738	0.31147225	2.1553765	20	1 25.9	20.7
445868	2012	TQ <sub>149</sub>	18.9	X	179.70627	92.25417	243.45650	1.87624	0.2020553	0.30944956	2.1647586	20	1 29.7	22.3
445869	2012	TU <sub>155</sub>	18.6	X	31.51604	22.81003	79.56069	1.85099	0.1456107	0.29420915	2.2388857	20	—	—
445870	2012	TS <sub>168</sub>	18.6	X	147.96541	5.31692	131.65782	1.68453	0.1837530	0.30820959	2.1705608	20	2 23.3	21.4
445871	2012	TZ <sub>193</sub>	18.6	X	182.61426	191.83370	160.08406	0.97563	0.1473118	0.31350092	2.1460681	20	2 19.1	21.7
445872	2012	TU <sub>206</sub>	18.1	X	218.93867	342.60549	306.47445	5.08836	0.1045695	0.30476810	2.1868704	20	1 6.0	21.1
445873	2012	TB <sub>243</sub>	18.5	X	143.12804	245.33675	137.87553	2.94632	0.0668020	0.30948603	2.1645885	20	2 8.1	21.1
445874	2012	TS <sub>255</sub>	17.9	X	32.78597	198.83989	261.68999	3.62863	0.0859106	0.29181156	2.2511325	20	—	—
445875	2012	TA <sub>284</sub>	17.8	X	272.73737	20.62761	184.48179	4.68106	0.1164618	0.29056190	2.2575824	20	—	—
445876	2012	UQ <sub>26</sub>	17.7	X	349.40656	178.87154	286.03938	6.13772	0.0538657	0.27988135	2.3146576	20	—	—
445877	2012	UT <sub>45</sub>	18.5	X	165.34714	207.70976	154.51500	2.49853	0.1485332	0.31084781	2.1582620	20	2 15.1	21.4
445878	2012	UH <sub>56</sub>	18.7	X	170.07405	93.97039	249.55984	3.26663	0.1770819	0.30644987	2.1788622	20	1 28.7	21.9
445879	2012	UG <sub>91</sub>	18.2	X	214.32183	255.30513	39.21183	3.46145	0.1853864	0.30670923	2.1776337	20	1 9.4	21.6
445880	2012	UF <sub>99</sub>	18.5	X	188.25565	321.76669	39.91025	0.69507	0.0971223	0.31678278	2.1312203	20	3 6.8	21.2
445881	2012	UN <sub>116</sub>	18.3	X	158.47063	9.00739	8.48085	3.26085	0.1535541	0.31310446	2.1478793	20	2 29.3	21.3
445882	2012	UL <sub>124</sub>	17.9	X	340.25230	231.06551	268.95966	5.54836	0.1029998	0.28105320	2.3082191	20	—	—
445883	2012	UR <sub>133</sub>	18.1	X	164.36340	325.79085	51.90985	3.52268	0.1170367	0.31295937	2.1485431	20	3 4.8	20.9
445884	2012	UZ <sub>149</sub>	17.9	X	47.57573	184.97555	266.71079	3.04586	0.0969130	0.29206306	2.2498399	20	—	—
445885	2012	UO <sub>163</sub>	18.2	X	211.15765	311.84994	16.58370	4.20443	0.1653727	0.31478671	2.1402202	20	2 18.3	21.4
445886	2012	VZ	17.9	X	33.77505	145.25345	305.27649	6.20035	0.0677085	0.28984780	2.2612888	20	—	—
445887	2012	VL <sub>10</sub>	18.2	X	11.65132	183.45615	275.61100	2.50566	0.1881791	0.27738326	2.3285338	20	—	—
445888	2012	VJ <sub>16</sub>	18.4	X	112.22581	121.14571	274.96014	4.63294	0.1356912	0.29686773	2.2254989	20	1 26.7	20.8
445889	2012	VB <sub>17</sub>	17.9	X	36.57636	55.55744	15.36693	2.49973	0.1937030	0.27820625	2.3239394	20	—	—
445890	2012	VA <sub>18</sub>	18.4	X	17.86370	2.73496	90.21790	4.76662	0.1658787	0.27773567	2.3265637	20	—	—
445891	2012	VU <sub>24</sub>	18.9	X	149.25406	162.46895	234.55528	1.93264	0.1822023	0.31281961	2.1491830	20	3 17.4	21.9
445892	2012	VH <sub>34</sub>	18.2	X	130.44107	272.04429	124.85971	3.43648	0.1705015	0.30378483	2.1915867	20	2 26.9	20.9
445893	2012	VC <sub>39</sub>	18.6	X	148.37181	234.01240	164.32884	1.45492	0.1982019	0.30964336	2.1638552	20	3 21.1	21.8
445894	2012	VJ <sub>42</sub>	17.5	X	98.50742	171.50778	241.40337	6.38273	0.0756504	0.29302972	2.2448893	20	1 20.2	20.1
445895	2012	VD <sub>44</sub>	17.6	X	208.29711	48.08303	219.35263	6.21196	0.1021680	0.29188261	2.2507671	20	—	—
445896	2012	VY <sub>57</sub>	18.2	X	23.20032	36.94879	55.39434	7.04937	0.0522764	0.28326330	2.2961972	20	—	—
445897	2012	VP <sub>73</sub>	18.1	X	24.00730	334.90602	83.16396	4.21815	0.1335392	0.27030334	2.3690184	20	—	—
445898	2012	VD <sub>81</sub>	18.3	X	85.00441	247.09907	172.03339	6.95047	0.0871550	0.29470986	2.2363492	20	1 10.1	20.7
445899	2012	VA <sub>82</sub>	17.5	X	185.51608	258.60648	53.14008	6.60919	0.1455145	0.29495869	2.2350912	20	1 4.1	20.7
445900	2012	VH <sub>82</sub>	17.7	X	194.90004	61.86032	276.23209	6.47037	0.2937833	0.31378365	2.1447788	20	2 15.1	21.5
445901	2012	VE <sub>85</sub>	18.3	X	140.65624	248.82388	91.15711	1.32857	0.1263955	0.29021489	2.2593816	20	—	—
445902	2012	VA <sub>87</sub>	17.5	X	83.83585	166.53925	286.58374	5.97873	0.0320607	0.29796856	2.2200142	20	1 23.2	19.9
445903	2012	VH <sub>105</sub>	17.8	X	17.03201	120.34460	40.89833	5.47480	0.0857991	0.30276253	2.1965173	20	2 14.7	19.8
445904	2012	VY <sub>105</sub>	18.8	X	52.63156	166.09171	239.46537	6.11265	0.1457272	0.27823446	2.3237823	20	—	—
445905	2012	VW <sub>16</sub>	17.8	X	79.19475	73.44407	312.51717	1.91563	0.1587774	0.27920970	2.3183680	20	—	—
445906	2012	WO <sub>25</sub>	18.1	X	95.40099	86.24312	347.92525	4.26022	0.1300128	0.30034735	2.2082768	20	2 25.0	20.3
445907	2012	WQ <sub>27</sub>	15.7	X	291.81605	131.09090	255.06422	21.05006	0.0286815	0.22416233	2.6838668	20	8 17.2	19.8
445908	2012	WE <sub>35</sub>	17.9	X	96.56900	350.55897	54.76839	8.01923	0.1206657	0.29172283	2.2515889	20	1 17.2	20.3
445909	2012	XN <sub>32</sub>	18.6	X	43.63442	33.22735	109.08855	1.19106	0.1295597	0.30106658	2.2047584	20	3 6.3	20.2
445910	2012	XO <sub>32</sub>	18.4	X	18.36265	27.71452	88.66696	1.87263	0.1802535	0.28224879	2.3016962	20	—	—
445911	2012	XM <sub>3</sub>												



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Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
445921 2012 XQ <sub>95</sub>	17.7	X	263.01179	326.73372	170.69658	3.52834	0.1509739	0.24541219	2.5266124	20	12 3.6	20.6
445922 2012 XF <sub>106</sub>	17.2	X	301.80504	90.36177	74.43593	4.32534	0.1221100	0.26037852	2.4288421	20	—	—
445923 2012 XB <sub>113</sub>	17.6	X	65.56012	124.77634	312.44080	4.99977	0.1219421	0.28822145	2.2697874	20	1 10.1	19.7
445924 2012 XN <sub>117</sub>	16.7	X	50.06965	335.66923	332.85307	13.62537	0.1518179	0.23428025	2.6060271	20	11 12.8	20.6
445925 2012 XU <sub>119</sub>	16.6	X	287.73239	120.54382	306.71383	13.76147	0.0475979	0.22473227	2.6793272	20	10 7.1	20.5
445926 2012 XD <sub>120</sub>	17.3	X	13.57913	23.41351	81.48073	8.72225	0.1790180	0.26995015	2.3710843	20	—	—
445927 2012 XB <sub>124</sub>	18.0	X	344.89870	313.06450	185.78362	6.64810	0.1301679	0.27608463	2.3358300	20	—	—
445928 2012 XY <sub>138</sub>	17.0	X	253.45442	303.32433	179.82029	9.64097	0.1157340	0.23896897	2.5718268	20	11 5.4	20.3
445929 2012 XD <sub>145</sub>	18.1	X	1.28386	38.94180	40.39269	1.94570	0.1517081	0.25817658	2.4426326	20	—	—
445930 2013 AR <sub>4</sub>	17.7	X	270.27165	224.74155	239.78870	1.68709	0.0824906	0.23244734	2.6197087	20	11 5.8	21.0
445931 2013 AA <sub>6</sub>	18.4	X	85.92386	358.05129	86.57385	3.26783	0.1210352	0.29714711	2.2241038	20	2 25.4	20.6
445932 2013 AN <sub>11</sub>	18.2	X	42.03691	4.61575	114.41097	3.52800	0.1382124	0.28528511	2.2853355	20	1 29.4	20.1
445933 2013 AJ <sub>15</sub>	16.8	X	210.39895	291.59500	218.48539	13.26637	0.1340027	0.23024492	2.6363881	20	10 10.4	20.7
445934 2013 AX <sub>24</sub>	17.7	X	344.05604	357.06123	88.87655	2.17650	0.1522819	0.25923459	2.4359820	20	—	—
445935 2013 AE <sub>33</sub>	16.5	X	242.33164	96.91565	93.84173	14.04054	0.1070897	0.24465360	2.5318325	20	—	—
445936 2013 AQ <sub>33</sub>	17.2	X	268.72474	249.41674	291.87344	5.88308	0.0418725	0.26445706	2.4038052	20	—	—
445937 2013 AR <sub>35</sub>	18.1	X	88.10984	93.72398	325.86628	5.52427	0.1892205	0.28561521	2.2835744	20	2 4.5	20.2
445938 2013 AY <sub>39</sub>	17.0	X	235.17797	175.32012	302.44065	6.91931	0.0679891	0.21866464	2.7286658	20	10 2.7	20.9
445939 2013 AG <sub>43</sub>	16.9	X	286.71763	201.73247	12.75039	3.82437	0.0558844	0.26982463	2.3718196	20	—	—
445940 2013 AE <sub>44</sub>	17.0	X	294.97872	141.99724	298.67530	13.53447	0.1960014	0.23325158	2.6136834	20	10 23.3	20.0
445941 2013 AK <sub>50</sub>	16.6	X	60.66584	212.84064	139.49013	11.25694	0.1856519	0.25221985	2.4809416	20	—	—
445942 2013 AN <sub>57</sub>	17.5	X	328.02532	342.44762	97.35472	3.50031	0.1241639	0.24427707	2.5344336	20	—	—
445943 2013 AT <sub>57</sub>	17.2	X	247.63856	78.23959	96.24258	5.90097	0.1079801	0.24134463	2.5549219	20	—	—
445944 2013 AN <sub>61</sub>	18.0	X	73.21064	14.76143	0.82137	5.21118	0.1122869	0.26442644	2.4039908	20	—	—
445945 2013 AN <sub>64</sub>	18.4	X	51.35149	108.37566	301.43779	3.85958	0.1799291	0.26904209	2.3764165	20	—	—
445946 2013 AS <sub>69</sub>	17.5	X	78.70089	29.00398	5.25951	6.95997	0.1284654	0.27241370	2.3567676	20	—	—
445947 2013 AR <sub>70</sub>	17.7	X	93.93430	278.32026	117.66920	7.30034	0.1202045	0.27362398	2.3498129	20	1 2.1	20.1
445948 2013 AU <sub>70</sub>	17.3	X	228.84421	44.87036	126.20880	3.82879	0.1115792	0.23161942	2.6259476	20	12 2.7	20.9
445949 2013 AX <sub>70</sub>	17.0	X	209.09508	206.24100	304.21090	2.73551	0.1259623	0.21893241	2.7264404	20	10 9.1	21.0
445950 2013 AU <sub>74</sub>	17.2	X	346.68269	109.62594	34.24918	12.01068	0.1811583	0.26939596	2.3743350	20	—	—
445951 2013 AS <sub>75</sub>	17.8	X	91.00037	302.11300	102.06931	6.76108	0.1019566	0.27504651	2.3417038	20	1 6.0	20.2
445952 2013 AR <sub>78</sub>	17.5	X	69.87427	132.77734	275.93669	12.61578	0.1548461	0.27241657	2.3567510	20	—	—
445953 2013 AA <sub>84</sub>	17.8	X	293.84277	169.34868	6.21440	2.05806	0.1283369	0.26090325	2.4255844	20	—	—
445954 2013 AL <sub>86</sub>	17.8	X	80.17355	130.30215	299.86397	6.07862	0.0848174	0.28353600	2.2947246	20	1 21.3	20.3
445955 2013 AS <sub>88</sub>	17.3	X	328.50655	96.78458	52.64163	3.15720	0.1377147	0.26229362	2.4170051	20	—	—
445956 2013 AK <sub>89</sub>	17.2	X	33.34409	36.34795	13.32452	4.80328	0.0750930	0.25601726	2.4563480	20	—	—
445957 2013 AM <sub>89</sub>	17.3	X	116.13350	303.72153	96.68125	9.62220	0.2459931	0.29049722	2.2579175	20	2 29.7	20.4
445958 2013 AR <sub>90</sub>	17.7	X	10.48330	10.79492	52.02008	5.20780	0.1727225	0.25584746	2.4574347	20	—	—
445959 2013 AJ <sub>97</sub>	18.0	X	359.03378	150.41578	294.13332	5.49348	0.0905340	0.25464349	2.4651745	20	—	—
445960 2013 AW <sub>99</sub>	17.0	X	236.52699	203.49110	22.71376	6.65743	0.0729129	0.26010347	2.4305541	20	—	—
445961 2013 AR <sub>102</sub>	16.0	X	72.55089	300.92800	317.56504	11.78302	0.1172675	0.21235980	2.7824103	20	9 27.7	20.2
445962 2013 AW <sub>104</sub>	16.5	X	260.58293	172.85383	325.91133	12.37756	0.0816160	0.22852583	2.6495931	20	12 4.9	20.2
445963 2013 AG <sub>112</sub>	17.7	X	358.45408	13.61827	89.65148	2.14417	0.1271489	0.25973628	2.4328442	20	—	—
445964 2013 AW <sub>115</sub>	17.3	X	303.14784	57.01738	104.11632	5.68354	0.1407746	0.25600892	2.4564013	20	—	—
445965 2013 AY <sub>115</sub>	16.7	X	145.70309	279.02554	323.52906	9.00725	0.0988938	0.22632901	2.6667107	20	11 28.9	20.9
445966 2013 AE <sub>122</sub>	17.3	X	231.57262	179.46270	349.97947	3.62772	0.1291975	0.23281159	2.6169755	20	11 30.4	20.8
445967 2013 AN <sub>125</sub>	17.7	X	46.26529	127.30955	358.77334	7.84341	0.0956907	0.28549081	2.2842377	20	2 17.7	19.9
445968 2013 AX <sub>128</sub>	17.0	X	300.38236	154.87649	325.25701	4.83292	0.2432427	0.23751751	2.5822937	20	—	—
445969 2013 AP <sub>130</sub>	18.0	X	46.41897	88.92185	6.45573	5.98943	0.1167807	0.27536317	2.3399082	20	1 4.6	20.2
445970 2013 AV <sub>132</sub>	17.8	X	18.79488	308.92924	151.54528	2.78560	0.1539997	0.26585942	2.3953447	20	—	—
445971 2013 BZ <sub>7</sub>	17.1	X	80.59701	350.41368	318.35707	13.02165	0.0872000	0.23793231	2.5792915	20	12 16.2	21.1
445972 2013 BE <sub>9</sub>	17.4	X	86.42441	64.80372	309.46892	10.57095	0.0942348	0.26563964	2.3966657	20	—	—
445973 2013 BO <sub>14</sub>	16.7	X	114.62856	200.48228	323.39417	8.57748	0.0401186	0.18404686	3.0609091	20	7 13.6	21.1
445974 2013 BJ <sub>18</sub>	20.3	X	300.75474	159.60563	90.84456	3.71072	0.3637583	0.54858239	1.4778878	20	—	—
445975 2013 BM <sub>21</sub>	18.2	X	32.37664	136.81567	307.12004	3.43021	0.1956509	0.27118282	2.3638937	20	—	—
445976 2013 BV <sub>21</sub>	16.7	X	111.75473	283.04240	326.46630	5.45005	0.1031061	0.21971095	2.7199959	20	11 1.7	20.9
445977 2013 BD <sub>24</sub>	17.6	X	94.41262	86.19598	293.34993	6.57972	0.0928976	0.26950307	2.3737059	20	—	—
445978 2013 BD <sub>34</sub>	18.0	X	94.23177	302.99298	132.69221	5.94871	0.1573970	0.29126997	2.2539222	20	3 3.3	20.3
445979 2013 BE <sub>35</sub>	18.2	X	8.62074	183.74371	276.33732	1.15018	0.1588646	0.26598200	2.3946087	20	—	—
445980 2013 BL <sub>43</sub>	17.4	X	7.96984	32.00094	73.25927	3.29591	0.1637747	0.26563309	2.3967051	20	—	—
445981 2013 BS <sub>44</sub>	16.8	X	356.85755	143.30140	253.82556	13.07865	0.0406027	0.23712189	2.5851651	20	12 16.2	20.1
445982 2013 BV <sub>46</sub>	16.6	X	90.39328	154.56488	99.62296	13.11679	0.1088454	0.21417050	2.7667056	20	10 24.2	20.9
445983 2013 BY <sub>46</sub>	17.5	X	32.66004	24.94005	51.52199	4.48893	0.0198410	0.26449044	2.4036029	20	—	—
445984 2013 BB <sub>55</sub>	17.7	X	286.31645	147.31696	322.80806	6.88390	0.1435562	0.23270846	2.6177486	20	11 30.2	20.6
445985 2013 BY <sub>59</sub>	16.7	X	178.66044	148.71280	88.90376	6.15460	0.0901822	0.23629725	2.5911761	20	12 31.2	20.4
445986 2013 BB <sub>60</sub>	17.9	X	56.34824	53.30646	357.90996	6.05542	0.1135472	0.26413152	2.4057799	20	—	—
445987 2013 BA <sub>69</sub>	18.2	X	34.72933	113.38942	341.00806	4.91313	0.1992346	0.27305001	2.3531047	20	—	—
445988 2013 BJ <sub>71</sub>	17.2	X	350.22941	96.03023	310.88253	14.32491	0.1167650	0.24283352	2.5444678	20	—	—
445989 2013 BE <sub>77</sub>	17.8	X	30.21568	40.98430	359.77721	1.57280	0.1989495	0.25498175	2.4629938	20	—	—
445990 2013 BY <sub>78</sub>	18.1	X	111.01088	71.92850	339.12891	3.31315	0.0653092	0.28099665	2.3085287	20	2 7.7	20.8
445991 2013 CZ <sub>1</sub>	16.1	X	38.04477	334.51351	270.32933	8.36555	0.0458693	0.18779309	3.0200652	20	7 17.3	20.2
445992 2013 CW <sub>2</sub>	17.0	X	31.77634	165.74963	284.19816	4.92760	0.1001192	0.26640517	2.3920722	20	—	—
445993 2013 CY <sub>4</sub>	17.8	X	24.31444	212.51568	188.26673	2.67863	0.0889069	0.24771690	2.5109166	20	—	—
445994 2013 CD <sub>12</sub>	16.1	X	43.64613	240.17321	346.48725	9.25657	0.1646443	0.17607355	3.1526322	20	7 20.4	20.2
445995 2013 CZ <sub>14</sub>	16.6	X	143.21296	143.06143	125.64842	8.96322	0.153832					

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
446001 2013 CD <sub>23</sub>	15.9 <sup>m</sup>	X	57.70678	206.81743	145.06639	19.61670	0.0554978	0.22818392	2.6522392	20	—	—
446002 2013 CE <sub>26</sub>	17.0	X	268.76777	319.20107	155.34585	8.66204	0.0226748	0.22694214	2.6619054	20	11 25.5	20.7
446003 2013 CZ <sub>26</sub>	17.9	X	316.08239	208.13327	246.81039	2.41114	0.0949411	0.24001015	2.5643835	20	—	—
446004 2013 CO <sub>29</sub>	16.4	X	318.46283	179.35999	131.64076	12.42813	0.0701253	0.18186825	3.0853051	20	6 19.6	20.6
446005 2013 CO <sub>34</sub>	17.4	X	337.11853	295.31261	155.83174	10.28326	0.1516151	0.24335818	2.5408093	20	—	—
446006 2013 CR <sub>34</sub>	17.2	X	246.35366	182.17431	338.52859	6.66351	0.1944105	0.22874491	2.6479011	20	11 26.6	20.9
446007 2013 CC <sub>35</sub>	17.0	X	193.89163	327.96050	210.15127	4.29340	0.1298734	0.21826544	2.7319918	20	10 28.5	21.0
446008 2013 CP <sub>37</sub>	16.3	X	295.62088	235.61294	251.78225	13.60887	0.1086587	0.24118073	2.5560792	20	—	—
446009 2013 CB <sub>39</sub>	17.1	X	198.72330	226.85030	298.38458	5.33671	0.0791420	0.22298302	2.6933214	20	10 20.3	21.0
446010 2013 CB <sub>40</sub>	16.5	X	110.93146	26.54057	331.42932	23.77004	0.2939596	0.27412096	2.3469719	20	1 10.1	19.8
446011 2013 CJ <sub>41</sub>	17.5	X	251.19108	346.45142	154.75323	5.40292	0.0833174	0.23175607	2.6249153	20	11 28.3	20.9
446012 2013 CY <sub>46</sub>	16.8	X	292.94049	59.61982	3.15622	9.01771	0.0152665	0.21598175	2.7512160	20	10 16.1	20.6
446013 2013 CW <sub>47</sub>	16.3	X	326.86470	314.92029	146.62474	11.53948	0.1270786	0.23751693	2.5822979	20	—	—
446014 2013 CN <sub>51</sub>	16.3	X	127.92074	102.89672	143.52200	15.77192	0.1211919	0.21648957	2.7469119	20	11 20.9	20.9
446015 2013 CS <sub>52</sub>	16.6	X	213.27002	208.07092	8.89865	13.28629	0.0984333	0.24245547	2.5471121	20	—	—
446016 2013 CK <sub>53</sub>	16.6	X	331.22607	143.84501	300.46668	14.33588	0.0637300	0.23969424	2.5666362	20	—	—
446017 2013 CP <sub>53</sub>	17.7	X	262.06141	220.73074	278.25861	0.71568	0.1160138	0.23066855	2.6331593	20	12 4.5	20.9
446018 2013 CS <sub>53</sub>	16.5	X	0.82053	294.32899	328.99187	10.47755	0.0562481	0.17513515	3.1638837	20	6 19.5	20.9
446019 2013 CX <sub>53</sub>	17.6	X	248.84258	334.74580	188.42202	1.96753	0.1189072	0.23233566	2.6205481	20	12 17.4	20.7
446020 2013 CH <sub>56</sub>	18.1	X	18.79439	295.22141	164.69520	2.38213	0.1544885	0.26385456	2.4074631	20	—	—
446021 2013 CC <sub>57</sub>	16.5	X	151.90561	304.77510	251.48231	11.26065	0.1265785	0.21197071	2.7858142	20	10 4.9	21.2
446022 2013 CV <sub>57</sub>	17.2	X	297.00364	194.24079	273.65005	6.72027	0.1630639	0.23725013	2.5842334	20	12 18.4	19.5
446023 2013 CL <sub>60</sub>	17.3	X	305.18494	134.47570	330.18851	7.18990	0.0776067	0.23545382	2.5973604	20	12 31.9	20.4
446024 2013 CV <sub>64</sub>	17.4	X	282.66283	275.93643	191.81944	3.80895	0.0630767	0.22915889	2.6447112	20	11 30.5	20.6
446025 2013 CQ <sub>65</sub>	17.6	X	3.39985	200.66231	302.54860	4.07792	0.0067598	0.27032508	2.3688914	20	1 8.7	20.5
446026 2013 CY <sub>68</sub>	17.6	X	244.64876	327.69698	179.39187	4.49069	0.0483043	0.22881114	2.6473901	20	12 1.1	21.1
446027 2013 CZ <sub>73</sub>	18.4	X	42.64354	205.00374	220.27409	0.56536	0.1615052	0.26507812	2.4000491	20	—	—
446028 2013 CH <sub>74</sub>	16.7	X	235.75525	250.55933	234.08692	4.31093	0.1138425	0.21749009	2.7384810	20	10 8.1	20.4
446029 2013 CQ <sub>78</sub>	17.3	X	41.56374	212.91109	227.48457	5.62793	0.1024321	0.26523934	2.3990765	20	—	—
446030 2013 CR <sub>78</sub>	17.0	X	265.36326	299.26199	180.21908	5.82649	0.1385949	0.22714011	2.6603585	20	11 10.8	20.2
446031 2013 CC <sub>81</sub>	17.2	X	210.12348	296.75060	206.55661	7.11767	0.1732028	0.21313747	2.7756381	20	9 26.1	21.7
446032 2013 CY <sub>83</sub>	16.7	X	102.97261	153.92558	95.65435	3.36566	0.0963970	0.20517563	2.8469873	20	10 24.5	21.0
446033 2013 CO <sub>86</sub>	17.6	X	292.82558	118.16868	16.73328	3.58249	0.1022424	0.23690423	2.5867483	20	—	—
446034 2013 CA <sub>90</sub>	17.5	X	290.45808	317.46425	138.96404	8.35285	0.1219709	0.23092873	2.6311811	20	11 23.9	20.6
446035 2013 CV <sub>94</sub>	17.5	X	242.75264	153.96960	305.41481	3.23783	0.0324824	0.21001539	2.8030787	20	9 24.6	21.4
446036 2013 CK <sub>95</sub>	17.6	X	291.32029	152.95490	305.65722	2.08565	0.0356292	0.22801530	2.6535466	20	12 2.0	20.9
446037 2013 CN <sub>95</sub>	16.9	X	184.48646	29.00025	160.57635	2.32519	0.1738994	0.21628993	2.7486019	20	10 30.7	21.2
446038 2013 CZ <sub>100</sub>	16.7	X	91.85679	19.97717	144.85271	10.75244	0.0404200	0.17584236	3.1553949	20	6 15.8	21.3
446039 2013 CW <sub>102</sub>	16.6	X	15.22893	235.78372	106.96569	6.30619	0.1264574	0.21704695	2.7422071	20	11 9.6	19.9
446040 2013 CS <sub>103</sub>	16.3	X	325.80836	157.05613	131.16080	16.81295	0.0518669	0.17435769	3.1732819	20	6 4.7	20.8
446041 2013 CH <sub>105</sub>	16.2	X	340.90957	324.49495	332.58166	2.79115	0.1998624	0.18079094	3.0975496	20	6 27.1	19.4
446042 2013 CU <sub>105</sub>	17.6	X	97.81647	197.51375	65.98032	0.47707	0.0226845	0.21563528	2.7541621	20	10 29.2	21.2
446043 2013 CP <sub>106</sub>	17.4	X	200.69839	203.66981	338.34063	3.02018	0.0376722	0.22332983	2.6905324	20	11 18.9	21.1
446044 2013 CR <sub>106</sub>	17.9	X	43.59591	33.76552	10.29037	1.13861	0.1773674	0.25616954	2.4553744	20	—	—
446045 2013 CG <sub>107</sub>	15.8	X	30.11910	291.73087	331.23258	15.82739	0.1946395	0.18216420	3.0819626	20	8 19.9	19.3
446046 2013 CZ <sub>108</sub>	17.0	X	239.22073	142.43150	359.18836	4.16190	0.0409380	0.22174179	2.7033629	20	11 14.6	20.7
446047 2013 CX <sub>111</sub>	17.5	X	346.57141	9.86870	116.71345	5.90760	0.1548901	0.26005573	2.4308515	20	—	—
446048 2013 CB <sub>114</sub>	17.4	X	265.10691	211.93468	264.42438	3.26386	0.1207159	0.22488598	2.6781062	20	11 6.1	20.8
446049 2013 CA <sub>115</sub>	17.2	X	233.70560	122.21058	6.41284	3.71823	0.0477856	0.21450715	2.7638101	20	10 20.1	20.9
446050 2013 CP <sub>118</sub>	17.7	X	48.14573	281.50832	144.47018	2.52255	0.1958156	0.26499962	2.4005230	20	—	—
446051 2013 CO <sub>118</sub>	17.4	X	296.73109	329.40131	146.10207	5.33355	0.1786667	0.23742556	2.5829603	20	12 27.9	19.7
446052 2013 CL <sub>120</sub>	17.3	X	11.13106	265.80317	150.81867	7.35748	0.1744678	0.24419282	2.5350165	20	—	—
446053 2013 CT <sub>120</sub>	17.6	X	50.58950	319.68410	128.90443	1.81519	0.1454514	0.26883872	2.3776148	20	1 4.5	19.5
446054 2013 CC <sub>121</sub>	17.1	X	269.71291	294.38982	155.26163	3.72561	0.1682505	0.21697561	2.7428081	20	10 1.2	20.4
446055 2013 CL <sub>122</sub>	17.3	X	181.84566	207.34322	341.35560	2.38678	0.1248434	0.21473030	2.7618950	20	10 28.3	21.5
446056 2013 CD <sub>124</sub>	17.0	X	326.14556	83.60686	346.54827	14.00763	0.1015288	0.22879678	2.6475009	20	12 15.9	20.4
446057 2013 CE <sub>124</sub>	16.8	X	163.74422	79.83645	145.77724	10.92121	0.1116679	0.21775870	2.7362286	20	11 28.5	21.2
446058 2013 CE <sub>126</sub>	15.9	X	59.77024	242.32697	345.28166	12.93898	0.2063542	0.17481478	3.1677479	20	8 20.3	20.2
446059 2013 CU <sub>132</sub>	17.1	X	310.11185	144.38190	311.13400	11.03157	0.0319956	0.23780092	2.5802415	20	12 28.3	20.4
446060 2013 CQ <sub>134</sub>	16.4	X	225.90354	160.78007	0.79707	14.48155	0.1183867	0.22051044	2.7134174	20	11 7.9	20.4
446061 2013 CP <sub>135</sub>	17.2	X	210.55040	132.50914	47.28851	4.04998	0.1230967	0.22188357	2.7022112	20	11 17.9	20.9
446062 2013 CO <sub>135</sub>	17.3	X	40.37671	92.59545	1.67110	13.72561	0.0985669	0.27526631	2.3404570	20	—	—
446063 2013 CX <sub>136</sub>	16.6	X	156.85602	248.59835	19.49496	14.20652	0.0357107	0.23893003	2.5721061	20	—	—
446064 2013 CC <sub>137</sub>	17.6	X	247.46895	316.76384	198.24153	1.55452	0.1661104	0.22808500	2.6530060	20	11 26.8	21.1
446065 2013 CS <sub>148</sub>	17.5	X	338.73394	108.58909	23.68996	4.18554	0.1830187	0.25763930	2.4460273	20	—	—
446066 2013 CR <sub>150</sub>	16.6	X	21.08208	289.18848	1.56079	6.95128	0.0501216	0.19072388	2.9890465	20	8 26.9	20.6
446067 2013 CP <sub>151</sub>	17.0	X	188.66680	145.21947	34.29728	4.25862	0.0370617	0.21257644	2.7805197	20	10 31.2	20.8
446068 2013 CQ <sub>151</sub>	17.1	X	262.70561	63.00249	53.86140	2.94642	0.0566264	0.21894593	2.7263282	20	11 12.1	20.6
446069 2013 CO <sub>155</sub>	17.2	X	277.92411	107.32560	341.00447	4.32045	0.0455092	0.21584632	2.7523666	20	10 25.9	20.9
446070 2013 CV <sub>156</sub>	16.4	X	251.34985	117.44157	342.21517	8.87725	0.0790065	0.21277706	2.7787716	20	9 28.7	20.1
446071 2013 CC <sub>159</sub>	16.5	X	184.73186	129.37908	345.35405	11.15943	0.1063916	0.18947965	3.0021174	20	8 3.0	21.2
446072 2013 CE <sub>159</sub>	16.8	X	307.95315	259.45144	159.86484	5.75871	0.0126146	0.21233318	2.7826429	20	11 3.9	20.6
446073 2013 CC <sub>162</sub>	17.3	X	317.28355	275.63887	156.12512	0.81434	0.1134373	0.22551417	2.6731305	20	12 2.9	20.2

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
446081 2013 CW <sub>172</sub>	16.2	X	112.27223	4.52567	159.67951	12.48308	0.0677546	0.17931987	3.1144673	20	7 11.9	20.9
446082 2013 CQ <sub>174</sub>	16.8	X	212.13223	333.52801	175.20696	4.97220	0.1028887	0.21187508	2.7866524	20	10 13.9	20.9
446083 2013 CT <sub>177</sub>	17.1	X	249.41959	314.19788	177.29873	2.70828	0.1024339	0.22351511	2.6890453	20	11 8.1	20.5
446084 2013 CX <sub>178</sub>	17.2	X	239.01855	68.81363	94.71131	3.23034	0.0205424	0.23148361	2.6269746	20	12 18.7	20.5
446085 2013 CW <sub>179</sub>	16.9	X	39.60221	47.63104	16.81617	6.37667	0.0473751	0.25715216	2.4491155	20	—	—
446086 2013 CZ <sub>179</sub>	17.9	X	333.65076	358.02428	129.50349	2.48043	0.1464095	0.25472083	2.4646755	20	—	—
446087 2013 CN <sub>183</sub>	16.2	X	74.47342	254.84584	350.28327	6.03693	0.1678672	0.19036738	2.9927771	20	9 22.0	20.5
446088 2013 CK <sub>185</sub>	16.8	X	327.64995	43.90942	47.60143	11.57809	0.0929714	0.24398540	2.5364530	20	—	—
446089 2013 CD <sub>186</sub>	17.7	X	342.92135	242.76828	198.44435	3.47358	0.1635900	0.24523855	2.5278050	20	—	—
446090 2013 CF <sub>186</sub>	17.3	X	336.16084	189.85964	251.17146	4.46816	0.1279764	0.24142009	2.5543895	20	—	—
446091 2013 CV <sub>186</sub>	16.4	X	182.91667	9.54409	179.36648	8.15284	0.1244693	0.21334000	2.7738812	20	10 31.9	20.7
446092 2013 CE <sub>187</sub>	17.8	X	259.03578	100.94873	46.44091	5.35113	0.1704162	0.23347912	2.6119850	20	12 3.2	20.9
446093 2013 CX <sub>188</sub>	17.2	X	355.57249	332.64694	79.17205	4.26102	0.0662889	0.23474855	2.6025602	20	—	—
446094 2013 CN <sub>190</sub>	17.1	X	331.95865	326.97060	178.51231	6.27012	0.0764834	0.25866107	2.4395815	20	—	—
446095 2013 CR <sub>190</sub>	16.7	X	215.01945	168.06359	325.42507	8.96127	0.0912592	0.21028796	2.8006560	20	9 24.6	20.9
446096 2013 CC <sub>191</sub>	16.7	X	352.89922	45.32721	62.94793	15.45282	0.0911638	0.25789534	2.4444082	20	—	—
446097 2013 CW <sub>197</sub>	16.7	X	50.05002	75.15656	161.70741	14.90213	0.1615867	0.17952007	3.1121514	20	8 8.4	20.9
446098 2013 CO <sub>206</sub>	17.0	X	130.47296	110.76218	172.13630	11.87275	0.1019132	0.23173968	2.6250392	20	—	—
446099 2013 CP <sub>208</sub>	17.0	X	291.83997	225.24503	225.83017	1.40673	0.0624664	0.22059245	2.7127449	20	11 19.3	20.2
446100 2013 CN <sub>215</sub>	16.3	X	324.42165	357.64437	310.01936	17.33035	0.0421576	0.18155991	3.0887974	20	6 27.8	20.6
446101 2013 CC <sub>216</sub>	17.0	X	27.64978	80.75354	269.89934	5.08161	0.0301933	0.22173466	2.7034208	20	11 22.0	20.6
446102 2013 DN <sub>2</sub>	17.0	X	181.57070	278.70731	252.80378	4.16781	0.0561686	0.21364743	2.7712196	20	10 10.1	21.0
446103 2013 DC <sub>3</sub>	15.6	X	30.53096	292.60172	318.95974	25.29305	0.1846253	0.17771058	3.1332415	20	8 4.1	19.3
446104 2013 DF <sub>3</sub>	17.8	X	291.84294	317.84295	167.79604	5.13518	0.1096794	0.23403275	2.6078641	20	—	—
446105 2013 DN <sub>4</sub>	18.1	X	64.27713	40.57468	349.96950	3.26145	0.1987852	0.25793630	2.4441494	20	—	—
446106 2013 DQ <sub>4</sub>	16.8	X	211.89949	162.88044	347.84745	4.96811	0.0641711	0.21567855	2.7537938	20	10 18.6	20.6
446107 2013 DR <sub>4</sub>	16.6	X	124.24957	230.69805	9.90446	2.87275	0.1416544	0.21036676	2.7999566	20	11 5.2	21.1
446108 2013 DU <sub>4</sub>	17.3	X	254.07564	108.37143	11.32488	2.11374	0.0855550	0.22152797	2.7051022	20	10 30.9	20.7
446109 2013 DG <sub>5</sub>	17.8	X	67.68174	42.87209	11.97175	2.22516	0.2125281	0.26988882	2.3714435	20	—	—
446110 2013 DT <sub>6</sub>	16.9	X	288.11199	343.25578	132.07771	4.99657	0.0964313	0.23283353	2.6168111	20	12 16.7	20.0
446111 2013 DJ <sub>11</sub>	17.2	X	278.79029	139.36500	350.89506	12.37566	0.0919555	0.23518779	2.5993187	20	12 23.4	20.5
446112 2013 DM <sub>13</sub>	16.7	X	192.05885	332.31636	201.89788	8.71869	0.0847316	0.21633105	2.7482536	20	10 25.7	20.8
446113 2013 DT <sub>15</sub>	16.1	X	9.49693	344.18501	292.97515	9.52767	0.1919261	0.17842531	3.1248684	20	7 28.9	19.5
446114 2013 EK <sub>1</sub>	16.4	X	252.09308	321.82089	178.40430	12.68082	0.1086713	0.22436685	2.6822356	20	11 23.7	20.1
446115 2013 EZ <sub>1</sub>	17.6	X	94.22547	306.85410	103.30529	2.14567	0.1736360	0.27338510	2.3511815	20	1 31.5	20.2
446116 2013 EL <sub>6</sub>	17.3	X	212.80736	263.98477	319.63636	2.06715	0.0716617	0.23619689	2.5919101	20	—	—
446117 2013 ES <sub>6</sub>	17.1	X	277.56363	234.77147	190.82498	1.52597	0.0194097	0.20486183	2.8498939	20	9 28.9	20.7
446118 2013 ER <sub>7</sub>	17.1	X	122.06687	332.89493	246.77486	1.03511	0.0534912	0.20172630	2.8793494	20	10 2.1	21.2
446119 2013 EW <sub>8</sub>	16.9	X	44.74720	55.91928	222.95837	0.82372	0.0479620	0.19507350	2.9444478	20	9 11.1	20.8
446120 2013 EB <sub>9</sub>	17.2	X	208.51027	11.38447	189.22831	3.05549	0.0472692	0.22797528	2.6538572	20	12 22.5	20.8
446121 2013 EH <sub>9</sub>	16.3	X	256.00266	70.58960	321.53776	8.64225	0.1015212	0.18650117	3.0339961	20	7 6.4	20.7
446122 2013 EG <sub>12</sub>	17.0	X	142.10988	198.88451	356.73265	5.15842	0.0678060	0.20082809	2.8879283	20	9 25.8	21.3
446123 2013 EW <sub>19</sub>	16.8	X	65.53811	131.51041	165.26999	4.61148	0.0441856	0.21014559	2.8019209	20	11 3.6	20.7
446124 2013 EN <sub>21</sub>	16.4	X	44.00578	0.58047	266.53504	3.98903	0.1211281	0.18615430	3.0377637	20	9 2.4	20.4
446125 2013 EM <sub>22</sub>	16.2	X	81.42447	334.81817	233.04787	1.28134	0.0292450	0.18071933	3.0983679	20	7 25.1	20.5
446126 2013 EF <sub>30</sub>	15.6	X	17.69568	210.61110	51.25429	2.39544	0.1283382	0.17057061	3.2200795	20	7 18.1	19.5
446127 2013 EJ <sub>32</sub>	17.5	X	287.42344	117.70127	8.63939	7.73313	0.1680842	0.23184627	2.6242345	20	12 23.5	20.3
446128 2013 EW <sub>32</sub>	15.9	X	126.41502	196.45581	329.12473	15.10126	0.1708788	0.18422116	3.0589781	20	8 9.9	20.8
446129 2013 EC <sub>33</sub>	16.4	X	323.05875	114.40895	315.90356	10.43435	0.0530027	0.22332127	2.6906012	20	12 8.1	19.9
446130 2013 ES <sub>33</sub>	15.9	X	197.65269	358.36580	178.75126	14.62356	0.0679525	0.21332802	2.7739851	20	11 7.7	20.1
446131 2013 EB <sub>35</sub>	16.5	X	321.00567	346.20275	28.05890	7.85863	0.0683373	0.19767143	2.9185924	20	9 19.8	20.1
446132 2013 EL <sub>47</sub>	17.7	X	287.45037	294.08329	177.81529	4.90301	0.1536191	0.22831030	2.6512604	20	12 4.2	20.6
446133 2013 EV <sub>48</sub>	16.9	X	12.54305	126.81318	211.36385	1.39768	0.0733536	0.20316673	2.8657238	20	10 18.3	20.3
446134 2013 EF <sub>51</sub>	16.1	X	15.93359	273.77625	31.81722	10.43763	0.0845862	0.18623212	3.0369175	20	9 13.6	20.1
446135 2013 ET <sub>55</sub>	16.3	X	52.50784	67.97362	170.51668	11.18744	0.0451954	0.17969649	3.1101141	20	7 27.5	20.7
446136 2013 EV <sub>60</sub>	16.7	X	242.04110	90.76955	5.50495	1.67366	0.0484461	0.20138009	2.8826485	20	9 17.8	20.8
446137 2013 EB <sub>65</sub>	15.7	X	41.28035	203.35295	79.04664	11.21705	0.0730433	0.18895298	3.0076933	20	9 20.4	19.9
446138 2013 EW <sub>70</sub>	16.8	X	182.49036	154.38860	353.40859	1.40236	0.0043360	0.19929972	2.9026739	20	9 13.8	20.8
446139 2013 EA <sub>72</sub>	16.6	X	115.78938	178.33676	71.45749	3.82016	0.0270364	0.21025457	2.8009526	20	11 2.9	20.5
446140 2013 EG <sub>78</sub>	16.9	X	315.75786	265.23624	142.84190	4.48225	0.0949571	0.21345113	2.7729183	20	10 27.9	20.2
446141 2013 EZ <sub>79</sub>	17.7	X	72.93260	32.26646	45.70658	3.89198	0.2129901	0.27480317	2.3430860	20	2 12.0	19.7
446142 2013 EN <sub>80</sub>	16.1	X	351.51412	301.22904	11.11912	12.74884	0.0877866	0.18425493	3.0586044	20	8 16.1	20.1
446143 2013 EW <sub>83</sub>	17.4	X	286.61808	91.09279	58.39134	4.99755	0.1900720	0.23790400	2.5794962	20	—	—
446144 2013 EE <sub>86</sub>	16.4	X	87.04947	71.00255	141.22385	13.91203	0.0371411	0.18504620	3.0498789	20	8 8.4	20.8
446145 2013 EB <sub>93</sub>	15.5	X	115.23901	188.80955	317.98940	16.45612	0.1364832	0.17625242	3.1504988	20	7 4.1	20.5
446146 2013 EV <sub>94</sub>	16.9	X	343.46562	346.24112	22.50145	2.72923	0.0588102	0.20437932	2.8543776	20	10 14.8	20.5
446147 2013 EA <sub>95</sub>	16.9	X	12.82695	61.66943	356.27697	8.49543	0.1230193	0.23817458	2.5775421	20	—	—
446148 2013 ED <sub>97</sub>	16.9	X	353.04917	235.84342	148.41175	5.40620	0.1335659	0.21467379	2.7623797	20	11 28.8	20.1
446149 2013 ED <sub>99</sub>	17.0	X	149.15541	198.79334	25.57006	3.04645	0.0284620	0.20948706	2.8077898	20	11 9.2	20.9
446150 2013 EO <sub>102</sub>	16.1	X	200.57376	287.53544	151.18057	10.06843	0.0537463	0.17371773	3.1810705	20	7 4.2	20.9
446151 2013 EW <sub>104</sub>	16.6	X	195.76686	357.17623	119.20881	2.48589	0.1011485	0.19059985	2.9903431	20	8 14.2	21.1
446152 2013 EZ <sub>104</sub>	16.1	X	89.42162	329.85423	210.97978	4.22031	0.0695981	0.16961881	3.2321143	20	7 5.5	20.7
446153 2013 EP <sub>106</sub>	15.9	X	0.33678	300.38323	97.81860	5.98100	0.1164308	0.21882777	2.7273095	20	12 26.7	20.3
446154 2013 EB <sub>109</sub>	16.4	X	336.12023									

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
446161 2013 <i>EH</i> <sub>118</sub>	16.2	X	282.66100	302.48393	170.38799	11.53658	0.0923772	0.21916410	2.7245186	20	12 2.7	19.7
446162 2013 <i>EC</i> <sub>119</sub>	16.6	X	71.91762	142.50843	177.89262	5.93102	0.0386214	0.22261496	2.6962893	20	12 11.9	20.4
446163 2013 <i>EE</i> <sub>119</sub>	16.1	X	133.47777	211.91554	339.25988	10.61221	0.1537476	0.18872107	3.0101569	20	9 12.6	21.0
446164 2013 <i>ED</i> <sub>120</sub>	16.7	X	110.49801	261.41556	2.23829	4.15256	0.0261058	0.20944621	2.8081548	20	11 11.6	20.7
446165 2013 <i>EF</i> <sub>122</sub>	16.3	X	72.67469	72.02131	174.02702	12.71692	0.1205545	0.18503003	3.0500566	20	9 14.5	20.7
446166 2013 <i>EX</i> <sub>122</sub>	16.6	X	261.15134	255.76810	166.90983	2.03426	0.0483748	0.19280362	2.9675127	20	8 28.6	20.8
446167 2013 <i>EB</i> <sub>123</sub>	15.7	X	331.79858	325.74117	7.09923	27.16144	0.0973836	0.17930503	3.1146391	20	8 20.4	20.1
446168 2013 <i>EO</i> <sub>123</sub>	17.9	X	34.59884	52.67151	54.89955	4.46889	0.1590145	0.26305475	2.4123406	20	1 2.3	19.9
446169 2013 <i>EP</i> <sub>124</sub>	17.7	X	82.72550	16.30726	52.88382	6.89531	0.2023605	0.27121128	2.3637283	20	2 17.5	20.2
446170 2013 <i>EQ</i> <sub>124</sub>	15.6	X	356.99646	205.27416	104.90897	8.18098	0.1342536	0.17911436	3.1168492	20	8 19.8	19.2
446171 2013 <i>ED</i> <sub>125</sub>	16.5	X	197.59325	322.73924	157.37365	5.92181	0.0843864	0.18990338	2.9976500	20	8 21.0	20.9
446172 2013 <i>ED</i> <sub>126</sub>	16.3	X	354.47574	220.11175	105.87036	4.60501	0.0508682	0.18414955	3.0597711	20	9 2.9	20.3
446173 2013 <i>EC</i> <sub>128</sub>	15.7	X	20.39629	208.52193	72.29957	11.79919	0.0282762	0.18424941	3.0586655	20	8 12.2	20.0
446174 2013 <i>EX</i> <sub>133</sub>	17.3	X	58.25634	318.71349	1.57122	1.67782	0.0593781	0.20380174	2.8597680	20	11 22.9	21.3
446175 2013 <i>ER</i> <sub>143</sub>	17.4	X	68.05826	146.56858	147.71948	3.87543	0.0683592	0.21425976	2.7659372	20	11 7.6	21.2
446176 2013 <i>FD</i> <sub>2</sub>	16.6	X	89.16297	200.68830	40.91519	11.24673	0.0534736	0.19252907	2.9703332	20	9 25.7	20.9
446177 2013 <i>FN</i> <sub>2</sub>	16.0	X	80.74958	91.77504	115.17339	10.73506	0.0521761	0.17589428	3.1547739	20	7 26.7	20.4
446178 2013 <i>FC</i> <sub>6</sub>	16.2	X	30.13917	194.98376	130.42169	17.21430	0.1014761	0.20151743	2.8813387	20	11 6.2	20.3
446179 2013 <i>FE</i> <sub>7</sub>	17.0	X	306.86391	298.57230	147.50724	5.38556	0.1352311	0.22055123	2.7130829	20	12 2.9	20.0
446180 2013 <i>FS</i> <sub>9</sub>	16.1	X	66.44449	223.16266	5.81049	10.44276	0.1485680	0.17490477	3.1666613	20	8 23.0	20.6
446181 2013 <i>FL</i> <sub>10</sub>	16.6	X	92.50673	4.92056	191.91999	0.74018	0.1030237	0.17590357	3.1546629	20	8 3.8	21.1
446182 2013 <i>FQ</i> <sub>11</sub>	17.1	X	288.87433	80.06022	2.38895	3.84555	0.0795181	0.21130400	2.7916710	20	10 29.6	20.5
446183 2013 <i>FR</i> <sub>11</sub>	16.2	X	94.41967	235.57285	346.58546	8.19852	0.0650772	0.18779279	3.0200684	20	9 3.9	20.5
446184 2013 <i>FZ</i> <sub>15</sub>	16.0	X	304.38662	157.33648	180.65425	22.30417	0.0835537	0.16955166	3.3229676	20	6 30.5	20.8
446185 2013 <i>FF</i> <sub>17</sub>	16.3	X	62.62692	21.99215	215.19095	2.21773	0.0405544	0.18050659	3.1008017	20	8 15.0	20.6
446186 2013 <i>FM</i> <sub>17</sub>	16.9	X	66.78442	100.78491	174.47435	1.99958	0.0236514	0.19510979	2.9440828	20	10 2.2	20.9
446187 2013 <i>FV</i> <sub>17</sub>	16.5	X	77.43155	122.87529	190.72221	5.84430	0.0070334	0.21468342	2.7622970	20	12 4.5	20.4
446188 2013 <i>FX</i> <sub>18</sub>	15.5	X	176.38136	32.82874	99.03944	11.82043	0.0277173	0.17831382	3.1261709	20	8 16.4	20.1
446189 2013 <i>FA</i> <sub>20</sub>	16.1	X	66.67653	151.52140	108.19529	3.15643	0.0554020	0.18751053	3.0230983	20	9 17.1	20.4
446190 2013 <i>FA</i> <sub>20</sub>	16.2	X	65.57472	150.03118	108.29510	3.41346	0.0273790	0.17138240	3.2099029	20	7 24.7	20.6
446191 2013 <i>FB</i> <sub>23</sub>	17.0	X	280.89794	120.28907	331.16257	0.64306	0.0516833	0.20972478	2.8056676	20	11 2.5	20.6
446192 2013 <i>FQ</i> <sub>25</sub>	16.7	X	269.99550	44.13713	69.67378	13.25926	0.1516648	0.22113974	2.7082673	20	11 8.4	20.0
446193 2013 <i>FZ</i> <sub>26</sub>	16.5	X	98.71581	53.98403	163.90167	6.07451	0.0794074	0.18400698	3.0613514	20	9 4.4	21.0
446194 2013 <i>FC</i> <sub>27</sub>	17.0	X	286.53518	9.41916	101.21745	12.01770	0.1386309	0.22453910	2.6808637	20	12 2.6	20.1
446195 2013 <i>FJ</i> <sub>27</sub>	16.2	X	24.35014	295.32204	12.80723	9.60448	0.0642281	0.18863160	3.0111086	20	9 23.9	20.1
446196 2013 <i>GL</i>	16.9	X	295.64068	330.81685	161.27202	7.58418	0.1284207	0.23461798	2.6035256	20	—	—
446197 2013 <i>GN</i>	16.2	X	357.08585	223.00251	88.79210	10.30013	0.0550055	0.17616493	3.1515419	20	8 19.9	20.5
446198 2013 <i>GS</i>	16.9	X	302.99251	328.99513	149.48257	8.45962	0.1834783	0.23180153	2.6245722	20	—	—
446199 2013 <i>GU</i> <sub>1</sub>	16.7	X	248.38843	232.78296	258.83929	3.22196	0.0180688	0.21091124	2.7951357	20	11 15.4	20.6
446200 2013 <i>GG</i> <sub>2</sub>	16.2	X	132.78761	310.76192	202.13580	8.00753	0.1643534	0.17477700	3.1682045	20	7 26.4	21.4
446201 2013 <i>KK</i> <sub>5</sub>	16.9	X	283.16560	65.34218	51.38445	5.67311	0.0660577	0.22130579	2.7069123	20	12 9.5	20.2
446202 2013 <i>GA</i> <sub>6</sub>	15.9	X	94.52163	59.57452	171.36791	12.21994	0.0322918	0.18961655	3.0006722	20	9 10.6	20.0
446203 2013 <i>GW</i> <sub>9</sub>	16.3	X	114.01671	173.54357	30.17559	9.34692	0.0617657	0.18619308	3.0373419	20	9 6.9	20.8
446204 2013 <i>GW</i> <sub>14</sub>	16.9	X	149.24633	56.92987	176.96125	4.42865	0.0108390	0.21255020	2.7833681	20	11 23.3	20.8
446205 2013 <i>GA</i> <sub>17</sub>	16.8	X	150.25489	101.59930	119.01153	1.50376	0.0148310	0.20855642	2.8161303	20	11 6.8	20.8
446206 2013 <i>GJ</i> <sub>17</sub>	16.0	X	77.25487	96.92432	152.70465	11.89096	0.0796687	0.18851905	3.0123069	20	9 21.6	20.3
446207 2013 <i>GD</i> <sub>24</sub>	16.1	X	11.56621	74.72369	218.06228	8.33254	0.0547886	0.17723605	3.1388315	20	8 9.5	20.4
446208 2013 <i>GE</i> <sub>24</sub>	16.3	X	201.38656	262.15953	252.17621	4.11610	0.0382144	0.20126372	2.8837596	20	10 11.2	20.4
446209 2013 <i>GH</i> <sub>29</sub>	17.1	X	259.92239	272.53807	213.62536	2.68480	0.1450149	0.21761738	2.7374130	20	11 7.3	20.3
446210 2013 <i>GF</i> <sub>31</sub>	16.4	X	10.09076	48.39295	9.70654	10.18104	0.1426612	0.23246447	2.6195799	20	—	—
446211 2013 <i>GA</i> <sub>36</sub>	17.2	X	301.81310	301.14070	205.51976	7.36020	0.1433187	0.23801450	2.5786977	20	—	—
446212 2013 <i>GD</i> <sub>41</sub>	16.5	X	297.95917	87.22090	24.34310	14.62617	0.0490376	0.21979341	2.7193155	20	12 24.9	20.3
446213 2013 <i>GL</i> <sub>45</sub>	16.5	X	54.05006	120.82456	109.40839	1.35868	0.0613536	0.17333210	3.1857868	20	7 22.6	20.7
446214 2013 <i>GD</i> <sub>50</sub>	16.1	X	142.72541	347.19278	186.82842	16.38815	0.1817242	0.17860775	3.1227402	20	8 30.3	21.4
446215 2013 <i>GN</i> <sub>50</sub>	16.0	X	251.86530	284.97798	148.39031	8.96335	0.0784204	0.19072389	2.9890463	20	8 26.2	20.2
446216 2013 <i>GU</i> <sub>50</sub>	17.2	X	307.21421	93.91425	26.16278	11.56969	0.1465295	0.23152211	2.6266834	20	—	—
446217 2013 <i>GU</i> <sub>52</sub>	16.5	X	312.96412	287.13973	80.10767	5.04905	0.0798744	0.18072408	3.0983136	20	8 25.4	20.5
446218 2013 <i>GA</i> <sub>56</sub>	16.7	X	114.80895	119.44992	62.04318	1.91130	0.0893268	0.17807351	3.1289827	20	8 9.4	21.2
446219 2013 <i>GB</i> <sub>56</sub>	16.5	X	113.93999	109.74190	83.72457	2.45122	0.1231975	0.18163132	3.0879877	20	8 27.2	21.3
446220 2013 <i>GG</i> <sub>56</sub>	16.5	X	126.38748	6.64020	171.79872	5.46632	0.0822770	0.18041769	3.1018204	20	8 16.3	21.2
446221 2013 <i>GQ</i> <sub>58</sub>	16.8	X	62.40176	232.87371	167.87132	4.10553	0.1902946	0.24397043	2.5365568	20	—	—
446222 2013 <i>GL</i> <sub>60</sub>	16.8	X	119.83608	182.27383	18.57381	1.65769	0.0324587	0.18422442	3.0589420	20	9 3.5	21.1
446223 2013 <i>GJ</i> <sub>64</sub>	16.2	X	59.53968	107.59733	120.69551	5.71341	0.0651480	0.17026761	3.2238985	20	7 27.8	20.7
446224 2013 <i>GT</i> <sub>69</sub>	16.2	X	272.45586	29.37272	61.26934	2.96913	0.0278404	0.20368751	2.8608370	20	10 23.9	20.0
446225 2013 <i>GF</i> <sub>75</sub>	17.4	X	348.88613	237.19869	197.29623	2.19892	0.0704355	0.22489823	2.6780089	20	—	—
446226 2013 <i>GP</i> <sub>77</sub>	16.4	X	168.05796	321.63068	183.40025	10.99358	0.1214060	0.18161228	3.0882035	20	8 17.8	21.5
446227 2013 <i>GM</i> <sub>87</sub>	15.6	X	240.38309	232.48115	190.27172	15.47600	0.0628142	0.17145630	3.2089806	20	7 27.0	20.6
446228 2013 <i>GW</i> <sub>88</sub>	16.3	X	99.14618	27.28742	192.33800	9.83474	0.2028647	0.17585040	3.1552986	20	9 17.8	21.4
446229 2013 <i>GH</i> <sub>94</sub>	16.1	X	68.20635	29.43565	209.79911	9.27121	0.0813839	0.17871192	3.1215266	20	8 21.9	20.6
446230 2013 <i>GQ</i> <sub>100</sub>	16.0	X	260.12127	315.60711	102.55929	2.84889	0.0252632	0.18061832	3.0995229	20	8 24.7	20.3
446231 2013 <i>GA</i> <sub>106</sub>	16.4	X	269.44075	76.21202	19.09729	6.23533	0.0379263	0.20457841	2.8525254	20	10 23.3	20.2
446232												

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
446241 2013 HW <sub>4</sub>	15.6 <sup>m</sup>	X	61.72235	173.85654	121.56349	12.66880	0.0243110	0.20061973	2.8899276	20	10 27.8	19.8
446242 2013 HY <sub>8</sub>	15.6	X	299.61671	231.86802	141.60080	11.60067	0.0357604	0.17820736	3.1274158	20	8 16.7	19.9
446243 2013 HY <sub>9</sub>	15.9	X	342.35340	240.88681	108.94054	11.25388	0.0461240	0.18677121	3.0310709	20	9 20.3	20.1
446244 2013 HE <sub>17</sub>	15.4	X	193.19390	267.85696	234.15097	18.34187	0.0212301	0.18147168	3.0897983	20	9 9.1	20.2
446245 2013 HG <sub>33</sub>	16.5	X	314.48833	134.18405	273.61075	6.53595	0.0664141	0.20036565	2.8923701	20	10 19.2	20.2
446246 2013 HT <sub>35</sub>	15.9	X	249.96398	114.96472	256.90518	7.74245	0.0692831	0.15910058	3.3730404	20	6 6.0	20.8
446247 2013 HS <sub>42</sub>	15.7	X	94.00066	9.74925	219.38206	22.20816	0.0609770	0.18188511	3.0851145	20	9 3.9	20.6
446248 2013 HW <sub>48</sub>	17.3	X	241.69774	131.01737	327.05943	3.32251	0.0138005	0.18888206	3.0084461	20	9 21.7	21.5
446249 2013 HG <sub>55</sub>	16.1	X	101.49634	333.76312	219.36459	8.60257	0.0428935	0.17385293	3.1794210	20	7 30.3	20.8
446250 2013 HU <sub>57</sub>	16.5	X	143.91430	308.87080	225.24963	9.08526	0.0471793	0.18343311	3.0677331	20	8 25.7	21.2
446251 2013 HX <sub>58</sub>	16.0	X	314.74409	129.94124	225.19069	12.22594	0.1098748	0.17626204	3.1503842	20	8 1.6	20.2
446252 2013 HP <sub>69</sub>	16.8	X	82.27270	206.52309	16.24993	10.34874	0.0487670	0.17564673	3.1577373	20	8 21.4	21.4
446253 2013 HM <sub>70</sub>	16.2	X	12.06749	79.40235	213.18217	11.46118	0.0741425	0.17279884	3.1923378	20	8 9.9	20.5
446254 2013 HY <sub>70</sub>	16.3	X	324.90397	157.14034	215.10301	8.45440	0.0503092	0.18798596	3.0179991	20	9 16.8	20.4
446255 2013 HB <sub>80</sub>	17.8	X	298.38031	272.97125	222.76594	2.61978	0.0655850	0.22764394	2.6564317	20	—	—
446256 2013 HA <sub>87</sub>	17.6	X	267.85148	126.50090	359.38224	1.32243	0.1708270	0.21917863	2.7243981	20	11 14.3	20.9
446257 2013 HL <sub>97</sub>	16.1	X	321.56790	141.38097	208.78937	9.58327	0.0455060	0.17855334	3.1233745	20	8 12.4	20.4
446258 2013 HO <sub>97</sub>	16.6	X	299.79344	149.70712	208.67472	8.71342	0.0419883	0.17338352	3.1851569	20	7 24.6	21.1
446259 2013 HE <sub>103</sub>	17.0	X	206.93644	85.70446	16.73186	1.41918	0.0902649	0.18203471	3.0834239	20	8 8.8	21.7
446260 2013 HS <sub>109</sub>	17.0	X	167.80334	90.89113	44.76960	0.98618	0.1191527	0.18057255	3.1000467	20	8 8.7	22.0
446261 2013 HU <sub>144</sub>	17.4	X	20.36578	100.95226	321.66684	2.76360	0.1609303	0.23565349	2.5958931	20	—	—
446262 2013 JU <sub>10</sub>	16.5	X	339.12028	69.24441	51.97113	22.75134	0.0637596	0.23431560	2.6057650	20	—	—
446263 2013 JC <sub>33</sub>	15.5	X	17.71557	144.79813	131.77564	17.13944	0.0692351	0.17588379	3.1548993	20	8 1.4	19.5
446264 2013 JK <sub>50</sub>	16.3	X	100.81677	8.67048	210.19122	7.84121	0.1010328	0.17717994	3.1394942	20	9 7.3	21.1
446265 2013 JQ <sub>58</sub>	17.4	X	302.05809	305.62115	222.00561	1.30984	0.1747843	0.24142744	2.5543376	20	—	—
446266 2013 KV	15.8	X	132.61123	161.25412	52.77522	12.79850	0.1466131	0.18573608	3.0423221	20	10 14.2	20.8
446267 2013 KD <sub>14</sub>	15.7	X	295.97875	320.74598	79.98942	16.22838	0.0445877	0.17706183	3.1408901	20	9 23.8	20.3
446268 2013 LD <sub>32</sub>	16.1	X	148.81319	2.03439	178.42369	16.69250	0.1308790	0.17787959	3.1312565	20	9 12.7	21.1
446269 2013 ST <sub>20</sub>	17.7	X	55.29535	272.18442	249.51122	18.12841	0.0768885	0.37852441	1.8926637	20	4 8.0	19.6
446270 2013 YM <sub>123</sub>	17.8	X	269.73420	72.32332	134.16770	8.00383	0.1204152	0.29944918	2.2126903	20	—	—
446271 2014 AP <sub>46</sub>	17.4	X	334.42044	189.99068	93.03959	23.94006	0.0396227	0.36645928	1.9339811	20	6 12.5	18.9
446272 2014 BA <sub>6</sub>	18.4	X	276.71259	260.23864	312.88410	2.86748	0.0749141	0.30620764	2.1800111	20	—	—
446273 2014 BM <sub>6</sub>	18.0	X	179.34319	159.16045	82.39033	1.76828	0.1737540	0.27039020	2.3685111	20	—	—
446274 2014 BM <sub>22</sub>	17.8	X	201.34080	58.10637	159.84202	2.45852	0.1515216	0.27053514	2.3676650	20	—	—
446275 2014 BP <sub>24</sub>	18.0	X	199.85794	46.89590	211.53566	5.49968	0.1317889	0.28619203	2.2805050	20	—	—
446276 2014 CC <sub>3</sub>	18.2	X	127.34402	125.38921	5.11746	19.45325	0.0948601	0.36382316	1.9433118	20	6 26.4	21.0
446277 2014 CW <sub>13</sub>	17.7	X	193.29642	261.34876	169.30577	22.51546	0.1212231	0.37091132	1.9184743	20	6 18.8	20.8
446278 2014 DT <sub>2</sub>	17.6	X	352.75071	267.24717	8.36094	18.81859	0.0635052	0.36605777	1.9353950	20	7 7.4	19.7
446279 2014 DZ <sub>15</sub>	17.0	X	164.37675	88.33983	122.68854	8.95667	0.1426866	0.24552743	2.5258218	20	11 15.3	21.1
446280 2014 DM <sub>21</sub>	17.6	X	146.59445	319.22377	182.94114	24.00089	0.1107634	0.36712811	1.9316316	20	8 3.9	20.6
446281 2014 DH <sub>33</sub>	18.4	X	260.07618	186.11920	25.72600	4.06496	0.0914869	0.29097039	2.2554690	20	—	—
446282 2014 DW <sub>33</sub>	17.5	X	205.38444	166.51613	120.10946	6.42516	0.1918373	0.29426230	2.2386161	20	—	—
446283 2014 DB <sub>35</sub>	18.2	X	214.66432	214.40457	36.71085	1.42195	0.1645141	0.28307324	2.2972248	20	—	—
446284 2014 DW <sub>38</sub>	17.8	X	203.34538	217.97898	12.47057	2.05355	0.1617232	0.27120254	2.3637791	20	—	—
446285 2014 DU <sub>41</sub>	17.5	X	122.61855	152.74328	121.67536	3.71433	0.2711024	0.24273095	2.5451845	20	12 21.6	22.0
446286 2014 DK <sub>57</sub>	17.7	X	148.50293	163.92638	139.05977	5.55163	0.1494532	0.27319862	2.3522513	20	—	—
446287 2014 DF <sub>59</sub>	18.0	X	252.68791	203.45597	74.43242	4.64616	0.0924343	0.31081106	2.1584322	20	1 28.4	20.9
446288 2014 DW <sub>68</sub>	17.8	X	26.74999	86.83307	155.15012	12.21409	0.3517328	0.18375414	3.0641590	20	8 9.1	20.9
446289 2014 DT <sub>70</sub>	17.8	X	268.50977	205.42835	24.64808	5.34917	0.0870615	0.29532005	2.2332676	20	—	—
446290 2014 DJ <sub>72</sub>	18.1	X	262.94631	57.35743	140.59659	6.31002	0.0823120	0.28038811	2.3118678	20	—	—
446291 2014 DN <sub>100</sub>	17.3	X	161.20822	183.45066	86.38391	4.31571	0.1768541	0.26367170	2.4085761	20	—	—
446292 2014 DK <sub>106</sub>	17.7	X	137.25845	50.66304	179.70534	3.76692	0.1429478	0.23992227	2.5650097	20	11 10.7	21.7
446293 2014 DJ <sub>108</sub>	17.4	X	94.15029	83.83836	163.62699	3.73931	0.1308976	0.22864124	2.6487014	20	10 18.9	21.3
446294 2014 DG <sub>109</sub>	17.1	X	199.94532	223.72543	26.70463	9.13240	0.2061128	0.26376433	2.4080121	20	—	—
446295 2014 DC <sub>111</sub>	17.0	X	89.92853	100.24457	126.24881	10.51183	0.1645093	0.21836430	2.7311673	20	9 22.9	21.2
446296 2014 DE <sub>121</sub>	18.0	X	176.93544	88.14402	168.07255	2.26920	0.1829190	0.26689610	2.3891380	20	—	—
446297 2014 DE <sub>121</sub>	18.3	X	242.01414	257.59755	313.15580	1.53833	0.1720025	0.27880162	2.3206297	20	—	—
446298 2014 DU <sub>139</sub>	17.0	X	134.98686	40.93500	165.55622	13.70161	0.1309770	0.22998098	2.6384048	20	10 10.4	21.2
446299 2014 EH <sub>4</sub>	16.2	X	32.05460	74.10210	149.40212	11.63721	0.2363601	0.18351781	3.0667891	20	7 4.9	19.7
446300 2014 EE <sub>7</sub>	17.7	X	165.88810	146.41571	152.62871	6.69755	0.1593101	0.28000548	2.3139734	20	—	—
446301 2014 ED <sub>8</sub>	18.1	X	212.75636	239.74977	16.91745	1.61128	0.1531538	0.28170398	2.3046628	20	—	—
446302 2014 EJ <sub>10</sub>	18.3	X	215.06719	252.50848	326.45624	1.57886	0.1512578	0.27128674	2.3632900	20	—	—
446303 2014 EC <sub>14</sub>	17.5	X	143.23018	59.21950	207.85709	1.95032	0.1693520	0.25586903	2.4572966	20	12 31.6	21.4
446304 2014 EN <sub>14</sub>	17.9	X	214.53568	128.95816	158.93312	7.07000	0.1578236	0.29843177	2.2177164	20	1 1.2	21.4
446305 2014 EH <sub>17</sub>	17.0	X	147.30451	68.63166	132.45235	12.63531	0.1324772	0.23093158	2.6311594	20	10 18.3	21.4
446306 2014 EB <sub>28</sub>	18.0	X	233.85280	255.87094	339.96237	3.73801	0.1516152	0.28742777	2.2739639	20	—	—
446307 2014 EB <sub>47</sub>	17.6	X	245.92054	83.94555	108.06982	6.32663	0.1133807	0.27471550	2.3435845	20	—	—
446308 2014 EN <sub>49</sub>	17.6	X	322.72286	5.08602	101.05523	2.18773	0.1441286	0.27130557				

# ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>		
446321	2014	FH <sub>37</sub>	17.7	X	231.02549	50.00309	186.02229	2.17375	0.1834812	0.27174235	2.3606476	20	—	—
446322	2014	FM <sub>37</sub>	17.7	X	257.38180	166.39509	31.02755	2.61159	0.1733842	0.27142051	2.3625134	20	—	—
446323	2014	FJ <sub>41</sub>	17.3	X	135.19163	29.58822	181.27664	7.14223	0.2270968	0.21982489	2.7190559	20	10 15.4	22.0
446324	2014	FC <sub>49</sub>	17.1	X	187.16040	193.84204	347.25333	10.67331	0.1498231	0.23927998	2.5695977	20	10 22.8	21.2
446325	2014	FK <sub>50</sub>	16.9	X	130.62130	11.77449	229.67471	7.22621	0.1805662	0.23529312	2.5985430	20	11 17.2	21.0
446326	2014	FW <sub>63</sub>	17.7	X	280.64585	344.51304	202.78032	2.68950	0.0858705	0.28388570	2.2928398	20	—	—
446327	2014	FX <sub>63</sub>	17.4	X	211.74881	104.70581	153.19828	2.30476	0.1751377	0.27653918	2.3332697	20	—	—
446328	2014	FJ <sub>64</sub>	17.8	X	249.73733	270.23386	287.70073	2.60064	0.1137614	0.27290484	2.3539391	20	—	—
446329	2014	FP <sub>64</sub>	18.1	X	180.85065	119.86436	13.53054	20.73070	0.0864139	0.37843885	1.8929490	20	9 17.1	20.3
446330	2014	FW <sub>65</sub>	17.6	X	242.83677	152.00771	55.89508	3.06836	0.1406725	0.27257699	2.3558263	20	—	—
446331	2014	FY <sub>65</sub>	17.4	X	181.97866	200.58164	35.90263	7.06882	0.1362661	0.25579449	2.4577739	20	—	—
446332	2014	FB <sub>66</sub>	16.6	X	169.59014	130.56416	128.53241	13.02103	0.1191532	0.26027950	2.4294581	20	—	—
446333	2014	GT <sub>1</sub>	17.6	X	131.85937	272.96203	331.24933	3.16308	0.1989618	0.24089374	2.5581090	20	11 21.5	21.9
446334	2014	GN <sub>12</sub>	18.2	X	231.10462	94.63159	142.01443	2.28316	0.1587517	0.27744547	2.3281857	20	—	—
446335	2014	GF <sub>16</sub>	17.1	X	254.02028	333.65991	146.70111	5.17776	0.0802071	0.23747976	2.5825673	20	11 7.4	20.4
446336	2014	GQ <sub>16</sub>	16.1	X	36.34374	22.62409	190.84823	17.65169	0.1558247	0.17621450	3.1509508	20	6 16.8	20.3
446337	2014	GB <sub>29</sub>	16.4	X	344.62154	88.65645	202.78974	12.74543	0.2896576	0.17490255	3.1666881	20	6 19.8	19.5
446338	2014	GQ <sub>33</sub>	17.8	X	263.70480	187.92312	12.92658	2.26695	0.1628368	0.27361262	2.3498779	20	—	—
446339	2014	GS <sub>35</sub>	17.7	X	287.52158	341.52068	239.50452	2.37188	0.1282685	0.29183618	2.2510059	20	—	—
446340	2014	GT <sub>38</sub>	17.6	X	236.37186	81.89953	163.75170	6.44602	0.1540129	0.28476657	2.2881090	20	—	—
446341	2014	GR <sub>40</sub>	16.8	X	36.04202	52.11097	186.65473	27.19100	0.2936317	0.18334582	3.0687067	20	8 8.4	20.9
446342	2014	GL <sub>46</sub>	17.2	X	131.46682	119.79334	121.02592	5.53863	0.2376113	0.23020213	2.6367148	20	11 18.6	21.8
446343	2014	GE <sub>47</sub>	18.1	X	256.52970	87.46342	103.65194	3.30624	0.1393781	0.26793293	2.3829704	20	—	—
446344	2014	GA <sub>49</sub>	17.5	X	215.04596	265.62496	169.99559	22.43246	0.1152810	0.36658820	1.9335277	20	7 20.7	20.3
446345	2014	HA <sub>4</sub>	17.3	X	282.34965	216.67495	344.34548	5.43709	0.0836071	0.28218145	2.3020623	20	—	—
446346	2014	HQ <sub>5</sub>	18.2	X	282.60119	70.84023	87.12744	2.42249	0.1142660	0.27224936	2.3577159	20	—	—
446347	2014	HZ <sub>7</sub>	16.1	X	18.34399	86.24401	173.26368	16.49084	0.2109854	0.17818964	3.1276231	20	7 22.7	19.8
446348	2014	HF <sub>8</sub>	17.0	X	96.12985	92.36893	194.68467	12.58934	0.1582045	0.23000226	2.6382421	20	12 9.9	21.3
446349	2014	HM <sub>9</sub>	18.5	X	253.98296	71.35907	125.02991	2.15878	0.1284813	0.27004916	2.3705047	20	—	—
446350	2014	HJ <sub>10</sub>	17.1	X	10.75373	209.06037	95.67811	3.17696	0.0552664	0.20431588	2.8549684	20	9 1.3	20.7
446351	2014	HQ <sub>11</sub>	18.3	X	203.40497	126.25625	152.10792	2.42360	0.0878076	0.28301443	2.2975431	20	—	—
446352	2014	HB <sub>12</sub>	18.3	X	240.34893	41.47112	169.01853	2.50958	0.1373860	0.26793383	2.3829651	20	—	—
446353	2014	HN <sub>13</sub>	17.0	X	68.21704	320.43787	48.37739	9.82071	0.1241089	0.25654907	2.4529522	20	—	—
446354	2014	HS <sub>13</sub>	17.1	X	98.40588	306.13059	35.59863	8.54817	0.1804901	0.25647596	2.4534183	20	—	—
446355	2014	HT <sub>19</sub>	16.9	X	350.60247	60.55443	217.40119	6.61949	0.2206867	0.17713094	3.1400731	20	6 19.4	20.1
446356	2014	HP <sub>20</sub>	17.0	X	119.14352	351.52108	223.18476	7.97849	0.1351508	0.21563937	2.7541273	20	9 28.9	21.3
446357	2014	HG <sub>21</sub>	16.8	X	131.73870	298.02956	256.04885	3.05587	0.0401739	0.21381643	2.7697591	20	9 11.1	20.7
446358	2014	HM <sub>22</sub>	16.2	X	329.29322	216.40927	117.11204	18.07054	0.2701449	0.18336955	3.0684419	20	7 17.4	19.1
446359	2014	HL <sub>23</sub>	17.1	X	129.96744	108.84918	188.53082	13.62562	0.0931878	0.25790814	2.4443272	20	—	—
446360	2014	HA <sub>24</sub>	17.5	X	157.66074	354.65607	240.41311	2.67747	0.1262221	0.23976325	2.5661437	20	12 4.9	21.5
446361	2014	HB <sub>24</sub>	17.4	X	221.81712	337.56158	234.81853	3.41731	0.1555712	0.26497000	2.4007019	20	—	—
446362	2014	HW <sub>24</sub>	18.0	X	161.24224	33.65581	227.57289	1.10131	0.1504779	0.25375370	2.4709339	20	—	—
446363	2014	HU <sub>26</sub>	18.1	X	208.98397	60.34616	189.03939	4.61320	0.1037567	0.27017987	2.3697402	20	—	—
446364	2014	HH <sub>28</sub>	17.0	X	144.06267	358.29924	198.58641	14.27146	0.0974761	0.22159809	2.7045315	20	10 2.3	21.1
446365	2014	HG <sub>32</sub>	17.1	X	84.62966	108.28712	189.69882	1.81996	0.1941653	0.23044982	2.6348251	20	12 14.6	21.3
446366	2014	HR <sub>34</sub>	17.2	X	205.64151	33.35663	105.96660	5.95463	0.0543860	0.22250967	2.6971398	20	10 3.6	21.0
446367	2014	HW <sub>34</sub>	17.4	X	113.77442	166.03827	169.86247	6.52280	0.1610329	0.25854779	2.4402941	20	—	—
446368	2014	HX <sub>37</sub>	17.7	X	64.05770	241.23068	167.17979	7.14526	0.0954950	0.27709151	2.3301680	20	—	—
446369	2014	HW <sub>38</sub>	16.4	X	354.33202	120.72639	153.23312	6.16758	0.0947666	0.17969155	3.1101711	20	6 23.6	20.3
446370	2014	HC <sub>40</sub>	17.3	X	54.48819	114.27603	182.28826	8.79122	0.1472407	0.21355776	2.7719952	20	11 5.3	21.2
446371	2014	HE <sub>41</sub>	17.1	X	320.26598	248.19084	130.27353	5.28280	0.0824400	0.21447880	2.7640536	20	9 26.0	20.4
446372	2014	HO <sub>44</sub>	17.1	X	60.65077	244.83246	51.25198	4.07783	0.0678501	0.22569915	2.6716697	20	11 1.9	20.7
446373	2014	HS <sub>44</sub>	17.9	X	195.26487	65.50703	184.55469	2.25782	0.1462400	0.26332373	2.4106975	20	—	—
446374	2014	HH <sub>50</sub>	16.7	X	217.97712	354.24373	203.97558	11.95130	0.0203031	0.25420283	2.4680226	20	—	—
446375	2014	HP <sub>55</sub>	17.5	X	141.32139	119.39752	74.01909	3.64156	0.0604374	0.21944285	2.7222108	20	9 26.6	21.5
446376	2014	HP <sub>72</sub>	17.5	X	80.06391	205.97761	120.94975	2.78676	0.2120614	0.23869258	2.5738117	20	—	—
446377	2014	HK <sub>109</sub>	16.7	X	31.82176	155.78926	144.74313	6.78187	0.0259424	0.21255888	2.7806727	20	9 23.9	20.4
446378	2014	HK <sub>123</sub>	16.9	X	140.36128	295.02005	8.17983	8.57844	0.1182679	0.26121536	2.4236519	20	—	—
446379	2014	HJ <sub>128</sub>	17.3	X	119.78341	73.39808	113.66942	24.37644	0.0697635	0.36027948	1.9560338	20	9 18.4	20.2
446380	2014	HR <sub>131</sub>	17.0	X	141.07770	88.19077	115.58510	16.72077	0.1657206	0.21774435	2.7363488	20	10 17.1	21.8
446381	2014	HW <sub>136</sub>	17.0	X	281.94733	325.01154	144.83408	3.05227	0.0711526	0.24553979	2.5257370	20	12 5.9	20.0
446382	2014	HK <sub>138</sub>	17.5	X	224.85279	170.81442	73.46381	3.35565	0.1640549	0.27207708	2.3587111	20	—	—
446383	2014	HV <sub>138</sub>	17.6	X	297.23975	272.76980	162.23035	2.24914	0.0448161	0.23342430	2.6123940	20	11 11.1	20.7
446384	2014	HZ <sub>152</sub>	17.4	X	70.69258	8.77448	14.34539	5.48078	0.1824823	0.26182208	2.4199062	20	—	—
446385	2014	HQ <sub>153</sub>	17.1	X	352.19298	260.29511	59.76585	2.95877	0.0654456	0.20285686	2.8686413	20	8 25.3	20.7
446386	2014	HH <sub>155</sub>	16.2	X	338.29390	102.56941	197.41114	11.68708	0.1611751	0.18152454	3.0891986	20	6 27.4	19.9
446387	2014	HK <sub>159</sub>	16.9	X	344.90059	123.26457	175.73762	9.93939	0.0679689	0.18170699	3.0871303	20	7 8.7	20.5
446388	2014	HT <sub>162</sub>	17.8	X	249.65796	12.80175	180.03296	6.87974	0.0748305	0.26325560	2.4111134	20	—	—
446389	2014	HA <sub>169</sub>	17.9	X	102.38106	319.52590	334.69491	2.77856	0.0384406	0.24206377	2.5498591	20	12 19.3	21.3
446390	2014	HD <sub>175</sub>	16.3	X	307.42130	98.35654	248.17859	11.17207	0.0729289	0.18931431	3.0038650	20	7 17.0	20.4
446391	2014	HL <sub>175</sub>	16.9											

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
446401 2014 HW <sub>185</sub>	17.4	X	25.99106	218.12875	205.08352	8.25934	0.0535148	0.26139967	2.4225125	20	—	—
446402 2014 HV <sub>189</sub>	17.0	X	358.37468	161.73070	119.66777	2.12331	0.1225189	0.17862284	3.1225643	20	7 10.7	20.5
446403 2014 HB <sub>190</sub>	16.9	X	143.43854	334.24059	234.84289	3.73286	0.0545840	0.21883983	2.7272093	20	10 15.8	20.9
446404 2014 HT <sub>194</sub>	17.7	X	226.18158	41.42187	194.18878	8.53075	0.1768541	0.26795519	2.3828385	20	—	—
446405 2014 HY <sub>194</sub>	16.8	X	130.63666	260.08585	336.18306	7.78274	0.2011249	0.22676956	2.6632558	20	11 7.2	21.4
446406 2014 HD <sub>195</sub>	16.7	X	170.13888	45.90627	193.17158	3.11025	0.1177070	0.24212891	2.5494018	20	12 22.9	20.5
446407 2014 JN	16.5	X	123.49631	183.36612	59.67175	10.82296	0.1639060	0.22032772	2.7149174	20	11 11.2	20.9
446408 2014 JA <sub>1</sub>	16.4	X	56.25237	56.95245	148.27462	5.96703	0.0976341	0.17803576	3.1294251	20	6 28.3	20.7
446409 2014 JY <sub>1</sub>	17.8	X	159.52646	160.30232	186.31811	5.76389	0.1922287	0.28181424	2.3040616	20	1 26.2	21.3
446410 2014 JJ <sub>2</sub>	17.9	X	281.47291	32.38643	143.83617	3.54630	0.0595016	0.26714742	2.3876393	20	—	—
446411 2014 JF <sub>3</sub>	16.7	X	75.90342	260.63836	53.54961	15.85666	0.1254489	0.23028971	2.6360463	20	12 18.0	20.7
446412 2014 JP <sub>3</sub>	16.9	X	17.34125	167.35127	171.23758	6.29837	0.0358303	0.21689723	2.7434689	20	10 25.7	20.5
446413 2014 JU <sub>4</sub>	15.7	X	342.11929	231.27271	77.49702	16.78102	0.2383895	0.17694082	3.1423220	20	7 14.9	18.9
446414 2014 JM <sub>6</sub>	16.8	X	184.03390	16.59222	204.64701	7.87919	0.0961796	0.24152258	2.5536668	20	12 17.3	20.5
446415 2014 JD <sub>9</sub>	17.2	X	60.72177	37.09577	179.42180	3.95428	0.1885708	0.18642860	3.0347833	20	8 1.9	21.3
446416 2014 JS <sub>11</sub>	17.6	X	196.35583	170.54247	126.15997	2.16617	0.1826508	0.27309465	2.3528483	20	—	—
446417 2014 JI <sub>12</sub>	16.8	X	67.09000	83.13728	144.64269	3.27776	0.1361625	0.19191845	2.9766303	20	8 18.6	21.0
446418 2014 JQ <sub>14</sub>	16.4	X	78.83259	234.95109	79.59940	10.60855	0.1051517	0.23208188	2.6224581	20	12 21.3	20.2
446419 2014 JG <sub>16</sub>	16.3	X	46.47818	346.27471	211.54605	16.17542	0.1406784	0.17381994	3.1798233	20	6 10.0	20.5
446420 2014 JR <sub>20</sub>	18.3	X	283.31946	37.45324	127.33962	4.28848	0.1768172	0.27417029	2.3466903	20	—	—
446421 2014 JM <sub>22</sub>	17.1	X	16.28232	74.87428	174.31508	16.66079	0.2126560	0.17543901	3.1602294	20	7 4.8	20.8
446422 2014 JD <sub>23</sub>	17.1	X	200.83222	165.25662	86.10461	7.78600	0.1446197	0.25833444	2.4416375	20	—	—
446423 2014 JE <sub>26</sub>	16.7	X	103.84857	156.63631	156.79773	14.62426	0.0531488	0.24228659	2.5482955	20	—	—
446424 2014 JZ <sub>27</sub>	16.5	X	269.38869	260.72653	192.65183	21.59946	0.0660572	0.22700582	2.6614075	20	10 23.5	19.9
446425 2014 JX <sub>28</sub>	16.8	X	96.68258	158.09951	140.66158	13.93312	0.2637408	0.22552510	2.6730441	20	12 28.8	21.6
446426 2014 JV <sub>28</sub>	16.8	X	347.56684	165.46964	154.83212	5.65083	0.1460468	0.18303187	3.0722147	20	8 14.4	20.2
446427 2014 JC <sub>32</sub>	16.9	X	53.77363	130.54344	84.14349	4.57109	0.1191149	0.18166805	3.0875714	20	7 10.9	20.8
446428 2014 JH <sub>32</sub>	17.3	X	128.65233	40.79382	190.51739	4.98387	0.0949083	0.22228806	2.6989321	20	10 30.8	21.3
446429 2014 JE <sub>35</sub>	15.6	X	307.46093	260.34761	95.03599	11.84241	0.0142806	0.18783914	3.0195715	20	8 9.2	19.8
446430 2014 JG <sub>35</sub>	17.2	X	51.40458	212.72837	200.31863	6.99881	0.1087091	0.26103431	2.4247724	20	—	—
446431 2014 JH <sub>35</sub>	17.3	X	107.31437	158.24126	120.84274	5.83588	0.1394008	0.22371150	2.6874714	20	12 8.6	21.5
446432 2014 JA <sub>36</sub>	17.6	X	286.52693	33.94525	177.73647	6.58407	0.1907203	0.29947620	2.2125572	20	1 20.1	20.9
446433 2014 JI <sub>36</sub>	16.7	X	70.61242	89.58019	124.56091	1.85354	0.0848351	0.18920211	3.0050525	20	7 28.5	20.9
446434 2014 JK <sub>36</sub>	17.6	X	184.16164	350.85960	194.06791	4.93685	0.1079090	0.23010884	2.6374274	20	10 31.1	21.4
446435 2014 JX <sub>39</sub>	17.2	X	62.67263	143.52583	177.30899	6.49329	0.1332703	0.22377566	2.6869577	20	12 13.5	21.2
446436 2014 JY <sub>39</sub>	16.7	X	47.42367	304.95945	272.45531	0.60028	0.1993072	0.18578600	3.0417771	20	7 17.5	20.5
446437 2014 JD <sub>42</sub>	16.3	X	64.06905	61.59267	147.85318	8.65150	0.1552078	0.18907902	3.0063566	20	7 23.5	20.4
446438 2014 JI <sub>43</sub>	16.0	X	341.80116	220.37762	96.63011	12.15653	0.1617231	0.18037431	3.1023176	20	7 31.0	19.5
446439 2014 JI <sub>43</sub>	16.9	X	48.34834	193.06188	135.05129	6.25330	0.0769968	0.22223414	2.6993686	20	11 28.9	20.6
446440 2014 JU <sub>44</sub>	16.9	X	183.80856	332.70618	219.10654	12.23398	0.1372182	0.23471994	2.6027716	20	11 6.4	21.0
446441 2014 JA <sub>45</sub>	17.2	X	94.46827	8.52359	218.77457	1.26609	0.0332227	0.20695488	2.8306463	20	9 7.9	21.2
446442 2014 JG <sub>45</sub>	17.7	X	237.49136	245.95311	45.06701	2.36204	0.0977783	0.29586249	2.2305370	20	1 30.2	20.8
446443 2014 JZ <sub>45</sub>	17.5	X	140.21661	7.55155	243.94355	1.87031	0.1329647	0.23562115	2.5961306	20	12 7.4	21.4
446444 2014 JL <sub>47</sub>	16.5	X	10.67987	234.01698	131.32663	6.90310	0.0576666	0.21935499	2.7229377	20	11 23.6	20.1
446445 2014 JQ <sub>48</sub>	16.4	X	358.01632	239.51820	115.26112	14.87523	0.0128625	0.21519378	2.7579279	20	10 23.8	20.4
446446 2014 JE <sub>49</sub>	16.3	X	114.65341	314.39387	244.16899	12.33813	0.0280263	0.20147941	2.8817011	20	8 20.2	20.6
446447 2014 JN <sub>58</sub>	16.9	X	240.02165	356.03645	167.60402	15.17786	0.0468638	0.24269961	2.5454036	20	12 20.1	20.5
446448 2014 JE <sub>59</sub>	18.2	X	288.32530	102.80434	84.63953	3.11791	0.1532300	0.27897384	2.3196746	20	—	—
446449 2014 JU <sub>61</sub>	16.2	X	250.81777	260.88826	139.65279	13.33109	0.1318863	0.17883878	3.1200503	20	7 5.4	20.9
446450 2014 JM <sub>62</sub>	16.6	X	97.80409	173.88139	109.91091	6.27164	0.1148521	0.22434190	2.6824345	20	12 3.9	20.7
446451 2014 JN <sub>63</sub>	16.5	X	349.49863	124.29637	145.70262	12.61833	0.1327041	0.17157006	3.2075619	20	6 10.7	20.5
446452 2014 JI <sub>63</sub>	17.6	X	166.76198	147.50924	68.37982	3.27359	0.1426284	0.23403525	2.6078455	20	11 18.8	21.5
446453 2014 JA <sub>64</sub>	17.8	X	267.11775	137.15421	61.88183	2.38333	0.1298891	0.27293444	2.3537689	20	—	—
446454 2014 JR <sub>64</sub>	17.1	X	186.82259	200.91260	54.65142	6.79626	0.0743960	0.25716904	2.4490083	20	—	—
446455 2014 JZ <sub>64</sub>	17.8	X	266.52620	89.56865	92.02390	3.92495	0.1329137	0.26594302	2.3948426	20	—	—
446456 2014 JP <sub>67</sub>	16.7	X	282.27910	243.73963	216.79132	12.31991	0.0294783	0.22974576	2.6402054	20	11 24.1	20.1
446457 2014 JW <sub>67</sub>	17.8	X	173.43979	60.41864	154.30780	4.25909	0.1142422	0.23564494	2.5959559	20	11 26.5	21.8
446458 2014 JK <sub>68</sub>	16.4	X	64.96774	207.59111	93.46010	9.86165	0.1390554	0.21641485	2.7475442	20	11 22.5	20.4
446459 2014 JV <sub>68</sub>	17.2	X	85.93661	276.01068	356.46863	2.76387	0.1622505	0.21568155	2.7537682	20	11 9.3	21.4
446460 2014 JU <sub>69</sub>	17.0	X	52.34368	114.15091	229.05460	12.39923	0.1939316	0.22790328	2.6544161	20	—	—
446461 2014 JM <sub>70</sub>	17.1	X	59.03725	249.61851	52.38332	9.69994	0.2015622	0.21203701	2.7852335	20	11 21.7	21.2
446462 2014 JA <sub>71</sub>	16.8	X	52.36413	208.69778	19.66301	6.63368	0.0861738	0.18533042	3.0467599	20	7 24.2	20.9
446463 2014 JF <sub>72</sub>	17.0	X	225.01305	350.94891	248.77516	5.34733	0.1165803	0.26638857	2.3921716	20	—	—
446464 2014 JK <sub>72</sub>	16.6	X	232.62104	212.80407	245.63353	4.75917	0.0734362	0.20854990	2.8161950	20	9 3.6	20.7
446465 2014 JA <sub>74</sub>	17.1	X	72.47551	70.58759	207.73536	3.33789	0.0336801	0.21446972	2.7641316	20	10 17.6	21.0
446466 2014 JT <sub>74</sub>	17.1	X	171.62345	53.39026	118.26892	1.56553	0.0130767	0.21392342	2.7688355	20	10 3.3	20.9
446467 2014 JZ <sub>74</sub>	17.5	X	178.47223	307.35444	272.84698	1.73242	0.1414842	0.24025598	2.5626340	20	12 6.1	21.5
446468 2014 JL <sub>75</sub>	17.4	X	256.27919	328.60154	265.87580	5.27987	0.0615103	0.28011479	2.3133713	20	—	—
446469 2014 JY <sub>78</sub>	16.4	X	104.75175	200.16305	47.35593	9.84373	0.1408517	0.21752562	2.7381828	20	10 28.9	20.5
446470 2014 JF <sub>79</sub>	16.3	X	92.70451	6.42538	248.39597	5.30248	0.1863197	0.21238414	2.7821977	20	10 26.8	20.8
446471 2014 KA <sub>1</sub>	17.8	X	287.63516	33.15227	158.16413	6.95324	0.1253234	0.28044050	2.3115798	20	—	—
446472 2014 KF <sub>1</sub>	17.6	X	290.06535	74.83181	135.51513	5.10032	0.0787983	0.28767376	2.2726674	20	—	—
446473 2014 KK <sub>3</sub>	16.7	X	94.32134	226.74404	86.64913	15.50968	0.1476002	0.23732412	2.5836963	20	—	—
446474 2014 KA <sub>4</sub>	16.2	X	71.09355	188.073								

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
446481 2014 KW <sub>19</sub>	16.8	X	94.82610	175.80309	75.63539	8.22171	0.0783113	0.21447202	2.7641119	20	10 19.6	20.9
446482 2014 KY <sub>19</sub>	16.9	X	66.13943	226.88863	99.06442	6.53339	0.1206823	0.23035720	2.6355314	20	12 23.2	20.7
446483 2014 KZ <sub>28</sub>	17.5	X	314.56906	275.25073	200.30781	7.02245	0.1197586	0.25468674	2.4648954	20	—	—
446484 2014 KB <sub>29</sub>	16.6	X	127.88739	202.27917	82.31509	13.00320	0.0910395	0.23842425	2.5757425	20	—	—
446485 2014 KG <sub>29</sub>	17.8	X	287.59120	28.19124	189.35214	2.99630	0.0385119	0.28711032	2.2756398	20	—	—
446486 2014 KY <sub>30</sub>	17.8	X	106.76670	215.16403	139.74811	6.04911	0.0859323	0.26259325	2.4151661	20	—	—
446487 2014 KH <sub>34</sub>	15.8	X	10.63736	258.21241	126.90491	23.95557	0.3278133	0.22256682	2.6966780	20	—	—
446488 2014 KG <sub>38</sub>	16.5	X	269.15140	314.29807	139.14231	15.00173	0.0707385	0.22791451	2.6543289	20	10 27.3	20.2
446489 2014 KS <sub>39</sub>	16.0	X	328.81843	201.13398	128.19258	17.83678	0.2198892	0.17977426	3.1092171	20	7 15.6	19.3
446490 2014 KO <sub>43</sub>	16.3	X	339.41613	160.56045	176.36636	14.90184	0.1829357	0.18350089	3.0669775	20	8 19.5	19.6
446491 2014 KD <sub>48</sub>	16.8	X	150.81411	28.19582	219.09313	9.38981	0.1248776	0.23842332	2.5757491	20	12 12.9	20.9
446492 2014 KX <sub>51</sub>	16.6	X	47.41350	62.94926	157.78984	17.13162	0.1605305	0.17631883	3.1497077	20	7 14.4	20.9
446493 2014 KJ <sub>53</sub>	16.3	X	1.77268	105.45372	170.29443	6.14568	0.1262987	0.17494457	3.1661810	20	7 8.2	20.2
446494 2014 KS <sub>53</sub>	17.2	X	348.64300	292.39768	161.06289	5.57002	0.0844850	0.25576036	2.4579925	20	—	—
446495 2014 KE <sub>54</sub>	16.6	X	33.79065	22.98236	219.21859	15.14681	0.1150368	0.17764822	3.1339746	20	7 12.7	20.9
446496 2014 KA <sub>55</sub>	16.6	X	83.58300	63.16836	171.95988	6.53795	0.1667363	0.19800301	2.9153331	20	9 21.3	20.9
446497 2014 KD <sub>57</sub>	16.4	X	9.90789	157.45651	129.10217	10.23160	0.0732925	0.18272361	3.0756690	20	7 31.1	20.1
446498 2014 KL <sub>57</sub>	16.2	X	0.13707	93.22497	196.19649	9.63044	0.0837859	0.17949751	3.1124122	20	7 21.3	20.3
446499 2014 KN <sub>59</sub>	16.4	X	325.54591	143.57809	172.74352	9.35703	0.0970861	0.17439323	3.1728506	20	7 2.9	20.6
446500 2014 KR <sub>59</sub>	15.9	X	348.27937	226.42150	64.95781	13.79877	0.3511010	0.17899583	3.1182250	20	6 27.3	18.1
446501 2014 KO <sub>65</sub>	17.3	X	358.18576	228.82100	212.84098	8.04887	0.1054165	0.25171720	2.4842433	20	—	—
446502 2014 KW <sub>66</sub>	17.3	X	142.88956	117.96363	103.63204	4.53819	0.1202968	0.22094411	2.7098657	20	11 3.2	21.6
446503 2014 KC <sub>67</sub>	17.6	X	150.48125	100.12628	138.11152	4.13774	0.1095135	0.23016713	2.6369821	20	12 1.4	21.6
446504 2014 KF <sub>67</sub>	16.9	X	30.61721	242.24410	115.75158	4.70229	0.1449436	0.22298939	2.6932701	20	12 22.9	20.4
446505 2014 KH <sub>69</sub>	18.0	X	322.17341	0.48226	140.61418	5.68648	0.0741644	0.26759146	2.3849972	20	—	—
446506 2014 KY <sub>69</sub>	17.1	X	78.33022	161.92196	188.76633	9.27839	0.1430094	0.24085600	2.5583762	20	—	—
446507 2014 KC <sub>71</sub>	17.5	X	205.68345	28.02791	162.19222	5.14094	0.0738596	0.23462788	2.6034524	20	12 4.9	21.2
446508 2014 KZ <sub>71</sub>	17.4	X	42.72762	259.98413	129.59899	8.29974	0.1126041	0.24355671	2.5394284	20	—	—
446509 2014 KC <sub>72</sub>	16.3	X	174.31359	296.25139	174.09408	9.15060	0.0957687	0.18254628	3.0776606	20	7 13.5	21.2
446510 2014 KD <sub>73</sub>	16.2	X	252.90853	228.52755	162.92597	10.46063	0.0934024	0.17594838	3.1541272	20	6 30.9	20.9
446511 2014 KP <sub>81</sub>	17.9	X	261.66739	143.02214	74.97039	2.72107	0.1149335	0.27424379	2.3462710	20	—	—
446512 2014 KZ <sub>82</sub>	16.2	X	357.79527	258.46916	54.90560	11.16993	0.0809988	0.19022221	2.9942995	20	8 28.5	20.1
446513 2014 KR <sub>95</sub>	17.0	X	57.03524	184.28091	179.76588	14.71270	0.1582241	0.23637179	2.5906314	20	—	—
446514 2014 KU <sub>95</sub>	18.1	X	40.98229	291.14524	167.55995	2.47653	0.0390922	0.28194413	2.3033539	20	—	—
446515 2014 KF <sub>98</sub>	17.1	X	228.43807	113.59170	77.37250	3.06209	0.1044258	0.24602495	2.5224154	20	12 31.9	20.3
446516 2014 KL <sub>99</sub>	16.8	X	335.82341	195.01950	141.76291	1.63306	0.1795317	0.18615840	3.0377192	20	8 14.7	20.0
446517 2014 KE <sub>100</sub>	17.5	X	298.80209	86.23776	111.32686	5.46317	0.0926555	0.28059194	2.3107480	20	—	—
446518 2014 KJ <sub>101</sub>	17.1	X	178.83008	339.35204	229.03346	3.22170	0.1292350	0.23301329	2.6154651	20	11 21.9	21.1
446519 2014 LW <sub>1</sub>	16.9	X	35.00103	264.88704	84.42821	5.84322	0.1736581	0.22162789	2.7042891	20	12 21.2	20.5
446520 2014 LP <sub>2</sub>	16.8	X	35.62917	278.89973	76.51875	6.26744	0.0976550	0.22969971	2.6405582	20	12 20.7	20.2
446521 2014 LO <sub>3</sub>	16.3	X	124.95315	307.62991	219.12193	10.96928	0.0772223	0.19191734	2.9766418	20	7 28.8	21.0
446522 2014 LQ <sub>11</sub>	17.2	X	160.63781	347.56315	230.15473	4.27716	0.1816655	0.22862560	2.6488222	20	11 13.1	21.6
446523 2014 LT <sub>11</sub>	16.4	X	14.08723	104.60172	158.36144	0.71838	0.1370390	0.17593723	3.1542604	20	7 13.8	20.0
446524 2014 LX <sub>12</sub>	16.3	X	0.76216	267.31407	85.26170	12.84967	0.1486742	0.20229074	2.8739908	20	11 1.6	19.8
446525 2014 LC <sub>13</sub>	15.5	X	318.64194	266.89975	77.59167	17.65676	0.2193229	0.17535138	3.1612821	20	7 16.8	19.2
446526 2014 LG <sub>13</sub>	16.8	X	184.92042	167.71132	62.17523	3.26647	0.1427701	0.24087728	2.5582255	20	12 24.4	20.7
446527 2014 LO <sub>18</sub>	17.9	X	214.22033	164.78326	61.86291	2.28966	0.1383577	0.26020753	2.4299060	20	—	—
446528 2014 LF <sub>23</sub>	17.0	X	88.94748	57.54079	215.49774	4.78722	0.1415220	0.21396571	2.7684707	20	11 11.9	21.2
446529 2014 LJ <sub>24</sub>	16.3	X	111.69751	250.76047	36.41046	13.95373	0.1146701	0.21637186	2.7479081	20	12 17.8	20.7
446530 2014 ME <sub>1</sub>	17.2	X	239.82141	163.03604	71.78092	7.85457	0.0640871	0.27498002	2.3420812	20	—	—
446531 2014 MX <sub>1</sub>	16.3	X	9.52717	71.68675	198.12035	14.13870	0.1030898	0.17216739	3.2001386	20	7 10.3	20.6
446532 2014 MN <sub>4</sub>	17.0	X	109.05789	48.20081	198.15432	11.93248	0.0852367	0.21137097	2.7910813	20	10 26.6	21.2
446533 2014 MP <sub>6</sub>	15.7	X	5.04228	211.85009	74.47277	11.95367	0.1664064	0.17725921	3.1385581	20	8 4.2	19.4
446534 2014 MR <sub>14</sub>	15.8	X	349.38903	166.06613	131.99244	14.01242	0.1630366	0.17641682	3.1485413	20	7 16.9	19.4
446535 2014 MR <sub>17</sub>	16.5	X	65.57104	256.82672	106.18464	25.75383	0.2035426	0.23147417	2.6270461	20	—	—
446536 2014 MU <sub>28</sub>	15.6	X	343.21954	89.58774	252.26358	8.59935	0.0874233	0.17662202	3.1461022	20	8 30.9	19.7
446537 2014 MW <sub>30</sub>	17.7	X	155.08393	164.55738	130.27686	8.13364	0.0393556	0.25692107	2.4505838	20	—	—
446538 2014 MX <sub>30</sub>	16.7	X	66.84916	225.61721	113.40075	15.08493	0.0904265	0.23242419	2.6198826	20	—	—
446539 2014 MT <sub>34</sub>	17.2	X	352.46033	268.88863	241.20738	5.90416	0.0498619	0.28206260	2.3027089	20	—	—
446540 2014 MW <sub>34</sub>	17.1	X	144.08086	124.89496	134.87791	2.91644	0.1612034	0.23297242	2.6157709	20	12 19.9	21.3
446541 2014 MF <sub>43</sub>	16.1	X	166.15930	14.53337	248.54749	14.26060	0.0927473	0.22721596	2.6597664	20	—	—
446542 2014 MY <sub>47</sub>	16.3	X	103.89081	72.68848	205.76104	12.14112	0.0445713	0.22147029	2.7055718	20	11 28.1	20.2
446543 2014 MR <sub>55</sub>	16.4	X	47.65355	176.16114	104.77709	5.83604	0.1801076	0.19071413	2.9891484	20	10 9.9	20.5
446544 2014 MW <sub>58</sub>	15.9	X	281.60215	252.19837	159.95885	11.54835	0.0808680	0.18002441	3.1063361	20	9 5.4	20.1
446545 2014 MU <sub>64</sub>	16.5	X	180.54741	205.57113	50.79764	9.25354	0.0084059	0.23097584	2.6308233	20	—	—
446546 2014 MV <sub>68</sub>	16.3	X	127.43949	181.85984	115.70090	15.96643	0.2634926	0.23285805	2.6166274	20	—	—
446547 2014 NY <sub>7</sub>	16.6	X	34.31072	158.95806	123.56724	4.57967	0.1814352	0.17994029	3.1073043	20	9 20.5	20.5
446548 2014 NR <sub>11</sub>	16.6	X	215.37541	76.55584	99.64153	5.66900	0.0126454	0.21406997	2.7675718	20	12 2.4	20.4
446549 2014 NP <sub>16</sub>	17.8	X	280.25729	17.45076	224.78211	6.14041	0.0535634	0.28956714	2.2627498	20	1 18.2	20.8
446550 2014 NM <sub>18</sub>	16.8	X	18.18102	200.78741	155.88541	5.19104	0.0787296	0.21459534	2.7630529	20	11 23.9	20.4
446551 2014 NJ <sub>26</sub>	16.3	X	343.94929	209.87835	131.66210	10.90515	0.0954699	0.17716887	3.1396250	20	9 7.9	20.3
446552 2014 NC <sub>31</sub>	16.4	X	55.00731	46.72619	216.23951	3.10409	0.1770443	0.17987972	3.1080018	20	9 20.6	20.6
446553 2014 NY <sub>32</sub>	17.1	X	57.74988	117.41644	242.03923	5.24830	0.0326506	0.22077143	2.7112785	20	—	—
446554 2014 NG <sub>45</sub>	16.2	X	180.72113	350.83550	173.64833	18.84885	0.0311765	0.18169616				



ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>		
446561	2014	OT <sub>51</sub>	16.1	X	49.25912	154.02232	124.67062	11.13189	0.0504780	0.17836318	3.1255941	20	9 19.2	20.5
446562	2014	OD <sub>67</sub>	17.0	X	338.32811	332.00911	75.32545	3.11525	0.0134084	0.20160078	2.8805445	20	11 24.0	20.9
446563	2014	OR <sub>80</sub>	16.3	X	353.46074	322.96139	356.54301	4.22114	0.1348710	0.17319256	3.1874979	20	8 24.1	20.0
446564	2014	OP <sub>106</sub>	16.0	X	292.20711	297.41133	129.98243	13.57188	0.1054703	0.18704260	3.0281382	20	10 13.7	20.1
446565	2014	OF <sub>107</sub>	16.0	X	114.92996	107.48164	115.68300	5.99460	0.0143727	0.18246030	3.0786274	20	9 25.9	20.4
446566	2014	OP <sub>107</sub>	16.4	X	59.89275	291.69627	44.89879	6.84427	0.0528809	0.21260573	2.7802643	20	12 16.0	20.4
446567	2014	OL <sub>111</sub>	16.1	X	356.96161	197.01742	139.73660	12.84185	0.0605881	0.17923206	3.1154845	20	9 21.8	20.2
446568	2014	ON <sub>115</sub>	16.4	X	85.91025	33.05460	287.99041	5.29138	0.0893252	0.21536779	2.7564422	20	12 31.9	20.4
446569	2014	OD <sub>116</sub>	16.8	X	8.11442	271.06216	122.03171	13.11418	0.0190687	0.21275814	2.7789363	20	12 18.5	20.6
446570	2014	OX <sub>119</sub>	15.7	X	285.37928	240.32454	94.81940	6.04999	0.0603178	0.14607029	3.5707666	20	6 5.4	20.7
446571	2014	OY <sub>127</sub>	17.4	X	137.68885	253.15392	18.87733	6.15390	0.0144535	0.21455279	2.7634182	20	12 26.3	21.4
446572	2014	OJ <sub>130</sub>	15.0	X	160.64862	276.33802	147.14480	9.56043	0.1550749	0.12576829	3.9453779	20	5 10.1	21.3
446573	2014	OY <sub>130</sub>	16.0	X	359.30878	170.92827	139.55739	13.40951	0.2483960	0.18148065	3.0896966	20	9 1.5	18.9
446574	2014	OT <sub>132</sub>	16.4	X	330.86773	68.91701	316.31609	9.26357	0.1332975	0.18783438	3.0196226	20	10 8.5	20.0
446575	2014	OQ <sub>133</sub>	16.6	X	310.94296	291.99430	86.84465	4.18171	0.0257527	0.18055645	3.1022309	20	9 11.2	20.8
446576	2014	OE <sub>136</sub>	16.1	X	265.93123	120.50055	313.69077	9.02061	0.1746681	0.17824331	3.1269952	20	8 27.3	20.6
446577	2014	OG <sub>154</sub>	15.7	X	295.24831	316.65499	96.68793	11.10279	0.0683636	0.18729404	3.0254275	20	10 4.7	19.9
446578	2014	OJ <sub>204</sub>	17.1	X	250.16286	127.02334	28.76614	4.95132	0.0109322	0.21333935	2.7738868	20	12 19.6	20.8
446579	2014	OV <sub>213</sub>	16.2	X	25.16535	194.61104	128.38758	13.29862	0.1086771	0.18803733	3.0174495	20	10 24.2	20.3
446580	2014	OF <sub>217</sub>	16.1	X	146.89733	196.60075	343.36515	10.29695	0.1669035	0.19024716	2.9940377	20	9 12.3	21.0
446581	2014	OM <sub>223</sub>	15.6	X	210.15459	333.98259	111.72899	17.28410	0.1239679	0.15586206	3.4196036	20	7 18.2	21.0
446582	2014	OF <sub>245</sub>	16.0	X	83.96187	223.41951	23.92703	5.48327	0.0258870	0.18388618	3.0626920	20	9 18.5	20.2
446583	2014	OW <sub>308</sub>	16.1	X	297.10881	289.05823	125.38226	11.68197	0.1183124	0.18544684	3.0454847	20	10 1.5	20.1
446584	2014	OL <sub>335</sub>	15.1	X	183.26342	75.24822	323.85482	12.41805	0.2486070	0.12382026	3.9866512	20	5 4.2	21.9
446585	2014	PF <sub>2</sub>	17.2	X	197.04524	326.32190	276.21746	2.51161	0.1816137	0.23972346	2.5664277	20	—	—
446586	2014	PO <sub>11</sub>	15.8	X	343.18065	224.27873	141.00672	12.47565	0.0717748	0.17916163	3.1163009	20	10 9.7	20.0
446587	2014	QP <sub>38</sub>	16.0	X	326.46188	118.39984	182.70524	17.91809	0.0566211	0.14673780	3.5599294	20	6 17.8	21.1
446588	2014	QR <sub>301</sub>	15.9	X	46.20700	161.34563	162.45812	23.13613	0.0767641	0.18155917	3.0888057	20	11 15.5	20.6
446589	2014	RY <sub>34</sub>	15.5	X	71.49815	272.02808	15.18321	11.29807	0.0787089	0.17979919	3.1089296	20	10 25.6	20.0
446590	2014	LS <sub>125</sub>	16.0	X	237.39332	338.86563	176.24637	17.30146	0.1501067	0.17865204	3.1222240	20	11 7.2	20.8
446591	2014	SQ <sub>302</sub>	15.7	X	280.81317	190.84090	237.08957	8.19065	0.0552069	0.17396660	3.1780358	20	9 23.5	20.2
446592	2015	KA <sub>23</sub>	15.0	X	300.17902	244.93752	95.47247	27.34559	0.2655598	0.17392926	3.1784907	20	6 5.8	19.3
446593	2015	LK <sub>14</sub>	17.2	X	64.14748	311.79239	8.05850	12.89832	0.2995271	0.23529410	2.5985357	20	—	—
446594	2015	LS <sub>20</sub>	16.8	X	38.18903	75.03720	242.48684	14.45483	0.1594615	0.22362656	2.6881518	20	11 12.9	20.3
446595	2015	LO <sub>23</sub>	16.2	X	289.03526	57.86196	241.13182	15.29739	0.1736517	0.17557054	3.1586509	20	4 4.4	20.9
446596	2015	LX <sub>39</sub>	16.3	X	2.23100	37.29611	230.63008	10.83957	0.1572635	0.18832387	3.0143879	20	6 29.3	19.8
446597	2015	ME <sub>4</sub>	16.3	X	44.19140	343.93033	357.21627	7.31066	0.2323969	0.24557185	2.5255172	20	—	—
446598	2015	MA <sub>7</sub>	16.8	X	303.88890	234.56713	162.93442	6.52464	0.0645770	0.22256240	2.6967138	20	9 29.7	20.1
446599	2015	MB <sub>8</sub>	17.1	X	351.60067	141.03249	133.73339	10.99161	0.0972969	0.18512013	3.0490669	20	6 20.9	20.9
446600	2015	MF <sub>8</sub>	16.0	X	102.60899	19.77012	137.78412	17.41081	0.0583263	0.18126998	3.0920900	20	6 23.0	20.7
446601	2015	MU <sub>8</sub>	16.3	X	308.59326	59.65716	250.54532	8.21437	0.0764648	0.17552030	3.1592535	20	6 2.4	20.4
446602	2015	MD <sub>9</sub>	15.2	X	173.99955	163.02446	285.47420	15.66446	0.0901997	0.17375071	3.1806679	20	6 17.6	20.2
446603	2015	MJ <sub>46</sub>	17.8	X	146.09302	259.50466	23.41594	2.24702	0.2010702	0.27403262	2.3474763	20	—	—
446604	2015	MQ <sub>46</sub>	17.8	X	65.11220	303.17166	70.26299	3.70318	0.2122144	0.26215692	2.4178452	20	—	—
446605	2015	MX <sub>46</sub>	17.2	X	27.32493	262.97380	81.02407	5.86887	0.1162383	0.23129828	2.6283782	20	11 28.8	20.4
446606	2015	MF <sub>47</sub>	16.2	X	302.32891	239.64869	95.95130	5.57888	0.1497429	0.17724811	3.1386892	20	6 16.4	20.2
446607	2015	MM <sub>52</sub>	16.5	X	16.28175	61.66139	279.52155	13.13710	0.1709314	0.22458597	2.6804907	20	11 12.7	19.9
446608	2015	MA <sub>59</sub>	16.5	X	117.67989	292.22408	309.14667	9.80047	0.0185458	0.23600400	2.5933222	20	10 23.9	20.3
446609	2015	MJ <sub>67</sub>	15.7	X	288.10319	60.24918	245.16791	25.96941	0.2333541	0.17341550	3.1847654	20	3 31.5	20.8
446610	2015	MJ <sub>69</sub>	17.8	X	182.27976	161.60546	140.75996	4.04224	0.2018354	0.30746262	2.1740749	20	—	—
446611	2015	MQ <sub>71</sub>	18.1	X	123.98533	154.64258	150.14618	8.53429	0.1337880	0.27537335	2.3398505	20	—	—
446612	2015	MK <sub>73</sub>	15.2	X	211.87792	278.26682	124.69013	25.58889	0.0496589	0.17541161	3.1605584	20	6 8.8	20.3
446613	2015	MJ <sub>76</sub>	16.0	X	251.19677	237.06519	143.52431	11.10214	0.0840493	0.18152950	3.0891422	20	6 17.8	20.7
446614	2015	MK <sub>76</sub>	17.6	X	104.53951	158.12330	138.83576	7.55388	0.1039829	0.26069486	2.4268768	20	—	—
446615	2015	MX <sub>76</sub>	16.2	X	277.31209	216.18033	132.21161	17.21255	0.1024992	0.17851946	3.1237697	20	6 8.7	20.9
446616	2015	MN <sub>77</sub>	15.7	X	174.43286	304.14643	137.48247	18.36762	0.0977389	0.17355269	3.1830868	20	6 11.9	20.9
446617	2015	MM <sub>78</sub>	15.9	X	233.84734	288.61917	130.09941	25.53417	0.3405454	0.17553574	3.1590682	20	6 24.5	21.7
446618	2015	MP <sub>82</sub>	17.1	X	31.32232	160.88107	180.33576	6.62694	0.0528686	0.23960377	2.5672823	20	11 24.0	20.5
446619	2015	MA <sub>83</sub>	16.6	X	340.84463	149.12514	223.11631	6.02864	0.1529366	0.22109417	2.7086393	20	10 22.6	19.3
446620	2015	MV <sub>83</sub>	16.8	X	158.50053	39.77743	136.70007	13.94432	0.0372910	0.22234313	2.6984864	20	9 27.5	20.8
446621	2015	MG <sub>84</sub>	17.1	X	105.04156	19.14659	229.01363	5.16788	0.0397066	0.23230169	2.6208036	20	10 22.3	20.7
446622	2015	MF <sub>85</sub>	17.5	X	15.30526	93.61302	283.90104	3.24057	0.1482778	0.24394440	2.5367372	20	—	—
446623	2015	MK <sub>85</sub>	17.1	X	355.15674	95.63763	216.21938	1.33661	0.0554069	0.20317305	2.8656644	20	8 16.2	20.8
446624	2015	MU <sub>91</sub>	15.3	X	344.59979	312.87670	306.08888	20.94027	0.0713472	0.16951030	3.2334934	20	5 15.0	20.0
446625	2015	MV <sub>91</sub>	16.4	X	80.59957	126.94335	105.86002	4.84491	0.0402573	0.20991010	2.8040161	20	9 1.2	20.2
446626	2015	MZ <sub>98</sub>	17.0	X	282.82199	159.76079	248.44410	2.63526	0.0919137	0.21176387	2.7876279	20	9 3.0	20.6
446627	2015	MZ <sub>102</sub>	17.6	X	133.33755	32.33414	305.65854	6.95931	0.1787805	0.28494795	2.2871379	20	—	—
446628	2015	ME <sub>103</sub>	15.4	X	195.47867	112.35840	308.26941	6.38201	0.0656488	0.17132172	3.2106609	20	6 5.1	20.3
446629	2015	ML <sub>103</sub>	16.6	X	33.92886	53.68570	321.44920	6.05045	0.1369904	0.25447775	2.4662447	20	—	—
446630	2015	MU												

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>		
446641	2015	<i>MN</i> <sub>121</sub>	17.2	X	358.38312	115.38058	257.11762	7.45597	0.1626893	0.22238774	2.6981256	20	11 26.2	20.2
446642	2015	<i>MT</i> <sub>123</sub>	16.5	X	112.56155	340.14372	265.20491	9.41847	0.0971717	0.23589629	2.5941115	20	10 30.4	20.5
446643	2015	<i>MM</i> <sub>124</sub>	17.7	X	121.88287	52.11994	247.86703	5.05232	0.1993352	0.26845500	2.3798800	20	—	—
446644	2015	<i>MJ</i> <sub>125</sub>	17.0	X	300.43905	104.31621	257.63454	11.19797	0.2650077	0.18328582	3.0693763	20	6 29.7	20.9
446645	2015	<i>ML</i> <sub>125</sub>	17.2	X	95.98016	22.54262	237.62144	5.19845	0.2596403	0.23842633	2.5757274	20	11 14.8	21.6
446646	2015	<i>MQ</i> <sub>125</sub>	16.8	X	113.12501	358.01689	272.91871	6.03661	0.1405458	0.24801665	2.5088931	20	12 7.9	20.6
446647	2015	<i>ML</i> <sub>126</sub>	16.0	X	295.94418	36.44945	310.16754	15.28150	0.2455672	0.18085077	3.0968665	20	6 5.8	20.3
446648	2015	<i>MA</i> <sub>129</sub>	16.5	X	327.30351	15.26210	344.62718	5.41327	0.0200495	0.21142160	2.7906357	20	9 10.9	20.1
446649	2015	<i>MK</i> <sub>129</sub>	16.7	X	72.70745	260.54704	352.90302	8.08249	0.0535561	0.21340649	2.7733050	20	9 18.3	20.3
446650	2015	<i>MZ</i> <sub>129</sub>	17.8	X	27.08670	47.51221	323.64661	13.98300	0.2182366	0.24088596	2.5581641	20	—	—
446651	2015	<i>NM</i> <sub>4</sub>	16.1	X	343.03063	59.57823	252.43679	8.22825	0.0891221	0.19498432	2.9453456	20	7 25.6	19.8
446652	2015	<i>NA</i> <sub>5</sub>	17.0	X	101.67321	138.34838	150.64766	6.30368	0.0876683	0.25614797	2.4555122	20	12 18.4	20.6
446653	2015	<i>NY</i> <sub>7</sub>	16.6	X	347.36917	119.22491	139.51053	10.84508	0.0440783	0.17287069	3.1914531	20	5 27.5	21.0
446654	2015	<i>NE</i> <sub>8</sub>	16.5	X	172.59850	267.68023	251.81299	5.71441	0.0577838	0.22025679	2.7155003	20	9 14.0	20.6
446655	2015	<i>NJ</i> <sub>8</sub>	17.2	X	357.87505	186.90578	147.94237	8.7054	0.2206348	0.21197869	2.7857443	20	10 10.9	19.9
446656	2015	<i>NM</i> <sub>8</sub>	15.5	X	290.22616	193.31915	136.72215	10.68471	0.0848260	0.17543644	3.1602620	20	6 3.5	20.0
446657	2015	<i>NP</i> <sub>8</sub>	18.1	X	94.83896	193.30015	149.99962	4.42609	0.2558728	0.26928415	2.3749922	20	—	—
446658	2015	<i>NW</i> <sub>8</sub>	17.7	X	42.84844	94.22711	290.21646	5.30127	0.1032582	0.26506821	2.4001089	20	—	—
446659	2015	<i>NS</i> <sub>9</sub>	17.0	X	35.52210	94.09062	205.64764	4.44490	0.1270209	0.22012771	2.7165617	20	10 11.6	20.3
446660	2015	<i>NP</i> <sub>12</sub>	16.9	X	336.79337	69.96156	311.87355	10.37256	0.1778992	0.21701207	2.7425010	20	10 23.1	19.9
446661	2015	<i>NU</i> <sub>15</sub>	17.5	X	94.62480	58.74312	300.71188	5.86470	0.1288834	0.27609870	2.3357506	20	—	—
446662	2015	<i>NK</i> <sub>16</sub>	16.9	X	128.59304	1.23034	307.89105	23.83558	0.1919157	0.27267113	2.3552840	20	—	—
446663	2015	<i>NL</i> <sub>16</sub>	18.0	X	131.05664	168.59202	129.05944	4.62253	0.2477745	0.27154785	2.3617747	20	—	—
446664	2015	<i>NY</i> <sub>16</sub>	16.4	X	23.80969	213.62388	133.10408	15.57438	0.0618466	0.22939832	2.6428705	20	11 23.5	20.1
446665	2015	<i>NM</i> <sub>17</sub>	16.5	X	325.08660	22.12657	324.30670	10.16076	0.2013005	0.19180085	2.9778469	20	8 6.3	19.6
446666	2015	<i>NC</i> <sub>18</sub>	17.8	X	86.02842	307.77761	41.71766	2.56075	0.2097231	0.26190866	2.4193729	20	—	—
446667	2015	<i>NE</i> <sub>24</sub>	16.8	X	337.70489	352.73631	335.59723	7.06010	0.2310411	0.18822820	3.0154092	20	8 5.6	19.6
446668	2015	<i>NP</i> <sub>25</sub>	17.4	X	69.77393	25.62591	321.90654	11.38548	0.1494390	0.25863583	2.4397403	20	—	—
446669	2015	<i>NP</i> <sub>25</sub>	17.1	X	160.09996	346.12296	298.82999	5.97721	0.1062438	0.27890039	2.3200818	20	—	—
446670	2015	<i>NP</i> <sub>25</sub>	16.8	X	28.91067	105.84668	295.53193	16.19372	0.2350384	0.25102120	2.4888331	20	—	—
446671	2015	<i>NR</i> <sub>25</sub>	16.0	X	20.10975	6.97974	300.11874	12.07547	0.1001823	0.20605697	2.8388635	20	9 15.5	19.8
446672	2015	<i>OH</i> <sub>1</sub>	18.0	X	85.09559	168.88192	149.29991	2.44410	0.1830045	0.25859759	2.4399807	20	—	—
446673	2015	<i>OJ</i> <sub>1</sub>	17.7	X	145.76031	173.67876	130.85597	6.78372	0.1670726	0.28758849	2.2731166	20	—	—
446674	2015	<i>OC</i> <sub>2</sub>	17.8	X	175.78099	153.23200	141.84430	6.48274	0.1821005	0.29761465	2.2217738	20	—	—
446675	2015	<i>OF</i> <sub>2</sub>	15.7	X	357.93282	319.93661	310.73477	4.40053	0.0840802	0.18282302	3.0745541	20	6 25.2	19.5
446676	2015	<i>OS</i> <sub>2</sub>	15.7	X	353.77623	322.91714	286.29188	13.09940	0.2349850	0.17518192	3.1633205	20	5 11.7	19.0
446677	2015	<i>OK</i> <sub>7</sub>	16.4	X	335.68261	95.22634	189.44319	8.09920	0.1494640	0.18067624	3.0988604	20	6 3.9	20.1
446678	2015	<i>OT</i> <sub>9</sub>	16.0	X	275.47064	108.06991	273.60464	15.44713	0.1743744	0.18419079	3.0593143	20	7 4.7	20.2
446679	2015	<i>OH</i> <sub>11</sub>	17.1	X	134.10475	100.30914	121.40235	9.52950	0.1149346	0.23848638	2.5752950	20	10 30.7	21.2
446680	2015	<i>OF</i> <sub>13</sub>	16.4	X	269.89012	18.27491	355.60152	4.89071	0.0428892	0.18553264	3.0445458	20	7 8.7	20.7
446681	2015	<i>OY</i> <sub>13</sub>	18.2	X	188.67638	139.30931	92.23273	3.34227	0.1847889	0.27702585	2.3305362	20	—	—
446682	2015	<i>OP</i> <sub>14</sub>	16.2	X	320.82733	209.51054	101.70667	2.38876	0.1666103	0.18116178	3.0933211	20	6 11.2	19.7
446683	2015	<i>OB</i> <sub>15</sub>	15.3	X	285.39221	258.26093	339.14603	4.32219	0.1440881	0.12674490	3.9250848	20	2 1.7	20.8
446684	2015	<i>OJ</i> <sub>15</sub>	17.8	X	137.26101	289.39642	349.22200	4.25643	0.1412604	0.26734154	2.3864834	20	—	—
446685	2015	<i>OW</i> <sub>15</sub>	16.6	X	285.03630	26.49659	343.68718	8.78908	0.0734489	0.18887753	3.0084919	20	7 21.2	20.7
446686	2015	<i>OG</i> <sub>16</sub>	16.7	X	16.29743	198.28166	111.34145	6.20857	0.1471990	0.21115753	2.7929618	20	9 30.1	20.0
446687	2015	<i>OK</i> <sub>16</sub>	17.4	X	58.39434	238.46545	89.10852	3.11649	0.0352897	0.24368193	2.5385585	20	12 8.5	20.6
446688	2015	<i>OX</i> <sub>16</sub>	17.3	X	61.88734	213.97699	82.88743	3.95797	0.0789580	0.22968298	2.6406865	20	11 7.4	20.8
446689	2015	<i>OX</i> <sub>16</sub>	17.1	X	62.36387	196.38593	65.48630	4.37484	0.1129003	0.21351158	2.7723949	20	9 27.3	20.9
446690	2015	<i>OO</i> <sub>18</sub>	16.7	X	34.94886	126.15363	179.76076	11.19059	0.0582403	0.18704529	3.0281091	20	7 16.8	20.7
446691	2015	<i>OD</i> <sub>19</sub>	16.3	X	25.97635	132.79846	173.32280	20.81685	0.1791600	0.21298215	2.7769874	20	10 15.9	19.8
446692	2015	<i>OH</i> <sub>19</sub>	15.4	X	254.49428	116.70742	269.07917	14.80721	0.0242949	0.17519728	3.1631356	20	7 4.6	19.9
446693	2015	<i>OD</i> <sub>24</sub>	17.0	X	27.99338	184.21766	211.73565	3.41664	0.1669530	0.21833111	2.7314440	20	10 16.7	20.3
446694	2015	<i>OR</i> <sub>24</sub>	17.9	X	149.68804	82.81497	255.09825	4.68513	0.1499419	0.29845687	2.2175921	20	—	—
446695	2015	<i>OX</i> <sub>24</sub>	16.8	X	84.11165	23.04594	270.06874	8.52702	0.1174907	0.24013284	2.5635100	20	12 3.4	20.6
446696	2015	<i>OD</i> <sub>25</sub>	17.6	X	108.17749	185.70356	150.41233	9.64755	0.1982833	0.27224838	2.3577215	20	—	—
446697	2015	<i>OK</i> <sub>25</sub>	17.3	X	80.39643	263.73935	89.99881	2.57123	0.2250108	0.26193478	2.4192121	20	—	—
446698	2015	<i>OM</i> <sub>25</sub>	16.5	X	113.27619	292.05914	312.31464	28.50143	0.1761997	0.23328262	2.6134516	20	10 21.4	21.4
446699	2015	<i>OK</i> <sub>26</sub>	16.8	X	133.79479	35.32160	283.37335	13.67085	0.2509224	0.27534877	2.3398987	20	—	—
446700	2015	<i>OX</i> <sub>26</sub>	16.8	X	118.89902	20.73439	243.38976	8.07317	0.1583016	0.24622573	2.5210440	20	12 5.3	20.9
446701	2015	<i>OX</i> <sub>27</sub>	17.0	X	89.21927	332.24203	324.68680	12.57194	0.1774339	0.23965221	2.5669363	20	12 18.2	21.3
446702	2015	<i>OE</i> <sub>28</sub>	17.0	X	82.18425	195.78195	158.91916	9.14362	0.1729650	0.25777621	2.4451612	20	—	—
446703	2015	<i>OT</i> <sub>30</sub>	16.1	X	301.68425	226.76248	135.34955	10.17921	0.1296857	0.18209446	3.0827495	20	7 23.5	20.0
446704	2015	<i>OM</i> <sub>31</sub>	17.3	X	126.86777	234.44406	111.91061	7.95174	0.1447272	0.28431551	2.2905284	20	—	—
446705	2015	<i>ON</i> <sub>32</sub>	17.5	X	52.08249	299.81757	88.87169	7.58597	0.1742349	0.25639469	2.4539367	20	—	—
446706	2015	<i>OO</i> <sub>32</sub>	16.7	X	332.04937	284.48432	119.66198	12.62123	0.0657622	0.22237456	2.6982321	20	11 21.8	20.2
446707	2015	<i>OV</i> <sub>32</sub>	16.5	X	24.95607	250.08734	88.22964	9.88575	0.1456081	0.21923168	2.7239586	20	11 21.1	19.9
446708	2015	<i>OD</i> <sub>34</sub>	16.6	X	28.65305	227.90258	28.53922	4.11352	0.1294402	0.19209886	2.9747663	20	8 1.2	20.2
446709	2015	<i>ON</i> <sub>35</sub>	18.0	X	110.02124	60.								

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>		
446721	2015	OB <sub>66</sub>	17.2	X	179.11085	326.05516	305.39050	6.01308	0.1741198	0.28359411	2.2944112	20	—	—
446722	2015	OM <sub>66</sub>	15.9	X	349.43176	24.24150	287.96797	9.08341	0.0642416	0.18619250	3.0373483	20	8 4.9	19.8
446723	2015	OU <sub>69</sub>	17.6	X	68.34513	208.18867	155.33932	6.89262	0.1501322	0.26575793	2.3959545	20	—	—
446724	2015	OW <sub>69</sub>	17.0	X	14.28338	214.69316	147.55523	13.71765	0.1710149	0.23341063	2.6124959	20	12 14.5	20.4
446725	2015	ON <sub>70</sub>	16.6	X	355.68911	45.72040	285.30310	6.76769	0.1153115	0.21083657	2.7957956	20	9 13.4	19.9
446726	2015	OD <sub>73</sub>	16.4	X	267.88740	85.40452	300.15654	10.37281	0.0348091	0.19148130	2.9811590	20	7 22.1	20.4
446727	2015	OH <sub>73</sub>	18.1	X	175.39994	171.18648	145.98206	6.42214	0.2204729	0.30060042	2.2070373	20	1 5.2	21.5
446728	2015	OK <sub>73</sub>	17.0	X	84.15509	149.37961	146.62291	13.69572	0.2821748	0.24096933	2.5575740	20	12 20.4	21.6
446729	2015	OW <sub>73</sub>	16.5	X	35.38224	135.03528	184.09044	10.51887	0.1047811	0.21843950	2.7305403	20	11 4.4	20.1
446730	2015	OY <sub>73</sub>	16.6	X	86.72810	75.44645	256.87329	5.84016	0.1301328	0.25329919	2.4738889	20	—	—
446731	2015	OF <sub>74</sub>	16.4	X	300.25533	211.73732	129.34859	11.43504	0.1350107	0.18225083	3.0809859	20	6 23.4	20.5
446732	2015	OP <sub>74</sub>	17.2	X	335.25746	269.29497	58.71369	1.22226	0.3381315	0.18451112	3.0557725	20	7 17.1	19.4
446733	2015	OT <sub>74</sub>	15.6	X	244.44563	81.48005	332.20410	24.51535	0.1869303	0.16942632	3.2345619	20	7 15.0	20.9
446734	2015	ON <sub>75</sub>	15.2	X	307.47965	11.47852	339.33331	26.51617	0.0734425	0.17616268	3.1515687	20	8 3.2	19.7
446735	2015	OE <sub>76</sub>	16.6	X	117.47875	331.38663	340.75866	4.86859	0.2043763	0.25934395	2.4352972	20	—	—
446736	2015	OJ <sub>76</sub>	17.4	X	125.68595	328.62659	340.09026	5.66688	0.1256624	0.26068526	2.4269364	20	—	—
446737	2015	OR <sub>76</sub>	17.5	X	79.66495	319.41517	349.74902	4.42795	0.2744027	0.24013531	2.5634924	20	12 31.1	21.9
446738	2015	OL <sub>77</sub>	16.9	X	338.36414	149.43717	156.63670	17.60300	0.3140215	0.18057134	3.1000605	20	6 24.3	19.9
446739	2015	OV <sub>77</sub>	16.4	X	96.44952	301.56818	351.62895	11.77632	0.1191412	0.23259160	2.6186253	20	12 14.1	20.6
446740	2015	OH <sub>78</sub>	17.4	X	102.93332	234.16171	74.99231	0.36660	0.1731049	0.25829262	2.4419010	20	—	—
446741	2015	OP <sub>78</sub>	17.8	X	93.95245	224.89038	144.48245	6.34128	0.2308564	0.27107761	2.3645053	20	—	—
446742	2015	PH	17.5	X	126.25294	234.58000	136.92824	23.48806	0.2425972	0.31159005	2.1548332	20	1 26.3	20.2
446743	2015	PS <sub>1</sub>	16.3	X	318.62141	13.81694	310.47582	12.12559	0.1845028	0.18392050	3.0623110	20	6 24.1	20.0
446744	2015	PZ <sub>1</sub>	16.4	X	352.67506	318.41034	354.23235	8.09990	0.2139809	0.19881732	2.9073673	20	8 21.4	19.1
446745	2015	PT <sub>2</sub>	17.2	X	62.67200	15.70459	346.58965	1.74478	0.2201670	0.25463444	2.4652329	20	—	—
446746	2015	PW <sub>2</sub>	16.7	X	64.98072	12.64408	274.43624	10.22998	0.1922722	0.22530395	2.6747930	20	11 9.3	20.7
446747	2015	PY <sub>2</sub>	17.8	X	51.25879	89.59077	285.40696	1.80692	0.2513372	0.25134164	2.4867173	20	—	—
446748	2015	PG <sub>3</sub>	16.0	X	303.67126	194.32912	152.02249	13.07635	0.1659270	0.18004633	3.1060841	20	6 30.4	20.1
446749	2015	PH <sub>3</sub>	15.8	X	328.79753	60.55714	312.16336	14.02749	0.1626610	0.20493178	2.8492453	20	9 17.8	19.2
446750	2015	PP <sub>3</sub>	17.4	X	117.20809	216.71446	78.76264	6.29594	0.2553020	0.26176655	2.4202484	20	—	—
446751	2015	PS <sub>3</sub>	15.6	X	6.21976	287.56975	340.49718	25.32948	0.2216980	0.18467721	3.0539401	20	7 23.4	19.1
446752	2015	PY <sub>3</sub>	17.6	X	152.59538	267.34120	30.20583	5.66368	0.1744499	0.28045714	2.3114884	20	—	—
446753	2015	PF <sub>5</sub>	15.1	X	203.63311	113.17251	298.95485	14.42297	0.0364616	0.17001809	3.2270520	20	6 5.2	20.0
446754	2015	PY <sub>8</sub>	17.2	X	108.17954	6.36552	3.91512	10.09748	0.2215749	0.28454238	2.2893107	20	1 3.9	19.9
446755	2015	PY <sub>11</sub>	18.4	X	205.04069	105.78256	175.02563	8.73716	0.2016221	0.30278881	2.1963902	20	—	—
446756	2015	PX <sub>12</sub>	16.9	X	87.83719	332.60067	350.32259	4.47514	0.1932407	0.25479047	2.4642263	20	—	—
446757	2015	PP <sub>20</sub>	16.8	X	86.05985	50.88857	280.22762	5.41032	0.1299606	0.25657186	2.4528070	20	—	—
446758	2015	PS <sub>30</sub>	16.1	X	296.78284	193.49239	155.52978	13.12075	0.1477196	0.17678110	3.1442144	20	6 26.3	20.4
446759	2015	PR <sub>31</sub>	18.0	X	98.59924	72.78038	276.08892	1.43357	0.2099562	0.26843777	2.3799818	20	—	—
446760	2015	PW <sub>31</sub>	17.4	X	66.25489	49.29822	303.42401	2.85414	0.1401174	0.25290332	2.4764698	20	—	—
446761	2015	PJ <sub>33</sub>	17.4	X	97.32040	114.70911	214.65070	10.09650	0.2306322	0.25987745	2.4319631	20	—	—
446762	2015	PH <sub>34</sub>	17.2	X	109.63627	183.47129	75.42167	3.02574	0.1986956	0.24105704	2.5569536	20	11 21.8	21.4
446763	2015	PN <sub>34</sub>	16.7	X	30.47045	181.89436	113.67564	9.27953	0.2025954	0.21219316	2.7838669	20	10 14.1	20.2
446764	2015	PO <sub>34</sub>	17.1	X	94.88553	291.31368	4.66899	4.91076	0.1945247	0.25097350	2.4891485	20	12 24.8	21.2
446765	2015	PA <sub>37</sub>	16.4	X	338.86678	269.34165	10.05671	7.29712	0.2060188	0.17623722	3.1506800	20	5 25.4	19.9
446766	2015	PC <sub>37</sub>	16.5	X	78.69784	169.08353	105.86784	7.57899	0.0764497	0.22554411	2.6728939	20	10 31.9	20.3
446767	2015	PN <sub>37</sub>	17.3	X	70.56337	176.97079	103.70875	6.07858	0.1021924	0.22464951	2.6799852	20	10 31.9	21.1
446768	2015	PO <sub>37</sub>	17.0	X	342.23245	266.23405	110.91107	7.34772	0.0808075	0.22078512	2.7111665	20	11 1.0	20.3
446769	2015	PP <sub>37</sub>	17.0	X	72.71193	203.02895	76.07778	3.15189	0.0580665	0.22442924	2.6817385	20	10 25.2	20.7
446770	2015	PD <sub>38</sub>	17.3	X	115.46949	162.65472	74.83830	3.36957	0.0379412	0.22458532	2.6804958	20	10 21.7	21.0
446771	2015	PH <sub>39</sub>	18.2	X	39.55183	7.30624	42.20003	2.15541	0.1635231	0.26565656	2.3965639	20	—	—
446772	2015	PB <sub>41</sub>	17.6	X	234.14669	188.83578	2.17137	10.10523	0.1734443	0.27165171	2.3611727	20	—	—
446773	2015	PB <sub>53</sub>	16.1	X	25.18705	232.34086	89.91695	15.64548	0.0641635	0.21412032	2.7671379	20	10 24.7	20.0
446774	2015	PP <sub>54</sub>	17.1	X	28.32176	181.00994	130.58602	10.31270	0.1994611	0.20996784	2.8035020	20	10 30.8	20.8
446775	2015	PV <sub>54</sub>	17.0	X	222.08665	129.25410	119.53489	7.97749	0.0858475	0.28407669	2.2918120	20	—	—
446776	2015	PA <sub>60</sub>	17.8	X	159.16198	266.55981	25.43548	6.37322	0.2442398	0.28488754	2.2874612	20	—	—
446777	2015	PU <sub>149</sub>	17.7	X	128.53502	223.09606	68.58643	2.99563	0.2032190	0.26786335	2.3833831	20	—	—
446778	2015	PH <sub>200</sub>	17.9	X	57.93350	339.53651	34.49447	2.99528	0.2050980	0.25635998	2.4541583	20	—	—
446779	2015	PM <sub>202</sub>	16.1	X	323.48151	320.60996	355.47543	4.44875	0.1262702	0.17992780	3.1074480	20	6 27.5	20.0
446780	2015	PK <sub>230</sub>	16.4	X	128.96667	305.35561	321.85601	12.80090	0.1471743	0.24419389	2.5350091	20	12 17.8	20.6
446781	2015	PB <sub>286</sub>	17.0	X	26.01784	247.33736	127.44624	15.51013	0.2251063	0.23507765	2.6001306	20	—	—
446782	2015	PN <sub>293</sub>	17.0	X	95.48749	57.67108	233.62824	5.12673	0.2039573	0.24280811	2.5446453	20	12 18.6	21.1
446783	1993	TB <sub>10</sub>	18.2	X	109.01117	25.61483	333.67036	3.20910	0.2302186	0.26796341	2.3827897	20	—	—
446784	1995	SQ <sub>12</sub>	16.9	X	300.95921	178.32880	177.19698	5.51815	0.1381129	0.19229150	2.9663038	20	7 12.6	20.6
446785	1995	UU <sub>24</sub>	18.3	X	32.28053	224.66642	188.91632	4.03204	0.1992632	0.24488617	2.5302293	20	—	—
446786	1996	GD	17.9	X	320.80703	140.51084	39.06693	6.40191	0.1732263	0.27975096	2.3153767	20	—	—
446787	1997	TP <sub>22</sub>	18.7	X	114.43777	67.64156	310.31053	0.64713	0.1878623	0.27582965	2.3372693	20	1 18.0	21.5
446788	1997	WM <sub>6</sub>	18.2	X	116.49092	255.19430	101.67708	2.31654	0.2047148	0.27166800	2.3610783	20	—	—
446789	1998	FN <sub>9</sub>	20.7	X	180.49205	329.28106	183.85354	14.62665	0.2355561	0.59726589	1.3964463	20	11 6.2	20.9
446790	1998	RJ <sub>26</sub>	16.5	X	46.63522	351.22299	2.48286	13.18213	0.2362383	0.23337984	2.6127257	20	—	—
446791	1998	SJ <sub>70</sub>	18.3	X	193.29732</									

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
446801 1999 <i>TT</i> <sub>253</sub>	18.0	X	185.48085	336.70391	25.98326	5.23629	0.1962774	0.30894285	2.1671249	20	3 11.1	21.4
446802 1999 <i>TB</i> <sub>302</sub>	16.8	X	0.89621	25.26098	23.24216	15.69651	0.1540719	0.24223725	2.5486416	20	—	—
446803 1999 <i>UD</i> <sub>54</sub>	16.2	X	233.70832	87.97275	44.61242	10.18016	0.0728931	0.18577515	3.0418955	20	10 19.4	20.5
446804 1999 <i>VN</i> <sub>6</sub>	19.5	X	337.24816	43.65703	58.06030	19.47830	0.3707910	0.43203451	1.7329675	20	—	—
446805 1999 <i>VY</i> <sub>20</sub>	17.3	X	144.76182	351.26045	45.51107	26.21206	0.2046829	0.30642345	2.1789874	20	3 31.0	21.0
446806 1999 <i>VK</i> <sub>76</sub>	17.2	X	302.69786	213.49580	159.91514	1.80081	0.1862367	0.17949445	3.1124475	20	8 1.1	20.8
446807 1999 <i>VH</i> <sub>113</sub>	16.8	X	320.68915	23.29730	70.49231	12.27233	0.2050080	0.23728172	2.5840041	20	—	—
446808 1999 <i>VP</i> <sub>129</sub>	17.0	X	309.67376	148.63146	228.51586	9.54176	0.0544598	0.18269054	3.0760402	20	8 29.6	21.2
446809 1999 <i>VE</i> <sub>131</sub>	18.0	X	95.17058	298.58289	37.67038	3.86084	0.1738850	0.24541992	2.5265593	20	—	—
446810 1999 <i>VT</i> <sub>135</sub>	17.7	X	227.94744	17.70290	36.91805	21.85209	0.0992213	0.36780410	1.9292640	20	7 13.0	20.5
446811 1999 <i>WN</i> <sub>22</sub>	17.6	X	339.51377	193.76115	154.04778	0.68483	0.2345058	0.18257605	3.0773261	20	9 5.9	20.5
446812 1999 <i>XH</i> <sub>35</sub>	15.3	X	338.30007	101.04250	251.37352	24.84107	0.2241861	0.18157903	3.0885804	20	8 25.7	19.1
446813 1999 <i>XB</i> <sub>239</sub>	16.1	X	262.05380	19.35108	63.45865	18.78977	0.2146861	0.18149603	3.0895221	20	9 9.7	20.9
446814 2000 <i>AG</i> <sub>209</sub>	15.9	X	317.31422	290.61599	86.71976	12.11228	0.1965478	0.18162090	3.0881058	20	9 7.9	19.5
446815 2000 <i>BQ</i> <sub>24</sub>	16.8	X	268.71397	37.18019	99.56953	14.39159	0.2067737	0.23027118	2.6361877	20	11 30.9	19.8
446816 2000 <i>EE</i> <sub>38</sub>	17.4	X	269.26755	285.11719	199.59104	2.70444	0.5143417	0.18181821	3.0858712	20	9 18.0	22.0
446817 2000 <i>QT</i> <sub>117</sub>	17.3	X	306.91925	120.78303	356.13429	5.55182	0.1823288	0.23077040	2.6323844	20	—	—
446818 2000 <i>GP</i> <sub>119</sub>	16.6	X	22.78823	113.59743	198.80137	5.74169	0.0519515	0.21424011	2.7661063	20	9 27.9	20.3
446819 2000 <i>RB</i> <sub>53</sub>	16.4	X	214.56356	85.32696	317.52569	26.36474	0.4312733	0.23236042	2.6203620	20	5 9.5	22.2
446820 2000 <i>SK</i> <sub>204</sub>	17.6	X	115.99379	167.33740	189.40348	10.51233	0.2089482	0.26519872	2.3993214	20	—	—
446821 2000 <i>SO</i> <sub>322</sub>	18.0	X	36.77648	77.74647	318.30434	0.80171	0.1828184	0.25914260	2.4365585	20	—	—
446822 2000 <i>WV</i> <sub>38</sub>	16.2	X	340.10242	170.60783	227.30860	15.52126	0.2599038	0.19658863	2.9292996	20	11 27.2	18.7
446823 2001 <i>FB</i> <sub>152</sub>	16.7	X	214.16123	346.53775	214.20018	12.67183	0.2345581	0.23781837	2.5801153	20	12 8.1	20.7
446824 2001 <i>FB</i> <sub>181</sub>	17.3	X	72.96586	313.67405	6.06734	9.66361	0.1446671	0.23367038	2.6105596	20	12 26.3	21.4
446825 2001 <i>OM</i> <sub>50</sub>	17.9	X	160.39615	291.58799	46.85443	6.48449	0.3255372	0.28592692	2.2819144	20	1 30.3	21.9
446826 2001 <i>PE</i> <sub>1</sub>	18.2	X	15.62514	191.12585	182.92744	3.45568	0.5929202	0.21284304	2.7781972	20	—	—
446827 2001 <i>QL</i> <sub>162</sub>	17.3	X	58.14925	174.31484	146.52104	10.32000	0.2695113	0.21782740	2.7356533	20	12 22.8	21.7
446828 2001 <i>QS</i> <sub>171</sub>	17.6	X	165.99248	277.87644	43.67860	3.44722	0.2258932	0.28565881	2.2833420	20	1 5.3	21.0
446829 2001 <i>QR</i> <sub>210</sub>	16.7	X	71.10226	355.73655	309.33470	9.14994	0.2259946	0.21725125	2.7404877	20	12 10.9	21.1
446830 2001 <i>QM</i> <sub>226</sub>	17.5	X	175.84602	353.98699	318.74070	10.03167	0.1793293	0.28473806	2.2882618	20	—	—
446831 2001 <i>QR</i> <sub>239</sub>	16.7	X	30.37733	14.65403	341.91059	17.45277	0.2285252	0.21614240	2.7498525	20	—	—
446832 2001 <i>QT</i> <sub>306</sub>	17.2	X	42.80192	204.09094	157.90013	6.82810	0.0530441	0.132786265	2.7278507	20	12 28.6	20.9
446833 2001 <i>RB</i> <sub>12</sub>	21.0	X	47.71221	141.68532	333.20705	6.61171	0.3814471	0.91324408	1.0521512	20	—	—
446834 2001 <i>RV</i> <sub>122</sub>	16.9	X	6.19974	203.15590	156.19335	3.33656	0.1052334	0.21244040	2.7817065	20	11 12.6	20.3
446835 2001 <i>SD</i> <sub>85</sub>	16.9	X	85.45277	157.28389	178.10742	13.06344	0.1689972	0.22181736	2.7027489	20	—	—
446836 2001 <i>SW</i> <sub>88</sub>	18.7	X	144.02990	73.79343	284.82553	1.63835	0.2390617	0.28518751	2.2858570	20	1 31.6	22.1
446837 2001 <i>SW</i> <sub>90</sub>	17.1	X	178.96656	317.76839	351.41176	24.52258	0.1674909	0.28499673	2.2868769	20	1 1.3	21.1
446838 2001 <i>SZ</i> <sub>119</sub>	17.2	X	20.45791	103.04679	347.69443	22.64292	0.2553261	0.27599227	2.3363511	20	—	—
446839 2001 <i>SK</i> <sub>120</sub>	17.5	X	11.15018	141.28417	228.78909	2.80005	0.1691888	0.21389456	2.7690846	20	12 12.4	20.8
446840 2001 <i>SO</i> <sub>126</sub>	17.1	X	15.42506	143.74070	215.03515	3.92828	0.1264340	0.21347541	2.7727080	20	11 28.0	20.4
446841 2001 <i>SF</i> <sub>157</sub>	17.9	X	138.24557	150.83310	225.91150	4.71505	0.2312924	0.28521215	2.2857253	20	2 15.3	21.3
446842 2001 <i>SO</i> <sub>198</sub>	17.1	X	37.85123	358.70922	2.51368	14.23605	0.1299109	0.21689737	2.7434677	20	—	—
446843 2001 <i>SN</i> <sub>208</sub>	16.5	X	93.73565	138.69056	148.13475	3.07603	0.1608282	0.21653116	2.7465602	20	12 5.1	20.9
446844 2001 <i>SG</i> <sub>226</sub>	17.4	X	87.50356	328.37327	21.10535	7.61978	0.1578633	0.27450246	2.3447968	20	—	—
446845 2001 <i>SN</i> <sub>264</sub>	17.1	X	204.09206	88.94845	213.09355	22.24919	0.2324451	0.28694323	2.2765231	20	1 8.3	21.5
446846 2001 <i>SR</i> <sub>312</sub>	17.5	X	345.21471	17.35860	355.45692	3.81936	0.2063943	0.21036966	2.7993909	20	11 1.2	20.1
446847 2001 <i>SB</i> <sub>333</sub>	16.0	X	20.11777	81.49218	297.21219	10.90979	0.1982289	0.21478010	2.7614680	20	—	—
446848 2001 <i>TN</i> <sub>27</sub>	18.6	X	133.14847	5.88746	1.15837	4.70418	0.2395987	0.28237306	2.3010208	20	2 2.5	21.8
446849 2001 <i>TF</i> <sub>99</sub>	17.2	X	183.51159	51.45085	227.93496	6.43363	0.0917538	0.27829839	2.3234264	20	—	—
446850 2001 <i>TT</i> <sub>99</sub>	18.5	X	125.33042	114.53798	238.84985	2.86286	0.2653793	0.28039248	2.3118438	20	1 9.2	21.6
446851 2001 <i>TK</i> <sub>109</sub>	18.0	X	128.02544	128.95008	237.21503	8.44628	0.2515386	0.28150043	2.3057737	20	1 24.4	21.3
446852 2001 <i>TN</i> <sub>259</sub>	17.2	X	322.45823	28.21851	21.76384	8.88684	0.1488352	0.20892868	2.8127902	20	11 4.7	20.3
446853 2001 <i>UY</i> <sub>45</sub>	18.4	X	73.10749	210.31021	190.96816	5.51090	0.2586664	0.27623108	2.3350043	20	—	—
446854 2001 <i>UY</i> <sub>67</sub>	17.9	X	93.40317	109.83375	265.24247	2.10173	0.2075783	0.27762786	2.3271659	20	—	—
446855 2001 <i>UC</i> <sub>72</sub>	17.8	X	158.67048	221.02448	125.70487	8.17816	0.2807967	0.28469392	2.2884983	20	2 3.1	21.4
446856 2001 <i>UY</i> <sub>96</sub>	17.8	X	129.36196	304.51158	69.74334	3.91200	0.1768349	0.28224002	2.3017438	20	1 30.3	20.8
446857 2001 <i>UM</i> <sub>98</sub>	16.4	X	351.56048	350.17887	42.94500	26.37713	0.1222643	0.21039872	2.7996731	20	11 28.2	19.9
446858 2001 <i>UH</i> <sub>129</sub>	16.8	X	324.12400	19.08437	34.27162	10.12728	0.2145578	0.20999429	2.8032665	20	11 12.8	19.3
446859 2001 <i>UZ</i> <sub>137</sub>	18.1	X	164.77336	266.80449	63.85559	2.89120	0.2336168	0.28356920	2.2945455	20	1 16.4	21.6
446860 2001 <i>UU</i> <sub>214</sub>	18.7	X	128.04360	298.10188	61.52811	2.81810	0.2256486	0.28045428	2.3115041	20	1 15.9	21.7
446861 2001 <i>VL</i> <sub>39</sub>	17.6	X	109.36677	204.26311	214.06590	4.40082	0.2534815	0.28203948	2.3028348	20	3 12.9	20.5
446862 2001 <i>VB</i> <sub>76</sub>	20.3	X	132.36581	248.40586	259.46847	4.23675	0.3483234	0.55938895	1.4587923	20	8 17.2	22.3
446863 2001 <i>VZ</i> <sub>76</sub>	17.4	X	241.28753	280.43449	87.91780	21.86520	0.1431072	0.34849724	1.9998764	20	5 18.5	20.2
446864 2001 <i>WK</i> <sub>33</sub>	16.6	X	254.77633	37.72375	66.25319	13.81031	0.1613784	0.20247188	2.8722765	20	10 4.9	20.8
446865 2001 <i>XM</i> <sub>12</sub>	16.9	X	1.93558	345.57459	52.54102	10.67682	0.2164614	0.21020091	2.8014292	20	—	—
446866 2001 <i>XC</i> <sub>33</sub>	17.2	X	334.33173	206.81089	232.39520	8.66268	0.1378604	0.21123129	2.7923116	20	—	—
446867 2001 <i>XA</i> <sub>77</sub>	18.1	X	77.92256	328.60993	80.64316	8.54567	0.1876282	0.27644578	2.3337952	20	1 2.8	20.0
446868 2001 <i>XP</i> <sub>92</sub>	17.7	X	118.30055	326.45786	65.63790	7.12319	0.1959375	0.28069242	2.3101965	20	2 14.4	20.7
446869 2001 <i>XJ</i> <sub>102</sub>	17.7	X	81.64316	5.39984	62.44427	10.45148	0.1808200	0.27860059	2.3217459	20	2 9.5	20.2
446870 2001 <i>XE</i> <sub>123</sub>	18.0	X	40.40930	249.39976	219.33206	4.42267	0.2352065	0.27663932	2.3327065	20	1 11.8	19.4
446871 2001 <i>YJ</i> <sub>7</sub>	18.3	X	69.49708	75.79768	5.52533	5.64021	0.2466279	0.27767149	2.3269222	20	2 15.7	20.1
446872 2001 <i>YO</i> <sub>102</sub>	16.5	X	96.25112	224.6								

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
446881 2002 CA <sub>316</sub>	15.9	X	48.09621	97.11905	155.66162	11.59725	0.0351713	0.18228275	3.0806262	20	8 8.8	20.3
446882 2002 DR <sub>13</sub>	17.8	X	340.69033	16.12008	165.92580	5.83730	0.1606904	0.27079968	2.3661229	20	1 6.8	20.5
446883 2002 DY <sub>15</sub>	16.1	X	148.50741	168.98408	325.05896	16.24477	0.2068469	0.18124048	3.0924255	20	7 24.7	21.4
446884 2002 EA <sub>8</sub>	15.8	X	2.78103	276.87573	348.09515	21.14516	0.2291466	0.17306081	3.1891153	20	7 4.3	19.5
446885 2002 GB <sub>66</sub>	15.7	X	119.19715	196.34694	31.01753	11.95343	0.0637733	0.18465614	3.0541724	20	10 9.8	20.2
446886 2002 GN <sub>74</sub>	17.4	X	234.53389	237.55070	328.76686	1.52390	0.1418671	0.25383273	2.4704210	20	—	—
446887 2002 GZ <sub>82</sub>	15.5	X	62.65679	211.95095	56.07162	12.56749	0.1212103	0.18053732	3.1004500	20	10 5.3	20.0
446888 2002 JA <sub>10</sub>	16.4	X	56.64440	108.42759	184.78475	26.00750	0.2892453	0.23163424	2.6258356	20	11 24.6	20.9
446889 2002 JW <sub>82</sub>	16.9	X	87.65887	251.63376	52.87513	29.55481	0.3664711	0.23768105	2.5811090	20	—	—
446890 2002 JU <sub>86</sub>	16.1	X	98.83343	176.34173	45.32649	16.69397	0.1549107	0.17841942	3.1249373	20	9 25.0	21.1
446891 2002 JU <sub>107</sub>	16.1	X	140.69595	172.27934	30.78450	17.82437	0.2376720	0.18338349	3.0682864	20	10 9.5	21.4
446892 2002 JL <sub>134</sub>	16.0	X	78.92498	197.52600	39.01843	18.10852	0.1507682	0.17765156	3.1339354	20	9 22.2	20.8
446893 2002 NO	17.1	X	128.43995	132.64072	186.82489	14.36822	0.1341037	0.24163492	2.5528752	20	—	—
446894 2002 NZ <sub>74</sub>	17.6	X	49.10603	240.78697	113.09746	13.66486	0.2766386	0.23261643	2.6184389	20	—	—
446895 2002 PQ <sub>63</sub>	17.3	X	51.20441	245.76389	138.56411	7.99834	0.4442309	0.23258267	2.6186924	20	—	—
446896 2002 PZ <sub>75</sub>	17.4	X	70.43246	211.23399	124.62056	7.83157	0.3217892	0.23356076	2.6113763	20	—	—
446897 2002 QW <sub>171</sub>	17.7	X	39.62185	225.64123	177.26914	3.33699	0.2420266	0.23637665	2.5905958	20	—	—
446898 2002 PR <sub>183</sub>	17.3	X	326.35216	256.45274	164.29557	14.07048	0.2185158	0.22797864	2.6538311	20	12 10.6	19.9
446899 2002 PD <sub>192</sub>	17.0	X	62.01476	77.64306	282.98185	11.08230	0.0593604	0.23653989	2.5894039	20	—	—
446900 2002 JP <sub>32</sub>	17.6	X	357.50903	357.75736	26.59408	2.06339	0.2559779	0.22553421	2.6729721	20	12 26.5	20.4
446901 2002 QE <sub>61</sub>	17.0	X	44.57956	70.66097	318.51326	6.37926	0.1891788	0.23479607	2.6022090	20	—	—
446902 2002 QA <sub>115</sub>	18.0	X	76.16630	121.95943	190.88133	4.20209	0.2234008	0.23179757	2.6246020	20	12 26.9	22.4
446903 2002 QL <sub>119</sub>	18.5	X	230.61771	105.79822	189.58418	4.34281	0.2146834	0.30816474	2.1707714	20	1 22.5	22.0
446904 2002 QB <sub>133</sub>	17.1	X	62.69497	244.19979	136.78938	13.35710	0.1896379	0.23804113	2.5785054	20	—	—
446905 2002 QS <sub>139</sub>	17.0	X	25.24261	234.40070	175.25457	10.99310	0.1722015	0.23475593	2.6025056	20	—	—
446906 2002 RR <sub>5</sub>	16.2	X	100.96935	6.90956	317.76521	11.33352	0.1933323	0.23455618	2.6039829	20	—	—
446907 2002 RE <sub>21</sub>	17.8	X	11.42330	214.73580	140.02218	3.23618	0.2514109	0.22468286	2.6797200	20	12 9.1	20.8
446908 2002 RU <sub>26</sub>	16.9	X	128.94431	328.72662	322.44096	13.20654	0.2471244	0.23661774	2.5888359	20	—	—
446909 2002 RQ <sub>80</sub>	15.9	X	304.57088	349.02642	342.88920	8.70816	0.2362466	0.15576164	3.4210733	20	5 30.4	20.5
446910 2002 RL <sub>159</sub>	17.5	X	49.89483	22.83392	343.47000	3.28919	0.2392397	0.23271216	2.6177209	20	—	—
446911 2002 RY <sub>189</sub>	17.3	X	82.39172	329.16003	335.63820	6.33100	0.2715888	0.23130488	2.6283277	20	12 26.5	21.9
446912 2002 RW <sub>203</sub>	17.4	X	54.96463	205.16954	160.91734	2.36916	0.2575498	0.23340525	2.6125361	20	—	—
446913 2002 RW <sub>233</sub>	18.0	X	227.66170	123.50139	345.31140	21.50617	0.0839668	0.38686888	1.8653494	20	10 1.4	19.9
446914 2002 RR <sub>244</sub>	17.2	X	33.07329	259.64920	123.60331	3.41991	0.1005767	0.23225960	2.6211202	20	—	—
446915 2002 RR <sub>271</sub>	16.9	X	90.01049	312.65292	333.72040	12.76699	0.1780651	0.23063981	2.6333780	20	12 2.4	21.3
446916 2002 SF <sub>70</sub>	17.7	X	109.19050	270.60436	3.10096	12.12488	0.2495143	0.23025464	2.6363139	20	12 7.1	22.5
446917 2002 TN <sub>15</sub>	17.7	X	198.58267	315.56423	23.33590	6.77587	0.1681860	0.30690809	2.1766929	20	2 22.1	21.0
446918 2002 TT <sub>114</sub>	16.5	X	72.59214	148.76658	223.43236	12.48932	0.1816021	0.23459519	2.6039606	20	—	—
446919 2002 TB <sub>196</sub>	17.0	X	45.05315	171.00964	211.23691	13.48423	0.2667415	0.22923054	2.6441600	20	—	—
446920 2002 TY <sub>296</sub>	16.4	X	48.40764	310.30329	50.78730	13.61864	0.1726996	0.22775108	2.6555985	20	—	—
446921 2002 TN <sub>310</sub>	18.2	X	225.68287	172.50617	105.31714	5.90764	0.1793773	0.30142483	2.2030112	20	—	—
446922 2002 UM <sub>72</sub>	17.2	X	16.05154	212.54293	194.12343	3.64048	0.1574616	0.22761558	2.6566523	20	—	—
446923 2002 VL <sub>2</sub>	17.1	X	331.12993	266.21404	74.83974	24.27450	0.1290096	0.38162640	1.8823936	20	10 16.4	19.0
446924 2002 VV <sub>17</sub>	20.2	X	198.19236	348.80669	222.21794	9.69907	0.4365622	1.28596407	0.8374974	20	—	—
446925 2002 VH <sub>27</sub>	17.7	X	357.40619	203.95568	231.92676	4.76647	0.2679286	0.22616692	2.6679846	20	—	—
446926 2002 VD <sub>98</sub>	16.3	X	329.09862	52.56601	36.92041	22.35990	0.0495512	0.22564184	2.6721221	20	—	—
446927 2002 VH <sub>102</sub>	16.7	X	62.57215	122.18655	233.91777	25.19938	0.2452045	0.22906852	2.6454066	20	—	—
446928 2002 VP <sub>107</sub>	17.0	X	0.83361	43.94445	43.61751	12.80690	0.3066652	0.22721771	2.6597528	20	—	—
446929 2002 VA <sub>108</sub>	16.0	X	32.77415	139.73703	248.85463	14.85102	0.1758119	0.22634351	2.6665968	20	—	—
446930 2002 VZ <sub>144</sub>	16.6	X	344.74910	216.52576	224.05386	21.28782	0.0455266	0.22689937	2.6622399	20	—	—
446931 2002 VD <sub>145</sub>	17.0	X	351.29563	13.68752	56.76237	13.10233	0.1694679	0.22590501	2.6700464	20	—	—
446932 2002 WN <sub>13</sub>	17.6	X	343.99315	353.07412	80.65866	9.90847	0.2980955	0.22364722	2.6879863	20	—	—
446933 2002 XA <sub>25</sub>	16.4	X	72.56289	117.34904	276.47016	29.23851	0.3304034	0.23264069	2.6182570	20	1 4.3	18.6
446934 2002 XZ <sub>35</sub>	17.7	X	52.69101	50.10580	62.84795	8.74684	0.1301927	0.29499693	2.2348981	20	2 11.9	19.8
446935 2002 XZ <sub>38</sub>	18.1	X	86.26425	236.89749	263.14809	21.69849	0.4813634	0.29837622	2.2179916	20	7 2.1	21.9
446936 2002 XJ <sub>61</sub>	17.4	X	283.75416	91.58117	270.48889	17.12360	0.1193688	0.37158320	1.9161610	20	7 7.6	18.9
446937 2002 XN <sub>119</sub>	16.5	X	61.07535	122.57119	231.06210	14.50685	0.1041876	0.22648754	2.6654662	20	—	—
446938 2002 YQ <sub>5</sub>	19.9	X	269.74956	258.52185	279.92889	15.54690	0.1235780	0.67513177	1.2868967	20	—	—
446939 2002 YE <sub>13</sub>	17.5	X	357.25099	314.39624	86.71097	2.78011	0.2685308	0.22158257	2.7046577	20	—	—
446940 2003 BH <sub>34</sub>	18.0	X	15.96155	140.45015	20.35997	1.74171	0.1443023	0.29128441	2.2538476	20	2 8.3	19.8
446941 2003 BQ <sub>65</sub>	17.2	X	262.29875	312.28955	195.14002	2.05041	0.1973883	0.21360267	2.7716067	20	11 29.4	20.5
446942 2003 FZ <sub>10</sub>	17.6	X	334.36782	146.88476	27.77889	5.27485	0.1010433	0.28088744	2.3091271	20	—	—
446943 2003 FS <sub>11</sub>	18.0	X	19.23719	178.95630	323.83810	2.02916	0.1302924	0.28452729	2.2893917	20	1 20.1	20.0
446944 2003 FF <sub>32</sub>	17.6	X	15.22952	141.10587	1.80194	5.34469	0.1503113	0.28407771	2.2918065	20	1 11.5	19.7
446945 2003 FH <sub>39</sub>	18.3	X	315.78853	179.90095	350.39690	1.98779	0.1525409	0.27770627	2.3267279	20	—	—
446946 2003 GM <sub>47</sub>	17.9	X	300.54852	108.17141	89.96746	2.55483	0.1178963	0.27773290	2.3265791	20	—	—
446947 2003 HH <sub>50</sub>	16.0	X	5.67930	167.26103	122.84221	13.92294	0.0951439	0.18101624	3.0949788	20	8 3.7	19.8
446948 2003 JS <sub>5</sub>	16.5	X	36.67656	68.08289	212.96450	13.53411	0.2574173	0.18494714	3.0509679	20	9 30.7	20.4
446949												

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	$\omega$	$\Omega$	$i$	$e$	$\mu$	$a$	TE	Oppos.	V
446961 2003 ST <sub>365</sub>	16.7	X	331.84280	139.61250	215.87239	3.93525	0.1210031	0.17240016	3.1972574	20	8 31.9	20.5
446962 2003 SV <sub>408</sub>	16.3	X	40.58129	76.76317	197.58690	10.39023	0.0234230	0.17157627	3.2074845	20	8 21.9	20.9
446963 2003 TK	19.5	X	265.65497	11.24140	258.74535	4.38780	0.4478744	0.33138784	2.0681324	20	1 7.2	23.5
446964 2003 TS <sub>47</sub>	15.9	X	309.17073	51.00375	310.99345	9.64296	0.0577983	0.16888735	3.2414399	20	8 10.9	20.1
446965 2003 UV <sub>41</sub>	18.2	X	11.66791	193.37494	194.29155	3.87660	0.2000069	0.24037241	2.5618064	20	—	—
446966 2003 UX <sub>59</sub>	17.4	X	27.14453	14.39275	343.25597	18.17080	0.2295873	0.23909598	2.5709159	20	—	—
446967 2003 UO <sub>112</sub>	17.7	X	352.87115	333.65660	72.84559	5.69499	0.2709885	0.23789328	2.5795737	20	—	—
446968 2003 UP <sub>190</sub>	16.5	X	303.39273	17.90901	5.31462	21.90357	0.1650835	0.17015061	3.2253762	20	8 27.5	20.7
446969 2003 UO <sub>303</sub>	16.2	X	221.41991	288.48308	288.08505	6.06206	0.0578845	0.24510850	2.5286990	20	—	—
446970 2003 UL <sub>304</sub>	18.6	X	34.63892	23.66829	18.41945	17.38872	0.1908464	0.24516065	2.5283404	20	—	—
446971 2003 UQ <sub>308</sub>	18.4	X	58.76925	334.61724	48.61992	2.44045	0.2079615	0.24631567	2.5204303	20	—	—
446972 2003 UT <sub>322</sub>	18.0	X	335.51981	251.07465	191.53732	11.44040	0.1624731	0.24068611	2.5595799	20	—	—
446973 2003 UV <sub>337</sub>	18.5	X	3.29899	38.34150	36.51273	1.09682	0.1103176	0.24646452	2.5194154	20	—	—
446974 2003 UF <sub>338</sub>	18.6	X	77.16819	168.75830	178.45491	2.78538	0.1553259	0.24675561	2.5174336	20	—	—
446975 2003 UJ <sub>349</sub>	17.9	X	49.19178	334.15049	41.63308	6.79649	0.2303578	0.24517247	2.5282591	20	—	—
446976 2003 UX <sub>355</sub>	18.7	X	28.84019	123.13667	258.74666	1.75053	0.1659138	0.24106217	2.5569173	20	—	—
446977 2003 UE <sub>403</sub>	17.9	X	2.41145	199.33568	189.05157	4.78448	0.1026456	0.23991341	2.5650729	20	12 21.5	21.0
446978 2003 WF <sub>22</sub>	17.6	X	0.19373	19.10313	38.80937	14.29078	0.2433157	0.23928776	2.5695420	20	—	—
446979 2003 WH <sub>25</sub>	17.2	X	55.44504	287.63033	114.28031	8.43358	0.2298886	0.24521589	2.5279607	20	—	—
446980 2003 WZ <sub>30</sub>	17.7	X	7.61599	13.18870	45.25707	14.86743	0.2366528	0.24014305	2.5634373	20	—	—
446981 2003 WD <sub>35</sub>	16.9	X	13.52985	0.44367	54.40425	13.42236	0.1404212	0.24017742	2.5631927	20	—	—
446982 2003 WJ <sub>46</sub>	17.3	X	71.97388	314.71045	70.53991	9.87239	0.2169676	0.24745586	2.5126821	20	—	—
446983 2003 WW <sub>85</sub>	17.8	X	49.10696	133.26284	269.26728	6.32273	0.2745946	0.24533541	2.5271395	20	—	—
446984 2003 WP <sub>110</sub>	17.0	X	35.10031	132.87074	245.52663	15.38842	0.1577305	0.23972181	2.5664395	20	—	—
446985 2003 WZ <sub>163</sub>	17.0	X	266.93724	268.73773	249.92367	4.86243	0.1230630	0.23605788	2.5929276	20	—	—
446986 2003 WS <sub>192</sub>	16.3	X	59.32625	81.72726	295.75766	11.04294	0.1863187	0.24016326	2.5632935	20	—	—
446987 2003 XY	16.5	X	341.35165	104.85278	49.36244	27.82346	0.4479249	0.23765957	2.5812645	20	—	—
446988 2003 YJ <sub>11</sub>	16.6	X	343.54825	181.81026	293.95950	13.12845	0.1906379	0.23970547	2.5665560	20	—	—
446989 2003 YG <sub>14</sub>	17.0	X	47.23422	331.76447	70.50815	16.29110	0.3034086	0.24279668	2.5447252	20	—	—
446990 2003 YM <sub>22</sub>	17.9	X	17.43455	339.38913	66.79454	4.50730	0.2419638	0.23895450	2.5719306	20	—	—
446991 2003 YL <sub>24</sub>	16.7	X	333.45944	192.49538	273.40673	13.77546	0.1624612	0.23596878	2.5935802	20	—	—
446992 2003 YJ <sub>33</sub>	17.3	X	56.94612	272.53242	137.85641	6.72783	0.1922612	0.24638266	2.5199734	20	—	—
446993 2003 YE <sub>39</sub>	16.2	X	173.73183	276.36638	297.58027	13.20553	0.0606883	0.22538982	2.6741136	20	11 24.9	20.3
446994 2003 YD <sub>42</sub>	17.3	X	51.31390	309.61717	109.43549	8.77935	0.1820461	0.24299387	2.5433483	20	—	—
446995 2003 YM <sub>116</sub>	16.3	X	353.34941	316.21512	107.80968	15.33649	0.1345865	0.23270526	2.6177726	20	—	—
446996 2003 YL <sub>181</sub>	17.0	X	305.85161	353.77600	127.09029	14.72802	0.1189528	0.23152804	2.6266386	20	—	—
446997 2004 BV <sub>3</sub>	17.4	X	4.24472	6.76990	87.95679	3.63643	0.2504861	0.23850125	2.5751880	20	—	—
446998 2004 BJ <sub>103</sub>	16.1	X	280.34541	78.02412	119.74900	28.87657	0.3571928	0.23117915	2.6292806	20	—	—
446999 2004 BA <sub>129</sub>	19.0	X	71.23034	172.82166	308.65217	1.41950	0.1156566	0.31320696	2.1474107	20	3 21.6	21.0
447000 2004 BR <sub>131</sub>	18.3	X	34.00473	300.18986	132.88460	8.00546	0.2439225	0.24177711	2.5518742	20	—	—
447001 2004 BH <sub>160</sub>	18.6	X	138.61191	35.95626	341.62114	3.55971	0.1405750	0.30264615	2.1970804	20	2 6.5	21.3
447002 2004 CH <sub>27</sub>	17.5	X	348.18576	138.03697	325.52667	2.45693	0.2404063	0.23502334	2.6005311	20	—	—
447003 2004 CH <sub>29</sub>	17.0	X	21.65845	59.92380	306.77514	12.55182	0.1298997	0.22702703	2.6612418	20	12 21.8	20.5
447004 2004 DS <sub>13</sub>	17.9	X	295.10825	228.58869	346.56213	5.27173	0.1168511	0.30099632	2.2051016	20	—	—
447005 2004 EM <sub>41</sub>	17.0	X	274.92215	180.64270	351.08033	6.16349	0.2075843	0.22829397	2.6513868	20	—	—
447006 2004 EU <sub>57</sub>	16.8	X	270.35602	10.92509	166.69050	14.43380	0.1772059	0.22859423	2.6490646	20	—	—
447007 2004 EG <sub>58</sub>	17.4	X	314.03554	191.38027	21.72127	6.74074	0.1071114	0.30146062	2.2028368	20	1 16.2	20.1
447008 2004 EF <sub>96</sub>	16.2	X	114.70488	204.73291	60.65212	10.29995	0.1669978	0.21045876	2.7991406	20	11 27.3	20.6
447009 2004 FS <sub>13</sub>	16.7	X	287.66506	296.46240	204.71516	10.43550	0.2537439	0.22725767	2.6594410	20	—	—
447010 2004 FO <sub>59</sub>	16.9	X	314.18497	284.24130	183.93101	12.92257	0.1749404	0.22631821	2.6667955	20	—	—
447011 2004 FJ <sub>106</sub>	18.5	X	84.38902	3.59239	183.70827	20.46532	0.0763985	0.37873927	1.8919478	20	7 18.7	21.0
447012 2004 HH <sub>125</sub>	17.8	X	249.16330	230.21389	4.37124	7.95495	0.2532574	0.29024356	2.2592328	20	—	—
447013 2004 FE <sub>143</sub>	18.0	X	55.23352	203.73945	28.31122	23.65491	0.1094711	0.37939218	1.8897766	20	9 11.9	20.4
447014 2004 GO <sub>20</sub>	17.0	X	277.92493	138.08849	40.11604	8.27343	0.2290749	0.22820708	2.6520597	20	—	—
447015 2004 HF <sub>4</sub>	16.5	X	203.76764	334.99266	201.45544	13.21342	0.1165295	0.21409469	2.7673586	20	11 7.3	20.6
447016 2004 HK <sub>22</sub>	17.3	X	269.90969	123.46439	22.88511	6.50832	0.2262276	0.22234580	2.6984649	20	12 6.5	20.5
447017 2004 HH <sub>54</sub>	17.7	X	93.81555	133.36440	74.34260	23.06259	0.0722912	0.38117750	1.8838712	20	9 25.5	20.5
447018 2004 KH <sub>11</sub>	17.4	X	214.79698	194.97288	102.74678	8.24664	0.1444488	0.29074280	2.2566458	20	1 15.1	20.7
447019 2004 LS <sub>7</sub>	16.2	X	212.43161	330.04155	274.73787	24.90675	0.1978471	0.28011396	2.3133759	20	—	—
447020 2004 LE <sub>10</sub>	17.6	X	71.28890	327.10709	260.36741	19.79437	0.0320278	0.37803731	1.8942891	20	8 16.4	20.1
447021 2004 LP <sub>14</sub>	16.0	X	97.53937	146.78999	116.94762	16.17239	0.1169430	0.20328509	2.8646113	20	11 11.3	20.7
447022 2004 NO	18.4	X	154.16492	197.23112	105.99782	8.00982	0.3577033	0.27523824	2.3406161	20	—	—
447023 2004 NZ <sub>12</sub>	18.1	X	154.37332	157.42997	150.90310	2.52831	0.2486159	0.27641389	2.3339747	20	—	—
447024 2004 OY <sub>8</sub>	17.8	X	149.08973	80.88968	249.31065	3.77510	0.2446696	0.27736638	2.3286283	20	1 2.6	21.1
447025 2004 OH <sub>9</sub>	16.3	X	329.09993	251.70148	134.44571	8.97738	0.2875235	0.18692175	3.0294433	20	10 10.8	18.9
447026 2004 OC <sub>12</sub>	17.6	X	163.06874	261.74135	62.10752	4.75696	0.1745561	0.27916257	2.3186290	20	1 1.5	21.1
447027 2004 OH <sub>13</sub>	18.3	X	150.47468	82.48793	237.05183	1.82815	0.1861435	0.27612772	2.3355870	20	—	—
447028 2004 PV <sub>22</sub>	18.5	X	187.96663	49.46143	235.27734	0.19168	0.2519898	0.27870720	2.3211538	20	—	—
447029 2004 PC <sub>34</sub>	17.4	X	136.97257	182.87175	152.42676	6.25356	0.1700592	0.27415				

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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>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>		
447041	2004	<i>RV</i> <sub>57</sub>	16.1	X	14.34168	343.10680	317.55582	8.75312	0.2216989	0.18514963	3.0487430	20	9 12.4	19.5
447042	2004	<i>RN</i> <sub>70</sub>	17.9	X	159.09749	237.58374	69.24906	3.14169	0.2426398	0.27377849	2.3489287	20	—	—
447043	2004	<i>RH</i> <sub>76</sub>	17.5	X	141.05453	203.41753	117.09639	3.38584	0.2500910	0.27122115	2.3636709	20	—	—
447044	2004	<i>RL</i> <sub>88</sub>	15.5	X	337.29336	328.14660	353.92405	12.86882	0.2605207	0.17883723	3.1200683	20	7 25.8	18.6
447045	2004	<i>RL</i> <sub>91</sub>	16.2	X	350.97500	147.68409	192.79670	10.35106	0.1645425	0.18649022	3.0341148	20	9 18.6	19.4
447046	2004	<i>RK</i> <sub>125</sub>	16.2	X	141.70403	207.19781	334.99651	10.06640	0.0396652	0.18413433	3.0599397	20	9 4.9	20.7
447047	2004	<i>RW</i> <sub>140</sub>	16.9	X	309.51008	176.47375	175.66073	11.63313	0.2218193	0.17885370	3.1198767	20	7 8.2	20.8
447048	2004	<i>RB</i> <sub>154</sub>	16.8	X	258.20265	309.11752	303.52666	9.45504	0.1872550	0.28189470	2.3036232	20	—	—
447049	2004	<i>RO</i> <sub>160</sub>	16.6	X	314.12645	194.68965	185.13864	9.17770	0.1363529	0.18337526	3.0683782	20	9 4.1	20.3
447050	2004	<i>RR</i> <sub>172</sub>	16.1	X	120.18624	344.70677	199.46704	11.79933	0.0366574	0.18095210	3.0957102	20	8 9.9	20.7
447051	2004	<i>RK</i> <sub>186</sub>	15.4	X	29.38903	296.77949	339.49619	26.29047	0.1692354	0.18235816	3.0797769	20	9 1.3	19.0
447052	2004	<i>RZ</i> <sub>211</sub>	15.4	X	352.33225	46.96026	303.44541	15.12020	0.1483640	0.18621150	3.0371417	20	9 25.8	19.3
447053	2004	<i>RB</i> <sub>224</sub>	16.9	X	276.17033	248.83106	172.38935	16.78686	0.3274695	0.17919682	3.1158928	20	7 31.9	21.5
447054	2004	<i>RN</i> <sub>230</sub>	16.1	X	348.86360	323.06470	4.12287	5.84657	0.0661622	0.17834629	3.1257914	20	8 26.8	20.1
447055	2004	<i>RA</i> <sub>231</sub>	16.3	X	341.37754	148.58405	203.57886	6.05872	0.1205000	0.18139599	3.0906579	20	9 14.5	20.0
447056	2004	<i>RS</i> <sub>232</sub>	16.2	X	296.79869	343.42565	16.21965	12.03216	0.1344717	0.17436972	3.1731359	20	7 14.8	20.6
447057	2004	<i>RE</i> <sub>242</sub>	18.2	X	71.59363	272.01112	160.00923	3.15206	0.1457291	0.27438849	2.3454461	20	1 18.8	20.4
447058	2004	<i>RV</i> <sub>245</sub>	16.2	X	240.22450	277.78209	160.34345	10.48856	0.0422009	0.18104161	3.0946897	20	8 20.8	20.5
447059	2004	<i>RY</i> <sub>245</sub>	18.0	X	94.85782	14.48549	29.01006	3.18569	0.1972085	0.27368195	2.3494811	20	1 27.8	20.5
447060	2004	<i>RF</i> <sub>252</sub>	18.2	X	205.51892	229.67232	183.20531	22.52640	0.1149420	0.35851924	1.9624310	20	6 6.9	21.3
447061	2004	<i>RY</i> <sub>261</sub>	18.3	X	79.08949	61.13894	352.51698	1.55397	0.1783058	0.27262147	2.3555700	20	1 11.6	20.5
447062	2004	<i>RO</i> <sub>265</sub>	16.5	X	355.71701	271.91772	61.73257	2.24729	0.1661297	0.18491483	3.0513232	20	9 20.6	19.7
447063	2004	<i>RB</i> <sub>268</sub>	16.8	X	1.48829	123.55194	173.62492	10.51873	0.0893844	0.18019662	3.1043567	20	8 3.6	20.8
447064	2004	<i>RP</i> <sub>282</sub>	17.2	X	19.95065	113.26166	354.98273	12.74956	0.0790264	0.27275575	2.3547968	20	—	—
447065	2004	<i>RS</i> <sub>303</sub>	16.9	X	351.13369	101.40470	245.31947	4.90682	0.1186409	0.18602478	3.0391736	20	9 23.9	20.6
447066	2004	<i>RY</i> <sub>307</sub>	17.8	X	133.07365	21.47364	327.93938	5.10245	0.2434605	0.27235671	2.3570963	20	1 12.2	21.0
447067	2004	<i>RJ</i> <sub>308</sub>	17.5	X	149.30265	336.37331	334.84857	9.60208	0.1841079	0.27057305	2.3674439	20	—	—
447068	2004	<i>RR</i> <sub>316</sub>	16.3	X	328.43078	3.08436	345.80088	14.87622	0.1418897	0.18210194	3.0928640	20	8 22.1	19.9
447069	2004	<i>RB</i> <sub>322</sub>	18.3	X	275.11998	195.87498	189.74402	21.79515	0.0803767	0.36476690	1.9399585	20	8 5.7	20.7
447070	2004	<i>RH</i> <sub>327</sub>	16.4	X	318.58839	47.21570	331.68482	8.33274	0.1464185	0.18283853	3.0743802	20	9 9.6	19.9
447071	2004	<i>RG</i> <sub>345</sub>	16.4	X	343.73116	315.72346	11.87396	14.88941	0.2186951	0.17921306	3.1157046	20	8 23.9	19.7
447072	2004	<i>RD</i> <sub>347</sub>	15.8	X	312.86523	115.79885	265.77661	20.36426	0.1894632	0.18004479	3.1061018	20	8 18.8	19.9
447073	2004	<i>RG</i> <sub>356</sub>	16.6	X	282.69626	218.54668	195.55799	4.63774	0.1241525	0.17977384	3.1092219	20	9 1.6	20.7
447074	2004	<i>SP</i> <sub>8</sub>	16.4	X	319.69206	43.62141	339.77503	5.37760	0.1639019	0.18387347	3.0628331	20	9 17.2	19.9
447075	2004	<i>SH</i> <sub>21</sub>	16.3	X	299.78935	255.18056	119.28799	19.68028	0.4320432	0.17594348	3.1541857	20	6 19.9	20.7
447076	2004	<i>SB</i> <sub>39</sub>	15.6	X	237.28943	52.66230	18.27271	11.33076	0.2952710	0.17077986	3.2174486	20	7 14.4	21.1
447077	2004	<i>SS</i> <sub>58</sub>	17.9	X	355.77470	247.99263	64.00590	24.02567	0.0473384	0.37121116	1.9174411	20	10 2.8	20.4
447078	2004	<i>TF</i> <sub>8</sub>	17.3	X	2.77482	310.90585	189.39893	25.77740	0.1663241	0.27473499	2.3434736	20	—	—
447079	2004	<i>TV</i> <sub>22</sub>	16.9	X	327.68801	135.73788	227.28721	4.21096	0.1333344	0.18164702	3.0878098	20	9 4.5	20.6
447080	2004	<i>TH</i> <sub>32</sub>	16.3	X	333.29910	8.94723	354.43931	4.94549	0.1929137	0.18153040	3.0891320	20	9 15.3	19.5
447081	2004	<i>TL</i> <sub>36</sub>	16.5	X	332.60167	124.21170	198.59882	9.91449	0.0778024	0.17472292	3.1688581	20	7 22.2	20.7
447082	2004	<i>TX</i> <sub>40</sub>	17.5	X	118.50574	6.43904	15.65364	7.46787	0.1164373	0.27341809	2.3509924	20	1 20.6	20.5
447083	2004	<i>TC</i> <sub>42</sub>	16.5	X	329.48022	348.63140	2.95756	5.33426	0.2088263	0.17860046	3.1228251	20	8 21.3	19.6
447084	2004	<i>TX</i> <sub>43</sub>	16.4	X	239.31855	69.10186	16.53422	7.61820	0.1229406	0.17585601	3.1552316	20	8 22.0	21.1
447085	2004	<i>TP</i> <sub>44</sub>	17.9	X	49.15465	165.59999	271.95571	1.40805	0.1590144	0.26710326	2.3879025	20	—	—
447086	2004	<i>TV</i> <sub>47</sub>	17.8	X	112.65150	289.09483	33.06258	1.68326	0.2019244	0.26459115	2.4029930	20	—	—
447087	2004	<i>TZ</i> <sub>51</sub>	16.2	X	274.55895	224.39447	239.18572	7.40118	0.1462812	0.18269552	3.0759843	20	10 12.6	20.3
447088	2004	<i>TL</i> <sub>60</sub>	17.3	X	82.48576	324.80466	11.43849	6.58183	0.2301505	0.26271664	2.4144098	20	—	—
447089	2004	<i>TG</i> <sub>63</sub>	18.1	X	145.62995	318.11015	17.28306	2.45959	0.2021247	0.27197466	2.3593032	20	1 2.3	21.3
447090	2004	<i>TT</i> <sub>65</sub>	15.7	X	338.49043	297.11696	31.73027	11.29991	0.1164338	0.17830963	3.1262199	20	8 15.7	19.6
447091	2004	<i>TN</i> <sub>67</sub>	15.5	X	357.00825	271.12641	58.74169	16.40178	0.2496732	0.18206349	3.0830990	20	10 3.2	18.8
447092	2004	<i>TM</i> <sub>95</sub>	17.4	X	260.37568	100.07277	311.57222	0.10640	0.1618039	0.17390424	3.1787955	20	7 26.4	22.0
447093	2004	<i>TZ</i> <sub>99</sub>	16.0	X	183.95143	306.58215	198.03870	16.19472	0.1935686	0.17611124	3.1521824	20	8 28.4	21.5
447094	2004	<i>TR</i> <sub>100</sub>	15.8	X	235.59433	152.95995	294.55245	16.56469	0.1979704	0.17490753	3.1666279	20	8 5.7	20.9
447095	2004	<i>TZ</i> <sub>110</sub>	16.0	X	236.59308	116.84916	19.47581	12.91856	0.2498443	0.18225318	3.0809594	20	10 4.3	20.8
447096	2004	<i>TW</i> <sub>118</sub>	15.1	X	290.53345	359.76767	52.12573	29.02625	0.1410787	0.17876275	3.1209349	20	9 28.6	19.7
447097	2004	<i>TL</i> <sub>119</sub>	17.5	X	100.53443	303.56636	63.26201	11.73911	0.2552076	0.26839645	2.3802261	20	—	—
447098	2004	<i>TB</i> <sub>125</sub>	16.4	X	313.29926	264.49417	127.84069	5.54409	0.2303902	0.18265136	3.0764801	20	9 12.6	19.6
447099	2004	<i>TR</i> <sub>135</sub>	16.4	X	315.53479	130.90938	237.22153	8.56294	0.2722055	0.17850537	3.1239341	20	8 1.3	19.8
447100	2004	<i>TQ</i> <sub>145</sub>	18.3	X	99.99798	27.68703	342.72485	1.79072	0.2393358	0.26906237	2.3762971	20	—	—
447101	2004	<i>TP</i> <sub>153</sub>	17.8	X	117.01793	154.49602	198.65741	9.21712	0.0400957	0.26831707	2.3806955	20	—	—
447102	2004	<i>TM</i> <sub>154</sub>	18.4	X	85.02439	29.75873	15.94617	1.72837	0.1715130	0.27029204	2.3690844	20	1 10.3	20.7
447103	2004	<i>TQ</i> <sub>155</sub>	16.7	X	304.57916	226.74935	191.71555	11.45679	0.0499227	0.18581618	3.0414478	20	10 20.7	20.6
447104	2004	<i>TL</i> <sub>162</sub>	16.7	X	322.37492	308.86274	63.01765	1.82381	0.1765810	0.17924283	3.1153597	20	9 6.4	20.2
447105	2004	<i>TB</i> <sub>172</sub>	15.3	X	314.59253	117.60939	250.50778	24.85534	0.2576222	0.17611222	3.1521706	20	7 24.9	19.3
447106	2004	<i>TN</i> <sub>175</sub>	17.6	X	40.12048	254.58903	201.96669	4.58419	0.1670864	0.26979595	2.3719877	20	—	—
447107	2004	<i>TV</i> <sub>177</sub>	18.4	X	71.28540	71.79730	331.06370	1.05453	0.1833666	0.26849058	2.3796697	20	—	—
447108	2004	<i>TD</i> <sub>181</sub>	15.6	X	225.80241	66.69111	10.41678	26.89680	0.0935418	0.				

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>		
447121	2004	<i>TK</i> <sub>339</sub>	16.0	X	354.71464	247.67311	27.77037	17.46036	0.1799583	0.17217104	3.2000933	20	6 24.7	19.8
447122	2004	<i>TM</i> <sub>370</sub>	16.1	X	318.88370	284.03910	98.29432	17.72383	0.2556108	0.18067782	3.0988424	20	9 13.8	19.6
447123	2004	<i>VF</i> <sub>3</sub>	15.9	X	321.69792	152.93130	220.78898	17.39734	0.1247086	0.17849502	3.1240548	20	9 4.3	20.1
447124	2004	<i>VQ</i> <sub>8</sub>	16.6	X	314.24297	180.82978	213.07558	12.88173	0.3153072	0.17917241	3.1161759	20	8 27.5	20.0
447125	2004	<i>VF</i> <sub>19</sub>	15.7	X	220.98147	54.36105	52.72991	15.97776	0.2210215	0.17337767	3.1852287	20	8 24.4	21.2
447126	2004	<i>VM</i> <sub>27</sub>	16.4	X	262.00321	58.51172	10.32483	5.25641	0.1407209	0.17613004	3.1519581	20	8 24.1	20.8
447127	2004	<i>VC</i> <sub>38</sub>	16.0	X	233.44539	57.11279	51.97930	10.55355	0.1983656	0.17605786	3.1528195	20	9 7.6	21.1
447128	2004	<i>VN</i> <sub>42</sub>	16.2	X	245.54344	356.43847	51.23391	7.85958	0.1260257	0.16866430	3.2442970	20	7 9.5	21.2
447129	2004	<i>VL</i> <sub>45</sub>	15.4	X	222.23097	257.11243	225.44053	23.48411	0.2010315	0.17483987	3.1674449	20	8 30.4	20.9
447130	2004	<i>XJ</i> <sub>9</sub>	15.7	X	308.89452	102.65435	264.52088	11.86838	0.2978539	0.17413914	3.1759363	20	7 14.1	19.3
447131	2004	<i>XJ</i> <sub>11</sub>	15.0	X	319.33691	102.03596	256.53478	24.97571	0.2537253	0.17346476	3.1841624	20	7 22.3	18.9
447132	2004	<i>XZ</i> <sub>29</sub>	16.2	X	208.73845	70.99684	77.16062	8.33916	0.3825968	0.17152434	3.2081319	20	9 18.4	22.2
447133	2004	<i>XS</i> <sub>93</sub>	17.8	X	4.77975	39.28579	75.24137	6.75662	0.1874886	0.25877881	2.4388415	20	—	—
447134	2004	<i>XY</i> <sub>103</sub>	17.9	X	53.59924	35.51958	50.33097	4.87277	0.2425512	0.26423412	2.4051571	20	1 17.6	19.4
447135	2004	<i>XG</i> <sub>112</sub>	15.4	X	301.18601	299.25173	72.48989	27.54846	0.1971752	0.17194854	3.2028534	20	7 27.9	19.8
447136	2004	<i>XN</i> <sub>131</sub>	17.1	X	45.20517	50.55091	52.16394	10.72554	0.2047853	0.26679433	2.3897455	20	1 21.4	19.1
447137	2004	<i>YK</i> <sub>8</sub>	17.7	X	55.70135	185.36462	237.58107	4.77661	0.1722202	0.26419576	2.4053899	20	—	—
447138	2005	<i>AB</i> <sub>44</sub>	17.9	X	8.02077	59.13649	41.94133	1.87450	0.1561756	0.25491870	2.4633999	20	—	—
447139	2005	<i>CP</i> <sub>23</sub>	17.1	X	35.50858	185.59668	252.33193	6.18245	0.1085644	0.25546770	2.4598694	20	—	—
447140	2005	<i>EO</i> <sub>22</sub>	17.2	X	193.02132	39.11391	162.22587	6.02016	0.1551454	0.23419680	2.6066461	20	11 26.6	21.3
447141	2005	<i>EP</i> <sub>140</sub>	17.7	X	41.72097	89.23060	327.78849	14.09591	0.0975429	0.25299084	2.4758986	20	—	—
447142	2005	<i>EQ</i> <sub>203</sub>	17.2	X	178.71974	245.33467	327.91366	14.06702	0.1321371	0.23670729	2.5881829	20	11 24.8	21.5
447143	2005	<i>EN</i> <sub>210</sub>	14.9	X	287.51286	230.51956	355.41977	10.26477	0.1265135	0.12294718	4.0055024	20	1 26.9	20.7
447144	2005	<i>EQ</i> <sub>247</sub>	17.4	X	203.78953	46.26760	175.08545	4.23999	0.0378563	0.23793116	2.5792999	20	—	—
447145	2005	<i>EX</i> <sub>276</sub>	17.5	X	186.31977	35.88472	187.08148	9.72365	0.0922659	0.23272114	2.6176535	20	12 21.4	21.5
447146	2005	<i>GZ</i> <sub>25</sub>	18.4	X	327.62781	338.42426	19.77479	18.23594	0.0879019	0.41214718	1.7882758	20	10 21.5	19.1
447147	2005	<i>GQ</i> <sub>72</sub>	17.3	X	90.58236	128.21129	186.80011	3.58337	0.0194163	0.23173864	2.6250470	20	12 27.2	20.8
447148	2005	<i>GY</i> <sub>77</sub>	16.5	X	243.97165	82.72124	69.25255	12.63025	0.1571755	0.23318604	2.6141732	20	11 21.5	19.8
447149	2005	<i>GG</i> <sub>78</sub>	16.3	X	134.43835	182.99288	86.85000	14.21940	0.1414962	0.22910011	2.6451635	20	12 22.6	20.5
447150	2005	<i>GE</i> <sub>91</sub>	17.1	X	136.19410	33.93531	213.85303	12.69709	0.0951253	0.22705612	2.6610145	20	11 28.2	21.2
447151	2005	<i>GR</i> <sub>94</sub>	17.1	X	152.98515	44.48894	194.79488	11.86716	0.0862696	0.22821906	2.6519669	20	12 5.5	21.3
447152	2005	<i>GJ</i> <sub>177</sub>	17.5	X	46.04975	144.52268	257.24716	1.14462	0.0043266	0.23922330	2.5700036	20	—	—
447153	2005	<i>GM</i> <sub>177</sub>	16.9	X	58.38413	180.94120	210.17367	13.17790	0.1032216	0.23958402	2.5674233	20	—	—
447154	2005	<i>GC</i> <sub>178</sub>	16.9	X	203.68802	132.83954	38.85418	13.85295	0.1885958	0.22887340	2.6469099	20	10 27.4	21.1
447155	2005	<i>HE</i> <sub>10</sub>	16.8	X	88.16312	245.98388	47.98697	13.54986	0.1911278	0.22161318	2.7044087	20	12 9.5	21.2
447156	2005	<i>HF</i> <sub>10</sub>	16.8	X	109.43077	34.39326	225.45334	9.16238	0.2359148	0.22178677	2.7029974	20	11 21.8	21.4
447157	2005	<i>JE</i> <sub>1</sub>	16.9	X	130.71332	151.48694	95.01260	9.72109	0.2545882	0.22159198	2.7045812	20	11 23.9	21.8
447158	2005	<i>JD</i> <sub>17</sub>	16.6	X	155.27588	23.88013	226.32503	12.34319	0.1331877	0.22798970	2.6537453	20	12 17.9	20.9
447159	2005	<i>JC</i> <sub>20</sub>	16.5	X	196.44695	82.70781	98.07663	13.85628	0.2083147	0.22679531	2.6630542	20	11 3.8	21.0
447160	2005	<i>JK</i> <sub>71</sub>	16.3	X	201.59419	147.50897	97.16948	29.25432	0.0474445	0.23152549	2.6266579	20	—	—
447161	2005	<i>JJ</i> <sub>131</sub>	16.9	X	206.88788	63.52038	96.25830	10.40414	0.2669694	0.22115523	2.7081408	20	11 4.3	20.8
447162	2005	<i>JN</i> <sub>139</sub>	17.1	X	203.75817	166.29968	57.68526	14.03566	0.1180653	0.23547915	2.5971742	20	—	—
447163	2005	<i>JQ</i> <sub>143</sub>	16.2	X	88.31398	243.35837	73.71430	12.49342	0.1976247	0.22274015	2.6952789	20	—	—
447164	2005	<i>JH</i> <sub>162</sub>	17.3	X	96.23580	207.57742	96.38999	8.29618	0.1347915	0.22339105	2.6900408	20	12 26.8	21.6
447165	2005	<i>JU</i> <sub>167</sub>	17.0	X	222.65829	0.06413	215.66061	14.55711	0.2003578	0.23491159	2.6013558	20	—	—
447166	2005	<i>KH</i> <sub>3</sub>	16.9	X	96.91500	237.27741	63.56021	6.93716	0.0682283	0.22669456	2.6638431	20	12 19.6	20.7
447167	2005	<i>LS</i> <sub>18</sub>	16.6	X	207.52384	118.53510	71.10374	12.87364	0.0483134	0.22636119	2.6664579	20	12 6.8	20.4
447168	2005	<i>MX</i> <sub>50</sub>	17.0	X	4.97228	63.51964	305.00509	3.78325	0.1277194	0.20843498	2.8172301	20	11 22.5	20.4
447169	2005	<i>NC</i> <sub>28</sub>	16.8	X	119.74157	100.19981	164.71911	9.31154	0.1219672	0.21508336	2.7588717	20	12 2.1	21.3
447170	2005	<i>NW</i> <sub>46</sub>	16.5	X	53.12312	48.11130	282.69695	11.93999	0.0588236	0.21309250	2.7760287	20	12 1.6	20.4
447171	2005	<i>NJ</i> <sub>65</sub>	17.1	X	21.67416	90.02958	267.79888	4.72614	0.1012846	0.21002477	2.8029953	20	11 30.6	20.6
447172	2005	<i>NY</i> <sub>76</sub>	18.6	X	223.75916	172.22177	145.67858	5.10526	0.2335570	0.30811953	2.1709837	20	2 14.4	22.1
447173	2005	<i>NP</i> <sub>98</sub>	18.1	X	224.31493	189.80037	113.56516	3.92271	0.1360702	0.30640401	2.1790795	20	1 29.6	21.3
447174	2005	<i>QH</i> <sub>22</sub>	17.1	X	350.72813	322.84742	39.44911	2.46041	0.0904857	0.20192231	2.8774858	20	10 18.7	20.4
447175	2005	<i>QZ</i> <sub>50</sub>	18.3	X	213.81645	140.57123	151.05823	7.41797	0.2968678	0.30106728	2.2047550	20	1 6.8	22.3
447176	2005	<i>QQ</i> <sub>56</sub>	17.6	X	124.86680	256.97317	331.37599	19.92593	0.0401595	0.40463312	1.8103467	20	11 18.9	20.0
447177	2005	<i>QU</i> <sub>124</sub>	16.9	X	8.96299	335.58949	17.34677	1.93815	0.0765872	0.20340723	2.8634644	20	11 1.4	20.5
447178	2005	<i>RO</i> <sub>43</sub>	17.1	X	333.89306	326.91683	198.16727	35.47173	0.5174853	0.00641876	28.6749068	20	12 19.6	19.9
447179	2005	<i>SH</i> <sub>34</sub>	17.9	X	92.80553	358.83124	41.85107	7.89608	0.1124900	0.28963006	2.2624220	20	1 2.5	20.3
447180	2005	<i>SN</i> <sub>36</sub>	17.7	X	88.76542	21.50212	5.56608	6.07517	0.2366898	0.28754791	2.2733305	20	—	—
447181	2005	<i>SO</i> <sub>55</sub>	16.6	X	250.62556	238.51230	195.51597	11.30462	0.1699051	0.18803196	3.0175068	20	8 9.2	21.2
447182	2005	<i>SK</i> <sub>69</sub>	16.6	X	337.05699	321.77485	358.53857	9.42434	0.0809015	0.18869639	3.0104193	20	8 1.8	20.4
447183	2005	<i>SN</i> <sub>85</sub>	17.5	X	21.99571	325.10121	19.01151	6.20653	0.2057901	0.2019018	2.8768412	20	11 25.9	21.2
447184	2005	<i>ST</i> <sub>85</sub>	17.2	X	344.73647	212.15297	162.96097	1.60691	0.1529193	0.19883121	2.9072319	20	10 29.0	20.2
447185	2005	<i>SP</i> <sub>99</sub>	16.7	X	5.27485	147.93026	229.99163	7.57408	0.2145272	0.20238505	2.8730980	20	12 16.4	20.1
447186	2005	<i>SG</i> <sub>107</sub>	17.6	X	168.95194	22.61931	292.05501	8.49393	0.2028697	0.29413522	2.2392609	20	—	—
447187	2005	<i>SM</i> <sub>108</sub>	18.2	X	151.41601	142.93572	226.84039	1.47596	0.1599860	0.29651675	2.2272548	20	2 12.5	21.1
447188	2005	<i>SW</i> <sub>112</sub>	16.9	X	5.23426	169.62848	213.34421	13.10853	0.1865351	0.20403806	2.8575593	20	1	



ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
447201 2005 SV <sub>239</sub>	18.8	X	101.12478	148.49112	261.04236	4.59355	0.1623039	0.29246450	2.2477807	20	2 2.8	21.2
447202 2005 SM <sub>259</sub>	18.0	X	108.14845	307.13433	63.13020	8.59262	0.2183989	0.28925418	2.2643816	20	—	—
447203 2005 SF <sub>262</sub>	16.6	X	30.29577	248.37976	86.60670	3.17709	0.0848072	0.20240693	2.8728909	20	11 10.3	20.3
447204 2005 SZ <sub>262</sub>	16.7	X	217.65069	21.93836	74.63463	3.36561	0.2101042	0.18530593	3.0470284	20	8 3.7	21.7
447205 2005 TU <sub>7</sub>	17.0	X	331.72925	148.25375	191.86721	10.97398	0.1191912	0.18974149	2.9993548	20	8 11.9	20.7
447206 2005 TW <sub>25</sub>	16.9	X	260.63235	248.54308	209.82488	12.50122	0.1465740	0.19296158	2.9658931	20	9 26.2	21.1
447207 2005 TH <sub>48</sub>	15.7	X	320.67293	3.03885	329.29205	10.07956	0.1092808	0.18836295	3.0139710	20	7 19.2	19.5
447208 2005 TG <sub>54</sub>	16.7	X	335.12319	355.41144	46.46910	9.20115	0.2264160	0.19869654	2.9085454	20	11 18.4	19.2
447209 2005 TF <sub>56</sub>	17.9	X	140.03075	45.86627	7.82314	5.49961	0.1199418	0.30098840	2.2051402	20	3 25.3	20.6
447210 2005 TN <sub>58</sub>	16.3	X	303.12535	336.05598	30.33702	14.18298	0.1432035	0.18779837	3.0200085	20	8 5.9	20.3
447211 2005 TX <sub>59</sub>	17.6	X	115.88598	55.69469	17.83531	6.16443	0.1165868	0.29854370	2.2171621	20	3 23.1	20.1
447212 2005 TY <sub>62</sub>	17.8	X	66.30416	52.40735	59.77821	3.38078	0.1070757	0.29537916	2.2329696	20	3 2.6	19.8
447213 2005 TP <sub>90</sub>	16.4	X	332.90217	194.68406	217.34825	12.15903	0.1496630	0.20260674	2.8710018	20	11 27.5	19.5
447214 2005 TY <sub>96</sub>	16.7	X	250.31277	234.66787	220.47763	8.38653	0.0982271	0.19204694	2.9753024	20	9 15.2	21.0
447215 2005 TN <sub>127</sub>	17.7	X	327.74153	161.65349	254.87470	1.06694	0.0599086	0.20189990	2.8776986	20	11 22.1	21.3
447216 2005 TC <sub>128</sub>	17.3	X	20.83252	290.63112	15.29312	8.34288	0.2346693	0.19619767	2.9331897	20	10 9.3	20.4
447217 2005 TH <sub>169</sub>	17.5	X	323.09447	87.96230	308.72066	1.05769	0.0678927	0.19658757	2.9293100	20	10 18.9	21.0
447218 2005 TP <sub>171</sub>	16.0	X	325.04397	173.84945	228.96854	18.55005	0.1856521	0.19775811	2.9177395	20	10 27.1	19.1
447219 2005 TK <sub>175</sub>	18.5	X	166.95845	65.80863	291.74496	3.80036	0.2152856	0.29780375	2.2208332	20	2 16.2	21.9
447220 2005 TO <sub>187</sub>	16.9	X	215.85024	248.08206	227.34401	7.03936	0.0768303	0.18927522	3.0042787	20	9 2.3	21.4
447221 2005 UO <sub>5</sub>	20.7	X	159.35861	76.33990	50.76583	19.67801	0.1501943	0.78793297	1.1609402	20	10 19.3	19.9
447222 2005 UG <sub>15</sub>	18.3	X	195.50234	282.16665	48.76210	4.84439	0.1748902	0.29771946	2.2212524	20	2 9.4	21.8
447223 2005 UM <sub>16</sub>	18.5	X	136.17479	179.60249	200.57701	4.85519	0.2147790	0.29385293	2.2406947	20	2 15.2	21.6
447224 2005 UG <sub>27</sub>	16.1	X	292.38427	342.62824	44.78717	7.40045	0.1676452	0.18768573	3.0212168	20	8 10.7	20.0
447225 2005 UK <sub>35</sub>	16.8	X	317.46265	111.87865	224.38961	8.72289	0.0653352	0.18216941	3.0819038	20	7 18.9	21.0
447226 2005 UR <sub>78</sub>	17.4	X	78.22180	358.23247	21.06165	6.28069	0.1772880	0.28168600	2.3047609	20	—	—
447227 2005 UZ <sub>81</sub>	17.7	X	312.70449	185.09646	249.24072	1.06975	0.0479930	0.20156499	2.8808853	20	11 23.5	21.4
447228 2005 UJ <sub>83</sub>	16.9	X	1.54109	159.89266	193.97286	1.73819	0.1166381	0.19657513	2.9294337	20	10 25.6	20.4
447229 2005 UE <sub>95</sub>	18.3	X	86.51610	256.07530	173.78874	3.47219	0.1407223	0.29052983	2.2577485	20	2 6.4	20.5
447230 2005 UZ <sub>97</sub>	17.3	X	279.29089	237.19613	189.15771	5.80992	0.1285211	0.19078605	2.9883971	20	9 14.1	21.2
447231 2005 UQ <sub>102</sub>	17.1	X	298.13544	224.12345	217.57838	10.62541	0.0868702	0.19656396	2.9295446	20	11 8.7	20.6
447232 2005 UP <sub>118</sub>	17.1	X	311.68340	127.96095	222.97569	7.85679	0.0949278	0.18550494	3.0448488	20	7 26.7	21.1
447233 2005 UL <sub>127</sub>	16.9	X	138.50476	212.00774	31.04593	2.98455	0.0203000	0.19844453	2.9110073	20	11 17.6	20.9
447234 2005 UB <sub>129</sub>	18.1	X	49.03986	94.14752	41.02698	6.79029	0.0335849	0.29569982	2.2313550	20	3 2.3	20.6
447235 2005 UR <sub>165</sub>	16.5	X	255.71701	194.57539	219.35196	11.33918	0.0550441	0.18527668	3.0473491	20	8 4.5	21.0
447236 2005 US <sub>165</sub>	16.9	X	286.19513	33.09005	24.78486	2.52700	0.1172069	0.19172311	2.9786518	20	9 16.5	20.8
447237 2005 UA <sub>176</sub>	16.5	X	281.08501	189.65033	245.22390	8.50057	0.1004396	0.19155435	2.9804010	20	9 29.2	20.5
447238 2005 US <sub>191</sub>	16.8	X	230.74306	26.26043	42.15435	6.07244	0.1183019	0.18011752	3.1052655	20	7 21.3	21.5
447239 2005 UK <sub>202</sub>	18.2	X	113.45267	170.27087	208.54004	5.24083	0.1675069	0.28836906	2.2690128	20	1 11.1	20.9
447240 2005 UV <sub>202</sub>	16.6	X	330.96261	331.72551	54.53268	9.85924	0.1190723	0.19449673	2.9502660	20	10 19.9	20.0
447241 2005 UW <sub>202</sub>	16.9	X	290.19061	358.44244	56.72079	9.55058	0.0807190	0.19129147	2.9831309	20	9 27.8	20.9
447242 2005 UK <sub>204</sub>	16.8	X	285.17603	207.27579	223.27301	11.20987	0.2088050	0.19160547	2.9798709	20	9 12.9	20.7
447243 2005 UM <sub>208</sub>	17.7	X	295.22855	247.01615	176.30784	2.41152	0.1687558	0.19448023	2.9504329	20	9 30.7	21.0
447244 2005 UO <sub>211</sub>	16.9	X	147.73478	352.48740	214.20098	6.62050	0.0411939	0.19224710	2.9732369	20	10 13.6	21.2
447245 2005 UV <sub>212</sub>	18.7	X	154.86039	174.41248	161.87098	1.76454	0.1627545	0.28885488	2.2664679	20	1 5.7	21.7
447246 2005 UX <sub>213</sub>	16.2	X	263.79874	17.75984	58.01812	18.25155	0.262106	0.18967529	3.0000527	20	9 1.4	20.8
447247 2005 UB <sub>220</sub>	18.8	X	91.80718	145.27525	253.09190	4.54468	0.1356927	0.28761979	2.2729517	20	1 1.9	21.1
447248 2005 UM <sub>221</sub>	18.4	X	133.46091	70.06805	335.48362	2.80674	0.1352913	0.29623398	2.2286719	20	3 8.1	21.3
447249 2005 UF <sub>236</sub>	18.1	X	1.24695	75.16396	86.89609	5.09488	0.0328217	0.29126916	2.2539263	20	1 25.7	20.5
447250 2005 UN <sub>243</sub>	17.7	X	215.40097	324.07564	342.12463	3.27749	0.1830724	0.29390582	2.2404259	20	1 26.5	21.2
447251 2005 UD <sub>248</sub>	16.8	X	337.64790	314.54036	51.02514	12.01208	0.0877615	0.19205743	2.9751942	20	10 5.3	20.6
447252 2005 UA <sub>255</sub>	17.7	X	101.96330	10.99898	27.60567	8.34545	0.1410321	0.29230161	2.2486157	20	1 20.2	20.2
447253 2005 UT <sub>262</sub>	16.6	X	21.99876	331.61197	34.98951	9.78179	0.0340100	0.20375208	2.8602325	20	11 30.1	20.5
447254 2005 UP <sub>280</sub>	16.9	X	313.20408	345.57548	39.18311	2.55766	0.0716858	0.19129596	2.9830843	20	9 18.9	20.5
447255 2005 UB <sub>294</sub>	16.4	X	268.05574	347.08680	23.72299	4.66328	0.1812994	0.18025705	3.1036629	20	6 10.8	20.9
447256 2005 UG <sub>297</sub>	17.2	X	318.01564	187.73915	232.08867	5.83031	0.2111553	0.19640718	2.9311034	20	11 4.6	20.1
447257 2005 UE <sub>299</sub>	18.2	X	99.56042	338.49662	49.22277	7.68257	0.1304645	0.28627489	2.2800649	20	—	—
447258 2005 UC <sub>311</sub>	17.3	X	344.75235	163.52127	182.76891	5.25623	0.0559923	0.19257735	2.9698368	20	9 14.5	21.1
447259 2005 UM <sub>320</sub>	17.0	X	306.97133	124.60767	205.39766	7.26621	0.1898618	0.18164594	3.0878220	20	6 10.3	20.8
447260 2005 UU <sub>323</sub>	16.2	X	291.74140	322.04001	90.41692	18.59835	0.1936818	0.18505598	3.0497715	20	9 14.2	20.3
447261 2005 UY <sub>324</sub>	18.0	X	111.85183	42.39644	40.96405	5.54640	0.0921026	0.30065695	2.2067606	20	3 28.5	20.6
447262 2005 UC <sub>325</sub>	18.3	X	209.23766	184.93729	140.42952	2.00684	0.1504729	0.30089417	2.2056006	20	2 12.4	21.4
447263 2005 UR <sub>331</sub>	17.1	X	216.06058	85.39647	54.17720	6.95943	0.0990099	0.19162342	2.9796848	20	10 6.2	21.6
447264 2005 UL <sub>346</sub>	16.0	X	50.39148	29.72078	237.13540	9.24319	0.1049791	0.18680517	3.0307035	20	9 6.3	20.3
447265 2005 UF <sub>347</sub>	18.4	X	172.84390	261.89881	60.86203	3.24741	0.1967945	0.29088740	2.2558979	20	1 10.0	21.9
447266 2005 UE <sub>348</sub>	17.4	X	316.06774	137.52663	74.56692	7.47855	0.0675824	0.29333325	2.2433404	20	1 25.2	20.0
447267 2005 UE <sub>366</sub>	18.1	X	106.29250	237.59144	185.89758	5.73284	0.1696903	0.29305159	2.2447777	20	3 2.7	20.6
447268 2005 UJ <sub>378</sub>	18.0	X	87.84027	218.16424	207.50226	4.23549	0.1198190	0.28964484	2.2623451	20	1 29.6	20.4
447269 2005 UE <sub>396</sub>	16.6	X	292.77070	303.35344	64.10422	7.21323	0.2248049	0.18539101	3.0460961	20	7 3.0	20.5
447270 2005 UJ <sub>424</sub>	16.8	X	21.37952	73.01397	222.65031	9.65443	0.1033218	0.18979274	2.9988148	20	9 2.5	20.7
447271 2005 UX <sub>426</sub>	16.9	X	61.37832	235.37027	34.96496	1.79741	0.0171034	0.18897420	3.0074682	20	9 17.6	21.1
447272 2005 UC <sub>429</sub>	16.8	X	321.18180	175.75033	191.82435	2.98128	0.0877552	0.18990886	2.9975923	20	9 5.1	20.6
447273 2005 UY <sub>433</sub>	18.6	X	134.10751	239.79243	132.98588	0.3647						

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
447281 2005 VQ <sub>13</sub>	17.6	X	163.70605	194.27962	161.97462	4.76512	0.2759628	0.29632564	2.2282123	20	2 16.6	21.3
447282 2005 VJ <sub>20</sub>	17.7	X	286.47861	189.94939	211.64631	9.35603	0.0983957	0.18848792	3.0126386	20	8 24.4	20.8
447283 2005 VU <sub>49</sub>	17.2	X	114.42963	126.00370	247.10066	22.47707	0.2396493	0.28679842	2.2772893	20	1 11.1	20.3
447284 2005 VE <sub>67</sub>	18.6	X	62.38002	43.83252	7.38297	2.55328	0.1275840	0.28293240	2.2979872	20	—	—
447285 2005 VR <sub>67</sub>	15.7	X	356.08207	37.50786	237.10556	16.83032	0.2331555	0.18047785	3.1011310	20	6 25.6	18.9
447286 2005 WA <sub>2</sub>	16.5	X	293.24181	340.85024	67.53823	14.67013	0.1096727	0.18848576	3.0126616	20	9 23.2	20.6
447287 2005 WU <sub>9</sub>	17.0	X	337.88110	309.04468	60.01060	1.79948	0.1407206	0.18994770	2.9971837	20	10 5.5	20.4
447288 2005 WE <sub>18</sub>	16.7	X	276.94861	145.29739	247.88895	8.64354	0.1166728	0.18166329	3.0876253	20	7 28.2	21.1
447289 2005 WE <sub>32</sub>	15.9	X	202.79227	85.37028	70.25499	18.68478	0.0168684	0.18936080	3.0033734	20	10 24.5	20.4
447290 2005 WN <sub>35</sub>	17.9	X	151.86991	276.73289	67.63304	6.20669	0.2293229	0.28892662	2.2660927	20	1 21.2	21.3
447291 2005 WH <sub>37</sub>	18.7	X	103.69037	224.46292	208.10325	1.57012	0.1440945	0.29170640	2.2516735	20	3 8.4	21.3
447292 2005 WZ <sub>37</sub>	16.7	X	330.46179	311.58299	79.67045	10.24971	0.1094953	0.19113556	2.9847530	20	10 26.3	20.4
447293 2005 WB <sub>48</sub>	16.1	X	202.25496	231.74394	251.93826	13.05058	0.0759274	0.18354538	3.0664820	20	8 24.5	21.0
447294 2005 WE <sub>62</sub>	16.6	X	287.66038	280.06048	116.76940	10.61565	0.2501262	0.18632514	3.0359066	20	7 30.9	20.3
447295 2005 WQ <sub>66</sub>	16.1	X	256.03862	197.66550	239.19265	7.48410	0.0860539	0.18627594	3.0364412	20	8 30.4	20.5
447296 2005 WR <sub>77</sub>	18.2	X	82.80718	152.98440	283.53267	2.84860	0.1446681	0.28796153	2.2711530	20	2 10.9	20.5
447297 2005 WU <sub>78</sub>	15.8	X	2.80894	246.22100	68.65662	13.36975	0.0716117	0.18227440	3.0807203	20	9 7.1	20.0
447298 2005 WR <sub>82</sub>	18.0	X	83.10338	219.62659	227.64768	2.18002	0.1498250	0.29160388	2.2522012	20	2 27.3	20.2
447299 2005 WM <sub>83</sub>	16.8	X	145.89636	32.75835	286.45235	22.66192	0.1456480	0.27327090	2.3518365	20	—	—
447300 2005 WL <sub>88</sub>	16.0	X	284.76081	102.26382	281.98083	11.08676	0.1387425	0.17628594	3.1500995	20	7 24.7	20.2
447301 2005 WK <sub>103</sub>	16.3	X	352.26555	279.46671	92.44690	8.72938	0.2299555	0.19729766	2.9222774	20	11 16.8	19.3
447302 2005 WU <sub>114</sub>	17.4	X	352.47073	234.83683	272.63662	4.75662	0.0918681	0.27982201	2.3149848	20	—	—
447303 2005 WR <sub>138</sub>	18.1	X	182.94617	78.13723	254.35214	4.85665	0.1372981	0.29131006	2.2537153	20	1 26.1	21.4
447304 2005 WJ <sub>140</sub>	15.6	X	241.06177	333.05564	92.74419	18.16712	0.1020410	0.17639316	3.1488228	20	7 31.5	20.4
447305 2005 WA <sub>142</sub>	16.4	X	302.54331	349.88234	63.15657	4.07878	0.1029018	0.19032923	2.9931769	20	10 7.6	20.2
447306 2005 WR <sub>142</sub>	18.0	X	113.79696	341.90366	67.26533	5.34374	0.1409990	0.29181050	2.2511380	20	2 21.5	20.7
447307 2005 WR <sub>144</sub>	17.0	X	357.91289	294.56446	40.99488	3.86198	0.2631333	0.19106929	2.9854431	20	10 8.8	19.6
447308 2005 WX <sub>148</sub>	17.8	X	92.73790	334.84928	39.63696	5.18263	0.1828219	0.28205577	2.3027461	20	—	—
447309 2005 WS <sub>161</sub>	15.7	X	80.78406	128.72229	70.01873	10.72146	0.0414244	0.17545652	3.1600191	20	7 15.2	20.2
447310 2005 WE <sub>174</sub>	16.5	X	285.30398	300.90276	84.80450	8.37519	0.1060518	0.18189338	3.0850210	20	8 5.5	20.7
447311 2005 WG <sub>175</sub>	16.6	X	303.01569	282.54059	87.53301	8.07671	0.1945855	0.18124103	3.0924192	20	7 28.6	20.4
447312 2005 WF <sub>177</sub>	18.4	X	84.80883	46.74302	28.57031	2.39809	0.1446431	0.28622768	2.2803156	20	2 14.9	20.6
447313 2005 WE <sub>189</sub>	17.5	X	44.34488	8.33253	103.95458	6.35104	0.1017404	0.28651729	2.2787788	20	1 22.3	19.4
447314 2005 XF <sub>6</sub>	15.5	X	210.86406	200.13395	256.95577	22.07738	0.0854455	0.18069230	3.0986768	20	7 28.7	20.6
447315 2005 XG <sub>12</sub>	17.9	X	151.17164	101.34547	251.99746	7.93032	0.1764243	0.29005209	2.2602270	20	1 22.9	21.1
447316 2005 XL <sub>16</sub>	16.2	X	276.46436	299.03132	108.99761	5.78057	0.1788372	0.18147989	3.0897052	20	8 10.2	20.3
447317 2005 XX <sub>24</sub>	16.1	X	312.02789	60.85106	293.96738	14.86478	0.1143063	0.17522827	3.1627627	20	7 29.9	20.2
447318 2005 XL <sub>48</sub>	16.6	X	307.81130	329.37216	74.50145	16.88382	0.2532977	0.19048050	2.9915920	20	9 25.4	20.1
447319 2005 XG <sub>50</sub>	16.7	X	327.86035	325.19650	72.09308	12.40287	0.0727854	0.18975525	2.9992098	20	10 30.1	20.6
447320 2005 XD <sub>51</sub>	18.2	X	63.75996	83.75408	334.37103	4.64286	0.0990127	0.27923562	2.3182245	20	—	—
447321 2005 XP <sub>68</sub>	16.0	X	115.33139	265.00180	273.31342	8.72773	0.0719496	0.17583940	3.1554303	20	8 1.2	20.7
447322 2005 XD <sub>77</sub>	16.7	X	359.14365	71.21149	252.54640	8.29577	0.0933064	0.18790541	3.0188616	20	9 3.2	20.6
447323 2005 XT <sub>85</sub>	17.4	X	73.53562	117.91641	310.79711	5.99940	0.1027417	0.28292821	2.2980098	20	1 11.2	19.7
447324 2005 XD <sub>86</sub>	16.0	X	206.63383	9.23268	90.09112	17.39091	0.1617213	0.17828691	3.1264855	20	7 31.9	21.2
447325 2005 XA <sub>105</sub>	16.5	X	208.74058	22.82125	112.05418	6.09562	0.0839969	0.17834070	3.1258568	20	9 22.3	21.2
447326 2005 YC <sub>3</sub>	16.0	X	257.78642	26.51335	51.12952	14.91263	0.0676660	0.18250244	3.0781535	20	8 18.6	20.9
447327 2005 YX <sub>8</sub>	17.8	X	305.51588	258.12891	104.79552	24.82572	0.1964604	0.38407925	1.8743707	20	9 5.3	19.2
447328 2005 YP <sub>14</sub>	16.3	X	285.48438	111.50569	296.30140	15.06719	0.0616192	0.17936549	3.1139391	20	8 31.4	20.7
447329 2005 YU <sub>21</sub>	16.6	X	299.23100	304.64158	101.10688	6.29880	0.1116285	0.18395137	3.0619683	20	9 22.3	20.5
447330 2005 YE <sub>22</sub>	16.7	X	308.81093	66.96965	308.28081	2.06296	0.1074817	0.17968100	3.1102929	20	8 23.9	20.6
447331 2005 YF <sub>25</sub>	15.7	X	353.97533	19.64480	291.58136	10.86626	0.1090169	0.17353718	3.1832765	20	8 9.4	19.6
447332 2005 YM <sub>28</sub>	16.4	X	336.71607	270.28402	98.64677	5.81150	0.1625173	0.18407541	3.0605927	20	10 4.5	19.8
447333 2005 YE <sub>36</sub>	18.4	X	349.01815	29.02847	74.54585	2.32177	0.1428044	0.26982442	2.3718208	20	—	—
447334 2005 YA <sub>47</sub>	18.2	X	129.26155	77.02525	307.56849	5.45465	0.1778800	0.28726960	2.2747985	20	2 22.0	21.4
447335 2005 YR <sub>49</sub>	16.4	X	17.61176	244.85788	274.29833	20.50018	0.3434042	0.28590850	2.2820124	20	1 11.9	17.4
447336 2005 YF <sub>70</sub>	17.6	X	336.80969	166.04935	148.98414	2.55112	0.1232173	0.27565199	2.3382735	20	—	—
447337 2005 YZ <sub>83</sub>	18.3	X	81.76106	288.15271	321.92151	6.40000	0.1636957	0.28065327	2.3104113	20	1 6.4	20.3
447338 2005 YO <sub>88</sub>	16.7	X	209.03485	2.70332	116.87135	11.68328	0.0299687	0.17801896	3.1296219	20	9 9.9	21.3
447339 2005 YK <sub>95</sub>	15.7	X	354.41654	34.81792	282.87460	13.63726	0.2135734	0.17656344	3.1467980	20	8 19.6	19.1
447340 2005 YN <sub>114</sub>	17.4	X	161.08178	348.24683	310.83045	8.42570	0.2121690	0.27096789	2.3651435	20	—	—
447341 2005 YD <sub>134</sub>	17.7	X	344.75818	129.17827	11.34107	4.50117	0.1241320	0.27587420	2.3370176	20	—	—
447342 2005 YK <sub>148</sub>	17.3	X	67.49063	7.37616	83.22273	6.60972	0.0539859	0.28316340	2.2967372	20	1 28.4	19.8
447343 2005 YQ <sub>148</sub>	16.2	X	250.71771	92.15022	321.14739	8.03696	0.0604174	0.17403575	3.1771940	20	7 31.7	20.6
447344 2005 YA <sub>149</sub>	17.9	X	334.78946	155.93765	8.73304	3.49444	0.1413870	0.27647631	2.3336234	20	—	—
447345 2005 YO <sub>150</sub>	17.1	X	289.69156	346.94512	73.41091	4.54652	0.2232587	0.18577905	3.0418530	20	9 9.9	20.8
447346 2005 YG <sub>164</sub>	18.2	X	85.46802	352.88269	85.79597	3.64137	0.1695617	0.28812638	2.2702867	20	2 25.6	20.4
447347 2005 YY <sub>180</sub>	16.0	X	249.97089	300.91491	126.64436	19.33410	0.1614592	0.17797544	3.1301321	20	8 3.9	20.6
447348 2005 YU <sub>188</sub>	18.5	X	85.63870	126.23558	314.56399	2.17881	0.1997202	0.28549015	2.2842412	20	3 3.1	20.6
447349 2005 YU <sub>190</sub>	16.3	X	226.63176	114.44429	294.95632	3.99531	0.1735012	0.17082989	3.2168203	20	6 16.8	21.5
447350 2005 YS <sub>191</sub>	18.0	X	282.81891	194.15140	352.09060	2.13659	0.1500020	0.26863830	2.3787972	20	—	—
447351 2005 YL <sub>201</sub>	15.9	X	218.78891	148.97324	299.15073	10.91610	0.0996490	0.17653202	3.1471713	20	8 1.2	20.6
447352 2005 YM <sub>227</sub>	17.3	X	23.63959	15.23840	122.17975	7.21455	0.1064492	0.28257914	2.2999019	20	1 21.9	19.6
447353 2005 YM <sub>235</sub>	17.0	X	193.16594	113.90668	42.01075	1.98139	0.1178641	0.18117474	3.0931735	20	9 27.3	

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>		
447361	2005	YJ <sub>281</sub>	17.6	X	129.36263	96.04182	301.04115	9.11917	0.0856304	0.28529650	2.2852747	20	2 13.1	20.4
447362	2006	AK <sub>3</sub>	15.2	X	219.96531	24.47832	103.28032	30.54037	0.2093939	0.17523375	3.1626967	20	9 22.4	20.8
447363	2006	AN <sub>15</sub>	16.2	X	305.02736	259.96071	130.38603	5.96180	0.1368210	0.18004505	3.1060988	20	9 5.6	20.0
447364	2006	AG <sub>20</sub>	15.2	X	294.94977	280.70839	101.91257	23.00383	0.0910659	0.17689466	3.1428687	20	8 18.9	19.6
447365	2006	AV <sub>22</sub>	15.9	X	30.66123	10.57588	301.32931	15.44075	0.0933588	0.18104430	3.0946590	20	9 29.6	20.3
447366	2006	AJ <sub>23</sub>	16.9	X	220.01741	20.08432	96.28022	2.50515	0.1117760	0.17933338	3.1143108	20	9 7.6	21.7
447367	2006	AO <sub>34</sub>	15.0	X	277.20002	318.18876	98.31049	28.49208	0.1378188	0.17823325	3.1271130	20	9 5.1	19.7
447368	2006	AU <sub>38</sub>	17.4	X	155.97627	306.45729	299.98119	5.86323	0.0752052	0.25813611	2.4428879	20	12 23.7	20.9
447369	2006	AT <sub>40</sub>	16.6	X	182.10988	49.93082	106.10513	2.32018	0.1394348	0.17714643	3.1398901	20	9 15.9	21.7
447370	2006	AQ <sub>44</sub>	16.1	X	310.26779	258.81994	94.79655	6.25727	0.2053697	0.17368337	3.1814900	20	7 15.3	19.8
447371	2006	AM <sub>48</sub>	16.7	X	284.14314	138.95110	311.87163	18.93166	0.3417119	0.18743927	3.0238644	20	9 10.4	20.8
447372	2006	AS <sub>48</sub>	15.5	X	177.17877	10.39424	148.65510	27.67272	0.1110431	0.17354338	3.1832006	20	9 16.9	20.6
447373	2006	AW <sub>50</sub>	16.1	X	335.90040	64.26426	282.46616	9.50748	0.0887595	0.17933147	3.1143329	20	8 26.3	20.2
447374	2006	AP <sub>53</sub>	18.0	X	270.29814	57.88615	146.88557	2.66910	0.1537259	0.26981963	2.3718489	20	—	—
447375	2006	AY <sub>55</sub>	17.9	X	309.19718	236.28236	237.59595	4.44321	0.1557395	0.27157589	2.3616121	20	—	—
447376	2006	AM <sub>56</sub>	17.9	X	20.56882	179.83990	302.43946	3.17416	0.1660323	0.27995526	2.3142501	20	—	—
447377	2006	AB <sub>67</sub>	16.0	X	304.96838	273.20531	136.60606	11.43490	0.0885876	0.18374954	3.0642101	20	10 9.9	20.0
447378	2006	AR <sub>81</sub>	16.3	X	252.34646	30.67266	118.38133	15.43450	0.2170819	0.18681351	3.0306133	20	11 14.5	20.8
447379	2006	AQ <sub>85</sub>	15.4	X	216.15291	72.17778	62.39679	17.58260	0.2019194	0.17864198	3.1223412	20	9 26.1	20.7
447380	2006	AD <sub>89</sub>	16.1	X	212.76820	147.50407	311.20761	13.75140	0.1998216	0.17363875	3.1220350	20	8 1.3	21.2
447381	2006	AB <sub>95</sub>	18.8	X	45.29334	242.87627	234.13660	0.58128	0.1600763	0.28339216	2.2955011	20	2 3.1	20.3
447382	2006	BX <sub>9</sub>	17.5	X	32.18604	334.29594	133.02123	10.45337	0.0485530	0.27703699	2.3304737	20	—	—
447383	2006	BB <sub>17</sub>	15.8	X	174.21053	65.65496	114.63286	10.61546	0.0902138	0.17886096	3.1197923	20	10 13.1	20.7
447384	2006	BX <sub>20</sub>	16.1	X	315.80767	234.75039	136.11390	6.25453	0.1360962	0.17678335	3.1441877	20	8 27.3	19.9
447385	2006	BY <sub>31</sub>	15.7	X	218.68407	127.73388	329.95961	9.54210	0.0774586	0.17241632	3.1970577	20	8 16.3	20.5
447386	2006	BB <sub>40</sub>	16.2	X	280.08827	126.40720	324.04123	8.11122	0.2325049	0.18607878	3.0385856	20	9 27.3	20.2
447387	2006	BY <sub>43</sub>	16.9	X	28.57511	343.34396	144.67155	24.76322	0.2271013	0.27839605	3.1228830	20	1 12.9	18.8
447388	2006	BV <sub>52</sub>	18.0	X	55.83340	321.76506	123.88861	4.87027	0.1035255	0.27791683	2.3255525	20	1 5.3	20.1
447389	2006	BK <sub>53</sub>	17.7	X	252.02944	95.27572	138.97902	5.33020	0.1237877	0.26843187	2.3800166	20	—	—
447390	2006	BA <sub>62</sub>	16.3	X	207.21627	88.87050	53.82119	10.73928	0.2094823	0.17850743	3.1239100	20	9 22.8	21.5
447391	2006	BU <sub>67</sub>	16.2	X	348.13374	238.63242	124.22691	18.60631	0.1427655	0.18170576	3.0871443	20	10 21.7	20.2
447392	2006	BR <sub>71</sub>	16.8	X	294.49274	65.98336	353.88636	8.10938	0.2275088	0.18394315	3.0620596	20	9 13.9	20.4
447393	2006	BC <sub>72</sub>	16.3	X	255.03505	33.26412	98.91217	6.41436	0.2072952	0.18628965	3.0362922	20	10 26.6	20.6
447394	2006	BX <sub>75</sub>	18.6	X	73.38487	319.84853	110.30195	6.52622	0.1635718	0.27988119	2.3146584	20	1 21.3	20.7
447395	2006	BG <sub>112</sub>	16.9	X	252.11237	356.46662	85.14215	2.15373	0.1197590	0.17754239	3.1352199	20	8 30.4	21.3
447396	2006	BH <sub>112</sub>	16.7	X	270.49253	340.78987	129.00014	12.87577	0.1122626	0.18539384	3.0460652	20	11 3.9	21.0
447397	2006	BK <sub>114</sub>	18.1	X	64.99762	291.39412	101.42918	2.12016	0.1811910	0.27185158	2.3600152	20	—	—
447398	2006	BV <sub>120</sub>	18.1	X	242.71226	336.44596	228.87704	2.33453	0.1280157	0.26187574	2.4195757	20	—	—
447399	2006	BC <sub>121</sub>	18.1	X	13.11977	318.69498	170.09968	3.59485	0.2042582	0.27585589	2.3371211	20	—	—
447400	2006	BX <sub>122</sub>	16.9	X	199.79085	285.18228	226.65877	0.19086	0.1201705	0.17639986	3.1487431	20	9 27.5	21.9
447401	2006	BS <sub>128</sub>	18.1	X	30.12251	103.67109	332.79783	3.17824	0.1183017	0.27050877	2.3678189	20	—	—
447402	2006	BV <sub>133</sub>	17.2	X	107.71554	39.36185	342.41485	6.53636	0.0549925	0.27085235	2.3658161	20	—	—
447403	2006	BX <sub>136</sub>	17.3	X	321.58386	191.18220	331.53549	6.12454	0.1058259	0.27175573	2.3605701	20	—	—
447404	2006	BT <sub>144</sub>	18.0	X	11.85836	298.53254	197.04299	5.66732	0.2239014	0.27711915	2.3300131	20	—	—
447405	2006	BN <sub>151</sub>	17.9	X	300.30185	212.20187	324.07716	5.01213	0.1303162	0.26947733	2.3738570	20	—	—
447406	2006	BV <sub>161</sub>	17.6	X	320.33340	129.02078	43.75038	2.81949	0.1689002	0.27303379	2.3531979	20	—	—
447407	2006	BW <sub>163</sub>	16.8	X	240.66009	321.99528	132.63751	2.70659	0.1455210	0.17813745	3.1282340	20	8 29.6	21.3
447408	2006	BF <sub>168</sub>	17.4	X	231.66142	336.36692	126.91241	24.17214	0.0304001	0.38074326	1.8853033	20	10 31.3	20.0
447409	2006	BE <sub>173</sub>	16.4	X	271.51085	293.70647	135.79682	12.92246	0.1275312	0.18108934	3.0941460	20	9 9.6	20.6
447410	2006	BB <sub>177</sub>	16.2	X	335.26162	227.77237	120.23140	10.77690	0.0822923	0.17434175	3.1734753	20	9 2.8	20.3
447411	2006	BV <sub>185</sub>	15.8	X	304.48985	59.53200	314.53947	9.98023	0.0719433	0.17183471	3.2042677	20	8 18.1	20.1
447412	2006	BP <sub>192</sub>	16.1	X	262.67722	78.88729	319.11124	23.19256	0.3955825	0.17599502	3.1535699	20	6 15.9	21.7
447413	2006	BL <sub>203</sub>	17.8	X	54.71956	336.88446	128.32270	6.10739	0.1122606	0.28017002	3.1310673	20	2 1.6	19.7
447414	2006	BK <sub>207</sub>	16.6	X	139.14380	58.98650	141.42324	10.08604	0.0744748	0.17613556	2.3151822	20	9 28.9	21.4
447415	2006	BK <sub>208</sub>	18.1	X	209.86587	357.17846	147.84367	21.32373	0.0751560	0.38444951	1.8731670	20	11 19.6	20.5
447416	2006	BD <sub>237</sub>	17.7	X	219.71999	158.84378	82.57715	3.73097	0.1282806	0.26578633	2.3957838	20	—	—
447417	2006	BX <sub>238</sub>	17.3	X	269.13001	291.65459	149.63472	6.06847	0.1720307	0.18460640	3.0547209	20	9 13.7	21.4
447418	2006	BG <sub>256</sub>	18.0	X	238.11806	233.36640	344.81722	6.36374	0.1271133	0.26290218	2.4132738	20	—	—
447419	2006	BD <sub>257</sub>	17.8	X	31.85389	115.13325	346.85953	6.37243	0.1184701	0.27441057	2.3453203	20	—	—
447420	2006	BR <sub>278</sub>	16.0	X	253.31886	137.34282	313.69096	7.17855	0.1586424	0.17865517	3.1221876	20	9 4.3	20.6
447421	2006	BC <sub>280</sub>	16.5	X	243.27595	7.17529	133.89996	12.40381	0.0528196	0.18288299	3.0738819	20	11 14.6	21.0
447422	2006	CC <sub>24</sub>	18.2	X	112.44004	295.24187	117.89231	2.15005	0.2331500	0.28650668	2.2788350	20	3 8.8	21.1
447423	2006	CX <sub>39</sub>	16.8	X	280.81434	312.69960	145.39776	11.05363	0.1967160	0.18430102	3.0580944	20	10 21.1	20.8
447424	2006	CW <sub>48</sub>	17.8	X	267.81007	262.44182	309.92603	1.26126	0.1474671	0.26795375	2.3828470	20	—	—
447425	2006	CZ <sub>48</sub>	18.9	X	73.72143	169.86011	272.81025	1.68570	0.1918359	0.28152241	2.3056537	20	2 12.9	20.8
447426	2006	CD <sub>59</sub>	17.2	X	290.78577	175.36173	242.84612	0.60791	0.2454494	0.18360913	3.0657721	20	9 2.0	20.8
447427	2006	CB <sub>62</sub>	15.1	X	174.90742	105.51711	68.98651	27.35406	0.1902139	0.17416362	3.1756387	20	10 13.9	20.8
447428	2006	DH	16.5	X	165.18250	39.40505	139.24113	12.98324	0.1043722	0.17524944	3.1625079	20	9 30.2	21.6
447429	2006	DS <sub>16</sub>	17.9	X	4.31274	44.11756	43.00235	3.09436	0.1369936	0.26728742	2.3868055	20	—	—
447430	2006	DT <sub>31</sub>	17.7	X	340.04803	346.65688	167.09002	4.44229						

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
447441 2006 DB <sub>214</sub>	16.5	X	219.03864	204.18001	27.44032	23.89801	0.1780960	0.25915150	2.4365027	20	—	—
447442 2006 DZ <sub>216</sub>	17.5	X	29.47545	260.95996	155.78533	2.87928	0.1850630	0.26579760	2.3957160	20	—	—
447443 2006 ET <sub>6</sub>	17.8	X	159.88432	272.55618	167.53213	23.57119	0.0922891	0.36219292	1.9491387	20	5 25.8	20.8
447444 2006 EJ <sub>9</sub>	18.1	X	55.28185	302.37114	142.64941	1.95340	0.1475272	0.27397625	2.3477982	20	1 7.1	20.0
447445 2006 EL <sub>12</sub>	18.3	X	336.83148	149.27471	351.74401	2.44659	0.1379256	0.26791445	2.3830800	20	—	—
447446 2006 EC <sub>32</sub>	18.3	X	344.70017	300.95597	186.81415	5.04226	0.0756358	0.26725428	2.3870028	20	—	—
447447 2006 EF <sub>36</sub>	16.3	X	72.09783	128.92694	149.96509	11.78882	0.0315855	0.17332771	3.1858407	20	10 14.4	20.9
447448 2006 EE <sub>37</sub>	18.3	X	23.72093	68.03596	38.37350	2.74704	0.1619220	0.27178478	2.3604019	20	—	—
447449 2006 ED <sub>72</sub>	16.6	X	241.36737	310.57881	182.84714	17.46661	0.2937471	0.18144953	3.0900499	20	9 29.5	21.3
447450 2006 FZ <sub>44</sub>	17.7	X	291.52082	138.39901	29.15790	1.58053	0.1141518	0.26197246	2.4189801	20	—	—
447451 2006 GV <sub>1</sub>	16.0	X	240.76181	310.00038	180.94678	27.20684	0.1288701	0.17878925	3.1206264	20	10 17.0	20.7
447452 2006 GE <sub>32</sub>	17.7	X	358.66215	104.71296	56.63816	4.23800	0.1825179	0.27111895	2.3642649	20	1 5.3	19.8
447453 2006 HS <sub>12</sub>	17.5	X	312.78111	240.92818	15.94429	19.66707	0.0815330	0.35030283	1.9929984	20	3 19.7	19.5
447454 2006 HQ <sub>69</sub>	18.3	X	14.93473	67.92233	208.35664	20.85443	0.0603833	0.36100411	1.9534154	20	8 8.6	20.7
447455 2006 HJ <sub>101</sub>	17.3	X	287.05927	321.26461	197.99779	6.49349	0.0659607	0.25313961	2.4749284	20	—	—
447456 2006 HN <sub>153</sub>	16.9	X	309.90398	328.07470	213.12382	6.44955	0.0674701	0.26308910	2.4121306	20	—	—
447457 2006 JQ <sub>22</sub>	17.4	X	117.27441	144.53876	139.24373	13.47612	0.2620760	0.23845935	2.5754896	20	12 28.2	22.1
447458 2006 JB <sub>29</sub>	16.3	X	222.09084	96.23024	54.95542	14.08234	0.2595444	0.17481024	3.1678028	20	10 11.3	21.6
447459 2006 JK <sub>38</sub>	18.3	X	266.60409	133.69146	222.37930	18.54214	0.1260382	0.35561557	1.9730990	20	5 29.3	20.5
447460 2006 JH <sub>55</sub>	17.1	X	351.00044	282.97187	237.61241	10.48514	0.1864493	0.26827792	2.3809271	20	—	—
447461 2006 JS <sub>67</sub>	16.9	X	142.97499	114.57494	157.72726	5.27895	0.2540367	0.24205718	2.5499054	20	—	—
447462 2006 KO <sub>95</sub>	18.0	X	133.20213	31.00271	212.77709	11.17026	0.1417256	0.23721224	2.5845086	20	11 22.7	22.1
447463 2006 MU <sub>4</sub>	17.8	X	114.86262	80.46019	183.18585	12.44819	0.1530456	0.23576538	2.5950717	20	11 30.6	22.1
447464 2006 NU	17.5	X	116.88655	39.04762	222.98107	8.96345	0.2619402	0.23298574	2.6156713	20	12 2.2	22.1
447465 2006 PH <sub>15</sub>	16.6	X	71.74287	2.73409	324.53699	11.26057	0.1925362	0.22837216	2.6507816	20	—	—
447466 2006 QJ <sub>4</sub>	16.9	X	50.17239	239.60080	122.95319	2.82822	0.1296513	0.22657498	2.6647804	20	—	—
447467 2006 QF <sub>5</sub>	16.7	X	104.36603	176.31707	162.39409	16.19502	0.1597801	0.23566332	2.5958209	20	—	—
447468 2006 QK <sub>5</sub>	17.4	X	68.30849	136.63107	167.29631	8.92387	0.2388951	0.22445998	2.6814936	20	12 10.7	21.8
447469 2006 QC <sub>25</sub>	17.2	X	112.65385	147.04268	166.36810	12.74560	0.2492050	0.23462197	2.6034961	20	—	—
447470 2006 QE <sub>38</sub>	17.0	X	47.59608	322.50050	20.88993	7.87158	0.2647939	0.22521506	2.6754967	20	—	—
447471 2006 QF <sub>38</sub>	16.4	X	63.41696	235.80944	92.98770	7.80927	0.2618350	0.22674554	2.6634439	20	—	—
447472 2006 QG <sub>68</sub>	17.5	X	30.64209	224.92394	142.78062	3.64865	0.0042512	0.22669069	2.6638735	20	12 15.9	21.2
447473 2006 QN <sub>102</sub>	17.1	X	33.60748	343.58376	310.46476	4.13535	0.1374362	0.21484831	2.7608836	20	9 30.0	20.5
447474 2006 QB <sub>114</sub>	16.8	X	84.40203	321.03585	323.49825	12.04842	0.3102172	0.22469738	2.6796046	20	12 4.6	21.7
447475 2006 QL <sub>114</sub>	16.4	X	134.06330	85.80860	174.49442	13.09654	0.2491998	0.23266362	2.6180849	20	12 12.7	21.3
447476 2006 QH <sub>119</sub>	16.8	X	105.63616	340.30316	322.52299	12.25197	0.1744465	0.23169477	2.6253784	20	—	—
447477 2006 QG <sub>123</sub>	16.4	X	20.82244	192.72693	209.35441	13.72582	0.2443241	0.22284401	2.6944417	20	—	—
447478 2006 QL <sub>166</sub>	17.6	X	50.28928	133.12859	204.92076	13.22737	0.2804877	0.22307504	2.6925807	20	—	—
447479 2006 QD <sub>167</sub>	16.9	X	33.73330	151.69854	226.74654	5.68349	0.1813960	0.22761871	2.6566280	20	—	—
447480 2006 QA <sub>184</sub>	17.2	X	343.99322	9.20170	15.98510	6.39357	0.0460071	0.21756850	2.7378230	20	11 6.9	20.8
447481 2006 QC <sub>184</sub>	17.0	X	5.96053	308.19607	7.01752	13.28975	0.2007179	0.21119386	2.7926415	20	9 24.1	19.8
447482 2006 RL <sub>20</sub>	17.2	X	30.62074	111.69810	225.27512	7.48909	0.2840426	0.21987940	2.7186065	20	12 15.8	21.0
447483 2006 RV <sub>31</sub>	17.6	X	58.10187	127.23163	185.42161	4.20864	0.1430035	0.21938621	2.7226794	20	11 28.9	21.4
447484 2006 RV <sub>32</sub>	17.7	X	70.87017	83.15425	207.35248	11.94497	0.2124242	0.21810607	2.7333225	20	11 23.4	22.0
447485 2006 RV <sub>32</sub>	17.0	X	19.62515	349.79440	358.28689	10.60480	0.3080919	0.21721480	2.7407943	20	12 18.6	20.6
447486 2006 RM <sub>45</sub>	17.3	X	67.19645	153.79601	172.60225	6.61766	0.0645556	0.22125942	2.7072906	20	12 14.3	21.2
447487 2006 RY <sub>48</sub>	17.0	X	333.51700	199.87995	212.31662	1.87757	0.0720673	0.21743042	2.7389820	20	11 29.7	20.2
447488 2006 RR <sub>49</sub>	17.8	X	352.90366	228.62156	186.04466	1.19419	0.3002282	0.21954284	2.7213842	20	—	—
447489 2006 RY <sub>50</sub>	16.8	X	72.76455	323.23042	14.08947	5.19697	0.1747542	0.22518170	2.6757610	20	—	—
447490 2006 RN <sub>51</sub>	17.0	X	36.69922	172.61526	191.72679	5.83854	0.1287042	0.22160334	2.7044888	20	—	—
447491 2006 RX <sub>51</sub>	17.4	X	356.35497	232.43765	188.67048	2.06285	0.0953823	0.22280482	2.6947573	20	—	—
447492 2006 RC <sub>61</sub>	16.3	X	27.00096	54.70659	316.38123	8.12397	0.1603372	0.22254017	2.6968933	20	—	—
447493 2006 RG <sub>71</sub>	16.4	X	126.19100	229.53655	359.93067	11.37280	0.0595472	0.21547258	2.7555484	20	10 19.2	20.5
447494 2006 RK <sub>71</sub>	17.5	X	61.45658	129.86486	188.39223	4.29549	0.1364327	0.22133306	2.7066900	20	12 8.9	21.4
447495 2006 RO <sub>74</sub>	17.3	X	315.11099	285.67290	171.37370	4.43265	0.1177277	0.22272245	2.6954217	20	—	—
447496 2006 RO <sub>80</sub>	17.5	X	359.95601	194.34927	178.34314	6.26748	0.0475040	0.21784975	2.7354661	20	11 16.3	21.1
447497 2006 RS <sub>80</sub>	17.1	X	61.58525	169.43695	174.68416	4.23309	0.1442691	0.22550203	2.6732265	20	—	—
447498 2006 RZ <sub>82</sub>	17.4	X	27.02486	176.36990	194.06400	2.34276	0.0438958	0.22199014	2.7013463	20	12 18.9	20.9
447499 2006 RQ <sub>89</sub>	16.8	X	327.51720	84.54008	8.62175	22.11087	0.0346000	0.22465541	2.6799383	20	—	—
447500 2006 RF <sub>97</sub>	17.0	X	289.53277	77.38474	7.29615	7.92244	0.1732383	0.21247147	2.7814353	20	10 21.5	20.1
447501 2006 RL <sub>101</sub>	17.1	X	28.28668	357.23953	11.56802	14.31010	0.2532888	0.22337656	2.6901572	20	—	—
447502 2006 RV <sub>121</sub>	17.1	X	293.83186	58.97280	13.57847	4.88277	0.0991085	0.21274197	2.7790771	20	10 22.5	20.4
447503 2006 SB <sub>14</sub>	17.3	X	354.83956	43.65484	2.13970	8.44772	0.1027094	0.22172924	2.7034649	20	12 28.1	20.7
447504 2006 SH <sub>15</sub>	17.1	X	0.79041	56.08421	356.81297	13.95678	0.2215884	0.22234073	2.6985058	20	—	—
447505 2006 SH <sub>16</sub>	16.6	X	59.34557	128.65038	218.28489	5.77031	0.0558078	0.22425387	2.6831364	20	12 31.3	20.3
447506 2006 SJ <sub>41</sub>	16.9	X	20.93771	268.36994	127.96889	7.44851	0.2280113	0.22406311	2.6846591	20	—	—
447507 2006 SK <sub>49</sub>	16.1	X	317.44588	260.67051	189.61194	25.00601	0.1383935	0.22085136	2.7106243	20	12 25.3	19.7
447508 2006 SQ <sub>53</sub>	16.6	X	88.11627	132.66358	206.32342	18.25262	0.1492283	0.23128736	2.6284605	20	—	—
447509 2006 SK <sub>54</sub>	16.2	X	34.25174	137.41509	244.00548	12.48121	0.2718108	0.22453680	2.6808820	20	—	—
447510 2006 SK <sub>62</sub>	17.4	X	357.60308	251.01787	167.67218	7.75533	0.2917682	0.22229837	2.6988486	20	—	—
447511 2006 SV <sub>62</sub>	16.1	X	39.06248	322.21059	37.17717	14.30722	0.2662729	0.22247014	2.6974593	20	—	—
447512 2006 SR <sub>74</sub>	17.3	X	15.89265	210.49388	174.75264	5.19692	0.1674119	0.22027385	2.7153600	20	—	—
447513 2006 SW <sub>78</sub>	16.2	X	84.82067	138.43089	198.02785	31.76013	0.2143356	0.22892942	2.6464782	20	—	—
447514 2006 SC <sub>79</sub>	16.1	X	354.08704	189.59990	229.04038	21.19918	0.0484101	0.22510550	2.6763648	20	—	—
447515 2006 SK <sub>79</sub>	17.3	X										

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
447521 2006 SB <sub>124</sub>	16.9	X	327.50243	327.77430	92.71627	8.93283	0.2685440	0.21643091	2.7474082	20	12 9.1	18.8
447522 2006 SH <sub>125</sub>	16.8	X	38.47810	129.25369	211.50752	5.69394	0.0380836	0.22051861	2.7133504	20	11 25.5	20.5
447523 2006 SS <sub>126</sub>	16.6	X	33.39569	308.76619	71.98033	10.14862	0.2340482	0.22378789	2.6868598	20	—	—
447524 2006 SL <sub>127</sub>	17.3	X	23.27502	319.72448	93.68439	9.48848	0.2925216	0.22592308	2.6699040	20	—	—
447525 2006 SY <sub>128</sub>	16.7	X	63.82193	88.08791	258.07101	10.45083	0.1969458	0.22543020	2.6737943	20	—	—
447526 2006 SF <sub>139</sub>	16.5	X	270.84487	26.24275	46.49087	8.68675	0.3056683	0.20478622	2.8505952	20	8 21.3	20.5
447527 2006 SC <sub>141</sub>	17.0	X	35.73956	186.96335	170.03912	10.09658	0.1843741	0.22073211	2.7116005	20	—	—
447528 2006 SS <sub>159</sub>	17.2	X	359.50936	214.10075	182.47102	4.60437	0.1664354	0.21853140	2.7297748	20	12 29.6	20.3
447529 2006 SE <sub>165</sub>	17.5	X	8.27489	128.20759	257.49578	4.16129	0.0675174	0.22195067	2.7016665	20	12 16.5	21.0
447530 2006 SC <sub>170</sub>	17.2	X	253.69676	329.05257	202.46980	8.79025	0.0470875	0.22785173	2.6548164	20	—	—
447531 2006 SP <sub>174</sub>	17.1	X	38.84918	68.04837	320.81628	1.84076	0.1108996	0.23018535	2.6368430	20	—	—
447532 2006 SG <sub>200</sub>	16.9	X	78.02325	340.36008	347.77334	2.45176	0.1673192	0.22418261	2.6837049	20	—	—
447533 2006 SW <sub>216</sub>	17.0	X	333.33525	23.07915	48.74292	14.74121	0.1674543	0.21437325	2.7649609	20	12 29.8	20.1
447534 2006 SP <sub>227</sub>	16.9	X	33.28875	168.32329	207.05331	10.93468	0.0395437	0.22444453	2.6816167	20	12 31.8	20.7
447535 2006 SM <sub>230</sub>	17.0	X	354.08549	190.00374	215.79733	5.86893	0.0306041	0.22224534	2.6992779	20	12 18.7	20.5
447536 2006 SZ <sub>232</sub>	16.6	X	224.18032	105.64904	349.24447	10.04363	0.0817363	0.20432592	2.8548748	20	8 23.0	20.7
447537 2006 SC <sub>240</sub>	17.1	X	2.31063	214.94718	175.42678	6.16881	0.0766136	0.22037150	2.7145578	20	12 15.2	20.6
447538 2006 SE <sub>245</sub>	16.7	X	301.09132	253.40333	179.87990	13.76295	0.1548187	0.21433463	2.7652930	20	11 2.9	19.8
447539 2006 SD <sub>252</sub>	17.3	X	104.48727	268.40004	2.63923	1.30503	0.0992533	0.21913623	2.7247496	20	11 22.0	21.4
447540 2006 SJ <sub>253</sub>	17.3	X	332.21130	29.31405	28.42462	2.18132	0.0657684	0.21961508	2.7207874	20	12 4.9	20.7
447541 2006 SG <sub>260</sub>	17.1	X	91.95086	297.11274	4.95991	4.86489	0.1518517	0.22298184	2.6933309	20	12 21.6	21.3
447542 2006 SQ <sub>262</sub>	17.0	X	352.15519	204.22356	195.37671	5.44158	0.0411094	0.21651572	2.7466907	20	12 8.2	20.5
447543 2006 SS <sub>262</sub>	17.2	X	353.50430	161.61281	198.16506	4.76615	0.1482819	0.21053185	2.7984927	20	10 26.8	20.3
447544 2006 SS <sub>286</sub>	16.7	X	11.72000	309.16542	55.17327	9.18632	0.2182337	0.21658994	2.7460632	20	12 13.3	19.9
447545 2006 SK <sub>287</sub>	16.8	X	15.91442	147.53460	251.17254	9.79589	0.2358584	0.22312758	2.6921580	20	—	—
447546 2006 SH <sub>289</sub>	16.7	X	359.59438	3.41312	46.10556	14.51120	0.0973214	0.22261025	2.6963273	20	—	—
447547 2006 SE <sub>292</sub>	17.3	X	10.93078	197.85777	192.88888	8.16398	0.1654957	0.22001588	2.7174821	20	—	—
447548 2006 SO <sub>292</sub>	17.1	X	72.37059	112.95483	254.50207	3.42005	0.1120084	0.23107992	2.6300333	20	—	—
447549 2006 SY <sub>299</sub>	17.5	X	343.49336	358.98762	56.47037	1.27813	0.0457297	0.22103536	2.7091198	20	12 17.6	20.7
447550 2006 SL <sub>307</sub>	17.1	X	72.49804	13.89755	275.80435	2.96587	0.0814257	0.21576839	2.7530293	20	11 7.0	20.9
447551 2006 SC <sub>317</sub>	17.0	X	335.54936	276.26054	184.32152	13.37014	0.0354443	0.22705112	2.6610536	20	—	—
447552 2006 SQ <sub>328</sub>	16.9	X	332.43840	83.01152	24.30863	28.15296	0.2177839	0.22350281	2.6891440	20	—	—
447553 2006 SP <sub>329</sub>	17.4	X	24.12402	310.95032	50.59475	3.34839	0.0337463	0.21779684	2.7359091	20	12 1.2	21.0
447554 2006 SL <sub>331</sub>	17.5	X	318.06058	56.75330	5.54496	6.94113	0.1548898	0.21588424	2.7520443	20	11 15.1	20.5
447555 2006 SP <sub>362</sub>	16.6	X	83.76917	231.71638	44.05146	15.06613	0.1355889	0.21167236	2.7884313	20	11 8.3	20.6
447556 2006 ST <sub>378</sub>	17.2	X	158.34532	149.24161	80.46204	14.36262	0.1223181	0.21750337	2.7383696	20	11 26.9	21.6
447557 2006 SX <sub>384</sub>	17.2	X	144.67013	115.40641	125.47838	9.69520	0.1626497	0.21837185	2.7311042	20	11 27.9	21.8
447558 2006 SO <sub>394</sub>	17.0	X	27.36276	315.53700	13.34868	8.45395	0.2009324	0.21607594	2.7504163	20	11 15.8	20.6
447559 2006 SS <sub>396</sub>	16.9	X	241.62081	247.87713	267.58029	3.23704	0.0018268	0.22216742	2.6999090	20	12 12.1	20.5
447560 2006 SJ <sub>399</sub>	17.6	X	357.89184	164.53755	191.39033	5.01990	0.0649218	0.21220925	2.7837261	20	10 21.9	21.0
447561 2006 SK <sub>413</sub>	16.9	X	55.44206	236.39969	111.85026	13.70702	0.2930365	0.22330490	2.6907326	20	—	—
447562 2006 TM	18.1	X	198.33832	31.65506	224.21787	24.76030	0.1266835	0.45194844	1.6816804	20	—	—
447563 2006 TG <sub>3</sub>	17.1	X	337.41099	348.62822	68.74959	5.42888	0.1168302	0.21903685	2.7255736	20	12 15.4	20.2
447564 2006 TS <sub>16</sub>	16.8	X	58.49938	321.46830	32.10180	2.75067	0.0845912	0.22285464	2.6943557	20	—	—
447565 2006 TJ <sub>19</sub>	17.0	X	3.98250	139.57827	224.45025	4.45945	0.0998096	0.21284123	2.7782130	20	11 13.9	20.4
447566 2006 TJ <sub>25</sub>	16.7	X	112.95610	257.27469	30.46988	14.06746	0.1385019	0.22170634	2.7036511	20	12 22.2	21.2
447567 2006 TU <sub>29</sub>	17.0	X	5.76663	177.22744	198.11043	5.33265	0.0968481	0.21525131	2.7574365	20	12 2.1	20.4
447568 2006 TO <sub>33</sub>	17.0	X	123.88540	248.14524	30.70288	8.90015	0.2105680	0.22377951	2.6869268	20	12 23.2	21.7
447569 2006 TJ <sub>59</sub>	16.8	X	0.53712	112.32542	265.04461	4.52967	0.0605328	0.21346050	2.7728372	20	11 21.4	20.3
447570 2006 TM <sub>65</sub>	16.8	X	7.49223	27.91434	306.89225	8.20117	0.1640682	0.21270966	2.7793585	20	10 14.3	20.1
447571 2006 TP <sub>65</sub>	16.9	X	345.60058	53.48513	294.43834	8.14205	0.2261559	0.21047501	2.7989965	20	9 23.2	19.6
447572 2006 TN <sub>66</sub>	16.8	X	4.23796	51.49379	8.22552	7.26995	0.1691563	0.22397508	2.6853625	20	—	—
447573 2006 TO <sub>68</sub>	16.8	X	28.98925	305.18848	40.67894	9.33554	0.2020994	0.21669851	2.7451459	20	11 27.9	20.3
447574 2006 TF <sub>69</sub>	16.3	X	317.79357	66.26331	44.93233	22.62122	0.0646638	0.22654737	2.6649968	20	—	—
447575 2006 TH <sub>84</sub>	16.8	X	12.34157	156.11132	239.65335	6.90851	0.1349464	0.22014911	2.7163857	20	—	—
447576 2006 TQ <sub>88</sub>	17.3	X	355.33394	95.99608	271.16271	2.77828	0.1113622	0.21113317	2.7931767	20	11 4.2	20.6
447577 2006 TD <sub>93</sub>	16.7	X	27.74039	331.04462	15.27626	10.30629	0.2214698	0.21665055	2.7455510	20	12 12.8	20.4
447578 2006 TS <sub>100</sub>	16.8	X	325.74893	207.80721	227.81456	10.05691	0.1043565	0.21713963	2.7414268	20	12 18.9	20.0
447579 2006 TE <sub>102</sub>	17.4	X	274.20151	85.18926	33.09639	7.80657	0.1729233	0.21273916	2.7791016	20	11 11.4	20.7
447580 2006 TN <sub>106</sub>	16.7	X	353.96204	354.51248	56.70414	5.92956	0.1112706	0.22004962	2.7172044	20	—	—
447581 2006 TO <sub>118</sub>	17.1	X	4.42113	278.44489	113.87429	5.89693	0.1205459	0.21939572	2.7226007	20	12 25.9	20.5
447582 2006 TY <sub>118</sub>	16.9	X	84.11628	254.96920	77.70476	13.36737	0.0071475	0.22250255	2.6971974	20	—	—
447583 2006 TQ <sub>121</sub>	16.6	X	268.34863	212.52243	229.65555	12.10929	0.1114585	0.20623847	2.8371977	20	9 20.9	20.5
447584 2006 TO <sub>123</sub>	16.7	X	359.61591	261.53534	47.92473	9.76603	0.1290444	0.20422750	2.8557919	20	8 30.4	20.1
447585 2006 UH <sub>21</sub>	17.0	X	75.45108	65.49391	227.48653	5.88722	0.0272211	0.21399775	2.7681944	20	11 7.9	20.6
447586 2006 UU <sub>25</sub>	17.4	X	70.04710	111.89955	215.66575	11.32519	0.1749349	0.22178934	2.7029765	20	12 31.4	21.7
447587 2006 UQ <sub>26</sub>	17.3	X	286.03672	262.09257	215.08067	6.62833	0.1584959	0.21590416	2.7518750	20	12 4.0	20.4
447588 2006 UA <sub>43</sub>	17.5	X	9.10412	169.17921	207.63194	4.31441	0.0852069	0.21465639	2.7625289	20	12 6.9	21.1
447589 2006 UN <sub>43</sub>	16.9	X	330.99152	348.41763	45.94357	5.70438	0.1279121	0.21041247	2.7995511	20	11 1.4	19.9
447590 2006 UW <sub>43</sub>	16.8	X	100.96306	221.25771	47.62444	4.51605	0.0615771	0.21166894	2.7884613	20	11 11.5	20.8
447591 2006 UF <sub>44</sub>	17.5	X	62.32832	93.93745	218.14180	7.19972	0.2385310	0.21725370	2.7404671	20	12 12.7	21.8
447592 2006 UC <sub>51</sub>	17.1	X	358.13488	356.56209	32.27385	12.99146	0.1536052	0.21704759	2.7422018	20	12 13.4	20.4
447593 2006 UG <sub>56</sub>	16.7	X	12.34683	101.36562	291.82858	7.65508	0.0799650	0.22463511	2.6800997	20	—	—
447594 2006 UM <sub>62</sub>	17.2	X	96.27693	248.63248	53.61							

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
447601	2006 UN <sub>109</sub>	16.3	X	334.16444	230.47615	204.83536	21.50101	0.0507379	0.22499422	2.6772472	20 12 28.7	20.2
447602	2006 UM <sub>111</sub>	17.5	X	334.69696	81.33892	323.49746	8.21671	0.1567664	0.21737971	2.7394080	20 11 23.4	20.5
447603	2006 UF <sub>115</sub>	16.9	X	290.43521	309.31870	203.77177	12.12531	0.1200053	0.22635818	2.6664816	20 —	—
447604	2006 UO <sub>116</sub>	17.0	X	347.81853	215.83298	210.63862	7.35187	0.2025286	0.22009128	2.7168614	20 —	—
447605	2006 UO <sub>123</sub>	17.4	X	90.69464	256.41149	46.10402	2.79675	0.0630426	0.21980213	2.7192436	20 12 12.9	21.3
447606	2006 US <sub>123</sub>	17.2	X	106.17385	243.20764	49.44071	3.03083	0.0349032	0.22027531	2.7153481	20 12 16.3	21.1
447607	2006 UV <sub>125</sub>	17.3	X	303.92621	176.79267	266.05158	3.39366	0.0881416	0.21454199	2.7635109	20 11 22.8	20.6
447608	2006 UX <sub>127</sub>	17.7	X	354.30324	180.79282	240.85671	4.20461	0.0450465	0.22081178	2.7109482	20 —	—
447609	2006 UR <sub>132</sub>	16.9	X	75.02555	127.13408	214.46932	6.28952	0.0421591	0.22201302	2.7011607	20 —	—
447610	2006 UW <sub>132</sub>	16.8	X	101.08208	226.38629	63.54342	2.50554	0.0173418	0.21642592	2.7474504	20 12 4.8	20.6
447611	2006 UD <sub>139</sub>	16.8	X	269.64452	114.65908	27.13955	12.95731	0.0555688	0.21694257	2.7430867	20 12 22.4	20.6
447612	2006 UH <sub>140</sub>	17.5	X	271.59584	108.35911	12.75742	7.58539	0.1788252	0.21075112	2.7965513	20 11 8.7	20.9
447613	2006 UQ <sub>141</sub>	17.0	X	65.49158	102.12423	232.86625	23.96927	0.1720209	0.21999166	2.7176816	20 12 31.8	21.5
447614	2006 UN <sub>142</sub>	16.8	X	9.59110	359.99308	343.51077	4.54608	0.1628267	0.21027571	2.8007648	20 10 31.9	20.0
447615	2006 UV <sub>148</sub>	17.2	X	133.32053	189.79571	56.66302	1.14896	0.0223215	0.21416318	2.7667687	20 11 19.3	20.9
447616	2006 UO <sub>149</sub>	16.8	X	42.72272	163.93919	203.79978	12.29520	0.1792071	0.22326712	2.6910362	20 —	—
447617	2006 UP <sub>161</sub>	17.1	X	299.88976	263.19276	161.52287	4.76332	0.0553506	0.21244383	2.7816766	20 10 27.7	20.7
447618	2006 UF <sub>162</sub>	17.3	X	143.60195	151.58727	108.78479	3.22983	0.0380650	0.22128117	2.7071132	20 12 20.1	21.0
447619	2006 UY <sub>176</sub>	16.8	X	22.43800	276.60332	131.73240	5.61449	0.1625892	0.22503563	2.6769187	20 —	—
447620	2006 UR <sub>188</sub>	16.6	X	64.60719	74.65334	242.44611	11.78747	0.2809659	0.22252647	2.6970040	20 12 24.7	21.1
447621	2006 UE <sub>200</sub>	16.1	X	55.19047	289.03271	69.15751	14.25128	0.1801743	0.22513175	2.6761568	20 —	—
447622	2006 UX <sub>213</sub>	16.8	X	316.53270	339.91631	41.35640	15.90002	0.1377758	0.20401558	2.8577692	20 9 24.2	20.3
447623	2006 UV <sub>216</sub>	16.9	X	345.04595	20.95824	26.94627	4.55871	0.1048476	0.21689543	2.7434841	20 12 13.3	20.2
447624	2006 UM <sub>218</sub>	16.9	X	324.87970	211.09951	240.93942	7.76347	0.1408897	0.21884676	2.7271518	20 —	—
447625	2006 UP <sub>224</sub>	17.1	X	65.12341	91.31065	241.43325	13.14260	0.2322690	0.22231193	2.6987389	20 —	—
447626	2006 UO <sub>234</sub>	17.3	X	20.86625	277.98482	76.68405	10.89672	0.2624107	0.21721378	2.7408028	20 12 21.6	20.7
447627	2006 UZ <sub>242</sub>	16.7	X	197.41114	340.39066	201.03170	14.06113	0.0696344	0.21666019	2.7454696	20 11 11.8	20.7
447628	2006 UX <sub>250</sub>	17.0	X	97.68421	243.66119	35.24338	13.84512	0.1737523	0.21736795	2.7395068	20 11 27.5	21.5
447629	2006 US <sub>260</sub>	17.2	X	356.93619	204.67066	209.21859	5.88440	0.0527308	0.22001121	2.7175206	20 —	—
447630	2006 UJ <sub>263</sub>	16.8	X	59.05404	261.45906	60.80492	7.66258	0.0443628	0.21356952	2.7718935	20 11 26.6	20.7
447631	2006 UM <sub>265</sub>	16.1	X	106.44414	243.74751	38.42516	13.40256	0.1003991	0.21896618	2.7261601	20 12 5.7	20.4
447632	2006 UW <sub>279</sub>	17.6	X	323.10887	224.60837	191.67914	2.55317	0.0596722	0.21232166	2.7827435	20 11 18.3	20.9
447633	2006 UY <sub>346</sub>	18.2	X	336.88589	213.27015	196.88492	1.52594	0.2250456	0.21283801	2.7782410	20 12 11.3	20.6
447634	2006 UJ <sub>359</sub>	17.5	X	269.75750	147.11931	323.05186	2.56751	0.0472136	0.21267592	2.7796525	20 11 11.9	21.2
447635	2006 VL <sub>3</sub>	16.6	X	15.45750	179.29434	217.80457	13.50482	0.0071887	0.22098805	2.7095065	20 12 30.5	20.5
447636	2006 VJ <sub>9</sub>	17.4	X	21.58769	301.99879	7.176243	3.85533	0.1935378	0.21846835	2.7303000	20 —	—
447637	2006 VN <sub>14</sub>	17.0	X	317.60004	51.42818	34.21229	9.55420	0.1401572	0.21519800	2.7578919	20 12 17.9	20.0
447638	2006 VR <sub>15</sub>	17.9	X	316.85688	88.89400	343.56148	2.28978	0.1756854	0.21260703	2.8025529	20 11 27.1	20.5
447639	2006 VV <sub>17</sub>	17.5	X	295.50136	130.77697	356.82472	2.49550	0.0568851	0.21955263	2.7213033	20 —	—
447640	2006 VO <sub>28</sub>	18.5	X	131.67382	353.63719	39.90981	6.41380	0.1723867	0.31409126	2.1433782	20 2 25.3	21.2
447641	2006 VQ <sub>49</sub>	17.1	X	328.41598	9.48879	55.32045	10.68042	0.2803843	0.21237025	2.7823191	20 12 15.3	19.2
447642	2006 VK <sub>54</sub>	17.0	X	334.45775	344.87991	61.70188	7.70096	0.0297218	0.21128906	2.7918026	20 11 20.7	20.6
447643	2006 VY <sub>58</sub>	16.9	X	300.89215	23.12805	70.61185	10.25515	0.1026937	0.21256306	2.7806363	20 12 1.4	20.1
447644	2006 VK <sub>61</sub>	17.3	X	351.75061	105.63767	257.28060	0.95739	0.1040709	0.20689868	2.8311589	20 10 22.5	20.6
447645	2006 VY <sub>62</sub>	17.1	X	35.96401	320.72919	62.86961	10.46161	0.1549231	0.21979139	2.7193322	20 —	—
447646	2006 VN <sub>63</sub>	16.2	X	75.17165	234.99389	65.13669	12.31718	0.0704898	0.20977301	2.8052376	20 11 21.8	20.1
447647	2006 VE <sub>69</sub>	16.5	X	14.98208	159.33079	247.74461	11.34459	0.2737426	0.22054378	2.7131440	20 —	—
447648	2006 VZ <sub>70</sub>	16.8	X	28.02637	287.75286	77.57230	7.07604	0.1239124	0.21425779	2.7659541	20 12 23.2	20.4
447649	2006 VX <sub>76</sub>	16.8	X	142.22509	143.53401	85.43686	4.88135	0.0421952	0.20944144	2.8081975	20 11 8.7	20.8
447650	2006 VS <sub>82</sub>	16.6	X	13.61786	348.72620	41.00551	6.81255	0.0593770	0.21677954	2.7444618	20 12 26.4	20.3
447651	2006 VS <sub>85</sub>	17.4	X	297.40426	212.68844	246.28006	1.68601	0.1201879	0.21327599	2.7744362	20 12 1.5	20.5
447652	2006 VT <sub>92</sub>	16.9	X	23.39046	275.76654	92.75472	5.25933	0.1114305	0.21475430	2.7616892	20 12 19.5	20.3
447653	2006 VE <sub>131</sub>	17.7	X	21.98458	160.99435	223.29207	4.24545	0.1322034	0.21738514	2.7393623	20 —	—
447654	2006 VB <sub>150</sub>	16.3	X	11.36351	341.74757	64.30061	10.05165	0.1350543	0.22069088	2.7119382	20 —	—
447655	2006 WA	19.9	X	222.79947	270.43863	58.12713	28.22598	0.1426662	0.54048772	1.4926071	20 2 18.7	22.2
447656	2006 WZ <sub>8</sub>	16.9	X	281.95601	51.44938	80.94676	12.49096	0.1627360	0.21332371	2.7740224	20 12 15.5	20.1
447657	2006 WO <sub>10</sub>	16.3	X	9.17202	274.82756	91.93772	16.94607	0.1914244	0.21407540	2.7675249	20 12 9.7	19.5
447658	2006 WX <sub>15</sub>	17.4	X	263.18359	109.15994	30.61346	8.08748	0.1641841	0.21128231	2.7839618	20 11 23.7	21.0
447659	2006 WN <sub>17</sub>	17.4	X	309.55672	68.78119	357.44937	3.12389	0.0782889	0.221171078	2.7880939	20 11 8.8	20.7
447660	2006 WK <sub>37</sub>	17.2	X	302.88114	316.83396	118.02800	4.96624	0.0782240	0.21006568	2.8026314	20 11 12.3	20.7
447661	2006 WA <sub>53</sub>	15.9	X	16.14554	279.51129	93.62776	23.17041	0.1641069	0.21557726	2.7546563	20 12 23.5	19.3
447662	2006 WL <sub>57</sub>	16.4	X	200.56429	340.07774	223.58597	12.01523	0.0557916	0.21959193	2.7209786	20 12 13.5	20.3
447663	2006 WG <sub>83</sub>	16.0	X	208.70315	38.58771	48.54740	10.63699	0.0723847	0.19234426	2.9722356	20 7 26.9	20.6
447664	2006 WY <sub>93</sub>	16.8	X	69.20332	244.21320	70.50501	12.62151	0.1026829	0.21352422	2.7722855	20 12 6.7	20.9
447665	2006 WR <sub>94</sub>	17.9	X	332.62612	253.67698	169.97742	1.89903	0.1858167	0.21407285	2.7675469	20 12 18.7	20.5
447666	2006 WD <sub>174</sub>	17.3	X	185.29262	339.89390	177.46132	1.59845	0.0236924	0.20037585	2.8922720	20 9 28.6	21.2
447667	2006 WC <sub>185</sub>	16.9	X	359.92577	35.17482	8.94248	5.65788	0.0806002	0.21798024	2.7343743	20 12 29.4	20.3
447668	2006 WH <sub>200</sub>	17.0	X	235.22610	233.46998	247.45364	6.31676	0.1136069	0.20195390	2.8771856	20 9 28.9	21.2
447669	2006 WU <sub>205</sub>	17.4	X	332.99843	5.78700	73.25018	10.90242	0.2122367	0.21459562	2.7630505	20 —	—
447670	2006 XZ <sub>12</sub>	16.7	X	280.52686	337.08196	73.99777	10.88293	0.0462005	0.19830429	2.9123796	20 9 15.9	20.8
447671	2006 XD <sub>13</sub>	16.7	X	347.14836	154.35223	263.98559	8.79819	0.1885903	0.21432753	2.7653540	20 —	—
447672	2006 XO <sub>24</sub>	16.3	X	342.32916	343.03847	77.42223	15.50825	0.1960986	0.21604404	2.7506871	20 —	—
447673	2006 XL <sub>39</sub>	17.3	X	10.39625	79.70153	280.50296	3.47541	0.1706764	0.21185363	2.7868405	20 11 27.4	20.4
447674	2006 XA <sub>41</sub>											

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
447681 2006 YX <sub>38</sub>	16.3	X	260.59185	328.99127	102.95976	11.22202	0.0737597	0.19183341	2.9775099	20	9 9.9	20.6
447682 2007 AA <sub>20</sub>	16.5	X	133.13970	72.22127	103.42669	11.61123	0.0731437	0.18481892	3.0523789	20	8 24.0	21.2
447683 2007 BB <sub>4</sub>	16.6	X	205.23146	202.07797	280.73218	4.97827	0.1238416	0.19107137	2.9854214	20	8 27.9	21.4
447684 2007 BA <sub>11</sub>	18.2	X	29.54436	168.38442	0.27671	4.35545	0.0581523	0.30858385	2.1688054	20	3 16.1	20.1
447685 2007 BD <sub>11</sub>	16.5	X	102.77967	212.25903	344.35977	8.21245	0.0630461	0.18108157	3.0942344	20	8 13.0	20.9
447686 2007 BX <sub>22</sub>	17.5	X	340.89131	79.03496	306.84349	7.56159	0.2890619	0.20429329	2.8551789	20	11 14.3	19.9
447687 2007 BE <sub>36</sub>	17.9	X	347.04945	238.04847	304.39725	4.67259	0.0490134	0.30447913	2.1882538	20	1 27.9	20.2
447688 2007 BX <sub>39</sub>	16.2	X	47.67536	307.61584	314.63564	8.86043	0.1125690	0.18403195	3.0610745	20	8 30.6	20.2
447689 2007 BP <sub>79</sub>	16.6	X	321.01794	46.14471	323.83152	9.92726	0.1078153	0.18880210	3.0092955	20	9 4.9	20.3
447690 2007 CN <sub>23</sub>	16.0	X	63.06114	103.79246	119.96976	11.77512	0.1583897	0.17993747	3.1073367	20	8 11.4	20.2
447691 2007 CH <sub>28</sub>	18.3	X	337.16292	240.12061	313.23577	1.92101	0.0702164	0.30094169	2.2053684	20	1 26.2	20.5
447692 2007 CX <sub>40</sub>	17.4	X	249.37111	254.95091	322.27056	4.84206	0.1699104	0.28495692	2.2870899	20	—	—
447693 2007 CA <sub>48</sub>	17.5	X	340.31452	264.84288	155.58752	8.44649	0.1863325	0.20582264	2.8410178	20	12 26.1	20.6
447694 2007 CH <sub>50</sub>	15.8	X	138.43552	210.34170	307.05231	12.78009	0.2241927	0.17927713	3.1149623	20	8 9.8	21.0
447695 2007 DO <sub>6</sub>	17.2	X	239.26125	271.18416	208.53997	4.25330	0.0895500	0.19132753	2.9827561	20	10 6.1	21.5
447696 2007 DB <sub>9</sub>	16.3	X	191.75881	313.65632	144.58268	5.15820	0.1449889	0.17785920	2.1314957	20	7 15.2	21.3
447697 2007 DV <sub>18</sub>	18.0	X	329.06033	200.68298	344.37845	4.40534	0.0744433	0.29567736	2.2310153	20	1 3.4	20.5
447698 2007 DN <sub>21</sub>	16.4	X	182.66411	161.68049	344.59834	12.25120	0.1269998	0.18475015	3.0531362	20	9 5.1	21.3
447699 2007 DQ <sub>55</sub>	16.1	X	135.56215	181.44657	8.89650	7.16688	0.0952473	0.18155753	3.0888243	20	9 12.9	20.8
447700 2007 DS <sub>59</sub>	16.5	X	222.45844	127.55690	341.64812	8.88880	0.1054334	0.18686091	3.0301008	20	9 1.9	20.9
447701 2007 DY <sub>63</sub>	17.4	X	111.62416	350.18754	344.93902	6.20144	0.1311358	0.28229904	2.3014230	20	—	—
447702 2007 DX <sub>88</sub>	18.5	X	79.97335	107.15423	0.91068	4.42375	0.1216712	0.30551351	2.1833118	20	3 18.9	20.6
447703 2007 EH <sub>11</sub>	18.4	X	356.31722	100.98264	4.67458	3.47041	0.0407923	0.28708069	2.2757963	20	—	—
447704 2007 EP <sub>42</sub>	17.7	X	285.60707	222.33741	7.29015	4.65039	0.1131822	0.29097053	2.2554682	20	1 2.8	20.7
447705 2007 EF <sub>45</sub>	16.6	X	228.57259	308.47528	181.46335	12.84434	0.0674456	0.18738700	3.0244268	20	10 10.2	20.9
447706 2007 EN <sub>60</sub>	16.8	X	154.15664	40.51944	145.03154	3.24579	0.1930332	0.18392744	3.0622339	20	9 26.5	22.0
447707 2007 EN <sub>78</sub>	16.2	X	305.24319	228.45083	178.71748	16.45754	0.0778624	0.18569061	3.0428188	20	10 5.0	20.1
447708 2007 ED <sub>79</sub>	17.7	X	24.27865	163.44299	347.08972	5.62548	0.1375779	0.29764798	2.2216080	20	2 9.1	19.4
447709 2007 EE <sub>81</sub>	18.7	X	43.17166	99.51429	52.75563	0.76475	0.1283962	0.30571955	2.1823308	20	3 20.6	20.4
447710 2007 EX <sub>114</sub>	17.9	X	289.91954	165.78160	47.77837	5.17231	0.0909073	0.28722470	2.2750356	20	—	—
447711 2007 EA <sub>120</sub>	15.8	X	277.57789	27.40474	45.63645	10.57168	0.0791323	0.18115337	3.0934168	20	10 1.2	20.0
447712 2007 EN <sub>130</sub>	16.4	X	182.03522	152.49480	357.30349	10.22514	0.0513734	0.18220067	3.0815513	20	9 12.2	20.9
447713 2007 EW <sub>132</sub>	16.6	X	184.93112	141.66674	357.47971	10.95382	0.1649259	0.18258693	3.0772038	20	8 30.1	21.6
447714 2007 EY <sub>132</sub>	16.4	X	187.91172	153.88002	359.45454	10.38182	0.0879637	0.18442672	3.0567047	20	9 20.6	20.9
447715 2007 EM <sub>133</sub>	17.0	X	211.51077	136.23766	17.97865	1.40045	0.1133428	0.18940565	3.0028993	20	10 14.6	21.5
447716 2007 EX <sub>135</sub>	18.4	X	116.59725	243.67297	181.89165	3.25429	0.1268130	0.30253526	2.1976172	20	3 12.6	20.8
447717 2007 EL <sub>146</sub>	17.9	X	328.65835	24.84880	153.66592	6.46429	0.0821723	0.29237135	2.2482581	20	—	—
447718 2007 EX <sub>150</sub>	17.1	X	254.36689	89.80212	33.22993	3.86125	0.1654782	0.19477801	2.9474250	20	10 19.3	21.0
447719 2007 EU <sub>151</sub>	15.6	X	84.04771	38.86795	162.19380	17.02220	0.0753327	0.17137294	3.2100210	20	7 24.5	20.4
447720 2007 EP <sub>154</sub>	16.5	X	202.85325	308.54341	202.82229	9.90155	0.0968212	0.18533616	3.0466970	20	10 2.2	21.1
447721 2007 ET <sub>165</sub>	16.1	X	159.27206	157.53932	44.40378	11.22433	0.1538835	0.18236351	3.0797166	20	10 20.8	21.1
447722 2007 EX <sub>165</sub>	16.4	X	181.29073	45.95015	65.64116	2.70709	0.1162807	0.17919925	3.1158647	20	7 23.4	21.2
447723 2007 EN <sub>168</sub>	16.6	X	205.86709	324.66644	182.56744	12.18619	0.1671514	0.18506782	3.0496414	20	9 25.4	21.5
447724 2007 EN <sub>183</sub>	17.0	X	292.60372	285.22332	150.05656	9.41241	0.0676876	0.19258729	2.9697345	20	10 27.4	21.0
447725 2007 ET <sub>192</sub>	18.3	X	212.43253	129.79269	134.50769	1.89546	0.1589440	0.28128066	2.3069746	20	—	—
447726 2007 EX <sub>195</sub>	16.4	X	234.86649	99.21412	37.05085	14.54820	0.2230426	0.18886400	3.0086380	20	10 8.9	21.0
447727 2007 EB <sub>200</sub>	18.0	X	300.91381	157.82111	51.15265	5.41219	0.1478237	0.29082128	2.2562398	20	—	—
447728 2007 EM <sub>208</sub>	16.0	X	254.90595	241.47199	180.47612	26.56467	0.1877885	0.17711055	3.1403142	20	7 26.9	21.2
447729 2007 EH <sub>209</sub>	16.1	X	328.25874	35.86609	336.92788	12.80318	0.1162789	0.18900092	3.0071847	20	9 19.4	19.7
447730 2007 EA <sub>217</sub>	16.1	X	223.39510	121.78744	9.86970	12.36655	0.1202553	0.18676506	3.0311375	20	9 29.4	20.5
447731 2007 EF <sub>217</sub>	16.6	X	187.39388	291.19305	180.98283	7.36983	0.0820374	0.17617224	3.1514547	20	7 28.9	21.6
447732 2007 EC <sub>219</sub>	16.8	X	116.47682	23.79973	186.56129	17.20338	0.0528627	0.17881304	3.1203497	20	9 10.4	21.4
447733 2007 FR <sub>7</sub>	16.1	X	306.61317	19.43141	347.31524	10.14769	0.1119399	0.17894818	3.1187785	20	8 11.7	20.0
447734 2007 FU <sub>17</sub>	15.9	X	165.21432	351.56420	208.24564	18.73264	0.2428194	0.18463297	3.0544729	20	10 20.2	21.1
447735 2007 FN <sub>24</sub>	18.1	X	339.65271	14.04750	178.02367	2.39274	0.0851412	0.29808055	2.2194581	20	1 25.7	20.4
447736 2007 FP <sub>40</sub>	18.1	X	189.11857	288.05127	351.95407	2.99304	0.2429088	0.28059354	2.3107392	20	—	—
447737 2007 FK <sub>46</sub>	16.1	X	217.88462	101.16505	29.99111	15.95079	0.1346443	0.18297440	3.0728581	20	9 25.9	20.9
447738 2007 GG <sub>8</sub>	16.1	X	186.09960	328.27553	195.66494	17.95147	0.1517237	0.18424143	3.0587537	20	9 27.0	21.2
447739 2007 GM <sub>25</sub>	17.6	X	284.49659	229.39437	9.54522	4.58817	0.1924379	0.28880618	2.2667227	20	1 5.5	20.9
447740 2007 GZ <sub>25</sub>	18.1	X	185.05400	16.30974	263.96867	2.87986	0.1704138	0.27758150	2.3274250	20	—	—
447741 2007 GH <sub>32</sub>	15.8	X	109.42174	49.84196	172.62017	28.00152	0.2318364	0.17637662	3.1490197	20	10 5.3	21.1
447742 2007 GL <sub>38</sub>	17.7	X	129.32886	266.68703	44.83309	5.99372	0.2314071	0.26842762	2.3800418	20	—	—
447743 2007 GR <sub>64</sub>	16.1	X	245.31847	52.56087	35.38098	11.80810	0.0472105	0.17448059	3.1717915	20	9 13.4	20.7
447744 2007 GX <sub>69</sub>	18.5	X	228.04579	63.80265	189.75841	4.15703	0.1184603	0.28267185	2.2993990	20	—	—
447745 2007 HZ <sub>6</sub>	17.0	X	171.56690	83.26622	212.13823	22.08057	0.1895135	0.27435105	2.3456595	20	—	—
447746 2007 HG <sub>17</sub>	15.6	X	117.68653	173.12247	58.43740	17.60825	0.0708619	0.17937876	3.1137856	20	10 17.9	20.4
447747 2007 HT <sub>20</sub>	18.0	X	117.87688	278.16839	34.21206	7.38193	0.1063721	0.26768072	2.3844670	20	—	—
447748 2007 HT <sub>35</sub>	17.7	X	188.70264	25.95294	203.17181	2.86873	0.0848819	0.26640447	2.3920764	20	—	—
447749 2007 HU <sub>37</sub>	16.9	X	308.68243	71.70732	34.42272	23.85460	0.3537864	0.20334134	2.8640830	20	12 4.6	19.2
447750 2007 HS <sub>47</sub>	18.1	X	151.51740	150.16630	157.35313	2.70316	0.1904183	0.27135709	2.3628815	20	—	—
447751 2007 HS <sub>67</sub>	17.5	X	143.71293	196.91943	97.87374	3.53758	0.2051348	0.26929054	2.3749546	20	—	—
447752 2007 HA <sub>71</sub>	15.7	X	174.95238	96.93988	61.14290	10.76036	0.1768320	0.17748268	3.1359230	20	9 15.5	21.0
447753 2007 HL <sub>81</sub>	16.3	X	189.97846	118.45809	32.68845	16.92883	0.1471878	0.18077075	3.0977802	20	9 23.1	21.4
447754 2007 HA <sub>95</sub>	17.9											

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
447761 2007 JF <sub>25</sub>	18.4	X	13.31142	122.58152	49.02813	4.89303	0.0972273	0.29450235	2.2373995	20	2 24.6	20.4
447762 2007 JU <sub>26</sub>	18.0	X	251.71998	38.26059	184.35719	6.07216	0.0934981	0.27643596	2.3338505	20	—	—
447763 2007 LM <sub>9</sub>	17.7	X	168.83888	228.32611	89.72631	10.65203	0.1637407	0.27434866	2.3456731	20	—	—
447764 2007 LV <sub>10</sub>	17.6	X	163.01310	162.80377	139.27631	2.92883	0.2061597	0.27029815	2.3690488	20	—	—
447765 2007 LJ <sub>13</sub>	16.1	X	164.87892	325.22051	207.16336	23.97633	0.2516327	0.17768381	3.1335562	20	9 14.1	21.9
447766 2007 LE <sub>14</sub>	15.7	X	287.13407	351.85357	82.68773	18.63077	0.1698813	0.17774984	3.1327801	20	10 9.9	20.0
447767 2007 LG <sub>19</sub>	16.3	X	168.06238	69.55198	136.47166	17.65060	0.1021960	0.18056773	3.1001018	20	11 7.5	21.5
447768 2007 LP <sub>28</sub>	17.9	X	129.16986	189.58152	127.56617	8.05526	0.2941307	0.26294472	2.4130135	20	—	—
447769 2007 LE <sub>34</sub>	17.3	X	71.04983	162.05648	170.47322	13.59462	0.2134801	0.25554676	2.4593621	20	—	—
447770 2007 MU <sub>4</sub>	17.8	X	197.04492	167.32106	118.82307	3.38025	0.1982437	0.27482496	2.3429621	20	—	—
447771 2007 PW <sub>10</sub>	17.4	X	108.15600	186.69285	154.81886	10.27801	0.2797933	0.25502959	2.4626858	20	—	—
447772 2007 PC <sub>19</sub>	17.5	X	146.54928	155.21638	152.54840	2.50458	0.2330848	0.26074453	2.4265686	20	—	—
447773 2007 PZ <sub>45</sub>	17.9	X	79.30558	229.79962	144.80291	3.36890	0.2711250	0.25290633	2.4764501	20	—	—
447774 2007 RL <sub>13</sub>	17.6	X	73.02105	0.82440	52.20680	3.47781	0.1876052	0.25690544	2.4506833	20	1 4.7	19.8
447775 2007 RA <sub>83</sub>	17.9	X	66.08343	314.34380	359.62600	4.38529	0.1423434	0.24106338	2.5690872	20	12 12.6	21.7
447776 2007 RU <sub>92</sub>	18.3	X	79.30953	205.48872	173.81001	1.12011	0.2717268	0.25193834	2.4827893	20	—	—
447777 2007 RH <sub>93</sub>	18.3	X	100.81328	46.01490	178.10880	21.50095	0.0601842	0.38136171	1.8832645	20	10 15.2	20.3
447778 2007 RZ <sub>117</sub>	17.7	X	298.52443	294.67476	354.75277	18.17168	0.0729114	0.36084809	1.9539785	20	4 4.6	19.7
447779 2007 RP <sub>122</sub>	15.8	X	189.57431	316.01167	76.94692	1.84755	0.2275674	0.12543155	3.9524361	20	4 26.9	22.3
447780 2007 RZ <sub>146</sub>	17.4	X	105.24523	238.43638	146.13965	5.10670	0.1778544	0.25983624	2.4322203	20	1 15.2	20.2
447781 2007 RV <sub>188</sub>	17.2	X	13.09967	3.70658	356.38716	12.17529	0.0887995	0.23697552	2.5862295	20	11 23.0	20.6
447782 2007 RA <sub>195</sub>	15.6	X	196.48208	116.34294	278.84630	1.73227	0.2105629	0.12413859	3.9798329	20	5 3.2	22.0
447783 2007 RC <sub>200</sub>	18.1	X	15.45133	197.75988	218.35413	2.74508	0.1420840	0.24457884	2.5323485	20	—	—
447784 2007 RE <sub>219</sub>	17.5	X	255.88734	347.68130	217.47917	2.20773	0.1279322	0.25434764	2.4670858	20	—	—
447785 2007 RQ <sub>221</sub>	15.9	X	207.58176	177.10138	213.85079	2.11281	0.2356452	0.12413867	3.9798312	20	5 7.2	22.5
447786 2007 RO <sub>259</sub>	17.9	X	156.70414	326.55209	176.71316	22.05366	0.0652762	0.37289519	1.9116638	20	8 20.4	20.2
447787 2007 RF <sub>296</sub>	17.2	X	97.40316	262.61062	32.27338	13.17450	0.0481983	0.23677420	2.5876953	20	12 11.9	21.0
447788 2007 RU <sub>309</sub>	16.5	X	104.24643	276.45082	54.49508	12.52687	0.0775153	0.24030726	2.5622694	20	—	—
447789 2007 RZ <sub>316</sub>	17.3	X	111.32019	265.92812	338.12981	3.56744	0.0985753	0.23671695	2.5881124	20	10 28.8	21.1
447790 2007 RR <sub>317</sub>	17.4	X	358.92799	228.53512	200.35655	8.57515	0.1448878	0.23865661	2.5740703	20	—	—
447791 2007 RO <sub>324</sub>	17.7	X	45.96512	178.26605	218.51739	4.41693	0.1857093	0.24311254	2.5425206	20	—	—
447792 2007 RG <sub>325</sub>	17.7	X	66.28105	304.34457	59.25414	5.84145	0.1549636	0.24166645	2.5526531	20	—	—
447793 2007 ST <sub>17</sub>	18.3	X	55.07097	142.37606	180.46651	3.01900	0.2153811	0.24048261	2.5610237	20	12 20.5	22.1
447794 2007 TZ <sub>6</sub>	17.6	X	320.82725	95.50181	212.19404	20.63011	0.0709695	0.36646892	1.9339472	20	6 21.2	19.7
447795 2007 TH <sub>19</sub>	17.9	X	123.74106	194.87438	86.36907	2.27491	0.5028499	0.24835651	2.5066038	20	12 31.7	23.2
447796 2007 TV <sub>26</sub>	17.7	X	76.22356	10.99608	31.57995	1.94228	0.1841322	0.25371789	2.4711664	20	—	—
447797 2007 TK <sub>47</sub>	17.1	X	129.06112	69.56517	214.53899	14.59335	0.0655763	0.24167649	2.5525825	20	—	—
447798 2007 TC <sub>56</sub>	17.5	X	321.89802	107.22886	26.26158	13.77225	0.2678621	0.24099456	2.5573954	20	—	—
447799 2007 TE <sub>59</sub>	18.1	X	61.43288	202.19700	191.08604	11.02753	0.2306273	0.25136230	2.4865810	20	—	—
447800 2007 TS <sub>78</sub>	18.2	X	358.89588	170.45395	233.73136	3.31949	0.2869638	0.23582770	2.5946145	20	—	—
447801 2007 TR <sub>80</sub>	18.0	X	29.73263	318.71448	23.86984	5.56736	0.2278868	0.23489857	2.6014519	20	12 17.0	21.4
447802 2007 TK <sub>84</sub>	18.3	X	28.08211	7.76795	35.63203	3.63648	0.1181101	0.24351546	2.5397152	20	—	—
447803 2007 TT <sub>93</sub>	18.5	X	42.26912	260.03970	136.08493	1.88100	0.2320445	0.24372065	2.5382896	20	—	—
447804 2007 TU <sub>96</sub>	18.4	X	65.99723	173.05333	192.97826	12.26710	0.1668376	0.24676810	2.5173487	20	—	—
447805 2007 TY <sub>98</sub>	17.8	X	300.15410	308.06215	198.16724	17.22587	0.1251635	0.24496396	2.5296936	20	—	—
447806 2007 TC <sub>134</sub>	18.2	X	354.43364	293.82748	139.21078	0.52274	0.1102379	0.23912313	2.5707213	20	—	—
447807 2007 TD <sub>134</sub>	18.8	X	228.00820	47.02296	32.54463	20.82949	0.1538037	0.36896613	1.9252112	20	8 24.8	21.5
447808 2007 TJ <sub>145</sub>	17.2	X	23.88861	327.94003	27.97810	5.85730	0.2607620	0.23542138	2.5975990	20	—	—
447809 2007 TN <sub>149</sub>	18.2	X	34.87085	321.88832	34.57779	5.24182	0.2812653	0.23852883	2.5749895	20	—	—
447810 2007 TZ <sub>152</sub>	18.2	X	38.42258	25.31893	330.13258	3.05708	0.2339273	0.23924525	2.5698464	20	—	—
447811 2007 TV <sub>156</sub>	16.0	X	221.61250	42.23623	346.83594	4.57650	0.3259209	0.12609371	3.9385870	20	5 9.7	22.8
447812 2007 TO <sub>193</sub>	18.2	X	27.66211	193.39390	181.53063	11.62168	0.1849538	0.24196237	2.5505715	20	—	—
447813 2007 TV <sub>210</sub>	17.7	X	341.47528	206.97313	228.25754	13.12840	0.2394824	0.23668337	2.5883573	20	—	—
447814 2007 TP <sub>214</sub>	17.6	X	200.43639	45.19135	47.51968	21.63753	0.1051298	0.36538666	1.9377642	20	8 10.6	20.6
447815 2007 TH <sub>232</sub>	17.8	X	84.72325	142.30412	208.88880	4.39188	0.1715272	0.24439109	2.5336452	20	—	—
447816 2007 TJ <sub>237</sub>	17.6	X	71.38388	223.33157	148.28108	2.87566	0.1951704	0.24732433	2.5135729	20	—	—
447817 2007 TU <sub>241</sub>	17.8	X	44.52465	324.62533	41.21447	4.97446	0.2060887	0.23945321	2.5683583	20	—	—
447818 2007 TL <sub>256</sub>	17.6	X	343.62574	223.71171	181.73186	4.11124	0.1964687	0.23278880	2.6171462	20	12 23.5	20.2
447819 2007 TN <sub>259</sub>	16.8	X	249.42200	356.87300	214.93623	5.17264	0.1171046	0.25204853	2.4820657	20	—	—
447820 2007 TS <sub>260</sub>	18.2	X	21.97394	359.92581	43.59703	6.06758	0.2516652	0.24053451	2.5606553	20	—	—
447821 2007 TW <sub>261</sub>	17.9	X	38.64091	334.18143	34.82513	15.25771	0.2160801	0.23859074	2.5745440	20	—	—
447822 2007 TA <sub>262</sub>	18.2	X	0.67339	223.06114	221.23703	2.89058	0.2155750	0.24102217	2.5572001	20	—	—
447823 2007 TV <sub>262</sub>	18.3	X	62.81989	351.45850	39.28419	5.13059	0.2262258	0.24683072	2.5169229	20	—	—
447824 2007 TO <sub>301</sub>	17.7	X	37.06210	125.45792	283.38341	1.26464	0.1488368	0.24437325	2.5337686	20	—	—
447825 2007 TH <sub>332</sub>	17.8	X	8.24402	27.06748	11.33878	3.62435	0.0682888	0.23597311	2.5935485	20	—	—
447826 2007 TU <sub>334</sub>	18.0	X	77.75653	144.43810	227.25118	16.44141	0.1734234	0.24624602	2.5209055	20	—	—
447827 2007 TW <sub>334</sub>	16.5	X	287.88137	224.54258	225.35995	21.19162	0.0464667	0.22786540	2.6547103	20	11 15.5	19.9
447828 2007 TL <sub>346</sub>	17.5	X	215.74248	110.03205	161.67363	5.71151	0.1128307	0.26025754	2.4295947	20	—	—
447829 2007 TV <sub>373</sub>	15.3	X	232.97230	334.22183	45.02617	3.51466	0.2721633	0.12570641	3.9466725	20	5 10.7	21.8
447830 2007 TP <sub>379</sub>	18.0	X	104.12043	178.13208	26.55504	19.74668	0.0434772	0.37459420	1.9058791	20	9 23.6	20.2
447831 2007 TN <sub>388</sub>	18.4	X	26.80749	320.25116	44.27056	3.59241	0.1584188	0.23818304	2.5774811	20	—	—
447832 2007 TS <sub>404</sub>	17.7	X	42.13049	29.81499	10.26065	4.14092	0.1804018	0.24356176	2.5393934	20	—	—
447833 2007 TJ <sub>405</sub>	17.8	X	62.49484	132.89831	229.90283	12.88294	0.2145434	0.24210194	2.5495911	20	—	—
447834 2007 TF <sub>423</sub>	18.2	X	352.38725	199.20391	216.15990	6.74257	0.1812282	0.23669236	2.5882917	20	—	—
447835 2007 TZ <sub>449</sub>	16.8	X	105.33270	186.80871	58.52694	13.12735	0.0801650					



ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
447841 2007 <i>UM</i> <sub>46</sub>	17.3	X	39.34570	318.90036	90.32112	4.51305	0.1733984	0.24388221	2.5371684	20	—	—
447842 2007 <i>UT</i> <sub>53</sub>	17.2	X	339.45794	138.64359	239.77608	5.14190	0.0405113	0.22528794	2.6749197	20	10 24.3	20.6
447843 2007 <i>UE</i> <sub>58</sub>	18.0	X	345.94516	235.44116	227.01757	2.85452	0.1833387	0.24097861	2.5575083	20	—	—
447844 2007 <i>UR</i> <sub>60</sub>	18.0	X	59.18967	192.47072	155.40313	0.57091	0.2492053	0.23927820	2.5696105	20	—	—
447845 2007 <i>UA</i> <sub>72</sub>	18.0	X	335.64967	237.79554	227.43014	1.73201	0.1577585	0.23982729	2.5656868	20	—	—
447846 2007 <i>UF</i> <sub>83</sub>	17.6	X	81.16310	126.22151	226.23143	14.17706	0.1155654	0.24297276	2.5434956	20	—	—
447847 2007 <i>US</i> <sub>83</sub>	17.3	X	33.94338	155.71415	225.08144	8.10851	0.1713279	0.23836855	2.5761437	20	—	—
447848 2007 <i>UV</i> <sub>113</sub>	17.7	X	33.18256	188.95889	241.92823	6.47193	0.1536244	0.24617841	2.5213671	20	—	—
447849 2007 <i>UG</i> <sub>132</sub>	15.1	X	222.28429	233.94370	157.95955	14.76614	0.2295909	0.12523104	3.9566539	20	5 22.3	21.7
447850 2007 <i>UJ</i> <sub>137</sub>	17.6	X	22.30115	218.31640	140.63561	5.88675	0.2435307	0.23491500	2.6013306	20	12 31.0	20.9
447851 2007 <i>UL</i> <sub>138</sub>	17.4	X	356.45685	64.81784	349.59337	6.94370	0.1905532	0.23465421	2.6032576	20	—	—
447852 2007 <i>UA</i> <sub>139</sub>	16.6	X	299.55858	226.94218	255.45392	11.26302	0.1427760	0.23639233	2.5904813	20	—	—
447853 2007 <i>UK</i> <sub>139</sub>	17.6	X	70.79224	207.78226	149.05748	2.90050	0.1899748	0.24418936	2.5350404	20	—	—
447854 2007 <i>UO</i> <sub>139</sub>	17.2	X	1.26818	134.54714	288.58944	7.81255	0.1498392	0.23776603	2.5804939	20	—	—
447855 2007 <i>VT</i> <sub>1</sub>	17.9	X	221.71027	231.33111	239.07763	20.64521	0.0878986	0.37343719	1.9098137	20	9 22.1	20.4
447856 2007 <i>VE</i> <sub>2</sub>	16.9	X	57.75613	359.00298	28.33641	15.48107	0.1111385	0.24440757	2.5335313	20	—	—
447857 2007 <i>UJ</i> <sub>8</sub>	18.3	X	26.37168	146.09221	278.05734	3.70968	0.2820440	0.24264502	2.5457854	20	—	—
447858 2007 <i>VN</i> <sub>9</sub>	17.7	X	316.84976	144.19893	279.19676	5.37684	0.1886865	0.22750254	2.6575323	20	11 18.8	20.1
447859 2007 <i>VM</i> <sub>41</sub>	17.0	X	25.76336	30.26426	308.12719	13.45692	0.1940030	0.23301488	2.6154532	20	11 29.7	20.5
447860 2007 <i>VM</i> <sub>51</sub>	18.3	X	308.39887	303.96980	42.04154	21.59192	0.1018444	0.36919630	1.9244110	20	8 22.5	20.4
447861 2007 <i>VM</i> <sub>55</sub>	16.3	X	348.18921	341.59405	64.13533	15.66787	0.0711451	0.23182325	2.6244082	20	12 15.8	19.6
447862 2007 <i>VB</i> <sub>59</sub>	17.7	X	19.93354	1.54217	45.84396	14.28083	0.1598695	0.23830679	2.5765887	20	—	—
447863 2007 <i>VG</i> <sub>61</sub>	17.0	X	86.44914	55.62039	239.59067	10.43044	0.1905079	0.23429966	2.6058832	20	12 24.9	21.3
447864 2007 <i>VV</i> <sub>61</sub>	17.0	X	311.72051	120.78924	40.35679	5.77880	0.2378539	0.24101323	2.5572634	20	—	—
447865 2007 <i>VL</i> <sub>64</sub>	17.2	X	14.23494	200.56292	255.55956	7.24715	0.2148631	0.24292174	2.5438517	20	—	—
447866 2007 <i>VC</i> <sub>67</sub>	16.9	X	288.98889	242.64499	246.78607	6.41513	0.2762918	0.22853292	2.6495383	20	12 16.6	19.1
447867 2007 <i>VS</i> <sub>67</sub>	17.0	X	256.33852	175.62605	26.82864	7.15003	0.0551579	0.25371289	2.4711989	20	—	—
447868 2007 <i>VA</i> <sub>80</sub>	16.9	X	23.80897	182.70655	239.65607	7.93708	0.0678597	0.24099424	2.5573977	20	—	—
447869 2007 <i>VP</i> <sub>80</sub>	17.0	X	205.87816	152.07110	62.56418	14.17429	0.0980223	0.23383141	2.6093609	20	12 31.4	20.8
447870 2007 <i>VX</i> <sub>96</sub>	18.6	X	51.63788	45.86635	354.58103	4.55923	0.1968013	0.24520550	2.5280320	20	—	—
447871 2007 <i>VT</i> <sub>108</sub>	18.0	X	85.54192	126.53552	218.27363	1.04964	0.1938306	0.24309020	2.5426763	20	—	—
447872 2007 <i>VA</i> <sub>112</sub>	17.6	X	42.43089	286.19806	61.32736	5.35365	0.1500324	0.23291388	2.6162092	20	12 27.4	21.1
447873 2007 <i>VS</i> <sub>139</sub>	17.9	X	85.14066	131.76357	219.31670	1.27486	0.1400600	0.24330893	2.5411522	20	—	—
447874 2007 <i>VX</i> <sub>164</sub>	18.1	X	56.20491	294.59953	61.59454	10.31219	0.2218903	0.23812910	2.5778703	20	—	—
447875 2007 <i>VQ</i> <sub>168</sub>	16.8	X	257.96209	102.15496	67.86922	28.28328	0.2387832	0.22909073	2.6452357	20	12 16.7	20.1
447876 2007 <i>VR</i> <sub>170</sub>	18.1	X	25.14755	10.49517	51.62350	4.38410	0.0290526	0.24761234	2.5116235	20	—	—
447877 2007 <i>VM</i> <sub>180</sub>	17.8	X	61.44762	271.51668	67.14199	4.90175	0.2756107	0.24015981	2.5633180	20	—	—
447878 2007 <i>VZ</i> <sub>185</sub>	17.4	X	60.14334	333.70373	34.04065	4.09695	0.1967760	0.24162280	2.5529606	20	—	—
447879 2007 <i>VU</i> <sub>202</sub>	17.4	X	342.53236	27.86705	80.16876	7.84789	0.2718077	0.23358814	2.6111723	20	—	—
447880 2007 <i>VN</i> <sub>216</sub>	18.5	X	355.26595	89.06056	5.43193	2.07637	0.1928356	0.23988208	2.5652962	20	—	—
447881 2007 <i>VG</i> <sub>234</sub>	16.6	X	22.22372	343.64677	62.28014	23.19966	0.0877571	0.23791742	2.5793992	20	—	—
447882 2007 <i>VV</i> <sub>268</sub>	17.4	X	26.80167	341.92570	87.86246	7.25034	0.2016559	0.24331596	2.5411033	20	—	—
447883 2007 <i>VL</i> <sub>289</sub>	16.9	X	353.91276	84.22863	338.89014	8.77507	0.1976178	0.23691359	2.5866801	20	—	—
447884 2007 <i>VS</i> <sub>295</sub>	17.4	X	27.90529	332.28092	79.53704	10.20433	0.1744127	0.24139076	2.5545964	20	—	—
447885 2007 <i>VE</i> <sub>308</sub>	17.6	X	310.94190	209.74312	278.44776	2.92625	0.1059321	0.23576567	2.5950696	20	—	—
447886 2007 <i>VN</i> <sub>324</sub>	16.0	X	38.39071	141.43058	255.21716	21.46610	0.0731947	0.23786486	2.5797792	20	—	—
447887 2007 <i>VU</i> <sub>326</sub>	17.6	X	24.61612	280.92195	74.61754	15.03691	0.1836832	0.22941408	2.6427495	20	12 18.7	20.9
447888 2007 <i>VJ</i> <sub>328</sub>	17.7	X	3.07660	210.27961	183.83888	5.99748	0.2790902	0.23356516	2.6113435	20	—	—
447889 2007 <i>VN</i> <sub>330</sub>	16.2	X	141.50954	352.58534	287.86414	12.81358	0.0943692	0.22788335	2.6545708	20	—	—
447890 2007 <i>VF</i> <sub>334</sub>	16.5	X	45.27474	305.44743	92.68625	16.70946	0.1926448	0.23550222	2.5970045	20	—	—
447891 2007 <i>VS</i> <sub>334</sub>	17.1	X	347.20552	342.00537	66.92972	7.39406	0.1045395	0.22984603	2.6394374	20	12 22.5	20.1
447892 2007 <i>WJ</i> <sub>10</sub>	18.3	X	50.52478	319.65911	67.44046	8.13011	0.2419097	0.24374875	2.5380945	20	—	—
447893 2007 <i>WT</i> <sub>24</sub>	17.6	X	5.44968	12.86188	85.11668	5.60883	0.2229161	0.24329157	2.5412731	20	—	—
447894 2007 <i>WS</i> <sub>25</sub>	17.8	X	57.12647	130.51177	223.35696	11.22320	0.2132692	0.23923183	2.5699425	20	—	—
447895 2007 <i>WG</i> <sub>35</sub>	18.1	X	330.51667	76.31144	35.48680	5.29320	0.2576546	0.23544148	2.5974512	20	—	—
447896 2007 <i>WD</i> <sub>39</sub>	17.2	X	36.80211	11.54261	27.91094	6.37918	0.1445572	0.23968408	2.5667087	20	—	—
447897 2007 <i>WP</i> <sub>49</sub>	16.5	X	197.33665	0.67002	229.30905	11.48345	0.0550178	0.23674389	2.5879162	20	—	—
447898 2007 <i>WV</i> <sub>58</sub>	16.8	X	77.74941	292.84607	70.67777	12.43726	0.1844250	0.24256509	2.5463446	20	—	—
447899 2007 <i>WF</i> <sub>61</sub>	16.9	X	342.59148	349.64942	70.03304	13.74973	0.1341381	0.23237750	2.6202335	20	—	—
447900 2007 <i>XM</i> <sub>3</sub>	18.1	X	276.81634	173.76691	210.64516	20.77781	0.0963339	0.36875336	1.9259517	20	8 1.2	20.5
447901 2007 <i>XN</i> <sub>5</sub>	16.9	X	266.79738	123.97201	254.12655	20.47925	0.1022662	0.36622197	1.9348165	20	7 5.2	18.9
447902 2007 <i>XE</i> <sub>10</sub>	17.5	X	17.08667	270.85595	160.41747	3.98295	0.2310403	0.24055478	2.5605114	20	—	—
447903 2007 <i>XJ</i> <sub>20</sub>	18.5	X	173.24364	151.91505	56.63172	10.63799	0.5996002	0.44708655	1.6938501	20	11 13.9	21.6
447904 2007 <i>XL</i> <sub>20</sub>	17.6	X	344.64524	352.00502	85.28374	5.54334	0.1719777	0.23342437	2.6123934	20	—	—
447905 2007 <i>XG</i> <sub>26</sub>	17.1	X	336.20276	156.79986	281.40463	6.62687	0.1093559	0.23477565	2.6023599	20	—	—
447906 2007 <i>XK</i> <sub>35</sub>	16.6	X	68.78481	74.45505	314.80599	4.21482	0.1452791	0.24483013	2.5306153	20	—	—
447907 2007 <i>XX</i> <sub>39</sub>	17.4	X	342.75657	11.64906	64.00572	7.89126	0.2568336	0.23053822	2.6341515	2		

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
447921 2007 YJ <sub>65</sub>	17.5	X	331.27670	63.00339	41.31221	4.90601	0.1642119	0.22904888	2.6455579	20	—	—
447922 2007 YX <sub>69</sub>	17.5	X	246.79296	63.11466	103.22698	4.08920	0.1068565	0.22245944	2.6975457	20	12 17.7	20.8
447923 2007 YD <sub>71</sub>	17.5	X	7.67543	33.64838	55.09789	14.26811	0.2459718	0.23722225	2.5844359	20	—	—
447924 2007 YP <sub>73</sub>	17.3	X	310.01706	157.10797	295.92915	4.00788	0.0914753	0.22281100	2.6947075	20	12 18.7	20.3
447925 2008 AM <sub>2</sub>	17.1	X	7.22507	153.28386	279.65281	8.81943	0.2025413	0.23504290	2.6003868	20	—	—
447926 2008 AO <sub>4</sub>	17.8	X	34.32045	106.66610	309.02024	5.93834	0.3909177	0.23954164	2.5677262	20	—	—
447927 2008 AV <sub>5</sub>	17.2	X	314.07030	334.54206	117.05943	2.85196	0.1404931	0.23237794	2.6202302	20	12 27.0	19.6
447928 2008 AZ <sub>7</sub>	17.1	X	17.00741	99.58315	288.36530	3.74663	0.1576012	0.22539061	2.6741074	20	—	—
447929 2008 AY <sub>20</sub>	16.0	X	30.15991	248.56418	322.58507	15.20621	0.1700840	0.17886645	3.1197284	20	6 3.2	19.9
447930 2008 AS <sub>22</sub>	17.4	X	209.94158	69.86186	105.96182	4.70475	0.0365690	0.21381834	2.7697426	20	11 22.4	21.2
447931 2008 AT <sub>29</sub>	16.5	X	188.56597	126.00734	102.57552	12.90947	0.0944846	0.22021702	2.7158271	20	12 26.8	20.6
447932 2008 AO <sub>38</sub>	17.5	X	303.21535	216.16858	250.86198	4.33196	0.1416201	0.22451667	2.6810422	20	12 25.1	20.3
447933 2008 AN <sub>41</sub>	17.9	X	8.09011	284.57766	158.66032	5.10748	0.2915740	0.23699929	2.5860566	20	—	—
447934 2008 AZ <sub>44</sub>	16.4	X	166.73394	289.28406	317.37734	12.64888	0.0953441	0.21776155	2.7362047	20	12 26.3	20.7
447935 2008 AQ <sub>52</sub>	17.9	X	261.17427	234.01512	250.07085	0.80871	0.0386659	0.21866618	2.7286530	20	11 21.6	21.4
447936 2008 AL <sub>58</sub>	17.3	X	281.56730	192.40803	277.64329	4.11119	0.1230932	0.21986402	2.7187333	20	11 21.4	20.5
447937 2008 AV <sub>61</sub>	16.5	X	310.68915	75.00360	40.71281	11.33591	0.1235526	0.22719222	2.6599516	20	—	—
447938 2008 AB <sub>80</sub>	17.4	X	244.86960	331.08652	177.73653	1.35263	0.1241879	0.21660849	2.7459064	20	11 19.2	20.9
447939 2008 AV <sub>82</sub>	17.7	X	327.23573	33.54635	64.38214	3.06952	0.1991418	0.22964043	2.6410126	20	—	—
447940 2008 AK <sub>83</sub>	17.1	X	24.88320	111.88702	307.33917	11.75049	0.2461719	0.23680820	2.5874475	20	—	—
447941 2008 AP <sub>93</sub>	16.8	X	298.83048	359.91626	93.44163	8.13911	0.0179289	0.22012480	2.7165857	20	12 5.5	20.5
447942 2008 AQ <sub>99</sub>	16.5	X	27.25189	96.94313	286.04366	10.12324	0.0849093	0.22324483	2.6912153	20	—	—
447943 2008 AV <sub>104</sub>	17.7	X	13.52959	117.50488	294.69550	2.70179	0.1051945	0.23054181	2.6341242	20	—	—
447944 2008 AD <sub>107</sub>	17.2	X	309.77956	109.53453	307.03846	6.32941	0.0168020	0.21414065	2.7669627	20	10 29.1	20.9
447945 2008 AR <sub>108</sub>	17.3	X	53.58689	256.00172	135.54115	5.89964	0.3692772	0.24013234	2.5635135	20	—	—
447946 2008 AR <sub>115</sub>	17.9	X	22.40378	92.78254	329.30603	1.02800	0.2447406	0.23325903	2.6136278	20	—	—
447947 2008 AC <sub>129</sub>	17.1	X	81.51115	207.27017	93.26372	5.38629	0.0520104	0.21567330	2.7538384	20	11 28.8	20.9
447948 2008 AD <sub>129</sub>	17.8	X	317.66794	11.22427	104.48955	6.87379	0.0070784	0.22701588	2.6613290	20	—	—
447949 2008 AU <sub>137</sub>	17.5	X	355.63949	176.11571	271.71627	1.63822	0.1334278	0.23201573	2.6229565	20	—	—
447950 2008 AX <sub>137</sub>	16.2	X	43.31008	25.15947	327.54098	13.85890	0.1011739	0.21767581	2.7369232	20	12 25.8	20.2
447951 2008 BM <sub>3</sub>	17.5	X	314.00133	102.28986	293.07555	11.92385	0.2086888	0.21482035	2.7611231	20	9 18.9	20.4
447952 2008 BW <sub>6</sub>	17.6	X	308.59054	290.06216	217.19471	1.36424	0.1772520	0.23028086	2.6361138	20	—	—
447953 2008 BU <sub>8</sub>	16.3	X	267.37285	210.99958	332.75435	13.80784	0.2485662	0.22560492	2.6724136	20	—	—
447954 2008 BB <sub>11</sub>	17.0	X	292.86165	157.14670	290.78697	8.75141	0.0838195	0.21990224	2.7184183	20	11 12.1	20.5
447955 2008 BT <sub>14</sub>	17.0	X	40.65429	128.10189	251.09304	7.08126	0.1611765	0.22777552	2.6554086	20	—	—
447956 2008 BB <sub>19</sub>	16.7	X	93.65066	195.59452	108.73328	7.21677	0.1232224	0.22123819	2.7074637	20	12 23.7	20.9
447957 2008 BK <sub>27</sub>	16.8	X	290.45550	187.95918	289.28102	6.42985	0.1041528	0.22404493	2.6848043	20	12 19.3	19.8
447958 2008 BZ <sub>35</sub>	16.6	X	233.65310	164.09543	345.96477	8.78858	0.2121257	0.21127702	2.7919087	20	10 21.7	20.8
447959 2008 BN <sub>36</sub>	17.6	X	6.89921	287.55803	150.79791	5.59831	0.2892987	0.23106071	2.6301791	20	—	—
447960 2008 BU <sub>40</sub>	17.3	X	28.54884	263.70355	150.58987	5.79096	0.1487923	0.23347970	2.6119807	20	—	—
447961 2008 BC <sub>42</sub>	17.2	X	299.91707	109.64039	20.93927	7.81399	0.2831798	0.22580778	2.6708128	20	—	—
447962 2008 BY <sub>43</sub>	16.6	X	295.20138	209.42285	251.66503	7.20299	0.1648192	0.22113503	2.7083057	20	11 28.9	19.2
447963 2008 BM <sub>50</sub>	16.8	X	101.42400	299.51236	336.87774	6.63122	0.0177546	0.21465145	2.7625713	20	11 15.9	20.8
447964 2008 CN <sub>8</sub>	16.9	X	304.69472	104.93731	31.00233	5.79069	0.1993510	0.22693814	2.6619367	20	—	—
447965 2008 CA <sub>14</sub>	17.9	X	338.42587	96.91308	349.80818	7.03211	0.2572247	0.22703465	2.6611823	20	—	—
447966 2008 CN <sub>42</sub>	17.0	X	359.81571	248.80852	172.42357	12.91576	0.2200656	0.22487507	2.6781928	20	—	—
447967 2008 CH <sub>47</sub>	15.9	X	59.85994	277.21392	334.48836	20.69505	0.2244495	0.19114585	2.9846458	20	9 15.7	20.3
447968 2008 CY <sub>65</sub>	17.4	X	114.95045	100.73199	169.03700	4.64922	0.0233260	0.21387990	2.7692112	20	11 27.3	21.3
447969 2008 CY <sub>67</sub>	15.9	X	59.47784	138.28648	122.68136	7.13343	0.1650049	0.19205674	2.9752012	20	9 27.8	20.1
447970 2008 CE <sub>73</sub>	16.9	X	299.31873	24.32777	45.96255	6.53777	0.2936854	0.21846873	2.7302968	20	10 7.7	19.4
447971 2008 CB <sub>86</sub>	17.4	X	256.81502	17.93678	134.36287	9.50349	0.1332040	0.21708827	2.7418592	20	12 9.5	21.0
447972 2008 CY <sub>97</sub>	16.8	X	38.21982	234.97374	132.20471	7.16043	0.0430641	0.21791823	2.7348930	20	12 27.9	20.5
447973 2008 CE <sub>103</sub>	17.8	X	341.49603	246.38998	174.53185	9.19941	0.2018803	0.22087523	2.7104290	20	—	—
447974 2008 CT <sub>107</sub>	17.6	X	295.64799	312.67725	182.13846	8.74572	0.2964399	0.22442313	2.6817871	20	—	—
447975 2008 CA <sub>115</sub>	16.8	X	304.83637	149.15213	309.51725	9.39154	0.1236020	0.21958108	2.7210683	20	12 15.7	20.0
447976 2008 CT <sub>116</sub>	16.8	X	29.88865	267.44716	153.90284	27.73200	0.4209952	0.23451676	2.6042747	20	—	—
447977 2008 CC <sub>119</sub>	18.6	X	355.52843	137.14229	350.50670	24.98019	0.5399930	0.23707161	2.5855306	20	—	—
447978 2008 CW <sub>126</sub>	17.3	X	264.56233	172.67218	306.63377	2.98425	0.0131888	0.21313019	2.7757013	20	11 21.3	21.0
447979 2008 CG <sub>128</sub>	16.6	X	89.40349	111.68576	160.58914	2.33935	0.0524167	0.20640585	2.8356637	20	11 1.4	20.6
447980 2008 CL <sub>132</sub>	17.0	X	221.54111	200.26899	318.59787	2.92786	0.0222572	0.21131071	2.7916119	20	11 14.9	20.9
447981 2008 CX <sub>152</sub>	17.0	X	345.46544	244.09986	240.76576	8.60614	0.1686952	0.23366873	2.6105719	20	—	—
447982 2008 CG <sub>153</sub>	17.2	X	9.81164	320.22405	144.27248	14.19888	0.2039340	0.23459372	2.6037051	20	—	—
447983 2008 CG <sub>161</sub>	16.3	X	44.13708	254.02689	97.38080	7.35072	0.0452327	0.21823013	2.7322865	20	12 16.2	20.1
447984 2008 CP <sub>163</sub>	17.4	X	4.60346	287.21688	142.71139	4.48979	0.2188172	0.22997016	2.6384876	20	—	—
447985 2008 CP <sub>165</sub>	16.9	X	353.58394	338.77807	58.63704	7.03866	0.0279593	0.21210956	2.7845983	20	12 4.2	20.6
447986 2008 CE <sub>172</sub>	16.3	X	253.35407	326.38361	130.53599	10.67448	0.0551080	0.20240421	2.8729166	20	10 6.6	20.4
447987 2008 CP <sub>175</sub>	17.4	X	305.63297	136.85696	13.60030	5.18513	0.2104569	0.22967036	2.6407832	20	—	—
447988 2008 CU <sub>177</sub>	16.4	X	250.55889	57.85211	59.81756	7.93232	0.1170047	0.21333854	2.7738939	20	10 20.4	20.1
447989 2008 CD <sub>187</sub>	17.3	X	10.00832	280.70884	167.75921	12.99532	0.2440996	0.23404132	2.6078004	20	—	—
447990 2008 CT <sub>192</sub>	17.2	X	18.15405	324.67635	110.58934	4.45115	0.2607226	0.23370555	2.6102976	20	—	—
447991 2008 CE <sub>195</sub>	16.3	X	308.87641	288.82377	139.39092	5.66940	0.1209974	0.20646551	2.8351173	20	11 9.7	19.6
447992 2008 CQ <sub>195</sub>	16.8	X	38.22297	33.89967	342.04389	5.85215	0.0600062	0.22429805	2.6827841	20	—	—
447993 2008 CD <sub>197</sub>	17.9	X	296.10517	279.28045	186.17005	1.64251	0.0973666	0.21799583	2.7342440	20	12 11.3	21.0
447994 2008 CS <sub>197</sub>	17.1	X	290.99488	255.96676	217.66123	3.59773	0.0190924	0.21438791	2.7648348	20	12 18.6	20.7