















ELEMENTS AND OPPOSITION DATES IN 2021

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2021 JULY 5.0 TT

Table with 13 columns: Planet, H, G, M, omega, Omega, i, e, mu, a, TE, Oppos., V. Contains data for numerous celestial objects such as KC14, KJ14, KD15, etc., with their respective orbital parameters and opposition dates.



ELEMENTS AND OPPOSITION DATES IN 2021

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2021 JULY 5.0 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>	
408641	2014	<i>MX</i> <sub>7</sub>	17.0	X	211.39873	215.26754	132.54310	5.12168	0.1523810	0.23860845	2.5744166	21 3 12.8	21.1
408642	2014	<i>MT</i> <sub>9</sub>	16.0	X	96.39650	200.53178	109.91078	11.11606	0.1086199	0.19490981	2.9460961	21 12 20.9	20.6
408643	2014	<i>MR</i> <sub>10</sub>	16.3	X	202.11817	163.72369	142.36025	13.95278	0.1814449	0.22256046	2.6967294	21 1 14.5	20.9
408644	2014	<i>MS</i> <sub>13</sub>	16.9	X	128.22538	257.33321	125.46610	7.10874	0.0197901	0.22190437	2.7020423	21 1 15.5	20.6
408645	2014	<i>MV</i> <sub>13</sub>	17.0	X	200.70683	133.34256	140.55508	5.47044	0.0815623	0.21038072	2.7998328	21 —	—
408646	2014	<i>MB</i> <sub>14</sub>	15.7	X	334.16559	242.80493	147.76437	11.05633	0.0764046	0.17837835	3.1254169	21 10 18.9	19.8
408647	2014	<i>MG</i> <sub>14</sub>	17.8	X	347.61501	163.89941	110.64965	3.26123	0.2091244	0.26985835	2.3716220	21 5 17.4	19.4
408648	2014	<i>MA</i> <sub>15</sub>	15.8	X	47.95597	208.56278	138.24501	10.05794	0.0831436	0.17433739	3.1735282	21 12 4.6	20.3
408649	2014	<i>MB</i> <sub>15</sub>	17.5	X	304.72444	44.13785	268.30618	3.53705	0.1030473	0.26418395	2.4054616	21 5 11.5	20.3
408650	2014	<i>MC</i> <sub>15</sub>	16.7	X	80.48566	218.84898	126.19401	10.21463	0.2680620	0.18279626	3.0748541	21 —	—
408651	2014	<i>MN</i> <sub>15</sub>	17.2	X	183.45836	104.53864	178.74544	8.82249	0.1961999	0.21925983	2.7237254	21 —	—
408652	2014	<i>MO</i> <sub>15</sub>	17.5	X	324.05515	42.22065	254.86718	6.16620	0.1038291	0.27876449	2.3208358	21 5 18.9	19.8
408653	2014	<i>MQ</i> <sub>15</sub>	16.1	X	68.90313	44.57955	251.36365	5.34855	0.1865143	0.17796505	3.1302539	21 11 10.4	20.8
408654	2014	<i>MX</i> <sub>19</sub>	17.3	X	25.09078	169.82752	99.43702	7.37834	0.1808583	0.28396692	2.2924025	21 8 3.8	19.5
408655	2014	<i>MD</i> <sub>20</sub>	17.3	X	333.67619	242.69199	121.74704	3.51955	0.2340031	0.28564677	2.2834062	21 9 23.0	18.3
408656	2014	<i>ML</i> <sub>20</sub>	17.9	X	14.96691	190.08412	127.99274	5.23894	0.1900165	0.29479174	2.2359350	21 10 17.6	19.8
408657	2014	<i>MO</i> <sub>20</sub>	18.0	X	29.84627	119.63573	151.83347	5.35048	0.1602759	0.28672978	2.2776528	21 8 23.3	20.1
408658	2014	<i>MV</i> <sub>20</sub>	17.5	X	42.34633	215.28495	103.31111	5.25812	0.2062494	0.30152355	2.2025303	21 12 2.3	20.1
408659	2014	<i>ME</i> <sub>24</sub>	16.4	X	119.54534	270.75248	109.78984	11.20149	0.0297111	0.21913991	2.7247191	21 1 4.0	20.1
408660	2014	<i>MT</i> <sub>24</sub>	17.1	X	232.43673	229.82809	114.68796	6.49643	0.1612508	0.24631108	2.5204616	21 3 28.6	21.1
408661	2014	<i>MS</i> <sub>24</sub>	17.6	X	339.36350	184.72392	101.14399	3.65090	0.1681774	0.27172747	2.3607338	21 5 22.8	19.7
408662	2014	<i>MG</i> <sub>25</sub>	16.8	X	97.15274	193.94178	127.60464	4.91060	0.1410129	0.18646811	3.0343547	21 —	—
408663	2014	<i>MS</i> <sub>25</sub>	16.7	X	312.14624	273.26110	301.96741	11.83151	0.1121086	0.23516560	2.5994822	21 1 15.1	20.3
408664	2014	<i>MC</i> <sub>26</sub>	16.5	X	206.80440	171.19635	114.34789	7.81033	0.0134923	0.21732460	2.7398711	21 —	—
408665	2014	<i>MF</i> <sub>28</sub>	17.0	X	210.10590	215.01973	122.46143	9.13885	0.2029566	0.23115368	2.6294738	21 2 28.6	21.5
408666	2014	<i>MT</i> <sub>28</sub>	15.4	X	59.51797	191.13735	110.88622	18.72864	0.1766344	0.17646377	3.1479827	21 11 13.4	20.2
408667	2014	<i>MU</i> <sub>30</sub>	17.9	X	336.52541	258.12790	87.82898	5.88185	0.1626744	0.28338614	2.2955336	21 8 31.4	19.6
408668	2014	<i>MM</i> <sub>31</sub>	16.4	X	44.85439	27.11619	121.67383	11.43705	0.0651273	0.23904729	2.5712649	21 3 12.3	19.5
408669	2014	<i>MX</i> <sub>31</sub>	15.7	X	220.33364	232.48190	303.69344	14.30644	0.0333667	0.17797714	3.1301121	21 11 16.9	20.5
408670	2014	<i>MA</i> <sub>37</sub>	17.0	X	215.37861	12.13919	306.61029	13.36365	0.1313629	0.23083324	2.6319067	21 2 7.3	21.1
408671	2014	<i>MB</i> <sub>37</sub>	17.1	X	206.04644	273.16358	78.84260	6.38295	0.1574584	0.23709065	2.5853922	21 3 15.1	21.3
408672	2014	<i>MN</i> <sub>37</sub>	17.3	X	357.29604	159.81536	105.85092	5.03292	0.1633446	0.26795215	2.3828565	21 5 30.7	19.2
408673	2014	<i>MB</i> <sub>38</sub>	16.2	X	202.89525	208.40784	89.47599	7.81199	0.0528015	0.21245230	2.7816026	21 1 4.2	20.3
408674	2014	<i>MC</i> <sub>38</sub>	16.1	X	113.79439	231.96354	107.28916	12.68362	0.1385656	0.19092242	2.9869739	21 —	—
408675	2014	<i>MG</i> <sub>38</sub>	16.0	X	86.67790	267.45995	108.65302	12.37978	0.0991946	0.19241979	2.9714578	21 —	—
408676	2014	<i>MK</i> <sub>38</sub>	17.0	X	279.26085	309.53946	306.70286	11.38278	0.1019546	0.23166354	2.6256143	21 1 29.2	20.7
408677	2014	<i>MM</i> <sub>38</sub>	16.0	X	170.30980	300.35880	314.83922	11.03955	0.1918374	0.19183549	2.9774884	21 12 23.9	21.1
408678	2014	<i>MS</i> <sub>38</sub>	15.9	X	93.35366	261.48223	116.63799	10.44725	0.0750305	0.19667182	2.9284735	21 —	—
408679	2014	<i>MA</i> <sub>39</sub>	16.9	X	256.57422	247.19068	32.43132	5.42968	0.2408377	0.23769064	2.5810396	21 1 25.8	21.4
408680	2014	<i>MO</i> <sub>39</sub>	18.0	X	31.18827	225.39796	62.44936	4.72866	0.1467225	0.28901167	2.2656481	21 9 21.9	20.2
408681	2014	<i>MX</i> <sub>39</sub>	16.0	X	155.18092	135.64431	102.48281	10.68385	0.0553062	0.17446841	3.1719391	21 11 22.4	20.8
408682	2014	<i>MA</i> <sub>43</sub>	16.4	X	18.36216	176.18157	227.47642	3.80664	0.1583150	0.18084768	3.0969017	21 —	—
408683	2014	<i>MM</i> <sub>43</sub>	16.8	X	211.08959	127.94936	208.83097	8.23364	0.1278574	0.22692438	2.6620443	21 2 24.4	21.2
408684	2014	<i>MR</i> <sub>47</sub>	16.0	X	157.14808	116.59034	98.30111	11.77925	0.0549552	0.18844187	3.0131294	21 11 1.2	20.7
408685	2014	<i>MN</i> <sub>49</sub>	17.4	X	153.65161	15.23661	330.55749	3.48604	0.1257056	0.217771146	2.7366244	21 1 14.8	21.5
408686	2014	<i>MQ</i> <sub>49</sub>	16.7	X	244.27253	197.83842	89.45523	6.46233	0.0521519	0.23469771	2.6029360	21 2 3.4	20.5
408687	2014	<i>MA</i> <sub>50</sub>	16.7	X	167.27749	152.51311	192.43056	13.94196	0.1256806	0.23551247	2.5969292	21 1 21.4	20.9
408688	2014	<i>MT</i> <sub>52</sub>	15.9	X	194.29406	82.43439	280.18730	13.61308	0.1177206	0.23257563	2.6187452	21 3 6.3	20.3
408689	2014	<i>MT</i> <sub>54</sub>	16.5	X	173.77271	1.50565	336.23572	11.28643	0.1444764	0.22139901	2.7061525	21 1 28.1	20.7
408690	2014	<i>MS</i> <sub>56</sub>	15.7	X	68.50489	256.38645	108.41386	17.11853	0.1755145	0.18481598	3.0524112	21 —	—
408691	2014	<i>MX</i> <sub>56</sub>	17.2	X	143.11632	332.21960	10.47127	3.70249	0.1010531	0.21022081	2.8012524	21 —	—
408692	2014	<i>MR</i> <sub>57</sub>	16.0	X	29.50030	260.77891	117.18477	12.67844	0.1319128	0.17322216	3.1871347	21 12 23.6	20.2
408693	2014	<i>MM</i> <sub>61</sub>	16.3	X	285.46716	270.03644	295.32919	8.05182	0.0503492	0.21610642	2.7501571	21 —	—
408694	2014	<i>MT</i> <sub>61</sub>	16.5	X	305.09257	169.89509	74.86532	8.04387	0.1456200	0.24316526	2.5421533	21 2 8.9	20.0
408695	2014	<i>MT</i> <sub>62</sub>	17.8	X	68.18675	119.75403	126.04463	4.04690	0.1421122	0.29095254	2.2555612	21 9 15.2	20.4
408696	2014	<i>ME</i> <sub>63</sub>	16.9	X	191.54740	215.00823	136.46395	13.70903	0.1177003	0.22857795	2.6491904	21 2 27.6	21.0
408697	2014	<i>MX</i> <sub>63</sub>	18.0	X	350.35817	144.04429	122.25409	3.40973	0.1915310	0.26889957	2.3772562	21 5 12.7	19.9
408698	2014	<i>ML</i> <sub>64</sub>	16.6	X	339.57047	325.34733	214.32138	3.40889	0.0456956	0.22457411	2.6805851	21 1 16.0	20.0
408699	2014	<i>MS</i> <sub>68</sub>	16.5	X	250.56236	189.16808	84.35485	6.54943	0.2455409	0.23493204	2.6012048	21 1 13.1	21.0
408700	2014	<i>ND</i> <sub>12</sub>	17.7	X	32.85015	348.22220	293.58658	6.86472	0.1185486	0.29193508	2.2504975	21 9 4.3	20.0
408701	2014	<i>NZ</i> <sub>30</sub>	17.9	X	79.44967	14.61436	219.96381	4.61038	0.1139452	0.29142836	2.2531054	21 9 6.2	20.7
408702	2014	<i>ND</i> <sub>31</sub>	17.2	X	285.01849	90.14070	150.90986	4.39694	0.2364807	0.23753810	2.5821444	21 1 2.3	21.4
408703	2014	<i>NF</i> <sub>31</sub>	15.7	X	38.05926	224.00821	129.28664	7.48930	0.0615447	0.17384811	3.1794798	21 11 26.9	20.1
408704	2014	<i>NG</i> <sub>31</sub>	15.8	X	17.21969	272.67502	124.24125	26.82633	0.2427393	0.17401673	3.1774255	21 —	—
408705	2014	<i>NG</i> <sub>33</sub>	17.5	X	172.85881	147.53919	183.96939	1.57400	0.0360720	0.22036386	2.7146206	21 1 8.3	21.2
408706	2014	<i>NT</i> <sub>33</sub>	16.1	X	46.51274	264.46657	127.36323	9.74036	0.1230108	0.18914453	3.0056623	21 —	—
408707	2014	<i>NB</i> <sub>48</sub>	15.6	X	341.24348	328.34549	99.48030	12.68997	0.1014746	0.18412646	3.0600269	21 12 14.2	19.3
408708	2014	<i>NX</i> <sub>49</sub>	17.3	X	105.95373	117.72872	90.66543	6.26050	0.0330168	0.28873519	2.2670942	21 8 28.8	20.1
408709	2014	<i>NW</i> <sub>52</sub>	17.8	X	45.60174	205.75502	94.16730	5.27623	0.2025526	0.29883981	2.2156972	21 11 10.8	20.5
408710	2014	<i>NP</i> <sub>53</sub>	17.7	X	327.84043	153.29274	124.53752						

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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>
408721 2014 OC <sub>22</sub>	17.0 <sup>m</sup>	X	144.39999	103.35760	165.99378	2.36526	0.1172657	0.18797254	3.0181427	21	12 17.9	21.8
408722 2014 OE <sub>28</sub>	18.0	X	54.59281	133.07430	112.62833	3.30275	0.1617835	0.28792543	2.2713429	21	8 28.7	20.4
408723 2014 OY <sub>32</sub>	17.2	X	272.18903	179.55348	27.64409	3.92165	0.0363225	0.21263684	2.7799930	21	—	—
408724 2014 OR <sub>33</sub>	16.4	X	23.34730	296.06255	109.13367	10.65416	0.0851400	0.18659322	3.0329982	21	—	—
408725 2014 OL <sub>36</sub>	17.7	X	352.66139	266.32870	350.91015	3.01483	0.1607118	0.26693588	2.3889006	21	5 4.0	19.9
408726 2014 OG <sub>41</sub>	18.1	X	45.29465	286.66803	355.24059	3.81903	0.1236338	0.29434946	2.2381742	21	9 29.5	20.5
408727 2014 ON <sub>42</sub>	15.7	X	49.27279	270.63563	110.77080	11.00782	0.0793255	0.18681145	3.0306357	21	—	—
408728 2014 OL <sub>47</sub>	16.9	X	289.73428	99.40747	114.41648	10.02820	0.1421961	0.22614676	2.6681432	21	—	—
408729 2014 OF <sub>49</sub>	17.5	X	198.18367	313.06349	98.96367	3.24627	0.1538061	0.25619622	2.4552039	21	5 17.9	21.2
408730 2014 OJ <sub>49</sub>	16.9	X	144.04006	250.90540	59.22214	2.92248	0.0868052	0.20064571	2.8896781	21	—	—
408731 2014 OF <sub>52</sub>	17.4	X	138.05379	310.92113	92.83016	2.87003	0.0310123	0.23228979	2.6208931	21	2 24.5	21.0
408732 2014 OT <sub>56</sub>	16.6	X	32.37318	25.27163	59.60824	2.91892	0.0678419	0.20411514	2.8568399	21	—	—
408733 2014 OO <sub>59</sub>	17.7	X	91.37450	161.02739	89.34939	5.09392	0.1146534	0.30100052	2.2050810	21	10 19.2	20.6
408734 2014 OB <sub>63</sub>	17.3	X	53.80555	128.36537	98.68353	7.54615	0.0765387	0.27404578	2.3474011	21	7 13.5	19.9
408735 2014 OX <sub>65</sub>	18.3	X	84.28572	281.18545	350.00254	3.16006	0.1653966	0.30698883	2.1763112	21	11 10.6	21.4
408736 2014 OE <sub>66</sub>	17.0	X	219.15482	223.14622	23.51182	1.39567	0.1593037	0.20977800	2.8051931	21	—	—
408737 2014 OE <sub>66</sub>	18.2	X	19.43709	215.97536	358.05254	2.57234	0.1456459	0.26086640	2.4568128	21	4 24.9	20.4
408738 2014 OG <sub>80</sub>	17.2	X	40.62511	183.79629	14.49770	4.88362	0.0623696	0.26298411	2.4127725	21	5 6.1	19.8
408739 2014 OO <sub>80</sub>	15.9	X	49.53414	359.90283	336.26443	8.89661	0.0854688	0.17395185	3.1782156	21	11 19.5	20.5
408740 2014 OL <sub>109</sub>	19.0	X	356.47772	353.06723	349.88975	3.88684	0.1803779	0.29266881	2.2467345	21	10 12.0	20.7
408741 2014 OM <sub>111</sub>	18.0	X	54.30607	40.57996	209.50969	2.06454	0.1390004	0.28781161	2.2719416	21	8 28.6	20.4
408742 2014 OF <sub>112</sub>	16.9	X	315.20072	351.98961	339.52688	11.09628	0.3137705	0.26241801	2.4162412	21	5 15.6	19.9
408743 2014 OT <sub>115</sub>	15.6	X	9.69797	279.27246	126.01425	16.84593	0.2321434	0.17535174	3.1612778	21	—	—
408744 2014 OF <sub>127</sub>	16.4	X	141.33844	274.45870	126.26556	13.97949	0.1759317	0.22585821	2.6704152	21	3 17.9	20.7
408745 2014 OJ <sub>129</sub>	14.9	X	84.91603	353.81164	127.68345	27.93165	0.1742924	0.17382378	3.1797764	21	12 30.3	20.3
408746 2014 OG <sub>141</sub>	17.3	X	358.99687	153.13689	93.56245	4.15744	0.1651988	0.26643815	2.3918748	21	5 3.6	19.3
408747 2014 OP <sub>179</sub>	17.4	X	264.59139	320.85074	90.23370	6.29707	0.2052968	0.27423963	2.3462948	21	7 20.3	20.5
408748 2014 OZ <sub>241</sub>	18.9	X	75.93854	282.42247	12.24068	2.18360	0.1697854	0.31105264	2.1573144	21	12 4.4	21.8
408749 2014 OT <sub>276</sub>	16.8	X	224.09042	205.37620	96.77106	5.81001	0.1843965	0.22657217	2.6648024	21	1 28.8	21.2
408750 4308 P-L	17.4	X	218.15353	185.85822	195.69439	5.06953	0.2685737	0.23766143	2.5812510	21	4 25.2	22.0
408751 1987 SF <sub>3</sub>	19.0	X	10.31153	134.58058	186.99482	3.34712	0.5345804	0.29166423	2.2518905	21	12 14.8	21.5
408752 1991 TB <sub>2</sub>	17.0	X	33.72794	199.37182	291.93120	7.94462	0.7928221	0.33716414	2.0444436	21	6 5.6	16.2
408753 1992 SU <sub>3</sub>	17.9	X	318.97830	351.69991	7.97670	4.53219	0.1481386	0.27058155	2.3673943	21	8 13.1	20.1
408754 1992 SX <sub>10</sub>	18.5	X	357.46845	230.86518	66.54943	2.12178	0.1954608	0.26904812	2.3763810	21	7 25.2	19.9
408755 1993 TG <sub>6</sub>	18.0	X	189.19133	163.32302	221.12272	6.10062	0.2660567	0.23223253	2.6213239	21	4 6.4	22.6
408756 1995 FU <sub>8</sub>	16.2	X	340.29337	70.84592	66.68753	5.94015	0.1295648	0.18179277	3.0861591	21	—	—
408757 1995 SS <sub>19</sub>	17.2	X	69.51430	212.90803	14.98834	6.91413	0.0685976	0.25977979	2.4325726	21	8 9.1	20.2
408758 1995 UK <sub>78</sub>	17.1	X	151.35226	32.72041	345.13400	4.35280	0.0769578	0.20820151	2.8193357	21	2 16.8	21.0
408759 1997 CL <sub>23</sub>	17.8	X	238.43342	96.67547	332.75545	2.62075	0.1555784	0.26367493	2.4085564	21	7 20.8	21.2
408760 1997 SA <sub>6</sub>	16.8	X	30.86677	55.76754	354.24488	11.94195	0.2722752	0.17390396	3.1787990	21	—	—
408761 1997 TV <sub>2</sub>	15.7	X	87.84240	6.51458	13.72892	17.02475	0.1090140	0.17627610	3.1502166	21	—	—
408762 1997 TZ <sub>22</sub>	17.1	X	224.44220	340.59085	13.08162	4.93925	0.2155274	0.23125427	2.6287112	21	3 29.1	21.4
408763 1998 BU <sub>16</sub>	17.4	X	218.73269	116.58857	323.90361	8.09593	0.0905600	0.27165947	2.3611277	21	7 20.8	20.7
408764 1998 BC <sub>22</sub>	16.8	X	183.26907	78.69893	302.07252	10.40101	0.2034511	0.22297295	2.6934025	21	3 23.5	21.6
408765 1998 DY <sub>21</sub>	16.8	X	41.85139	186.63631	346.51952	8.26771	0.1843606	0.21746584	2.7386846	21	4 16.3	19.6
408766 1998 QO <sub>58</sub>	16.2	X	129.19654	324.93540	355.16157	8.02689	0.0988138	0.18447550	3.0561659	21	—	—
408767 1998 SK <sub>20</sub>	16.9	X	124.24466	164.17554	173.32854	5.35167	0.2513485	0.18587888	3.0407637	21	—	—
408768 1998 SQ <sub>49</sub>	17.9	X	86.28446	257.51022	41.92916	8.55511	0.3799232	0.30899219	2.1668942	21	—	—
408769 1998 TW <sub>22</sub>	16.1	X	110.64347	355.94853	40.55265	10.89791	0.0961768	0.18667651	3.0311109	21	2 1.7	20.5
408770 1998 TQ <sub>38</sub>	16.1	X	86.72052	347.72867	32.78539	11.29721	0.0695188	0.18236770	3.0796694	21	—	—
408771 1998 US <sub>50</sub>	16.5	X	41.24315	13.32151	37.22936	10.34507	0.0726070	0.18006486	3.1058710	21	—	—
408772 1998 WU <sub>2</sub>	15.4	X	81.54768	148.83458	232.66828	13.55492	0.0614046	0.18087007	3.0966462	21	—	—
408773 1998 WX <sub>25</sub>	15.9	X	69.38205	27.37938	46.33878	10.90907	0.0243343	0.18606124	3.0387766	21	1 14.6	20.2
408774 1998 XT <sub>6</sub>	17.0	X	157.29086	178.15259	236.13270	9.33402	0.1676814	0.23682767	2.5873058	21	4 10.9	21.1
408775 1999 CT <sub>15</sub>	16.3	X	160.97521	137.22099	341.79112	34.72833	0.3056426	0.23832303	2.5764717	21	7 26.7	21.6
408776 1999 GM <sub>56</sub>	16.8	X	232.01769	326.80894	8.35706	21.93124	0.0506158	0.22373259	2.6873024	21	3 23.8	20.6
408777 1999 JD <sub>111</sub>	17.0	X	35.28177	178.47779	78.36012	7.31229	0.2191843	0.27386207	2.3484508	21	8 23.9	19.2
408778 1999 TE <sub>64</sub>	17.7	X	329.86893	314.21155	3.62748	2.76843	0.1929902	0.26442927	2.4039736	21	6 19.7	19.7
408779 1999 UV <sub>32</sub>	18.0	X	282.43616	336.20875	26.72074	1.64245	0.1837693	0.26045358	2.4283754	21	6 8.1	21.0
408780 1999 VQ <sub>17</sub>	16.7	X	45.68102	25.79591	21.23904	8.97266	0.0832090	0.18916670	3.0054275	21	—	—
408781 1999 VP <sub>57</sub>	17.7	X	280.55854	340.13063	52.21494	3.31108	0.2082113	0.26237435	2.4165093	21	7 14.3	20.8
408782 1999 VO <sub>65</sub>	17.5	X	304.94107	327.57661	50.82645	7.86801	0.2060399	0.26365280	2.4086912	21	8 6.3	20.0
408783 1999 VQ <sub>71</sub>	15.5	X	57.46634	334.64649	57.22411	10.60422	0.0273737	0.18748545	3.0233680	21	—	—
408784 1999 WS <sub>22</sub>	17.7	X	282.90332	138.10574	234.10352	3.65311	0.1549523	0.25960884	2.4336404	21	6 26.7	20.6
408785 1999 XY <sub>145</sub>	17.7	X	340.47713	264.75391	75.34682	2.29402	0.1973018	0.26374427	2.4081343	21	8 24.9	19.2
408786 1999 XA <sub>146</sub>	18.2	X	244.94811	222.02951	203.70769	0.69573	0.1457659	0.25943157	2.4347488	21	7 23.8	21.7
408787 2000 AK <sub>221</sub>	16.6	X	99.46841	297.37281	89.71267	3.95325	0.2475492	0.18867567	3.0106397	21	1 25.3	20.7
408788 2000 BN <sub>20</sub>	16.6	X	37.15181	311.70365	133.85998	3.44012	0.1040028	0.18380314				

# ELEMENTS AND OPPOSITION DATES IN 2021

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2021 JULY 5.0 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>			
408801	2000	<i>SQ</i> <sub>134</sub>	16.9	X	170.28429	69.69534	299.08937	8.55059	0.2557194	0.21284137	2.7782118	21	3	4.1	21.9
408802	2000	<i>ST</i> <sub>138</sub>	16.3	X	166.68115	23.57663	357.68115	13.45731	0.2062153	0.21268069	2.7796109	21	3	17.0	20.7
408803	2000	<i>SZ</i> <sub>143</sub>	17.4	X	334.74405	32.14988	343.51614	8.44015	0.1796014	0.28167168	2.3048390	21	10	9.6	19.1
408804	2000	<i>SP</i> <sub>204</sub>	16.0	X	96.37354	28.23614	15.88063	15.25753	0.1421236	0.20553577	2.8436607	21	1	28.4	20.0
408805	2000	<i>SG</i> <sub>239</sub>	17.0	X	152.21992	217.85482	188.27944	9.30011	0.2911410	0.21244795	2.7816406	21	4	9.3	21.8
408806	2000	<i>SN</i> <sub>248</sub>	18.2	X	12.40260	253.08358	79.01517	2.87484	0.2592673	0.28392408	2.2926331	21	11	11.6	20.2
408807	2000	<i>SU</i> <sub>248</sub>	17.4	X	9.92786	189.95117	167.49216	7.12192	0.1758951	0.28532001	2.2851492	21	12	1.5	19.8
408808	2000	<i>SQ</i> <sub>253</sub>	16.6	X	167.86924	307.41827	49.87159	5.50977	0.1730075	0.21091082	2.7951394	21	2	18.2	21.1
408809	2001	<i>TX</i> <sub>5</sub>	16.4	X	123.17426	86.42670	0.47664	7.92212	0.2882214	0.21271408	2.7793200	21	5	1.6	21.0
408810	2000	<i>TO</i> <sub>17</sub>	16.7	X	154.63199	207.51218	199.67765	7.90821	0.2205884	0.21233425	2.7826335	21	4	7.3	21.2
408811	2000	<i>UR</i> <sub>25</sub>	16.3	X	174.79848	295.25926	65.48185	11.99035	0.3166288	0.21063865	2.7975467	21	3	10.2	21.6
408812	2000	<i>UK</i> <sub>38</sub>	16.4	X	181.14591	159.43531	216.81411	15.85486	0.2032054	0.21346336	2.7728124	21	3	19.1	21.2
408813	2000	<i>UF</i> <sub>61</sub>	16.7	X	168.22875	99.14511	267.77195	5.13940	0.3292060	0.21095596	2.7947407	21	3	4.9	21.9
408814	2000	<i>US</i> <sub>75</sub>	17.4	X	335.45595	180.64566	195.28694	10.37666	0.2346182	0.27997093	2.3141638	21	10	17.8	18.4
408815	2000	<i>UA</i> <sub>107</sub>	17.4	X	309.05443	325.92125	80.21187	8.01607	0.1796345	0.27971841	2.3155563	21	10	7.8	19.4
408816	2000	<i>WU</i> <sub>11</sub>	17.8	X	306.65805	2.13012	61.81145	4.75134	0.1211677	0.28305227	2.2973383	21	11	2.6	19.7
408817	2000	<i>WU</i> <sub>63</sub>	18.5	X	301.31956	354.78590	42.99825	4.27614	0.1970758	0.27837216	2.3230159	21	9	1.2	20.6
408818	2000	<i>WY</i> <sub>138</sub>	17.5	X	302.52864	333.25286	73.13207	5.85580	0.2670760	0.27808010	2.3246421	21	9	6.2	19.3
408819	2000	<i>YM</i> <sub>108</sub>	16.1	X	335.33276	182.66856	301.64593	8.04923	0.1811256	0.19147490	2.9812255	21	—	—	—
408820	2001	<i>FR</i> <sub>38</sub>	16.5	X	240.30141	221.95424	343.00175	12.63770	0.1851206	0.22908391	2.6452882	21	—	—	—
408821	2001	<i>FH</i> <sub>185</sub>	17.2	X	325.50048	215.57003	18.49993	13.28904	0.2259665	0.24261562	2.5459911	21	2	12.6	20.6
408822	2001	<i>FO</i> <sub>219</sub>	18.2	X	266.40755	218.10839	183.27579	1.71861	0.2397342	0.26246777	2.4519358	21	7	3.3	21.7
408823	2001	<i>KC</i> <sub>29</sub>	15.9	X	267.80628	51.01364	229.40280	29.72727	0.2856602	0.23653684	2.5894261	21	1	21.2	21.0
408824	2001	<i>OG</i> <sub>37</sub>	17.7	X	288.44748	92.76402	216.20490	20.96470	0.0966157	0.38476252	1.8721510	21	3	27.4	19.8
408825	2001	<i>OF</i> <sub>84</sub>	16.5	X	196.13943	348.25188	329.34195	25.27425	0.5137528	0.22354448	2.6888098	21	2	3.9	22.3
408826	2001	<i>PP</i> <sub>31</sub>	16.3	X	245.98821	55.18031	257.40665	12.23338	0.2697571	0.23064464	2.6333412	21	2	17.3	21.2
408827	2001	<i>PF</i> <sub>42</sub>	15.4	X	41.01967	161.85222	207.46718	19.69328	0.2382652	0.15778575	3.3917528	21	—	—	—
408828	2001	<i>QU</i> <sub>89</sub>	15.9	X	226.33759	207.80672	134.00807	33.79336	0.1912837	0.23042192	2.6350378	21	3	23.2	20.8
408829	2001	<i>QO</i> <sub>158</sub>	16.5	X	206.04603	57.10172	334.67681	12.37575	0.2086775	0.23227307	2.6210189	21	4	23.6	21.2
408830	2001	<i>QN</i> <sub>169</sub>	16.6	X	220.83799	109.72139	233.89715	12.05955	0.3059157	0.22876973	2.6470795	21	3	7.8	21.7
408831	2001	<i>QK</i> <sub>288</sub>	16.4	X	268.83289	100.55873	196.02218	24.30539	0.2665338	0.23128639	2.6284678	21	2	17.5	21.2
408832	2001	<i>QR</i> <sub>298</sub>	16.2	X	267.66856	284.47518	162.70192	2.14847	0.0371654	0.00332780	44.4321734	21	9	13.8	22.7
408833	2001	<i>RV</i> <sub>7</sub>	7.3	X	217.61570	64.37755	270.36316	4.94946	0.2030461	0.22865049	2.6486300	21	2	26.7	22.0
408834	2001	<i>RQ</i> <sub>43</sub>	16.7	X	219.62736	354.42078	343.23748	13.61179	0.2605027	0.22801910	2.6535171	21	3	5.3	21.5
408835	2001	<i>RA</i> <sub>52</sub>	16.5	X	188.06407	99.35164	295.88784	11.07673	0.2023009	0.22968529	2.6406687	21	4	13.4	21.2
408836	2001	<i>RM</i> <sub>98</sub>	17.2	X	273.93417	108.16432	190.74596	16.26394	0.2025852	0.22992061	2.6388667	21	3	4.6	21.5
408837	2001	<i>RS</i> <sub>102</sub>	17.6	X	243.26198	197.83365	146.02987	5.92387	0.1863169	0.28213922	2.3022920	21	4	1.1	21.2
408838	2001	<i>RF</i> <sub>113</sub>	17.2	X	188.14745	52.63049	352.17061	12.83957	0.1909913	0.23046700	2.6346942	21	4	25.4	21.9
408839	2001	<i>RH</i> <sub>118</sub>	18.3	X	18.08596	50.07639	358.24785	5.59425	0.1960886	0.30648944	2.1786746	21	—	—	—
408840	2001	<i>RV</i> <sub>131</sub>	16.6	X	197.99354	51.77650	5.02522	13.20793	0.2005318	0.23236630	2.6203177	21	5	19.5	21.2
408841	2001	<i>RN</i> <sub>140</sub>	17.2	X	272.03893	168.33398	158.63934	2.23011	0.1408847	0.23417046	2.6068416	21	4	16.5	20.8
408842	2001	<i>RL</i> <sub>154</sub>	16.4	X	175.65759	168.51151	245.89907	10.98858	0.1751526	0.22884866	2.6471007	21	4	29.6	20.8
408843	2001	<i>RQ</i> <sub>154</sub>	17.1	X	188.48930	13.35430	338.72509	6.99540	0.1367243	0.22464639	2.6800100	21	2	24.9	21.4
408844	2001	<i>SR</i> <sub>19</sub>	17.0	X	214.12189	332.00344	25.33011	4.64042	0.2081869	0.22871511	2.6481311	21	3	26.3	21.6
408845	2001	<i>SV</i> <sub>60</sub>	16.5	X	234.75660	135.87214	189.61007	13.24726	0.2033212	0.22715355	2.6602536	21	3	2.4	21.1
408846	2001	<i>SN</i> <sub>75</sub>	17.9	X	201.16809	29.90222	356.76508	18.77117	0.0980035	0.37856698	1.8925218	21	3	31.9	20.2
408847	2001	<i>SX</i> <sub>91</sub>	17.0	X	187.82267	219.52673	202.10216	4.12940	0.1892217	0.23198004	2.6232256	21	5	21.5	21.3
408848	2001	<i>SB</i> <sub>98</sub>	17.9	X	74.02742	335.02411	334.89358	5.10887	0.1899454	0.30454003	2.1879621	21	12	23.4	21.1
408849	2001	<i>SY</i> <sub>122</sub>	16.8	X	220.48424	88.35541	264.09534	3.55237	0.2032717	0.23026849	2.6362082	21	3	22.9	21.3
408850	2001	<i>SU</i> <sub>130</sub>	16.9	X	228.86978	359.42294	357.06280	7.60986	0.1830732	0.23062084	2.6335224	21	4	4.9	21.3
408851	2001	<i>SL</i> <sub>133</sub>	17.9	X	37.92938	28.56798	336.16720	4.05186	0.1756755	0.30443928	2.1884448	21	—	—	—
408852	2001	<i>SE</i> <sub>172</sub>	17.2	X	228.41380	176.10508	161.90810	4.42216	0.2294750	0.22836086	2.6508690	21	3	13.6	21.8
408853	2001	<i>SN</i> <sub>174</sub>	16.8	X	217.29926	297.99777	13.92007	13.09773	0.2603507	0.22492733	2.6777780	21	2	7.7	21.8
408854	2001	<i>SB</i> <sub>192</sub>	18.0	X	101.11074	292.54824	351.83003	4.55836	0.1669384	0.30567936	2.1825220	21	12	14.9	21.3
408855	2001	<i>SL</i> <sub>193</sub>	17.1	X	210.60539	213.47492	173.62258	8.97540	0.1905509	0.23163073	2.6258622	21	4	29.9	21.5
408856	2001	<i>SL</i> <sub>217</sub>	17.1	X	180.70396	59.67205	18.02117	4.35102	0.1904718	0.23190691	2.6237770	21	6	3.2	21.6
408857	2001	<i>SB</i> <sub>221</sub>	17.1	X	218.44412	190.23654	182.89496	5.93399	0.1425728	0.23045543	2.6347824	21	4	20.1	21.2
408858	2001	<i>SD</i> <sub>223</sub>	18.4	X	347.43687	194.10828	185.89099	5.76659	0.1678446	0.29857064	2.2170287	21	11	25.0	20.1
408859	2001	<i>SR</i> <sub>236</sub>	16.8	X	243.07233	339.05132	10.34502	10.92357	0.1070744	0.23137572	2.6277913	21	4	14.4	20.8
408860	2001	<i>SL</i> <sub>259</sub>	17.2	X	217.91799	241.69022	146.31969	6.49506	0.2148188	0.23247479	2.6195024	21	5	6.5	21.7
408861	2001	<i>SH</i> <sub>269</sub>	17.3	X	241.72326	179.89229	206.08622	1.54905	0.0785416	0.23466315	2.6031915	21	6	4.4	21.1
408862	2001	<i>SE</i> <sub>282</sub>	17.7	X	221.22853	111.63175	253.05251	18.57499	0.0883088	0.37964712	1.8889305	21	3	18.9	20.5
408863	2001	<i>SJ</i> <sub>283</sub>	16.1	X	173.92209	156.78288	251.00598	12.91045	0.2481066	0.22485602	2.6783441	21	4	21.5	20.9
408864	2001	<i>SR</i> <sub>288</sub>	18.0	X	39.02365	118.57675	233.93115	6.39917	0.1841513	0.30299137	2.1954112	21	—	—	—
408865	2001	<i>SF</i> <sub>302</sub>	17.7	X	185.45101	79.46307	327.27635	1.22027	0.2099101	0.22926445	2.6438993	21	4	30.3	22.2
408866	2001	<i>SF</i> <sub>321</sub>	16.9	X	188.73682	78.98443	319.28059	11.81489	0.2726865	0.22878458	2.				

ELEMENTS AND OPPOSITION DATES IN 2021  
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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>
408881 2001 TV <sub>237</sub>	16.6	X	244.62212	300.82880	43.65029	14.16402	0.1325111	0.23046074	2.6347419	21	4 13.2	20.7
408882 2001 TN <sub>238</sub>	17.0	X	215.37516	320.64029	80.78942	7.45767	0.2860798	0.23247357	2.6195116	21	5 17.4	21.6
408883 2001 TO <sub>248</sub>	18.9	X	18.51695	259.71109	125.24878	1.37613	0.1201633	0.30372494	2.1918748	21	—	—
408884 2001 TG <sub>257</sub>	17.2	X	119.45926	347.66340	76.69365	6.52738	0.1134098	0.22182197	2.7027115	21	3 15.2	21.0
408885 2001 TU <sub>258</sub>	17.8	X	143.31285	317.25988	97.75473	6.99936	0.2443597	0.22241992	2.6978653	21	4 11.7	22.3
408886 2001 UB <sub>6</sub>	17.6	X	145.98319	221.71921	209.60674	21.85317	0.1065434	0.37464069	1.9057214	21	3 31.8	19.7
408887 2001 UE <sub>12</sub>	17.0	X	184.88833	174.26643	236.79445	8.26601	0.2870845	0.22741217	2.6582363	21	5 6.3	21.7
408888 2001 UL <sub>12</sub>	17.2	X	209.29298	314.70377	22.23874	7.62473	0.3265836	0.22491830	2.6778497	21	2 28.5	22.2
408889 2001 UO <sub>14</sub>	16.4	X	156.53150	197.90912	224.35491	12.86994	0.0567336	0.22556190	2.6727534	21	4 12.9	20.3
408890 2001 UU <sub>28</sub>	17.1	X	172.61380	246.83547	167.93701	3.22898	0.2034103	0.22677724	2.6631957	21	4 30.9	21.5
408891 2001 UY <sub>38</sub>	18.0	X	4.56406	359.86234	51.94782	2.84633	0.1650219	0.30325298	2.1941484	21	—	—
408892 2001 UR <sub>40</sub>	17.1	X	126.71834	197.32080	209.04823	8.36439	0.2437752	0.21912012	2.7248831	21	3 11.6	21.3
408893 2001 UJ <sub>42</sub>	16.4	X	263.37847	77.53077	198.26357	11.90990	0.1534862	0.22388485	2.6860840	21	1 30.0	20.8
408894 2001 UG <sub>86</sub>	17.4	X	165.30616	332.50958	64.84311	4.09074	0.0822332	0.22337050	2.6902058	21	3 28.1	21.3
408895 2001 UB <sub>106</sub>	17.0	X	202.28712	132.23195	209.53790	12.72897	0.2858820	0.22388351	2.6860947	21	2 23.0	22.1
408896 2001 UF <sub>108</sub>	18.1	X	350.96351	6.22241	46.71991	3.62842	0.1810970	0.30086426	2.2057468	21	—	—
408897 2001 UD <sub>165</sub>	16.4	X	289.51050	211.24730	107.97619	10.03349	0.1858340	0.23460032	2.6036563	21	4 25.0	20.2
408898 2001 UU <sub>184</sub>	16.9	X	231.30916	257.73203	118.12240	6.05887	0.2248593	0.23140129	2.6275976	21	5 2.5	21.4
408899 2001 UC <sub>216</sub>	16.7	X	163.35363	11.64651	17.77540	9.58594	0.1702358	0.22229249	2.6988963	21	3 22.4	21.0
408900 2001 UM <sub>229</sub>	17.2	X	263.41888	275.68275	74.85633	5.24172	0.1501983	0.23449151	2.6044616	21	5 6.6	20.9
408901 2001 VN <sub>28</sub>	16.1	X	182.21440	143.90084	245.78059	10.96318	0.1947832	0.22319857	2.6915872	21	4 3.9	20.8
408902 2001 VA <sub>29</sub>	16.7	X	177.04784	330.46933	60.69387	9.78656	0.2077544	0.22271653	2.6954694	21	4 9.3	21.3
408903 2001 VK <sub>54</sub>	16.0	X	184.30600	133.22609	245.73557	13.77357	0.0832433	0.22339367	2.6900198	21	3 17.7	20.3
408904 2001 VN <sub>56</sub>	17.1	X	287.89148	200.11580	276.00033	4.68507	0.1032138	0.29926389	2.2136035	21	12 22.0	18.8
408905 2001 VL <sub>61</sub>	16.9	X	191.40591	14.97702	10.73541	6.31502	0.2816549	0.22561762	2.6723133	21	4 10.5	21.7
408906 2001 VO <sub>82</sub>	16.9	X	144.18751	238.02690	217.81134	10.15363	0.1851368	0.22566206	2.6719625	21	5 25.4	21.2
408907 2001 VX <sub>85</sub>	17.2	X	18.18786	328.37319	38.91843	8.79128	0.2013427	0.29914774	2.2141765	21	—	—
408908 2001 VD <sub>109</sub>	16.3	X	119.15445	182.42227	265.68248	4.24710	0.1357973	0.22061814	2.7125343	21	4 11.9	20.2
408909 2001 VX <sub>110</sub>	16.3	X	83.59091	218.31732	259.92258	7.42762	0.2355622	0.21779061	2.7359613	21	4 20.8	19.9
408910 2001 WS <sub>36</sub>	17.2	X	217.92446	308.38050	55.48623	13.81328	0.2940593	0.22784236	2.6548892	21	4 8.7	22.1
408911 2001 WH <sub>45</sub>	16.9	X	206.99517	127.34117	226.89519	13.88328	0.2357299	0.22514451	2.6760556	21	3 11.6	21.8
408912 2001 WD <sub>53</sub>	17.5	X	175.70356	145.49926	259.90979	1.67113	0.2171547	0.22527936	2.6749877	21	4 21.1	22.0
408913 2001 WL <sub>55</sub>	16.9	X	222.66239	311.00664	40.21581	4.30985	0.2243161	0.22652477	2.6651741	21	3 26.1	21.5
408914 2001 WO <sub>75</sub>	16.1	X	50.31973	285.40158	229.65497	12.22695	0.0302649	0.22165037	2.7041062	21	3 21.0	19.8
408915 2001 WO <sub>95</sub>	16.7	X	223.11133	74.99114	240.68273	3.62796	0.1043160	0.21993540	2.7181450	21	2 12.9	21.0
408916 2001 WK <sub>102</sub>	17.1	X	108.96856	245.00483	200.31191	8.64320	0.2663318	0.21847695	2.7302283	21	4 16.1	21.0
408917 2001 XW <sub>32</sub>	16.4	X	180.91403	150.50027	237.70433	11.76347	0.1805429	0.22355656	2.6887130	21	3 31.7	21.0
408918 2001 XP <sub>48</sub>	17.0	X	153.80355	159.46289	276.65525	9.49498	0.3513318	0.22426482	2.6830491	21	5 16.4	22.0
408919 2001 XM <sub>49</sub>	17.8	X	333.92656	180.12983	243.21443	4.33604	0.1429578	0.29809735	2.2193748	21	12 31.1	19.7
408920 2001 XV <sub>72</sub>	17.0	X	151.39050	150.47593	242.92578	11.11548	0.1465032	0.21845502	2.7304110	21	3 7.4	21.4
408921 2001 XE <sub>90</sub>	16.8	X	157.12567	329.11582	112.67876	10.90349	0.2591061	0.22418666	2.6836726	21	5 25.5	21.6
408922 2001 XV <sub>94</sub>	17.2	X	113.00108	215.98717	255.14211	20.29691	0.0997108	0.37352031	1.9095304	21	4 7.3	19.5
408923 2001 XP <sub>94</sub>	16.5	X	183.84218	340.46536	83.91423	15.39115	0.2343544	0.22587537	2.6702800	21	5 23.9	21.2
408924 2001 XC <sub>192</sub>	17.2	X	310.60707	184.37579	260.92177	4.61531	0.1079304	0.29338097	2.2430972	21	12 15.6	19.0
408925 2001 XO <sub>199</sub>	16.9	X	120.14871	179.47263	265.89370	6.77251	0.3073373	0.21700872	2.7425292	21	4 29.4	21.4
408926 2001 XW <sub>218</sub>	17.2	X	170.31295	42.01970	41.67087	5.62885	0.1897356	0.22740550	2.6582883	21	6 1.8	21.6
408927 2001 XD <sub>264</sub>	16.6	X	199.16351	13.88766	339.17184	4.75112	0.2005965	0.22153479	2.7050466	21	3 8.6	21.1
408928 2001 YY <sub>35</sub>	16.5	X	103.54498	132.75024	285.01305	5.27076	0.1415522	0.21387781	2.7692292	21	2 14.9	20.3
408929 2001 YJ <sub>40</sub>	16.3	X	137.09632	149.94034	263.75507	11.61475	0.1921326	0.21821018	2.7324530	21	3 21.8	20.8
408930 2001 YG <sub>49</sub>	15.8	X	193.40862	87.30777	281.58028	11.93507	0.0762690	0.21921228	2.7241193	21	3 14.5	20.2
408931 2001 YA <sub>157</sub>	16.6	X	103.85340	144.22597	326.08226	9.60233	0.1987641	0.21721183	2.7408193	21	4 28.8	20.7
408932 2002 AA <sub>129</sub>	17.8	X	120.90436	342.86010	111.27787	24.67366	0.0942149	0.37031399	1.9205368	21	4 15.9	20.5
408933 2002 AO <sub>131</sub>	17.5	X	122.52013	342.68377	109.73118	24.02062	0.0785274	0.36773475	1.9295066	21	4 12.9	20.2
408934 2002 AN <sub>138</sub>	18.2	X	313.02983	337.85150	119.78606	2.27990	0.1431647	0.29581255	2.2307881	21	—	—
408935 2002 AY <sub>150</sub>	16.8	X	161.36882	319.31596	125.46453	12.53523	0.2354922	0.22135379	2.7065210	21	5 31.7	21.6
408936 2002 AJ <sub>178</sub>	16.2	X	97.34470	348.12127	127.69830	15.65209	0.2097395	0.21499974	2.7595870	21	5 10.5	20.4
408937 2002 CJ <sub>72</sub>	17.8	X	232.02831	191.76808	327.53006	3.64071	0.0906970	0.28927516	2.2642721	21	11 23.5	20.5
408938 2002 CX <sub>73</sub>	17.6	X	226.25778	51.79739	103.62514	3.23112	0.0936556	0.28783544	2.2718163	21	11 11.9	20.5
408939 2002 CY <sub>114</sub>	18.0	X	29.53111	177.35442	343.78996	21.96710	0.1707594	0.36032117	1.9558830	21	1 29.5	19.5
408940 2002 CM <sub>128</sub>	16.2	X	106.04424	299.27464	154.43919	12.52990	0.1575993	0.21332856	2.7739804	21	4 12.8	20.2
408941 2002 CN <sub>128</sub>	17.9	X	121.43209	47.88238	146.69474	5.19254	0.1181008	0.27727221	2.3291555	21	9 4.1	21.0
408942 2002 CK <sub>133</sub>	16.5	X	75.78276	139.81500	337.06556	7.97869	0.2200763	0.21036496	2.7999726	21	4 4.9	20.0
408943 2002 CT <sub>219</sub>	15.6	X	282.81494	232.56352	354.29403	17.14175	0.1075933	0.19970805	2.8987160	21	1 6.2	20.2
408944 2002 CX <sub>256</sub>	16.7	X	77.47839	18.01651	109.95783	9.15887	0.1687047	0.21286092	2.7780417	21	4 21.9	20.3
408945 2002 CQ <sub>300</sub>	17.7	X	164.42395	222.13738	314.77685	6.23649	0.0464093	0.28242925	2.3007156	21	9 24.7	20.7
408946 2002 CX <sub>313</sub>	17.6	X	131.94610	117.36351	341.61652	17.44776	0.1316626	0.37054272	1.9197464	21	4 20.2	20.1
408947 2002 DY <sub>8</sub>	17.0	X	228.39517	176.81154	352.16075	21.33103	0.1981107	0.28941254	2.2635555	21	11 6.7	20.6
408948 2002 DH <sub>20</sub>	17.6	X	243.76064	113.49867	27.45967	7.43171	0.2134094	0.28719448	2.2751952	21	10 26.1	20.3
408949 2002 ER <sub>90</sub>	17.6	X	139.33744	175.53464	20.53068	2.40934	0.1531419	0.27724298	2.3293192	21	9 26.5	21.0
408950 2002 EU <sub>98</sub>	17.5	X	150.04310	353.23294	193.46261	6.66013	0.2329191	0.27663394	2.3327368	21	9 24.6	21.3
408951 2002 EW <sub>133</sub>	17.9	X	184.78453	278.34234	235.89166	2.24914	0.1378619	0.27954878	2.3164930	21	9 15.6	21.3
408952 2002 ER <sub>145</sub>	17.2	X	279.91927	104.27837	337.62247	10.18931	0.0200925	0.28209255	2.3025460	21	10 20.1	20.2
408953 2002 EM <sub>151</sub>	17.8	X	130.27382	162.99773	20.47623	3.05550	0.1574299	0.27327901	2.3517899	21	9 1.8	21.4
408954 2002 ER <sub>155</sub>	17.5	X	180.									

ELEMENTS AND OPPOSITION DATES IN 2021

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2021 JULY 5.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
408961 2002 GT <sub>181</sub>	16.6 <sup>m</sup>	X	207.63027	273.00040	239.42583	8.64987	0.1023554	0.28234018	2.3011994	21	10 11.1	19.9
408962 2002 JD <sub>150</sub>	16.1	X	112.38376	259.23344	37.88873	10.17812	0.2213584	0.17792595	3.1307125	21	12 24.2	21.5
408963 2002 KQ <sub>3</sub>	16.1	X	163.63267	64.33390	186.98803	26.34084	0.2585337	0.17866488	3.1220745	21	12 11.1	22.1
408964 2002 NR <sub>64</sub>	17.1	X	308.34983	15.66514	294.27547	14.43111	0.1797470	0.25409435	2.4687250	21	4 25.7	20.6
408965 2002 NN <sub>71</sub>	17.1	X	215.11665	347.33808	269.33952	10.50137	0.2135391	0.23504710	2.6003559	21	—	—
408966 2002 OR <sub>26</sub>	16.0	X	132.85943	94.20208	188.33878	16.11706	0.1220499	0.17208245	3.2011915	21	12 19.9	21.4
408967 2002 OW <sub>27</sub>	15.6	X	50.21790	90.93473	305.45806	24.79606	0.2205020	0.17198612	3.2023868	21	—	—
408968 2002 OJ <sub>31</sub>	16.3	X	111.21059	202.13018	122.66534	13.18241	0.1510313	0.17365930	3.1817840	21	—	—
408969 2002 PS <sub>92</sub>	16.0	X	74.02306	156.94287	218.56005	14.12599	0.2569349	0.17077360	3.2175272	21	—	—
408970 2002 PV <sub>114</sub>	18.4	X	232.05940	220.79200	155.30545	14.11560	0.1768654	0.24727917	2.5138790	21	5 7.1	22.6
408971 2002 PD <sub>184</sub>	15.9	X	239.03637	66.08391	133.09389	11.25895	0.0505211	0.17609009	3.1524347	21	—	—
408972 2002 PT <sub>187</sub>	16.4	X	159.58813	159.54701	117.81665	6.27290	0.1799330	0.17581781	3.1556886	21	—	—
408973 2002 QB <sub>69</sub>	18.0	X	275.96182	167.39865	184.87304	1.00441	0.2227952	0.25101741	2.4888582	21	5 11.9	21.6
408974 2002 QW <sub>77</sub>	15.8	X	71.49464	276.30739	137.26982	12.68635	0.1734075	0.17773130	3.1329979	21	1 8.8	19.6
408975 2002 QL <sub>93</sub>	16.9	X	70.58517	10.25683	1.46183	4.50516	0.1693707	0.17059474	3.2197758	21	—	—
408976 2002 QQ <sub>110</sub>	16.4	X	78.83138	196.72945	158.32911	4.08136	0.1085980	0.17173691	3.2054840	21	—	—
408977 2002 QV <sub>113</sub>	15.9	X	23.77793	169.41879	325.87823	9.04065	0.1819385	0.16867895	3.2441092	21	—	—
408978 2002 QV <sub>114</sub>	16.2	X	34.90658	238.25575	166.17897	15.52659	0.1707129	0.17001502	3.2270908	21	—	—
408979 2002 QL <sub>130</sub>	16.1	X	161.85628	309.60479	355.88036	11.51820	0.0973466	0.17720615	3.1391846	21	—	—
408980 2002 RB <sub>126</sub>	18.6	X	33.80800	224.90329	6.91436	15.04379	0.2722629	0.57650757	1.4297695	21	10 20.3	20.9
408981 2002 RS <sub>274</sub>	17.5	X	291.49950	231.84759	152.02038	7.15845	0.0649819	0.25764549	2.4459882	21	8 10.3	20.4
408982 2002 SP	20.6	X	193.42496	169.41183	350.88894	20.85307	0.6005077	1.14552247	0.9046216	21	—	—
408983 2002 SL <sub>9</sub>	16.9	X	143.54188	25.89705	26.58711	7.68064	0.1671471	0.23555093	2.5966465	21	3 29.8	20.7
408984 2002 SA <sub>67</sub>	16.0	X	295.49383	298.62736	200.47804	10.78622	0.0384049	0.16851131	3.2462604	21	—	—
408985 2002 SE <sub>73</sub>	17.3	X	309.96753	185.34654	89.44302	4.17511	0.1141035	0.24632574	2.5203616	21	3 30.6	20.4
408986 2002 TF <sub>69</sub>	17.7	X	47.02792	199.78751	207.61177	22.39778	0.0672674	0.37895182	1.8912403	21	—	—
408987 2002 TD <sub>71</sub>	17.1	X	258.77054	0.64434	358.42699	14.59784	0.2079405	0.24662577	2.5183171	21	4 28.7	21.2
408988 2002 TN <sub>85</sub>	16.7	X	189.38882	19.81517	33.49605	31.06381	0.1729044	0.24127197	2.5554348	21	5 5.4	21.1
408989 2002 TW <sub>141</sub>	17.4	X	239.86102	341.66815	48.67311	19.52577	0.2399884	0.24642926	2.5196557	21	5 21.6	21.6
408990 2002 TY <sub>272</sub>	17.9	X	210.01686	102.90444	282.00323	3.48299	0.2662562	0.24227110	2.5484042	21	4 21.0	22.5
408991 2002 TL <sub>277</sub>	17.1	X	233.52493	173.05681	211.89221	14.87099	0.1408993	0.24487648	2.5302960	21	5 19.3	21.0
408992 2002 TP <sub>279</sub>	16.5	X	227.75731	352.59544	1.10407	15.82029	0.1540122	0.24007614	2.5639136	21	3 31.3	20.6
408993 2002 TF <sub>324</sub>	17.7	X	127.61606	78.02668	28.95238	1.58448	0.0932761	0.24230726	2.5481506	21	5 11.1	21.2
408994 2002 TG <sub>334</sub>	17.5	X	329.31122	188.80564	49.84830	5.78436	0.0724846	0.23989647	2.5651936	21	3 17.2	20.7
408995 2002 UZ <sub>36</sub>	17.9	X	230.15489	331.27941	33.92569	14.23852	0.3408458	0.24300218	2.5432903	21	4 12.7	22.7
408996 2002 UC <sub>60</sub>	17.5	X	243.09819	195.29445	187.02252	13.07013	0.2430265	0.24586860	2.5234847	21	5 18.3	21.8
408997 2002 UB <sub>78</sub>	16.6	X	268.00066	288.57006	48.40130	8.67245	0.0382592	0.24101957	2.5572185	21	5 7.4	19.8
408998 2002 VC <sub>27</sub>	16.1	X	50.35376	183.38766	235.53112	17.21297	0.3518464	0.16753824	3.2588178	21	—	—
408999 2002 VO <sub>64</sub>	16.7	X	268.04286	329.44916	35.83382	14.77537	0.1196373	0.24645842	2.5194570	21	5 30.9	20.3
409000 2002 VF <sub>107</sub>	17.2	X	187.73290	180.13022	244.51323	13.71415	0.2315668	0.24032097	2.5621719	21	5 24.4	21.7
409001 2002 VG <sub>116</sub>	16.3	X	186.20149	159.02103	252.22570	16.91818	0.1551583	0.23851106	2.5751174	21	5 4.0	20.6
409002 2002 WG <sub>6</sub>	17.0	X	224.06558	140.30117	253.84622	10.98484	0.2598171	0.24319219	2.5419654	21	5 13.7	21.5
409003 2002 XQ <sub>41</sub>	17.3	X	240.76976	91.22597	280.94636	3.87978	0.2546498	0.24231214	2.5481164	21	4 29.7	21.6
409004 2002 XG <sub>53</sub>	16.9	X	201.72897	168.47659	267.94991	4.42723	0.2543723	0.24159783	2.5531364	21	6 18.7	21.3
409005 2002 XQ <sub>61</sub>	17.4	X	246.87263	231.54350	161.89050	3.77361	0.2288045	0.24493228	2.5299117	21	6 4.7	21.5
409006 2002 XS <sub>73</sub>	16.9	X	167.35508	140.56858	281.81767	9.66097	0.2186390	0.23572160	2.5953930	21	5 2.2	21.4
409007 2002 XA <sub>98</sub>	17.5	X	219.60867	343.37028	74.26803	8.64483	0.2236958	0.24410203	2.5356451	21	6 10.7	21.7
409008 2002 XV <sub>104</sub>	17.1	X	201.48623	146.56654	261.10155	11.64396	0.1482472	0.23911918	2.5707496	21	5 14.6	21.3
409009 2002 XH <sub>117</sub>	17.7	X	185.99814	333.13449	76.26476	3.36143	0.1887590	0.23826707	2.5768751	21	5 4.6	22.0
409010 2002 XS <sub>117</sub>	17.0	X	192.25608	335.19537	82.67111	8.66872	0.1585373	0.24009249	2.5637972	21	5 21.1	21.1
409011 2003 AZ <sub>13</sub>	17.0	X	174.07274	252.01035	213.61041	3.54926	0.2298548	0.23747904	2.5825725	21	7 3.2	21.5
409012 2003 AV <sub>33</sub>	17.3	X	165.86508	358.16311	101.07838	5.75888	0.2134573	0.23643218	2.5901902	21	6 18.7	21.6
409013 2003 AA <sub>79</sub>	16.8	X	196.19512	141.36982	274.85651	3.84804	0.2404531	0.23611891	2.5924807	21	5 20.3	21.3
409014 2003 AK <sub>81</sub>	16.4	X	149.10579	128.12331	348.43753	11.70213	0.1779895	0.23670677	2.5881867	21	6 24.8	20.8
409015 2003 AZ <sub>81</sub>	17.0	X	195.34742	138.41522	286.79722	2.64004	0.2370888	0.23772969	2.5807569	21	5 30.9	21.5
409016 2003 AG <sub>84</sub>	17.1	X	194.98469	334.71908	128.00202	5.84789	0.2687847	0.24004252	2.5641530	21	7 15.7	21.5
409017 2003 BY	16.7	X	90.91022	223.51899	298.38956	3.64641	0.1757041	0.23160069	2.6260892	21	6 20.9	20.2
409018 2003 BO <sub>8</sub>	16.9	X	180.56539	207.57487	250.03972	4.20555	0.2186908	0.23832412	2.5764639	21	6 28.6	21.2
409019 2003 BO <sub>21</sub>	18.2	X	251.31818	232.01872	128.19879	22.00766	0.0399574	0.39329190	1.8449845	21	5 15.7	20.7
409020 2003 BJ <sub>66</sub>	16.7	X	150.96093	142.15813	324.02144	6.24907	0.1802497	0.23258878	2.6186465	21	6 12.5	21.0
409021 2003 CL <sub>1</sub>	17.0	X	180.34175	248.92516	215.04101	4.61787	0.2877608	0.23872960	2.5735456	21	7 5.9	21.6
409022 2003 EX <sub>6</sub>	18.2	X	123.52198	134.18793	339.27095	19.14254	0.1127533	0.38883575	1.8590537	21	4 24.3	20.6
409023 2003 EJ <sub>46</sub>	17.6	X	120.47502	225.16966	357.64766	7.84792	0.1846147	0.29278849	2.2461222	21	10 13.4	21.0
409024 2003 ED <sub>57</sub>	16.5	X	140.37721	114.33897	24.95490	30.47749	0.3314603	0.23328529	2.6134317	21	8 5.3	21.9
409025 2003 EJ <sub>62</sub>	16.3	X	75.60388	267.68693	240.93624	11.62706	0.2102369	0.22324560	2.6912091	21	5 18.3	19.5
409026 2003 FL <sub>23</sub>	17.9	X	198.19173	26.41945	170.08325	4.57088	0.0901171	0.30164046	2.2019612	21	12 4.7	20.7
409027 2003 GM	17.8	X	302.48747	234.99886	14.32292	21.85479	0.0868005	0.37629731	1.9001241	21	2 2.7	20.5
409028 2003 GC <sub>19</sub>	17.9	X	52.27205									

ELEMENTS AND OPPOSITION DATES IN 2021  
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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>
409041 2003 <i>RL</i> <sub>13</sub>	16.5 <sup>m</sup>	X	91.22735	337.20264	7.42016	4.23059	0.2606446	0.17905196	3.1175732	21	—	—
409042 2003 <i>RO</i> <sub>25</sub>	16.5	X	110.48119	106.47295	223.32632	14.28457	0.2540453	0.18065336	3.0991221	21	—	—
409043 2003 <i>RS</i> <sub>25</sub>	15.3	X	113.64719	107.94015	243.34510	15.27150	0.1027260	0.18249517	3.0782352	21	—	—
409044 2003 <i>SX</i> <sub>29</sub>	15.7	X	2.30178	258.27702	170.83275	16.18359	0.2289496	0.17572425	3.1568086	21	—	—
409045 2003 <i>SM</i> <sub>32</sub>	15.5	X	110.43076	330.39348	21.09122	18.30368	0.2247079	0.18132105	3.0915093	21	—	—
409046 2003 <i>SW</i> <sub>39</sub>	15.0	X	53.10005	341.15611	357.55268	18.45384	0.1677973	0.17102986	3.2143125	21	12 7.2	19.9
409047 2003 <i>SK</i> <sub>49</sub>	16.1	X	139.46242	122.71043	208.13943	12.15959	0.1698757	0.18349494	3.0670439	21	—	—
409048 2003 <i>SD</i> <sub>68</sub>	17.7	X	252.33214	151.86655	278.35823	4.61711	0.1551912	0.26948141	2.3738331	21	8 6.0	20.8
409049 2003 <i>SP</i> <sub>69</sub>	16.8	X	125.19952	17.18055	325.72629	1.07481	0.2078011	0.18273238	3.0755707	21	—	—
409050 2003 <i>SH</i> <sub>79</sub>	16.0	X	72.33795	62.72835	335.36137	8.45501	0.2195259	0.18097330	3.0954684	21	—	—
409051 2003 <i>SC</i> <sub>83</sub>	18.3	X	299.00883	352.04358	28.20283	2.38826	0.1718257	0.26959937	2.3731406	21	8 1.9	20.8
409052 2003 <i>SX</i> <sub>90</sub>	17.6	X	301.34051	353.28413	359.51750	2.86492	0.1890437	0.26769958	2.3843550	21	6 20.6	20.2
409053 2003 <i>SA</i> <sub>99</sub>	15.8	X	95.19303	8.63115	16.99300	24.83008	0.2417475	0.18190416	3.0848991	21	1 27.9	20.5
409054 2003 <i>SE</i> <sub>101</sub>	16.0	X	101.03861	95.61368	243.84933	11.54494	0.2889140	0.17955734	3.1117207	21	—	—
409055 2003 <i>SR</i> <sub>101</sub>	15.6	X	55.00387	12.39047	350.63193	20.86982	0.1536052	0.17357134	3.1828588	21	—	—
409056 2003 <i>SZ</i> <sub>116</sub>	15.4	X	75.16847	129.90470	251.38172	11.25513	0.1712182	0.18018509	3.1044892	21	—	—
409057 2003 <i>SK</i> <sub>122</sub>	16.4	X	105.15454	141.06045	242.11256	8.74295	0.0842846	0.18532381	3.0468324	21	1 3.5	20.7
409058 2003 <i>SU</i> <sub>150</sub>	16.2	X	38.68584	329.65149	64.61804	6.10867	0.2006700	0.17588768	3.1548528	21	—	—
409059 2003 <i>SE</i> <sub>161</sub>	15.6	X	70.05887	43.03635	10.97930	16.51141	0.2182974	0.18117722	3.0931453	21	1 17.1	19.5
409060 2003 <i>SC</i> <sub>175</sub>	17.1	X	83.34305	272.29076	128.35446	0.52118	0.2735654	0.18356518	3.0662615	21	1 24.5	20.9
409061 2003 <i>SK</i> <sub>175</sub>	16.1	X	107.43274	354.14848	0.15933	8.42240	0.1047906	0.18197134	3.0841398	21	—	—
409062 2003 <i>SZ</i> <sub>183</sub>	16.3	X	1.36085	85.11092	4.75622	14.76217	0.3054555	0.17513211	3.1639203	21	—	—
409063 2003 <i>SF</i> <sub>184</sub>	16.5	X	109.86591	338.67851	10.71871	1.00953	0.2323669	0.18098661	3.0953167	21	—	—
409064 2003 <i>SA</i> <sub>185</sub>	16.7	X	92.47863	280.83289	88.30894	2.14362	0.1781229	0.18051621	3.1006916	21	—	—
409065 2003 <i>SJ</i> <sub>203</sub>	16.0	X	74.18909	51.69795	355.82196	12.08439	0.1747792	0.18383899	3.0632161	21	1 6.4	19.9
409066 2003 <i>SU</i> <sub>207</sub>	15.2	X	129.54228	302.45983	33.17027	13.31731	0.1011756	0.18000458	3.1065642	21	—	—
409067 2003 <i>SO</i> <sub>222</sub>	17.4	X	315.43773	224.54006	132.87041	1.31658	0.2238491	0.26821252	2.3813141	21	7 18.2	19.3
409068 2003 <i>SY</i> <sub>226</sub>	17.9	X	270.77283	66.23489	344.08582	5.69628	0.1139804	0.26998924	2.3708554	21	8 11.9	20.8
409069 2003 <i>ST</i> <sub>237</sub>	17.6	X	335.11412	347.69573	14.86887	2.71006	0.2349820	0.27220398	2.3579779	21	9 19.0	18.8
409070 2003 <i>SL</i> <sub>243</sub>	15.8	X	205.66418	266.93163	357.01458	10.78871	0.0726640	0.18426042	3.0585436	21	—	—
409071 2003 <i>SN</i> <sub>246</sub>	16.3	X	129.34149	119.23792	194.04824	17.18126	0.2190005	0.18007221	3.1057864	21	—	—
409072 2003 <i>SL</i> <sub>267</sub>	16.5	X	12.29939	220.49876	190.01052	9.01290	0.0720139	0.17454026	3.1710686	21	12 31.3	20.9
409073 2003 <i>SY</i> <sub>277</sub>	15.8	X	15.59953	208.30030	236.36092	9.60354	0.2107295	0.17744784	3.1363335	21	—	—
409074 2003 <i>SA</i> <sub>280</sub>	16.4	X	70.85021	109.56775	244.57086	8.73238	0.2183825	0.17598760	3.1536586	21	—	—
409075 2003 <i>SE</i> <sub>282</sub>	16.0	X	97.70878	79.81633	282.56687	10.77810	0.1670567	0.17989954	3.1077735	21	—	—
409076 2003 <i>SE</i> <sub>292</sub>	17.6	X	73.83039	232.33260	208.50456	26.11564	0.0705577	0.35344835	1.9811563	21	—	—
409077 2003 <i>SS</i> <sub>295</sub>	17.3	X	320.49984	85.07919	265.34362	6.80463	0.1401009	0.26872038	2.3783128	21	7 29.0	19.6
409078 2003 <i>SR</i> <sub>296</sub>	16.0	X	103.23039	17.55029	327.05444	17.25348	0.2040879	0.17942930	3.1132009	21	—	—
409079 2003 <i>SA</i> <sub>315</sub>	17.4	X	121.39515	196.77684	208.97910	21.51569	0.0849201	0.35801916	1.9642580	21	1 9.3	19.9
409080 2003 <i>SM</i> <sub>324</sub>	16.9	X	47.07230	63.92785	352.92432	16.81444	0.1748486	0.18061295	3.0995844	21	—	—
409081 2003 <i>SB</i> <sub>326</sub>	16.4	X	72.11411	210.07190	191.20712	27.43502	0.1169899	0.18139803	3.0906346	21	—	—
409082 2003 <i>SN</i> <sub>327</sub>	16.9	X	86.64691	114.62969	202.82618	12.80306	0.2972104	0.17578105	3.1561285	21	12 30.9	22.5
409083 2003 <i>SX</i> <sub>327</sub>	17.2	X	271.64247	236.52663	193.63026	6.53853	0.0822054	0.27054612	2.3676010	21	9 13.8	19.9
409084 2003 <i>SK</i> <sub>328</sub>	16.4	X	174.35988	101.31944	184.92272	9.08010	0.1226877	0.18238929	3.0794264	21	—	—
409085 2003 <i>SE</i> <sub>329</sub>	16.1	X	95.86973	14.84868	355.91160	10.45529	0.0938458	0.18230349	3.0803925	21	—	—
409086 2003 <i>SY</i> <sub>329</sub>	17.6	X	109.31225	258.72273	333.97470	4.56638	0.1071881	0.27652944	2.3332425	21	10 8.1	20.9
409087 2003 <i>SK</i> <sub>330</sub>	18.5	X	263.61111	29.25972	49.59039	1.91559	0.1573575	0.27081415	2.3660385	21	9 4.4	21.2
409088 2003 <i>SO</i> <sub>330</sub>	16.2	X	319.31260	134.55995	14.89140	16.57078	0.0275922	0.18176529	3.0864702	21	—	—
409089 2003 <i>SY</i> <sub>335</sub>	16.2	X	70.77439	312.77499	96.26250	9.58050	0.1795126	0.18058665	3.0998852	21	1 2.1	19.8
409090 2003 <i>ST</i> <sub>338</sub>	16.3	X	166.87650	220.65263	31.34996	11.39600	0.1073949	0.17570713	3.1570136	21	12 15.8	21.4
409091 2003 <i>SG</i> <sub>340</sub>	16.2	X	99.68995	316.67277	29.91500	10.72293	0.0589175	0.17857746	3.1230933	21	—	—
409092 2003 <i>SK</i> <sub>345</sub>	16.3	X	234.29214	29.04754	198.62310	9.36625	0.0450825	0.18317780	3.0705828	21	—	—
409093 2003 <i>SK</i> <sub>349</sub>	16.6	X	77.70872	245.35279	107.38203	1.68228	0.0704698	0.17697473	3.1419207	21	—	—
409094 2003 <i>SE</i> <sub>358</sub>	15.8	X	287.76848	355.72544	189.85207	16.26817	0.0392740	0.18236854	3.0796600	21	—	—
409095 2003 <i>SX</i> <sub>359</sub>	16.5	X	2.02206	272.34829	181.50627	10.23711	0.0184658	0.17958317	3.1114223	21	—	—
409096 2003 <i>SK</i> <sub>364</sub>	16.9	X	59.57337	54.05480	332.05795	7.91297	0.1544646	0.17917817	3.1161091	21	—	—
409097 2003 <i>ST</i> <sub>364</sub>	17.8	X	256.11874	226.91974	221.41189	4.59329	0.2002065	0.27172260	2.3607620	21	8 28.7	21.0
409098 2003 <i>SS</i> <sub>365</sub>	16.7	X	72.05909	146.82113	246.44908	2.17021	0.2225679	0.18155323	3.0888731	21	—	—
409099 2003 <i>SP</i> <sub>368</sub>	18.1	X	333.71576	134.74547	192.37166	3.55754	0.0668109	0.26905519	2.3763394	21	7 25.8	20.6
409100 2003 <i>SO</i> <sub>387</sub>	16.3	X	7.95617	19.95732	20.70152	22.97302	0.0719085	0.17184403	3.2041518	21	12 8.6	21.0
409101 2003 <i>SQ</i> <sub>392</sub>	16.5	X	103.55981	258.38975	53.37591	9.73201	0.0561351	0.17358023	3.1827501	21	12 20.6	21.3
409102 2003 <i>SU</i> <sub>394</sub>	16.0	X	326.14740	317.63388	177.06529	17.86636	0.1024864	0.17730518	3.1380156	21	—	—
409103 2003 <i>SF</i> <sub>410</sub>	17.2	X	77.57371	229.61069	172.75219	2.68409	0.1251463	0.18330489	3.0691635	21	—	—
409104 2003 <i>SX</i> <sub>410</sub>	18.8	X	246.69947	90.26860	340.85045	4.43055	0.2233915	0.26722145	2.3871584	21	7 25.0	22.2
409105 2003 <i>SL</i> <sub>432</sub>	16.8	X	98.92580	186.37366	170.54962	2.29331	0.0592223	0.18051087	3.1007528	21	—	—
409106 2003 <i>SM</i> <sub>432</sub>	16.1	X	147.55690	272.21967	5.88825	26.57450	0.1107269	0.17770918	3.1332579	21	12 31.9	21.6
409107 2003 <i>ST</i> <sub>432</sub>	16.2	X	70.78735	41.49314	332.36112	8.77885	0.1095178	0.17718387	3.1394478	21	—	—
409108 2003 <i>SD</i> <sub>433</sub>	17.6	X	5.74048	325.10075	324.26711	0.62255	0.1694148	0.26708320	2.3880221	21	7 30.5	19.4
409109 2003 <i>TV</i> <sub>8</sub>	16.7	X	40.13389	9.86579	7.11344	13.06878	0.2524233	0.17076794	3.2175982	21	—	—
409110 2003 <i>TG</i> <sub>19</sub>	15.5	X	97.56199	105.99295	243.61485	9.68132	0.1281474	0.17993663	3.1073463	21	—	—
409111 2003 <i>TW</i> <sub>27</sub>	16.4	X	44.67608	215.08480	205.29595	8.86034	0.0731785	0.17987976	3.1080013	21	—	—
409112 2003 <i>TO</i> <sub>29</sub>	15.9	X	29.88358	68.58416	23.25461	9.53612	0.1116786	0.18112705	3.0937164	21	—	—
409113 2003 <i>TV</i> <sub>34</sub>	16.1	X	2.44821	172.99490	247.87663	8						

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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>
409121 2003 <i>UW</i> <sub>2</sub>	16.1	X	276.06960	349.44088	203.39493	26.38868	0.0262600	0.17628340	3.1501297	21	—	—
409122 2003 <i>UJ</i> <sub>6</sub>	15.2	X	359.38897	199.67320	263.06919	21.31621	0.1690787	0.17705591	3.1409602	21	—	—
409123 2003 <i>UF</i> <sub>16</sub>	15.8	X	61.55424	189.86311	204.28072	10.42095	0.2120761	0.17683691	3.1435529	21	—	—
409124 2003 <i>UB</i> <sub>19</sub>	17.7	X	252.70755	27.22753	40.13577	5.62210	0.2145515	0.26447898	2.4036724	21	7 28.4	21.1
409125 2003 <i>UD</i> <sub>19</sub>	15.8	X	113.68975	138.37778	220.18224	16.50741	0.2208184	0.18095602	3.0956654	21	1 2.5	20.5
409126 2003 <i>UP</i> <sub>21</sub>	15.4	X	99.77555	36.46368	296.17782	15.93180	0.2442833	0.17752875	3.1353805	21	—	—
409127 2003 <i>UF</i> <sub>24</sub>	17.6	X	326.80053	180.14724	15.54796	19.82528	0.0498797	0.35649545	1.9698511	21	—	—
409128 2003 <i>US</i> <sub>30</sub>	16.0	X	118.00198	332.48889	5.39700	10.99049	0.1307450	0.17920929	3.1157483	21	—	—
409129 2003 <i>UJ</i> <sub>32</sub>	16.4	X	105.23911	133.05206	211.79302	3.93674	0.1197660	0.17785714	3.1315199	21	—	—
409130 2003 <i>UV</i> <sub>32</sub>	15.9	X	173.56355	272.03368	28.43614	10.50987	0.0562662	0.18129407	3.0918161	21	—	—
409131 2003 <i>UE</i> <sub>35</sub>	15.5	X	126.94676	70.04395	253.75396	7.78013	0.1201312	0.18059196	3.0998245	21	—	—
409132 2003 <i>UY</i> <sub>37</sub>	15.6	X	23.88450	208.62172	234.83213	16.59374	0.2086202	0.17746415	3.1361414	21	—	—
409133 2003 <i>UL</i> <sub>49</sub>	15.6	X	106.87501	65.09205	265.29593	11.16826	0.1492311	0.17599238	3.1536014	21	—	—
409134 2003 <i>UH</i> <sub>50</sub>	15.8	X	18.23253	168.86340	287.53409	9.44865	0.1919045	0.17748656	3.1358773	21	—	—
409135 2003 <i>UK</i> <sub>52</sub>	15.3	X	107.74064	126.70904	234.00103	19.78272	0.1827337	0.18062664	3.0994278	21	—	—
409136 2003 <i>UM</i> <sub>54</sub>	15.9	X	350.46333	87.70981	10.37428	14.91053	0.2144753	0.17202814	3.2018652	21	—	—
409137 2003 <i>UP</i> <sub>55</sub>	15.6	X	81.82134	344.06442	23.78150	12.73849	0.2599248	0.17565988	3.1575797	21	—	—
409138 2003 <i>UD</i> <sub>62</sub>	16.2	X	82.96004	224.50393	157.96834	10.06945	0.2739991	0.17967900	3.1103158	21	1 1.9	20.1
409139 2003 <i>UO</i> <sub>63</sub>	17.4	X	288.25201	304.25165	81.51819	8.67949	0.2348836	0.26741297	2.3860584	21	7 11.3	20.2
409140 2003 <i>UJ</i> <sub>69</sub>	16.3	X	168.42650	113.64016	184.09876	9.78717	0.0722235	0.18257408	3.0773482	21	—	—
409141 2003 <i>UV</i> <sub>74</sub>	15.7	X	137.25280	36.22450	263.96662	7.40852	0.1782603	0.17826717	3.1267163	21	—	—
409142 2003 <i>UN</i> <sub>75</sub>	16.2	X	49.34755	220.51927	217.11635	10.35026	0.1823835	0.18143832	3.0901771	21	—	—
409143 2003 <i>UU</i> <sub>76</sub>	17.4	X	221.77039	113.98815	219.19692	20.03517	0.0915904	0.36180210	1.9505421	21	2 6.4	20.4
409144 2003 <i>UB</i> <sub>85</sub>	15.8	X	25.93769	13.20431	44.13887	10.19088	0.0803258	0.17436882	3.1731469	21	—	—
409145 2003 <i>UM</i> <sub>94</sub>	16.1	X	82.78440	15.14200	23.58614	8.04447	0.1540771	0.18144110	3.0901455	21	1 5.1	20.1
409146 2003 <i>UT</i> <sub>94</sub>	17.2	X	306.44935	193.12676	214.68715	6.51349	0.0998226	0.27259304	2.3557338	21	10 6.0	19.5
409147 2003 <i>UQ</i> <sub>104</sub>	16.5	X	43.93243	176.96317	217.03966	12.63676	0.1841577	0.17502878	3.1651654	21	—	—
409148 2003 <i>UA</i> <sub>113</sub>	17.4	X	294.42839	295.45071	96.83072	5.48669	0.1841625	0.26832457	2.3806511	21	8 10.6	19.9
409149 2003 <i>UV</i> <sub>115</sub>	15.7	X	75.35805	148.84306	227.31976	11.45639	0.2671986	0.17678954	3.1441144	21	—	—
409150 2003 <i>UJ</i> <sub>120</sub>	15.8	X	138.77480	281.55658	22.99156	13.46339	0.1820443	0.17856215	3.1232718	21	—	—
409151 2003 <i>UU</i> <sub>120</sub>	15.4	X	32.39839	101.82920	359.05651	25.80219	0.2315641	0.17915357	3.1163943	21	1 5.9	19.1
409152 2003 <i>UA</i> <sub>127</sub>	16.0	X	39.77757	28.67860	30.67392	8.77610	0.1593240	0.17652179	3.1472929	21	—	—
409153 2003 <i>UU</i> <sub>128</sub>	17.6	X	307.09998	313.38083	28.93135	4.87650	0.1701331	0.26436390	2.4043699	21	6 17.7	20.2
409154 2003 <i>UD</i> <sub>131</sub>	16.5	X	286.68189	150.69175	279.05419	7.76093	0.1789867	0.21474356	2.7617813	21	9 11.1	20.1
409155 2003 <i>UX</i> <sub>135</sub>	15.8	X	51.93836	77.27734	6.53982	19.12585	0.3064184	0.17997084	3.1069526	21	2 6.7	19.1
409156 2003 <i>UW</i> <sub>156</sub>	17.5	X	320.02100	288.96287	98.15462	5.83810	0.2146936	0.27165769	2.3611381	21	9 25.1	19.2
409157 2003 <i>UB</i> <sub>161</sub>	16.0	X	126.88926	113.52272	220.83358	9.30265	0.1223916	0.17896254	3.1186116	21	—	—
409158 2003 <i>UL</i> <sub>172</sub>	15.8	X	88.91576	305.73657	59.25563	11.47308	0.2086966	0.17781801	3.1319793	21	—	—
409159 2003 <i>UP</i> <sub>174</sub>	15.2	X	111.71664	325.21991	30.99115	11.59119	0.0519493	0.17899635	3.1182189	21	—	—
409160 2003 <i>UO</i> <sub>182</sub>	16.6	X	63.06182	18.19551	43.48559	1.40164	0.1745889	0.18091982	3.0960785	21	1 4.8	20.2
409161 2003 <i>UA</i> <sub>191</sub>	15.8	X	8.01203	34.42065	50.29598	17.55723	0.2267743	0.17401666	3.1774264	21	—	—
409162 2003 <i>UF</i> <sub>201</sub>	17.6	X	289.13675	237.80581	161.12489	3.23203	0.1710967	0.26821326	2.3813097	21	8 11.9	20.3
409163 2003 <i>US</i> <sub>203</sub>	17.9	X	279.15379	75.15027	331.34039	0.71301	0.1811259	0.26694513	2.3888454	21	8 6.0	20.5
409164 2003 <i>UU</i> <sub>204</sub>	18.0	X	270.96519	167.98121	268.12253	1.38561	0.1951939	0.26973711	3.3723326	21	9 2.8	21.0
409165 2003 <i>UO</i> <sub>207</sub>	17.9	X	303.84173	74.47133	301.85902	1.94489	0.1779557	0.26742601	2.3859808	21	8 2.5	20.3
409166 2003 <i>UV</i> <sub>211</sub>	17.7	X	312.03255	325.39521	38.20095	5.82830	0.2454528	0.26755424	2.3852185	21	7 18.7	19.9
409167 2003 <i>UJ</i> <sub>214</sub>	16.0	X	1.09053	51.30705	24.71779	12.16610	0.0916436	0.17365342	3.1818558	21	—	—
409168 2003 <i>UA</i> <sub>215</sub>	16.4	X	39.05441	306.08900	123.92357	2.40168	0.1429164	0.17840786	3.1250723	21	—	—
409169 2003 <i>UO</i> <sub>216</sub>	17.4	X	326.84607	85.70340	232.93707	8.56465	0.2412091	0.26629464	2.3927341	21	6 5.9	19.3
409170 2003 <i>UC</i> <sub>229</sub>	15.4	X	46.07821	337.66831	30.25410	15.56130	0.1751033	0.17005775	3.2265503	21	—	—
409171 2003 <i>UF</i> <sub>229</sub>	17.5	X	240.40771	161.61651	262.78032	3.87338	0.1852530	0.26262149	2.4149930	21	7 12.0	21.1
409172 2003 <i>UB</i> <sub>235</sub>	18.2	X	242.31493	176.64706	256.62819	0.39125	0.1427601	0.26515674	2.3995747	21	7 31.6	21.5
409173 2003 <i>UG</i> <sub>239</sub>	16.0	X	83.60523	329.56352	16.46489	15.87969	0.1449098	0.17545560	3.1600301	21	—	—
409174 2003 <i>UX</i> <sub>240</sub>	15.9	X	75.62611	348.19390	21.37918	10.74270	0.2022272	0.17528283	3.1621063	21	—	—
409175 2003 <i>UC</i> <sub>245</sub>	15.6	X	83.06409	153.94128	202.99679	17.40187	0.1730613	0.17506000	3.1647891	21	—	—
409176 2003 <i>UM</i> <sub>250</sub>	15.4	X	59.77462	131.02002	243.02758	12.26657	0.0891325	0.17233075	3.1981159	21	—	—
409177 2003 <i>UC</i> <sub>254</sub>	16.3	X	24.89441	230.45010	205.71819	7.13987	0.1175110	0.17687632	3.1430859	21	—	—
409178 2003 <i>UQ</i> <sub>282</sub>	16.6	X	348.32807	307.33951	90.76758	8.62943	0.2522356	0.27578775	2.3375060	21	12 30.0	18.3
409179 2003 <i>UN</i> <sub>296</sub>	18.2	X	329.38037	354.37116	30.89311	1.63675	0.2030899	0.27358084	2.3500599	21	10 14.4	19.4
409180 2003 <i>UK</i> <sub>297</sub>	17.2	X	262.03416	51.38772	15.90722	7.52071	0.0967384	0.26781033	2.3836977	21	8 28.5	20.1
409181 2003 <i>UO</i> <sub>297</sub>	17.2	X	169.56161	153.04041	11.99057	6.50282	0.0439376	0.26902887	2.3764944	21	9 17.9	20.3
409182 2003 <i>UZ</i> <sub>298</sub>	16.7	X	72.33028	123.82943	214.23010	6.57575	0.1591603	0.17213683	3.2005173	21	12 29.0	21.6
409183 2003 <i>UF</i> <sub>299</sub>	16.1	X	0.17403	50.24872	32.20047	6.07731	0.1208827	0.17437121	3.1731177	21	—	—
409184 2003 <i>UN</i> <sub>299</sub>	16.4	X	116.40419	136.05287	202.59021	13.50166	0.1647071	0.17902661	3.1178676	21	—	—
409185 2003 <i>UY</i> <sub>308</sub>	17.7	X	340.85594	254.88526	84.32679	2.39833	0.1977168	0.26985094	2.3716654	21	8 25.2	19.1
409186 2003 <i>UR</i> <sub>314</sub>	18.6	X	240.71486	47.64777	356.06063	0.98170	0.1864123	0.25932425	2.4354205	21	6 15.7	22.1
409187 2003 <i>UT</i> <sub>315</sub>	18.0	X	281.32250	245.01908	138.91517	5.28601	0.2323950	0.26589914	2.3951061	21	6 28.7	21.0
409188 2003 <i>UH</i> <sub>316</sub>	16.3	X	21.70348	13.55189	36.59671	11.45334	0.1890334	0.17182872	3.2043421	21	—	—
409189 2003 <i>UY</i> <sub>316</sub>	17.7	X	290.73190	109.04281	293.17580	2.59103	0.2153135	0.27097349	2.3651109	21	8 11.7	20.2
409190 2003 <i>UM</i> <sub>317</sub>	15.9	X	113.04273	292.22995	34.74396	11.28198	0.0573967	0.17760124	3.1345273	21	—	—
409191 2003 <i>UC</i> <sub>327</sub>	16.4	X	94.44306	110.14825	194.18540	15.87014	0.0891341	0.17517082	3.1634541	21	12 6.9	21.3
409192 2003 <i>UY</i> <sub>327</sub>	17.5	X	231.91660	183.76683	237.44197	5.43240	0.0855361	0.26680624	2.3896774	21	7 8.3	20.7
409193 2003 <i>UD</i>												

ELEMENTS AND OPPOSITION DATES IN 2021

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2021 JULY 5.0 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>
409201 2003 <i>WS</i>	18.2	X	304.09398	167.32002	224.24835	1.37517	0.2181425	0.26843259	2.3800124	21	8 19.5	20.3
409202 2003 <i>WY</i> <sub>2</sub>	16.1	X	2.81452	36.42045	28.33173	25.71973	0.1283953	0.17210482	3.2009142	21	—	—
409203 2003 <i>WU</i> <sub>16</sub>	17.9	X	315.15480	39.79503	298.10263	1.06595	0.2556082	0.26567880	2.3964302	21	6 9.8	20.1
409204 2003 <i>WX</i> <sub>25</sub>	18.7	X	188.93785	39.35836	40.04252	23.95450	0.5829164	0.19883414	2.9072033	21	6 7.2	25.2
409205 2003 <i>WL</i> <sub>27</sub>	17.2	X	271.96433	73.58794	277.50604	5.40360	0.1357920	0.25849789	2.4406081	21	5 15.5	20.7
409206 2003 <i>WF</i> <sub>28</sub>	17.8	X	271.95441	36.54064	6.30058	1.27858	0.1763418	0.26475147	2.4020228	21	7 22.4	20.9
409207 2003 <i>WP</i> <sub>41</sub>	17.4	X	324.30861	341.76988	33.87791	3.07619	0.2115236	0.26905842	2.3763204	21	9 13.5	18.9
409208 2003 <i>WB</i> <sub>44</sub>	17.5	X	260.38915	24.13790	2.22435	6.13898	0.1422418	0.26044179	2.4284487	21	6 18.7	20.9
409209 2003 <i>WN</i> <sub>44</sub>	15.6	X	33.01819	143.40819	300.11050	9.82234	0.1656613	0.17689250	3.1428943	21	—	—
409210 2003 <i>WO</i> <sub>50</sub>	15.6	X	110.75620	69.46572	240.06555	24.57858	0.2235723	0.17357957	3.1827582	21	—	—
409211 2003 <i>WN</i> <sub>57</sub>	17.5	X	313.44213	26.46130	357.05882	0.95828	0.1992537	0.26870380	2.3784107	21	8 31.1	19.4
409212 2003 <i>WL</i> <sub>58</sub>	17.5	X	303.96356	321.83936	48.01310	4.34955	0.2144316	0.26602010	2.3943800	21	7 17.9	19.9
409213 2003 <i>WJ</i> <sub>71</sub>	15.3	X	12.07902	211.39364	232.99019	26.21099	0.1246066	0.17450022	3.1715536	21	—	—
409214 2003 <i>WV</i> <sub>87</sub>	17.2	X	287.09521	39.15012	103.72786	4.59542	0.3947421	0.27217626	2.3581380	21	12 8.9	18.3
409215 2003 <i>WA</i> <sub>91</sub>	18.0	X	306.69643	294.23411	101.98081	3.02331	0.2072227	0.26964338	2.3728824	21	9 6.3	19.9
409216 2003 <i>WF</i> <sub>93</sub>	15.6	X	90.16927	316.93251	45.39486	12.40181	0.0673115	0.17423684	3.1747489	21	—	—
409217 2003 <i>WH</i> <sub>129</sub>	17.9	X	252.05811	346.25984	62.03173	4.08004	0.2328908	0.26237745	2.4164902	21	6 28.0	21.4
409218 2003 <i>WU</i> <sub>146</sub>	15.6	X	52.31330	22.63923	65.42553	18.51975	0.1914075	0.17859783	3.1228558	21	1 25.5	19.4
409219 2003 <i>WB</i> <sub>147</sub>	17.6	X	306.46025	194.06953	206.80147	3.66209	0.2090402	0.26892240	2.3771216	21	9 9.8	19.7
409220 2003 <i>WQ</i> <sub>169</sub>	15.7	X	58.96213	277.70444	103.92056	12.15320	0.2296117	0.17333075	3.1858034	21	—	—
409221 2003 <i>XN</i> <sub>27</sub>	16.4	X	100.09916	269.79502	73.03117	2.06079	0.1709482	0.17442083	3.1725160	21	—	—
409222 2003 <i>XH</i> <sub>32</sub>	17.4	X	328.65775	132.52679	230.74924	3.45320	0.1955529	0.26765882	2.3845971	21	9 3.6	19.3
409223 2003 <i>YT</i>	17.6	X	77.58976	80.89618	40.82550	21.55258	0.0963948	0.35555616	1.9733187	21	3 18.8	19.8
409224 2003 <i>YK</i> <sub>34</sub>	17.0	X	8.95527	227.96345	226.50997	2.69372	0.4783047	0.17060405	3.2196587	21	—	—
409225 2003 <i>YH</i> <sub>38</sub>	17.4	X	256.77874	346.73092	75.08388	7.24799	0.0871521	0.26353183	2.4094283	21	8 14.2	20.5
409226 2003 <i>YR</i> <sub>82</sub>	17.8	X	232.71869	32.69109	34.61096	3.06068	0.1632741	0.25764403	2.4459974	21	7 10.8	21.4
409227 2003 <i>YT</i> <sub>93</sub>	17.9	X	278.12928	320.91315	93.89206	3.43640	0.2472283	0.26413871	2.4057363	21	8 5.9	20.7
409228 2003 <i>YU</i> <sub>97</sub>	16.4	X	262.67226	140.95351	250.13713	11.08396	0.0607078	0.25849048	2.4406547	21	7 8.8	19.6
409229 2003 <i>YM</i> <sub>107</sub>	15.8	X	41.70921	139.72387	285.20960	26.72046	0.3413091	0.17329550	3.1862354	21	—	—
409230 2003 <i>YZ</i> <sub>157</sub>	17.0	X	269.61634	151.02334	254.89170	5.27795	0.1146610	0.26308031	2.4121843	21	7 31.3	20.1
409231 2003 <i>YN</i> <sub>166</sub>	16.8	X	60.95881	70.63252	101.71560	9.52891	0.1389635	0.24296894	2.5435223	21	5 18.2	19.7
409232 2004 <i>AB</i> <sub>26</sub>	16.5	X	34.95433	247.99073	321.39443	12.13053	0.0680620	0.24473949	2.5312402	21	5 11.6	19.8
409233 2004 <i>BG</i> <sub>61</sub>	17.9	X	270.05848	203.53834	220.06095	1.16346	0.2078194	0.26188663	2.4195085	21	8 12.2	21.0
409234 2004 <i>BW</i> <sub>147</sub>	17.6	X	86.51513	51.16513	107.83319	3.75910	0.1548550	0.24369676	2.5384555	21	6 7.7	20.7
409235 2004 <i>BH</i> <sub>148</sub>	17.0	X	199.88190	138.50666	314.44042	11.26519	0.1495210	0.25294106	2.4762234	21	7 13.0	20.9
409236 2004 <i>CL</i> <sub>60</sub>	17.1	X	76.50413	55.97908	98.74174	6.60153	0.1225197	0.24058392	2.5603047	21	5 14.6	20.3
409237 2004 <i>CS</i> <sub>66</sub>	16.7	X	50.10076	166.10993	356.02365	12.22371	0.1871590	0.23641156	2.5903408	21	4 13.1	19.4
409238 2004 <i>CZ</i> <sub>103</sub>	16.4	X	56.20247	255.79545	260.95604	11.12873	0.1209907	0.23777143	2.5804549	21	4 7.2	19.5
409239 2004 <i>DL</i> <sub>21</sub>	16.8	X	69.48954	194.69222	332.80981	12.96952	0.2080541	0.23848140	2.5753309	21	6 1.0	20.1
409240 2004 <i>DF</i> <sub>64</sub>	16.6	X	355.13207	165.53145	11.67462	12.95489	0.2593117	0.22780374	2.6551893	21	1 7.5	19.7
409241 2004 <i>EP</i> <sub>6</sub>	16.8	X	25.79813	198.99006	350.19573	12.25198	0.1927673	0.23351710	2.6117018	21	4 2.2	19.2
409242 2004 <i>EC</i> <sub>23</sub>	16.8	X	24.80804	177.29073	8.01220	14.17839	0.1822682	0.23291747	2.6161823	21	3 28.9	18.9
409243 2004 <i>EJ</i> <sub>38</sub>	16.6	X	311.29769	213.38682	19.66226	16.64119	0.2641918	0.22492904	2.6777644	21	1 22.3	20.8
409244 2004 <i>EQ</i> <sub>42</sub>	16.9	X	322.14729	219.08144	354.67020	6.78752	0.2986276	0.22505418	2.6767716	21	1 1.5	20.8
409245 2004 <i>ET</i> <sub>76</sub>	17.2	X	35.46044	168.54062	9.97160	4.41600	0.1099652	0.23392027	2.6087001	21	4 6.3	19.8
409246 2004 <i>EG</i> <sub>77</sub>	17.0	X	60.61781	28.13901	167.93006	13.08351	0.1159650	0.24065289	2.5598155	21	6 15.9	20.3
409247 2004 <i>EM</i> <sub>86</sub>	16.8	X	338.39598	51.09358	165.69811	12.17921	0.1425370	0.22850986	2.6497166	21	2 17.0	19.9
409248 2004 <i>FX</i> <sub>37</sub>	17.2	X	333.47699	188.44458	31.49513	3.68172	0.1726566	0.22931426	2.6435164	21	2 11.9	20.4
409249 2004 <i>FS</i> <sub>57</sub>	17.9	X	88.39487	316.16837	199.59524	3.24711	0.1507212	0.23933316	2.5692170	21	6 5.4	21.1
409250 2004 <i>FO</i> <sub>63</sub>	16.8	X	354.24158	175.33932	33.60927	6.43433	0.2546118	0.22912119	2.6450012	21	2 20.9	19.4
409251 2004 <i>FX</i> <sub>66</sub>	17.0	X	138.71540	4.00250	143.75626	6.76936	0.1565914	0.24583159	2.6253739	21	7 22.5	21.0
409252 2004 <i>FK</i> <sub>70</sub>	17.2	X	348.23879	237.47840	357.49487	2.29885	0.1015198	0.23385094	2.5092156	21	4 4.2	20.2
409253 2004 <i>FO</i> <sub>134</sub>	16.5	X	57.80277	304.04073	206.43619	27.61020	0.1902652	0.23335384	2.6129198	21	4 16.4	18.9
409254 2004 <i>GQ</i> <sub>14</sub>	17.0	X	41.42472	323.55774	224.97270	12.54844	0.1860897	0.23320220	2.6140524	21	5 10.6	19.4
409255 2004 <i>GX</i> <sub>75</sub>	16.2	X	288.84552	325.37364	263.83065	16.58117	0.2127833	0.22032912	2.7149059	21	—	—
409256 2004 <i>HO</i> <sub>1</sub>	18.2	X	57.05921	265.11117	43.39012	25.77401	0.5210723	0.30080723	2.2060255	21	12 31.8	22.8
409257 2004 <i>HN</i> <sub>54</sub>	16.2	X	328.34884	202.95120	41.38155	18.31055	0.2379472	0.22886836	2.6469488	21	3 7.8	19.8
409258 2004 <i>HE</i> <sub>59</sub>	16.3	X	278.32495	315.35854	314.10245	11.47160	0.1357456	0.22384613	2.6863937	21	2 10.4	20.3
409259 2004 <i>JD</i> <sub>3</sub>	16.2	X	300.13840	231.48514	45.72750	13.90185	0.1522542	0.22571119	2.6715747	21	3 22.5	20.0
409260 2004 <i>LO</i> <sub>27</sub>	16.7	X	246.97680	236.45451	130.89404	12.31924	0.0366336	0.23153158	2.6266118	21	5 25.4	20.5
409261 2004 <i>LC</i> <sub>30</sub>	18.2	X	74.98145	149.71708	132.72119	5.42274	0.1679713	0.30071655	2.2064690	21	11 17.7	21.3
409262 2004 <i>PX</i> <sub>81</sub>	16.3	X	160.63905	211.66601	150.93071	17.00827	0.1921005	0.20384819	2.8593335	21	2 17.6	20.8
409263 2004 <i>PN</i> <sub>87</sub>	17.8	X	40.97195	339.48188	13.69789	5.18041	0.2622707	0.29971631	2.2113754	21	—	—
409264 2004 <i>PS</i> <sub>99</sub>	17.6	X	28.55820	308.48322	34.41289	5.02031	0.2301117	0.29619703	2.2288572	21	12 19.3	20.2
409265 2004 <i>PP</i> <sub>105</sub>	16.3	X	147.27611	192.43649	192.02833	16.78221	0.3034495	0.20439052	2.8542732	21	3 10.2	21.3
409266 2004 <i>RK</i> <sub>9</sub>	21.2	X	298.15225	284.32500								



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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>
409281 2004 <i>RW</i> <sub>202</sub>	18.4	X	103.86933	117.13200	159.88938	5.08292	0.1895889	0.30168817	2.2017290	21	12 9.7	21.9
409282 2004 <i>RY</i> <sub>211</sub>	16.5	X	81.82540	125.72791	275.26929	11.90619	0.2030200	0.19477965	2.9474085	21	1 8.1	19.9
409283 2004 <i>RT</i> <sub>225</sub>	17.9	X	45.45071	324.12892	7.42269	6.59871	0.1981415	0.29793868	2.2201626	21	12 20.6	20.9
409284 2004 <i>RK</i> <sub>236</sub>	17.9	X	343.60225	47.80250	333.86917	8.73269	0.1590319	0.29290918	2.2455052	21	11 11.1	19.9
409285 2004 <i>RX</i> <sub>269</sub>	17.2	X	115.56788	205.08882	182.66340	4.47688	0.1198907	0.19931863	2.9024903	21	1 24.0	21.3
409286 2004 <i>RX</i> <sub>288</sub>	17.0	X	141.85368	185.60435	201.08476	1.73569	0.1125130	0.20298833	2.8674026	21	2 20.5	21.2
409287 2004 <i>RA</i> <sub>290</sub>	18.2	X	335.30008	273.55330	4.51659	21.62493	0.0392108	0.39518742	1.8390801	21	4 25.4	20.1
409288 2004 <i>RP</i> <sub>293</sub>	17.0	X	162.79949	338.60509	332.01873	8.85905	0.0439490	0.19661657	2.9290221	21	—	—
409289 2004 <i>RR</i> <sub>293</sub>	17.1	X	201.73756	113.33501	180.27409	10.04803	0.0359352	0.20030793	2.8929257	21	—	—
409290 2004 <i>RQ</i> <sub>296</sub>	17.0	X	133.95810	305.00192	348.16160	1.20341	0.2669636	0.19123528	2.9837152	21	—	—
409291 2004 <i>RX</i> <sub>337</sub>	16.6	X	82.77854	350.81816	14.96218	9.84141	0.1031505	0.18780450	3.0199429	21	—	—
409292 2004 <i>SP</i> <sub>18</sub>	16.2	X	139.74828	67.39996	311.83781	13.86555	0.1633688	0.20239833	2.8729723	21	2 13.6	20.7
409293 2004 <i>SN</i> <sub>32</sub>	17.7	X	7.91209	320.83449	70.95732	3.99402	0.1486045	0.29727903	2.2234457	21	—	—
409294 2004 <i>SR</i> <sub>41</sub>	16.0	X	157.44558	30.33364	297.95936	7.75820	0.0687544	0.19840373	2.9114064	21	—	—
409295 2004 <i>SP</i> <sub>46</sub>	16.6	X	136.02173	55.78067	326.19134	6.69627	0.1834927	0.20043292	2.8917230	21	2 17.3	20.9
409296 2004 <i>SV</i> <sub>51</sub>	17.5	X	40.04165	306.01336	53.61978	5.66538	0.2898329	0.29820975	2.2188170	21	—	—
409297 2004 <i>TV</i> <sub>3</sub>	16.7	X	99.95750	27.61659	20.30480	14.07248	0.0927133	0.19700285	2.9251920	21	2 1.4	20.9
409298 2004 <i>TH</i> <sub>5</sub>	16.6	X	107.57978	204.57879	39.69861	7.06000	0.0798778	0.28822882	2.2697487	21	10 23.2	19.4
409299 2004 <i>TO</i> <sub>10</sub>	18.0	X	170.65011	64.56184	30.56465	21.58930	0.0899674	0.39199949	1.8490375	21	6 3.4	20.5
409300 2004 <i>TJ</i> <sub>20</sub>	18.3	X	179.07006	75.75759	5.65613	24.21502	0.1423686	0.39106279	1.8519889	21	5 21.6	21.3
409301 2004 <i>TB</i> <sub>32</sub>	17.0	X	80.07506	132.49476	211.84105	15.00076	0.1258682	0.18457844	3.0550295	21	—	—
409302 2004 <i>TF</i> <sub>45</sub>	16.4	X	42.49206	39.34655	22.72867	10.54634	0.0516764	0.18857043	3.0117597	21	—	—
409303 2004 <i>TV</i> <sub>47</sub>	17.4	X	94.10734	256.20134	188.07828	1.98961	0.2377285	0.19840676	2.9113767	21	3 26.6	21.4
409304 2004 <i>TS</i> <sub>58</sub>	16.8	X	105.37180	344.09543	12.73879	11.78936	0.0990423	0.19150184	2.9809458	21	—	—
409305 2004 <i>TZ</i> <sub>69</sub>	15.6	X	75.22112	181.55758	193.43260	8.80130	0.0211053	0.18982169	2.9989509	21	—	—
409306 2004 <i>TA</i> <sub>77</sub>	17.1	X	52.18947	82.94335	27.29271	1.93578	0.1720342	0.19734329	2.9218269	21	2 14.1	20.3
409307 2004 <i>TL</i> <sub>97</sub>	16.7	X	77.16502	206.08417	191.01257	5.16132	0.1420031	0.19093769	2.9686146	21	—	—
409308 2004 <i>TV</i> <sub>102</sub>	17.7	X	246.85931	296.80661	20.97752	21.78202	0.0323447	0.38122241	1.8837233	21	3 6.6	20.0
409309 2004 <i>TM</i> <sub>106</sub>	16.1	X	109.82450	37.31109	33.98028	8.58032	0.1962720	0.20179118	2.8787321	21	3 25.6	20.3
409310 2004 <i>TB</i> <sub>138</sub>	17.5	X	343.13594	335.63471	52.53479	2.10180	0.2405240	0.29130242	2.2537547	21	12 4.2	18.7
409311 2004 <i>TZ</i> <sub>149</sub>	18.3	X	35.45254	330.40375	4.18176	2.99455	0.0904778	0.29396181	2.2401414	21	11 23.9	20.7
409312 2004 <i>TS</i> <sub>156</sub>	16.4	X	195.58942	241.23549	24.69114	12.49744	0.0397358	0.19065918	2.9897226	21	—	—
409313 2004 <i>TZ</i> <sub>177</sub>	16.4	X	125.63118	96.87779	192.71167	15.62205	0.1359996	0.18652541	3.0337332	21	12 23.7	21.5
409314 2004 <i>TV</i> <sub>180</sub>	15.7	X	317.94188	293.22578	183.15733	26.94236	0.1744544	0.18462806	3.0544820	21	—	—
409315 2004 <i>TR</i> <sub>190</sub>	16.7	X	96.02140	210.94678	193.52225	5.59284	0.0957255	0.19602124	2.9349495	21	1 16.8	20.6
409316 2004 <i>TX</i> <sub>198</sub>	15.7	X	180.93100	102.60714	205.63364	8.45176	0.1186280	0.19510061	2.9441751	21	—	—
409317 2004 <i>TN</i> <sub>202</sub>	17.5	X	50.75254	274.62827	31.29321	9.84851	0.1917309	0.29032097	2.2588312	21	11 18.9	20.4
409318 2004 <i>TA</i> <sub>221</sub>	17.9	X	17.62552	265.88929	89.52210	3.80730	0.2296634	0.29583220	2.2306893	21	12 21.5	20.3
409319 2004 <i>TU</i> <sub>263</sub>	18.6	X	308.92130	169.14056	236.57473	2.17512	0.1877613	0.28778084	2.2721036	21	9 30.7	20.3
409320 2004 <i>TV</i> <sub>277</sub>	18.0	X	8.14843	301.74912	46.60877	3.88216	0.1867997	0.29038424	2.2585031	21	11 16.0	19.9
409321 2004 <i>TY</i> <sub>296</sub>	16.0	X	75.96685	331.78493	66.90925	5.96688	0.2427389	0.18942627	3.0026813	21	1 3.9	19.4
409322 2004 <i>TN</i> <sub>333</sub>	17.6	X	338.69059	137.84572	216.19834	6.40362	0.1337378	0.28549911	2.2841934	21	9 13.7	19.5
409323 2004 <i>TA</i> <sub>341</sub>	16.3	X	78.51705	165.36171	220.47201	8.40169	0.1304523	0.18863173	3.0111072	21	—	—
409324 2004 <i>TV</i> <sub>350</sub>	16.3	X	54.16699	230.23252	212.22850	7.59469	0.1070441	0.19081576	2.9880869	21	1 6.5	20.0
409325 2004 <i>TA</i> <sub>351</sub>	16.5	X	3.14128	24.14656	51.49404	10.13609	0.0956559	0.18215666	3.0820476	21	—	—
409326 2004 <i>TC</i> <sub>367</sub>	18.3	X	9.66336	21.67350	356.55885	3.84208	0.1755722	0.29519848	2.2338807	21	—	—
409327 2004 <i>TL</i> <sub>367</sub>	15.9	X	142.11953	142.05580	227.33318	11.77350	0.1176243	0.19685718	2.9266349	21	1 29.1	20.5
409328 2004 <i>TC</i> <sub>368</sub>	17.2	X	333.06021	21.72915	26.66831	7.53823	0.0636979	0.29269666	2.2465920	21	11 27.3	19.5
409329 2004 <i>TZ</i> <sub>368</sub>	16.5	X	114.37867	326.62467	56.32505	12.14051	0.0971806	0.19246842	2.9709572	21	1 17.9	20.8
409330 2004 <i>TF</i> <sub>370</sub>	17.7	X	322.88741	12.38390	22.58210	8.52120	0.1388340	0.28973934	2.2618532	21	10 20.0	19.5
409331 2004 <i>VX</i>	17.8	X	93.79943	44.68535	356.98097	10.49630	0.4039949	0.19374434	2.9578992	21	2 27.9	21.9
409332 2004 <i>VP</i> <sub>3</sub>	18.0	X	299.91254	44.07413	58.12780	4.81771	0.1719884	0.29293501	2.2453732	21	12 17.5	19.5
409333 2004 <i>VG</i> <sub>18</sub>	16.2	X	97.13618	239.12825	232.20673	9.30172	0.1880291	0.20167173	2.8798688	21	4 25.3	20.3
409334 2004 <i>VY</i> <sub>37</sub>	16.9	X	68.46133	9.29761	50.78819	11.09904	0.1106043	0.19017840	2.9947594	21	1 2.2	20.7
409335 2004 <i>VX</i> <sub>38</sub>	16.8	X	65.36173	335.00222	60.05713	6.60011	0.1400092	0.18628225	3.0363726	21	—	—
409336 2004 <i>VE</i> <sub>42</sub>	16.2	X	227.05043	329.15046	220.68431	7.97668	0.0219103	0.17883337	3.1201131	21	12 15.8	20.6
409337 2004 <i>VE</i> <sub>53</sub>	15.7	X	80.80698	175.72441	233.26325	10.64560	0.1869794	0.19003231	2.9962939	21	1 13.8	19.5
409338 2004 <i>VK</i> <sub>67</sub>	16.9	X	107.79499	5.41141	17.38013	0.58751	0.2226827	0.19240021	2.9716593	21	1 25.5	21.1
409339 2004 <i>VM</i> <sub>69</sub>	18.6	X	337.49633	310.43529	86.02735	2.32357	0.1557257	0.28948496	2.2631780	21	11 24.9	20.2
409340 2004 <i>VZ</i> <sub>71</sub>	17.8	X	303.48723	200.31008	234.41203	5.14663	0.1269695	0.28932712	2.2640010	21	11 13.1	19.5
409341 2004 <i>XX</i> <sub>26</sub>	17.8	X	290.35993	134.41893	264.92395	4.87068	0.1248356	0.28073128	2.3099833	21	8 21.6	20.4
409342 2004 <i>XN</i> <sub>35</sub>	19.8	X	227.51174	322.94252	119.07024	5.35801	0.3009591	0.39580874	1.8371550	21	7 14.4	22.6
409343 2004 <i>XM</i> <sub>46</sub>	17.8	X	330.90409	170.63948	246.36844	2.21222	0.1543527	0.28932377	2.2640185	21	12 13.2	19.3
409344 2004 <i>XP</i> <sub>48</sub>	15.9	X	54.82701	8.55466	92.96787	16.58216	0.2575470	0.18855592	3.0119142	21	2 25.4	19.3
409345 2004 <i>XQ</i> <sub>58</sub>	17.3	X	211.08960	168.80597	319.16469	5.46090	0.1261388	0.27650076	2.3334858	21	9 8.9	20.6
409346 2004 <i>XF</i> <sub>68</sub>	17.3	X	167.59064	18.44825	147.70559	3.60525	0.1731054	0.27385849	2.3484712	21	9 14.8	20.9
409347 2004 <i>XJ</i> <sub>70</sub>	17.2	X	279.48700	69.25628	28.90991	3.85548	0.1110679	0.28710569	2.2756643	21	11 5.3	19.3
409348 2004 <i>XQ</i> <sub>70</sub>	15.7	X	2.00059	180.80562	302.58523	11.36539	0.1658254	0.18269653	3.0759730	21	—	—
409349 2004 <i>XB</i> <sub>90</sub>	16.7	X	132.74945	353.33273	47.98683	2.63615	0.1130565	0.19529647	2.9422063	21	3 3.3	21.0
409350 2004 <i>XU</i> <sub>90</sub>	15.8	X	344.22383	30.32149	71.61241	6.68040	0.1103078	0.17870051	3.1216595	21	—	—
409351 2004 <i>XR</i> <sub>110</sub>	17.7	X	289.03148	159.76617	244.42508	2.02268	0.2339459	0.28148966	2.3058325	21	8 8.7	20.0
409352 2004 <i>XW</i> <sub>118</sub>	18.2	X	300.23058	172.17577	275.67881	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>
409361 2005 AP <sub>6</sub>	16.4	X	27.23876	149.74405	327.78916	2.83139	0.1913478	0.18526913	3.0474318	21	1 10.1	19.5
409362 2005 AA <sub>7</sub>	17.5	X	32.36819	210.87701	312.16598	19.46572	0.0631082	0.37056218	1.9196792	21	2 4.9	19.0
409363 2005 AA <sub>17</sub>	17.1	X	141.90532	250.72170	279.60764	3.98727	0.0877769	0.27100159	2.3649474	21	8 20.8	20.5
409364 2005 AS <sub>18</sub>	16.0	X	29.56932	149.46365	290.69633	14.88232	0.1386369	0.18102139	3.0949201	21	—	—
409365 2005 AX <sub>33</sub>	18.0	X	249.76332	235.99406	245.55611	2.56134	0.1729099	0.28165801	2.3049136	21	10 12.1	20.9
409366 2005 AH <sub>44</sub>	16.5	X	55.96743	6.73216	104.36250	6.51969	0.1910805	0.18725063	3.0258950	21	2 28.4	19.9
409367 2005 AS <sub>44</sub>	16.2	X	29.65457	74.36958	30.41042	12.53950	0.3034753	0.18389303	3.0626159	21	—	—
409368 2005 AP <sub>52</sub>	17.9	X	186.62679	111.48082	24.58637	2.63123	0.1269039	0.27185238	2.3600106	21	8 26.6	21.3
409369 2005 AL <sub>70</sub>	17.8	X	107.90906	132.78113	350.63998	18.78582	0.0928950	0.37635943	1.8999150	21	4 15.1	19.9
409370 2005 AH <sub>80</sub>	16.2	X	91.57368	286.20251	116.53849	10.87257	0.0956822	0.18211001	3.0825739	21	1 13.1	20.3
409371 2005 BQ <sub>8</sub>	15.4	X	332.65357	37.90148	105.92601	16.96001	0.1164455	0.17791414	3.1308510	21	—	—
409372 2005 BX <sub>11</sub>	16.3	X	359.34218	325.69867	104.35500	10.60786	0.0768324	0.17421293	3.1750395	21	—	—
409373 2005 BM <sub>24</sub>	16.3	X	126.62389	219.75525	324.83648	12.29704	0.1675073	0.26623282	2.3931044	21	8 28.2	19.9
409374 2005 CB <sub>12</sub>	15.4	X	319.21217	57.54128	131.40300	17.54646	0.1723999	0.17894839	3.1187760	21	—	—
409375 2005 CN <sub>15</sub>	17.8	X	283.81176	308.94831	131.96480	4.16853	0.1359874	0.28102173	2.3083914	21	10 15.7	20.0
409376 2005 CY <sub>17</sub>	17.8	X	285.87917	146.95024	293.75119	4.19413	0.1112206	0.28065796	2.3103856	21	10 17.9	20.2
409377 2005 CE <sub>20</sub>	16.7	X	105.83543	222.80509	301.76080	13.85559	0.0839043	0.26126460	2.4233473	21	7 1.4	19.9
409378 2005 CW <sub>20</sub>	17.2	X	202.31253	358.06057	145.61748	6.03868	0.1413763	0.27446941	2.3449851	21	9 22.1	20.7
409379 2005 CK <sub>29</sub>	15.9	X	253.63259	98.69084	130.90108	11.44000	0.0316366	0.17576699	3.1562968	21	—	—
409380 2005 CW <sub>29</sub>	17.7	X	98.16368	141.28729	68.72534	2.22555	0.1455169	0.26514759	2.3996299	21	9 1.1	21.1
409381 2005 CF <sub>44</sub>	17.1	X	59.11284	277.76528	336.55571	6.45235	0.0775171	0.26649977	2.3915061	21	8 30.7	19.9
409382 2005 CT <sub>65</sub>	17.8	X	335.45394	243.83417	339.73627	18.79875	0.0657159	0.36742681	1.9305845	21	2 10.7	19.6
409383 2005 DQ <sub>1</sub>	17.7	X	284.02456	119.97939	322.55563	1.95961	0.1536153	0.27829584	2.3234406	21	10 11.9	20.1
409384 2005 EH	16.8	X	155.80532	156.94966	12.75576	24.07034	0.1889118	0.26926455	2.3751075	21	9 16.0	20.8
409385 2005 ED <sub>16</sub>	18.4	X	260.85612	59.53237	42.62522	0.44372	0.1801110	0.27735279	2.3287044	21	9 29.6	21.1
409386 2005 EA <sub>30</sub>	17.6	X	204.56224	191.22438	273.81572	3.32012	0.1585404	0.26769543	2.3843797	21	7 31.3	21.3
409387 2005 EX <sub>30</sub>	16.3	X	39.55489	6.34487	98.76642	4.89545	0.2481428	0.18096062	3.0956130	21	1 22.6	19.2
409388 2005 EL <sub>34</sub>	17.4	X	153.77399	346.31345	170.35752	6.02740	0.1409182	0.26609165	2.3939508	21	8 17.8	21.0
409389 2005 EP <sub>45</sub>	17.6	X	166.14381	176.56819	340.33349	1.65741	0.1533531	0.26871787	2.3783277	21	8 31.6	21.3
409390 2005 ET <sub>58</sub>	16.4	X	348.88877	334.39868	180.42478	10.63618	0.1742104	0.17667408	3.1454840	21	—	—
409391 2005 EV <sub>66</sub>	16.5	X	3.51125	95.00856	352.91312	3.82861	0.1632013	0.17141171	3.2095370	21	—	—
409392 2005 EM <sub>73</sub>	17.9	X	210.35005	308.66264	171.09331	2.04676	0.1596181	0.27295912	2.3536270	21	8 26.3	21.3
409393 2005 ER <sub>97</sub>	17.4	X	168.53250	200.83663	289.13197	4.14874	0.1676812	0.26591700	2.3949989	21	7 29.2	21.1
409394 2005 EE <sub>103</sub>	17.5	X	71.36298	201.10104	12.02425	2.51491	0.1317585	0.25931017	2.4355087	21	7 29.9	20.4
409395 2005 EF <sub>174</sub>	17.5	X	203.09102	143.14075	306.98767	3.29954	0.0927319	0.26284318	2.4136349	21	7 14.2	21.0
409396 2005 EX <sub>184</sub>	16.5	X	150.11639	302.86400	1.26500	11.49094	0.1981374	0.22162252	2.7043327	21	—	—
409397 2005 EF <sub>202</sub>	15.7	X	355.81329	94.06223	37.43805	16.30413	0.2030701	0.17755784	3.1350380	21	—	—
409398 2005 EA <sub>207</sub>	17.8	X	89.52870	241.57967	301.74217	1.33076	0.1459618	0.25580196	2.4577260	21	7 14.1	21.1
409399 2005 EE <sub>225</sub>	15.3	X	343.48877	54.44370	107.30371	27.67732	0.1946074	0.17579200	3.1559974	21	—	—
409400 2005 EF <sub>245</sub>	17.7	X	170.93240	349.83906	167.68536	2.60386	0.1560362	0.26793589	2.3829529	21	9 5.9	21.3
409401 2005 EF <sub>261</sub>	17.7	X	95.85750	151.98096	35.42339	3.86720	0.1490559	0.25948488	2.4344154	21	7 29.7	21.0
409402 2005 EA <sub>270</sub>	17.6	X	138.50765	31.72523	132.90585	2.84145	0.1337122	0.26212962	2.4180131	21	8 13.3	21.3
409403 2005 EF <sub>276</sub>	17.4	X	147.14695	133.46754	10.84144	0.93163	0.1300802	0.26096132	2.4252246	21	7 26.2	20.8
409404 2005 EK <sub>297</sub>	16.7	X	20.84855	50.83363	25.39712	0.84184	0.1627834	0.17511142	3.1641694	21	—	—
409405 2005 GL <sub>14</sub>	17.5	X	162.17556	141.53690	359.31983	6.73092	0.1170711	0.26547695	2.3976447	21	8 8.2	21.1
409406 2005 GY <sub>33</sub>	17.1	X	317.99857	95.05019	148.39736	9.85022	0.2861918	0.23924124	2.5698751	21	1 31.1	20.7
409407 2005 GO <sub>60</sub>	17.0	X	314.06388	19.93790	227.91192	8.32084	0.2338861	0.24142297	2.5543691	21	2 5.4	20.6
409408 2005 GV <sub>94</sub>	17.1	X	129.37518	138.02776	43.43004	5.69691	0.1356594	0.26142963	2.4232724	21	8 28.8	20.7
409409 2005 GK <sub>119</sub>	17.8	X	164.44328	45.59543	75.05389	2.48478	0.1334982	0.25968491	2.4331651	21	7 12.8	21.5
409410 2005 GX <sub>122</sub>	16.9	X	291.62417	257.68498	1.00515	13.06008	0.1373767	0.24136694	2.5547644	21	2 14.1	20.7
409411 2005 GV <sub>140</sub>	17.1	X	278.04503	287.32490	347.47139	27.67943	0.3046526	0.24007440	2.5639260	21	2 9.6	21.7
409412 2005 GL <sub>163</sub>	18.0	X	130.87356	343.88794	173.83421	1.14856	0.1133776	0.25825262	2.4421531	21	7 24.6	21.6
409413 2005 GO <sub>168</sub>	18.2	X	232.72928	84.64788	205.78454	20.91402	0.0426019	0.35624354	1.9707795	21	—	—
409414 2005 GE <sub>176</sub>	17.4	X	198.45516	14.68553	121.97958	5.72988	0.281000	0.26518661	2.3993455	21	9 9.4	20.9
409415 2005 GL <sub>178</sub>	15.4	X	8.94014	69.94612	43.47674	26.34740	0.2660442	0.17256130	3.1952668	21	—	—
409416 2005 GR <sub>200</sub>	17.9	X	186.79270	309.85545	167.43843	6.70044	0.0632047	0.26569623	2.3963254	21	8 1.0	21.3
409417 2005 GK <sub>205</sub>	17.5	X	288.32480	78.52004	181.80132	5.06864	0.2757841	0.23543331	2.5975113	21	1 23.9	21.8
409418 2005 JK <sub>5</sub>	17.4	X	222.79828	116.12881	214.96159	21.42667	0.0780612	0.36228233	1.9488180	21	2 4.3	20.5
409419 2005 JO <sub>43</sub>	16.3	X	248.90009	210.32888	81.46166	14.78415	0.1942746	0.23173066	2.6251073	21	2 8.0	20.8
409420 2005 JL <sub>75</sub>	16.4	X	303.78776	23.76254	232.69298	16.83212	0.1659697	0.23993414	2.5649251	21	2 9.9	20.4
409421 2005 JD <sub>97</sub>	17.8	X	140.31624	48.86012	58.16951	21.98236	0.1005075	0.37078795	1.9188999	21	5 20.2	19.7
409422 2005 JQ <sub>98</sub>	17.4	X	359.79943	142.34208	75.55763	6.66911	0.0886595	0.24249766	2.5468166	21	4 3.4	20.3
409423 2005 JQ <sub>125</sub>	17.2	X	267.89071	165.21099	138.10605	9.07515	0.1549535	0.23704402	2.5857312	21	3 12.4	21.1
409424 2005 JD <sub>133</sub>	17.8	X	321.28559	70.66493	191.65280	5.78694	0.1852191	0.24054328	2.5605930	21	3 16.1	21.0
409425 2005 JU <sub>143</sub>	17.2	X	87.65906	65.81697	95.35198	5.71795	0.0622000	0.24719060	2.5144794	21	5 28.7	20.3
409426 2005 LN <sub>21</sub>	16.5	X	224.54509	272.39159	59.11869	10.24678	0.3361560	0.23068832	2.6330088	21	3 5.3	21.6
409427 2005 LW <sub>32</sub>	16.8	X	209.86571	232.18901	115.68747	14.19939	0.2797703	0.22615874	2.6680490	21	3 15.5	21.8
409428 2005 LZ <sub>50</sub>	16.1	X	139.49700	281.62846	290.78725	14.42249	0.1716669	0.19740720	2.9211962	21	10 2.8	21.3
409429 2005 MX <sub>35</sub>	16.7	X	217.07086	45.65837	308.67324	11.70804	0.1533605	0.22892686	2.6464979	21	3 19.5	21.2
409430 2005 NE <sub>44</sub>	16.8	X	298.72350	198.56884	116.21349	15.08887	0.0386781	0.23925076	2.5698070	21	5 23.9	20.4
409431 2005 NB <sub>52</sub>	17.5	X	268.18594	107.37366	163.69620	4.22006	0.1500191	0.22767389	2.6561987	21	1 31.2	21.6
409432 2005 NZ <sub>77</sub>	15.1	X	335.82622	194.86340	156.95675	1.89980	0.1895412	0.12294512	4.0055473	21	8 16.7	19.7
409433 2005 NN <sub>90</sub>	17.0	X	197.64601	297.83323	121.29563	29.17533	0.2535426	0.23529255	2.5985472	21	6 3.0	22.1
409434 2005 NB <sub>101</sub>												

## ELEMENTS AND OPPOSITION DATES IN 2021

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2021 JULY 5.0 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>		
409441	2005	PB <sub>21</sub>	17.1	X	250.70489	122.99196	174.59078	2.14685	0.1871136	0.22548381	2.6733705	21	2 13.5	21.5
409442	2005	QD <sub>5</sub>	16.2	X	245.25947	13.06461	327.09774	18.09295	0.3857129	0.23015033	2.6371104	21	3 14.7	21.5
409443	2005	QX <sub>34</sub>	16.8	X	210.09376	200.63431	161.72505	4.56417	0.0905610	0.22534473	2.6744703	21	3 31.1	20.7
409444	2005	QO <sub>41</sub>	16.4	X	237.33972	351.07512	330.62091	13.66343	0.2525851	0.22512658	2.6761977	21	2 27.1	21.0
409445	2005	QU <sub>59</sub>	16.7	X	194.24485	220.51884	161.59473	4.35291	0.1461785	0.22380229	2.6867445	21	4 9.1	20.9
409446	2005	QG <sub>66</sub>	17.2	X	251.91387	174.98683	175.59221	12.29366	0.2021243	0.23143884	2.6273134	21	4 20.9	21.4
409447	2005	QJ <sub>77</sub>	16.9	X	237.40288	17.09007	309.83776	2.29849	0.2317891	0.22585374	2.6704505	21	3 6.6	21.6
409448	2005	QV <sub>100</sub>	17.4	X	195.73037	158.89481	210.03013	3.09492	0.2402008	0.22342546	2.6897646	21	3 24.6	22.2
409449	2005	QK <sub>106</sub>	16.7	X	160.63403	14.03237	8.60327	8.68393	0.2355719	0.21891580	2.7265783	21	3 15.9	21.3
409450	2005	QM <sub>114</sub>	16.6	X	244.72064	311.16001	3.14883	13.54398	0.1031975	0.22263481	2.6961290	21	3 8.8	20.6
409451	2005	QL <sub>122</sub>	17.3	X	190.46255	343.05924	336.79255	4.42567	0.1680697	0.21650139	2.7468119	21	1 22.5	21.8
409452	2005	QC <sub>134</sub>	16.6	X	258.19556	78.26922	171.71972	12.10619	0.1865110	0.21706432	2.7420608	21	—	—
409453	2005	QW <sub>135</sub>	17.4	X	145.33178	79.36140	12.04411	3.92529	0.1240358	0.22616716	2.6679827	21	5 14.4	21.5
409454	2005	QI <sub>139</sub>	17.0	X	179.54755	346.39536	7.62450	6.31071	0.0489892	0.21797598	2.7344099	21	2 16.6	20.9
409455	2005	QM <sub>163</sub>	16.5	X	113.38637	356.28949	27.03880	6.79918	0.0953131	0.21041329	2.7995438	21	1 12.4	20.3
409456	2005	QO <sub>163</sub>	16.7	X	184.83905	12.19803	8.00928	15.39255	0.1099007	0.22261456	2.6962925	21	3 27.2	20.6
409457	2005	QE <sub>165</sub>	16.6	X	195.22998	217.41390	155.86931	13.60878	0.2086772	0.22216647	2.6999168	21	4 1.7	21.3
409458	2005	QH <sub>181</sub>	16.4	X	142.53590	251.30545	183.62732	24.09929	0.2813362	0.21859291	2.7292627	21	5 7.3	21.4
409459	2005	QI <sub>187</sub>	16.9	X	214.18839	15.61434	351.51402	2.50661	0.1184688	0.22570855	2.6715955	21	4 7.9	20.9
409460	2005	RU <sub>7</sub>	16.4	X	164.38317	223.21365	187.08698	10.64701	0.2583251	0.22105184	2.7089852	21	4 21.9	21.1
409461	2005	RY <sub>51</sub>	16.4	X	210.94038	251.99993	146.37824	12.99105	0.1684351	0.22882351	2.6472947	21	5 16.7	20.9
409462	2005	SP <sub>3</sub>	17.0	X	156.67169	239.02270	161.02279	3.74530	0.2005612	0.21687989	2.7436151	21	3 30.8	21.4
409463	2005	SZ <sub>15</sub>	16.8	X	175.03365	189.20113	193.36029	10.31846	0.1523851	0.21986909	2.7186915	21	3 21.4	21.1
409464	2005	SK <sub>16</sub>	16.2	X	156.31681	9.07538	2.55544	9.52506	0.1773945	0.21497131	2.7598303	21	2 24.6	20.6
409465	2005	SO <sub>21</sub>	16.9	X	174.43672	70.85789	329.47128	4.49119	0.0930343	0.22077737	2.7112299	21	4 7.8	20.9
409466	2005	SQ <sub>26</sub>	16.4	X	220.37152	327.60347	11.52136	15.07103	0.1454470	0.22239022	2.6981055	21	3 14.3	20.8
409467	2005	SU <sub>31</sub>	16.8	X	178.32024	255.65344	179.65410	9.68493	0.2263133	0.22522615	2.6754090	21	5 31.8	21.5
409468	2005	SJ <sub>34</sub>	16.7	X	159.26877	321.55411	40.82925	8.83909	0.2346782	0.21350404	2.7724602	21	2 22.3	21.4
409469	2005	SO <sub>41</sub>	17.1	X	214.27168	128.69376	245.32901	3.96585	0.1737417	0.22484181	2.6784569	21	4 14.6	21.6
409470	2005	SC <sub>48</sub>	17.1	X	243.88047	113.99256	212.29439	5.96147	0.1510525	0.22346899	2.6894153	21	3 14.9	21.5
409471	2005	SX <sub>48</sub>	17.3	X	136.22236	261.25951	192.62727	3.98405	0.1914839	0.22051326	2.7133943	21	5 16.2	21.5
409472	2005	SD <sub>50</sub>	16.1	X	294.32766	244.15652	21.24199	12.54427	0.0706758	0.21977170	2.7194946	21	3 10.4	19.9
409473	2005	SN <sub>54</sub>	17.0	X	141.27276	28.66361	18.40495	1.74505	0.0802752	0.21630118	2.7485066	21	3 12.4	20.9
409474	2005	SO <sub>54</sub>	16.7	X	117.36161	222.09434	198.57992	5.00559	0.0609057	0.21436889	2.7649984	21	2 24.5	20.6
409475	2005	SP <sub>54</sub>	16.9	X	143.81389	38.62120	21.23238	7.41171	0.0802339	0.21873898	2.7280475	21	3 31.6	20.8
409476	2005	SN <sub>57</sub>	16.8	X	279.42736	95.89854	187.39259	13.28829	0.1430419	0.22381029	2.6866805	21	2 26.3	20.8
409477	2005	SP <sub>64</sub>	16.9	X	189.79775	340.94844	19.85045	2.63868	0.1070341	0.21825809	2.7298023	21	3 9.1	21.0
409478	2005	SN <sub>76</sub>	16.8	X	214.25201	160.67232	184.99626	14.37441	0.0849483	0.22155508	2.7048815	21	3 13.1	20.9
409479	2005	SX <sub>76</sub>	17.2	X	221.66518	153.79537	178.08899	4.01491	0.1037385	0.22087927	2.7103959	21	3 4.0	21.4
409480	2005	SN <sub>78</sub>	17.0	X	152.87400	36.88389	17.17005	8.60505	0.1772766	0.21997864	2.7177888	21	4 10.3	21.3
409481	2005	SN <sub>82</sub>	17.3	X	130.09862	62.51850	352.69792	1.64231	0.0764735	0.21698876	2.7426973	21	3 8.6	21.0
409482	2005	ST <sub>83</sub>	17.3	X	159.75607	350.42417	354.82850	1.25920	0.0969941	0.21141100	2.7907290	21	1 18.6	21.3
409483	2005	SH <sub>91</sub>	16.8	X	205.28465	142.16785	197.54046	15.59159	0.2144347	0.21852293	2.7298454	21	2 23.2	21.8
409484	2005	SE <sub>98</sub>	16.7	X	242.74965	279.35191	335.75344	8.17521	0.0649921	0.20933646	2.8091362	21	—	—
409485	2005	SB <sub>105</sub>	16.3	X	222.39930	294.77680	33.03935	9.55885	0.1664705	0.21889322	2.7267659	21	3 3.2	20.9
409486	2005	SR <sub>107</sub>	16.1	X	178.75956	168.48451	221.23237	12.55144	0.2610586	0.22190810	2.7020121	21	4 4.8	21.0
409487	2005	SP <sub>109</sub>	16.7	X	321.96411	24.71645	200.46118	13.44900	0.1491957	0.21824905	2.7321287	21	2 2.9	20.6
409488	2005	SP <sub>112</sub>	16.2	X	189.66286	218.56940	175.02193	13.76036	0.1925549	0.22274003	2.6952799	21	4 20.9	20.8
409489	2005	SS <sub>112</sub>	16.7	X	197.13671	53.62369	310.34446	7.71469	0.2393020	0.22128536	2.7070790	21	3 17.3	21.5
409490	2005	SQ <sub>122</sub>	16.3	X	214.68660	3.45205	341.99822	12.40692	0.2228045	0.22259948	2.6964143	21	3 10.8	20.9
409491	2005	SJ <sub>130</sub>	17.7	X	329.48541	282.13768	22.84976	5.78595	0.1392181	0.29814149	2.2191557	21	6 3.2	19.8
409492	2005	SE <sub>131</sub>	17.9	X	120.75539	74.92926	29.30931	1.11607	0.2547498	0.21771005	2.7366362	21	5 19.7	22.2
409493	2005	SG <sub>146</sub>	16.9	X	170.83738	313.42125	0.97598	13.04119	0.1877146	0.21065398	2.7974110	21	1 1.9	21.6
409494	2005	SJ <sub>154</sub>	16.9	X	114.82285	238.32222	200.49192	9.44983	0.1829665	0.21670590	2.7450835	21	4 3.0	20.9
409495	2005	SV <sub>177</sub>	17.0	X	229.35190	353.54105	264.79877	3.94374	0.0933223	0.20909749	2.8112761	21	—	—
409496	2005	SD <sub>182</sub>	16.7	X	270.13057	281.84789	340.62097	3.72431	0.0256550	0.21470898	2.7620778	21	2 7.9	20.4
409497	2005	SY <sub>182</sub>	17.0	X	202.78550	34.16525	272.75754	1.78792	0.0543607	0.21099743	2.7943745	21	1 15.1	21.2
409498	2005	SC <sub>207</sub>	17.3	X	161.52224	145.60295	193.40334	4.09888	0.0739669	0.21071459	2.7968745	21	1 9.8	21.4
409499	2005	SY <sub>212</sub>	17.0	X	163.83813	76.95768	278.28369	0.60827	0.2400176	0.21291055	2.7776099	21	2 13.9	21.7
409500	2005	SW <sub>215</sub>	16.5	X	235.36108	98.83340	213.07905	12.57650	0.2008322	0.22132347	2.7067682	21	2 13.6	21.4
409501	2005	SL <sub>223</sub>	16.8	X	205.95395	284.42149	11.05694	10.00408	0.1048879	0.21237300	2.7822951	21	1 7.5	21.3
409502	2005	SZ <sub>234</sub>	17.1	X	72.06743	276.04899	186.42915	6.05218	0.0053840	0.21626230	2.7488360	21	2 11.5	20.9
409503	2005	SL <sub>241</sub>	16.9	X	185.77616	45.57308	336.19688	4.99347	0.0789361	0.22042886	2.7140869	21	3 27.4	20.9
409504	2005	SY <sub>246</sub>	16.5	X	96.18681	266.10049	210.61664	7.19004	0.2072912	0.21675462	2.7446722	21	5 4.1	20.3
409505	2005	ST <sub>258</sub>	17.2	X	188.81321	239.87687	179.70144	14.83053	0.3140582	0.22647139	2.6655929	21	5 21.9	22.4
409506	2005	SU <sub>262</sub>	16.9	X	132.77644	45.71851	21.21052	9.66197	0.1175405	0.21794035	2.7347080	21	4 1.5	20.8
409507	2005	SX <sub>264</sub>	17.1	X	163.98947	315.76281	44.73852	3.65205	0.0835297	0.21308276	2.7761133	21	2 10.2	21.2
409508	2005	SB <sub>286</sub>	17.0	X	195.36682	215.78427	79.46544	9.03069	0.2006356	0.21029706	2.8005753	21	—	—
409509	2005	SX <sub>291</sub>	17.1	X	167.66526	89.74303	237.00327	2.74045	0.0830605	0.20954781	2.8072470			

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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>
409521 2005 <i>TM</i> <sub>81</sub>	17.1	X	147.64639	56.78867	352.43274	6.38518	0.0659009	0.21858831	2.7293010	21	3 19.7	20.9
409522 2005 <i>TD</i> <sub>89</sub>	16.8	X	81.70768	98.47323	20.30474	14.35204	0.1193185	0.21907035	2.7252958	21	4 3.9	20.2
409523 2005 <i>TS</i> <sub>108</sub>	16.6	X	184.85187	339.42579	349.93122	8.48368	0.0513762	0.21313513	2.7756584	21	1 24.4	20.7
409524 2005 <i>TO</i> <sub>110</sub>	16.8	X	210.34103	99.90913	229.01130	4.71201	0.0655230	0.21779806	2.7358989	21	2 16.1	20.8
409525 2005 <i>TR</i> <sub>112</sub>	17.3	X	188.53528	3.07581	0.48956	6.16519	0.0619182	0.21874758	2.7279760	21	3 9.6	21.2
409526 2005 <i>TX</i> <sub>112</sub>	17.6	X	153.93716	43.50208	325.98812	1.90505	0.1199438	0.21368519	2.7708931	21	2 12.3	21.8
409527 2005 <i>TE</i> <sub>115</sub>	17.0	X	207.10600	153.56686	201.64780	8.52787	0.0576179	0.22101434	2.7092916	21	3 17.2	20.9
409528 2005 <i>TP</i> <sub>127</sub>	17.2	X	138.19080	174.42013	221.06038	3.66089	0.0809470	0.21401904	2.7680107	21	2 20.8	21.2
409529 2005 <i>TY</i> <sub>131</sub>	16.7	X	148.49344	4.25683	33.04576	14.66454	0.0894908	0.21531780	2.7568688	21	3 15.7	20.9
409530 2005 <i>TB</i> <sub>138</sub>	16.8	X	180.77920	344.76600	49.57834	4.35693	0.1282504	0.22186261	2.7023814	21	4 11.1	21.0
409531 2005 <i>TG</i> <sub>138</sub>	16.7	X	171.45411	296.47586	91.62038	4.06786	0.0960180	0.21797677	2.7344033	21	3 24.9	20.8
409532 2005 <i>TT</i> <sub>142</sub>	16.8	X	34.55531	57.76795	61.85381	5.70476	0.0223435	0.21027429	2.8007775	21	1 20.4	20.5
409533 2005 <i>TU</i> <sub>143</sub>	16.8	X	193.33389	295.51646	59.26761	5.95036	0.1056490	0.21755078	2.7379717	21	3 7.7	21.0
409534 2005 <i>TQ</i> <sub>149</sub>	17.0	X	197.64509	142.45975	178.92455	9.31860	0.1626091	0.21373568	2.7704567	21	1 27.1	21.5
409535 2005 <i>TO</i> <sub>163</sub>	17.0	X	172.59338	16.26802	3.18332	5.89915	0.0375446	0.21702491	2.7423928	21	3 10.3	20.8
409536 2005 <i>TP</i> <sub>175</sub>	16.0	X	193.08065	332.14831	37.07586	18.26645	0.0789637	0.22090331	2.7101993	21	3 28.5	20.2
409537 2005 <i>TT</i> <sub>178</sub>	16.7	X	203.97327	162.18642	201.67083	14.38329	0.0848033	0.22284495	2.6944338	21	3 23.8	20.9
409538 2005 <i>TQ</i> <sub>187</sub>	17.3	X	149.58136	102.75099	274.07247	2.33735	0.1087061	0.21417001	2.7667098	21	2 14.5	21.5
409539 2005 <i>UV</i> <sub>3</sub>	16.1	X	178.88140	307.26350	74.22336	11.92261	0.3694401	0.21956876	2.7211700	21	4 5.9	21.5
409540 2005 <i>UM</i> <sub>11</sub>	16.8	X	91.55174	328.38225	101.67156	4.88559	0.0791709	0.20837836	2.8177403	21	2 9.3	20.4
409541 2005 <i>UV</i> <sub>14</sub>	17.0	X	92.17876	82.29679	41.18264	8.41213	0.2167932	0.21566675	2.7538942	21	5 8.4	20.6
409542 2005 <i>UP</i> <sub>22</sub>	16.5	X	151.68886	198.49712	225.32536	7.45155	0.1539295	0.21867122	2.7286110	21	4 19.1	20.7
409543 2005 <i>UF</i> <sub>38</sub>	16.9	X	117.73639	195.11629	212.13667	3.98224	0.1110096	0.20857208	2.8159954	21	2 16.2	20.8
409544 2005 <i>UU</i> <sub>38</sub>	16.7	X	124.49324	6.45932	66.69503	4.94159	0.0832469	0.21352392	2.7722881	21	3 28.3	20.6
409545 2005 <i>UX</i> <sub>56</sub>	16.6	X	169.30444	107.14492	241.45786	5.98704	0.1504392	0.21133850	2.7213672	21	2 3.1	21.1
409546 2005 <i>UG</i> <sub>59</sub>	16.4	X	203.09579	295.98374	49.05770	9.32554	0.2489917	0.21646456	2.7471235	21	3 7.9	21.4
409547 2005 <i>UL</i> <sub>69</sub>	16.4	X	156.07287	13.44842	27.69016	9.83260	0.1818342	0.21609656	2.7502414	21	3 31.4	20.8
409548 2005 <i>UV</i> <sub>69</sub>	16.1	X	137.65993	178.97911	242.23396	13.70106	0.0765905	0.21786985	2.7352979	21	3 19.3	20.3
409549 2005 <i>UJ</i> <sub>74</sub>	16.3	X	161.70338	354.92584	58.02704	10.37487	0.2363350	0.21718856	2.7410151	21	4 23.3	21.0
409550 2005 <i>UX</i> <sub>74</sub>	16.1	X	198.07744	152.41399	237.41379	12.19452	0.1871238	0.22130720	2.7069009	21	4 19.1	20.7
409551 2005 <i>UV</i> <sub>77</sub>	17.2	X	120.67496	42.59304	28.56705	5.24578	0.0987957	0.21785051	2.7354597	21	3 21.8	20.9
409552 2005 <i>UP</i> <sub>92</sub>	16.6	X	192.16392	340.13525	6.67524	5.23086	0.0655472	0.21320086	2.7750880	21	2 22.6	20.7
409553 2005 <i>UQ</i> <sub>93</sub>	16.9	X	71.28523	115.30358	357.32228	4.49704	0.1155930	0.21131951	2.9155344	21	3 10.9	20.2
409554 2005 <i>UM</i> <sub>94</sub>	17.0	X	58.45402	127.42597	8.23425	6.66301	0.1451107	0.21215484	2.7842021	21	3 25.0	20.2
409555 2005 <i>UA</i> <sub>95</sub>	16.4	X	162.35152	17.28408	4.68757	5.52575	0.0475541	0.21375995	2.7702470	21	3 3.1	20.3
409556 2005 <i>UO</i> <sub>99</sub>	17.3	X	115.19619	325.49394	139.46765	4.08988	0.1555742	0.21658938	2.7460680	21	5 5.4	21.3
409557 2005 <i>UO</i> <sub>100</sub>	16.5	X	126.31395	242.33716	195.52155	8.50737	0.0845229	0.21576993	2.7530162	21	4 2.7	20.4
409558 2005 <i>UX</i> <sub>103</sub>	17.1	X	143.92267	7.30856	65.06513	5.85656	0.1459217	0.21687903	2.7436224	21	4 23.9	21.3
409559 2005 <i>UO</i> <sub>109</sub>	16.7	X	195.17286	60.15667	285.56331	3.85299	0.1672082	0.21362113	2.7714470	21	2 23.9	21.4
409560 2005 <i>UY</i> <sub>109</sub>	16.9	X	14.79349	183.04309	278.28213	4.15900	0.1259502	0.19772898	2.9180260	21	—	—
409561 2005 <i>UR</i> <sub>113</sub>	16.5	X	270.70192	212.29653	45.88251	9.55793	0.1011243	0.20913933	2.8109012	21	1 29.5	20.8
409562 2005 <i>UV</i> <sub>114</sub>	17.1	X	163.01373	278.96230	124.71662	8.57835	0.3332204	0.21792956	2.7347982	21	4 18.7	22.2
409563 2005 <i>UO</i> <sub>115</sub>	17.0	X	154.52206	19.27716	37.88062	5.50037	0.1074891	0.21815656	2.7329008	21	4 11.7	21.1
409564 2005 <i>UX</i> <sub>120</sub>	16.4	X	45.09232	139.31966	33.49183	8.82577	0.1313565	0.21776497	2.7361761	21	4 20.2	19.3
409565 2005 <i>UD</i> <sub>121</sub>	17.0	X	123.02355	204.22348	227.29153	3.56087	0.0413697	0.21523209	2.7576006	21	3 14.5	20.9
409566 2005 <i>UV</i> <sub>124</sub>	17.2	X	174.20277	334.77938	359.851578	1.73815	0.2225362	0.21021969	2.8012624	21	1 29.2	21.8
409567 2005 <i>UC</i> <sub>148</sub>	17.0	X	127.81125	155.48476	259.77753	3.46679	0.0589718	0.21261193	2.7802102	21	3 2.3	20.9
409568 2005 <i>UE</i> <sub>157</sub>	16.9	X	158.00922	322.43662	27.99795	4.74384	0.1150654	0.20906094	2.8116037	21	1 26.3	21.1
409569 2005 <i>UC</i> <sub>168</sub>	17.3	X	41.86480	262.06875	222.40277	3.55353	0.0110974	0.21104640	2.7939422	21	2 2.2	21.2
409570 2005 <i>UR</i> <sub>170</sub>	16.9	X	173.28761	40.75190	319.26980	1.67130	0.0937346	0.21194338	2.7860536	21	2 18.7	21.0
409571 2005 <i>UT</i> <sub>180</sub>	16.4	X	44.61353	32.71558	65.62404	11.82354	0.1081674	0.20283467	2.8688505	21	1 10.6	19.9
409572 2005 <i>UK</i> <sub>182</sub>	18.4	X	40.63036	349.29031	46.07210	4.04931	0.1787763	0.31976306	2.1179572	21	—	—
409573 2005 <i>UZ</i> <sub>183</sub>	17.1	X	92.28799	200.03539	208.39364	1.40938	0.0627393	0.20491000	2.8494472	21	1 11.3	20.8
409574 2005 <i>UP</i> <sub>191</sub>	16.9	X	252.47732	248.10197	35.54333	3.79977	0.0611547	0.21216353	2.7841260	21	2 11.3	21.0
409575 2005 <i>UM</i> <sub>197</sub>	16.2	X	210.60840	239.74310	153.43422	17.87926	0.1789180	0.23262238	2.6183943	21	5 10.6	20.8
409576 2005 <i>UT</i> <sub>197</sub>	17.3	X	115.15661	89.14421	29.47633	8.01807	0.2360106	0.22011448	2.7166705	21	5 29.1	21.5
409577 2005 <i>UB</i> <sub>198</sub>	16.6	X	307.63091	39.46653	200.89161	13.32658	0.1491003	0.21851784	2.7298877	21	2 3.8	20.7
409578 2005 <i>UK</i> <sub>199</sub>	16.4	X	47.63546	295.29531	220.84538	14.62391	0.1277141	0.21381845	2.7697416	21	3 28.8	19.7
409579 2005 <i>UJ</i> <sub>206</sub>	16.2	X	80.23910	64.31290	140.00196	2.17960	0.0872071	0.17104953	3.2140660	21	7 19.7	20.6
409580 2005 <i>UC</i> <sub>216</sub>	16.7	X	180.90831	3.37656	54.95442	6.17389	0.1405132	0.22294038	2.6936648	21	5 10.5	20.9
409581 2005 <i>UU</i> <sub>216</sub>	16.6	X	246.29668	292.30835	47.43092	11.65361	0.0649910	0.22303232	2.6929245	21	4 15.1	20.5
409582 2005 <i>UM</i> <sub>223</sub>	16.2	X	309.63033	185.18432	25.80841	12.75029	0.0129899	0.20985372	2.8045182	21	1 30.3	20.3
409583 2005 <i>UU</i> <sub>223</sub>	16.6	X	200.19256	60.89242	239.24159	8.41597	0.1605320	0.20939069	2.8086512	21	1 6.7	21.2
409584 2005 <i>UZ</i> <sub>228</sub>	16.5	X	61.25361	279.66842	214.34384	11.46862	0.1270031	0.21212535	2.7844601	21	3 22.0	19.9
409585 2005 <i>UO</i> <sub>234</sub>	17.0	X	130.90328	327.75875	85.94153	5.43502	0.0661962	0.21239726	2.7820832	21	3 9.7	20.9
409586 2005 <i>UQ</i> <sub>243</sub>	16.1	X	174.22265	342.74883	43.82530	18.17257	0.2443089	0.21613686	2.7498995	21	4 5.9	21.0
409587 2005 <i>UJ</i> <sub>251</sub>	16.3	X	203.49606	8.96156	349.14786	9.51669	0.1931411	0.21919423	2.7242689	21	3 17.7	20.8
409588 2005 <i>UC</i> <sub>270</sub>	17.0	X	165.24249	344.04805	53.16169	3.89932	0.1150914	0.21823283	2.7322640	21	3 30.3	21.1
409589 2005 <i>UD</i> <sub>270</sub>	16.2	X	269.01454	246.74796	37.39359	14.79433	0.1780606	0.22007126	2.7170262	21	2 23.3	20.7
409590 2005 <i>UA</i> <sub>287</sub>	16.7	X	189.92089	225.01526	82.55847	5.30192	0.1929003	0.20987884	2.8042944	21	1 9.3	21.3
409591 2005 <i>UU</i> <sub>289</sub>	16.8	X	209.48525	305.48499	359.52072	4.						

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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>		
409601	2005	<i>US</i> <sub>368</sub>	16.7	X	114.60324	224.33977	185.91457	4.70378	0.0694360	0.20861620	2.8155983	21	2 10.5	20.6
409602	2005	<i>UH</i> <sub>376</sub>	16.6	X	149.17080	0.47049	26.09796	8.33383	0.1319312	0.21236364	2.7823768	21	3 4.7	20.9
409603	2005	<i>UU</i> <sub>385</sub>	17.3	X	201.39216	230.46141	119.59957	1.84247	0.0797609	0.21472113	2.7619736	21	3 7.6	21.3
409604	2005	<i>UR</i> <sub>390</sub>	16.9	X	184.19946	288.98394	79.88553	2.84749	0.0912673	0.21695892	2.7429489	21	3 13.7	21.0
409605	2005	<i>US</i> <sub>402</sub>	16.3	X	235.39420	276.99294	44.16117	14.04075	0.1304154	0.21951364	2.7216255	21	3 11.3	20.8
409606	2005	<i>UZ</i> <sub>423</sub>	16.7	X	227.94630	77.64291	218.72262	12.74112	0.1791390	0.21398644	2.7682919	21	1 22.6	21.6
409607	2005	<i>UR</i> <sub>428</sub>	17.5	X	70.80412	109.53547	303.36829	1.00842	0.0802702	0.20103651	2.8859320	21	—	—
409608	2005	<i>UP</i> <sub>483</sub>	16.4	X	195.44644	336.41515	40.64160	13.74780	0.1420929	0.22174081	2.7033709	21	4 6.9	20.8
409609	2005	<i>UZ</i> <sub>486</sub>	16.2	X	202.49740	49.03106	301.43502	11.87632	0.1960295	0.21978220	2.7194080	21	3 3.8	21.0
409610	2005	<i>UG</i> <sub>502</sub>	16.3	X	174.72356	147.83150	229.04984	6.04597	0.0636814	0.21526159	2.7573487	21	3 8.1	20.4
409611	2005	<i>UK</i> <sub>510</sub>	16.8	X	168.31074	211.46986	183.37101	13.12323	0.1958505	0.21695081	2.7430172	21	4 1.3	21.1
409612	2005	<i>UZ</i> <sub>513</sub>	17.1	X	177.56817	281.89284	102.42420	2.03962	0.0838966	0.21535645	2.7565389	21	3 25.2	21.3
409613	2005	<i>UC</i> <sub>523</sub>	17.4	X	348.84499	6.60795	184.50124	4.17766	0.0078426	0.21770836	2.7366504	21	2 17.3	21.0
409614	2005	<i>VB</i> <sub>23</sub>	17.1	X	72.97669	256.79543	159.71532	2.43916	0.0608143	0.20390789	2.8587754	21	—	—
409615	2005	<i>VD</i> <sub>29</sub>	16.5	X	130.01433	233.33642	205.27773	8.80003	0.1417591	0.21624609	2.7489734	21	4 15.1	20.6
409616	2005	<i>VE</i> <sub>33</sub>	16.5	X	142.63533	195.41904	208.07558	9.06220	0.1539870	0.21378932	2.7699932	21	3 15.2	20.9
409617	2005	<i>VJ</i> <sub>51</sub>	16.5	X	189.97651	291.70166	77.56826	8.07339	0.1304442	0.21853529	2.7297424	21	3 23.8	20.9
409618	2005	<i>VN</i> <sub>96</sub>	16.9	X	188.53095	107.60815	260.48530	3.65161	0.1411240	0.21674802	2.7447279	21	3 15.2	21.4
409619	2005	<i>VO</i> <sub>117</sub>	16.8	X	43.58229	78.12715	55.31185	4.91668	0.0529478	0.20929149	2.8095386	21	2 21.4	20.4
409620	2005	<i>WN</i>	17.4	X	123.42113	12.20744	66.69429	5.22548	0.1786660	0.21300046	2.7768282	21	4 14.8	21.6
409621	2005	<i>WH</i> <sub>5</sub>	16.2	X	120.64934	345.11229	89.08118	14.95029	0.1696612	0.21195272	2.7859718	21	4 11.1	20.6
409622	2005	<i>WV</i> <sub>9</sub>	15.5	X	294.11575	237.47147	254.90272	13.24508	0.1690847	0.18618912	3.0373851	21	12 15.4	19.0
409623	2005	<i>WU</i> <sub>13</sub>	17.0	X	106.15576	167.22886	225.29060	1.16604	0.0740967	0.20325758	2.8648697	21	1 11.6	20.8
409624	2005	<i>WX</i> <sub>14</sub>	16.7	X	67.58596	22.21062	72.01690	2.90305	0.0324967	0.20645838	2.8351826	21	2 2.2	20.5
409625	2005	<i>WG</i> <sub>43</sub>	16.3	X	191.70627	42.52856	261.81220	5.03771	0.0771119	0.20171068	2.8794980	21	1 2.8	20.7
409626	2005	<i>WL</i> <sub>44</sub>	16.9	X	333.72573	102.19413	56.87515	7.11017	0.0380454	0.20181687	2.8784879	21	—	—
409627	2005	<i>WT</i> <sub>56</sub>	16.8	X	169.67707	317.16826	65.13334	5.18213	0.1157019	0.21264665	2.7799076	21	3 18.2	21.1
409628	2005	<i>WS</i> <sub>66</sub>	17.2	X	108.82437	191.26786	234.64547	3.70579	0.1003214	0.20886642	2.8133491	21	2 26.7	21.0
409629	2005	<i>WA</i> <sub>67</sub>	16.8	X	106.95918	170.17527	224.19209	1.27396	0.0743157	0.20291377	2.8681050	21	1 14.9	20.7
409630	2005	<i>WH</i> <sub>116</sub>	16.4	X	126.86989	243.16191	235.76388	9.61794	0.1841414	0.21761829	2.7374054	21	6 6.2	20.6
409631	2005	<i>WV</i> <sub>126</sub>	17.0	X	146.62438	297.88247	96.41711	8.77516	0.2322382	0.21237423	2.7822843	21	3 21.5	21.7
409632	2005	<i>WV</i> <sub>142</sub>	16.9	X	116.13573	161.15917	205.83140	1.26323	0.0526098	0.20116271	2.8847248	21	—	—
409633	2005	<i>WX</i> <sub>156</sub>	15.9	X	326.93514	84.40435	79.07039	12.56073	0.0475348	0.19561101	2.9390514	21	—	—
409634	2005	<i>WG</i> <sub>160</sub>	16.5	X	179.47777	9.36500	99.00513	11.29910	0.2627768	0.22256853	2.6966642	21	7 11.4	21.3
409635	2005	<i>WJ</i> <sub>160</sub>	16.1	X	120.00356	86.67738	283.76577	10.71258	0.0677165	0.19728423	2.9224099	21	1 2.6	20.1
409636	2005	<i>WC</i> <sub>175</sub>	17.1	X	153.90663	11.18581	67.11847	2.96360	0.2225432	0.21601798	2.7509083	21	5 14.7	21.8
409637	2005	<i>WL</i> <sub>208</sub>	16.2	X	92.80009	156.56512	281.38332	8.19344	0.1109459	0.20617188	2.8378086	21	2 21.2	20.1
409638	2005	<i>XX</i> <sub>26</sub>	17.0	X	136.78490	300.08213	86.18155	10.33641	0.1278341	0.20402972	2.8576372	21	2 20.5	21.3
409639	2005	<i>XH</i> <sub>27</sub>	16.8	X	353.50158	38.70432	78.66225	5.74549	0.1260884	0.19216935	2.9740388	21	—	—
409640	2005	<i>XN</i> <sub>34</sub>	16.5	X	231.69285	198.58288	91.07053	7.30584	0.0549265	0.20424105	2.8556657	21	1 28.1	20.7
409641	2005	<i>XY</i> <sub>41</sub>	16.4	X	161.36878	114.13395	242.01383	19.38256	0.2295489	0.21083132	2.7958420	21	2 4.9	21.5
409642	2005	<i>XN</i> <sub>54</sub>	17.3	X	133.64125	146.70865	279.14826	3.56409	0.0855789	0.21250204	2.7811686	21	3 25.9	21.4
409643	2005	<i>XP</i> <sub>64</sub>	16.5	X	187.21911	252.88546	100.72259	4.41452	0.1018824	0.21312482	2.7757479	21	2 27.2	20.7
409644	2005	<i>XC</i> <sub>70</sub>	16.2	X	46.39620	51.32129	45.61567	6.39715	0.0401884	0.20137518	2.8826954	21	1 9.8	20.0
409645	2005	<i>XK</i> <sub>81</sub>	16.7	X	123.11133	293.85066	34.26062	2.22695	0.0796687	0.19233157	2.9723663	21	—	—
409646	2005	<i>XZ</i> <sub>91</sub>	16.7	X	158.21132	114.89739	109.53942	8.50193	0.2176522	0.21589680	2.7519376	21	5 4.2	21.4
409647	2005	<i>YK</i> <sub>2</sub>	16.7	X	127.91347	32.79738	66.53911	15.85944	0.0620015	0.21684903	2.7438755	21	5 3.6	20.7
409648	2005	<i>YW</i> <sub>5</sub>	16.4	X	288.82725	192.59040	84.33211	10.76783	0.1580993	0.21301692	2.7766852	21	3 8.1	20.6
409649	2005	<i>YF</i> <sub>13</sub>	16.2	X	136.98042	56.20020	291.58897	10.07554	0.1096799	0.19398117	2.9554912	21	1 1.8	20.5
409650	2005	<i>YH</i> <sub>15</sub>	16.7	X	348.09305	35.54351	105.72133	2.47029	0.0854642	0.19220817	2.9736384	21	—	—
409651	2005	<i>YA</i> <sub>25</sub>	16.6	X	214.84104	120.23139	120.49254	4.34194	0.0549304	0.18662181	3.0326884	21	—	—
409652	2005	<i>YD</i> <sub>49</sub>	18.3	X	276.22410	185.27221	288.19425	3.36688	0.0906932	0.30290409	2.1958329	21	11 29.0	20.5
409653	2005	<i>YM</i> <sub>50</sub>	16.4	X	173.11567	127.63689	112.58905	14.26577	0.1052356	0.17978822	3.1090561	21	12 11.7	21.4
409654	2005	<i>YG</i> <sub>54</sub>	16.9	X	351.66233	239.99356	244.36740	1.38934	0.1220360	0.19220795	2.9736406	21	—	—
409655	2005	<i>YS</i> <sub>61</sub>	16.4	X	321.85066	34.45894	95.56335	10.80439	0.0522962	0.18816593	3.0160745	21	—	—
409656	2005	<i>YH</i> <sub>63</sub>	16.1	X	172.40636	158.28658	96.31061	9.62178	0.0839923	0.18349236	3.0670726	21	12 27.4	20.8
409657	2005	<i>YX</i> <sub>95</sub>	16.7	X	94.21446	354.09437	70.86587	3.11634	0.0848387	0.19984231	2.8974175	21	2 8.9	20.5
409658	2005	<i>YH</i> <sub>107</sub>	17.3	X	124.47215	131.63723	270.26510	0.93201	0.0710334	0.20304552	2.8668641	21	2 14.3	21.4
409659	2005	<i>YE</i> <sub>117</sub>	16.7	X	309.53749	197.44626	318.07599	4.05935	0.0637237	0.18799585	3.0178933	21	—	—
409660	2005	<i>YC</i> <sub>119</sub>	17.8	X	37.71769	332.73707	154.48387	1.30054	0.1293332	0.26429912	2.4047627	21	1 18.8	19.9
409661	2005	<i>YK</i> <sub>125</sub>	15.9	X	302.87048	59.56574	83.43576	8.55008	0.1002416	0.18627202	3.0364838	21	—	—
409662	2005	<i>YV</i> <sub>129</sub>	18.0	X	146.27564	167.56721	65.91040	4.74585	0.1165036	0.30115693	2.2043174	21	11 22.9	20.9
409663	2005	<i>YE</i> <sub>130</sub>	16.8	X	106.81729	55.11250	19.25302	2.50198	0.1611819	0.20359027	2.8617479	21	3 18.6	20.6
409664	2005	<i>YG</i> <sub>136</sub>	16.9	X	134.64860	58.38062	323.05374	6.61361	0.0244243	0.19950766	2.9006567	21	1 27.8	20.8
409665	2005	<i>YQ</i> <sub>138</sub>	16.9	X	343.62924	95.37998	42.95862	2.30417	0.0542376	0.19177250	2.9781404	21	—	—
409666	2005	<i>YY</i> <sub>151</sub>	18.5	X	7.24693	324.45705	79.47323	5.19861	0.1261827	0.30998775	2.1622523	21	—	—
409667	2005	<i>YH</i> <sub>153</sub>	15.3	X	255.75177	79.68981	275.10817	15.52974	0.3464560	0.22690302	2.6622114	21	4 9.9	20.4
409668	2005	<i>YA</i> <sub>206</sub>	17.9	X	328.13062	298.04097	157.26626	4.88992	0.0687411	0.31022036	2.1611713	21	—	—

ELEMENTS AND OPPOSITION DATES IN 2021

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2021 JULY 5.0 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>
409681 2006 AE <sub>35</sub>	15.8	X	91.95156	54.82360	304.98815	9.34517	0.1084818	0.18764303	3.0216750	21	—	—
409682 2006 AM <sub>35</sub>	16.6	X	351.00393	217.55946	230.20442	0.89374	0.0279812	0.18441691	3.0568131	21	—	—
409683 2006 AJ <sub>48</sub>	15.9	X	7.76123	324.29648	141.54644	9.84212	0.1094983	0.18909345	3.0062036	21	—	—
409684 2006 AN <sub>51</sub>	16.7	X	112.07595	342.86134	116.97483	10.93744	0.0926831	0.20895468	2.8125569	21	4 20.9	20.8
409685 2006 AB <sub>53</sub>	16.7	X	119.91567	146.18328	244.82055	2.04746	0.0742833	0.19818120	2.9135853	21	1 27.5	20.6
409686 2006 AE <sub>54</sub>	17.0	X	21.56869	297.27631	160.48699	3.43023	0.1312004	0.19219039	2.9738218	21	—	—
409687 2006 AG <sub>57</sub>	16.3	X	217.12701	88.75933	115.55154	12.87469	0.0855423	0.17982007	3.1086890	21	12 15.3	20.9
409688 2006 AU <sub>69</sub>	18.6	X	280.73245	127.56178	323.06227	5.01262	0.0916030	0.30085615	2.2057864	21	10 30.6	20.9
409689 2006 AZ <sub>78</sub>	15.7	X	81.87377	294.34178	93.97820	12.10152	0.0511922	0.19154577	2.9804900	21	—	—
409690 2006 AU <sub>84</sub>	15.2	X	257.36991	223.33206	313.97668	26.57581	0.1741248	0.17891297	3.1191876	21	12 19.5	19.9
409691 2006 AH <sub>94</sub>	16.8	X	63.96230	99.97498	321.64017	1.30515	0.0784475	0.19336503	2.9617661	21	—	—
409692 2006 AD <sub>101</sub>	16.0	X	162.93807	327.34981	308.11098	10.42586	0.0588150	0.18178274	3.0862726	21	—	—
409693 2006 BQ <sub>9</sub>	15.5	X	318.71147	257.32011	273.40876	11.50829	0.1039931	0.18966895	3.0001195	21	—	—
409694 2006 BP <sub>19</sub>	16.6	X	309.30405	354.48228	173.06789	3.11761	0.0195616	0.18556171	3.0442278	21	—	—
409695 2006 BW <sub>22</sub>	18.0	X	163.45014	79.19823	124.63248	2.82676	0.0933036	0.29556878	2.2320145	21	11 3.4	21.0
409696 2006 BP <sub>33</sub>	17.0	X	191.49515	196.94254	338.00283	6.65933	0.1147441	0.29296954	2.2451967	21	10 21.3	20.3
409697 2006 AD <sub>37</sub>	16.7	X	113.09175	294.54287	124.68204	12.90698	0.1545939	0.20237405	2.8732021	21	3 9.6	20.9
409698 2006 BN <sub>46</sub>	16.2	X	261.80576	181.59487	328.21253	15.84712	0.0350814	0.17459398	3.1704180	21	12 5.4	20.9
409699 2006 BZ <sub>53</sub>	17.0	X	22.27478	117.69008	4.46162	1.64584	0.1904215	0.19184589	2.9773808	21	1 3.9	20.1
409700 2006 BZ <sub>74</sub>	16.6	X	74.17663	340.12057	337.43468	8.19890	0.0710120	0.17367448	3.1815985	21	11 17.5	21.3
409701 2006 BM <sub>98</sub>	16.2	X	197.78043	297.64212	303.80197	8.51242	0.0943925	0.18269597	2.9759793	21	—	—
409702 2006 BX <sub>107</sub>	16.9	X	126.71850	53.73968	329.21909	5.30277	0.0718298	0.19579670	3.0371929	21	1 27.3	20.9
409703 2006 BP <sub>109</sub>	16.2	X	145.33848	147.25203	121.88987	11.17345	0.0584992	0.17627257	3.1502588	21	12 17.0	21.0
409704 2006 BR <sub>111</sub>	17.1	X	28.78004	23.59834	98.07294	2.62735	0.1188263	0.19471926	2.9480178	21	1 16.7	20.3
409705 2006 BS <sub>121</sub>	16.7	X	356.61997	164.38005	323.89303	4.49001	0.0268579	0.18979273	2.9988149	21	—	—
409706 2006 BN <sub>128</sub>	17.9	X	114.36179	93.13587	122.48729	1.55322	0.1829152	0.28478322	2.2880198	21	9 30.3	21.4
409707 2006 BO <sub>131</sub>	15.9	X	276.89769	350.41263	149.72929	18.64787	0.1712914	0.17613952	3.1518450	21	11 30.6	20.4
409708 2006 BN <sub>144</sub>	15.7	X	323.52157	240.19003	260.80584	8.23573	0.0666302	0.18577711	3.0418742	21	—	—
409709 2006 BR <sub>144</sub>	15.7	X	312.43081	262.18731	249.06408	8.07607	0.2428538	0.18464135	3.0543355	21	—	—
409710 2006 BR <sub>163</sub>	16.2	X	205.89179	275.76594	319.40790	11.45675	0.1221271	0.17906349	3.1174394	21	—	—
409711 2006 BU <sub>167</sub>	16.4	X	3.29850	72.97837	329.49997	6.88020	0.0628276	0.17555249	3.1588673	21	12 8.8	20.7
409712 2006 BB <sub>174</sub>	15.7	X	219.43162	138.25219	112.63215	10.29822	0.0970868	0.18507038	3.0496133	21	—	—
409713 2006 BS <sub>176</sub>	16.0	X	246.03719	43.82254	121.98149	12.54179	0.0418391	0.17644364	3.1482222	21	12 8.5	20.6
409714 2006 BN <sub>178</sub>	16.3	X	234.74376	64.80429	117.16168	6.22786	0.0925188	0.17718686	3.1394125	21	12 6.7	20.8
409715 2006 BW <sub>195</sub>	16.5	X	277.51186	214.87060	309.34178	9.15658	0.0932595	0.17998451	3.1067952	21	—	—
409716 2006 BP <sub>204</sub>	16.2	X	53.67597	101.60791	331.76956	10.15653	0.0620534	0.19032392	2.9932326	21	—	—
409717 2006 BG <sub>205</sub>	16.2	X	52.03458	259.36179	142.28210	11.47808	0.1273415	0.18478376	3.0527660	21	—	—
409718 2006 BV <sub>225</sub>	14.0	X	117.82149	334.43160	160.22824	10.08073	0.1529946	0.08283975	5.2116693	21	6 17.1	21.3
409719 2006 BP <sub>254</sub>	16.2	X	3.69642	159.69145	315.54637	8.65532	0.0283874	0.18735608	3.0247595	21	—	—
409720 2006 BK <sub>255</sub>	13.2	X	356.85865	106.75280	150.24550	20.06803	0.0558329	0.08176817	5.2571034	21	6 4.5	20.1
409721 2006 BA <sub>262</sub>	15.6	X	236.24013	191.87030	344.98264	10.71078	0.0993649	0.17321383	3.1872369	21	11 27.6	20.4
409722 2006 BM <sub>263</sub>	17.9	X	148.73412	185.31582	35.31810	2.38798	0.1187708	0.29226395	2.2488089	21	11 7.2	21.1
409723 2006 BO <sub>277</sub>	16.1	X	40.11884	96.39190	336.31344	9.01839	0.0336282	0.18571216	3.0425833	21	—	—
409724 2006 BP <sub>280</sub>	16.5	X	251.85563	226.71195	331.96419	4.55496	0.0857895	0.18009919	3.1054762	21	—	—
409725 2006 BQ <sub>280</sub>	16.5	X	95.77505	10.63142	140.74655	21.77375	0.0762753	0.18012162	3.1052184	21	—	—
409726 2006 BV <sub>280</sub>	18.0	X	87.92533	115.01872	115.06698	4.29053	0.1489708	0.28332186	2.2958807	21	9 19.1	21.1
409727 2006 BM <sub>283</sub>	16.5	X	95.16560	46.23588	312.76650	11.22346	0.0862702	0.18586847	3.0408773	21	—	—
409728 2006 CZ <sub>18</sub>	15.1	X	283.91427	15.23292	117.38256	18.31482	0.0747843	0.17503522	3.1650877	21	12 12.3	19.5
409729 2006 CG <sub>22</sub>	18.2	X	25.59630	39.34365	351.45724	5.48679	0.1008726	0.30550891	2.1833337	21	—	—
409730 2006 CH <sub>24</sub>	18.6	X	306.85377	115.36609	349.50474	1.49417	0.1011611	0.30621739	2.1799648	21	—	—
409731 2006 CQ <sub>26</sub>	15.6	X	77.59643	186.05664	135.72958	10.07822	0.0803321	0.17500373	3.1654674	21	12 8.9	20.3
409732 2006 CM <sub>27</sub>	18.2	X	106.34958	258.41083	321.48152	1.35819	0.1594395	0.28658076	2.2784423	21	9 24.8	21.3
409733 2006 CY <sub>39</sub>	16.9	X	3.89499	18.25793	61.68786	2.39227	0.2552219	0.18462648	3.0544995	21	—	—
409734 2006 CS <sub>45</sub>	16.8	X	351.54024	126.04623	354.49530	2.38919	0.0730595	0.18860801	3.0113596	21	—	—
409735 2006 CE <sub>46</sub>	16.1	X	63.52563	252.68993	122.41247	6.47705	0.1176961	0.18392575	3.0622527	21	—	—
409736 2006 CB <sub>53</sub>	16.2	X	209.91078	33.32385	138.19200	16.34330	0.0726128	0.17121176	3.2120354	21	11 3.5	21.3
409737 2006 CC <sub>53</sub>	15.9	X	205.03308	84.54898	139.32563	16.57210	0.1154078	0.17748374	3.1359105	21	12 22.3	20.9
409738 2006 CD <sub>56</sub>	17.4	X	209.97948	178.28786	341.71986	24.43071	0.2180979	0.29522305	2.2337567	21	10 3.2	21.1
409739 2006 DC <sub>16</sub>	17.9	X	38.44596	317.54066	47.17950	2.69430	0.0864233	0.30247688	2.1979000	21	—	—
409740 2006 DS <sub>18</sub>	16.5	X	200.30976	154.91724	83.81835	3.01128	0.1515941	0.17605732	3.1528259	21	12 30.1	21.5
409741 2006 DD <sub>22</sub>	17.7	X	150.14538	90.02080	114.29196	2.76963	0.0802797	0.29006473	2.2601613	21	10 19.8	20.8
409742 2006 DZ <sub>23</sub>	17.9	X	84.44631	271.99812	0.73975	5.80611	0.0987696	0.28961768	2.2624865	21	11 2.4	20.8
409743 2006 DP <sub>25</sub>	16.7	X	123.74883	263.24537	156.20267	8.57409	0.1577862	0.19993782	2.8964947	21	3 20.5	20.9
409744 2006 DW <sub>28</sub>	16.0	X	334.75322	134.24996	0.24119	16.44894	0.1077099	0.18242400	3.0790357	21	—	—
409745 2006 DB <sub>35</sub>	16.4	X	315.66889	131.22543	16.48304	2.31237	0.1884596	0.18112932	3.0936906	21	—	—
409746 2006 DL <sub>44</sub>	16.3	X	329.64318	212.86213	299.22151	3.80123	0.1152126	0.18674501	3.0313544	21	—	—
409747 2006 DO <sub>57</sub>	16.2	X	25.93333	102.97997	344.20999	10.60165	0.1433845	0.18503236	3.0500311	21	—	—
409748 2006 DS <sub>58</sub>	18.0	X	222.24359	323.96554	183.96933	2.28260	0.1440608	0.29331541	2.2434314	21	10 20.6	21.0
409749 2006 DL <sub>61</sub>	17.5	X	100.44221	75.51515	180.89845	5.30735	0.1608488	0.28699881	2.2762292	21	11 7.3	20.8
409750 2006 DD <sub>62</sub>	15.6	X	266.02980	113.12983	45.93657	6.12840	0.1441312	0.17749404	3.1357892	21	12 8.5	19.9
409751 2006 DH <sub>62</sub>	16.8	X	174.07848	356.82796	169.41798	25.60483	0.1958548	0.28774912	2.2722706	21	9 21.5	20.5
409752 2006 DM <sub>64</sub>	16.1	X	347.85414	27.97014	102.09500	8.44474	0.2323915	0.18875728	3.0097718	21	—	—
409753 2006 DV <sub>74</sub>	16.7	X	221.27244	140.06151	78.92549	2.24680	0.1217036	0.17728162	3.1382937	21	12 31.2	21.5
409754 2006 DN <sub>78</sub>	16.2	X	98.39935	227.90267	156.30334	14.85892	0.1506806	0.18784036	3.0195584	21	1 5.5	20.5

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>		
409761	2006	DO <sub>95</sub>	15.9 <sup>m</sup>	X	41.76777	238.46975	181.06575	10.95546	0.1614656	0.18023776	3.1038843	21	—	—
409762	2006	DA <sub>100</sub>	18.0	X	78.85639	286.83796	359.21850	7.65427	0.1699188	0.29011425	2.2599041	21	11 21.2	21.4
409763	2006	DH <sub>100</sub>	16.0	X	210.01853	234.91547	338.09656	9.81361	0.0409709	0.17607990	3.1525564	21	12 21.0	20.8
409764	2006	DO <sub>101</sub>	16.7	X	335.41924	59.42922	86.64563	3.08372	0.1678981	0.18541819	3.0457985	21	—	—
409765	2006	DE <sub>141</sub>	17.8	X	96.49668	80.95846	150.14533	10.63239	0.1252038	0.28318620	2.2966139	21	9 28.4	20.9
409766	2006	DJ <sub>142</sub>	16.1	X	244.33480	90.35327	81.81516	2.71101	0.0948404	0.17315558	3.1879516	21	12 4.4	20.5
409767	2006	DB <sub>151</sub>	17.9	X	155.38960	241.17569	324.78472	4.38711	0.0294531	0.29046427	2.2580882	21	10 25.5	20.7
409768	2006	DV <sub>160</sub>	17.8	X	287.83702	323.64542	164.64819	5.88935	0.0310553	0.30218605	2.1993099	21	—	—
409769	2006	DE <sub>161</sub>	15.8	X	307.29828	325.15937	167.02883	9.95315	0.0488242	0.17777642	3.1324677	21	—	—
409770	2006	DB <sub>175</sub>	16.7	X	325.92878	66.69198	73.72082	2.00305	0.0278658	0.18111450	3.0938593	21	—	—
409771	2006	DC <sub>182</sub>	18.1	X	93.10902	46.17160	185.84724	5.62353	0.0998246	0.28280315	2.2986872	21	9 19.2	21.1
409772	2006	DJ <sub>189</sub>	18.3	X	81.04667	242.08231	3.36771	7.10337	0.1500813	0.28149207	2.3058193	21	9 29.5	21.3
409773	2006	DZ <sub>209</sub>	16.5	X	85.00989	259.60598	170.11769	6.48001	0.1704032	0.19298432	2.9656600	21	2 13.7	20.4
409774	2006	ED <sub>5</sub>	16.9	X	32.46419	84.78959	20.81269	4.91295	0.0814767	0.18957145	3.0011481	21	1 4.1	20.7
409775	2006	EU <sub>10</sub>	16.2	X	26.21066	259.37871	160.84356	9.54092	0.0957771	0.17882825	3.1201726	21	—	—
409776	2006	EX <sub>26</sub>	18.4	X	58.28831	281.31737	349.38882	5.08817	0.1119525	0.28402256	2.2921032	21	9 28.7	21.1
409777	2006	DB <sub>30</sub>	16.4	X	96.07931	23.40600	16.74034	7.93298	0.1501877	0.19038640	2.9255776	21	2 3.2	20.4
409778	2006	EF <sub>37</sub>	17.9	X	142.51430	131.43577	59.65445	2.59545	0.0889321	0.28430232	2.2905992	21	9 22.7	21.1
409779	2006	EC <sub>41</sub>	18.2	X	32.36995	296.33392	314.51454	1.86983	0.1408118	0.27352100	2.3504026	21	7 22.1	20.4
409780	2006	EA <sub>42</sub>	15.7	X	307.16521	309.50287	207.10669	14.32613	0.2346726	0.18073080	3.0982367	21	—	—
409781	2006	EL <sub>42</sub>	16.0	X	358.49904	96.78812	336.07312	8.56428	0.0628696	0.17500700	3.1654280	21	—	—
409782	2006	EL <sub>57</sub>	16.6	X	315.60091	287.00457	235.41251	3.71007	0.0885310	0.18434808	3.0575739	21	—	—
409783	2006	EQ <sub>62</sub>	16.3	X	309.75176	335.37425	195.43703	12.64670	0.1937781	0.18261408	3.0768988	21	—	—
409784	2006	FP <sub>3</sub>	18.0	X	110.43727	62.48474	190.55566	8.63971	0.0702140	0.28744346	2.2738811	21	11 7.3	21.0
409785	2006	FH <sub>7</sub>	15.9	X	342.74159	86.08462	32.44772	9.80357	0.0440028	0.17580186	3.1558795	21	—	—
409786	2006	FU <sub>11</sub>	18.2	X	68.95750	244.18417	26.60557	7.49056	0.1043846	0.28335358	2.2957094	21	10 13.7	20.8
409787	2006	FE <sub>18</sub>	17.9	X	208.49394	112.97390	35.90800	4.71438	0.0816370	0.28751261	2.3753165	21	10 12.6	20.9
409788	2006	FP <sub>29</sub>	15.9	X	312.03893	297.86960	204.28107	13.46687	0.1716657	0.17618570	2.1512942	21	—	—
409789	2006	FL <sub>32</sub>	15.7	X	5.20053	80.30914	20.22916	9.54195	0.0540046	0.17719759	3.1392857	21	—	—
409790	2006	FR <sub>53</sub>	17.8	X	79.40475	194.15556	50.49735	3.01783	0.1820833	0.27737130	2.3286008	21	10 1.7	21.0
409791	2006	FT <sub>54</sub>	16.1	X	311.25519	139.31900	22.58222	8.10282	0.0660285	0.18102456	3.0948841	21	—	—
409792	2006	FW <sub>54</sub>	17.6	X	52.69051	29.75774	229.27158	3.61733	0.1787975	0.27453751	2.3445973	21	9 13.0	20.2
409793	2006	FG <sub>55</sub>	16.4	X	64.15374	56.83558	10.55222	9.20120	0.1469221	0.18637595	3.0353549	21	1 11.2	20.1
409794	2006	GO <sub>14</sub>	17.7	X	7.91018	179.91147	70.28149	4.01671	0.1791121	0.26627192	2.3928702	21	5 28.7	19.3
409795	2006	GM <sub>25</sub>	15.8	X	60.37594	19.16590	32.72551	10.51991	0.0604382	0.17776772	3.1325700	21	—	—
409796	2006	GV <sub>34</sub>	15.9	X	284.33372	123.76910	36.51135	22.67541	0.2210978	0.17603164	3.1531325	21	12 22.7	20.1
409797	2006	GC <sub>36</sub>	17.0	X	320.68420	101.61640	33.07958	0.99087	0.1431062	0.17916820	3.1162247	21	—	—
409798	2006	GU <sub>50</sub>	15.4	X	342.75213	36.90671	123.25016	13.86305	0.1529462	0.18623342	3.0690303	21	—	—
409799	2006	HQ <sub>28</sub>	17.3	X	232.44670	54.18659	164.67952	12.53714	0.2164557	0.23480225	2.3021633	21	—	—
409800	2006	HP <sub>29</sub>	16.9	X	333.75711	50.00391	215.56470	31.77833	0.3325112	0.25864959	2.4396537	21	3 5.1	20.5
409801	2006	HS <sub>33</sub>	17.8	X	340.53127	183.33252	154.24410	1.23596	0.2126343	0.27403662	2.3474534	21	8 19.6	19.1
409802	2006	HN <sub>44</sub>	18.2	X	130.58352	97.93780	92.72085	2.23269	0.1251638	0.27786257	2.3258553	21	9 9.9	21.6
409803	2006	HL <sub>47</sub>	18.0	X	128.27927	20.90062	185.16277	6.86149	0.1365884	0.28165918	2.3049072	21	9 27.7	21.3
409804	2006	HC <sub>50</sub>	17.8	X	73.73681	175.73503	44.76872	7.09574	0.1835093	0.27478446	2.3431923	21	8 25.0	20.9
409805	2006	HH <sub>53</sub>	16.8	X	345.44683	212.92324	75.32054	7.68661	0.1063402	0.26920212	2.3754747	21	6 14.4	19.2
409806	2006	HM <sub>65</sub>	17.6	X	341.93332	155.29710	207.35646	6.46292	0.1288065	0.27904347	2.3192887	21	10 5.5	19.5
409807	2006	HM <sub>78</sub>	18.0	X	299.74586	75.83610	21.28854	4.50213	0.0837227	0.29627289	2.2284767	21	12 14.6	20.1
409808	2006	HX <sub>78</sub>	18.0	X	325.05570	272.12982	44.93531	6.99145	0.1742019	0.26674893	2.3900167	21	6 10.4	20.3
409809	2006	HU <sub>81</sub>	17.9	X	96.53486	188.84065	8.28691	2.33424	0.1199840	0.27298824	2.3534597	21	8 9.1	20.9
409810	2006	HQ <sub>91</sub>	17.1	X	51.56518	213.92805	89.72280	7.54151	0.1593439	0.27982319	2.3149782	21	11 14.3	20.0
409811	2006	HF <sub>98</sub>	16.1	X	264.86228	140.74259	39.55671	10.53140	0.0585524	0.17037640	3.2225259	21	—	—
409812	2006	HX <sub>98</sub>	16.1	X	271.59083	127.47061	56.14616	11.62954	0.0607847	0.17149678	3.2084755	21	—	—
409813	2006	HW <sub>135</sub>	16.0	X	48.91000	46.95080	26.15446	9.72692	0.1220490	0.18285874	3.0741536	21	—	—
409814	2006	JP <sub>14</sub>	15.9	X	11.01986	73.42713	47.32366	14.01448	0.1619795	0.18145260	3.0900149	21	—	—
409815	2006	JL <sub>15</sub>	16.2	X	14.10162	77.46477	46.67010	7.01714	0.1521403	0.18436318	3.0574070	21	—	—
409816	2006	JN <sub>15</sub>	18.1	X	37.67140	35.21945	235.47447	1.57940	0.1501358	0.27332140	2.3515468	21	9 1.7	20.6
409817	2006	JJ <sub>16</sub>	17.5	X	49.24562	217.27160	63.63785	7.79487	0.0991372	0.27705586	2.3303679	21	10 2.5	20.3
409818	2006	JX <sub>35</sub>	18.2	X	336.92353	147.67335	191.13238	4.71122	0.2474385	0.26962455	2.3729928	21	8 5.7	19.5
409819	2006	JN <sub>66</sub>	17.1	X	31.69391	315.04745	110.42813	2.37319	0.1536988	0.17960001	3.1112278	21	—	—
409820	2006	KD <sub>10</sub>	18.2	X	342.93752	114.97847	219.64482	1.08254	0.1397009	0.27204327	2.3589065	21	8 22.1	20.2
409821	2006	KK <sub>12</sub>	15.9	X	273.00156	103.87095	127.23773	11.09045	0.0579794	0.18061642	3.0959447	21	1 6.4	20.4
409822	2006	KV <sub>32</sub>	18.2	X	10.87655	241.45787	70.02476	6.02074	0.1737240	0.27269304	2.3551578	21	9 22.8	20.3
409823	2006	KN <sub>37</sub>	15.4	X	338.48464	96.06226	75.26816	23.58991	0.0441972	0.18259955	3.0770620	21	1 14.9	19.9
409824	2006	KK <sub>53</sub>	16.0	X	354.89396	268.00219	213.12411	10.27259	0.0818689	0.17406471	3.1768416	21	—	—
409825	2006	KL <sub>60</sub>	16.1	X	323.87290	281.62702	210.22524	12.58578	0.2651544	0.17431157	3.1738415	21	—	—
409826	2006	KN <sub>118</sub>	17.8	X	329.54401	235.76788	54.34881	2.00493	0.1917909	0.26208776	2.4182705	21	5 5.9	20.3
409827	2006	KB <sub>124</sub>	18.8	X	285.92051	88.89841	213.19040	20.86799	0.1058155	0.38618529	1.8675500	21	3 9.6	21.2
409828	2006	LJ <sub>1</sub>	15.2	X	284.40072	67.91359	108.24446	20.24236	0.1434928	0.17212014	3.2007243	21	—	—
409829	2006	OX <sub>21</sub>	17.6	X	282.15484	270.73520	77.75629	5.86543	0.3339942	0.25346786	2.4727912	21	5 1.2	21.4
409830	2006	PH <sub>5</sub>	17.3	X	300.28824	263.46381	80.68737	6.52569	0.2292543	0.25726459	2.4484019	21	5 30.8	20.1
409831	2006	QL <sub>13</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>
409841 2006 RZ <sub>23</sub>	15.1	X	314.83022	102.63653	266.97671	4.79727	0.2931844	0.12512720	3.9588426	21	7 18.4	19.8
409842 2006 RL <sub>49</sub>	17.0	X	2.95011	341.64478	196.20555	11.71074	0.0333393	0.23048415	2.6345635	21	2 12.1	20.6
409843 2006 RG <sub>50</sub>	17.7	X	205.97819	185.35466	191.96246	9.06270	0.1714294	0.23881258	2.5729494	21	4 12.0	21.9
409844 2006 RZ <sub>57</sub>	17.1	X	225.31151	185.99113	180.29860	17.26440	0.1666223	0.24243839	2.5472317	21	4 17.3	21.2
409845 2006 SR <sub>29</sub>	17.1	X	56.53396	359.53865	245.11261	5.23554	0.0688248	0.26071967	2.4267229	21	8 8.6	20.1
409846 2006 SZ <sub>41</sub>	16.5	X	171.65790	272.66807	30.77859	12.87203	0.2716654	0.22503610	2.6769150	21	—	—
409847 2006 SJ <sub>67</sub>	15.3	X	329.57629	178.37554	182.80702	13.44631	0.1121808	0.12569811	3.9468463	21	8 21.9	20.5
409848 2006 SA <sub>70</sub>	17.5	X	265.24529	322.74638	26.20769	4.93953	0.0925577	0.24487280	2.5303214	21	5 11.2	21.0
409849 2006 SM <sub>78</sub>	17.5	X	255.04169	99.15892	249.27910	2.26678	0.1066141	0.24354025	2.5395429	21	4 26.9	21.0
409850 2006 SZ <sub>79</sub>	18.2	X	49.53785	324.38760	188.21249	22.33038	0.0686017	0.36915534	1.9245533	21	2 16.8	20.1
409851 2006 SU <sub>83</sub>	17.8	X	263.86777	269.68365	143.13233	1.67486	0.1656406	0.25466291	2.4650492	21	7 26.5	20.9
409852 2006 SF <sub>84</sub>	16.8	X	352.11268	224.00617	19.05637	13.38480	0.1205370	0.24388062	2.5371795	21	4 17.9	19.4
409853 2006 SX <sub>118</sub>	17.6	X	156.27541	218.61784	179.69971	22.12958	0.1020959	0.36720377	1.9313662	21	2 24.0	20.0
409854 2006 SN <sub>119</sub>	15.1	X	325.36114	315.49680	47.96980	5.78940	0.2695994	0.12519239	3.9574683	21	8 5.4	19.5
409855 2006 SF <sub>122</sub>	17.7	X	232.26219	75.19993	228.63393	18.90263	0.0809146	0.36488032	1.9395564	21	1 10.2	20.5
409856 2006 SV <sub>122</sub>	15.3	X	325.93591	271.16815	83.05413	8.73679	0.2845444	0.12618358	3.9367165	21	7 22.2	19.7
409857 2006 SJ <sub>123</sub>	17.9	X	134.46099	61.26766	23.06859	20.99886	0.0999117	0.37142148	1.9167172	21	4 8.3	19.6
409858 2006 SL <sub>129</sub>	17.7	X	134.12675	55.40640	11.57451	20.26498	0.0878060	0.36755084	1.9301502	21	3 14.9	19.7
409859 2006 SA <sub>131</sub>	18.0	X	284.42581	172.57932	166.43984	0.19999	0.1532053	0.24739971	2.5130623	21	5 14.2	21.4
409860 2006 SD <sub>135</sub>	16.8	X	237.64907	336.53261	340.75705	12.87821	0.2030492	0.23771864	2.5808369	21	2 24.8	21.2
409861 2006 SW <sub>145</sub>	17.2	X	82.78978	313.88525	193.49019	13.14765	0.1882664	0.23722167	2.5844401	21	5 24.3	20.6
409862 2006 SL <sub>179</sub>	17.7	X	237.31944	25.26912	36.60502	2.86345	0.0692776	0.25240103	2.4797542	21	7 19.5	21.0
409863 2006 SJ <sub>185</sub>	17.8	X	258.67645	342.70002	25.28318	10.70755	0.1872233	0.24625775	2.5208255	21	5 15.7	21.8
409864 2006 SJ <sub>189</sub>	18.8	X	230.57837	194.43299	168.80563	7.01729	0.2882572	0.24267431	2.5455806	21	4 12.2	23.3
409865 2006 SQ <sub>196</sub>	18.1	X	295.63927	69.84400	208.46889	21.57180	0.088951	0.37162571	1.9160149	21	2 19.9	20.8
409866 2006 SY <sub>218</sub>	17.0	X	136.62342	234.39586	200.23718	16.25971	0.2989082	0.23213261	2.6220760	21	5 1.5	21.5
409867 2006 SE <sub>222</sub>	17.3	X	197.74865	44.12273	14.85878	14.27756	0.0804394	0.24477723	2.5309800	21	5 23.3	21.3
409868 2006 SD <sub>224</sub>	17.6	X	222.17927	191.28638	200.81934	5.74515	0.3150177	0.24244783	2.5471656	21	5 9.2	22.2
409869 2006 SD <sub>231</sub>	17.7	X	256.32244	187.94266	225.93556	3.59084	0.1747520	0.25366339	2.4715204	21	7 16.5	21.1
409870 2006 SY <sub>235</sub>	17.2	X	215.82359	24.40210	12.37695	11.79707	0.2471145	0.24580371	2.5239288	21	5 8.3	21.7
409871 2006 SV <sub>254</sub>	17.4	X	105.16727	89.46972	18.20204	11.57472	0.1468036	0.23397438	2.6082978	21	4 20.8	20.9
409872 2006 SY <sub>254</sub>	15.5	X	341.97006	158.32255	180.15983	3.34916	0.1224450	0.12347073	3.9941715	21	8 13.8	20.6
409873 2006 SX <sub>260</sub>	17.9	X	118.23454	233.72808	221.45575	3.20171	0.0523187	0.23591859	2.5939481	21	4 7.9	21.2
409874 2006 SJ <sub>267</sub>	16.8	X	307.15603	274.83745	13.80504	15.04839	0.1260005	0.24195937	2.5505925	21	4 9.5	20.0
409875 2006 SW <sub>270</sub>	18.2	X	209.40433	171.39366	194.75991	21.11786	0.0795324	0.37278217	1.9120502	21	3 14.2	20.6
409876 2006 SK <sub>286</sub>	18.0	X	219.33546	293.40863	84.92719	5.14522	0.2651529	0.24260031	2.5460982	21	4 23.3	22.5
409877 2006 SC <sub>290</sub>	18.1	X	167.04344	219.99408	190.03059	21.84650	0.1017532	0.36906234	1.9248766	21	3 30.1	20.1
409878 2006 SK <sub>295</sub>	16.9	X	187.12988	32.14164	4.29173	14.27352	0.0660144	0.23970864	2.5665334	21	4 12.5	20.7
409879 2006 SB <sub>296</sub>	18.2	X	239.60630	98.98411	249.89320	1.42921	0.2273079	0.24282271	2.5445433	21	4 2.5	22.5
409880 2006 SJ <sub>301</sub>	15.2	X	326.36838	347.63281	12.67396	2.81740	0.2638871	0.12369646	3.9893108	21	8 2.7	19.7
409881 2006 SP <sub>326</sub>	17.2	X	242.19730	330.09548	51.26251	3.97061	0.0478903	0.24529576	2.5274119	21	6 1.4	20.6
409882 2006 SO <sub>339</sub>	14.9	X	328.38675	300.33195	43.21753	8.59987	0.1804961	0.12337074	3.9963294	21	7 27.5	19.8
409883 2006 SC <sub>349</sub>	17.4	X	216.82894	109.63564	219.41033	24.36738	0.1410576	0.36591474	1.9358994	21	1 26.2	20.7
409884 2006 SG <sub>355</sub>	15.8	X	92.86210	333.75304	205.80131	16.37236	0.1372800	0.17541536	3.1605134	21	7 8.3	20.7
409885 2006 SV <sub>356</sub>	17.7	X	114.33205	67.67391	28.98933	21.31799	0.0869122	0.36700443	1.9320655	21	3 31.7	19.6
409886 2006 SN <sub>364</sub>	17.1	X	232.17415	340.85659	32.80466	8.30680	0.0883011	0.23805469	2.5784075	21	5 5.7	21.0
409887 2006 ST <sub>364</sub>	16.8	X	232.46477	347.09529	33.94714	7.03888	0.2364337	0.24086423	2.5583179	21	5 5.7	21.2
409888 2006 SH <sub>366</sub>	16.4	X	211.93119	344.85379	29.80125	12.34194	0.2262092	0.23709360	2.5853707	21	4 13.5	20.9
409889 2006 SV <sub>393</sub>	17.1	X	270.27007	168.89035	176.98139	7.43729	0.2459811	0.24617469	2.5213925	21	4 26.7	20.9
409890 2006 SZ <sub>393</sub>	16.8	X	107.92595	237.13065	233.50324	10.33714	0.1458069	0.23015710	2.6370587	21	4 29.3	20.4
409891 2006 SG <sub>394</sub>	17.1	X	291.23783	299.45351	40.47718	14.32708	0.0836691	0.24619040	2.5212852	21	6 2.3	20.5
409892 2006 SY <sub>401</sub>	16.6	X	79.08015	309.87268	208.91722	14.16161	0.0622411	0.23843298	2.5756795	21	5 13.8	19.9
409893 2006 SP <sub>403</sub>	17.0	X	153.23465	244.65740	226.09632	12.20874	0.1162141	0.23971053	2.5656200	21	6 16.5	21.0
409894 2006 SR <sub>403</sub>	17.7	X	193.01210	115.83194	265.85435	2.28018	0.1688056	0.23572939	2.5953558	21	4 4.5	22.0
409895 2006 SE <sub>404</sub>	16.5	X	289.68788	31.40692	223.87175	12.88167	0.1940750	0.23104863	2.6302707	21	1 25.1	20.8
409896 2006 SF <sub>405</sub>	15.8	X	337.66121	287.39639	60.11276	16.78140	0.1617148	0.18605645	3.0388287	21	8 31.8	19.6
409897 2006 SY <sub>407</sub>	17.1	X	141.15500	34.00460	36.43144	13.03581	0.1503672	0.23128157	2.6285043	21	4 17.7	20.9
409898 2006 SA <sub>409</sub>	17.6	X	167.11460	135.51661	219.49954	19.67411	0.0946543	0.35763636	1.9656594	21	1 4.8	20.3
409899 2006 SS <sub>412</sub>	17.3	X	260.52044	75.23161	295.94823	3.67618	0.1819897	0.24765849	2.5113114	21	5 24.1	21.1
409900 2006 TX <sub>6</sub>	17.9	X	210.86781	326.17025	86.75433	4.56577	0.2623356	0.24118695	2.5560353	21	5 27.8	22.3
409901 2006 TL <sub>8</sub>	17.8	X	243.86312	301.50892	35.46455	7.28460	0.2681210	0.23996169	2.5647287	21	3 23.6	22.3
409902 2006 TX <sub>11</sub>	17.5	X	249.30325	15.12572	357.32094	7.38841	0.0689411	0.24356439	2.5393750	21	5 25.1	21.2
409903 2006 TQ <sub>12</sub>	17.7	X	104.72498	274.48178	194.73370	21.58641	0.0969598	0.36937985	1.9237734	21	3 28.5	19.1
409904 2006 TN <sub>26</sub>	17.9	X	229.88316	185.09704	209.03923	4.17266	0.1902254	0.24411662	2.5355440	21	5 23.6	22.0
409905 2006 TA <sub>29</sub>	17.7	X	142.42962	268.17934	204.80220	4.54052	0.2331051	0.23761605	2.5815796	21	6 16.9	22.0
409906 2006 TE <sub>35</sub>	18.6	X	250.06752	150.29615	222.22589	7.19338	0.2989150	0.24570169	2.5246274	21	5 5.9	23.0
409907 2006 TW <sub>36</sub>	17.6	X	192.23654	201.05297	230.47159	2.43408	0.1005276	0.24184950	2.5513649	21	6 6.9	21.3
409908 2006 TF <sub>40</sub>	16.7	X	206.42938	346.51457	34.72543	25.27634	0.1376164	0.23731461	2.5837654	21	4 19.5	20.7
409909 2006 TN <sub>41</sub>	17.7	X	208.59530	165.67371	217.12922	3.91914	0.2707290	0.23978920	2.5659586	21	4 18.7	22.2
409910 2006 TP <sub>43</sub>	17.2	X	186.89837	293.77283	32.83771	2.05057	0.1378428	0.22424240	2.6832279	21	1 24.6	21.5
409911 2006 TX <sub>43</sub>	17.4	X	243.50796	150.59408	218.40926	2.59652	0.2286911	0.24289112	2.5440655	21	5 1.2	21.5
409912 2006 TP <sub>52</sub>	17.8	X	194.50543	254.36300	190.90398	3.72463	0.2547568	0.24184849	2.5513721	21	6 24.1	22.4
409913 2006 TY <sub>52</sub>	17.7	X	258.70									



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Planet	H	G	M	$\omega$	$\Omega$	$i$	$e$	$\mu$	$a$	TE	Oppos.	V
409921 2006 TF <sub>94</sub>	15.5 <sup>m</sup>	X	333.27994	263.31890	77.03077	2.12811	0.2345303	0.12383893	3.9862506	21	7 24.5	20.1
409922 2006 TB <sub>97</sub>	17.5	X	238.27702	260.49834	102.58652	2.46512	0.1449454	0.23919008	2.5702416	21	4 26.1	21.3
409923 2006 TV <sub>98</sub>	18.0	X	271.85160	253.62642	72.90033	1.75387	0.2227084	0.24378677	2.5378306	21	4 5.5	22.0
409924 2006 TK <sub>116</sub>	17.2	X	263.82585	295.98628	69.43756	10.08139	0.1836193	0.24751471	2.5122838	21	5 21.3	20.8
409925 2006 TQ <sub>123</sub>	17.3	X	301.76113	219.86710	45.69265	9.14641	0.0425375	0.23528752	2.5985842	21	3 21.7	20.8
409926 2006 UD <sub>3</sub>	17.5	X	153.93848	347.24127	63.29811	4.21599	0.2352700	0.23110712	2.6298269	21	4 11.9	21.9
409927 2006 UY <sub>8</sub>	17.2	X	171.47794	13.90715	49.13836	13.29441	0.2623718	0.23553151	2.5967893	21	5 10.6	21.7
409928 2006 UZ <sub>18</sub>	17.8	X	283.50183	80.32959	226.51573	6.78376	0.1311945	0.24152054	2.5536811	21	4 1.7	21.4
409929 2006 UJ <sub>29</sub>	17.4	X	242.53558	137.17924	209.07520	16.25720	0.1810245	0.24059378	2.5602347	21	4 4.0	21.6
409930 2006 UP <sub>36</sub>	17.5	X	235.62255	124.21744	219.97091	16.12418	0.2337862	0.23870176	2.5737457	21	3 21.5	22.1
409931 2006 UX <sub>38</sub>	17.3	X	267.10805	264.01402	31.07438	2.77429	0.0910308	0.23342623	2.6123795	21	3 7.4	20.9
409932 2006 UZ <sub>52</sub>	16.9	X	313.94749	95.44004	185.80864	5.35534	0.1268904	0.23989762	2.5651854	21	4 11.2	20.0
409933 2006 UT <sub>53</sub>	17.7	X	210.56064	316.50579	92.94033	2.01897	0.1406805	0.24064123	2.5598982	21	5 27.2	21.5
409934 2006 UG <sub>64</sub>	18.4	X	231.28432	202.91725	152.44190	20.97898	0.3700277	0.37706295	1.8975511	21	3 25.3	22.0
409935 2006 UJ <sub>64</sub>	15.1	X	327.22559	85.46706	267.75942	8.21918	0.2895703	0.12372426	3.9887131	21	7 20.2	19.5
409936 2006 UN <sub>67</sub>	18.1	X	218.13641	334.07421	58.64508	5.80622	0.2913224	0.24235879	2.5477894	21	5 7.7	22.5
409937 2006 UJ <sub>69</sub>	16.4	X	202.93384	305.62770	52.75195	16.21035	0.1972843	0.23406329	2.6076737	21	3 25.5	21.0
409938 2006 UF <sub>78</sub>	18.1	X	211.54331	62.44054	9.94015	5.05107	0.1705349	0.24578771	2.5240383	21	6 25.3	22.1
409939 2006 UD <sub>79</sub>	17.6	X	136.73899	136.18677	324.93650	3.43603	0.1710341	0.23654033	2.5894006	21	5 21.7	21.6
409940 2006 UJ <sub>88</sub>	18.0	X	218.23932	39.82627	9.39265	3.31038	0.2133212	0.24286273	2.5442638	21	5 29.9	22.2
409941 2006 UC <sub>106</sub>	17.5	X	251.04902	294.34775	72.78397	4.85834	0.2487784	0.24441351	2.5334903	21	5 4.9	21.7
409942 2006 UA <sub>113</sub>	18.1	X	184.00934	204.01138	209.48731	7.14525	0.0948824	0.23964595	2.5669810	21	5 5.9	22.0
409943 2006 UZ <sub>123</sub>	15.7	X	337.80256	171.42277	183.02336	2.74826	0.2537108	0.12518806	3.9575594	21	8 18.5	19.9
409944 2006 UN <sub>139</sub>	17.5	X	242.80142	125.14181	210.25500	5.71468	0.0565345	0.23338424	2.6126929	21	4 1.2	21.2
409945 2006 UL <sub>151</sub>	17.0	X	231.28701	306.24796	25.84503	9.70719	0.0478792	0.23305053	2.6151864	21	3 19.1	20.7
409946 2006 UC <sub>167</sub>	17.5	X	266.55764	184.94172	161.32636	4.31320	0.1325360	0.24447460	2.5330682	21	5 6.3	21.0
409947 2006 UT <sub>171</sub>	17.5	X	248.25861	305.30523	60.64584	7.88926	0.2791285	0.24409376	2.5357023	21	4 29.2	21.7
409948 2006 UA <sub>195</sub>	15.3	X	347.52526	298.28505	47.54489	1.95078	0.2072461	0.12490514	3.9635332	21	8 31.9	19.7
409949 2006 UV <sub>197</sub>	17.3	X	268.92835	334.12920	46.23147	3.69756	0.0550771	0.24719455	2.5144526	21	7 5.5	20.5
409950 2006 UC <sub>201</sub>	17.5	X	239.04946	294.91732	42.65621	14.10905	0.2125789	0.23651150	2.5896110	21	3 27.1	21.9
409951 2006 UW <sub>203</sub>	16.7	X	190.69474	139.32153	310.87241	6.65423	0.1805546	0.24412295	2.5355002	21	6 28.9	20.8
409952 2006 UT <sub>212</sub>	17.3	X	280.55809	340.53367	354.00161	4.01202	0.0862378	0.24094628	2.5577371	21	5 12.1	20.7
409953 2006 UU <sub>213</sub>	17.2	X	225.72236	2.90777	40.27561	15.59216	0.1737553	0.24278467	2.5448091	21	5 29.1	21.3
409954 2006 UW <sub>214</sub>	17.4	X	188.01376	204.38309	220.55190	21.73469	0.0529639	0.37472143	1.9054477	21	5 16.8	19.4
409955 2006 UK <sub>232</sub>	17.6	X	277.66679	43.73673	214.22727	19.97009	0.0532897	0.36326091	1.9453165	21	1 3.9	20.4
409956 2006 UX <sub>251</sub>	17.8	X	179.98975	80.33979	22.60059	4.99975	0.2625704	0.24270042	2.5453980	21	7 5.6	22.3
409957 2006 UM <sub>260</sub>	17.9	X	37.83906	116.33879	44.20923	2.33862	0.0212046	0.23106300	2.6301616	21	3 14.3	21.3
409958 2006 UO <sub>264</sub>	17.6	X	125.47566	277.71808	205.20427	2.13213	0.1311660	0.23970621	2.5665508	21	6 4.3	21.4
409959 2006 UF <sub>271</sub>	18.0	X	248.63586	121.75625	230.32354	15.14484	0.3518618	0.24328933	2.5412887	21	4 3.7	22.9
409960 2006 UV <sub>276</sub>	18.0	X	180.29900	57.38315	20.54970	8.41660	0.1553651	0.24093977	2.5577831	21	6 1.5	22.2
409961 2006 UA <sub>277</sub>	17.2	X	253.42811	165.21441	213.07027	13.51254	0.0877771	0.24684787	2.5168063	21	6 6.9	20.8
409962 2006 UR <sub>330</sub>	17.5	X	162.25665	296.78912	128.42664	8.25926	0.1816902	0.23570523	2.5955132	21	5 5.6	21.8
409963 2006 UY <sub>336</sub>	17.3	X	156.05845	314.51968	132.67434	6.12153	0.2914693	0.23497830	2.6008634	21	5 30.9	22.0
409964 2006 VP <sub>17</sub>	17.3	X	236.52579	339.73745	5.31820	2.51952	0.1797286	0.23730223	2.5838552	21	3 29.7	21.3
409965 2006 VC <sub>18</sub>	17.4	X	108.96416	212.68120	278.01062	2.43487	0.1492906	0.23422109	2.6064659	21	5 28.1	20.9
409966 2006 VA <sub>19</sub>	16.7	X	3.22810	225.92739	37.10383	10.32881	0.1039722	0.24370504	2.5383980	21	6 8.9	19.5
409967 2006 VQ <sub>24</sub>	16.7	X	355.21783	35.44187	225.11700	8.94689	0.0988639	0.24053346	2.5606628	21	5 23.9	19.5
409968 2006 VC <sub>31</sub>	16.6	X	253.64852	72.18923	248.27271	11.89750	0.1930430	0.23483781	2.6019006	21	3 8.9	21.0
409969 2006 VM <sub>39</sub>	16.5	X	37.65214	234.93175	234.52995	10.59285	0.0221512	0.21938231	2.7227116	21	1 6.6	20.2
409970 2006 VZ <sub>39</sub>	17.7	X	187.46796	161.39959	230.59423	2.25620	0.0760009	0.23393233	2.6086104	21	4 10.8	21.5
409971 2006 VL <sub>51</sub>	15.8	X	228.83874	103.93998	251.93246	24.44455	0.1821678	0.23431472	2.6057715	21	3 28.0	20.6
409972 2006 VB <sub>62</sub>	16.5	X	207.42680	159.83600	239.57050	12.77091	0.1776740	0.23822284	2.5717940	21	5 9.7	20.7
409973 2006 VF <sub>69</sub>	16.9	X	248.81943	103.63039	247.21501	7.59611	0.1832467	0.23796383	2.5790637	21	4 14.9	21.1
409974 2006 VJ <sub>75</sub>	17.3	X	244.04419	325.55163	61.88146	6.97782	0.2609378	0.24305736	2.5429054	21	5 22.3	21.5
409975 2006 VL <sub>81</sub>	16.5	X	157.67346	215.59551	236.18466	14.73300	0.1172551	0.23540124	2.5977472	21	5 28.3	20.3
409976 2006 VL <sub>86</sub>	17.1	X	265.22354	268.66514	77.30495	7.44825	0.2495871	0.24355975	2.5394073	21	4 22.9	21.2
409977 2006 VQ <sub>86</sub>	16.4	X	198.38866	89.69262	325.71891	6.99303	0.1857172	0.23903597	2.5713461	21	5 20.2	20.8
409978 2006 VB <sub>92</sub>	16.4	X	203.60836	144.47543	268.25167	13.34917	0.1167729	0.24189513	2.5510441	21	5 24.2	20.4
409979 2006 VR <sub>93</sub>	17.3	X	306.19825	68.92452	219.28712	11.94439	0.1797211	0.23883311	2.5728019	21	3 29.2	20.7
409980 2006 VV <sub>98</sub>	17.4	X	228.24123	312.83871	40.58954	12.38269	0.0819870	0.23615195	2.5922389	21	4 9.7	21.2
409981 2006 VZ <sub>100</sub>	17.3	X	218.31391	244.98612	158.30812	3.87291	0.2330203	0.24219916	2.5489088	21	5 23.3	21.7
409982 2006 VG <sub>108</sub>	17.4	X	221.67405	96.99267	287.87220	2.67103	0.1421348	0.23873870	2.5734802	21	5 5.6	21.5
409983 2006 VF <sub>110</sub>	16.3	X	207.96600	120.21006	252.88239	20.68495	0.0325515	0.23261844	2.6184239	21	4 3.7	20.5
409984 2006 VV <sub>111</sub>	16.9	X	240.60458	350.01488	32.22935	5.72153	0.2344317	0.24274633	2.5450770	21	5 13.9	21.2
409985 2006 VA <sub>127</sub>	16.7	X	8.12403	326.62726	215.48153	12.69120	0.1063049	0.23138403	2.6277284	21	2 18.1	20.0
409986 2006 VH <sub>129</sub>	16.4	X	218.02767	97.70275	262.90400	11.56326	0.1867916	0.23500300	2.6006812	21	3 27.1	20.9
409987 2006 VT <sub>129</sub>	17.5	X	158.65661	196.43752	215.39098	2.						

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>		
410001	2006	WV <sub>27</sub>	17.4	X	180.03196	333.33449	57.50692	3.62947	0.1448588	0.23132246	2.6281946	21	4 6.0	21.5
410002	2006	WV <sub>29</sub>	16.4	X	164.11868	243.62092	210.03527	28.88832	0.3693788	0.23525082	2.5988544	21	6 11.9	21.8
410003	2006	WY <sub>32</sub>	16.8	X	157.01692	107.92525	348.53356	12.70664	0.2330948	0.23732350	2.5837008	21	6 6.6	21.4
410004	2006	WO <sub>37</sub>	17.5	X	201.18120	223.22954	200.14995	6.87607	0.0782295	0.24072651	2.5592935	21	6 6.9	21.2
410005	2006	WV <sub>37</sub>	17.3	X	23.08491	28.29378	125.15900	4.46192	0.0777498	0.22260576	2.6963636	21	2 12.6	20.5
410006	2006	WE <sub>43</sub>	17.3	X	115.26339	268.41771	218.18361	11.00069	0.1498674	0.23398588	2.6082124	21	5 30.9	21.1
410007	2006	WZ <sub>44</sub>	16.8	X	162.83740	11.83985	44.61564	16.85725	0.2227951	0.23222310	2.6213948	21	4 26.2	21.1
410008	2006	WG <sub>73</sub>	17.3	X	283.78383	319.82085	10.62216	0.90493	0.1205099	0.24175862	2.5520043	21	5 6.7	20.5
410009	2006	WP <sub>73</sub>	17.3	X	176.80346	353.82762	49.40293	5.62889	0.1688676	0.23359770	2.6111010	21	4 18.8	21.4
410010	2006	WV <sub>76</sub>	17.5	X	136.26633	23.84264	70.52781	3.60819	0.0926529	0.23316665	2.6143181	21	5 6.2	21.1
410011	2006	WL <sub>77</sub>	17.4	X	192.01035	25.28340	59.09159	3.96241	0.1441349	0.24166008	2.5526980	21	6 22.7	21.5
410012	2006	WX <sub>77</sub>	16.4	X	277.33638	255.94376	56.55785	13.58166	0.1423449	0.23740529	2.5831074	21	4 8.5	20.2
410013	2006	WM <sub>83</sub>	17.4	X	162.24491	187.39561	211.19625	5.04523	0.2047277	0.22929413	2.6436711	21	3 31.5	21.7
410014	2006	WN <sub>101</sub>	17.4	X	241.43243	357.71568	25.05591	7.06849	0.2540535	0.24321526	2.5418047	21	5 13.4	21.7
410015	2006	WU <sub>127</sub>	16.2	X	162.19157	221.20943	221.63345	21.47161	0.0460192	0.23572283	2.5953840	21	5 17.3	19.8
410016	2006	WP <sub>149</sub>	17.9	X	174.76713	123.22289	292.49482	1.20589	0.1549208	0.23316896	2.6143008	21	4 30.5	22.0
410017	2006	WX <sub>158</sub>	17.0	X	269.97349	350.58649	18.50310	4.14597	0.1825850	0.24519607	2.5280969	21	6 1.1	20.6
410018	2006	WF <sub>160</sub>	16.6	X	52.22803	192.43903	301.09411	8.11044	0.0989805	0.21542711	2.7559361	21	3 2.5	20.0
410019	2006	WU <sub>173</sub>	17.2	X	194.66032	325.48936	82.12060	6.58819	0.1800854	0.23580388	2.5947892	21	5 10.7	21.5
410020	2006	WT <sub>175</sub>	17.0	X	182.36619	262.02575	121.56897	4.22091	0.0859724	0.22770903	2.6559254	21	3 29.1	20.9
410021	2006	WO <sub>178</sub>	17.2	X	187.97588	125.45878	238.30504	7.05669	0.0871173	0.22756824	2.6570208	21	3 5.0	21.4
410022	2006	WU <sub>189</sub>	17.4	X	129.58374	228.26332	221.66701	12.61080	0.2288928	0.22899841	2.6459465	21	5 7.4	21.4
410023	2006	WN <sub>200</sub>	17.9	X	132.59320	148.39914	281.33943	6.95967	0.2748887	0.22631147	2.6668485	21	4 16.2	22.3
410024	2006	WZ <sub>203</sub>	17.1	X	141.58423	318.86860	100.06797	6.38921	0.0979497	0.22224158	2.6993084	21	3 31.9	21.1
410025	2006	XO <sub>3</sub>	17.3	X	204.76527	308.44517	113.35445	8.05917	0.1935513	0.23927419	2.5696392	21	6 5.7	21.5
410026	2006	XX <sub>9</sub>	17.1	X	206.08221	131.47342	282.91863	3.96394	0.2568215	0.23813609	2.5778199	21	5 25.3	21.7
410027	2006	XX <sub>19</sub>	17.0	X	130.52047	350.94585	97.46789	6.95306	0.2344322	0.22708502	2.6607887	21	5 8.9	21.2
410028	2006	XX <sub>20</sub>	16.3	X	220.86515	156.62808	231.34885	10.87421	0.1917809	0.23868322	2.5738790	21	5 7.1	20.4
410029	2006	XB <sub>30</sub>	16.5	X	134.16239	192.33629	261.48502	6.13099	0.1273857	0.22810892	2.6528205	21	5 5.4	20.5
410030	2006	XC <sub>30</sub>	17.5	X	203.39994	143.99905	244.80957	1.87960	0.1416707	0.23412638	2.6071688	21	4 23.6	21.7
410031	2006	XL <sub>31</sub>	17.5	X	219.89411	91.33388	177.33105	2.12683	0.2399924	0.24095684	2.5576623	21	5 29.7	21.8
410032	2006	XV <sub>53</sub>	17.4	X	222.72911	25.27936	25.36697	5.11575	0.2644852	0.24205950	2.5498891	21	6 1.9	21.9
410033	2006	XK <sub>55</sub>	16.6	X	213.34054	284.36709	118.47107	13.41224	0.1740426	0.23367314	2.6105390	21	5 23.9	21.1
410034	2006	XC <sub>67</sub>	16.9	X	71.89668	191.77745	310.44885	2.92486	0.2540662	0.22148155	2.7054801	21	5 10.3	20.1
410035	2006	XO <sub>68</sub>	17.4	X	177.93687	150.30397	214.55481	10.70524	0.1865732	0.23060624	2.6336335	21	4 2.3	21.9
410036	2006	YF <sub>6</sub>	16.6	X	51.60799	211.16485	267.18492	10.14992	0.1012257	0.21814376	2.7330077	21	2 7.9	19.9
410037	2006	YY <sub>8</sub>	17.8	X	117.46020	65.08106	97.60064	7.29644	0.3012628	0.30196570	2.2033798	21	7 5.6	20.1
410038	2006	YX <sub>15</sub>	16.2	X	187.42163	69.21806	144.36281	16.32472	0.3812084	0.17786844	3.1313873	21	11 15.5	22.3
410039	2006	YO <sub>17</sub>	16.9	X	222.22947	84.65476	314.21484	3.37410	0.2757231	0.23703645	2.5857863	21	5 17.5	21.4
410040	2006	YX <sub>24</sub>	17.3	X	160.81908	12.78050	72.22861	4.66069	0.1806964	0.23207471	2.6251222	21	5 26.2	21.3
410041	2006	YB <sub>34</sub>	17.6	X	186.35587	358.18677	51.16585	5.32018	0.1304089	0.22961497	2.6412079	21	5 4.0	21.8
410042	2006	YN <sub>36</sub>	17.3	X	211.16784	52.75619	341.23723	3.11660	0.2991257	0.23545720	2.5973356	21	5 2.8	22.1
410043	2006	YQ <sub>43</sub>	16.4	X	178.95250	264.54176	101.89429	7.20158	0.0516106	0.21775415	2.7362667	21	3 4.3	20.4
410044	2006	YS <sub>53</sub>	16.3	X	187.62965	265.64179	128.19247	15.88098	0.1349909	0.22673678	2.6635125	21	4 22.5	20.8
410045	2007	AV <sub>3</sub>	16.7	X	190.52283	33.54248	12.85105	5.26427	0.3391730	0.23381427	2.6094884	21	5 3.8	21.7
410046	2007	AP <sub>8</sub>	16.9	X	121.67207	273.63354	134.73713	4.15550	0.1972871	0.21788828	2.7351437	21	3 6.8	20.9
410047	2007	AU <sub>9</sub>	17.3	X	226.91248	83.70103	315.99830	4.29751	0.3148369	0.23905401	2.5712168	21	5 19.9	22.0
410048	2007	AD <sub>11</sub>	16.2	X	144.32022	117.28012	321.53234	10.90713	0.1396308	0.22616655	2.6679875	21	4 24.4	20.5
410049	2007	AL <sub>12</sub>	16.3	X	237.31281	296.98800	80.37512	14.06203	0.2024911	0.23596224	2.5936281	21	5 11.8	20.6
410050	2007	AX <sub>17</sub>	17.1	X	234.88426	0.32921	46.51665	6.65808	0.2108687	0.24070581	2.5594403	21	6 11.1	21.3
410051	2007	AA <sub>25</sub>	16.6	X	100.49347	20.14073	113.00370	14.91790	0.1956409	0.22529933	2.6748296	21	5 31.6	20.6
410052	2007	AQ <sub>25</sub>	16.9	X	216.93514	253.27531	159.23167	5.20138	0.2751313	0.23836704	2.5761546	21	6 1.1	21.5
410053	2007	AJ <sub>27</sub>	16.8	X	214.44860	260.85403	145.07863	8.72454	0.1961467	0.23268076	2.6179563	21	5 26.4	21.2
410054	2007	AP <sub>29</sub>	17.3	X	93.87027	208.11101	265.85434	4.47476	0.0967103	0.22204351	2.7009134	21	4 7.4	20.8
410055	2007	BT <sub>15</sub>	17.3	X	179.01985	64.36027	322.08250	5.81057	0.1504908	0.22284551	2.6944293	21	3 27.9	21.6
410056	2007	BW <sub>19</sub>	16.6	X	55.07459	15.06957	101.23288	10.27829	0.1316703	0.21530054	2.7570161	21	2 21.8	19.8
410057	2007	BQ <sub>21</sub>	16.0	X	181.74043	51.07214	311.73182	14.62915	0.1092157	0.21906540	2.7253369	21	2 26.3	20.3
410058	2007	BK <sub>30</sub>	16.9	X	142.22381	334.22955	137.34596	15.26484	0.2189427	0.22933453	2.6433606	21	6 15.9	21.5
410059	2007	BN <sub>48</sub>	16.9	X	88.22040	89.33120	12.47090	4.71252	0.0717903	0.21456702	2.7632959	21	3 15.1	20.5
410060	2007	BE <sub>54</sub>	17.0	X	158.78533	69.05702	328.42489	5.46694	0.0803779	0.21961313	2.7208035	21	3 17.7	20.9
410061	2007	BS <sub>59</sub>	17.1	X	94.89779	185.60369	287.39310	6.18029	0.2478004	0.22114672	2.7082103	21	4 30.4	20.9
410062	2007	BH <sub>65</sub>	17.1	X	191.36331	258.52005	146.48469	10.20187	0.0607467	0.22355534	2.6887227	21	5 6.8	21.2
410063	2007	BU <sub>69</sub>	16.8	X	35.07248	356.51844	143.18704	10.59166	0.0963444	0.21048563	2.7989023	21	2 15.6	19.8
410064	2007	BD <sub>73</sub>	16.6	X	156.32547	61.88014	93.32630	30.39287	0.3487867	0.23567384	2.5957436	21	8 29.9	22.0
410065	2007	BK <sub>77</sub>	16.6	X	70.86761	106.19210	344.21501	3.73561	0.0362602	0.21054416	2.7983836	21	2 1.2	20.3
410066	2007	CT <sub>2</sub>	17.0	X	188.75609	222.54506	156.15761	5.27286	0.1310399	0.22044276	2.7139728	21	3 30.9	21.2
410067	2007	CV <sub>4</sub>	16.7	X	172.40546	239.83869	147.25803	6.69248	0.0467054	0.21737007	2.7394890	21	3 21.1	20.6
410068	2007	CJ <sub>6</sub>	16.7	X	261.01690	219.89366	91.47539	6.98586	0.0218259	0.22259019	2.6964893	21	4 2.2	20.5
410069	2007	CP <sub>6</sub>	17.5	X	180.47497	2.36654	78.44719	2.22892	0.1562442	0.23370381	2.6103106	21		

# ELEMENTS AND OPPOSITION DATES IN 2021

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2021 JULY 5.0 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>
410081 2007 <i>DM</i> <sub>90</sub>	17.0	X	169.15321	255.40080	142.48327	5.26580	0.1139496	0.21740478	2.7391974	21	4 4.5	21.2
410082 2007 <i>DW</i> <sub>97</sub>	16.8	X	85.74559	142.93571	350.53856	7.71648	0.1677554	0.21668741	2.7452396	21	5 2.9	20.5
410083 2007 <i>DJ</i> <sub>100</sub>	16.7	X	159.56130	258.18069	141.89340	5.08000	0.0822484	0.21519669	2.7579030	21	3 25.8	20.8
410084 2007 <i>DJ</i> <sub>102</sub>	17.2	X	77.95155	331.67892	151.74469	6.67191	0.0915983	0.21880730	2.7274796	21	4 1.4	20.6
410085 2007 <i>DP</i> <sub>107</sub>	17.4	X	163.14619	101.01338	309.57196	4.08550	0.1235160	0.22395678	2.6855087	21	4 10.2	21.6
410086 2007 <i>DD</i> <sub>112</sub>	16.3	X	200.84843	217.58293	13.59008	16.17889	0.1159446	0.18243979	3.0788582	21	12 26.2	21.3
410087 2007 <i>DN</i> <sub>113</sub>	16.5	X	133.04104	216.44004	165.38533	8.62978	0.0744804	0.20531568	2.8456925	21	1 29.9	20.6
410088 2007 <i>EJ</i>	18.1	X	237.44362	3.60550	61.76862	8.32743	0.6295650	0.24937118	2.4997997	21	6 11.8	23.6
410089 2007 <i>EG</i> <sub>13</sub>	16.8	X	204.14161	212.82417	148.98418	6.79500	0.0414231	0.21844171	2.7305219	21	3 25.9	20.8
410090 2007 <i>EV</i> <sub>21</sub>	16.7	X	339.05939	341.03524	168.94966	6.25349	0.0274139	0.20062614	2.8898660	21	—	—
410091 2007 <i>EZ</i> <sub>42</sub>	16.4	X	83.84163	291.23641	152.70847	2.59005	0.0389310	0.20421963	2.8558654	21	2 10.7	20.2
410092 2007 <i>EG</i> <sub>52</sub>	16.7	X	154.25309	314.13362	178.76288	16.03964	0.2479271	0.23135249	2.6279671	21	7 19.9	21.6
410093 2007 <i>EH</i> <sub>57</sub>	16.4	X	172.24388	279.65206	349.23351	6.24016	0.2209243	0.18707350	3.0278048	21	—	—
410094 2007 <i>EX</i> <sub>57</sub>	16.2	X	155.75091	90.35019	171.83757	12.07284	0.1807262	0.17957657	3.1114985	21	12 18.6	21.6
410095 2007 <i>EX</i> <sub>65</sub>	16.0	X	191.44472	208.48816	10.04054	19.02173	0.1024964	0.18060483	3.0996773	21	11 27.6	21.1
410096 2007 <i>ET</i> <sub>81</sub>	15.8	X	195.39160	199.65364	17.42456	17.03815	0.0743050	0.18076891	3.0978012	21	12 3.5	20.7
410097 2007 <i>ET</i> <sub>86</sub>	15.6	X	188.30468	207.08405	13.01599	17.49505	0.1770705	0.17691073	3.1426784	21	11 22.3	20.9
410098 2007 <i>EM</i> <sub>105</sub>	17.2	X	303.55259	41.28164	70.46265	1.29343	0.0786510	0.18544802	3.0454718	21	12 12.8	20.9
410099 2007 <i>ET</i> <sub>105</sub>	16.4	X	261.24128	90.74274	163.07350	9.73246	0.0724008	0.19918538	2.9037847	21	1 14.6	20.9
410100 2007 <i>EB</i> <sub>120</sub>	16.1	X	130.05956	261.65035	44.36709	10.43370	0.0198474	0.17690195	3.1427823	21	—	—
410101 2007 <i>EF</i> <sub>120</sub>	16.0	X	224.46115	158.09723	47.38117	10.30579	0.0409625	0.18106550	3.0944175	21	12 29.4	20.5
410102 2007 <i>EG</i> <sub>127</sub>	17.5	X	177.47319	70.18973	45.02432	6.39964	0.3206716	0.23510207	2.5999505	21	7 19.5	22.4
410103 2007 <i>EC</i> <sub>130</sub>	16.3	X	160.14882	331.05306	353.86840	9.15225	0.1641028	0.19434141	2.9518378	21	1 5.2	21.1
410104 2007 <i>EJ</i> <sub>130</sub>	16.6	X	159.25822	312.96994	141.82203	14.91192	0.2643976	0.22904198	2.6456110	21	6 11.7	21.5
410105 2007 <i>ES</i> <sub>138</sub>	16.5	X	189.29318	352.07656	347.68985	5.21435	0.01967248	0.21051587	2.7986344	21	2 10.9	20.6
410106 2007 <i>EM</i> <sub>148</sub>	16.9	X	139.41135	352.39757	90.60823	3.75429	0.2342736	0.22071444	2.7117453	21	5 9.4	21.3
410107 2007 <i>EM</i> <sub>172</sub>	16.3	X	229.10815	53.48881	194.74041	11.05530	0.0577999	0.19180937	2.9777587	21	—	—
410108 2007 <i>EG</i> <sub>189</sub>	16.8	X	93.14711	98.83024	338.38060	7.10146	0.1762467	0.21032228	2.8003514	21	3 4.9	20.4
410109 2007 <i>EX</i> <sub>191</sub>	16.2	X	141.20579	106.97463	192.70851	17.55580	0.0745866	0.18384522	3.0631469	21	—	—
410110 2007 <i>EV</i> <sub>194</sub>	17.2	X	116.56936	57.20856	21.08245	3.45963	0.1864783	0.21451157	2.7637721	21	4 5.7	21.3
410111 2007 <i>EZ</i> <sub>196</sub>	16.5	X	124.99376	144.00446	264.20415	0.94623	0.0670620	0.20296365	2.8676350	21	2 22.1	20.5
410112 2007 <i>EJ</i> <sub>200</sub>	15.6	X	30.23374	21.35241	42.42007	12.01351	0.0548361	0.19162255	2.9796938	21	—	—
410113 2007 <i>ET</i> <sub>217</sub>	16.5	X	190.25385	216.99975	10.52322	4.69364	0.0832969	0.18011095	3.1053411	21	12 12.9	21.2
410114 2007 <i>EC</i> <sub>218</sub>	17.0	X	309.25332	332.56933	178.69780	3.61347	0.0750459	0.19270588	2.9685160	21	—	—
410115 2007 <i>EM</i> <sub>218</sub>	15.7	X	132.58720	240.51445	31.07878	19.65826	0.1545832	0.17277260	3.1926610	21	12 4.6	21.1
410116 2007 <i>EG</i> <sub>220</sub>	16.2	X	127.30762	281.30090	76.47472	3.63122	0.1419292	0.18965439	3.0002731	21	1 7.7	20.4
410117 2007 <i>FU</i>	16.3	X	155.41865	207.95088	33.00149	14.23217	0.1100303	0.17454395	3.1710239	21	11 20.9	21.5
410118 2007 <i>FU</i> <sub>9</sub>	17.4	X	147.55081	240.12852	231.68533	7.11089	0.3153259	0.22679616	2.6630475	21	6 23.5	22.3
410119 2007 <i>FJ</i> <sub>25</sub>	16.8	X	92.40415	82.36701	11.32493	12.44605	0.1536682	0.21014869	2.8018933	21	3 23.7	20.4
410120 2007 <i>FF</i> <sub>31</sub>	16.4	X	258.96808	340.03286	191.43038	11.22697	0.0808354	0.18401133	3.0613031	21	12 24.8	20.8
410121 2007 <i>FO</i> <sub>33</sub>	16.8	X	252.87893	32.85154	179.64107	8.13656	0.1066889	0.19157330	2.9802044	21	—	—
410122 2007 <i>FO</i> <sub>36</sub>	16.9	X	103.24407	78.71711	7.25304	9.15193	0.0925501	0.20979552	2.8050369	21	3 18.6	20.5
410123 2007 <i>FW</i> <sub>48</sub>	16.2	X	194.60498	207.46637	19.04645	11.48047	0.0464674	0.18050720	3.1007948	21	12 19.0	20.9
410124 2007 <i>FY</i> <sub>48</sub>	16.8	X	190.80805	72.73938	163.83749	0.95510	0.1382617	0.17983513	3.1085154	21	12 20.5	21.8
410125 2007 <i>FK</i> <sub>50</sub>	16.1	X	157.34387	182.03309	119.70614	11.65525	0.1090767	0.18289483	3.0737492	21	—	—
410126 2007 <i>GU</i> <sub>7</sub>	16.5	X	172.74448	130.51691	194.40824	9.83259	0.1080008	0.19451285	2.9501031	21	1 9.8	21.2
410127 2007 <i>GL</i> <sub>9</sub>	15.6	X	199.39625	216.75484	16.78230	12.71890	0.2334163	0.18148306	3.0896692	21	12 17.2	21.0
410128 2007 <i>GG</i> <sub>11</sub>	17.8	X	106.75038	246.48765	183.02650	24.86778	0.1764737	0.34723058	2.0047370	21	2 11.6	20.0
410129 2007 <i>GM</i> <sub>16</sub>	16.9	X	250.43691	265.18066	305.99068	1.62993	0.1537780	0.18622793	3.0369630	21	—	—
410130 2007 <i>GK</i> <sub>18</sub>	15.6	X	156.99540	130.52422	156.14451	16.60036	0.2260273	0.17806929	3.1290322	21	—	—
410131 2007 <i>GS</i> <sub>52</sub>	16.2	X	126.69698	108.75105	213.55319	25.25928	0.3515615	0.17430122	3.1739672	21	—	—
410132 2007 <i>GC</i> <sub>53</sub>	16.2	X	234.81228	192.77531	29.39907	15.86758	0.0814036	0.18546468	3.0452894	21	—	—
410133 2007 <i>GU</i> <sub>58</sub>	16.7	X	259.57732	24.10681	191.10540	3.39369	0.1562570	0.19230918	2.9725971	21	—	—
410134 2007 <i>GH</i> <sub>65</sub>	16.0	X	182.72470	189.61195	33.58280	14.10580	0.0629377	0.17454801	3.1709747	21	11 28.4	20.9
410135 2007 <i>GU</i> <sub>67</sub>	18.4	X	127.80529	231.00119	22.69975	2.66118	0.1622128	0.30714158	2.1755896	21	11 30.9	21.8
410136 2007 <i>HU</i> <sub>4</sub>	16.0	X	213.17662	116.38325	122.69116	12.26358	0.0660444	0.18706790	3.0278652	21	—	—
410137 2007 <i>HM</i> <sub>18</sub>	16.4	X	149.93355	87.30764	209.04982	14.04322	0.0922280	0.18117870	3.0931284	21	—	—
410138 2007 <i>HZ</i> <sub>21</sub>	16.6	X	271.42666	106.27243	55.65972	6.13909	0.0886769	0.18150662	3.0894018	21	12 28.2	20.8
410139 2007 <i>HQ</i> <sub>24</sub>	16.1	X	134.38553	146.98601	173.22455	4.75505	0.1221714	0.17974998	3.1094971	21	—	—
410140 2007 <i>HK</i> <sub>26</sub>	15.7	X	135.49772	107.12043	215.91274	17.51843	0.1253617	0.18040591	3.1019554	21	—	—
410141 2007 <i>HU</i> <sub>26</sub>	16.3	X	150.04891	265.24862	54.94253	7.20924	0.1525994	0.18376134	3.0640790	21	—	—
410142 2007 <i>HD</i> <sub>28</sub>	15.8	X	183.01073	73.65209	224.52707	15.01608	0.0734103	0.18596981	3.0397725	21	—	—
410143 2007 <i>HC</i> <sub>29</sub>	16.3	X	96.40442	146.87879	183.83535	8.79249	0.1183140	0.18401316	3.0612829	21	—	—
410144 2007 <i>HN</i> <sub>34</sub>	16.3	X	162.07754	81.58317	222.38084	9.11508	0.0408053	0.18476739	3.0529463	21	—	—
410145 2007 <i>HV</i> <sub>34</sub>	16.6	X	133.88302	30.00698	239.82064	4.02877	0.1464263	0.17176560	3.2051271	21	12 7.4	21.8
410146 2007 <i>HX</i> <sub>35</sub>	15.6	X	174.79496	199.51062	53.30921	10.47711						

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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>
410161 2007 <i>KS</i> <sub>4</sub>	18.6 <sup>m</sup>	X	52.31899	93.94715	211.51439	4.65682	0.1611562	0.29895257	2.2151401	21	11 19.7	21.3
410162 2007 <i>LU</i> <sub>2</sub>	16.3	X	133.12754	104.47781	202.01419	24.49761	0.2878500	0.17284924	3.1917172	21	—	—
410163 2007 <i>LK</i> <sub>9</sub>	16.3	X	120.77016	202.62250	124.41650	5.59645	0.0895749	0.17683870	3.1435317	21	—	—
410164 2007 <i>LT</i> <sub>14</sub>	16.4	X	136.56140	68.65637	218.00536	6.13202	0.1693548	0.17201887	3.2019803	21	12 28.7	21.8
410165 2007 <i>LW</i> <sub>24</sub>	16.2	X	208.41521	109.73585	93.12996	6.14060	0.1209833	0.17380500	3.1800055	21	11 29.6	21.1
410166 2007 <i>LU</i> <sub>35</sub>	15.9	X	298.22628	307.39170	160.32937	11.65596	0.0380290	0.17181265	3.2045420	21	12 3.2	20.5
410167 2007 <i>ML</i> <sub>7</sub>	18.0	X	90.81268	210.79919	94.64993	5.03324	0.2163657	0.30499936	2.1857648	21	—	—
410168 2007 <i>OW</i> <sub>10</sub>	17.5	X	29.28639	344.33960	349.28916	7.82748	0.1731245	0.29166327	2.2518955	21	11 25.2	20.1
410169 2007 <i>PS</i> <sub>13</sub>	18.1	X	357.22194	358.57171	341.58575	4.08738	0.2559047	0.28561969	2.2835505	21	10 17.9	19.4
410170 2007 <i>PZ</i> <sub>28</sub>	17.0	X	36.24617	316.42408	357.53926	24.95123	0.2249415	0.28854384	2.2680964	21	11 4.6	20.2
410171 2007 <i>PL</i> <sub>36</sub>	17.1	X	42.21573	24.93883	270.45921	5.47212	0.1765347	0.28846944	2.2684864	21	10 20.6	19.8
410172 2007 <i>PR</i> <sub>37</sub>	17.2	X	55.46784	350.17923	305.53701	5.39491	0.1599648	0.28953638	2.2629100	21	11 5.9	20.1
410173 2007 <i>PB</i> <sub>42</sub>	17.7	X	329.03019	221.51098	128.85160	2.82966	0.2427014	0.28128964	2.3069255	21	8 7.5	18.8
410174 2007 <i>PN</i> <sub>47</sub>	17.7	X	285.38547	70.98754	346.49673	3.00003	0.1525569	0.28153415	2.3055895	21	9 7.8	20.0
410175 2007 <i>QW</i> <sub>6</sub>	17.7	X	57.93368	317.64287	333.51969	4.75587	0.1710233	0.28939012	2.2636725	21	11 4.2	20.6
410176 2007 <i>QE</i> <sub>8</sub>	17.8	X	1.88886	253.22263	117.57829	5.39052	0.2440941	0.28825687	2.2696015	21	12 18.6	19.8
410177 2007 <i>QR</i> <sub>10</sub>	18.0	X	20.00290	121.85461	260.55781	0.78798	0.2204203	0.29452238	2.2372981	21	—	—
410178 2007 <i>QF</i> <sub>17</sub>	18.0	X	347.74783	139.78826	214.97135	3.29957	0.1858732	0.28474246	2.2882382	21	10 10.6	19.6
410179 2007 <i>RZ</i> <sub>1</sub>	17.7	X	91.87862	134.59117	150.08862	8.17887	0.1845359	0.29889445	2.2154272	21	12 8.3	21.2
410180 2007 <i>RD</i> <sub>6</sub>	17.6	X	1.25342	155.89559	206.51775	5.14635	0.1586655	0.28744103	2.2738939	21	11 20.2	19.6
410181 2007 <i>RL</i> <sub>51</sub>	17.8	X	303.85891	213.54552	217.99978	6.95603	0.2163002	0.28390662	2.2927271	21	10 28.9	19.2
410182 2007 <i>RA</i> <sub>60</sub>	17.7	X	35.53089	331.91085	349.03211	7.08226	0.1353338	0.28844961	2.2685904	21	11 8.9	20.4
410183 2007 <i>RM</i> <sub>67</sub>	18.3	X	3.36979	161.61042	170.61777	4.72407	0.1418215	0.28433400	2.2904291	21	10 5.2	20.1
410184 2007 <i>RP</i> <sub>78</sub>	17.9	X	312.58851	86.96562	300.24021	4.47926	0.1447704	0.28907468	2.2653189	21	11 17.3	19.8
410185 2007 <i>RZ</i> <sub>80</sub>	17.2	X	343.79115	89.37174	340.26106	6.37834	0.130017	0.28999500	2.2652366	21	11 24.8	19.1
410186 2007 <i>RH</i> <sub>103</sub>	17.7	X	47.98651	123.30793	191.90826	3.79047	0.3144369	0.29051964	2.2578013	21	12 15.7	20.9
410187 2007 <i>RK</i> <sub>103</sub>	16.9	X	48.83983	130.11403	186.17130	4.79808	0.1503962	0.28844148	2.2686330	21	11 26.9	19.7
410188 2007 <i>RY</i> <sub>106</sub>	17.8	X	5.79700	15.37973	352.04526	2.91533	0.2106182	0.28880018	2.2667541	21	12 14.2	19.8
410189 2007 <i>RL</i> <sub>109</sub>	18.4	X	40.23035	103.07966	203.57336	1.75446	0.2401541	0.28694741	2.2765010	21	11 15.4	21.0
410190 2007 <i>RE</i> <sub>114</sub>	17.1	X	43.65395	120.35206	206.09885	6.09477	0.1502295	0.28934336	2.2639163	21	12 3.8	19.8
410191 2007 <i>RP</i> <sub>117</sub>	17.7	X	27.72024	114.32649	194.29191	6.17882	0.0977812	0.28229203	2.3014611	21	10 5.3	20.0
410192 2007 <i>RF</i> <sub>128</sub>	18.0	X	200.26605	95.94563	17.51302	7.22223	0.0406656	0.27377664	2.3489393	21	8 19.0	21.1
410193 2007 <i>RG</i> <sub>133</sub>	17.5	X	16.81961	61.42960	281.27364	6.44634	0.1997179	0.28857502	2.2679330	21	11 23.9	19.7
410194 2007 <i>RR</i> <sub>138</sub>	17.7	X	355.84332	330.48424	344.83186	8.10484	0.1943474	0.27935153	2.3175833	21	8 24.4	19.0
410195 2007 <i>RT</i> <sub>147</sub>	18.3	X	317.29431	345.21631	99.12984	3.83078	0.4668885	0.28410965	2.2916347	21	—	—
410196 2007 <i>RL</i> <sub>150</sub>	17.6	X	315.46995	318.16963	96.35380	7.59004	0.2255397	0.28373943	2.2936277	21	11 2.9	19.0
410197 2007 <i>RS</i> <sub>150</sub>	18.4	X	329.15739	181.98560	199.17327	2.24941	0.2209675	0.28364870	2.2941167	21	10 8.4	19.5
410198 2007 <i>RG</i> <sub>151</sub>	18.0	X	80.39737	111.80514	164.42672	6.26220	0.1115256	0.29187024	2.2508308	21	11 8.0	21.0
410199 2007 <i>RO</i> <sub>163</sub>	17.9	X	323.28290	120.00395	274.39401	3.67281	0.0821828	0.28613609	2.2808022	21	10 19.0	20.2
410200 2007 <i>RP</i> <sub>175</sub>	18.0	X	339.67795	280.89739	106.38131	3.57694	0.1599427	0.28502399	2.2867311	21	11 14.9	19.7
410201 2007 <i>RE</i> <sub>191</sub>	18.0	X	12.20201	37.58839	248.43472	0.73499	0.1852320	0.27695488	2.3309343	21	8 11.4	19.7
410202 2007 <i>RF</i> <sub>200</sub>	17.8	X	305.62176	129.99387	196.21838	6.55849	0.1242887	0.26895252	2.3769441	21	5 30.9	20.5
410203 2007 <i>RZ</i> <sub>206</sub>	17.5	X	61.92491	265.10795	22.22743	5.55253	0.2010941	0.28722392	2.2750397	21	11 8.9	20.6
410204 2007 <i>RK</i> <sub>207</sub>	17.6	X	82.50349	89.93044	156.57863	6.79941	0.1576109	0.28187380	2.3037371	21	10 5.8	20.7
410205 2007 <i>RM</i> <sub>210</sub>	18.1	X	316.59484	108.65884	290.74185	1.90128	0.2256007	0.28386304	2.2929618	21	10 3.6	19.2
410206 2007 <i>RT</i> <sub>211</sub>	17.6	X	247.65448	262.28061	231.48760	3.90785	0.1835604	0.28596824	2.2816946	21	10 25.6	20.2
410207 2007 <i>RS</i> <sub>217</sub>	17.8	X	135.62952	186.99680	350.89050	8.86572	0.1380242	0.27435952	2.3456112	21	8 30.1	21.3
410208 2007 <i>RP</i> <sub>233</sub>	17.8	X	344.40537	332.07655	61.32725	3.59074	0.2244658	0.28669430	2.2778407	21	12 12.8	19.1
410209 2007 <i>RM</i> <sub>235</sub>	17.8	X	329.81447	292.28958	46.91041	3.36520	0.1390214	0.27254198	2.3560280	21	8 3.1	20.0
410210 2007 <i>RM</i> <sub>236</sub>	17.9	X	18.79247	197.43465	123.13992	1.40208	0.2392916	0.28479905	2.2879350	21	11 2.4	19.8
410211 2007 <i>RC</i> <sub>263</sub>	17.6	X	307.50198	130.46214	315.99262	5.22954	0.0866805	0.29573338	2.2311862	21	12 12.3	19.6
410212 2007 <i>RD</i> <sub>265</sub>	17.8	X	69.50624	300.80466	343.81953	6.82821	0.2098996	0.29010577	2.2599481	21	11 13.7	21.1
410213 2007 <i>RA</i> <sub>271</sub>	17.5	X	216.33923	273.40928	229.51121	5.44191	0.1219970	0.28175944	2.3043604	21	10 6.1	20.6
410214 2007 <i>RW</i> <sub>273</sub>	17.7	X	337.91898	275.92904	356.91924	6.76142	0.1002922	0.26451967	2.4034259	21	5 5.8	20.5
410215 2007 <i>RG</i> <sub>285</sub>	17.4	X	66.34437	270.46379	20.01996	5.34529	0.1603644	0.28752736	2.2734388	21	11 12.8	20.3
410216 2007 <i>RG</i> <sub>288</sub>	17.4	X	237.39442	159.13891	353.97001	7.03041	0.0474249	0.29473304	2.2362319	21	11 29.7	20.2
410217 2007 <i>RB</i> <sub>295</sub>	18.2	X	221.70668	214.84184	231.90089	1.59005	0.1552184	0.27054629	2.3676000	21	7 25.1	21.5
410218 2007 <i>RK</i> <sub>295</sub>	18.0	X	354.37624	96.15123	202.02202	2.88427	0.2096266	0.27419445	2.3465525	21	7 16.4	19.3
410219 2007 <i>RM</i> <sub>310</sub>	16.8	X	344.24984	231.56034	119.82461	8.64343	0.1586546	0.28225168	2.3016804	21	9 29.9	18.7
410220 2007 <i>RX</i> <sub>310</sub>	17.4	X	303.90762	89.32999	278.51833	8.46819	0.1506183	0.27365145	2.3496556	21	7 23.9	19.9
410221 2007 <i>RR</i> <sub>313</sub>	17.7	X	12.90191	331.18731	33.43958	6.76962	0.1428305	0.28918249	2.2647558	21	12 9.9	20.1
410222 2007 <i>RN</i> <sub>319</sub>	18.0	X	335.43821	277.70955	43.06488	1.83054	0.1903803	0.27417590	2.3466583	21	7 8.6	19.6
410223 2007 <i>RB</i> <sub>321</sub>	17.8	X	304.64363	205.72017	177.76987	7.94249	0.1818207	0.27853939	2.3220860	21	8 13.6	20.2
410224 2007 <i>SA</i> <sub>7</sub>	18.2	X	270.44865	338.26590	117.55548	2.12787	0.1040357	0.27871593	2.3211053	21	10 19.2	20.7
410225 2007 <i>SN</i> <sub>15</sub>	17.3	X	254.68405	119.32672	286.61734	4.91112	0.1790926	0.26827489	2.3809450	21	7 4.2	20.7
410226 2007 <i>SV</i> <sub>19</sub>	18.2	X	258.06229	18.17576	32.46335	2.14766	0.1718375	0.26786792	2.3833560	21	7 16.2	21.3
410227 2007 <i>SA</i> <sub>20</sub>	17.5	X	242.74085	202.63933	190.29194	7.22880	0.0530486	0.26490231	2.4011109	21	6 17.4	20.7
410228 2007 <i>SE</i> <sub>20</sub>	17.1	X	20.14276	323.30062	349.58803	9.16521	0.2783520	0.28132523	2.3067308	21	10 25.9	19.3
410229 2007 <i>TO</i> <sub>2</sub>	18.3	X	314.27750	223.09806	187.81811	5.34964	0.1650378	0.28358454	2.2944628	21	10 25.8	19.9
410230 2007 <i>TH</i> <sub>8</sub>	17.8	X	328.98702	172.18979	215.14928	4.62448	0.1182262	0.28310044	2.2970777	21	10 19.4	19.8
410231 2007 <i>TO</i> <sub>9</sub>	17.2	X	347.49987	312.46927								

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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>
410241 2007 TP <sub>42</sub>	15.5	X	252.47215	53.04673	178.98735	27.22806	0.1943126	0.17277152	3.1926743	21	—	—
410242 2007 TD <sub>44</sub>	17.8	X	237.89829	81.00938	2.12978	9.05875	0.1977734	0.26955719	2.3733881	21	8 6.1	21.4
410243 2007 TN <sub>61</sub>	17.8	X	249.43889	285.17878	188.25384	3.10922	0.1590520	0.27803217	2.3249093	21	10 3.1	20.3
410244 2007 TH <sub>63</sub>	18.0	X	324.38554	296.85680	44.75431	6.92704	0.1551471	0.27205934	2.3588136	21	7 25.4	20.2
410245 2007 TN <sub>64</sub>	17.6	X	352.09732	123.24641	200.45872	5.85562	0.1571591	0.27425325	2.3462171	21	8 23.1	19.6
410246 2007 TL <sub>67</sub>	17.6	X	309.46211	236.83361	166.52398	6.40447	0.1227216	0.27967581	2.3157915	21	10 6.7	19.6
410247 2007 TB <sub>72</sub>	17.5	X	313.37832	40.58206	32.23150	7.59749	0.1434381	0.28330586	2.2959672	21	11 26.5	19.4
410248 2007 TY <sub>72</sub>	17.9	X	276.68089	219.75025	233.95148	7.55456	0.4252519	0.27374002	2.3491488	21	8 26.0	21.1
410249 2007 TX <sub>80</sub>	18.5	X	257.09161	258.56753	185.95568	2.32164	0.1782810	0.27517979	2.3409476	21	8 29.8	21.5
410250 2007 TF <sub>93</sub>	17.5	X	186.81376	63.45531	72.23741	3.13479	0.1463716	0.26906051	2.3763081	21	8 25.9	21.0
410251 2007 TE <sub>95</sub>	17.7	X	295.45527	253.84259	178.58770	8.74325	0.2072717	0.27990207	2.3145433	21	10 12.6	19.6
410252 2007 TB <sub>106</sub>	17.8	X	45.19675	98.38508	204.56661	1.30857	0.1698151	0.28371400	2.2937647	21	11 5.3	20.4
410253 2007 TA <sub>109</sub>	17.6	X	332.70661	14.58085	353.93288	8.95164	0.1132870	0.28007301	2.3136014	21	9 25.7	19.5
410254 2007 TH <sub>111</sub>	18.0	X	356.00921	76.37245	279.89441	4.72943	0.1834109	0.28365405	2.2940879	21	10 30.5	19.9
410255 2007 TV <sub>111</sub>	17.0	X	22.68973	71.59369	255.48084	4.14331	0.1125159	0.28296559	2.2978074	21	10 25.5	19.4
410256 2007 TY <sub>111</sub>	17.7	X	349.25197	35.62791	316.99496	4.64494	0.2505458	0.28163632	2.3050319	21	10 14.4	18.9
410257 2007 TY <sub>115</sub>	18.0	X	348.23287	185.66795	120.53306	2.10146	0.2400453	0.27144175	2.3623901	21	7 12.1	19.2
410258 2007 TN <sub>116</sub>	17.9	X	302.58623	241.58015	179.84215	5.16674	0.1348256	0.28607142	2.2811459	21	10 21.2	19.9
410259 2007 TQ <sub>120</sub>	17.9	X	307.47285	230.79000	190.04374	4.24187	0.1200601	0.28147622	2.3059059	21	10 29.9	20.0
410260 2007 TS <sub>120</sub>	18.1	X	310.23914	173.26011	229.67815	3.62589	0.1204943	0.27834391	2.3231731	21	10 4.5	20.1
410261 2007 TK <sub>121</sub>	16.7	X	351.08763	264.82536	216.17448	14.38843	0.1473179	0.22847850	2.6499590	21	—	—
410262 2007 TK <sub>124</sub>	18.1	X	18.17854	126.50811	183.28860	5.08094	0.1744161	0.27879938	2.3206422	21	10 2.4	20.2
410263 2007 TF <sub>131</sub>	18.5	X	256.49470	45.90807	37.97687	1.83706	0.1548816	0.27399915	2.3476674	21	9 2.2	21.5
410264 2007 TR <sub>133</sub>	17.1	X	321.15847	333.53402	40.26992	9.00575	0.1316199	0.27590960	2.3368178	21	9 15.5	19.3
410265 2007 TS <sub>134</sub>	17.5	X	49.34111	341.90069	338.69737	5.53355	0.1113187	0.29031579	2.2588581	21	11 25.5	20.3
410266 2007 TU <sub>135</sub>	18.7	X	353.50540	146.37908	153.26842	5.08361	0.2308915	0.27772699	2.3266122	21	7 16.3	19.8
410267 2007 TV <sub>141</sub>	17.7	X	0.05404	180.58826	189.63992	5.43239	0.1816845	0.28425093	2.2908753	21	12 2.7	19.7
410268 2007 TJ <sub>142</sub>	17.6	X	357.73050	335.14645	356.59104	13.47316	0.2034274	0.28038629	2.3118778	21	9 25.8	19.0
410269 2007 TB <sub>147</sub>	17.0	X	1.11085	307.04529	21.19541	6.55993	0.2607166	0.28470484	2.2884398	21	10 10.3	18.2
410270 2007 TB <sub>148</sub>	17.3	X	3.74653	272.26654	96.91854	3.71877	0.1814130	0.28604911	2.2812645	21	12 7.9	19.3
410271 2007 TZ <sub>151</sub>	17.6	X	63.02573	119.72995	210.15578	6.19281	0.1391752	0.29383548	2.2407835	21	12 29.8	20.7
410272 2007 TN <sub>155</sub>	17.4	X	281.71098	109.24221	264.94281	3.99189	0.1618113	0.27028997	2.3690966	21	6 26.7	20.1
410273 2007 TB <sub>160</sub>	17.4	X	323.64271	140.59979	223.49449	7.32169	0.2311299	0.27628048	2.3347260	21	8 14.4	19.1
410274 2007 TX <sub>160</sub>	18.0	X	346.58060	285.41832	69.89397	2.50332	0.2032910	0.28073769	2.3099482	21	10 11.2	19.4
410275 2007 TH <sub>164</sub>	18.4	X	281.65113	211.08903	189.96983	0.86169	0.1854951	0.27431126	2.3455863	21	7 31.9	21.1
410276 2007 TE <sub>172</sub>	18.0	X	343.72203	181.83683	177.94102	5.25266	0.2382913	0.28061134	2.3106415	21	10 13.9	19.0
410277 2007 TJ <sub>176</sub>	18.3	X	301.80788	71.24853	352.21344	2.13442	0.2480584	0.27962010	2.3160991	21	10 3.1	19.6
410278 2007 TZ <sub>176</sub>	17.3	X	13.72449	149.43525	157.72557	2.66215	0.1947768	0.27734110	2.3287698	21	9 22.4	19.2
410279 2007 TV <sub>182</sub>	17.1	X	208.22803	314.74923	190.70071	5.94918	0.0821965	0.27729860	2.3290078	21	10 5.6	20.0
410280 2007 TH <sub>195</sub>	17.6	X	213.50181	281.57373	120.28308	4.07246	0.0835988	0.27621917	2.3350715	21	9 22.0	20.8
410281 2007 TD <sub>196</sub>	18.1	X	337.01815	121.05896	174.26164	2.48563	0.2064599	0.26701403	2.3884345	21	5 27.6	19.9
410282 2007 TR <sub>201</sub>	17.9	X	9.12924	205.65651	78.95839	3.11493	0.1947522	0.27091293	2.3654634	21	8 3.1	19.6
410283 2007 TH <sub>202</sub>	17.1	X	339.43382	299.88441	48.40024	6.92283	0.1413281	0.27575951	2.3376656	21	9 11.7	19.2
410284 2007 TA <sub>203</sub>	17.8	X	178.63406	52.18918	109.39793	2.31672	0.1222455	0.27254333	2.3560202	21	9 21.4	21.3
410285 2007 TD <sub>211</sub>	17.4	X	327.93615	103.30955	295.29065	4.43154	0.1375821	0.28209777	2.3025175	21	11 2.2	19.3
410286 2007 TB <sub>213</sub>	17.5	X	342.66009	101.73514	255.74925	4.81585	0.1644659	0.27850944	2.3222525	21	9 27.6	19.3
410287 2007 TQ <sub>215</sub>	17.8	X	319.60328	26.72402	7.86336	4.63251	0.1443086	0.27870265	2.3211791	21	10 9.5	19.7
410288 2007 TP <sub>221</sub>	17.7	X	342.90963	17.85232	2.71037	4.59839	0.1883383	0.28645864	2.2790908	21	11 11.3	19.4
410289 2007 TJ <sub>227</sub>	17.4	X	108.15312	146.20861	24.46322	6.49016	0.0769373	0.26270646	2.4144710	21	7 11.9	20.7
410290 2007 TK <sub>229</sub>	17.6	X	351.02260	320.42593	35.33652	2.75689	0.1697748	0.28010032	2.3134510	21	10 18.5	19.3
410291 2007 TM <sub>237</sub>	17.8	X	312.81913	239.97781	165.42957	3.44528	0.1459982	0.28041480	2.3117211	21	10 14.3	19.5
410292 2007 TO <sub>253</sub>	18.3	X	234.18311	92.61775	32.39895	6.68018	0.1220228	0.27977465	2.3152460	21	10 6.5	21.2
410293 2007 TE <sub>263</sub>	17.9	X	203.41119	69.56852	43.75859	2.79521	0.1611715	0.26742292	2.3859992	21	8 11.9	21.6
410294 2007 TP <sub>275</sub>	17.9	X	354.91686	187.34502	172.21434	7.72043	0.1577002	0.28319914	2.2965439	21	11 3.7	19.9
410295 2007 TP <sub>281</sub>	17.0	X	31.50089	79.20858	220.28141	6.44545	0.1216386	0.28049482	2.3112814	21	9 29.7	19.5
410296 2007 TM <sub>310</sub>	17.3	X	155.16141	108.21828	89.05201	3.65029	0.1344966	0.27943031	2.3171477	21	10 14.9	20.7
410297 2007 TJ <sub>317</sub>	18.5	X	308.50610	344.59153	74.04917	5.06986	0.2009639	0.27968102	2.3157627	21	10 21.9	20.2
410298 2007 TG <sub>328</sub>	18.1	X	339.43939	88.94300	267.44464	3.89191	0.1896822	0.27816009	2.3241965	21	9 18.3	19.7
410299 2007 TC <sub>337</sub>	18.2	X	250.95677	24.60736	42.10831	2.48458	0.1673446	0.26903118	2.3764808	21	7 30.9	21.4
410300 2007 TD <sub>346</sub>	17.7	X	250.35550	312.33956	149.06283	3.72939	0.0927681	0.27951049	2.3167045	21	9 29.4	20.5
410301 2007 TW <sub>352</sub>	18.7	X	336.49257	210.29719	192.84225	1.30931	0.1989258	0.28696095	2.2764294	21	12 6.9	20.1
410302 2007 TR <sub>361</sub>	17.2	X	345.31409	295.84049	46.90390	6.97284	0.3370589	0.27823453	2.3237819	21	9 26.4	17.5
410303 2007 TY <sub>361</sub>	18.2	X	254.40457	236.27032	202.15642	2.85533	0.0704031	0.27128054	2.3633259	21	9 2.9	21.3
410304 2007 TY <sub>362</sub>	18.1	X	301.81122	219.91420	197.85257	2.06888	0.1653440	0.27705900	2.3303503	21	10 6.7	20.0
410305 2007 TO <sub>369</sub>	17.8	X	287.82812	109.52406	307.25235	2.47334	0.0636939	0.27563084	2.3383930	21	9 22.9	20.6
410306 2007 TX <sub>381</sub>	18.1	X	245.01989	36.62393	57.34924	4.03257	0.1191571	0.27381073	2.3487443	21	9 7.9	21.1
410307 2007 TX <sub>383</sub>	17.9	X	291.15075	329.								

ELEMENTS AND OPPOSITION DATES IN 2021

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2021 JULY 5.0 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>
410321 2007 TT <sub>452</sub>	17.7	X	22.83405	148.54994	139.94349	5.67282	0.1027914	0.27115552	2.3640523	21	8 27.6	20.0
410322 2007 TE <sub>453</sub>	17.9	X	264.26679	19.99398	63.87381	2.10956	0.1470519	0.27275997	2.3547725	21	9 14.6	20.5
410323 2007 UK <sub>2</sub>	17.6	X	319.41046	291.26019	68.38233	6.56571	0.2660309	0.27626947	2.3347880	21	7 25.7	19.2
410324 2007 UX <sub>6</sub>	17.5	X	31.09593	159.45560	69.88498	8.32496	0.0931506	0.26074900	2.4265409	21	6 9.4	19.9
410325 2007 UX <sub>9</sub>	18.1	X	281.93571	277.00023	90.31578	6.31511	0.2538600	0.27010123	2.3702000	21	6 3.3	21.4
410326 2007 UQ <sub>11</sub>	17.1	X	60.91575	245.11065	110.39140	4.45477	0.3167752	0.29558885	2.2319134	21	—	—
410327 2007 UT <sub>12</sub>	17.8	X	339.30889	245.24651	69.32947	2.22147	0.1989816	0.27258260	2.3557939	21	7 6.2	19.2
410328 2007 UQ <sub>21</sub>	18.0	X	250.95312	190.31559	228.61583	5.93911	0.1447041	0.26792103	2.3830410	21	7 20.5	21.3
410329 2007 UL <sub>22</sub>	18.5	X	287.91343	316.35472	112.28162	1.47562	0.1861161	0.27713898	2.3299019	21	9 23.9	20.5
410330 2007 US <sub>29</sub>	18.4	X	275.78494	353.96511	62.45790	2.14691	0.1736332	0.27465690	2.3439178	21	8 18.3	21.0
410331 2007 UR <sub>47</sub>	17.2	X	344.72624	190.97001	180.53092	6.99005	0.2296389	0.27993340	2.3143706	21	11 6.9	18.6
410332 2007 UP <sub>50</sub>	17.4	X	228.15354	349.80230	88.37063	7.53086	0.1905946	0.26497061	2.4006983	21	7 18.2	21.0
410333 2007 US <sub>52</sub>	16.8	X	345.90765	251.18277	81.34057	8.98539	0.2570262	0.27386163	2.3484533	21	9 2.1	18.1
410334 2007 UB <sub>57</sub>	16.8	X	350.91184	201.55089	47.04581	7.15369	0.1063489	0.25488357	2.4636263	21	4 26.5	19.2
410335 2007 UQ <sub>61</sub>	17.6	X	18.92310	47.65897	244.98165	2.51255	0.2406043	0.27819094	2.3240246	21	9 15.8	19.3
410336 2007 UO <sub>65</sub>	18.0	X	270.33241	220.96104	210.89087	6.66781	0.2261295	0.27278718	2.3546159	21	8 19.7	21.1
410337 2007 UW <sub>67</sub>	18.1	X	208.40530	283.95434	203.47421	0.79247	0.1205722	0.27460614	2.3442066	21	9 6.5	21.3
410338 2007 US <sub>73</sub>	17.9	X	255.31057	78.77881	12.14348	1.19239	0.1100836	0.27579098	2.3374877	21	9 17.2	20.6
410339 2007 UV <sub>75</sub>	18.3	X	254.72586	145.39019	321.42851	0.93001	0.1319600	0.27723074	2.3293878	21	10 4.9	20.9
410340 2007 UZ <sub>76</sub>	18.5	X	266.57351	141.52648	299.48824	1.43190	0.2377655	0.27360723	2.3499088	21	8 28.2	21.3
410341 2007 UB <sub>79</sub>	17.8	X	225.86191	42.59958	51.18408	3.03200	0.0805788	0.26941477	2.3742245	21	8 18.3	20.9
410342 2007 UX <sub>89</sub>	18.2	X	224.53186	75.88922	26.28189	2.91116	0.1628610	0.26993426	2.3711774	21	8 18.9	21.6
410343 2007 UT <sub>90</sub>	17.8	X	188.84313	218.36617	278.44996	0.49645	0.1290388	0.26960105	2.3731308	21	8 28.4	21.3
410344 2007 UM <sub>103</sub>	18.1	X	230.08666	84.55170	43.53691	2.80378	0.1510059	0.27469152	2.3437208	21	9 30.6	21.3
410345 2007 UR <sub>103</sub>	17.7	X	177.91946	264.26635	193.24536	2.26425	0.1322574	0.25803541	2.4435235	21	6 25.6	21.3
410346 2007 UX <sub>105</sub>	17.5	X	334.98038	281.92298	92.87467	4.44423	0.2142285	0.27756144	2.3275372	21	10 15.4	18.9
410347 2007 UA <sub>120</sub>	18.4	X	359.42434	107.58608	202.69486	4.22114	0.2434525	0.27748737	2.3279514	21	8 25.3	19.5
410348 2007 UF <sub>124</sub>	17.5	X	287.00625	352.85162	31.74180	7.02016	0.1061686	0.27155458	2.3617357	21	8 1.9	20.3
410349 2007 UZ <sub>128</sub>	18.0	X	269.86793	2.08989	81.16886	2.50197	0.1592533	0.27409190	2.3471377	21	9 20.5	20.7
410350 2007 UD <sub>135</sub>	17.5	X	178.71090	39.32631	69.48749	5.78188	0.1360975	0.26093624	2.4255799	21	7 12.0	21.2
410351 2007 VJ <sub>5</sub>	17.2	X	253.96832	188.04955	261.47948	5.55307	0.0805058	0.27527770	2.3403925	21	9 14.5	20.1
410352 2007 VC <sub>11</sub>	17.4	X	336.16015	57.90731	283.67268	5.13651	0.2969965	0.27506344	2.3416077	21	8 3.4	18.4
410353 2007 VE <sub>11</sub>	17.6	X	349.59784	277.97841	98.36147	7.23293	0.2058394	0.28171869	2.3045826	21	11 24.4	19.3
410354 2007 VK <sub>12</sub>	17.7	X	320.20524	17.82706	1.81865	5.90181	0.2169206	0.28248321	2.3004226	21	9 10.9	19.1
410355 2007 VP <sub>29</sub>	17.3	X	354.57503	323.79508	13.47378	4.10440	0.2539192	0.27791114	2.3255843	21	10 4.7	18.2
410356 2007 VW <sub>29</sub>	17.4	X	342.72250	254.57610	78.84214	5.82604	0.2543982	0.27450644	2.3447742	21	8 20.6	18.5
410357 2007 VV <sub>43</sub>	17.9	X	270.31749	99.61573	357.71326	6.57876	0.1341482	0.27845766	2.3225404	21	10 13.2	20.3
410358 2007 VW <sub>48</sub>	17.8	X	229.12057	107.25079	2.06316	4.35237	0.2209690	0.26975265	2.3722415	21	8 27.3	21.3
410359 2007 VL <sub>51</sub>	17.9	X	21.57389	42.60258	267.39160	4.42804	0.1328166	0.27573720	2.3377917	21	9 28.7	20.3
410360 2007 VY <sub>51</sub>	17.5	X	74.30513	197.60921	26.03937	7.55095	0.0513714	0.26536154	2.3983399	21	8 7.8	20.5
410361 2007 VT <sub>54</sub>	18.0	X	287.59922	276.92696	112.39541	3.09651	0.2131475	0.27106210	2.3645955	21	7 19.1	20.6
410362 2007 VN <sub>61</sub>	17.3	X	281.28676	359.72115	30.26683	3.62852	0.2037212	0.26949929	2.3737281	21	7 12.9	20.3
410363 2007 VG <sub>64</sub>	17.5	X	192.38280	228.56856	281.92511	2.94379	0.1150594	0.26931840	2.3747908	21	9 18.7	21.0
410364 2007 VM <sub>76</sub>	17.4	X	242.38938	308.96268	63.65343	4.67627	0.1991551	0.26055384	2.4277524	21	5 6.5	21.0
410365 2007 VY <sub>81</sub>	17.8	X	209.88785	29.54140	48.86568	3.18488	0.1585149	0.26316397	2.4116730	21	7 2.1	21.6
410366 2007 VV <sub>90</sub>	17.8	X	294.05160	298.56384	128.04184	3.89687	0.1170034	0.27734166	2.3287666	21	10 14.4	20.0
410367 2007 VZ <sub>144</sub>	17.7	X	321.14560	245.80234	129.93242	2.68766	0.2255571	0.27552451	2.3389946	21	9 3.8	19.0
410368 2007 VQ <sub>145</sub>	17.3	X	343.55312	333.94914	32.32170	7.94360	0.1181443	0.27610117	2.3357367	21	10 15.5	19.2
410369 2007 VP <sub>150</sub>	18.3	X	266.66629	76.21671	359.84214	2.17703	0.1718002	0.27431537	2.3458629	21	9 2.0	21.2
410370 2007 VN <sub>153</sub>	18.6	X	347.76601	280.98090	58.25899	2.82186	0.2357095	0.27954907	2.3164914	21	9 17.7	19.6
410371 2007 VQ <sub>156</sub>	17.7	X	25.31326	247.83732	16.00752	3.60690	0.1397532	0.27123660	2.3635812	21	7 30.0	19.8
410372 2007 VC <sub>158</sub>	18.4	X	267.20491	299.24521	125.28943	2.63385	0.2178020	0.27133812	2.3629916	21	8 9.3	21.4
410373 2007 VL <sub>168</sub>	17.7	X	283.24556	353.69585	46.86632	2.86124	0.1833886	0.26989764	2.3713919	21	8 4.4	20.3
410374 2007 VD <sub>176</sub>	15.6	X	310.21819	164.43967	180.40760	3.82888	0.2116861	0.12622471	3.9358613	21	6 22.9	20.7
410375 2007 VP <sub>180</sub>	17.2	X	194.74473	29.24261	72.83965	4.35275	0.1602212	0.26474794	2.4020442	21	7 18.8	20.9
410376 2007 VE <sub>198</sub>	18.0	X	249.60392	168.90494	252.01963	1.73120	0.1910603	0.26188649	2.4195095	21	7 16.9	21.3
410377 2007 VK <sub>216</sub>	17.7	X	339.66131	76.36563	261.44882	2.86033	0.2667346	0.27446806	2.3449928	21	8 12.2	18.8
410378 2007 VW <sub>216</sub>	17.9	X	285.46945	340.65046	43.40907	4.16753	0.1189642	0.26822654	2.3812311	21	7 25.7	20.6
410379 2007 VL <sub>220</sub>	17.6	X	301.53635	153.62276	236.95956	10.81457	0.2664752	0.27313862	2.3525958	21	7 30.5	20.2
410380 2007 VO <sub>237</sub>	17.5	X	147.33064	111.16969	52.62539	5.32834	0.1133471	0.26560547	2.3968713	21	8 23.3	21.1
410381 2007 VF <sub>238</sub>	17.7	X	237.65300	20.69855	57.61405	4.21046	0.1972519	0.26764721	2.3846661	21	7 28.2	21.2
410382 2007 VT <sub>267</sub>	18.4	X	288.82624	246.22855	179.90757	3.18453	0.1822906	0.27746927	2.3280526	21	9 21.5	20.7
410383 2007 VO <sub>268</sub>	18.4	X	294.30682	245.54619	164.65565	2.57395	0.2068210	0.27564611	2.3383067	21	9 2.2	20.7
410384 2007 VQ <sub>275</sub>	16.2	X	161.61992	300.54587	244.45378	10.37166	0.0521038	0.19966889	2.8990950	21	9 22.2	20.7
410385 2007 VG <sub>276</sub>	16.5	X	107.88481	26.78432	94.06077	22.36634	0.0753367	0.24183028	2.5515001	21	5 11.9	20.3
410386 2007 VJ <sub>282</sub>	16.3	X	305.65687	309.30017	74.68399	0.40838	0.1522367	0.12652472	3.9296372	21	8 12.5	21.5
410387 2007 VC <sub>287</sub>	17.1	X	285.45061	327.58238	89.15334	7.73289	0.0935945	0.27443794	2.3451643	21	9 20.7	19.8
410388 2007 VT <sub>310</sub>	17.1	X	310.58123	264.87556	88.61799	2.32234	0.2029601	0.26321874	2.4113385	21	7 5.9	19.2
410389 2007 VJ <sub>312</sub>	17.0	X	119.41847	83.94729	42.51756	4.05882	0.1949100	0.24522062	2.5279281	21	6 8.4	20.7
410390 2007 VU <sub>324</sub>	17.8	X	321.72058	36.97011	338.45339	6.01147	0.1398571	0.27569055	2.3380554	21	9 12.2	19.9
410391 2007 WV	15.0	X	281.24240	333.16816	62.27710	7.40921	0.2127196	0.12520014	3.9573049	21	7 17.2	20.6
410392 2007 WD <sub>4</sub>	17.7	X	239.13190	57.39342	62.45591	4.02897	0.1801348	0.27403229	2.3447781	21	9 27.4	20.8
410393 2007 WR <sub>11</sub>	17.6	X	274.27228	356.58520	85.83968	10.50735	0.2142843	0.274				

# ELEMENTS AND OPPOSITION DATES IN 2021

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2021 JULY 5.0 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>
410401 2007 XZ <sub>21</sub>	17.0	X	243.55695	331.32038	73.05796	7.64034	0.1177535	0.26193896	2.4191863	21	6 26.3	20.3
410402 2007 XR <sub>22</sub>	17.2	X	304.94127	321.71762	94.98385	7.96276	0.2640065	0.27427293	2.3461049	21	10 1.7	19.0
410403 2007 XT <sub>24</sub>	17.9	X	308.70000	269.83446	125.45704	3.13964	0.1866962	0.27434312	2.3457047	21	9 12.9	19.9
410404 2007 XH <sub>30</sub>	15.3	X	298.89092	201.08531	169.58495	2.95501	0.2240871	0.12433254	3.9756930	21	7 6.5	20.5
410405 2007 XR <sub>30</sub>	17.8	X	275.65166	329.98979	91.39696	2.51689	0.1736917	0.27093761	2.3653197	21	8 25.2	20.4
410406 2007 XR <sub>42</sub>	17.8	X	203.27898	151.89913	303.06222	1.75896	0.1585766	0.26096572	2.4251973	21	7 17.3	21.4
410407 2007 XW <sub>51</sub>	17.1	X	31.41531	232.17051	326.51672	4.50956	0.1725662	0.24032428	2.5621484	21	4 29.7	19.5
410408 2007 XP <sub>56</sub>	18.0	X	250.39372	255.31666	198.43778	3.59464	0.2038302	0.26698048	2.3886345	21	8 29.2	21.3
410409 2007 YK <sub>9</sub>	17.0	X	292.45415	297.27248	56.60898	7.93316	0.2849567	0.26221853	2.4174665	21	5 23.7	20.2
410410 2007 YF <sub>12</sub>	17.2	X	275.06942	293.59172	62.15305	7.65087	0.1284516	0.25409977	2.4686899	21	5 28.1	20.3
410411 2007 YS <sub>36</sub>	17.4	X	271.82616	87.95261	309.27710	5.44767	0.1365997	0.26266823	2.4147065	21	7 20.6	20.4
410412 2007 YT <sub>50</sub>	16.6	X	20.24575	265.90381	286.86731	10.30862	0.1392066	0.23691431	2.5866750	21	3 23.0	19.5
410413 2007 YQ <sub>51</sub>	17.9	X	321.66941	283.07407	79.64325	3.81296	0.1957909	0.27115938	2.3640299	21	8 17.8	19.7
410414 2007 YE <sub>67</sub>	16.9	X	268.81909	154.26407	140.07010	13.82093	0.0382122	0.23368643	2.6104401	21	3 16.8	20.6
410415 2007 YZ <sub>70</sub>	17.2	X	253.71721	348.77783	122.00772	25.86849	0.1753833	0.27235826	2.35570874	21	9 25.7	20.9
410416 2008 AY <sub>31</sub>	17.6	X	164.17319	283.19247	197.14221	1.52686	0.1645641	0.25374352	2.4710000	21	7 12.4	21.6
410417 2008 AX <sub>33</sub>	17.3	X	296.14271	36.18918	58.94351	5.39111	0.2053645	0.28394788	2.2925050	21	11 20.4	19.0
410418 2008 AW <sub>34</sub>	17.5	X	224.13974	337.82806	98.72373	3.47370	0.1701937	0.25826680	2.4420637	21	7 13.2	21.3
410419 2008 AA <sub>36</sub>	17.6	X	283.09012	83.26513	298.50496	2.04345	0.2083392	0.26143085	2.4223199	21	7 2.2	20.6
410420 2008 AZ <sub>37</sub>	18.2	X	210.63086	251.68063	193.45269	2.47068	0.1357817	0.25680640	2.4513133	21	7 12.4	22.0
410421 2008 AY <sub>40</sub>	17.0	X	80.51851	188.23557	324.01538	12.55686	0.0986952	0.23951040	2.5679494	21	5 5.7	20.6
410422 2008 AG <sub>44</sub>	17.0	X	34.71914	225.22883	323.05192	4.01329	0.0958045	0.23565352	2.5958929	21	4 16.9	19.8
410423 2008 AV <sub>65</sub>	17.4	X	313.63683	255.94890	121.86612	6.84278	0.2434776	0.26642059	2.3919799	21	8 14.9	19.1
410424 2008 AV <sub>96</sub>	17.6	X	212.25237	84.26067	30.77300	5.54659	0.1884135	0.26157292	2.4214427	21	8 22.1	21.4
410425 2008 AH <sub>81</sub>	17.7	X	173.41318	184.14822	281.99832	5.65236	0.0797909	0.25285736	2.4767698	21	7 1.8	21.2
410426 2008 AY <sub>104</sub>	18.0	X	232.25023	132.07160	312.43525	0.54599	0.1521078	0.26188597	2.4195127	21	8 3.2	21.6
410427 2008 BH <sub>3</sub>	17.4	X	230.74094	20.65435	101.25122	7.78605	0.0901374	0.26732373	2.3865894	21	10 3.9	20.7
410428 2008 BJ <sub>15</sub>	16.4	X	50.88356	247.38119	266.22980	10.32299	0.1332744	0.23476283	2.6024546	21	3 25.2	19.5
410429 2008 BQ <sub>18</sub>	16.9	X	230.93459	300.20403	153.19018	5.63572	0.1225759	0.26197395	2.4189709	21	8 16.7	20.2
410430 2008 BC <sub>19</sub>	16.8	X	22.66667	129.12746	69.58376	4.68642	0.1320704	0.23921241	2.5700816	21	4 14.3	19.4
410431 2008 BT <sub>19</sub>	17.7	X	263.35643	290.77634	131.67926	2.89733	0.2038903	0.26584356	2.3954399	21	8 3.1	21.0
410432 2008 BM <sub>25</sub>	17.9	X	203.39089	172.19364	269.79813	1.25511	0.1656378	0.25524506	2.4612997	21	6 29.9	21.7
410433 2008 BY <sub>30</sub>	17.4	X	237.32608	290.81760	151.58622	1.41654	0.1563055	0.25949324	2.4343630	21	8 5.3	20.7
410434 2008 BZ <sub>31</sub>	17.8	X	255.37831	264.17631	151.89249	1.57394	0.1809489	0.25841600	2.4411237	21	7 18.3	21.1
410435 2008 BU <sub>41</sub>	17.2	X	214.54558	24.45963	93.77982	5.12772	0.1839333	0.26038966	2.4287728	21	8 28.3	20.9
410436 2008 BX <sub>45</sub>	17.0	X	317.86759	222.62449	327.57518	11.80454	0.0835895	0.22213043	2.7002087	21	—	—
410437 2008 BM <sub>46</sub>	17.5	X	214.80391	33.48246	61.63345	3.54094	0.1629688	0.25643871	2.4536559	21	7 29.6	21.2
410438 2008 BA <sub>51</sub>	17.3	X	341.91755	281.25056	321.22798	7.89153	0.0682030	0.23495511	2.6010346	21	4 4.4	20.7
410439 2008 BL <sub>51</sub>	17.3	X	167.08995	80.48515	38.95670	7.86208	0.0826778	0.25139530	2.4683634	21	7 13.9	21.0
410440 2008 CX <sub>6</sub>	17.6	X	194.97856	25.02834	89.74972	3.01746	0.1395715	0.25826842	2.4420535	21	8 5.6	21.2
410441 2008 CP <sub>12</sub>	17.6	X	159.53467	329.91425	119.59780	7.02080	0.1004493	0.24325179	2.5415502	21	5 27.4	21.4
410442 2008 CB <sub>23</sub>	16.7	X	301.18141	268.68413	330.26037	9.25004	0.0594895	0.22824340	2.6517784	21	2 9.7	20.2
410443 2008 CF <sub>30</sub>	17.9	X	203.11563	301.67233	87.19585	2.35365	0.0785338	0.24134000	2.5549545	21	4 24.9	21.7
410444 2008 CC <sub>44</sub>	17.6	X	221.54795	353.48159	78.50447	4.36727	0.2121238	0.25286059	2.4767487	21	7 1.6	21.6
410445 2008 CZ <sub>59</sub>	17.1	X	16.76654	10.04838	180.81707	3.59464	0.1045302	0.23064485	2.6333396	21	3 22.5	19.9
410446 2008 CF <sub>66</sub>	17.2	X	339.27696	100.18713	108.95818	3.22860	0.1428384	0.22648677	2.6654722	21	2 10.5	20.3
410447 2008 CU <sub>71</sub>	17.1	X	96.13450	282.99665	233.66207	3.08022	0.1732920	0.24297303	2.5434938	21	6 19.7	20.5
410448 2008 CE <sub>72</sub>	17.4	X	107.58555	14.06605	126.57270	3.98185	0.1448120	0.24191834	2.5508809	21	6 8.6	20.9
410449 2008 CZ <sub>79</sub>	16.7	X	271.30023	335.21600	350.44456	8.82549	0.0835656	0.23883863	2.5727624	21	4 16.8	20.3
410450 2008 CR <sub>86</sub>	18.1	X	220.64179	356.48367	88.33898	3.60609	0.1736920	0.25479069	2.4642250	21	7 20.5	21.9
410451 2008 CH <sub>106</sub>	17.1	X	330.83667	112.47634	90.00028	5.94326	0.1058490	0.22430084	2.6827618	21	1 26.9	20.4
410452 2008 CO <sub>108</sub>	17.4	X	281.85910	2.83977	23.69203	5.68158	0.1844815	0.25914318	2.4365548	21	7 12.3	20.5
410453 2008 CL <sub>109</sub>	16.5	X	251.59203	20.79285	330.45744	12.66133	0.1798513	0.23724109	2.5842991	21	4 14.4	20.9
410454 2008 CF <sub>117</sub>	16.7	X	36.46368	208.69896	312.48902	11.60019	0.1996342	0.22983660	2.6395097	21	3 13.6	19.3
410455 2008 CK <sub>123</sub>	16.6	X	322.10879	229.59945	319.07079	11.49600	0.0759016	0.22076814	2.7113055	21	1 3.6	20.4
410456 2008 CN <sub>123</sub>	16.8	X	327.88229	127.24216	149.07622	15.40432	0.0858490	0.23946362	2.5682839	21	5 6.9	20.2
410457 2008 CB <sub>133</sub>	17.0	X	265.50905	122.48613	153.36937	9.03603	0.1787789	0.22241270	2.6979236	21	2 1.6	21.3
410458 2008 CL <sub>144</sub>	17.4	X	205.48535	110.72609	2.12356	8.12029	0.2931227	0.26018628	2.4300383	21	8 7.5	21.7
410459 2008 CT <sub>150</sub>	17.2	X	88.13494	174.67677	327.25895	12.44516	0.1192192	0.23662834	2.5887586	21	5 6.0	20.8
410460 2008 CQ <sub>156</sub>	17.3	X	298.03962	137.08810	131.61596	6.03442	0.0177562	0.23012167	2.6373294	21	3 23.4	20.8
410461 2008 CJ <sub>179</sub>	16.6	X	19.43590	33.17991	131.83243	14.53870	0.1949916	0.22423213	2.6833098	21	2 17.6	19.0
410462 2008 CB <sub>180</sub>	16.2	X	319.43613	112.07042	93.45422	11.80180	0.2696437	0.21784019	2.7355461	21	—	—
410463 2008 CL <sub>180</sub>	17.0	X	90.66137	337.99117	187.49751	14.71824	0.1424758	0.24273183	2.5451784	21	6 19.9	20.7
410464 2008 CJ <sub>182</sub>	16.5	X	38.06545	19.66173	133.04600	14.06475	0.1010217	0.22832575	2.6511407	21	3 9.7	19.6
410465 2008 CW <sub>190</sub>	18.1	X	233.75977	327.80264	338.82576	18.88484	0.0502370	0.37272016	1.9122623	21	1 25.7	20.5
410466 2008 CM <sub>196</sub>	16.8	X	341.45884	355.64889	182.40880	4.66271	0.0781084	0.21410265	2.7672901	21	1 14.6	20.5
410467 2008 CO <sub>197</sub>	17.5	X	311.65853	98.97588	165.52771	5.55935	0.0622609	0.23221245	2.6214750	21	3 27.7	20.7
410468 2008 CB <sub>199</sub>	16.5	X	253.72059	325.68325	329.21983	12.22459	0.1771113	0.22449891	2.6811836	21	2 14.6	20.9
410469 2008 CX <sub>201</sub>	17.0	X	225.89438	73.83638	181.43606	8.70139	0.1148076	0.20925210	2.8098911	21	—	—
410470 2008 CH <sub>202</sub>	17.7	X	275.25101	23.16417	18.71155	3.28467	0.1675101	0.25914648	2.4365342	21	7 27.7	20.7
410471 2008 CZ <sub>207</sub>	17.6	X	251.56823	240.42807	171.70773	4.09538	0.1493537	0.25594992	2.4567788	21	7 12.1	21.1
410472 2008 CB <sub>212</sub>	16.9	X	329.97448	172.80412	39.08200	7.33308	0.2175073	0.22290488	2.6939509	21	1 22.3	20.4
410473 2008 CH <sub>212</sub>	17.0	X	36.23795	116.48691	80.72006	5.19089	0.0					

## ELEMENTS AND OPPOSITION DATES IN 2021

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2021 JULY 5.0 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>
410481 2008 DZ <sub>26</sub>	16.4	X	320.34114	121.67176	94.79332	7.81658	0.2412537	0.21845097	2.7304448	21	1 11.5	20.1
410482 2008 DP <sub>27</sub>	17.5	X	138.23117	65.96208	0.58662	20.07205	0.1189106	0.37912541	1.8906630	21	3 18.2	19.0
410483 2008 DF <sub>28</sub>	17.0	X	246.64245	343.53207	2.29072	11.85987	0.0349473	0.23643723	2.5901533	21	4 18.7	20.6
410484 2008 DG <sub>31</sub>	17.8	X	243.49442	245.15493	170.38340	3.79150	0.1300914	0.25565203	2.4586869	21	7 9.6	21.3
410485 2008 DU <sub>31</sub>	17.2	X	193.47522	15.87119	94.16530	3.21326	0.1306157	0.25200379	2.4823594	21	7 28.7	20.9
410486 2008 DE <sub>32</sub>	18.0	X	136.63107	69.07682	353.82756	20.11547	0.0249152	0.37683902	1.8983027	21	2 26.5	19.8
410487 2008 DE <sub>38</sub>	16.9	X	55.30778	8.00483	185.71048	11.94647	0.1302589	0.23489371	2.6014878	21	6 6.3	20.1
410488 2008 DJ <sub>44</sub>	17.3	X	122.98532	310.67931	153.23161	13.94144	0.2004766	0.23812202	2.5779214	21	5 18.9	21.5
410489 2008 DN <sub>54</sub>	16.4	X	10.28614	202.48152	5.69159	13.40742	0.1970166	0.23010752	2.6374375	21	3 30.3	18.6
410490 2008 DQ <sub>55</sub>	16.6	X	90.05792	123.85369	357.48546	14.27993	0.1273015	0.23303024	2.6153382	21	4 12.9	20.1
410491 2008 DF <sub>64</sub>	18.0	X	257.08256	308.70421	130.56044	3.35300	0.1725804	0.26083999	2.4259765	21	8 23.4	21.3
410492 2008 DQ <sub>67</sub>	17.1	X	49.37708	338.17646	192.54560	14.02344	0.1239840	0.23088234	2.6315335	21	4 23.5	20.0
410493 2008 DZ <sub>68</sub>	16.7	X	151.27781	73.16630	15.16102	22.19078	0.0853414	0.23434126	2.6055748	21	5 6.2	20.8
410494 2008 DR <sub>83</sub>	17.1	X	141.31272	163.76994	327.21331	4.02682	0.1624462	0.24207347	2.5497910	21	7 4.6	21.2
410495 2008 DR <sub>87</sub>	16.8	X	239.36249	6.42846	1.52350	4.75196	0.1370800	0.23743080	2.5829223	21	5 1.7	20.8
410496 2008 ES <sub>14</sub>	17.1	X	307.04652	221.73857	3.46109	8.92506	0.1151147	0.21802842	2.7339715	21	1 26.7	20.9
410497 2008 EQ <sub>15</sub>	17.1	X	220.84881	12.47996	9.64226	7.90352	0.0756549	0.23459369	2.6037053	21	5 3.6	21.0
410498 2008 EC <sub>22</sub>	16.6	X	258.76657	285.07154	10.10372	11.19289	0.0493066	0.22129701	2.7069839	21	3 6.2	20.5
410499 2008 ES <sub>30</sub>	17.3	X	339.67232	198.34733	22.12701	3.46938	0.0786487	0.22671257	2.6637021	21	3 7.5	20.4
410500 2008 EX <sub>35</sub>	17.5	X	132.25003	114.08153	4.07383	28.64102	0.2205625	0.24109894	2.5566573	21	6 7.1	22.2
410501 2008 EO <sub>42</sub>	16.9	X	228.03773	299.48827	39.91970	5.83556	0.1308119	0.22559799	2.6724683	21	3 26.5	20.6
410502 2008 EC <sub>44</sub>	17.9	X	126.11071	115.21249	22.96068	19.37741	0.0645724	0.38689316	1.8652713	21	6 7.9	20.2
410503 2008 EX <sub>54</sub>	16.9	X	14.09070	354.87315	181.96106	12.78518	0.0929463	0.22235984	2.6983512	21	2 26.6	20.1
410504 2008 EX <sub>73</sub>	17.0	X	279.93728	216.65033	48.03171	5.77909	0.1156657	0.21998041	2.7177742	21	2 12.5	21.0
410505 2008 EP <sub>82</sub>	16.6	X	24.58131	227.35760	319.44626	10.73852	0.1319502	0.22952088	2.6419297	21	3 25.1	19.6
410506 2008 EV <sub>82</sub>	16.6	X	21.61460	219.80087	329.77657	13.11664	0.1984629	0.22860789	2.6489591	21	3 22.8	19.2
410507 2008 EM <sub>88</sub>	18.1	X	244.56390	147.07863	171.10325	22.60838	0.0692098	0.37595979	1.9012612	21	2 16.3	20.4
410508 2008 EM <sub>99</sub>	15.8	X	309.10164	200.99674	44.83816	14.28982	0.1252985	0.22039675	2.7143505	21	2 27.2	19.7
410509 2008 EV <sub>110</sub>	17.5	X	127.97703	44.95122	75.42096	4.51265	0.1525991	0.24052759	2.5607044	21	6 5.6	21.1
410510 2008 EC <sub>115</sub>	16.4	X	108.85908	140.21920	350.39869	22.24948	0.0888976	0.23506765	2.6002043	21	5 8.9	20.4
410511 2008 EP <sub>116</sub>	17.2	X	3.58836	164.88093	25.05087	6.55989	0.0700247	0.22327698	2.6909569	21	3 5.6	20.5
410512 2008 EU <sub>118</sub>	17.0	X	328.23989	64.79695	164.33440	9.31426	0.1541247	0.22768013	2.6561502	21	2 16.9	20.2
410513 2008 EX <sub>125</sub>	17.5	X	125.40160	142.59131	0.61530	12.58431	0.2344047	0.24263268	2.5458717	21	7 13.1	21.9
410514 2008 EC <sub>128</sub>	16.2	X	244.59960	352.25782	11.49740	13.89316	0.1963758	0.23802891	2.5785936	21	4 24.7	20.5
410515 2008 EJ <sub>139</sub>	17.0	X	314.45952	12.02112	209.99236	8.77467	0.0946136	0.21859945	2.7292082	21	1 29.1	20.8
410516 2008 EG <sub>143</sub>	17.1	X	261.58322	113.42531	206.26282	10.62048	0.1237316	0.23060624	2.6336335	21	3 26.5	21.2
410517 2008 EJ <sub>148</sub>	17.0	X	129.85914	76.52828	6.23251	13.96816	0.0623829	0.23243082	2.6189328	21	4 6.8	20.5
410518 2008 EN <sub>152</sub>	16.5	X	105.88480	79.81784	46.12145	14.60220	0.0317454	0.23123005	2.6288948	21	5 1.7	19.9
410519 2008 EA <sub>153</sub>	17.0	X	209.33392	293.74502	57.84492	6.60506	0.0440059	0.22414523	2.6840033	21	3 19.8	20.8
410520 2008 EG <sub>156</sub>	16.1	X	62.58471	81.78522	162.26167	10.16991	0.1284168	0.17479500	3.1679869	21	8 22.1	20.5
410521 2008 EQ <sub>158</sub>	17.5	X	298.77408	62.45097	151.77190	5.16127	0.1073510	0.21301189	2.7767289	21	1 2.4	21.5
410522 2008 ET <sub>162</sub>	16.6	X	183.56452	348.49129	30.69032	10.13612	0.0898540	0.22344261	2.6896270	21	3 26.4	20.7
410523 2008 ES <sub>165</sub>	17.1	X	281.70509	56.33997	198.50216	12.24953	0.0838397	0.21868638	2.7284849	21	1 31.5	21.3
410524 2008 EC <sub>166</sub>	16.5	X	190.38973	214.94365	202.67340	21.66855	0.0372105	0.23533228	2.5982546	21	5 18.9	20.3
410525 2008 EU <sub>168</sub>	16.7	X	77.77624	131.87856	24.25402	10.28935	0.0853860	0.23098044	2.6307884	21	5 9.0	20.0
410526 2008 EW <sub>168</sub>	16.7	X	277.22619	207.61832	41.71776	9.30986	0.1534819	0.21626508	2.7488125	21	1 18.2	21.0
410527 2008 FF <sub>1</sub>	18.2	X	269.70551	114.33293	172.18536	22.79989	0.0655164	0.37403071	1.9077928	21	2 2.4	20.8
410528 2008 FQ <sub>2</sub>	16.3	X	29.56480	210.04974	352.99161	14.12387	0.0518137	0.23437394	2.6053326	21	4 22.2	19.7
410529 2008 FK <sub>4</sub>	16.7	X	262.94890	332.21856	7.44171	13.58320	0.0951138	0.23630952	2.5910864	21	4 23.5	20.5
410530 2008 FK <sub>5</sub>	17.9	X	308.02333	265.85708	25.51143	21.26237	0.0177867	0.38299781	1.8778974	21	4 16.8	19.1
410531 2008 FO <sub>7</sub>	16.6	X	8.66267	29.09461	165.68269	12.72438	0.2138954	0.22545396	2.6736064	21	3 6.7	19.1
410532 2008 FE <sub>11</sub>	17.3	X	95.95747	284.03882	142.37339	9.82748	0.0709378	0.22322858	2.6913459	21	2 5.1	20.6
410533 2008 FR <sub>37</sub>	17.3	X	13.48069	51.53797	124.15843	3.48087	0.0351369	0.22155678	2.7048677	21	3 1.9	20.7
410534 2008 FN <sub>39</sub>	17.9	X	105.18984	276.66524	189.63216	22.08722	0.0516520	0.37594698	1.9013044	21	3 13.5	19.7
410535 2008 FW <sub>49</sub>	16.8	X	34.69300	324.52746	187.87546	11.12189	0.0191738	0.22201996	2.7011044	21	2 25.6	20.4
410536 2008 FE <sub>50</sub>	16.9	X	223.17245	333.61315	20.40735	5.78948	0.0466523	0.22752311	2.6573721	21	4 4.6	20.7
410537 2008 FV <sub>55</sub>	16.9	X	301.20179	189.62682	19.83130	8.48553	0.1612641	0.21234523	2.7825376	21	—	—
410538 2008 FS <sub>56</sub>	17.3	X	176.94967	159.33761	139.90993	2.59287	0.1092174	0.20691958	2.8309682	21	—	—
410539 2008 FR <sub>59</sub>	16.7	X	157.42747	55.25233	31.31176	15.05275	0.0712544	0.23357593	2.6112633	21	5 14.9	20.6
410540 2008 FK <sub>60</sub>	16.7	X	336.78028	38.57890	150.01526	6.97128	0.2326134	0.21754173	2.7380476	21	—	—
410541 2008 FW <sub>69</sub>	16.7	X	220.37813	187.75766	34.72965	14.01070	0.1547513	0.19535551	2.9416135	21	—	—
410542 2008 FM <sub>73</sub>	17.2	X	281.97921	106.27830	163.26913	9.18203	0.0247824	0.22075054	2.7114495	21	3 1.7	20.8
410543 2008 FC <sub>75</sub>	17.0	X	182.49989	244.09393	106.93917	6.02367	0.1275696	0.21693516	2.7431491	21	2 20.2	21.3
410544 2008 FC <sub>83</sub>	17.6	X	75.05681	345.66364	140.32758	3.97671	0.1277410	0.22665047	2.6641886	21	4 4.4	20.8
410545 2008 FL <sub>97</sub>	17.4	X	139.39660	216.63802	172.59759	5.58159	0.0075830	0.21928456	2.7235207	21	2 4.5	21.2
410546 2008 FB <sub>101</sub>	17.0	X	163.37670	314.91189	181.22384	13.47374	0.1148905	0.24444359	2.5332825	21	7 28.6	21.1
410547 2008 FU <sub>103</sub>	17.2	X	21.20777	119.55604	87.95885	5.88435	0.0759864	0.22669663	2.6638269	21	4 25.8	20.4
410548 2008 FO <sub>111</sub>	16.7	X	200.13304	243.66390	193.90215	26.24019	0.1312345	0.23817132	2.5775657	21	6 20.7	21.3
410549 2008 FE <sub>122</sub>	17.3	X	239.92380	282.71641	42.37319	21.51495	0.1029427	0.37149237	1.9164733	21	3 9.2	20.3
410550 2008 FR <sub>132</sub>	16.7	X	119.42807	341.86171	75.73439	6.04518	0.0796920	0.21678066	2.7444524	21	3 2.1	20.5
410551 2008 FA <sub>135</sub>	17.3	X	109.51814	334.58867	128.38655	2.85830	0.0273423	0.22600757	2.6692386	21	4 6.3	20.8
410552 2008 GG <sub>6</sub>	16.9	X	310.37645	96.06137	94.39743	6.64483	0.0781075	0.21119388	2.7926414	21	—	—
410553 2008 GX <sub>6</sub>	16.6	X	198.41521	262.91810	49.80985	6.71479	0.1142731	0.20848521	2.8167775	21	1 21.4	21.1



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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>
410561 2008 <i>GD</i> <sub>35</sub>	17.0	X	224.49647	184.93176	157.53565	6.69067	0.0491234	0.22138362	2.7062779	21	3 23.9	20.9
410562 2008 <i>GM</i> <sub>38</sub>	16.4	X	137.11681	253.26008	61.91738	11.37660	0.1051612	0.19307515	2.9647298	21	—	—
410563 2008 <i>GO</i> <sub>40</sub>	17.0	X	349.76871	133.43422	52.77997	10.12873	0.0673560	0.21746760	2.7386698	21	2 11.7	20.6
410564 2008 <i>GS</i> <sub>40</sub>	17.0	X	18.78460	13.75532	170.60017	8.31573	0.0057534	0.22234472	2.6984736	21	3 20.6	20.5
410565 2008 <i>GD</i> <sub>42</sub>	16.7	X	276.85340	154.24742	100.09110	4.21217	0.0708761	0.21416427	2.7667593	21	1 31.7	20.6
410566 2008 <i>GT</i> <sub>44</sub>	16.5	X	199.47073	292.26655	44.18312	24.65091	0.2648522	0.21157223	2.7893110	21	3 5.4	21.9
410567 2008 <i>GF</i> <sub>48</sub>	17.2	X	1.02546	8.69853	207.43051	4.96319	0.0780523	0.23036604	2.6354639	21	4 1.1	20.3
410568 2008 <i>GF</i> <sub>53</sub>	17.0	X	225.40067	221.73551	58.12958	5.88544	0.1279756	0.20911778	2.8110943	21	1 6.8	21.4
410569 2008 <i>GP</i> <sub>68</sub>	17.0	X	3.09977	31.17486	134.16888	5.80720	0.0951528	0.21478566	2.7614204	21	1 28.2	20.2
410570 2008 <i>GS</i> <sub>68</sub>	16.9	X	296.63060	187.91609	70.64073	10.14567	0.1292187	0.21670932	2.7450546	21	2 25.0	20.9
410571 2008 <i>GQ</i> <sub>77</sub>	17.2	X	123.91052	355.74586	115.84014	6.70964	0.2244348	0.23309018	2.6148898	21	5 29.8	21.3
410572 2008 <i>GT</i> <sub>78</sub>	17.2	X	192.86701	250.56470	95.01022	3.03810	0.0072239	0.21508297	2.7588750	21	2 19.1	20.9
410573 2008 <i>GT</i> <sub>82</sub>	16.4	X	292.45663	165.28663	43.03102	13.16727	0.0743825	0.21021701	2.8012862	21	—	—
410574 2008 <i>GR</i> <sub>89</sub>	16.9	X	258.69519	273.49650	11.27396	2.46608	0.0755265	0.21854572	2.7296555	21	2 16.5	20.7
410575 2008 <i>GE</i> <sub>90</sub>	16.6	X	152.46317	10.10923	42.72415	6.54738	0.0336885	0.22415012	2.6839643	21	3 28.7	20.3
410576 2008 <i>GS</i> <sub>90</sub>	17.1	X	90.40170	75.96139	27.81607	12.92919	0.1515813	0.22564436	2.6721022	21	4 2.0	20.5
410577 2008 <i>GT</i> <sub>99</sub>	16.8	X	327.31916	162.94013	53.76052	8.04911	0.0943951	0.21773359	2.7364389	21	2 15.1	20.4
410578 2008 <i>GF</i> <sub>102</sub>	16.5	X	230.27679	111.87574	202.90243	13.15326	0.0785029	0.21551381	2.7551969	21	2 18.4	20.8
410579 2008 <i>GT</i> <sub>103</sub>	17.3	X	113.38997	299.58791	187.11076	17.21011	0.2089739	0.23530698	2.5984409	21	6 5.7	21.5
410580 2008 <i>GV</i> <sub>103</sub>	17.4	X	355.31391	28.28946	163.96580	8.44916	0.0865589	0.22008896	2.7168805	21	2 19.9	20.7
410581 2008 <i>GG</i> <sub>110</sub>	18.7	X	174.21789	255.21401	182.73296	21.59491	0.1553004	0.38657574	1.8662923	21	5 24.9	21.6
410582 2008 <i>GN</i> <sub>113</sub>	17.8	X	265.82338	276.99032	16.20450	20.17733	0.0778190	0.37101263	1.9181251	21	2 21.2	20.4
410583 2008 <i>GJ</i> <sub>114</sub>	17.1	X	77.42210	112.07627	35.91843	15.29756	0.0631765	0.23031999	2.6358152	21	4 26.2	20.1
410584 2008 <i>GZ</i> <sub>121</sub>	17.1	X	102.69194	337.04113	138.39088	3.79452	0.0815014	0.22786846	2.6546865	21	4 22.1	20.6
410585 2008 <i>GU</i> <sub>123</sub>	16.8	X	263.21214	322.90673	359.89907	9.45942	0.0320237	0.22892636	2.6465017	21	4 11.6	20.5
410586 2008 <i>GN</i> <sub>128</sub>	15.9	X	27.59087	116.18904	90.26707	18.26027	0.1102867	0.22877068	2.6477022	21	5 11.1	19.1
410587 2008 <i>GS</i> <sub>129</sub>	16.9	X	249.30451	98.87878	190.71287	14.18507	0.0999761	0.21433171	2.7653181	21	2 7.0	21.3
410588 2008 <i>GR</i> <sub>132</sub>	16.7	X	192.60553	240.83387	46.96971	9.84537	0.0961017	0.20004332	2.8954763	21	—	—
410589 2008 <i>GZ</i> <sub>136</sub>	16.9	X	206.08476	206.89166	142.80881	6.74631	0.0460506	0.22039279	2.7143830	21	3 12.3	20.8
410590 2008 <i>GB</i> <sub>140</sub>	16.4	X	146.59173	280.88914	33.86649	14.20261	0.1457916	0.19619673	2.9331991	21	—	—
410591 2008 <i>GF</i> <sub>142</sub>	17.5	X	354.32770	139.26307	49.79024	21.70605	0.0600609	0.36714424	1.9315750	21	1 17.7	19.9
410592 2008 <i>GU</i> <sub>145</sub>	15.7	X	283.28845	206.78072	59.31144	26.32375	0.0873011	0.21669613	2.7451660	21	3 7.1	20.2
410593 2008 <i>GL</i> <sub>146</sub>	16.4	X	228.06985	155.24787	93.94212	13.19417	0.0957091	0.20107238	2.8855888	21	—	—
410594 2008 <i>HZ</i> <sub>2</sub>	16.4	X	246.04609	208.98047	48.07743	9.23556	0.1183060	0.21247896	2.7813700	21	—	—
410595 2008 <i>HG</i> <sub>4</sub>	16.0	X	168.99101	81.38003	41.39426	15.70949	0.0967286	0.24149934	2.5538306	21	7 23.1	20.1
410596 2008 <i>HJ</i> <sub>25</sub>	17.2	X	193.54582	141.95838	220.96529	5.56381	0.0488673	0.22043547	2.7140327	21	3 10.9	21.2
410597 2008 <i>HW</i> <sub>25</sub>	16.3	X	107.15852	175.93228	188.63207	11.83714	0.0648255	0.19814038	2.9139855	21	—	—
410598 2008 <i>HN</i> <sub>27</sub>	17.0	X	204.91135	147.95497	112.49172	14.04010	0.1454722	0.19738695	2.9213960	21	—	—
410599 2008 <i>HL</i> <sub>32</sub>	16.8	X	180.51964	222.33899	71.62592	7.48026	0.2031366	0.19749571	2.9203233	21	—	—
410600 2008 <i>HG</i> <sub>35</sub>	18.2	X	95.20726	305.42800	202.08618	20.50001	0.0588195	0.37962472	1.8890048	21	5 9.8	19.9
410601 2008 <i>HC</i> <sub>54</sub>	17.0	X	259.95194	205.71921	86.52797	4.37802	0.0628270	0.21506650	2.7590159	21	3 2.2	20.9
410602 2008 <i>HS</i> <sub>59</sub>	17.0	X	278.29656	65.85582	173.99728	4.44749	0.0555120	0.20862727	2.8154987	21	1 16.9	21.0
410603 2008 <i>HY</i> <sub>66</sub>	16.7	X	176.09755	35.89762	197.56055	1.86768	0.2088480	0.18663823	3.0325105	21	12 2.2	21.7
410604 2008 <i>JU</i> <sub>17</sub>	16.8	X	216.65853	197.55481	176.60378	12.36322	0.0667510	0.22400725	2.6851054	21	4 24.5	20.8
410605 2008 <i>JF</i> <sub>24</sub>	16.0	X	147.71871	341.33742	106.74085	22.63529	0.0486189	0.22407377	2.6845739	21	5 16.2	20.2
410606 2008 <i>JK</i> <sub>31</sub>	17.2	X	106.36912	283.06536	191.18385	12.64678	0.1404530	0.22692666	2.6620265	21	5 4.4	20.9
410607 2008 <i>JZ</i> <sub>37</sub>	17.0	X	313.35288	17.89168	197.69770	13.14547	0.0781078	0.21144548	2.7904256	21	1 23.1	21.1
410608 2008 <i>KH</i> <sub>25</sub>	17.2	X	264.46082	119.99221	164.55156	5.42233	0.0804277	0.21509098	2.7588065	21	2 21.4	21.2
410609 2008 <i>LG</i>	16.2	X	12.53669	53.50864	190.59928	14.17804	0.1563293	0.22779533	2.6552546	21	6 2.9	19.1
410610 2008 <i>LK</i> <sub>13</sub>	17.1	X	353.89027	12.42618	187.78816	12.33715	0.1179560	0.21770479	2.7366803	21	2 23.6	20.5
410611 2008 <i>MM</i>	15.5	X	159.03477	258.31396	56.89898	21.03394	0.3870633	0.18968334	2.9996737	21	1 8.4	21.2
410612 2008 <i>MV</i> <sub>4</sub>	16.3	X	94.06392	125.08961	215.97864	14.29642	0.2896838	0.17912391	3.1167383	21	—	—
410613 2008 <i>NJ</i> <sub>2</sub>	15.8	X	14.45690	53.67403	125.82832	26.13501	0.1029704	0.21966109	2.7204075	21	3 10.7	19.3
410614 2008 <i>OL</i> <sub>11</sub>	16.6	X	113.89835	185.03526	161.33375	5.93228	0.3161595	0.17913883	3.1165653	21	1 3.3	21.3
410615 2008 <i>OT</i> <sub>13</sub>	16.2	X	99.96236	225.16179	137.99848	9.16676	0.1610790	0.18115086	3.0934454	21	—	—
410616 2008 <i>OG</i> <sub>23</sub>	16.5	X	72.71559	46.35803	311.78398	4.80626	0.1959311	0.17353727	3.1832754	21	—	—
410617 2008 <i>PN</i> <sub>3</sub>	15.5	X	141.65735	14.76648	284.30810	24.72434	0.2068776	0.17973117	3.1097140	21	—	—
410618 2008 <i>PP</i> <sub>5</sub>	15.7	X	60.95235	76.66512	306.87121	15.87379	0.1627489	0.17585786	3.1552094	21	—	—
410619 2008 <i>Fabry</i>	15.8	X	53.58031	243.71499	152.05792	17.04863	0.2293136	0.17440884	3.1726614	21	—	—
410620 2008 <i>PG</i> <sub>11</sub>	15.8	X	143.81547	330.38479	314.96074	13.65476	0.2021340	0.17889959	3.1193432	21	—	—
410621 2008 <i>PV</i> <sub>21</sub>	15.8	X	116.36449	201.44945	110.20378	5.90601	0.1764136	0.17439912	3.1727792	21	—	—
410622 2008 <i>QF</i>	21.5	X	106.06268	136.44018	192.57201	3.78425	0.3772119	0.32915502	2.0774746	21	—	—
410623 2008 <i>QX</i> <sub>23</sub>	16.3	X	168.96645	98.17841	161.47716	16.32623	0.2080156	0.17702453	3.1413313	21	12 25.2	21.9
410624 2008 <i>QF</i> <sub>34</sub>	15.9	X	142.76068	136.85322	178.20185	15.99649	0.2149670	0.17805519	3.1291974	21	—	—
410625 2008 <i>QK</i> <sub>36</sub>	16.5	X	53.90006	46.52850	377.78573	6.97102	0.1576173	0.17256143	3.1952650	21	—	—
410626 2008 <i>QV</i> <sub>47</sub>	16.3	X	101.91551	328.11512	4.74931	9.24801	0.2007813	0.17190225	3.2034283	21	—	—
410627 2008 <i>RG</i> <sub>1</sub>	20.7	X	235.60471	257.38780	347.82991	13.09284	0.4427569	0.65293565	3.1589877	21	—	—
410628 2008 <i>RS</i> <sub>3</sub>	15.7	X	25.38105	221.91434	183.38525	10.56385	0.0768148	0.16842653	3.2473496	21	—	—
410629 2008 <i>RQ</i> <sub>12</sub>	16.6	X	5.71224	135.64432	328.18068	4.61717	0.1182282	0.17412102	3.1761566	21	—	—
410630 2008 <i>RD</i> <sub>19</sub>	15.7	X	32.20601	255.90339	188.32952	15.17727	0.2796034	0.17296219	3.1903274	21	—	—
410631 2008 <i>RA</i> <sub>20</sub>	16.5	X	130.02287	163.79890	191.41281	10.19805	0.1740676	0.18121714	3.0926910	21	1 11.3	21.3
410632 2008 <i>RA</i> <sub>30</sub>	16.6	X	82.90688	202.19235	173.73501	0.72900	0.1647525	0.17462955	3			

# ELEMENTS AND OPPOSITION DATES IN 2021

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2021 JULY 5.0 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>
410641 2008 RX <sub>91</sub>	16.2	X	1.48904	78.30325	0.40521	16.14298	0.0788450	0.16904173	3.2394660	21	—	—
410642 2008 RR <sub>106</sub>	16.3	X	95.70917	265.52094	74.81786	0.48511	0.2187597	0.17317866	3.1876683	21	—	—
410643 2008 RN <sub>111</sub>	15.9	X	33.03890	44.36441	35.25184	9.74268	0.0700062	0.17491015	3.1665963	21	—	—
410644 2008 RK <sub>119</sub>	16.5	X	114.25075	177.43944	194.52623	9.48476	0.0867138	0.17890053	3.1193322	21	1 2.9	21.0
410645 2008 RW <sub>131</sub>	15.7	X	38.58148	46.86717	3.07620	9.31034	0.0427349	0.17397577	3.1779242	21	—	—
410646 2008 RG <sub>137</sub>	15.8	X	126.50827	57.30824	259.80532	3.80366	0.1407312	0.17584011	3.1554217	21	—	—
410647 2008 RE <sub>138</sub>	15.5	X	82.40562	20.78601	342.55312	11.03769	0.0745126	0.17579528	3.1559582	21	—	—
410648 2008 RA <sub>145</sub>	16.2	X	287.10543	317.78914	188.02337	9.92627	0.0698447	0.17163436	3.2067608	21	12 28.8	20.7
410649 2008 SO	20.8	X	192.19064	72.05705	191.04706	7.13857	0.2336326	0.64183312	1.3310304	21	—	—
410650 2008 SQ <sub>1</sub>	18.5	X	172.40568	150.98856	269.85988	6.71600	0.5838561	0.19420479	2.9532219	21	5 15.3	24.9
410651 2008 SX <sub>19</sub>	16.4	X	52.81314	227.99191	190.01077	5.30805	0.1233770	0.17908814	3.1171533	21	—	—
410652 2008 SG <sub>27</sub>	16.0	X	19.71141	248.88685	187.22328	8.34695	0.1379713	0.17083418	3.2167665	21	—	—
410653 2008 ST <sub>31</sub>	16.2	X	105.14136	218.29970	163.32532	17.81254	0.2680174	0.18205845	3.0831559	21	1 27.4	20.7
410654 2008 SW <sub>44</sub>	15.9	X	22.40313	292.31606	198.17435	14.76001	0.1305251	0.17988664	3.1079220	21	1 17.8	19.9
410655 2008 SC <sub>57</sub>	15.9	X	33.63069	238.86306	201.87319	17.86182	0.1221724	0.17146159	3.2089145	21	—	—
410656 2008 SW <sub>66</sub>	15.4	X	331.44745	247.83777	180.34663	16.32077	0.2335479	0.15667295	3.4077943	21	11 21.5	19.2
410657 2008 SF <sub>83</sub>	16.1	X	85.11119	8.30013	34.76071	5.62364	0.1624020	0.17878442	3.1206826	21	1 15.9	20.2
410658 2008 SH <sub>137</sub>	16.0	X	28.07882	25.33274	38.87988	10.38341	0.0598254	0.17012303	3.2257248	21	—	—
410659 2008 SJ <sub>150</sub>	16.6	X	103.82393	275.08970	49.28717	0.90013	0.2518899	0.17261807	3.1945660	21	—	—
410660 2008 ST <sub>150</sub>	16.3	X	67.40973	81.36882	306.48314	21.51070	0.4207422	0.17047966	3.2212246	21	1 12.5	19.6
410661 2008 SE <sub>151</sub>	15.7	X	120.99622	108.01339	190.80927	30.21449	0.2978755	0.17262062	3.1945346	21	—	—
410662 2008 SD <sub>152</sub>	16.3	X	103.43424	333.44704	27.98827	11.37195	0.0885128	0.17745072	3.1362996	21	—	—
410663 2008 SC <sub>157</sub>	16.2	X	151.99394	122.20171	188.37930	13.84259	0.2490333	0.18031860	3.1029566	21	—	—
410664 2008 SJ <sub>158</sub>	16.0	X	118.25120	179.67929	195.21336	12.49135	0.1633922	0.18145659	3.0899697	21	1 19.4	20.7
410665 2008 SG <sub>161</sub>	15.3	X	26.08010	50.88228	12.20131	15.66557	0.0804840	0.17096071	3.2151791	21	—	—
410666 2008 SY <sub>173</sub>	17.5	X	298.84478	46.51508	205.24949	21.06377	0.0457055	0.35066127	1.9916400	21	1 25.5	20.4
410667 2008 SG <sub>193</sub>	15.6	X	49.19717	33.80503	50.14191	10.74534	0.0848874	0.17633655	3.1494966	21	1 5.5	19.8
410668 2008 SC <sub>202</sub>	16.3	X	216.99277	334.69271	216.47375	9.56512	0.0117632	0.15841667	3.3827414	21	12 3.6	21.1
410669 2008 ST <sub>219</sub>	16.1	X	69.36431	194.43767	192.74822	17.22304	0.1741175	0.17232390	3.1982007	21	—	—
410670 2008 SF <sub>267</sub>	15.8	X	135.58282	79.09399	116.13657	22.63146	0.3308379	0.17366619	3.1816997	21	—	—
410671 2008 SU <sub>301</sub>	16.1	X	107.20821	187.38124	180.71908	11.66778	0.0732012	0.17645502	3.1480868	21	—	—
410672 2008 TC <sub>97</sub>	15.8	X	169.31036	18.14553	245.54995	6.68160	0.0791231	0.16951933	3.2333825	21	12 31.9	20.9
410673 2008 UT <sub>23</sub>	16.1	X	12.41667	52.07028	44.31472	4.93567	0.1477891	0.17169377	3.2060209	21	—	—
410674 2008 UY <sub>55</sub>	16.1	X	309.94111	80.77727	12.89864	16.49589	0.0692492	0.15934323	3.3696152	21	11 19.9	20.9
410675 2008 UZ <sub>66</sub>	15.4	X	5.79004	103.85201	251.32755	8.59773	0.1031451	0.14691841	3.5570112	21	10 10.9	20.1
410676 2008 UA <sub>75</sub>	18.4	X	5.20541	70.52883	1.43010	2.71976	0.0814595	0.31546831	2.1371363	21	—	—
410677 2008 UM <sub>169</sub>	15.5	X	356.72071	303.80122	216.23159	21.25156	0.2501271	0.17309421	3.1887051	21	—	—
410678 2008 UC <sub>205</sub>	15.0	X	82.25162	288.72371	117.23676	23.29608	0.2118663	0.17690332	3.1427662	21	1 21.8	18.9
410679 2008 US <sub>288</sub>	18.9	X	34.48650	297.50701	82.22005	2.52175	0.1666012	0.31565708	2.1362842	21	—	—
410680 2008 UW <sub>360</sub>	15.1	X	81.17866	313.56602	78.67876	18.46061	0.0841508	0.17133847	3.2104516	21	—	—
410681 2008 UX <sub>366</sub>	15.4	X	58.70502	16.31299	52.19427	24.10058	0.1218165	0.17464159	3.1698419	21	1 1.7	19.7
410682 2008 VJ <sub>21</sub>	18.3	X	173.40158	135.80550	91.86764	3.73826	0.0681741	0.30967156	2.1637238	21	12 19.8	21.0
410683 2008 VA <sub>56</sub>	15.8	X	226.30213	199.10763	320.86342	8.81611	0.0300775	0.15046732	3.5008587	21	10 31.5	21.0
410684 2008 WR <sub>45</sub>	18.1	X	223.72618	117.33959	57.52570	4.85116	0.0894407	0.30431893	2.1890217	21	12 7.7	20.6
410685 2008 WA <sub>59</sub>	18.4	X	52.54093	112.86051	185.39742	5.71552	0.2468262	0.30531749	2.1842462	21	11 23.6	21.3
410686 2008 WU <sub>81</sub>	18.9	X	18.51798	237.14176	133.53225	3.28495	0.1938741	0.30783014	2.1723441	21	—	—
410687 2008 WR <sub>128</sub>	18.0	X	134.72382	178.33699	71.61144	4.82269	0.1331213	0.30299425	2.1953973	21	12 2.5	20.9
410688 2008 WF <sub>141</sub>	17.2	X	258.78759	207.30551	274.41170	8.70829	0.0569045	0.30046304	2.2077099	21	11 16.3	19.7
410689 2008 XK <sub>18</sub>	17.5	X	219.85258	297.97392	246.76452	6.36805	0.0424596	0.30411631	2.1899939	21	12 23.7	19.9
410690 2008 XT <sub>32</sub>	17.9	X	192.82739	155.37240	47.76961	6.52576	0.0792547	0.30451506	2.1880817	21	12 7.6	20.6
410691 2008 XP <sub>41</sub>	17.8	X	218.32525	77.56968	60.43093	5.53567	0.0472327	0.29192518	2.2505483	21	10 16.6	20.5
410692 2008 XM <sub>48</sub>	17.2	X	274.92169	43.69719	107.92311	12.10694	0.1536300	0.22476317	2.6790817	21	12 22.6	20.2
410693 2008 XO <sub>49</sub>	17.3	X	253.08221	31.17729	124.19254	10.32171	0.1719407	0.21907680	2.7252423	21	11 24.6	21.1
410694 2008 YE <sub>17</sub>	17.5	X	173.78425	78.85934	110.22668	4.88211	0.0522867	0.28955596	2.2628080	21	10 29.1	20.4
410695 2008 YV <sub>18</sub>	17.3	X	301.48682	318.57491	104.93968	8.51393	0.0823005	0.29239813	2.2481208	21	11 1.1	19.7
410696 2008 YA <sub>80</sub>	17.6	X	289.94128	175.61423	273.72797	3.37647	0.0652786	0.29364311	2.2417620	21	11 16.7	19.9
410697 2008 YZ <sub>84</sub>	17.2	X	116.95983	309.22956	278.12876	6.32617	0.0590087	0.28594503	2.2818180	21	10 5.2	20.3
410698 2008 YO <sub>103</sub>	18.0	X	158.98418	71.65099	122.82308	3.40753	0.0873198	0.28681852	2.2771829	21	10 16.6	21.1
410699 2008 YB <sub>128</sub>	18.4	X	221.12799	123.41309	20.65436	0.57008	0.1269513	0.28908899	2.2652441	21	10 15.3	21.2
410700 2008 YJ <sub>157</sub>	17.1	X	205.04163	167.06090	347.51652	6.14940	0.1020232	0.28049985	2.3112537	21	10 10.3	20.3
410701 2008 YQ <sub>159</sub>	17.7	X	301.36849	328.10549	113.78272	4.59880	0.0773656	0.29264433	2.2468598	21	11 25.7	19.8
410702 2008 YH <sub>162</sub>	18.2	X	253.68132	217.79923	279.88115	6.39055	0.0792001	0.29781374	2.2207835	21	11 28.4	20.7
410703 2009 AN <sub>12</sub>	17.5	X	35.20936	211.72129	110.20368	9.73148	0.1515410	0.29195465	2.2503969	21	11 19.3	20.2
410704 2009 AJ <sub>28</sub>	17.8	X	321.62403	307.57899	123.81714	6.87121	0.0367615	0.29821582	2.2187869	21	12 14.9	20.2
410705 2009 AE <sub>33</sub>	17.6	X	356.54068	117.95920	145.48376	5.51034	0.0943188	0.26493811	2.4008946	21	5 30.1	20.1
410706 2009 AD <sub>34</sub>	18.0	X	218.11047	223.23430	292.61434	1.45787	0.1715723	0.28857428	2.2679369	21	10 21.3	21.2
410707 2009 AM <sub>40</sub>	17.8	X	127.31150	86.85660	127.70462	8.14903	0.1633481	0.28181480	2.3040586	21	10 12.9	21.5
410708 2009 AA <sub>44</sub>	18.1	X	241.48081	219.92499	275.85005	1.70338	0.0930174	0.29065333	2.2571089	21	10 30.9	20.8
410709 2009 BQ <sub>10</sub>	16.3	X	100.10416	231.46318	315.81207	22.10313	0.2703806	0.26758107	2.3850590	21	8 14.6	19.9
410710 2009 BQ <sub>24</sub>	18.0	X	222.75930	287.59969	231.34969	1.58462	0.2265299	0.29034696	2.2586964	21	10 24.6	21.0
410711 2009 BR <sub>26</sub>	18.0	X	8.48866	261.08780	89.84319	4.34716	0.0316029	0.28985500	2.2612514	21	10 30.9	20.6
410712 2009 BO <sub>30</sub>	17.3	X	63.73796	163.90686	117.97093	7.04582	0.1009348	0.28422317	2.2910245	21	10 24.8	20.2
410713 2009 BC <sub>39</sub>	18.2	X	94.08607	227.88672	354.39051	2.24258	0.1111522	0.27451689	2.3447147	21	9 8.3	21.2
410714 2009 BV <sub>41</sub>	17.7	X	39.32123	171.40116	31.82362							

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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>
410721 2009 BR <sub>79</sub>	17.2	X	165.45061	224.02524	342.16966	5.53322	0.1002848	0.28943882	2.2634185	21	11 4.2	20.4
410722 2009 BO <sub>80</sub>	17.5	X	187.69620	155.49882	11.90246	5.58046	0.1370140	0.28509991	2.2863252	21	10 7.5	20.8
410723 2009 BU <sub>94</sub>	18.0	X	259.45728	327.48804	145.45100	3.16863	0.1432640	0.29073005	2.2567118	21	10 22.7	20.6
410724 2009 BW <sub>100</sub>	18.0	X	101.65345	60.72968	189.05315	0.86122	0.0944499	0.28474969	2.2881994	21	10 23.9	20.8
410725 2009 BV <sub>106</sub>	17.8	X	318.40695	138.12943	292.91621	5.82690	0.1238159	0.29683242	2.2256754	21	12 9.8	19.7
410726 2009 BO <sub>108</sub>	17.5	X	302.55697	305.06652	127.04500	5.87163	0.0398868	0.28772795	2.2723821	21	11 15.5	20.0
410727 2009 BT <sub>109</sub>	18.3	X	222.14791	284.19770	211.02082	2.29514	0.0925401	0.28619203	2.2805050	21	10 8.2	21.2
410728 2009 BO <sub>184</sub>	17.9	X	170.52897	298.91031	232.63712	3.76148	0.1798567	0.28225779	2.3016472	21	9 22.6	21.7
410729 2009 BQ <sub>184</sub>	17.0	X	94.76805	8.05550	258.71798	8.46772	0.0386154	0.28995247	2.2607447	21	10 31.1	20.0
410730 2009 BP <sub>186</sub>	17.4	X	49.86403	116.31578	116.42478	9.31717	0.1842813	0.26353470	2.4094108	21	8 2.9	20.0
410731 2009 CO <sub>24</sub>	17.6	X	0.48144	217.89785	146.82894	6.90330	0.1324160	0.28913527	2.2650024	21	11 20.4	19.8
410732 2009 CF <sub>25</sub>	18.3	X	15.07548	246.35216	1.61418	4.27270	0.1658535	0.25997513	2.4313539	21	6 11.2	20.4
410733 2009 CY <sub>26</sub>	17.8	X	71.12721	172.91314	66.69015	2.62445	0.1033529	0.27150087	2.3620472	21	9 2.3	20.7
410734 2009 CQ <sub>27</sub>	18.0	X	46.76158	201.83626	44.63916	3.46411	0.1305339	0.26682155	2.3895830	21	8 10.3	20.6
410735 2009 CR <sub>29</sub>	18.1	X	338.02659	336.50178	52.37870	2.27828	0.1038621	0.28872428	2.2671513	21	11 9.9	20.2
410736 2009 CX <sub>31</sub>	18.1	X	114.10511	90.34725	114.57322	1.88344	0.1200158	0.27276282	2.3547561	21	9 9.8	21.4
410737 2009 CZ <sub>32</sub>	17.7	X	22.01243	290.82642	352.55536	4.69014	0.1320451	0.26833128	2.3806114	21	8 22.3	20.0
410738 2009 CM <sub>40</sub>	17.5	X	150.13583	228.72199	340.06389	7.23143	0.1336971	0.28530214	2.2852446	21	10 20.6	21.1
410739 2009 CN <sub>49</sub>	17.8	X	131.29812	177.33894	24.53792	6.02182	0.0731414	0.27607432	2.3358881	21	9 23.1	20.9
410740 2009 CM <sub>52</sub>	18.6	X	178.04998	186.21481	336.13363	2.53793	0.0942437	0.28139349	2.3063578	21	9 21.9	21.9
410741 2009 CQ <sub>53</sub>	17.7	X	205.79251	123.97587	45.68945	4.38483	0.1541184	0.28823316	2.2697259	21	10 29.0	20.9
410742 2009 CJ <sub>55</sub>	18.1	X	272.90217	132.55000	338.65493	5.71511	0.1139733	0.29293999	2.2453477	21	11 12.4	20.4
410743 2009 CX <sub>55</sub>	16.6	X	217.92308	297.05160	161.70174	10.74446	0.1309953	0.19823329	2.9130749	21	8 4.9	21.1
410744 2009 CR <sub>63</sub>	17.4	X	117.04085	122.51291	71.92295	3.18250	0.1407266	0.27047013	2.3680444	21	9 1.6	20.9
410745 2009 DA <sub>9</sub>	17.5	X	0.19064	8.26406	241.54268	2.97344	0.1599460	0.25393859	2.4697344	21	5 11.4	19.6
410746 2009 DM <sub>17</sub>	17.4	X	85.57471	288.96478	327.69174	3.65453	0.1111578	0.27658787	2.3329958	21	10 13.1	20.4
410747 2009 DU <sub>20</sub>	18.5	X	343.00415	165.97776	256.60999	1.48808	0.1305115	0.30111683	2.2045132	21	—	—
410748 2009 DP <sub>22</sub>	17.7	X	13.92622	292.73331	0.56540	6.56759	0.1062610	0.27527216	2.3404239	21	8 21.1	20.0
410749 2009 DX <sub>23</sub>	18.4	X	70.18071	214.89276	8.03495	13.75228	0.2210860	0.26283463	2.4136872	21	8 30.3	20.1
410750 2009 DO <sub>36</sub>	16.8	X	255.04500	301.15152	176.94320	2.24703	0.1631942	0.29011684	2.2598906	21	10 19.1	20.9
410751 2009 DK <sub>47</sub>	17.6	X	13.25493	211.26063	49.40400	5.37917	0.1666593	0.26092702	2.4254371	21	6 29.2	19.6
410752 2009 DQ <sub>47</sub>	17.9	X	162.43438	72.59425	87.35305	1.47684	0.1532848	0.27509702	2.3414171	21	9 2.1	21.6
410753 2009 DH <sub>52</sub>	18.1	X	305.40097	333.22712	109.72339	7.54486	0.1111665	0.29612084	2.2292395	21	12 4.1	20.0
410754 2009 DM <sub>55</sub>	18.0	X	166.40364	142.97729	355.63330	7.55458	0.0482648	0.27119620	2.3638159	21	8 9.5	21.2
410755 2009 DZ <sub>57</sub>	17.6	X	67.99403	161.37320	58.66044	1.84062	0.1113383	0.26436626	2.4043556	21	7 31.4	20.4
410756 2009 DW <sub>61</sub>	17.3	X	288.12535	252.36572	140.33998	6.44691	0.1092027	0.27492860	2.3423732	21	8 12.5	19.9
410757 2009 DV <sub>71</sub>	17.5	X	299.90084	251.04058	1.10698	11.77367	0.2329640	0.23701488	2.5859432	21	2 4.5	21.5
410758 2009 DM <sub>72</sub>	17.9	X	13.85778	226.29753	145.96280	7.62166	0.1693386	0.29373479	2.2412955	21	12 28.9	20.4
410759 2009 DC <sub>77</sub>	17.6	X	303.72548	75.32327	344.76428	6.62549	0.1044989	0.28886390	2.2664207	21	10 20.6	19.9
410760 2009 DP <sub>80</sub>	17.1	X	43.36372	297.22648	337.47682	5.56365	0.1722145	0.27560983	2.3385119	21	9 20.9	19.7
410761 2009 DV <sub>96</sub>	17.1	X	293.17258	67.95575	176.19937	17.51804	0.2553560	0.22895971	2.6462448	21	1 11.4	21.6
410762 2009 DC <sub>105</sub>	17.9	X	30.58793	157.79420	105.20094	1.51851	0.0164619	0.26433481	2.4045463	21	7 22.2	20.8
410763 2009 DK <sub>118</sub>	17.8	X	140.45558	18.30188	177.12999	3.56407	0.1126782	0.27609082	2.3357951	21	9 25.1	21.0
410764 2009 DC <sub>120</sub>	17.9	X	130.74993	27.50117	169.98736	2.76006	0.1357059	0.27345434	2.3507846	21	9 18.4	21.3
410765 2009 DH <sub>122</sub>	17.4	X	34.93802	171.73800	61.32002	2.34281	0.1460449	0.25754764	2.4466077	21	6 29.2	19.7
410766 2009 DR <sub>130</sub>	17.8	X	187.45718	340.08231	188.96500	4.77111	0.1002402	0.27924129	2.4181932	21	10 11.8	21.1
410767 2009 DL <sub>137</sub>	17.5	X	20.05184	90.71235	173.06281	5.31652	0.0594797	0.26118815	2.4238202	21	7 9.4	20.2
410768 2009 DL <sub>139</sub>	17.5	X	305.45480	65.80999	188.47483	4.81921	0.2154762	0.23587382	2.5942763	21	2 8.9	21.2
410769 2009 EG	16.4	X	161.84174	156.44679	42.95255	25.33090	0.1403569	0.28379721	2.2933163	21	10 26.9	19.9
410770 2009 ER <sub>1</sub>	17.3	X	107.32542	112.42049	113.58926	5.71452	0.1306455	0.27207779	2.3587070	21	10 3.5	20.7
410771 2009 EL <sub>2</sub>	17.6	X	58.31713	88.64722	137.62550	4.79552	0.0602686	0.26606724	2.3940972	21	7 16.2	20.3
410772 2009 ER <sub>5</sub>	16.9	X	162.85464	108.24107	94.62591	0.54686	0.1437686	0.20120496	2.8843211	21	10 19.8	21.6
410773 2009 EH <sub>10</sub>	18.2	X	114.51216	284.79761	272.62415	0.49809	0.1250194	0.27047933	2.3679907	21	8 30.4	21.5
410774 2009 EK <sub>17</sub>	17.8	X	29.94801	123.48486	123.51078	2.24570	0.1501734	0.26149730	2.4219095	21	7 11.7	20.0
410775 2009 EG <sub>19</sub>	17.7	X	188.48697	37.69186	155.13815	9.36074	0.0279960	0.28998773	2.2605614	21	11 24.5	20.7
410776 2009 EP <sub>21</sub>	17.7	X	115.53903	6.58456	185.79386	2.90963	0.0793620	0.26849184	2.3796623	21	8 19.3	20.9
410777 2009 FD	22.1	X	234.56566	281.56207	9.27319	3.12653	0.4929804	0.78485458	1.1639739	21	—	—
410778 2009 FG <sub>19</sub>	18.0	X	139.40948	120.39676	187.53702	54.49995	0.7198517	0.19846132	2.9108431	21	1 6.8	24.8
410779 2009 FD <sub>23</sub>	16.4	X	193.02432	12.84761	151.39303	10.35127	0.0427070	0.19970233	2.8987713	21	10 9.9	20.7
410780 2009 FT <sub>26</sub>	16.9	X	149.11074	164.65720	3.54698	23.46533	0.2173612	0.27380138	2.3487978	21	9 8.0	21.0
410781 2009 FY <sub>30</sub>	17.3	X	70.69041	74.41402	151.97247	2.87646	0.1559089	0.26295454	2.4129534	21	8 20.1	20.3
410782 2009 FS <sub>31</sub>	17.6	X	121.78539	52.25035	155.79486	2.97039	0.1495282	0.27134595	2.3629462	21	9 24.3	21.0
410783 2009 FL <sub>44</sub>	17.2	X	179.73087	350.17715	181.17363	6.49059	0.0494244	0.27891720	2.3199886	21	10 9.6	20.2
410784 2009 FW <sub>47</sub>	17.2	X	2.35231	199.51194	33.05208	16.93749	0.0923140	0.24697280	2.5159575	21	4 24.1	20.0
410785 2009 FV <sub>54</sub>	17.5	X	6.37372	317.36731	119.95386	4.21045	0.1294812	0.30502429	2.1856457	21	—	—
410786 2009 FM <sub>67</sub>	17.7	X	63.52625	356.46761	211.22845	3.70812	0.1846975	0.25895915	2.4377091	21	7 17.3	20.5
410787 2009 FP <sub>68</sub>	16.9	X	250.76037	152.27806	103.95701	11.48682	0.3518231	0.22103408	2.7091302	21	—	—
410788 2009 FT <sub>73</sub>	16.4	X	349.08207	265.02085	334.47207	11.10753	0.1889000	0.24428149	2.5344030	21	3 26.1	19.2
410789 2009 HT <sub>22</sub>	16.8	X	221.67709	110.02091	185.74203	14.51965	0.1596376	0.22550392	2.6732115	21	1 16.6	21.4
410790 2009 HE <sub>23</sub>	17.3	X	293.49980	278.64288	155.78201	7.26648	0.0709342	0.27773081	2.3265908	21	10 31.5	19.9
410791 2009 HK <sub>24</sub>	17.5	X	250.87946	179.55539	119.50368	6.22610	0.2052370	0.23097785	2.6308080	21	2 15.1	21.7
410792 2009 HM <sub>30</sub>	17.9	X	228.47585	5.90424	112.12175	3.17546	0.1616180	0.27892059	2.3199698	21	9 14.7	21.0
410793 2009 HS <sub>31</sub>	16.9	X	231.64615	98.36806	171.47922	8.74420	0.1311147	0.22343239	2.6897090	21	—	—

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Planet	H	G	M	$\omega$	$\Omega$	$i$	$e$	$\mu$	$a$	TE	Oppos.	V
410801 2009 HT <sub>94</sub>	17.7	X	353.20302	187.76790	59.05196	1.72841	0.0977275	0.24331461	2.5411127	21	4 29.5	20.3
410802 2009 HV <sub>106</sub>	17.5	X	45.29613	274.93230	299.41836	1.53734	0.1609836	0.25238337	2.4798699	21	6 22.3	20.0
410803 2009 JP <sub>3</sub>	17.0	X	84.50134	118.53120	134.21444	7.61792	0.0736610	0.26686718	2.3893106	21	10 5.4	20.2
410804 2009 JZ <sub>4</sub>	16.9	X	154.74776	23.44799	189.18648	23.40993	0.0864928	0.27396250	2.3478768	21	11 3.7	20.5
410805 2009 KW <sub>1</sub>	17.1	X	111.22840	104.61737	120.71572	1.40542	0.2740669	0.18810320	3.0167449	21	10 7.9	22.2
410806 2009 KX <sub>1</sub>	17.2	X	340.24557	134.68817	82.16317	4.75771	0.2119181	0.23665621	2.5885553	21	2 10.3	20.1
410807 2009 KU <sub>4</sub>	16.6	X	256.32151	197.48957	64.67811	12.42199	0.1852509	0.22540378	2.6740032	21	1 8.9	21.1
410808 2009 KA <sub>7</sub>	16.5	X	336.96935	83.43282	126.41860	18.38937	0.2302715	0.23526137	2.5987768	21	1 22.4	19.6
410809 2009 KC <sub>14</sub>	16.5	X	190.04329	121.48205	149.28352	13.38926	0.2300605	0.21009874	2.8023374	21	—	—
410810 2009 KF <sub>16</sub>	17.3	X	332.86742	157.01278	104.57074	6.80906	0.1434585	0.24189215	2.5510651	21	4 13.7	20.3
410811 2009 KQ <sub>22</sub>	17.3	X	334.03444	51.59619	192.45761	4.23951	0.2008369	0.23958332	2.5674283	21	3 8.2	20.0
410812 2009 KW <sub>22</sub>	16.8	X	303.80825	8.27442	206.19057	7.74021	0.2429774	0.22729776	2.6591282	21	—	—
410813 2009 KN <sub>23</sub>	17.0	X	113.62183	27.92440	114.88717	7.39786	0.0923591	0.25131076	2.4869210	21	6 11.8	20.4
410814 2009 KY <sub>23</sub>	16.8	X	200.31315	21.86087	111.97168	8.14569	0.0579356	0.26687788	2.3892467	21	9 14.9	20.1
410815 2009 KS <sub>28</sub>	16.9	X	269.07815	121.27797	203.03512	8.93346	0.2163605	0.23607318	2.5928155	21	3 30.7	20.9
410816 2009 LT <sub>5</sub>	16.2	X	271.99963	156.25835	124.48063	16.37949	0.1388593	0.22333646	2.6904792	21	2 20.2	20.3
410817 2009 MN	16.0	X	300.91286	260.69743	130.53973	24.22069	0.3065502	0.21996401	2.7179093	21	—	—
410818 2009 MZ <sub>9</sub>	16.3	X	85.42322	106.51108	303.61087	11.93879	0.1164782	0.20341495	2.8633919	21	1 12.4	19.9
410819 2009 NF <sub>2</sub>	16.8	X	202.57757	85.09530	221.30537	8.17159	0.2111762	0.20911598	2.8111104	21	1 16.3	21.7
410820 2009 OH <sub>5</sub>	16.4	X	191.48827	116.23442	224.13358	13.08768	0.2580476	0.21039281	2.7997255	21	2 13.8	21.7
410821 2009 OL <sub>6</sub>	16.1	X	128.85169	71.69929	290.13077	9.73601	0.1642771	0.20246063	2.8723828	21	1 14.2	20.3
410822 2009 OH <sub>11</sub>	16.8	X	254.21786	11.63280	288.07405	5.26646	0.1174237	0.22078514	2.7111663	21	2 23.3	21.0
410823 2009 OC <sub>13</sub>	16.5	X	180.55498	182.29781	170.95486	13.80171	0.2025228	0.21128054	2.7918777	21	2 22.1	21.3
410824 2009 OJ <sub>20</sub>	15.8	X	222.99910	222.49949	151.59755	22.48396	0.0749230	0.22672125	2.6636341	21	5 5.1	20.2
410825 2009 OL <sub>20</sub>	16.1	X	199.35386	5.51131	311.51935	13.02427	0.2561917	0.20953469	2.8073643	21	1 28.9	21.0
410826 2009 PE <sub>4</sub>	16.9	X	242.99586	163.66056	171.05462	8.04510	0.1739872	0.22273007	2.6953602	21	3 25.5	21.3
410827 2009 PK <sub>7</sub>	16.1	X	52.56389	347.42045	343.80441	8.97651	0.0872985	0.17518918	2.1632331	21	11 17.6	20.7
410828 2009 PK <sub>11</sub>	17.1	X	180.87818	191.18740	165.88583	4.58211	0.2135937	0.21250596	2.7811344	21	2 28.1	21.7
410829 2009 PM <sub>14</sub>	16.6	X	221.88906	8.71607	306.47419	14.50156	0.1353806	0.21490275	2.7604173	21	2 10.4	21.1
410830 2009 PT <sub>18</sub>	16.2	X	130.19759	304.98069	90.66212	17.26112	0.3666220	0.20346218	2.8629489	21	3 26.1	21.4
410831 2009 QF <sub>4</sub>	16.5	X	179.03870	42.92959	317.95071	8.41989	0.2124065	0.21003185	2.8029323	21	3 1.6	21.3
410832 2009 QO <sub>8</sub>	19.1	X	264.06409	256.97203	341.74163	32.99950	0.3417495	0.38162074	1.8824122	21	—	—
410833 2009 QL <sub>9</sub>	16.9	X	158.25029	251.50473	140.24511	5.52886	0.1472811	0.21339903	2.7733697	21	3 19.5	21.2
410834 2009 QB <sub>23</sub>	18.3	X	323.50681	124.14547	157.09767	23.81625	0.0141043	0.39605577	1.8363910	21	5 3.9	20.5
410835 Neszmerak	17.0	X	227.47750	331.52017	346.57373	3.62853	0.0937855	0.21617653	2.7495631	21	2 22.9	21.2
410836 2009 QN <sub>28</sub>	17.1	X	134.05295	357.53032	333.52443	1.87318	0.1520517	0.19719465	2.9232949	21	—	—
410837 2009 QS <sub>31</sub>	16.9	X	180.79322	359.23978	306.39542	6.70329	0.2349243	0.20460869	2.8522440	21	1 2.7	21.8
410838 2009 QW <sub>31</sub>	16.1	X	218.71757	331.10542	359.14017	13.33842	0.145100	0.21593522	2.7516112	21	3 2.2	20.5
410839 2009 QM <sub>53</sub>	16.8	X	36.20397	217.19448	172.62177	10.47980	0.0230939	0.18441623	3.0568207	21	—	—
410840 2009 QA <sub>56</sub>	17.0	X	212.74057	229.66987	96.18103	11.46179	0.2831535	0.21157968	2.7892455	21	2 19.9	21.9
410841 2009 QK <sub>56</sub>	16.7	X	234.67683	54.65170	227.18993	2.47112	0.1484654	0.20871546	2.8147055	21	1 16.1	21.4
410842 2009 QK <sub>64</sub>	15.8	X	295.56819	326.43372	166.60281	22.86392	0.0232284	0.18608844	3.0384805	21	—	—
410843 2009 RX <sub>7</sub>	16.5	X	191.40684	107.94158	209.05070	5.14736	0.0553544	0.20082955	2.8879144	21	1 15.7	20.9
410844 2009 RL <sub>8</sub>	15.8	X	323.66112	237.71758	192.59004	10.52557	0.0870198	0.17135693	2.81202210	21	11 18.5	20.0
410845 2009 RH <sub>10</sub>	16.1	X	27.79651	75.22003	2.23105	8.70058	0.1031802	0.18741122	3.0241662	21	—	—
410846 2009 RP <sub>10</sub>	16.9	X	176.74281	339.33824	0.04252	5.87681	0.0747380	0.20243414	2.8726334	21	1 30.6	21.2
410847 2009 RP <sub>17</sub>	16.5	X	172.21410	269.01528	17.80210	14.00121	0.0599343	0.18858393	3.0116160	21	—	—
410848 2009 RJ <sub>18</sub>	16.6	X	130.68292	314.44823	62.92699	2.97407	0.0773892	0.19814058	2.9139836	21	1 25.5	20.8
410849 2009 RA <sub>30</sub>	16.1	X	38.61890	72.92086	351.38703	10.11448	0.1319269	0.18606831	3.0386997	21	—	—
410850 2009 RZ <sub>33</sub>	16.2	X	104.35455	342.13316	21.17219	9.74278	0.1325192	0.18825033	3.0151729	21	—	—
410851 2009 RE <sub>34</sub>	16.3	X	100.29912	106.75172	203.38201	10.18255	0.0779789	0.17545979	3.1599799	21	12 17.9	21.2
410852 2009 RL <sub>34</sub>	17.0	X	121.70300	171.94480	194.17381	2.50302	0.1039957	0.19254045	2.9702162	21	1 5.0	21.2
410853 2009 RE <sub>37</sub>	16.1	X	130.24883	124.22655	253.62682	8.55889	0.1271491	0.20251240	2.8718933	21	1 27.8	20.3
410854 2009 RJ <sub>38</sub>	16.6	X	194.86846	131.46073	163.75886	5.17984	0.0754114	0.19756524	2.9196381	21	—	—
410855 2009 RZ <sub>39</sub>	16.2	X	165.16929	335.42761	331.40126	8.20844	0.1157476	0.19316480	2.9638125	21	—	—
410856 2009 RP <sub>42</sub>	16.3	X	179.22910	301.51612	339.38076	9.13265	0.0820040	0.18987740	2.9979234	21	—	—
410857 2009 RV <sub>45</sub>	15.8	X	3.51273	44.01171	8.96830	9.69622	0.0926711	0.17535845	3.1611971	21	12 25.6	20.0
410858 2009 RU <sub>46</sub>	16.1	X	228.80430	63.60045	199.50983	12.20777	0.0548569	0.19602881	2.9348739	21	—	—
410859 2009 RJ <sub>50</sub>	15.7	X	173.68202	221.86333	16.91814	12.31223	0.0234750	0.17525216	3.1624752	21	12 9.7	20.5
410860 2009 RS <sub>51</sub>	16.4	X	98.47561	179.11234	191.13125	11.01375	0.0890368	0.18860500	3.0113917	21	—	—
410861 2009 RE <sub>53</sub>	16.4	X	27.39552	121.54279	28.62245	12.54461	0.0933900	0.20093167	2.8869357	21	2 25.3	20.1
410862 2009 RM <sub>53</sub>	16.3	X	27.60239	46.91695	26.96795	16.75466	0.1176666	0.18340753	3.0680182	21	—	—
410863 2009 RJ <sub>70</sub>	16.6	X	185.15624	89.99356	187.91952	9.74955	0.0431034	0.18952483	3.0016402	21	—	—
410864 2009 RT <sub>72</sub>	16.9	X	105.21045	176.02172	192.27719	10.98334	0.1507778	0.19064684	2.9898517	21	—	—
410865 2009 RZ <sub>72</sub>	16.5	X	111.31304	290.78592	31.77933	10.12881	0.0444694	0.18058778	3.0998723	21	—	—
410866 2009 RL <sub>75</sub>	17.3	X	90.27638	331.33425	41.61589	1.03147	0.2241725	0.18771122	3.0209432	21	—	—
410867 2009 RU <sub>75</sub>	15.9	X	51.20916	13.11816	15.55870	12.01266	0.0714359	0.18149197	3.0895681	21	—	—
410868 2009 RC <sub>76</sub>	16.4	X	72.41404	177.66729	211.20251	9.42739	0.1181560	0.18953578	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>
410881 2009 SZ <sub>43</sub>	15.6 <sup>m</sup>	X	306.14717	189.38954	2.82855	10.15916	0.0048014	0.19346732	2.9607221	21	1 4.3	19.9
410882 2009 SM <sub>47</sub>	16.1	X	38.46657	32.17578	6.48052	8.65757	0.0866600	0.17929756	3.1147256	21	—	—
410883 2009 SZ <sub>47</sub>	16.0	X	38.68769	73.63932	8.74035	9.87524	0.0596534	0.18846201	3.0129147	21	—	—
410884 2009 SB <sub>49</sub>	16.1	X	200.52053	234.97224	37.08522	12.13857	0.1357450	0.18768455	3.0212294	21	—	—
410885 2009 SV <sub>51</sub>	16.4	X	121.22992	136.48291	188.20385	10.79036	0.0788995	0.18996822	2.9969678	21	—	—
410886 2009 SW <sub>56</sub>	15.9	X	123.86913	105.45091	211.40094	19.88655	0.1806434	0.18561717	3.0436213	21	—	—
410887 2009 SR <sub>59</sub>	16.1	X	145.02936	14.53247	230.72002	9.26877	0.0723898	0.17164953	3.2065719	21	11 17.7	21.0
410888 2009 SW <sub>65</sub>	16.9	X	55.68341	340.08043	76.36411	3.06739	0.1084980	0.18720874	3.0263464	21	—	—
410889 2009 SW <sub>66</sub>	15.9	X	356.21627	244.90202	188.45098	14.80660	0.0496748	0.17734563	3.1375385	21	—	—
410890 2009 SC <sub>68</sub>	16.3	X	198.22058	313.64742	46.24538	8.47061	0.1182005	0.20962925	2.8065199	21	3 20.4	20.8
410891 2009 SQ <sub>71</sub>	17.0	X	39.50554	234.85447	202.32798	1.78845	0.0656872	0.19217895	2.9739398	21	—	—
410892 2009 SC <sub>73</sub>	15.8	X	51.77051	29.13004	350.69447	9.23452	0.0346210	0.18334574	3.0687076	21	—	—
410893 2009 SJ <sub>74</sub>	16.7	X	30.05956	64.07416	45.00724	11.24032	0.1239577	0.19129974	2.9830449	21	1 3.8	20.4
410894 2009 SM <sub>74</sub>	16.1	X	108.51225	284.15568	44.29794	11.95227	0.1195962	0.18244945	3.0787494	21	—	—
410895 2009 SD <sub>88</sub>	16.6	X	106.33846	177.38446	173.40601	9.21598	0.0667767	0.18563938	3.0433786	21	—	—
410896 2009 SD <sub>97</sub>	16.8	X	125.15277	144.34475	182.64228	13.20230	0.1649499	0.19185913	2.9772438	21	—	—
410897 2009 SQ <sub>111</sub>	15.7	X	112.00679	318.89277	345.51150	10.88439	0.0664256	0.17972000	3.1098428	21	12 23.9	20.5
410898 2009 SX <sub>116</sub>	16.3	X	325.28699	224.44420	250.36313	4.61799	0.0409390	0.18248359	3.0783654	21	—	—
410899 2009 SW <sub>117</sub>	16.4	X	70.95389	199.34551	205.45723	11.47251	0.1323393	0.19001237	2.9965035	21	—	—
410900 2009 SE <sub>123</sub>	16.2	X	8.74252	188.75813	245.75533	6.13306	0.1326972	0.18100261	3.0951343	21	—	—
410901 2009 SG <sub>127</sub>	16.6	X	48.55976	177.77830	213.61852	9.49708	0.0758771	0.18191813	3.0847412	21	—	—
410902 2009 SP <sub>130</sub>	16.5	X	129.57687	208.38709	182.55480	9.02115	0.0843022	0.19992787	2.8965908	21	2 7.6	20.7
410903 2009 SR <sub>131</sub>	15.6	X	145.42328	249.52604	28.07660	20.80332	0.1220833	0.18014136	3.1049916	21	12 26.2	20.9
410904 2009 SJ <sub>134</sub>	15.9	X	64.31694	248.45200	182.06917	12.08130	0.0722330	0.19226137	2.9730899	21	1 3.7	20.0
410905 2009 SQ <sub>140</sub>	16.7	X	43.98667	71.49808	336.31353	8.08843	0.0848035	0.18502071	3.0501590	21	—	—
410906 2009 SZ <sub>142</sub>	16.5	X	19.02777	83.81229	10.11515	5.59478	0.0551164	0.18846361	3.0128977	21	—	—
410907 2009 SC <sub>154</sub>	16.7	X	37.97361	231.73994	193.59334	2.58730	0.1300681	0.18660502	3.0328703	21	—	—
410908 2009 SR <sub>155</sub>	15.4	X	337.75366	97.60615	12.39898	16.23774	0.2016529	0.17982596	3.1086211	21	—	—
410909 2009 SO <sub>160</sub>	15.8	X	329.18115	98.42484	17.90649	15.87676	0.2270910	0.17578016	3.1561392	21	—	—
410910 2009 SN <sub>165</sub>	17.0	X	8.18527	113.77469	339.90842	4.66384	0.1288728	0.18479513	3.0526408	21	—	—
410911 2009 SX <sub>169</sub>	16.4	X	45.73050	267.91791	143.07482	4.87312	0.2065248	0.18317860	3.0705740	21	—	—
410912 Lisakaroline	17.8	X	119.29474	126.24081	211.88915	8.05070	0.2782676	0.19144880	2.9814963	21	—	—
410913 2009 SS <sub>181</sub>	16.3	X	155.52636	74.86136	186.99688	8.62138	0.0860347	0.18256190	3.0774851	21	12 19.0	21.2
410914 2009 ST <sub>181</sub>	17.0	X	125.92296	156.51132	211.45892	1.37734	0.0996109	0.19780566	2.9172718	21	1 10.6	21.1
410915 2009 SN <sub>182</sub>	16.8	X	181.15011	64.99933	180.39315	10.70751	0.1055064	0.18462892	3.0544726	21	12 24.2	21.7
410916 2009 SO <sub>185</sub>	16.4	X	58.69217	212.71130	220.39440	10.33072	0.0259785	0.19274934	2.9680699	21	—	—
410917 2009 SJ <sub>186</sub>	16.6	X	97.67965	305.31393	45.60657	8.72591	0.0742281	0.18384835	3.0631121	21	—	—
410918 2009 SJ <sub>199</sub>	17.2	X	128.50290	128.51052	204.83753	13.90336	0.2701461	0.19167079	2.9791938	21	—	—
410919 2009 SF <sub>204</sub>	15.8	X	56.40014	177.87335	211.19511	12.43886	0.1032092	0.18183025	3.0857350	21	—	—
410920 2009 SE <sub>209</sub>	16.5	X	110.78199	129.22591	201.19286	10.65653	0.0991582	0.18385736	3.0630121	21	—	—
410921 2009 SP <sub>214</sub>	15.7	X	37.49432	8.49084	29.17865	10.81820	0.0890075	0.17897991	3.1184098	21	—	—
410922 2009 SU <sub>225</sub>	17.2	X	141.03022	219.63107	149.35676	1.55529	0.2206982	0.20169230	2.8796730	21	2 10.4	21.7
410923 2009 SL <sub>231</sub>	16.5	X	124.49595	128.64810	190.13010	10.57705	0.1119356	0.18759276	3.0222148	21	—	—
410924 2009 SY <sub>231</sub>	16.5	X	72.71961	164.26034	188.81999	11.27785	0.1030818	0.18175399	3.0865981	21	—	—
410925 2009 SH <sub>232</sub>	16.2	X	6.36929	212.47492	205.39101	9.98726	0.2039725	0.17614717	3.1517537	21	—	—
410926 2009 SQ <sub>233</sub>	16.5	X	180.50430	205.07036	200.69372	11.42744	0.1863507	0.21849885	2.7300459	21	4 26.5	21.0
410927 2009 SC <sub>239</sub>	16.1	X	126.10804	178.94407	215.07913	16.37905	0.2248395	0.20356907	2.8619466	21	2 20.9	20.8
410928 Maidbronn	16.5	X	82.77013	119.11446	323.37797	7.88595	0.2054540	0.19817072	2.9136881	21	3 2.5	20.1
410929 2009 SY <sub>250</sub>	16.7	X	92.36614	51.81449	326.53929	2.29351	0.1739188	0.18880879	3.0092244	21	—	—
410930 2009 SW <sub>253</sub>	16.8	X	63.75542	180.72268	184.04801	10.13187	0.1206942	0.17903413	3.1177802	21	—	—
410931 2009 SF <sub>254</sub>	16.5	X	70.73292	184.64267	201.63288	9.65138	0.0640980	0.18477863	3.0528225	21	—	—
410932 2009 SH <sub>263</sub>	16.1	X	85.04080	319.90816	31.15434	9.28637	0.0636141	0.18333674	3.0688080	21	—	—
410933 2009 SE <sub>265</sub>	16.1	X	273.16356	60.24323	227.35938	5.53500	0.0364537	0.20869817	2.8148610	21	3 11.7	20.1
410934 2009 SA <sub>270</sub>	16.6	X	92.92227	283.42297	21.14954	8.32938	0.1899482	0.17728974	3.1381978	21	12 13.8	21.7
410935 2009 SD <sub>270</sub>	16.2	X	3.39464	150.38177	24.04199	15.37261	0.0761854	0.20453441	2.8529344	21	2 21.3	20.0
410936 2009 SE <sub>270</sub>	16.5	X	139.30758	121.75051	182.79166	9.40033	0.1626720	0.18707750	3.0277616	21	—	—
410937 2009 SH <sub>271</sub>	18.6	X	268.39064	119.25641	202.20307	21.33131	0.1243395	0.38688599	1.8652944	21	3 16.3	21.1
410938 2009 SN <sub>277</sub>	15.7	X	35.57663	341.17273	20.62114	16.20651	0.0706086	0.17382817	3.1797229	21	11 29.5	20.3
410939 2009 SG <sub>281</sub>	16.2	X	359.31827	291.08324	173.07244	11.20869	0.0617500	0.18651120	3.0338873	21	—	—
410940 2009 SV <sub>284</sub>	17.1	X	106.84427	186.53032	225.94158	1.24158	0.0632496	0.20286362	2.8685776	21	2 4.4	21.1
410941 2009 SH <sub>287</sub>	16.6	X	121.98811	95.49860	279.37804	4.77354	0.0985580	0.19467150	2.9485000	21	1 14.7	20.8
410942 2009 SJ <sub>287</sub>	15.9	X	342.58880	244.54563	216.78513	15.51304	0.2491892	0.17642906	3.1483957	21	—	—
410943 2009 SZ <sub>293</sub>	15.9	X	345.50353	74.44227	16.01955	10.24037	0.0279583	0.18273306	3.0755630	21	—	—
410944 2009 SB <sub>294</sub>	16.9	X	153.82762	176.30342	149.41165	2.58659	0.1035164	0.19500063	2.9451814	21	—	—
410945 2009 ST <sub>296</sub>	16.3	X	91.57568	290.22632	22.83687	15.79122	0.1807437	0.17891632	3.1191486	21	12 21.6	21.5
410946 2009 ST <sub>311</sub>	16.9	X	104.44995	250.37465	164.49105	2.19160	0.0603420	0.20355523	2.8620763	21	2 3.9	20.9
410947 2009 SZ <sub>316</sub>	16.9	X	196.97139	315.73736	23.85601	4.24592	0.1837402	0.20976590	2.8053009	21	2 21.9	21.6
410948 2009 SK <sub>327</sub>	16.0	X	110.48397	75.94738	315.02512	10.07990	0.1085889	0.19445524	2.9506857	21	1 23.0	20.1
410949 2009 SH <sub>329</sub>	16.1	X	156.63995	225.76208	190.73023	12.01811	0.3118445	0.21127376	2.7919374	21	4 26.6	21.1
410950 2009 SS <sub>332</sub>	16.9	X	93.17508	271.30234	79.98840	1.99521	0.1861724	0.18734829	3.0248434	21	—	—
410951 2009 SM <sub>339</sub>	17.6	X	127.08529	54.88140	357.21434	19.35225	0.1135325	0.36930054	1.9240488	21	2 14.9	19.6
410952 2009 SD <sub>340</sub>	16.1	X	68.38150	8.75112	5.27602	11.23899	0.0755395	0.18242153	3.0790635	21	—	—
410953 2009 ST <sub>345</sub>	16.5	X	146.04140	243.61405	29.40523	8.61000	0.1119765	0.17929552	3.1147492	21	12 21.9	21.6
410954 2009 SX <sub>347</sub>	16.5	X	144.30736	53.10311	235.08862	8.53432	0.0611446	0.18123706	3.0924644	21	—	—
410955 2009 SN <sub>349</sub>	16.2	X	43.23758	177.94491	221.02608	7.73284	0.					

ELEMENTS AND OPPOSITION DATES IN 2021

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2021 JULY 5.0 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>
410961 2009 SU <sub>356</sub>	16.4	X	27.06132	222.04137	209.47214	10.33609	0.0813094	0.18471606	3.0535119	21	—	—
410962 2009 SO <sub>358</sub>	17.3	X	46.71423	308.25672	102.90619	2.76146	0.1435367	0.18386666	3.0629087	21	—	—
410963 2009 SS <sub>360</sub>	16.2	X	132.60043	260.08663	31.26069	11.61090	0.0785231	0.18050374	3.1008344	21	12 30.4	21.1
410964 2009 SX <sub>360</sub>	17.2	X	107.89979	104.85432	209.25497	12.61243	0.2897348	0.18177069	3.0864090	21	—	—
410965 2009 TG <sub>4</sub>	16.4	X	47.77740	173.81249	286.11399	3.66691	0.1186752	0.19207228	2.9750408	21	1 20.1	19.8
410966 2009 TK <sub>7</sub>	16.1	X	116.63366	133.24068	227.05207	15.76840	0.2409970	0.19019467	2.9945886	21	1 8.1	20.7
410967 2009 TX <sub>7</sub>	15.8	X	169.37932	314.84548	52.57527	15.82146	0.1526589	0.20486414	2.8498725	21	3 9.1	20.6
410968 2009 TO <sub>9</sub>	16.5	X	77.38844	264.19479	206.47362	5.27904	0.1940551	0.20183585	2.8783074	21	3 29.7	20.0
410969 2009 TQ <sub>12</sub>	15.9	X	70.43212	194.49900	213.55217	9.69337	0.1016058	0.18728637	3.0255101	21	—	—
410970 2009 TK <sub>19</sub>	16.6	X	64.00279	156.74311	210.23132	10.28873	0.0242148	0.17748564	3.1358882	21	—	—
410971 2009 TN <sub>19</sub>	15.9	X	306.29091	315.06827	213.46400	17.45997	0.0224583	0.18680981	3.0306533	21	—	—
410972 2009 TB <sub>35</sub>	16.2	X	17.38655	191.54002	212.90910	8.51930	0.1462750	0.17424310	3.1746730	21	—	—
410973 2009 TW <sub>39</sub>	16.0	X	81.31833	120.01006	239.94319	11.29891	0.2031939	0.18271894	3.0757215	21	—	—
410974 2009 TJ <sub>41</sub>	16.0	X	40.69637	22.79007	12.63564	12.33228	0.2106916	0.17841089	3.1250369	21	—	—
410975 2009 TL <sub>41</sub>	15.4	X	13.37544	227.59771	205.59069	17.92104	0.0088899	0.18105085	3.0945845	21	—	—
410976 2009 TR <sub>44</sub>	15.8	X	128.67951	257.66768	83.89036	12.11598	0.0918872	0.19040149	2.9924196	21	—	—
410977 2009 TB <sub>45</sub>	16.0	X	0.32638	26.39582	38.66018	9.36527	0.0646168	0.17433601	3.1735449	21	—	—
410978 2009 TE <sub>46</sub>	16.5	X	120.60218	92.04052	236.83888	4.09536	0.1029598	0.17967711	3.1103377	21	—	—
410979 2009 TH <sub>46</sub>	16.9	X	338.51667	43.81198	48.58471	1.38907	0.1463109	0.17616788	3.1515067	21	—	—
410980 2009 TQ <sub>46</sub>	16.7	X	101.76308	26.70690	0.50640	2.37105	0.1045225	0.18977514	2.9990002	21	1 7.3	20.6
410981 2009 TE <sub>47</sub>	15.8	X	22.63569	58.86890	355.00033	12.16669	0.1919561	0.17739760	3.1369257	21	—	—
410982 2009 TK <sub>47</sub>	15.9	X	111.59486	156.40535	257.68945	7.14854	0.0667379	0.20049474	2.8911285	21	2 10.8	20.0
410983 2009 UX	16.2	X	351.78983	173.26391	258.97805	8.12033	0.0403337	0.17604335	3.1529927	21	12 28.5	20.5
410984 2009 UR <sub>9</sub>	15.8	X	291.55854	88.66339	38.36309	17.22034	0.1127651	0.17494264	3.1662043	21	12 5.6	20.0
410985 2009 UQ <sub>15</sub>	16.1	X	93.18296	56.93376	293.40072	10.09220	0.2266975	0.18510573	3.0492250	21	—	—
410986 2009 UQ <sub>17</sub>	15.8	X	40.63668	217.22604	226.38826	15.08337	0.1811002	0.18581260	3.0414868	21	—	—
410987 2009 UT <sub>21</sub>	17.0	X	96.77825	209.20936	156.36721	8.44997	0.0700050	0.18709628	3.0275590	21	—	—
410988 2009 US <sub>24</sub>	15.6	X	304.53725	70.13897	39.77257	13.09808	0.0688446	0.17014724	3.2254187	21	12 7.4	20.0
410989 2009 UE <sub>25</sub>	16.5	X	103.82845	290.05458	71.84688	2.05433	0.1707116	0.18569325	3.0427900	21	—	—
410990 2009 UJ <sub>27</sub>	15.6	X	51.80450	317.54812	57.18858	18.75926	0.1298185	0.17589234	3.1547971	21	—	—
410991 2009 UQ <sub>27</sub>	16.5	X	89.34206	228.97758	179.93107	3.90552	0.2856727	0.19063611	2.9899638	21	2 11.8	20.4
410992 2009 UG <sub>32</sub>	16.3	X	63.65463	170.05505	223.58250	12.00888	0.0321017	0.18081530	3.0972714	21	—	—
410993 2009 UH <sub>35</sub>	16.0	X	30.93983	68.83845	53.39631	12.18792	0.1374377	0.18824628	3.0152161	21	1 25.8	19.7
410994 2009 UM <sub>35</sub>	16.2	X	15.54115	215.88490	233.15257	14.99428	0.0845122	0.17889962	3.1193428	21	—	—
410995 2009 UJ <sub>37</sub>	16.3	X	103.24347	166.79615	217.88508	9.74558	0.1174481	0.18854602	3.0120197	21	1 6.2	20.5
410996 2009 UZ <sub>37</sub>	16.5	X	143.57471	242.98162	97.16105	2.88613	0.1343907	0.18932717	3.0037290	21	1 3.3	21.0
410997 2009 US <sub>39</sub>	15.6	X	34.84799	194.80600	231.20361	16.05337	0.1919944	0.17942458	3.1132554	21	—	—
410998 2009 UD <sub>44</sub>	16.7	X	32.21482	210.07984	209.19526	4.70511	0.1152572	0.18104502	3.0946509	21	—	—
410999 2009 UK <sub>44</sub>	16.1	X	11.12239	51.17804	37.62745	13.84594	0.1027348	0.18190110	3.0849337	21	—	—
411000 2009 UM <sub>44</sub>	16.9	X	130.98162	302.79567	47.76298	3.64194	0.1184035	0.19088693	2.9873441	21	—	—
411001 2009 UA <sub>52</sub>	16.1	X	45.37716	170.06988	222.90782	9.67030	0.0767786	0.17803657	3.1294155	21	—	—
411002 2009 UC <sub>54</sub>	16.7	X	159.83314	316.07937	340.27493	7.31678	0.1414024	0.19183366	2.9775074	21	—	—
411003 2009 UZ <sub>59</sub>	16.7	X	47.83462	4.62008	78.16978	2.99709	0.0475324	0.19404227	2.9548707	21	—	—
411004 2009 UG <sub>63</sub>	15.7	X	106.51224	259.76894	36.08853	23.02872	0.0318553	0.17287278	3.1914274	21	11 28.2	20.6
411005 2009 UG <sub>69</sub>	15.9	X	112.23654	149.28914	229.26303	8.96953	0.2126101	0.18949981	3.0019045	21	1 21.9	20.3
411006 2009 UF <sub>70</sub>	16.7	X	25.97192	262.34376	171.62288	11.02300	0.1466426	0.18310903	3.0713517	21	—	—
411007 2009 UL <sub>71</sub>	15.9	X	26.27975	40.74316	35.86876	19.40089	0.1590255	0.18025379	3.1037003	21	—	—
411008 2009 UU <sub>73</sub>	16.3	X	176.98197	322.50673	46.80614	16.14140	0.1485868	0.20629307	3.0366971	21	3 17.7	21.1
411009 2009 UY <sub>79</sub>	16.4	X	63.51608	141.62387	271.63733	4.24898	0.0948288	0.18693662	3.0292826	21	—	—
411010 2009 UD <sub>80</sub>	15.8	X	306.32133	283.07362	237.86576	9.65875	0.0770750	0.18334218	3.0687473	21	—	—
411011 2009 UK <sub>82</sub>	15.9	X	13.78780	47.87239	46.17468	17.43733	0.1910870	0.17985395	3.1082986	21	—	—
411012 2009 UZ <sub>82</sub>	16.3	X	58.04694	181.01694	221.56165	10.03153	0.0438581	0.18047048	3.1012154	21	—	—
411013 2009 UY <sub>85</sub>	16.7	X	155.98740	213.23726	167.92183	9.42549	0.0827723	0.20898233	2.8123088	21	2 25.0	20.7
411014 2009 UG <sub>90</sub>	17.2	X	132.99502	199.72867	212.74936	8.22087	0.1302221	0.20247215	3.0722739	21	4 2.4	22.1
411015 2009 UV <sub>93</sub>	16.1	X	130.29146	314.32181	39.51241	10.33788	0.0944714	0.18848428	3.0126774	21	—	—
411016 2009 UX <sub>96</sub>	16.4	X	37.44879	325.22757	98.54623	2.64447	0.0974488	0.18250915	3.0780780	21	—	—
411017 2009 UP <sub>97</sub>	15.7	X	25.53435	16.26154	54.20864	12.67479	0.0622667	0.18044020	3.1015623	21	—	—
411018 2009 UF <sub>98</sub>	16.5	X	358.48418	252.87462	211.82037	8.40549	0.0902713	0.18056034	3.1001864	21	—	—
411019 2009 UG <sub>99</sub>	16.4	X	83.36725	122.86823	214.16092	11.74099	0.1547830	0.17576198	3.1563568	21	—	—
411020 2009 UJ <sub>101</sub>	16.3	X	127.03755	299.47297	65.38633	6.49768	0.1197679	0.19072878	2.9889953	21	1 13.3	20.6
411021 2009 UG <sub>103</sub>	16.5	X	84.30295	168.96016	227.74833	3.38290	0.2291955	0.18720694	3.0263658	21	1 12.6	20.2
411022 2009 UB <sub>105</sub>	16.0	X	75.99089	337.07407	18.13849	10.90064	0.0786809	0.17879331	3.1205792	21	—	—
411023 2009 UX <sub>105</sub>	16.1	X	76.86170	94.39784	294.95574	8.91955	0.1603219	0.18431414	3.0579493	21	—	—
411024 2009 UA <sub>106</sub>	16.0	X	49.16191	29.74680	57.83266	9.82413	0.1127283	0.18636380	3.0354868	21	1 8.9	19.7
411025 2009 UY <sub>107</sub>	16.3	X	15.01704	227.29116	227.30042	8.70665	0.0621300	0.18201635	3.0836314	21	—	—
411026 2009 UM <sub>110</sub>	16.5	X	117.54621	278.94800	53.43964	10.05353	0.3121783	0.18494593	3.0509811	21	—	—
411027 2009 UO <sub>110</sub>	16.2	X	69.68535	355.86355	50.54555	6.04222	0.2285517	0.18490728	3.0514063	21	1 2.3	19.6
411028 2009 UP <sub>110</sub>	16.0	X	128.87179	293.01658	51.29495	5.34441	0.1328784	0.18580849	3.0415317	21	—	—
411029 2009 UD <sub>111</sub>	16.0	X	158.56989	251.81018	55.62496	9.74177	0.1273443	0.18366371	3.0651647	21	—	—
411030 2009 UA <sub>117</sub>	15.5	X	62.89710	65.32086	6.76731	10.38855	0.0553989	0.19075829	2.9886870	21	1 5.5	19.6
411031 2009 UN <sub>119</sub>	16.6	X	283.04156	327.65370	202.36255	8.59709	0.0127766	0.18452727	3.0555942	21	—	—
411032 2009 UJ <sub>123</sub>	15.9	X	44.84788	312.50053	72.72304	10.60556	0.0687845	0.17680145	3.1439732	21	—	—
411033 2009 UC <sub>124</sub>	16.0	X	100.78324	243.67765	172.58612	8.17309	0.0617326	0.19584322	2.9367278	21	2 1.6	20.1
411034 2009 UY <sub>128</sub>	15.6	X	144.32886	259.69181	47.64189	13.81199	0.1466478	0.18225253	3.0812744	21	—	—
411035 2009 UY <sub>130</sub>	15.9	X	9.52870	189.49089	255.26815	9.92601	0.2488016	0.17945040	3.1129568	21	—	—

# ELEMENTS AND OPPOSITION DATES IN 2021

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2021 JULY 5.0 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>
411041 2009 UF <sub>145</sub>	15.8	X	144.96381	66.10295	250.62671	13.38612	0.1041570	0.18789803	3.0189405	21	—	—
411042 2009 UP <sub>150</sub>	16.6	X	103.68452	302.99223	70.38342	2.07291	0.0437342	0.18524234	3.0477257	21	—	—
411043 2009 UB <sub>153</sub>	16.2	X	57.24186	294.39044	80.47538	5.27852	0.0930191	0.17661805	3.1461493	21	—	—
411044 2009 VY <sub>7</sub>	15.7	X	61.44614	36.29025	56.04712	12.07838	0.0762050	0.19059696	2.9903733	21	2 1.7	19.7
411045 2009 VO <sub>12</sub>	16.4	X	19.85034	166.54746	235.89173	9.27456	0.1170173	0.17350880	3.1836236	21	—	—
411046 2009 VU <sub>17</sub>	16.7	X	0.59705	9.55557	87.78041	2.36646	0.1599185	0.17919946	3.1158623	21	—	—
411047 2009 VS <sub>20</sub>	16.5	X	50.01527	235.00042	138.89587	1.50280	0.0843470	0.17546528	3.1599140	21	—	—
411048 2009 VN <sub>21</sub>	15.9	X	143.91001	108.66625	223.02677	9.89090	0.1355588	0.18604030	3.0390046	21	—	—
411049 2009 VA <sub>25</sub>	16.0	X	130.49118	65.28021	284.70642	8.75081	0.1109031	0.19216721	2.9740609	21	—	—
411050 2009 VS <sub>27</sub>	16.9	X	96.56254	68.03211	326.17907	3.64125	0.2178324	0.18981980	2.9985298	21	1 25.6	20.9
411051 2009 VZ <sub>27</sub>	15.8	X	173.89316	271.30462	45.98494	10.56307	0.1079901	0.19120220	2.9840594	21	1 4.8	20.5
411052 2009 VP <sub>29</sub>	16.6	X	135.66388	173.41495	215.65759	8.99658	0.1348350	0.19984781	2.8973644	21	2 16.9	21.0
411053 2009 VD <sub>32</sub>	17.4	X	10.96402	319.40553	132.25595	1.86575	0.1498760	0.18084784	3.0968999	21	—	—
411054 2009 VN <sub>38</sub>	16.7	X	97.66676	92.77421	318.66701	1.20836	0.2055655	0.19252836	2.9703405	21	2 14.3	20.7
411055 2009 VC <sub>44</sub>	16.5	X	75.98119	329.91641	94.10616	5.38275	0.1361599	0.18934863	3.0035021	21	1 21.9	20.2
411056 2009 VY <sub>44</sub>	15.6	X	44.51608	141.17392	224.78746	13.57313	0.0921875	0.16885704	3.2418278	21	12 20.6	20.3
411057 2009 VB <sub>46</sub>	17.1	X	69.41605	15.02398	35.81431	4.01155	0.1928477	0.18854196	3.0120629	21	1 1.7	20.5
411058 2009 VD <sub>48</sub>	16.8	X	16.97593	312.45454	118.86700	4.30441	0.1327619	0.17616039	3.1515960	21	—	—
411059 2009 VY <sub>49</sub>	16.2	X	92.31478	300.18620	75.03664	4.23796	0.1759056	0.18523976	3.0477540	21	—	—
411060 2009 VZ <sub>49</sub>	16.1	X	26.02394	227.90462	221.65095	7.41376	0.1535365	0.18222326	3.0812966	21	—	—
411061 2009 VE <sub>52</sub>	15.9	X	133.85105	259.68919	81.75455	6.32813	0.1444603	0.18609238	3.0384377	21	—	—
411062 2009 VJ <sub>53</sub>	16.0	X	73.19485	151.86459	234.00565	7.98854	0.1004375	0.18338441	3.0682762	21	—	—
411063 2009 VF <sub>58</sub>	16.4	X	93.81696	333.95550	73.77812	11.84549	0.1490107	0.19080571	2.9881918	21	1 30.5	20.5
411064 2009 VH <sub>59</sub>	15.5	X	50.75439	284.25820	133.96742	19.50318	0.1632420	0.18237377	3.0796011	21	—	—
411065 2009 VT <sub>60</sub>	16.3	X	100.36825	275.44063	63.26871	10.03598	0.0779365	0.17719582	3.1393066	21	—	—
411066 2009 VU <sub>60</sub>	15.9	X	246.99924	336.76910	224.38144	8.68983	0.0823643	0.17587885	3.1549584	21	—	—
411067 2009 VO <sub>61</sub>	16.1	X	289.81811	315.98609	239.00592	4.87353	0.0089271	0.18512639	3.0489982	21	—	—
411068 2009 VQ <sub>61</sub>	16.7	X	74.31191	0.76579	52.22488	3.41838	0.1164506	0.18634039	3.0357410	21	1 3.7	20.5
411069 2009 VL <sub>64</sub>	16.0	X	54.19017	26.49237	27.05559	10.01928	0.0969936	0.18624637	3.0367626	21	—	—
411070 2009 VG <sub>65</sub>	15.5	X	99.25316	308.52061	44.10207	13.71816	0.0205665	0.17749801	3.1357425	21	—	—
411071 2009 VK <sub>65</sub>	16.0	X	180.20624	269.93211	40.76187	10.23454	0.0994032	0.18853348	3.0121532	21	1 3.2	20.8
411072 2009 VM <sub>66</sub>	17.3	X	1.43917	71.38768	16.66056	3.34900	0.2141679	0.17484077	3.1674340	21	—	—
411073 2009 VJ <sub>66</sub>	16.9	X	57.45490	178.03002	278.36915	3.06521	0.1931237	0.18909545	3.0061824	21	2 7.8	20.1
411074 2009 VM <sub>70</sub>	15.9	X	221.68171	195.02184	51.34191	10.45237	0.0544170	0.17927984	3.1149308	21	—	—
411075 2009 VH <sub>76</sub>	15.7	X	359.74876	203.47700	246.05171	7.64751	0.0534724	0.17818637	3.1276614	21	—	—
411076 2009 VU <sub>76</sub>	15.8	X	118.97147	343.76795	357.81562	10.86357	0.1416077	0.18492502	3.0512112	21	—	—
411077 2009 VR <sub>81</sub>	16.0	X	344.41639	77.33913	31.25030	9.18134	0.1251701	0.17665187	3.1457478	21	—	—
411078 2009 VG <sub>84</sub>	15.5	X	345.75521	126.46881	257.13705	8.13659	0.0186867	0.15715938	3.4007589	21	10 16.9	20.3
411079 2009 VK <sub>86</sub>	16.3	X	52.09805	182.35130	229.06691	9.49145	0.0787726	0.17912650	3.1167083	21	—	—
411080 2009 VF <sub>88</sub>	16.6	X	67.81459	92.43256	320.61991	3.54868	0.1662225	0.18313338	3.0710793	21	—	—
411081 2009 VL <sub>89</sub>	16.2	X	85.46336	91.59218	286.05287	8.49558	0.1025411	0.18179475	3.0861367	21	—	—
411082 2009 VB <sub>90</sub>	16.2	X	41.44894	75.25756	35.06496	10.90409	0.0767059	0.18929251	3.0040957	21	1 26.3	20.2
411083 2009 VU <sub>96</sub>	16.3	X	102.76433	318.88233	51.78476	2.22933	0.2277628	0.18508158	3.0494902	21	1 7.1	20.3
411084 2009 VR <sub>98</sub>	16.5	X	333.81031	288.04476	208.20952	6.40353	0.0870841	0.17965481	3.1105951	21	—	—
411085 2009 VQ <sub>99</sub>	15.7	X	6.67380	41.78667	61.56711	10.62741	0.0903572	0.17822295	3.1272334	21	—	—
411086 2009 VE <sub>100</sub>	15.8	X	25.68663	25.04638	60.89035	12.69343	0.1120008	0.17823014	3.1271493	21	—	—
411087 2009 VN <sub>104</sub>	17.8	X	227.00049	153.66804	205.48073	22.18161	0.0600414	0.38233160	1.8800782	21	3 25.3	20.1
411088 2009 VA <sub>111</sub>	14.7	X	93.11702	67.41080	261.71899	20.77579	0.0395961	0.16921591	3.2372426	21	12 26.3	19.4
411089 2009 VJ <sub>111</sub>	16.3	X	6.77196	251.24876	234.17178	12.83003	0.2700528	0.18212121	3.0824475	21	—	—
411090 2009 VC <sub>112</sub>	16.0	X	351.48873	50.64103	70.24420	13.38622	0.2310361	0.17995076	3.1071836	21	—	—
411091 2009 VA <sub>116</sub>	16.5	X	4.52930	172.00089	274.25848	4.36968	0.1134578	0.17340055	3.1849484	21	—	—
411092 2009 WX <sub>1</sub>	16.7	X	42.16050	229.83372	184.53304	3.93750	0.1987625	0.18320755	3.0702505	21	—	—
411093 2009 WF <sub>2</sub>	16.6	X	73.46641	322.42408	200.23067	11.42552	0.0329368	0.19563808	2.9387803	21	1 13.2	20.8
411094 2009 WE <sub>8</sub>	15.9	X	159.52228	254.51710	26.53280	11.06806	0.0189743	0.17670971	3.1450612	21	—	—
411095 2009 WA <sub>26</sub>	16.1	X	26.81309	216.30720	213.80618	8.56975	0.0842869	0.17764860	3.1339701	21	—	—
411096 2009 WM <sub>28</sub>	16.9	X	96.02079	312.72882	47.77577	1.55353	0.1735827	0.18163757	3.0879169	21	—	—
411097 2009 WS <sub>29</sub>	16.4	X	47.50744	241.15460	201.11926	8.87948	0.1037117	0.18869282	3.0104573	21	—	—
411098 2009 WJ <sub>32</sub>	15.8	X	47.55630	247.61814	78.97786	11.18796	0.0290087	0.15730757	3.3986227	21	11 1.7	20.7
411099 2009 WE <sub>33</sub>	15.5	X	209.00212	172.08977	73.11284	8.70938	0.0077174	0.17477655	3.1682098	21	—	—
411100 2009 WK <sub>35</sub>	15.7	X	6.67975	256.24142	206.65329	13.53601	0.1864095	0.18333876	3.0687855	21	—	—
411101 2009 WU <sub>37</sub>	15.6	X	86.65401	260.34394	63.55110	25.90669	0.2626495	0.17209749	3.2010050	21	—	—
411102 2009 WB <sub>40</sub>	15.9	X	347.98988	194.50525	260.55784	10.34725	0.0685377	0.17157704	3.2074749	21	—	—
411103 2009 WL <sub>41</sub>	16.4	X	64.25764	351.55805	71.98383	11.58497	0.1703527	0.18662422	3.0326622	21	1 7.3	19.9
411104 2009 WR <sub>43</sub>	16.0	X	131.23171	285.51793	92.96467	8.08197	0.0994853	0.18749655	3.0232486	21	2 1.9	20.4
411105 2009 WF <sub>49</sub>	15.7	X	97.48470	319.35001	67.79550	11.27033	0.1448885	0.18892051	3.0080379	21	1 7.7	19.7
411106 2009 WG <sub>49</sub>	15.9	X	353.04749	354.88017	124.80578	11.45216	0.0670768	0.17876065	3.1209593	21	—	—
411107 2009 WA <sub>51</sub>	16.4	X	17.92942	100.13775	22.41151	10.51963	0.1814154	0.18841501	3.0134157	21	—	—
411108 2009 WK <sub>71</sub>	17.2	X	35.95856	273.69596	177.14469	1.62450	0.2495029	0.18240080	3.0792969	21	—	—
411109 2009 WS <sub>71</sub>	15.8	X	86.28724	327.31708	73.42609	12.01377	0.0644713	0.18548042	3.0451171	21	—	—
411110 2009 WZ <sub>72</sub>	16.6	X	93.33507	261.82723	105.47807	3.19510	0.1290602	0.18177471	3.0863635	21	—	—
411111 2009 WV <sub>76</sub>	16.2	X	314.41877	184.32715	292.05790	6.89875	0.0697955	0.16921027	3.2373146	21	12 30.7	20.5
411112 2009 WB <sub>82</sub>	16.9	X	167.95707	298.90895	48.36818	3.20245	0.1224594	0.19996318	2.8962498	21	2 3.2	21.4
411113 2009 WP <sub>83</sub>	15.8	X	126.01033	279.27048	35.11439	12.07968	0.0722577	0.17642411	3.1484545	21	—	—
411114 2009 WR <sub>86</sub>	16.5	X	129.29264	355.66903	329.63262	4.09371	0.1183558	0.17995850	3.1070946	21	—	—
411115 2009 WJ <sub>98</sub>	16.0	X	80.41991	352.45092	28.61584	9.62286	0.1361473	0.18336642	3.0684768	21	—	—
411116 2009 WC												

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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>
411121 2009 WY <sub>143</sub>	16.1	X	69.80247	10.38560	346.24637	5.92240	0.0799770	0.17261516	3.1946020	21	—	—
411122 2009 WN <sub>155</sub>	15.8	X	60.78564	282.00056	89.81412	16.29354	0.2508438	0.17647493	3.1478501	21	—	—
411123 2009 WZ <sub>163</sub>	16.1	X	62.74408	131.25602	271.01284	4.33769	0.1612519	0.17950552	3.1123195	21	—	—
411124 2009 WK <sub>172</sub>	16.4	X	121.77768	105.99392	250.16518	18.20626	0.2050641	0.18872547	3.0101101	21	1 4.7	21.0
411125 2009 WQ <sub>190</sub>	17.2	X	5.44613	285.16672	166.09594	0.99676	0.1630102	0.17532734	3.1615711	21	—	—
411126 2009 WJ <sub>191</sub>	16.4	X	7.53039	47.81491	55.65841	14.86121	0.2218844	0.17873674	3.1212376	21	—	—
411127 2009 WF <sub>193</sub>	16.1	X	117.00812	285.15973	49.32861	10.98380	0.1870175	0.18285166	3.0742330	21	—	—
411128 2009 WE <sub>206</sub>	15.7	X	271.01335	214.27560	50.56428	11.90603	0.0552516	0.19654785	2.9290747	21	2 16.3	20.1
411129 2009 WS <sub>207</sub>	16.8	X	147.98280	306.46014	33.64661	2.43274	0.0909624	0.18683301	3.0304025	21	1 3.8	21.3
411130 2009 WU <sub>209</sub>	15.6	X	78.24447	289.55258	96.97395	16.04262	0.2503228	0.18273231	3.0755715	21	—	—
411131 2009 WA <sub>216</sub>	16.0	X	155.27661	117.08767	199.57528	9.41722	0.0772393	0.18468983	3.0538010	21	—	—
411132 2009 WD <sub>218</sub>	16.6	X	24.08250	249.53298	210.73053	16.80881	0.2440524	0.18201073	3.0836948	21	—	—
411133 2009 WO <sub>218</sub>	15.8	X	118.80668	73.49773	243.62779	13.02166	0.1799200	0.17792113	3.1307691	21	—	—
411134 2009 WT <sub>220</sub>	16.4	X	95.63283	281.14475	95.77557	2.51845	0.1493286	0.18596138	3.0398643	21	—	—
411135 2009 WV <sub>220</sub>	16.1	X	136.16642	222.01144	61.44005	10.84883	0.1359284	0.17427055	3.1743396	21	12 24.4	21.2
411136 2009 WZ <sub>229</sub>	15.8	X	10.87309	255.93665	217.78659	9.74019	0.1349785	0.18411870	3.0601129	21	—	—
411137 2009 WA <sub>232</sub>	15.6	X	161.18063	189.78808	76.19334	10.78292	0.0798737	0.17387990	3.1790922	21	12 27.7	20.5
411138 2009 WG <sub>237</sub>	16.0	X	299.09317	151.84951	49.27695	11.76866	0.1514254	0.18530629	3.0470245	21	—	—
411139 2009 WN <sub>249</sub>	16.0	X	84.32834	270.92263	94.53342	10.66914	0.2176042	0.17934075	3.1142255	21	—	—
411140 2009 WU <sub>249</sub>	16.1	X	100.59684	289.30540	63.32247	10.95466	0.1489963	0.17852911	3.1236571	21	—	—
411141 2009 WV <sub>252</sub>	16.7	X	34.07162	179.56825	214.14680	3.40361	0.1661611	0.17199036	3.2023341	21	—	—
411142 2009 WZ <sub>262</sub>	16.2	X	74.12687	307.23322	99.75819	11.82825	0.1010336	0.17712467	3.1401373	21	—	—
411143 2009 XL	16.9	X	23.01394	311.72536	152.26160	1.55482	0.1394341	0.18183953	3.0856300	21	—	—
411144 2009 XV <sub>2</sub>	16.5	X	42.30544	41.84883	35.93036	9.46623	0.2338423	0.18150467	3.0894240	21	—	—
411145 2009 XZ <sub>10</sub>	17.1	X	349.36137	87.77954	107.27853	6.71093	0.0379819	0.27463599	2.3440367	21	2 11.5	19.8
411146 2009 XQ <sub>23</sub>	15.5	X	47.85919	354.63718	59.00654	12.14064	0.1105359	0.17770302	3.1333303	21	—	—
411147 2009 YB <sub>14</sub>	16.7	X	102.74647	321.03958	81.76728	9.45129	0.2651017	0.18633401	3.0358103	21	2 23.4	21.1
411148 2009 YN <sub>22</sub>	16.0	X	43.07691	349.55760	86.27477	14.10911	0.2173405	0.17781651	3.1319969	21	—	—
411149 2009 YD <sub>24</sub>	16.0	X	108.94020	294.26370	103.30107	14.56694	0.2643029	0.18817874	3.0159375	21	2 23.6	20.6
411150 2010 AV <sub>4</sub>	16.2	X	14.77670	27.45323	43.69982	1.34095	0.1165351	0.17139866	3.2097000	21	—	—
411151 2010 AY <sub>10</sub>	16.2	X	17.17977	45.91396	86.16827	11.41840	0.0797257	0.18041710	3.1018271	21	1 17.4	20.2
411152 2010 AS <sub>39</sub>	15.0	X	22.06789	20.89879	82.72922	13.70060	0.1062992	0.17915943	3.1163264	21	—	—
411153 2010 AV <sub>41</sub>	16.0	X	14.00233	2.27664	133.31927	11.02140	0.0797358	0.17948079	3.1126054	21	1 16.2	19.9
411154 2010 AM <sub>84</sub>	16.2	X	21.13488	221.87966	184.08553	15.08000	0.0724241	0.17799336	3.1299220	21	—	—
411155 2010 AP <sub>110</sub>	15.6	X	331.37436	118.17737	20.86706	12.39764	0.2980824	0.17901647	3.1179852	21	—	—
411156 2010 AZ <sub>111</sub>	16.6	X	78.48636	262.76715	113.55140	6.59157	0.1566503	0.18507359	3.0495780	21	—	—
411157 2010 AY <sub>134</sub>	16.7	X	49.49926	333.46188	76.29088	6.54601	0.1786676	0.18386660	3.0629095	21	—	—
411158 2010 AL <sub>136</sub>	15.6	X	300.59985	287.82196	214.54755	12.00982	0.1787177	0.17565073	3.1576894	21	—	—
411159 2010 BN <sub>5</sub>	15.5	X	278.56016	93.14839	109.97333	11.45779	0.0483074	0.17022579	3.2244264	21	—	—
411160 2010 BP <sub>31</sub>	16.7	X	120.57318	289.00786	67.34889	14.72448	0.2786648	0.19222071	2.9735090	21	1 16.5	21.3
411161 2010 BM <sub>98</sub>	16.2	X	29.55227	99.14918	6.43241	9.11285	0.1164020	0.18792634	3.0186374	21	—	—
411162 2010 BW <sub>95</sub>	16.4	X	114.73525	300.63709	15.62586	18.94952	0.2841220	0.18205480	3.0831911	21	—	—
411163 2010 BG <sub>104</sub>	16.4	X	138.18259	3.65401	56.17163	18.20366	0.0991579	0.20458079	2.8525033	21	4 5.8	20.9
411164 2010 CK <sub>145</sub>	17.3	X	336.01606	240.76775	318.46372	8.06722	0.1729938	0.26522116	2.3991861	21	1 9.9	20.1
411165 2010 DF <sub>1</sub>	21.8	X	180.49740	101.78588	154.87314	20.08608	0.5027425	0.48796814	1.5978711	21	—	—
411166 2010 DU <sub>18</sub>	17.7	X	49.51922	149.34680	96.86001	6.05727	0.2035089	0.27812950	2.3243669	21	8 29.5	20.2
411167 2010 DV <sub>19</sub>	15.6	X	52.55262	168.00894	208.25929	20.88461	0.0288890	0.17030932	3.2233721	21	12 31.9	20.6
411168 2010 DD <sub>29</sub>	16.1	X	5.21260	221.14318	208.77384	15.37150	0.0864323	0.17143249	3.2092777	21	—	—
411169 2010 EC <sub>34</sub>	18.0	X	107.14972	284.91367	180.94974	22.71889	0.0971073	0.35846422	1.9626311	21	3 31.2	19.6
411170 2010 EW <sub>80</sub>	18.0	X	101.58819	124.70928	161.48164	6.96896	0.2474020	0.30617315	2.1801748	21	12 21.7	21.8
411171 2010 EO <sub>82</sub>	17.7	X	124.03246	255.73793	359.69632	2.77013	0.1102768	0.30381601	2.1914368	21	11 27.9	20.8
411172 2010 EK <sub>83</sub>	17.7	X	6.86058	97.66969	192.41931	5.86362	0.1782858	0.28061263	2.3106344	21	8 2.8	19.5
411173 2010 EY <sub>103</sub>	18.3	X	94.46308	222.96872	29.50889	2.49024	0.1447519	0.29636031	2.2280385	21	10 25.4	21.2
411174 2010 FZ <sub>15</sub>	17.9	X	65.99094	264.14068	16.52921	7.29410	0.1395397	0.29546169	2.2325538	21	10 28.4	20.7
411175 2010 FJ <sub>34</sub>	15.3	X	278.59133	153.01522	44.56574	19.12388	0.0887418	0.17263076	3.1944096	21	—	—
411176 2010 FU <sub>54</sub>	18.5	X	119.44313	108.27746	179.96821	2.12493	0.1112607	0.31056642	2.1595655	21	—	—
411177 2010 FO <sub>79</sub>	16.0	X	29.60772	322.97020	114.78082	5.76238	0.2684272	0.17536346	3.1611370	21	—	—
411178 2010 FN <sub>87</sub>	17.7	X	133.29260	163.86941	55.64860	7.67609	0.1122484	0.29842454	2.2177522	21	10 23.5	20.8
411179 2010 GS <sub>32</sub>	18.1	X	86.02333	141.19161	82.84884	3.97188	0.2123998	0.28698078	2.2763245	21	9 17.1	21.3
411180 2010 GM <sub>98</sub>	18.1	X	52.12759	237.16045	27.65652	4.24336	0.0875346	0.28770316	2.2725126	21	9 10.1	20.6
411181 2010 GH <sub>118</sub>	17.9	X	64.82561	198.89376	92.48313	6.85658	0.1254665	0.29327918	2.2436162	21	11 11.7	20.8
411182 2010 GQ <sub>137</sub>	18.2	X	105.29283	256.15382	38.56195	2.72434	0.1703982	0.30822853	2.1704718	21	—	—
411183 2010 GD <sub>144</sub>	18.0	X	87.87096	153.28497	72.67932	5.62317	0.1731723	0.28691706	2.2766615	21	9 17.9	21.1
411184 2010 HU <sub>10</sub>	17.4	X	316.02323	6.81009	329.42507	4.71251	0.2410090	0.26374263	2.4081442	21	6 11.4	19.8
411185 2010 HE <sub>48</sub>	17.3	X	293.96442	351.83719	128.99837	2.04473	0.2381856	0.25509905	2.4622387	21	4 17.3	20.5
411186 2010 JP <sub>1</sub>	17.2	X	28.04948	197.26100	97.63905	14.35739	0.2408875	0.28263525	2.2995975	21	10 19.2	19.9
411187 2010 JO <sub>40</sub>	17.8	X	47.00072	320.10968	313.32905	4.14297	0.2785884	0.28267225	2.2993969	21	10 11.9	20.7
411188 2010 JC <sub>43</sub>	16.8	X	247.34521	197.95937	47.35275	14.70697	0.1504142	0.23999904	2.5644627	21	—	—
411189 2010 JV <sub>45</sub>	17.6	X	298.75786	223.15898	107.95714	5.49502	0.1697659	0.26860792	2.3789766	21	5 20.3	20.4
411190 2010 JF <sub>66</sub>	17.3	X	272.20536	201.23696	150.30096	9.89066	0.2169233	0.25398779	2.4694154	21	5 10.5	21.1
411191 2010 JZ <sub>84</sub>	18.3	X	72.30725	299.78073	319.44431	2.50093	0.2109995	0.28847506	2.2684569	21	10 15.5	21.3
411192 2010 JE <sub>116</sub>	17.4	X	82.66724	6.16823	211.01123	6.16873	0.1833386	0.28174178	2.3044567	21	8 25.7	20.5
411193 2010 JE <sub>148</sub>	18.3	X	99.78123	100.65255	125.65477	7.10736	0.1902182	0.28910963	2.2651363	21	10 3.3	21.7
411194 2010 JT <sub>171</sub>	17.4	X	24.37874	182.02429	83.33667	12.87370	0.2219651	0.27848656	2.3223797	21	8 16.7	19.5
411195 2010 KW <sub>3</sub>	17.3	X	344.28883									



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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>
411201 2010 LJ <sub>14</sub>	17.8	X	229.23747	295.37245	177.38282	12.03221	0.3417110	0.47514337	1.6264958	21	8 27.1	19.6
411202 2010 LU <sub>17</sub>	16.3	X	258.49421	314.44407	329.73767	28.25653	0.1251420	0.23536702	2.5979990	21	2 11.4	20.3
411203 2010 LL <sub>35</sub>	16.7	X	192.67355	18.86213	227.51628	12.82076	0.2273040	0.22549717	2.6732648	21	—	—
411204 2010 LZ <sub>51</sub>	16.0	X	254.07166	274.03500	339.35060	27.07636	0.1609723	0.22815918	2.6524309	21	1 2.9	20.8
411205 2010 LV <sub>79</sub>	16.3	X	195.86021	353.58016	341.93701	14.06704	0.2597508	0.22886807	2.6469511	21	2 16.5	21.0
411206 2010 LL <sub>110</sub>	17.4	X	61.75681	217.41001	76.31183	7.74644	0.1531338	0.29050142	2.2578957	21	11 13.9	20.2
411207 2010 LN <sub>110</sub>	17.4	X	44.51080	60.96491	248.67209	6.05478	0.1459545	0.28883511	2.2665714	21	11 9.8	20.1
411208 2010 MM <sub>97</sub>	17.5	X	278.25980	2.04860	21.78818	3.48042	0.1913779	0.25585491	2.4573869	21	7 1.4	20.7
411209 2010 MO <sub>97</sub>	17.6	X	249.04458	330.83615	37.90711	11.99377	0.2324471	0.24606405	2.5221482	21	5 4.6	21.8
411210 2010 NZ <sub>6</sub>	17.7	X	275.65071	108.53774	243.01665	3.42721	0.2422364	0.25509895	2.4622394	21	5 7.4	21.1
411211 2010 NU <sub>14</sub>	16.9	X	186.63909	244.14298	145.76764	5.54043	0.2956423	0.23263817	2.6182759	21	4 14.7	21.7
411212 2010 NV <sub>22</sub>	16.7	X	194.51006	246.59314	175.92524	27.74788	0.2790689	0.23982833	2.5656794	21	5 29.5	21.9
411213 2010 NU <sub>25</sub>	16.3	X	184.04103	79.98750	117.12260	26.83574	0.1189911	0.23443282	2.6048963	21	3 29.2	20.9
411214 2010 NC <sub>63</sub>	17.5	X	141.17268	223.70124	300.02125	11.65490	0.1877523	0.22384391	2.6864115	21	3 18.1	21.5
411215 2010 NP <sub>68</sub>	16.2	X	189.43759	353.48373	33.28658	15.49459	0.3068108	0.23239320	2.6201155	21	4 12.9	21.1
411216 2010 NM <sub>69</sub>	17.6	X	234.09636	95.64842	224.59640	9.36282	0.2292680	0.23300679	2.6155137	21	2 20.6	22.3
411217 2010 ND <sub>87</sub>	16.8	X	172.75045	269.10581	148.83588	17.09818	0.2035194	0.23489627	2.6014689	21	5 8.8	21.5
411218 2010 NS <sub>103</sub>	16.5	X	218.13385	125.76447	257.73648	8.34243	0.0551326	0.24048316	2.5610198	21	5 3.7	20.2
411219 2010 OE <sub>14</sub>	16.6	X	170.00989	147.59230	310.89433	12.76428	0.1974361	0.24074352	2.5591730	21	6 21.6	21.0
411220 2010 OO <sub>19</sub>	17.5	X	197.17918	143.99512	246.91309	5.34557	0.0905104	0.23557440	2.5964741	21	4 19.2	21.4
411221 2010 OV <sub>28</sub>	16.6	X	212.37173	53.04970	322.23912	10.67672	0.2091661	0.23588183	2.5942175	21	4 8.8	21.2
411222 2010 OV <sub>37</sub>	16.9	X	197.98112	154.36589	286.46341	4.43866	0.1309059	0.24507495	2.5289298	21	6 24.4	20.9
411223 2010 OO <sub>49</sub>	17.5	X	235.70658	280.36736	37.04154	11.90179	0.1954146	0.23119819	2.6291363	21	3 1.4	22.0
411224 2010 OL <sub>74</sub>	17.3	X	247.50751	256.72911	99.47470	13.45138	0.2808824	0.24185910	2.5512974	21	4 21.7	21.9
411225 2010 OZ <sub>86</sub>	16.9	X	301.97076	59.63385	227.12513	15.25795	0.1519233	0.26302324	2.4125332	21	3 20.5	20.3
411226 2010 OO <sub>106</sub>	16.5	X	204.87033	121.69213	317.39515	11.25285	0.2421617	0.24283690	2.5444442	21	6 25.9	21.0
411227 2010 OV <sub>108</sub>	16.7	X	273.71884	318.69674	0.19048	11.73220	0.1899829	0.23990103	2.5651611	21	3 30.4	20.5
411228 2010 PW <sub>1</sub>	17.4	X	346.67402	31.27689	281.94990	3.92195	0.1844639	0.26803308	2.3823768	21	7 23.5	19.2
411229 2010 PD <sub>49</sub>	17.0	X	214.85318	24.25530	1.16326	10.73977	0.1368660	0.23634792	2.5908058	21	4 27.2	21.1
411230 2010 PB <sub>52</sub>	17.0	X	246.14459	173.58039	195.76556	13.93232	0.2617330	0.24244552	2.5471818	21	5 3.0	21.3
411231 2010 PG <sub>57</sub>	16.8	X	320.23266	9.43172	334.56754	6.68973	0.1076297	0.26350045	2.4096195	21	7 26.1	19.2
411232 2010 PX <sub>61</sub>	17.0	X	301.75946	34.87331	338.00970	7.65312	0.1220891	0.26371639	2.4083039	21	8 4.6	19.5
411233 2010 PH <sub>62</sub>	17.7	X	353.38163	268.43973	30.44822	3.68795	0.2109867	0.26305634	2.4123308	21	7 16.5	19.2
411234 2010 PH <sub>65</sub>	17.1	X	222.90861	190.29599	156.24754	9.44707	0.1754775	0.23854028	2.5749071	21	3 21.2	21.3
411235 2010 PX <sub>73</sub>	17.6	X	329.51777	166.78376	169.52841	2.41246	0.2128484	0.26395382	2.4068596	21	7 16.8	19.3
411236 2010 PP <sub>75</sub>	17.4	X	307.35578	165.25103	188.84611	1.92003	0.1844179	0.26283206	2.4137030	21	7 3.8	20.0
411237 2010 PE <sub>80</sub>	17.9	X	286.90361	204.91678	164.78007	2.87134	0.1884994	0.25855847	2.4402269	21	6 23.5	21.0
411238 2010 QK <sub>2</sub>	17.1	X	317.13867	209.31574	110.37777	2.64045	0.1878234	0.25957749	2.4338363	21	5 29.7	19.5
411239 2010 QK <sub>6</sub>	17.4	X	321.65469	77.82115	224.61213	1.41800	0.2159503	0.25682465	2.4511972	21	5 6.3	19.6
411240 2010 RG <sub>9</sub>	17.6	X	341.20869	148.96271	150.96656	2.45223	0.2175398	0.26120578	2.4237111	21	6 13.1	19.5
411241 2010 RF <sub>23</sub>	16.9	X	172.37065	94.13565	299.61722	12.89284	0.0980686	0.23633914	2.5908700	21	3 21.6	21.0
411242 2010 RF <sub>39</sub>	16.8	X	253.05698	83.63996	313.98639	14.04973	0.0873631	0.25871350	2.4392519	21	7 5.1	20.1
411243 2010 RY <sub>40</sub>	17.4	X	336.81305	243.30113	66.04503	3.54499	0.2069321	0.26231566	2.4168697	21	6 19.5	19.2
411244 2010 RB <sub>62</sub>	16.8	X	244.72916	300.42580	15.04505	10.68672	0.2489413	0.23541894	2.5976170	21	3 1.5	21.3
411245 2010 RZ <sub>68</sub>	17.1	X	1.60943	27.28582	251.18805	5.76287	0.2023786	0.25978976	2.4325104	21	6 30.9	18.8
411246 2010 RM <sub>73</sub>	18.0	X	273.10078	335.97594	51.23972	3.38971	0.2034535	0.25811073	2.4430481	21	6 27.3	21.2
411247 2010 RP <sub>75</sub>	17.5	X	226.12785	275.85123	76.42163	5.58843	0.2682755	0.23780055	2.5802442	21	3 29.2	22.1
411248 2010 RL <sub>80</sub>	17.3	X	289.00162	202.25822	174.56357	4.60270	0.0907386	0.26157157	2.4214510	21	7 22.7	20.3
411249 2010 RY <sub>82</sub>	17.3	X	275.47072	30.47831	56.02790	7.70966	0.0915784	0.26900628	2.3766274	21	10 15.8	20.0
411250 2010 RB <sub>86</sub>	17.7	X	346.41664	259.66081	56.49166	2.98569	0.0733819	0.26254212	2.4154797	21	8 2.1	20.3
411251 2010 RO <sub>90</sub>	17.3	X	261.53195	205.71894	179.54097	6.70940	0.0926048	0.25886467	2.4383022	21	6 25.7	20.6
411252 2010 RO <sub>92</sub>	17.4	X	208.86980	46.18316	329.57534	12.19779	0.1776602	0.24015785	2.5633320	21	4 6.2	21.8
411253 2010 RU <sub>104</sub>	17.6	X	275.06046	93.66827	195.89999	12.66546	0.1914617	0.23654583	2.5893605	21	2 21.9	21.8
411254 2010 RF <sub>109</sub>	17.5	X	327.76584	150.41783	176.58160	5.85492	0.1163715	0.26027599	2.4294799	21	7 9.9	20.1
411255 2010 RW <sub>110</sub>	17.4	X	281.87413	297.63393	8.18322	13.57782	0.1621241	0.24269974	2.5454028	21	3 27.3	20.8
411256 2010 RU <sub>118</sub>	17.0	X	206.40534	60.87814	47.57494	8.30306	0.1400304	0.25472977	2.4646178	21	8 11.7	20.9
411257 2010 RA <sub>120</sub>	16.9	X	7.81751	304.03153	257.24195	3.29462	0.1277347	0.23366548	2.6105960	21	3 17.6	19.6
411258 2010 RS <sub>120</sub>	16.6	X	226.26429	7.63202	344.90457	13.47620	0.0903487	0.23901610	2.5714887	21	3 29.3	20.5
411259 2010 RQ <sub>122</sub>	17.9	X	182.65344	269.22301	220.67163	7.89575	0.0780679	0.26006120	2.4308175	21	8 10.6	21.6
411260 2010 RQ <sub>123</sub>	16.9	X	278.70706	271.12850	3.67353	11.86484	0.1331311	0.23194675	2.6234765	21	2 21.2	20.8
411261 2010 RJ <sub>124</sub>	16.9	X	168.92368	51.93306	355.85114	13.70758	0.1180233	0.23286927	2.6165433	21	4 9.5	21.0
411262 2010 RD <sub>125</sub>	18.4	X	278.26342	215.61214	143.02806	2.63561	0.1882520	0.25257286	2.4786294	21	5 28.2	21.7
411263 2010 RV <sub>126</sub>	17.4	X	213.07708	5.48375	57.42193	4.16757	0.1575162	0.24665094	2.5181458	21	6 14.8	21.5
411264 2010 RZ <sub>127</sub>	17.0	X	266.31008	340.22979	334.76990	11.91624	0.1840435	0.24167361	2.5526027	21	3 16.7	21.1
411265 2010 RP <sub>139</sub>	17.9	X	275.99089	192.72766	183.38077	5.03760	0.1663839	0.25695022	2.4503985	21	6 21.1	21.2
411266 2010 RW <sub>139</sub>	17.7	X	354.85303	138.27468	149.79590	2.96305	0.1866752	0.26037579	2.4288591	21	6 30.4	19.5
411267 2010 RS <sub>144</sub>	17.6	X	275.60836	49.06724	241.66316	2.23541						

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ECLIPTIC AND EQUINOX 2000.0, EPOCH 2021 JULY 5.0 TT

Planet	H	G	M	$\omega$	$\Omega$	$i$	$e$	$\mu$	$a$	TE	Oppos.	V
411281 2010 SY <sub>29</sub>	16.9 <sup>m</sup>	X	44.82667	257.15399	353.90672	7.01689	0.0970534	0.25932645	2.4354067	21	8 8.8	19.6
411282 2010 SP <sub>30</sub>	17.2	X	223.27710	312.33827	24.29640	14.49922	0.1826738	0.23268343	2.6179363	21	3 13.8	21.6
411283 2010 SZ <sub>32</sub>	17.6	X	223.83182	304.43463	23.67921	14.17685	0.1098463	0.23226845	2.6210536	21	3 6.5	21.8
411284 2010 SG <sub>36</sub>	16.9	X	173.07895	34.77532	15.60847	13.12893	0.2577229	0.23210297	2.6222993	21	4 23.9	21.6
411285 2010 TM <sub>1</sub>	17.5	X	207.70052	5.51338	99.17954	2.19379	0.1431538	0.25378793	2.4707117	21	8 4.7	21.1
411286 2010 TF <sub>6</sub>	17.3	X	347.23929	87.19494	161.77217	5.80220	0.0627151	0.24192276	2.5508499	21	4 27.8	20.3
411287 2010 TE <sub>12</sub>	16.8	X	151.46325	259.16156	149.11316	8.52123	0.2699248	0.22742445	2.6581406	21	4 11.1	21.4
411288 2010 TH <sub>13</sub>	17.3	X	183.38453	193.46446	251.91891	4.21564	0.1271419	0.24558802	2.5254084	21	6 15.5	21.0
411289 2010 TR <sub>14</sub>	16.6	X	300.56501	211.94616	4.24656	13.73547	0.1195861	0.22080399	2.7110120	21	1 6.3	20.7
411290 2010 TJ <sub>15</sub>	17.6	X	106.18073	166.65593	313.38925	5.61903	0.0555648	0.23539415	2.5977994	21	4 23.8	21.2
411291 2010 TP <sub>17</sub>	16.7	X	140.90928	187.06725	214.94907	9.24883	0.1957608	0.22363659	2.6880715	21	3 14.2	21.0
411292 2010 TS <sub>37</sub>	18.0	X	192.67363	30.28216	344.90208	4.05828	0.3103384	0.23218081	2.6217131	21	3 29.7	22.8
411293 2010 TU <sub>55</sub>	17.2	X	252.81463	127.56485	227.35211	7.02085	0.1156213	0.24446678	2.5331223	21	5 2.1	20.8
411294 2010 TT <sub>69</sub>	16.8	X	150.28924	203.62474	188.29982	10.54352	0.0811655	0.22910388	2.6451344	21	2 27.7	20.6
411295 2010 TF <sub>76</sub>	18.2	X	230.60471	322.10600	34.93198	4.08857	0.2016155	0.23895030	2.5719607	21	4 7.7	22.3
411296 2010 TH <sub>79</sub>	17.2	X	252.55569	162.78115	204.23618	16.88021	0.1662683	0.24388825	2.5371266	21	5 14.0	21.1
411297 2010 TE <sub>80</sub>	17.2	X	190.21184	72.57002	2.39676	6.80824	0.1593324	0.24107617	2.5568183	21	6 7.7	21.4
411298 2010 TV <sub>83</sub>	17.3	X	312.60201	72.38944	185.38645	7.27906	0.0417003	0.23590159	2.5940726	21	3 21.3	20.6
411299 2010 TD <sub>88</sub>	17.9	X	183.81764	276.77687	151.95786	2.40302	0.0591366	0.24329442	2.5412533	21	5 24.9	21.6
411300 2010 TT <sub>92</sub>	17.4	X	310.93817	138.17387	213.13974	15.43769	0.1894169	0.25915060	2.4365083	21	7 2.6	20.4
411301 2010 TP <sub>97</sub>	17.8	X	294.60339	338.56447	28.01812	2.20349	0.1986464	0.25767351	2.4458108	21	6 28.9	20.6
411302 2010 TR <sub>97</sub>	17.0	X	332.49731	207.21722	20.18416	5.27105	0.2003409	0.23499510	2.6007394	21	2 15.4	20.1
411303 2010 TQ <sub>113</sub>	17.0	X	254.20871	83.22923	206.45245	12.21347	0.1909360	0.23039559	2.6352386	21	2 3.2	21.6
411304 2010 TL <sub>114</sub>	16.5	X	319.89113	199.93436	19.44048	13.46790	0.0725754	0.22489985	2.6779961	21	2 12.8	20.3
411305 2010 TS <sub>116</sub>	17.2	X	168.43116	5.97045	28.27194	8.67088	0.0716377	0.22920816	2.6443321	21	3 26.5	21.1
411306 2010 TG <sub>118</sub>	16.8	X	273.20955	216.67439	49.04374	8.09572	0.0384526	0.22433141	2.6825181	21	2 15.6	20.6
411307 2010 TL <sub>131</sub>	17.4	X	247.56322	240.96814	71.15517	5.54188	0.3104983	0.23684163	2.5872041	21	2 23.9	22.1
411308 2010 TY <sub>139</sub>	17.1	X	60.96610	93.09236	352.70953	6.04230	0.0961161	0.21121672	2.7924400	21	1 17.9	20.4
411309 2010 TV <sub>143</sub>	16.4	X	294.31911	290.48256	265.79314	5.13494	0.0080250	0.20864450	2.8153437	21	—	—
411310 2010 TF <sub>144</sub>	18.3	X	278.36239	6.36697	315.13405	3.67610	0.2382894	0.24314512	2.5422934	21	4 1.4	22.2
411311 2010 TJ <sub>146</sub>	18.0	X	136.44473	122.90766	324.10469	2.94154	0.0746990	0.23111564	2.6297623	21	4 22.8	21.7
411312 2010 TX <sub>146</sub>	17.1	X	146.32558	102.30505	260.17841	3.36880	0.0804443	0.21459954	2.7634168	21	1 21.3	21.0
411313 2010 TY <sub>147</sub>	16.6	X	215.21892	129.94076	240.78979	17.00243	0.0040102	0.23449026	2.6044709	21	4 4.8	21.7
411314 2010 TJ <sub>149</sub>	17.7	X	34.87797	322.61042	107.75126	4.56358	0.1163514	0.29423353	2.2387621	21	—	—
411315 2010 TJ <sub>162</sub>	16.9	X	155.91039	270.95469	188.60222	27.53377	0.3721141	0.23134907	2.6279931	21	6 16.1	22.4
411316 2010 TA <sub>168</sub>	17.4	X	195.46026	22.90487	22.42361	3.97085	0.1409016	0.23732704	2.5836751	21	5 6.4	21.3
411317 2010 TN <sub>178</sub>	18.2	X	259.88327	46.20021	27.86121	2.52171	0.1865750	0.26042638	2.4285445	21	8 18.3	21.3
411318 2010 UU	17.4	X	172.23241	28.18559	0.50231	3.44459	0.1661129	0.22821924	2.6256630	21	3 26.8	21.7
411319 2010 UD <sub>4</sub>	17.3	X	273.99677	34.37432	313.51929	2.64601	0.1415173	0.24451665	2.5327778	21	5 13.9	20.9
411320 2010 UC <sub>6</sub>	16.7	X	232.73326	128.48481	210.25138	14.99197	0.2160272	0.23225663	2.6211146	21	3 14.4	21.4
411321 2010 UZ <sub>11</sub>	17.0	X	206.63269	347.81777	27.23338	10.14790	0.0893490	0.23377246	2.6097996	21	4 11.3	20.8
411322 2010 UG <sub>12</sub>	16.5	X	276.18369	268.94091	24.10738	14.07208	0.1574638	0.23410569	2.6073224	21	3 11.9	20.5
411323 2010 UY <sub>15</sub>	17.2	X	224.95941	135.09559	221.28720	3.34097	0.1454834	0.23421652	2.6064999	21	4 3.2	21.4
411324 2010 UO <sub>16</sub>	17.1	X	201.24044	327.36900	28.89463	4.44911	0.2003065	0.22854059	2.6494790	21	3 15.2	21.6
411325 2010 UT <sub>21</sub>	17.1	X	163.82513	358.24953	50.31161	5.23597	0.2353113	0.22773797	2.6557005	21	4 17.5	21.5
411326 2010 UU <sub>21</sub>	17.3	X	200.71867	35.89836	35.08281	5.83384	0.2416579	0.24043350	2.5613724	21	6 10.9	21.8
411327 2010 UZ <sub>27</sub>	17.1	X	263.83385	268.67764	57.22072	5.15751	0.1188441	0.23400583	2.6080641	21	4 9.5	20.8
411328 2010 UW <sub>28</sub>	17.6	X	159.47403	270.00150	178.30805	2.08518	0.2390392	0.23192765	2.6236206	21	5 31.9	22.1
411329 2010 UO <sub>30</sub>	16.8	X	187.87811	56.11421	32.83832	22.49259	0.0757209	0.24308973	2.5426796	21	6 22.9	21.0
411330 2010 UN <sub>34</sub>	17.5	X	234.49413	5.36912	342.59806	4.72984	0.2755370	0.23736512	2.5833988	21	3 26.1	22.2
411331 2010 UM <sub>36</sub>	16.5	X	198.09377	122.18055	265.00278	11.40445	0.1923883	0.23068363	2.6330445	21	4 13.1	21.2
411332 2010 UA <sub>37</sub>	16.3	X	248.56724	309.60375	42.75924	10.28743	0.2218630	0.23682033	2.5873592	21	4 17.5	20.4
411333 2010 UD <sub>37</sub>	16.4	X	221.53321	51.71459	258.37402	12.17390	0.1738203	0.21723949	2.7405866	21	2 1.2	21.2
411334 2010 UN <sub>49</sub>	17.6	X	234.78255	131.03664	179.14406	6.12944	0.1614889	0.22721078	2.6598068	21	2 14.8	22.1
411335 2010 UL <sub>52</sub>	16.6	X	181.87660	281.61281	46.99051	13.81775	0.1697792	0.21493125	2.7601732	21	1 28.8	21.3
411336 2010 UN <sub>53</sub>	17.4	X	241.89102	340.68779	28.25823	9.22848	0.1770742	0.24064663	2.5598599	21	5 2.4	21.5
411337 2010 UP <sub>53</sub>	17.2	X	218.64153	307.23469	358.32175	4.60247	0.1406689	0.22043934	2.7140008	21	1 29.8	21.5
411338 2010 UA <sub>56</sub>	16.6	X	89.53745	237.47934	246.72944	11.36244	0.1615632	0.22159027	2.7045951	21	4 25.4	20.3
411339 2010 UY <sub>56</sub>	16.7	X	200.85863	320.00275	49.25456	14.38940	0.2721756	0.23295537	2.6158986	21	4 3.5	21.5
411340 2010 UU <sub>58</sub>	15.7	X	205.89442	179.43848	54.76094	12.06589	0.0449544	0.18956993	3.0011642	21	—	—
411341 2010 UB <sub>60</sub>	17.0	X	215.81554	325.33287	51.17884	5.82161	0.0977835	0.23045804	2.6347625	21	4 23.3	21.0
411342 2010 UJ <sub>64</sub>	17.9	X	213.02919	8.82446	327.31634	1.79671	0.2041988	0.22683071	2.6627771	21	2 27.4	22.3
411343 2010 US <sub>64</sub>	17.0	X	133.04766	80.58191	17.00136	3.70545	0.0506958	0.23091425	2.6312911	21	4 30.3	20.6
411344 2010 UE <sub>65</sub>	17.7	X	269.03287	311.95790	22.39113	1.44379	0.1356729	0.23917845	2.5703249	21	4 21.9	21.4
411345 2010 UR <sub>66</sub>	16.6	X	268.85601	207.64846	40.72262	4.04162	0.1440085	0.21466470	2.7624577	21	1 8.6	20.8
411346 2010 UY <sub>70</sub>	16.6	X	253.85689	11.56496	320.41225	11.12798	0.0869397	0.23506214	2.6002449	21	4 1.7	20.6
411347 2010 UR <sub>73</sub>	16.3	X	226.72287	286.69655	69.76398	14.39442	0.3132893	0.23575980	2.5951126	21	4 6.6	21.3
411348 2010 UA <sub>75</sub>	16.5	X	170.88148	138.38766	283.66247	7.91041	0.1099759	0.23306180	2.6151021	21	4 30.7	20.6
411349 2010 UP <sub>75</sub>	17.1	X	164.68993	356.27749	353.32378	5.92293	0.0419783	0.21251340	2.7810694	21	1 24.9	21.1
411350 2010 UG <sub>76</sub>	16.9	X	235.29205	71.89615	316.29243	3.81314	0.2524856	0.24117570	2.5561148	21	5 15.4	21.4
411351 2010 UO <sub>76</sub>	16.7	X	197.33506	150.32218	245.63888	12.13826	0.1949600	0.23389042	2.6089220	21	4 25.2	21.3
411352 2010 UE <sub>77</sub>	17.0	X	225.15987	55.80125	323.27670	2.83444	0.2066478	0.23555638	2.5966065	21	4 28.3	21.3
411353 2010 UO <sub>78</sub>	17.6	X	238.02878	135.35225	240.78959	17.88056	0.2122692	0.24209858	2.5496147	21		

# ELEMENTS AND OPPOSITION DATES IN 2021

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2021 JULY 5.0 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>
411361 2010 UR <sub>89</sub>	18.0 <sup>m</sup>	X	185.56622	157.98509	213.34669	4.06980	0.1918434	0.23023834	2.6364384	21	3 17.4	22.3
411362 2010 US <sub>93</sub>	16.7	X	174.91235	84.03791	300.89860	5.46534	0.0197771	0.22363483	2.6880855	21	3 14.4	20.5
411363 2010 UO <sub>94</sub>	16.2	X	187.31078	82.76483	336.40305	11.62493	0.1585527	0.23659372	2.5890110	21	5 12.8	20.6
411364 2010 UO <sub>97</sub>	17.0	X	101.95727	359.15607	88.05693	4.65868	0.1678524	0.21774648	2.7363309	21	3 30.1	20.7
411365 2010 UY <sub>101</sub>	16.5	X	240.24241	248.94097	43.95040	11.82641	0.0360096	0.21899376	2.7259312	21	2 13.3	20.6
411366 2010 UF <sub>102</sub>	16.8	X	205.66888	158.08628	221.55031	10.96930	0.2057422	0.23228721	2.6209124	21	4 12.9	21.3
411367 2010 UP <sub>107</sub>	17.2	X	247.84647	280.32291	70.93289	4.82232	0.1800758	0.23728744	2.5839626	21	4 18.7	21.2
411368 2010 VM <sub>14</sub>	16.8	X	121.69104	44.61745	56.70424	13.49074	0.2218877	0.22511043	2.6763257	21	5 13.8	20.9
411369 2010 VT <sub>19</sub>	17.3	X	195.30013	165.44601	245.70172	3.26454	0.2426742	0.23616846	2.5921181	21	5 13.7	21.9
411370 2010 VR <sub>27</sub>	16.8	X	246.89366	113.81758	232.17505	11.40721	0.2062553	0.23628001	2.5913022	21	4 4.9	21.2
411371 2010 VL <sub>30</sub>	17.5	X	303.18204	311.67111	99.13701	3.41661	0.1249105	0.26541312	2.3980292	21	10 4.1	19.8
411372 2010 VM <sub>32</sub>	16.7	X	156.47122	17.03463	62.18535	15.29306	0.2357624	0.22852548	2.6495958	21	5 18.5	21.1
411373 2010 VS <sub>47</sub>	16.4	X	168.12243	68.32023	253.37476	11.05098	0.0666080	0.20328563	2.8646062	21	—	—
411374 2010 VO <sub>50</sub>	16.9	X	143.66915	67.55551	346.81917	5.14185	0.0795187	0.22307920	2.6925472	21	3 24.7	20.8
411375 2010 VF <sub>51</sub>	16.3	X	202.13173	93.74866	268.00756	10.99581	0.0977317	0.22413216	2.6841077	21	3 12.9	20.7
411376 2010 VH <sub>53</sub>	16.7	X	253.44122	194.52500	63.51209	9.22202	0.1753457	0.21402499	2.7679595	21	1 3.5	21.3
411377 2010 VP <sub>57</sub>	17.1	X	194.90627	334.21013	68.04281	6.65576	0.1921418	0.23431022	2.6058049	21	5 4.1	21.5
411378 2010 VN <sub>62</sub>	16.7	X	176.79341	99.35341	291.58597	4.30615	0.1079218	0.22295014	2.6935863	21	3 29.6	20.8
411379 2010 VS <sub>62</sub>	17.5	X	220.94715	65.08755	307.80234	2.84948	0.1996095	0.23239938	2.6200691	21	4 17.4	21.8
411380 2010 VH <sub>63</sub>	17.4	X	160.39670	6.07051	27.89127	3.29836	0.0896698	0.22400036	2.6851604	21	3 17.9	21.2
411381 2010 VK <sub>65</sub>	16.6	X	158.20888	276.77419	201.50116	26.99471	0.3964749	0.23283032	2.6168351	21	7 6.7	22.2
411382 2010 VE <sub>68</sub>	17.6	X	235.22468	129.62341	239.96942	4.23853	0.2575762	0.23984313	2.5655739	21	4 22.6	22.1
411383 2010 VF <sub>70</sub>	17.5	X	218.98138	304.91239	32.37635	3.08589	0.3223861	0.23103992	2.6303368	21	3 4.8	22.5
411384 2010 VQ <sub>70</sub>	16.9	X	241.86758	181.47487	203.47058	6.36969	0.2607169	0.24231388	2.5481042	21	5 18.2	21.1
411385 2010 VV <sub>73</sub>	17.3	X	110.15186	351.33553	72.95555	4.64583	0.1857054	0.21644818	2.7472620	21	3 13.7	21.1
411386 2010 VU <sub>78</sub>	17.3	X	149.35090	2.36189	114.47010	6.59380	0.1016882	0.23726786	2.5841047	21	6 20.1	21.1
411387 2010 VD <sub>82</sub>	16.7	X	123.66880	182.08472	75.55794	5.24918	0.0419299	0.21748544	2.7385200	21	3 16.5	20.6
411388 2010 VN <sub>86</sub>	17.5	X	153.69795	337.14309	75.34554	5.29942	0.2605765	0.22510354	2.6763803	21	4 16.7	22.0
411389 2010 VH <sub>87</sub>	17.1	X	226.47785	43.75360	348.84417	2.60111	0.2319353	0.23981236	2.5657933	21	5 15.2	21.5
411390 2010 VQ <sub>87</sub>	17.1	X	182.26898	53.84625	37.96533	7.64874	0.1870873	0.23845706	2.5755061	21	6 22.7	21.5
411391 2010 VV <sub>87</sub>	17.2	X	73.50602	128.04691	324.05539	2.34968	0.1949370	0.21041102	2.7995640	21	2 25.9	20.2
411392 2010 VO <sub>93</sub>	17.1	X	33.36558	271.79649	220.50663	5.27683	0.0162609	0.21421358	2.7663347	21	1 30.9	20.9
411393 2010 VA <sub>97</sub>	17.1	X	207.87038	298.69466	55.51339	8.90272	0.1487168	0.22838917	2.6506500	21	3 21.3	21.4
411394 2010 VO <sub>102</sub>	17.4	X	138.05567	101.87133	316.10605	7.41653	0.2436313	0.22308231	2.6925222	21	4 3.5	21.9
411395 2010 VM <sub>103</sub>	16.4	X	36.86544	291.18049	237.56465	12.87936	0.0428727	0.22101099	2.7093189	21	3 19.9	20.1
411396 2010 VM <sub>104</sub>	16.2	X	188.28240	306.61648	60.35283	15.07528	0.1082249	0.22393232	2.6857043	21	3 22.2	20.6
411397 2010 VE <sub>106</sub>	17.2	X	181.91287	199.36880	195.13065	5.61591	0.0548220	0.22772857	2.6557735	21	4 8.3	20.8
411398 2010 VF <sub>106</sub>	16.6	X	296.04468	66.86886	211.43669	10.44096	0.1658647	0.23015174	2.6370996	21	3 6.1	20.6
411399 2010 VS <sub>106</sub>	15.8	X	139.24153	191.55772	250.92975	21.24164	0.0456705	0.22847371	2.6499960	21	4 13.3	19.9
411400 2010 VC <sub>112</sub>	17.3	X	217.11695	190.95017	209.71705	3.77679	0.1857883	0.23855183	2.5748240	21	5 20.6	21.4
411401 2010 VX <sub>113</sub>	18.1	X	161.41050	93.61167	336.21383	3.86490	0.1932827	0.22865494	2.6485956	21	5 6.9	22.4
411402 2010 VY <sub>115</sub>	16.4	X	164.66236	32.95312	261.58569	10.83089	0.0271951	0.19760311	2.9192651	21	—	—
411403 2010 VK <sub>116</sub>	16.6	X	98.84337	226.58745	252.84668	10.53851	0.1372541	0.22424023	2.6832452	21	4 27.4	20.3
411404 2010 VF <sub>120</sub>	17.3	X	137.80844	256.92300	183.82223	2.43591	0.1656365	0.22456635	2.6806468	21	4 28.4	21.3
411405 2010 VC <sub>123</sub>	17.3	X	136.10143	148.85425	278.20382	4.22747	0.0392481	0.22409644	2.6843929	21	3 22.7	21.1
411406 2010 VV <sub>129</sub>	17.3	X	172.46443	27.10773	10.76205	1.75404	0.1269776	0.22833183	2.6510937	21	4 5.5	21.5
411407 2010 VD <sub>137</sub>	17.6	X	251.36638	258.79832	99.73830	0.99403	0.1284283	0.23902340	2.5714363	21	5 4.9	21.4
411408 2010 VK <sub>141</sub>	17.6	X	284.21914	140.01791	151.98300	4.81378	0.1527790	0.23218479	2.6216832	21	3 15.4	21.4
411409 2010 VF <sub>153</sub>	17.0	X	215.07716	109.70006	272.61874	3.59927	0.2233816	0.23579594	2.5948475	21	4 23.2	21.5
411410 2010 VK <sub>159</sub>	17.0	X	132.78076	205.60056	200.12769	7.19693	0.1525483	0.21695515	2.7429806	21	3 7.5	21.0
411411 2010 VP <sub>165</sub>	16.7	X	197.96319	16.32408	50.95564	7.69486	0.1641887	0.23831065	2.5765609	21	6 5.4	20.8
411412 2010 VM <sub>168</sub>	17.3	X	220.00448	135.98562	239.75945	1.17398	0.1149238	0.23316425	2.6143360	21	4 24.6	21.4
411413 2010 VS <sub>170</sub>	16.9	X	117.27838	14.51710	57.90953	6.20669	0.0951486	0.21801608	2.7340746	21	3 20.4	20.7
411414 2010 VR <sub>171</sub>	16.3	X	149.71937	150.17240	242.12808	12.56655	0.1485670	0.21766309	2.6370298	21	3 4.1	20.8
411415 2010 VS <sub>174</sub>	16.8	X	239.75090	329.59716	9.05928	4.40143	0.2946310	0.23533790	2.5982133	21	3 19.7	21.3
411416 2010 VS <sub>176</sub>	16.7	X	169.84330	86.97144	313.75052	7.01487	0.1199023	0.22630164	2.6669257	21	4 2.8	20.9
411417 2010 VC <sub>192</sub>	17.3	X	197.76329	219.06704	181.79691	2.69017	0.1389447	0.23297336	2.6157639	21	5 4.6	21.5
411418 2010 VA <sub>198</sub>	16.5	X	216.43480	95.76258	292.33073	7.42147	0.1837974	0.23571431	2.5954465	21	5 1.4	20.9
411419 2010 VD <sub>200</sub>	16.4	X	169.63666	266.57173	115.10229	12.65371	0.1636649	0.22437351	2.6821825	21	3 21.6	20.9
411420 2010 VV <sub>200</sub>	17.3	X	170.83742	61.30881	355.57535	9.23714	0.1980180	0.23038479	2.6353210	21	4 27.5	21.7
411421 2010 VC <sub>201</sub>	16.9	X	222.89589	34.90678	355.58649	4.54009	0.2736327	0.23823254	2.5771241	21	5 7.3	21.4
411422 2010 VA <sub>204</sub>	16.5	X	197.84147	154.02983	253.18306	11.00763	0.0601069	0.23902907	2.5713956	21	5 11.5	20.2
411423 2010 VR <sub>205</sub>	17.0	X	170.11126	138.44400	236.39146	5.15145	0.0333181	0.22271968	2.6954440	21	2 25.0	20.8
411424 2010 VB <sub>207</sub>	17.5	X	187.15647	89.30024	265.48186	5.18444	0.1702982	0.22572561	2.6714609	21	2 25.4	21.9
411425 2010 VT <sub>208</sub>	17.3	X	107.48649	194.45115	228.20141	3.17782	0.0984527	0.21686218	2.7437645	21	2 19.6	21.0
411426 2010 VK <sub>209</sub>	17.4	X	155.06378	83.61809	23.30567	7.93006	0.1373324	0.23794457	2.5792030	21	6 14.4	21.5
411427 2010 VR <sub>212</sub>	17.3	X	197.23812	246.82208	190.34451	14.85550	0.0826281	0.24281814	2.5445753	21	6 19.9	21.3
411428 2010 VU <sub>212</sub>	16.0	X	19.86563	287.85468	264.21427	13.56831	0.0496357	0.22836859	2.6508092	21	3 23.0	19.7
411429 2010 WO <sub>2</sub>	16.6	X	117.04333	40.98288	71.43889	10.45109	0.0710727	0.22747095	2.6577783	21	5 6.0	20.2
411430 2010 WE <sub>4</sub>	16.9	X	165.90402	320.64883	41.15185	6.65261	0.0516671	0.21977998	2.7194264	21	2 11.3	20.8
411431 2010 WE <sub>6</sub>	17.7	X	212.79045	184.22983	231.62114	6.68985	0.1469653	0.24069145	2.5595421	21	6 6.4	21.6
411432 2010 WG <sub>8</sub>	16.0	X	90.90148	198.46263	250.21072	16.29622	0.0970951	0.21321631	2.7749539	21	2 24.3	20.1
411433 2010 WO <sub>13</sub>	17.0	X	24.17484	254.71281	266							

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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>		
411441	2010	<i>WB</i> <sub>42</sub>	17.1	X	138.53735	359.86768	26.61028	6.13938	0.0817191	0.21341197	2.7732575	21	2 14.5	21.1
411442	2010	<i>WK</i> <sub>45</sub>	17.0	X	247.21328	277.25748	37.62087	5.58843	0.0314798	0.22201146	2.7011733	21	3 17.9	20.7
411443	2010	<i>WX</i> <sub>49</sub>	16.5	X	148.78382	2.32994	71.58368	13.22272	0.2054135	0.22537844	2.6742036	21	5 6.2	20.9
411444	2010	<i>WF</i> <sub>50</sub>	17.1	X	156.49498	358.33810	68.10480	3.45541	0.0838246	0.22535911	2.6743565	21	4 23.2	21.0
411445	2010	<i>WU</i> <sub>54</sub>	17.1	X	96.28825	137.34933	309.19545	3.37279	0.0276535	0.21566736	2.7538890	21	2 25.9	20.7
411446	2010	<i>WM</i> <sub>55</sub>	16.5	X	74.11881	333.47769	92.69151	4.02964	0.1323298	0.19932643	2.9024146	21	1 18.6	19.9
411447	2010	<i>WF</i> <sub>60</sub>	16.5	X	224.66970	282.37875	69.32142	13.12566	0.1788615	0.22971045	2.6404759	21	4 3.8	21.0
411448	2010	<i>WY</i> <sub>63</sub>	16.9	X	72.19074	346.72215	74.97072	5.20386	0.1199076	0.20262834	2.8707977	21	1 7.5	20.3
411449	2010	<i>WU</i> <sub>65</sub>	15.6	X	287.59037	41.02510	85.89995	14.09034	0.1260390	0.17445748	3.1720716	21	12 2.5	19.6
411450	2010	<i>WF</i> <sub>66</sub>	16.7	X	153.09125	48.61387	45.45353	13.29986	0.2240357	0.22882104	2.6473137	21	5 31.1	21.2
411451	2010	<i>WN</i> <sub>71</sub>	17.1	X	238.02645	40.90233	321.65666	2.09426	0.3255218	0.23760987	2.5816244	21	4 12.8	21.8
411452	2010	<i>WO</i> <sub>71</sub>	16.2	X	270.97296	30.69255	250.99866	5.09710	0.0076954	0.22051953	2.7133429	21	3 3.1	20.0
411453	2010	<i>WZ</i> <sub>72</sub>	16.5	X	234.61959	105.90658	258.81339	5.15778	0.1550289	0.23511684	2.5998416	21	4 21.5	20.6
411454	2010	<i>WK</i> <sub>73</sub>	16.1	X	323.06839	216.66287	265.66323	7.95076	0.0670254	0.18750942	3.0231103	21	—	—
411455	2010	<i>WN</i> <sub>74</sub>	16.6	X	242.29284	151.71503	185.11359	13.22024	0.1754471	0.23439027	2.6052116	21	3 25.4	20.8
411456	2010	<i>WO</i> <sub>74</sub>	16.7	X	160.34848	146.13276	288.68174	11.96646	0.1761863	0.23243429	2.6198067	21	5 9.6	21.1
411457	2010	<i>XX</i> <sub>3</sub>	16.3	X	227.51013	35.90872	269.75014	12.27133	0.1072865	0.22226212	2.6991421	21	2 2.3	20.7
411458	2010	<i>XV</i> <sub>9</sub>	17.5	X	210.96123	330.98542	105.68188	6.26165	0.1768943	0.24157363	2.5533070	21	6 29.8	21.6
411459	2010	<i>XO</i> <sub>11</sub>	16.3	X	298.68642	172.02845	82.88829	10.11998	0.0361472	0.22039340	2.7143780	21	3 8.0	20.2
411460	2010	<i>XU</i> <sub>14</sub>	15.5	X	317.85074	40.30461	79.59895	16.91572	0.0651737	0.18009544	3.1055193	21	—	—
411461	2010	<i>XQ</i> <sub>19</sub>	17.2	X	94.58289	101.36087	18.30647	5.53424	0.0286236	0.22595629	2.6696424	21	4 7.3	20.5
411462	2010	<i>XO</i> <sub>22</sub>	16.2	X	350.12993	287.97366	245.00608	10.78951	0.0903367	0.20918548	2.8104878	21	1 17.9	19.9
411463	2010	<i>XO</i> <sub>28</sub>	17.1	X	85.43000	39.06769	55.23145	4.57875	0.0389773	0.21406489	2.7676155	21	2 26.7	20.7
411464	2010	<i>XE</i> <sub>30</sub>	17.3	X	232.08981	176.37933	207.18301	11.38695	0.1949056	0.23998345	2.5645737	21	5 12.7	21.5
411465	2010	<i>XU</i> <sub>38</sub>	16.7	X	230.42424	323.55456	83.83401	18.83338	0.1652748	0.24108591	2.5567494	21	6 11.9	20.7
411466	2010	<i>XW</i> <sub>38</sub>	16.0	X	206.03122	92.07977	251.95154	23.91433	0.2240295	0.22265187	2.6959913	21	2 20.4	21.2
411467	2010	<i>XX</i> <sub>38</sub>	17.5	X	200.52168	301.77397	95.15229	5.10705	0.2212541	0.23204420	2.6227420	21	5 2.7	22.0
411468	2010	<i>XL</i> <sub>41</sub>	16.8	X	182.00080	353.25168	122.00548	6.21669	0.1142052	0.24167777	2.5525734	21	7 23.3	20.7
411469	2010	<i>XQ</i> <sub>57</sub>	17.1	X	206.55574	151.21100	248.56430	3.71947	0.2145427	0.23296450	2.6158302	21	5 8.9	21.5
411470	2010	<i>XU</i> <sub>72</sub>	16.7	X	150.66247	354.13359	64.03459	5.88998	0.1652735	0.22359633	2.6883941	21	4 2.1	20.4
411471	2010	<i>XM</i> <sub>77</sub>	17.3	X	123.85772	160.67680	235.15170	2.86737	0.1338693	0.21042802	2.7994132	21	2 12.4	21.3
411472	2010	<i>YV</i> <sub>1</sub>	15.5	X	316.60212	45.00260	63.30325	17.22470	0.0990692	0.17659026	3.1464793	21	12 23.1	19.5
411473	2010	<i>YL</i> <sub>2</sub>	16.3	X	224.15371	244.17618	337.91605	9.13744	0.0736655	0.18010589	3.1053992	21	—	—
411474	2010	<i>YK</i> <sub>4</sub>	15.8	X	358.46427	10.98560	53.71141	10.26611	0.0591322	0.17467994	3.1693779	21	12 29.5	20.1
411475	2011	<i>AC</i>	16.0	X	27.81386	146.63052	291.46357	9.66660	0.1659895	0.18740162	3.0242695	21	—	—
411476	2011	<i>AS</i> <sub>22</sub>	15.5	X	47.64534	312.19124	102.42245	11.21398	0.0981767	0.18544395	3.0455164	21	—	—
411477	2011	<i>AF</i> <sub>26</sub>	16.5	X	132.21106	329.77766	99.18974	10.73275	0.1491592	0.21351210	2.7723904	21	4 12.0	20.8
411478	2011	<i>AF</i> <sub>27</sub>	15.1	X	323.15764	223.70524	292.31520	18.46121	0.0988297	0.18561343	3.0436622	21	—	—
411479	2011	<i>AD</i> <sub>35</sub>	16.4	X	211.27747	276.41042	92.66451	14.09875	0.2545747	0.22370037	2.6875605	21	4 12.9	21.4
411480	2011	<i>AW</i> <sub>37</sub>	16.8	X	75.18958	85.56667	320.08973	8.05223	0.1020820	0.19172112	2.9786724	21	—	—
411481	2011	<i>AP</i> <sub>38</sub>	16.5	X	333.54683	243.78995	192.33542	1.20450	0.1378928	0.17436648	3.1731752	21	12 9.8	20.2
411482	2011	<i>AA</i> <sub>39</sub>	16.8	X	104.35562	315.36963	82.10514	4.18163	0.0428588	0.19647547	2.9304222	21	1 13.1	20.8
411483	2011	<i>AA</i> <sub>43</sub>	16.4	X	106.29386	351.37597	99.25605	14.47006	0.1587933	0.21099202	2.7944222	21	4 13.6	20.6
411484	2011	<i>AF</i> <sub>44</sub>	16.8	X	22.29480	334.47163	123.60579	1.94601	0.1255319	0.18876867	3.0096507	21	—	—
411485	2011	<i>AY</i> <sub>44</sub>	16.6	X	16.78652	141.12174	315.57648	4.74636	0.0532001	0.18515870	3.0486435	21	—	—
411486	2011	<i>AO</i> <sub>45</sub>	15.9	X	49.75487	278.55971	128.41812	15.37401	0.1466691	0.18348264	3.0671810	21	—	—
411487	2011	<i>AF</i> <sub>47</sub>	15.7	X	279.75868	84.88785	98.49133	10.88893	0.0384245	0.18474362	3.0532082	21	—	—
411488	2011	<i>AV</i> <sub>48</sub>	16.4	X	205.84778	122.69733	128.23715	2.84018	0.0556953	0.17845688	3.1244999	21	—	—
411489	2011	<i>AJ</i> <sub>50</sub>	16.2	X	92.32395	275.40384	96.48074	11.14975	0.1072348	0.18852096	3.0122865	21	—	—
411490	2011	<i>AG</i> <sub>52</sub>	15.8	X	28.81683	2.39672	80.77600	10.25472	0.1147012	0.18892390	3.0080020	21	—	—
411491	2011	<i>AR</i> <sub>54</sub>	17.1	X	191.92213	335.23451	28.63071	2.81118	0.1611800	0.21432846	2.7653461	21	3 16.6	21.7
411492	2011	<i>AV</i> <sub>59</sub>	16.5	X	34.75184	47.82708	126.81060	9.66874	0.0762260	0.21024585	2.8010300	21	4 6.5	20.1
411493	2011	<i>AX</i> <sub>59</sub>	16.4	X	238.12840	23.73564	150.56350	2.63080	0.0722849	0.16953861	3.2331334	21	12 2.5	20.9
411494	2011	<i>AQ</i> <sub>60</sub>	16.9	X	163.78622	328.42184	106.59075	8.22354	0.1181250	0.22260736	2.6963507	21	5 16.0	21.1
411495	2011	<i>AJ</i> <sub>63</sub>	16.2	X	329.74838	334.20315	132.06776	6.31136	0.1785719	0.17601791	3.1532965	21	—	—
411496	2011	<i>AK</i> <sub>63</sub>	16.6	X	330.48031	126.13063	325.44636	2.62536	0.1489953	0.17302731	3.1895269	21	12 23.9	20.2
411497	2011	<i>AG</i> <sub>70</sub>	16.0	X	255.65067	235.66824	336.24776	9.33037	0.0280019	0.18555288	3.0443244	21	—	—
411498	2011	<i>AV</i> <sub>72</sub>	16.6	X	91.51937	336.33974	121.30333	10.22277	0.1565238	0.20943055	2.8082948	21	3 31.4	20.4
411499	2011	<i>AB</i> <sub>73</sub>	16.8	X	161.94768	28.71050	90.77971	12.87189	0.1274505	0.23335149	2.6129373	21	7 8.2	20.8
411500	2011	<i>AJ</i> <sub>73</sub>	17.6	X	220.99141	317.52772	98.61429	5.29576	0.2946662	0.23789688	2.5795477	21	6 7.2	22.1
411501	2011	<i>AN</i> <sub>73</sub>	15.6	X	359.59186	192.99158	291.35971	8.36413	0.0249565	0.18982056	2.9985218	21	—	—
411502	2011	<i>AV</i> <sub>76</sub>	16.2	X	297.15701	18.83161	106.36341	13.23482	0.1012228	0.17545356	3.1600546	21	12 16.8	20.3
411503	2011	<i>AK</i> <sub>77</sub>	16.0	X	299.08342	156.58001	348.48461	7.87798	0.1625139	0.17637463	3.1490433	21	—	—
411504	2011	<i>AK</i> <sub>78</sub>	16.5	X	298.15881	354.81778	143.07208	6.14772	0.0923703	0.17616233	3.1515729	21	—	—
411505	2011	<i>BU</i> <sub>6</sub>	17.6	X	164.80905	339.34455	92.95946	3.25709	0.2265708	0.22400566	2.6851181	21	5 16.6	22.1
411506	2011	<i>BY</i> <sub>8</sub>	16.4	X	346.04070	358.94132	101.71805	6.77107	0.1114712	0.18112498	3.0937400	21	—	—
411507	2011	<i>BT</i> <sub>10</sub>	15.9	X	324.24826	165.75183	300.58608	9.53416	0.1829039	0.17668309	3.1453771	21	—	—
411508	2011	<i>BT</i> <sub>13</sub>	16.8	X	30.90883	103.31673	331.57333	8.86748	0.1171103	0.18677951	3.0309811	21	—	—
411509	2011	<i>BG</i> <sub>15</sub>	15.7	X	332.14510	337.74305								

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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>
411521 2011 BZ <sub>55</sub>	16.5	X	52.64392	286.68784	168.37828	6.01236	0.0585505	0.19630184	2.9321520	21	1 16.2	20.3
411522 2011 BJ <sub>56</sub>	16.1	X	33.85490	117.62327	283.28415	11.54834	0.1303739	0.18027905	3.1034104	21	—	—
411523 2011 BR <sub>78</sub>	15.9	X	323.84618	161.14365	309.81660	14.99687	0.1871839	0.17549821	3.1595186	21	—	—
411524 2011 BZ <sub>80</sub>	16.1	X	354.59469	331.83103	172.70225	5.73778	0.0730398	0.19022941	2.9942239	21	—	—
411525 2011 BV <sub>81</sub>	16.1	X	29.18144	155.20495	295.57162	8.29412	0.0768046	0.18505873	3.0497413	21	—	—
411526 2011 BY <sub>81</sub>	15.8	X	254.31872	356.85200	200.98324	5.16276	0.0698302	0.17480378	3.1678808	21	—	—
411527 2011 BZ <sub>82</sub>	16.7	X	147.32426	348.07065	98.96666	7.65999	0.1052700	0.21881534	2.7274128	21	5 13.1	20.8
411528 2011 BF <sub>89</sub>	16.4	X	123.24719	260.66824	141.95795	9.87529	0.1121269	0.19969958	2.8987980	21	2 20.7	20.5
411529 2011 BD <sub>92</sub>	16.0	X	352.35581	156.66854	288.12822	9.28047	0.0714163	0.17577334	3.1562208	21	—	—
411530 2011 BX <sub>93</sub>	15.7	X	155.62099	25.67220	296.79067	8.52660	0.0239804	0.18308258	3.0716475	21	—	—
411531 2011 BD <sub>96</sub>	16.1	X	148.54166	249.90967	104.52316	13.06285	0.0695668	0.19557675	2.9393946	21	1 17.3	20.3
411532 2011 BK <sub>101</sub>	16.0	X	316.95415	28.37425	85.27972	10.41347	0.0588372	0.17452752	3.1712229	21	—	—
411533 2011 BX <sub>102</sub>	16.3	X	40.73714	50.15844	330.21272	10.30693	0.0696514	0.17488613	3.1668863	21	—	—
411534 2011 BM <sub>107</sub>	16.5	X	346.84186	155.31630	238.70809	4.48557	0.0720493	0.15934111	3.3696451	21	11 3.3	20.8
411535 2011 BQ <sub>114</sub>	16.3	X	98.97241	68.53818	291.28738	8.76876	0.1271579	0.18627435	3.0364584	21	—	—
411536 2011 BS <sub>114</sub>	16.3	X	26.18016	281.01853	126.95598	11.56909	0.0912185	0.17908711	3.1171653	21	—	—
411537 2011 BF <sub>115</sub>	15.5	X	210.68170	103.18316	128.02494	19.67665	0.1095856	0.17491762	3.1665062	21	—	—
411538 2011 BR <sub>116</sub>	17.1	X	140.08538	35.63423	40.26440	3.85875	0.1777801	0.21649571	2.7468600	21	4 25.9	21.5
411539 2011 BW <sub>119</sub>	16.3	X	99.33934	338.64211	128.31706	10.08225	0.1135483	0.212224884	2.7833800	21	4 15.9	20.2
411540 2011 BK <sub>122</sub>	16.1	X	327.11316	159.83139	310.38666	7.22744	0.0412644	0.17599732	3.1535425	21	—	—
411541 2011 BM <sub>124</sub>	16.3	X	241.67230	210.42303	349.21442	10.26438	0.0642109	0.17229695	3.1985341	21	—	—
411542 2011 BK <sub>136</sub>	16.9	X	86.14614	13.03564	319.77462	10.68937	0.0684954	0.17341929	3.1847190	21	12 29.1	21.7
411543 2011 BK <sub>143</sub>	16.3	X	264.07642	87.72310	83.73372	9.63526	0.0247429	0.17653386	3.1471495	21	—	—
411544 2011 CW <sub>1</sub>	16.3	X	272.95622	157.67701	9.39742	5.26234	0.1514351	0.17169917	3.2059537	21	12 25.9	20.5
411545 2011 CD <sub>5</sub>	16.5	X	337.85981	187.61812	312.64579	11.15198	0.1272424	0.18654799	3.0334883	21	—	—
411546 2011 CQ <sub>6</sub>	15.9	X	179.83028	261.86525	33.08687	9.12082	0.0650854	0.18295123	3.0731175	21	—	—
411547 2011 CX <sub>13</sub>	15.2	X	187.73049	308.11775	289.24070	14.12396	0.0346781	0.16862441	3.2448086	21	12 24.3	19.9
411548 2011 CE <sub>15</sub>	16.1	X	265.68668	218.54977	311.49510	10.02039	0.0432987	0.17352345	3.1834443	21	—	—
411549 2011 CV <sub>30</sub>	16.1	X	51.40353	93.41695	311.06160	8.41108	0.0539066	0.18152469	3.0891968	21	—	—
411550 2011 CD <sub>43</sub>	16.6	X	108.68434	177.87214	290.33258	8.71023	0.1771223	0.21186870	2.7867083	21	4 30.4	20.8
411551 2011 CF <sub>44</sub>	16.7	X	101.28200	306.60552	172.38856	9.65368	0.1186236	0.21134819	2.7912819	21	5 2.9	20.6
411552 2011 CE <sub>47</sub>	16.0	X	120.77984	74.06060	2.08056	12.79568	0.1898238	0.21167901	2.7883729	21	4 5.8	20.3
411553 2011 CD <sub>51</sub>	16.3	X	210.38457	242.24733	259.18845	11.01717	0.2088824	0.24241484	2.5473967	21	9 12.0	20.8
411554 2011 CX <sub>58</sub>	16.4	X	344.96712	318.47425	162.94863	1.24134	0.1349558	0.18128709	3.0918954	21	—	—
411555 2011 CA <sub>60</sub>	16.3	X	65.66794	97.20837	138.88727	8.26996	0.1174149	0.18756390	3.0225248	21	—	—
411556 2011 CA <sub>64</sub>	16.7	X	314.65120	24.49163	319.97969	2.32467	0.1093694	0.17894639	3.1187993	21	—	—
411557 2011 CF <sub>70</sub>	15.5	X	298.82231	58.83389	88.07917	8.96050	0.1970658	0.17566107	3.1575655	21	—	—
411558 2011 CC <sub>74</sub>	16.2	X	23.47266	174.82464	327.20929	4.72311	0.1927640	0.19254411	2.9701785	21	2 2.5	19.2
411559 2011 CH <sub>75</sub>	15.6	X	7.33200	118.14470	345.40943	20.93171	0.0847220	0.18140853	3.0905154	21	—	—
411560 2011 CK <sub>76</sub>	16.0	X	331.25768	332.76834	140.07144	11.21325	0.1873041	0.17571409	3.1569302	21	—	—
411561 2011 CV <sub>78</sub>	16.2	X	288.64162	334.32599	172.87334	13.89182	0.1351138	0.17132722	3.2105921	21	12 25.7	20.5
411562 2011 CN <sub>79</sub>	17.1	X	155.33265	238.61078	178.42591	9.32732	0.1583228	0.21183740	2.7869828	21	4 17.6	21.5
411563 2011 CJ <sub>87</sub>	16.1	X	123.70439	91.65963	284.98515	9.25603	0.0819293	0.18895757	3.0076446	21	1 17.4	20.2
411564 2011 CG <sub>101</sub>	16.6	X	9.19196	228.78222	232.05278	4.32421	0.1443540	0.18191643	3.0847604	21	—	—
411565 2011 CR <sub>105</sub>	16.4	X	67.57115	63.92637	321.80902	10.21919	0.1372384	0.17708679	3.1405950	21	—	—
411566 2011 CE <sub>109</sub>	15.6	X	151.87855	329.05204	322.56527	10.24375	0.0476933	0.16951544	3.2334281	21	—	—
411567 2011 CV <sub>110</sub>	16.2	X	72.84873	197.89028	172.44990	15.38657	0.0991414	0.17246347	3.1964750	21	—	—
411568 2011 DA <sub>22</sub>	15.6	X	336.87905	52.17474	93.56174	11.22166	0.1738776	0.18288775	3.0738286	21	—	—
411569 2011 DD <sub>44</sub>	16.6	X	328.06244	142.22460	351.72884	10.17115	0.1704310	0.17733809	3.1376274	21	—	—
411570 2011 DM <sub>48</sub>	16.4	X	322.49426	92.85696	23.47350	4.64632	0.1413748	0.17164156	3.2066711	21	—	—
411571 2011 DS <sub>49</sub>	15.2	X	284.55537	144.70335	10.94434	16.41886	0.0594000	0.17031311	3.2233243	21	—	—
411572 2011 DE <sub>50</sub>	16.3	X	109.48436	242.09914	223.08564	10.00505	0.2556237	0.21092432	2.7950201	21	5 10.8	20.5
411573 2011 DG <sub>50</sub>	16.1	X	334.49642	301.32919	179.77769	26.88543	0.2394293	0.17752064	3.1424759	21	—	—
411574 2011 DH <sub>51</sub>	15.6	X	306.66975	135.35660	25.82956	17.45868	0.1756228	0.17695881	3.1351091	21	—	—
411575 2011 ED <sub>7</sub>	16.0	X	289.06575	358.49745	157.82461	11.17123	0.1053185	0.17403181	3.1772420	21	—	—
411576 2011 EU <sub>8</sub>	16.5	X	56.12083	249.00231	159.53124	9.91599	0.1862549	0.18555404	3.0443116	21	—	—
411577 2011 EG <sub>11</sub>	16.2	X	312.85128	1.21562	168.80377	7.53646	0.1381480	0.17856639	3.1232224	21	—	—
411578 2011 ED <sub>16</sub>	16.6	X	25.50427	46.39317	85.18783	4.66518	0.1970457	0.18984588	2.9982553	21	1 24.4	19.7
411579 2011 EM <sub>17</sub>	15.6	X	358.86335	102.76913	8.79648	15.65708	0.0780987	0.18055869	3.1002053	21	—	—
411580 2011 EO <sub>19</sub>	16.1	X	87.18703	37.51238	355.90015	9.03369	0.1499330	0.18611093	3.0382357	21	1 3.4	20.1
411581 2011 EP <sub>21</sub>	15.9	X	328.44656	105.36838	17.44655	14.57182	0.1511945	0.17078778	3.2173491	21	—	—
411582 2011 EO <sub>26</sub>	16.3	X	43.47613	334.55375	112.43848	5.10527	0.1601377	0.18536148	3.0464196	21	—	—
411583 2011 EN <sub>36</sub>	16.4	X	323.02749	357.26384	119.72087	3.45299	0.1943188	0.16950288	3.2335878	21	—	—
411584 2011 ES <sub>41</sub>	15.3	X	40.76602	46.41485	23.69736	15.91745	0.1081131	0.17609414	3.1523864	21	—	—
411585 2011 EF <sub>50</sub>	15.6	X	268.24016	109.13087	72.94269	9.95344	0.0756610	0.16980967	3.2296920	21	—	—
411586 2011 ED <sub>58</sub>	15.8	X	277.23650	33.56581	87.94412	11.52662	0.0610439	0.15858677	3.3803221	21	11 18.6	20.5
411587 2011 EY <sub>58</sub>	16.1	X	110.11454	262.50248	103.70951	11.02640	0.1117036	0.17841835	3.1249497	21	—	—
411588 2011 EJ <sub>63</sub>	16.1	X	342.64713	316.33773	158.04965	10.63920	0.1977774	0.17661105	3.1462324	21	—	—
411589 2011 EE <sub>71</sub>	16.1	X	59.93109	41.47090	27.68005	15.12357	0.2765404	0.18262480	3.0767784	21	1 26.4	19.6
411590 2011 EY <sub>73</sub>	16.6	X	92.78661	89.65706	64.91958	15.60181	0.2564937	0.21516473	2.7581761	21	6 23.9	20.8
411591 2011 EQ <sub>76</sub>	15.7	X	332.06626	183.62714	310.45301	9.51939	0.1777835	0.17611568	3.1521293	21	—	—
411592 2011 ED <sub>77</sub>	15.8	X	320.80086	323.83566	163.87298	27.51777	0.1432888	0.17252011	3.1957753	21	—	—
411593 2011 FU	15.5	X	52.38798	330.01883	70.22437	10.04823	0.1963420	0.17238157	3.1974873	21	—	—
411594 2011 FQ <sub>4</sub>	15.6	X	314.79930	53.76466	143.26718	11.69539	0.0150562	0.18369245	3.0648450	21	1 19.1	19.9
411595 2011 FA <sub>15</sub>	16.3	X	8.14386	108.82928	12.21500	13.99784	0.3456305	0.18196224	3.0842426	21	—	

ELEMENTS AND OPPOSITION DATES IN 2021

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2021 JULY 5.0 TT

Planet	H	G	M	$\omega$	$\Omega$	$i$	$e$	$\mu$	$a$	TE	Oppos.	V
411601 2011 FE <sub>154</sub>	18.0	X	76.91371	330.13986	233.54598	4.47707	0.0754778	0.30799374	2.1715748	21	7 13.7	20.4
411602 2011 GY <sub>45</sub>	15.8	X	327.96144	49.48728	75.62749	6.00500	0.0838963	0.16902983	3.2396181	21	—	—
411603 2011 GT <sub>59</sub>	16.4	X	356.48262	331.81954	145.23171	6.39550	0.1049459	0.17926790	3.1150692	21	—	—
411604 2011 GD <sub>75</sub>	16.1	X	322.09119	108.60769	44.03753	16.32675	0.1319456	0.17213927	3.2004871	21	—	—
411605 2011 GA <sub>77</sub>	16.0	X	342.26618	335.03381	202.64186	17.16313	0.1817912	0.18148657	3.0896294	21	1 7.1	20.2
411606 2011 GP <sub>86</sub>	15.6	X	35.54003	68.42638	3.37471	14.09890	0.1041937	0.17789791	3.1310414	21	—	—
411607 2011 HZ <sub>85</sub>	16.4	X	28.99178	300.55447	202.15596	11.24217	0.1180928	0.18653889	3.0335871	21	2 11.6	20.3
411608 2011 JU <sub>24</sub>	15.8	X	20.87180	270.60996	181.48009	12.89501	0.0548945	0.16876220	3.2430422	21	—	—
411609 2011 JF <sub>27</sub>	18.1	X	219.42293	332.63321	83.23717	23.85332	0.0556258	0.39919367	1.8267549	21	6 15.4	19.4
411610 2011 OM <sub>59</sub>	16.4	X	48.78193	162.69250	225.49991	7.76163	0.0168690	0.22874001	2.6479389	21	—	—
411611 2011 QF <sub>14</sub>	18.6	X	106.09826	297.30591	138.28709	3.39746	0.4831418	0.34195210	2.2253148	21	4 19.2	21.2
411612 2011 QE <sub>31</sub>	16.9	X	236.34196	98.48989	186.52534	10.91749	0.1903175	0.25709758	4.0494621	21	1 11.9	21.2
411613 2011 SZ <sub>84</sub>	17.3	X	180.97216	308.68327	187.34350	8.66188	0.1011363	0.27915866	2.3185606	21	8 18.3	20.7
411614 2011 SU <sub>105</sub>	18.4	X	299.50353	177.94564	297.11709	0.62547	0.1536226	0.30290415	2.1958326	21	—	—
411615 2011 SN <sub>141</sub>	18.9	X	54.79143	143.59312	186.77555	3.69786	0.1291861	0.30828865	2.1701897	21	12 23.2	21.6
411616 2011 SK <sub>142</sub>	17.7	X	194.26390	294.56422	195.37735	7.67315	0.0652209	0.28552738	2.2840426	21	8 27.9	20.8
411617 2011 SN <sub>183</sub>	18.9	X	121.31257	137.54095	175.36527	4.73169	0.1915866	0.32269528	2.1051077	21	—	—
411618 2011 SB <sub>188</sub>	18.0	X	59.27693	310.78410	338.80679	4.79482	0.1785485	0.30209577	2.1997481	21	11 7.1	20.8
411619 2011 UA <sub>8</sub>	19.4	X	18.64000	8.91752	21.90226	1.53652	0.2158985	0.30861938	2.1686390	21	—	—
411620 2011 UJ <sub>27</sub>	17.1	X	49.68014	222.38571	43.62741	23.37328	0.2190524	0.28712202	2.2755779	21	10 9.9	20.1
411621 2011 UZ <sub>29</sub>	18.4	X	23.84188	161.68755	213.43074	7.22698	0.0835621	0.30473593	2.1870243	21	—	—
411622 2011 UE <sub>37</sub>	18.3	X	267.05606	29.89131	58.37559	3.79866	0.1735226	0.28692949	2.2765958	21	9 23.1	20.7
411623 2011 UM <sub>38</sub>	18.4	X	70.89922	245.86814	117.22058	2.04683	0.0375460	0.31382919	2.1445713	21	—	—
411624 2011 UQ <sub>56</sub>	17.6	X	350.21554	184.66804	251.48631	2.55136	0.1085579	0.30956904	2.1642016	21	—	—
411625 2011 US <sub>61</sub>	18.2	X	299.51301	262.37095	197.59795	4.11565	0.1908905	0.29701026	2.2247869	21	12 13.6	19.5
411626 2011 UW <sub>72</sub>	18.4	X	154.92580	235.58317	43.13912	2.23435	0.0603857	0.31528860	2.1379483	21	—	—
411627 2011 UV <sub>79</sub>	18.0	X	279.23888	223.37916	258.34990	2.75248	0.0729346	0.30306885	2.1950370	21	12 19.1	20.1
411628 2011 UW <sub>89</sub>	17.2	X	217.49605	227.05079	227.61985	12.01455	0.1052131	0.27349569	2.3505476	21	7 31.6	20.8
411629 2011 UW <sub>113</sub>	17.4	X	94.24484	49.25760	218.43808	6.54953	0.1610067	0.29538394	2.2329455	21	11 15.9	20.5
411630 2011 UW <sub>134</sub>	17.7	X	53.90496	329.65523	261.98745	4.24409	0.0500144	0.272229284	2.3574649	21	7 15.5	20.3
411631 2011 UD <sub>156</sub>	18.0	X	346.81286	245.77615	92.11145	4.96277	0.0478392	0.28158345	2.3053205	21	9 8.2	20.5
411632 2011 UY <sub>162</sub>	18.0	X	315.51406	175.65373	256.83366	4.83821	0.1319222	0.29860018	2.2168825	21	12 7.1	19.6
411633 2011 UJ <sub>187</sub>	17.2	X	187.12915	48.90217	89.21575	6.61770	0.0364774	0.28252244	2.3002096	21	9 6.8	20.2
411634 2011 UM <sub>202</sub>	17.4	X	155.01912	69.90418	66.01407	7.53626	0.0513609	0.26918962	2.3755482	21	7 20.9	20.6
411635 2011 UQ <sub>231</sub>	18.3	X	74.69958	38.93958	222.70715	2.56068	0.1213995	0.29331984	2.2434088	21	10 11.0	21.2
411636 2011 UZ <sub>245</sub>	18.3	X	40.65922	240.26394	114.42740	3.09598	0.1690137	0.30691361	2.1766668	21	—	—
411637 2011 UO <sub>246</sub>	18.0	X	290.68180	33.56695	53.83023	8.45977	0.0915809	0.29467422	2.2365294	21	11 13.6	19.9
411638 2011 UH <sub>247</sub>	18.0	X	236.19276	350.37895	182.98448	3.17442	0.0686702	0.30209478	2.1997529	21	12 26.4	20.4
411639 2011 UW <sub>261</sub>	17.9	X	185.91112	74.68623	32.64812	6.94708	0.0857365	0.26943347	2.3741147	21	7 19.8	21.3
411640 2011 UH <sub>268</sub>	18.3	X	347.29512	7.78575	22.18250	5.33625	0.0579617	0.30050299	2.1975142	21	11 25.5	20.5
411641 2011 UB <sub>269</sub>	18.1	X	331.31868	43.15852	17.32362	2.84333	0.1750489	0.30220273	2.1992290	21	12 26.7	19.5
411642 2011 UE <sub>279</sub>	18.4	X	347.15954	153.13203	247.94202	3.18462	0.1180247	0.29881548	2.2158175	21	12 19.5	20.4
411643 2011 UW <sub>292</sub>	17.6	X	43.73998	191.09897	67.50680	5.29057	0.1252359	0.27617047	2.3353460	21	8 24.7	20.1
411644 2011 UP <sub>296</sub>	18.3	X	36.68144	157.02708	209.93781	2.88952	0.1457459	0.30880966	2.1677480	21	—	—
411645 2011 UH <sub>311</sub>	16.5	X	203.03307	228.83967	41.27959	12.07388	0.1599012	0.22691398	2.6621256	21	—	—
411646 2011 UX <sub>321</sub>	17.1	X	344.95188	188.73698	150.63125	7.34437	0.1323471	0.28638423	2.2794845	21	9 6.9	18.8
411647 2011 US <sub>347</sub>	18.1	X	130.18963	51.66871	200.86358	5.53646	0.0442994	0.30405512	2.1902877	21	12 1.3	20.9
411648 2011 US <sub>349</sub>	17.9	X	295.33488	189.74434	257.76637	4.51705	0.1284593	0.29568603	2.2314244	21	11 18.1	19.8
411649 2011 US <sub>351</sub>	17.7	X	313.18098	34.66857	30.39479	5.83532	0.1036163	0.29880921	2.2158485	21	11 19.7	19.7
411650 2011 UW <sub>358</sub>	17.2	X	221.10444	222.84312	272.33097	6.50041	0.1108051	0.28542678	2.2845793	21	9 30.9	20.5
411651 2011 UU <sub>359</sub>	17.5	X	322.75536	337.48835	8.87703	5.37404	0.0616739	0.28200048	2.3030471	21	8 10.0	19.9
411652 2011 VX <sub>11</sub>	18.1	X	296.12459	54.23040	61.25225	2.17024	0.0312853	0.30299366	2.1954001	21	—	—
411653 2011 VC <sub>14</sub>	17.7	X	127.44109	334.52569	204.39208	1.64398	0.1407772	0.27250993	2.3562127	21	8 20.8	21.2
411654 2011 VG <sub>20</sub>	17.6	X	119.09915	213.77646	52.93043	6.10852	0.0952935	0.30163683	2.2019788	21	12 6.7	20.6
411655 2011 WW <sub>4</sub>	18.6	X	51.35236	9.06733	318.37465	7.60710	0.4215619	0.31003615	2.1620272	21	—	—
411656 2011 WR <sub>8</sub>	18.2	X	275.01601	204.87995	247.41559	2.50539	0.0845818	0.29209162	2.2496933	21	10 24.8	20.4
411657 2011 WG <sub>15</sub>	16.0	X	359.59701	264.91056	55.54545	19.06346	0.0718708	0.18169528	3.0872630	21	9 3.9	20.4
411658 2011 WD <sub>19</sub>	17.4	X	110.56727	342.45152	246.00394	6.53880	0.0582139	0.28135336	2.3065771	21	9 28.6	20.5
411659 2011 WL <sub>19</sub>	17.8	X	249.42302	154.45443	250.21369	5.68290	0.0682706	0.27005873	2.3704487	21	7 9.9	20.9
411660 2011 WE <sub>21</sub>	17.5	X	72.62708	291.87675	244.64060	6.09337	0.0493117	0.25601429	2.4563669	21	5 25.1	20.5
411661 2011 WM <sub>29</sub>	17.7	X	9.81010	309.79113	18.44025	9.22911	0.0558626	0.28421993	2.2910419	21	10 1.2	20.2
411662 2011 WJ <sub>48</sub>	17.9	X	227.30422	160.55623	296.16115	1.54279	0.1889616	0.27018140	2.3697312	21	8 10.5	21.5
411663 2011 WC <sub>59</sub>	18.5	X	350.70036	228.10983	191.67224	3.78329	0.0938533	0.30382992	2.1913699	21	—	—
411664 2011 WJ <sub>61</sub>	17.7	X	58.59597	284.00225	69.53158	7.72905	0.1592494	0.30820502	2.1705822	21	—	—
411665 2011 WL <sub>63</sub>	17.8	X	202.69386	225.07893	283.44577	1.92849	0.1435067	0.28065325	2.3104114	21	9 26.5	21.1
411666 2011 WC <sub>67</sub>	17.4	X	336.44878	334.23620	53.21250	8.30466	0.1349677	0.29266966	2.2467301	21	11 7.9	19.1
411667 2011 WZ <sub>68</sub>	17.3	X	324.16144	288.99442	63.32073	8.84951	0.1461802	0.27905013	2.3192518	21	8 15.7	19.5
411668 2011 WQ <sub>71</sub>	18.0	X	216.07756	58.67892	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>		
411681	2011	YJ <sub>11</sub>	17.5	X	324.94967	331.34577	91.12779	4.35217	0.1048094	0.29467215	2.2365399	21	12 8.5	19.4
411682	2011	YT <sub>16</sub>	17.5	X	275.47466	231.44624	252.94671	3.42399	0.0935233	0.29240689	2.2480760	21	12 11.4	19.8
411683	2011	YC <sub>17</sub>	18.0	X	251.75140	124.59074	332.08241	1.93664	0.1682783	0.27556443	2.3387687	21	9 10.7	21.0
411684	2011	YQ <sub>23</sub>	17.1	X	242.36387	164.62099	300.67214	6.63595	0.0724787	0.27656139	2.3331448	21	9 21.6	20.2
411685	2011	YO <sub>25</sub>	16.9	X	128.96164	232.67832	292.70018	8.60274	0.1909999	0.25454951	2.4657812	21	8 6.5	20.7
411686	2011	YW <sub>25</sub>	17.2	X	114.47315	90.23317	112.20299	3.75374	0.0453979	0.26335320	2.4105176	21	8 29.9	20.3
411687	2011	YZ <sub>25</sub>	17.6	X	216.57970	322.56043	97.92410	4.03154	0.1716119	0.25806047	2.4433653	21	6 14.4	21.5
411688	2011	YT <sub>31</sub>	17.9	X	229.46173	101.08745	355.50250	2.13664	0.0783226	0.27213093	2.3583997	21	8 26.2	20.8
411689	2011	YW <sub>33</sub>	17.7	X	8.32868	345.36015	63.79668	4.51962	0.1111908	0.29889849	2.2154072	21	—	—
411690	2011	YN <sub>35</sub>	16.0	X	228.11604	166.92325	112.65270	14.04547	0.1503440	0.21444265	2.7643643	21	1 7.3	20.4
411691	2011	YG <sub>37</sub>	17.0	X	212.77768	343.17468	124.06130	6.55550	0.0688777	0.26579536	2.3957295	21	8 21.2	20.2
411692	2011	YV <sub>40</sub>	17.5	X	119.11853	11.42889	98.36223	9.17815	0.1053606	0.23977143	2.5660853	21	5 9.7	21.1
411693	2011	YD <sub>41</sub>	18.0	X	242.93565	29.61509	105.09197	4.42748	0.1092180	0.29049683	2.2579195	21	11 4.6	20.6
411694	2011	YS <sub>41</sub>	17.2	X	266.34443	22.77038	81.73079	7.22608	0.0482347	0.28501219	2.2867942	21	11 5.4	19.8
411695	2011	YB <sub>49</sub>	17.5	X	170.82286	277.18496	253.69967	2.50902	0.0978297	0.27293438	2.3537693	21	9 23.6	20.8
411696	2011	YR <sub>50</sub>	17.5	X	136.30510	299.11135	246.83518	1.22408	0.1558846	0.26372629	2.4082437	21	9 8.5	21.2
411697	2011	YH <sub>51</sub>	17.3	X	66.40592	77.04677	55.41260	10.02897	0.0798423	0.23431997	2.6057326	21	3 26.7	20.6
411698	2011	YM <sub>53</sub>	17.8	X	187.22859	256.26816	190.48112	0.98292	0.1486616	0.25578127	2.4578586	21	6 20.9	21.6
411699	2011	YU <sub>57</sub>	17.7	X	155.27738	98.43686	72.91882	2.70166	0.0834080	0.26660390	2.3908833	21	9 9.3	21.1
411700	2011	YV <sub>57</sub>	16.3	X	221.79037	166.33321	106.38406	6.24323	0.1379569	0.21207514	2.7848996	21	—	—
411701	2011	YH <sub>60</sub>	17.9	X	234.82438	217.50852	223.98213	2.73419	0.0997095	0.26612626	2.3937432	21	8 7.3	21.1
411702	2011	YO <sub>60</sub>	17.3	X	80.18217	275.31626	252.87590	3.23298	0.0564549	0.24260059	2.5460962	21	5 26.2	20.2
411703	2011	YT <sub>67</sub>	17.3	X	47.95980	144.05066	359.16827	4.42015	0.1110614	0.2262735	2.6643698	21	3 11.3	20.2
411704	2011	YU <sub>67</sub>	17.2	X	196.67396	38.23011	85.10422	5.74602	0.0642699	0.26469215	2.4023817	21	8 25.3	20.5
411705	2011	YB <sub>69</sub>	16.2	X	99.34772	246.00539	247.05910	13.01321	0.1609225	0.23625476	2.5914868	21	5 20.9	19.7
411706	2011	YS <sub>69</sub>	17.1	X	210.38335	35.44835	78.45888	9.80965	0.1543779	0.27121375	2.3637139	21	8 23.4	20.8
411707	2011	YB <sub>70</sub>	16.3	X	76.05488	176.18150	325.99632	13.62265	0.2425390	0.23004196	2.6379386	21	5 9.4	19.8
411708	2011	YR <sub>78</sub>	17.4	X	131.36590	96.36348	90.21932	7.75007	0.0758638	0.26424276	2.4051047	21	9 3.7	20.8
411709	2011	YU <sub>78</sub>	17.5	X	152.76005	278.09063	228.25495	5.69802	0.1187331	0.25778049	2.4451341	21	7 31.9	21.3
411710	2012	AQ <sub>2</sub>	18.6	X	270.26171	210.37401	226.80405	1.52804	0.2105127	0.27905078	2.3192482	21	9 1.5	21.4
411711	2012	AX <sub>4</sub>	16.4	X	190.11597	191.95830	292.80400	13.62149	0.0690744	0.26499631	2.4005430	21	8 12.4	19.9
411712	2012	AK <sub>8</sub>	17.9	X	174.37499	48.75358	105.94933	2.18168	0.1119145	0.26672992	2.3901302	21	9 7.5	21.3
411713	2012	AY <sub>18</sub>	16.2	X	355.76647	106.56492	82.08736	11.93606	0.0769966	0.22573499	2.6713869	21	2 21.4	19.7
411714	2012	AU <sub>20</sub>	18.0	X	209.77744	54.49527	67.08044	2.27754	0.1389036	0.27025176	2.3693199	21	8 31.2	21.5
411715	2012	AO <sub>23</sub>	17.2	X	140.62495	99.41444	52.00503	6.06862	0.1456967	0.25503446	2.4626544	21	7 31.3	21.0
411716	2012	BE <sub>4</sub>	16.7	X	276.11574	3.40222	319.31563	13.28641	0.1157811	0.24198263	2.5504291	21	4 10.1	20.6
411717	2012	BL <sub>8</sub>	17.3	X	357.39295	303.92545	301.17043	6.17331	0.2200232	0.23766096	2.5812545	21	4 20.7	19.6
411718	2012	BP <sub>14</sub>	17.1	X	205.83924	124.27013	337.25600	5.92777	0.0624964	0.26122621	2.4235848	21	8 5.1	20.3
411719	2012	BU <sub>14</sub>	18.2	X	230.44242	318.43275	126.95847	2.07433	0.1546110	0.26790036	2.3831636	21	8 2.3	21.7
411720	2012	BS <sub>15</sub>	17.4	X	133.68834	317.89827	256.21706	1.45536	0.0472424	0.27115586	2.3640503	21	10 8.3	20.5
411721	2012	BL <sub>19</sub>	17.5	X	256.05505	79.92506	22.07676	5.18779	0.1390503	0.27926894	2.3180402	21	9 30.4	20.3
411722	2012	BC <sub>21</sub>	17.5	X	238.21704	314.00545	149.38970	3.42476	0.1284902	0.26754045	2.3853004	21	9 8.7	20.6
411723	2012	BM <sub>21</sub>	17.7	X	163.17336	10.06012	153.73686	1.41008	0.1257583	0.26369281	2.4084476	21	9 6.5	21.2
411724	2012	BK <sub>21</sub>	16.4	X	86.33219	168.36166	274.14097	8.59167	0.0368178	0.21779263	2.7359444	21	2 6.6	20.1
411725	2012	BH <sub>28</sub>	16.0	X	337.22561	275.89495	303.68959	10.78704	0.0771948	0.22495291	2.6775750	21	2 26.0	19.4
411726	2012	BQ <sub>29</sub>	18.0	X	182.65300	347.11070	148.78100	2.60286	0.1404364	0.26514560	2.3996419	21	8 20.4	21.7
411727	2012	BG <sub>38</sub>	17.9	X	209.39350	148.62728	341.44780	2.25492	0.1265264	0.27045433	2.3681367	21	9 10.9	21.3
411728	2012	BT <sub>41</sub>	17.5	X	321.39645	49.86258	329.47400	5.29148	0.1104189	0.27548985	2.3391908	21	9 19.2	19.7
411729	2012	BU <sub>51</sub>	17.2	X	352.24127	80.11098	142.38054	4.21701	0.1023546	0.22832906	2.6511151	21	3 27.2	20.1
411730	2012	BA <sub>52</sub>	17.7	X	249.69670	110.37629	295.35041	6.17964	0.1426768	0.25903902	2.4372080	21	7 2.8	21.2
411731	2012	BN <sub>52</sub>	17.0	X	294.64282	133.20238	194.09743	3.99761	0.0214955	0.24440689	2.5335361	21	6 2.7	20.3
411732	2012	BE <sub>54</sub>	17.6	X	219.22899	332.08122	112.42308	3.52140	0.1460017	0.25918289	2.4363060	21	7 20.6	21.2
411733	2012	BK <sub>54</sub>	17.2	X	243.06036	353.19739	133.78412	7.01338	0.0577003	0.27482756	2.3429473	21	10 31.9	20.2
411734	2012	BP <sub>55</sub>	16.7	X	42.34016	139.26224	357.55380	9.07179	0.0258542	0.21750416	2.7383629	21	2 21.4	20.3
411735	2012	BE <sub>56</sub>	16.9	X	27.90447	33.10104	126.74437	10.56334	0.1544649	0.21933709	2.7230858	21	3 3.7	19.7
411736	2012	BF <sub>56</sub>	16.7	X	342.75420	189.47817	19.31479	6.12407	0.0684551	0.21908464	2.7251773	21	2 28.4	20.1
411737	2012	BA <sub>69</sub>	17.3	X	276.55616	208.04945	117.60953	7.42588	0.1448060	0.24284348	2.5443982	21	4 21.6	21.0
411738	2012	BB <sub>70</sub>	17.6	X	186.71903	23.97058	105.71076	3.94973	0.1193670	0.26231434	2.4168778	21	8 18.0	21.1
411739	2012	BG <sub>70</sub>	17.6	X	189.77324	65.33321	51.43947	2.19859	0.1253832	0.26031878	2.4292137	21	8 3.5	21.3
411740	2012	BV <sub>72</sub>	15.9	X	151.71635	343.41136	309.08986	10.26530	0.0997859	0.19066139	2.9896996	21	—	—
411741	2012	BV <sub>82</sub>	17.0	X	6.96257	168.02013	103.77013	3.66446	0.0603097	0.25114278	2.4880299	21	6 30.1	19.7
411742	2012	BY <sub>83</sub>	16.1	X	115.63268	315.65440	326.44935	10.78417	0.0284368	0.18251217	3.0780440	21	11 26.6	20.7
411743	2012	BN <sub>87</sub>	17.0	X	188.09215	27.70168	97.47910	3.72394	0.1197146	0.26161997	2.4211523	21	8 13.4	20.7
411744	2012	BF <sub>88</sub>	17.6	X	84.64668	91.25370	61.08692	3.75789	0.1107414	0.23909478	2.5709245	21	5 19.5	20.7
411745	2012	BM <sub>89</sub>	18.0	X	260.35847	325.12738	83.45415	4.32908	0.1883616	0.26620234	2.3932871	21	7 13.6	21.3
411746	2012	BM <sub>94</sub>	18.1	X	222.38228	327.17803	134.56395	1.80402	0.1467722	0.26707793	2.3880535	21	8 16.3	21.4
411747	2012	BG <sub>95</sub>	17.5	X	313.48326	324.80134	85.55930	6.21231	0.1394556	0.28966854	2.2622217	21	10 28.3	19.3
411748	2012	BA <sub>96</sub>	17.1	X	140.43619	160.13509	284.25062	8.84870	0.1690621	0.23748843	2.5825044	21	5 1.8	21.2
411749	2012	BM <sub>100</sub>	18.3	X	344.36935	271.82402	117.32969	3.58246	0.2226525	0.28702290	2.2761018	21	12 6.3	19.7
411750	2012</													

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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>
411761 2012 <i>BB</i> <sub>122</sub>	16.4	X	7.34556	356.62593	152.45928	15.77640	0.1141316	0.21101075	2.7942569	21	1 12.2	20.0
411762 2012 <i>BZ</i> <sub>124</sub>	17.5	X	27.82758	299.63228	230.48454	2.65746	0.2157952	0.22332777	2.6905490	21	3 13.9	19.8
411763 2012 <i>BV</i> <sub>126</sub>	16.5	X	279.57688	229.02790	347.20549	14.61871	0.0965097	0.20142003	2.8822675	21	—	—
411764 2012 <i>BT</i> <sub>128</sub>	17.1	X	59.72239	158.32904	41.31337	6.12409	0.0334404	0.24336823	2.5407394	21	6 5.5	20.2
411765 2012 <i>BV</i> <sub>129</sub>	17.1	X	269.40465	50.31358	350.23171	6.67616	0.0966422	0.26317722	2.4115921	21	7 30.1	20.1
411766 2012 <i>BJ</i> <sub>130</sub>	17.4	X	84.74515	129.55319	52.57282	5.33956	0.0996626	0.24537132	2.5268930	21	6 28.6	20.6
411767 2012 <i>BN</i> <sub>132</sub>	16.4	X	340.90691	76.25258	128.98664	13.35762	0.1194918	0.21941751	2.7224204	21	2 13.0	19.8
411768 2012 <i>BW</i> <sub>132</sub>	17.7	X	172.75666	2.52995	133.28991	2.92834	0.1649908	0.26092189	2.4254689	21	8 10.2	21.5
411769 2012 <i>BH</i> <sub>133</sub>	16.2	X	358.47200	210.64198	298.38282	9.15703	0.0525185	0.21266759	2.7797251	21	1 5.9	19.9
411770 2012 <i>BE</i> <sub>134</sub>	17.6	X	318.81582	180.93334	233.19385	4.71318	0.1793332	0.28737365	2.2742494	21	11 10.1	19.1
411771 2012 <i>BY</i> <sub>137</sub>	17.1	X	336.33781	299.19585	250.82933	3.24466	0.0582281	0.21907446	2.7252617	21	1 24.4	20.7
411772 2012 <i>BN</i> <sub>141</sub>	17.5	X	114.23173	340.10275	145.24205	12.70242	0.0726401	0.24172999	2.5522058	21	5 20.5	21.2
411773 2012 <i>BZ</i> <sub>143</sub>	17.9	X	342.38722	287.02892	120.46753	3.64031	0.1538370	0.29165634	2.2519311	21	12 22.8	19.6
411774 2012 <i>BX</i> <sub>146</sub>	16.7	X	237.60499	176.96134	114.59231	1.99086	0.1667471	0.21886759	2.7269787	21	1 28.5	21.0
411775 2012 <i>BJ</i> <sub>148</sub>	17.3	X	70.43209	282.02950	168.71174	4.49705	0.0850765	0.21769072	2.7367982	21	2 2.7	20.7
411776 2012 <i>BW</i> <sub>148</sub>	16.7	X	153.95827	341.87894	105.17594	10.89644	0.0831489	0.24170440	2.5523860	21	5 18.4	20.5
411777 2012 <i>BM</i> <sub>149</sub>	17.9	X	232.02034	44.10810	74.77719	2.34156	0.1322484	0.27148471	2.3621409	21	9 22.9	21.2
411778 2012 <i>CZ</i> <sub>6</sub>	16.0	X	345.50764	229.07018	308.46335	7.89147	0.0691369	0.21541306	2.7560559	21	1 21.6	19.5
411779 2012 <i>CO</i> <sub>7</sub>	17.2	X	75.32120	275.42122	179.47613	4.60361	0.0815907	0.22055986	2.7130121	21	2 14.1	20.7
411780 2012 <i>CO</i> <sub>7</sub>	16.3	X	190.98027	70.93200	144.34123	16.55830	0.1796937	0.17714275	3.1399336	21	11 27.4	21.7
411781 2012 <i>CM</i> <sub>9</sub>	17.5	X	301.92386	297.87584	316.47768	4.73020	0.0028737	0.22538160	2.6741786	21	3 8.8	21.0
411782 2012 <i>CA</i> <sub>10</sub>	17.1	X	211.90013	85.76072	298.87749	4.95566	0.0567104	0.23878084	2.5731775	21	4 27.1	20.8
411783 2012 <i>CW</i> <sub>10</sub>	18.0	X	220.73372	338.19768	126.11606	2.12724	0.1438761	0.26538914	2.3981736	21	8 18.4	21.4
411784 2012 <i>CZ</i> <sub>11</sub>	15.9	X	156.55781	149.37929	133.49498	11.65127	0.1154016	0.18752270	3.0229675	21	—	—
411785 2012 <i>CJ</i> <sub>13</sub>	16.7	X	217.78998	184.26943	15.28613	4.57088	0.1917917	0.17897862	3.1184249	21	11 27.4	21.7
411786 2012 <i>CD</i> <sub>16</sub>	17.5	X	64.54871	205.21753	319.40494	2.81815	0.0924752	0.23377207	2.6098025	21	5 2.6	20.7
411787 2012 <i>CO</i> <sub>16</sub>	17.6	X	287.35973	262.29136	133.45419	7.42232	0.1674995	0.26680003	2.3897114	21	8 5.2	20.0
411788 2012 <i>CU</i> <sub>17</sub>	18.4	X	233.04540	295.00321	162.64876	1.15210	0.1464850	0.26774026	2.3841135	21	8 22.7	21.8
411789 2012 <i>CX</i> <sub>20</sub>	16.6	X	50.24879	210.33734	285.95604	7.98557	0.0316287	0.22132868	2.7067258	21	2 25.0	20.2
411790 2012 <i>CZ</i> <sub>23</sub>	17.0	X	84.24119	298.14548	162.47148	11.25002	0.0894212	0.22419127	2.6836359	21	3 8.4	20.2
411791 2012 <i>CZ</i> <sub>25</sub>	17.5	X	205.51167	164.47891	329.49155	4.68424	0.0280451	0.27032038	2.3689189	21	9 20.0	20.6
411792 2012 <i>CQ</i> <sub>33</sub>	17.2	X	93.84158	213.47792	287.00623	2.85139	0.0841807	0.23580561	2.5947765	21	5 11.2	20.6
411793 2012 <i>CB</i> <sub>34</sub>	17.6	X	175.92089	153.94294	342.48274	1.09910	0.0918390	0.26011068	2.4305091	21	8 14.9	20.9
411794 2012 <i>CB</i> <sub>40</sub>	16.6	X	260.30394	229.85475	313.70485	8.54843	0.0453593	0.19132013	2.9828329	21	—	—
411795 2012 <i>CJ</i> <sub>44</sub>	15.5	X	194.11125	251.58946	5.14608	10.89457	0.1684133	0.18454689	3.0553776	21	—	—
411796 2012 <i>CO</i> <sub>44</sub>	17.4	X	271.85250	89.84490	325.67843	5.49737	0.1327856	0.26577166	2.3958720	21	8 16.5	20.1
411797 2012 <i>CY</i> <sub>50</sub>	17.8	X	188.16014	306.70480	161.29556	5.24123	0.1562959	0.25570413	2.4583529	21	7 18.8	21.7
411798 2012 <i>CO</i> <sub>51</sub>	17.2	X	224.46874	97.73830	286.53016	2.32615	0.0560840	0.23947670	2.5681903	21	5 13.3	20.8
411799 2012 <i>CD</i> <sub>57</sub>	17.8	X	266.00736	233.68302	236.83087	4.59201	0.1278014	0.28132049	2.3067568	21	10 28.0	20.3
411800 2012 <i>CF</i> <sub>57</sub>	17.1	X	237.29574	122.80404	307.08827	5.86574	0.1060470	0.26155064	2.4215802	21	7 25.6	20.2
411801 2012 <i>CM</i> <sub>57</sub>	16.9	X	162.32933	295.72076	194.62711	6.65653	0.1326266	0.25265137	2.4781159	21	7 21.6	20.9
411802 2012 <i>DW</i> <sub>2</sub>	16.4	X	242.56693	211.01443	93.76178	6.27036	0.1034527	0.21594616	2.7515182	21	2 23.6	20.7
411803 2012 <i>DQ</i> <sub>3</sub>	16.4	X	103.35040	281.08858	138.47216	14.21772	0.0379970	0.21228940	2.7830255	21	2 3.7	20.2
411804 2012 <i>DF</i> <sub>6</sub>	16.9	X	91.55593	141.28160	349.63419	13.47501	0.1097548	0.23343167	2.6123389	21	4 23.9	20.5
411805 2012 <i>DY</i> <sub>9</sub>	17.9	X	294.66806	41.33113	18.64294	2.96881	0.1789363	0.27512373	2.3412656	21	9 24.0	19.8
411806 2012 <i>DD</i> <sub>12</sub>	16.2	X	31.74674	329.68593	125.78342	9.97255	0.0065312	0.20026236	2.8933646	21	—	—
411807 2012 <i>DA</i> <sub>18</sub>	17.4	X	148.19194	329.69726	170.56386	2.30090	0.1178880	0.25372783	2.4711019	21	7 20.4	21.1
411808 2012 <i>DX</i> <sub>22</sub>	15.8	X	294.99166	66.47699	85.39716	11.94850	0.0471886	0.18644302	3.0346269	21	—	—
411809 2012 <i>DN</i> <sub>24</sub>	16.6	X	213.58444	238.88115	95.52961	5.05830	0.0473810	0.21215472	2.7842031	21	3 3.7	20.7
411810 2012 <i>DA</i> <sub>25</sub>	16.2	X	37.89412	352.46751	157.11321	13.87248	0.1314355	0.21516788	2.7581492	21	3 6.5	19.3
411811 2012 <i>DU</i> <sub>25</sub>	15.3	X	220.33635	201.50640	9.88683	22.04045	0.1838801	0.17627451	3.1502412	21	12 10.9	20.6
411812 2012 <i>DT</i> <sub>27</sub>	17.2	X	235.57032	100.74407	355.87160	8.28274	0.1770460	0.26632511	2.3925516	21	8 22.9	20.7
411813 2012 <i>DX</i> <sub>27</sub>	16.4	X	82.13551	97.90378	356.67874	13.55741	0.0709403	0.21987706	2.7186258	21	2 26.6	19.9
411814 2012 <i>DK</i> <sub>28</sub>	17.1	X	54.05223	141.95974	1.12833	13.30527	0.0899014	0.21920084	2.7242141	21	3 20.5	20.2
411815 2012 <i>DG</i> <sub>30</sub>	16.1	X	329.26103	122.37527	5.41801	16.25066	0.1832964	0.19181656	2.9776843	21	—	—
411816 2012 <i>DP</i> <sub>31</sub>	15.7	X	246.82045	18.59483	164.49258	16.34917	0.0827477	0.18090060	3.0962977	21	12 23.9	20.3
411817 2012 <i>DF</i> <sub>33</sub>	16.8	X	271.48204	318.56470	94.29312	6.75424	0.0998489	0.25856648	2.4401765	21	8 19.5	19.8
411818 2012 <i>DR</i> <sub>33</sub>	17.3	X	247.72729	282.12199	170.47852	7.13699	0.1356442	0.26853641	2.3793989	21	9 3.9	20.2
411819 2012 <i>DO</i> <sub>34</sub>	16.1	X	246.24720	13.82230	191.26460	10.25858	0.0538493	0.18457811	3.0550331	21	—	—
411820 2012 <i>DZ</i> <sub>36</sub>	15.6	X	187.01984	261.90813	354.16818	11.61691	0.1905516	0.18035000	3.1025964	21	—	—
411821 2012 <i>DB</i> <sub>37</sub>	16.9	X	324.28374	124.45862	130.45664	3.43641	0.0267608	0.22556802	2.6727050	21	4 7.9	20.3
411822 2012 <i>DO</i> <sub>40</sub>	16.9	X	294.58341	254.23018	277.00945	1.21000	0.0180290	0.19028135	2.9936790	21	—	—
411823 2012 <i>DT</i> <sub>41</sub>	16.2	X	172.62515	294.23229	85.55912	8.64039	0.0859422	0.22160904	2.7044424	21	3 17.2	20.4
411824 2012 <i>DP</i> <sub>43</sub>	16.8	X	89.19994	350.37458	112.86650	6.54044	0.0360471	0.21926186	2.7237086	21	3 14.5	20.4
411825 2012 <i>DC</i> <sub>44</sub>	16.1	X	228.64724	63.12125	133.40558	2.14931	0.0826418	0.17674798	3.1446072	21	12 17.5	20.6
411826 2012 <i>DH</i> <sub>44</sub>	17.0	X	90.82727	115.05246	14.81147	12.13105	0.2002349	0.22886739	2.6469563	21	5 8.6	20.6
411827 2012 <i>DW</i> <sub>45</sub>	16.4	X	189.33041	134.91183	123.69094	3.18014	0.0745613	0.18209841	3.0827049	21	—	—
411828 2012 <i>DA</i> <sub>47</sub>	16.8	X	121.19609	324.30925	178.76291	15.85932	0.1114030	0.23799804	2.5788166	21	6 23.4	20.9
411829 2012 <i>DD</i> <sub>47</sub>	16.8	X	118.18147	333.28011	126.52809	4.68003	0.0387354	0.22867366	2.6484511	21	4 15.8	20.4
411830 2012 <i>DL</i> <sub>47</sub>	15.6	X	99.25414	150.10761	142.52481	17.78003	0.0907289	0.17543486	3.1602792	21	12 1.7	20.7
411831 2012 <i>DX</i> <sub>47</sub>	16.0	X	226.87056	187.80496	335.53816	11.13503	0.0397837	0.17441805	3.1725497	21	11 6.6	



ELEMENTS AND OPPOSITION DATES IN 2021

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2021 JULY 5.0 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>		
411841	2012	DU <sub>56</sub>	17.2	X	211.89479	9.93360	303.49217	4.76219	0.0057105	0.21205504	2.7850756	21	2 1.5	21.0
411842	2012	DP <sub>57</sub>	17.6	X	239.77899	283.53857	187.09376	4.01202	0.1133812	0.26892848	2.3770857	21	9 22.1	20.8
411843	2012	DU <sub>58</sub>	17.1	X	75.71732	108.74367	15.21266	4.78413	0.1158162	0.22230103	2.6988271	21	3 31.0	20.3
411844	2012	DF <sub>59</sub>	16.6	X	84.67697	109.41540	28.03605	4.58747	0.0751852	0.22769333	2.6560475	21	4 24.1	20.0
411845	2012	DU <sub>61</sub>	15.6	X	263.94627	274.94239	273.23888	9.58219	0.0417479	0.18929472	3.0040723	21	—	—
411846	2012	DD <sub>63</sub>	18.6	X	295.89077	280.24304	147.44750	2.04185	0.1938923	0.28006964	2.3136200	21	10 7.5	20.4
411847	2012	DP <sub>65</sub>	17.1	X	170.27493	291.96355	156.35644	8.50798	0.0820713	0.24223701	2.5486433	21	6 5.8	20.9
411848	2012	DW <sub>72</sub>	17.4	X	119.46366	353.98644	119.96570	3.36354	0.1039604	0.23381369	2.6094928	21	5 13.8	21.1
411849	2012	DZ <sub>72</sub>	16.3	X	177.41715	256.70990	357.16939	15.36458	0.0841897	0.18088096	3.0965218	21	—	—
411850	2012	DP <sub>74</sub>	17.1	X	248.14534	59.74638	49.26053	6.67947	0.1078899	0.26590548	2.3950680	21	10 4.5	20.1
411851	2012	DV <sub>74</sub>	17.6	X	280.88398	271.18197	165.21795	7.42623	0.1764266	0.27471288	2.3435993	21	9 24.8	19.9
411852	2012	DC <sub>75</sub>	17.0	X	1.58417	289.14981	206.33475	1.47876	0.0137346	0.20462289	2.8521120	21	—	—
411853	2012	DU <sub>75</sub>	15.7	X	191.13041	236.29320	3.17294	25.57935	0.1704219	0.17260939	3.1946731	21	12 19.9	21.4
411854	2012	DU <sub>76</sub>	16.3	X	208.98212	83.92095	265.23206	3.25221	0.0862795	0.21730209	2.7400603	21	3 11.7	20.5
411855	2012	DX <sub>76</sub>	16.4	X	181.25455	70.91992	336.95259	12.85071	0.1242541	0.23012211	2.6373260	21	4 20.1	20.7
411856	2012	DR <sub>82</sub>	16.7	X	178.29605	349.14555	41.46884	5.67779	0.1148599	0.22157006	2.7047596	21	4 3.9	20.9
411857	2012	DH <sub>83</sub>	17.4	X	102.83304	265.38718	165.15109	1.05631	0.0494800	0.21521611	2.7577371	21	2 18.1	21.0
411858	2012	DL <sub>83</sub>	17.6	X	270.30826	239.49929	163.00562	4.94067	0.2068197	0.26055903	2.4277202	21	7 13.8	21.0
411859	2012	DF <sub>84</sub>	16.8	X	209.11681	272.32334	356.70501	1.60852	0.0620278	0.19733683	2.9218906	21	—	—
411860	2012	DP <sub>86</sub>	16.8	X	225.45340	287.33105	201.22588	20.44680	0.2756461	0.26755277	2.3852272	21	9 7.4	20.9
411861	2012	DY <sub>86</sub>	16.6	X	300.94208	233.04515	326.73401	6.67972	0.0350436	0.20147390	2.8817537	21	—	—
411862	2012	DI <sub>90</sub>	18.0	X	228.97904	6.07226	116.67560	2.14363	0.1368325	0.27004392	2.3705354	21	9 23.5	21.1
411863	2012	DK <sub>92</sub>	17.2	X	67.39679	119.28371	8.81826	5.10721	0.0641519	0.22259190	2.6964755	21	3 17.7	20.4
411864	2012	DT <sub>92</sub>	17.3	X	39.33622	341.29411	157.19284	3.00333	0.0141236	0.21568374	2.7537496	21	2 17.1	20.8
411865	2012	DL <sub>95</sub>	18.1	X	225.19365	101.95026	358.27306	3.09685	0.1422269	0.26357920	2.4091392	21	8 18.5	21.5
411866	2012	DQ <sub>95</sub>	16.9	X	302.88862	286.41305	216.27898	1.82864	0.0390168	0.18984961	2.9982160	21	—	—
411867	2012	DX <sub>96</sub>	16.0	X	231.16567	242.06574	344.76971	14.07839	0.1332850	0.18949965	3.0019062	21	—	—
411868	2012	EE	16.9	X	97.42615	219.54593	295.81606	7.82256	0.1063722	0.23840722	2.5758651	21	6 9.6	20.4
411869	2012	EO	17.5	X	243.55954	108.57438	16.13069	3.87170	0.1293708	0.25801427	2.4436569	21	7 23.3	20.9
411870	2012	ES	16.9	X	204.34608	81.62196	319.40121	8.19977	0.1360645	0.18675925	3.0312003	21	—	—
411871	2012	EV	17.4	X	155.10134	229.93037	183.06858	5.15294	0.0622014	0.22669356	2.6638510	21	4 1.7	21.1
411872	2012	EG <sub>1</sub>	16.8	X	306.75983	46.88406	191.33736	3.90021	0.0474283	0.21414381	2.7669355	21	2 18.1	20.5
411873	2012	EN <sub>2</sub>	15.9	X	228.62204	26.94586	162.38226	14.16874	0.0581236	0.18033376	3.1027826	21	12 13.9	20.6
411874	2012	EW <sub>2</sub>	17.1	X	61.49813	17.53258	160.16551	13.07649	0.1395635	0.23274507	2.6174740	21	5 27.9	20.5
411875	2012	EW <sub>4</sub>	15.9	X	105.65555	321.60525	6.00306	15.27664	0.1271694	0.17914453	3.1164991	21	—	—
411876	2012	EE <sub>7</sub>	16.5	X	52.03618	142.93196	95.75031	15.98028	0.0751185	0.24228532	2.5483045	21	7 27.9	19.7
411877	2012	FN	17.0	X	138.93253	336.28654	168.62495	12.13033	0.0736969	0.24048604	2.5609993	21	7 12.0	20.9
411878	2012	FN <sub>5</sub>	16.8	X	111.31966	191.56072	188.81589	2.90708	0.1235715	0.20399881	2.8579259	21	1 9.8	20.6
411879	2012	FP <sub>8</sub>	16.2	X	197.53990	54.40375	170.50040	9.83432	0.1254732	0.17720182	3.1392358	21	12 14.6	21.2
411880	2012	FS <sub>10</sub>	17.6	X	174.79780	269.31330	185.32881	8.45092	0.0812710	0.24144892	2.5541861	21	6 18.1	21.5
411881	2012	FO <sub>11</sub>	16.7	X	110.44001	138.64192	358.97245	11.73845	0.1322693	0.23437760	2.6053054	21	6 3.7	20.6
411882	2012	FQ <sub>15</sub>	16.9	X	159.01523	239.65001	167.02599	11.00566	0.1469386	0.22465899	2.6799098	21	4 6.9	21.1
411883	2012	FT <sub>25</sub>	16.8	X	265.73884	41.68275	153.63676	2.66928	0.0605762	0.18776521	3.0203641	21	—	—
411884	2012	FT <sub>25</sub>	16.6	X	59.56931	44.57827	4.44582	15.25932	0.0550933	0.19177091	2.9781569	21	—	—
411885	2012	FQ <sub>26</sub>	16.7	X	70.20079	63.41036	9.42937	7.99431	0.1116635	0.20418184	2.8562177	21	1 19.5	20.3
411886	2012	FF <sub>28</sub>	17.3	X	17.90807	91.43470	83.75798	4.81163	0.1044873	0.21361921	2.7714636	21	3 10.7	21.0
411887	2012	FA <sub>29</sub>	17.0	X	6.45095	179.26966	15.38852	6.63156	0.0410288	0.21901170	2.7257824	21	3 17.4	20.3
411888	2012	FK <sub>32</sub>	16.3	X	110.81064	185.14516	134.25730	8.89466	0.1041905	0.17435661	3.1732949	21	—	—
411889	2012	FE <sub>33</sub>	16.3	X	263.49928	181.15638	343.87535	12.41367	0.0561905	0.17820995	3.1273855	21	12 26.3	20.8
411890	2012	FJ <sub>35</sub>	17.1	X	127.65659	354.50413	70.85061	3.61705	0.0939319	0.21696613	2.7428881	21	3 22.6	20.9
411891	2012	FK <sub>36</sub>	16.3	X	173.79299	94.00807	172.28153	5.55680	0.1078773	0.18004363	3.1061151	21	—	—
411892	2012	FT <sub>36</sub>	16.5	X	201.71192	194.81308	42.00640	9.12712	0.0132272	0.17962834	3.1109007	21	—	—
411893	2012	FD <sub>39</sub>	16.9	X	332.80422	257.05130	314.80023	4.12704	0.0644720	0.21501052	2.7594948	21	2 16.8	20.3
411894	2012	FC <sub>40</sub>	16.0	X	235.38799	251.55912	325.67703	10.32138	0.0916702	0.18341439	3.0679418	21	—	—
411895	2012	FH <sub>40</sub>	15.8	X	279.07826	115.53701	32.76003	12.02562	0.0969638	0.18097441	3.0954557	21	12 19.7	20.1
411896	2012	FQ <sub>40</sub>	16.6	X	85.29104	300.38945	208.22209	5.04329	0.1442008	0.23022644	2.6365292	21	5 21.9	19.9
411897	2012	FV <sub>40</sub>	16.5	X	145.05619	272.56781	44.06519	9.46604	0.0701825	0.18496987	3.0507180	21	—	—
411898	2012	FN <sub>41</sub>	16.9	X	25.18878	313.38101	218.32033	2.44618	0.0175571	0.21708130	2.7419178	21	3 11.8	20.5
411899	2012	FA <sub>42</sub>	16.4	X	173.35771	167.38981	156.60324	2.42467	0.1016667	0.19500563	2.9451310	21	1 10.1	20.9
411900	2012	FK <sub>46</sub>	17.5	X	125.86526	74.91049	33.82057	3.54213	0.0553904	0.23003750	2.6379727	21	5 7.1	20.9
411901	2012	FF <sub>47</sub>	16.6	X	136.72502	343.24895	41.83443	4.80910	0.0883262	0.20882899	2.8136853	21	2 11.7	20.6
411902	2012	FA <sub>54</sub>	15.9	X	226.58299	257.29946	349.36991	8.05871	0.0697428	0.18858700	3.0115833	21	—	—
411903	2012	FJ <sub>54</sub>	17.1	X	119.20409	88.41285	7.25123	8.92007	0.1051469	0.22394370	2.6856133	21	4 17.3	20.8
411904	2012	FU <sub>56</sub>	16.2	X	141.22679	307.55167	10.85970	10.16260	0.1117860	0.18544255	3.0455317	21	—	—
411905	2012	FQ <sub>59</sub>	15.9	X	287.92583	129.66431	15.45689	12.74533	0.0655324	0.18290562	3.0736283	21	—	—
411906	2012	FU <sub>59</sub>	15.5	X	201.58800	245.78133	16.07508	16.10915	0.1875879	0.18389458	3.0625987	21	—	—
411907	2012	FP <sub>61</sub>	16.3	X	197.47582	167.53009	57.35648	10.06635	0.0489404	0.17526534	3.1623167	21	12 19.3	21.0
411908	2012	FY <sub>62</sub>	16.6	X	30.21297	91.88042	21.16632	11.53442	0.0760802	0.19926746	3.0292987	21	1 9.0	20.4
411909	2012	FK <sub>63</sub>	17.2	X	156.61077	0.89642	175.41919	12.51091	0.1103555	0.25668263	2.4521012	21	9 15.1	20.7
411910	2012	FN <sub>63</sub>	16.0	X	63.10070	82.48001	120.21558	14.89146	0.1173402	0.20530595	2.8457824	21	2 21.6	19.7
411911	2012	FO												

ELEMENTS AND OPPOSITION DATES IN 2021

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2021 JULY 5.0 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>
411921 2012 <i>FR</i> <sub>73</sub>	15.8	X	243.52139	149.66745	30.53225	6.09739	0.1575104	0.17288439	3.1912846	21	12 3.7	20.4
411922 2012 <i>FR</i> <sub>74</sub>	16.2	X	163.34270	85.22890	343.13156	21.98265	0.0507648	0.23154414	2.6265168	21	4 17.8	20.4
411923 2012 <i>FZ</i> <sub>75</sub>	16.1	X	232.00046	298.41830	234.18180	4.70124	0.1341405	0.17339226	3.1850500	21	11 16.2	20.8
411924 2012 <i>FD</i> <sub>82</sub>	16.1	X	231.56196	213.28726	100.04255	7.35957	0.0549427	0.21163794	2.7887336	21	2 26.0	20.2
411925 2012 <i>FE</i> <sub>82</sub>	15.6	X	99.31903	262.94068	71.14043	9.36767	0.0508370	0.17955564	3.1117403	21	—	—
411926 2012 <i>FN</i> <sub>83</sub>	15.7	X	202.73372	306.21770	268.48018	8.63276	0.1722179	0.17673369	3.1447767	21	12 3.2	20.7
411927 2012 <i>GB</i> <sub>1</sub>	16.2	X	268.19712	116.12687	33.46449	10.98339	0.0461274	0.17646146	3.1480102	21	12 12.2	20.6
411928 2012 <i>GP</i> <sub>2</sub>	15.8	X	33.52433	13.02623	24.80609	9.45481	0.0687485	0.17610110	3.1523033	21	—	—
411929 2012 <i>GX</i> <sub>2</sub>	16.1	X	162.52748	291.53152	23.97703	11.22625	0.0899778	0.18624837	3.0367408	21	—	—
411930 2012 <i>GX</i> <sub>3</sub>	16.0	X	169.30061	175.27721	29.37999	6.31928	0.1693453	0.15764546	3.3937647	21	10 22.9	21.7
411931 2012 <i>GS</i> <sub>7</sub>	16.1	X	242.26536	300.20491	242.38218	8.80119	0.1768761	0.17723477	3.1388466	21	12 4.4	20.6
411932 2012 <i>GQ</i> <sub>8</sub>	16.9	X	303.18356	65.41108	209.03162	5.56977	0.0177348	0.21952262	2.7215514	21	4 5.1	20.6
411933 2012 <i>GL</i> <sub>9</sub>	16.7	X	136.49934	202.57312	241.29513	4.19173	0.0346088	0.22156471	2.7048031	21	4 14.9	20.5
411934 2012 <i>GB</i> <sub>10</sub>	16.5	X	318.95159	285.55324	205.44983	9.45522	0.0896036	0.18453221	3.0555397	21	—	—
411935 2012 <i>GO</i> <sub>10</sub>	16.0	X	166.41383	243.36847	16.23438	9.11258	0.0791407	0.17219473	3.1997998	21	12 25.6	21.0
411936 2012 <i>GY</i> <sub>12</sub>	15.6	X	263.02485	167.58865	21.16417	17.99221	0.1418693	0.18201670	3.0836273	21	—	—
411937 2012 <i>GH</i> <sub>19</sub>	15.8	X	95.01630	153.93810	188.22621	9.15661	0.0742941	0.17424319	3.1746719	21	—	—
411938 2012 <i>GY</i> <sub>19</sub>	16.2	X	285.98753	7.50673	186.06416	10.74873	0.0452870	0.18810563	3.0167190	21	—	—
411939 2012 <i>GV</i> <sub>21</sub>	17.1	X	141.96091	59.03978	51.63228	4.32701	0.1323474	0.23156691	2.6263446	21	6 5.9	20.9
411940 2012 <i>GA</i> <sub>22</sub>	16.4	X	254.66573	355.90704	234.79142	3.58973	0.0532787	0.18800302	3.0178165	21	—	—
411941 2012 <i>GY</i> <sub>23</sub>	15.9	X	282.62800	112.62411	23.00598	9.49100	0.1538932	0.17739573	3.1369477	21	11 29.9	20.1
411942 2012 <i>GD</i> <sub>24</sub>	16.3	X	241.44816	100.49320	74.18584	6.03938	0.0982598	0.17315105	3.1880072	21	12 3.6	20.7
411943 2012 <i>GZ</i> <sub>25</sub>	16.0	X	247.29846	182.52090	13.08313	11.03902	0.0397121	0.17984790	3.1083683	21	—	—
411944 2012 <i>GY</i> <sub>29</sub>	16.1	X	181.36316	224.07035	31.16196	9.30516	0.0491670	0.17499292	3.1655977	21	—	—
411945 2012 <i>GS</i> <sub>30</sub>	16.4	X	30.29535	329.31202	174.88897	12.02066	0.1904056	0.21140352	2.7907948	21	2 11.3	19.3
411946 2012 <i>GB</i> <sub>36</sub>	15.1	X	188.01502	225.75237	33.95383	11.41592	0.0587515	0.17495874	3.1660100	21	—	—
411947 2012 <i>GE</i> <sub>37</sub>	16.1	X	357.60616	251.56872	270.98930	11.26081	0.0612797	0.18705592	3.0279945	21	—	—
411948 2012 <i>GR</i> <sub>37</sub>	15.3	X	345.41960	294.36803	87.63752	10.71089	0.0546011	0.15442114	3.4408431	21	10 22.1	20.0
411949 2012 <i>HB</i> <sub>6</sub>	15.4	X	268.91506	78.46672	95.02869	15.09009	0.0935548	0.17640514	3.1486802	21	—	—
411950 2012 <i>HY</i> <sub>14</sub>	15.4	X	300.21381	26.66388	123.01043	11.01833	0.0539354	0.18286127	3.0741252	21	—	—
411951 2012 <i>HE</i> <sub>15</sub>	16.2	X	216.46728	57.72263	193.50372	10.93118	0.0924461	0.18293602	3.0732878	21	—	—
411952 2012 <i>HX</i> <sub>16</sub>	16.1	X	153.64640	221.99503	131.58824	12.57720	0.0968629	0.18805602	3.0172495	21	1 25.6	20.7
411953 2012 <i>HJ</i> <sub>18</sub>	16.2	X	79.58885	76.75904	96.52472	13.66335	0.1066252	0.22697298	2.6616643	21	6 11.4	19.7
411954 2012 <i>HS</i> <sub>19</sub>	16.8	X	50.08263	137.66343	29.20945	17.07989	0.1508737	0.22058828	2.7127791	21	4 21.6	19.7
411955 2012 <i>HS</i> <sub>21</sub>	16.3	X	266.89629	353.79479	177.31669	18.13271	0.1661259	0.17775218	3.1327526	21	12 21.9	20.9
411956 2012 <i>HG</i> <sub>28</sub>	15.8	X	130.25451	237.05832	110.04322	16.52103	0.0848373	0.17888030	3.1195674	21	—	—
411957 2012 <i>HS</i> <sub>30</sub>	16.6	X	69.10661	352.72088	69.31700	11.34403	0.0614860	0.18793282	3.0185680	21	1 1.1	20.6
411958 2012 <i>HH</i> <sub>34</sub>	16.1	X	182.57111	272.81321	87.65880	10.97859	0.0590629	0.19960817	2.8968829	21	3 6.1	20.6
411959 2012 <i>HS</i> <sub>36</sub>	15.8	X	97.65808	271.03704	96.65561	14.74189	0.0630382	0.17933893	3.1142466	21	—	—
411960 2012 <i>HZ</i> <sub>37</sub>	16.3	X	255.98863	321.73087	219.41024	4.17176	0.1467304	0.17232257	3.1982170	21	12 21.4	20.9
411961 2012 <i>HM</i> <sub>38</sub>	16.3	X	319.73284	284.24659	223.78075	7.22669	0.1437100	0.18315749	3.0708098	21	—	—
411962 2012 <i>HD</i> <sub>42</sub>	16.6	X	15.75493	327.70348	201.94859	12.73999	0.1228084	0.21118270	2.7927399	21	2 18.7	20.0
411963 2012 <i>HC</i> <sub>44</sub>	15.4	X	275.08909	317.99140	174.74616	21.47164	0.1075820	0.17822595	3.1271989	21	—	—
411964 2012 <i>HB</i> <sub>45</sub>	15.9	X	220.14231	49.99377	195.86249	6.93856	0.0218940	0.17978494	3.1090939	21	—	—
411965 2012 <i>HJ</i> <sub>46</sub>	16.1	X	185.01409	59.29810	258.82851	8.68756	0.0490261	0.19388604	2.9564578	21	1 11.1	20.5
411966 2012 <i>HO</i> <sub>46</sub>	15.4	X	223.49719	134.76227	93.59508	10.28743	0.0385857	0.17579302	3.1559852	21	—	—
411967 2012 <i>HW</i> <sub>47</sub>	15.8	X	173.92903	80.28003	210.46427	26.14613	0.0521374	0.17679561	3.1440424	21	—	—
411968 2012 <i>HH</i> <sub>49</sub>	16.0	X	158.41031	234.24119	110.04552	10.60633	0.0764730	0.18924112	3.0046395	21	1 17.8	20.3
411969 2012 <i>HV</i> <sub>50</sub>	15.2	X	296.50583	77.60707	88.11502	16.80492	0.0421381	0.17699872	3.1416367	21	—	—
411970 2012 <i>HE</i> <sub>52</sub>	16.2	X	34.78225	267.95454	203.46587	14.60087	0.1447974	0.19947763	2.9009478	21	1 8.9	19.8
411971 2012 <i>HZ</i> <sub>53</sub>	16.9	X	295.53517	106.30302	163.28997	7.57331	0.0391159	0.21136747	2.7911121	21	3 19.3	20.6
411972 2012 <i>HO</i> <sub>56</sub>	16.7	X	240.48045	44.21319	177.96061	6.72407	0.1121841	0.18116505	3.0932838	21	—	—
411973 2012 <i>HU</i> <sub>58</sub>	16.2	X	213.98883	63.30761	188.70543	12.94962	0.0890571	0.18123218	3.0925200	21	—	—
411974 2012 <i>HJ</i> <sub>58</sub>	15.8	X	35.37328	341.38257	72.04563	8.01978	0.0736838	0.17934669	3.1141568	21	—	—
411975 2012 <i>HV</i> <sub>59</sub>	16.6	X	319.95050	287.15855	202.09772	6.79349	0.1166634	0.18124466	3.0923780	21	—	—
411976 2012 <i>HF</i> <sub>64</sub>	16.0	X	123.12070	282.50024	49.48105	11.56339	0.0794168	0.17429587	3.1740321	21	—	—
411977 2012 <i>HT</i> <sub>65</sub>	16.0	X	271.09758	264.98750	262.34028	8.02826	0.0773983	0.17881213	3.1203602	21	—	—
411978 2012 <i>HN</i> <sub>66</sub>	15.6	X	218.65751	135.37014	89.10529	17.96808	0.0829496	0.17663344	3.1459665	21	—	—
411979 2012 <i>HV</i> <sub>69</sub>	16.0	X	25.00323	125.52144	94.43105	14.29307	0.0752464	0.22571746	2.6715252	21	5 21.1	19.3
411980 2012 <i>HK</i> <sub>74</sub>	15.8	X	333.09738	289.39822	211.20470	20.20240	0.2579170	0.19150028	2.9809620	21	—	—
411981 2012 <i>HJ</i> <sub>78</sub>	15.9	X	210.78570	168.71205	66.58457	6.69923	0.1193657	0.17099975	3.2146897	21	—	—
411982 2012 <i>JN</i> <sub>2</sub>	16.3	X	106.89383	26.51384	55.54942	12.69842	0.1198915	0.20990186	2.8040895	21	3 27.7	20.4
411983 2012 <i>JD</i> <sub>3</sub>	15.3	X	32.71564	182.33569	227.50038	21.32743	0.0838397	0.17174336	3.2054037	21	—	—
411984 2012 <i>JN</i> <sub>8</sub>	16.0	X	150.85585	97.88346	122.95648	8.94827	0.0505272	0.17818010	3.1277348	21	—	—
411985 2012 <i>JF</i> <sub>16</sub>	15.3	X	163.36635	207.07060	106.24362	21.19461	0.0160750	0.17732621	3.1777675	21	—	—
411986 2012 <i>JY</i> <sub>16</sub>	15.9	X	285.41979	90.89085	63.17021	11.34776	0.0904849	0.17687146	3.1431435	21	—	—
411987 2012 <i>JG</i> <sub>18</sub>	16.5	X	326.71811	8.								