

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>		
276001	2001	XJ <sub>228</sub>	17.1	X	2.38013	314.49293	53.50970	3.86572	0.1845156	0.26009642	2.4305980	20	12 12.0	19.6
276002	2001	XA <sub>246</sub>	16.0	X	278.48187	18.69805	309.92825	4.69181	0.1737994	0.24229824	2.5482139	20	4 28.1	19.6
276003	2001	YE <sub>7</sub>	16.6	X	204.56839	55.51715	308.24814	8.53676	0.2236517	0.23658547	2.5890712	20	3 26.7	21.2
276004	2001	YF <sub>18</sub>	16.1	X	277.00646	281.61427	101.37521	5.03953	0.1907174	0.24650776	2.5191207	20	7 10.1	19.0
276005	2001	YQ <sub>18</sub>	15.7	X	336.85459	54.01075	102.63828	18.61938	0.1644422	0.21628761	2.7486216	20	—	—
276006	2001	YC <sub>39</sub>	16.8	X	149.78119	199.53617	316.62163	1.27805	0.1429448	0.24463651	2.5319504	20	8 21.3	20.6
276007	2001	YP <sub>49</sub>	15.8	X	193.25900	97.22344	281.07656	9.49696	0.1922244	0.23529202	2.5985510	20	4 3.9	20.3
276008	2001	YY <sub>71</sub>	16.5	X	175.93686	55.79113	72.09335	6.54392	0.1638872	0.24278977	2.5447735	20	8 12.3	20.6
276009	2001	YL <sub>77</sub>	16.3	X	234.25608	309.49978	94.87812	10.31835	0.1544574	0.24199770	2.5503232	20	6 21.3	19.9
276010	2001	YO <sub>79</sub>	15.7	X	267.48321	32.62106	330.07414	3.55041	0.2622052	0.24301456	2.5432040	20	5 19.5	19.6
276011	2001	YG <sub>89</sub>	16.6	X	217.83763	324.61197	100.67808	5.02330	0.1067304	0.24076835	2.5589970	20	7 5.5	20.3
276012	2001	YS <sub>89</sub>	16.7	X	203.93979	51.69021	344.26722	3.75019	0.3024058	0.23813299	2.5778423	20	5 5.3	21.4
276013	2001	YM <sub>91</sub>	15.8	X	77.37726	99.62534	106.06628	11.72240	0.1029443	0.23709288	2.5853760	20	8 2.9	19.2
276014	2001	YG <sub>107</sub>	15.9	X	233.47690	292.36898	122.55930	8.26234	0.2400724	0.24296967	2.5435171	20	6 26.0	20.0
276015	2001	YW <sub>120</sub>	17.7	X	310.61654	200.89301	279.29780	4.40605	0.1826323	0.26347968	2.4097462	20	—	—
276016	2001	YQ <sub>124</sub>	16.0	X	220.06000	16.55094	64.46491	12.23527	0.1021762	0.24578608	2.5240495	20	8 2.4	19.8
276017	2001	YX <sub>130</sub>	16.6	X	211.29170	349.73974	67.45789	5.28996	0.2607442	0.24079593	2.5588017	20	6 8.2	21.1
276018	2002	AD <sub>7</sub>	16.4	X	251.56491	192.06693	203.10871	7.95940	0.1890940	0.24179217	2.5517682	20	6 23.8	20.2
276019	2002	AF <sub>13</sub>	15.8	X	22.65504	299.19843	305.43268	12.12769	0.1153962	0.23243542	2.6197982	20	7 6.3	18.7
276020	2002	AX <sub>13</sub>	16.9	X	102.84770	142.09437	303.32592	11.20215	0.2453568	0.22681344	2.6629123	20	4 8.1	21.1
276021	2002	AA <sub>23</sub>	16.4	X	225.97298	249.28695	188.34457	5.43718	0.1569882	0.24421696	2.5348495	20	7 24.8	20.2
276022	2002	AZ <sub>27</sub>	16.0	X	243.17580	15.31316	34.04441	4.31000	0.2349717	0.24350008	2.5398222	20	6 28.8	20.0
276023	2002	AK <sub>44</sub>	17.3	X	189.66241	254.28695	193.73357	1.52544	0.1895912	0.24008048	2.5638827	20	7 1.6	21.4
276024	2002	AT <sub>53</sub>	17.2	X	166.02943	40.14883	147.43019	5.08715	0.0607716	0.30144147	2.2029301	20	10 31.1	20.0
276025	2002	AV <sub>54</sub>	16.2	X	174.15197	250.84484	123.19143	15.26307	0.0922282	0.22732906	2.6588842	20	3 20.2	20.4
276026	2002	AX <sub>61</sub>	15.9	X	115.78514	25.03883	138.48448	8.39812	0.1380195	0.23481421	2.6020749	20	7 25.9	19.8
276027	2002	AJ <sub>67</sub>	16.6	X	64.72085	150.84545	105.63905	7.63629	0.1730731	0.24415888	2.5352514	20	10 8.2	20.3
276028	2002	AC <sub>73</sub>	16.6	X	202.28270	0.52091	98.91278	12.93663	0.1435819	0.24361916	2.5389945	20	8 1.4	20.5
276029	2002	AF <sub>75</sub>	16.8	X	157.66960	38.20131	90.03790	8.21652	0.1130725	0.24002605	2.5642702	20	7 24.2	20.7
276030	2002	AD <sub>77</sub>	16.9	X	203.38697	55.10308	7.71924	2.74792	0.1604331	0.23948739	2.5681139	20	6 13.1	20.9
276031	2002	AJ <sub>104</sub>	16.7	X	239.14005	306.54428	112.88699	3.01334	0.0690115	0.24242467	2.5473279	20	7 28.4	20.2
276032	2002	AT <sub>107</sub>	16.3	X	174.85123	135.36091	306.70253	6.50911	0.1829216	0.23654029	2.5894009	20	6 10.8	20.6
276033	2002	AJ <sub>129</sub>	18.7	X	182.55575	210.99877	138.42669	15.45658	0.9149324	0.61433944	1.3704519	20	3 5.6	21.9
276034	2002	AA <sub>130</sub>	16.2	X	75.02952	64.65211	68.39518	30.79566	0.2311432	0.22758542	2.6568871	20	5 16.5	19.8
276035	2002	AB <sub>140</sub>	15.7	X	99.11786	20.87905	83.53603	22.89784	0.0363429	0.23359890	2.6110921	20	4 17.6	19.7
276036	2002	AJ <sub>140</sub>	16.3	X	319.24195	251.64059	118.79906	6.42437	0.2556787	0.25356365	2.4721684	20	9 8.3	17.8
276037	2002	AA <sub>147</sub>	16.8	X	113.15412	29.40164	123.79769	5.08690	0.1011813	0.23650248	2.5896769	20	7 5.8	20.5
276038	2002	AE <sub>150</sub>	16.0	X	66.97379	135.02894	109.78997	8.85710	0.1799906	0.24083523	2.5585233	20	9 26.3	19.7
276039	2002	AT <sub>153</sub>	16.2	X	104.62565	28.95757	126.91296	13.09075	0.1047946	0.23257318	2.6187636	20	6 29.9	20.1
276040	2002	AE <sub>157</sub>	16.5	X	148.02713	333.15143	151.93989	4.27924	0.2025031	0.23620352	2.5918616	20	7 11.9	20.7
276041	2002	AV <sub>162</sub>	16.7	X	117.95659	326.68738	153.04091	5.61012	0.1958014	0.23111037	2.6298023	20	6 7.8	20.8
276042	2002	AQ <sub>174</sub>	16.8	X	215.04953	338.91562	96.12972	2.37617	0.1255769	0.24061560	2.5600799	20	7 13.7	20.5
276043	2002	AL <sub>209</sub>	17.1	X	169.31305	332.36630	133.62251	4.52185	0.0219079	0.23725231	2.5842176	20	7 5.5	20.6
276044	2002	BD <sub>5</sub>	16.4	X	154.62412	40.31180	80.92257	15.49353	0.1324309	0.23716414	2.5848581	20	7 11.5	20.5
276045	2002	BS <sub>22</sub>	15.2	X	299.33598	343.81780	4.52995	11.87967	0.2244595	0.24598206	2.5227086	20	6 18.4	18.3
276046	2002	BE <sub>27</sub>	15.8	X	82.78192	118.99913	79.17762	13.23693	0.2237591	0.23595438	2.5936858	20	8 19.7	19.9
276047	2002	CX <sub>5</sub>	16.4	X	199.95534	298.00127	116.18717	2.76551	0.2032522	0.23584544	2.5944844	20	5 28.9	20.8
276048	2002	CP <sub>7</sub>	16.4	X	64.69214	103.02020	122.94118	9.45779	0.2331593	0.23472129	2.6027616	20	9 3.5	20.0
276049	2002	CE <sub>26</sub>	16.8	X	245.57902	228.02396	161.90599	47.29387	0.5608180	0.29542975	2.2327147	20	5 17.9	22.2
276050	2002	CU <sub>30</sub>	16.9	X	214.41076	323.73745	97.96255	6.27769	0.2449647	0.23987096	2.5653755	20	6 17.4	21.3
276051	2002	CZ <sub>30</sub>	16.3	X	133.83693	68.15176	75.13118	5.44839	0.1989673	0.23580062	2.5948131	20	7 23.5	20.5
276052	2002	CB <sub>32</sub>	16.3	X	95.12157	155.04645	42.68715	4.94762	0.0709477	0.23741860	2.5830108	20	8 11.5	19.8
276053	2002	CS <sub>32</sub>	16.2	X	88.11710	106.12394	87.01575	8.58886	0.1316617	0.23474679	2.6025731	20	8 4.1	19.9
276054	2002	CH <sub>33</sub>	16.5	X	93.11669	69.98362	114.55101	14.15636	0.1475716	0.23390821	2.6087897	20	7 30.3	20.2
276055	2002	CP <sub>37</sub>	16.1	X	57.17928	101.16603	333.17434	12.16992	0.1802418	0.21599068	2.7511401	20	1 17.6	19.1
276056	2002	CL <sub>48</sub>	16.7	X	142.36153	91.21833	51.19788	3.02720	0.1150737	0.23742248	2.5829827	20	7 26.4	20.6
276057	2002	CX <sub>62</sub>	16.3	X	245.95063	307.62456	116.17227	18.42352	0.1879187	0.24313896	2.5423364	20	7 26.6	19.9
276058	2002	CJ <sub>70</sub>	16.4	X	57.93429	141.53799	118.11030	7.02901	0.1256917	0.24048359	2.5610168	20	9 25.7	19.8
276059	2002	CP <sub>74</sub>	16.5	X	65.46830	102.58257	124.44224	5.05663	0.1186615	0.23579883	2.5948263	20	8 18.1	19.9
276060	2002	CJ <sub>80</sub>	16.5	X	90.75876	59.56583	128.14576	7.84525	0.1329128	0.23352370	2.6116526	20	7 29.2	20.2
276061	2002	CD <sub>99</sub>	16.1	X	353.15210	148.42141	352.31595	7.85384	0.1653666	0.21309746	2.7759855	20	—	—
276062	2002	CH <sub>113</sub>	16.0	X	187.79270	265.65297	112.70858	17.80199	0.0087025	0.22698171	2.6615961	20	4 11.7	20.0
276063	2002	CY <sub>120</sub>	17.1	X	222.87502	296.08733	148.70933	6.84049	0.1685473	0.24331478	2.5411115	20	7 30.4	20.8
276064	2002	CO <sub>124</sub>	15.5	X	145.30716	206.03402	313.85407	15.72448	0.1344049	0.18517568	3.0484571	20	8 15.3	20.4
276065	2002	CV <sub>130</sub>	16.4	X	77.80473	310.28528	275.88479	4.40363	0.1080958	0.23823187	2.5771289	20	8 28.8	20.1
276066	2002	CX <sub>139</sub>	16.5	X	89.41112	247.03038	270.80011	4.20184	0.1658210	0.23032018	2.6358138	20	6 21.8	20.0
276067	2002	CT <sub>145</sub>	15.6	X	54.66767	255.78080	317.12442	5.90150	0.1341276	0.22936908	2.6430952	20	7 15.8	18.8
276068	2002	CE <sub>162</sub>	16.4	X	78.73909	67.97389	118.99941	12.30211	0.1162003	0.23272991	2.6175878	20	7 10.4	19.8
276069	2002	CT <sub>171</sub>	16.3	X	131.23069	353.71167	124.13780	10.63249	0.0472650	0.23136834	2.6278471	20	6 6.2	20.1

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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>
276081 2002 CG <sub>270</sub>	15.9	X	326.62663	206.01277	142.08693	10.43184	0.0239664	0.18679522	3.0308111	20	8 22.9	19.9
276082 2002 CR <sub>271</sub>	17.2	X	167.93398	325.62145	128.56434	2.73990	0.0650556	0.23448487	2.6045109	20	6 18.5	21.0
276083 2002 CA <sub>289</sub>	16.0	X	39.36170	168.85342	84.99964	14.53823	0.0446050	0.23931993	2.5693117	20	8 9.5	19.5
276084 2002 CF <sub>294</sub>	15.7	X	140.61239	46.68359	96.64486	15.52416	0.0422729	0.23798247	2.5789291	20	7 21.3	19.3
276085 2002 CX <sub>296</sub>	16.6	X	115.73858	134.55423	351.90309	8.85646	0.1446380	0.22867808	2.6484169	20	6 6.8	20.7
276086 2002 CG <sub>302</sub>	16.5	X	113.39269	26.99019	115.24342	7.83035	0.1294000	0.23149686	2.6268744	20	6 24.7	20.3
276087 2002 CY <sub>310</sub>	17.3	X	138.43107	100.54318	3.66477	2.02951	0.1711418	0.23124798	2.6287589	20	6 4.9	21.4
276088 2002 DG <sub>9</sub>	16.2	X	175.46953	19.08568	88.35059	15.23602	0.1214259	0.23735918	2.5834419	20	7 14.8	20.2
276089 2002 DM <sub>11</sub>	16.7	X	51.54129	12.99647	168.66356	12.29385	0.1990728	0.22598241	2.6694367	20	6 7.6	20.0
276090 2002 DH <sub>15</sub>	17.0	X	57.84233	48.50102	174.61238	4.74139	0.1712321	0.23241640	2.6199411	20	8 8.3	20.4
276091 2002 DQ <sub>18</sub>	17.0	X	48.97231	63.04946	108.28907	2.13403	0.1413539	0.22493671	2.6777035	20	5 9.2	20.1
276092 2002 DU <sub>18</sub>	16.4	X	84.72053	101.93510	56.08750	12.37481	0.1344426	0.23036169	2.6354971	20	6 10.2	19.9
276093 2002 EK	15.2	X	109.02405	46.02921	81.66004	32.72142	0.2287234	0.22951721	2.6419578	20	6 11.8	19.1
276094 2002 EQ <sub>10</sub>	16.1	X	202.31801	330.14532	185.47540	16.75208	0.0652771	0.24350924	2.5397585	20	10 21.6	19.6
276095 2002 ER <sub>10</sub>	16.2	X	34.95123	32.88943	189.83896	14.62877	0.2872896	0.22482496	2.6785907	20	7 18.9	19.3
276096 2002 EE <sub>32</sub>	15.8	X	303.91941	179.07573	190.42362	9.82782	0.0417168	0.17920998	3.1157403	20	7 7.9	20.2
276097 2002 EZ <sub>47</sub>	16.9	X	28.48033	282.11040	265.27492	1.02052	0.1383821	0.22565503	2.6720179	20	6 7.4	19.8
276098 2002 EP <sub>55</sub>	16.8	X	116.55348	292.89862	170.05352	12.21912	0.2388167	0.22912275	2.6449892	20	5 21.9	21.2
276099 2002 EO <sub>68</sub>	16.8	X	16.16995	29.45494	180.96093	8.97803	0.1066268	0.22272409	2.6954084	20	5 5.2	19.8
276100 2002 EG <sub>74</sub>	16.1	X	56.75910	302.89419	201.56892	9.16600	0.2312196	0.22086374	2.7105230	20	4 29.0	19.1
276101 2002 EN <sub>100</sub>	16.4	X	330.29475	1.53339	165.01211	8.28139	0.0914119	0.21298708	2.7769445	20	—	—
276102 2002 ET <sub>105</sub>	16.9	X	116.59384	70.97848	52.96674	5.26613	0.2004879	0.22889263	2.6467617	20	6 11.2	20.9
276103 2002 EW <sub>128</sub>	15.7	X	35.65916	20.75577	317.27733	3.70106	0.1659833	0.24685350	2.5167681	20	12 12.7	19.0
276104 2002 ES <sub>149</sub>	15.9	X	292.44590	327.28820	9.80620	11.75253	0.0656163	0.22975485	2.6401357	20	6 16.8	19.5
276105 2002 EE <sub>157</sub>	17.3	X	116.55152	259.55032	178.29966	7.96895	0.3631547	0.22676625	2.6632817	20	5 1.5	21.9
276106 2002 FQ <sub>25</sub>	15.7	X	55.27897	153.90615	72.95361	15.94793	0.1327208	0.23103831	2.6303491	20	8 9.4	19.4
276107 2002 FE <sub>34</sub>	16.5	X	20.82995	94.65236	137.44887	8.47313	0.2109570	0.22381737	2.6866238	20	6 23.4	19.1
276108 2002 FN <sub>35</sub>	16.1	X	74.68993	172.89991	326.86217	13.13441	0.1111906	0.22331619	2.6906420	20	4 23.2	19.8
276109 2002 GL <sub>5</sub>	16.4	X	285.70210	297.57839	8.51970	3.63149	0.2993451	0.32647677	2.0888208	20	3 17.7	19.3
276110 2002 GO <sub>6</sub>	16.8	X	29.86561	130.58530	212.90097	20.38312	0.1197453	0.34948271	1.9961151	20	12 29.4	19.6
276111 2002 GM <sub>9</sub>	18.6	X	324.88639	273.73965	44.13353	17.32066	0.3493890	0.38695030	1.8650877	20	5 24.5	18.7
276112 2002 GP <sub>10</sub>	16.2	X	344.92753	236.12371	66.50512	12.71129	0.2940976	0.22398929	2.6852489	20	7 17.7	18.1
276113 2002 GB <sub>37</sub>	16.9	X	94.44961	107.11571	41.71263	6.54645	0.2115421	0.22756413	2.6570528	20	6 21.6	20.8
276114 2002 GZ <sub>47</sub>	16.3	X	204.74950	159.30849	201.71022	5.85323	0.0319064	0.21882240	2.7273541	20	4 1.1	20.0
276115 2002 GA <sub>50</sub>	16.0	X	83.42033	171.62218	328.00665	12.51567	0.1019821	0.22423606	2.6832785	20	5 5.1	19.8
276116 2002 GD <sub>59</sub>	16.4	X	18.57616	158.94696	27.02883	15.36247	0.0931980	0.21791355	2.7349322	20	4 5.3	19.5
276117 2002 GC <sub>62</sub>	16.7	X	353.91145	59.72404	197.03164	11.62943	0.1525903	0.22208281	2.7005948	20	5 30.2	19.6
276118 2002 GE <sub>65</sub>	16.6	X	93.45150	339.67941	190.89037	12.88567	0.1249709	0.22816533	2.6523833	20	7 6.4	20.6
276119 2002 GF <sub>73</sub>	16.2	X	136.09786	314.62931	178.12887	13.37284	0.0973433	0.22897850	2.6461000	20	7 3.5	20.4
276120 2002 GR <sub>79</sub>	16.0	X	47.96748	110.88504	77.95545	15.57148	0.0912304	0.22385801	2.6862986	20	5 26.2	19.3
276121 2002 GK <sub>80</sub>	16.6	X	86.35930	86.35072	42.96668	6.55044	0.2364069	0.22347757	2.6893465	20	5 20.4	20.4
276122 2002 GW <sub>81</sub>	17.1	X	312.49032	264.20676	42.42058	12.50208	0.1195225	0.27834385	2.3231734	20	5 25.9	19.6
276123 2002 GA <sub>83</sub>	16.3	X	43.32162	31.36356	156.07893	8.42989	0.1215474	0.22190903	2.7020045	20	5 21.6	19.6
276124 2002 GG <sub>85</sub>	16.9	X	331.13769	178.10346	95.61870	3.48165	0.1563429	0.27642536	2.3339101	20	5 7.3	19.0
276125 2002 GT <sub>99</sub>	16.2	X	104.57645	331.72101	199.45259	12.70464	0.0379166	0.23014145	2.6371782	20	7 9.0	20.1
276126 2002 GK <sub>102</sub>	16.0	X	294.63898	26.53043	164.85746	13.28563	0.1135471	0.20545948	2.8443646	20	—	—
276127 2002 GL <sub>102</sub>	16.2	X	82.66291	136.27648	6.25969	11.52691	0.1232902	0.22348966	2.6892495	20	5 12.9	19.9
276128 2002 GZ <sub>105</sub>	15.8	X	335.99927	126.97501	125.73692	10.1941	0.0716111	0.22102362	2.7092157	20	5 1.1	19.3
276129 2002 GM <sub>119</sub>	15.9	X	6.55482	149.65272	51.04785	14.38844	0.1361765	0.21876477	2.7278331	20	4 8.1	19.0
276130 2002 GW <sub>120</sub>	16.7	X	193.68501	272.96550	211.39834	5.73308	0.0664251	0.28888429	2.2663141	20	8 31.8	19.7
276131 2002 GD <sub>125</sub>	17.2	X	112.34032	192.32913	192.25908	21.96380	0.0962697	0.37350783	1.9095729	20	—	—
276132 2002 GB <sub>146</sub>	16.0	X	200.16837	139.95361	221.17838	4.87325	0.0638057	0.21368009	2.7709371	20	3 25.8	20.1
276133 2002 GF <sub>149</sub>	16.6	X	126.31848	259.47918	226.25825	2.75187	0.1200949	0.22693918	2.6619285	20	6 16.3	20.6
276134 2002 GV <sub>153</sub>	16.1	X	356.88251	114.16024	100.49970	9.90943	0.0977919	0.21824115	2.7321946	20	4 11.5	19.5
276135 2002 GV <sub>153</sub>	16.0	X	321.01921	211.84454	79.80872	14.45064	0.0897395	0.22219725	2.6996674	20	5 26.8	19.3
276136 2002 GJ <sub>155</sub>	16.4	X	39.82903	87.32674	114.20168	5.41959	0.0518683	0.22479023	2.6788666	20	5 26.1	19.8
276137 2002 GO <sub>164</sub>	16.3	X	2.65754	172.98142	50.94368	5.67947	0.0965385	0.21999571	2.7176482	20	4 29.3	19.4
276138 2002 GG <sub>180</sub>	16.6	X	336.71202	111.16505	97.20343	1.85605	0.0106618	0.21404081	2.7678231	20	3 7.2	20.3
276139 2002 HY <sub>6</sub>	16.5	X	125.29994	263.98659	4.93956	12.07491	0.2450888	0.24203180	2.5500837	20	12 15.9	21.2
276140 2002 HB <sub>8</sub>	15.7	X	124.61751	56.88160	63.80860	22.75750	0.0523705	0.22686357	2.6625199	20	5 30.3	19.5
276141 2002 HF <sub>10</sub>	15.7	X	72.19091	351.57019	201.72952	12.57184	0.0543408	0.22554438	2.6728918	20	6 28.7	19.5
276142 2002 HR <sub>13</sub>	16.1	X	320.18434	52.36404	195.15227	14.26462	0.3187005	0.21320988	2.7750096	20	2 14.9	19.9
276143 2002 JP <sub>5</sub>	16.0	X	305.45400	161.94158	137.56427	13.72050	0.1672811	0.22062815	2.7124523	20	5 5.5	19.6
276144 2002 JY <sub>19</sub>	16.2	X	303.49252	228.40947	69.34959	14.33307	0.1841563	0.21746757	2.7386701	20	4 27.1	19.8
276145 2002 JO <sub>38</sub>	16.7	X	323.08124	30.70825	242.61551	8.31600	0.2467947	0.21715276	2.7413163	20	4 6.4	19.9
276146 2002 JP <sub>74</sub>	16.8	X	353.00065	11.51345	263.46560	1.93176	0.2827074	0.22208558	2.7005723	20	6 22.5	18.3
276147 2002 JO <sub>75</sub>	16.2	X	337.22032	61.43290	201.56138	7.44849	0.1652464	0.21762875	2.7373177	20	5 4.5	19.0
276148 2002 JQ <sub>80</sub>	15.9	X	322.62402	257.60499	35.10836	13.27273	0.1179384	0.22239496	2.6980671	20	5 22.9	19.1
276149 2002 JL <sub>99</sub>	16.1	X	326.98799	206.45543	86.56511	18.03679	0.2860291	0.22079051	2.7111223	20	5 14.9	18.9
276150 2002 JP <sub>99</sub>	15.7	X	333.62084	146.31138	126.72917	14.69698	0.0579301	0.22147165	2.7055608	20	5 26.7	19.4
276151 2002 JE <sub>112</sub>	16.1	X	7.68612	304.99647	275.68797	8.47963	0.1900628	0.21786764	2.7353164	20	4 30.4	18.9
276152 2002 JX <sub>124</sub>	16.0	X	296.73609	154.99939	148.60530	10.03665	0.1877841	0.21683507	2.7439932	20	4 23.5	19.7
276153 2002 JY <sub>140</sub>	16.1	X	65.57249	115.45109	52.06577	4.44629	0.0168650	0.21866547	2.7286589			

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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>		
276161	2002	LA <sub>53</sub>	17.2	X	101.49289	47.65698	240.23771	8.89837	0.2606155	0.23856821	2.5747061	20	12 20.9	21.7
276162	2002	LV <sub>61</sub>	15.7	X	247.11104	13.89292	163.06310	10.63044	0.0325435	0.19152672	2.9806877	20	—	—
276163	2002	LV <sub>62</sub>	15.8	X	168.61752	251.32871	94.28517	4.70716	0.1990633	0.19646056	2.9305725	20	2 13.9	20.6
276164	2002	NF <sub>60</sub>	16.1	X	204.80436	194.44762	113.80255	10.98462	0.0821247	0.19723986	2.9228482	20	1 30.2	20.6
276165	2002	NN <sub>69</sub>	16.2	X	226.25473	207.15199	87.18206	7.10749	0.0368861	0.19946662	2.9010546	20	2 7.4	20.4
276166	2002	OW <sub>4</sub>	15.7	X	237.26395	142.17900	165.11005	15.43384	0.1460789	0.20266894	2.8704143	20	2 24.9	20.2
276167	2002	ON <sub>5</sub>	15.7	X	195.87606	84.38296	263.33072	6.57856	0.2296355	0.20110942	2.8852344	20	3 4.2	20.8
276168	2002	OZ <sub>21</sub>	15.5	X	75.10325	62.87265	270.62124	6.04401	0.1484690	0.29012006	2.2598739	20	—	—
276169	2002	OZ <sub>32</sub>	17.3	X	238.53272	331.64665	155.49651	11.67653	0.0800461	0.17583471	3.1554864	20	10 17.1	19.9
276170	2002	ON <sub>34</sub>	15.6	X	240.32158	262.57370	278.00525	10.08758	0.0428400	0.18032804	3.1028483	20	12 25.3	20.0
276171	2002	PG <sub>17</sub>	16.4	X	244.64109	184.86189	140.88125	9.34850	0.1635795	0.20572843	2.8418850	20	3 27.0	20.9
276172	2002	PD <sub>35</sub>	15.3	X	75.91085	8.64389	314.63244	15.43450	0.1532666	0.17797088	3.1301855	20	12 23.8	20.3
276173	2002	PM <sub>81</sub>	16.2	X	134.43925	116.19133	186.99464	10.31109	0.2560906	0.18518861	3.0483151	20	—	—
276174	2002	PE <sub>102</sub>	17.4	X	46.02210	98.61712	248.75324	5.38375	0.2021663	0.28671829	2.2777136	20	—	—
276175	2002	PF <sub>106</sub>	15.6	X	40.11828	87.77462	251.87898	8.37785	0.0835968	0.17408418	3.1766048	20	11 21.3	19.9
276176	2002	PA <sub>107</sub>	15.4	X	301.10644	212.95814	253.10221	9.26853	0.0144750	0.17831571	3.1261488	20	12 13.3	19.7
276177	2002	PT <sub>107</sub>	15.8	X	101.48263	176.16530	194.31703	10.72779	0.0204405	0.18926124	3.0044266	20	—	—
276178	2002	PQ <sub>109</sub>	16.1	X	158.52674	133.41270	214.44034	9.38696	0.1197134	0.19334698	2.9619504	20	1 29.8	20.9
276179	2002	PN <sub>118</sub>	17.8	X	33.10748	99.14606	247.05077	4.03469	0.2316647	0.28389401	2.2927950	20	—	—
276180	2002	PV <sub>119</sub>	15.3	X	42.44335	17.23143	319.67644	17.87816	0.1712692	0.17322444	3.1871067	20	12 1.3	20.0
276181	2002	PU <sub>123</sub>	15.2	X	67.61123	31.85526	293.36724	11.64251	0.1706456	0.17614816	3.1517419	20	12 18.3	20.0
276182	2002	PK <sub>151</sub>	15.9	X	135.63976	229.39846	124.93238	11.83443	0.1180548	0.19241789	2.9714773	20	1 16.8	20.3
276183	2002	PX <sub>160</sub>	15.9	X	72.59236	118.45973	123.99483	15.47611	0.0945482	0.22299679	2.6932106	20	9 16.2	19.8
276184	2002	PU <sub>162</sub>	17.1	X	290.61545	265.26726	127.96012	4.76134	0.2118724	0.27370053	2.3493747	20	8 16.9	19.3
276185	2002	PF <sub>171</sub>	15.5	X	44.98909	336.29539	342.29828	8.58408	0.2175036	0.17204799	3.2016190	20	11 18.1	20.1
276186	2002	PX <sub>178</sub>	14.8	X	65.44860	301.19817	73.74278	16.46908	0.2556317	0.17900167	3.1181571	20	—	—
276187	2002	PD <sub>180</sub>	16.3	X	195.75379	292.63943	317.39596	9.66105	0.1497976	0.18753375	3.0228488	20	—	—
276188	2002	PK <sub>186</sub>	16.4	X	154.58652	215.01527	126.80589	11.99232	0.0689584	0.19234943	2.9721823	20	1 17.1	20.8
276189	2002	PO <sub>189</sub>	16.1	X	189.53241	88.26306	125.99293	6.58052	0.0977226	0.18114824	3.0934751	20	12 3.5	20.9
276190	2002	PN <sub>192</sub>	15.9	X	190.92212	199.05113	140.12725	12.84225	0.1573637	0.19979999	2.8978267	20	2 23.0	20.6
276191	2002	PU <sub>193</sub>	16.1	X	291.09442	211.04809	324.12759	22.69794	0.1475748	0.29754878	2.2221017	20	—	—
276192	2002	PT <sub>195</sub>	16.3	X	170.60431	73.03866	199.29814	6.37710	0.1283260	0.18697986	3.0288156	20	—	—
276193	2002	QN <sub>3</sub>	17.6	X	156.49597	171.09552	181.48413	4.69321	0.1362429	0.30389195	2.1910717	20	1 22.5	20.5
276194	2002	QA <sub>13</sub>	16.2	X	265.41117	131.67462	169.33526	15.00356	0.1442372	0.20424728	2.8556076	20	3 17.7	20.4
276195	2002	QT <sub>19</sub>	15.9	X	62.49118	31.53106	301.65043	7.77183	0.2626001	0.17468597	3.1693050	20	—	—
276196	2002	QJ <sub>24</sub>	15.6	X	297.98649	195.45784	161.95978	15.17334	0.1695998	0.21420275	2.7664279	20	7 7.1	19.3
276197	2002	QF <sub>28</sub>	17.1	X	116.46398	214.67936	160.34125	8.09586	0.1253663	0.29974699	2.2112244	20	1 1.5	19.7
276198	2002	QK <sub>28</sub>	17.5	X	346.84864	288.39355	71.44575	3.07028	0.2558255	0.27877827	2.3207593	20	11 17.3	18.9
276199	2002	QN <sub>51</sub>	16.2	X	75.11229	40.70405	342.07365	5.63737	0.1229571	0.18425507	3.0586029	20	—	—
276200	2002	QZ <sub>52</sub>	16.0	X	243.14427	108.67424	144.92938	8.58798	0.0500913	0.19226754	2.9730262	20	1 6.5	20.4
276201	2002	QD <sub>57</sub>	16.2	X	157.27984	91.25830	165.05266	6.68988	0.0639682	0.17995588	3.1071247	20	12 20.4	20.9
276202	2002	QK <sub>57</sub>	16.0	X	83.59246	231.63095	159.01605	12.29042	0.0919622	0.18725631	3.0258338	20	—	—
276203	2002	QS <sub>65</sub>	15.9	X	68.48920	240.18428	146.84950	17.23811	0.1033431	0.18461651	3.0546094	20	—	—
276204	2002	QT <sub>66</sub>	18.2	X	268.96704	142.78185	140.68902	5.56694	0.0588954	0.31252581	2.1505298	20	2 27.6	20.7
276205	2002	QZ <sub>70</sub>	16.3	X	252.33388	159.31614	151.92815	15.91732	0.1427468	0.20337163	2.8637986	20	3 18.6	20.7
276206	2002	QF <sub>71</sub>	15.8	X	146.66424	298.73814	334.26575	10.24002	0.1474135	0.18303044	3.0722308	20	12 29.7	20.9
276207	2002	QN <sub>73</sub>	15.5	X	25.56149	284.19789	120.54194	9.30133	0.1307734	0.17966809	3.1104418	20	—	—
276208	2002	QD <sub>74</sub>	15.6	X	94.56495	139.39792	130.33768	13.17542	0.0358264	0.17188022	3.2037020	20	10 31.8	20.4
276209	2002	QE <sub>79</sub>	16.1	X	329.87054	10.06488	2.25157	4.23911	0.0580733	0.16846770	3.2468206	20	9 23.2	20.3
276210	2002	QU <sub>83</sub>	17.6	X	319.80661	105.33670	298.31987	5.57982	0.1550865	0.27993370	2.3143689	20	11 13.4	19.6
276211	2002	QG <sub>87</sub>	17.9	X	252.65865	190.74868	73.48888	1.33599	0.1549409	0.30709665	2.1758018	20	1 6.3	21.0
276212	2002	QA <sub>93</sub>	17.8	X	131.70185	281.31283	11.36513	5.80113	0.1705247	0.29315198	2.2442651	20	—	—
276213	2002	QG <sub>94</sub>	16.2	X	96.52754	132.58251	235.47143	9.36362	0.1144971	0.18598930	3.0395602	20	—	—
276214	2002	QU <sub>99</sub>	16.0	X	85.23037	357.16563	354.11725	11.02086	0.0554808	0.18182441	3.0858011	20	—	—
276215	2002	QG <sub>110</sub>	16.0	X	124.55553	188.60230	149.67844	8.98444	0.0869819	0.18745323	3.0237143	20	—	—
276216	2002	QR <sub>110</sub>	17.4	X	186.11128	117.62592	148.06672	8.73683	0.1064264	0.29847154	2.2175194	20	—	—
276217	2002	QB <sub>111</sub>	16.2	X	188.50344	182.98410	156.42290	11.48150	0.0347792	0.19815263	2.9138654	20	2 17.2	20.4
276218	2002	QX <sub>112</sub>	17.4	X	356.64112	252.63423	216.67899	4.18552	0.1071076	0.29675824	2.2260463	20	—	—
276219	2002	QL <sub>117</sub>	15.9	X	62.72369	209.04234	173.67858	9.42514	0.1270974	0.18342719	3.0677991	20	—	—
276220	2002	QZ <sub>121</sub>	15.9	X	109.09920	135.27091	169.17131	11.76049	0.1711315	0.17954773	3.1118318	20	—	—
276221	2002	QD <sub>122</sub>	16.1	X	46.08379	226.68380	190.39660	8.90920	0.0883572	0.18504173	3.0499280	20	—	—
276222	2002	QO <sub>123</sub>	16.6	X	279.57185	226.31974	120.09608	5.34776	0.0777070	0.21129060	2.7917890	20	6 10.4	20.3
276223	2002	QD <sub>126</sub>	15.8	X	89.57915	266.55448	116.08475	9.80941	0.0854718	0.18633122	3.0358406	20	—	—
276224	2002	QO <sub>126</sub>	15.8	X	24.98693	327.37451	101.15437	9.46589	0.1974333	0.18147707	3.0897372	20	—	—
276225	2002	QB <sub>130</sub>	17.0	X	8.52737	127.56315	319.80553	6.38239	0.1121416	0.29464512	2.2366767	20	—	—
276226	2002	QQ <sub>130</sub>	15.7	X	163.64089	187.19012	136.71788	11.10416	0.0877227	0.19097325	2.9864439	20	1 7.3	20.3
276227	2002	QC <sub>131</sub>	16.0	X	321.36551	321.93134	74.74903	4.17490	0.0702309	0.17014423	3.2254569	20	10 13.4	20.2
276228	2002	QW <sub>135</sub>	16.0	X	22.03384	313.63560	118.69378	7.39480	0.1169753	0.18379938	3.0636562	20	—	—
276229	2002	QX <sub>140</sub>	15.9	X	130.08777	350.92282	285.14180	8.80750	0.1024157	0.17818298	3.1277010	20	12 16.1	21.5
276230	2002	QY <sub>141</sub>	16.5	X	133.95189	150.42484	202.19342	10.83379	0.0909571	0.18916774	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>
276241 2002 RV <sub>95</sub>	16.8	X	16.93641	172.96108	184.99706	6.19708	0.1587628	0.28012613	2.3133089	20	12 22.2	19.6
276242 2002 RM <sub>112</sub>	16.2	X	250.19834	146.95839	166.83557	15.39628	0.1528501	0.20236943	2.8732458	20	3 17.2	20.6
276243 2002 RG <sub>117</sub>	17.7	X	130.76716	303.27567	348.67647	2.28347	0.1594691	0.29177769	2.2513067	20	—	—
276244 2002 RM <sub>130</sub>	15.9	X	359.37565	205.95024	201.85216	16.79744	0.1959812	0.17515689	3.1636218	20	12 30.9	20.0
276245 2002 RB <sub>155</sub>	15.9	X	48.36878	110.83486	292.96504	3.26111	0.1507400	0.18115735	3.0933715	20	—	—
276246 2002 RJ <sub>155</sub>	15.6	X	156.76851	141.68653	185.81227	9.96350	0.1045226	0.18831212	3.0145133	20	1 5.5	20.3
276247 2002 RE <sub>176</sub>	17.3	X	159.20626	326.31059	315.38594	6.65545	0.1716583	0.29465849	2.2366091	20	—	—
276248 2002 RX <sub>191</sub>	17.3	X	283.97083	260.02459	11.32536	2.05943	0.1364735	0.31257984	2.1502819	20	2 19.6	20.1
276249 2002 RF <sub>192</sub>	17.2	X	223.15345	313.54135	356.99026	5.97103	0.1093525	0.25236645	2.4799807	20	2 14.5	20.9
276250 2002 RJ <sub>195</sub>	17.8	X	94.01643	299.89090	4.25854	5.99428	0.1300055	0.28719105	2.2752133	20	—	—
276251 2002 RG <sub>203</sub>	17.3	X	38.17610	90.66009	254.37107	4.95692	0.2106740	0.28303550	2.2974290	20	—	—
276252 2002 RL <sub>213</sub>	15.5	X	100.70079	204.62404	192.65286	9.21230	0.1878163	0.18886131	3.0086666	20	2 5.4	19.8
276253 2002 RO <sub>214</sub>	17.1	X	110.47332	352.60044	23.42815	8.10350	0.0743897	0.29883275	2.2157321	20	—	—
276254 2002 RB <sub>217</sub>	18.1	X	67.31250	34.30373	287.22911	1.19238	0.2239226	0.28651363	2.2787982	20	—	—
276255 2002 RM <sub>225</sub>	15.6	X	8.84937	241.81904	184.04974	26.45096	0.2527916	0.17638966	3.1488644	20	—	—
276256 2002 RU <sub>225</sub>	17.6	X	191.71439	25.47686	277.69655	3.84514	0.2190326	0.30270821	2.1967801	20	1 1.9	21.2
276257 2002 RH <sub>242</sub>	15.6	X	76.15091	59.37605	265.61304	4.71127	0.1712152	0.17645463	3.1480915	20	12 26.0	20.5
276258 2002 RT <sub>244</sub>	17.8	X	310.03834	283.08001	98.86567	2.19612	0.1924143	0.27395785	2.3479033	20	9 14.8	19.5
276259 2002 RV <sub>252</sub>	18.4	X	135.14945	84.70751	214.13800	2.95669	0.1993820	0.29348442	2.2425700	20	—	—
276260 2002 RD <sub>271</sub>	16.2	X	10.53114	226.88635	178.99562	4.28637	0.1237909	0.17738984	3.1370171	20	—	—
276261 2002 RH <sub>274</sub>	16.5	X	181.68083	199.93876	118.75941	3.77657	0.1050825	0.19263482	2.9692461	20	1 20.2	21.2
276262 2002 RV <sub>274</sub>	15.6	X	189.96455	81.20839	129.96108	6.24139	0.1158615	0.17839869	3.1251793	20	11 28.7	20.5
276263 2002 RT <sub>277</sub>	15.7	X	174.80152	318.38640	282.05058	8.79461	0.0511695	0.17828186	3.1265445	20	12 20.5	20.3
276264 2002 RW <sub>278</sub>	16.7	X	92.04031	140.08904	224.89231	8.25156	0.0909398	0.18352409	3.0667191	20	—	—
276265 2002 RE <sub>280</sub>	15.7	X	290.75367	352.98236	179.66704	15.60409	0.0473764	0.18490092	3.0514763	20	—	—
276266 2002 RQ <sub>282</sub>	16.0	X	9.56142	33.42656	10.47839	9.02529	0.0298714	0.17752669	3.1354048	20	12 24.6	20.5
276267 2002 SG <sub>8</sub>	15.6	X	33.49461	42.40625	16.33943	9.38100	0.0758767	0.17905369	3.1175531	20	—	—
276268 2002 SH <sub>9</sub>	16.1	X	55.82859	335.76089	32.95132	2.10852	0.1692233	0.17607508	3.1526139	20	—	—
276269 2002 SU <sub>18</sub>	17.3	X	309.38973	349.69130	28.12734	3.89484	0.1906163	0.27234475	2.3571653	20	9 6.5	19.1
276270 2002 SZ <sub>23</sub>	15.2	X	81.18096	282.76231	66.17313	14.37239	0.2013520	0.17883107	3.1201399	20	—	—
276271 2002 SX <sub>28</sub>	15.6	X	59.25975	14.12277	23.16401	25.20827	0.2361935	0.18013908	3.1050178	20	—	—
276272 2002 SG <sub>33</sub>	15.6	X	147.85024	116.15383	223.01895	7.19860	0.1151184	0.18601377	3.0392936	20	1 11.1	20.4
276273 2002 SR <sub>33</sub>	17.3	X	123.74228	348.70713	356.07059	2.48492	0.1952661	0.29507110	2.2345235	20	—	—
276274 2002 SS <sub>41</sub>	17.2	X	330.13687	101.78598	190.10710	63.68505	0.3827108	0.32278656	2.1047107	20	4 10.6	18.8
276275 2002 SA <sub>58</sub>	16.8	X	92.94074	247.11249	133.57676	7.23556	0.1618091	0.29371696	2.2413862	20	—	—
276276 2002 SX <sub>60</sub>	17.2	X	126.55234	324.35647	66.49540	4.64558	0.2344310	0.24570317	2.5246172	20	2 29.9	21.0
276277 2002 SL <sub>65</sub>	15.5	X	345.59979	218.75743	231.20829	26.64358	0.1345036	0.17827636	3.1266088	20	—	—
276278 2002 SF <sub>66</sub>	17.3	X	76.98479	309.50679	103.21371	5.83227	0.0091636	0.30026593	2.2086760	20	—	—
276279 2002 SH <sub>72</sub>	16.4	X	19.02648	187.31137	201.52669	5.52172	0.0886898	0.17551517	3.1593150	20	12 24.7	20.7
276280 2002 TO <sub>1</sub>	17.2	X	225.20073	117.74132	206.82477	5.34906	0.1921360	0.30805628	2.1712809	20	2 22.9	20.6
276281 2002 TN <sub>3</sub>	17.4	X	355.77288	314.07264	26.71381	2.94774	0.2191726	0.27484324	2.3428582	20	10 30.8	19.1
276282 2002 TN <sub>8</sub>	17.2	X	63.08352	41.88789	356.02384	3.04551	0.1701097	0.29175876	2.2514041	20	—	—
276283 2002 TQ <sub>12</sub>	16.2	X	180.85059	276.08556	56.11652	3.68347	0.2227601	0.19247906	2.9708477	20	2 9.5	21.4
276284 2002 TE <sub>16</sub>	15.0	X	102.69422	162.59705	183.32762	8.81484	0.1883515	0.12551602	3.9506625	20	—	—
276285 2002 TB <sub>19</sub>	17.6	X	112.08180	298.05151	356.27643	4.11510	0.2309032	0.28847460	2.2684593	20	—	—
276286 2002 TG <sub>19</sub>	17.2	X	282.10748	213.59089	198.38543	2.03933	0.1699832	0.27151994	2.3619365	20	9 5.1	19.6
276287 2002 TU <sub>20</sub>	17.2	X	27.53211	210.00811	123.16713	2.69422	0.2301477	0.27935681	2.3175541	20	12 13.9	20.1
276288 2002 TS <sub>30</sub>	17.3	X	237.54311	29.69726	13.80106	2.61313	0.2351489	0.26188164	2.4195393	20	6 15.6	21.1
276289 2002 TH <sub>37</sub>	17.6	X	82.84902	136.17340	229.65721	1.06140	0.2114856	0.29014276	2.2597561	20	—	—
276290 2002 TW <sub>45</sub>	17.0	X	348.14455	317.54912	20.96392	4.92833	0.2584999	0.27271686	2.3550207	20	10 14.6	18.3
276291 2002 TL <sub>59</sub>	17.3	X	212.67985	159.63716	210.33340	22.03730	0.0283704	0.36760955	1.9299447	20	4 13.8	19.1
276292 2002 TW <sub>76</sub>	17.2	X	105.82922	127.46292	252.06751	2.34661	0.1767259	0.29581740	2.2307637	20	1 1.4	19.5
276293 2002 TZ <sub>90</sub>	17.3	X	137.22399	84.53254	249.34942	2.62819	0.2118144	0.29554851	2.2321165	20	—	—
276294 2002 TD <sub>91</sub>	15.2	X	105.67907	164.89499	220.98624	8.54616	0.1453359	0.18443265	3.0566392	20	1 23.3	19.6
276295 2002 TV <sub>95</sub>	17.3	X	196.44505	97.66873	230.97849	6.79170	0.2546428	0.30546651	2.1835358	20	2 4.3	21.1
276296 2002 TA <sub>96</sub>	16.9	X	145.27989	54.57238	258.07954	4.93900	0.1812341	0.29453739	2.2372221	20	—	—
276297 2002 TZ <sub>96</sub>	17.6	X	173.95825	257.73902	84.49969	8.27894	0.2784368	0.30305194	2.1951187	20	2 9.9	21.4
276298 2002 TR <sub>102</sub>	17.4	X	89.07203	98.75917	218.42618	4.77340	0.1909809	0.28687925	2.2768616	20	—	—
276299 2002 TC <sub>117</sub>	17.2	X	84.04606	57.09011	288.93866	5.92994	0.0975265	0.28839544	2.2688744	20	—	—
276300 2002 TP <sub>118</sub>	16.3	X	340.27251	344.76554	324.19271	7.42726	0.2132409	0.21297275	2.7770691	20	7 16.9	18.8
276301 2002 TQ <sub>120</sub>	16.9	X	78.93378	187.87620	271.07013	6.00144	0.2493596	0.24344286	2.5402202	20	3 29.0	20.0
276302 2002 TN <sub>122</sub>	16.9	X	151.05187	71.12633	293.81729	7.92877	0.1893143	0.24708160	2.5152189	20	2 12.7	20.8
276303 2002 TU <sub>122</sub>	15.2	X	96.08630	168.40199	236.40148	11.16105	0.1110567	0.18823656	3.0153199	20	1 27.7	19.5
276304 2002 TK <sub>131</sub>	15.5	X	158.38949	190.14444	215.29935	11.45096	0.0541794	0.19695750	2.9256410	20	4 4.2	19.8
276305 2002 TB <sub>140</sub>	15.4	X	101.84576	175.75991	207.77026	12.72390	0.0636053	0.18385010	3.0630927	20	1 5.1	19.9
276306 2002 TG <sub>145</sub>	16.6	X	127.26648	208.59615	144.20195	1.86773	0.1711442	0.18594174	3.0400784	20	1 13.3	21.0
276307 2002 TB <sub>146</sub>	17.2	X	24.34283	143.49699	206.21591	6.19544	0.1637437	0.28061212	2.3106372	20	12 21.9	20.1
276308 2002 TT <sub>157</sub>	15.6	X	45.03500	308.98942	96.11503	12.43726	0.0888170	0.17790374	3.1309730	20	—	—
276309 2002 TC <sub>159</sub>	15.5	X	89.31274	277.01011	94.33905	11.94427	0.0844575	0.18006666	3.1058502	20	—	—
276310 2002 TG <sub>160</sub>	15.7	X	2.93745	262.84246	142.53203	13.67765	0.1464781	0.17081324	3.2170294	20	12 28.5	19.8
276311 2002 TK <sub>160</sub>	15.4	X	49.13056	275.35149	108.58097	12.73909	0.0824827	0.17512355	3.1640234	20	—	—
276312 2002 TP <sub>165</sub>	14.5	X	79.66463	10.64634	295.50848	15.88886	0.1680301	0.17407728	3.1766886	20	12 6.9	19.6
276313 2002 TJ <sub>166</sub>	16.6	X	17.87775	81.30640	294.39921	10.33212	0.1474283	0.28289349	2.2981979	20	—	—
276314 2002 TG <sub>169</sub>	15.8	X	224.33296	78.41325	234.96723	13.59562	0.1739237	0.19615029	2.9336620	20	2 15.0	20.9

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>		
276321	2002	TN <sub>197</sub>	17.2	X	137.72594	46.44447	275.27203	3.67014	0.1811505	0.29435681	2.2381370	20	—	—
276322	2002	TC <sub>205</sub>	16.8	X	112.95051	196.63852	89.13821	7.43829	0.1945678	0.28587699	2.2821801	20	—	—
276323	2002	TR <sub>205</sub>	15.6	X	342.06069	100.48126	224.93098	13.83735	0.2973949	0.21550833	2.7552436	20	8 7.4	17.9
276324	2002	TL <sub>208</sub>	16.8	X	104.97015	139.34700	271.74258	2.81446	0.2489799	0.24181222	2.5516272	20	3 1.8	20.4
276325	2002	TJ <sub>212</sub>	15.6	X	177.18480	246.49026	87.31312	11.19561	0.1097746	0.19133520	2.9826764	20	2 5.1	20.3
276326	2002	TH <sub>217</sub>	16.9	X	305.06984	203.15857	355.29644	3.63118	0.1037291	0.24388442	2.5371532	20	—	—
276327	2002	TE <sub>242</sub>	16.5	X	213.12652	278.81551	125.60555	9.24825	0.0869998	0.25852940	2.4404098	20	6 5.5	20.1
276328	2002	TY <sub>249</sub>	15.6	X	193.72203	239.91941	24.94842	10.57371	0.1150691	0.18238105	3.0795192	20	—	—
276329	2002	TM <sub>251</sub>	15.7	X	92.31466	217.85404	158.93418	6.04294	0.1648960	0.18159727	3.0883737	20	1 1.1	19.9
276330	2002	TH <sub>253</sub>	17.0	X	121.24604	188.56376	198.45804	14.95310	0.1232230	0.24350495	2.5397883	20	1 30.2	20.8
276331	2002	TL <sub>255</sub>	16.6	X	286.08301	245.93496	208.71180	21.08963	0.3851703	0.27317815	2.3523688	20	10 8.9	18.1
276332	2002	TD <sub>259</sub>	15.1	X	64.58147	9.26441	54.75962	25.57602	0.1508442	0.18021626	3.1041312	20	1 22.2	19.5
276333	2002	TJ <sub>265</sub>	17.6	X	20.55625	33.55783	17.17267	4.87149	0.0999632	0.28696509	2.2764075	20	—	—
276334	2002	TS <sub>271</sub>	15.0	X	281.11845	286.80802	212.71409	15.11156	0.1087225	0.17376653	3.1804748	20	12 25.8	19.7
276335	2002	TP <sub>298</sub>	17.0	X	127.22094	30.57916	338.36122	4.31410	0.1684262	0.24071405	2.5593818	20	1 25.6	20.5
276336	2002	TY <sub>305</sub>	16.0	X	249.85415	98.07671	127.12592	7.02574	0.1458341	0.18360443	3.0658244	20	—	—
276337	2002	TK <sub>309</sub>	15.8	X	102.50721	131.22871	174.77790	16.18241	0.0627028	0.17275965	3.1928206	20	12 20.2	20.8
276338	2002	TJ <sub>314</sub>	15.2	X	69.82913	274.13723	101.36691	10.51066	0.1145913	0.17700820	3.1415246	20	—	—
276339	2002	TN <sub>326</sub>	15.8	X	22.79878	325.70106	181.69211	9.87873	0.1611807	0.19077633	2.9884986	20	2 20.5	19.2
276340	2002	TF <sub>328</sub>	15.4	X	54.16355	24.56430	16.16204	15.55023	0.1075737	0.18044365	3.1015228	20	—	—
276341	2002	TY <sub>346</sub>	15.5	X	66.33225	306.46405	66.35919	10.27820	0.1720478	0.17727263	3.1383997	20	—	—
276342	2002	TM <sub>350</sub>	15.8	X	38.83194	141.78053	222.56696	8.79576	0.0823390	0.17622170	3.1508649	20	12 19.7	20.2
276343	2002	TY <sub>353</sub>	16.3	X	26.79197	216.89150	192.98727	13.00615	0.0373936	0.17964527	3.1107052	20	—	—
276344	2002	TM <sub>360</sub>	17.5	X	26.12996	277.53409	176.23856	4.92145	0.0839118	0.29475946	2.2360982	20	—	—
276345	2002	TM <sub>368</sub>	17.2	X	33.49555	307.93167	105.91748	7.08051	0.0939049	0.28829712	2.2693902	20	—	—
276346	2002	TP <sub>376</sub>	15.0	X	30.19897	331.13233	62.32025	28.70949	0.1750711	0.17306581	3.1890539	20	—	—
276347	2002	TB <sub>378</sub>	15.9	X	125.42178	174.07426	182.57464	9.76693	0.0863305	0.18264701	3.0765290	20	1 5.2	20.5
276348	2002	TW <sub>380</sub>	16.2	X	101.96016	21.55758	7.92802	1.93091	0.0350403	0.18648159	3.0342084	20	1 10.3	20.5
276349	2002	TL <sub>385</sub>	17.7	X	201.00914	245.67620	77.42358	7.58526	0.2168854	0.30348819	2.1930146	20	2 5.1	21.3
276350	2002	US <sub>3</sub>	16.8	X	126.12405	343.15686	36.16749	14.39865	0.1911822	0.24297076	2.5435096	20	2 14.9	20.8
276351	2002	UT <sub>14</sub>	15.6	X	66.96366	232.08728	137.16607	18.10201	0.2363043	0.17655998	3.1468391	20	—	—
276352	2002	UX <sub>17</sub>	15.6	X	106.39153	315.66615	31.35252	9.18116	0.1119329	0.17923156	3.1154902	20	—	—
276353	2002	UY <sub>20</sub>	17.3	X	313.02848	36.68722	23.31166	4.24644	0.1555941	0.27578636	2.3375139	20	11 24.1	19.2
276354	2002	UV <sub>38</sub>	15.4	X	124.70204	298.45719	42.92015	14.27100	0.2548016	0.18172133	3.0869679	20	1 8.7	20.4
276355	2002	UV <sub>51</sub>	15.7	X	352.76367	205.35078	212.45331	14.64113	0.1956215	0.17578401	3.1560930	20	—	—
276356	2002	UQ <sub>52</sub>	15.8	X	127.08763	184.48975	176.36320	12.24641	0.1139787	0.18509629	3.0493287	20	1 14.5	20.4
276357	2002	UK <sub>55</sub>	16.3	X	252.37597	99.61304	130.59502	8.40780	0.1195441	0.18357135	3.0661927	20	—	—
276358	2002	UT <sub>69</sub>	15.6	X	118.71373	286.91107	69.47839	14.76762	0.0557927	0.18184057	3.0856183	20	—	—
276359	2002	UW <sub>72</sub>	17.3	X	181.69580	108.45707	219.80280	4.67549	0.1254753	0.30092811	2.2054347	20	1 17.5	20.4
276360	2002	VB <sub>4</sub>	17.4	X	359.24903	303.79434	35.46265	5.45364	0.2766605	0.27417783	2.3466473	20	11 14.5	19.3
276361	2002	VG <sub>5</sub>	17.3	X	16.76146	338.47597	55.20754	3.24288	0.1385399	0.28183946	2.3039242	20	—	—
276362	2002	VD <sub>18</sub>	16.0	X	103.88478	278.11335	83.30880	2.02227	0.2040921	0.18080085	3.0974364	20	1 3.2	20.2
276363	2002	VD <sub>20</sub>	17.3	X	12.34388	140.19723	212.10877	5.43846	0.2195883	0.27671085	2.3323046	20	12 16.9	20.0
276364	2002	VN <sub>20</sub>	16.7	X	95.08192	113.59419	246.59070	4.74363	0.1731536	0.28859158	2.2678463	20	—	—
276365	2002	VJ <sub>24</sub>	17.2	X	297.40014	25.42420	58.00587	6.09968	0.2040789	0.27415521	2.3467764	20	11 23.8	18.8
276366	2002	VC <sub>37</sub>	17.4	X	293.62608	219.01821	161.40855	3.52612	0.2037175	0.26775419	2.3840308	20	8 1.0	19.6
276367	2002	VG <sub>38</sub>	17.0	X	358.66531	26.57765	18.84483	9.53138	0.1182624	0.28076438	2.3098018	20	—	—
276368	2002	VA <sub>45</sub>	16.8	X	304.27563	346.33007	33.97713	6.39487	0.1224922	0.26889272	2.3772965	20	9 8.6	19.1
276369	2002	VB <sub>45</sub>	15.3	X	61.88298	203.24949	243.87254	8.50017	0.0648134	0.18375486	3.0641510	20	1 29.9	19.5
276370	2002	VO <sub>45</sub>	16.7	X	185.08385	32.72167	230.24868	10.58123	0.0433047	0.28792139	2.2713641	20	—	—
276371	2002	VQ <sub>59</sub>	17.1	X	228.71463	296.96083	118.73566	3.83220	0.2016854	0.26067063	2.4270272	20	6 26.2	20.8
276372	2002	VD <sub>73</sub>	17.0	X	359.41512	344.82037	71.01767	5.91222	0.1553482	0.28134270	2.3066354	20	—	—
276373	2002	VR <sub>83</sub>	17.1	X	21.24140	312.08637	90.00476	6.34477	0.1858752	0.28198110	2.3031526	20	—	—
276374	2002	UY <sub>87</sub>	16.5	X	289.43033	49.66518	47.38625	23.57584	0.1972638	0.27408614	2.3471707	20	11 23.3	18.4
276375	2002	VU <sub>92</sub>	17.5	X	13.59213	163.52082	184.24737	3.95772	0.1614887	0.27525091	2.3405443	20	12 3.1	20.1
276376	2002	VN <sub>101</sub>	17.0	X	319.77685	326.70218	98.29754	4.27150	0.2193252	0.27494703	2.3422686	20	12 22.4	18.4
276377	2002	VV <sub>102</sub>	16.6	X	109.28666	98.56080	250.57294	5.37118	0.1521216	0.29067141	2.2570153	20	—	—
276378	2002	VV <sub>115</sub>	16.8	X	29.52670	39.32428	308.24393	5.77260	0.1535735	0.27882199	2.3205167	20	12 24.2	19.7
276379	2002	VB <sub>126</sub>	16.6	X	349.18417	252.67454	196.14979	22.78094	0.2652772	0.28278121	2.2988061	20	—	—
276380	2002	VS <sub>127</sub>	15.2	X	91.31107	281.70548	76.38470	22.64417	0.2013982	0.17748386	3.1359091	20	—	—
276381	2002	VM <sub>142</sub>	17.7	X	310.27714	21.39116	91.14309	3.59178	0.1105654	0.28136311	2.3065238	20	—	—
276382	2002	VN <sub>143</sub>	15.6	X	103.45640	161.22426	207.55960	11.40263	0.0731318	0.17904257	3.1176822	20	—	—
276383	2002	VO <sub>145</sub>	17.7	X	23.20890	143.86199	200.69026	6.05496	0.1722927	0.27721357	2.3294840	20	12 14.3	20.6
276384	2002	WJ <sub>2</sub>	17.4	X	347.00425	183.95835	237.71268	6.98573	0.0802766	0.27944221	2.3170819	20	—	—
276385	2002	WG <sub>4</sub>	15.6	X	93.76707	122.56154	248.67140	11.61051	0.2520981	0.17876898	3.1208623	20	1 7.9	19.9
276386	2002	WD <sub>22</sub>	15.6	X	316.03836	156.00745	226.16851	9.53564	0.1085197	0.15737192	3.3979662	20	9 6.3	20.2
276387	2002	WO <sub>25</sub>	17.7	X	345.07162	173.29892	176.43343	2.75702	0.1913873	0.27086449	2.3657454	20	10 16.8	19.5
276388	2002	WX <sub>27</sub>	15.2	X	91.30458	272.14793	78.35163	11.69363	0.0531642	0.17250975	3.1959032	20	—	—
276389	2002	WV <sub>28</sub>	17.6	X	81.05033	166.69312	215.56866	5.73850	0.1075069	0.28991927	2.2609172	20	—	—
276390	2002	WJ <sub>31</sub>	17.4	X	321.96555	258.10388	185.14787	6.42746	0.0929841	0.27689871	2.3312495	20	—	—
276391	2002	XK	17.4	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>
276401 2002 XQ <sub>51</sub>	17.1	X	258.51978	290.97815	91.92849	3.38627	0.1881598	0.25982391	2.4322972	20	6 16.3	20.4
276402 2002 XA <sub>72</sub>	17.1	X	8.22107	22.90711	29.07712	5.42415	0.2013685	0.28122345	2.3072874	20	—	—
276403 2002 XF <sub>87</sub>	16.4	X	133.95771	350.62768	17.20838	4.51852	0.1844010	0.29345352	2.2427275	20	1 27.0	19.3
276404 2002 XL <sub>88</sub>	15.9	X	198.47509	55.84597	325.07801	5.74452	0.2056914	0.25132755	2.4868103	20	4 12.8	20.1
276405 2002 XJ <sub>95</sub>	17.7	X	292.00471	11.36087	63.65772	2.29960	0.1545595	0.27257274	2.3558507	20	11 2.9	19.7
276406 2002 XB <sub>96</sub>	16.9	X	1.19334	225.98579	229.80575	5.48069	0.0717034	0.28592963	2.2819000	20	—	—
276407 2002 XP <sub>100</sub>	17.5	X	266.90688	29.11298	354.28231	1.40731	0.2006196	0.26172505	2.4205043	20	6 25.8	20.7
276408 2002 XG <sub>116</sub>	16.6	X	203.59576	66.82616	132.04116	7.30167	0.0593498	0.26695498	2.3887867	20	12 22.7	19.7
276409 2002 YN <sub>2</sub>	18.5	X	264.52619	38.45513	290.69836	50.26729	0.5872504	0.71148399	1.2426800	20	1 29.4	21.5
276410 2002 YU <sub>16</sub>	17.0	X	0.05509	320.57436	70.26741	3.38833	0.2261651	0.27751594	2.3277916	20	—	—
276411 2002 YV <sub>27</sub>	16.8	X	335.33181	121.97063	278.38270	5.66465	0.1726662	0.27148263	2.3621530	20	12 11.9	18.7
276412 2002 YR <sub>30</sub>	16.0	X	113.27648	193.33930	281.28139	4.79386	0.1718989	0.24563328	2.5250961	20	5 23.2	19.6
276413 2003 AS <sub>12</sub>	16.9	X	39.46605	242.01712	163.23607	7.84406	0.1401521	0.28228999	2.3014722	20	—	—
276414 2003 AY <sub>20</sub>	16.9	X	45.63673	18.90786	1.91795	2.49651	0.2269278	0.28100264	2.3084959	20	—	—
276415 2003 AV <sub>24</sub>	15.4	X	155.03433	328.14926	90.77224	11.46446	0.0954804	0.18961758	3.0006614	20	4 26.6	20.1
276416 2003 AV <sub>43</sub>	16.2	X	46.02300	349.65106	87.09526	15.18671	0.2228984	0.23147015	2.6270765	20	—	—
276417 2003 AY <sub>46</sub>	16.3	X	67.02286	321.58758	83.06149	7.70903	0.1797447	0.230111745	2.6373616	20	—	—
276418 2003 AS <sub>53</sub>	16.6	X	247.13787	56.02736	83.88590	7.48137	0.0885601	0.26894346	2.3769975	20	11 29.1	19.2
276419 2003 AA <sub>59</sub>	16.9	X	116.43483	343.84859	104.50047	7.23246	0.2558902	0.24149865	2.5538354	20	5 5.1	20.9
276420 2003 AV <sub>79</sub>	15.1	X	67.59522	122.94506	59.11534	15.72784	0.0990902	0.24527329	2.5275662	20	6 13.9	18.3
276421 2003 AE <sub>80</sub>	16.2	X	317.50962	46.23705	84.91924	7.93870	0.2473284	0.21843243	2.7305993	20	—	—
276422 2003 AM <sub>94</sub>	16.4	X	304.83582	72.58367	48.46238	10.36308	0.1049171	0.21777542	2.7360885	20	—	—
276423 2003 BA <sub>3</sub>	17.0	X	97.97814	204.10604	343.04449	18.93389	0.0548406	0.36419009	1.9420063	20	8 13.9	19.1
276424 2003 BQ <sub>13</sub>	16.8	X	95.15943	219.96867	288.41538	3.32455	0.1407820	0.24536528	2.5269344	20	6 12.8	20.1
276425 2003 BQ <sub>26</sub>	16.8	X	50.00021	165.42050	322.26403	22.64421	0.1602871	0.29043561	2.2582367	20	2 23.7	18.6
276426 2003 BF <sub>29</sub>	16.5	X	53.88609	248.09992	124.60524	9.96717	0.2422867	0.27911934	2.3188684	20	—	—
276427 2003 BG <sub>33</sub>	17.2	X	227.70898	26.70781	112.58742	3.45968	0.1226355	0.26504157	2.4002698	20	10 27.3	20.4
276428 2003 BX <sub>39</sub>	16.7	X	15.17469	73.31830	312.48139	6.16472	0.1920884	0.27419392	2.3465555	20	—	—
276429 2003 BQ <sub>49</sub>	17.3	X	192.56770	48.61384	63.53074	3.06979	0.1612288	0.25599396	2.4564970	20	8 7.6	21.2
276430 2003 BL <sub>62</sub>	15.8	X	262.28464	64.04824	83.94889	8.78683	0.1648017	0.21392726	2.7688024	20	12 5.3	19.3
276431 2003 BR <sub>65</sub>	16.7	X	147.01626	284.49174	284.18556	4.29002	0.1483711	0.25989167	2.4318744	20	10 24.2	20.6
276432 2003 BH <sub>67</sub>	17.0	X	95.84892	146.67745	343.86986	11.85876	0.2371839	0.24202526	2.5501296	20	5 31.3	20.9
276433 2003 BZ <sub>77</sub>	16.9	X	170.47187	61.07068	104.87989	7.31730	0.1042712	0.25804944	2.4434349	20	9 29.9	20.6
276434 2003 BT <sub>89</sub>	16.8	X	204.83334	337.31198	176.01485	11.77390	0.1179618	0.26159751	2.4212909	20	10 18.8	20.2
276435 2003 CF <sub>1</sub>	16.5	X	60.08452	34.83099	103.72288	6.35773	0.1706803	0.23550640	2.5969739	20	4 17.9	19.4
276436 2003 CR <sub>16</sub>	16.0	X	21.71343	220.16947	339.09985	16.94072	0.1796437	0.23589812	2.5940981	20	4 20.1	18.9
276437 2003 CD <sub>19</sub>	17.1	X	321.26316	301.88611	143.92626	7.64057	0.0847929	0.27135048	2.3629198	20	—	—
276438 2003 CG <sub>19</sub>	17.3	X	254.88769	328.34071	146.40756	11.99698	0.1836988	0.26554803	2.3972169	20	10 24.4	20.3
276439 2003 CB <sub>21</sub>	17.4	X	192.70217	357.24147	166.06893	5.35838	0.1426941	0.25991099	2.4317539	20	10 15.1	21.0
276440 2003 DJ <sub>16</sub>	17.4	X	15.44365	162.84850	150.59099	23.54064	0.0539485	0.37198133	1.9147935	20	10 29.9	19.8
276441 2003 EL <sub>11</sub>	17.0	X	120.05972	293.17912	204.99310	4.93688	0.1930453	0.24486139	2.5304000	20	7 2.5	20.9
276442 2003 EF <sub>17</sub>	16.7	X	44.09084	122.06932	105.59699	5.74093	0.1885891	0.24306059	2.5428828	20	7 30.5	19.4
276443 2003 EJ <sub>22</sub>	17.1	X	139.88842	48.70274	158.71976	10.81191	0.2308084	0.25508030	2.4623594	20	10 20.8	21.4
276444 2003 EZ <sub>32</sub>	17.1	X	145.97839	24.88028	166.22919	12.21121	0.1246919	0.25470260	2.4647931	20	10 4.3	20.9
276445 2003 EF <sub>39</sub>	16.0	X	287.56384	45.95836	80.20170	13.63430	0.1342657	0.21171895	2.7880222	20	12 19.2	19.0
276446 2003 EO <sub>40</sub>	15.0	X	8.08271	124.95359	109.36642	23.02580	0.2952272	0.17779185	3.1322866	20	6 6.2	18.0
276447 2003 FZ <sub>2</sub>	16.7	X	352.35974	233.85943	43.60789	21.91986	0.0549619	0.35878405	1.9614653	20	7 4.5	18.9
276448 2003 FP <sub>8</sub>	17.7	X	188.83089	358.47372	193.50589	21.90028	0.0317033	0.37586028	1.9015968	20	12 26.0	20.3
276449 2003 FD <sub>10</sub>	17.0	X	116.24901	90.19236	161.93737	4.78061	0.1563243	0.25715553	2.4490941	20	11 21.2	20.9
276450 2003 FX <sub>19</sub>	16.1	X	331.03672	42.08774	67.81542	15.60143	0.2430190	0.21779195	2.7359501	20	—	—
276451 2003 FH <sub>24</sub>	15.3	X	291.13181	158.44943	202.83811	3.90051	0.2062093	0.24633478	2.5203000	20	6 27.3	18.3
276452 2003 FG <sub>53</sub>	15.4	X	40.38709	18.94771	219.30884	13.86179	0.1432068	0.18367949	3.0649891	20	7 21.6	19.5
276453 2003 FF <sub>80</sub>	17.7	X	346.42508	101.95606	68.10560	3.81011	0.1720384	0.28314789	2.2968211	20	—	—
276454 2003 FM <sub>92</sub>	16.1	X	317.54975	226.92793	40.33609	6.78724	0.3199809	0.22900095	2.6459270	20	3 12.6	19.3
276455 2003 FV <sub>105</sub>	16.4	X	68.69601	338.56095	146.17677	4.95241	0.2093783	0.23329589	2.6133525	20	4 17.8	19.4
276456 2003 FF <sub>109</sub>	16.7	X	41.14692	15.23519	144.81761	4.90310	0.1754275	0.23210353	2.6222951	20	4 13.9	19.3
276457 2003 FM <sub>109</sub>	16.1	X	307.33822	162.46721	90.89955	14.78028	0.2316132	0.22575435	2.6712342	20	2 26.6	19.9
276458 2003 GY <sub>2</sub>	16.8	X	46.71832	24.68537	188.44554	7.56758	0.1284476	0.24068901	2.5595594	20	7 1.7	19.9
276459 2003 GV <sub>10</sub>	16.1	X	60.84880	86.29205	44.51883	27.86749	0.2581421	0.23306824	2.6150539	20	4 24.9	19.0
276460 2003 GC <sub>24</sub>	16.3	X	32.41084	226.72080	27.90967	17.18743	0.1051655	0.24314875	2.5422681	20	8 14.8	19.7
276461 2003 GJ <sub>26</sub>	17.1	X	315.41616	72.89143	214.03788	3.15571	0.2030815	0.23397523	2.6082915	20	4 21.4	19.7
276462 2003 GO <sub>34</sub>	16.8	X	91.01160	85.74927	117.19978	6.20278	0.1062603	0.24489997	2.5301343	20	8 17.7	20.3
276463 2003 GR <sub>47</sub>	16.4	X	178.27789	284.46704	174.89900	14.49690	0.0711469	0.23808567	2.5781838	20	7 6.4	20.5
276464 2003 GE <sub>56</sub>	17.9	X	43.62320	74.69343	195.45547	6.64645	0.1922718	0.24472097	2.5313678	20	9 27.6	21.1
276465 2003 HO <sub>4</sub>	16.8	X	30.59028	117.35684	148.84214	6.18750	0.2403236	0.23940794	2.5686821	20	9 11.1	19.5
276466 2003 HY <sub>5</sub>	15.8	X	94.97737	97.75943	116.00060	10.80147	0.1400914	0.24528580	2.5274803	20	9 12.7	19.6
276467 2003 HX <sub>18</sub>	17.3	X	35.49381	59.90289	188.34864	12.51916	0.1447131	0.24110608	2.5566068	20	8 3.6	20.5
276468 2003 HQ <sub>32</sub>	18.0	X	78.81823	291.26972	217.63906	35.87127	0.3451535	0.35406077	1.9788711	20	6 17.9	21.3
276469 2003 HN <sub>50</sub>	17.2	X	237.62529	48.02622	185.03629	2.46110	0.1826608	0.26987307	2.3715358	20	—	—
276470 2003 JT <sub>7</sub>	17.0	X	78.37363	134.92074	70.16017	8.82382	0.2614847	0.24186609	2.5512483	20	8 28.5	21.0
276471 2003 KL <sub>3</sub>	16.4	X	62.33231	72.10150	94.03545	15.17545	0.0419427	0.23386199	2.6091335	20	5 12.9	19.9
276472 2003 KL <sub>8</sub>	17.4	X	359.72259	93.78696	198.20431	11.75019	0.0959662	0.23807647	2.5782503	20	7 29.3	20.6
276473 2003 KG <sub>12</sub>	15.2	X	20.98764	16.58633	223.05704	27.11125	0.0965350	0.17813518	3.1282605	20	6 16.9	19.5
276474 2003 KO <sub>13</sub>	16.2	X	30.08033	194.29753								

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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>
276481 2003 <i>NK</i> <sub>13</sub>	16.3	X	12.71158	159.39299	108.66432	6.45550	0.2416338	0.23171138	2.6252528	20	8 7.2	18.5
276482 2003 <i>ON</i> <sub>2</sub>	15.5	X	219.08574	0.91454	355.70707	8.80058	0.2121320	0.21621815	2.7492102	20	4 2.5	20.1
276483 2003 <i>OH</i> <sub>9</sub>	16.3	X	0.30924	60.82354	229.64335	11.11098	0.1850238	0.23157523	2.6262817	20	7 31.8	19.0
276484 2003 <i>OC</i> <sub>13</sub>	16.3	X	16.52467	342.31638	304.52443	5.60225	0.2578555	0.23410380	2.6073365	20	9 13.6	18.8
276485 2003 <i>OR</i> <sub>20</sub>	17.0	X	344.41611	342.52289	343.92065	6.79663	0.2010374	0.29250191	2.2475891	20	9 10.8	18.1
276486 2003 <i>OG</i> <sub>29</sub>	16.6	X	181.39659	289.00980	2.95890	2.46432	0.1796733	0.20091997	2.8870479	20	—	—
276487 2003 <i>OJ</i> <sub>33</sub>	16.9	X	324.53071	166.13823	145.31291	2.89316	0.2003765	0.22768087	2.6561445	20	6 15.3	19.5
276488 2003 <i>PO</i>	16.1	X	297.36303	177.98000	151.42124	14.81786	0.2606277	0.22490045	2.6779913	20	5 17.9	19.8
276489 2003 <i>PA</i> <sub>2</sub>	16.4	X	309.48357	180.64707	163.26812	7.19912	0.2380668	0.22822836	2.6518949	20	6 27.6	19.3
276490 2003 <i>PK</i> <sub>11</sub>	15.6	X	36.29580	9.47685	340.53478	12.59637	0.2152765	0.18512314	3.0490339	20	12 20.9	20.0
276491 2003 <i>QK</i> <sub>4</sub>	16.8	X	328.28022	125.58648	171.58949	2.30397	0.1909491	0.22647392	2.6655730	20	6 2.7	19.3
276492 2003 <i>QV</i> <sub>16</sub>	16.4	X	179.11243	208.30374	159.35888	6.46676	0.1117305	0.20979021	2.8050842	20	3 14.9	20.7
276493 2003 <i>QZ</i> <sub>16</sub>	16.9	X	305.90873	37.51088	335.35270	5.66167	0.3471195	0.16903228	3.2395867	20	7 10.4	20.6
276494 2003 <i>QV</i> <sub>17</sub>	16.3	X	326.98573	153.32963	171.19407	13.89567	0.1840548	0.22812214	2.6527181	20	7 11.5	19.2
276495 2003 <i>QJ</i> <sub>25</sub>	16.2	X	343.72739	323.11667	317.66999	9.11257	0.1694594	0.22569149	2.6717302	20	6 12.2	18.9
276496 2003 <i>QU</i> <sub>27</sub>	15.7	X	71.31651	82.94550	274.68895	9.52049	0.1398745	0.19021398	2.9943858	20	—	—
276497 2003 <i>QV</i> <sub>28</sub>	16.4	X	207.11676	31.31216	319.71988	5.24703	0.0675728	0.21361505	2.7714996	20	3 20.1	20.6
276498 2003 <i>QC</i> <sub>47</sub>	16.1	X	186.81078	139.20572	236.32578	2.98475	0.2204692	0.21051755	2.7986194	20	3 31.3	21.0
276499 2003 <i>QT</i> <sub>51</sub>	16.2	X	343.59252	152.90324	138.46272	12.39381	0.1841932	0.22816492	2.6523865	20	6 28.6	18.9
276500 2003 <i>QV</i> <sub>55</sub>	15.9	X	273.78036	227.97830	137.42485	12.28562	0.1978043	0.22368108	2.6877150	20	6 11.2	19.8
276501 2003 <i>QD</i> <sub>58</sub>	15.9	X	314.76705	154.18341	145.73454	14.08259	0.1930250	0.22358471	2.6884873	20	5 16.1	19.3
276502 2003 <i>QW</i> <sub>60</sub>	16.2	X	282.59487	180.83939	149.34427	9.81795	0.1687861	0.22012366	2.7165950	20	5 12.3	20.0
276503 2003 <i>QR</i> <sub>63</sub>	15.1	X	47.59096	352.66493	27.25695	13.88913	0.3074089	0.18590700	3.0404572	20	—	—
276504 2003 <i>QW</i> <sub>67</sub>	16.4	X	323.75020	97.95077	197.28609	8.41431	0.2421331	0.22634245	2.6666051	20	5 14.2	19.0
276505 2003 <i>QZ</i> <sub>67</sub>	15.9	X	309.42319	309.33650	310.02959	5.42286	0.1750726	0.21658727	2.7460858	20	3 24.5	19.5
276506 2003 <i>QH</i> <sub>72</sub>	16.1	X	258.46227	215.48041	123.36366	9.48999	0.1434229	0.21980755	2.7191989	20	4 29.1	20.3
276507 2003 <i>QT</i> <sub>73</sub>	16.1	X	259.00378	175.89674	179.14956	6.24831	0.0392837	0.22237056	2.6982645	20	5 31.9	19.8
276508 2003 <i>QY</i> <sub>74</sub>	15.8	X	232.69725	210.91212	174.28352	14.88395	0.1954690	0.21989431	2.7184836	20	5 24.5	20.4
276509 2003 <i>QD</i> <sub>88</sub>	16.3	X	256.89833	64.87137	266.36183	1.70770	0.1900566	0.21759294	2.7376180	20	4 7.9	20.6
276510 2003 <i>QX</i> <sub>89</sub>	15.3	X	266.92281	72.04742	272.96069	8.05771	0.2144234	0.21948537	2.7218593	20	5 1.3	19.4
276511 2003 <i>QA</i> <sub>99</sub>	16.7	X	196.57160	354.30804	19.08189	1.20131	0.0604209	0.21422250	2.7662578	20	4 7.6	20.8
276512 2003 <i>QJ</i> <sub>99</sub>	16.7	X	14.95884	324.79947	198.68874	11.79887	0.0174507	0.20729018	2.8275930	20	2 25.5	20.7
276513 2003 <i>QK</i> <sub>100</sub>	16.2	X	248.09804	189.77341	165.98375	10.39885	0.1909090	0.22031040	2.7150597	20	5 2.3	20.6
276514 2003 <i>QL</i> <sub>103</sub>	16.1	X	209.41028	277.85974	75.57953	5.06511	0.2155953	0.21166642	2.7884834	20	3 26.3	20.9
276515 2003 <i>QZ</i> <sub>104</sub>	15.5	X	282.86940	168.88613	159.21568	17.10816	0.3166338	0.21972341	2.7198931	20	4 20.6	19.8
276516 2003 <i>QS</i> <sub>106</sub>	16.1	X	309.96416	172.80653	169.14709	10.91737	0.2687585	0.22524660	2.6752470	20	6 20.4	19.1
276517 2003 <i>QO</i> <sub>107</sub>	15.9	X	300.41916	183.87290	123.03640	13.01188	0.1859524	0.22161372	2.7044043	20	5 5.2	19.6
276518 2003 <i>QK</i> <sub>115</sub>	16.0	X	320.59473	234.64276	118.79013	13.02852	0.3135401	0.22909710	2.6451866	20	7 26.1	17.8
276519 2003 <i>RU</i> <sub>12</sub>	15.9	X	212.20500	327.16166	37.38411	8.69024	0.2313827	0.21385698	2.7694090	20	4 9.2	20.7
276520 2003 <i>RL</i> <sub>13</sub>	15.7	X	320.23895	36.72761	270.25869	12.75367	0.2516596	0.22491436	2.6778809	20	5 20.6	18.7
276521 2003 <i>RM</i> <sub>14</sub>	16.0	X	211.55722	162.51709	195.56366	8.58211	0.3130764	0.21259255	2.7803791	20	3 28.1	21.2
276522 2003 <i>RL</i> <sub>17</sub>	15.5	X	266.90151	5.50858	276.82965	8.73632	0.2402083	0.21206159	2.7850182	20	2 11.8	20.1
276523 2003 <i>RC</i> <sub>19</sub>	15.6	X	85.60091	343.48906	346.04614	9.74254	0.0929795	0.18746219	3.0236181	20	—	—
276524 2003 <i>RT</i> <sub>20</sub>	16.5	X	281.47345	195.88078	155.85148	6.55760	0.2170913	0.22299710	2.6932081	20	5 30.4	20.3
276525 2003 <i>RX</i> <sub>25</sub>	15.9	X	232.20700	139.12699	221.36116	12.55509	0.2321932	0.21547649	2.7555151	20	4 17.7	20.6
276526 2003 <i>RY</i> <sub>25</sub>	16.1	X	315.35996	346.84273	321.45812	12.93482	0.2649475	0.22365148	2.6879522	20	5 6.1	19.4
276527 2003 <i>RZ</i> <sub>25</sub>	15.6	X	281.68044	78.22981	258.95747	11.12854	0.2221136	0.22085790	2.7105708	20	5 7.7	19.5
276528 2003 <i>RA</i> <sub>26</sub>	17.0	X	315.91392	81.27159	226.70051	10.90953	0.3229412	0.22453125	2.6809262	20	5 1.5	19.7
276529 2003 <i>SU</i> <sub>2</sub>	16.7	X	63.06136	139.07731	298.02937	1.00063	0.0800071	0.19910962	2.9045212	20	1 20.9	20.5
276530 2003 <i>SU</i> <sub>11</sub>	16.5	X	242.92831	170.48469	176.84492	2.75282	0.2087854	0.21672310	2.7449383	20	4 14.1	20.8
276531 2003 <i>SK</i> <sub>30</sub>	16.0	X	43.43026	318.12161	19.45488	3.56598	0.2090883	0.18010654	3.1053917	20	12 11.7	20.4
276532 2003 <i>SS</i> <sub>49</sub>	15.9	X	209.77238	182.18449	179.72819	24.93346	0.1358677	0.21355081	2.7720554	20	4 6.9	20.4
276533 2003 <i>SZ</i> <sub>58</sub>	15.4	X	38.08815	91.13917	274.90574	7.89963	0.1569445	0.18547874	3.0451355	20	—	—
276534 2003 <i>SJ</i> <sub>60</sub>	16.1	X	179.92017	215.86523	159.91197	14.47047	0.1835497	0.211112299	2.7933547	20	3 28.9	20.8
276535 2003 <i>SB</i> <sub>61</sub>	15.7	X	195.06513	231.16596	132.69600	7.07729	0.1252402	0.21115756	2.7929615	20	3 27.7	20.1
276536 2003 <i>SN</i> <sub>62</sub>	15.8	X	22.05516	235.38090	148.19700	9.68072	0.1401652	0.18422547	3.0589305	20	12 31.8	19.9
276537 2003 <i>SS</i> <sub>69</sub>	15.9	X	356.05206	239.71119	192.93108	10.54149	0.1302921	0.18579887	3.0416367	20	—	—
276538 2003 <i>SO</i> <sub>77</sub>	15.8	X	303.83380	142.01911	206.73300	10.67199	0.3131355	0.22626012	2.6672519	20	6 10.8	18.9
276539 2003 <i>SF</i> <sub>78</sub>	17.9	X	245.23152	78.06605	326.61937	6.04509	0.1815856	0.28145586	2.3060171	20	7 2.8	21.0
276540 2003 <i>ST</i> <sub>80</sub>	16.1	X	289.42187	52.82908	256.35175	8.09264	0.1812296	0.21934505	2.7230200	20	4 15.5	19.9
276541 2003 <i>SC</i> <sub>81</sub>	16.2	X	46.35190	165.27911	188.40219	10.88524	0.1211653	0.18164360	3.0878485	20	12 22.8	20.7
276542 2003 <i>SO</i> <sub>82</sub>	15.7	X	90.71277	16.39756	19.29762	11.34603	0.0744003	0.19694620	2.9257530	20	1 8.6	19.8
276543 2003 <i>SA</i> <sub>88</sub>	16.2	X	238.26153	64.53446	268.21841	2.57363	0.0990368	0.21435419	2.7651247	20	3 29.8	20.4
276544 2003 <i>SU</i> <sub>88</sub>	15.8	X	280.21887	262.94826	46.86223	6.10676	0.0542728	0.21643380	2.7473838	20	4 26.9	19.5
276545 2003 <i>SF</i> <sub>89</sub>	16.2	X	212.76592	189.30129	197.31953	9.95815	0.1711035	0.21718915	2.7410101	20	5 8.2	20.7
276546 2003 <i>ST</i> <sub>100</sub>	16.0	X	154.60396	186.87528	193.18292	15.21733	0.1428800	0.20426018	2.8554874	20	3 5.2	20.6
276547 2003 <i>ST</i> <sub>101</sub>	15.4	X	313.14078	16.82840	265.42823	12.09233	0.1291236	0.21952662	2.7215183	20	4 19.9	19.1
276548 2003 <i>SR</i> <sub>105</sub>	16.8	X	89.91965	32.37228	8.34507	2.08952	0.0844176	0.19661848	2.9290031	20	1 13.8	20.6
276549 2003 <i>SX</i> <sub>116</sub>	16.0	X	265.51546	66.84957	256.16240	8.41399	0.1985265	0.21707880	2.7419389	20	4 2.8	20.3
276550 2003 <i>SH</i> <sub>132</sub>	16.7	X	338.17856	334.99171	37.02513	1.16006	0.2076721	0.17246328	3.1964772	20	10 5.6	20.0
276551 2003 <i>SN</i> <sub>133</sub>	16.7	X	36.20713	14.15372	257.25841	6.61428	0.3299668	0.				

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>		
276561	2003	SL <sub>194</sub>	17.5	X	274.87626	61.53874	314.50580	6.70582	0.1186134	0.28299014	2.2976746	20	7 12.1	20.0
276562	2003	SP <sub>194</sub>	16.9	X	341.36988	323.32621	316.45171	4.40788	0.1842821	0.28023963	2.3126843	20	6 4.4	18.6
276563	2003	SO <sub>198</sub>	15.7	X	43.78296	140.48208	229.59026	11.28613	0.2584321	0.18413119	3.0599746	20	—	—
276564	2003	SF <sub>202</sub>	16.8	X	16.28157	134.30785	246.88309	1.73252	0.1950970	0.18259347	3.0771303	20	12 28.4	20.5
276565	2003	SS <sub>202</sub>	16.2	X	244.84029	174.06971	167.00508	5.27400	0.1087360	0.21507920	2.7589073	20	4 18.2	20.3
276566	2003	SG <sub>210</sub>	15.9	X	117.18775	184.86321	177.44096	5.74302	0.1394750	0.19575709	2.9375891	20	1 7.6	20.1
276567	2003	SS <sub>212</sub>	16.2	X	237.31325	313.42691	45.30340	7.49715	0.1938489	0.21731358	2.7399637	20	4 24.3	20.5
276568		Joestübler	16.0	X	25.29174	153.87080	238.06128	7.07790	0.1477618	0.18287378	3.0739851	20	—	—
276569	2003	SL <sub>218</sub>	15.9	X	83.72565	8.99134	27.04197	11.29077	0.1222975	0.19308365	2.9646429	20	1 6.4	19.9
276570	2003	SO <sub>221</sub>	15.7	X	240.16561	77.75974	221.40176	11.17460	0.0662453	0.20502069	2.8484215	20	2 20.0	20.2
276571	2003	SF <sub>237</sub>	16.1	X	232.28276	177.39365	165.15842	2.60718	0.0849367	0.21241394	2.7819375	20	4 7.8	20.2
276572	2003	SK <sub>237</sub>	15.7	X	10.35600	116.50911	353.75045	12.09155	0.1276520	0.19480843	2.9471182	20	—	—
276573	2003	SY <sub>244</sub>	16.2	X	227.63617	129.04690	189.42907	4.18342	0.1046928	0.20885357	2.8134646	20	3 1.8	20.6
276574	2003	SD <sub>245</sub>	15.6	X	29.14612	348.48908	11.54118	9.35605	0.0852700	0.18176122	3.0865162	20	12 2.5	19.9
276575	2003	SR <sub>270</sub>	16.3	X	324.81842	222.17253	77.16074	12.59285	0.1128360	0.22332662	2.6905582	20	5 31.9	18.9
276576	2003	SL <sub>279</sub>	15.8	X	344.64658	107.35448	324.57093	16.34182	0.1474035	0.18503948	3.0499527	20	—	—
276577	2003	ST <sub>281</sub>	16.7	X	198.89257	39.81141	311.66537	4.95828	0.1110530	0.20906587	2.8115595	20	3 12.1	21.0
276578	2003	SV <sub>282</sub>	16.2	X	288.48613	70.94641	9.04894	25.07723	0.2820989	0.17326315	3.1866320	20	9 23.8	20.1
276579	2003	SM <sub>288</sub>	16.2	X	296.49595	126.64411	173.42032	12.07358	0.0890428	0.21605752	2.7505727	20	5 3.1	19.9
276580	2003	SU <sub>289</sub>	15.9	X	118.43404	302.12566	169.30350	9.04106	0.1128360	0.21129659	2.7917362	20	5 21.1	20.1
276581	2003	ST <sub>300</sub>	16.1	X	243.45610	69.61245	271.14339	5.88371	0.0418035	0.21445910	2.7642229	20	4 19.7	20.2
276582	2003	SS <sub>309</sub>	16.4	X	316.32359	51.14853	329.77346	5.28642	0.2006654	0.17137989	3.2099343	20	9 1.6	19.9
276583	2003	SK <sub>312</sub>	15.9	X	32.79426	213.52271	170.35738	10.21662	0.0564338	0.18514973	3.0487419	20	—	—
276584	2003	SG <sub>318</sub>	16.6	X	263.72186	24.41350	289.31167	2.62035	0.0880587	0.21480763	2.7612321	20	4 4.6	20.5
276585	2003	SB <sub>320</sub>	16.0	X	196.62962	198.54786	148.39591	11.04911	0.0446787	0.18201243	3.0836756	20	11 8.2	20.6
276586	2003	SN <sub>325</sub>	16.3	X	36.65489	40.29696	57.15579	2.50901	0.0167218	0.19800287	2.9153345	20	1 7.0	20.2
276587	2003	SX <sub>325</sub>	18.1	X	80.14984	24.10386	346.47914	4.26012	0.1461108	0.30911351	2.1663272	20	—	—
276588	2003	SK <sub>328</sub>	16.3	X	86.93329	165.18053	181.09743	7.86822	0.1791841	0.18871166	3.0102569	20	—	—
276589	2003	SR <sub>331</sub>	16.3	X	343.86252	282.12120	185.36761	10.51627	0.2436493	0.18679431	3.0308210	20	—	—
276590	2003	SK <sub>336</sub>	15.8	X	109.21558	248.90479	96.42918	17.36799	0.0686650	0.18750747	3.0231312	20	—	—
276591	2003	ST <sub>384</sub>	17.0	X	241.32977	176.16845	138.05811	4.37141	0.0863380	0.20953821	2.8073327	20	3 14.2	21.1
276592	2003	SA <sub>386</sub>	16.0	X	35.91465	294.79300	63.34799	4.07126	0.0683548	0.18179663	3.0861154	20	12 8.2	20.1
276593	2003	SN <sub>387</sub>	16.3	X	18.98627	358.01955	98.29831	3.32963	0.0561211	0.19360075	2.9593615	20	—	—
276594	2003	SU <sub>387</sub>	16.8	X	284.24702	172.28536	143.14787	4.42635	0.0995589	0.21659553	2.7460159	20	5 4.0	20.5
276595	2003	SZ <sub>399</sub>	16.4	X	208.80811	248.52168	119.31739	9.67439	0.0950321	0.20942875	2.8083109	20	4 17.8	20.8
276596	2003	SX <sub>404</sub>	15.7	X	267.48717	88.07997	49.81898	17.05921	0.0788895	0.18038119	3.1022387	20	11 30.6	19.9
276597	2003	SH <sub>430</sub>	16.1	X	188.49619	236.52759	330.43578	8.48765	0.0311866	0.17905657	3.1175197	20	11 25.7	20.8
276598	2003	TK <sub>18</sub>	16.0	X	229.57879	278.39755	73.12784	12.30775	0.2424819	0.21230333	2.7829037	20	4 11.0	20.9
276599	2003	TZ <sub>34</sub>	15.8	X	223.07448	166.85298	11.71628	28.19957	0.1260500	0.17914426	3.1165022	20	11 10.5	20.9
276600	2003	TG <sub>48</sub>	16.8	X	133.17448	70.01181	244.60438	4.15137	0.0649643	0.19271388	2.9684339	20	—	—
276601	2003	TH <sub>54</sub>	16.3	X	142.41396	180.53829	174.51994	12.21140	0.0650519	0.19760412	2.9192551	20	1 16.8	20.7
276602	2003	TZ <sub>55</sub>	16.4	X	224.63526	231.22989	129.67042	6.26531	0.1214833	0.21264228	2.7799456	20	4 22.1	20.7
276603	2003	TG <sub>59</sub>	16.8	X	229.89357	240.60893	141.80000	6.50442	0.1052375	0.27473040	2.3434997	20	5 24.6	20.1
276604	2003	UH <sub>21</sub>	16.2	X	320.38276	242.76144	79.26433	7.41498	0.2846827	0.22351443	2.6890508	20	6 8.3	18.8
276605	2003	UN <sub>30</sub>	16.0	X	277.06998	296.03059	309.17596	5.18630	0.0106917	0.20270597	2.8700647	20	2 7.4	20.0
276606	2003	UR <sub>41</sub>	16.8	X	81.57835	147.12691	177.02750	0.56919	0.1759391	0.18501570	3.0502142	20	—	—
276607	2003	UG <sub>54</sub>	15.4	X	358.05574	88.87335	357.83004	9.41180	0.1247472	0.18380522	3.0635913	20	—	—
276608	2003	UA <sub>68</sub>	16.6	X	188.32560	183.08775	147.70937	2.54961	0.0691281	0.20094739	2.8867852	20	2 7.6	20.9
276609	2003	UF <sub>69</sub>	16.8	X	116.66330	213.34333	157.96108	2.32320	0.0855358	0.19716554	2.9235826	20	1 10.7	21.0
276610	2003	UO <sub>70</sub>	16.1	X	222.66471	121.26487	178.62996	5.60656	0.0454525	0.20157521	2.8807881	20	2 6.4	20.4
276611	2003	UF <sub>82</sub>	16.3	X	307.59500	261.12332	193.77103	24.92334	0.2988893	0.17762436	3.1342552	20	11 16.9	19.6
276612	2003	UK <sub>83</sub>	15.4	X	24.55884	220.43365	253.11141	10.86616	0.0295676	0.19468938	2.9483195	20	1 9.9	19.5
276613	2003	UU <sub>83</sub>	15.3	X	340.47288	45.65384	118.14684	16.43132	0.1648695	0.17280007	3.1923226	20	9 20.0	19.1
276614	2003	UF <sub>91</sub>	15.6	X	104.16079	309.59188	55.01272	11.24257	0.1060353	0.19191831	2.9766318	20	—	—
276615	2003	UG <sub>92</sub>	16.1	X	37.32464	44.46427	12.18595	9.53041	0.1255481	0.18758814	3.0222644	20	—	—
276616	2003	UK <sub>99</sub>	15.9	X	294.62394	268.73126	84.58861	11.76238	0.2977984	0.22185035	2.7024809	20	6 5.8	19.3
276617	2003	UN <sub>102</sub>	16.5	X	238.26035	63.59629	276.43879	6.26973	0.2390554	0.21326323	2.7745468	20	3 26.6	21.3
276618	2003	UC <sub>113</sub>	16.8	X	240.48637	232.05268	138.71326	6.69722	0.1213556	0.27454619	2.3445479	20	5 19.8	20.2
276619	2003	UT <sub>113</sub>	15.7	X	14.64413	254.85141	88.37023	9.99344	0.2639018	0.17479992	3.1679275	20	11 18.4	19.4
276620	2003	UV <sub>116</sub>	18.0	X	96.08336	182.05783	179.75076	5.02617	0.2459243	0.30966618	2.1637489	20	—	—
276621	2003	UO <sub>125</sub>	15.5	X	21.63924	3.31532	61.80412	15.85541	0.1908684	0.18605643	3.0388290	20	—	—
276622	2003	UA <sub>135</sub>	16.3	X	306.84516	90.87510	211.23348	12.71109	0.2776681	0.21972948	2.7198430	20	4 17.1	19.7
276623	2003	UG <sub>136</sub>	17.7	X	208.64403	251.20937	194.06044	5.93432	0.1666890	0.27878916	2.3206989	20	7 17.6	21.3
276624	2003	UW <sub>139</sub>	16.0	X	241.51168	226.45742	106.96452	7.11856	0.0783089	0.21143972	2.7904762	20	4 10.3	20.2
276625	2003	UA <sub>146</sub>	15.9	X	283.63830	283.01240	67.11941	8.88748	0.3035961	0.22023707	2.7156624	20	5 17.5	19.8
276626	2003	UO <sub>148</sub>	15.1	X	17.71842	298.91973	72.18730	17.32369	0.0518635	0.17658437	3.1465493	20	11 28.3	19.2
276627	2003	UL <sub>149</sub>	15.9	X	221.34812	309.79667	55.12988	7.19921	0.1271893	0.21230295	2.7829070	20	4 22.2	20.1
276628	2003	UQ <sub>151</sub>	15.8	X	264.77576	243.79462	88.88872	6.21996	0.2382941	0.21479442	2.7613453	20	4 16.1	20.1
276629	2003	UT <sub>154</sub>	16.3	X	204.57372	235.15886	113.61661	3.69360	0.0783549	0.20695905	2.8306082	20	3 18.6	20.6
276630	2003	UT <sub>156</sub>	15.9	X	44.48769	227.64731	164.							



ELEMENTS AND OPPOSITION DATES IN 2020

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>			
276641	2003	UM <sub>213</sub>	16.6	X	92.02670	102.08572	227.95444	4.61793	0.1538390	0.18568775	3.0428501	20	—	—	
276642	2003	UW <sub>220</sub>	15.5	X	172.79393	80.01139	218.11849	10.41133	0.0742949	0.19473492	2.9478598	20	—	—	
276643	2003	UD <sub>226</sub>	16.1	X	302.31729	271.69141	69.83449	8.98260	0.2883559	0.22189493	2.7021189	20	6	2.0	19.1
276644	2003	UW <sub>227</sub>	15.9	X	78.27169	355.17870	23.45491	10.43490	0.1149177	0.18858486	3.0116061	20	—	—	
276645	2003	UH <sub>243</sub>	17.0	X	246.31188	126.73624	230.64916	5.52346	0.1443555	0.27204770	2.3588809	20	5	3.4	20.2
276646	2003	UF <sub>253</sub>	14.7	X	61.42608	283.55120	50.62511	22.90072	0.1073200	0.17782296	3.1319212	20	12	10.9	19.4
276647	2003	UW <sub>253</sub>	16.3	X	105.18552	278.63108	36.51596	3.93256	0.2161439	0.18640983	3.0349870	20	—	—	
276648	2003	UJ <sub>254</sub>	16.4	X	104.58365	11.94927	33.16100	11.74521	0.1007657	0.19745347	2.9207398	20	2	14.0	20.6
276649	2003	UL <sub>264</sub>	17.0	X	178.49571	346.89292	83.83492	7.18403	0.0865117	0.27057022	2.3674604	20	5	31.1	20.2
276650	2003	UT <sub>271</sub>	16.4	X	217.95205	125.94856	222.79800	2.49520	0.2181438	0.20931804	2.8093011	20	3	24.3	21.1
276651	2003	UA <sub>272</sub>	15.0	X	77.49467	284.68262	49.27178	16.82282	0.1322509	0.18265919	3.0763922	20	—	—	
276652	2003	UW <sub>273</sub>	15.5	X	84.58598	328.98711	77.11599	11.91827	0.0651643	0.19263820	2.9692113	20	1	11.7	19.6
276653	2003	US <sub>308</sub>	15.8	X	164.56472	116.02437	204.22006	1.68676	0.0596815	0.19450669	2.9501653	20	1	1.2	20.2
276654	2003	UP <sub>324</sub>	16.1	X	328.44263	74.21850	235.39439	13.85919	0.1127234	0.22824310	2.6517807	20	6	28.5	19.3
276655	2003	UW <sub>368</sub>	16.6	X	299.53490	128.88730	72.94074	10.80766	0.0458194	0.19651184	2.9300627	20	1	9.6	20.8
276656	2003	VF <sub>5</sub>	16.7	X	349.48441	60.23676	60.17017	11.88603	0.0460179	0.18769583	3.0211083	20	—	—	
276657	2003	WM <sub>7</sub>	17.4	X	242.61643	48.54847	310.60898	0.90406	0.1966591	0.27226335	2.3576351	20	4	26.0	21.0
276658	2003	VQ <sub>11</sub>	15.8	X	138.64355	200.55702	200.84804	10.32786	0.1390371	0.20054425	2.8906526	20	3	15.8	20.3
276659	2003	WZ <sub>8</sub>	16.1	X	77.20083	1.29420	17.07776	9.25991	0.1467115	0.18753749	3.0228086	20	—	—	
276660	2003	WJ <sub>25</sub>	18.3	X	311.18695	210.98789	259.97796	29.79466	0.2888358	0.41333314	1.7848535	20	—	—	
276661	2003	WB <sub>40</sub>	17.8	X	111.04627	323.30633	21.70723	5.72930	0.1253513	0.30755911	2.1736202	20	—	—	
276662	2003	WU <sub>55</sub>	15.7	X	280.25145	50.76207	25.28175	7.45449	0.0327393	0.17040712	3.2221386	20	10	9.2	20.0
276663	2003	WQ <sub>58</sub>	16.9	X	165.65614	121.96959	248.07365	1.10730	0.1843810	0.26071771	2.4267350	20	3	3.3	20.6
276664	2003	WC <sub>59</sub>	15.3	X	284.76989	280.36873	237.46961	11.78507	0.1343895	0.18041712	3.1018268	20	—	—	
276665	2003	WF <sub>61</sub>	15.6	X	341.19623	37.47731	59.95508	28.33956	0.1640756	0.18050174	3.1008574	20	—	—	
276666	2003	WO <sub>71</sub>	15.6	X	305.06278	45.06007	254.72692	14.34110	0.2027679	0.21380925	2.7698211	20	4	20.7	19.4
276667	2003	WH <sub>76</sub>	15.6	X	18.34667	70.06085	290.13595	8.09402	0.0764116	0.17502009	3.1652702	20	11	15.8	20.0
276668	2003	WI <sub>110</sub>	15.6	X	0.16167	68.57374	27.34485	10.62675	0.0865377	0.18442593	3.0567134	20	—	—	
276669	2003	WL <sub>151</sub>	15.7	X	344.92701	22.96766	98.59478	11.42204	0.0458943	0.18575558	3.0421092	20	—	—	
276670	2003	WJ <sub>156</sub>	15.2	X	244.38848	281.75306	95.83424	24.76754	0.3633135	0.21596332	2.7513724	20	5	18.0	20.4
276671	2003	WP <sub>157</sub>	16.0	X	206.06592	321.56577	70.05411	24.33993	0.2399730	0.26954966	2.3734324	20	5	9.9	20.2
276672	2003	WS <sub>179</sub>	16.2	X	33.31938	6.11549	53.38065	14.87511	0.1236428	0.18449950	3.0559009	20	—	—	
276673	2003	WC <sub>187</sub>	16.6	X	340.64338	259.00680	203.68585	4.44096	0.1036947	0.18518024	3.0484071	20	—	—	
276674	2003	WQ <sub>189</sub>	15.4	X	12.45823	257.28990	166.29465	16.80740	0.2457146	0.18136458	3.0910147	20	—	—	
276675	2003	WX <sub>190</sub>	17.1	X	274.97570	79.88993	262.63833	5.98470	0.2219011	0.27898882	3.2195916	20	5	5.3	20.2
276676	2003	WV <sub>192</sub>	15.7	X	4.24814	357.27582	92.59663	10.40219	0.1137662	0.18395319	3.0619482	20	—	—	
276677	2003	WW <sub>192</sub>	17.2	X	298.05295	345.33276	53.29783	4.76700	0.2528992	0.28385815	2.2929881	20	9	8.6	18.7
276678	2003	XB <sub>2</sub>	15.2	X	114.35903	280.54140	78.29424	10.89369	0.1157925	0.18946558	3.0022659	20	—	—	
276679	2003	XL <sub>18</sub>	15.7	X	315.33689	77.56942	331.22877	12.30880	0.2832267	0.17139648	3.2097272	20	9	23.8	19.0
276680	2003	XR <sub>24</sub>	16.4	X	284.13335	110.30785	25.03080	11.12022	0.1423622	0.17655278	3.1469247	20	12	12.3	20.5
276681	2003	YB <sub>25</sub>	16.7	X	222.90116	42.29886	317.86917	4.33906	0.1167505	0.26579487	2.3957325	20	4	12.3	20.2
276682	2003	YE <sub>25</sub>	16.8	X	146.94943	9.01645	83.47995	3.13965	0.1387636	0.26467115	2.4025088	20	5	27.6	20.4
276683	2003	YQ <sub>34</sub>	15.4	X	108.11905	294.53852	74.28818	12.32474	0.2637604	0.19029769	2.9935077	20	1	24.9	19.9
276684	2003	YS <sub>36</sub>	17.5	X	308.44043	118.62490	309.85072	4.72465	0.1281480	0.28661055	2.2782844	20	12	1.8	19.5
276685	2003	YX <sub>40</sub>	15.5	X	46.01818	309.12638	107.17518	16.70254	0.0352970	0.17889679	3.1193757	20	—	—	
276686	2003	YY <sub>41</sub>	17.8	X	288.15123	132.55056	104.38762	5.48838	0.0919619	0.30772472	2.1728402	20	1	14.8	20.3
276687	2003	YX <sub>45</sub>	14.9	X	283.47996	78.30080	60.89871	24.81216	0.1896481	0.17411448	3.1762362	20	12	7.9	18.8
276688	2003	YD <sub>58</sub>	16.6	X	111.79493	23.14689	98.14112	6.28972	0.1490784	0.26218945	2.4176452	20	5	29.2	20.0
276689	2003	YD <sub>90</sub>	17.3	X	14.98273	281.39155	93.32257	5.15780	0.2147117	0.29079024	2.2564004	20	—	—	
276690	2003	YW <sub>91</sub>	15.1	X	94.57581	195.14221	76.34440	20.57789	0.0020690	0.17084224	3.2166654	20	11	1.6	19.9
276691	2003	YU <sub>107</sub>	15.9	X	49.82577	358.09679	42.64587	12.19528	0.0868930	0.18044966	3.1014540	20	—	—	
276692	2003	YK <sub>113</sub>	15.1	X	99.70642	286.10460	79.19219	15.91618	0.2433763	0.18494779	3.0509608	20	1	7.5	19.4
276693	2003	YZ <sub>116</sub>	15.4	X	315.02210	28.14128	92.90684	28.96330	0.1710928	0.17378577	3.1802400	20	—	—	
276694	2003	YE <sub>125</sub>	14.7	X	8.21939	71.12931	284.60695	12.04328	0.2947933	0.17330800	3.1860823	20	11	24.1	18.3
276695	2003	YE <sub>127</sub>	15.3	X	6.38639	15.77784	79.27844	20.05355	0.0769272	0.17971804	3.1098655	20	—	—	
276696	2003	YA <sub>131</sub>	15.1	X	282.48780	55.08375	82.38263	21.72451	0.0751761	0.17258281	3.1950012	20	12	20.0	19.3
276697	2003	YX <sub>149</sub>	15.2	X	56.30271	9.71313	19.91083	10.74723	0.0736770	0.18025641	3.1036702	20	—	—	
276698	2004	AA <sub>7</sub>	17.4	X	246.36080	214.07215	304.47590	7.42888	0.0531878	0.28844593	2.2686097	20	—	—	
276699	2004	AJ <sub>14</sub>	15.7	X	313.56813	46.69049	151.97140	5.64194	0.1376086	0.24500140	2.5294358	20	—	—	
276700	2004	AJ <sub>15</sub>	16.2	X	341.64723	355.02457	107.12889	11.81803	0.0293645	0.17535013	3.1621292	20	—	—	
276701	2004	BH <sub>1</sub>	15.3	X	135.78529	227.40136	132.36429	13.21709	0.1024475	0.18450199	3.0558733	20	1	22.6	19.7
276702	2004	BZ <sub>9</sub>	15.4	X	80.32452	279.48548	108.33376	14.39167	0.0821511	0.17847263	3.1243162	20	—	—	
276703	2004	BL <sub>11</sub>	19.1	X	299.39637	176.92331	142.43796	9.81300	0.7499845	0.69676757	1.2601167	20	2	20.2	21.5
276704	2004	BS <sub>13</sub>	16.8	X	108.30863	263.13934	323.34922	7.19039	0.0356634	0.27568638	2.3380790	20	10	1.8	19.9
276705	2004	BR <sub>27</sub>	15.7	X	61.17542	301.97140	97.04077	10.62683	0.0842133	0.17934887	3.1141316	20	—	—	
276706	2004	BV <sub>27</sub>	15.2	X	99.21439	245.95811	117.23114	10.79747	0.0518161	0.17629708	3.1499667	20	—	—	
276707	2004	BN <sub>32</sub>	15.8	X	81.96470	27.59107	342.22431	5.39276	0.1306335	0.17776120	3.1326466	20	—	—	
276708	2004	BW <sub>32</sub>	15.5	X	272.10606	55.41683	118.11986	13.50836	0.0523742	0.17334473	3.1856321	20	—	—	
276709	2004	BA <sub>33</sub>	15.8	X	121.79137	239.44531	104.47408	4.99457	0.0295936	0.17777486	3.1324861	20	—	—	
276710	2004	BZ <sub>34</sub>	17.7	X	25.00555	119.26272									

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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>		
276721	2004	CF <sub>21</sub>	17.5	X	293.54371	130.88800	61.34066	5.38872	0.0940938	0.29800072	2.2198545	20	—	—
276722	2004	CB <sub>44</sub>	18.2	X	16.22114	55.35166	19.85253	2.28903	0.1819840	0.29632420	2.2282195	20	—	—
276723	2004	CO <sub>45</sub>	17.0	X	316.48145	135.27032	58.67696	4.70313	0.0599609	0.30299250	2.1954058	20	—	—
276724	2004	CO <sub>47</sub>	16.4	X	94.55957	126.25526	107.09000	7.88637	0.1934804	0.26977111	2.3721333	20	10 15.5	20.2
276725	2004	CT <sub>95</sub>	16.8	X	302.28907	26.52786	145.17314	6.45991	0.0877409	0.29410993	2.2393892	20	—	—
276726	2004	CD <sub>100</sub>	16.6	X	169.40324	149.59600	2.84801	9.97052	0.0755802	0.26956747	2.3733278	20	9 11.2	19.8
276727	2004	CX <sub>104</sub>	16.9	X	313.27680	218.32109	289.91626	1.71898	0.1005118	0.29282191	2.2459513	20	—	—
276728	2004	CO <sub>110</sub>	17.4	X	41.64883	86.12253	339.81988	6.33906	0.1117834	0.29780167	2.2208436	20	—	—
276729	2004	DN <sub>37</sub>	17.5	X	230.06461	78.84822	137.10138	4.86011	0.1446187	0.28819059	2.2699495	20	—	—
276730	2004	DE <sub>49</sub>	17.2	X	265.54676	205.45092	350.57009	4.51093	0.1653700	0.29020509	2.2594325	20	—	—
276731	2004	ET <sub>7</sub>	17.7	X	214.92767	176.30756	39.07753	2.88419	0.1677491	0.28345200	2.2951780	20	—	—
276732	2004	EV <sub>9</sub>	17.7	X	70.28206	226.71535	172.41479	40.82754	0.7806065	0.55243803	1.4710034	20	—	—
276733	2004	EP <sub>12</sub>	16.8	X	337.10760	20.77529	348.77580	4.88277	0.0271871	0.27299802	2.3534034	20	10 17.6	19.7
276734	2004	EL <sub>13</sub>	17.1	X	332.82105	53.28933	46.16701	6.16790	0.0955794	0.28887820	2.2663459	20	—	—
276735	2004	EE <sub>14</sub>	16.8	X	246.74476	160.14807	66.81224	5.83531	0.1176166	0.29162753	2.2520794	20	—	—
276736	2004	EU <sub>34</sub>	17.5	X	303.88655	88.91420	26.48539	8.55144	0.1863444	0.28641479	2.2793224	20	—	—
276737	2004	ET <sub>37</sub>	17.0	X	248.18892	288.84994	263.19433	2.32173	0.0944456	0.28807452	2.2705591	20	—	—
276738	2004	ET <sub>42</sub>	17.1	X	302.76535	129.81522	7.96712	1.87743	0.1403168	0.28899137	2.2657542	20	—	—
276739	2004	EB <sub>46</sub>	17.7	X	228.18338	55.82874	187.93330	4.21103	0.1229751	0.29348011	2.2425920	20	—	—
276740	2004	EA <sub>66</sub>	17.1	X	178.02795	187.18916	318.96577	2.89426	0.1450327	0.27013372	2.3700101	20	9 6.8	20.8
276741	2004	EM <sub>66</sub>	16.5	X	213.60299	200.47751	40.70244	12.77146	0.4022288	0.28391562	2.2926787	20	—	—
276742	2004	ED <sub>90</sub>	17.4	X	356.75609	323.01915	156.29874	6.05907	0.1019338	0.29407968	2.2395428	20	—	—
276743	2004	EZ <sub>99</sub>	17.7	X	172.98232	315.01336	346.59953	6.41344	0.1325204	0.29179680	2.2512084	20	—	—
276744	2004	FK <sub>18</sub>	17.5	X	296.23873	38.92506	115.38968	6.40931	0.0774342	0.28684875	2.2770230	20	—	—
276745	2004	FE <sub>23</sub>	17.3	X	245.48639	283.46857	177.59373	6.72227	0.0681710	0.27315621	2.3524947	20	10 8.1	20.0
276746	2004	FG <sub>27</sub>	17.1	X	213.34940	246.87651	0.18684	6.74150	0.0559650	0.28943174	2.2634554	20	—	—
276747	2004	FX <sub>30</sub>	16.7	X	176.19740	232.76541	54.84473	25.30354	0.1549853	0.28698298	2.2763129	20	—	—
276748	2004	FT <sub>32</sub>	17.0	X	226.99500	52.38979	183.79351	23.31213	0.1765914	0.28910815	2.2651440	20	—	—
276749	2004	FE <sub>67</sub>	17.4	X	166.18327	226.56931	32.65614	7.71136	0.0882413	0.28247098	2.3004890	20	—	—
276750	2004	FR <sub>85</sub>	17.9	X	237.63980	114.93643	108.59366	6.05048	0.1450825	0.29108805	2.2548611	20	—	—
276751	2004	FG <sub>90</sub>	18.0	X	217.12035	92.67179	140.08723	4.44972	0.1547202	0.28621314	2.2803929	20	—	—
276752	2004	FG <sub>108</sub>	17.0	X	127.98959	290.10461	10.14309	6.33545	0.1389729	0.28185484	2.3038404	20	—	—
276753	2004	FE <sub>122</sub>	17.2	X	196.11190	188.47297	37.65926	7.18072	0.1821901	0.27965906	2.3158839	20	—	—
276754	2004	FV <sub>129</sub>	15.9	X	267.99165	123.47818	73.53410	13.62289	0.1163011	0.22934156	2.6433066	20	—	—
276755	2004	FZ <sub>135</sub>	17.5	X	183.14408	74.74214	179.48093	3.00142	0.1705826	0.28233955	2.3012028	20	—	—
276756	2004	FS <sub>138</sub>	17.3	X	247.48140	192.43412	337.90737	4.94824	0.1789230	0.28255471	2.3000345	20	—	—
276757	2004	FK <sub>145</sub>	15.5	X	228.16275	282.03063	359.13820	23.80305	0.1870127	0.17516871	3.1634795	20	1 28.5	21.1
276758	2004	FK <sub>147</sub>	16.5	X	188.05373	121.74354	167.09216	23.02596	0.2128711	0.28320253	2.2965256	20	—	—
276759	2004	FZ <sub>159</sub>	17.6	X	55.25322	21.41922	61.06243	4.34368	0.1060640	0.29959837	2.2119557	20	—	—
276760	2004	GA <sub>19</sub>	17.1	X	219.53983	96.79468	117.11193	11.47121	0.1076288	0.28322856	2.2963849	20	—	—
276761	2004	GU <sub>21</sub>	16.6	X	236.14320	318.10421	240.17195	7.58746	0.1603847	0.28619027	2.2805143	20	—	—
276762	2004	GP <sub>40</sub>	17.3	X	195.64621	63.76945	61.50061	3.25043	0.1604521	0.26713168	2.3877331	20	8 29.4	20.8
276763	2004	GD <sub>42</sub>	16.5	X	138.07349	98.33863	93.32830	6.89850	0.0864730	0.26603005	2.3943203	20	9 29.5	20.0
276764	2004	GN <sub>42</sub>	17.3	X	131.40078	55.89431	171.55312	4.25209	0.1018060	0.26969653	2.3725706	20	11 5.9	20.8
276765	2004	GB <sub>45</sub>	17.7	X	275.90575	221.14760	292.68191	2.28467	0.1138759	0.28596153	2.2817303	20	—	—
276766	2004	GM <sub>60</sub>	17.3	X	119.17867	52.48261	179.60769	6.58768	0.1241660	0.26809106	2.3820333	20	10 30.9	20.8
276767	2004	GM <sub>64</sub>	16.5	X	41.91307	23.20295	2.11773	7.14294	0.1189034	0.28300781	2.2975789	20	—	—
276768	2004	GR <sub>71</sub>	16.1	X	316.96221	155.58424	100.04638	5.15736	0.2695869	0.18251444	3.0780185	20	3 9.6	20.1
276769	2004	GO <sub>87</sub>	16.7	X	149.42763	244.44297	172.10481	23.80639	0.2486433	0.28207016	2.3026678	20	—	—
276770	2004	HC	19.9	X	237.44864	159.35790	202.98956	28.98090	0.5986569	1.40589196	0.7891655	20	2 10.7	21.0
276771	2004	HN <sub>18</sub>	16.7	X	232.95243	320.31539	284.94576	3.45521	0.0566136	0.28916545	2.2648448	20	—	—
276772	2004	HG <sub>28</sub>	16.9	X	180.78263	199.82406	82.93344	5.20604	0.1327861	0.28401291	2.2921550	20	—	—
276773	2004	HT <sub>34</sub>	17.7	X	210.98987	13.07720	110.10402	6.02034	0.1269173	0.28413227	2.2915131	20	—	—
276774	2004	HK <sub>38</sub>	17.2	X	108.64094	111.69281	217.05830	5.87277	0.2199305	0.26858378	2.3791192	20	11 26.7	21.3
276775	2004	HS <sub>48</sub>	16.9	X	221.11147	322.27969	273.05770	6.99846	0.1714500	0.28464937	2.2887371	20	—	—
276776	2004	HU <sub>49</sub>	17.1	X	192.91624	138.54479	74.03109	8.00823	0.1551331	0.27809224	2.3245745	20	12 17.6	20.2
276777	2004	HW <sub>59</sub>	17.1	X	201.40776	145.34333	101.82645	3.23028	0.1819464	0.28180167	2.3041302	20	—	—
276778	2004	HD <sub>65</sub>	17.7	X	92.04476	270.44926	327.35411	1.68434	0.1385714	0.26432400	2.4046118	20	10 8.4	21.0
276779	2004	JO <sub>13</sub>	17.3	X	80.37050	351.59562	261.93455	4.10026	0.1472605	0.26301295	2.4125961	20	10 15.8	20.8
276780	2004	JR <sub>13</sub>	17.4	X	170.78575	217.35982	66.64526	6.41985	0.1649700	0.28192996	2.3034311	20	—	—
276781	2004	Montchaibeux	17.0	X	127.92802	234.91327	56.12964	7.68037	0.1065624	0.27549503	2.3391615	20	—	—
276782	2004	JP <sub>28</sub>	17.4	X	117.59017	24.60422	206.10754	4.84534	0.1850688	0.26596747	2.3946959	20	10 28.4	21.0
276783	2004	JE <sub>33</sub>	17.2	X	173.43835	81.05073	193.16072	6.30660	0.1061198	0.28145187	2.3060389	20	—	—
276784	2004	JC <sub>43</sub>	16.9	X	135.84552	185.50430	88.13743	7.20860	0.1532196	0.27289322	2.3540059	20	—	—
276785	2004	KA <sub>1</sub>	18.2	X	238.12206	258.15499	85.30997	14.49634	0.1528734	0.42518861	1.7515195	20	4 5.5	20.6
276786	2004	KD <sub>1</sub>	17.7	X	35.75000	9.90234	271.49570	10.12515	0.3304064	0.43705745	1.7196644	20	11 25.1	20.0
276787	2004	KV <sub>5</sub>	17.0	X	137.98139	60.16491	227.93108	12.59609	0.2027949	0.27525807	2.3405038	20	—	—
276788	2004	KR <sub>18</sub>	15.6	X	16.95614	212.98462	65.66094	10.09125	0.2350652	0.18748314	3.0233927	20	8 28.9	19.0
276789	2004	LA <sub>26</sub>	16.7	X	271.22080	155.75925	165.51761	4.40279	0.2721941	0.23347967	2.6119809	20	4 1.7	20.6
276790	2004	NQ <sub>5</sub>	17.0	X	59.97667	304.21070	3.39323	3.49807	0.1722789	0.25977882	2.4325786	20	12 5.2	20.6
276791	2004	NT <sub>6</sub>	16.6	X	241.76027	193.06702	119.68011	9.88428	0.3111929	0.22690111	2.6622263	20	2 26.9	21.4
276792	2004	NO <sub>14</sub>												

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
276801 2004 <i>PM</i>	16.6	X	192.74080	154.89897	184.75707	9.13919	0.2090654	0.22229323	2.6988903	20	2 21.3	21.2
276802 2004 <i>PZ</i> <sub>2</sub>	17.8	X	69.50264	275.02114	44.04032	2.07291	0.2033570	0.26197489	2.4189651	20	—	—
276803 2004 <i>PJ</i> <sub>10</sub>	17.2	X	101.44824	159.14066	123.73925	2.28075	0.1696880	0.26268522	2.4146024	20	12 15.6	21.1
276804 2004 <i>PU</i> <sub>10</sub>	17.4	X	120.09454	72.02153	210.86312	2.83046	0.2011817	0.26657083	2.3910811	20	—	—
276805 2004 <i>PT</i> <sub>18</sub>	17.5	X	38.23649	128.64375	181.49302	2.23200	0.1741410	0.25436206	2.4669925	20	11 13.3	20.6
276806 2004 <i>PQ</i> <sub>19</sub>	16.9	X	336.97747	278.27710	4.61580	4.32430	0.2659747	0.24034180	2.5620239	20	5 17.9	18.9
276807 2004 <i>PP</i> <sub>21</sub>	16.6	X	297.46889	144.64906	134.24304	4.30615	0.1024256	0.23361745	2.6109539	20	4 1.9	19.9
276808 2004 <i>PD</i> <sub>24</sub>	16.8	X	55.53863	154.33108	155.83139	2.92947	0.2010128	0.25815533	2.4427667	20	12 7.7	20.2
276809 2004 <i>PE</i> <sub>28</sub>	16.1	X	94.06919	129.90657	251.48063	6.80906	0.2453870	0.20964633	2.8063675	20	1 14.8	19.7
276810 2004 <i>PL</i> <sub>29</sub>	17.0	X	62.75930	140.71067	150.42220	0.48493	0.1189880	0.25586371	2.4573306	20	11 10.8	20.2
276811 2004 <i>PF</i> <sub>31</sub>	16.5	X	317.90972	310.63985	319.61779	12.89220	0.1455678	0.23521094	2.5991481	20	4 3.8	19.9
276812 2004 <i>PN</i> <sub>33</sub>	17.0	X	252.98170	165.92424	141.85361	2.84952	0.1915197	0.22902969	2.6457057	20	3 6.9	21.1
276813 2004 <i>PZ</i> <sub>39</sub>	15.8	X	185.86817	352.22718	321.46673	8.59170	0.1380730	0.21668593	2.7452522	20	1 17.8	20.2
276814 2004 <i>PK</i> <sub>53</sub>	16.8	X	288.23152	16.14282	3.11058	3.29803	0.1375215	0.24517902	2.5282141	20	8 1.2	19.6
276815 2004 <i>PY</i> <sub>57</sub>	16.9	X	8.75949	55.19168	242.95233	2.34437	0.1545077	0.24785727	2.5099685	20	9 3.1	19.4
276816 2004 <i>PQ</i> <sub>58</sub>	16.9	X	329.51040	25.31176	269.36123	3.52757	0.1886836	0.24054898	2.5605526	20	6 1.1	19.1
276817 2004 <i>PX</i> <sub>60</sub>	16.7	X	206.19639	41.72499	291.55759	3.86241	0.1926201	0.22264622	2.6960369	20	2 24.9	21.2
276818 2004 <i>PU</i> <sub>69</sub>	16.2	X	231.71589	324.60321	350.61713	13.25447	0.1224442	0.22421281	2.6834639	20	3 1.9	20.4
276819 2004 <i>PZ</i> <sub>75</sub>	16.3	X	178.95535	107.68266	143.23168	23.65127	0.2294910	0.27342664	2.3509433	20	—	—
276820 2004 <i>PR</i> <sub>81</sub>	17.2	X	81.40665	197.88014	123.53694	2.16577	0.1959254	0.26270199	2.4144996	20	—	—
276821 2004 <i>PJ</i> <sub>82</sub>	16.2	X	347.58698	174.99248	140.89906	6.22691	0.0217058	0.24492930	2.5299322	20	8 15.1	19.3
276822 2004 <i>PL</i> <sub>91</sub>	16.3	X	234.96780	323.74476	72.02777	6.46603	0.2762290	0.23055182	2.6340479	20	5 30.9	20.8
276823 2004 <i>PN</i> <sub>98</sub>	17.0	X	101.23535	214.69415	100.65656	6.36094	0.2362472	0.26613496	2.3936911	20	—	—
276824 2004 <i>PV</i> <sub>98</sub>	16.0	X	158.60731	230.64094	121.69816	13.26333	0.1642269	0.21760513	2.7375158	20	2 8.6	20.4
276825 2004 <i>PM</i> <sub>101</sub>	17.1	X	319.52009	323.72731	325.53235	9.33572	0.2816046	0.29952965	2.2122940	20	4 23.7	19.2
276826 2004 <i>PT</i> <sub>101</sub>	16.0	X	317.92697	351.15594	359.17681	12.58736	0.2487533	0.24029188	2.5623787	20	8 1.1	18.3
276827 2004 <i>PD</i> <sub>103</sub>	16.3	X	270.77727	136.80979	179.28957	11.94281	0.2611795	0.23172639	2.6251395	20	3 26.8	20.3
276828 2004 <i>PN</i> <sub>103</sub>	16.4	X	252.69470	105.34789	279.09854	3.63344	0.2948869	0.23317228	2.6142760	20	5 30.0	20.7
276829 2004 <i>PQ</i> <sub>108</sub>	16.7	X	232.49464	316.79604	3.15478	3.04859	0.2102382	0.22587871	2.6702536	20	3 2.7	21.0
276830 2004 <i>PK</i> <sub>113</sub>	17.3	X	90.98483	117.34866	320.84314	6.23812	0.2711201	0.26176890	2.4202340	20	12 5.4	21.6
276831 2004 <i>QW</i> <sub>2</sub>	17.4	X	108.62567	207.86750	50.07025	1.40774	0.1882083	0.26016059	2.4301983	20	11 21.9	21.3
276832 2004 <i>QC</i> <sub>5</sub>	16.9	X	80.51143	258.63733	38.68776	4.99746	0.2215552	0.26076256	2.4264568	20	12 17.1	20.8
276833 2004 <i>QW</i> <sub>14</sub>	17.2	X	70.32327	100.18737	213.07700	5.56939	0.1758476	0.25960855	2.4336422	20	12 23.4	20.9
276834 2004 <i>QW</i> <sub>26</sub>	15.3	X	329.74827	36.08743	281.39048	9.21330	0.0384875	0.17818258	3.1277057	20	7 15.4	19.5
276835 2004 <i>RK</i> <sub>2</sub>	17.3	X	334.17416	224.62271	225.03233	20.05773	0.0742232	0.38704048	1.8647980	20	—	—
276836 2004 <i>RL</i> <sub>2</sub>	17.3	X	221.44185	299.20275	231.94187	19.04869	0.0684213	0.38305316	1.8777165	20	—	—
276837 2004 <i>RC</i> <sub>5</sub>	17.2	X	90.23034	230.05153	64.98076	4.49263	0.1954819	0.25988312	2.4319277	20	12 21.1	21.0
276838 2004 <i>RP</i> <sub>13</sub>	16.7	X	306.31235	117.75274	167.42251	14.32742	0.1691227	0.23300989	2.6154905	20	4 13.7	20.0
276839 2004 <i>RN</i> <sub>14</sub>	17.0	X	100.26132	33.59451	245.15469	2.87397	0.1481705	0.25991449	2.4317321	20	12 7.9	20.5
276840 2004 <i>RL</i> <sub>15</sub>	16.5	X	85.74155	156.06481	162.07475	14.05535	0.2616627	0.26526688	2.3989104	20	—	—
276841 2004 <i>RI</i> <sub>18</sub>	16.2	X	235.27000	324.62961	339.55203	5.29555	0.1790900	0.22395686	2.6855081	20	2 17.1	20.6
276842 2004 <i>RZ</i> <sub>20</sub>	16.3	X	89.56352	53.78864	333.23068	4.10033	0.1059723	0.20943175	2.8082840	20	—	—
276843 2004 <i>RY</i> <sub>22</sub>	17.1	X	311.45402	335.46847	13.87371	1.82778	0.0603390	0.24257654	2.5462645	20	8 5.8	20.1
276844 2004 <i>RB</i> <sub>35</sub>	15.9	X	195.98172	312.34335	17.28286	6.20390	0.0433364	0.21943475	2.7222778	20	2 14.3	19.8
276845 2004 <i>RS</i> <sub>44</sub>	16.8	X	270.17391	130.65879	171.83960	15.22619	0.1571694	0.22964183	2.6410019	20	3 21.4	20.7
276846 2004 <i>RI</i> <sub>48</sub>	17.2	X	72.94346	234.51118	65.74454	2.07128	0.1651223	0.25756806	2.4464784	20	12 8.7	20.7
276847 2004 <i>RW</i> <sub>51</sub>	16.3	X	62.39204	177.54300	159.61237	12.65531	0.2154432	0.26011949	2.4304543	20	—	—
276848 2004 <i>RK</i> <sub>64</sub>	16.5	X	183.98128	198.92378	195.35990	3.53882	0.1817700	0.22519604	2.6756474	20	4 20.9	21.0
276849 2004 <i>RW</i> <sub>78</sub>	16.6	X	290.95443	14.28562	358.12646	10.10526	0.1680706	0.23946733	2.5682573	20	7 23.3	19.7
276850 2004 <i>RE</i> <sub>79</sub>	16.4	X	99.67297	318.10809	53.53376	2.80604	0.0957295	0.20528732	2.8459546	20	—	—
276851 2004 <i>RU</i> <sub>86</sub>	16.5	X	165.67552	29.49823	10.79955	14.30651	0.2478137	0.22273536	2.6953176	20	4 12.5	21.2
276852 2004 <i>RK</i> <sub>91</sub>	16.9	X	335.14594	73.43864	210.07955	4.02972	0.1903906	0.23924124	2.5698751	20	5 27.3	19.2
276853 2004 <i>RA</i> <sub>93</sub>	16.3	X	306.23061	130.44902	129.98979	8.50539	0.0472789	0.24279350	2.5447474	20	7 27.8	19.6
276854 2004 <i>RJ</i> <sub>107</sub>	15.9	X	243.77808	61.11227	323.97464	9.69026	0.0948097	0.17269730	3.1935889	20	6 12.1	20.7
276855 2004 <i>RB</i> <sub>126</sub>	16.3	X	314.22865	9.47713	280.59377	1.18199	0.0407023	0.17060255	3.2196774	20	5 19.4	20.8
276856 2004 <i>RK</i> <sub>130</sub>	17.0	X	207.13003	332.24969	351.04532	3.09043	0.0762824	0.22069328	2.7119185	20	2 16.9	21.0
276857 2004 <i>RX</i> <sub>137</sub>	16.7	X	82.55798	50.55359	226.60508	12.19809	0.2122086	0.25785691	2.4446510	20	11 23.9	20.6
276858 2004 <i>RN</i> <sub>145</sub>	17.2	X	309.47135	342.20957	22.48804	3.04285	0.1878301	0.24392994	2.5368375	20	8 10.6	19.5
276859 2004 <i>RD</i> <sub>147</sub>	17.0	X	128.04011	205.42156	157.78617	2.99598	0.1922573	0.21153665	2.7896238	20	1 25.9	21.1
276860 2004 <i>RD</i> <sub>148</sub>	16.0	X	114.25449	247.91157	128.59533	6.69989	0.0516817	0.21134163	2.7913396	20	1 7.0	19.8
276861 2004 <i>RX</i> <sub>149</sub>	16.8	X	119.70876	309.83945	46.56368	3.27849	0.1962024	0.20982494	2.8047747	20	1 9.6	20.9
276862 2004 <i>RN</i> <sub>153</sub>	16.4	X	59.08582	115.07924	299.46403	6.48587	0.2905876	0.20506346	2.8480254	20	1 8.9	18.9
276863 2004 <i>RW</i> <sub>154</sub>	17.4	X	319.89276	147.00520	186.45939	15.03727	0.1534410	0.24176455	2.5519626	20	7 14.2	20.4
276864 2004 <i>RZ</i> <sub>158</sub>	16.4	X	155.64832	203.60226	210.91485	4.61027	0.2674545	0.22124695	2.7073923	20	4 24.9	21.1
276865 2004 <i>RC</i> <sub>168</sub>	16.5	X	98.70191	88.51921	225.00975	5.84066	0.1418568	0.26578370	2.3957996	20	—	—
276866 2004 <i>RH</i> <sub>169</sub>	16.7	X	35.77500	109.95005	153.73400	3.10563	0.0584818	0.24295879	2.5435931	20	8 16.5	19.8
276867 2004 <i>RG</i> <sub>171</sub>	16.7	X	113.86049	197.16145	187.24054	3.97854	0.1501711	0.21341202	2.7732571	20	1 28.9	20.6
276868 2004 <i>RQ</i> <sub>182</sub>	16.6	X	351.72454	340.71999	332.52828	10.18876	0.1230556	0.24329188	2.5412710	20	8 21.7	19.0
276869 2004 <i>RP</i> <sub>188</sub>	16.6	X	130.98192	54.59322	309.07755	7.17924	0.2434009	0.21133745	2.7913765	20	2 3.2	20.9
276870 2004 <i>RO</i> <sub>190</sub>	16.2	X	272.54302	144.43491	208.56438	14.17091	0.1503412	0.23378657	2.6096946	20	5 29.9	19.9
276871 2004 <i>RT</i> <sub>201</sub>	17.4	X	323.41030	290.43836	14.58223	3.44383	0.1569315	0.23569510	2.5955875	20	6 8.8	20.2
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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>		
276881	2004	RS <sub>253</sub>	16.2	X	180.17196	281.97441	135.96493	11.48008	0.1230452	0.22934096	2.6433112	20	5 19.6	20.5
276882	2004	RZ <sub>273</sub>	17.2	X	266.09712	281.08824	91.39717	1.94428	0.0719189	0.23773150	2.5807438	20	6 28.7	20.6
276883	2004	RH <sub>277</sub>	16.6	X	358.15290	46.65757	274.21705	5.63854	0.1716680	0.24527029	2.5275868	20	9 15.8	19.1
276884	2004	RC <sub>286</sub>	17.1	X	254.75844	326.65465	39.76040	2.68338	0.1243504	0.23435929	2.6054412	20	5 28.5	20.8
276885	2004	RS <sub>306</sub>	15.9	X	238.19250	320.09336	55.98368	14.42036	0.2582012	0.22851419	2.6496831	20	5 11.2	20.2
276886	2004	RP <sub>307</sub>	16.7	X	233.90380	199.92550	188.37285	8.46075	0.1589894	0.23263764	2.6182799	20	5 31.3	20.8
276887	2004	RF <sub>313</sub>	16.3	X	150.27375	276.15916	186.00656	12.58722	0.1233403	0.22984596	2.6394380	20	6 12.1	20.6
276888	2004	RM <sub>323</sub>	17.3	X	348.29999	49.89538	255.35047	5.56506	0.3901860	0.24425394	2.5345936	20	8 9.7	17.6
276889	2004	RK <sub>333</sub>	16.9	X	289.43850	242.83941	133.17514	7.52903	0.1998626	0.24066287	2.5597447	20	7 16.8	19.9
276890	2004	RU <sub>333</sub>	17.1	X	319.81395	234.47247	122.37997	7.00961	0.2291047	0.24388142	2.5371739	20	8 15.9	19.0
276891	2004	RH <sub>340</sub>	19.4	X	248.28929	335.41968	51.56086	26.11125	0.3812706	0.66914625	1.2945595	20	5 16.5	20.1
276892	2004	RD <sub>341</sub>	15.5	X	316.88862	73.58887	227.34806	15.24637	0.2331060	0.17698842	3.1417586	20	5 11.5	19.0
276893	2004	RS <sub>343</sub>	16.1	X	242.70635	290.08554	77.91637	14.44975	0.0612467	0.23014522	2.6371495	20	5 25.7	19.7
276894	2004	RR <sub>345</sub>	16.3	X	330.03547	282.09309	51.66941	13.88700	0.1624168	0.24261457	2.5459984	20	8 14.9	19.1
276895	2004	RH <sub>346</sub>	17.2	X	52.05262	237.26528	67.84558	2.15859	0.1780018	0.25462441	2.4652976	20	11 23.7	20.6
276896	2004	RX <sub>346</sub>	15.9	X	330.55778	110.52030	221.43732	13.93509	0.0706804	0.23892250	2.5721602	20	8 4.2	19.3
276897	2004	RH <sub>351</sub>	17.5	X	83.54818	91.51621	195.45627	0.93405	0.1729722	0.25728116	2.4482968	20	12 3.6	21.3
276898	2004	RF <sub>356</sub>	17.0	X	42.05259	252.05820	185.35085	4.23302	0.0461821	0.20573179	2.8418541	20	—	—
276899	2004	SL <sub>4</sub>	16.9	X	178.03300	102.60834	262.43904	2.91927	0.0889820	0.22199993	2.7012669	20	3 6.6	21.0
276900	2004	SB <sub>8</sub>	15.3	X	101.64171	355.83929	173.41811	17.18266	0.0685835	0.17231185	3.1983497	20	7 5.3	20.2
276901	2004	SF <sub>11</sub>	17.6	X	96.88531	290.26488	12.33996	14.80150	0.2886788	0.26379578	2.4078207	20	—	—
276902	2004	SE <sub>12</sub>	16.1	X	261.59788	291.90475	98.50722	14.41177	0.1064793	0.23778285	2.5803722	20	7 12.1	19.4
276903	2004	SC <sub>26</sub>	16.5	X	269.87127	313.00644	56.07586	14.34362	0.1229985	0.23488145	2.6015783	20	6 19.7	20.2
276904	2004	SO <sub>27</sub>	17.8	X	125.98205	102.73858	171.76096	10.89814	0.2485886	0.26417321	2.4055268	20	12 26.8	22.3
276905	2004	SM <sub>31</sub>	16.3	X	248.61763	358.38289	9.29785	13.70076	0.1698666	0.23172168	2.6251750	20	5 13.5	20.4
276906	2004	SD <sub>36</sub>	15.8	X	331.75672	304.76177	328.41748	14.19803	0.0577479	0.17118332	3.2123911	20	5 15.8	20.4
276907	2004	SE <sub>37</sub>	16.3	X	7.67083	175.93458	314.49299	7.75233	0.1485689	0.21242997	2.7817976	20	—	—
276908	2004	SU <sub>60</sub>	14.7	X	276.67241	313.80218	96.21476	16.73544	0.1174410	0.17387721	3.1791251	20	8 25.7	19.3
276909	2004	TZ <sub>4</sub>	16.8	X	184.41933	25.95197	337.86062	1.57611	0.1074790	0.21699617	2.7426350	20	3 13.8	20.9
276910	2004	TP <sub>10</sub>	18.0	X	240.91199	249.30026	197.83179	21.09232	0.1021891	0.367616257	1.9299341	20	9 17.3	20.1
276911	2004	TZ <sub>10</sub>	17.5	X	246.41920	65.29932	18.87527	21.54114	0.1208205	0.36889862	1.9254461	20	9 28.3	19.1
276912	2004	TC <sub>12</sub>	17.1	X	300.93349	226.43298	147.40312	3.95517	0.1666857	0.24118331	2.5560610	20	8 8.8	19.9
276913	2004	TS <sub>22</sub>	16.3	X	244.53601	343.66677	4.80072	19.06390	0.0703647	0.22810574	2.6528452	20	4 22.6	20.3
276914	2004	TC <sub>32</sub>	16.7	X	229.15385	41.35044	276.67781	2.88756	0.2483385	0.22194792	2.7016888	20	2 23.8	21.4
276915	2004	TS <sub>37</sub>	16.5	X	266.90773	93.97440	198.34154	3.21626	0.1411844	0.22275282	2.6951767	20	3 5.9	20.4
276916	2004	TS <sub>41</sub>	16.2	X	114.68071	78.25164	352.42851	4.38267	0.1435645	0.21479258	2.7613611	20	3 26.8	20.1
276917	2004	TJ <sub>59</sub>	16.9	X	77.42217	77.76526	21.28671	7.93955	0.1793224	0.21422850	2.7662062	20	3 23.5	20.2
276918	2004	TB <sub>72</sub>	17.4	X	122.63198	23.19104	45.66733	0.96838	0.0573691	0.21868304	2.7285127	20	3 23.3	21.0
276919	2004	TC <sub>80</sub>	16.9	X	299.34690	92.91635	265.42449	2.23365	0.0854745	0.23872015	2.5736135	20	7 25.7	19.9
276920	2004	TR <sub>91</sub>	17.1	X	316.85935	349.54399	158.10616	3.72533	0.1570142	0.23973102	2.5663737	20	8 2.6	19.6
276921	2004	TM <sub>98</sub>	17.1	X	333.63727	117.09094	386.43352	5.25897	0.0875087	0.23508757	2.6000574	20	7 2.5	20.1
276922	2004	TQ <sub>109</sub>	16.4	X	108.99079	344.81447	60.69944	5.49845	0.2043264	0.21073133	2.7967264	20	2 29.8	20.5
276923	2004	TS <sub>112</sub>	16.3	X	274.49207	152.21574	204.76031	13.47939	0.3048034	0.23271078	2.6177312	20	5 16.5	20.3
276924	2004	TL <sub>125</sub>	16.4	X	70.57578	311.95323	76.41072	2.15073	0.1032339	0.20390720	2.8587818	20	—	—
276925	2004	TM <sub>131</sub>	15.7	X	185.49635	213.04834	205.38045	12.20010	0.1607654	0.22413320	2.6840994	20	5 22.9	20.1
276926	2004	TL <sub>133</sub>	15.8	X	104.54098	212.55638	214.51849	12.61395	0.1586610	0.21101282	2.7942386	20	3 9.8	19.9
276927	2004	TQ <sub>138</sub>	15.9	X	158.26857	197.32719	222.28440	16.34681	0.1516249	0.22307845	2.6925533	20	4 27.5	20.2
276928	2004	TH <sub>144</sub>	16.5	X	318.28466	318.20127	47.96384	5.19929	0.1307126	0.24172034	2.5522738	20	9 7.8	19.2
276929	2004	TH <sub>146</sub>	16.9	X	263.27669	168.92200	184.58281	4.25520	0.1625859	0.23138937	2.6276879	20	5 17.7	20.7
276930	2004	TY <sub>156</sub>	16.3	X	75.07889	195.15698	26.77912	9.38154	0.1055925	0.23821812	2.5772281	20	8 26.0	19.9
276931	2004	TN <sub>161</sub>	16.4	X	320.91554	130.69194	226.80691	2.10516	0.1085575	0.23995198	2.5647980	20	8 27.7	19.2
276932	2004	TY <sub>161</sub>	16.7	X	228.01489	105.44284	215.85897	2.67958	0.3246277	0.22291600	2.6938613	20	3 2.0	21.6
276933	2004	TX <sub>176</sub>	17.7	X	70.91369	98.75919	199.66651	1.94412	0.1741951	0.25401723	2.4692246	20	12 4.9	21.4
276934	2004	TT <sub>188</sub>	16.3	X	107.43406	280.05769	202.86366	8.51838	0.1611455	0.22293420	2.6937146	20	5 27.9	20.3
276935	2004	TY <sub>200</sub>	16.3	X	41.57997	276.51159	194.22706	7.21276	0.0967692	0.20903139	2.8118688	20	1 29.3	19.8
276936	2004	TJ <sub>206</sub>	16.3	X	191.44942	186.65043	217.70206	4.96410	0.0553432	0.22273161	2.6953478	20	5 11.5	20.0
276937	2004	TY <sub>210</sub>	16.8	X	85.95018	70.91086	28.30805	3.63461	0.0679098	0.21633824	2.7481928	20	3 17.9	20.4
276938	2004	TK <sub>211</sub>	16.5	X	73.29327	25.40448	218.10114	14.86644	0.1947117	0.24156530	2.5533657	20	9 26.0	20.4
276939	2004	TL <sub>214</sub>	16.3	X	77.82003	300.45063	302.29375	8.88157	0.1840881	0.21980085	2.7192542	20	5 21.3	19.9
276940	2004	TR <sub>228</sub>	17.3	X	173.85062	92.83206	333.56636	1.45771	0.0646283	0.22624691	2.6673558	20	5 19.1	21.2
276941	2004	TR <sub>230</sub>	16.3	X	151.15494	75.21513	333.41536	4.49971	0.1236807	0.21916846	2.7244824	20	4 3.8	20.4
276942	2004	TE <sub>239</sub>	16.8	X	289.78240	131.29232	211.02019	13.16304	0.1411604	0.23329727	2.6133422	20	6 9.1	20.3
276943	2004	TK <sub>241</sub>	16.0	X	272.10894	320.81357	16.28145	14.65798	0.1059922	0.22878523	2.6475900	20	5 9.4	19.9
276944	2004	TX <sub>251</sub>	16.2	X	215.04149	81.56000	286.55648	1.39999	0.2071517	0.16273522	3.3226276	20	4 16.2	21.8
276945	2004	TJ <sub>255</sub>	16.6	X	129.52535	52.48882	52.59751	3.70324	0.1248316	0.22488472	2.6781162	20	5 24.1	20.5
276946	2004	TU <sub>266</sub>	16.9	X	265.11293	283.60845	52.60616	0.98670	0.1358356	0.22801887	2.6535189	20	4 29.9	20.7
276947	2004	TL <sub>272</sub>	16.6	X	203.56851	110.40026	260.58012	2.95896	0.1027016	0.22074120	2.7115261	20	4 9.7	20.9
276948	2004	TL <sub>279</sub>	16.3	X	190.25699	176.14304	223.05939	4.78197	0.0768872	0.22575748	2.6712095	20	5 2.8	20.1
276949	2004	TC <sub>284</sub>	17.2	X	92.67829	313.07418	342.45165	3.67948	0.2311844	0.25768888	2.4457136	20	12	

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
276961 2004 TX <sub>342</sub>	16.4	X	143.93187	210.24420	214.25902	2.81504	0.1859650	0.21756851	2.7378229	20	4 22.7	20.6
276962 2004 TJ <sub>343</sub>	15.8	X	243.80275	279.20912	36.93552	27.71016	0.1815827	0.22217504	2.6998474	20	3 24.1	20.5
276963 2004 TB <sub>369</sub>	17.1	X	50.78157	116.06242	277.73453	0.90520	0.1326099	0.19673379	2.9278584	20	—	—
276964 2004 TQ <sub>369</sub>	16.2	X	326.89277	251.85766	52.30043	12.23196	0.0535138	0.22953415	2.6418278	20	6 24.6	19.6
276965 2004 UU <sub>2</sub>	16.3	X	191.72899	265.29987	164.75466	14.83576	0.1529553	0.22902181	2.6457664	20	6 12.9	20.8
276966 2004 UE <sub>3</sub>	16.7	X	224.92064	213.14936	163.84205	12.34748	0.2105941	0.22720384	2.6598610	20	5 6.8	21.3
276967 2004 UH <sub>4</sub>	15.9	X	269.79135	100.42547	319.21067	15.04885	0.2252620	0.17597684	3.1537871	20	8 8.6	20.4
276968 2004 UZ <sub>10</sub>	16.0	X	216.30848	180.52217	227.70475	12.53774	0.2579534	0.22591027	2.6700050	20	6 1.5	20.6
276969 2004 VQ <sub>19</sub>	15.8	X	353.08310	265.29773	53.74631	15.40335	0.1206034	0.23773371	2.5807279	20	9 11.0	18.9
276970 2004 VG <sub>21</sub>	16.4	X	336.75111	283.45572	61.81252	14.79172	0.1573238	0.24006842	2.5639686	20	9 19.8	19.2
276971 2004 VL <sub>21</sub>	16.2	X	262.96438	310.63306	58.27979	13.77493	0.1859252	0.23127202	2.6285767	20	6 1.5	19.9
276972 2004 VE <sub>30</sub>	16.9	X	269.66129	277.78706	84.71590	3.61012	0.1348909	0.23105658	2.6302104	20	6 9.8	20.5
276973 2004 VT <sub>41</sub>	16.6	X	14.63789	220.20109	65.18945	4.38599	0.1268052	0.23592999	2.5938645	20	8 24.3	19.4
276974 2004 VY <sub>53</sub>	15.7	X	204.60350	293.10667	76.61249	9.24633	0.2054201	0.22006649	2.7170655	20	4 12.6	20.4
276975 Heller	16.3	X	27.23947	272.80106	266.18752	9.61812	0.0829344	0.21373923	2.7704260	20	4 2.3	19.8
276976 2004 VR <sub>70</sub>	16.5	X	181.67165	135.77700	233.88367	2.43351	0.2085788	0.21701128	2.7425076	20	3 19.9	21.2
276977 2004 VM <sub>74</sub>	16.3	X	285.28303	267.62090	77.00877	10.88526	0.2345523	0.23241778	2.6199308	20	5 22.8	19.7
276978 2004 VJ <sub>77</sub>	16.1	X	222.69975	332.13953	61.78827	5.36276	0.1119072	0.22674309	2.6634631	20	5 29.6	20.2
276979 2004 VE <sub>90</sub>	16.1	X	290.40058	74.41087	265.91725	7.35663	0.1919479	0.23088442	2.6315177	20	5 29.4	19.5
276980 2004 VJ <sub>94</sub>	16.8	X	268.50925	91.89754	85.03259	1.10057	0.1272624	0.19298213	2.9656825	20	—	—
276981 2004 WK	16.0	X	96.90506	6.50401	68.90663	11.23376	0.2079753	0.21075437	2.7965225	20	3 27.9	20.1
276982 2004 WD <sub>1</sub>	16.3	X	218.66579	131.89197	247.26850	4.83331	0.0674097	0.22281772	2.6946534	20	5 8.9	20.3
276983 2004 WM <sub>7</sub>	16.1	X	280.99856	301.35117	42.25340	8.94991	0.1186161	0.22909424	2.6452087	20	5 31.5	19.5
276984 2004 WG <sub>11</sub>	16.5	X	195.15115	316.66490	67.70494	3.91355	0.1097086	0.21865705	2.7287289	20	4 20.3	20.8
276985 2004 XO <sub>19</sub>	15.2	X	276.45878	14.93341	80.10259	22.90855	0.1006570	0.17981125	3.1087907	20	11 1.8	19.7
276986 2004 XW <sub>21</sub>	15.8	X	146.31210	312.77745	96.30176	6.67835	0.0437171	0.21213760	2.7843529	20	3 28.9	19.8
276987 2004 XH <sub>26</sub>	15.5	X	70.69143	28.68715	77.09651	11.60467	0.0954191	0.20532586	2.8455985	20	3 16.0	19.4
276988 2004 XQ <sub>26</sub>	16.5	X	303.70507	304.78827	60.21814	5.69372	0.2661222	0.23704420	2.5857299	20	7 15.1	19.1
276989 2004 XB <sub>27</sub>	15.8	X	182.40452	331.10184	83.26873	9.76035	0.0986030	0.22004586	2.7172353	20	5 15.8	20.0
276990 2004 XD <sub>30</sub>	16.4	X	178.81423	324.72548	71.59778	5.96492	0.1180193	0.21905173	2.7254503	20	4 19.8	20.7
276991 2004 XE <sub>32</sub>	15.9	X	17.11547	71.89154	249.14314	6.13725	0.2702297	0.24327977	2.5413553	20	11 9.6	18.6
276992 2004 XF <sub>38</sub>	15.2	X	242.43376	331.07068	126.23960	15.90984	0.2864278	0.17488641	3.1668830	20	8 19.6	20.3
276993 2004 XR <sub>40</sub>	15.8	X	213.08847	332.91792	53.12756	7.09666	0.0401628	0.22045609	2.7138634	20	5 13.8	19.5
276994 2004 XN <sub>43</sub>	15.9	X	353.87458	254.49475	76.92934	9.64441	0.1800396	0.23806091	2.5783626	20	10 2.4	18.5
276995 2004 XQ <sub>46</sub>	16.2	X	9.75985	16.26542	96.07606	3.27305	0.0766614	0.19643181	2.9308584	20	—	—
276996 2004 XA <sub>47</sub>	15.9	X	234.97843	253.80556	103.75869	6.08127	0.0846904	0.21879619	2.7275720	20	5 1.4	19.9
276997 2004 XA <sub>51</sub>	16.0	X	319.27258	221.43080	120.14887	16.52085	0.1815811	0.22810176	2.6528760	20	7 23.5	18.5
276998 2004 XE <sub>52</sub>	15.2	X	166.56115	298.92457	97.05145	13.80770	0.1492660	0.21509731	2.7587525	20	4 13.8	19.9
276999 2004 XA <sub>55</sub>	16.1	X	319.47334	280.25793	86.57064	15.97010	0.2601732	0.23902795	2.5714037	20	9 4.7	18.4
277000 2004 XM <sub>72</sub>	16.6	X	95.84201	256.75178	168.80586	4.52516	0.0538048	0.20827337	2.8186872	20	2 14.1	20.3
277001 2004 XW <sub>72</sub>	15.8	X	2.34636	226.58574	105.72392	7.90730	0.1765865	0.24186923	2.5512262	20	10 19.8	18.5
277002 2004 XX <sub>72</sub>	15.6	X	174.17338	286.41604	97.10902	7.67101	0.0642668	0.21507458	2.7589468	20	3 30.5	19.8
277003 2004 XY <sub>75</sub>	15.8	X	227.11927	277.32614	71.16991	14.81493	0.2378166	0.22148932	2.7054169	20	4 5.4	20.8
277004 2004 XR <sub>79</sub>	16.1	X	298.44984	19.76563	56.63414	3.64215	0.1609826	0.18104190	3.0946864	20	10 22.2	19.7
277005 2004 XC <sub>106</sub>	15.6	X	30.86484	99.61509	279.67748	9.34983	0.2107162	0.19008550	2.9957350	20	—	—
277006 2004 XP <sub>117</sub>	15.9	X	43.99815	38.36020	86.57674	16.09470	0.0962934	0.20366223	2.8610737	20	3 1.9	19.7
277007 2004 XP <sub>120</sub>	15.9	X	302.35860	263.04215	71.01427	15.61168	0.1071417	0.22856241	2.6493104	20	6 21.2	19.1
277008 2004 XV <sub>130</sub>	17.4	X	148.32344	85.99929	75.37892	22.99647	0.0893511	0.35866701	1.9618920	20	9 23.3	20.5
277009 2004 XA <sub>134</sub>	16.2	X	296.35551	309.10409	44.84358	10.83201	0.2924129	0.23471690	2.6027941	20	6 8.3	19.5
277010 2004 XJ <sub>135</sub>	16.2	X	323.02194	333.37292	40.13386	6.85417	0.2881951	0.24090484	2.5580304	20	9 19.8	17.6
277011 2004 YZ <sub>21</sub>	16.5	X	330.76560	346.01399	105.55690	2.39543	0.1947968	0.18363086	3.0655302	20	—	—
277012 2004 YH <sub>35</sub>	16.8	X	130.80104	315.36791	91.97252	3.22347	0.0742592	0.20555082	2.8435219	20	3 10.6	20.9
277013 2005 AW <sub>16</sub>	15.6	X	227.81301	263.43010	115.86711	13.93173	0.1791266	0.22024560	2.7159233	20	5 15.9	20.2
277014 2005 AG <sub>17</sub>	15.4	X	185.23790	260.99196	110.75123	17.96009	0.1774703	0.21088711	2.7953489	20	4 3.3	20.4
277015 2005 AN <sub>32</sub>	15.7	X	259.06408	340.93958	108.82946	6.35809	0.1614072	0.17212368	3.2006803	20	9 13.3	20.3
277016 2005 AK <sub>33</sub>	15.7	X	266.22229	33.40486	116.30234	23.94735	0.2666560	0.17966438	3.1104846	20	11 26.2	20.2
277017 2005 AL <sub>37</sub>	16.6	X	120.39228	109.09625	74.17723	5.28593	0.1667083	0.22189595	2.7021107	20	8 29.3	20.9
277018 2005 AC <sub>44</sub>	16.2	X	332.16873	29.59620	79.80729	2.92718	0.1018411	0.18506472	3.0496755	20	—	—
277019 2005 AS <sub>56</sub>	16.1	X	220.50244	302.48779	74.35870	16.84670	0.3227065	0.22064769	2.7122921	20	4 30.3	21.2
277020 2005 AV <sub>57</sub>	15.8	X	11.75904	41.94663	7.28791	12.27388	0.3358454	0.18823540	3.0153324	20	—	—
277021 2005 AR <sub>68</sub>	17.6	X	180.55086	56.37850	83.71987	3.31465	0.1047209	0.29006858	2.2601413	20	9 8.3	20.7
277022 2005 AO <sub>75</sub>	16.2	X	267.06356	164.82142	121.68602	10.31842	0.1028713	0.20431532	2.8549736	20	3 9.1	20.4
277023 2005 AA <sub>81</sub>	16.0	X	120.44942	291.30762	117.97676	13.19201	0.0443017	0.20052068	2.8908792	20	2 27.9	20.1
277024 2005 AG <sub>82</sub>	15.8	X	3.01633	356.34795	106.78258	10.47822	0.1224322	0.18876892	3.0096481	20	—	—
277025 2005 BD <sub>4</sub>	16.1	X	178.61682	233.59262	159.69105	4.81177	0.0801716	0.21079121	2.7961967	20	4 14.8	20.2
277026 2005 BA <sub>8</sub>	15.7	X	298.66085	130.70771	103.10515	10.64613	0.0700517	0.19996138	2.8962673	20	2 14.7	19.7
277027 2005 CW <sub>1</sub>	15.8	X	277.26526	52.40033	128.03731	10.11473	0.1122649	0.18498527	3.0505487	20	—	—
277028 2005 CO <sub>5</sub>	15.6	X	283.95675	152.26831	335.26923	12.73049	0.1303903	0.17798397	3.1300321	20	12 3.7	19.8
277029 2005 CG <sub>7</sub>	15.9	X	21.68793	74.45337	315.87594	16.95523	0.0931274	0.18009898	3.1054787	20	—	—
277030 2005 CM <sub>10</sub>	16.5	X	350.86197	73.49481	16.94720	5.20897	0.1171247	0.18320440	3.0702857	20	—	—
277031 2005 CQ <sub>13</sub>	15.7	X	19.58174	337.09870	115.59819	10.84374	0.0875461	0.18895638	3.0076572	20	—	—
277032 2005 CK <sub>21</sub>	15.3	X	259.45447	28.61808	138.59793	14.53590	0.1417921	0.17695987	3.1420966	20	12 19.7	19.7
277033 2005 CR <sub>24</sub>	16.5	X	285.81649	289.31573	184.17341	9.16910	0.2544749	0.17808942	3.1287964	20	11 5.3	20.3
277034 2005 CA <sub>29</sub>	16.1	X	33									

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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>		
277041	2005	CT <sub>57</sub>	16.4	X	159.40839	211.22421	242.35503	5.11644	0.1775786	0.21520486	2.7578332	20	6 11.5	20.8
277042	2005	CK <sub>60</sub>	17.1	X	240.47508	11.67894	87.54772	5.04006	0.0844110	0.29501341	2.2348148	20	10 1.7	19.7
277043	2005	CB <sub>62</sub>	15.3	X	236.88246	81.12613	122.71866	25.96023	0.2917622	0.17542958	3.1603426	20	12 19.0	20.4
277044	2005	CB <sub>66</sub>	15.8	X	273.18699	178.82400	355.35894	7.47306	0.1024383	0.18037849	3.1022697	20	—	—
277045	2005	CC <sub>81</sub>	15.6	X	311.78520	109.73539	71.70066	11.56038	0.0759903	0.18999931	2.9966409	20	—	—
277046	2005	DO <sub>3</sub>	16.2	X	202.64810	170.47362	160.43188	13.93207	0.0971314	0.19561116	2.9390499	20	2 22.8	20.7
277047	2005	ES <sub>18</sub>	15.8	X	18.17897	44.87871	2.07548	9.92183	0.0870712	0.17543891	3.1602306	20	—	—
277048	2005	EM <sub>22</sub>	15.5	X	21.48229	234.62948	160.24810	26.95764	0.1126272	0.17746244	3.1361614	20	—	—
277049	2005	EP <sub>25</sub>	15.5	X	3.31762	79.09454	355.99632	11.18225	0.0577522	0.17932947	3.1143561	20	—	—
277050	2005	EZ <sub>27</sub>	15.0	X	234.89452	223.46172	348.54737	24.37249	0.0671812	0.17852814	3.1236684	20	—	—
277051	2005	EU <sub>31</sub>	16.4	X	105.59595	229.94737	162.01393	11.33280	0.0808772	0.19058858	2.9904609	20	1 21.8	20.7
277052	2005	ES <sub>33</sub>	16.6	X	117.47792	322.13929	229.49908	20.82139	0.0332074	0.35034684	1.9928315	20	8 29.4	19.4
277053	2005	EO <sub>37</sub>	16.2	X	274.94138	41.32243	185.50797	10.95653	0.0177860	0.19062612	2.9900684	20	1 13.0	20.6
277054	2005	EB <sub>48</sub>	16.0	X	340.73954	79.71782	359.04764	14.20377	0.2162263	0.17992555	3.1074739	20	—	—
277055	2005	ET <sub>55</sub>	16.2	X	112.80397	206.46950	169.79545	10.62777	0.0570673	0.18750220	3.0231879	20	1 9.1	20.6
277056	2005	ES <sub>62</sub>	16.4	X	236.83855	69.33341	152.14787	1.97573	0.1236489	0.18084271	3.0969584	20	—	—
277057	2005	EN <sub>65</sub>	15.8	X	111.64492	2.95526	344.63910	9.08956	0.0636359	0.18210979	3.0825765	20	—	—
277058	2005	EO <sub>74</sub>	16.3	X	330.57661	299.08268	166.11688	9.60274	0.2517142	0.18305042	3.0720072	20	—	—
277059	2005	EP <sub>75</sub>	16.5	X	244.36123	145.25520	11.98732	0.33416	0.0774755	0.17037071	3.2225977	20	11 25.1	21.1
277060	2005	EX <sub>79</sub>	15.5	X	249.80578	64.08689	112.53690	6.96731	0.0977443	0.17459911	3.1703560	20	12 23.1	19.9
277061	2005	ED <sub>81</sub>	16.0	X	319.09224	178.26727	340.72248	8.27824	0.0711806	0.18519015	3.0482983	20	—	—
277062	2005	EE <sub>83</sub>	15.5	X	327.08236	101.19970	353.87794	10.71281	0.0478016	0.17449242	3.1716482	20	—	—
277063	2005	EZ <sub>84</sub>	15.0	X	260.29148	164.62970	24.56579	17.71297	0.1482688	0.17783167	3.1318189	20	—	—
277064	2005	ET <sub>85</sub>	16.2	X	294.15461	107.25370	23.97996	6.41729	0.2213493	0.17842729	3.1248454	20	12 15.7	19.8
277065	2005	EX <sub>88</sub>	15.7	X	190.87686	114.24084	169.82772	12.82941	0.0432453	0.18574069	3.0422718	20	1 3.0	20.4
277066	2005	EC <sub>93</sub>	15.6	X	276.44740	108.62340	102.55768	17.43763	0.1653998	0.18524767	3.0476672	20	—	—
277067	2005	EM <sub>108</sub>	15.1	X	244.46854	290.87104	288.27028	7.52442	0.0974386	0.18134590	3.0912269	20	—	—
277068	2005	EG <sub>112</sub>	15.3	X	274.41823	2.68392	161.62205	17.59448	0.1527051	0.17650478	3.1474952	20	—	—
277069	2005	EK <sub>112</sub>	15.9	X	326.70376	344.85583	160.58398	9.91405	0.0536748	0.18284855	3.0742679	20	—	—
277070	2005	EU <sub>115</sub>	16.0	X	279.36253	298.51734	169.82772	5.38881	0.1472570	0.17058975	3.2198386	20	11 2.6	20.2
277071	2005	EZ <sub>117</sub>	15.0	X	229.62375	289.79742	304.12789	18.89036	0.1360329	0.18071995	3.0983607	20	—	—
277072	2005	EF <sub>127</sub>	15.9	X	222.59174	104.26161	139.17258	11.05109	0.0630620	0.18569401	3.0427817	20	—	—
277073	2005	EC <sub>133</sub>	15.5	X	331.22173	17.25267	94.43198	12.60867	0.2190311	0.18329472	3.0692769	20	—	—
277074	2005	EZ <sub>139</sub>	15.2	X	316.83607	35.07635	106.31487	11.62350	0.0514144	0.17917371	3.1161608	20	—	—
277075	2005	EB <sub>143</sub>	15.0	X	270.04210	16.94339	179.00765	23.98352	0.1560495	0.17914915	3.1164455	20	—	—
277076	2005	EB <sub>153</sub>	15.5	X	263.86309	57.51567	98.63449	20.12314	0.2236531	0.17413904	3.1759375	20	12 2.1	19.9
277077	2005	EU <sub>153</sub>	15.4	X	224.55297	114.62658	123.48059	26.62953	0.2507888	0.17562402	3.1580095	20	—	—
277078	2005	EV <sub>153</sub>	14.9	X	186.21029	209.49580	58.54070	28.72147	0.1509756	0.17522899	3.1627540	20	—	—
277079	2005	EY <sub>156</sub>	16.1	X	101.45712	345.32496	353.49999	9.45030	0.0841369	0.17621780	3.1509115	20	—	—
277080	2005	EU <sub>164</sub>	16.0	X	316.79231	290.08850	169.03214	10.03812	0.2109531	0.17620633	3.1510481	20	12 19.3	19.4
277081	2005	EK <sub>169</sub>	17.2	X	241.88221	252.43072	161.07979	23.57271	0.0889024	0.35058003	1.9919477	20	7 27.5	19.8
277082	2005	EH <sub>173</sub>	15.7	X	272.06332	166.36399	325.68055	5.66868	0.1417121	0.17255595	3.1953327	20	11 19.7	20.0
277083	2005	EK <sub>176</sub>	16.0	X	108.15892	343.73097	352.61190	8.86379	0.0886907	0.17739125	3.1370005	20	—	—
277084	2005	EF <sub>177</sub>	16.0	X	282.19968	114.95000	329.78106	13.90644	0.0345763	0.17047967	3.2212245	20	10 14.5	20.7
277085	2005	ES <sub>185</sub>	16.0	X	250.84120	338.67427	207.28082	9.95534	0.1650922	0.17648243	3.1477609	20	12 25.8	20.5
277086	2005	ET <sub>201</sub>	15.7	X	345.32034	30.85897	86.69957	17.81017	0.1608554	0.18610390	3.0383122	20	—	—
277087	2005	EK <sub>204</sub>	15.8	X	201.68967	180.86915	58.95510	2.18976	0.1803511	0.17281895	3.1792091	20	—	—
277088	2005	EF <sub>211</sub>	15.9	X	297.38455	302.72722	209.09651	7.20160	0.0075369	0.17942502	3.1132503	20	—	—
277089	2005	EN <sub>215</sub>	16.2	X	22.02218	60.98537	206.33985	6.85783	0.2339016	0.20972677	2.8056499	20	8 17.8	19.3
277090	2005	EG <sub>223</sub>	15.5	X	310.46331	24.49292	97.47003	13.15737	0.1523599	0.17626729	3.1503217	20	—	—
277091	2005	EB <sub>235</sub>	16.4	X	270.07509	46.98562	164.23564	11.91520	0.0993194	0.18363130	3.0655253	20	—	—
277092	2005	EA <sub>242</sub>	15.9	X	354.98928	240.95191	39.98841	9.73405	0.1743815	0.21090076	2.7952283	20	7 8.0	18.8
277093	2005	EY <sub>260</sub>	15.6	X	324.93735	310.13744	154.56746	11.15924	0.1486313	0.17835745	3.1256610	20	—	—
277094	2005	EN <sub>261</sub>	16.6	X	279.15099	323.49741	181.46700	13.11211	0.1835806	0.17671834	3.1449588	20	12 13.5	20.7
277095	2005	EV <sub>267</sub>	15.3	X	167.08407	121.22898	194.35510	9.31009	0.0381296	0.18257495	3.0773383	20	—	—
277096	2005	EF <sub>269</sub>	15.5	X	301.58912	89.78680	81.21479	11.38877	0.0633915	0.18196685	3.0841905	20	—	—
277097	2005	EF <sub>273</sub>	15.5	X	158.35137	153.38415	173.48509	8.43588	0.0498525	0.18417698	3.0594673	20	1 2.6	20.1
277098	2005	EZ <sub>281</sub>	15.4	X	268.16282	37.19200	173.41907	15.25244	0.0488734	0.18048042	3.1011016	20	—	—
277099	2005	EX <sub>293</sub>	15.5	X	338.13504	10.26724	120.66284	10.66408	0.1075431	0.18500057	3.0503804	20	—	—
277100	2005	EW <sub>295</sub>	15.9	X	300.33620	323.70267	193.43865	16.87408	0.2805657	0.18381002	3.0635379	20	—	—
277101	2005	EB <sub>331</sub>	16.2	X	246.51813	111.39323	62.48703	14.57457	0.2521335	0.17538037	3.1609338	20	11 25.0	20.9
277102	2005	FG <sub>1</sub>	15.5	X	22.07122	68.85321	41.86371	11.50291	0.0919540	0.18889165	3.0083444	20	1 5.8	19.4
277103	2005	FA <sub>7</sub>	15.3	X	244.48221	70.15838	141.12502	11.85785	0.1306318	0.17614442	3.1517865	20	—	—
277104	2005	FA <sub>13</sub>	15.2	X	351.50990	337.07540	149.41963	13.82019	0.0501642	0.18284020	3.0743615	20	—	—
277105	2005	FR <sub>14</sub>	15.3	X	259.19021	54.70666	122.04601	10.50970	0.0449771	0.17490689	3.1666357	20	—	—
277106	2005	Forgó	16.0	X	181.75331	158.24107	80.61931	3.06314	0.1037771	0.17057879	3.2199765	20	12 20.7	20.9
277107	2005	GA <sub>1</sub>	15.4	X	39.67958	245.33647	180.14244	18.11034	0.0791789	0.18135005	3.0911798	20	—	—
277108	2005	GQ <sub>1</sub>	15.2	X	208.46958	117.45757	88.60077	13.88088	0.1481227	0.17239715	3.1972947	20	12 6.5	20.2
277109	2005	GS <sub>6</sub>	15.4	X	312.97188	299.71373	189.64449	14.66997	0.0919992	0.17461334	3.1701837	20	—	—
277110	2005	GG <sub>8</sub>	15.4	X	285.21006	73.64856	66.05957	26.38222	0.2606356	0.17877343	3.1208106	20	12 4.0	19.0
277111	2005	GW <sub>14</sub>	15.6	X	340.01867	315.56138	181.929							

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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>
277121 2005 GF <sub>69</sub>	15.3	X	283.18009	68.18815	103.04119	18.35570	0.1409339	0.17705389	3.1409840	20	—	—
277122 2005 GM <sub>80</sub>	15.4	X	306.88483	285.30935	186.86606	13.42216	0.1100948	0.16980141	3.2297968	20	12 20.6	19.7
277123 2005 GO <sub>85</sub>	16.6	X	228.40559	64.82265	145.53486	2.05347	0.1229931	0.17513353	3.1639032	20	—	—
277124 2005 GX <sub>97</sub>	17.7	X	96.65096	163.16634	182.07887	8.91904	0.1614008	0.29969010	2.2115043	20	—	—
277125 2005 GU <sub>104</sub>	15.6	X	140.42330	261.24147	34.30358	11.74828	0.1138488	0.16949756	3.2336555	20	—	—
277126 2005 GO <sub>119</sub>	15.3	X	317.99495	314.94023	279.92734	15.01674	0.1474065	0.19131312	2.9829058	20	2 21.4	19.5
277127 2005 GW <sub>119</sub>	18.7	X	213.58758	242.87661	171.08103	2.88205	0.2332456	0.46899557	1.6406788	20	6 9.7	20.7
277128 2005 GJ <sub>127</sub>	15.3	X	255.19679	180.65698	86.54499	13.53618	0.1763738	0.18317302	3.0706362	20	1 27.9	20.3
277129 2005 GT <sub>135</sub>	16.1	X	278.10538	177.75522	108.26439	7.91767	0.2643695	0.18944477	3.0024858	20	3 2.4	20.8
277130 2005 GJ <sub>161</sub>	15.5	X	182.08996	228.12137	45.94378	16.46292	0.2246013	0.17139935	3.2096914	20	—	—
277131 2005 GR <sub>196</sub>	15.8	X	76.50612	339.80961	10.33372	8.88947	0.0332270	0.17450560	3.1714885	20	—	—
277132 2005 GU <sub>206</sub>	15.2	X	318.73685	50.91883	91.92825	25.91873	0.1184266	0.17936308	3.1139670	20	—	—
277133 2005 GG <sub>227</sub>	17.4	X	182.61483	15.28840	38.69104	3.34268	0.1671545	0.26535523	2.3983779	20	5 12.7	21.0
277134 2005 JE <sub>5</sub>	15.2	X	9.26645	211.89281	170.02915	15.47753	0.1026074	0.15700440	3.4029965	20	12 2.2	19.9
277135 2005 JW <sub>14</sub>	15.8	X	225.43077	55.32995	197.49399	16.45390	0.1638239	0.17848414	3.1241818	20	—	—
277136 2005 JV <sub>76</sub>	15.6	X	304.87222	11.28420	232.84241	21.77411	0.1545425	0.18827252	3.0149360	20	2 13.2	20.3
277137 2005 GW <sub>118</sub>	16.8	X	75.04550	256.27934	84.39713	13.48408	0.2811603	0.22271340	2.6954947	20	—	—
277138 2005 JO <sub>128</sub>	15.7	X	227.90888	101.92625	120.28642	5.56529	0.1380674	0.17341198	3.1848084	20	—	—
277139 2005 KN <sub>9</sub>	16.3	X	171.13234	216.78466	66.84672	14.20029	0.1381294	0.23313558	2.6145504	20	—	—
277140 2005 KP <sub>13</sub>	17.5	X	174.89622	41.19736	270.87243	5.02823	0.0972555	0.29733931	2.2231452	20	—	—
277141 2005 LF <sub>6</sub>	15.4	X	277.17510	325.11459	245.72178	14.21552	0.2081151	0.17704698	3.1410658	20	—	—
277142 2005 LG <sub>8</sub>	16.7	X	101.66141	193.81251	211.29601	26.55791	0.8271502	0.42383539	1.7552456	20	4 15.3	19.9
277143 2005 LU <sub>30</sub>	16.8	X	93.46981	202.78431	173.34399	9.79038	0.2358288	0.28810565	2.2703956	20	—	—
277144 2005 LQ <sub>32</sub>	15.4	X	3.32557	249.74681	177.38903	12.85551	0.0501676	0.17341112	3.1848190	20	—	—
277145 2005 LN <sub>38</sub>	17.7	X	202.90046	154.62859	183.20778	4.63599	0.1772268	0.31246174	2.1508237	20	2 20.4	21.1
277146 2005 LW <sub>43</sub>	17.7	X	202.52922	84.67057	253.66473	2.95762	0.2031359	0.31324361	2.1472432	20	2 20.7	21.2
277147 2005 MV	17.2	X	119.50509	43.45876	306.50209	6.12828	0.1797124	0.29088808	2.2558944	20	—	—
277148 2005 MZ <sub>2</sub>	16.9	X	158.20830	8.78483	282.49473	8.65562	0.1300534	0.29212859	2.2495035	20	—	—
277149 2005 MM <sub>9</sub>	17.0	X	7.14933	69.03534	276.91460	7.05455	0.1397705	0.27273788	2.3548997	20	11 13.8	19.6
277150 2005 MB <sub>14</sub>	16.7	X	59.54567	17.27074	115.92918	7.34894	0.0610621	0.25397469	2.4695003	20	3 23.5	19.7
277151 2005 MM <sub>18</sub>	17.8	X	173.69556	110.69105	232.12079	1.96574	0.2133444	0.30199492	2.2002378	20	2 3.6	21.1
277152 2005 MD <sub>20</sub>	17.5	X	90.60495	137.76967	166.09818	6.02422	0.2046198	0.28210504	2.3024780	20	—	—
277153 2005 ML <sub>26</sub>	17.0	X	351.98189	208.30420	127.51936	7.11737	0.1255622	0.26949927	2.3737282	20	10 4.9	19.3
277154 2005 MM <sub>26</sub>	18.0	X	238.32682	120.60046	171.17941	4.69595	0.1942749	0.30775706	2.1726880	20	1 25.2	21.4
277155 2005 MO <sub>26</sub>	17.3	X	93.73875	52.89894	253.63680	6.05726	0.1284793	0.28289727	2.2981774	20	—	—
277156 2005 MC <sub>33</sub>	17.1	X	124.50400	205.26228	127.44807	8.36917	0.1525409	0.29253274	2.2474312	20	—	—
277157 2005 MH <sub>38</sub>	17.2	X	250.41875	93.07489	124.33086	7.61286	0.0458633	0.29572772	2.2312147	20	—	—
277158 2005 MH <sub>39</sub>	17.4	X	353.06516	29.05618	133.98659	4.47904	0.2028877	0.26834550	2.3805274	20	10 27.5	19.4
277159 2005 ME <sub>40</sub>	16.9	X	27.46014	290.52111	150.55236	7.58750	0.0670524	0.29517527	2.2339978	20	—	—
277160 2005 MC <sub>48</sub>	17.8	X	352.10868	182.01290	168.14687	6.67958	0.1550108	0.26995844	2.3710358	20	10 29.3	20.0
277161 2005 NM <sub>13</sub>	16.2	X	174.43386	140.28972	133.57958	6.59770	0.0800477	0.22756686	2.6570315	20	—	—
277162 2005 NM <sub>20</sub>	16.2	X	205.56199	47.31585	320.40818	25.79343	0.3639440	0.23824765	2.5770151	20	3 20.4	21.7
277163 2005 NN <sub>47</sub>	17.4	X	83.77447	195.09675	107.64279	5.58179	0.1921346	0.21443212	2.7644548	20	12 16.6	21.9
277164 2005 NQ <sub>54</sub>	17.3	X	74.13452	252.04421	141.94057	7.62285	0.1128661	0.29295849	2.2452532	20	—	—
277165 2005 NU <sub>58</sub>	17.0	X	167.18090	309.38279	295.19910	6.06321	0.0835858	0.28699034	2.2762729	20	—	—
277166 2005 NQ <sub>60</sub>	16.6	X	115.39928	216.19366	123.10565	8.08937	0.1583749	0.28861428	2.2677274	20	—	—
277167 2005 NQ <sub>70</sub>	17.7	X	28.35830	192.23468	119.53329	2.27003	0.1951596	0.27034799	2.3687576	20	11 9.3	20.3
277168 2005 NB <sub>72</sub>	17.2	X	282.29530	115.06514	260.21754	5.49908	0.1814019	0.26019801	2.4299653	20	7 8.7	20.1
277169 2005 NF <sub>84</sub>	17.1	X	183.08176	298.72090	298.84520	6.80436	0.0768464	0.28902343	2.2655867	20	—	—
277170 2005 NJ <sub>101</sub>	17.5	X	298.90489	89.31355	145.51705	5.16224	0.1006453	0.30960801	2.1640199	20	1 23.4	19.9
277171 2005 NX <sub>101</sub>	16.7	X	38.74441	202.89285	161.22944	4.14794	0.1102574	0.21481472	2.7611713	20	—	—
277172 2005 OB	17.6	X	268.29485	13.78414	297.84084	6.61297	0.3583464	0.31343369	2.1463750	20	3 1.9	21.5
277173 2005 OY <sub>1</sub>	17.4	X	154.08219	269.94867	73.69024	8.28513	0.1692269	0.29956947	2.2120979	20	1 14.4	20.4
277174 2005 OT <sub>10</sub>	16.9	X	47.71591	1.73152	25.02445	7.14368	0.2238430	0.28275764	2.2989339	20	—	—
277175 2005 OS <sub>14</sub>	17.4	X	185.57440	354.03631	330.83181	5.33279	0.2591572	0.29924683	2.2136876	20	1 26.6	21.0
277176 2005 OX <sub>18</sub>	17.5	X	143.02191	192.68786	143.08595	5.91847	0.1947110	0.29277577	2.2461873	20	—	—
277177 2005 OU <sub>22</sub>	17.1	X	101.42499	311.43566	40.70645	6.94642	0.1495407	0.29014172	2.2597614	20	—	—
277178 2005 OE <sub>25</sub>	17.7	X	316.25565	160.30344	187.71800	2.17425	0.2104473	0.26106474	2.4245840	20	7 26.4	19.7
277179 2005 OB <sub>26</sub>	15.0	X	316.70684	141.18088	195.68967	1.89287	0.2830184	0.12607367	3.9390043	20	6 19.5	19.7
277180 2005 OB <sub>27</sub>	17.5	X	100.74956	153.57786	180.95737	6.62380	0.1333317	0.28557978	2.2837633	20	—	—
277181 2005 PT	16.2	X	344.43801	11.50452	328.14736	15.25404	0.3054947	0.26523294	2.3991151	20	9 28.8	17.6
277182 2005 PF <sub>1</sub>	17.1	X	24.30691	259.03196	115.27652	7.03764	0.1338033	0.27812656	2.3243833	20	—	—
277183 2005 PL <sub>10</sub>	17.2	X	288.94484	356.58027	357.83450	5.39950	0.1750452	0.25696667	2.4502939	20	6 19.8	20.2
277184 2005 PU <sub>19</sub>	17.2	X	173.67557	333.90577	266.30766	1.77153	0.1255421	0.28625427	2.2801744	20	—	—
277185 2005 QZ <sub>6</sub>	17.6	X	161.31312	153.03061	157.40030	4.15350	0.1746230	0.29310081	2.2445263	20	—	—
277186 2005 QZ <sub>13</sub>	17.4	X	57.82826	214.96688	175.53617	4.07470	0.1797755	0.28434692	2.2903597	20	—	—
277187 2005 QM <sub>21</sub>	17.1	X	57.00983	358.36056	20.84260	4.80368	0.1815242	0.28246048	2.3005460	20	—	—
277188 2005 QF <sub>23</sub>	17.1	X	166.84771	224.77862	133.09200	4.56118	0.2139868	0.29912823	2.2142727	20	2 17.9	20.5
277189 2005 QE <sub>31</sub>	16.8	X	296.21182	313.29149	32.62435	5.43041	0.1408566	0.25776616	2.4452248	20	6 25.2	19.6
277190 2005 QT <sub>31</sub>	17.3	X	162.81962	75.02101	248.54732	5.64299	0.1583640	0.29642712	2.2277037	20	—	—
277191 2005 QA <sub>32</sub>	17.7	X	124.21883	163.95447	170.03020	3.94653	0.2249105	0.28984288	2.2613145	20	—	—
277192 2005 QS <sub>35</sub>	17.1	X	25.32226	242.11937	145.30137	6.28713	0.1503351	0.27758025	2.3274320	20	—	—
277193 2005 QQ <sub>36</sub>	17.5	X	124.64811	21.04427	313.84906	4.60551	0.1911751	0.28857010	2.2679588	20	—	—
277194 2005 QP <sub>46</sub>	17.0	X	51.10445	344.51188	332.96418	6.14209	0.1761669	0.27466937	2.3438468	20	12 11.8	20.3
277195 2005 QN <sub>49</sub>	17.6	X	173.03860	206.93829	127.81676	7.20916	0.208170					

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>		
277201	2005	QE <sub>73</sub>	17.2	X	99.52858	126.20419	223.88953	3.09787	0.1588709	0.28590587	2.2820264	20	—	—
277202	2005	QP <sub>78</sub>	17.1	X	303.30650	222.49357	180.85595	6.16866	0.1176506	0.26435861	2.4044020	20	10 9.2	19.2
277203	2005	QV <sub>85</sub>	16.4	X	350.84352	350.68679	46.68665	12.19856	0.2021644	0.26950049	2.3737210	20	—	—
277204	2005	QV <sub>88</sub>	16.9	X	153.67638	113.80648	349.78386	2.08494	0.0806360	0.24708972	2.5151638	20	6 15.1	20.5
277205	2005	QH <sub>92</sub>	17.3	X	211.74110	319.39108	347.48458	5.17075	0.1539839	0.30104905	2.2048440	20	1 23.6	20.6
277206	2005	QU <sub>92</sub>	17.1	X	350.17072	285.90429	100.02620	3.41157	0.1936677	0.27106279	2.3645914	20	12 22.2	19.2
277207	2005	QA <sub>106</sub>	17.5	X	240.59506	222.20024	106.71324	4.46444	0.2037520	0.31074724	2.1587277	20	3 16.6	20.8
277208	2005	QR <sub>106</sub>	17.7	X	151.38834	231.89976	74.24667	4.88878	0.1729505	0.29079572	2.2563720	20	—	—
277209	2005	QS <sub>109</sub>	17.2	X	75.54751	92.91604	284.09806	1.92755	0.1626443	0.28540241	2.2847094	20	—	—
277210	2005	QC <sub>117</sub>	17.8	X	355.49641	327.55922	347.26394	4.84280	0.2383604	0.26363066	2.4088260	20	9 16.4	19.4
277211	2005	QN <sub>130</sub>	17.3	X	86.89094	234.16106	15.05274	7.00780	0.0865834	0.26738403	2.3862306	20	10 12.9	20.5
277212	2005	QT <sub>130</sub>	16.5	X	304.62393	298.71290	126.70633	6.82075	0.0770128	0.20320437	2.8653699	20	11 2.2	20.1
277213	2005	QC <sub>133</sub>	17.1	X	181.59903	43.05535	16.89421	5.14588	0.1251802	0.24562508	2.5251523	20	5 18.7	21.1
277214	2005	QC <sub>135</sub>	17.5	X	296.22761	329.37538	141.94624	3.03431	0.0901622	0.27587974	2.3369863	20	—	—
277215	2005	QJ <sub>135</sub>	17.5	X	90.13463	333.93146	26.42998	2.23069	0.1238343	0.28538396	2.2848078	20	—	—
277216	2005	QS <sub>139</sub>	17.5	X	249.90093	343.87599	114.75050	2.04924	0.1423501	0.26394600	2.4069071	20	9 27.5	20.5
277217	2005	QA <sub>143</sub>	17.5	X	82.07135	148.96441	209.95932	9.44703	0.2430383	0.28394354	2.2925284	20	—	—
277218	2005	QF <sub>147</sub>	16.7	X	9.45698	290.79073	117.43515	10.09827	0.1886320	0.27945613	2.3170049	20	—	—
277219	2005	QD <sub>151</sub>	17.9	X	305.78909	308.40756	25.99205	1.80662	0.1956152	0.25494024	2.4632611	20	6 14.7	20.4
277220	2005	QX <sub>156</sub>	14.4	X	323.07125	67.53978	251.36063	10.24437	0.2596703	0.12318326	4.0003759	20	6 11.3	18.9
277221	2005	QE <sub>159</sub>	16.6	X	80.60498	245.91897	38.44403	5.48442	0.2220021	0.27331842	2.3515639	20	12 3.2	20.4
277222	2005	QC <sub>160</sub>	16.7	X	43.19762	312.31224	55.86454	6.81153	0.1599044	0.27865482	2.3214447	20	—	—
277223	2005	QN <sub>162</sub>	17.1	X	42.77479	276.45368	103.85139	4.70764	0.1676157	0.28110982	2.3079091	20	—	—
277224	2005	QH <sub>164</sub>	17.2	X	269.68897	330.62948	102.04425	2.45177	0.1763932	0.26185635	2.4196951	20	9 14.2	19.9
277225	2005	QJ <sub>165</sub>	17.1	X	168.97839	268.42600	67.35061	5.50582	0.1984099	0.29656472	2.2270146	20	1 22.9	20.4
277226	2005	QK <sub>167</sub>	16.8	X	344.57141	168.68094	220.28163	11.63760	0.2583366	0.27025177	2.3693198	20	12 25.4	19.0
277227	2005	QR <sub>169</sub>	16.8	X	100.28179	85.35023	225.00608	6.29947	0.1275116	0.27974591	2.3154046	20	—	—
277228	2005	QW <sub>171</sub>	17.4	X	227.36721	342.48603	313.84368	3.92294	0.1523602	0.30140296	2.2031178	20	1 23.9	20.5
277229	2005	QK <sub>173</sub>	17.0	X	79.38771	4.84942	347.65278	6.02449	0.1968152	0.28137458	2.3064611	20	—	—
277230	2005	QX <sub>176</sub>	17.0	X	285.91850	268.43195	83.86490	4.73644	0.1523004	0.25403431	2.4691139	20	6 15.9	19.9
277231	2005	QE <sub>181</sub>	16.9	X	211.20532	0.82841	282.42474	4.42283	0.1354303	0.29408056	2.2395383	20	—	—
277232	2005	QM <sub>181</sub>	17.1	X	311.68253	264.83071	168.41192	4.20306	0.0939455	0.27064806	2.3670064	20	12 10.4	19.5
277233	2005	QJ <sub>182</sub>	17.2	X	141.35943	196.87959	148.04394	7.33052	0.1445892	0.29143703	2.2530607	20	—	—
277234	2005	QM <sub>182</sub>	17.5	X	267.81290	207.38081	216.68334	1.88926	0.1929752	0.25943814	2.4347077	20	8 24.3	20.4
277235	2005	QR <sub>189</sub>	17.7	X	35.91392	171.00576	260.58881	1.58761	0.0846130	0.28916658	2.2648389	20	—	—
277236	2005	RS <sub>1</sub>	16.9	X	24.96229	1.34448	30.21754	3.35285	0.1788913	0.28071982	2.3100462	20	—	—
277237	2005	RZ <sub>5</sub>	17.0	X	130.49636	325.43855	7.94622	3.88600	0.1445119	0.28987213	2.2611623	20	—	—
277238	2005	RD <sub>8</sub>	16.8	X	98.95651	232.04243	174.24938	9.18263	0.3846364	0.22333288	2.6905079	20	3 9.8	20.8
277239	2005	RT <sub>10</sub>	17.2	X	191.09229	233.00999	81.98293	7.39053	0.1590444	0.30028702	2.2085726	20	1 13.9	20.4
277240	2005	RL <sub>14</sub>	17.6	X	250.15395	111.58595	341.72958	6.11223	0.0797027	0.26573604	2.3960860	20	9 28.0	20.4
277241	2005	RT <sub>14</sub>	17.4	X	310.38329	126.69288	344.37539	7.31595	0.0617124	0.28062048	2.3105914	20	—	—
277242	2005	RF <sub>19</sub>	17.6	X	63.63972	254.42789	28.88802	1.66500	0.1704161	0.26967268	2.3727105	20	11 10.3	20.8
277243	2005	RN <sub>22</sub>	17.1	X	78.12732	99.38130	223.60108	6.06911	0.1434142	0.27731610	2.3289098	20	—	—
277244	2005	RZ <sub>23</sub>	15.7	X	334.66652	195.35434	206.84154	25.89436	0.2652412	0.26617443	2.3934544	20	12 20.7	18.2
277245	2005	RX <sub>24</sub>	16.4	X	51.35983	317.33599	35.47710	8.99290	0.2807128	0.27474243	2.3434313	20	—	—
277246	2005	RT <sub>25</sub>	16.6	X	137.86685	49.08743	280.58009	5.67834	0.1942949	0.28907845	2.2652992	20	—	—
277247	2005	RG <sub>30</sub>	16.7	X	155.77744	299.38469	46.14544	7.21225	0.1507091	0.29401346	2.2398791	20	1 18.2	19.8
277248	2005	RK <sub>30</sub>	15.5	X	116.08017	236.37149	183.43124	28.87781	0.2473796	0.22722227	2.6597171	20	3 27.3	19.5
277249	2005	RT <sub>30</sub>	16.6	X	149.99725	98.21273	296.83691	12.13907	0.2777412	0.23162289	2.6259215	20	3 22.1	21.3
277250	2005	RL <sub>41</sub>	17.8	X	312.78314	238.28043	99.67286	2.53406	0.1856575	0.25701240	2.4500033	20	7 6.2	20.1
277251	2005	RW <sub>44</sub>	14.5	X	330.20872	177.45766	141.53582	9.58655	0.2726686	0.12421255	3.9782529	20	6 24.1	18.9
277252	2005	RX <sub>44</sub>	16.9	X	10.71159	335.41062	56.87724	6.76664	0.1135751	0.27546080	2.3393552	20	—	—
277253	2005	RX <sub>45</sub>	17.6	X	100.85023	190.72273	144.91814	7.38527	0.1359030	0.28199983	2.3030506	20	—	—
277254	2005	RC <sub>46</sub>	17.4	X	207.87872	48.16734	111.04759	7.31952	0.0910467	0.26549597	2.3975086	20	11 4.1	20.7
277255	2005	SR <sub>2</sub>	16.6	X	71.58540	354.95527	3.39373	4.85187	0.0351733	0.28072889	2.3099964	20	—	—
277256	2005	SW <sub>2</sub>	17.0	X	93.64419	323.77474	24.25662	6.82703	0.1349451	0.28321782	2.2964430	20	—	—
277257	2005	SV <sub>3</sub>	15.9	X	211.61263	61.66443	43.53036	7.49457	0.1136187	0.18666640	3.0322053	20	8 18.6	20.7
277258	2005	SD <sub>5</sub>	17.1	X	186.33772	293.53376	22.58045	4.67429	0.2200747	0.29933595	2.2132483	20	1 14.8	20.6
277259	2005	SS <sub>9</sub>	17.2	X	78.02610	141.97381	211.63440	2.77294	0.2426138	0.28078390	2.3096947	20	—	—
277260	2005	SD <sub>17</sub>	17.9	X	127.67502	335.49528	325.25071	1.97072	0.0831661	0.28131121	2.3068075	20	—	—
277261	2005	SS <sub>20</sub>	17.1	X	63.97277	320.21274	34.00985	7.31123	0.1449088	0.27738368	2.3285315	20	—	—
277262	2005	SB <sub>26</sub>	16.7	X	301.63908	141.78558	234.94423	7.65475	0.0674310	0.25878282	2.4388163	20	8 26.4	19.7
277263	2005	SO <sub>26</sub>	17.5	X	27.32895	149.08884	171.31581	4.93101	0.2072124	0.27061313	2.3672101	20	11 22.0	20.3
277264	2005	SE <sub>28</sub>	17.3	X	201.52858	34.03791	238.65699	4.12385	0.1442315	0.29064525	2.2571508	20	—	—
277265	2005	SW <sub>31</sub>	17.0	X	309.23045	343.23760	72.43240	3.45217	0.0707885	0.26559287	2.3969471	20	11 9.6	19.4
277266	2005	SB <sub>42</sub>	17.8	X	204.48080	72.20348	221.89036	4.96780	0.1775376	0.29545369	2.2325941	20	—	—
277267	2005	SU <sub>49</sub>	17.6	X	204.63203	213.19987	152.06670	1.08834	0.1723457	0.23790648	2.5794782	20	4 2.9	21.6
277268	2005	SR <sub>50</sub>	17.4	X	76.53277	323.78349	21.99674	4.93282	0.1527230	0.27846251	2.3225134	20	—	—
277269	2005	SC <sub>53</sub>	17.7	X	147.54503	138.09733	183.37243	4.45219	0.1614110	0.29051711	2.2578144	20	—	—
277270	2005	SB <sub>55</sub>	17.5	X	290.14603	233.95472	80.01551	1.69296	0.1590432	0.26104755	2.4246905	20	9 28.2	19.5
277271	2005	SL <sub>58</sub>	17.2	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>
277281 2005 SQ <sub>77</sub>	17.1	X	59.42554	109.80290	175.33413	6.20124	0.1370584	0.26711227	2.3878488	20	11 4.9	20.3
277282 2005 SW <sub>77</sub>	17.4	X	242.99883	58.53897	21.81609	6.47464	0.1275746	0.25762490	2.4461185	20	8 26.9	20.7
277283 2005 SZ <sub>78</sub>	17.8	X	273.44832	24.60722	44.21607	3.16499	0.1766604	0.26089106	2.4256600	20	9 14.8	20.5
277284 2005 SD <sub>86</sub>	17.7	X	28.41063	262.08635	26.67691	6.05584	0.1404700	0.26140056	2.4225070	20	9 27.6	20.4
277285 2005 SG <sub>86</sub>	17.3	X	98.97927	142.66620	180.95380	5.53353	0.1252816	0.27999841	2.3140124	20	—	—
277286 2005 SK <sub>88</sub>	16.3	X	274.00071	214.70509	209.00870	12.74414	0.1094590	0.19200103	2.9757767	20	9 3.2	20.5
277287 2005 SN <sub>88</sub>	16.8	X	79.89084	281.87363	59.30555	6.28383	0.1934510	0.28028429	2.3124386	20	—	—
277288 2005 SA <sub>89</sub>	17.7	X	92.73862	84.21091	112.51483	4.29844	0.2384373	0.27560164	2.3385582	20	12 29.6	21.6
277289 2005 SZ <sub>95</sub>	17.6	X	143.00307	182.95734	217.20302	2.30289	0.2156030	0.28924930	2.2644071	20	—	—
277290 2005 SN <sub>104</sub>	17.0	X	312.07135	236.52601	166.16210	2.07704	0.2106045	0.26259883	2.4151319	20	10 19.7	18.4
277291 2005 SH <sub>105</sub>	15.2	X	324.76212	289.48089	44.65434	15.51329	0.1162280	0.18630251	3.0361525	20	7 30.8	19.2
277292 2005 SD <sub>106</sub>	16.6	X	124.29193	211.23605	142.29210	8.92863	0.2037098	0.28758699	2.2731245	20	—	—
277293 2005 SN <sub>106</sub>	17.5	X	267.40869	101.18947	8.39260	1.39044	0.1359604	0.26727902	2.3868556	20	11 9.2	19.9
277294 2005 SE <sub>107</sub>	16.9	X	96.23021	154.69922	199.84791	25.31992	0.1235261	0.28584581	2.2823461	20	—	—
277295 2005 SR <sub>123</sub>	16.7	X	287.66932	254.02284	219.82741	6.12631	0.0665151	0.27393879	2.3480122	20	12 28.6	19.2
277296 2005 SA <sub>125</sub>	17.5	X	135.51607	228.45047	116.09399	2.37877	0.1970099	0.29085240	2.2560789	20	—	—
277297 2005 SY <sub>128</sub>	17.7	X	56.47480	316.61024	36.46298	0.95550	0.2350249	0.27659174	2.3329740	20	—	—
277298 2005 SO <sub>130</sub>	16.9	X	124.01977	230.20597	106.26794	7.22630	0.1495423	0.28583081	2.2824259	20	—	—
277299 2005 SN <sub>133</sub>	17.0	X	204.94655	339.22094	20.96957	5.85367	0.2591652	0.23771263	2.5808804	20	3 27.2	21.5
277300 2005 SK <sub>139</sub>	17.5	X	258.43412	21.07475	48.13205	2.41124	0.1201664	0.25861571	2.4398667	20	9 1.2	20.4
277301 2005 SZ <sub>140</sub>	17.2	X	242.83172	310.21402	174.98455	6.54963	0.0438502	0.26725292	2.3870109	20	11 10.4	20.1
277302 2005 SY <sub>143</sub>	17.1	X	339.01504	278.89595	170.12314	7.26027	0.0718962	0.27793915	2.3254280	20	—	—
277303 2005 SE <sub>144</sub>	17.2	X	316.43921	276.28568	161.38299	5.37306	0.0267912	0.27256398	2.3559012	20	12 22.5	20.0
277304 2005 SZ <sub>151</sub>	17.2	X	13.51325	326.47969	49.01303	3.91494	0.2220575	0.27033921	2.3688089	20	—	—
277305 2005 SJ <sub>152</sub>	17.5	X	352.75217	229.94686	134.02227	3.21862	0.2209345	0.26523676	2.3990920	20	11 24.8	19.7
277306 2005 SO <sub>156</sub>	17.1	X	320.73374	256.80625	190.37773	7.52317	0.0863854	0.27290430	2.3539422	20	—	—
277307 2005 ST <sub>164</sub>	16.7	X	22.78538	215.37469	165.91419	6.46495	0.3008734	0.27150164	2.3620427	20	—	—
277308 2005 SF <sub>169</sub>	17.5	X	123.87338	171.13460	253.49141	3.23431	0.1980804	0.23362557	2.6108934	20	4 17.8	21.5
277309 2005 SZ <sub>169</sub>	17.4	X	185.83277	86.09890	318.49820	3.69987	0.1426288	0.24107166	2.5568502	20	5 2.9	21.4
277310 2005 SO <sub>175</sub>	17.6	X	222.52337	12.79047	231.88511	5.26309	0.1805012	0.28939338	2.2636555	20	—	—
277311 2005 SP <sub>186</sub>	17.2	X	107.20389	140.70800	176.19847	2.43291	0.1891238	0.28135283	2.3065800	20	—	—
277312 2005 ST <sub>192</sub>	17.4	X	156.69827	91.11581	192.53394	3.84882	0.2288385	0.28340898	2.2954102	20	—	—
277313 2005 SE <sub>205</sub>	17.4	X	139.31322	239.14875	89.66142	3.64060	0.1958777	0.28958246	2.2626700	20	—	—
277314 2005 SV <sub>207</sub>	16.5	X	26.38477	306.60003	69.94509	7.62160	0.1258670	0.27397728	2.3477923	20	—	—
277315 2005 SS <sub>209</sub>	17.0	X	42.25391	52.16890	321.36667	6.06903	0.1388789	0.27790525	2.3256171	20	—	—
277316 2005 SV <sub>212</sub>	17.4	X	43.06360	265.95442	7.46995	2.63550	0.1724774	0.25959531	2.4337249	20	10 1.3	20.2
277317 2005 SD <sub>213</sub>	17.1	X	0.09186	47.96995	320.72726	0.49667	0.2046013	0.26703860	2.3882879	20	12 15.0	19.5
277318 2005 SR <sub>215</sub>	17.1	X	214.54264	310.91127	1.91110	6.33139	0.2176753	0.29992754	2.2103370	20	2 3.7	20.7
277319 2005 ST <sub>217</sub>	16.9	X	359.58508	209.42871	177.24642	5.21384	0.1159235	0.26926224	2.3751211	20	12 25.9	19.7
277320 2005 SJ <sub>218</sub>	16.7	X	81.67853	194.76502	159.52275	4.83292	0.1724669	0.28027267	2.3125025	20	—	—
277321 2005 SK <sub>218</sub>	16.8	X	11.60899	285.18303	86.68214	5.16343	0.1217053	0.26907142	2.3762438	20	12 24.5	19.6
277322 2005 SH <sub>224</sub>	17.8	X	230.64038	345.36501	184.92351	2.64022	0.0981054	0.27350589	2.3504892	20	12 16.2	20.7
277323 2005 SA <sub>239</sub>	17.6	X	215.97815	93.44830	189.25408	3.61951	0.1217138	0.29924561	2.2136937	20	—	—
277324 2005 SS <sub>240</sub>	17.4	X	177.03457	301.83134	310.32237	4.56842	0.1460350	0.28065094	2.3104241	20	—	—
277325 2005 SV <sub>243</sub>	17.0	X	45.40001	56.12051	235.10493	6.15191	0.1142298	0.26616236	2.3935268	20	10 19.7	19.9
277326 2005 SR <sub>249</sub>	16.9	X	88.02997	336.46196	19.15254	6.18052	0.1746242	0.28575205	2.2828453	20	—	—
277327 2005 SQ <sub>254</sub>	14.7	X	333.52856	183.01494	139.84211	9.10868	0.1132991	0.12411258	3.9803891	20	7 19.4	19.9
277328 2005 SY <sub>259</sub>	17.7	X	162.10315	65.71136	346.14364	3.73642	0.1351714	0.23804637	2.5784676	20	4 19.1	21.8
277329 2005 SK <sub>279</sub>	16.8	X	139.84252	219.97270	49.44292	6.81788	0.0949718	0.26891194	2.3771832	20	—	—
277330 2005 SM <sub>290</sub>	17.2	X	79.10512	87.54462	200.36575	6.76051	0.1590177	0.27296184	2.3536114	20	12 2.6	20.7
277331 2005 TN <sub>12</sub>	17.3	X	201.67556	229.74901	134.56423	2.14231	0.1678835	0.23702904	2.5858401	20	3 30.7	21.6
277332 2005 TO <sub>12</sub>	16.7	X	153.24312	259.29468	46.32987	4.57312	0.0736687	0.28439546	2.2900991	20	—	—
277333 2005 TU <sub>18</sub>	17.0	X	351.97933	252.64025	140.63889	3.15320	0.1109922	0.26947202	2.3738882	20	12 22.7	19.5
277334 2005 TN <sub>26</sub>	16.8	X	96.87553	115.79515	36.01713	15.52413	0.0648653	0.24065485	2.5598016	20	6 5.6	20.4
277335 2005 TP <sub>27</sub>	17.2	X	64.70691	300.41187	61.27935	3.64894	0.1897750	0.27853465	2.3221124	20	—	—
277336 2005 TF <sub>28</sub>	16.6	X	347.07636	195.10826	209.25155	5.91807	0.1046712	0.26909502	2.3761049	20	12 28.7	19.2
277337 2005 TT <sub>32</sub>	17.1	X	193.13516	215.69699	46.23424	7.49815	0.0696775	0.28606230	2.2811944	20	—	—
277338 2005 TR <sub>42</sub>	16.6	X	124.24199	30.08770	296.86285	4.03287	0.1772011	0.28298806	2.2976858	20	—	—
277339 2005 TM <sub>45</sub>	17.4	X	222.77493	10.25694	260.59283	3.30925	0.1501280	0.29696225	2.2250267	20	—	—
277340 2005 TS <sub>63</sub>	17.3	X	193.54351	81.67473	209.12448	5.62977	0.1319608	0.29199772	2.2501756	20	—	—
277341 2005 TO <sub>68</sub>	17.7	X	237.62095	339.92521	161.17056	4.18048	0.0966347	0.27251379	2.3561905	20	11 17.3	20.5
277342 2005 TL <sub>73</sub>	16.7	X	224.35959	253.64095	104.57056	7.24252	0.2403934	0.24078308	2.5588927	20	4 11.7	21.1
277343 2005 TQ <sub>73</sub>	17.1	X	125.57093	311.53107	24.12999	7.26969	0.1429632	0.28894149	2.2660150	20	—	—
277344 2005 TN <sub>75</sub>	17.1	X	165.94914	280.65756	46.08366	7.26781	0.1624244	0.29336694	2.2431687	20	1 5.2	20.3
277345 2005 TP <sub>78</sub>	16.2	X	129.05428	344.75660	73.28651	15.18479	0.2304246	0.22982362	2.6396091	20	4 11.8	20.7
277346 2005 TJ <sub>79</sub>	16.9	X	59.06466	296.14366	58.51003	7.97022	0.2577872	0.28021245	2.3128338	20	—	—
277347 2005 TS <sub>82</sub>	16.6	X	343.80186	113.20515	272.11912	6.21761	0.1229259	0.26593285	2.3949037	20	11 27.3	18.9
277348 2005 TU <sub>82</sub>	17.1	X	338.49299	70.69368	320.70407	5.56829	0.2030380	0.26740076	2.3861310	20	12 6.3	19.2
277349 2005 TY <sub>82</sub>	16.4	X	148.78270	64.25375	251.69374	5.81723	0.1642926	0.28740392	2.2740897	20	—	—
277350 2005 TN <sub>101</sub>	16.8	X	30.00798	329.44737	54.49753	7.22509	0.1350562	0.27493749	2.3423228	20	—	—
277351 2005 TS <sub>101</sub>	16.9	X	38.89118	243.48260	143.78961	6.63640	0.1377457	0.27662463	2.3327892	20	—	—
277352 2005 TD <sub>102</sub>	17.4	X	77.96492	19.69547	265.53181	2.36500	0.1995186	0.26944994	2.3740179	20	11 30.1	20.9
277353 2005 TE <sub>105</sub>	16.9	X	189.40367	28.53754	298.90166	3.86645	0.278128	0.29759740	2.2218597	20	2 1.3	20.5
277354 2005 TK <sub>110</sub>	17.5	X	272.96447	201.28367	214.78162	5.53340	0.0970231	0.25983204	2.4322465	20	9 4.5	20.5
277355 2005 TB												

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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>		
277361	2005	TA <sub>164</sub>	17.1	X	101.49011	250.38473	228.00090	4.97438	0.1376364	0.23512095	2.5998113	20	5 10.9	20.8
277362	2005	TT <sub>166</sub>	17.3	X	215.82310	34.96580	317.70627	1.27410	0.2362142	0.23833243	2.5764039	20	3 25.5	21.7
277363	2005	TJ <sub>167</sub>	17.6	X	188.22762	309.76434	225.73045	0.76084	0.1235815	0.26300036	2.4126731	20	10 26.6	21.2
277364	2005	TZ <sub>167</sub>	16.3	X	224.60164	70.27312	29.58683	7.78797	0.1817618	0.18624930	3.0367307	20	8 19.1	21.1
277365	2005	TQ <sub>172</sub>	17.1	X	87.39247	314.02335	14.13663	3.38790	0.2760660	0.27887902	2.3202004	20	—	—
277366	2005	TQ <sub>175</sub>	17.3	X	166.00299	176.00811	137.17213	6.58641	0.1510813	0.29167281	2.2518464	20	—	—
277367	2005	TE <sub>193</sub>	17.6	X	184.61302	171.27290	31.08163	7.36724	0.0609275	0.26993263	2.3711869	20	12 2.7	20.8
277368	2005	TJ <sub>193</sub>	17.4	X	197.31652	150.20561	175.19472	7.41302	0.2033729	0.29730014	2.2333405	20	2 1.5	21.0
277369	2005	UZ	16.0	X	34.40026	185.29305	125.81707	3.00585	0.0766160	0.19708816	2.9243479	20	10 14.9	19.9
277370	2005	US <sub>1</sub>	17.1	X	128.58651	186.56217	224.98293	1.32417	0.2237258	0.22869096	2.6483175	20	3 25.8	21.2
277371	2005	UJ <sub>9</sub>	17.3	X	217.48894	151.77053	171.42961	6.14268	0.2463335	0.30299055	2.1954152	20	2 15.3	21.0
277372	2005	UR <sub>15</sub>	17.0	X	196.64622	193.37422	54.97075	2.98284	0.0687806	0.27967932	2.3157721	20	—	—
277373	2005	UD <sub>20</sub>	15.5	X	307.24147	296.17855	45.00938	4.93799	0.2340900	0.18307483	3.0717341	20	6 18.3	19.3
277374	2005	UZ <sub>22</sub>	15.1	X	114.62492	136.45573	31.66277	17.14899	0.0419188	0.18007575	3.1057457	20	7 22.1	19.9
277375	2005	UY <sub>26</sub>	16.5	X	279.33791	307.69564	12.63211	2.55839	0.1284666	0.24289858	2.5440134	20	4 26.3	19.9
277376	2005	UT <sub>27</sub>	16.8	X	130.22437	295.47840	23.87505	5.87868	0.1884530	0.28391376	2.2926887	20	—	—
277377	2005	UH <sub>29</sub>	16.6	X	89.49138	299.97471	46.60374	7.85528	0.1545403	0.27851703	2.3222103	20	—	—
277378	2005	UG <sub>34</sub>	17.1	X	258.14428	244.35905	92.35696	0.66547	0.1608125	0.24119418	2.5559842	20	4 19.2	20.9
277379	2005	UU <sub>40</sub>	17.1	X	51.86836	259.06437	67.87671	3.55554	0.1849693	0.26761187	2.3848760	20	12 24.6	20.5
277380	2005	UG <sub>64</sub>	15.4	X	172.08104	8.20113	89.32705	10.27692	0.0380196	0.17479026	3.1680442	20	6 25.7	20.0
277381	2005	UR <sub>67</sub>	16.6	X	163.70571	246.96057	73.40210	7.56200	0.2022606	0.29057772	2.2575004	20	—	—
277382	2005	UL <sub>70</sub>	17.0	X	53.73067	95.92230	249.58553	6.89775	0.0704813	0.27295839	2.3536313	20	—	—
277383	2005	UV <sub>79</sub>	16.5	X	48.19330	303.49269	65.56565	6.56079	0.2436777	0.27522793	2.3406746	20	—	—
277384	2005	UZ <sub>96</sub>	17.4	X	152.77889	252.14169	164.98971	2.93709	0.0858291	0.23356148	2.6113710	20	4 15.3	21.1
277385	2005	UO <sub>101</sub>	16.8	X	103.27022	294.01656	170.04305	4.52411	0.1884324	0.23052897	2.6342220	20	5 2.5	20.5
277386	2005	UL <sub>103</sub>	16.3	X	272.21352	208.05165	183.89077	2.96863	0.1472053	0.18290951	3.0735848	20	7 17.9	20.6
277387	2005	UP <sub>121</sub>	17.8	X	120.87472	337.05099	302.63538	0.84778	0.1679724	0.27368087	2.3494872	20	12 30.8	21.4
277388	2005	UG <sub>123</sub>	17.3	X	166.79908	224.09770	35.63933	3.81457	0.1101236	0.27645786	2.3337272	20	—	—
277389	2005	UX <sub>124</sub>	17.4	X	201.71876	137.68554	242.40175	2.79015	0.1919085	0.23762475	2.5815167	20	4 17.2	21.7
277390	2005	UU <sub>125</sub>	17.3	X	146.94563	189.70500	2.53069	1.32886	0.1363901	0.25579463	2.4577730	20	10 4.7	21.1
277391	2005	UU <sub>131</sub>	16.4	X	117.52270	198.04587	116.93169	8.43858	0.2533267	0.28064877	2.3104361	20	—	—
277392	2005	UU <sub>141</sub>	16.1	X	342.43152	165.94939	51.67467	22.50349	0.0222147	0.23214153	2.6220089	20	4 4.3	19.9
277393	2005	UE <sub>146</sub>	17.2	X	109.21340	310.37158	22.83403	5.05675	0.2509490	0.28253051	2.3001658	20	—	—
277394	2005	UK <sub>151</sub>	15.9	X	307.91210	262.86725	36.63576	5.49288	0.1298365	0.17492351	3.1664351	20	5 10.5	20.1
277395	2005	UL <sub>151</sub>	17.2	X	6.00527	317.95352	35.16021	5.78455	0.0662334	0.26233121	2.4167742	20	11 9.6	19.9
277396	2005	UN <sub>152</sub>	16.8	X	57.63299	63.63446	232.14178	5.78065	0.0390091	0.26075960	2.4264751	20	10 30.4	19.8
277397	2005	UN <sub>156</sub>	17.1	X	298.49896	280.47683	33.00392	2.33738	0.1398100	0.24608378	2.5220134	20	5 12.1	19.9
277398	2005	UK <sub>162</sub>	16.6	X	91.79323	277.10007	93.58974	7.32689	0.1596244	0.28347539	2.2950517	20	—	—
277399	2005	UB <sub>164</sub>	17.4	X	197.50477	122.89581	324.52298	1.85523	0.1533633	0.24644921	2.5195197	20	7 10.2	21.1
277400	2005	UE <sub>164</sub>	17.3	X	176.95214	254.54473	4.43076	3.31356	0.1460355	0.27945323	2.3170209	20	—	—
277401	2005	UV <sub>180</sub>	17.3	X	190.35813	231.66964	125.83607	2.29225	0.2406445	0.23222757	2.6213612	20	3 13.7	21.8
277402	2005	UR <sub>181</sub>	16.8	X	82.63507	33.69832	72.85378	3.91011	0.0484325	0.22739181	2.6583950	20	3 20.2	20.3
277403	2005	UF <sub>182</sub>	17.4	X	138.72292	190.03329	56.35222	1.93135	0.0727544	0.26541427	2.3980222	20	12 5.9	20.9
277404	2005	UF <sub>184</sub>	17.5	X	135.94631	171.69740	56.71849	2.14290	0.1829563	0.26217579	2.4177292	20	11 9.8	21.3
277405	2005	UL <sub>195</sub>	16.1	X	0.53142	284.71194	32.67369	9.15145	0.0655151	0.19143435	2.9816464	20	9 4.9	20.0
277406	2005	UU <sub>204</sub>	16.9	X	146.98667	250.73922	222.83399	10.52127	0.1528401	0.23960166	2.5672973	20	6 23.8	21.0
277407	2005	UZ <sub>205</sub>	17.2	X	153.04114	147.70084	58.58867	6.29451	0.1557996	0.25936154	2.4351871	20	10 29.7	20.9
277408	2005	UN <sub>212</sub>	16.9	X	286.22564	158.41432	176.96892	1.65005	0.1225159	0.24509255	2.5288087	20	5 28.4	20.1
277409	2005	UR <sub>217</sub>	17.3	X	187.66155	271.85658	188.43171	4.80454	0.1382126	0.24539923	2.5267014	20	7 16.5	21.3
277410	2005	UM <sub>222</sub>	17.8	X	254.75063	153.80208	315.03384	1.69819	0.0331796	0.26312943	2.4118841	20	11 2.8	20.7
277411	2005	UR <sub>229</sub>	17.4	X	99.47781	252.95359	71.92071	2.80441	0.1570056	0.27729774	2.3290125	20	—	—
277412	2005	UB <sub>230</sub>	15.9	X	332.45182	236.44138	51.95692	17.45104	0.2551368	0.18086567	3.0966963	20	5 19.2	19.2
277413	2005	UP <sub>230</sub>	17.1	X	9.89158	294.20596	91.59693	4.25416	0.1679937	0.26939244	2.3743557	20	—	—
277414	2005	UD <sub>231</sub>	17.6	X	137.78081	84.18147	43.56654	17.17306	0.2125085	0.23969744	2.5666134	20	7 8.3	22.2
277415	2005	UY <sub>231</sub>	16.9	X	78.47642	281.89395	49.33430	6.97937	0.1284909	0.27376068	2.3490306	20	—	—
277416	2005	UP <sub>233</sub>	17.6	X	155.46732	170.59802	149.11277	3.38888	0.2291060	0.28811198	2.2703623	20	—	—
277417	2005	UL <sub>253</sub>	17.1	X	162.34530	47.35136	226.57190	3.78168	0.0991346	0.28067597	2.3102868	20	—	—
277418	2005	UU <sub>256</sub>	17.8	X	334.98868	313.11414	12.44852	1.47444	0.1931949	0.26117193	2.4239206	20	8 7.7	19.6
277419	2005	US <sub>259</sub>	17.7	X	208.54987	79.24118	52.19853	7.74505	0.0658845	0.25795599	2.4440250	20	10 1.2	21.0
277420	2005	UG <sub>275</sub>	17.0	X	11.72019	280.06535	85.75969	3.29872	0.2314370	0.26861900	2.3789112	20	—	—
277421	2005	UX <sub>288</sub>	16.9	X	135.30147	211.07298	20.45258	8.03692	0.1432187	0.26301691	2.4125719	20	11 11.2	20.7
277422	2005	UT <sub>313</sub>	17.1	X	107.50686	215.74811	147.10174	7.66585	0.1438395	0.28562333	2.2835311	20	—	—
277423	2005	UC <sub>314</sub>	17.2	X	233.18959	275.58862	49.39492	23.17827	0.2628059	0.30657231	2.1782820	20	3 14.9	21.4
277424	2005	UO <sub>335</sub>	16.6	X	293.33166	151.18284	272.56871	5.24250	0.0921911	0.26092400	2.4254558	20	10 19.7	19.2
277425	2005	UC <sub>354</sub>	16.3	X	206.62706	238.96068	259.92074	13.64304	0.0401751	0.25599205	2.4565092	20	10 1.5	19.9
277426	2005	UF <sub>361</sub>	17.7	X	184.49471	224.97802	73.21626	1.25878	0.1356486	0.28917666	2.2647863	20	—	—
277427	2005	UR <sub>363</sub>	18.0	X	123.90010	217.89835	82.74469	3.30488	0.2184353	0.27891489	2.3200014	20	—	—
277428	2005	UL <sub>364</sub>	17.7	X	124.56398	97.23996	188.88443	5.34940	0.1173232	0.27371891	2.3492695	20	—	—
277429	2005	UU <sub>365</sub>	17.3	X	151.60971	174.52452	138.45560	3.66825	0.2396620	0.28649615	2.2788908	20	—	—
277430	2005	UZ <sub>368</sub>	16.1	X	293.34770	171.06557	172.98215	3.65390	0.1635563	0.18039311	3.1021021	20		

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>		
277441	2005	UN <sub>443</sub>	16.2	X	341.55555	355.96103	343.92229	5.28422	0.1597563	0.19160050	2.9799224	20	9 1.7	19.3
277442	2005	US <sub>454</sub>	17.1	X	334.60308	238.32364	161.05082	6.27543	0.1108650	0.26676532	2.3899187	20	12 2.2	19.6
277443	2005	UF <sub>456</sub>	16.6	X	220.74217	0.96126	347.91051	9.78387	0.2163203	0.23829908	2.5766443	20	3 24.2	20.9
277444	2005	UF <sub>460</sub>	17.2	X	111.81263	211.23585	269.40952	2.76220	0.1143382	0.23352126	2.6116708	20	5 22.9	20.8
277445	2005	UD <sub>464</sub>	17.1	X	214.53495	101.27982	73.97554	6.95439	0.0784196	0.26762867	2.3847762	20	12 2.8	20.1
277446	2005	UV <sub>476</sub>	17.1	X	179.04943	298.09077	69.34695	3.49797	0.1530615	0.23169580	2.6253705	20	3 15.4	21.2
277447	2005	UY <sub>480</sub>	17.0	X	126.90436	161.33811	175.24670	22.73045	0.2222167	0.28718306	2.2752555	20	—	—
277448	2005	UQ <sub>486</sub>	16.4	X	64.02645	96.20159	312.74483	12.16810	0.2056620	0.21817971	2.7327075	20	—	—
277449	2005	UM <sub>492</sub>	16.7	X	263.70854	344.07941	357.62395	8.27675	0.1021670	0.24329627	2.5412404	20	5 6.5	20.5
277450	2005	UH <sub>497</sub>	17.4	X	164.09473	223.09902	116.32690	6.30524	0.1756328	0.29417223	2.2390731	20	1 20.1	20.7
277451	2005	UT <sub>504</sub>	16.6	X	104.47574	320.33686	130.08226	5.51043	0.0241293	0.21318697	2.7752085	20	3 25.8	20.3
277452	2005	UW <sub>508</sub>	15.2	X	314.99861	256.71920	62.83985	22.39221	0.1613367	0.18126218	3.0921787	20	6 10.7	19.0
277453	2005	UY <sub>508</sub>	17.0	X	96.98131	55.21058	59.07836	3.71130	0.0302180	0.23248602	2.6194181	20	4 14.6	20.3
277454	2005	UT <sub>509</sub>	16.7	X	121.81404	145.66102	345.33139	4.66574	0.2025395	0.23770571	2.5809305	20	6 26.3	20.8
277455	2005	UK <sub>512</sub>	17.3	X	120.35051	284.99030	232.61797	3.91147	0.1977091	0.24079547	2.5588049	20	7 27.4	21.5
277456	2005	UQ <sub>512</sub>	16.8	X	199.83371	303.57785	43.62453	5.97042	0.2557075	0.23172493	2.6251505	20	3 10.4	21.5
277457	2005	UC <sub>515</sub>	15.9	X	9.22917	122.04225	117.57946	11.05371	0.1968412	0.17695790	3.1421198	20	6 7.4	19.3
277458	2005	UK <sub>518</sub>	16.1	X	258.26315	274.38457	124.99341	11.27891	0.0628273	0.18237500	3.0795872	20	7 22.6	20.3
277459	2005	UW <sub>524</sub>	17.5	X	159.91580	227.40205	159.29437	5.98075	0.2233547	0.23007125	2.6377146	20	3 24.5	21.8
277460	2005	UZ <sub>526</sub>	16.9	X	248.71570	250.88396	62.18568	2.31989	0.1019342	0.23121316	2.6290228	20	3 17.5	20.7
277461	2005	VR <sub>6</sub>	16.5	X	256.15101	58.38955	279.21416	6.38827	0.1574889	0.23900974	2.5715343	20	4 15.4	20.4
277462	2005	VR <sub>13</sub>	17.1	X	123.98581	232.26287	104.41707	6.23106	0.1387854	0.28398523	2.2923040	20	—	—
277463	2005	VV <sub>17</sub>	17.2	X	206.48499	185.41670	179.49420	5.72342	0.2918704	0.23803181	2.5785727	20	4 2.1	21.7
277464	2005	VO <sub>33</sub>	15.6	X	206.01875	136.48765	359.21688	9.40474	0.0745292	0.19115735	2.9845261	20	9 20.2	19.9
277465	2005	VO <sub>38</sub>	17.1	X	14.91158	223.30572	138.28111	4.09631	0.1033479	0.26520309	2.3992951	20	12 11.7	19.9
277466	2005	VQ <sub>50</sub>	17.1	X	307.71098	261.85675	153.71878	7.53390	0.1059767	0.26387125	2.4073616	20	11 7.5	19.6
277467	2005	VV <sub>55</sub>	17.5	X	149.29026	125.22557	4.13668	3.76924	0.0911423	0.24545299	2.5263324	20	7 16.1	21.2
277468	2005	VQ <sub>61</sub>	16.1	X	79.91800	33.54190	192.59335	5.77210	0.1018464	0.18484596	3.0520812	20	8 25.1	20.5
277469	2005	VT <sub>87</sub>	15.7	X	302.80490	255.51809	107.05342	10.60549	0.1105034	0.17852087	3.1237532	20	6 10.4	19.6
277470	2005	VO <sub>89</sub>	17.5	X	145.74640	171.32154	101.61585	5.71913	0.1625597	0.27538099	2.3398072	20	—	—
277471	2005	VP <sub>99</sub>	16.2	X	199.40509	327.41239	104.74417	3.88551	0.0337555	0.17538497	3.1608785	20	6 26.0	20.8
277472	2005	VN <sub>124</sub>	17.2	X	142.85332	57.58738	256.40532	5.64027	0.1557125	0.28248865	2.3003930	20	—	—
277473	2005	WD <sub>1</sub>	16.9	X	215.70265	285.88820	52.31034	43.08049	0.4418324	0.30219989	2.1992428	20	4 2.7	22.2
277474	2005	WE <sub>3</sub>	16.8	X	182.06029	198.13387	173.20659	8.28138	0.2251744	0.23297010	2.6157883	20	3 23.2	21.1
277475	2005	WK <sub>4</sub>	20.1	X	331.09968	74.10003	138.12840	9.84339	0.2372978	0.97007840	1.0106439	20	—	—
277476	2005	WF <sub>6</sub>	16.3	X	242.92079	25.33977	52.00432	5.81739	0.1740525	0.18316017	3.0707799	20	8 9.3	21.0
277477	2005	WJ <sub>12</sub>	16.9	X	152.05527	209.41405	66.52933	6.84716	0.0924421	0.27395054	2.3479451	20	—	—
277478	2005	WM <sub>15</sub>	17.3	X	132.18750	37.59711	257.87989	2.23538	0.1362512	0.27413607	2.3468856	20	—	—
277479	2005	WQ <sub>32</sub>	17.6	X	84.01681	297.27907	21.16003	1.23674	0.1918979	0.26998927	2.3708553	20	—	—
277480	2005	WQ <sub>33</sub>	15.6	X	263.05850	310.52600	54.30509	11.41152	0.0693894	0.17531677	3.1616982	20	6 12.1	20.1
277481	2005	WQ <sub>36</sub>	16.2	X	286.38301	218.74470	90.97860	4.93761	0.2571384	0.23974180	2.5662967	20	4 5.9	19.8
277482	2005	WR <sub>37</sub>	16.9	X	152.16534	35.71394	89.41511	2.66792	0.1154410	0.23972331	2.5664287	20	7 13.6	20.7
277483	2005	WQ <sub>48</sub>	17.3	X	264.77121	255.35909	44.95210	2.21579	0.0703786	0.23090255	2.6313800	20	3 23.0	20.8
277484	2005	WO <sub>51</sub>	17.3	X	136.87915	108.40549	41.06553	1.57720	0.0889423	0.24152480	2.5536511	20	7 28.2	21.0
277485	2005	WB <sub>57</sub>	16.8	X	132.16697	243.82930	132.13757	4.56496	0.3540583	0.22577566	2.6710661	20	2 28.4	21.4
277486	2005	WV <sub>61</sub>	16.7	X	348.05717	358.62821	277.11173	4.14371	0.1600945	0.24118315	2.5560621	20	6 15.0	19.0
277487	2005	WM <sub>73</sub>	15.4	X	212.30396	359.37735	73.91992	18.97473	0.1844143	0.17409630	3.1764573	20	7 1.2	20.7
277488	2005	WK <sub>74</sub>	16.5	X	75.98524	320.50595	111.49810	14.70784	0.1728442	0.21985819	2.7187813	20	2 13.4	19.8
277489	2005	WR <sub>79</sub>	17.1	X	135.42550	358.49001	288.69788	1.91797	0.2137855	0.27129849	2.3632217	20	—	—
277490	2005	WQ <sub>81</sub>	16.7	X	26.96470	310.85952	56.85890	7.74021	0.1065753	0.26669009	2.3903682	20	—	—
277491	2005	WU <sub>84</sub>	16.0	X	314.89536	191.61847	60.83716	15.74718	0.0995903	0.23125715	2.6286894	20	3 29.9	19.6
277492	2005	WB <sub>87</sub>	16.2	X	82.03837	206.62739	276.33334	10.16339	0.20208972	0.22503592	2.6769165	20	3 29.4	20.1
277493	2005	WH <sub>94</sub>	17.6	X	103.42441	70.74284	240.82347	3.49283	0.2187499	0.27243330	2.3566545	20	—	—
277494	2005	WK <sub>105</sub>	16.1	X	268.97453	204.93943	127.77796	12.90655	0.2683615	0.24249908	2.5468067	20	4 18.5	20.3
277495	2005	WC <sub>110</sub>	16.5	X	297.71615	274.30719	85.41184	3.76681	0.0073507	0.24698866	2.5158498	20	8 6.6	19.7
277496	2005	WD <sub>118</sub>	17.3	X	250.40633	56.29799	296.33041	3.26983	0.3313944	0.24411647	2.5355450	20	4 14.2	21.7
277497	2005	WM <sub>118</sub>	16.1	X	170.21806	156.90718	317.11841	4.49102	0.1469783	0.24238799	2.5475848	20	7 18.3	20.2
277498	2005	WT <sub>119</sub>	17.2	X	211.01227	353.78778	56.34035	3.71624	0.1211207	0.24041052	2.5615357	20	6 6.5	21.1
277499	2005	WU <sub>121</sub>	17.0	X	175.94833	209.10152	241.67324	8.61899	0.1721228	0.23965444	2.5669204	20	6 22.7	21.2
277500	2005	WP <sub>133</sub>	17.2	X	153.14669	145.50325	256.30289	5.03131	0.1404265	0.22851163	2.6497029	20	3 28.4	21.4
277501	2005	WE <sub>134</sub>	17.2	X	83.34393	258.44423	88.73055	5.63632	0.1779600	0.27129751	2.3632274	20	—	—
277502	2005	WZ <sub>134</sub>	16.0	X	190.55416	208.28949	97.36672	6.12895	0.0539132	0.21119231	2.7926551	20	1 9.2	20.1
277503	2005	WP <sub>147</sub>	16.6	X	102.68050	292.57547	201.06116	12.21612	0.1182624	0.23407615	2.6075418	20	5 30.9	20.4
277504	2005	WK <sub>151</sub>	16.8	X	80.68993	315.48394	351.22732	3.84216	0.1489496	0.26369185	2.4084534	20	12 24.4	20.5
277505	2005	WQ <sub>158</sub>	16.8	X	308.62750	41.81245	95.89008	13.64651	0.1322697	0.26785956	2.3834056	20	—	—
277506	2005	WP <sub>163</sub>	15.9	X	297.11935	260.98815	52.28405	5.03195	0.0513925	0.16998195	3.2275093	20	5 24.6	20.3
277507	2005	WQ <sub>164</sub>	17.5	X	273.40909	115.55478	225.83216	4.55756	0.1474181	0.24387158	2.5372422	20	5 15.1	20.8
277508	2005	WN <sub>172</sub>	17.5	X	179.96782	68.92425	204.80538	2.25688	0.1926547	0.27926375	2.3180689	20	—	—
277509	2005	WL <sub>176</sub>	17.3	X	153.97850	57.74378	58.43332	4.00227	0.0474114	0.23731196	2.5837846	20	6 30.9	20.8
277510	2005	WU <sub>177</sub>	16.1	X	172.79340									

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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>		
277521	2005	<i>XB</i> <sub>13</sub>	16.1	X	294.99369	78.54221	115.99963	4.61081	0.0322250	0.21261542	2.7801797	20	—	—
277522	2005	<i>XD</i> <sub>18</sub>	17.0	X	329.81158	261.61761	114.43836	3.40686	0.1793528	0.25589844	2.4571083	20	10 19.3	18.9
277523	2005	<i>XW</i> <sub>19</sub>	17.3	X	160.95230	60.32330	46.85842	3.65192	0.1022517	0.23980873	2.5658192	20	6 28.9	21.2
277524	2005	<i>XY</i> <sub>21</sub>	15.9	X	215.20554	174.87386	273.27742	4.16653	0.1359382	0.17893252	3.1189605	20	7 25.7	20.8
277525	2005	<i>XS</i> <sub>37</sub>	17.4	X	36.50846	19.87575	332.02224	0.75322	0.1956208	0.26432580	2.4046010	20	—	—
277526	2005	<i>XU</i> <sub>47</sub>	16.9	X	36.49053	135.91443	331.58324	2.73053	0.0455073	0.21508334	2.7588719	20	1 16.9	20.4
277527	2005	<i>XF</i> <sub>52</sub>	16.8	X	92.04194	81.61814	75.91898	13.62249	0.1984290	0.23005083	2.6378708	20	6 28.6	20.7
277528	2005	<i>XG</i> <sub>58</sub>	16.8	X	140.88389	211.66910	73.52409	13.33937	0.2196168	0.27375014	2.3490908	20	—	—
277529	2005	<i>XL</i> <sub>66</sub>	16.7	X	185.15081	249.99630	104.01168	9.60086	0.3484242	0.29864965	2.2166377	20	3 7.1	20.9
277530	2005	<i>XM</i> <sub>66</sub>	16.4	X	120.85098	293.14780	89.25179	27.39256	0.2991993	0.28936757	2.2637900	20	2 22.4	20.2
277531	2005	<i>XB</i> <sub>75</sub>	16.4	X	230.78786	8.16097	33.10874	4.06962	0.1599779	0.24032665	2.5621315	20	6 12.5	20.2
277532	2005	<i>XX</i> <sub>117</sub>	17.0	X	123.34018	332.52229	45.71744	4.97954	0.0842149	0.21547701	2.7555106	20	1 25.8	20.8
277533	2005	<i>YZ</i> <sub>3</sub>	16.4	X	228.41740	19.66832	60.46582	12.52797	0.1172410	0.24545022	2.5263514	20	8 10.7	20.2
277534	2005	<i>YB</i> <sub>6</sub>	17.4	X	122.03292	56.33509	91.29561	5.37837	0.1684576	0.23671283	2.5881425	20	7 15.2	21.4
277535	2005	<i>YD</i> <sub>16</sub>	17.2	X	126.58393	174.42669	266.91023	0.85660	0.0580548	0.22342388	2.6897773	20	4 12.2	20.8
277536	2005	<i>YP</i> <sub>23</sub>	16.7	X	178.78356	220.43092	108.02236	1.73211	0.0718930	0.21362103	2.7714479	20	1 24.6	20.7
277537	2005	<i>YF</i> <sub>30</sub>	16.6	X	120.81839	352.04425	125.90356	5.35959	0.2805840	0.22871565	2.6481269	20	6 15.1	21.1
277538	2005	<i>YB</i> <sub>32</sub>	17.0	X	91.43866	81.41578	318.25112	3.21812	0.1977546	0.21200531	2.7855111	20	1 28.1	20.5
277539	2005	<i>YE</i> <sub>34</sub>	16.1	X	208.54733	80.89713	113.76981	6.20150	0.0397563	0.19099735	2.9861926	20	12 8.2	20.3
277540	2005	<i>YZ</i> <sub>46</sub>	16.4	X	118.37433	30.77382	107.03983	13.49185	0.1718241	0.23051094	2.6343594	20	6 28.7	20.5
277541	2005	<i>YK</i> <sub>56</sub>	16.6	X	241.44461	326.11002	71.63513	7.74355	0.2717599	0.24184312	2.5514099	20	6 8.1	20.8
277542	2005	<i>YF</i> <sub>72</sub>	16.2	X	91.03683	242.53578	324.38817	3.63925	0.0982524	0.24153362	2.5535890	20	8 20.4	19.5
277543	2005	<i>YA</i> <sub>74</sub>	17.4	X	131.06868	78.85539	299.73772	5.53042	0.2009370	0.21862223	2.7290186	20	2 14.9	21.5
277544	2005	<i>YG</i> <sub>76</sub>	16.9	X	231.68068	334.23731	88.28481	8.21128	0.1390250	0.24292020	2.5439881	20	7 14.7	20.6
277545	2005	<i>YL</i> <sub>82</sub>	16.2	X	28.93715	144.15121	112.42655	11.54069	0.1161336	0.23630080	2.5911502	20	8 4.1	19.1
277546	2005	<i>YN</i> <sub>85</sub>	17.3	X	51.04881	218.94686	101.35305	7.89143	0.1657895	0.25732535	2.4480165	20	12 11.3	20.7
277547	2005	<i>YL</i> <sub>86</sub>	17.1	X	55.73403	165.47872	289.43629	1.91269	0.0400227	0.21376161	2.7702326	20	1 26.9	20.6
277548	2005	<i>YH</i> <sub>92</sub>	17.2	X	135.99983	287.97037	200.95257	0.58405	0.0733175	0.23359311	2.6111353	20	6 27.6	21.0
277549	2005	<i>YX</i> <sub>103</sub>	17.0	X	194.77663	203.91729	111.26663	1.87177	0.0573401	0.21489899	2.7604495	20	1 24.9	20.9
277550	2005	<i>YE</i> <sub>104</sub>	17.0	X	348.34185	39.26326	104.14495	5.42220	0.0519938	0.21005968	2.8026847	20	—	—
277551	2005	<i>YV</i> <sub>106</sub>	17.0	X	69.84743	77.27559	97.55220	3.25844	0.1286020	0.22899158	2.6459992	20	6 13.2	20.2
277552	2005	<i>YK</i> <sub>107</sub>	16.9	X	202.58659	201.92454	103.13338	1.90530	0.0495792	0.21405655	2.7676874	20	1 21.1	21.0
277553	2005	<i>YI</i> <sub>108</sub>	17.0	X	16.36306	338.47056	273.20381	3.77032	0.0283064	0.23487772	2.6016058	20	6 27.2	20.3
277554	2005	<i>YG</i> <sub>109</sub>	16.9	X	286.42903	319.50459	271.59242	3.38377	0.0671493	0.21286160	2.7780357	20	1 23.1	20.7
277555	2005	<i>YD</i> <sub>115</sub>	16.1	X	68.55935	138.76985	99.90286	9.60318	0.0800067	0.23987101	2.5653751	20	9 5.1	19.6
277556	2005	<i>YF</i> <sub>115</sub>	17.1	X	33.76020	255.14022	347.87497	3.91307	0.2046545	0.23136485	2.6278735	20	8 6.2	19.9
277557	2005	<i>YP</i> <sub>124</sub>	15.9	X	29.93796	133.94233	324.15780	7.08749	0.0691743	0.20969006	2.8059773	20	—	—
277558	2005	<i>YI</i> <sub>125</sub>	16.9	X	57.01760	40.54410	84.99909	8.72259	0.1603114	0.21871439	2.7285250	20	3 27.2	20.1
277559	2005	<i>YA</i> <sub>126</sub>	17.5	X	132.54214	148.84795	338.94329	3.82451	0.0926999	0.23348652	2.6119298	20	6 23.8	21.3
277560	2005	<i>YT</i> <sub>126</sub>	17.1	X	245.76696	333.81483	318.89379	4.11292	0.0266654	0.21890207	2.7266923	20	2 24.1	20.8
277561	2005	<i>YX</i> <sub>127</sub>	17.0	X	260.43126	306.43659	60.07252	3.19563	0.1120600	0.23825224	2.5769820	20	6 6.6	20.5
277562	2005	<i>YX</i> <sub>132</sub>	16.6	X	69.50056	127.52793	72.43223	6.49824	0.0725203	0.23525826	2.5987996	20	7 9.3	20.0
277563	2005	<i>YK</i> <sub>134</sub>	16.5	X	72.25562	178.61932	45.49039	5.75041	0.0973942	0.23885178	2.5726679	20	8 22.4	19.9
277564	2005	<i>YL</i> <sub>140</sub>	16.4	X	27.47862	15.39127	88.65643	5.03417	0.0634258	0.20967912	2.8060749	20	—	—
277565	2005	<i>YT</i> <sub>146</sub>	16.9	X	135.15419	22.48154	339.91066	4.47359	0.1720734	0.21462553	2.7627937	20	1 29.9	21.1
277566	2005	<i>YZ</i> <sub>153</sub>	16.8	X	24.24727	220.45790	73.08758	4.66520	0.1107201	0.24534335	2.5270850	20	9 21.3	19.7
277567	2005	<i>YF</i> <sub>172</sub>	16.0	X	176.29901	46.48483	58.21739	15.21805	0.0719801	0.23594109	2.5937831	20	7 13.6	20.0
277568	2005	<i>YR</i> <sub>172</sub>	16.3	X	200.30432	26.54918	68.95375	15.84965	0.1734915	0.24097684	2.5575208	20	7 24.0	20.6
277569	2005	<i>YB</i> <sub>175</sub>	16.5	X	200.18644	16.03974	300.30413	5.27306	0.0575627	0.21373948	2.7704238	20	1 31.8	20.7
277570	2005	<i>YP</i> <sub>180</sub>	19.2	X	15.63751	92.38693	288.95856	4.11142	0.6168730	0.61326742	1.3720485	20	—	—
277571	2005	<i>YQ</i> <sub>184</sub>	16.9	X	170.68815	185.05258	129.89478	1.24093	0.0704105	0.22868310	2.6483782	20	4 30.9	20.9
277572	2005	<i>YR</i> <sub>186</sub>	17.9	X	282.61043	254.82708	102.54731	15.56066	0.1679022	0.44506464	1.6989763	20	6 22.8	18.4
277573	2005	<i>YG</i> <sub>191</sub>	16.5	X	16.05555	153.96623	114.40704	13.66151	0.2518582	0.23211515	2.6222075	20	8 19.1	19.0
277574	2005	<i>YI</i> <sub>192</sub>	16.9	X	141.01679	36.58874	104.01589	3.54747	0.0637054	0.23480991	2.6021067	20	7 18.9	20.7
277575	2005	<i>YH</i> <sub>200</sub>	16.9	X	56.30591	50.50839	107.64194	13.92729	0.1983324	0.22206482	2.7007406	20	5 16.4	20.2
277576	2005	<i>YA</i> <sub>202</sub>	16.9	X	97.19120	240.69534	171.41876	2.19400	0.0770332	0.21334124	2.7738705	20	2 1.8	20.4
277577	2005	<i>YQ</i> <sub>203</sub>	16.9	X	315.42880	249.88750	301.09796	2.49487	0.0291848	0.21037627	2.7998723	20	1 15.5	20.6
277578	2005	<i>YB</i> <sub>212</sub>	16.3	X	169.79538	25.83658	76.32830	13.22950	0.1460059	0.23492848	2.6012311	20	7 1.6	20.4
277579	2005	<i>YE</i> <sub>214</sub>	16.3	X	196.63947	24.72265	55.75389	14.18286	0.1261257	0.23933357	2.5692141	20	6 30.8	20.4
277580	2005	<i>YQ</i> <sub>216</sub>	17.1	X	174.73006	8.39015	334.36094	2.77408	0.1895415	0.21868944	2.7284595	20	2 12.1	21.4
277581	2005	<i>YK</i> <sub>236</sub>	16.9	X	33.72774	128.05635	332.79695	4.35562	0.1255137	0.20986932	2.8043793	20	1 6.6	20.0
277582	2005	<i>YS</i> <sub>237</sub>	17.1	X	7.95554	313.10811	266.86968	2.65284	0.1585668	0.22264452	2.6960506	20	5 1.6	19.6
277583	2005	<i>YZ</i> <sub>268</sub>	15.9	X	79.71535	80.19276	311.83788	10.40814	0.1289258	0.20329850	2.8644853	20	—	—
277584	2005	<i>YM</i> <sub>279</sub>	16.0	X	208.57288	198.10108	105.50239	6.98532	0.1146553	0.21403192	2.7678997	20	1 26.2	20.3
277585	2005	<i>YN</i> <sub>281</sub>	17.2	X	36.94722	248.78835	93.70233	3.66353	0.1997143	0.25882707	2.4385383	20	12 27.7	20.3
277586	2006	<i>AC</i> <sub>7</sub>	16.3	X	72.66106	70.69565	81.72929	13.43061	0.1743870	0.22408912	2.6844513	20	5 26.2	19.7
277587	2006	<i>AV</i> <sub>7</sub>	16.7	X	98.19281	33.98827	91.95736	14.82427	0.2486970	0.22444741	2.6815937	20	6 2.4	20.7
277588	2006	<i>AV</i> <sub>8</sub>	17.1	X	217.36065	106.04629	197.78703	2.09269						

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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>	
277601	2006 AA <sub>46</sub>	16.9	X	92.40868	351.70474	121.72765	9.60581	0.2312006	0.22341836	2.6898216	20	5 10.4	20.9
277602	2006 AN <sub>48</sub>	16.4	X	301.60729	189.14099	158.36850	10.26337	0.0534578	0.23359338	2.6111332	20	7 16.9	19.8
277603	2006 AF <sub>63</sub>	16.8	X	176.57551	350.58441	333.58928	4.54368	0.0719739	0.21152875	2.7896932	20	1 18.0	20.9
277604	2006 AD <sub>66</sub>	16.6	X	79.58256	291.94800	171.34510	8.38828	0.1331621	0.21201583	2.7854190	20	3 24.3	20.0
277605	2006 AN <sub>67</sub>	16.6	X	220.79741	269.59023	130.64594	14.42533	0.1295896	0.23536951	2.5979807	20	6 6.3	20.8
277606	2006 AE <sub>68</sub>	16.8	X	128.69621	311.57162	145.17001	2.56286	0.0190286	0.22461266	2.6802783	20	5 1.7	20.3
277607	2006 AJ <sub>68</sub>	16.0	X	66.86052	76.28548	125.12815	14.82002	0.0706177	0.23093270	2.6311509	20	7 6.7	19.5
277608	2006 AD <sub>74</sub>	16.5	X	69.52438	304.41959	165.66688	15.47807	0.1721220	0.21740327	2.7392101	20	3 25.0	19.7
277609	2006 AS <sub>76</sub>	15.9	X	188.32555	298.12049	128.06471	15.76616	0.0908165	0.23064685	2.6333244	20	6 7.5	20.1
277610	2006 AZ <sub>81</sub>	16.6	X	165.87133	72.86527	330.30362	5.95010	0.0440613	0.22484166	2.6784581	20	4 6.6	20.5
277611	2006 AK <sub>85</sub>	16.4	X	217.32154	35.02010	2.57625	13.62846	0.2439621	0.23600745	2.5932969	20	5 16.2	21.1
277612	2006 AO <sub>100</sub>	16.8	X	120.83325	105.07143	280.29612	4.22766	0.1420828	0.21343785	2.7730333	20	2 6.1	20.8
277613	2006 AC <sub>101</sub>	16.6	X	128.70963	275.61667	134.05771	7.21449	0.0490345	0.21462211	2.7628231	20	3 7.1	20.4
277614	2006 AY <sub>1</sub>	16.8	X	112.84619	328.46175	135.50205	3.04589	0.0969776	0.22332924	2.6905371	20	5 1.7	20.5
277615	2006 BM <sub>2</sub>	16.0	X	103.95006	353.87098	137.19098	12.59263	0.1308252	0.22586701	2.6703458	20	6 1.7	20.0
277616	2006 BN <sub>6</sub>	17.4	X	162.73042	338.32487	249.71538	18.64754	0.6986500	0.23997674	2.5646215	20	11 15.5	23.5
277617	2006 BT <sub>7</sub>	18.3	X	109.12089	342.52832	298.59785	16.16190	0.6331426	0.52496566	1.5218860	20	—	—
277618	2006 BT <sub>8</sub>	16.5	X	344.42585	129.71940	331.94429	7.69891	0.1784358	0.20661890	2.8337141	20	—	—
277619	2006 BS <sub>9</sub>	16.2	X	59.12529	180.59000	60.91931	3.92742	0.0722397	0.23576376	2.5950836	20	8 23.1	19.5
277620	2006 BL <sub>11</sub>	15.8	X	37.70675	195.18042	327.79009	13.38624	0.2023028	0.21560853	2.5743900	20	4 6.1	18.8
277621	2006 BZ <sub>23</sub>	15.7	X	56.41339	176.07830	319.22691	11.29012	0.1033256	0.21575899	2.7531093	20	3 21.5	19.3
277622	2006 BE <sub>24</sub>	16.7	X	144.54906	341.95225	111.49343	3.68021	0.1709566	0.22862508	2.6488263	20	5 28.9	21.0
277623	2006 BV <sub>30</sub>	15.8	X	277.70909	152.81933	338.46105	6.11385	0.1387097	0.19004269	2.9961849	20	12 2.3	19.6
277624	2006 BY <sub>30</sub>	16.6	X	148.24922	343.12644	104.60037	3.35122	0.1436714	0.22748556	2.6576645	20	5 23.6	20.7
277625	2006 BX <sub>33</sub>	16.3	X	52.19854	11.40064	149.96438	6.42186	0.0414052	0.21751209	2.7382963	20	4 19.7	19.9
277626	2006 BZ <sub>37</sub>	16.8	X	151.03512	65.16970	349.12558	5.69713	0.0418302	0.21837816	2.7310517	20	4 4.4	20.6
277627	2006 BF <sub>40</sub>	16.5	X	122.59330	326.53603	138.60390	3.10079	0.0504654	0.22245353	2.6975935	20	5 9.2	20.3
277628	2006 BU <sub>40</sub>	16.1	X	318.83849	14.32643	318.26676	6.24548	0.1358694	0.23512918	2.5997507	20	7 16.0	18.8
277629	2006 BZ <sub>42</sub>	16.4	X	225.36040	296.12207	107.68236	5.00599	0.2360749	0.23767590	2.5811463	20	6 5.2	20.7
277630	2006 BA <sub>56</sub>	16.8	X	104.81046	341.11116	157.35181	2.22635	0.0142687	0.22508221	2.6765494	20	5 24.9	20.3
277631	2006 BU <sub>63</sub>	17.5	X	129.85220	174.29765	287.93259	2.48518	0.1445185	0.22710233	2.6606535	20	5 22.4	21.4
277632	2006 BQ <sub>69</sub>	16.6	X	76.11018	152.65457	11.25614	4.44507	0.0872778	0.22528947	2.6749076	20	5 30.4	20.2
277633	2006 BG <sub>72</sub>	16.0	X	285.23721	120.70519	30.75401	4.28227	0.0496188	0.19441783	2.9510642	20	—	—
277634	2006 BN <sub>76</sub>	17.3	X	359.62580	38.34725	35.97314	2.21048	0.0940730	0.19673562	2.9278403	20	—	—
277635	2006 BH <sub>82</sub>	16.1	X	294.38614	161.54196	142.53314	12.77093	0.1659541	0.21987938	2.7186067	20	4 25.5	19.9
277636	2006 BK <sub>89</sub>	16.7	X	150.61308	325.70109	111.29493	3.31357	0.0650915	0.22515420	2.6759789	20	5 7.6	20.5
277637	2006 BV <sub>95</sub>	16.2	X	349.90995	187.75039	158.59003	17.67245	0.2233982	0.24181785	2.5515876	20	10 21.9	18.7
277638	2006 BD <sub>101</sub>	16.0	X	35.74880	313.14668	258.00250	11.96933	0.1380781	0.22431333	2.6826622	20	6 11.5	18.8
277639	2006 BU <sub>103</sub>	16.2	X	214.43340	233.07857	148.82280	6.61849	0.0496751	0.22394920	2.6855694	20	5 11.5	20.1
277640	2006 BW <sub>108</sub>	16.8	X	333.43976	214.35222	108.35341	3.95476	0.0549559	0.23705833	2.5856272	20	8 2.3	19.7
277641	2006 BR <sub>109</sub>	15.5	X	93.73608	307.84600	333.05617	8.86309	0.0393626	0.18261739	3.0768615	20	11 6.9	20.2
277642	2006 BU <sub>109</sub>	17.1	X	75.87946	107.44811	95.55791	3.83874	0.0483482	0.23233918	2.6205217	20	7 18.3	20.6
277643	2006 BO <sub>112</sub>	16.7	X	13.16423	220.93999	332.75014	6.90747	0.1473660	0.21695996	2.7429400	20	4 1.4	19.5
277644	2006 BG <sub>112</sub>	16.7	X	352.87812	161.89923	100.59374	3.09809	0.0419234	0.22778939	2.6553008	20	6 7.3	20.0
277645	2006 BW <sub>112</sub>	16.9	X	322.91439	208.89334	90.44499	2.96256	0.0436082	0.22952500	2.6418981	20	6 13.2	20.1
277646	2006 BA <sub>118</sub>	16.8	X	303.85388	343.06450	345.94735	4.04774	0.2306265	0.23585092	2.5944442	20	5 26.8	19.8
277647	2006 BM <sub>118</sub>	16.0	X	167.19003	290.45013	321.03319	9.54618	0.0595945	0.18748347	3.0233892	20	12 27.6	20.6
277648	2006 BP <sub>123</sub>	16.5	X	342.52070	215.32297	97.97600	0.43955	0.0921504	0.23314600	2.6144725	20	8 2.1	19.2
277649	2006 BT <sub>128</sub>	17.0	X	8.94840	271.50776	12.88106	0.53498	0.1141916	0.23280912	2.6169940	20	8 8.4	19.9
277650	2006 BJ <sub>130</sub>	16.8	X	60.42025	335.65119	170.01033	3.55231	0.1347339	0.21690655	2.7433903	20	4 21.7	20.0
277651	2006 BW <sub>130</sub>	16.2	X	239.57508	181.87864	155.52074	7.72123	0.0598241	0.21802753	2.7339789	20	4 13.4	20.1
277652	2006 BX <sub>131</sub>	16.4	X	332.38385	141.54160	158.48782	11.49945	0.2037513	0.22484951	2.6783958	20	6 15.2	19.2
277653	2006 BQ <sub>135</sub>	15.6	X	137.20841	286.27427	144.35093	14.27452	0.0665311	0.21894583	2.7263290	20	4 17.9	19.7
277654	2006 BB <sub>140</sub>	15.9	X	143.37813	347.66552	138.02873	12.60798	0.1238877	0.22892975	2.6464756	20	7 4.8	20.1
277655	2006 BP <sub>141</sub>	15.7	X	10.80308	93.81024	326.73579	7.92148	0.0439980	0.19456700	2.9495556	20	—	—
277656	2006 BV <sub>141</sub>	16.8	X	69.30924	55.32091	74.22739	0.76838	0.0136853	0.21460971	2.7629295	20	3 27.0	20.4
277657	2006 BM <sub>150</sub>	16.9	X	162.18159	353.31323	77.77133	4.88920	0.2099858	0.23024552	2.6363835	20	5 18.4	21.4
277658	2006 BD <sub>165</sub>	16.6	X	1.53510	281.11222	335.21980	2.95184	0.1726945	0.22241679	2.6978906	20	6 13.6	19.1
277659	2006 BP <sub>169</sub>	17.3	X	130.43115	322.51838	145.72405	2.99054	0.0543533	0.22359505	2.6884044	20	5 23.1	21.0
277660	2006 BP <sub>178</sub>	16.6	X	107.89312	212.49837	121.53913	3.11856	0.0900144	0.19674986	2.9276990	20	—	—
277661	2006 BW <sub>186</sub>	16.1	X	57.05127	27.67170	136.20553	13.89807	0.1871685	0.21862800	2.7289707	20	5 23.3	19.6
277662	2006 BD <sub>193</sub>	16.4	X	342.80826	73.99292	152.19264	9.47179	0.1544937	0.21547899	2.7554937	20	3 26.1	19.4
277663	2006 BR <sub>194</sub>	16.5	X	67.66761	228.84383	278.32188	3.20939	0.0417642	0.22038039	2.7144848	20	4 18.4	20.1
277664	2006 BX <sub>195</sub>	16.2	X	303.09377	277.13542	193.99507	2.85902	0.0526545	0.18970240	2.9997668	20	12 22.9	20.1
277665	2006 BC <sub>197</sub>	16.8	X	6.45493	133.47547	164.51054	7.78448	0.1961735	0.23386485	2.6091122	20	9 1.9	19.1
277666	2006 BN <sub>200</sub>	16.7	X	289.36060	277.38420	116.97780	12.22948	0.1509601	0.24590060	2.5232658	20	8 25.1	19.6
277667	2006 BM <sub>203</sub>	16.7	X	111.48897	4.42538	115.15687	3.11514	0.0345214	0.22363554	2.6880799	20	5 11.8	20.2
277668	2006 BO <sub>203</sub>	16.8	X	310.08877	87.12593	123.22027	5.94314	0.1851650	0.27524775	2.3405623	20	—	—
277669	2006 BC <sub>206</sub>	17.2	X	27.21627	147.69974	140.95667	8.28426	0.1843091	0.23958598	2.5674093	20	9 30.0	20.1
277670	2006 BS <sub>213</sub>	16.2	X	322.23913	51.52392	108.93863	5.67908	0.1620344	0.20185899	2.8780875	20	—	—
277671	2006 BM <sub>214</sub>	15.4	X	8.79117	255.07059	297.70108	13.66331	0.0323119	0.21760994	2.7374755	20	3 19.6	19.3
277672	2006 BF <sub>215</sub>												

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
277681 2006 BT <sub>263</sub>	16.6	X	332.33771	180.64485	124.39136	5.05742	0.0921028	0.22831624	2.6512144	20	7 2.3	19.5
277682 2006 BN <sub>266</sub>	16.0	X	303.29722	2.23177	190.87184	11.85630	0.1707465	0.19378651	2.9574700	20	—	—
277683 2006 BX <sub>267</sub>	15.9	X	23.11911	69.51888	109.87236	10.18740	0.0834242	0.21620367	2.7493329	20	4 6.6	19.4
277684 2006 BY <sub>268</sub>	15.5	X	105.74858	7.31038	337.71740	9.53987	0.0078869	0.19782697	2.9170624	20	—	—
277685 2006 BB <sub>274</sub>	16.7	X	337.73176	334.57841	174.46720	6.68331	0.0481523	0.27144203	2.3623885	20	—	—
277686 2006 BX <sub>275</sub>	17.0	X	354.66282	150.07360	137.44801	10.21210	0.0943657	0.23499290	2.6007557	20	7 16.2	19.9
277687 2006 BC <sub>276</sub>	16.6	X	168.82371	216.12320	62.07726	2.95929	0.0459598	0.19569594	2.9382010	20	—	—
277688 2006 BB <sub>277</sub>	17.4	X	27.94633	170.78553	343.73376	3.38905	0.0374869	0.21457904	2.7631928	20	3 4.9	20.8
277689 2006 BQ <sub>277</sub>	16.3	X	278.79174	181.21468	159.68637	9.16726	0.0956619	0.22651683	2.6652364	20	5 31.5	20.0
277690 2006 BS <sub>278</sub>	16.6	X	218.55392	269.38860	55.69474	1.21879	0.0717401	0.21307795	2.7761550	20	3 3.0	20.6
277691 2006 CW <sub>3</sub>	16.4	X	20.34517	119.41065	143.62593	10.74345	0.1501408	0.23231670	2.6206907	20	7 31.8	19.1
277692 2006 CL <sub>19</sub>	16.1	X	62.27901	225.18281	293.42976	5.41955	0.0291024	0.22254915	2.6968208	20	4 23.4	19.7
277693 2006 CE <sub>26</sub>	16.0	X	68.55314	275.05609	97.08689	3.17878	0.1057399	0.19819653	2.9134351	20	—	—
277694 2006 CF <sub>34</sub>	17.0	X	249.60962	36.34097	205.74917	2.22948	0.1329314	0.27179626	2.3603355	20	—	—
277695 2006 CB <sub>38</sub>	17.1	X	99.30459	307.64383	171.30708	7.37177	0.2342844	0.22191558	2.7019513	20	5 23.6	21.2
277696 2006 CP <sub>40</sub>	16.9	X	80.43351	45.77789	122.69452	4.90982	0.0282712	0.22336242	2.6902707	20	6 4.0	20.4
277697 2006 CM <sub>41</sub>	16.7	X	313.33348	286.68239	320.80041	8.24118	0.0974060	0.21242342	2.7818548	20	3 11.4	20.5
277698 2006 CQ <sub>43</sub>	16.3	X	300.80409	271.30123	358.67966	11.81263	0.1059745	0.21392017	2.7688636	20	3 24.1	19.8
277699 2006 CT <sub>47</sub>	16.9	X	341.99956	15.03921	150.82859	7.40693	0.0539146	0.27841104	2.3227996	20	1 1.5	19.8
277700 2006 CC <sub>57</sub>	16.5	X	356.86758	76.05371	157.06715	7.39672	0.0310029	0.22069771	2.7118822	20	5 6.2	20.0
277701 2006 CD <sub>61</sub>	15.8	X	59.81590	140.63863	106.89010	15.91871	0.0720842	0.23774724	2.5806299	20	9 5.3	19.4
277702 2006 CU <sub>65</sub>	16.3	X	267.53903	129.68799	88.26025	3.74979	0.1695909	0.19089021	2.9873099	20	—	—
277703 2006 CL <sub>66</sub>	16.7	X	141.92930	251.09131	191.45668	5.09667	0.0280907	0.21979215	2.7193259	20	4 30.9	20.5
277704 2006 DC	15.8	X	64.45076	56.39994	107.79969	10.57950	0.0852491	0.22224574	2.6992747	20	5 17.9	19.4
277705 2006 DR <sub>4</sub>	16.7	X	326.82608	175.16356	149.15697	8.04940	0.1840909	0.23029789	2.6359839	20	7 11.9	19.2
277706 2006 DU <sub>11</sub>	16.1	X	163.34624	109.85486	276.51262	4.68505	0.0412067	0.21920216	2.7242032	20	3 13.4	20.0
277707 2006 DG <sub>14</sub>	16.0	X	62.28438	26.76808	130.22050	9.11111	0.1585358	0.21723474	2.7406265	20	5 16.2	19.5
277708 2006 DM <sub>22</sub>	16.7	X	35.36980	128.52673	13.44618	4.11666	0.0459323	0.21036713	2.7995533	20	3 1.2	20.3
277709 2006 DG <sub>24</sub>	16.2	X	25.46350	116.98687	46.62870	8.15963	0.1611841	0.21427557	2.7658011	20	3 21.5	19.1
277710 2006 DR <sub>24</sub>	16.7	X	354.01425	196.80502	355.89174	3.19915	0.0358026	0.21168168	2.7883494	20	3 7.8	20.3
277711 2006 DA <sub>27</sub>	16.2	X	152.88080	242.50879	157.06307	4.81327	0.0794472	0.21309444	2.7760117	20	3 25.1	20.2
277712 2006 DU <sub>30</sub>	16.4	X	8.90590	42.88167	167.16919	4.98320	0.0907192	0.21546427	2.7556193	20	4 21.7	19.5
277713 2006 DY <sub>30</sub>	16.5	X	30.71026	32.08544	163.98709	5.21593	0.0907432	0.21736898	2.7394981	20	5 8.6	19.8
277714 2006 DB <sub>31</sub>	16.7	X	37.85498	153.00892	347.43048	2.08361	0.1588292	0.21053583	2.7984574	20	3 8.9	19.7
277715 2006 DW <sub>31</sub>	16.7	X	352.60596	84.30446	169.98732	4.67373	0.0470310	0.22132489	2.7067566	20	5 27.1	20.1
277716 2006 DS <sub>32</sub>	16.5	X	102.40883	252.86761	169.33627	2.37599	0.0518421	0.20725414	2.8279207	20	2 18.5	20.4
277717 2006 DR <sub>33</sub>	16.5	X	159.42141	222.42213	8.96067	4.36697	0.0790036	0.17798689	3.1299978	20	11 21.7	21.3
277718 2006 DR <sub>43</sub>	16.4	X	235.29945	12.18057	344.79688	11.59500	0.1981552	0.22315799	2.6919135	20	4 14.4	20.9
277719 2006 DF <sub>45</sub>	16.6	X	194.46652	17.51681	351.52045	4.87433	0.0695754	0.21609723	2.7502357	20	3 29.7	20.7
277720 2006 DJ <sub>49</sub>	16.6	X	35.75149	127.77088	0.67760	7.59405	0.1702909	0.20995256	2.8036379	20	2 20.5	19.5
277721 2006 DS <sub>50</sub>	16.2	X	135.71807	207.64964	151.43218	8.58576	0.0880266	0.20935223	2.8089952	20	1 15.9	20.3
277722 2006 DH <sub>52</sub>	16.6	X	149.35979	1.04649	107.50027	3.21654	0.0176273	0.22601837	2.6691535	20	6 12.6	20.1
277723 2006 DQ <sub>55</sub>	16.5	X	206.37979	257.32477	117.71594	6.00028	0.1279328	0.22007282	2.7170134	20	4 20.9	20.9
277724 2006 DN <sub>57</sub>	16.8	X	296.71097	329.91651	266.35007	1.39777	0.1217115	0.20511110	2.8475844	20	2 4.5	20.7
277725 2006 DR <sub>57</sub>	16.6	X	107.22308	256.47006	189.34121	2.59211	0.0460330	0.21251390	2.7810651	20	3 24.2	20.3
277726 2006 DX <sub>62</sub>	16.0	X	188.30666	192.89104	9.70651	28.24822	0.1161282	0.17924116	3.1153790	20	11 4.5	20.3
277727 2006 DL <sub>70</sub>	16.4	X	124.31613	50.18955	358.34161	5.10053	0.0391109	0.21171312	2.7880734	20	2 27.6	20.2
277728 2006 DW <sub>74</sub>	16.6	X	307.07916	247.89961	347.83468	6.86617	0.1654750	0.20965708	2.8062716	20	2 11.7	20.3
277729 2006 DY <sub>75</sub>	16.6	X	192.77666	223.55009	130.66555	3.64334	0.0906075	0.21266781	2.7797231	20	3 12.0	20.7
277730 2006 DO <sub>78</sub>	16.3	X	88.55808	331.52657	347.59862	7.71805	0.1038296	0.18439997	3.0570003	20	12 27.3	21.0
277731 2006 DO <sub>80</sub>	16.5	X	191.58788	209.67517	173.04516	4.89868	0.1336173	0.21846812	2.7303019	20	4 14.5	20.8
277732 2006 DW <sub>81</sub>	16.4	X	227.93849	184.21935	168.57959	6.37487	0.0447861	0.21740214	2.7392195	20	4 19.9	20.3
277733 2006 DL <sub>88</sub>	16.5	X	102.64848	133.19637	170.96005	10.32389	0.0949698	0.18129584	3.0917960	20	12 22.2	21.4
277734 2006 DS <sub>88</sub>	16.8	X	21.41512	330.47243	165.76760	6.43218	0.0251613	0.20494753	2.8490994	20	2 1.9	20.5
277735 2006 DV <sub>88</sub>	16.2	X	17.50123	2.04639	167.64924	9.77858	0.0732873	0.21038542	2.7997911	20	3 10.7	19.7
277736 2006 DL <sub>92</sub>	16.5	X	250.28527	239.27320	67.10845	1.28544	0.0507177	0.20995808	2.8035889	20	3 17.4	20.4
277737 2006 DW <sub>93</sub>	16.1	X	159.52546	221.86476	1.15881	9.95109	0.0601102	0.17587509	3.1550033	20	11 9.9	20.9
277738 2006 DK <sub>95</sub>	16.4	X	83.77822	335.05941	166.90616	1.80313	0.0442706	0.21605030	2.7506340	20	5 6.2	20.0
277739 2006 DN <sub>95</sub>	15.6	X	101.56769	150.19185	186.65594	27.58742	0.1245477	0.18470697	3.0536121	20	—	—
277740 2006 DV <sub>99</sub>	16.8	X	219.86324	310.63445	23.32795	3.67750	0.0993578	0.21334886	2.7738044	20	3 14.5	20.9
277741 2006 DD <sub>102</sub>	16.8	X	162.45642	24.10660	30.56624	4.14907	0.0961771	0.21930264	2.7233710	20	4 23.0	20.8
277742 2006 DJ <sub>104</sub>	16.1	X	131.74183	345.32126	319.44420	2.53680	0.0863515	0.18721909	3.0262348	20	—	—
277743 2006 DJ <sub>105</sub>	16.3	X	120.04585	320.27855	162.03556	8.09350	0.1223283	0.22340766	2.6899075	20	6 6.2	20.4
277744 2006 DV <sub>106</sub>	17.0	X	160.43875	300.18023	348.82148	15.58376	0.1821569	0.25664826	2.4523201	20	—	—
277745 2006 DK <sub>107</sub>	16.4	X	191.36472	213.46130	162.56643	11.33456	0.0307504	0.21551348	2.7551997	20	4 7.6	20.3
277746 2006 DS <sub>107</sub>	16.2	X	356.95981	214.44317	174.73475	6.00309	0.1592025	0.18085807	3.0967831	20	12 3.8	19.9
277747 2006 DQ <sub>108</sub>	16.4	X	353.75089	25.99910	192.86989	4.81014	0.0972467	0.21326387	2.7745413	20	4 7.0	19.6
277748 2006 DC <sub>109</sub>	16.4	X	302.96007	320.89984	317.69369	3.28447	0.1753258	0.21262270	2.7801163	20	3 27.1	20.1
277749 2006 DD <sub>111</sub>	15.8	X	184.33613	202.59177	9.96691	27.97260	0.1011912	0.18192920	3.0846160	20	11 13.9	21.0
277750 2006 DW <sub>116</sub>	15.8	X	268.25141	265.70125	61.64401	15.26289	0.0531388	0.22151587	2.7052007	20	5 6.5	19.5
277751 2006 DK <sub>121</sub>	16.5	X	343.76159	177.82493	48.98938	8.54796	0.1454918	0.21498586	2.7597058	20	3 31.1	19.7
277752 2006 DE <sub>129</sub>	16.2	X	240.39571	301.66841	25.38988	6.16505	0.1078358	0.21572377	2.7534089	20	3 26.7	20.3
277753 2006 DZ <sub>130</sub>	16.4	X	144.26517	328.77297	62.26505	5.27667	0.0810706	0.21102599	2.7941223	20	3 7.0	20.5
277754 2006 DG <sub>131</sub>												

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
277761 2006 <i>DM</i> <sub>147</sub>	16.7	X	147.11626	273.77806	131.76191	1.01562	0.0755314	0.21357977	2.7718048	20	3 25.1	20.6
277762 2006 <i>DY</i> <sub>150</sub>	16.2	X	68.80235	73.16390	332.71166	4.99368	0.0754749	0.19742693	2.9210016	20	—	—
277763 2006 <i>DN</i> <sub>153</sub>	16.5	X	87.25116	270.46253	195.40242	7.32472	0.1911490	0.21421620	2.7663121	20	4 15.6	20.1
277764 2006 <i>DA</i> <sub>157</sub>	15.8	X	101.30552	298.52058	1.24087	7.72232	0.0913503	0.18117609	3.0931582	20	12 14.8	20.6
277765 2006 <i>DA</i> <sub>159</sub>	16.4	X	43.29598	332.94477	164.85145	13.28214	0.1264844	0.21137207	2.7910716	20	3 12.8	19.4
277766 2006 <i>DH</i> <sub>160</sub>	16.8	X	299.29633	191.96370	151.37102	3.83640	0.1172272	0.22924948	2.6440144	20	6 28.9	20.1
277767 2006 <i>DP</i> <sub>160</sub>	16.8	X	239.17201	41.80755	167.12789	10.33725	0.0489253	0.19162404	2.9796784	20	—	—
277768 2006 <i>DC</i> <sub>163</sub>	16.3	X	10.14460	340.13205	184.06795	4.16276	0.0433462	0.20951145	2.8075718	20	2 21.1	19.8
277769 2006 <i>DR</i> <sub>172</sub>	16.3	X	193.26221	214.45339	154.52213	6.87619	0.0496184	0.21357662	2.7718320	20	3 31.2	20.4
277770 2006 <i>DL</i> <sub>176</sub>	16.3	X	352.94957	226.39458	356.12455	9.78945	0.0980569	0.21509939	2.7587346	20	4 7.7	19.6
277771 2006 <i>DH</i> <sub>177</sub>	16.7	X	179.75009	23.07404	5.35799	3.79641	0.0568020	0.21624642	2.7489706	20	4 7.0	20.7
277772 2006 <i>DP</i> <sub>185</sub>	16.0	X	49.00230	328.19602	56.45275	5.15037	0.1322933	0.18834469	3.0141657	20	—	—
277773 2006 <i>DS</i> <sub>186</sub>	16.6	X	220.62291	196.18301	119.01544	3.00398	0.0525192	0.20581341	2.8411028	20	2 23.9	20.6
277774 2006 <i>DG</i> <sub>187</sub>	16.1	X	172.71823	262.57337	123.16200	2.97536	0.0824350	0.21242419	2.7818481	20	3 29.9	20.3
277775 2006 <i>DY</i> <sub>189</sub>	16.7	X	90.27794	132.93040	318.21996	3.45369	0.0303197	0.20973725	2.8055564	20	3 6.5	20.5
277776 2006 <i>DQ</i> <sub>200</sub>	15.3	X	189.80578	32.14289	189.26446	17.49881	0.2290381	0.17762116	3.1342929	20	12 2.7	20.8
277777 2006 <i>DT</i> <sub>202</sub>	17.0	X	273.84947	104.13102	96.10416	6.09200	0.1368596	0.26744701	2.3858559	20	—	—
277778 2006 <i>DC</i> <sub>204</sub>	15.8	X	10.74621	355.10960	212.87586	15.05948	0.0680641	0.21563457	2.7541682	20	4 19.9	19.2
277779 2006 <i>DQ</i> <sub>204</sub>	16.1	X	74.33301	98.84813	97.74171	13.78025	0.1096240	0.22842989	2.6503350	20	7 16.8	19.6
277780 2006 <i>DR</i> <sub>206</sub>	16.7	X	50.52354	191.97604	306.18629	3.35736	0.0094121	0.21069206	2.7970738	20	3 11.7	20.6
277781 2006 <i>DK</i> <sub>209</sub>	16.5	X	218.21363	188.27643	150.08959	5.71252	0.1691879	0.20947749	2.8078753	20	3 15.8	21.0
277782 2006 <i>DX</i> <sub>210</sub>	16.4	X	293.34513	165.45274	167.52225	6.33721	0.0838425	0.22449917	2.6811815	20	6 10.9	19.9
277783 2006 <i>DF</i> <sub>211</sub>	16.9	X	310.64796	63.68161	172.93061	4.07862	0.0418374	0.20873286	2.8145491	20	3 4.7	20.6
277784 2006 <i>DV</i> <sub>211</sub>	16.1	X	225.62447	243.62779	3.22972	10.72818	0.0846464	0.19152082	2.9807488	20	—	—
277785 2006 <i>DX</i> <sub>211</sub>	16.1	X	310.50614	355.58547	190.04794	13.95793	0.0900280	0.19731523	2.9221038	20	—	—
277786 2006 <i>DC</i> <sub>212</sub>	16.7	X	252.73563	145.21981	192.31331	5.87364	0.0356052	0.21819174	2.7326070	20	5 1.0	20.4
277787 2006 <i>DG</i> <sub>216</sub>	16.0	X	261.68808	113.29181	187.58467	4.13320	0.0407860	0.21127937	2.7918880	20	3 24.4	19.8
277788 2006 <i>EK</i> <sub>2</sub>	16.5	X	254.06408	176.75822	74.16458	3.11518	0.0201288	0.20113307	2.8850082	20	1 17.6	20.5
277789 2006 <i>ES</i> <sub>9</sub>	16.9	X	178.57571	307.60838	36.75639	2.33913	0.0774917	0.20519491	2.8468090	20	2 14.7	21.1
277790 2006 <i>EG</i> <sub>10</sub>	16.2	X	84.37768	353.24966	151.69272	5.39675	0.0547185	0.21886927	2.7269647	20	5 13.7	19.8
277791 2006 <i>EM</i> <sub>12</sub>	16.5	X	206.97687	202.49684	173.25714	14.36341	0.1191271	0.21840681	2.7308128	20	4 22.8	20.9
277792 2006 <i>EV</i> <sub>14</sub>	16.2	X	9.80662	170.35909	8.02439	3.60022	0.0312916	0.20998846	2.8033184	20	3 11.8	19.9
277793 2006 <i>ET</i> <sub>23</sub>	16.8	X	162.55102	275.26510	153.97434	2.18566	0.0519567	0.22235823	2.6983643	20	5 10.4	20.7
277794 2006 <i>EY</i> <sub>34</sub>	16.6	X	44.03952	120.74681	39.81588	4.11330	0.0334496	0.21266492	2.7797484	20	4 5.2	20.1
277795 2006 <i>EJ</i> <sub>35</sub>	16.1	X	154.25408	36.80699	0.27251	12.38951	0.1113235	0.21227663	2.7831371	20	3 24.4	20.2
277796 2006 <i>EY</i> <sub>44</sub>	16.4	X	249.88733	254.38765	120.82754	3.43286	0.1114903	0.22565482	2.6720196	20	6 5.7	20.2
277797 2006 <i>EZ</i> <sub>55</sub>	16.4	X	189.58679	215.77713	184.03169	9.23237	0.0179443	0.21948281	2.7218804	20	5 5.4	20.2
277798 2006 <i>EA</i> <sub>57</sub>	16.5	X	83.37161	273.11472	189.00254	7.95032	0.1729595	0.21471950	2.7619876	20	4 3.2	19.9
277799 2006 <i>EM</i> <sub>73</sub>	16.8	X	228.77371	216.96021	164.32697	3.87413	0.0858417	0.22180265	2.7028684	20	5 23.4	20.7
277800 2006 <i>EV</i> <sub>73</sub>	15.3	X	54.97567	114.72951	160.83091	16.71650	0.0796256	0.15658964	3.4090029	20	9 21.4	20.0
277801 2006 <i>FC</i> <sub>5</sub>	16.5	X	183.60709	29.30841	354.45430	9.34554	0.1120923	0.21672127	2.7449537	20	4 4.7	20.8
277802 2006 <i>FH</i> <sub>6</sub>	15.4	X	313.13124	28.88935	159.65041	15.54794	0.0937961	0.19891476	2.9064178	20	1 2.3	19.6
277803 2006 <i>FN</i> <sub>7</sub>	16.0	X	145.57389	143.79054	195.05966	9.67140	0.0232049	0.19292256	2.9662930	20	—	—
277804 2006 <i>FJ</i> <sub>8</sub>	16.7	X	293.61832	198.75576	72.97688	0.59865	0.0286401	0.20907264	2.8114989	20	3 29.9	20.6
277805 2006 <i>FS</i> <sub>19</sub>	16.4	X	277.13040	160.23965	40.24699	2.42406	0.0334660	0.19148189	2.9811528	20	—	—
277806 2006 <i>FC</i> <sub>21</sub>	16.4	X	272.15920	281.11874	17.18565	8.75180	0.1239194	0.21140193	2.7908088	20	3 24.4	20.3
277807 2006 <i>FH</i> <sub>24</sub>	15.4	X	236.62081	119.80310	27.48523	20.98269	0.0284631	0.17463795	3.1698859	20	11 7.3	20.0
277808 2006 <i>FA</i> <sub>25</sub>	16.7	X	191.73655	92.37340	192.89357	1.03623	0.1101590	0.19002205	2.9964018	20	—	—
277809 2006 <i>FP</i> <sub>33</sub>	15.8	X	170.79712	287.69343	30.78079	11.00163	0.0935846	0.19049688	2.9914206	20	1 10.5	20.6
277810 2006 <i>FV</i> <sub>35</sub>	21.6	X	269.55811	170.81883	179.49306	7.10372	0.3774716	0.98361217	1.0013520	20	3 19.9	20.9
277811 2006 <i>FM</i> <sub>36</sub>	16.1	X	228.50062	46.45145	99.17964	3.03000	0.0438511	0.17542097	3.1604460	20	10 30.3	20.5
277812 2006 <i>FJ</i> <sub>38</sub>	16.3	X	252.39972	209.61289	154.25286	7.61478	0.1075462	0.22175470	2.7032580	20	5 26.6	20.3
277813 2006 <i>FJ</i> <sub>46</sub>	15.5	X	164.95949	58.25617	136.34804	5.31319	0.1191795	0.17227172	3.1988464	20	10 16.7	20.6
277814 2006 <i>FJ</i> <sub>54</sub>	16.8	X	304.03054	244.35887	336.93356	0.73658	0.0271085	0.20178589	2.8787825	20	2 9.5	20.8
277815 2006 <i>FB</i> <sub>55</sub>	16.4	X	194.61433	178.52190	170.56150	5.25759	0.0743743	0.21055705	2.7982694	20	3 6.4	20.5
277816 Varese	18.6	X	287.61880	138.41584	19.88904	22.02798	0.0616590	0.39859234	1.8285917	20	—	—
277817 2006 <i>GT</i>	15.9	X	238.17492	92.06793	15.90954	24.64236	0.1265813	0.17244607	3.1966899	20	9 21.1	20.8
277818 2006 <i>GR</i> <sub>18</sub>	16.6	X	317.33757	96.34619	97.41011	3.10746	0.0260483	0.19858353	2.9096487	20	1 23.9	20.4
277819 2006 <i>GL</i> <sub>19</sub>	16.9	X	300.60871	118.05896	87.52143	3.20165	0.0291283	0.19736508	2.9216118	20	1 17.5	20.9
277820 2006 <i>GT</i> <sub>29</sub>	16.5	X	194.59499	79.39788	204.95267	4.54163	0.1089122	0.18870814	3.0102943	20	—	—
277821 2006 <i>GY</i> <sub>29</sub>	14.6	X	177.28921	105.40440	99.40356	17.55830	0.1965388	0.17430938	3.1738681	20	11 10.4	20.1
277822 2006 <i>GV</i> <sub>44</sub>	16.5	X	323.29506	288.55009	357.15243	2.92812	0.1683789	0.21712048	2.7415880	20	5 8.9	19.7
277823 2006 <i>GV</i> <sub>50</sub>	15.0	X	187.89014	101.43423	67.42330	18.19749	0.0513426	0.17159817	3.2072116	20	10 18.0	20.0
277824 2006 <i>HB</i> <sub>2</sub>	15.2	X	177.50831	138.70792	57.92249	16.22754	0.1271114	0.17450590	3.1714848	20	10 31.9	20.3
277825 2006 <i>HY</i> <sub>3</sub>	16.3	X	203.39547	257.31855	54.81358	12.82418	0.0322933	0.19744842	2.9207896	20	2 6.1	20.7
277826 2006 <i>HC</i> <sub>10</sub>	16.0	X	98.45280	237.47053								

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>		
277841	2006	HE <sub>79</sub>	16.0 <sup>m</sup>	X	274.08127	261.08284	222.69635	7.99085	0.0649524	0.17501926	3.1652802	20	11 25.1	20.3
277842	2006	HB <sub>84</sub>	15.6	X	8.35273	329.23061	90.57387	8.58285	0.0203764	0.17754237	3.1352201	20	—	—
277843	2006	HH <sub>86</sub>	17.7	X	295.97732	162.04595	134.75210	3.11838	0.2064516	0.27874646	3.2309359	20	4 3.8	20.4
277844	2006	HL <sub>92</sub>	16.0	X	304.52477	346.43292	122.26898	6.21491	0.0920291	0.17734121	3.1375905	20	12 16.7	20.1
277845	2006	HA <sub>93</sub>	16.0	X	151.60048	141.54875	200.76694	10.20788	0.1221350	0.18954467	3.0014308	20	1 17.9	20.8
277846	2006	HB <sub>95</sub>	16.1	X	69.68259	343.58968	176.87863	6.46650	0.0886888	0.22007657	2.7169825	20	5 19.2	19.7
277847	2006	HP <sub>101</sub>	15.6	X	109.63535	271.15908	79.03222	10.65991	0.0884583	0.18222170	3.0813142	20	—	—
277848	2006	HS <sub>101</sub>	16.4	X	263.02722	350.85689	174.24560	5.11833	0.0702628	0.17911996	3.1167842	20	12 30.4	20.6
277849	2006	HR <sub>104</sub>	15.9	X	317.32016	115.70400	90.46456	16.43821	0.1531510	0.20050882	2.8909931	20	1 21.7	19.9
277850	2006	HG <sub>107</sub>	15.5	X	151.63687	245.66145	63.72443	16.39680	0.3085039	0.17926546	3.1150975	20	—	—
277851	2006	HJ <sub>113</sub>	16.5	X	307.26322	243.22364	116.12409	6.42536	0.0938721	0.22303015	2.6929420	20	8 7.6	19.7
277852	2006	HG <sub>120</sub>	16.3	X	297.81921	92.14416	55.41809	12.92173	0.1481885	0.18504726	3.0498673	20	—	—
277853	2006	HX <sub>121</sub>	17.1	X	70.66445	240.13673	99.77795	26.50320	0.0532029	0.38344505	1.8764369	20	—	—
277854	2006	HR <sub>131</sub>	15.7	X	90.81072	143.29198	173.89988	9.58100	0.1511261	0.18268006	3.0761578	20	12 29.8	20.7
277855	2006	HN <sub>150</sub>	16.4	X	131.97220	215.83643	203.91730	5.54414	0.1097257	0.21428065	2.7657574	20	3 28.4	20.5
277856	2006	JH <sub>7</sub>	15.8	X	342.77670	251.46116	206.26131	8.34770	0.0906728	0.18326657	3.0695912	20	—	—
277857	2006	JD <sub>10</sub>	16.8	X	275.91259	97.09638	45.41461	3.94411	0.1717719	0.18040936	3.1019158	20	12 7.3	20.5
277858	2006	JF <sub>12</sub>	16.2	X	324.48980	306.69137	188.50862	9.26056	0.0523962	0.18491640	3.0513060	20	—	—
277859	2006	JJ <sub>14</sub>	16.3	X	152.50462	136.23040	161.91711	5.33679	0.2126481	0.17774553	3.1328307	20	—	—
277860	2006	JY <sub>17</sub>	16.2	X	212.47418	190.48730	85.41888	4.23854	0.0267647	0.18989481	2.9977402	20	—	—
277861	2006	JR <sub>18</sub>	16.6	X	294.56361	78.82511	82.83206	6.89378	0.1420552	0.18673382	3.0314755	20	—	—
277862	2006	JK <sub>20</sub>	15.9	X	283.50569	49.35664	170.70572	10.36575	0.0440646	0.19293907	2.9661237	20	1 11.8	20.3
277863	2006	JP <sub>20</sub>	15.9	X	260.81135	131.20439	106.91251	10.21907	0.1565788	0.19139314	2.9820744	20	—	—
277864	2006	JZ <sub>22</sub>	16.2	X	214.30445	266.93373	7.58026	2.45481	0.1640694	0.19035923	2.9928624	20	—	—
277865	2006	JX <sub>27</sub>	15.9	X	146.82252	291.77418	58.09896	9.43223	0.1098384	0.19148751	2.9810946	20	1 24.7	20.5
277866	2006	JP <sub>32</sub>	15.8	X	138.92702	285.92364	105.61759	13.55887	0.1364876	0.19765976	2.9187072	20	3 11.3	20.4
277867	2006	JX <sub>33</sub>	15.9	X	179.35598	286.74008	54.34009	13.00073	0.1775413	0.19319446	2.9635092	20	2 21.5	21.0
277868	2006	JA <sub>34</sub>	16.1	X	130.31960	308.62561	58.46995	10.98740	0.1196889	0.19031539	2.9933221	20	1 29.8	20.7
277869	2006	JR <sub>35</sub>	15.6	X	64.12650	298.51458	94.22784	8.31844	0.0929982	0.18219787	3.0815829	20	—	—
277870	2006	JT <sub>35</sub>	16.2	X	31.57448	331.60071	72.84884	11.20634	0.0743538	0.17900823	3.1180809	20	—	—
277871	2006	JA <sub>36</sub>	16.3	X	275.95418	91.46281	97.20145	4.76766	0.1070830	0.18663496	3.0325459	20	—	—
277872	2006	JG <sub>37</sub>	16.3	X	257.80857	71.54850	153.42765	5.59513	0.0665703	0.19186591	2.9771737	20	—	—
277873	2006	JQ <sub>38</sub>	15.6	X	352.21785	81.36140	63.09255	11.21503	0.0558095	0.19290438	2.9664793	20	1 5.9	19.6
277874	2006	JV <sub>47</sub>	15.4	X	129.59291	44.85846	224.56220	9.87820	0.1053594	0.17190797	3.2033572	20	12 7.1	20.4
277875	2006	JM <sub>49</sub>	15.5	X	302.38413	144.35202	44.20361	15.28390	0.0922340	0.19193859	2.9764221	20	—	—
277876	2006	JG <sub>50</sub>	16.6	X	346.67535	287.73320	226.38369	3.60728	0.0430480	0.19523733	2.9428005	20	1 10.3	20.6
277877	2006	JW <sub>54</sub>	15.8	X	239.18155	344.65158	221.24682	16.16458	0.1280196	0.18052245	3.1006202	20	—	—
277878	2006	JG <sub>55</sub>	16.0	X	169.96597	227.32916	58.41552	11.26811	0.1078661	0.18112464	3.0937438	20	—	—
277879	2006	JE <sub>61</sub>	16.0	X	258.88702	212.74421	84.44735	16.29215	0.1292902	0.20337695	2.8637486	20	3 15.7	20.6
277880	2006	JB <sub>64</sub>	16.6	X	102.03700	317.22542	354.90188	9.46585	0.0748234	0.18497637	3.0506464	20	12 31.1	21.3
277881	2006	JE <sub>65</sub>	16.4	X	252.12555	142.56427	182.46481	9.30036	0.0964061	0.21605544	2.7505904	20	4 6.8	20.4
277882	2006	JA <sub>67</sub>	16.2	X	80.74563	142.92929	218.36174	6.25421	0.0682016	0.18043666	3.1016029	20	—	—
277883	2006	Basu	16.3	X	207.29452	113.39816	213.37270	6.84279	0.1120969	0.20007293	2.8951906	20	2 19.8	21.0
277884	2006	KA <sub>6</sub>	15.6	X	298.50017	239.62199	233.78853	9.46499	0.0553160	0.17603279	3.1531188	20	12 15.5	19.9
277885	2006	KL <sub>6</sub>	15.7	X	106.33853	101.33570	234.29471	9.63598	0.1298533	0.17763787	3.1340964	20	—	—
277886	2006	KJ <sub>10</sub>	15.6	X	19.03867	350.22300	60.27443	18.10872	0.1824563	0.17749121	3.1358226	20	—	—
277887	2006	KF <sub>17</sub>	15.2	X	205.37941	170.24085	77.09046	23.65058	0.0837020	0.18185579	3.0854461	20	—	—
277888	2006	KL <sub>18</sub>	16.1	X	287.38060	142.55245	119.87335	9.31804	0.1774350	0.20155660	2.8809748	20	2 20.8	20.4
277889	2006	KJ <sub>31</sub>	16.0	X	244.96037	193.74967	48.14741	4.41143	0.0492801	0.18946932	3.0022265	20	—	—
277890	2006	KP <sub>31</sub>	16.7	X	2.53194	242.08033	265.41492	0.75035	0.0677257	0.19569990	2.9381614	20	1 22.1	20.2
277891	2006	KJ <sub>32</sub>	16.8	X	323.74816	321.00558	160.84287	1.73896	0.0514422	0.18242672	3.0790051	20	—	—
277892	2006	KA <sub>34</sub>	16.0	X	109.13008	242.75290	88.30857	3.76537	0.0706559	0.17811242	3.1285270	20	—	—
277893	2006	KF <sub>40</sub>	15.4	X	262.63574	340.04899	248.26698	13.25008	0.0926289	0.19092692	2.9869270	20	—	—
277894	2006	KG <sub>41</sub>	15.6	X	174.08834	193.70566	91.02039	10.90264	0.1188593	0.18109396	3.0940933	20	—	—
277895	2006	KP <sub>45</sub>	15.9	X	299.64304	39.36079	61.77839	10.19533	0.0678206	0.17458353	3.1705446	20	11 30.6	20.0
277896	2006	KY <sub>45</sub>	16.1	X	166.35801	176.86190	110.41580	2.48039	0.1615343	0.17975194	3.1094745	20	—	—
277897	2006	KZ <sub>45</sub>	16.3	X	271.88372	1.35508	232.48499	21.17634	0.1261161	0.19278010	2.9677541	20	1 2.8	21.1
277898	2006	KY <sub>48</sub>	16.2	X	307.91481	298.97594	182.06006	3.91229	0.0974713	0.17967258	3.1103900	20	—	—
277899	2006	KC <sub>49</sub>	16.6	X	142.97709	40.86190	148.72261	3.02731	0.0434423	0.22992809	2.6388094	20	9 23.5	20.3
277900	2006	KY <sub>51</sub>	15.4	X	158.11973	240.34523	78.39372	12.60273	0.0555199	0.18575180	3.0421505	20	—	—
277901	2006	KG <sub>55</sub>	15.9	X	307.09398	287.61027	213.78899	6.51510	0.1209927	0.18379084	3.0637511	20	—	—
277902	2006	KO <sub>59</sub>	16.1	X	186.51823	100.68860	190.83363	7.97221	0.1533508	0.18405738	3.0607926	20	—	—
277903	2006	KT <sub>62</sub>	16.3	X	358.32008	271.50523	196.63360	9.04824	0.0629560	0.18520813	3.0481009	20	—	—
277904	2006	KM <sub>67</sub>	15.8	X	262.46981	346.78771	230.06739	13.36698	0.1923637	0.18765890	3.0215047	20	—	—
277905	2006	KP <sub>69</sub>	15.7	X	243.64734	334.20247	199.34912	10.04243	0.0547198	0.17666329	3.1456122	20	12 18.2	20.2
277906	2006	KG <sub>72</sub>	16.2	X	296.41059	292.87862	193.65562	7.62119	0.1471535	0.17873041	3.1213113	20	12 22.1	20.0
277907	2006	KY <sub>72</sub>	16.0	X	208.00780	164.53133	104.90916	12.26703	0.1766345	0.18477237	3.0528914	20	—	—
277908	2006	KU <sub>73</sub>	16.2	X	184.05387	102.63015	177.60404	10.31985	0.0760428	0.18213724	3.0822667	20	—	—
277909	2006	KB <sub>74</sub>	16.1	X	186.81466	165.87586	120.39617	10.16669	0.1057033	0.18349473	3.0670462	20	—	—
277910	2006	KS <sub>74</sub>	16.2	X	307.20591	320.09340	185.08672	9.41876	0.0544403	0.18248991	3.0782943	20	—	—
277911	2006	KQ <sub>78</sub>	16.3	X	336.63227	293.75861	200.10252	8						



ELEMENTS AND OPPOSITION DATES IN 2020

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>		
277921	2006	KV <sub>101</sub>	15.9	X	14.15505	288.10430	139.41857	10.23817	0.0600478	0.17926994	3.1150455	20	—	—
277922	2006	KX <sub>101</sub>	17.9	X	151.40135	80.85928	82.10275	23.36594	0.0581076	0.36675219	1.9329513	20	10 2.3	20.9
277923	2006	KN <sub>103</sub>	17.0	X	166.78838	336.51525	248.50552	19.18097	0.0542290	0.38127444	1.8835519	20	—	—
277924	2006	KS <sub>104</sub>	15.8	X	4.64922	26.85230	67.96975	10.64001	0.0691381	0.18473366	3.0533179	20	—	—
277925	2006	KX <sub>104</sub>	15.9	X	119.80415	110.69954	213.05373	25.37269	0.2196573	0.17447164	3.1719001	20	—	—
277926	2006	KC <sub>106</sub>	15.6	X	72.04383	350.30547	19.40452	12.44476	0.2106698	0.18388056	3.0627544	20	—	—
277927	2006	KG <sub>113</sub>	15.8	X	152.02851	136.95034	156.86196	10.70426	0.1990067	0.17728956	3.1381999	20	—	—
277928	2006	KV <sub>113</sub>	15.9	X	201.09965	323.65471	342.48818	3.55990	0.2915104	0.18673038	3.0315128	20	1 26.2	21.4
277929	2006	KU <sub>116</sub>	16.5	X	250.81626	4.83417	207.48843	7.29862	0.0238991	0.18414210	3.0598537	20	—	—
277930	2006	KG <sub>118</sub>	17.7	X	170.27118	132.53108	166.42249	19.19731	0.1009964	0.39619984	1.8359458	20	—	—
277931	2006	KJ <sub>119</sub>	16.4	X	148.77341	152.09297	183.25782	11.12077	0.0672042	0.18615490	3.0377573	20	1 3.1	21.0
277932	2006	KV <sub>122</sub>	15.9	X	344.59269	243.23859	188.35512	9.09759	0.0794976	0.17426143	3.1744503	20	12 27.7	20.1
277933	2006	KA <sub>123</sub>	15.7	X	90.33704	238.68448	133.45421	10.59508	0.0633806	0.18245084	3.0787337	20	—	—
277934	2006	KU <sub>129</sub>	15.8	X	210.93790	241.42748	51.96766	3.61709	0.0998777	0.18925671	3.0044746	20	1 19.8	20.5
277935	2006	LK <sub>4</sub>	14.9	X	131.70457	221.94010	113.78267	17.67541	0.1866049	0.17833356	3.1259402	20	1 1.3	19.8
277936	2006	OO	15.7	X	265.07831	144.69144	163.74175	12.81831	0.0954958	0.19582058	2.9369541	20	4 3.7	20.0
277937	2006	OK <sub>29</sub>	17.1	X	144.45804	329.71921	127.19382	4.22177	0.1024038	0.27199858	2.3591649	20	5 28.9	20.5
277938	2006	PH <sub>14</sub>	15.1	X	184.91255	187.62871	112.44561	18.07377	0.1745760	0.17852151	3.1237458	20	1 6.2	20.2
277939	2006	PO <sub>18</sub>	15.2	X	118.01162	197.34820	125.89300	10.06888	0.0853982	0.16886949	3.2416684	20	—	—
277940	2006	PK <sub>28</sub>	17.1	X	310.98514	259.17592	91.69504	24.34877	0.0890852	0.35203072	1.9864715	20	8 29.9	19.4
277941	2006	PF <sub>33</sub>	15.1	X	161.76785	218.17071	83.24585	15.87186	0.2412773	0.17117153	3.2125386	20	—	—
277942	2006	PK <sub>38</sub>	17.2	X	289.12618	171.36231	117.01443	6.03978	0.1508948	0.26811667	2.3818816	20	3 25.2	20.3
277943	2006	QG <sub>1</sub>	16.1	X	18.02334	237.23299	17.78900	7.50275	0.2584226	0.20966547	2.8061967	20	7 31.5	18.8
277944	2006	QM <sub>1</sub>	16.7	X	280.12705	193.05764	86.88415	7.31537	0.0963471	0.26259486	2.4151563	20	3 11.9	20.0
277945	2006	QR <sub>5</sub>	15.5	X	165.06370	247.50291	102.85101	11.43941	0.2350920	0.17872531	3.1213706	20	2 21.2	21.0
277946	2006	QH <sub>62</sub>	15.7	X	178.67441	256.34427	91.42024	5.85891	0.1983748	0.17799936	3.1298516	20	2 26.8	21.0
277947	2006	QC <sub>119</sub>	15.1	X	153.87001	147.92100	179.36395	18.97457	0.2608361	0.17378304	3.1802734	20	1 15.1	20.8
277948	2006	QF <sub>144</sub>	14.9	X	131.24095	239.93673	113.65485	22.51575	0.2540555	0.17013705	3.2255475	20	1 10.6	20.1
277949	2006	RE <sub>4</sub>	17.2	X	75.43348	70.42688	175.29442	23.01038	0.0666110	0.35462302	1.9767789	20	10 8.3	19.4
277950	2006	RC <sub>122</sub>	17.9	X	318.04762	286.30552	181.56210	6.43840	0.1157525	0.29644309	2.2276237	20	—	—
277951	2006	SQ <sub>13</sub>	17.6	X	91.83829	356.70579	348.50432	7.26994	0.1559573	0.30375762	2.1917176	20	—	—
277952	2006	SA <sub>18</sub>	17.1	X	143.30293	186.08338	166.18423	5.09808	0.2026467	0.24197375	2.5504915	20	1 23.9	20.9
277953	2006	SK <sub>24</sub>	15.0	X	81.90086	91.90591	247.05811	7.36589	0.0861562	0.15653990	3.4097250	20	—	—
277954	2006	SB <sub>33</sub>	16.5	X	255.21697	127.92635	187.46899	14.01105	0.2648320	0.19012218	2.9953497	20	3 12.9	21.5
277955	2006	SL <sub>75</sub>	16.7	X	179.48736	262.22876	33.70672	9.37140	0.1571847	0.23876603	2.5732838	20	—	—
277956	2006	SV <sub>107</sub>	17.8	X	317.15713	43.56080	7.59113	2.10890	0.1919868	0.28568119	2.2832227	20	11 24.8	19.3
277957	2006	SS <sub>119</sub>	17.1	X	9.09040	311.52664	106.91420	6.52190	0.0546389	0.29910818	2.2143717	20	—	—
277958	2006	SP <sub>134</sub>	16.7	X	332.93550	192.31131	16.64273	13.03282	0.17358759	0.33558557	2.0508498	20	—	—
277959	2006	SB <sub>187</sub>	17.0	X	84.70867	172.95943	214.42850	0.91129	0.1955069	0.23183224	2.6243404	20	—	—
277960	2006	SP <sub>211</sub>	17.0	X	113.75425	241.55426	141.01825	6.11583	0.1699443	0.23974279	2.5662897	20	1 26.0	20.4
277961	2006	SU <sub>273</sub>	17.6	X	268.95944	220.82838	218.25158	0.72163	0.1599442	0.27608940	2.3358031	20	9 26.3	20.1
277962	2006	SV <sub>284</sub>	17.1	X	120.44024	312.06352	58.06604	6.48420	0.1743789	0.23949478	2.5680610	20	1 20.8	20.7
277963	2006	SZ <sub>297</sub>	18.6	X	87.78953	6.97035	53.21400	2.07252	0.0806232	0.31390716	2.1442162	20	1 12.3	20.4
277964	2006	SY <sub>303</sub>	16.3	X	356.68077	98.88343	57.16681	2.81177	0.0317464	0.24339900	2.5405253	20	1 19.8	19.5
277965	2006	SE <sub>318</sub>	17.5	X	317.00288	345.62641	63.12983	3.76656	0.2008880	0.28437913	2.2901868	20	11 20.9	18.7
277966	2006	SR <sub>360</sub>	17.8	X	101.95095	272.91513	56.56558	4.33421	0.0735925	0.29810788	2.2193225	20	—	—
277967	2006	ST <sub>366</sub>	16.4	X	303.99197	331.58563	273.86104	5.82952	0.0763929	0.25486048	2.4637750	20	2 23.1	19.6
277968	2006	ST <sub>388</sub>	16.1	X	341.07860	50.04274	83.19237	11.84646	0.0461201	0.23270730	2.6177573	20	—	—
277969	2006	SC <sub>391</sub>	16.7	X	153.26326	210.23036	161.19646	3.60236	0.0262005	0.24633070	2.5203278	20	2 8.6	20.1
277970	2006	SR <sub>391</sub>	17.3	X	143.79527	149.61393	191.50819	4.01555	0.1379169	0.23870329	2.5737347	20	1 4.6	21.0
277971	2006	TP <sub>4</sub>	17.1	X	77.70773	313.24189	125.86059	4.88984	0.1591333	0.24180583	2.5516721	20	2 18.4	20.0
277972	2006	TF <sub>22</sub>	16.9	X	102.46387	203.01213	164.57105	2.63642	0.2372592	0.23407135	2.6075774	20	1 3.6	20.0
277973	2006	TZ <sub>28</sub>	17.2	X	149.00142	139.26279	189.49146	2.40747	0.2284714	0.23847193	2.5753991	20	1 4.5	21.2
277974	2006	TJ <sub>37</sub>	18.1	X	322.63899	271.46941	243.30061	0.96875	0.0662992	0.30391841	2.1909445	20	—	—
277975	2006	TT <sub>42</sub>	16.1	X	148.95402	27.24147	223.71448	15.33323	0.1252025	0.21796820	2.7344750	20	12 11.5	20.5
277976	2006	TE <sub>52</sub>	16.9	X	79.11847	314.30427	57.52848	7.40466	0.2422548	0.22906049	2.6454685	20	—	—
277977	2006	TG <sub>52</sub>	16.8	X	40.10957	342.84939	72.57732	3.73323	0.1060605	0.22697258	2.6616674	20	—	—
277978	2006	TB <sub>55</sub>	17.1	X	108.38541	178.85921	190.57188	12.60371	0.2669059	0.23587832	2.5942433	20	1 15.5	20.8
277979	2006	TG <sub>55</sub>	17.0	X	74.46563	259.05573	156.12432	7.90557	0.1874659	0.23513027	2.5997426	20	1 14.9	19.8
277980	2006	TZ <sub>57</sub>	18.5	X	294.98208	14.65079	30.63311	4.74880	0.2265829	0.27898363	2.3196203	20	9 15.3	20.3
277981	2006	TL <sub>75</sub>	17.1	X	69.21130	318.44638	102.58043	5.42883	0.2367332	0.23466983	2.6031421	20	1 22.5	19.4
277982	2006	TF <sub>76</sub>	17.6	X	94.43426	178.09846	177.84878	6.05696	0.1764857	0.30386155	2.1912178	20	—	—
277983	2006	TQ <sub>81</sub>	17.2	X	91.61635	119.93782	283.95195	2.80477	0.2143196	0.23687082	2.5869915	20	1 31.4	20.4
277984	2006	TJ <sub>109</sub>	14.4	X	321.11355	222.02613	98.68395	5.76496	0.1832565	0.12348823	3.9937941	20	6 20.5	19.1
277985	2006	TA <sub>110</sub>	15.6	X	141.59929	54.76418	255.78498	13.69128	0.1822760	0.23220936	2.6214983	20	—	—
277986	2006	TN <sub>118</sub>	16.7	X	21.17449	68.12865	72.57330	5.97925	0.1372556	0.24279254	2.5447541	20	2 1.2	19.2
277987	2006	TW <sub>126</sub>	17.7	X	87.62437	9.72317	334.18185	2.61556	0.1693858	0.29932976	2.2132788	20	—	—
277988	2006	UG <sub>7</sub>	17.1	X	70.38783	262.65971	144.73745	3.06017	0.1455807	0.23284790	2.1670304	20	—	—
277989	2006	US <sub>7</sub>	17.3	X	76.77517	201.29369	182.58141	4.34967	0.2198838	0.23071955	2.6327712	20	—	—
277990	2006	UY <sub>7</sub>	17.3	X	343.23255	296.26762	71.97481	2.70299	0.2464428	0.28265667	2.2994813	20	11 24.1	18.8
277991														

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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>			
278001	2006	UT <sub>104</sub>	17.1	X	32.47472	339.21048	104.36628	3.14297	0.1773427	0.22951142	2.6420022	20	—	—	
278002	2006	US <sub>105</sub>	16.4	X	143.07923	112.37967	195.07142	7.88183	0.0862023	0.22823138	2.6518715	20	—	—	
278003	2006	UC <sub>118</sub>	15.6	X	320.14887	169.16562	31.72433	14.60647	0.0801619	0.17041677	3.2220171	20	2	8.3	20.2
278004	2006	UE <sub>126</sub>	18.6	X	122.13926	333.45662	349.80452	2.96446	0.1042676	0.30230891	2.1987140	20	—	—	
278005	2006	UR <sub>127</sub>	18.8	X	106.61263	105.20195	239.46516	3.70211	0.0518010	0.30192984	2.2005540	20	—	—	
278006	2006	UE <sub>168</sub>	17.3	X	36.90275	318.33268	55.91686	5.04459	0.1365876	0.29494320	2.2351695	20	—	—	
278007	2006	UC <sub>188</sub>	16.0	X	76.18971	156.43361	296.83464	10.44900	0.0894900	0.24473898	2.5312436	20	2	19.9	19.2
278008	2006	UJ <sub>190</sub>	17.6	X	123.52419	52.19681	286.41714	5.76206	0.2189197	0.30778819	2.1725415	20	—	—	
278009	2006	UJ <sub>197</sub>	18.0	X	256.58312	337.27382	219.98620	5.11391	0.1044430	0.29886905	2.2155527	20	—	—	
278010	2006	UN <sub>202</sub>	16.3	X	24.29093	78.66829	76.55386	9.33702	0.1088556	0.24719351	2.5144596	20	3	1.8	19.1
278011	2006	UC <sub>204</sub>	15.9	X	158.17209	39.95739	280.31511	9.58261	0.0781554	0.23550862	2.5969575	20	—	—	
278012	2006	UR <sub>214</sub>	16.1	X	248.65699	334.08256	108.53048	12.25670	0.0741297	0.19000695	2.9965606	20	9	7.8	20.5
278013	2006	UB <sub>220</sub>	17.7	X	278.13803	40.25323	68.52982	5.74506	0.1113490	0.28649979	2.2788716	20	12	6.3	19.9
278014	2006	UB <sub>220</sub>	16.9	X	161.38926	50.61152	223.01868	10.73299	0.1621124	0.22860608	2.6489730	20	—	—	
278015	2006	UH <sub>260</sub>	18.5	X	158.99366	94.24040	206.68172	4.89313	0.0481289	0.30433736	2.1889334	20	—	—	
278016	2006	VS	18.0	X	36.86561	209.96314	273.99868	1.09507	0.0475129	0.31258725	2.1502480	20	1	19.9	20.1
278017	2006	VV <sub>16</sub>	17.5	X	51.38388	191.08631	246.77910	3.60626	0.0199749	0.30624301	2.1798432	20	—	—	
278018	2006	VM <sub>25</sub>	16.5	X	68.18906	311.14649	79.91094	5.47483	0.0804895	0.22778851	2.6553076	20	—	—	
278019	2006	VK <sub>29</sub>	18.0	X	356.86175	120.02476	272.97479	3.88180	0.1140741	0.28588362	2.2821448	20	—	—	
278020	2006	VJ <sub>34</sub>	17.6	X	75.92557	146.81102	207.45411	4.48199	0.2155642	0.29835500	2.2180969	20	—	—	
278021	2006	VK <sub>44</sub>	17.2	X	285.57367	312.79024	101.31651	3.65503	0.1547875	0.27633116	2.3344405	20	9	21.4	19.4
278022	2006	VN <sub>51</sub>	17.5	X	279.05815	339.72128	64.33502	3.50093	0.1569032	0.27109187	2.3644223	20	8	23.5	20.0
278023	2006	VX <sub>57</sub>	16.4	X	83.97616	245.94501	82.86167	6.98524	0.0524555	0.21827713	2.7318943	20	—	—	
278024	2006	VK <sub>64</sub>	18.2	X	79.20088	190.93327	225.61037	2.85582	0.1134971	0.30636230	2.1792773	20	—	—	
278025	2006	VP <sub>95</sub>	17.3	X	325.10755	278.61936	113.46098	6.04299	0.1677617	0.28160549	2.3052001	20	11	12.6	19.1
278026	2006	VJ <sub>96</sub>	16.1	X	326.64881	43.43659	64.92504	14.97555	0.1383379	0.21752760	2.7381662	20	—	—	
278027	2006	VC <sub>105</sub>	16.9	X	168.76262	97.04290	26.19131	2.46343	0.1597460	0.26283047	2.4137127	20	7	30.2	20.6
278028	2006	VG <sub>139</sub>	15.8	X	30.53083	181.37251	246.31629	11.54947	0.1494562	0.22508499	2.6765274	20	—	—	
278029	2006	VP <sub>146</sub>	16.7	X	116.50099	49.06985	116.38529	7.38821	0.0744562	0.26067032	2.4270292	20	7	25.4	19.9
278030	2006	WM <sub>4</sub>	17.3	X	320.39133	85.24738	25.52478	7.00208	0.1095819	0.29363807	2.2417876	20	—	—	
278031	2006	WH <sub>15</sub>	17.6	X	8.88631	231.57286	196.15978	6.47524	0.1015494	0.29268667	2.2466431	20	—	—	
278032	2006	WL <sub>23</sub>	16.6	X	38.44409	331.25479	82.75030	14.27783	0.1743203	0.22403146	2.6849119	20	—	—	
278033	2006	WV <sub>26</sub>	16.4	X	45.79473	318.45014	85.64614	3.30093	0.0824169	0.22546555	2.6735147	20	—	—	
278034	2006	WN <sub>31</sub>	18.2	X	248.36723	332.51411	119.33421	2.86284	0.1476582	0.27411060	2.3470310	20	9	16.7	21.1
278035	2006	WP <sub>36</sub>	17.9	X	244.50900	4.20863	159.99391	3.84034	0.0923321	0.28727615	2.2747639	20	—	—	
278036	2006	WU <sub>54</sub>	17.2	X	130.61560	139.61596	268.35107	2.60029	0.0492998	0.31395041	2.1440192	20	2	21.3	19.5
278037	2006	WV <sub>55</sub>	17.2	X	287.91325	7.75439	87.30783	3.09909	0.1763271	0.27586769	2.3370544	20	11	24.5	19.1
278038	2006	WE <sub>67</sub>	15.8	X	302.10590	264.69640	234.98518	23.88044	0.1398197	0.21875525	2.7279123	20	—	—	
278039	2006	WO <sub>69</sub>	17.1	X	6.17646	341.96550	123.98596	4.38057	0.0856961	0.29295528	2.2452696	20	—	—	
278040	2006	WR <sub>79</sub>	17.6	X	21.13197	339.03697	12.53980	2.95448	0.2322619	0.28586195	2.2822601	20	—	—	
278041	2006	WV <sub>79</sub>	17.8	X	358.49517	114.63896	253.85742	6.56360	0.1459352	0.28256014	2.3000050	20	12	7.5	19.8
278042	2006	WJ <sub>86</sub>	17.3	X	350.51164	40.89647	55.45262	7.19583	0.1190276	0.29447021	2.2375623	20	—	—	
278043	2006	WN <sub>87</sub>	17.0	X	27.26095	254.48571	187.51639	4.31109	0.1943277	0.22709173	2.6607363	20	—	—	
278044	2006	WG <sub>115</sub>	14.5	X	305.68132	145.94192	194.91314	9.38637	0.3083283	0.12545294	3.9519868	20	6	3.5	19.6
278045	2006	WS <sub>149</sub>	16.1	X	106.21362	242.78222	55.84457	5.93792	0.0262739	0.21241528	2.7819258	20	12	21.3	20.0
278046	2006	WV <sub>157</sub>	17.9	X	65.03093	21.77955	321.90228	4.55773	0.2127390	0.29493432	2.2352143	20	—	—	
278047	2006	WY <sub>162</sub>	16.7	X	83.18881	267.26866	71.93986	12.28274	0.2193905	0.22337248	2.6901899	20	—	—	
278048	2006	WY <sub>172</sub>	16.0	X	51.17773	278.92233	81.71508	7.10904	0.0789821	0.21591677	2.7517679	20	—	—	
278049	2006	WU <sub>178</sub>	18.3	X	338.65952	104.35245	36.20775	2.01186	0.0882875	0.30026957	2.2086581	20	—	—	
278050	2006	WP <sub>182</sub>	17.5	X	232.14461	128.09512	108.16654	6.18923	0.0497608	0.29675147	2.2260801	20	—	—	
278051	2006	WR <sub>188</sub>	17.7	X	287.07149	185.09018	253.37454	2.75423	0.0406094	0.27806631	2.3247190	20	11	10.8	20.2
278052	2006	WB <sub>190</sub>	17.7	X	283.51377	223.30188	186.48562	6.03508	0.2425403	0.27425269	2.3462203	20	8	21.2	20.0
278053	2006	WG <sub>201</sub>	15.7	X	72.71328	95.24363	117.15710	10.48345	0.0486765	0.17740846	3.1367976	20	7	22.8	19.9
278054	2006	XZ <sub>13</sub>	17.4	X	39.57329	74.37124	275.58218	1.46771	0.2357578	0.28802118	2.2708395	20	—	—	
278055	2006	XK <sub>20</sub>	17.0	X	309.75321	54.91025	100.05694	10.33973	0.1116892	0.29187916	2.2507849	20	—	—	
278056	2006	XP <sub>26</sub>	17.9	X	86.26436	273.89867	140.71321	2.06651	0.1163021	0.30674087	2.1774839	20	1	7.5	19.8
278057	2006	XA <sub>57</sub>	16.7	X	28.48428	308.26011	103.47117	4.72294	0.0983156	0.22153617	2.7050354	20	—	—	
278058	2006	XB <sub>60</sub>	17.6	X	245.32813	161.35028	86.77518	6.87832	0.1391783	0.29700877	2.2247943	20	—	—	
278059	2006	XY <sub>66</sub>	16.2	X	333.15079	350.52032	95.37448	10.19346	0.1564327	0.21314489	2.7755737	20	—	—	
278060	2006	XO <sub>70</sub>	17.0	X	239.06552	9.91552	263.39391	4.85790	0.1654229	0.29853894	2.2171856	20	1	5.4	20.3
278061	2006	YR <sub>9</sub>	17.4	X	298.70345	219.21483	304.10490	3.05368	0.1194392	0.29295740	2.2452588	20	—	—	
278062	2006	YF <sub>17</sub>	17.3	X	10.88237	336.19630	101.27914	5.97958	0.1123574	0.28998679	2.2605662	20	—	—	
278063	2006	YM <sub>18</sub>	16.8	X	54.09087	236.81973	150.98302	5.67397	0.2515023	0.22452548	2.6809721	20	—	—	
278064	2006	YS <sub>21</sub>	17.2	X	219.55542	323.31831	278.31096	6.26065	0.1144272	0.29341027	2.2429479	20	—	—	
278065	2006	YZ <sub>34</sub>	18.0	X	230.11180	145.02954	42.82601	3.18404	0.1312538	0.27991655	2.3144635	20	—	—	
278066	2006	YC <sub>36</sub>	17.3	X	258.38815	124.13387	302.08051	11.05810	0.2226060	0.26725760	2.3869831	20	8	9.2	20.3
278067	2006	YY <sub>40</sub>	17.6	X	274.77663	98.86129	199.10868	1.64653	0.1253757	0.31945981	2.1192973	20	3	15.8	20.1
278068	2006	YO <sub>51</sub>	17.4	X	235.46039	195.01548	297.52824	1.79614	0.1405155	0.26664408	2.3906431	20	10	23.2	20.4
278069	2006	YW <sub>52</sub>	17.5	X	212.22976	174.43139	247.92386	0.71073	0.1707947	0.25581008	2.4576740	20	6	20.9	21.1
278070	2007	AP	17.4	X	270.74422	174.00014	323.86026	1.55550	0.1499245	0.27975124	2.3153752	20	12	29.6	19.3
278071	2007	AL <sub>4</sub>	16.4												

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
278081 2007 BN	17.7	X	88.78995	313.34287	105.84495	6.27685	0.1050212	0.30353902	2.1927697	20	1 18.3	19.8
278082 2007 BW	16.8	X	217.77836	319.39286	306.78319	5.40229	0.0961590	0.29370329	2.2414558	20	—	—
278083 2007 BP <sub>5</sub>	17.6	X	259.29201	73.58218	33.94637	5.69082	0.1706282	0.27264927	2.3554099	20	10 20.3	20.0
278084 2007 BK <sub>9</sub>	17.2	X	42.86176	291.52203	108.80308	7.93772	0.1193173	0.29060325	2.2573682	20	—	—
278085 2007 BJ <sub>10</sub>	17.2	X	354.58973	1.21021	75.60978	4.07761	0.0313020	0.28395936	2.2924433	20	—	—
278086 2007 BZ <sub>10</sub>	17.7	X	168.60102	276.60851	84.11743	4.45953	0.1846942	0.30693153	2.1765821	20	2 21.8	20.9
278087 2007 BE <sub>14</sub>	17.6	X	306.11643	116.49244	329.36972	3.63234	0.1165004	0.27758376	2.3274124	20	12 21.2	19.7
278088 2007 BZ <sub>14</sub>	17.6	X	210.76394	282.34364	324.48724	5.31442	0.1335460	0.28598608	2.2815997	20	—	—
278089 2007 BR <sub>15</sub>	18.1	X	165.66760	236.21029	17.13583	1.23601	0.1285701	0.27865085	2.3214668	20	—	—
278090 2007 BL <sub>19</sub>	16.8	X	97.30145	77.64149	21.59098	4.51262	0.2326922	0.23717638	2.5847691	20	4 23.1	20.3
278091 2007 BZ <sub>19</sub>	16.9	X	65.90648	194.08262	336.23400	7.38958	0.1621051	0.24177788	2.5518688	20	6 5.6	20.1
278092 2007 BK <sub>20</sub>	17.5	X	287.56460	0.41713	122.75554	8.61394	0.2069427	0.27907539	2.3191118	20	—	—
278093 2007 BP <sub>20</sub>	16.3	X	58.41127	134.44900	321.50840	11.30042	0.2552970	0.22761223	2.6566784	20	2 22.7	18.7
278094 2007 BS <sub>24</sub>	17.7	X	259.57010	94.36596	18.30912	0.89481	0.1546177	0.27326044	2.3518965	20	10 30.5	20.1
278095 2007 BW <sub>27</sub>	17.9	X	242.13115	102.47363	19.58415	1.06913	0.1729587	0.27093716	2.3653223	20	10 14.5	20.8
278096 2007 BR <sub>29</sub>	17.1	X	227.87623	78.29185	115.71754	4.12853	0.1513723	0.27752992	2.3277134	20	—	—
278097 2007 BV <sub>29</sub>	17.1	X	244.04049	111.30089	102.85801	6.02451	0.0362330	0.28673443	2.2776282	20	—	—
278098 2007 BO <sub>31</sub>	17.5	X	207.05449	78.20940	137.85274	9.67561	0.1267698	0.27828577	2.3234966	20	—	—
278099 2007 BE <sub>45</sub>	17.0	X	217.35905	63.60997	144.48012	11.65625	0.0890673	0.27953859	2.3165496	20	—	—
278100 2007 BQ <sub>46</sub>	16.8	X	249.70182	52.50113	116.68543	6.33539	0.0515924	0.27818979	2.3240310	20	—	—
278101 2007 BO <sub>48</sub>	17.3	X	296.06877	17.76754	38.55798	3.87561	0.1909523	0.26907478	2.3762240	20	10 7.9	19.3
278102 2007 BS <sub>53</sub>	17.7	X	272.43717	116.08130	3.29127	1.54459	0.1332710	0.27622332	2.3350481	20	12 5.5	20.0
278103 2007 BG <sub>56</sub>	16.4	X	54.34734	11.64604	113.00668	11.32880	0.0908909	0.23164114	2.6257835	20	3 10.6	19.6
278104 2007 BJ <sub>65</sub>	17.2	X	115.60028	128.26681	147.71594	7.97192	0.2166810	0.26789024	2.3832236	20	12 21.6	21.3
278105 2007 BX <sub>65</sub>	17.1	X	200.04717	248.62288	311.70541	1.82322	0.1678300	0.27126887	2.3633937	20	12 6.8	20.6
278106 2007 BX <sub>67</sub>	14.7	X	223.81091	318.49281	16.14117	16.94748	0.1372834	0.15551567	3.4246796	20	3 23.4	20.1
278107 2007 BG <sub>75</sub>	17.2	X	116.56515	297.79247	306.08101	1.58815	0.1557652	0.25870363	2.4393140	20	11 9.8	20.9
278108 2007 BJ <sub>75</sub>	16.2	X	106.90200	57.65747	355.33954	9.94681	0.1501685	0.22296531	2.6934640	20	2 27.1	19.9
278109 2007 BF <sub>77</sub>	16.8	X	315.77712	18.04508	86.63086	7.33344	0.0593333	0.28171833	2.3045846	20	—	—
278110 2007 BM <sub>81</sub>	17.7	X	153.44897	42.61257	164.50622	4.14905	0.1643749	0.26365851	2.4086564	20	10 31.6	21.5
278111 2007 BO <sub>100</sub>	18.2	X	290.55236	336.20445	131.36237	4.47571	0.0952031	0.27823408	2.3237844	20	12 25.2	20.5
278112 2007 CK	17.5	X	310.14141	356.94814	140.62832	5.30416	0.1400612	0.28795365	2.2711945	20	—	—
278113 2007 CW	18.0	X	254.30574	215.20281	259.18925	0.45601	0.1335980	0.27070384	2.3666813	20	10 27.5	20.8
278114 2007 CY	17.0	X	240.34482	45.75999	143.76397	7.63158	0.0529974	0.28079796	2.3096176	20	—	—
278115 2007 CR <sub>1</sub>	17.6	X	188.67995	55.49199	126.07417	2.00707	0.1290363	0.26737772	2.3862681	20	11 5.0	21.1
278116 2007 CA <sub>4</sub>	17.0	X	207.07040	309.33202	307.99602	6.66332	0.1169635	0.29091807	2.2557394	20	—	—
278117 2007 CA <sub>5</sub>	18.0	X	237.93792	5.89915	149.29519	1.41611	0.1240855	0.27338146	2.3512024	20	12 1.9	20.7
278118 2007 CX <sub>8</sub>	17.8	X	98.03591	32.64476	196.22386	0.81162	0.1522263	0.25955555	2.4339735	20	10 4.4	21.4
278119 2007 CE <sub>10</sub>	15.8	X	122.85372	36.28785	135.74669	11.95655	0.0410641	0.18102811	3.0948435	20	8 1.3	20.2
278120 2007 CB <sub>12</sub>	17.3	X	217.87249	66.03943	116.75053	4.30965	0.1831090	0.27244425	2.3565914	20	12 3.6	20.4
278121 2007 CY <sub>13</sub>	16.6	X	78.60380	167.95347	308.89456	3.47392	0.1366722	0.23419841	2.6066342	20	4 5.9	19.8
278122 2007 CG <sub>19</sub>	16.3	X	27.26313	11.26068	282.37470	5.97845	0.0693925	0.26265802	2.4147691	20	9 16.4	19.3
278123 2007 CM <sub>21</sub>	17.8	X	287.77882	279.39786	199.09268	2.43079	0.1938811	0.27912001	2.3188647	20	12 31.1	19.3
278124 2007 CM <sub>28</sub>	17.6	X	120.41764	85.82868	175.80578	1.25738	0.1545701	0.26811689	2.3818803	20	12 7.4	21.1
278125 2007 CG <sub>33</sub>	18.0	X	204.36668	67.11191	143.52801	3.65729	0.1573281	0.27566265	2.3382132	20	12 27.4	21.0
278126 2007 CP <sub>34</sub>	17.4	X	23.91530	320.45135	110.24775	8.13663	0.0818007	0.28971048	2.2620034	20	—	—
278127 2007 CG <sub>36</sub>	17.0	X	209.37177	45.26037	124.10266	7.18618	0.0426750	0.26940643	2.3742735	20	11 25.7	20.1
278128 2007 CB <sub>40</sub>	17.8	X	242.88495	3.91190	142.48496	0.56175	0.0740163	0.27301937	2.3532807	20	12 4.5	20.6
278129 2007 CT <sub>44</sub>	15.9	X	308.26076	284.66325	309.03436	12.90587	0.1212470	0.22834801	2.6509684	20	2 11.2	19.3
278130 2007 CH <sub>45</sub>	17.3	X	262.34775	105.98747	23.46927	3.39411	0.1739443	0.27512238	2.3412733	20	11 25.3	19.7
278131 2007 CZ <sub>45</sub>	16.7	X	225.08025	158.22089	239.36016	3.68292	0.2801185	0.25358736	2.4720143	20	5 24.8	20.9
278132 2007 CD <sub>46</sub>	17.0	X	213.58726	58.15665	155.16534	6.53010	0.0836766	0.27910170	2.3189661	20	—	—
278133 2007 CZ <sub>47</sub>	17.6	X	257.12605	222.73841	239.90160	1.68993	0.1715865	0.26947560	2.3738672	20	10 8.0	20.1
278134 2007 CJ <sub>51</sub>	17.7	X	256.36090	266.57875	236.72726	3.18804	0.1514482	0.27690748	2.3312003	20	12 10.1	19.9
278135 2007 CS <sub>51</sub>	16.5	X	60.00557	208.89801	355.11777	6.47575	0.0712557	0.24555291	2.5256470	20	7 1.9	19.7
278136 2007 CF <sub>52</sub>	15.5	X	188.83015	40.81379	83.12815	12.04238	0.1164411	0.18371518	3.0645921	20	8 18.7	20.5
278137 2007 CH <sub>52</sub>	17.2	X	311.85081	137.24568	353.92749	6.60919	0.0582962	0.28647146	2.2790218	20	—	—
278138 2007 CU <sub>52</sub>	17.3	X	237.30292	179.22871	322.84913	1.79252	0.1469607	0.26920066	2.3754832	20	11 7.4	20.0
278139 2007 CZ <sub>52</sub>	17.0	X	299.44671	125.51848	322.77274	6.20772	0.0914213	0.27355925	2.3501836	20	12 10.7	19.4
278140 2007 CL <sub>59</sub>	17.1	X	269.47476	289.17855	210.83003	4.52165	0.1118396	0.27681133	2.3317401	20	—	—
278141 Tatioine	17.1	X	211.89108	201.00294	338.88464	2.10605	0.1471569	0.27001871	2.3706829	20	11 25.9	20.4
278142 2007 CG <sub>62</sub>	17.3	X	201.30891	289.29218	221.44352	8.31477	0.1538148	0.26514708	2.3996330	20	10 4.3	20.9
278143 2007 CN <sub>62</sub>	17.4	X	215.99784	194.44806	324.05544	0.72354	0.1238450	0.26892920	2.3770815	20	11 5.9	20.6
278144 2007 CX <sub>64</sub>	17.8	X	180.45552	162.19960	29.36798	2.40874	0.1264786	0.26621693	2.3931997	20	11 8.0	21.1
278145 2007 CD <sub>66</sub>	15.2	X	111.26325	163.97930	349.66836	27.37043	0.1241627	0.17320631	3.1873292	20	7 12.7	20.5
278146 2007 DW <sub>2</sub>	17.1	X	212.86962	159.15829	61.23667	3.84903	0.1115779	0.27884642	2.3203812	20	—	—
278147 2007 DA <sub>3</sub>	17.8	X	184.66998	121.63489	22.72097	4.97323	0.1294775	0.25995895	2.4314548	20	9 13.4	21.4
278148 2007 DP <sub>5</sub>	15.8	X	337.46312	321.14051	318.95889	8.49319	0.0590824	0.17498799	3.1656572	20	6 5.9	20.1
278149 2007 DB <sub>12</sub>	17.0	X	233.45780	80.32802	115.77981	7.83879	0.0544912	0.28050574	2.3112214	20	—	—
278150 2007 DO <sub>15</sub>	17.5	X	161.73504	212.56956	116.30042	6.81725	0.1494518	0.29120585	2.2542530	20	—	—
278151 2007 DP <sub>17</sub>	17.8	X	216.26785	316.99961	159.05252	3.49724	0.1743101	0.26175858	2.4202976	20	9 4.2	21.4
278152 2007 DD <sub>19</sub>	17.1	X	163.63004	117.46711	150.65534	2.87597	0.2050245	0.27453391	2.3446177	20	—	—
278153 2007 DN <sub>19</sub>	17.2	X	137.32990	298.94680	152.39827	4.76442	0.1796508	0.24123826	2.5556728	20	5 20.5	21.3
278154 2007 DR <sub>21</sub>	17.2	X	4.61040	61.83250	351.82250	6.45638	0.1727435	0.28029042	2.3124049	20	—	—
278155 2007 DA												

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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>		
278161	2007	DH <sub>35</sub>	16.9 <sup>m</sup>	X	134.64260	243.27427	350.26125	6.26681	0.1432696	0.26173501	2.4204429	20	11 12.5	20.8
278162	2007	DN <sub>35</sub>	17.1	X	299.41133	270.75646	166.04670	6.42756	0.0848700	0.26871853	2.3783237	20	11 24.9	19.7
278163	2007	DO <sub>35</sub>	13.1	X	273.86721	141.50776	168.80737	23.44007	0.1097930	0.08407752	5.1603933	20	4 21.4	20.2
278164	2007	DZ <sub>38</sub>	15.9	X	289.20239	226.72892	2.62389	12.53789	0.1168314	0.21731330	2.7399660	20	1 21.3	20.0
278165	2007	DE <sub>41</sub>	17.4	X	104.74337	294.62617	168.27313	22.50600	0.0817192	0.38207318	1.8809259	20	4 9.6	19.2
278166	2007	DY <sub>52</sub>	17.3	X	191.23342	359.35164	183.03961	5.91883	0.1243339	0.26494383	2.4008601	20	11 9.4	20.7
278167	2007	DX <sub>54</sub>	17.7	X	228.53965	255.14403	245.01273	1.62468	0.1261753	0.26832067	2.3806742	20	10 27.5	20.9
278168	2007	DE <sub>55</sub>	17.6	X	250.81968	324.62402	137.00576	3.05085	0.1775557	0.26662988	2.3907280	20	9 27.9	20.6
278169	2007	DU <sub>55</sub>	17.4	X	242.56146	359.08058	114.86238	3.35797	0.1150851	0.26494243	2.4008685	20	10 13.8	20.4
278170	2007	DE <sub>56</sub>	16.1	X	329.16720	47.15809	147.75575	12.39982	0.0594189	0.22208373	2.7005873	20	1 31.4	19.7
278171	2007	DA <sub>71</sub>	17.5	X	88.29362	143.57705	131.53382	2.66813	0.1710804	0.25973118	2.4328761	20	11 24.2	21.3
278172	2007	DM <sub>72</sub>	16.6	X	289.04161	266.35464	8.71033	4.26441	0.0221419	0.22971142	2.6404685	20	3 27.3	20.1
278173	2007	DK <sub>82</sub>	17.3	X	351.76009	332.98900	13.82797	6.16227	0.1008414	0.25922433	2.4360463	20	10 12.0	19.7
278174	2007	DR <sub>82</sub>	16.4	X	52.38126	116.29410	330.58691	6.07118	0.2805642	0.22419781	2.6835837	20	2 3.1	18.4
278175	2007	DS <sub>82</sub>	16.9	X	305.11270	315.22368	169.63983	7.24272	0.0595121	0.27853673	2.3221008	20	—	—
278176	2007	DX <sub>82</sub>	18.0	X	155.18777	261.38972	287.43318	0.40694	0.1315580	0.25851151	2.4405224	20	10 8.7	21.5
278177	2007	DF <sub>86</sub>	17.5	X	222.16651	291.63773	207.61116	1.79260	0.1329250	0.26438915	2.4042168	20	10 16.9	20.8
278178	2007	DT <sub>88</sub>	17.3	X	121.60767	148.76441	102.80741	2.23924	0.1575519	0.26343777	2.4100018	20	11 25.6	21.2
278179	2007	DO <sub>90</sub>	15.9	X	217.71343	0.22417	345.94324	12.90082	0.1694740	0.23283195	2.6168229	20	3 19.9	20.3
278180	2007	DC <sub>91</sub>	16.5	X	328.94662	190.36080	139.92308	4.42810	0.0476847	0.21943269	2.7222949	20	1 3.2	20.0
278181	2007	DD <sub>92</sub>	17.4	X	213.94750	10.57464	0.20502	2.74916	0.0655156	0.23786185	2.5798009	20	4 21.9	20.9
278182	2007	DV <sub>96</sub>	17.0	X	261.16552	155.05295	330.61475	5.97972	0.0397855	0.26909065	2.3761306	20	12 5.3	20.0
278183	2007	DU <sub>97</sub>	17.6	X	178.33906	359.63120	193.06202	1.81590	0.1096613	0.26284110	2.4136476	20	11 8.6	20.9
278184	2007	DR <sub>98</sub>	17.4	X	179.52638	92.51961	133.53124	1.91314	0.1414494	0.27160660	2.3614341	20	12 20.7	20.7
278185	2007	DE <sub>99</sub>	16.9	X	195.31970	93.98666	137.68880	3.88867	0.1114952	0.27543199	2.3395184	20	—	—
278186	2007	DB <sub>106</sub>	17.9	X	128.62504	215.21397	339.71556	0.98682	0.1763943	0.25359491	2.4719653	20	9 21.4	21.8
278187	2007	DT <sub>110</sub>	17.2	X	152.40238	90.25079	134.95396	2.02901	0.1339155	0.26280865	2.4138463	20	11 22.0	20.8
278188	2007	DW <sub>110</sub>	17.5	X	135.62963	74.67800	178.92781	2.73563	0.2494864	0.26436004	2.4043933	20	12 9.8	21.6
278189	2007	DO <sub>114</sub>	17.1	X	90.63396	141.09286	137.17843	3.16151	0.1760862	0.25680446	2.4513256	20	11 30.1	20.9
278190	2007	EP <sub>1</sub>	17.8	X	257.03088	282.28999	180.68880	2.16503	0.1600975	0.26847477	2.3797631	20	10 11.1	20.4
278191	2007	EH <sub>2</sub>	17.5	X	67.93718	30.89707	333.95211	2.73357	0.1048997	0.27853710	2.3220987	20	—	—
278192	2007	EF <sub>4</sub>	16.7	X	294.87700	252.09037	349.99650	2.45234	0.0449506	0.22242351	2.6978363	20	2 18.9	20.4
278193	2007	ED <sub>4</sub>	17.4	X	293.21879	112.92869	323.88177	1.58189	0.1508772	0.27002663	2.3706366	20	11 6.5	19.6
278194	2007	EC <sub>11</sub>	17.8	X	238.72424	147.40890	28.18341	1.98770	0.1214071	0.27568800	2.3380698	20	—	—
278195	2007	ET <sub>11</sub>	16.6	X	184.85184	86.66726	85.68099	7.12534	0.0840950	0.26466369	2.4025539	20	10 25.7	20.0
278196	2007	EJ <sub>12</sub>	16.7	X	159.62836	303.27993	290.41903	5.03385	0.1459390	0.26852287	2.3794789	20	12 9.2	20.2
278197	2007	Touvron	16.0	X	278.84253	254.24386	129.94061	9.55946	0.0732583	0.18390629	3.0624687	20	7 28.4	20.2
278198	2007	EO <sub>12</sub>	17.0	X	174.94607	77.74203	84.40518	2.40888	0.1266471	0.25969168	2.4331228	20	9 26.3	20.7
278199	2007	EU <sub>22</sub>	17.2	X	145.16880	79.80697	169.03872	4.58292	0.1506351	0.26605545	2.3941679	20	12 14.2	21.0
278200	2007	Olegpopov	16.6	X	247.99195	257.44021	183.77914	4.73576	0.1358723	0.18666487	3.0322220	20	8 21.6	21.0
278201	2007	EL <sub>30</sub>	17.8	X	201.44930	17.33991	153.29538	4.30928	0.1747890	0.26513023	2.3997346	20	10 31.4	21.3
278202	2007	EP <sub>30</sub>	17.7	X	152.11478	94.23148	127.85870	3.07316	0.1253880	0.26612449	2.3937538	20	11 19.0	21.2
278203	2007	EY <sub>30</sub>	18.1	X	214.45064	341.91945	180.15735	2.69019	0.1171546	0.26879343	2.3778819	20	11 10.6	21.1
278204	2007	EH <sub>34</sub>	17.4	X	197.64940	18.63824	102.08952	3.05834	0.1601738	0.25612112	2.4556839	20	8 23.9	21.1
278205	2007	EJ <sub>34</sub>	15.9	X	335.73041	308.16401	9.49885	14.15639	0.0993215	0.24623538	2.5209782	20	8 4.2	18.9
278206	2007	EM <sub>34</sub>	17.1	X	189.29219	66.53022	111.03742	3.79295	0.1193405	0.26361952	2.4088939	20	11 1.6	20.5
278207	2007	EN <sub>36</sub>	17.0	X	28.65731	63.49059	91.01781	4.70331	0.0612937	0.29846519	2.2175509	20	2 25.8	19.2
278208	2007	ED <sub>37</sub>	17.7	X	218.05868	323.26252	202.52505	2.19236	0.1164602	0.26704853	2.3882288	20	11 19.3	20.7
278209	2007	ES <sub>37</sub>	17.1	X	217.94026	308.27473	185.39405	10.71423	0.0967805	0.26119497	2.4237780	20	10 9.6	20.2
278210	2007	EQ <sub>38</sub>	17.2	X	101.20977	190.84194	70.90618	4.47101	0.1119598	0.25685327	2.4510151	20	11 15.5	20.8
278211	2007	EX <sub>38</sub>	17.5	X	115.16544	217.22420	46.51824	2.83008	0.1946047	0.25952150	2.4341863	20	12 4.4	21.5
278212	2007	EG <sub>42</sub>	17.2	X	213.73375	108.53831	1.57977	5.43589	0.0880805	0.25509418	2.6422701	20	9 3.3	20.5
278213	2007	EL <sub>42</sub>	16.8	X	106.64046	263.65715	4.60435	7.05628	0.0880541	0.26163156	2.4210809	20	11 26.8	20.5
278214	2007	EX <sub>42</sub>	16.3	X	230.92323	281.54449	8.43426	7.53950	0.1847704	0.21422143	2.7662670	20	1 30.3	21.0
278215	2007	EF <sub>44</sub>	17.0	X	170.09226	9.24378	183.95844	10.39042	0.0724152	0.26125770	2.4233900	20	11 4.2	20.5
278216	2007	EG <sub>47</sub>	17.4	X	185.08725	323.37082	217.65893	0.94902	0.1214302	0.26124210	2.4234865	20	10 30.3	20.8
278217	2007	EK <sub>54</sub>	17.8	X	207.98657	54.48008	98.09705	2.39504	0.1224273	0.26610125	2.3938932	20	10 20.7	21.0
278218	2007	EZ <sub>64</sub>	17.9	X	212.28264	63.44359	81.27703	2.07016	0.1325853	0.26271932	2.4143935	20	10 13.4	21.2
278219	2007	EM <sub>68</sub>	16.8	X	194.14809	68.47375	124.06001	7.04451	0.0711147	0.26847135	2.3797833	20	12 2.5	20.0
278220	2007	EU <sub>72</sub>	16.9	X	2.96590	43.01156	176.67873	12.99025	0.1002656	0.23083411	2.6319000	20	4 25.3	19.9
278221	2007	ES <sub>78</sub>	16.2	X	13.55982	117.24770	95.55603	5.07762	0.1102535	0.23310004	2.6148121	20	5 3.4	19.0
278222	2007	ED <sub>80</sub>	16.4	X	37.98262	206.64328	315.00935	5.29509	0.1523451	0.22847421	2.6499921	20	4 2.5	19.2
278223	2007	EJ <sub>81</sub>	16.3	X	52.99434	123.08213	4.75370	13.82785	0.0672188	0.22580332	2.6708480	20	3 9.6	19.6
278224	2007	EL <sub>85</sub>	16.5	X	133.27094	265.81820	202.43172	14.11083	0.0558964	0.23593951	2.5937947	20	5 27.0	20.3
278225	2007	Didierpelat	17.4	X	145.18893	79.63502	170.92948	5.72039	0.1087481	0.26673191	2.3901183	20	12 17.7	20.9
278226	2007	EX <sub>89</sub>	17.1	X	266.50802	265.73950	165.88710	6.10583	0.0927175	0.26311509	2.4119717	20	9 21.2	19.8
278227	2007	EX <sub>95</sub>	16.7	X	34.22286	270.25221	74.91688	3.50085	0.1962831	0.26180574	2.4200069	20	12 28.3	19.8
278228	2007	EN <sub>98</sub>	17.2	X	18.69131	160.78538	32.31429	2.18691	0.1364688	0.23048925	2.6345247	20	4 13.2	19.7
278229	2007	EV <sub>99</sub>	17.0	X	31.81288	164.30808	5.84117	1.67982	0.0188780	0.22942288	2.6426819	20	3 28.5	20.4
278230	2007	EM<												

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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>
278241 2007 <i>EL</i> <sub>144</sub>	17.2	X	261.87718	319.16744	100.09477	1.89862	0.1903053	0.25838172	2.4413396	20	8 10.6	20.1
278242 2007 <i>EN</i> <sub>149</sub>	17.3	X	91.76925	261.37773	70.14945	4.06427	0.1932823	0.27280615	2.3545068	20	—	—
278243 2007 <i>EW</i> <sub>149</sub>	17.1	X	100.38712	167.64625	126.94170	5.29818	0.1455949	0.26588923	2.3951657	20	12 28.4	20.7
278244 2007 <i>ED</i> <sub>150</sub>	15.7	X	183.67124	315.83636	130.68543	5.77003	0.1032460	0.17095466	3.2152549	20	6 24.3	20.7
278245 2007 <i>ED</i> <sub>152</sub>	16.5	X	176.96331	208.50119	135.12083	5.88378	0.1224307	0.22025842	2.7154868	20	2 11.9	20.5
278246 2007 <i>EP</i> <sub>155</sub>	16.8	X	94.16197	13.10685	227.11982	5.75683	0.0878007	0.25299544	2.4758685	20	10 6.3	20.4
278247 2007 <i>EA</i> <sub>167</sub>	15.8	X	7.58039	214.43265	19.68540	13.49868	0.1115035	0.23254730	2.6189579	20	5 17.6	18.8
278248 2007 <i>EZ</i> <sub>167</sub>	17.4	X	20.84714	247.37908	42.07453	4.39845	0.1890542	0.24371711	2.5383142	20	9 20.9	20.0
278249 2007 <i>EH</i> <sub>168</sub>	16.8	X	87.84908	270.39081	49.50501	5.02919	0.1537642	0.26494304	2.4008648	20	—	—
278250 2007 <i>EM</i> <sub>170</sub>	17.7	X	185.15160	64.01751	139.67210	6.20655	0.1166713	0.26962324	2.3730005	20	12 1.6	21.1
278251 2007 <i>EF</i> <sub>177</sub>	17.3	X	133.93383	304.78647	296.78562	1.94671	0.1443187	0.25968072	2.4331912	20	11 23.1	21.1
278252 2007 <i>EX</i> <sub>189</sub>	17.0	X	11.96956	91.11636	234.28405	1.67218	0.1959967	0.25550706	2.4596168	20	10 29.2	19.3
278253 2007 <i>EP</i> <sub>190</sub>	17.2	X	67.66340	274.80737	195.34096	5.89703	0.2784839	0.22989213	2.6390846	20	4 5.7	20.0
278254 2007 <i>EN</i> <sub>191</sub>	17.0	X	295.04383	345.92528	25.30506	0.12367	0.0953702	0.24720490	2.5143824	20	8 6.5	19.9
278255 2007 <i>EF</i> <sub>203</sub>	17.8	X	187.40642	85.08346	67.18032	3.01916	0.1479561	0.26050683	2.4280445	20	9 25.3	21.5
278256 2007 <i>EB</i> <sub>212</sub>	17.9	X	235.89450	313.88814	183.65715	2.05735	0.1672244	0.26804425	2.3823106	20	10 28.2	20.7
278257 2007 <i>EW</i> <sub>213</sub>	16.6	X	267.35044	162.86728	188.81986	12.56682	0.1147152	0.23797748	2.5789552	20	5 27.7	20.3
278258 2007 <i>EH</i> <sub>214</sub>	17.3	X	153.25176	223.87500	340.95042	1.51782	0.1368447	0.26563594	2.3966880	20	10 27.6	21.1
278259 2007 <i>ER</i> <sub>216</sub>	16.0	X	153.85117	130.90806	342.00773	29.82049	0.0205968	0.24193629	2.5507548	20	7 2.6	20.1
278260 2007 <i>ED</i> <sub>221</sub>	16.4	X	313.66957	145.83195	48.25457	4.60220	0.0342616	0.21408205	2.7674676	20	1 16.6	20.1
278261 2007 <i>EL</i> <sub>221</sub>	17.4	X	125.82417	56.29542	206.76960	2.33380	0.1510770	0.26121532	2.4236521	20	12 12.8	21.2
278262 2007 <i>ET</i> <sub>221</sub>	17.4	X	97.06348	331.77997	354.55300	1.37999	0.2059086	0.27260995	2.3556363	20	—	—
278263 2007 <i>FQ</i> <sub>7</sub>	17.1	X	266.42102	178.33867	248.69560	0.66570	0.1594830	0.26092216	2.4254672	20	9 1.9	19.9
278264 2007 <i>FN</i> <sub>20</sub>	17.3	X	114.34139	255.52874	6.70072	2.22946	0.1561893	0.26074974	2.4265363	20	11 30.8	21.1
278265 2007 <i>FE</i> <sub>23</sub>	17.4	X	146.27493	145.35520	56.79799	3.23660	0.1472576	0.25667945	2.4521215	20	10 17.7	21.3
278266 2007 <i>FV</i> <sub>30</sub>	16.5	X	183.45097	40.76954	13.81489	9.62471	0.0540241	0.23449973	2.6044008	20	5 12.2	20.3
278267 2007 <i>FY</i> <sub>30</sub>	17.6	X	0.92629	279.58604	16.30099	1.84383	0.1747436	0.24146423	2.5540781	20	8 17.6	19.9
278268 2007 <i>FK</i> <sub>32</sub>	16.6	X	349.46901	177.29806	198.09771	15.52026	0.1714627	0.23278654	2.6171632	20	6 16.5	19.4
278269 2007 <i>FD</i> <sub>34</sub>	17.6	X	59.27246	154.08573	4.23791	1.77913	0.1338625	0.23282253	2.6168935	20	5 4.9	20.6
278270 2007 <i>FE</i> <sub>36</sub>	16.6	X	175.38683	195.73778	185.08060	4.28209	0.1251708	0.22753191	2.6573036	20	3 25.8	20.7
278271 2007 <i>FT</i> <sub>37</sub>	17.1	X	121.42731	42.09633	189.31386	6.76729	0.1025164	0.25446856	2.4663041	20	10 28.9	20.6
278272 2007 <i>FS</i> <sub>46</sub>	16.4	X	313.28178	186.01617	57.43694	6.95560	0.1609968	0.22342397	2.6897765	20	3 1.8	20.0
278273 2007 <i>FR</i> <sub>47</sub>	16.4	X	337.19534	56.07444	209.29524	7.53842	0.2706437	0.22803661	2.6533813	20	5 1.5	18.7
278274 2007 <i>FU</i> <sub>49</sub>	15.7	X	287.91961	107.74749	117.08512	9.53054	0.0900730	0.21238524	2.7821882	20	1 14.7	19.5
278275 2007 <i>GF</i> <sub>2</sub>	17.3	X	230.47646	203.84566	221.93070	1.65988	0.0628250	0.24448575	2.5329912	20	7 26.1	20.7
278276 2007 <i>GF</i> <sub>10</sub>	17.4	X	236.49673	87.52075	65.42245	5.98844	0.0901553	0.26832515	2.3806477	20	11 30.4	20.1
278277 2007 <i>GO</i> <sub>17</sub>	17.1	X	156.81271	178.42937	322.51074	2.18686	0.1443508	0.24543779	2.5264367	20	8 8.8	21.1
278278 2007 <i>GT</i> <sub>17</sub>	16.4	X	79.06418	342.43889	230.62770	6.51076	0.1060820	0.24166278	2.5526790	20	8 11.9	19.9
278279 2007 <i>GV</i> <sub>19</sub>	16.6	X	112.56927	284.22246	224.52928	11.99744	0.1496192	0.23713256	2.5850876	20	7 2.8	20.6
278280 2007 <i>GF</i> <sub>23</sub>	17.3	X	341.81964	112.63107	206.23843	5.52650	0.1088183	0.23991855	2.5650362	20	8 7.5	20.2
278281 2007 <i>GM</i> <sub>24</sub>	16.9	X	56.34478	204.11879	84.40777	6.41028	0.2219084	0.24624078	2.5209413	20	11 12.8	20.5
278282 2007 <i>GC</i> <sub>27</sub>	16.6	X	4.86342	149.19807	182.72879	7.91912	0.1909065	0.24428895	2.5343514	20	10 23.8	19.1
278283 2007 <i>GO</i> <sub>27</sub>	15.3	X	119.77953	145.50528	110.44280	9.96759	0.0886411	0.18134833	3.0911993	20	11 15.7	20.2
278284 2007 <i>GE</i> <sub>28</sub>	16.5	X	13.26008	164.06214	62.89483	13.31752	0.1525391	0.23293342	2.6160629	20	5 23.8	18.9
278285 2007 <i>GP</i> <sub>33</sub>	17.2	X	161.36192	261.08277	208.30284	8.08322	0.1238708	0.23940260	2.5687203	20	7 1.6	21.2
278286 2007 <i>GZ</i> <sub>36</sub>	17.3	X	114.89170	42.12986	94.79876	3.47963	0.1380089	0.23678168	2.5876407	20	6 20.4	20.9
278287 2007 <i>GZ</i> <sub>38</sub>	16.8	X	236.33435	84.83370	197.30099	8.01340	0.1910988	0.21041380	2.7995393	20	1 21.6	21.7
278288 2007 <i>GS</i> <sub>42</sub>	16.8	X	243.03658	168.89824	215.07465	8.63471	0.0665951	0.23575299	2.5951626	20	6 14.6	20.4
278289 2007 <i>GN</i> <sub>44</sub>	17.0	X	284.33059	157.16101	194.83526	4.90396	0.0345210	0.23660771	2.5889090	20	7 1.3	20.3
278290 2007 <i>GU</i> <sub>47</sub>	16.6	X	315.29433	269.21263	51.41453	12.81808	0.2022943	0.23058284	2.6338118	20	6 8.4	19.5
278291 2007 <i>GF</i> <sub>50</sub>	16.2	X	48.93815	203.91892	14.98613	14.08051	0.1167210	0.23666273	2.5885077	20	7 16.2	19.7
278292 2007 <i>GT</i> <sub>50</sub>	16.1	X	88.94302	194.34023	23.89815	11.77037	0.0763981	0.24464295	2.5319060	20	9 5.2	19.7
278293 2007 <i>GG</i> <sub>51</sub>	17.1	X	99.91405	82.97888	117.18916	3.83222	0.0866131	0.24172970	2.5522079	20	8 21.8	20.5
278294 2007 <i>GS</i> <sub>51</sub>	17.2	X	142.01423	58.18650	177.61495	6.48572	0.1607702	0.26164280	2.4210115	20	11 25.3	21.1
278295 2007 <i>GX</i> <sub>60</sub>	17.2	X	129.22289	263.14505	250.82799	3.43739	0.1417475	0.24225742	2.5485001	20	7 27.8	21.2
278296 2007 <i>GL</i> <sub>61</sub>	16.9	X	271.24808	307.28972	303.16884	3.03283	0.0506054	0.21364721	2.7712214	20	1 31.4	20.9
278297 2007 <i>GT</i> <sub>63</sub>	17.6	X	66.01167	219.09071	34.17434	4.51876	0.0862841	0.24539472	2.5267323	20	9 20.8	20.8
278298 2007 <i>GU</i> <sub>63</sub>	17.3	X	39.84075	48.30487	216.98578	9.38222	0.1668595	0.24087791	2.5582210	20	9 7.5	20.6
278299 2007 <i>GB</i> <sub>64</sub>	17.0	X	343.05877	275.16104	40.30507	4.75471	0.1473461	0.23826113	2.5769179	20	8 9.0	19.5
278300 2007 <i>GB</i> <sub>65</sub>	16.4	X	335.52281	246.05854	32.69208	13.02005	0.1218771	0.23053368	2.6341862	20	5 24.8	19.4
278301 2007 <i>GZ</i> <sub>76</sub>	16.5	X	228.88827	340.49017	151.54415	7.09557	0.0648014	0.25859344	2.4400068	20	10 27.5	19.7
278302 2007 <i>GO</i> <sub>77</sub>	16.4	X	309.11457	230.56147	103.27280	8.76175	0.1553475	0.23340602	2.6125303	20	6 26.2	19.3
278303 2007 <i>HY</i>	16.9	X	125.92577	329.84253	178.18598	8.01353	0.0920552	0.23971556	2.5664840	20	7 12.1	20.7
278304 2007 <i>HD</i> <sub>8</sub>	16.9	X	135.96734	296.03114	32.34368	2.29868	0.0633340	0.20330452	2.8644288	20	—	—
278305 2007 <i>HX</i> <sub>9</sub>	17.0	X	338.80297	281.26007	33.04330	4.55285	0.2442145	0.23851329	2.5751014	20	7 23.9	18.8
278306 2007 <i>HG</i> <sub>11</sub>	17.0	X	10.10353	247.75141	47.57360	8.21468	0.2139959	0.23850674	2.5751485	20	9 14.7	19.5
278307 2007 <i>HS</i> <sub>12</sub>	17.3	X	56.66995	308.64765	6.93421	1.13253	0.1886453	0.26104883	2.4246825	20	12 14.3	20.8
278308 2007 <i>HZ</i> <sub>12</sub>	16.3	X	305.76673	97.16860	175.92271	12.48785	0.1472990	0.22504590	2.6768373	20	3 29.6	19.7
278309 2007 <i>HP</i> <sub>15</sub>	16.2	X	327.45374	194.35851	70.30314	16.34160	0.3305410	0.22332805	2.6905467	20	3 30.9	19.4
278310 2007 <i>HH</i> <sub>17</sub>	15.8	X	313.71398	137.94939	63.41389	14.29637	0.1397545	0.21454065	2.7635224	20	1 10.3	19.7
278311 2007 <i>HA</i> <sub>19</sub>	17.4	X	251.06890	105.21136	14.23050	1.70029	0.1415027	0.26967557				

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
278321 2007 HY <sub>45</sub>	16.8	X	163.91698	70.49114	123.10891	6.74117	0.0787871	0.25711767	2.4493345	20	10 28.7	20.4
278322 2007 HT <sub>46</sub>	16.8	X	322.56819	237.68950	63.80334	7.22305	0.3207316	0.22841739	2.6504316	20	5 6.4	19.3
278323 2007 HU <sub>47</sub>	16.9	X	48.30835	187.57657	60.19753	6.94467	0.0892489	0.24071014	2.5594096	20	8 21.1	20.2
278324 2007 HX <sub>51</sub>	16.4	X	353.26582	113.05230	197.64203	8.94555	0.2163072	0.23776255	2.5805191	20	8 22.1	18.6
278325 2007 HB <sub>54</sub>	15.5	X	198.20343	58.43542	72.25647	6.72163	0.0269385	0.17731327	3.1379202	20	9 10.8	20.1
278326 2007 HX <sub>54</sub>	16.9	X	97.04767	100.82992	171.92139	8.65983	0.1931274	0.25444966	2.4664263	20	11 30.6	21.0
278327 2007 HA <sub>59</sub>	15.3	X	194.34182	17.63392	57.14152	54.51147	0.7254326	0.24742341	2.5129018	20	5 27.7	21.6
278328 2007 HX <sub>60</sub>	16.6	X	51.90789	119.86718	101.22994	5.28694	0.1784600	0.23658015	2.5891101	20	7 31.2	19.6
278329 2007 HJ <sub>66</sub>	16.3	X	310.33401	118.93107	208.68533	14.75365	0.1487101	0.23167656	2.6255159	20	6 19.0	19.6
278330 2007 HN <sub>66</sub>	16.3	X	215.78217	300.19872	85.85711	12.16368	0.1155340	0.22634333	2.6665982	20	5 14.9	20.4
278331 2007 HY <sub>68</sub>	16.5	X	59.30547	93.50620	173.58309	13.15365	0.1939864	0.24267157	2.5455997	20	10 16.4	20.1
278332 2007 HL <sub>69</sub>	16.2	X	218.72709	169.73713	166.48974	6.69780	0.0821279	0.21753747	2.7380833	20	3 15.9	20.2
278333 2007 HK <sub>77</sub>	17.0	X	11.29642	198.32514	111.90117	3.90636	0.2298163	0.24234197	2.5479073	20	10 10.6	19.4
278334 2007 HQ <sub>79</sub>	16.1	X	343.55698	125.81483	140.19515	13.31459	0.1612029	0.22806778	2.6531396	20	5 25.1	19.1
278335 2007 HW <sub>79</sub>	16.9	X	24.31197	312.78786	209.92540	12.69095	0.1372887	0.22132730	2.7067370	20	3 7.9	20.0
278336 2007 HO <sub>84</sub>	17.1	X	105.65457	118.57191	55.61921	6.54666	0.0721106	0.23974269	2.5662904	20	7 23.5	20.7
278337 2007 HT <sub>87</sub>	16.5	X	0.00279	248.49977	58.65218	12.52484	0.1972284	0.23948383	2.5681394	20	9 12.6	19.1
278338 2007 HQ <sub>90</sub>	18.0	X	144.74156	162.59805	45.61607	2.04734	0.1356538	0.25584877	2.4574262	20	10 23.1	21.8
278339 2007 HF <sub>91</sub>	16.5	X	27.99172	148.78316	49.17334	4.74714	0.0303798	0.22578546	2.6709888	20	4 30.9	20.0
278340 2007 HS <sub>97</sub>	15.9	X	117.64542	246.95780	234.65917	21.10445	0.0517753	0.22798854	2.6537543	20	5 23.8	19.5
278341 2007 JH	16.5	X	268.88744	234.84976	180.99067	14.87269	0.1087085	0.24369007	2.5385019	20	8 24.6	19.8
278342 2007 JS	16.2	X	220.20196	222.02262	170.21142	14.11939	0.0818820	0.22789374	2.6544901	20	5 29.6	20.4
278343 2007 JU	16.1	X	269.56375	185.78193	184.11939	15.86723	0.1157134	0.23221640	2.6214452	20	6 22.4	20.0
278344 2007 JV <sub>1</sub>	17.1	X	38.71801	226.63092	45.26590	8.50449	0.2148064	0.24110387	2.5566224	20	9 30.4	20.2
278345 2007 JA <sub>3</sub>	16.7	X	60.21284	146.92907	64.26713	7.56257	0.2280989	0.23600536	2.5933122	20	8 8.5	20.2
278346 2007 JK <sub>4</sub>	16.4	X	317.29590	242.81951	53.50472	13.25979	0.1769075	0.22814120	2.6525703	20	5 13.1	19.1
278347 2007 JW <sub>10</sub>	17.3	X	73.41706	332.97866	242.56941	3.61652	0.1823470	0.23955406	2.5676374	20	8 20.1	20.8
278348 2007 JH <sub>13</sub>	15.9	X	176.81897	224.54445	160.77620	16.36178	0.1449854	0.21459366	2.7630673	20	4 6.3	20.4
278349 2007 JV <sub>16</sub>	16.6	X	330.05638	248.11527	71.51891	8.59763	0.2181088	0.23290519	2.6162743	20	7 9.6	18.9
278350 2007 JL <sub>18</sub>	15.8	X	355.97255	207.48427	125.46809	16.16654	0.2171572	0.24038414	2.5617230	20	10 16.8	18.5
278351 2007 JX <sub>22</sub>	16.2	X	336.37686	76.71873	244.57917	12.97721	0.1742808	0.23534255	2.5981791	20	7 25.6	18.9
278352 2007 JL <sub>23</sub>	16.0	X	68.09656	72.18248	156.95927	6.62556	0.2096517	0.23953444	2.5677776	20	9 6.8	19.6
278353 2007 JL <sub>24</sub>	16.1	X	31.99321	68.39123	174.88989	15.12823	0.0673202	0.23366870	2.6105721	20	7 11.3	19.6
278354 2007 JO <sub>24</sub>	15.7	X	70.23305	188.41649	118.17453	16.66449	0.2510415	0.17437383	3.1730860	20	12 9.8	20.9
278355 2007 JF <sub>26</sub>	16.1	X	117.05708	141.60670	195.54080	7.94914	0.0526151	0.19477354	2.9474701	20	—	—
278356 2007 JZ <sub>26</sub>	16.5	X	112.88022	309.21664	205.68029	8.62494	0.0575381	0.23367466	2.6105277	20	7 1.5	20.2
278357 2007 JD <sub>29</sub>	17.0	X	317.58547	136.53666	169.76634	6.45565	0.2191857	0.22793256	2.6541888	20	5 22.9	19.8
278358 2007 JH <sub>32</sub>	16.5	X	15.15995	209.30334	77.32956	6.91808	0.1260688	0.23825884	2.5769344	20	8 28.6	19.4
278359 2007 JT <sub>37</sub>	16.9	X	326.56715	271.01224	12.43092	4.68648	0.0496480	0.23256594	2.6188179	20	5 25.6	20.1
278360 2007 JU <sub>40</sub>	16.1	X	295.56566	92.86320	190.89880	9.61235	0.2077451	0.21978957	2.7193472	20	3 19.3	19.9
278361 2007 JJA <sub>43</sub>	4.5	X	342.31919	7.63862	272.58351	12.02110	0.1664185	0.00292883	48.3808213	20	6 5.9	20.6
278362 2007 KZ <sub>1</sub>	16.5	X	335.35261	338.51550	254.30527	11.66943	0.1203887	0.22095816	2.7097508	20	3 17.4	20.0
278363 2007 KE <sub>2</sub>	16.0	X	40.75550	180.73797	118.79399	13.97051	0.2371143	0.24287460	2.5441809	20	11 14.3	19.7
278364 2007 KL <sub>3</sub>	17.1	X	48.92514	287.52411	3.71737	2.30287	0.2068401	0.24477518	2.5309941	20	11 3.6	20.5
278365 2007 KR <sub>7</sub>	16.1	X	280.53221	69.42613	206.33571	14.30374	0.2026981	0.21464144	2.7626572	20	2 19.3	20.6
278366 2007 KJ <sub>8</sub>	16.0	X	309.98778	47.58261	191.89878	18.78383	0.2544317	0.21653696	2.7465111	20	1 31.6	20.3
278367 2007 KP <sub>9</sub>	16.8	X	33.17869	106.74682	171.25291	12.10890	0.2774066	0.23740215	2.5831301	20	10 8.7	19.9
278368 2007 LU <sub>1</sub>	16.5	X	68.92866	113.38916	139.86274	5.44711	0.1707439	0.24310861	2.5425479	20	10 6.4	20.1
278369 2007 LF <sub>5</sub>	16.2	X	266.61012	217.90932	125.83045	15.89081	0.1884597	0.22642685	2.6659424	20	5 10.8	20.4
278370 2007 LU <sub>5</sub>	16.5	X	163.32198	288.63366	194.16219	8.37057	0.1163729	0.23756526	2.5819476	20	7 20.0	20.6
278371 2007 LK <sub>7</sub>	16.7	X	239.09321	173.02649	186.09202	5.25799	0.1550247	0.22346455	2.6894509	20	4 29.8	20.9
278372 2007 LP <sub>7</sub>	16.3	X	286.79383	231.20336	95.68203	12.40512	0.1862223	0.22481230	2.6786913	20	5 11.6	20.0
278373 2007 LU <sub>8</sub>	16.5	X	224.47598	240.45751	135.14571	6.11250	0.0901174	0.22480043	2.6787856	20	5 11.9	20.5
278374 2007 LO <sub>9</sub>	16.1	X	201.81086	325.54665	89.41004	13.03583	0.1335036	0.22850466	2.6497567	20	6 2.0	20.4
278375 2007 LJ <sub>10</sub>	16.5	X	255.27144	142.55810	181.67209	13.19874	0.1776150	0.21832870	2.7314641	20	3 31.3	20.8
278376 2007 LZ <sub>16</sub>	16.4	X	200.28734	139.65350	236.99450	11.44541	0.1273630	0.22046780	2.7137673	20	4 11.8	20.7
278377 2007 LJ <sub>20</sub>	16.9	X	73.26630	7.60257	188.19032	5.45949	0.1957095	0.23518087	2.5993697	20	7 26.2	20.5
278378 2007 LD <sub>24</sub>	16.1	X	126.78959	137.52200	181.16944	10.64782	0.0987689	0.19198221	2.9759712	20	—	—
278379 2007 LU <sub>26</sub>	16.2	X	322.44782	171.61225	131.69239	13.58983	0.1190890	0.22285996	2.6943128	20	6 11.8	19.5
278380 2007 LU <sub>28</sub>	16.8	X	10.60006	147.87038	128.75553	8.30178	0.1658166	0.23419640	2.6066491	20	8 5.4	19.3
278381 2007 MR	21.9	X	86.76209	217.66709	172.76683	5.82723	0.2588018	0.95243499	1.0230868	20	—	—
278382 2007 MO <sub>7</sub>	17.0	X	347.25551	49.07048	196.38027	2.86183	0.0362209	0.22458133	2.6805276	20	5 6.6	20.3
278383 2007 MN <sub>16</sub>	15.7	X	295.88048	167.93058	182.80775	15.38217	0.1299148	0.23161096	2.6260117	20	7 1.1	19.2
278384 Mudanjiang	16.6	X	307.04705	231.72497	72.73480	5.45937	0.1955500	0.21979348	2.7193150	20	5 5.8	19.8
278385 2007 MA <sub>24</sub>	14.9	X	135.58328	186.35686	194.13881	19.73941	0.3632009	0.18516879	3.0485327	20	3 6.8	20.4
278386 Sofivanna	16.2	X	321.58642	173.59936	141.82603	14.98953	0.2521015	0.22382658	2.6865501	20	6 9.5	19.2
278387 2007 OM	16.4	X	334.43904	160.52416	152.47135	14.12888	0.2496133	0.22356182	2.6886708	20	7 4.5	18.9
278388 2007 OV <sub>1</sub>	16.2	X	315.29586	222.30774	110.11393	14.20257	0.2685108	0.22437878	2.6821405	20	6 17.6	19.0
278389 2007 PZ <sub>9</sub>	17.1	X	201.54523	267.02259	22.75656	2.89293	0.1894537	0.26918890	2.3755524	20	—	—
278390 2007 PK <sub>11</sub>	16.6	X	167.66840	148.91358	147.30778	1.42153	0.1694571	0.18452567	3.0556118	20	—	—
278391 2007 PL <sub>14</sub>	16.9	X	205.98396	251.58226	103.78560	7.67257	0.1380505	0.28098092	2.3086149	20	3 24.3	20.5
278392 2007 PN <sub>25</sub>	16.8	X	294.42816	83.78686	215.45423	4.25863	0.2429126	0.21414386	2.7669350	20	4 2.1	20.5
278393 2007 PS <sub>26</sub>	16.6	X	210.58286	339.54154	248.74233	4.17183	0.0774332	0.25899598	2.4374780	20	—	—
278394 2007 PB <sub>30</sub>	15.7	X										

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
278401 2007 QD <sub>10</sub>	16.8	X	340.84437	121.97704	160.85590	9.63868	0.2661042	0.21991204	2.7183375	20	6 1.6	19.2
278402 2007 QA <sub>13</sub>	15.8	X	302.12778	141.52912	155.79033	15.54089	0.1404340	0.21603404	2.7507720	20	5 1.4	19.6
278403 2007 QT <sub>16</sub>	15.7	X	169.59633	145.95510	173.66794	14.29113	0.0975928	0.18659243	3.0330067	20	1 8.7	20.6
278404 2007 QH <sub>17</sub>	16.1	X	171.62854	76.48103	231.67146	2.75501	0.1887124	0.18538759	3.0461336	20	1 3.8	21.0
278405 2007 RA <sub>6</sub>	17.5	X	306.90723	72.11493	201.94823	6.52173	0.1889572	0.28670847	2.2777656	20	3 17.2	20.2
278406 2007 RV <sub>6</sub>	15.6	X	62.16626	211.56407	184.07683	9.81007	0.0584737	0.17929709	3.1147311	20	—	—
278407 2007 RC <sub>7</sub>	15.7	X	80.91889	217.12189	171.26566	11.05177	0.2251688	0.17675004	3.1445828	20	1 8.7	19.9
278408 2007 RC <sub>22</sub>	15.5	X	135.57734	215.58511	143.11747	9.98351	0.1105391	0.18675730	3.0312214	20	1 21.4	20.1
278409 2007 RY <sub>33</sub>	15.3	X	157.25664	224.69168	121.14163	10.49443	0.1270587	0.18583838	3.0412056	20	1 30.8	20.1
278410 2007 RV <sub>38</sub>	15.4	X	162.74036	150.82243	179.59154	21.60578	0.0572861	0.18469335	3.0537621	20	1 10.9	20.4
278411 2007 RX <sub>42</sub>	15.4	X	37.56078	217.04062	190.22209	22.15469	0.0928943	0.17214494	3.2004168	20	—	—
278412 2007 RQ <sub>46</sub>	16.2	X	257.60522	85.23412	280.07392	3.31860	0.0896276	0.21152044	2.7897663	20	6 4.3	20.1
278413 2007 RH <sub>48</sub>	16.2	X	133.63270	144.26027	161.66838	1.15567	0.1723252	0.17369618	3.1813336	20	—	—
278414 2007 RG <sub>56</sub>	15.8	X	187.14743	295.53590	318.22833	5.44255	0.0948820	0.17345497	3.1842822	20	—	—
278415 2007 RF <sub>103</sub>	15.6	X	130.75019	321.68984	1.23526	15.89439	0.1900324	0.17722212	3.1389960	20	—	—
278416 2007 RP <sub>134</sub>	15.7	X	68.69362	246.64056	119.65616	2.88665	0.0933564	0.17277465	3.1926357	20	—	—
278417 2007 RC <sub>146</sub>	15.8	X	186.84871	67.25044	259.37419	8.05852	0.0599116	0.19232782	2.9724050	20	1 30.6	20.4
278418 2007 RA <sub>155</sub>	16.1	X	195.33063	53.34714	179.49678	4.70663	0.1292010	0.17529954	3.1619054	20	12 25.7	21.1
278419 2007 RH <sub>157</sub>	16.7	X	169.49833	286.11466	139.15958	2.76544	0.0560325	0.20649308	2.8348650	20	5 14.1	20.8
278420 2007 RY <sub>167</sub>	15.7	X	300.75003	359.70047	162.05101	9.69232	0.0265005	0.17864961	3.1225254	20	—	—
278421 2007 RA <sub>205</sub>	15.8	X	108.14841	69.54897	241.81500	3.77303	0.1271420	0.16841203	3.2475360	20	—	—
278422 2007 RT <sub>208</sub>	15.6	X	207.06066	132.65791	166.76570	10.55476	0.0915464	0.18811146	3.0166567	20	1 21.2	20.5
278423 2007 RP <sub>210</sub>	16.6	X	222.52368	340.48333	297.27884	1.78765	0.1679724	0.19241092	2.9715490	20	1 9.9	21.6
278424 2007 RH <sub>217</sub>	16.0	X	180.01536	148.86853	171.06466	9.57353	0.1532796	0.18677599	3.0310192	20	1 21.4	21.1
278425 2007 RY <sub>218</sub>	16.0	X	89.78678	270.25460	61.86609	1.86448	0.1083505	0.16906726	3.2391399	20	—	—
278426 2007 RQ <sub>228</sub>	15.8	X	36.47596	216.49584	158.82544	7.12757	0.2091228	0.17003630	3.2268215	20	—	—
278427 2007 RD <sub>239</sub>	15.8	X	99.69500	295.65969	78.88995	6.57835	0.0695917	0.18058694	3.0998819	20	—	—
278428 2007 RW <sub>257</sub>	15.8	X	174.41554	116.04209	197.82503	6.47974	0.1666040	0.18471987	3.0534699	20	1 10.8	20.9
278429 2007 RG <sub>266</sub>	15.2	X	195.74213	105.99812	164.66140	13.20375	0.0294753	0.17884114	3.1200227	20	—	—
278430 2007 RC <sub>270</sub>	15.5	X	159.87577	112.96057	231.50921	13.29062	0.2886946	0.18152389	3.0892059	20	2 5.6	21.2
278431 2007 RD <sub>271</sub>	15.6	X	15.20298	273.36519	283.50700	3.77391	0.0374090	0.19888890	2.9066697	20	4 10.7	19.6
278432 2007 RS <sub>275</sub>	15.5	X	253.97772	238.45809	103.88506	21.49928	0.2301098	0.21058215	2.7980470	20	4 26.5	20.4
278433 2007 RT <sub>275</sub>	15.4	X	281.10869	221.99342	110.00105	22.84345	0.3014923	0.21390571	2.7689884	20	5 2.3	20.0
278434 2007 RU <sub>275</sub>	15.0	X	106.83773	201.34304	112.36082	28.67492	0.1434240	0.17143678	3.2092241	20	—	—
278435 2007 RT <sub>281</sub>	15.3	X	169.79447	274.68629	66.14366	10.71435	0.1177738	0.19005391	2.9960669	20	2 7.9	20.1
278436 2007 RQ <sub>283</sub>	16.2	X	191.00330	263.52780	11.01055	0.72351	0.1371044	0.17912603	3.1167137	20	—	—
278437 2007 RT <sub>284</sub>	15.7	X	117.65562	135.76426	176.83134	1.06059	0.1469441	0.17355497	3.1830589	20	—	—
278438 2007 RS <sub>286</sub>	15.8	X	87.33866	18.56387	335.39950	9.39106	0.0944751	0.17831082	3.1262059	20	—	—
278439 2007 RU <sub>286</sub>	15.9	X	29.06945	253.45509	178.43780	10.54453	0.0777222	0.17863942	3.1223711	20	—	—
278440 2007 RF <sub>308</sub>	15.9	X	109.43541	344.77076	352.18518	9.79487	0.0981218	0.17822052	3.1272618	20	—	—
278441 2007 RJ <sub>312</sub>	15.6	X	198.51923	209.23733	100.19835	6.85624	0.1281088	0.18791354	3.0187745	20	1 26.9	20.4
278442 2007 RJ <sub>323</sub>	16.7	X	22.72642	74.90498	242.90378	3.14859	0.0884592	0.22819333	2.6521663	20	10 12.1	19.9
278443 2007 SG <sub>1</sub>	15.7	X	178.60221	128.27882	176.95881	14.35749	0.0875501	0.18517686	3.0484442	20	—	—
278444 2007 SJ <sub>4</sub>	16.4	X	259.27300	273.31871	42.57934	8.20403	0.2270653	0.21013191	2.8020424	20	3 23.3	20.9
278445 2007 SL <sub>12</sub>	15.4	X	110.35730	218.73613	141.33364	11.50706	0.1099608	0.18094200	3.0958254	20	—	—
278446 2007 SA <sub>16</sub>	15.4	X	1.34958	224.14723	163.72550	9.63566	0.1513135	0.16267286	3.3234768	20	12 3.6	19.6
278447 Saviano	15.3	X	306.54709	293.85407	131.33379	10.20356	0.0405318	0.15370029	3.4515931	20	10 29.2	20.2
278448 2007 TX <sub>2</sub>	15.7	X	120.39465	162.53307	188.20281	3.73410	0.1753001	0.17862025	3.1225945	20	1 5.0	20.3
278449 2007 TS <sub>5</sub>	18.1	X	260.81698	253.12546	197.63154	20.44752	0.1308814	0.38117800	1.8838696	20	11 4.2	19.2
278450 2007 TR <sub>6</sub>	14.7	X	145.34024	115.61644	222.09191	15.58717	0.2393226	0.18123714	3.0924635	20	1 16.1	20.0
278451 2007 TO <sub>22</sub>	15.5	X	167.98943	149.93620	180.87606	10.21835	0.1689826	0.18441181	3.0568695	20	1 24.0	20.6
278452 2007 TD <sub>31</sub>	15.7	X	143.25630	279.82871	37.45677	14.43921	0.1967934	0.17428665	3.1741441	20	—	—
278453 2007 TY <sub>31</sub>	15.4	X	109.48920	343.73327	43.93655	17.70262	0.2170044	0.17929477	3.1147580	20	2 19.7	20.3
278454 2007 TN <sub>84</sub>	17.5	X	21.31070	327.35489	3.27472	6.19637	0.2656020	0.30803727	2.1713702	20	12 14.3	20.2
278455 2007 TV <sub>85</sub>	16.0	X	92.86585	213.71513	48.08004	11.20658	0.2307385	0.22999881	2.6382685	20	11 11.2	20.3
278456 2007 TH <sub>94</sub>	15.8	X	140.91093	10.20461	296.97572	4.36647	0.1436134	0.17536502	3.1611182	20	—	—
278457 2007 TO <sub>110</sub>	15.2	X	175.91010	96.17493	219.71108	15.57337	0.0993459	0.18577855	3.0418584	20	1 8.9	20.2
278458 2007 TA <sub>111</sub>	15.2	X	207.30279	62.08993	253.09607	8.76335	0.1162757	0.19129395	2.9831051	20	2 6.3	20.1
278459 2007 TF <sub>125</sub>	15.2	X	101.34800	275.78501	61.00446	6.12779	0.0900413	0.16803351	3.2524112	20	—	—
278460 2007 TG <sub>129</sub>	14.8	X	262.39733	193.89050	40.79833	14.78305	0.1039998	0.17662828	3.1460278	20	1 3.2	19.8
278461 2007 TJ <sub>139</sub>	15.6	X	99.51140	221.19546	216.11042	19.56107	0.1644627	0.18518946	3.0483059	20	3 19.3	20.2
278462 2007 TD <sub>160</sub>	16.0	X	223.32113	88.95575	225.49229	10.16175	0.3053376	0.27205634	2.3588310	20	2 7.9	20.6
278463 2007 TJ <sub>161</sub>	15.8	X	111.19893	177.71096	182.97325	9.01667	0.0849280	0.17840748	3.1250766	20	—	—
278464 2007 TB <sub>164</sub>	17.6	X	266.67638	80.14578	201.01596	1.77479	0.2038059	0.27600209	2.3362957	20	2 9.5	21.3
278465 2007 TR <sub>166</sub>	16.2	X	275.38970	156.16904	180.73202	21.95685	0.2424451	0.21404360	2.7677990	20	5 2.0	20.5
278466 2007 TS <sub>168</sub>	16.1	X	23.81929	93.77048	233.46124	10.23005	0.2079278	0.23030521	2.6359280	20	11 15.4	19.3
278467 2007 TE <sub>190</sub>	15.7	X	214.45187	97.80676	174.72308	17.52243	0.0616120	0.18613750	3.0379466	20	—	—
278468 2007 TP <sub>208</sub>	14.9	X	111.36200	265.10888	97.04462	16.22782	0.1924306	0.17600873	3.1534061	20	1 11.7	19.5
278469 2007 TA <sub>225</sub>	15.3	X	144.38253	199.38837	124.81642	13.06470	0.0809804	0.17905041	3.1175912	20	—	—
278470 2007 TN <sub>225</sub>	16.3	X	271.83555	201.59138	29.24667	3.33909	0.0401010	0.18957365	3.0011249	20	1 13.9	20.5
278471 2007 TF <sub>242</sub>	16.2	X	14.95511	81.86285	212.03370	25.42339	0.3965718	0.22965842	2.6408747	20	10 18.5	18.7
278472 2007 TX <sub>251</sub>	15.1	X	187.71646	62.40354	239.20443	9.63641	0.1512162	0.18262109	3.0768201	20	1 7.5	20.2
278473 2007 TS <sub>269</sub>	15.9	X	358.58007	64.65102	39.76542	9.45105	0.0519430	0.17086386	3.2163940	20	—	—
278474 2007 TS <sub>287</sub>	16.8	X	349.65546	218.67586	99.97455	7.43918	0.1701912					

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Planet	H	G	M	$\omega$	$\Omega$	$i$	$e$	$\mu$	$a$	TE	Oppos.	V
278481 2007 UK <sub>37</sub>	15.5	X	165.34435	241.08844	69.29697	9.09385	0.1808046	0.18041911	3.1018040	20	1 1.6	20.6
278482 2007 UF <sub>53</sub>	15.4	X	187.37431	48.94512	219.74002	16.93508	0.2409268	0.17362467	3.1822070	20	—	—
278483 2007 UA <sub>68</sub>	16.6	X	320.30227	260.50926	89.73641	5.15522	0.1312455	0.21837129	2.7311090	20	8 13.7	19.6
278484 2007 UT <sub>84</sub>	17.1	X	15.08100	250.36040	48.78325	8.94927	0.1964607	0.29744321	2.2226274	20	10 9.8	19.1
278485 2007 UV <sub>95</sub>	15.9	X	37.33302	73.72874	25.63440	4.12144	0.0521864	0.17944722	3.1129936	20	1 15.3	20.0
278486 2007 UR <sub>136</sub>	15.4	X	103.30721	259.43947	78.56286	12.25264	0.0974912	0.16912543	3.2383971	20	—	—
278487 2007 VX <sub>65</sub>	16.4	X	47.87444	197.14232	23.71240	9.46783	0.1310480	0.21266221	2.7797719	20	7 16.4	20.0
278488 2007 VW <sub>73</sub>	16.0	X	188.61382	89.35035	191.95096	4.14239	0.0788574	0.17690826	3.1427076	20	—	—
278489 2007 VU <sub>88</sub>	15.2	X	113.72205	131.60531	261.60112	10.40954	0.0819061	0.18145873	3.0899454	20	2 1.4	19.7
278490 2007 VL <sub>118</sub>	15.6	X	96.82062	315.87850	67.89009	9.98742	0.0805485	0.17437260	3.1731009	20	1 5.4	20.0
278491 2007 VQ <sub>148</sub>	17.6	X	329.33851	317.33198	67.21572	4.82617	0.1412768	0.30247256	2.1979209	20	11 13.4	19.2
278492 2007 VA <sub>238</sub>	16.8	X	162.15761	91.19020	70.98917	6.79580	0.0372455	0.29385787	2.2406697	20	9 22.7	19.7
278493 2007 VZ <sub>251</sub>	15.7	X	161.17591	249.61185	78.37968	10.10537	0.1835198	0.17886194	3.1197809	20	1 19.3	20.9
278494 2007 VT <sub>252</sub>	15.6	X	193.37750	102.25418	205.95233	15.25326	0.2056366	0.18256871	3.0774085	20	1 18.8	21.1
278495 2007 VK <sub>332</sub>	15.5	X	57.48261	207.81451	266.99826	14.95393	0.0090069	0.17840448	3.1251116	20	2 18.2	20.2
278496 2007 WV <sub>8</sub>	15.5	X	32.81481	281.92218	77.16402	12.50115	0.2773236	0.23006782	2.6377409	20	—	—
278497 2007 VW <sub>20</sub>	16.8	X	184.04811	294.51619	108.02000	6.79159	0.1148675	0.26358670	2.4090939	20	5 2.1	20.4
278498 2007 XW <sub>57</sub>	17.2	X	269.83231	350.01753	64.92941	5.62723	0.1248396	0.29141294	2.2531849	20	9 3.9	19.6
278499 2007 YC <sub>11</sub>	17.5	X	220.83601	152.63162	308.25453	4.42941	0.1761459	0.28622320	2.2803394	20	8 21.1	20.6
278500 2007 YV <sub>54</sub>	17.0	X	304.91360	68.12029	309.24892	23.48929	0.1984560	0.29019014	2.2595101	20	8 18.5	19.0
278501 2007 YA <sub>56</sub>	16.8	X	148.26126	345.14756	121.74561	9.50162	0.0982035	0.26935849	2.3745552	20	6 15.6	20.3
278502 2008 AP <sub>1</sub>	17.3	X	353.63241	255.94033	114.03998	22.77271	0.0907742	0.37390835	1.9082090	20	12 24.4	19.2
278503 2008 AN <sub>47</sub>	16.6	X	220.98236	232.31249	101.15845	7.37777	0.1201786	0.26065530	2.4271224	20	3 12.8	20.3
278504 2008 AO <sub>74</sub>	16.8	X	236.20306	35.88800	353.11568	6.90198	0.1064711	0.27523880	2.3406130	20	6 7.5	20.1
278505 2008 AS <sub>132</sub>	17.4	X	203.14539	12.12823	33.36275	0.82978	0.1904685	0.26194183	2.4191687	20	3 30.9	21.4
278506 2008 BJ <sub>20</sub>	17.1	X	75.87130	141.08442	23.86425	2.23445	0.1346921	0.26322172	2.4113203	20	6 9.2	20.1
278507 2008 BA <sub>32</sub>	17.3	X	164.75727	293.85090	146.11771	1.43330	0.1534214	0.26545380	2.3977842	20	5 29.8	21.1
278508 2008 CU <sub>1</sub>	16.7	X	76.71756	311.45918	136.55611	5.97692	0.0486228	0.24763214	2.5114895	20	2 11.8	19.5
278509 2008 CX <sub>12</sub>	16.7	X	86.98447	338.49854	86.19371	4.06208	0.0398641	0.24164637	2.5527945	20	1 26.7	19.9
278510 2008 CT <sub>18</sub>	16.2	X	44.52215	185.01633	83.94883	2.62705	0.0846641	0.19188616	2.9769643	20	9 4.5	20.1
278511 2008 CB <sub>24</sub>	16.8	X	63.04837	89.61440	334.29054	8.53216	0.0429651	0.23543166	2.5975234	20	—	—
278512 2008 CL <sub>39</sub>	17.0	X	148.04824	257.26536	149.97840	7.02141	0.1211651	0.25524732	2.4612851	20	3 31.2	20.6
278513 Schwoppe	17.1	X	202.32436	241.80355	149.63374	9.34667	0.2100692	0.26692248	2.3889806	20	5 4.5	21.2
278514 2008 CG <sub>180</sub>	16.5	X	338.96137	216.25640	235.49054	10.59581	0.1789536	0.22844752	2.6501986	20	—	—
278515 2008 CV <sub>199</sub>	17.2	X	109.68555	298.31225	347.39335	3.72245	0.2550177	0.28333706	2.2957987	20	12 31.7	21.2
278516 2008 DP <sub>21</sub>	15.9	X	289.23839	237.02565	280.00017	10.33827	0.1371076	0.22426130	2.6830771	20	—	—
278517 2008 DU <sub>25</sub>	16.3	X	355.55482	171.16086	310.50741	6.43491	0.0834232	0.23259094	2.6186303	20	—	—
278518 2008 DK <sub>32</sub>	15.9	X	65.70739	178.46250	65.17555	2.09564	0.0926591	0.19093798	2.9868117	20	8 31.8	19.9
278519 2008 DC <sub>33</sub>	16.0	X	34.81880	241.24377	12.46078	9.12471	0.1065037	0.18519903	3.0482008	20	8 5.6	20.0
278520 2008 DY <sub>34</sub>	16.7	X	221.67208	229.96890	321.98499	3.20776	0.0394543	0.21353609	2.7721828	20	12 25.4	20.6
278521 2008 DP <sub>36</sub>	16.4	X	321.46354	188.71687	348.02285	8.50074	0.2277102	0.23369430	2.6103815	20	—	—
278522 2008 DW <sub>46</sub>	17.9	X	241.13451	78.43180	135.89832	4.15595	0.1180707	0.30150696	2.2026111	20	—	—
278523 2008 DY <sub>46</sub>	17.1	X	220.76214	60.70496	57.66529	3.33714	0.1385951	0.27988246	2.3146514	20	9 20.5	20.1
278524 2008 DU <sub>48</sub>	15.9	X	86.82945	339.68364	88.83537	15.66558	0.0712862	0.24272273	2.5452420	20	2 7.2	19.3
278525 2008 DJ <sub>67</sub>	18.2	X	230.67973	15.98289	234.16604	2.45454	0.1660293	0.30515689	2.1850125	20	—	—
278526 2008 DM <sub>68</sub>	18.2	X	180.16776	95.74826	170.63896	5.92400	0.1544136	0.29637039	2.2279880	20	—	—
278527 2008 DH <sub>85</sub>	16.5	X	349.32515	331.08751	95.61214	6.51144	0.0234447	0.21476289	2.7616156	20	—	—
278528 2008 EM <sub>13</sub>	16.6	X	15.40275	303.60671	126.43791	6.22579	0.0549872	0.22340924	2.6898948	20	—	—
278529 2008 EM <sub>16</sub>	18.1	X	215.19130	244.94968	0.00506	2.61794	0.1345101	0.30087040	2.2057168	20	—	—
278530 2008 EY <sub>20</sub>	17.0	X	126.17396	285.40816	3.28187	6.03353	0.1200586	0.28998227	2.2605897	20	—	—
278531 2008 EJ <sub>32</sub>	15.7	X	156.00566	6.77866	229.95761	8.21701	0.0951066	0.21016629	2.8017369	20	12 1.2	20.0
278532 2008 EC <sub>46</sub>	17.7	X	210.32355	297.83771	194.61160	22.01945	0.0319853	0.35863519	1.9620080	20	10 27.0	19.7
278533 2008 EP <sub>47</sub>	17.1	X	71.31590	195.19571	102.17229	3.90763	0.1906344	0.27655063	2.3332053	20	12 9.7	20.5
278534 2008 EZ <sub>69</sub>	15.6	X	267.88781	325.96899	141.70051	7.26642	0.0488836	0.20428191	2.8552849	20	11 7.8	19.5
278535 2008 EE <sub>72</sub>	16.0	X	335.77084	128.32421	140.64892	11.12995	0.1637247	0.17477531	3.1682248	20	5 15.1	19.9
278536 2008 EC <sub>74</sub>	17.3	X	47.69525	240.59268	71.86233	4.39402	0.1781390	0.27815979	2.3241981	20	12 2.9	20.4
278537 2008 EX <sub>75</sub>	16.9	X	27.52383	287.46122	118.01949	4.12113	0.1141644	0.21928168	2.7235446	20	—	—
278538 2008 EZ <sub>81</sub>	17.5	X	236.39621	220.20853	342.77671	6.75169	0.1691449	0.29947636	2.2125564	20	—	—
278539 2008 EF <sub>82</sub>	16.4	X	351.99149	36.57208	121.75539	8.73832	0.1752637	0.23739128	2.5832090	20	—	—
278540 2008 EX <sub>87</sub>	15.3	X	24.54827	203.36651	46.69700	12.25248	0.1473210	0.17672377	3.1448945	20	7 17.9	19.3
278541 2008 EA <sub>123</sub>	17.5	X	118.35531	224.98953	44.36899	3.36033	0.1544571	0.28216154	2.3021706	20	12 17.2	20.9
278542 2008 EB <sub>127</sub>	16.5	X	291.07802	308.08959	188.13275	8.27042	0.0609255	0.21612910	2.7499654	20	—	—
278543 2008 EJ <sub>151</sub>	17.5	X	265.30837	144.17433	1.00147	3.39063	0.0493572	0.29256715	2.2472550	20	—	—
278544 2008 ER <sub>166</sub>	17.4	X	313.28962	41.29576	93.01600	6.21458	0.0699501	0.30294294	2.1956452	20	—	—
278545 2008 EM <sub>167</sub>	15.1	X	341.79994	194.34692	88.57990	10.60841	0.1182540	0.17542838	3.1603571	20	6 13.9	18.8
278546 2008 FW <sub>3</sub>	16.5	X	74.45729	341.06101	0.74021	13.70141	0.0439072	0.21607604	2.7504155	20	—	—
278547 2008 FM <sub>8</sub>	16.5	X	49.69808	78.71166	45.09403	14.32005	0.2474534	0.24198661	2.5504011	20	3 23.2	19.0
278548 2008 FX <sub>27</sub>	16.9	X	119.34597	112.31001	133.70762	7.02940	0.0870328	0.27605721	2.3359846			



# ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	$\omega$	$\Omega$	$i$	$e$	$\mu$	$a$	TE	Oppos.	V
278561 2008 GA <sub>74</sub>	17.7	X	51.47777	198.10721	93.48917	6.18147	0.2408780	0.26822740	2.3812260	20	11 17.7	21.0
278562 2008 GN <sub>74</sub>	16.6	X	256.25467	289.84366	148.42782	9.62957	0.0804196	0.19183844	2.9774579	20	9 7.8	20.8
278563 2008 GH <sub>93</sub>	16.2	X	227.21537	112.73845	65.45673	10.18625	0.0957375	0.20999030	2.8033021	20	12 5.9	20.2
278564 2008 GK <sub>97</sub>	17.6	X	112.70364	260.12077	7.34635	0.93117	0.1865302	0.27802294	2.3249607	20	12 9.7	21.2
278565 2008 GY <sub>126</sub>	16.8	X	25.29605	213.46705	112.34470	8.06546	0.1408150	0.27499575	2.3419920	20	11 18.4	19.6
278566 2008 GZ <sub>127</sub>	16.8	X	205.79097	260.35460	122.64516	10.10918	0.1500771	0.24254816	2.5464631	20	4 30.4	21.0
278567 2008 GP <sub>129</sub>	17.3	X	121.28965	139.75926	187.79286	6.23136	0.1938119	0.28967886	2.2621680	20	—	—
278568 2008 GY <sub>137</sub>	17.6	X	152.86034	140.14955	175.96550	6.16824	0.1628310	0.29624496	2.2286168	20	—	—
278569 2008 GW <sub>144</sub>	17.9	X	200.56869	78.14144	182.60707	4.41135	0.1582371	0.29769025	2.2213977	20	—	—
278570 2008 HT <sub>8</sub>	15.8	X	51.58236	80.90587	155.03601	11.68986	0.0223847	0.17814649	3.1281281	20	7 20.5	20.2
278571 2008 HZ <sub>8</sub>	15.6	X	117.97763	65.81304	107.35749	11.33196	0.0325340	0.17983506	3.1085163	20	7 27.8	20.1
278572 2008 HB <sub>21</sub>	13.5	X	293.00027	105.71655	211.87991	16.49440	0.0537470	0.08238135	5.2309846	20	5 25.9	20.4
278573 2008 HF <sub>26</sub>	17.5	X	230.67737	63.30700	110.41251	5.91485	0.1449130	0.28738528	2.2741880	20	12 17.5	19.9
278574 2008 HW <sub>26</sub>	16.3	X	244.97648	248.51966	179.86075	5.70098	0.0273882	0.18731722	3.0251779	20	8 16.5	20.6
278575 2008 HV <sub>35</sub>	17.1	X	324.15969	243.44836	73.02223	6.26819	0.1894413	0.25332738	2.4737053	20	6 24.9	19.2
278576 2008 HS <sub>37</sub>	17.8	X	211.01796	1.92162	251.28611	3.38376	0.2922187	0.29596332	2.2300304	20	—	—
278577 2008 HG <sub>40</sub>	17.9	X	66.04776	303.93976	351.65708	0.77540	0.1801089	0.27567963	2.3381172	20	11 30.7	21.2
278578 2008 HD <sub>62</sub>	16.7	X	250.25647	216.98522	116.96118	5.95816	0.1668837	0.23854207	2.5748942	20	4 9.5	20.7
278579 2008 HC <sub>66</sub>	16.4	X	333.89204	263.60697	264.43347	10.54739	0.2626309	0.23211167	2.6222337	20	—	—
278580 2008 JE <sub>5</sub>	16.0	X	338.45420	106.68761	193.10039	4.74273	0.0184706	0.17931143	3.1145650	20	7 5.4	20.3
278581 2008 JL <sub>6</sub>	16.0	X	246.32673	295.16506	143.83098	10.49359	0.0798323	0.18873784	3.0099785	20	8 26.5	20.3
278582 2008 JE <sub>15</sub>	17.0	X	334.86073	279.51953	70.53583	4.72751	0.0442110	0.26802809	2.3824064	20	9 20.3	19.7
278583 2008 JQ <sub>23</sub>	15.5	X	23.10092	40.34066	199.83282	15.34174	0.0317224	0.17091052	3.2158085	20	6 18.8	20.2
278584 2008 JQ <sub>27</sub>	18.0	X	83.81398	103.09027	179.50703	6.56589	0.1823789	0.27280217	2.3545297	20	12 2.6	21.7
278585 2008 KM <sub>26</sub>	16.3	X	150.92564	250.19642	121.29202	10.59172	0.1994429	0.22375002	2.6871629	20	2 27.9	20.7
278586 2008 KW <sub>34</sub>	17.4	X	286.69793	304.66012	56.82813	4.58927	0.0484377	0.25736187	2.4477849	20	7 18.9	20.4
278587 2008 KX <sub>42</sub>	17.2	X	275.36367	234.88462	240.18286	6.41992	0.0551347	0.28104290	2.3082755	20	12 14.5	19.7
278588 2008 LY <sub>16</sub>	17.2	X	56.05346	330.93031	2.14741	7.22114	0.1482231	0.27280419	2.3545180	20	—	—
278589 2008 NO	16.6	X	332.71123	252.62013	129.10529	9.45517	0.1660993	0.25610035	2.4558166	20	11 5.9	19.0
278590 2008 NA <sub>2</sub>	17.5	X	156.01770	357.55387	301.65753	4.60385	0.1748124	0.28535660	2.2849539	20	—	—
278591 Salò	17.1	X	109.73430	200.92777	109.13003	7.88034	0.1192986	0.27260692	2.3556538	20	—	—
278592 2008 NG <sub>5</sub>	17.0	X	154.90243	274.75721	60.35736	7.65022	0.2991193	0.28786223	2.2716753	20	1 19.2	20.7
278593 2008 OC	16.2	X	265.92909	181.07196	119.71890	13.10997	0.1695255	0.22780173	2.6552049	20	3 17.4	20.4
278594 2008 OT <sub>1</sub>	17.2	X	150.11420	208.79172	127.64274	5.70877	0.1744902	0.28932092	2.2640334	20	1 2.0	20.2
278595 2008 OB <sub>2</sub>	16.3	X	273.70442	145.63592	167.32360	13.63037	0.2701971	0.22965563	2.6408961	20	3 25.8	20.4
278596 2008 OR <sub>2</sub>	17.3	X	167.77289	176.68149	132.19463	7.43583	0.2128451	0.28872599	2.2671424	20	—	—
278597 2008 OA <sub>21</sub>	16.3	X	212.39765	202.16410	330.37578	8.78934	0.0314168	0.17832208	3.1260744	20	11 10.6	20.9
278598 2008 OL <sub>21</sub>	16.3	X	177.01452	234.37762	154.14795	9.79003	0.1583455	0.21732833	2.7398397	20	4 10.2	20.8
278599 2008 OM <sub>23</sub>	16.1	X	42.76572	309.25547	346.74881	8.20371	0.2228919	0.24527696	2.5275410	20	11 2.0	19.6
278600 2008 OV <sub>24</sub>	17.2	X	132.16721	316.67296	9.20356	3.68002	0.1858864	0.28244372	2.3006370	20	—	—
278601 2008 PV <sub>2</sub>	16.4	X	345.33765	356.95143	4.64306	7.81787	0.2143895	0.25371057	2.4712139	20	10 30.0	18.4
278602 2008 PG <sub>6</sub>	17.1	X	42.20058	160.76273	168.74238	1.09330	0.2206059	0.26209279	2.4182396	20	12 20.6	20.4
278603 2008 PQ <sub>6</sub>	17.0	X	214.74390	179.13463	125.16587	10.77743	0.2068496	0.29721468	2.2237667	20	1 22.6	20.4
278604 2008 PV <sub>6</sub>	15.8	X	111.01135	193.80884	128.58718	12.65047	0.1618480	0.19289660	2.9665591	20	—	—
278605 2008 PZ <sub>7</sub>	17.6	X	138.85168	174.00744	166.05056	5.34864	0.1819030	0.28597935	2.2816355	20	—	—
278606 2008 PU <sub>9</sub>	17.5	X	76.43842	287.26497	43.77849	5.55414	0.1410464	0.27036456	2.3686608	20	—	—
278607 2008 PS <sub>11</sub>	15.9	X	5.54687	49.14565	317.65406	15.41406	0.2128232	0.17540824	3.1605990	20	11 19.5	19.9
278608 2008 PZ <sub>15</sub>	16.9	X	245.78918	164.09305	148.85790	3.94621	0.2118146	0.22328771	2.6908707	20	3 5.5	21.2
278609 Avrudenko	18.0	X	161.43302	15.67457	279.25040	1.80483	0.2206011	0.28338371	2.2955467	20	—	—
278610 2008 PW <sub>19</sub>	15.3	X	140.61463	297.65936	40.89547	10.59217	0.0336370	0.18631754	3.0359892	20	—	—
278611 2008 QC <sub>5</sub>	17.5	X	93.53067	152.46857	170.03580	9.85064	0.2683926	0.26945760	2.3739729	20	—	—
278612 2008 QL <sub>5</sub>	15.5	X	11.28581	53.35118	358.36793	15.81163	0.2274645	0.17869339	3.1217424	20	—	—
278613 2008 QV <sub>5</sub>	16.4	X	29.07392	172.90936	168.56102	10.57028	0.2358438	0.25931401	2.4354846	20	12 22.5	19.8
278614 2008 QK <sub>8</sub>	18.1	X	147.12849	134.26929	152.10043	2.85312	0.2260024	0.27855904	2.3219768	20	—	—
278615 2008 QP <sub>8</sub>	16.9	X	51.56857	320.96322	335.01127	6.98224	0.1109849	0.25584666	2.4574398	20	10 29.9	20.2
278616 2008 QQ <sub>9</sub>	16.0	X	188.15611	234.81991	162.71663	9.61675	0.2134413	0.22033046	2.7148949	20	4 30.9	20.8
278617 2008 QV <sub>10</sub>	15.6	X	108.79635	126.08401	171.15048	15.54215	0.0507782	0.18153182	3.0891159	20	12 18.1	20.4
278618 2008 QN <sub>12</sub>	17.2	X	108.39878	323.01043	345.05109	2.82395	0.2469989	0.27121093	2.3637303	20	—	—
278619 2008 QB <sub>16</sub>	17.9	X	121.35672	318.14468	338.26952	2.79092	0.2402583	0.27326957	2.3518441	20	—	—
278620 2008 QM <sub>20</sub>	16.0	X	1.36120	40.45833	359.77965	9.43962	0.2160181	0.17754861	3.1351467	20	12 31.4	19.8
278621 2008 QU <sub>22</sub>	15.3	X	234.59749	194.21943	315.44636	21.76111	0.0305998	0.17821960	3.1272726	20	11 3.8	20.3
278622 2008 QC <sub>25</sub>	16.2	X	227.96477	284.85559	8.22942	7.76183	0.2022997	0.21599101	2.7511373	20	1 30.8	21.0
278623 2008 QP <sub>28</sub>	17.3	X	71.07219	267.07349	16.67831	2.72065	0.1721008	0.25991000	2.4317601	20	11 16.8	21.0
278624 2008 QX <sub>30</sub>	16.7	X	135.27071	9.48467	275.75001	7.03531	0.1874741	0.27315799	2.3524845	20	—	—
278625 2008 QC <sub>40</sub>	17.0	X	157.08053	83.15785	313.19318	1.66426	0.0996990	0.21525064	2.7574422	20	3 25.2	21.1
278626 2008 QK <sub>40</sub>	16.3	X	153.25846	107.40597	300.19619	4.17883	0.0473633	0.21698621	2.7427189	20	3 29.4	20.3
278627 2008 QW <sub>40</sub>	16.8	X	233.33967	164.52863	187.02118	5.74732	0.1815514	0.22042612	2.7141094	20	4 20.5	20.8
278628 2008 QZ <sub>40</sub>	17.5	X	145.65148	278.04656	331.09038	2.35795	0.1692229					

# ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
278641 2008 <i>RF</i> <sub>17</sub>	16.1	X	182.73081	12.21257	270.47256	3.52646	0.0865735	0.19494883	2.9457030	20	—	—
278642 2008 <i>RH</i> <sub>17</sub>	16.4	X	66.97579	227.97063	197.29329	11.61328	0.0361042	0.19830909	2.9123325	20	1 5.7	20.5
278643 2008 <i>RL</i> <sub>19</sub>	16.6	X	230.81145	111.70026	268.32846	2.79916	0.1099365	0.22639173	2.6662181	20	5 20.4	20.7
278644 2008 <i>RK</i> <sub>21</sub>	17.7	X	115.58028	131.24868	190.21226	4.90349	0.2504434	0.27444912	2.3451007	20	—	—
278645 2008 Kontsevych	17.0	X	91.79348	358.37920	297.10035	0.91951	0.1892114	0.26627073	2.3928773	20	12 23.9	20.8
278646 2008 <i>RH</i> <sub>24</sub>	16.5	X	93.85685	79.24277	240.33063	5.76385	0.2516791	0.26810589	2.3819454	20	—	—
278647 2008 <i>RN</i> <sub>36</sub>	16.7	X	142.27540	145.31178	229.65543	1.11313	0.0855491	0.20457287	2.8525769	20	2 12.2	20.7
278648 2008 <i>RY</i> <sub>37</sub>	16.7	X	16.58151	305.58676	350.58504	6.20207	0.1040002	0.24420928	2.5349026	20	9 8.7	19.3
278649 2008 <i>RE</i> <sub>40</sub>	15.9	X	331.50757	287.15480	184.45669	6.39758	0.1052883	0.18449858	3.0559110	20	—	—
278650 2008 <i>RX</i> <sub>41</sub>	16.5	X	150.95314	324.64979	21.47249	2.05445	0.0867431	0.20041050	2.8919386	20	1 19.6	20.8
278651 2008 <i>RY</i> <sub>41</sub>	16.5	X	145.50440	125.06381	178.19698	9.37767	0.1272478	0.19098860	2.9862839	20	—	—
278652 2008 <i>RV</i> <sub>42</sub>	16.8	X	282.47983	193.33549	158.93804	3.37593	0.1743498	0.23273087	2.6175805	20	6 7.3	20.2
278653 2008 <i>RL</i> <sub>44</sub>	17.0	X	238.82592	285.20364	16.59803	1.61205	0.0726795	0.21202749	2.7853168	20	2 25.4	21.0
278654 2008 <i>RS</i> <sub>44</sub>	16.6	X	272.29933	132.28736	157.39865	3.49201	0.0581074	0.21685842	2.7437962	20	3 21.3	20.5
278655 2008 <i>RD</i> <sub>45</sub>	16.4	X	110.09733	140.56694	174.37088	10.76505	0.0765696	0.18436748	3.0573595	20	—	—
278656 2008 <i>RR</i> <sub>46</sub>	16.4	X	100.19385	223.17218	210.19170	1.44970	0.0477861	0.20567783	2.8423512	20	2 29.1	20.3
278657 2008 <i>RV</i> <sub>53</sub>	16.4	X	254.75435	28.23475	261.90263	4.39531	0.0399183	0.21612625	2.7499895	20	2 28.9	20.4
278658 2008 <i>RC</i> <sub>54</sub>	15.8	X	244.48836	219.20437	304.69410	8.24343	0.0433722	0.18329563	3.0692668	20	12 10.6	20.1
278659 2008 <i>RT</i> <sub>64</sub>	16.9	X	258.06057	212.12058	141.92654	4.64114	0.1040011	0.22863802	2.6487263	20	5 20.5	20.7
278660 2008 <i>RY</i> <sub>65</sub>	18.0	X	137.65011	147.55530	150.03816	6.30802	0.2054046	0.27531220	2.3401970	20	—	—
278661 2008 <i>RO</i> <sub>68</sub>	16.3	X	317.07092	287.86431	44.01181	5.72698	0.0979956	0.23571023	2.5954765	20	7 16.5	19.3
278662 2008 <i>RO</i> <sub>68</sub>	16.2	X	138.42051	6.57731	50.91273	5.89816	0.0560593	0.21195921	2.7859149	20	3 30.2	20.2
278663 2008 <i>RV</i> <sub>68</sub>	17.0	X	100.83996	203.68259	109.78229	3.75710	0.1977832	0.26822307	2.3812517	20	—	—
278664 2008 <i>RU</i> <sub>71</sub>	16.8	X	264.22272	248.81102	159.82605	8.56534	0.0768004	0.24465280	2.5318381	20	8 14.6	20.0
278665 2008 <i>RV</i> <sub>78</sub>	16.4	X	30.92673	8.81404	325.44924	9.50544	0.1246018	0.16998714	3.2274437	20	11 3.9	20.9
278666 2008 <i>RX</i> <sub>79</sub>	16.0	X	329.77708	251.80694	186.35704	10.03430	0.1010372	0.17991484	3.1075973	20	12 17.3	20.0
278667 2008 <i>RM</i> <sub>86</sub>	17.4	X	246.46345	347.33542	300.39512	6.78798	0.1911915	0.21257594	2.7805240	20	2 6.3	22.0
278668 2008 <i>RS</i> <sub>87</sub>	14.6	X	133.32199	220.43893	216.53083	14.47498	0.2110787	0.12605433	3.9394072	20	5 2.9	20.7
278669 2008 <i>RG</i> <sub>91</sub>	16.7	X	132.72805	295.58375	159.36708	13.30389	0.0761682	0.22380562	2.6867178	20	5 13.6	20.8
278670 2008 <i>RN</i> <sub>91</sub>	16.9	X	299.09160	279.52922	346.87861	3.23052	0.0738129	0.21825757	2.7320575	20	3 21.8	20.6
278671 2008 <i>RN</i> <sub>93</sub>	16.9	X	348.56895	132.87284	172.94855	5.01106	0.0394204	0.23770851	2.5809102	20	7 31.5	20.0
278672 2008 <i>RO</i> <sub>93</sub>	16.9	X	266.83160	125.10318	167.84249	2.67796	0.0481193	0.21612395	2.7500090	20	3 19.7	20.8
278673 2008 <i>RZ</i> <sub>93</sub>	16.2	X	299.53219	131.59025	9.42035	16.16932	0.0357746	0.18574116	3.0422667	20	—	—
278674 2008 <i>RA</i> <sub>94</sub>	17.1	X	8.74455	95.54406	142.77051	1.78779	0.0859452	0.22724367	2.6595502	20	5 29.9	20.2
278675 2008 <i>RT</i> <sub>95</sub>	17.4	X	82.26038	126.20776	168.60442	12.46993	0.2280241	0.26457390	2.4030974	20	12 17.6	21.5
278676 2008 <i>RU</i> <sub>96</sub>	16.0	X	58.66571	44.78129	10.19427	8.55344	0.0875667	0.19012189	2.9953527	20	—	—
278677 2008 <i>RG</i> <sub>100</sub>	16.9	X	249.28616	158.08014	189.42570	1.49528	0.0465218	0.22205669	2.7008066	20	5 7.6	20.6
278678 2008 <i>RQ</i> <sub>100</sub>	16.3	X	127.14376	332.71800	123.71190	2.82083	0.0343477	0.22083399	2.7107664	20	5 1.5	19.9
278679 2008 <i>RY</i> <sub>105</sub>	16.2	X	127.17751	163.56183	209.87361	9.92555	0.0582098	0.19482631	2.9469379	20	1 20.2	20.6
278680 2008 <i>RU</i> <sub>106</sub>	16.3	X	160.00164	75.01357	194.14525	8.84431	0.1142901	0.18437634	3.0572615	20	—	—
278681 2008 <i>RW</i> <sub>106</sub>	15.3	X	6.38436	18.93813	29.10755	17.63494	0.1937274	0.17839953	3.1251696	20	—	—
278682 2008 <i>RP</i> <sub>107</sub>	16.9	X	210.18769	256.02624	129.74760	3.68560	0.1249072	0.22321262	2.6914742	20	5 6.8	21.1
278683 2008 <i>RX</i> <sub>109</sub>	17.2	X	148.08429	43.41195	207.88367	5.06030	0.1475116	0.26692647	2.3889567	20	12 19.8	20.9
278684 2008 <i>RQ</i> <sub>111</sub>	16.5	X	66.41891	205.97665	20.53044	13.22086	0.0953501	0.23766737	2.5812080	20	8 21.1	20.1
278685 2008 <i>RL</i> <sub>115</sub>	16.6	X	207.49136	212.47415	183.05188	4.17792	0.1037674	0.22570779	2.6716016	20	5 16.9	20.6
278686 2008 <i>RN</i> <sub>115</sub>	16.7	X	124.77926	154.71728	229.79770	1.14139	0.0854237	0.20434163	2.8547285	20	2 4.1	20.7
278687 2008 <i>RG</i> <sub>116</sub>	16.8	X	329.84355	226.44689	114.88023	7.84473	0.1778868	0.24171372	2.5523203	20	8 20.1	19.0
278688 2008 <i>RL</i> <sub>117</sub>	16.4	X	224.49185	121.00234	198.91576	7.57329	0.0941210	0.21471484	2.7620276	20	2 28.2	20.7
278689 2008 <i>RU</i> <sub>117</sub>	15.9	X	86.95424	71.11577	280.37703	4.98877	0.0587601	0.18558541	3.0439686	20	—	—
278690 2008 <i>RZ</i> <sub>118</sub>	17.1	X	11.89079	153.59998	153.12596	4.30034	0.1720001	0.24419588	2.5349953	20	9 26.5	19.7
278691 2008 <i>RL</i> <sub>120</sub>	16.0	X	359.54014	261.60263	206.90443	15.40491	0.1544381	0.18614629	3.0378510	20	—	—
278692 2008 <i>RS</i> <sub>120</sub>	16.3	X	257.26626	190.27777	178.15569	14.25812	0.1739310	0.22562796	2.6722317	20	5 30.0	20.5
278693 2008 <i>RV</i> <sub>128</sub>	16.8	X	99.90323	79.72870	3.56952	5.97642	0.0250541	0.21084960	2.7956804	20	3 9.2	20.6
278694 2008 <i>RO</i> <sub>130</sub>	16.2	X	271.67117	281.76905	71.98863	18.51682	0.3171985	0.22988175	2.6391640	20	5 11.0	20.3
278695 2008 <i>RQ</i> <sub>130</sub>	16.3	X	121.75369	123.29332	197.60585	6.19834	0.2198582	0.18905740	3.0065858	20	—	—
278696 2008 <i>RX</i> <sub>131</sub>	15.4	X	62.07386	359.26250	321.82155	25.75098	0.2148534	0.17757214	3.1348697	20	12 14.4	20.6
278697 2008 <i>RG</i> <sub>136</sub>	15.7	X	160.37484	292.40060	346.45298	11.46649	0.1674511	0.18963473	3.0004805	20	—	—
278698 2008 <i>RH</i> <sub>139</sub>	16.2	X	187.49666	144.21473	233.56818	10.93808	0.1109321	0.21582600	2.7525394	20	3 31.3	20.7
278699 2008 <i>RP</i> <sub>139</sub>	16.0	X	182.56791	45.95137	337.39987	6.93857	0.1117977	0.21690022	2.7434437	20	4 2.8	20.3
278700 2008 <i>RB</i> <sub>140</sub>	16.3	X	16.04377	122.55446	178.57708	8.62008	0.1668777	0.23896730	2.5718387	20	9 22.8	18.9
278701 2008 <i>RK</i> <sub>141</sub>	16.2	X	205.48742	95.66356	292.19452	5.08681	0.0393197	0.22409815	2.6843792	20	5 5.0	20.0
278702 2008 <i>RH</i> <sub>143</sub>	17.5	X	103.42094	352.78089	280.52708	1.30321	0.1876074	0.26225230	2.4172590	20	12 6.3	21.5
278703 2008 <i>RP</i> <sub>143</sub>	18.1	X	84.67268	124.04312	166.22749	1.50002	0.1828429	0.26138876	2.4225799	20	12 10.1	21.8
278704 2008 <i>SR</i> <sub>3</sub>	16.6	X	173.43489	242.19964	167.81517	12.04015	0.2195932	0.21657532	2.7461868	20	5 4.7	21.4
278705 2008 <i>SV</i> <sub>17</sub>	16.7	X	129.47769	117.85729	205.10017	4.21165	0.1072805	0.19536724	2.9414958	20	—	—
278706 2008 <i>SF</i> <sub>21</sub>	16.3	X	143.57191	165.47258	233.55939	2.92778	0.1030198	0.21286458	2.7780099	20	3 14.1	20.4
278707 2008 <i>SX</i> <sub>26</sub>	16.6	X	50.12990	176.62218	268.07691	0.87803	0.0737979	0.19716392	2.9235987	20	1 11.7	20.4
278708 2008 <i>SQ</i> <sub>27</sub>	16.9	X	279.08777	295.27237	10.52285	4.64418	0.0627961	0.22158438	2.7046430	20	4 17.3	20.6
278709 2008 <i>SK</i> <sub>30</sub>	16.7	X	236.36137	199.97378	169.45535	13.58583	0.1953464	0.22867935	2.6484072	20	5 8.7	21.1
278710 2008 <i>SQ</i> <sub>30</sub>	16.9	X	308.20032	75.71954	229.73838	9.92262	0.0870428	0.22815990	2.6524254	20	5 25.1	20.1
278711 2008 <i>SC</i> <sub>32</sub>	16.7	X	90.05530	345.99348	251.78727	6.01123	0.1544823	0.24549465	2.5260466	20	10 3.3	

# ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	V
278721	2008 SV <sub>55</sub>	16.2	X	174.14176	74.70245	201.49720	8.00928	0.0632269	0.18618885	3.0373880	20	—
278722	2008 SJ <sub>61</sub>	17.3	X	53.18330	102.34131	190.26203	2.02794	0.1891032	0.25742403	2.4473908	20	11 11.3 20.6
278723	2008 SX <sub>61</sub>	17.2	X	51.01259	96.35984	228.46419	2.51715	0.1792063	0.26175887	2.4202958	20	12 19.1 20.5
278724	2008 SZ <sub>61</sub>	17.4	X	99.78910	347.72255	318.64724	3.43754	0.2242322	0.27040283	2.3684373	20	—
278725	2008 SN <sub>64</sub>	15.8	X	160.72200	198.30278	198.12365	14.85688	0.1248511	0.21489939	2.7604460	20	3 30.7 20.2
278726	2008 SF <sub>65</sub>	15.6	X	345.44047	214.82460	187.79524	25.29520	0.1549531	0.17392821	3.1785035	20	11 29.3 19.8
278727	2008 SV <sub>67</sub>	16.3	X	243.17419	229.33649	131.72432	5.37672	0.1724082	0.22355228	2.6887472	20	5 5.8 20.5
278728	2008 SO <sub>68</sub>	16.4	X	182.06720	252.60762	144.22540	5.47779	0.1207383	0.21723559	2.7406194	20	4 23.8 20.7
278729	2008 SJ <sub>70</sub>	16.7	X	334.26299	118.46884	86.79013	2.69875	0.0158041	0.20720903	2.8283312	20	2 29.8 20.6
278730	2008 SZ <sub>70</sub>	16.4	X	235.89220	314.43747	44.11188	6.66370	0.0512054	0.22088673	2.7103350	20	5 4.6 20.1
278731	2008 SG <sub>71</sub>	16.8	X	208.36672	301.23376	22.61071	6.03991	0.0730741	0.20330832	2.8643931	20	2 22.5 21.1
278732	2008 SJ <sub>71</sub>	15.2	X	257.20906	117.05066	28.28069	10.79189	0.0647616	0.17270594	3.1934825	20	11 26.7 19.8
278733	2008 SR <sub>72</sub>	16.3	X	274.38059	145.86183	210.91989	12.26043	0.1684145	0.22852825	2.6495744	20	6 3.5 20.0
278734	2008 SN <sub>82</sub>	16.4	X	326.82687	302.81664	19.13899	4.49769	0.2803981	0.23394680	2.6085028	20	6 25.6 18.4
278735	Kamioka	16.5	X	161.46315	214.07281	185.13799	4.37488	0.0858672	0.21548768	2.7554197	20	4 2.5 20.4
278736	2008 SX <sub>84</sub>	16.6	X	56.91946	84.29022	234.40161	7.87305	0.2560732	0.25400823	2.4692830	20	12 23.7 20.5
278737	2008 SR <sub>86</sub>	16.0	X	100.57772	14.15843	281.17583	5.70883	0.1354584	0.177311100	3.1379470	20	12 12.0 20.9
278738	2008 SA <sub>87</sub>	16.9	X	210.75800	47.38745	303.84769	4.73836	0.0733124	0.21445414	2.7642656	20	3 23.8 21.0
278739	2008 SD <sub>91</sub>	17.2	X	314.27026	62.74599	269.12075	0.95226	0.1980761	0.23571555	2.5954374	20	6 26.2 19.8
278740	2008 SP <sub>92</sub>	16.7	X	80.37027	182.43245	200.16276	8.33583	0.1116529	0.18881633	3.0091443	20	—
278741	2008 SM <sub>94</sub>	16.6	X	110.33890	239.03324	205.07145	2.92696	0.0697108	0.21285858	2.7780621	20	3 29.0 20.5
278742	2008 ST <sub>94</sub>	16.4	X	281.02802	139.20666	207.71032	11.31900	0.1886313	0.22983687	2.6395076	20	5 27.2 20.0
278743	2008 SW <sub>95</sub>	16.4	X	335.09000	34.07453	219.74522	8.10801	0.0304673	0.21800827	2.7341399	20	4 30.6 20.0
278744	2008 SX <sub>95</sub>	16.8	X	197.53264	36.68805	337.99460	3.54621	0.1208342	0.21420308	2.7664250	20	4 8.2 21.2
278745	2008 SL <sub>96</sub>	16.3	X	262.36541	121.27938	206.16276	13.98382	0.0970010	0.22077749	2.7112289	20	4 21.4 19.9
278746	2008 SZ <sub>98</sub>	15.7	X	36.61371	214.31669	184.98846	10.43194	0.0875582	0.18052803	3.1005563	20	—
278747	2008 SS <sub>100</sub>	17.0	X	328.18354	274.82288	61.07652	5.84127	0.1254541	0.23744626	2.5828102	20	8 11.2 19.7
278748	2008 SP <sub>101</sub>	16.7	X	334.46017	114.89489	105.19346	5.16979	0.0416431	0.20921839	2.8101930	20	3 18.4 20.4
278749	2008 SJ <sub>102</sub>	17.1	X	85.72430	241.77429	78.02871	4.78415	0.2476804	0.26442942	2.4039727	20	—
278750	2008 SM <sub>103</sub>	16.3	X	248.49633	163.63121	195.48179	5.80784	0.0556212	0.21997206	2.7178430	20	5 21.4 20.0
278751	2008 SH <sub>106</sub>	16.7	X	5.54113	65.55451	199.19781	4.60559	0.2118644	0.23065612	2.6332539	20	7 8.8 19.0
278752	2008 SU <sub>107</sub>	16.7	X	214.84208	136.20495	217.00800	8.50234	0.1674932	0.21658078	2.7461407	20	3 27.4 21.3
278753	2008 SB <sub>108</sub>	15.9	X	351.32686	203.68186	181.56353	9.83816	0.0749370	0.17489051	3.1668334	20	11 12.6 20.1
278754	2008 SG <sub>108</sub>	17.3	X	168.08002	118.71605	244.24428	2.18343	0.1954084	0.21031998	2.8003718	20	2 29.9 22.1
278755	2008 SP <sub>111</sub>	16.2	X	334.84152	97.12597	115.44182	3.79424	0.0211050	0.20883161	2.8136618	20	3 10.3 20.0
278756	2008 SP <sub>117</sub>	17.2	X	339.31898	104.90059	203.84393	4.68937	0.1294600	0.23452018	2.6042494	20	7 18.0 20.0
278757	2008 SJ <sub>120</sub>	16.0	X	61.98643	198.59484	202.05178	10.25635	0.1338965	0.18635801	3.0355497	20	—
278758	2008 SC <sub>122</sub>	16.6	X	223.49642	118.41753	220.40503	2.82739	0.1011047	0.21281005	2.7784844	20	3 22.2 20.7
278759	2008 SL <sub>122</sub>	17.0	X	336.03678	55.03674	253.71221	1.00571	0.1161519	0.23299361	2.6156123	20	7 13.3 19.6
278760	2008 SN <sub>125</sub>	16.4	X	171.07100	77.78398	280.41812	0.94167	0.0800070	0.20371526	2.8605772	20	2 22.4 20.6
278761	2008 SY <sub>126</sub>	16.1	X	14.33919	295.65756	216.61463	5.32861	0.0163388	0.20235450	2.8733871	20	2 12.2 20.0
278762	2008 SV <sub>136</sub>	15.8	X	133.99282	71.39826	350.14117	5.75230	0.0313161	0.21010235	2.8023053	20	3 24.1 19.6
278763	2008 SD <sub>138</sub>	16.3	X	90.30544	261.43736	121.21597	3.99837	0.1432168	0.18945995	3.0023255	20	1 1.2 20.3
278764	2008 SJ <sub>138</sub>	16.4	X	340.13631	153.36404	83.95671	5.52655	0.0135337	0.21308562	2.7760883	20	4 19.6 20.2
278765	2008 SW <sub>143</sub>	16.9	X	352.71542	95.85644	189.49516	4.14778	0.1639711	0.23018941	2.6368119	20	7 9.4 19.5
278766	2008 SY <sub>143</sub>	16.1	X	315.45908	84.70987	98.63635	2.39370	0.0845457	0.19120982	2.9839801	20	1 1.8 20.3
278767	2008 SJ <sub>149</sub>	15.5	X	151.51734	284.46083	333.67119	8.70325	0.0385277	0.17963238	3.1108541	20	12 16.7 20.3
278768	2008 SY <sub>149</sub>	16.2	X	173.47246	207.27062	203.50110	5.68878	0.0349441	0.21829306	2.7317614	20	4 28.6 20.1
278769	2008 SR <sub>153</sub>	16.4	X	172.77509	7.37614	11.01888	3.66719	0.2280086	0.21212488	2.7846442	20	3 25.2 21.1
278770	2008 SS <sub>154</sub>	17.0	X	117.85554	237.07383	69.06367	2.25874	0.1891138	0.27105183	2.3646552	20	—
278771	2008 SD <sub>155</sub>	15.9	X	68.26296	337.20195	104.05355	3.23847	0.0440867	0.20061659	2.8899577	20	1 29.7 19.8
278772	2008 SL <sub>156</sub>	16.2	X	111.26689	321.18338	83.24258	3.15958	0.0694620	0.20269185	2.8701980	20	2 11.9 20.1
278773	2008 SN <sub>156</sub>	16.5	X	241.79312	156.53759	188.91601	15.45040	0.2877672	0.22008991	2.7168728	20	4 5.1 21.1
278774	2008 SP <sub>156</sub>	15.7	X	58.46837	165.67437	167.88308	13.91223	0.2805106	0.18036674	3.1024045	20	12 31.1 20.8
278775	2008 SA <sub>157</sub>	16.5	X	255.27335	20.20786	329.46206	5.15269	0.1188210	0.22718206	2.6600310	20	5 5.9 20.4
278776	2008 SR <sub>158</sub>	17.6	X	351.14353	140.59008	189.29347	1.30885	0.1811231	0.24611263	2.5218163	20	9 19.5 19.6
278777	2008 SQ <sub>161</sub>	16.8	X	213.57667	196.55298	171.98996	5.08571	0.1297419	0.21935552	2.7229333	20	4 18.3 21.1
278778	2008 SX <sub>163</sub>	15.7	X	15.26122	271.01639	133.78536	2.46059	0.1739047	0.17856449	3.1232445	20	—
278779	2008 SC <sub>164</sub>	16.7	X	266.93922	188.09816	183.35795	3.47299	0.1867411	0.23151963	2.6267022	20	6 11.0 20.3
278780	2008 SN <sub>171</sub>	15.6	X	290.14644	279.74141	194.68314	13.79825	0.1342932	0.17654888	3.1469709	20	11 29.0 19.7
278781	2008 SD <sub>176</sub>	15.6	X	357.76763	89.91676	2.39096	11.80791	0.0725457	0.18382170	3.0634081	20	—
278782	2008 SY <sub>182</sub>	16.7	X	178.76112	126.87964	192.48430	5.66549	0.0719152	0.19524393	2.9427341	20	1 15.0 21.2
278783	2008 SS <sub>183</sub>	16.5	X	203.76317	239.31151	65.71416	2.95293	0.0464888	0.19929865	2.9026843	20	1 25.0 20.7
278784	2008 SM <sub>184</sub>	15.5	X	237.47764	216.62245	50.53692	8.33569	0.0086832	0.19021794	2.9943442	20	1 21.7 19.9
278785	2008 SU <sub>186</sub>	16.2	X	336.86459	302.18186	252.31637	3.88835	0.0622503	0.20443030	2.8539030	20	2 11.9 19.9
278786	2008 SF <sub>190</sub>	17.4	X	67.83322	127.91621	357.89111	4.04738	0.0813388	0.29221013	2.2490850	20	3 20.4 19.7
278787	2008 SW <sub>190</sub>	16.5	X	350.54054	257.10987	230.75096	4.90282	0.1418367	0.19143151	2.9816759	20	—
278788	2008 SF <sub>191</sub>	15.8	X	114.40369	183.44013	256.84451	3.82898	0.0306614	0.21215494	2.7842012	20	3 22.2 19.6
278789	2008 SC <sub>196</sub>	16.6	X	272.22500	256.47666	41.77896	4.24561	0.0751415	0.21276429	2.7788827	20	3 30.7 20.5
278790	2008 SX <sub>196</sub>	16.7	X	261.33998	140.40824	192.99841	5.31347	0.0268085	0.21746807	2.7386658	20	5 7.9 20.4
278791	2008 SL <sub>198</sub>	16.3	X	199.77748	219.58491	122.23258	3.03255	0.1064625	0.20587855	2.8405034	20	3 4.4 20.6
278792	2008 SK <sub>202</sub>	15.6	X	175.04516	124.01195	27.59876	10.16443	0.0321131	0.15321560	3.4588686	20	9 7.2 20.7
278793	2008 SA <sub>204</sub>	16.7	X	342.83564	143.23698	187.15270	8.66031	0.1770800	0.23916100	2.5704499	20	8 28.1 19.1
2												

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>		
278801	2008	<i>SJ</i> <sub>235</sub>	16.2	X	320.93875	90.50665	172.01768	9.12671	0.0670062	0.22125911	2.7072931	20	4 19.9	19.7
278802	2008	<i>SK</i> <sub>238</sub>	16.3	X	326.34349	221.46881	55.11889	7.06048	0.0731940	0.22226512	2.6991178	20	5 14.5	19.5
278803	2008	<i>ST</i> <sub>238</sub>	16.4	X	314.45890	331.79289	159.82133	3.87652	0.2048217	0.18287362	3.0739869	20	—	—
278804	2008	<i>SM</i> <sub>241</sub>	16.3	X	179.85210	1.05939	61.82191	3.98079	0.0913130	0.22193450	2.7017977	20	5 22.0	20.2
278805	2008	<i>SX</i> <sub>242</sub>	16.5	X	0.57969	112.00855	202.48149	7.96249	0.1737180	0.23966984	2.5668104	20	9 11.4	19.0
278806	2008	<i>SC</i> <sub>244</sub>	16.4	X	355.82873	50.80800	5.25259	6.29178	0.0731777	0.17718926	3.1393841	20	12 25.6	20.6
278807	2008	<i>SQ</i> <sub>244</sub>	16.5	X	123.29357	146.46091	246.21360	1.07809	0.0774074	0.20304891	2.8668322	20	2 11.4	20.4
278808	2008	<i>SY</i> <sub>244</sub>	16.5	X	106.60848	344.57376	186.38949	9.26839	0.0017996	0.23136390	2.6278807	20	7 7.4	20.2
278809	2008	<i>SS</i> <sub>246</sub>	16.9	X	201.70791	194.60922	202.17257	5.42310	0.0313648	0.22218021	2.6998055	20	5 15.1	20.6
278810	2008	<i>SH</i> <sub>248</sub>	16.8	X	140.07356	213.67426	174.32194	2.08741	0.0777409	0.20361957	2.8614734	20	2 24.9	20.9
278811	2008	<i>SW</i> <sub>248</sub>	17.4	X	75.36723	107.99511	231.17449	3.87403	0.2487561	0.26883022	2.3776650	20	—	—
278812	2008	<i>SG</i> <sub>253</sub>	15.9	X	67.79600	234.65889	181.48987	10.82986	0.0799919	0.19149633	2.9810030	20	1 2.0	19.9
278813	2008	<i>SV</i> <sub>253</sub>	16.6	X	263.02351	250.72368	92.82398	3.64573	0.0983480	0.22438425	2.6820969	20	5 13.1	20.2
278814	2008	<i>SC</i> <sub>255</sub>	16.2	X	280.26540	141.24917	152.94328	7.28108	0.0507870	0.21559244	2.7545270	20	4 8.9	20.0
278815	2008	<i>SO</i> <sub>255</sub>	16.0	X	176.67250	10.61606	242.38541	3.58235	0.1208777	0.18248893	3.0783054	20	—	—
278816	2008	<i>SQ</i> <sub>255</sub>	16.1	X	3.10701	323.38832	182.97365	11.63920	0.0640956	0.19669734	2.9282202	20	1 19.6	20.1
278817	2008	<i>SL</i> <sub>256</sub>	16.5	X	331.81783	64.80449	6.62889	0.87420	0.1328419	0.17193882	3.2029740	20	12 9.8	20.2
278818	2008	<i>SL</i> <sub>257</sub>	16.2	X	350.30057	67.29583	217.96904	13.63944	0.0910162	0.22759368	2.6568228	20	7 2.6	19.5
278819	2008	<i>SS</i> <sub>258</sub>	16.2	X	263.60222	117.21745	236.16405	11.41419	0.1842038	0.22758961	2.6568544	20	5 14.1	20.0
278820	2008	<i>SL</i> <sub>261</sub>	16.5	X	265.20987	131.56827	164.17298	4.61820	0.0372573	0.21076610	2.7964188	20	3 23.6	20.2
278821	2008	<i>ST</i> <sub>261</sub>	17.2	X	196.83454	55.16504	297.82035	1.40042	0.0855593	0.21246212	2.7815170	20	3 12.9	21.3
278822	2008	<i>SF</i> <sub>262</sub>	16.1	X	350.12551	30.00614	51.90475	2.97510	0.0313564	0.18140000	3.0906123	20	—	—
278823	2008	<i>SE</i> <sub>263</sub>	16.5	X	228.45458	254.72108	82.64175	2.72084	0.0767224	0.21134958	2.7912696	20	3 29.6	20.7
278824	2008	<i>SF</i> <sub>266</sub>	16.0	X	228.59888	256.42715	57.33759	3.22911	0.0322882	0.20673326	2.8326689	20	3 4.1	20.0
278825	2008	<i>SE</i> <sub>268</sub>	16.0	X	180.52494	173.46970	112.70380	8.81299	0.0565914	0.21259550	2.7803534	20	4 12.7	20.2
278826	2008	<i>SY</i> <sub>268</sub>	15.9	X	193.59941	124.23047	260.97116	7.24386	0.0670014	0.21692796	2.7432098	20	4 16.5	20.1
278827	2008	<i>SV</i> <sub>269</sub>	16.4	X	305.42683	215.86082	104.37161	1.98149	0.1896676	0.22567832	2.6718341	20	5 25.4	19.4
278828	2008	<i>SA</i> <sub>272</sub>	14.8	X	55.05924	292.97456	93.44586	13.84388	0.1940932	0.18123309	3.0925096	20	—	—
278829	2008	<i>ST</i> <sub>272</sub>	15.8	X	127.19927	288.51528	45.69852	1.26161	0.0506287	0.18141552	3.0904360	20	—	—
278830	2008	<i>SB</i> <sub>273</sub>	16.1	X	249.80577	173.35903	178.56958	14.47740	0.2139443	0.22125462	2.7073297	20	4 27.5	20.5
278831	2008	<i>SS</i> <sub>285</sub>	16.9	X	4.24243	283.42602	334.89622	3.21883	0.1458254	0.22867412	2.6484475	20	6 22.2	19.5
278832	2008	<i>ST</i> <sub>286</sub>	15.1	X	249.45366	5.06331	253.75141	12.15141	0.1037659	0.20195560	2.8771695	20	1 12.1	19.6
278833	2008	<i>SN</i> <sub>287</sub>	16.3	X	60.69274	107.15392	324.69831	5.35419	0.0686849	0.19307599	2.9647212	20	1 11.8	20.2
278834	2008	<i>SR</i> <sub>288</sub>	15.9	X	28.14597	80.12827	167.48655	12.87699	0.2295160	0.23147034	2.6270751	20	8 3.5	18.7
278835	2008	<i>SB</i> <sub>289</sub>	16.2	X	326.08775	135.41387	7.88144	8.97839	0.0681391	0.18876635	3.0096755	20	—	—
278836	2008	<i>SC</i> <sub>289</sub>	16.6	X	298.58259	279.00674	357.97689	3.91254	0.0951736	0.21811095	2.7332817	20	3 31.8	20.3
278837	2008	<i>SQ</i> <sub>295</sub>	15.9	X	233.71554	14.16081	309.40443	13.61367	0.1800405	0.21894619	2.7263260	20	3 4.3	20.5
278838	2008	<i>ST</i> <sub>300</sub>	16.8	X	240.73632	310.21897	49.96799	5.09185	0.0914874	0.22453774	2.6808745	20	5 8.2	20.7
278839	2008	<i>SL</i> <sub>301</sub>	15.9	X	164.66626	295.82106	107.69610	4.48348	0.0247388	0.21401340	2.7680594	20	4 10.0	19.8
278840	2008	<i>SE</i> <sub>303</sub>	16.1	X	59.27495	172.57428	182.45915	10.51478	0.0544303	0.18264054	3.0766016	20	12 30.3	20.6
278841	2008	<i>SH</i> <sub>304</sub>	16.3	X	276.61607	189.00540	114.26805	7.07477	0.0397323	0.21605851	2.7505643	20	4 18.8	20.1
278842	2008	<i>SJ</i> <sub>304</sub>	16.5	X	301.44278	185.46903	139.40993	7.37309	0.1107141	0.22837328	2.6507729	20	6 8.2	19.9
278843	2008	<i>SV</i> <sub>305</sub>	16.2	X	256.30339	176.30842	176.02296	10.60412	0.0267724	0.22511348	2.6763016	20	5 27.4	20.0
278844	2008	<i>SE</i> <sub>308</sub>	16.6	X	222.48653	183.63835	155.29118	5.47221	0.0983612	0.20666708	2.8332736	20	3 23.9	20.8
278845	2008	<i>SV</i> <sub>308</sub>	17.0	X	334.74908	261.39691	49.87092	4.83480	0.1335990	0.23724282	2.5842865	20	7 15.1	19.6
278846	2008	<i>SH</i> <sub>309</sub>	15.7	X	2.96514	29.28260	50.20635	14.95387	0.0999226	0.17978541	3.1090885	20	—	—
278847	2008	<i>TX</i> <sub>1</sub>	16.2	X	221.64826	143.51980	212.58513	5.34708	0.0285517	0.21789637	2.7350759	20	4 15.8	20.0
278848	2008	<i>TX</i> <sub>2</sub>	16.1	X	0.78456	253.64516	212.28197	9.18558	0.0472941	0.19020288	2.9945024	20	—	—
278849	2008	<i>TU</i> <sub>5</sub>	16.3	X	39.04312	267.28723	7.74640	5.92326	0.0950315	0.24273439	2.5451605	20	9 13.5	19.3
278850	2008	<i>TU</i> <sub>7</sub>	16.9	X	176.58098	271.50072	98.87675	1.71842	0.0881132	0.21024897	2.8010023	20	3 14.9	21.0
278851	2008	<i>TV</i> <sub>8</sub>	15.9	X	137.14066	310.21189	121.54208	7.40069	0.0637858	0.21686924	2.7437049	20	4 17.6	19.9
278852	2008	<i>TM</i> <sub>16</sub>	16.1	X	175.48099	293.28997	84.99248	10.36206	0.1828424	0.21121272	2.7924753	20	3 31.1	20.9
278853	2008	<i>TG</i> <sub>17</sub>	16.8	X	264.08510	311.59704	13.03915	3.15882	0.1467586	0.21846911	2.7302936	20	4 12.5	20.6
278854	2008	<i>TS</i> <sub>20</sub>	16.3	X	328.67352	257.35780	218.70532	13.82139	0.0666959	0.17851411	3.1238321	20	—	—
278855	2008	<i>TX</i> <sub>21</sub>	16.1	X	39.81936	156.97706	230.90994	2.56707	0.1693298	0.17796494	3.1302552	20	—	—
278856	2008	<i>TZ</i> <sub>22</sub>	16.3	X	54.94248	322.04896	147.00756	2.64185	0.0201563	0.20303614	2.8669524	20	2 12.8	20.0
278857	2008	<i>TY</i> <sub>24</sub>	16.1	X	291.22785	73.57938	37.75387	9.93011	0.0637391	0.17503016	3.1651487	20	11 30.9	20.4
278858	2008	<i>TW</i> <sub>27</sub>	16.1	X	38.23532	359.48987	55.28230	2.28275	0.1391311	0.18489223	3.0515719	20	—	—
278859	2008	<i>TL</i> <sub>29</sub>	17.6	X	328.09910	127.66115	185.88911	4.82726	0.1706876	0.23662188	2.5888057	20	6 29.9	20.3
278860	2008	<i>TN</i> <sub>29</sub>	16.5	X	206.31105	271.57751	96.42107	4.65318	0.2231103	0.21812531	2.7331618	20	4 9.4	21.3
278861	2008	<i>TR</i> <sub>30</sub>	16.4	X	168.05470	130.34980	196.23193	1.58498	0.0945675	0.19731531	2.9221030	20	1 14.5	20.7
278862	2008	<i>TG</i> <sub>33</sub>	16.9	X	325.25042	166.60733	182.61393	4.22562	0.1944920	0.24011925	2.5636067	20	8 17.2	19.2
278863	2008	<i>TO</i> <sub>35</sub>	16.5	X	218.52616	169.34870	201.76937	5.54596	0.0335563	0.22053962	2.7131781	20	5 2.0	20.1
278864	2008	<i>TT</i> <sub>38</sub>	16.2	X	315.48329	92.40987	12.73610	9.46395	0.0659291	0.17464435	3.1698085	20	12 28.5	20.5
278865	2008	<i>TW</i> <sub>44</sub>	16.2	X	237.67712	162.01049	36.53139	14.70188	0.0973300	0.17689291	3.1428894	20	—	—
278866	2008	<i>TP</i> <sub>49</sub>	16.5	X	71.72363	301.26542	192.04863	6.28974	0.0192730	0.21311440	2.7758384	20	4 4.7	20.1
278867	2008	<i>TR</i> <sub>53</sub>	16.9	X	356.97375	83.42034	167.76759	4.25204	0.0950770	0.22520334	2.6755896	20	5 28.7	20.0
278868	2008	<i>TT</i> <sub>56</sub>	15.5	X	64.91993	333.70404	25.84358	10.85489	0.0373642	0.17941486	3.1133678			

## ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>		
278881	2008	<i>TC</i> <sub>76</sub>	16.1	X	298.94978	111.70027	15.38755	10.56300	0.0630634	0.18019431	3.1043833	20	—	—
278882	2008	<i>TH</i> <sub>77</sub>	17.5	X	109.56666	263.65795	22.41302	4.12771	0.1975436	0.26430039	2.4047550	20	12 27.7	21.4
278883	2008	<i>TL</i> <sub>78</sub>	17.4	X	14.25192	291.38078	181.43433	5.93173	0.1624255	0.27592975	2.3367040	20	—	—
278884	2008	<i>TF</i> <sub>79</sub>	16.4	X	263.48960	92.82747	182.17272	7.42660	0.1920431	0.21284427	2.7781866	20	2 5.6	20.9
278885	2008	<i>TF</i> <sub>82</sub>	16.8	X	304.49342	336.02227	346.57148	4.47402	0.1987632	0.23341442	2.6124677	20	5 23.9	19.8
278886	2008	<i>TD</i> <sub>84</sub>	16.3	X	68.54076	175.36709	203.22796	7.99382	0.0856018	0.18584403	3.0411439	20	—	—
278887	2008	<i>TA</i> <sub>86</sub>	16.2	X	41.51024	210.32599	13.42719	13.21935	0.1131556	0.22992748	2.6388141	20	7 8.9	19.7
278888	2008	<i>TP</i> <sub>87</sub>	16.4	X	267.53330	141.48152	178.03106	8.66618	0.2255623	0.22209497	2.7004962	20	4 1.6	20.4
278889	2008	<i>TC</i> <sub>88</sub>	16.1	X	245.22606	290.56751	85.70985	3.49432	0.2189450	0.22594923	2.6696980	20	5 20.9	20.4
278890	2008	<i>TK</i> <sub>88</sub>	15.8	X	9.98488	16.20182	50.82449	13.96925	0.0897402	0.17977621	3.1091945	20	—	—
278891	2008	<i>TL</i> <sub>94</sub>	16.2	X	160.17219	172.08222	110.81704	2.64593	0.1932064	0.18933365	3.0036605	20	—	—
278892	2008	<i>TZ</i> <sub>103</sub>	17.1	X	206.12900	212.84363	191.26521	4.98931	0.0642210	0.22193979	2.7017548	20	5 28.5	21.1
278893	2008	<i>TV</i> <sub>104</sub>	16.7	X	198.93325	278.37050	8.32958	4.23691	0.0230511	0.19327300	2.9627062	20	—	—
278894	2008	<i>TD</i> <sub>108</sub>	16.3	X	229.34433	62.60667	122.95704	5.17703	0.1098389	0.17704725	3.1410626	20	12 9.1	20.8
278895	2008	<i>TG</i> <sub>108</sub>	16.2	X	249.74208	72.90791	78.10899	6.17510	0.1463267	0.17149037	3.2085555	20	11 15.9	20.8
278896	2008	<i>TL</i> <sub>108</sub>	16.0	X	73.10000	62.50486	159.54012	6.54317	0.1925548	0.23775907	2.5805443	20	8 31.3	19.5
278897	2008	<i>TO</i> <sub>108</sub>	17.1	X	324.60651	270.67625	28.17939	14.18374	0.1433451	0.23149182	2.6269125	20	5 31.5	20.1
278898	2008	<i>TU</i> <sub>111</sub>	15.9	X	65.45267	17.46576	10.50556	12.58136	0.1514281	0.18507388	3.0495748	20	—	—
278899	2008	<i>TO</i> <sub>113</sub>	17.3	X	31.14278	171.14465	144.82584	3.13145	0.1352807	0.24795326	2.5093207	20	11 4.7	20.4
278900	2008	<i>TK</i> <sub>114</sub>	16.2	X	122.82716	223.95574	173.68429	5.39755	0.0325455	0.19973747	2.8984314	20	2 10.8	20.4
278901	2008	<i>TC</i> <sub>115</sub>	16.0	X	70.03604	55.82279	335.09366	9.36993	0.1274038	0.18769700	3.0210958	20	—	—
278902	2008	<i>TV</i> <sub>118</sub>	16.9	X	192.56762	206.22010	206.74253	5.38190	0.0349806	0.22424204	2.6832308	20	5 24.9	20.6
278903	2008	<i>TX</i> <sub>123</sub>	16.3	X	75.66655	189.97267	225.25443	2.27455	0.0209636	0.19622295	2.9329377	20	1 4.8	20.2
278904	2008	<i>TV</i> <sub>129</sub>	16.4	X	330.76598	150.06810	325.23369	3.61384	0.0964823	0.18082979	3.0971060	20	—	—
278905	2008	<i>TF</i> <sub>130</sub>	16.7	X	226.09533	24.05377	327.85803	3.63653	0.0872112	0.21589229	2.7519759	20	4 10.2	20.9
278906	2008	<i>TB</i> <sub>144</sub>	16.9	X	160.78844	343.92868	57.76105	0.61103	0.0790067	0.21300970	2.7767480	20	4 4.5	20.9
278907	2008	<i>TQ</i> <sub>144</sub>	16.7	X	216.44827	185.17028	165.85943	2.19693	0.1117723	0.21634070	2.7481719	20	3 30.6	21.0
278908	2008	<i>TW</i> <sub>145</sub>	17.1	X	185.37801	355.30489	26.92117	6.27299	0.0645741	0.21489468	2.7604864	20	4 6.9	21.1
278909	2008	<i>TG</i> <sub>147</sub>	16.9	X	100.17141	267.05885	150.20563	2.65805	0.0629360	0.20173415	2.8792747	20	2 12.1	20.6
278910	2008	<i>TF</i> <sub>148</sub>	16.3	X	22.00645	251.58713	168.12495	4.20724	0.1710459	0.18236034	3.0797523	20	—	—
278911	2008	<i>TG</i> <sub>149</sub>	16.8	X	177.23038	263.00945	158.64162	4.04280	0.0795202	0.22049824	2.7135175	20	5 18.6	20.9
278912	2008	<i>TN</i> <sub>149</sub>	16.2	X	44.13011	30.71095	80.16365	3.04337	0.0301776	0.20184023	2.8782658	20	2 2.7	19.9
278913	2008	<i>TQ</i> <sub>150</sub>	16.8	X	249.73895	283.29118	34.22839	5.66659	0.0607934	0.21658045	2.7461434	20	3 29.9	20.7
278914	2008	<i>TJ</i> <sub>156</sub>	16.2	X	16.78788	320.30043	331.85045	4.25942	0.1764490	0.23795313	2.5791411	20	9 11.3	18.8
278915	2008	<i>TN</i> <sub>157</sub>	16.5	X	270.69961	236.91892	124.02725	12.51553	0.2800668	0.23078578	2.6322674	20	6 1.0	20.4
278916	2008	<i>TU</i> <sub>157</sub>	17.0	X	72.88052	240.46807	70.13844	16.59889	0.2837685	0.26129337	2.4231695	20	12 30.7	21.2
278917	2008	<i>TG</i> <sub>163</sub>	15.7	X	8.05034	12.41355	67.51766	16.37650	0.1730409	0.18113975	3.0935718	20	—	—
278918	2008	<i>TK</i> <sub>164</sub>	15.7	X	273.78404	225.05436	97.27835	15.23370	0.0922051	0.22090363	2.7101968	20	5 5.2	19.7
278919	2008	<i>TL</i> <sub>164</sub>	15.6	X	332.52231	222.96091	98.62417	22.92725	0.0859852	0.23149932	2.6268558	20	7 28.7	18.8
278920	2008	<i>TW</i> <sub>165</sub>	16.2	X	206.54583	275.94663	122.95006	6.23295	0.0773557	0.22111162	2.7084969	20	5 22.3	20.2
278921	2008	<i>TK</i> <sub>172</sub>	16.1	X	96.99974	311.15944	36.21746	2.15534	0.0857583	0.18067424	3.0988834	20	—	—
278922	2008	<i>TZ</i> <sub>176</sub>	16.0	X	240.45334	248.62419	110.29108	14.14206	0.2219752	0.22137089	2.7063817	20	4 30.5	20.7
278923	2008	<i>TO</i> <sub>182</sub>	15.6	X	296.46898	258.40284	155.90171	6.56072	0.1356843	0.15470646	3.4366114	20	9 18.9	19.9
278924	2008	<i>TY</i> <sub>183</sub>	16.3	X	12.92001	49.01871	242.95252	7.77427	0.1550121	0.23932840	2.5692512	20	8 28.1	19.2
278925	2008	<i>TE</i> <sub>185</sub>	16.3	X	45.23027	325.84909	93.92118	8.68686	0.1568450	0.18556891	3.0441490	20	—	—
278926	2008	<i>TM</i> <sub>185</sub>	16.5	X	222.17280	242.81786	137.68194	3.28039	0.1179805	0.21807734	2.7335626	20	5 12.6	20.6
278927	2008	<i>UJ</i> <sub>3</sub>	15.3	X	18.36102	348.49564	54.64949	16.53889	0.0798389	0.17664251	3.1458589	20	—	—
278928	2008	<i>UW</i> <sub>4</sub>	16.2	X	55.76241	131.83112	230.02331	21.40522	0.2865321	0.26424574	2.4050866	20	—	—
278929	2008	<i>UH</i> <sub>7</sub>	15.3	X	179.64972	287.88961	84.31670	21.19735	0.2849677	0.21053943	2.7984255	20	4 4.6	20.8
278930	2008	<i>UO</i> <sub>7</sub>	15.4	X	61.05524	179.64411	231.29274	8.99981	0.1162627	0.18530330	3.0470573	20	—	—
278931	2008	<i>UQ</i> <sub>11</sub>	16.4	X	85.90556	34.51790	242.20215	3.25530	0.0765807	0.18993657	2.9973007	20	—	—
278932	2008	<i>UE</i> <sub>13</sub>	16.8	X	159.45306	92.98360	348.44052	0.95071	0.0739766	0.19991090	2.8967548	20	1 21.2	21.2
278933	2008	<i>UF</i> <sub>13</sub>	17.2	X	321.33278	314.67637	347.66466	1.90404	0.0927733	0.22984921	2.6394131	20	6 9.4	20.4
278934	2008	<i>UO</i> <sub>13</sub>	15.7	X	306.57332	88.01765	195.92049	30.39316	0.1392324	0.22373257	2.6873026	20	4 15.4	19.0
278935	2008	<i>UK</i> <sub>21</sub>	16.4	X	43.07618	238.38843	215.07340	4.92143	0.0431619	0.19396643	2.9556409	20	1 10.9	20.4
278936	2008	<i>UL</i> <sub>21</sub>	16.1	X	330.20103	101.77462	356.75161	1.34011	0.0678166	0.17742399	3.1366146	20	—	—
278937	2008	<i>UR</i> <sub>25</sub>	17.3	X	28.18002	240.77096	31.92541	3.26316	0.0888127	0.23782542	2.5800643	20	8 23.1	20.3
278938	2008	<i>UW</i> <sub>27</sub>	15.8	X	71.10943	203.33188	210.07250	7.13275	0.1839042	0.18884321	3.0088588	20	1 16.1	19.5
278939	2008	<i>UQ</i> <sub>34</sub>	15.7	X	298.43225	66.31193	56.31401	15.59690	0.0547103	0.17258690	3.1949508	20	12 24.9	20.1
278940	2008	<i>UD</i> <sub>41</sub>	16.2	X	135.08847	86.99160	240.06256	2.10124	0.1491627	0.18666787	3.0321894	20	—	—
278941	2008	<i>UU</i> <sub>42</sub>	15.4	X	294.69401	94.89711	51.57730	17.23877	0.0922817	0.17431100	3.1738484	20	—	—
278942	2008	<i>UF</i> <sub>45</sub>	16.8	X	352.19632	75.73439	173.48366	5.65913	0.0163735	0.22026593	2.7154251	20	5 20.7	20.5
278943	2008	<i>UA</i> <sub>48</sub>	16.0	X	45.38277	186.86735	212.68402	9.76068	0.0987958	0.18294801	3.0731535	20	—	—
278944	2008	<i>UR</i> <sub>52</sub>	15.8	X	183.75341	62.92253	239.18234	8.35649	0.1159964	0.18857307	3.0117316	20	1 2.9	20.5
278945	2008	<i>UH</i> <sub>55</sub>	16.6	X	357.99897	40.42223	207.43304	7.93933	0.1354746	0.22647267	2.6655828	20	5 25.1	19.3
278946	2008	<i>UJ</i> <sub>60</sub>	16.6	X	359.80176	72.09946	232.26468	13.27017	0.2213810	0.23805744	2.5783877	20	8 24.6	19.2
278947	2008	<i>UF</i> <sub>61</sub>	16.4	X	127.02287	11.38190	14.94620	5.80287	0.0758256	0.19652214	2.9299602	20	2 11.2	20.6
278948	2008	<i>UR</i> <sub>62</sub>	15.2	X	323.29836	51.32468	32.21214	8.98904	0.0924818	0.16948736	3.2337852	20	12 9.6	19.3
278949	2008	<i>UP</i> <sub>63</sub>	15.6	X	43									

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	$\omega$	$\Omega$	$i$	$e$	$\mu$	$a$	TE	Oppos.	V
278961 2008 UO <sub>94</sub>	16.1	X	294.36892	295.42424	72.89373	24.80653	0.2762673	0.23297187	2.6157751	20	6 27.8	19.4
278962 2008 UD <sub>96</sub>	16.0	X	208.24165	265.50963	105.88911	6.06873	0.0121822	0.21508789	2.7588330	20	4 23.2	19.8
278963 2008 UD <sub>97</sub>	16.1	X	308.31640	239.04864	81.38425	5.85938	0.0644306	0.22596827	2.6695481	20	6 18.1	19.5
278964 2008 UV <sub>98</sub>	16.5	X	305.17728	273.11032	96.62288	4.56961	0.2315330	0.23596083	2.5936385	20	7 31.7	18.9
278965 2008 UZ <sub>101</sub>	16.2	X	326.10659	227.38525	220.00423	8.59367	0.0645253	0.17436280	3.1732198	20	12 20.7	20.4
278966 2008 UY <sub>105</sub>	16.7	X	205.52084	134.43471	217.22969	5.99584	0.0469123	0.21268890	2.7795394	20	3 20.0	20.8
278967 2008 UM <sub>114</sub>	16.4	X	60.30875	84.96992	318.75358	2.22867	0.1349120	0.18471678	3.0535039	20	—	—
278968 2008 UR <sub>115</sub>	15.9	X	224.88197	281.09936	281.25005	6.30295	0.0742689	0.17405503	3.7169594	20	12 27.2	20.3
278969 2008 UM <sub>129</sub>	17.2	X	335.22353	309.07990	23.20509	4.29996	0.2108337	0.23861672	2.5743572	20	8 16.2	19.2
278970 2008 UD <sub>131</sub>	16.2	X	251.21245	62.90107	249.05511	2.65101	0.0835392	0.21038147	2.7998261	20	3 19.9	20.4
278971 2008 UL <sub>144</sub>	17.6	X	329.00652	140.91899	80.58932	2.25723	0.1189550	0.28882015	2.2666496	20	2 18.4	20.0
278972 2008 UN <sub>154</sub>	15.4	X	331.81853	67.47718	38.30246	11.17812	0.0482218	0.17906016	3.1174781	20	—	—
278973 2008 UO <sub>159</sub>	15.6	X	103.53330	14.53059	9.74227	8.89483	0.1855695	0.19145433	2.9814389	20	1 28.7	19.9
278974 2008 UF <sub>160</sub>	16.1	X	309.76640	313.31850	42.04697	5.75997	0.2319979	0.23283121	2.6168284	20	7 19.1	18.8
278975 2008 UZ <sub>162</sub>	16.3	X	256.75854	65.83011	260.03591	3.43536	0.1263499	0.21735409	2.7396233	20	4 7.1	20.4
278976 2008 UM <sub>166</sub>	15.9	X	77.48014	262.56538	57.44596	4.91874	0.0300691	0.16970642	3.2310018	20	12 4.3	20.6
278977 2008 UQ <sub>168</sub>	16.6	X	312.12042	185.02635	156.21633	2.32936	0.2328390	0.23434179	2.6055708	20	7 1.7	19.0
278978 2008 UX <sub>169</sub>	16.0	X	52.00689	55.44308	345.32705	8.32029	0.0898247	0.18538017	3.0462148	20	—	—
278979 2008 UN <sub>173</sub>	16.0	X	95.54974	299.99153	29.98784	1.64677	0.1306331	0.17736075	3.1373602	20	—	—
278980 2008 UM <sub>176</sub>	15.9	X	247.99965	140.51013	28.70487	12.40170	0.0821157	0.17315736	3.1879298	20	12 12.1	20.5
278981 2008 UX <sub>177</sub>	16.3	X	358.82298	61.26506	359.92832	3.38398	0.0630337	0.17512097	3.1640545	20	—	—
278982 2008 UD <sub>183</sub>	16.0	X	63.62347	201.95409	187.53174	4.83617	0.0446153	0.18391075	3.0624192	20	—	—
278983 2008 UM <sub>190</sub>	15.7	X	4.40122	282.94769	356.86802	26.50619	0.1167899	0.23425448	2.6062182	20	8 7.8	19.1
278984 2008 UZ <sub>193</sub>	15.7	X	72.04898	184.29546	219.02666	10.89418	0.1357619	0.18436031	3.0574387	20	—	—
278985 2008 UO <sub>195</sub>	15.5	X	117.25644	272.37856	88.62338	12.47302	0.1206093	0.19070383	2.9892560	20	1 5.1	19.7
278986 Chenshuchu	16.0	X	185.55511	214.18575	120.98119	3.07134	0.0758625	0.20083303	2.8878810	20	2 10.7	20.4
278987 2008 UW <sub>205</sub>	15.5	X	344.17263	168.99991	180.89965	5.95247	0.1762783	0.24017656	2.5631989	20	10 4.2	17.7
278988 2008 UU <sub>209</sub>	16.6	X	297.80352	276.40686	14.03107	2.75992	0.1961623	0.22024687	2.7155818	20	4 2.3	20.0
278989 2008 UV <sub>210</sub>	16.8	X	182.64392	39.47927	293.75476	1.19117	0.0145361	0.19789597	2.9163843	20	2 2.6	20.8
278990 2008 UO <sub>211</sub>	15.6	X	333.27578	61.76314	48.41037	10.10811	0.0803655	0.18005922	3.1059357	20	—	—
278991 2008 UH <sub>214</sub>	16.0	X	25.57106	187.01080	252.39890	9.49629	0.0968609	0.18528700	3.0472360	20	—	—
278992 2008 UN <sub>214</sub>	15.8	X	121.56573	190.67864	236.69954	14.54049	0.1179103	0.20510279	2.8476613	20	3 23.7	20.2
278993 2008 UD <sub>216</sub>	16.3	X	4.01830	206.03365	124.08732	11.90685	0.1434192	0.24194716	2.5506783	20	10 16.9	19.3
278994 2008 UJ <sub>218</sub>	15.9	X	355.51348	19.23320	238.00274	13.02962	0.2122389	0.22240085	2.6980195	20	5 31.9	18.1
278995 2008 US <sub>223</sub>	16.1	X	252.15039	266.76051	86.17020	7.16709	0.0502965	0.21853768	2.7297225	20	5 18.9	19.9
278996 2008 UV <sub>223</sub>	16.3	X	226.61077	254.84546	98.11323	3.18042	0.2267351	0.21546380	2.7556232	20	4 6.9	21.0
278997 2008 UC <sub>224</sub>	15.4	X	238.02649	267.68531	290.89860	7.86546	0.0547947	0.17456033	3.1708255	20	—	—
278998 2008 UJ <sub>226</sub>	17.1	X	136.94875	225.99772	70.53739	5.98711	0.2501433	0.27044108	2.3682140	20	—	—
278999 2008 UF <sub>235</sub>	16.7	X	29.01233	351.63525	287.24996	3.67182	0.2093077	0.24183868	2.5514411	20	9 18.4	19.5
279000 2008 UF <sub>241</sub>	16.3	X	35.09335	350.76399	171.27640	4.73400	0.2179770	0.24523048	2.5278604	20	11 8.7	19.5
279001 2008 UK <sub>249</sub>	15.9	X	317.93670	67.15972	75.71473	2.05491	0.0712586	0.18340845	3.0680081	20	—	—
279002 2008 UA <sub>256</sub>	16.7	X	213.12172	112.22959	184.50523	1.85641	0.0704569	0.19635275	2.9316451	20	1 24.2	21.0
279003 2008 UD <sub>256</sub>	15.9	X	312.34484	260.85228	218.71871	8.75301	0.0611950	0.17450457	3.1715009	20	—	—
279004 2008 UO <sub>256</sub>	16.2	X	274.26292	277.03778	57.24693	6.07493	0.1620682	0.22191995	2.7019159	20	5 5.5	19.9
279005 2008 UQ <sub>256</sub>	16.1	X	148.50218	264.55614	80.22270	3.70215	0.0391639	0.19115354	2.9845657	20	1 11.4	20.5
279006 2008 UU <sub>260</sub>	16.1	X	222.94942	255.09543	76.20186	5.82179	0.1195365	0.20888380	2.8131931	20	3 15.8	20.5
279007 2008 UP <sub>274</sub>	16.9	X	190.34160	135.52462	45.42701	7.79268	0.1264318	0.24371641	2.5383190	20	11 1.9	20.6
279008 2008 UK <sub>277</sub>	15.4	X	21.05851	203.89245	216.83539	8.36416	0.0166780	0.18018922	3.1044418	20	—	—
279009 2008 UV <sub>279</sub>	16.4	X	236.37483	154.86374	213.22856	13.81104	0.0689201	0.21973384	2.7198070	20	5 16.7	20.3
279010 2008 UN <sub>281</sub>	15.5	X	22.99485	34.56749	55.53753	6.00715	0.0457224	0.18277390	3.0751048	20	—	—
279011 2008 UQ <sub>281</sub>	16.3	X	110.85883	79.90871	253.71575	1.15179	0.0983474	0.17900644	3.1181018	20	—	—
279012 2008 UK <sub>287</sub>	17.3	X	19.44816	145.54305	161.71494	3.43463	0.1752684	0.24249946	2.5468041	20	10 10.1	19.9
279013 2008 UO <sub>288</sub>	16.2	X	245.15773	247.11266	68.53013	5.34793	0.0608969	0.21025472	2.8009513	20	3 24.0	20.2
279014 2008 UZ <sub>288</sub>	16.4	X	88.14391	303.70808	147.57934	2.70755	0.315846	0.20279650	2.8692105	20	3 6.2	20.2
279015 2008 UV <sub>290</sub>	15.8	X	118.76339	247.11027	85.92103	10.47035	0.0343697	0.17749117	3.1358231	20	—	—
279016 2008 UR <sub>291</sub>	15.6	X	221.41699	200.02058	25.86897	10.58484	0.1685734	0.18180821	3.0859843	20	—	—
279017 2008 UJ <sub>295</sub>	16.1	X	180.93451	265.08273	34.51925	8.43809	0.0430054	0.18922699	3.0047891	20	—	—
279018 2008 UP <sub>295</sub>	16.5	X	9.07042	26.89454	246.99859	4.77346	0.2111576	0.23117231	2.6293325	20	7 31.5	18.8
279019 2008 UJ <sub>307</sub>	16.4	X	308.92793	253.08165	116.09016	8.30980	0.2672026	0.23920502	2.5701345	20	8 1.8	18.5
279020 2008 UH <sub>331</sub>	16.6	X	264.45513	41.53386	276.67402	3.28132	0.1285589	0.21881847	2.7273868	20	4 5.5	20.6
279021 2008 UZ <sub>339</sub>	15.8	X	194.35671	7.03601	266.11826	2.23925	0.0661069	0.18440599	3.0569338	20	—	—
279022 2008 UA <sub>340</sub>	16.2	X	207.60290	296.68827	317.46895	1.12868	0.0457372	0.18211213	3.0825500	20	—	—
279023 2008 US <sub>351</sub>	15.7	X	2.22036	25.08149	58.91854	12.48343	0.0611682	0.18096658	3.0955451	20	—	—
279024 2008 UZ <sub>354</sub>	15.9	X	149.66334	231.69270	73.17128	5.97791	0.1707792	0.18173107	3.0868575	20	—	—
279025 2008 UT <sub>357</sub>	15.3	X	37.52740	200.30417	216.97977	27.10997	0.1316529	0.17921209	3.1157159	20	—	—
279026 2008 UY <sub>359</sub>	15.3	X	153.53907	51.85031	232.00742	16.31067	0.1093502	0.17417843	3.1754587	20	—	—
279027 2008 UJ <sub>360</sub>	16.0	X	200.69729	316.46127	309.27790	2.69306	0.0716515	0.18383639	3.0632540	20	—	—
279028 2008 UB <sub>362</sub>	15.7	X	30.10658	257.99845	145.35684	12.32357						

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Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
279041 2008 VS <sub>25</sub>	16.9 <sup>m</sup>	X	304.57236	140.94215	167.51602	4.67811	0.0861460	0.22337236	2.6901909	20	5 24.7	20.3
279042 2008 VH <sub>33</sub>	15.7	X	344.52974	359.14179	72.46830	10.35287	0.0451165	0.17133473	3.2104983	20	12 25.1	20.1
279043 2008 VT <sub>33</sub>	17.0	X	297.21628	243.15644	122.08728	3.55364	0.1961666	0.23327771	2.6134883	20	7 14.6	19.8
279044 2008 VD <sub>38</sub>	15.9	X	46.99306	328.42052	108.47842	5.71913	0.0419172	0.18706316	3.0279163	20	—	—
279045 2008 VZ <sub>42</sub>	17.2	X	22.16650	221.23829	83.54650	4.94493	0.1708964	0.24631738	2.5204186	20	10 13.4	20.0
279046 2008 VG <sub>50</sub>	16.1	X	39.33034	196.81379	224.79483	11.90585	0.1509481	0.18443204	3.0566459	20	—	—
279047 2008 VC <sub>51</sub>	15.7	X	18.02322	18.37339	47.67181	6.43686	0.0157035	0.17538432	3.1608863	20	—	—
279048 2008 VM <sub>54</sub>	18.0	X	49.63937	270.00218	310.84446	2.34555	0.1051067	0.31082982	2.1583453	20	7 20.3	19.8
279049 2008 VO <sub>58</sub>	15.8	X	221.91161	331.50109	233.66683	10.75781	0.0258842	0.17584166	3.1554033	20	—	—
279050 2008 VN <sub>59</sub>	16.9	X	358.45917	274.22994	60.01776	6.56601	0.2615085	0.24384069	2.5374564	20	10 25.8	19.0
279051 2008 VE <sub>64</sub>	14.6	X	226.12770	324.10418	254.69926	19.09114	0.0357508	0.17942647	3.1132336	20	—	—
279052 2008 VE <sub>67</sub>	15.4	X	119.46301	236.45189	76.33889	10.23270	0.0582947	0.17410426	3.1763605	20	—	—
279053 2008 VC <sub>75</sub>	17.0	X	339.36915	176.00981	167.02902	9.27013	0.1944010	0.24090075	2.5580593	20	9 12.8	19.0
279054 2008 VD <sub>77</sub>	16.3	X	231.78981	247.24734	89.42153	8.84171	0.0600067	0.20857600	2.8159601	20	4 6.2	20.5
279055 2008 VJ <sub>77</sub>	15.1	X	278.35214	124.75154	79.56170	17.15091	0.0579534	0.18458979	3.0549042	20	—	—
279056 2008 WY	16.2	X	142.73806	307.55653	29.67737	9.84248	0.0854028	0.19053978	2.9909715	20	1 1.5	20.8
279057 2008 WK <sub>1</sub>	15.9	X	357.02970	75.42170	245.07631	9.38067	0.1992367	0.23681816	2.5873750	20	9 11.9	18.5
279058 2008 WU <sub>3</sub>	16.6	X	268.57882	247.35784	40.54361	3.53423	0.0607472	0.20869891	2.8148544	20	3 15.6	20.5
279059 2008 WT <sub>4</sub>	16.7	X	217.36277	275.29608	40.83338	2.58900	0.0547139	0.20288147	2.8684094	20	2 22.1	20.8
279060 2008 WB <sub>9</sub>	17.0	X	307.37975	175.73937	138.94453	2.64286	0.1191200	0.22552800	2.6730212	20	6 1.2	20.1
279061 2008 WJ <sub>10</sub>	15.4	X	35.81498	311.77343	102.80215	2.64509	0.0647205	0.17881917	3.1202783	20	—	—
279062 2008 WG <sub>16</sub>	16.4	X	46.96301	164.94877	251.71679	5.42541	0.0990623	0.18469470	3.0537473	20	—	—
279063 2008 WM <sub>21</sub>	16.0	X	318.65702	264.91957	55.95364	13.68590	0.1779324	0.22922685	2.6441884	20	6 19.0	19.0
279064 2008 WX <sub>21</sub>	15.4	X	186.40970	257.63877	44.33693	10.26005	0.0504954	0.18909963	3.0061381	20	1 4.0	19.9
279065 2008 WE <sub>27</sub>	15.6	X	258.04941	321.94567	249.64796	6.23132	0.0933978	0.18173564	3.0868058	20	—	—
279066 2008 WU <sub>38</sub>	17.0	X	1.53522	250.27184	68.51586	5.53974	0.2808549	0.24076636	2.5590111	20	10 11.9	19.0
279067 2008 WF <sub>45</sub>	16.2	X	160.03123	259.83933	63.89226	3.87956	0.0934093	0.18716445	3.0268238	20	1 4.9	20.7
279068 2008 WM <sub>47</sub>	16.6	X	185.76524	242.29998	68.13422	2.22211	0.0256183	0.18751451	3.0230556	20	1 12.3	20.8
279069 2008 WH <sub>58</sub>	16.4	X	242.15655	286.97671	70.71160	6.94124	0.1246931	0.21680416	2.7442541	20	5 4.7	20.5
279070 2008 WV <sub>67</sub>	15.8	X	194.85137	258.58548	75.83042	11.90783	0.1439557	0.19906744	2.9049315	20	2 24.9	20.7
279071 2008 WW <sub>71</sub>	15.5	X	27.22088	15.67695	35.55595	11.93946	0.0531780	0.18115810	3.0933630	20	—	—
279072 2008 WX <sub>74</sub>	16.0	X	253.09362	115.44233	53.50418	11.19380	0.0416234	0.17505860	3.1648059	20	12 25.2	20.5
279073 2008 WK <sub>77</sub>	15.8	X	140.69005	233.30722	88.03595	7.52847	0.0726910	0.18172887	3.0868824	20	—	—
279074 2008 WX <sub>77</sub>	16.7	X	272.67728	158.35764	154.87018	3.12482	0.1392489	0.21269715	2.7794675	20	4 10.5	20.8
279075 2008 WU <sub>79</sub>	15.7	X	117.11965	284.63516	88.30689	10.69857	0.1496557	0.18950025	3.0018998	20	1 24.4	20.1
279076 2008 WM <sub>83</sub>	15.3	X	164.95884	247.34367	100.21869	10.59953	0.0781611	0.19236321	2.9720404	20	2 6.6	19.8
279077 2008 WG <sub>88</sub>	16.0	X	78.36375	300.03473	67.47228	3.74840	0.0698968	0.18030309	3.1031345	20	—	—
279078 2008 WP <sub>88</sub>	16.1	X	203.38324	306.97614	69.27650	7.09635	0.0765849	0.21035572	2.8000546	20	4 20.9	20.4
279079 2008 WF <sub>92</sub>	16.1	X	159.74021	292.17571	38.63338	3.37251	0.0640305	0.18937668	3.0032055	20	1 10.3	20.6
279080 2008 WM <sub>98</sub>	15.4	X	45.57314	280.27973	147.53864	10.52072	0.1003740	0.18243834	3.0788744	20	—	—
279081 2008 WG <sub>99</sub>	15.7	X	64.27195	358.72928	67.24028	11.23918	0.1001543	0.18816603	3.0160734	20	1 13.9	19.6
279082 2008 WC <sub>101</sub>	15.4	X	296.72541	344.28177	69.65486	11.72094	0.1090648	0.15466552	3.4372178	20	9 27.6	20.1
279083 2008 WW <sub>102</sub>	15.9	X	133.82791	252.00702	60.51942	10.38420	0.0647280	0.17928180	3.1149081	20	—	—
279084 2008 WD <sub>104</sub>	16.1	X	103.63228	249.93721	81.00078	2.41803	0.0751998	0.17431642	3.1737826	20	—	—
279085 2008 WW <sub>105</sub>	15.5	X	329.78801	356.15428	95.97446	17.80323	0.0842480	0.17167611	3.2062408	20	12 31.4	19.5
279086 2008 WB <sub>110</sub>	16.2	X	185.86939	5.52468	284.44867	1.66876	0.0472835	0.18405508	3.0608180	20	—	—
279087 2008 WQ <sub>110</sub>	16.3	X	87.31243	261.86487	59.64926	0.94742	0.1368264	0.17046978	3.2213490	20	12 28.3	21.1
279088 2008 WA <sub>116</sub>	15.4	X	116.52204	289.59854	72.55039	12.63809	0.1183502	0.18460239	3.0547652	20	1 6.6	19.8
279089 2008 WO <sub>130</sub>	15.8	X	294.27601	246.76769	104.37452	13.43522	0.2473843	0.22775383	2.6555771	20	6 11.6	19.0
279090 2008 WH <sub>131</sub>	14.9	X	22.60406	298.40162	97.35370	23.29758	0.1519549	0.17114397	3.2128835	20	—	—
279091 2008 WL <sub>131</sub>	15.2	X	150.74180	61.41654	231.38493	7.76980	0.0519523	0.17429941	3.1739892	20	—	—
279092 2008 WM <sub>132</sub>	15.3	X	269.15758	69.03975	143.25685	10.76584	0.0498482	0.18313378	3.0710749	20	—	—
279093 2008 WM <sub>136</sub>	15.7	X	306.69631	88.64960	69.58459	23.70278	0.2433249	0.17431223	3.1738335	20	—	—
279094 2008 WJ <sub>139</sub>	15.0	X	106.73294	235.87641	106.57900	10.51481	0.0696731	0.17467125	3.1694831	20	—	—
279095 2008 WL <sub>139</sub>	15.6	X	58.64752	195.24210	242.00572	6.11537	0.1682301	0.18275151	3.0753561	20	1 25.4	19.3
279096 2008 XZ <sub>6</sub>	15.7	X	122.63943	305.16029	30.39437	9.85657	0.0242175	0.17955902	3.1117013	20	—	—
279097 2008 XB <sub>9</sub>	16.0	X	351.56669	199.40672	112.23490	8.90775	0.2072515	0.23271684	2.6176857	20	8 23.8	18.2
279098 2008 XB <sub>11</sub>	16.6	X	307.69275	148.47599	194.40975	7.63736	0.3032953	0.23152303	2.6266765	20	6 11.2	19.4
279099 2008 YS <sub>26</sub>	15.6	X	295.79145	49.42397	99.79884	17.03196	0.0575120	0.17301033	3.1897356	20	—	—
279100 2008 YW <sub>30</sub>	15.6	X	338.23399	39.03313	276.86670	12.03569	0.1862130	0.23284722	2.6167085	20	7 23.0	18.0
279101 2008 YZ <sub>42</sub>	16.2	X	16.60093	254.06095	67.96969	6.15824	0.2629601	0.24157683	2.5532844	20	11 10.2	18.9
279102 2008 YC <sub>44</sub>	15.9	X	159.82349	233.74822	101.23323	14.05859	0.1473572	0.18284359	3.0743234	20	1 22.8	20.8
279103 2008 YN <sub>152</sub>	15.6	X	226.25832	358.24900	312.44203	15.09913	0.0958585	0.18610547	3.0382951	20	2 20.4	20.5
279104 2008 YA <sub>157</sub>	15.9	X	204.11660	30.79862	302.41476	11.31192	0.0719410	0.18728062	3.0255720	20	2 24.8	20.6
279105 2009 AO <sub>8</sub>	16.3	X	64.39302	239.09896	172.07574	8.44315	0.0865247	0.18239749	3.0793341	20	—	—
279106 2009 AU <sub>26</sub>	15.9	X	251.58789	345.88272	305.45830	16.20714	0.0730610	0.18716325	3.0268368	20	2 23.3	20.5
279107 2009 AB <sub>28</sub>	16.2	X	128.86577	113.72314	295.06752	12.16244	0.1832432	0.19266025	2.9689847	20	3 15.2	21.0
279108 2009 BM <sub>84</sub>	15.2	X	104.03700	74.22231	300.62848	8.57203	0.0787924	0.17311623	3.1884346			

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Planet	H	G	M	$\omega$	$\Omega$	$i$	$e$	$\mu$	$a$	TE	Oppos.	V
279121 2009 OP <sub>22</sub>	16.9	X	248.82336	91.12492	284.75665	6.33140	0.2475987	0.25390596	2.4699460	20	5 19.3	20.9
279122 2009 OO <sub>23</sub>	17.1	X	276.03004	346.12857	12.83915	2.18830	0.2285765	0.25800080	2.4437419	20	5 29.6	20.4
279123 2009 PS <sub>2</sub>	15.9	X	289.90696	20.25493	335.32179	15.25373	0.2158292	0.26025515	2.4296096	20	6 16.3	19.1
279124 2009 PV <sub>4</sub>	16.2	X	222.24887	250.53783	160.23841	14.57444	0.0647216	0.25675850	2.4516181	20	6 26.1	19.9
279125 2009 PD <sub>7</sub>	17.2	X	250.39736	223.83754	176.17090	6.10360	0.1714227	0.25796005	2.4439993	20	7 1.7	20.6
279126 2009 PU <sub>16</sub>	16.7	X	128.48242	195.95648	195.60225	4.79290	0.2460053	0.22474008	2.6792651	20	3 3.2	20.8
279127 2009 QT <sub>11</sub>	17.6	X	73.49220	209.37990	131.35549	5.81314	0.1375439	0.29508101	2.2344735	20	—	—
279128 2009 QW <sub>15</sub>	17.2	X	325.70651	208.25546	159.92094	6.87973	0.1345258	0.26916656	2.3756838	20	9 30.6	19.2
279129 2009 QU <sub>29</sub>	17.2	X	323.19797	199.39343	170.15770	1.69026	0.1718149	0.27028229	2.3691414	20	9 25.3	19.0
279130 2009 QO <sub>39</sub>	17.6	X	89.59965	330.74717	359.02409	2.94051	0.1809340	0.29417965	2.2390354	20	—	—
279131 2009 QU <sub>39</sub>	17.9	X	319.10905	28.73493	335.09575	3.84033	0.1599678	0.26865296	2.3787107	20	9 5.6	19.9
279132 2009 QE <sub>45</sub>	17.3	X	25.13037	317.51102	29.04286	6.11135	0.1844725	0.28225938	2.3016386	20	12 22.3	20.2
279133 2009 QU <sub>51</sub>	17.8	X	100.47940	156.58643	179.73495	5.49207	0.1525423	0.29923963	2.2137232	20	—	—
279134 2009 RS <sub>6</sub>	17.0	X	306.34429	194.02874	195.11791	6.67665	0.1156242	0.27025187	2.3693192	20	9 22.9	19.3
279135 2009 RD <sub>8</sub>	16.8	X	4.33784	79.12720	358.21335	7.21350	0.1644730	0.19906859	2.9049203	20	—	—
279136 2009 RW <sub>16</sub>	18.0	X	132.39565	191.57631	141.18745	1.30960	0.1857273	0.30411279	2.1900108	20	—	—
279137 2009 RQ <sub>28</sub>	17.0	X	338.45450	108.33301	240.15495	3.79441	0.2106794	0.26812026	2.3818604	20	9 25.8	18.7
279138 2009 RU <sub>28</sub>	18.3	X	32.14123	190.53728	170.13470	6.68251	0.1342369	0.28621459	2.2803851	20	—	—
279139 2009 RL <sub>39</sub>	16.6	X	106.05550	226.08368	277.12874	6.21610	0.1349985	0.24234563	2.5478817	20	6 18.4	20.2
279140 2009 RA <sub>44</sub>	16.4	X	73.88636	77.28310	359.58947	8.00972	0.0524311	0.21811349	2.7326050	20	1 31.9	20.0
279141 2009 RO <sub>50</sub>	17.8	X	232.80541	121.26260	18.36381	3.80597	0.0778476	0.27343303	2.3509067	20	11 9.6	20.6
279142 2009 RW <sub>62</sub>	16.7	X	91.92590	9.46592	47.97545	5.86321	0.1141111	0.22038740	2.7144273	20	2 8.8	20.3
279143 2009 RB <sub>65</sub>	17.3	X	74.55416	249.51108	178.24933	2.72049	0.1274896	0.21384473	2.7695147	20	1 28.1	20.7
279144 2009 SW <sub>13</sub>	15.2	X	219.71279	276.60416	104.39443	10.93837	0.1059431	0.14780309	3.5428032	20	5 15.1	20.7
279145 2009 SA <sub>18</sub>	15.3	X	357.08996	321.32745	47.99559	17.87135	0.1994092	0.18151562	3.0892997	20	11 11.4	18.6
279146 2009 SS <sub>18</sub>	16.6	X	270.71740	56.55569	325.04022	14.23336	0.2049172	0.26292973	2.4131052	20	6 29.8	20.0
279147 2009 SR <sub>34</sub>	16.6	X	154.08017	21.10269	341.30921	3.76898	0.0818111	0.22046387	2.7137995	20	2 8.6	20.6
279148 2009 SQ <sub>36</sub>	15.9	X	259.90747	86.28159	7.40319	9.44925	0.0990902	0.17576888	3.1562742	20	9 26.3	20.3
279149 2009 SB <sub>38</sub>	17.4	X	200.03422	143.31882	1.09810	2.99445	0.1177510	0.26516320	2.3995357	20	9 29.9	20.6
279150 2009 SL <sub>45</sub>	17.3	X	171.21110	264.16143	335.25583	5.21404	0.1546899	0.28752494	2.2734515	20	12 31.7	20.6
279151 2009 SD <sub>49</sub>	16.0	X	350.67167	53.21791	322.84792	9.13866	0.2354344	0.18148879	3.0896042	20	11 7.8	19.3
279152 2009 SR <sub>70</sub>	17.6	X	142.67967	290.99463	351.92751	7.65061	0.0950642	0.29552651	2.2322273	20	—	—
279153 2009 ST <sub>73</sub>	17.6	X	198.84844	178.40680	214.26767	1.65557	0.1414958	0.24159634	2.5531470	20	5 1.9	21.4
279154 2009 SG <sub>74</sub>	16.0	X	320.90287	296.73272	105.50395	4.50842	0.1961270	0.17865595	3.1221785	20	10 15.3	19.3
279155 2009 SB <sub>79</sub>	16.6	X	99.41112	251.61007	313.61305	5.23660	0.0990745	0.26085721	2.4258698	20	8 29.3	19.8
279156 2009 SR <sub>90</sub>	17.8	X	225.45397	211.44565	314.21571	5.21622	0.0428186	0.28361521	2.2942974	20	12 13.8	20.6
279157 2009 SG <sub>113</sub>	17.1	X	266.96831	151.39179	336.90841	6.86415	0.1787421	0.27947179	2.3169184	20	12 1.9	19.4
279158 2009 SO <sub>123</sub>	17.6	X	32.01458	210.51822	258.39369	4.66069	0.0635661	0.30779203	2.1725234	20	—	—
279159 2009 SJ <sub>131</sub>	16.2	X	156.87730	345.32291	33.08837	9.76066	0.0314058	0.22451536	2.6810526	20	3 1.5	20.1
279160 2009 SJ <sub>132</sub>	17.4	X	15.85685	208.28548	124.71949	2.27105	0.2048732	0.27388499	2.3483197	20	11 22.7	19.9
279161 2009 SV <sub>133</sub>	16.7	X	72.20657	331.44791	99.46133	3.26897	0.0584082	0.21505058	2.7591520	20	1 20.9	20.3
279162 2009 SM <sub>134</sub>	17.5	X	23.96431	252.03249	72.34046	4.14071	0.1776437	0.27320864	2.3521938	20	11 17.8	20.0
279163 2009 SX <sub>135</sub>	17.0	X	207.14519	156.22605	213.14835	4.49847	0.1817302	0.23608244	2.5927477	20	4 9.2	21.3
279164 2009 SJ <sub>146</sub>	17.3	X	29.08172	29.17908	25.62059	6.17068	0.1166009	0.29162141	2.2521109	20	—	—
279165 2009 SA <sub>147</sub>	16.4	X	65.92941	237.44946	156.84459	4.53150	0.1460249	0.20362956	2.8613798	20	—	—
279166 2009 SP <sub>156</sub>	17.9	X	328.90121	171.73584	180.62854	6.30110	0.1306239	0.26505547	2.4001858	20	9 8.4	19.9
279167 2009 SP <sub>160</sub>	16.9	X	70.85756	199.95645	252.35585	2.68856	0.0879877	0.21800384	2.7341770	20	2 17.1	20.3
279168 2009 SS <sub>160</sub>	17.2	X	192.89659	37.66706	307.76097	1.57668	0.0729633	0.22565054	2.6720534	20	2 27.4	21.2
279169 2009 ST <sub>166</sub>	16.8	X	68.86524	237.39327	189.21094	8.94933	0.1490622	0.21185516	2.7868271	20	1 19.7	20.3
279170 2009 SW <sub>204</sub>	18.0	X	43.63914	302.56768	11.21945	2.20639	0.2230762	0.27660505	2.3328993	20	12 5.2	21.2
279171 2009 ST <sub>215</sub>	17.5	X	307.95978	122.69933	9.27507	4.44832	0.0602485	0.29400290	2.2399327	20	—	—
279172 2009 SO <sub>241</sub>	16.1	X	293.08459	334.85781	340.14950	14.88861	0.1157212	0.24453253	2.5326681	20	5 3.3	19.6
279173 2009 ST <sub>257</sub>	17.5	X	258.12561	21.25072	40.43558	2.74894	0.1957404	0.26030816	2.4292797	20	8 8.9	20.7
279174 2009 SM <sub>265</sub>	17.6	X	13.37310	307.91004	6.64087	4.88151	0.2136373	0.26813214	2.3817900	20	10 21.2	19.8
279175 2009 SM <sub>274</sub>	17.5	X	331.65971	24.15375	28.36404	4.53829	0.1336231	0.27825052	2.3236929	20	12 21.1	19.6
279176 2009 SM <sub>277</sub>	16.6	X	322.65369	339.40114	151.16021	4.74261	0.1122839	0.20254887	2.8715485	20	—	—
279177 2009 SE <sub>281</sub>	17.5	X	308.34374	258.12711	73.43797	3.39872	0.2021202	0.25681487	2.4512594	20	6 14.1	19.8
279178 2009 SW <sub>281</sub>	17.1	X	157.79227	273.19951	109.14039	3.75995	0.0805165	0.22708862	2.6607606	20	3 8.5	21.0
279179 2009 SU <sub>289</sub>	18.1	X	276.71891	347.58775	146.02537	3.67534	0.1036283	0.28143470	2.3061327	20	—	—
279180 2009 SW <sub>290</sub>	17.9	X	281.77136	346.25563	105.97405	3.88632	0.1324227	0.27177894	2.3604357	20	11 12.6	20.2
279181 2009 SF <sub>300</sub>	16.1	X	326.83149	239.84681	219.25738	8.13948	0.0868270	0.18522618	3.0479030	20	—	—
279182 2009 SM <sub>336</sub>	17.8	X	310.08329	323.03334	171.80741	6.24737	0.1347822	0.29195917	2.2503737	20	—	—
279183 2009 SZ <sub>336</sub>	16.8	X	333.36955	241.69047	98.55627	7.36090	0.2801175	0.26782408	2.3836160	20	9 2.5	17.9
279184 2009 SG <sub>339</sub>	16.6	X	208.90962	214.25546	194.76917	6.30508	0.2900065	0.23958791	2.5673956	20	5 27.1	21.2
279185 2009 SS <sub>339</sub>	17.2	X	69.88954	2.62973	51.22656	6.98226	0.0873166	0.29549780	2.2323719	20	—	—
279186 2009 SD <sub>343</sub>	17.2	X	349.61935	295.29034	95.81387	3.44340	0.2168101	0.18506771	3.0496427	20	11 29.9	20.2
279187 2009 SB <sub>350</sub>	18.1	X	51.64525	110.32163	297.20240	2.03560	0.1261215	0.29596238	2.2300352	20	—	—
279188 2009 SF <sub>356</sub>	16.6	X	124.41570	185.28591	58.95151	7.25565	0.0663943	0.26635404	2.3923783	20	11 17.7	19.7
279189 2009 SG <sub>359</sub>	16.8	X	320.91420	79.42893	261.32616	5.05325	0.1274674	0.25907161	2.4370036	20	8 2.5	19.2
279190 2009 SL <sub>360</sub>	16.1	X	6.37587	204.18450	187.80968	10.35091	0.1216568	0.18419214	3.0592995	20	12 17.9	20.1
279191 2009 SS <sub>361</sub>	16.1	X	171.53851	267.01862	124.23537	5.83322	0.1037972	0.21564448	2.7540838	20	4 6.5	20.3
279192 2009 TY <sub>2</sub>	15.9	X	136.39783	286.99314	108.38667	13.62060	0.0576322	0.22373674	2.6872692	20	2 29.9	19.8
279193 2009 TE <sub>3</sub>	17.0	X	28.73162	235.14685	214.16544	6.68431	0.0834070	0.29950772	2.2124020	20	—	—
279194 2009 TF <sub>3</sub>	17.4	X	130.94190	126.65802	220.59762	7.9834						



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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>
279201 2009 <i>TF</i> <sub>42</sub>	16.6 <sup>m</sup>	X	101.78607	350.06448	60.30142	5.33421	0.0645087	0.21782291	2.7356908	20	2 5.5	20.3
279202 2009 <i>TO</i> <sub>43</sub>	16.6	X	41.71916	279.09293	197.68477	6.39100	0.0098446	0.21370740	2.7707011	20	2 1.4	20.4
279203 2009 <i>TM</i> <sub>45</sub>	17.0	X	187.41154	219.44234	156.21873	11.73559	0.2444198	0.23294926	2.6159443	20	4 3.9	21.6
279204 2009 <i>UM</i> <sub>8</sub>	13.3	X	325.46360	198.49086	177.15387	18.55460	0.0730189	0.08325226	5.1944396	20	9 6.8	20.0
279205 2009 <i>UJ</i> <sub>29</sub>	17.5	X	303.67418	209.94079	217.01956	4.93220	0.1118218	0.26992011	2.3712602	20	11 15.9	19.8
279206 2009 <i>UP</i> <sub>31</sub>	17.5	X	0.44006	4.56893	37.42240	7.24574	0.1061769	0.27914303	2.3187372	20	—	—
279207 2009 <i>UW</i> <sub>34</sub>	17.8	X	18.29564	158.07967	227.13012	4.12177	0.0688021	0.27778947	2.3262633	20	—	—
279208 2009 <i>UQ</i> <sub>35</sub>	16.9	X	231.46434	86.11016	266.17660	0.99758	0.2475602	0.23638242	2.5905537	20	4 5.9	21.3
279209 2009 <i>UB</i> <sub>38</sub>	16.7	X	154.58046	226.85236	89.94584	3.10124	0.0532272	0.20367438	2.8609599	20	—	—
279210 2009 <i>UW</i> <sub>40</sub>	17.2	X	182.66867	306.58839	181.26873	6.47338	0.1412878	0.26016064	2.4301980	20	8 16.9	21.0
279211 2009 <i>UK</i> <sub>41</sub>	16.9	X	161.27003	312.05456	41.94144	2.44475	0.2176978	0.22179369	2.7029411	20	2 16.1	21.4
279212 2009 <i>UK</i> <sub>43</sub>	17.1	X	41.38025	37.92344	64.36651	1.35809	0.0316368	0.21370757	2.7706996	20	1 16.7	20.7
279213 2009 <i>UP</i> <sub>45</sub>	17.4	X	5.43108	26.17869	39.17208	5.03371	0.1174636	0.28585233	2.2823114	20	—	—
279214 2009 <i>UQ</i> <sub>45</sub>	16.5	X	184.57024	270.12434	42.58762	4.96721	0.0608837	0.21261850	2.7801529	20	1 11.9	20.7
279215 2009 <i>UY</i> <sub>56</sub>	16.3	X	82.30573	327.62707	25.56802	5.68271	0.0668721	0.19624137	2.9327543	20	—	—
279216 2009 <i>UQ</i> <sub>69</sub>	16.1	X	301.48749	255.18438	213.08563	13.81817	0.3144825	0.18066852	3.0989487	20	11 19.3	19.0
279217 2009 <i>UO</i> <sub>71</sub>	16.9	X	354.36210	14.77180	25.45159	7.19871	0.1383386	0.27610233	2.3357301	20	—	—
279218 2009 <i>UY</i> <sub>72</sub>	16.6	X	164.38674	1.54554	64.44298	5.64668	0.0868798	0.23202943	2.6228533	20	5 9.5	20.5
279219 2009 <i>UH</i> <sub>83</sub>	17.1	X	330.31473	42.36023	65.55219	5.55152	0.0464324	0.28544730	2.2844698	20	—	—
279220 2009 <i>UJ</i> <sub>87</sub>	16.4	X	164.81166	210.89600	231.84015	12.96637	0.1849594	0.23527713	2.5986607	20	6 3.1	20.7
279221 2009 <i>UY</i> <sub>91</sub>	16.3	X	261.95107	277.91547	350.14827	8.91539	0.0673364	0.21838496	2.7309950	20	2 11.2	20.2
279222 2009 <i>UQ</i> <sub>97</sub>	15.9	X	337.42010	166.96946	250.64679	8.87728	0.1746060	0.18125953	3.0922088	20	12 6.5	19.3
279223 2009 <i>UP</i> <sub>99</sub>	17.1	X	240.77963	30.25550	205.20891	5.26915	0.1280570	0.29822716	2.2187307	20	—	—
279224 2009 <i>UU</i> <sub>99</sub>	17.7	X	64.06787	306.21724	73.36968	2.89229	0.1219777	0.29085324	2.2560745	20	—	—
279225 2009 <i>UL</i> <sub>101</sub>	17.2	X	240.03655	187.42415	158.80899	2.37959	0.1845183	0.23742050	2.5829970	20	4 11.3	21.1
279226 Demisroussos	16.5	X	325.89491	161.72112	300.73722	6.12754	0.1304513	0.19163336	2.9795817	20	—	—
279227 2009 <i>UZ</i> <sub>104</sub>	15.6	X	242.50004	93.03220	53.25649	13.00428	0.1069084	0.18191637	3.0847611	20	11 8.9	19.8
279228 2009 <i>UK</i> <sub>109</sub>	17.0	X	179.20296	57.00514	33.64180	4.06519	0.1623282	0.23972899	2.5663881	20	6 26.1	21.2
279229 2009 <i>UK</i> <sub>121</sub>	17.6	X	8.22357	114.03292	222.29081	3.56053	0.1540190	0.27004366	2.3705369	20	11 4.8	20.0
279230 2009 <i>UX</i> <sub>122</sub>	18.2	X	298.23319	66.68444	118.30902	5.03397	0.0713675	0.30011174	2.2094324	20	—	—
279231 2009 <i>UD</i> <sub>128</sub>	16.5	X	212.43137	238.18672	70.26610	5.33712	0.0995794	0.21655259	2.7463789	20	2 5.6	20.7
279232 2009 <i>UJ</i> <sub>130</sub>	17.1	X	25.75226	269.79154	55.64226	22.47906	0.0781745	0.35981237	1.9577263	20	11 24.9	19.0
279233 2009 <i>UT</i> <sub>139</sub>	15.7	X	347.34701	41.79359	343.62576	8.69395	0.0997934	0.17985977	3.1082316	20	11 3.9	19.7
279234 2009 <i>US</i> <sub>144</sub>	17.0	X	72.75092	45.32661	271.25520	4.57438	0.1809419	0.28211804	2.3024072	20	—	—
279235 2009 <i>UF</i> <sub>146</sub>	17.4	X	335.19612	78.40852	62.58498	6.74518	0.0519272	0.29462347	2.2367863	20	—	—
279236 2009 <i>UA</i> <sub>147</sub>	16.8	X	31.78292	313.66908	245.54198	8.08530	0.1481009	0.22954151	2.6417714	20	5 18.4	19.6
279237 2009 <i>UT</i> <sub>148</sub>	17.0	X	137.05237	220.19902	232.16463	6.36620	0.0642911	0.23275950	2.6173659	20	5 10.2	20.7
279238 2009 <i>UZ</i> <sub>150</sub>	16.9	X	248.76101	259.14012	56.10621	6.10323	0.1699770	0.23189385	2.6238755	20	3 16.0	21.0
279239 2009 <i>UK</i> <sub>152</sub>	14.8	X	85.22332	344.38972	133.06410	9.53517	0.2210182	0.12640012	3.9322192	20	5 8.3	20.5
279240 2009 <i>VV</i>	15.7	X	288.76077	134.47485	316.21720	16.72490	0.1844104	0.17814292	3.1281699	20	10 10.6	19.9
279241 2009 <i>VD</i> <sub>8</sub>	15.9	X	291.42943	208.83655	239.01590	9.40302	0.1963609	0.17587169	3.1550441	20	10 16.4	19.9
279242 2009 <i>VL</i> <sub>16</sub>	16.8	X	89.45701	92.25979	60.41926	5.22399	0.0866977	0.22931337	2.6435232	20	6 2.9	20.2
279243 2009 <i>VD</i> <sub>24</sub>	16.2	X	200.99513	4.12317	67.36659	15.05578	0.0180058	0.23777659	2.5804176	20	6 29.8	19.8
279244 2009 <i>VN</i> <sub>25</sub>	15.9	X	130.89536	349.11982	87.52046	16.01746	0.0703145	0.21850156	2.7300233	20	4 21.6	20.1
279245 2009 <i>VU</i> <sub>33</sub>	16.5	X	99.46287	271.49708	236.62106	13.47139	0.0860366	0.23567820	2.5957116	20	6 9.8	20.1
279246 2009 <i>VH</i> <sub>34</sub>	16.5	X	268.60965	233.47946	258.42460	4.11625	0.1454476	0.18048988	3.1009932	20	11 17.4	20.4
279247 2009 <i>VZ</i> <sub>35</sub>	16.4	X	142.98990	303.04298	340.47631	3.44731	0.0359945	0.19108188	2.9853119	20	—	—
279248 2009 <i>VH</i> <sub>38</sub>	17.2	X	347.88081	153.91482	263.25189	4.08608	0.1761105	0.27612924	2.3355784	20	—	—
279249 2009 <i>VD</i> <sub>39</sub>	17.0	X	313.34230	3.34484	50.28727	7.81566	0.0922515	0.26646700	2.3917022	20	11 12.9	19.4
279250 2009 <i>VL</i> <sub>40</sub>	16.0	X	268.83185	270.28606	211.16768	4.79851	0.1087216	0.17939301	3.1136207	20	11 10.6	20.1
279251 2009 <i>VD</i> <sub>42</sub>	16.7	X	67.83229	309.86007	176.94502	8.93562	0.1861051	0.21906621	2.7253301	20	4 16.1	19.9
279252 2009 <i>UW</i> <sub>44</sub>	17.5	X	221.95591	340.98665	231.57993	4.28388	0.0521829	0.28489482	2.2874223	20	—	—
279253 2009 <i>VL</i> <sub>45</sub>	16.2	X	138.95724	33.95786	324.13550	3.58558	0.0820744	0.20887501	2.8132720	20	1 18.9	20.2
279254 2009 <i>VN</i> <sub>46</sub>	16.4	X	345.03543	269.86101	198.81804	5.34945	0.0366675	0.19673866	2.9278101	20	—	—
279255 2009 <i>VE</i> <sub>47</sub>	17.4	X	206.31297	349.63511	207.28343	5.91799	0.1613234	0.27372228	2.3492503	20	12 11.2	20.6
279256 2009 <i>VS</i> <sub>48</sub>	16.2	X	121.63179	55.82971	63.87220	31.30653	0.2614019	0.22753327	2.6572930	20	6 11.7	20.8
279257 2009 <i>VB</i> <sub>52</sub>	16.4	X	334.74678	209.05561	229.43888	7.69602	0.1846198	0.18419631	3.0592533	20	12 29.9	19.7
279258 2009 <i>VK</i> <sub>56</sub>	17.3	X	257.66952	53.84833	266.59518	0.02674	0.1125273	0.23568999	2.5956251	20	4 3.1	20.9
279259 2009 <i>VF</i> <sub>62</sub>	17.3	X	161.00798	72.92742	41.24516	3.16265	0.1527334	0.23901285	2.5715120	20	7 9.4	21.5
279260 2009 <i>VX</i> <sub>65</sub>	17.1	X	142.84138	179.07059	42.82138	9.20096	0.0313572	0.26666886	2.3904951	20	11 9.7	20.1
279261 2009 <i>VZ</i> <sub>70</sub>	16.1	X	348.43878	218.47096	73.40082	8.69998	0.2144023	0.24368658	2.5385262	20	7 12.7	18.0
279262 2009 <i>VX</i> <sub>71</sub>	17.2	X	25.30305	29.77065	31.20237	5.12665	0.1035070	0.28832361	2.2692512	20	—	—
279263 2009 <i>VP</i> <sub>73</sub>	17.4	X	245.86357	231.45806	216.80280	4.50175	0.1175822	0.26040592	2.4286717	20	9 7.8	20.7
279264 2009 <i>VK</i> <sub>78</sub>	17.1	X	31.42015	295.69085	96.99622	6.32646	0.1156570	0.28418073	2.2912526	20	—	—
279265 2009 <i>VJ</i> <sub>86</sub>	15.7	X	100.46126	282.35596	187.30252	2.56609	0.1731554	0.12787048	3.9020173	20	5 6.6	21.4
279266 2009 <i>VY</i> <sub>96</sub>	16.9	X	134.97971	185.68544	58.72100	7.54720	0.1286004	0.26711049	2.38785			

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Planet	H	G	M	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	V
279281 2009 WY <sub>32</sub>	17.5	X	266.41845	15.40135	69.35106	4.10449	0.1077157	0.26002923	2.4310166	20	10 8.3	20.2
279282 2009 WF <sub>35</sub>	13.7	X	289.80641	40.07603	11.01957	6.60312	0.0229943	0.08099398	5.2905507	20	9 10.7	20.6
279283 2009 WS <sub>36</sub>	16.5	X	94.17529	333.57659	12.30187	1.83789	0.1239472	0.19529994	2.9421715	20	—	—
279284 2009 WT <sub>36</sub>	17.6	X	80.77310	27.27872	49.18378	5.75339	0.0880742	0.30507454	2.1854057	20	1 29.6	19.8
279285 2009 WW <sub>53</sub>	16.0	X	306.44586	169.09563	266.83636	7.07676	0.2123850	0.17609522	3.1523736	20	10 25.1	19.6
279286 2009 WY <sub>75</sub>	16.5	X	69.89791	37.35453	83.75095	8.57334	0.1734151	0.21616782	2.7496370	20	4 12.5	20.0
279287 2009 WC <sub>77</sub>	15.8	X	281.77297	23.68336	15.77524	5.22394	0.0194979	0.15960704	3.3659011	20	8 28.0	20.6
279288 2009 WU <sub>81</sub>	17.1	X	237.39371	322.06423	151.46272	9.18485	0.1608570	0.25908451	2.4369227	20	9 29.0	20.3
279289 2009 WS <sub>99</sub>	16.0	X	334.18689	348.57876	38.77821	4.96147	0.0898233	0.17522179	3.1628407	20	10 19.9	19.8
279290 2009 WX <sub>101</sub>	16.1	X	123.50674	298.70625	352.50805	5.42600	0.0962540	0.18602517	3.0391694	20	12 28.9	20.8
279291 2009 WO <sub>104</sub>	15.2	X	19.00803	244.55896	114.07404	10.49367	0.0968290	0.17728467	3.1382576	20	11 22.4	19.4
279292 2009 WS <sub>107</sub>	17.6	X	289.48315	347.53761	107.12952	2.26059	0.1493703	0.27119824	2.3638041	20	11 28.1	19.5
279293 2009 WW <sub>117</sub>	16.8	X	0.16077	186.79747	262.91751	0.90436	0.0421765	0.19422898	2.9529768	20	—	—
279294 2009 WT <sub>125</sub>	16.8	X	182.04613	330.95833	237.13958	6.04482	0.0845845	0.26970428	2.3725251	20	12 5.9	20.1
279295 2009 WB <sub>129</sub>	16.5	X	166.53176	261.84826	5.87461	1.19237	0.0500345	0.19245715	2.9710732	20	—	—
279296 2009 WL <sub>140</sub>	15.6	X	325.55250	308.76083	81.98270	10.46041	0.0580051	0.17326800	3.1865725	20	10 16.3	19.9
279297 2009 WN <sub>142</sub>	16.7	X	163.10446	64.30034	3.79753	4.98309	0.0619806	0.23142816	2.6273943	20	5 7.5	20.5
279298 2009 WD <sub>155</sub>	15.6	X	53.28460	122.22813	292.94585	11.48925	0.1090333	0.19973396	2.8984653	20	—	—
279299 2009 WJ <sub>161</sub>	16.6	X	76.13137	98.33567	25.47962	3.06652	0.0927821	0.21978453	2.7193888	20	4 8.2	20.1
279300 2009 WN <sub>177</sub>	17.6	X	11.53056	75.50798	30.97356	4.12063	0.1096358	0.28046427	2.3114492	20	—	—
279301 2009 WX <sub>179</sub>	16.1	X	203.90361	280.44050	58.49487	10.83749	0.1475341	0.22178795	2.7029878	20	3 8.0	20.6
279302 2009 WK <sub>183</sub>	16.8	X	35.81427	270.96826	185.73753	3.22579	0.0814580	0.20085566	2.8876640	20	1 4.9	20.3
279303 2009 WM <sub>186</sub>	16.4	X	339.70230	217.40787	47.83063	15.41837	0.0630689	0.23749323	2.5824696	20	5 18.6	19.5
279304 2009 WL <sub>191</sub>	16.9	X	1.43888	151.88210	250.19187	1.50977	0.1542095	0.18532105	3.0486827	20	12 27.3	20.4
279305 2009 WQ <sub>194</sub>	16.9	X	170.94960	213.22362	240.79347	3.50425	0.1416877	0.23651133	2.5896123	20	6 22.3	20.9
279306 2009 WQ <sub>203</sub>	16.1	X	257.95187	288.12031	239.79120	11.00819	0.2496484	0.17938761	3.1136832	20	12 2.5	20.3
279307 2009 WO <sub>207</sub>	17.1	X	233.50610	23.29660	309.47462	1.81222	0.0992130	0.22726638	2.6593730	20	3 24.3	21.0
279308 2009 WM <sub>216</sub>	15.4	X	252.14227	41.63377	355.29900	8.41314	0.1236226	0.15447056	3.4401092	20	7 3.7	20.6
279309 2009 WM <sub>217</sub>	16.8	X	234.69370	29.87321	88.57769	7.24439	0.0604565	0.26392288	2.4070477	20	10 19.5	19.9
279310 2009 WQ <sub>248</sub>	16.5	X	70.13170	71.44175	30.86577	4.39169	0.0794913	0.21188362	2.7865775	20	3 3.0	20.0
279311 2009 WC <sub>252</sub>	15.9	X	226.17129	298.56042	240.60708	7.77306	0.1418380	0.17486245	3.1671722	20	11 23.2	20.6
279312 2009 WF <sub>259</sub>	16.2	X	159.14259	317.05897	114.18736	6.05714	0.0093448	0.21889052	2.7267883	20	5 7.9	20.0
279313 2009 WP <sub>260</sub>	16.9	X	228.60424	309.43987	111.95572	6.77742	0.0656847	0.23720785	2.5845405	20	7 17.5	20.5
279314 2009 WS <sub>261</sub>	16.5	X	214.82872	9.49639	41.32285	13.21952	0.1655675	0.23941118	2.5686589	20	6 6.6	20.7
279315 2009 WX <sub>261</sub>	16.5	X	241.41651	8.17298	288.05193	4.25264	0.0269538	0.21396160	2.7685061	20	2 22.9	20.3
279316 2009 WA <sub>262</sub>	16.1	X	267.31203	186.85459	100.48003	8.90430	0.0670461	0.20899219	2.8122204	20	3 15.4	20.2
279317 2009 XH <sub>1</sub>	15.8	X	85.27680	7.80442	96.26983	9.06863	0.1760627	0.21083606	2.7958002	20	4 12.9	19.7
279318 2009 XC <sub>5</sub>	16.3	X	276.19442	17.31492	108.93724	2.32123	0.1351810	0.17625982	3.1504106	20	11 22.3	20.3
279319 2009 XM <sub>6</sub>	15.0	X	232.50851	308.34415	261.58416	15.64217	0.1899129	0.17723897	3.1387970	20	12 29.5	19.6
279320 2009 XZ <sub>9</sub>	17.5	X	3.34164	21.20145	42.96512	4.01634	0.1309802	0.28777027	2.2721592	20	—	—
279321 2009 XH <sub>11</sub>	16.0	X	48.37060	55.62155	97.99682	5.99052	0.0987949	0.21287863	2.7778876	20	4 11.2	19.4
279322 2009 XN <sub>13</sub>	15.9	X	287.82539	244.52678	234.33620	8.82622	0.0673004	0.17806675	3.1290619	20	12 7.6	20.0
279323 2009 XX <sub>14</sub>	15.7	X	235.22705	94.67459	104.14901	10.63836	0.1322165	0.17614561	3.1517723	20	12 27.8	20.1
279324 2009 XU <sub>16</sub>	16.1	X	298.26130	55.43758	91.60158	2.69213	0.0979248	0.18060190	3.0997108	20	—	—
279325 2009 XR <sub>18</sub>	16.2	X	193.40860	308.71521	110.32379	11.69353	0.1487887	0.22936081	2.6431587	20	6 1.3	20.5
279326 2009 XY <sub>18</sub>	17.1	X	40.29779	262.15475	106.71896	7.48268	0.1397718	0.27133250	2.3630242	20	—	—
279327 2009 XZ <sub>18</sub>	15.8	X	90.40153	38.60758	110.00296	12.87161	0.0696756	0.22088323	2.7103636	20	5 30.1	19.6
279328 2009 XA <sub>19</sub>	16.0	X	244.97832	255.67314	109.36746	6.93765	0.0721428	0.22686444	2.6625132	20	5 23.4	19.7
279329 2009 XC <sub>19</sub>	16.4	X	18.60150	31.77492	112.50736	9.83942	0.0378887	0.20115199	2.8848274	20	2 11.3	20.2
279330 2009 XR <sub>19</sub>	16.9	X	200.49520	326.96058	100.10526	2.24800	0.0731082	0.23146041	2.6271502	20	6 20.1	20.5
279331 2009 XT <sub>19</sub>	16.7	X	77.44969	136.51788	315.24496	1.01159	0.0268134	0.20429857	2.8551297	20	2 20.7	20.6
279332 2009 XY <sub>19</sub>	16.7	X	82.45178	0.26832	97.11106	3.15671	0.0439489	0.20715164	2.8288535	20	3 8.9	20.5
279333 2009 XZ <sub>19</sub>	16.8	X	355.79368	90.39742	98.49379	3.22180	0.0291853	0.20707402	2.8295605	20	3 7.5	20.5
279334 2009 XM <sub>24</sub>	17.2	X	189.55249	7.25821	80.00373	10.24789	0.1298770	0.23890458	2.5722888	20	7 2.5	21.1
279335 2009 XA <sub>25</sub>	16.0	X	355.22057	82.24371	122.38441	9.88813	0.0867195	0.20901480	2.8120175	20	3 26.5	19.5
279336 2009 YL	16.2	X	129.83446	159.21917	195.37535	7.39906	0.0264138	0.20354262	2.8621945	20	—	—
279337 2009 YK <sub>3</sub>	16.2	X	121.52158	270.19215	135.27595	4.62358	0.1246390	0.20858538	2.8158757	20	3 2.9	20.1
279338 2009 YX <sub>3</sub>	15.4	X	301.87039	34.42598	115.75881	12.95506	0.0985685	0.18265539	3.0764348	20	—	—
279339 2009 YG <sub>6</sub>	16.4	X	35.07495	195.22629	182.83020	6.34063	0.1015727	0.18661903	3.0327185	20	—	—
279340 2009 YM <sub>6</sub>	15.7	X	318.18354	30.17521	86.70989	8.63018	0.2166550	0.18041052	3.1019025	20	—	—
279341 2009 YM <sub>7</sub>	17.3	X	247.16535	266.37920	227.38400	1.74955	0.0454860	0.26304024	2.4124292	20	11 25.1	20.3
279342 2009 YZ <sub>7</sub>	15.2	X	182.01784	332.52195	273.25130	8.73363	0.0330545	0.17959740	3.1112580	20	—	—
279343 2009 YZ <sub>9</sub>	16.6	X	320.86657	203.79829	82.40907	6.72741	0.0842176	0.22341904	2.6898161	20	5 19.0	19.9
279344 2009 YM <sub>13</sub>	16.6	X	73.20186	225.69752	222.95925	3.42625	0.0966222	0.20396853	2.8582087	20	2 18.7	20.3
279345 2009 YT <sub>13</sub>	15.6	X	248.42714	252.90978	307.72209	8.58358	0.0685863	0.18127162	3.0920713	20	—	—
279346 2009 YL <sub>19</sub>	16.4	X	321.04341	293.07256	259.10790	6.32190	0.0954528	0.20229844	2.8739180	20	1 15.2	20.2
279347 2009 YB <sub>20</sub>	16.0	X	175.43284	327.11985	92.03195	14.53793	0.0314182	0.22698840	2.6615437	20	5 15.5	19.9
279348 2009 YK <sub>22</sub>	15.5	X	266.00735									

## ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>		
279361	2010	AF <sub>59</sub>	16.5 <sup>m</sup>	X	189.55259	270.28817	143.18227	7.02083	0.1491541	0.22735064	2.6587158	20	5 21.4	20.8
279362	2010	AP <sub>59</sub>	15.4	X	104.12098	101.20990	340.89391	8.36221	0.1249962	0.20969825	2.8059042	20	3 25.0	19.3
279363	2010	AV <sub>59</sub>	15.1	X	344.03591	354.91276	98.67247	19.59543	0.1987163	0.17832329	3.1260602	20	—	—
279364	2010	AF <sub>60</sub>	16.5	X	164.78524	33.66634	28.26389	6.84173	0.0419285	0.22156488	2.7048017	20	5 1.4	20.2
279365	2010	AK <sub>61</sub>	15.8	X	299.48298	346.72691	153.58821	10.88262	0.1022179	0.17677044	3.1443409	20	—	—
279366	2010	AU <sub>68</sub>	15.3	X	241.26557	99.59451	83.51011	10.59093	0.0475504	0.17483897	3.1674557	20	12 27.2	19.6
279367	2010	AO <sub>72</sub>	15.1	X	193.85424	151.42108	100.04020	14.72738	0.0475371	0.17878014	3.1207324	20	—	—
279368	2010	AR <sub>72</sub>	15.6	X	308.60549	134.92193	341.38312	8.28408	0.0553211	0.17512639	3.1639892	20	—	—
279369	2010	AZ <sub>73</sub>	15.6	X	295.20459	167.91912	100.53101	9.84609	0.0815621	0.21016469	2.8017511	20	3 24.8	19.5
279370	2010	AC <sub>74</sub>	16.2	X	161.62588	286.96111	142.39018	13.68894	0.1890104	0.22314984	2.6919790	20	5 18.7	20.9
279371	2010	AT <sub>75</sub>	16.5	X	101.12010	244.24390	195.38180	6.98726	0.2132952	0.21068256	2.7971579	20	4 1.5	20.3
279372	2010	AZ <sub>77</sub>	16.6	X	208.66646	261.38447	96.48547	3.48335	0.0928941	0.21547700	2.7555107	20	4 2.3	20.7
279373	2010	AU <sub>79</sub>	15.2	X	197.00330	116.55873	127.10288	10.23603	0.0448573	0.17506942	3.1646755	20	—	—
279374	2010	AE <sub>80</sub>	16.0	X	330.13154	290.56032	158.29672	5.54831	0.1246721	0.17218489	3.1999218	20	12 28.8	19.8
279375	2010	AC <sub>81</sub>	15.6	X	332.75961	321.46296	151.36886	10.41034	0.0913062	0.17912799	3.1166910	20	—	—
279376	2010	BW <sub>101</sub>	16.0	X	94.28544	49.30860	41.57620	0.48882	0.2585563	0.12503318	3.9608270	20	4 18.3	21.9
279377	2010	Lechmankiewicz	15.6	X	36.49800	339.65481	90.77539	12.50678	0.1082380	0.18742398	3.0240290	20	—	—
279378	2010	CS <sub>2</sub>	15.9	X	41.45933	265.83648	136.82525	9.12104	0.1496445	0.17864801	3.1222710	20	—	—
279379	2010	CU <sub>4</sub>	15.6	X	339.73653	347.20765	130.79115	6.26792	0.1163179	0.17989439	3.1078328	20	—	—
279380	2010	CL <sub>41</sub>	15.1	X	70.68631	274.91830	100.72911	17.30086	0.0242348	0.17861680	3.1226347	20	—	—
279381	2010	CD <sub>42</sub>	15.3	X	10.87671	311.09185	145.34752	10.48208	0.0138435	0.18173354	3.0868297	20	—	—
279382	2010	CO <sub>43</sub>	16.3	X	100.02697	312.36954	133.45987	11.80188	0.1175685	0.20624190	2.8371662	20	3 30.6	20.4
279383	2010	CM <sub>59</sub>	15.2	X	124.44443	163.30656	155.51581	15.21074	0.0268451	0.17461499	3.1701638	20	—	—
279384	2010	CB <sub>60</sub>	15.7	X	335.64855	357.75260	156.47221	13.56774	0.0855531	0.18607312	3.0386473	20	—	—
279385	2010	CG <sub>61</sub>	15.3	X	48.27630	328.56836	97.97271	13.85235	0.2254277	0.19104312	2.9857156	20	—	—
279386	2010	CP <sub>69</sub>	16.8	X	46.77056	12.61017	131.21221	5.16917	0.0417433	0.20838808	2.8176527	20	3 20.2	20.5
279387	2010	CA <sub>70</sub>	15.1	X	7.21416	355.07982	133.29092	8.89474	0.0677895	0.14713764	3.5534771	20	8 22.4	19.8
279388	2010	CK <sub>98</sub>	16.4	X	236.47420	198.74732	218.20867	5.82066	0.0395429	0.21319220	2.7751630	20	4 24.0	20.3
279389	2010	CA <sub>121</sub>	15.3	X	309.52752	351.30082	139.92395	17.62043	0.1623800	0.17514567	3.1637570	20	—	—
279390	2010	CW <sub>145</sub>	16.4	X	192.49845	81.51013	303.17767	1.55975	0.0218464	0.21668073	2.7452961	20	4 16.7	20.2
279391	2010	CN <sub>145</sub>	15.8	X	97.23355	55.52556	51.23295	8.47518	0.0889875	0.21397199	2.7684165	20	4 16.1	19.5
279392	2010	CB <sub>152</sub>	15.8	X	238.25544	56.26491	172.33411	7.55734	0.0027765	0.18099842	3.0951820	20	—	—
279393	2010	CE <sub>160</sub>	16.3	X	101.44875	272.92522	149.55249	5.82847	0.1635082	0.20497939	2.8488041	20	3 5.9	20.2
279394	2010	CX <sub>176</sub>	15.8	X	266.88860	180.73092	156.38025	18.46591	0.2511208	0.21662373	2.7457776	20	4 24.3	20.3
279395	2010	CU <sub>179</sub>	15.3	X	46.64396	265.90068	170.39863	15.27823	0.0452745	0.18359018	3.0659831	20	—	—
279396	2010	DK <sub>77</sub>	15.8	X	336.50293	330.50102	156.27129	8.75412	0.0423034	0.17912970	3.1166712	20	—	—
279397	2010	Dombeck	15.5	X	6.66400	10.95929	95.50247	12.68154	0.1088520	0.18388094	3.0627502	20	—	—
279398	2010	EW <sub>11</sub>	15.9	X	251.79003	226.92564	109.31977	6.91684	0.0745758	0.21336216	2.7736891	20	4 25.6	19.9
279399	2010	EF <sub>30</sub>	17.5	X	322.09703	188.09708	348.96723	9.37477	0.1809469	0.27768410	2.3268517	20	—	—
279400	2010	EK <sub>37</sub>	17.6	X	12.43848	344.72949	129.57069	2.96905	0.0728298	0.27620039	2.3351773	20	—	—
279401	2010	EK <sub>38</sub>	16.7	X	191.98667	265.32131	172.56941	3.18609	0.0821027	0.21458238	2.7631641	20	6 23.7	20.8
279402	2010	EK <sub>41</sub>	16.1	X	111.52448	322.25331	185.82957	7.67559	0.1575890	0.21464587	2.7626192	20	7 1.9	20.4
279403	2010	EW <sub>44</sub>	15.4	X	223.05651	130.80487	127.76005	11.77002	0.1371529	0.18443501	3.0566131	20	—	—
279404	2010	EJ <sub>70</sub>	16.1	X	3.51028	184.67005	188.15739	14.18838	0.1651411	0.24185872	2.5513001	20	12 12.5	19.3
279405	2010	EZ <sub>83</sub>	15.5	X	188.23243	130.19274	133.15215	5.47811	0.0477480	0.17409396	3.1764857	20	—	—
279406	2010	EH <sub>87</sub>	16.2	X	196.89387	294.29427	185.44348	11.45493	0.1459594	0.22868203	2.6483864	20	8 16.9	20.5
279407	2010	EA <sub>105</sub>	16.1	X	209.72238	15.71355	141.28996	12.15121	0.0527762	0.24172811	2.5522190	20	11 5.4	19.8
279408	2010	EO <sub>121</sub>	16.5	X	240.33056	118.51096	150.71096	3.09886	0.0769196	0.18360589	3.0658081	20	1 21.3	21.2
279409	2010	EZ <sub>124</sub>	16.7	X	135.62658	129.04778	35.90378	10.69890	0.0917697	0.22567784	2.6718379	20	8 19.9	20.9
279410	2010	McCallon	16.7	X	143.19646	151.24143	80.46861	15.26525	0.1104195	0.26357197	2.4091836	20	11 23.5	20.4
279411	2010	FM <sub>6</sub>	15.1	X	85.69355	288.44228	65.68808	16.29795	0.0518469	0.17054514	3.2204000	20	—	—
279412	2010	FN <sub>14</sub>	15.8	X	240.72764	185.24435	173.72883	5.38902	0.0810041	0.17583382	3.1554971	20	1 11.4	20.7
279413	2010	FH <sub>22</sub>	17.0	X	256.77643	227.22890	33.73384	6.06251	0.1438743	0.27933874	2.3176540	20	1 11.7	20.6
279414	2010	FE <sub>101</sub>	16.1	X	272.44913	349.91101	217.26452	4.62627	0.1323458	0.17310090	3.1886229	20	—	—
279415	2010	GM <sub>6</sub>	15.7	X	312.78026	235.88965	344.80486	8.91219	0.0844036	0.18674698	3.0313330	20	2 15.3	19.8
279416	2010	GR <sub>6</sub>	17.5	X	333.62546	45.62400	244.23361	2.19575	0.1804368	0.29109037	2.2548491	20	6 4.3	19.0
279417	2010	GA <sub>29</sub>	17.2	X	23.13738	25.30054	205.66301	4.76094	0.1009932	0.30217773	2.1993503	20	6 16.1	19.1
279418	2010	GQ <sub>42</sub>	15.8	X	216.54052	122.54614	115.80623	3.64065	0.1537595	0.17947451	3.1126781	20	—	—
279419	2010	GX <sub>111</sub>	16.1	X	179.01677	78.28459	46.91893	15.32107	0.0338344	0.21845304	2.7304276	20	8 19.3	20.3
279420	2010	GC <sub>140</sub>	16.2	X	352.45252	3.38895	178.47164	5.32146	0.0804644	0.18598321	3.0396265	20	2 19.6	20.2
279421	2010	GR <sub>152</sub>	15.9	X	216.61250	253.34820	313.59385	8.88143	0.0305953	0.17300449	3.1898074	20	12 29.1	20.5
279422	2010	GX <sub>158</sub>	16.8	X	245.41189	207.25715	64.12740	6.29425	0.1012065	0.27256908	2.3558718	20	1 16.6	20.2
279423	2010	HS <sub>111</sub>	15.4	X	251.21803	48.07415	254.94174	8.67432	0.0423586	0.17146652	3.2088531	20	3 13.7	20.2
279424	2010	JY <sub>151</sub>	16.2	X	286.63270	120.98752	99.39930	4.92858	0.1334181	0.17414909	3.1758154	20	1 8.6	20.9
279425	2010	KR <sub>118</sub>	16.7	X	242.46358	251.23802	63.67044	5.57201	0.2366199	0.26479023	2.4017884	20	3 2.8	20.7
279426	2010	MU <sub>8</sub>	16.9	X	267.52463	189.28998	127.99808	4.94383	0.2012734	0.27059752	2.3673012	20	3 30.8	20.4
279427	2010	MG <sub>28</sub>	16.6	X	1.16892	281.08124	136.66324	8.83587	0.2073863	0.21513897	2.7583963	20	—	—
279428	2010	MX <sub>85</sub>	15.7	X	306.87675	142.16705	192.27954	16.15271	0.1405664	0.18177273	3.0863860	20	6 22.5	19.9
279429	2010	NY <sub>11</sub>	15.9	X	357.39727	223.16451	88.13690	7.56755	0.1103748	0.18923740	3.0046789	20	8 23.2	19.5
279430	2010	NY <sub>30</sub>	15.6	X	291.11871	266.88253	101.78721	10.99421	0.1259168	0.18286606	3.0740716	20	7 17.7	19.7
279431	2010													

## ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
279441 2010 RO <sub>14</sub>	17.4	X	284.80947	350.16856	25.11039	3.53822	0.1572047	0.28649047	2.2789210	20	7 20.9	19.7
279442 2010 RR <sub>14</sub>	16.0	X	81.73933	139.22291	164.05262	12.24308	0.2021327	0.21432452	2.7653800	20	12 16.8	20.7
279443 2010 RZ <sub>45</sub>	17.1	X	193.53218	194.73542	185.22448	5.03581	0.1538656	0.26308735	2.4121412	20	4 10.3	20.9
279444 2010 RY <sub>46</sub>	16.0	X	238.10951	215.51027	195.98260	9.53816	0.0749783	0.17922065	3.1156167	20	7 10.1	20.7
279445 2010 RE <sub>51</sub>	16.0	X	268.22551	215.04244	182.06224	9.92562	0.0990658	0.18301392	3.0724157	20	7 25.3	20.4
279446 2010 RM <sub>59</sub>	17.2	X	294.43746	81.09575	213.53937	6.78214	0.1211987	0.26998092	2.3709042	20	4 10.9	20.2
279447 2010 RA <sub>61</sub>	15.5	X	340.56139	287.73707	8.64825	10.38056	0.0770676	0.17691446	3.1426341	20	7 3.2	19.7
279448 2010 RK <sub>65</sub>	16.9	X	234.44813	22.91174	331.57864	9.69902	0.1595350	0.26762310	2.3848093	20	4 11.4	20.6
279449 2010 RW <sub>69</sub>	17.0	X	164.41978	303.29944	127.53118	3.47120	0.1445188	0.26376802	2.4079897	20	5 17.9	20.7
279450 2010 RP <sub>70</sub>	17.6	X	301.54944	282.66890	137.96300	6.28150	0.2154772	0.29813574	2.2191842	20	11 8.5	18.8
279451 2010 RC <sub>76</sub>	16.4	X	249.85074	245.15186	76.18918	3.53207	0.2072347	0.26717229	2.3874911	20	3 17.9	20.1
279452 2010 RV <sub>77</sub>	16.5	X	73.76159	308.05342	23.49191	6.54399	0.1281386	0.21595021	2.7514838	20	—	—
279453 2010 RX <sub>81</sub>	16.2	X	260.79777	260.01693	165.06334	4.23678	0.0788442	0.18948789	3.0020313	20	8 26.1	20.4
279454 2010 RF <sub>88</sub>	15.7	X	254.25288	197.03569	181.42868	11.39322	0.0819113	0.17443840	3.1723019	20	6 18.2	20.5
279455 2010 RF <sub>99</sub>	16.8	X	23.51673	188.42613	295.55964	3.33646	0.1573334	0.23826651	2.5768791	20	1 11.2	19.3
279456 2010 RX <sub>105</sub>	16.4	X	224.39686	49.83099	3.74884	4.23533	0.1721975	0.17252678	3.1956929	20	6 19.8	21.6
279457 2010 RR <sub>112</sub>	16.3	X	77.51038	105.45889	210.76085	13.67925	0.0982620	0.21272441	2.7792300	20	12 16.8	20.6
279458 2010 RT <sub>114</sub>	15.7	X	222.72533	198.48648	214.53871	9.08683	0.0854657	0.17372527	3.1809784	20	6 24.1	20.6
279459 2010 RJ <sub>115</sub>	16.4	X	251.84066	208.07691	310.10190	4.28539	0.1003333	0.21148791	2.7900524	20	12 11.9	20.1
279460 2010 RA <sub>153</sub>	15.8	X	166.32622	302.33130	176.77790	10.15951	0.0701581	0.17675194	3.1445603	20	7 15.3	20.7
279461 2010 RO <sub>156</sub>	15.9	X	311.76213	176.82742	162.65243	9.67374	0.0876321	0.18025040	3.1037392	20	7 13.4	20.0
279462 2010 RJ <sub>179</sub>	17.3	X	264.05081	295.80931	48.51547	3.35392	0.1799172	0.27430522	2.3459207	20	5 2.2	20.3
279463 2010 SA <sub>38</sub>	16.2	X	20.70974	210.85887	159.87205	9.82640	0.1586028	0.21091593	2.7950943	20	12 24.6	20.0
279464 2010 TH <sub>160</sub>	16.3	X	85.14335	310.21345	32.93262	14.32233	0.0354631	0.21973073	2.7198326	20	—	—
279465 2010 TU <sub>165</sub>	17.2	X	204.12117	301.66697	95.55183	7.88006	0.1200463	0.26866165	2.3786594	20	5 15.3	20.7
279466 2010 UO <sub>6</sub>	15.8	X	39.93557	311.28525	144.94845	34.67150	0.2362956	0.21232792	2.7826889	20	1 17.3	18.8
279467 2010 UJ <sub>72</sub>	17.7	X	81.65885	45.13497	288.60580	2.19305	0.1840550	0.31548876	2.1370440	20	—	—
279468 2010 UR <sub>83</sub>	15.6	X	173.89525	52.77687	76.81759	10.17027	0.0969254	0.17287784	3.1913652	20	8 9.4	20.7
279469 2010 UW <sub>86</sub>	15.4	X	44.03070	306.58026	338.75244	10.01963	0.0854994	0.18863548	3.0110673	20	9 20.9	19.4
279470 2010 UJ <sub>95</sub>	16.1	X	63.99938	343.74212	58.49439	10.96503	0.2047511	0.22727534	2.6593031	20	—	—
279471 2010 VC <sub>23</sub>	16.1	X	218.26686	312.00774	132.86700	1.63748	0.1226331	0.17590213	3.1546800	20	7 26.4	21.0
279472 2010 VV <sub>26</sub>	16.1	X	209.55072	242.11642	66.71339	12.33083	0.0747439	0.23514787	2.5996129	20	2 2.8	20.1
279473 2010 VJ <sub>30</sub>	17.1	X	185.97764	302.54246	111.04963	8.28349	0.0914086	0.26301124	2.4126066	20	5 18.5	20.7
279474 2010 VX <sub>62</sub>	17.0	X	260.17021	128.19767	272.69949	5.82722	0.1126162	0.27462072	2.3441236	20	7 25.3	19.9
279475 2010 VC <sub>70</sub>	17.2	X	209.05226	164.01438	236.99306	5.52711	0.1324687	0.26439704	2.4041690	20	5 22.9	20.6
279476 2010 VP <sub>88</sub>	16.7	X	71.17284	105.89475	73.78681	7.92991	0.1085516	0.26549287	2.3975489	20	6 19.3	19.6
279477 2010 VU <sub>94</sub>	16.4	X	248.65697	202.01960	57.36269	5.24279	0.1778784	0.23752720	2.5822234	20	1 5.1	20.5
279478 2010 VE <sub>112</sub>	17.2	X	17.57692	55.37127	223.80788	6.29682	0.1147042	0.27758201	2.3274222	20	8 19.1	19.6
279479 2010 VL <sub>194</sub>	15.7	X	57.68286	75.66513	306.55394	9.19640	0.0889904	0.19543983	2.9407674	20	—	—
279480 2010 VL <sub>198</sub>	16.7	X	140.92564	145.96110	301.70504	8.06564	0.2119133	0.24082738	2.5585789	20	5 18.4	21.0
279481 2010 WG <sub>10</sub>	15.3	X	19.56068	38.27289	248.98830	7.33808	0.1179964	0.17822231	3.1272409	20	8 19.9	19.3
279482 2010 WJ <sub>14</sub>	17.1	X	24.39297	278.87386	127.80320	2.45978	0.0660380	0.21058286	2.7980408	20	—	—
279483 2010 WW <sub>16</sub>	16.8	X	130.78854	57.83992	280.06757	4.07547	0.1069411	0.22301903	2.6930315	20	—	—
279484 2010 WJ <sub>29</sub>	15.7	X	47.29639	106.11578	201.82683	9.08397	0.0796670	0.19164676	2.9794429	20	10 26.5	19.8
279485 2010 XE <sub>4</sub>	15.4	X	125.80654	339.77852	274.96415	10.42677	0.1290805	0.18545910	3.0453505	20	11 18.3	20.3
279486 2010 XM <sub>4</sub>	17.5	X	277.80043	253.38166	124.98134	4.67597	0.1538023	0.27819413	2.3240069	20	7 12.6	20.0
279487 2010 XT <sub>38</sub>	13.1	X	270.85000	2.40133	83.78036	27.46484	0.0658702	0.08097304	5.2914630	20	10 6.4	20.4
279488 2010 XN <sub>46</sub>	17.7	X	278.75813	245.96818	175.11228	4.93711	0.0880614	0.28832982	2.2692187	20	9 30.9	19.8
279489 2010 XY <sub>49</sub>	16.8	X	61.91521	268.34474	165.49380	6.32498	0.0932983	0.22793337	2.6541825	20	1 9.7	20.0
279490 2010 XG <sub>57</sub>	16.3	X	161.40862	204.01170	325.68037	11.02580	0.1889857	0.26366956	2.4085891	20	9 16.4	20.4
279491 2010 YD <sub>2</sub>	15.9	X	337.53636	97.00923	36.25024	8.37793	0.0823179	0.20897657	2.8123605	20	—	—
279492 2011 AX <sub>5</sub>	16.1	X	353.55210	248.22472	316.98301	12.56088	0.1273373	0.22901988	2.6457812	20	3 9.1	19.2
279493 2011 AA <sub>11</sub>	17.2	X	80.02972	126.24309	94.46601	3.52412	0.1389904	0.26002406	2.4310489	20	9 3.9	20.5
279494 2011 AE <sub>15</sub>	15.4	X	142.60300	148.99159	137.15057	15.09140	0.1765234	0.17315488	3.1879602	20	—	—
279495 2011 AA <sub>16</sub>	17.1	X	92.55140	56.94326	49.52098	4.82504	0.2087610	0.23460973	2.6035866	20	4 24.8	20.5
279496 2011 AE <sub>19</sub>	16.0	X	45.97951	336.33307	322.99010	9.15237	0.0386474	0.17655639	3.1468817	20	9 30.9	20.5
279497 2011 AK <sub>23</sub>	15.8	X	321.92055	286.01974	130.66927	7.08738	0.0634559	0.18399685	3.0614637	20	11 12.2	19.8
279498 2011 AY <sub>28</sub>	17.6	X	38.65864	272.37619	128.05961	5.80460	0.0718151	0.30621353	2.1799831	20	—	—
279499 2011 AU <sub>36</sub>	16.2	X	307.16571	104.20879	312.06061	7.99368	0.0679193	0.17492035	3.1664732	20	10 12.8	20.5
279500 2011 AS <sub>42</sub>	15.0	X	82.46170	94.37916	96.76578	11.04603	0.0072659	0.14961329	3.5141686	20	6 30.6	19.8
279501 2011 AE <sub>43</sub>	17.4	X	4.99183	71.85950	312.63383	5.13270	0.0938751	0.29147136	2.2528838	20	—	—
279502 2011 AQ <sub>46</sub>	17.6	X	183.59157	195.17514	297.22910	0.66255	0.1277682	0.26378296	2.4078988	20	8 26.2	21.2
279503 2011 AW <sub>50</sub>	15.7	X	172.41979	71.32182	147.42138	8.00395	0.1170033	0.17794033	3.1305439	20	11 21.4	20.7
279504 2011 AC <sub>52</sub>	15.1	X	41.20023	340.91066	120.32076	13.43649	0.0661634	0.20036765	2.8923509	20	1 18.7	18.8
279505 2011 AD <sub>52</sub>	15.7	X	335.38832	127.23122	5.87291	11.64400	0.1770087	0.19307537	2.9647276	20	—	—
279506 2011 AQ <sub>55</sub>	16.3	X	306.14217	252.04826	175.82042	5.30412	0.3518970	0.18905763	3.0065833	20	9 29.0	18.7
279507 2011 AL <sub>57</sub>	16.7	X	9.04749	179.25509	122.63979	12.25384	0.2217901	0.26788641	2.3832463	20	10 2.5	19.1
279508 2011 AO <sub>58</sub>	17.0	X	306.64944	65.00894	125.78568	4.25904	0.0316313	0.21439860	2.7647429	20	1 3.0	20.6
279509 2011 AH <sub>61</sub>	16.7	X	209.28329	188.94685	59.99690	2.91247	0.0114804	0.20373631	2.8603802	20	—	—
279510 2011 AZ <sub>70</sub>	15.5	X	217.85852	219.04829	305.25585	10.23445	0.0606027	0.18190689	3.0848682	20	11 3.6	20.2
279511 2011 AQ <sub>72</sub>	13.3	X	325.85861	324.14878	105.82245	6.35478	0.0365377	0.08359898	5.1800674	20	11 11.9	20.0
279512 2011 AK <sub>74</sub>	15.3	X	282.60224	310.73362	136.59806	15.99728	0.0649465	0.17854444	3.1234778	20	10 29.1	19.8
279513 2011 AB <sub>77</sub>	15.7	X	127.59936	1.99497	285.33917	10.77847	0.1129655	0.19019689	2.9945658	20	12 29.5	20.3
279514 2011 AO <sub>77</sub>	16.5											

## ELEMENTS AND OPPOSITION DATES IN 2020

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
279521 2011 BW <sub>26</sub>	16.8 <sup>m</sup>	X	200.13916	334.87652	131.59568	6.58787	0.1186566	0.26413247	2.4057741	20	8 10.5	20.1
279522 2011 BG <sub>27</sub>	17.3	X	92.67034	127.15110	322.12402	3.61733	0.1455510	0.22914730	2.6448003	20	3 21.9	20.9
279523 2011 BK <sub>27</sub>	16.3	X	175.21461	260.03835	303.35894	4.09821	0.1228351	0.17096176	3.2151660	20	11 1.4	21.4
279524 2011 BZ <sub>27</sub>	17.3	X	156.03068	55.08317	142.43065	2.35862	0.1628622	0.26769609	2.3843758	20	10 22.3	21.0
279525 2011 BM <sub>33</sub>	16.2	X	18.87530	275.19549	133.78317	9.98790	0.0464118	0.19288528	2.9666752	20	—	—
279526 2011 BE <sub>51</sub>	16.6	X	121.63695	170.05071	78.44719	6.02727	0.1071648	0.27526560	2.3404611	20	11 23.1	20.0
279527 2011 BJ <sub>51</sub>	17.1	X	154.00168	355.90152	173.65081	4.20531	0.1384961	0.26303274	2.4124751	20	9 13.4	20.8
279528 2011 BE <sub>52</sub>	15.7	X	125.39673	190.96123	114.89072	10.40806	0.0475464	0.19279851	2.9675652	20	—	—
279529 2011 BF <sub>52</sub>	15.7	X	227.87252	39.23866	90.83144	5.24541	0.0961311	0.17225307	3.1990773	20	10 5.3	20.5
279530 2011 BM <sub>52</sub>	17.1	X	102.92594	73.32100	16.41000	6.15480	0.1992346	0.23308328	2.6149415	20	4 12.9	20.6
279531 2011 BL <sub>53</sub>	15.9	X	223.75493	89.77889	42.82943	0.87821	0.1444641	0.17172256	3.2056626	20	9 26.2	20.8
279532 2011 BG <sub>54</sub>	15.9	X	171.25056	197.25860	128.25721	6.07774	0.0677443	0.21202795	2.4124751	20	1 12.6	19.8
279533 2011 BA <sub>58</sub>	16.3	X	229.13982	179.77226	115.73224	4.56990	0.1752691	0.21770231	2.7367011	20	2 2.2	20.7
279534 2011 BT <sub>58</sub>	17.3	X	268.01719	295.58164	330.82826	2.78554	0.0484978	0.22159958	2.7045194	20	2 15.8	21.0
279535 2011 BQ <sub>60</sub>	17.3	X	193.65064	67.35883	27.21301	4.34089	0.1750206	0.26006274	2.4308079	20	7 16.1	21.2
279536 2011 CV	16.5	X	247.20030	52.08340	13.94103	6.63698	0.0895434	0.26394528	2.4069115	20	8 18.9	19.7
279537 2011 CP <sub>6</sub>	17.7	X	269.74214	253.70033	303.85896	6.36387	0.0683537	0.30541927	2.1837609	20	—	—
279538 2011 CE <sub>7</sub>	16.5	X	221.89923	306.70980	154.99243	22.55459	0.2277735	0.27014879	2.3699219	20	8 16.5	20.3
279539 2011 CM <sub>10</sub>	15.7	X	324.00399	319.74502	115.83165	9.42104	0.0752672	0.18542925	3.0456773	20	12 7.8	19.6
279540 2011 CJ <sub>16</sub>	15.8	X	3.75426	108.37933	307.59749	8.30085	0.0557618	0.18972647	2.9995131	20	—	—
279541 2011 CZ <sub>17</sub>	17.2	X	193.13034	109.10222	357.31519	2.23459	0.1613564	0.26133624	2.4229045	20	7 31.5	20.8
279542 2011 CR <sub>18</sub>	15.4	X	257.55145	333.45861	143.76445	11.24176	0.1837705	0.17666630	3.1455764	20	10 14.0	19.9
279543 2011 CZ <sub>22</sub>	16.8	X	178.45128	147.73570	192.24568	4.89429	0.0586075	0.21768429	2.7368520	20	2 4.4	20.8
279544 2011 CV <sub>23</sub>	15.7	X	118.49112	220.97582	138.03308	12.74106	0.0206766	0.20602422	2.8391644	20	—	—
279545 2011 CU <sub>29</sub>	16.8	X	111.35815	326.43706	275.03722	3.47858	0.0670420	0.27278843	2.3546087	20	10 30.3	20.0
279546 2011 CA <sub>34</sub>	16.6	X	209.30187	320.86020	323.63411	3.47942	0.0302909	0.21265665	2.7798204	20	1 3.9	20.4
279547 2011 CL <sub>34</sub>	16.5	X	291.81689	64.45050	28.71777	4.69813	0.1028061	0.18064733	3.0991911	20	11 7.5	20.3
279548 2011 CU <sub>34</sub>	17.2	X	206.65513	177.97336	319.08096	4.97811	0.1023282	0.27058771	2.3673584	20	9 28.0	20.4
279549 2011 CP <sub>39</sub>	15.4	X	66.80779	210.69689	115.10321	10.75133	0.0711907	0.18051476	3.1007083	20	12 8.1	19.9
279550 2011 CE <sub>42</sub>	16.6	X	309.42754	296.23524	181.35824	10.85976	0.2558944	0.19217691	2.9739608	20	—	—
279551 2011 CK <sub>42</sub>	17.5	X	184.36337	344.58386	231.21053	2.86268	0.2055399	0.28063085	2.3105344	20	12 8.6	20.8
279552 2011 CD <sub>44</sub>	17.8	X	4.85188	71.65051	30.15859	3.88359	0.0862687	0.30941390	2.1649249	20	—	—
279553 2011 CF <sub>47</sub>	15.2	X	233.61774	170.88959	332.64663	26.86102	0.0681300	0.17837161	3.1254956	20	10 14.3	20.3
279554 2011 CX <sub>57</sub>	17.2	X	13.82488	95.99693	321.65919	10.87805	0.2587117	0.19923811	2.9032723	20	—	—
279555 2011 CT <sub>66</sub>	17.2	X	338.91163	336.77585	217.52565	1.71388	0.1212959	0.22026362	2.7154441	20	2 5.8	20.4
279556 2011 CU <sub>68</sub>	15.7	X	177.28434	289.91229	61.25774	12.71774	0.0875186	0.20997276	2.8034582	20	2 26.8	20.2
279557 2011 CZ <sub>68</sub>	16.7	X	132.56142	205.68676	6.39784	7.14453	0.0737441	0.26906668	2.3762718	20	10 15.2	20.1
279558 2011 CV <sub>72</sub>	15.8	X	24.11383	278.08961	293.14736	13.09295	0.1203594	0.23345759	2.6121456	20	5 16.3	18.9
279559 2011 CV <sub>74</sub>	17.4	X	215.53015	137.92688	357.30115	4.35300	0.1678501	0.27286578	2.3541638	20	9 30.3	20.6
279560 2011 CF <sub>77</sub>	17.2	X	146.38281	212.47181	327.12644	4.14122	0.1344896	0.26256618	2.4153321	20	9 17.7	21.0
279561 2011 CF <sub>78</sub>	15.6	X	162.34850	86.36820	177.32813	9.35934	0.0374695	0.17784691	3.1316400	20	—	—
279562 2011 CH <sub>78</sub>	16.7	X	231.77373	73.43073	234.35993	1.48404	0.0658725	0.22067060	2.7121044	20	2 23.3	20.6
279563 2011 DF <sub>1</sub>	16.5	X	202.56770	13.15625	285.11800	2.87105	0.0776706	0.21025931	2.8009104	20	1 13.6	20.6
279564 2011 DO <sub>1</sub>	16.5	X	185.34935	36.18421	334.11227	5.78357	0.0677620	0.22353749	2.6888658	20	3 20.1	20.5
279565 2011 DT <sub>1</sub>	14.9	X	109.84946	294.11950	161.64844	14.72768	0.2079238	0.12653027	3.9295222	20	5 6.8	21.0
279566 2011 DF <sub>3</sub>	17.4	X	156.87544	156.10914	344.97159	6.06219	0.0473397	0.25537034	2.4604946	20	8 10.1	20.7
279567 2011 DP <sub>4</sub>	15.4	X	273.99914	137.10277	342.86466	22.04089	0.0190577	0.17670767	3.1450855	20	11 18.3	20.2
279568 2011 DG <sub>8</sub>	16.4	X	251.92528	65.62427	72.98459	2.07281	0.1253518	0.17232867	3.1981416	20	11 6.2	21.0
279569 2011 DJ <sub>8</sub>	16.7	X	54.80590	337.86007	151.47598	5.83994	0.1114975	0.21807382	2.7335920	20	3 18.4	19.9
279570 2011 DN <sub>8</sub>	16.4	X	112.37980	52.99391	8.22276	5.37843	0.0660112	0.21387665	2.7692392	20	3 3.7	20.1
279571 2011 DN <sub>10</sub>	17.1	X	175.25762	150.25984	113.56762	6.62420	0.1796107	0.28456591	2.2891845	20	—	—
279572 2011 DU <sub>12</sub>	15.9	X	263.59778	357.56134	155.30569	5.90846	0.1025776	0.17936928	3.1138953	20	12 13.0	20.1
279573 2011 DZ <sub>12</sub>	16.3	X	27.36443	281.99879	307.45386	8.56211	0.0822176	0.24008576	2.5638451	20	6 17.7	19.4
279574 2011 DH <sub>14</sub>	16.9	X	183.17055	9.75719	319.29910	5.52029	0.0530944	0.21427953	2.7657671	20	1 29.3	20.9
279575 2011 DN <sub>15</sub>	18.1	X	143.54454	15.96492	258.34229	1.77717	0.1265076	0.28865953	2.2674904	20	—	—
279576 2011 DZ <sub>17</sub>	16.6	X	270.23712	122.67190	34.90225	2.08946	0.1023878	0.18241616	3.0791240	20	12 28.1	20.5
279577 2011 DY <sub>22</sub>	16.2	X	62.70819	339.09656	17.29343	6.95982	0.2792365	0.28394803	2.2925042	20	—	—
279578 2011 DF <sub>23</sub>	17.6	X	161.65968	200.81299	63.15998	2.76003	0.1144525	0.28296032	2.2978360	20	—	—
279579 2011 DG <sub>23</sub>	16.7	X	48.30419	224.51634	351.40048	5.43993	0.0863571	0.23784062	2.5799544	20	7 3.1	19.8
279580 2011 DJ <sub>23</sub>	16.6	X	38.92054	326.36458	166.10418	4.02212	0.0662434	0.21348342	2.7726387	20	2 21.9	19.8
279581 2011 DR <sub>23</sub>	16.6	X	60.43487	38.84649	83.39819	5.42800	0.0225089	0.21464608	2.7626174	20	3 9.4	20.3
279582 2011 DP <sub>28</sub>	17.4	X	285.07044	242.79656	151.95963	3.14686	0.1961855	0.26937966	2.3744308	20	8 10.2	19.6
279583 2011 DE <sub>42</sub>	17.4	X	91.27752	100.45434	355.31212	4.14215	0.1134995	0.22238882	2.6981168	20	3 25.3	20.8
279584 2011 DY <sub>46</sub>	16.6	X	28.63206	183.42822	356.88719	5.96354	0.0611968	0.22654331	2.6650287	20	4 7.6	19.9
279585 2011 DX <sub>49</sub>	15.6	X	264.83294	107.96887	351.20505	17.72576	0.1166198	0.17097484	3.2150020	20	10 1.3	20.1
279586 2011 EE	16.1	X	71.10094	333.75250	140.88664	6.02974	0.0194147	0.21610265	2.7501897	20	3 11.7	19.8
279587 2011 EJ <sub>3</sub>	15.8	X	229.00737	184.14152	341.54552	8.36871	0.0190810	0.17168749	3.2060992	20	11 23.1	20.5
279588 2011 ER <sub>3</sub>	16.5	X	341.79816	59.84936	358.53040	5.61323	0.0795081	0.17533221	3.1615125	20	12 7.5	20.6
279589 2011 EB <sub>6</sub>	17.1	X	245.60887	47.28517	123.00316	3.57742	0.1019362	0.28274758	2.2989884	20	—	—
279590 2011 EO <sub>6</sub>	17.5	X	65.93599	246.60319	277.85560	2.22573	0.0975200	0.23576956	2.5950410	20	5 18.3	20.7
279591 2011 EY <sub>6</sub>	17.8	X	185.46695	331.32793	263.59553	3.17785	0.1156218	0.28850552	2.2682972	20	—	—
279592 2011 EB <sub>8</sub>	17.6	X	243.31285	212.31852	32.23342	5.16949	0.1462945	0.29715463	2.2240662	20	—	—
279593 2011 EL <sub>8</sub>	17.3	X	15.59847	193.02055	34.21980	2.41171	0.1299605	0.23736084	2.5834298	20	5 27.3	19.9
279594 2011 ET <sub>9</sub>	16.8	X	104.96201	60.41377	184.01364	6.22016	0.0852358	0.26240459	2.4163236	20	10 28.3	20.1
279595 2011 EU <sub>9</sub>	18.1	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>
279601 2011 ET <sub>16</sub>	16.5	X	17.16427	344.73390	150.03003	7.23818	0.0689684	0.21217211	2.7840510	20	1 23.4	19.9
279602 2011 EX <sub>17</sub>	15.4	X	184.72901	239.02040	359.16374	26.47601	0.2248901	0.17301832	3.1896375	20	12 13.1	21.3
279603 2011 EU <sub>19</sub>	16.9	X	194.83763	88.48077	155.74832	5.44265	0.1320542	0.28671223	2.2777457	20	—	—
279604 2011 EQ <sub>21</sub>	16.6	X	18.98670	130.77178	149.00438	7.48494	0.1766097	0.23985464	2.5654918	20	8 29.6	19.0
279605 2011 EF <sub>24</sub>	17.0	X	75.41386	129.83501	25.89457	6.43788	0.1865331	0.23267876	2.6179713	20	6 2.8	20.4
279606 2011 ER <sub>24</sub>	15.9	X	143.48031	128.91018	140.59972	4.81722	0.0631803	0.17287971	3.1913421	20	12 20.1	20.7
279607 2011 EX <sub>24</sub>	15.6	X	358.87615	280.17143	157.80725	9.22558	0.0578818	0.18372836	3.0644456	20	—	—
279608 2011 EY <sub>24</sub>	15.9	X	280.02980	111.25531	23.15986	10.03386	0.1170716	0.17832868	3.1259972	20	12 8.7	20.0
279609 2011 EA <sub>25</sub>	16.2	X	149.02374	74.85604	15.57703	14.10446	0.0858091	0.23349173	2.6118910	20	5 19.4	20.3
279610 2011 EH <sub>25</sub>	16.2	X	12.41099	350.31843	170.97848	14.00002	0.1147888	0.21238610	2.7821806	20	2 17.3	19.5
279611 2011 EQ <sub>25</sub>	17.3	X	212.28931	100.64076	47.63913	5.54691	0.1332475	0.26846480	2.3798220	20	10 19.1	20.4
279612 2011 EV <sub>25</sub>	17.0	X	264.83907	119.31635	355.16520	2.48813	0.1201611	0.27754018	2.3276560	20	11 16.8	19.6
279613 2011 ER <sub>26</sub>	17.5	X	198.17388	112.48537	100.13870	1.72816	0.0978235	0.28246721	2.3005094	20	—	—
279614 2011 EK <sub>30</sub>	17.5	X	250.75228	180.86041	58.81570	7.19674	0.2055119	0.30071270	2.2064878	20	—	—
279615 2011 EV <sub>36</sub>	15.6	X	170.42030	236.85721	2.06328	5.40683	0.1377558	0.17135193	3.2102835	20	12 8.1	20.7
279616 2011 ED <sub>37</sub>	18.4	X	301.39331	176.77512	23.66759	2.85312	0.0210809	0.30953569	2.1643570	20	—	—
279617 2011 EP <sub>37</sub>	16.0	X	178.95482	160.22660	135.12938	7.70369	0.1333758	0.18881469	3.0091618	20	—	—
279618 2011 EH <sub>38</sub>	16.7	X	267.12524	161.83061	32.34358	9.88599	0.0470537	0.18911491	3.0059762	20	—	—
279619 2011 ED <sub>39</sub>	17.7	X	118.47008	167.77136	91.75168	2.50238	0.1598435	0.26577772	2.3958355	20	12 2.7	21.5
279620 2011 EH <sub>39</sub>	16.0	X	113.69454	130.39675	176.40511	11.39200	0.0659784	0.17248048	3.1962647	20	12 31.9	21.0
279621 2011 EW <sub>41</sub>	16.7	X	191.27458	73.33240	81.77944	7.37962	0.1061506	0.26492109	2.4009974	20	10 9.4	20.2
279622 2011 EX <sub>42</sub>	16.8	X	102.11867	356.24124	132.63900	4.37123	0.1609614	0.23252307	2.6191398	20	5 29.7	20.6
279623 2011 EF <sub>44</sub>	15.5	X	246.42635	267.94630	290.36637	8.00379	0.0728028	0.19043191	2.9921009	20	—	—
279624 2011 EH <sub>45</sub>	17.7	X	290.09371	70.20377	61.29908	4.55528	0.1165832	0.28905740	2.2654092	20	—	—
279625 2011 EQ <sub>45</sub>	16.5	X	247.02643	199.16009	72.62853	3.18295	0.0141684	0.20687568	2.8313687	20	2 3.9	20.4
279626 2011 ET <sub>45</sub>	15.9	X	313.40974	280.51993	166.12993	11.55754	0.1691343	0.17779335	3.1322689	20	11 30.5	19.6
279627 2011 EA <sub>46</sub>	17.2	X	105.26044	152.05426	86.93213	3.75296	0.1328164	0.25885985	2.4383325	20	10 24.7	20.8
279628 2011 EN <sub>50</sub>	15.4	X	345.77454	334.63081	85.02779	10.37027	0.0496382	0.17863105	3.1224686	20	12 14.8	19.6
279629 2011 EG <sub>51</sub>	16.1	X	64.55070	47.57315	86.20039	13.36145	0.0537123	0.21626281	2.7488317	20	4 7.3	19.9
279630 2011 EF <sub>53</sub>	15.8	X	295.55015	85.34215	74.84795	7.56383	0.1414600	0.18735313	3.0247913	20	—	—
279631 2011 EG <sub>53</sub>	16.2	X	29.05308	244.76735	90.16928	6.80278	0.1576974	0.26113936	2.4241221	20	12 3.2	19.2
279632 2011 ES <sub>56</sub>	17.3	X	85.20506	277.50700	6.70756	4.81291	0.2136448	0.26429458	2.4047903	20	12 4.9	21.2
279633 2011 EL <sub>58</sub>	17.0	X	214.32555	255.49659	160.82577	3.85532	0.0475798	0.24237662	2.5476645	20	6 24.5	20.5
279634 2011 EO <sub>68</sub>	17.3	X	55.99968	80.26524	157.19603	3.06314	0.0301429	0.24690932	2.5163887	20	8 4.9	20.5
279635 2011 EN <sub>69</sub>	17.2	X	271.61311	353.21706	135.96714	7.27656	0.0438979	0.27992831	2.3143986	20	12 29.1	19.8
279636 2011 EM <sub>70</sub>	15.9	X	180.13208	336.66594	25.63111	6.64617	0.0495771	0.21224763	2.7833906	20	3 8.7	20.0
279637 2011 EX <sub>70</sub>	17.2	X	170.48773	2.89317	173.20110	4.59768	0.0880831	0.26535079	2.3984047	20	10 11.9	20.5
279638 2011 EM <sub>71</sub>	16.5	X	342.98474	151.81478	124.43041	5.26360	0.1852679	0.22760130	2.6567635	20	6 3.5	18.9
279639 2011 EW <sub>72</sub>	17.6	X	122.22894	20.64150	205.13317	5.51460	0.0927170	0.26109900	2.4243719	20	10 22.3	21.0
279640 2011 EC <sub>73</sub>	17.0	X	228.23149	240.56568	225.94431	5.78539	0.0863393	0.26515651	2.3995760	20	9 14.5	20.3
279641 2011 EG <sub>73</sub>	16.1	X	70.28302	311.38545	90.93189	3.41262	0.0686662	0.19272245	2.9683459	20	—	—
279642 2011 ES <sub>73</sub>	17.6	X	97.43375	91.33155	154.68729	5.94074	0.1603061	0.25497786	2.4630188	20	10 27.7	21.4
279643 2011 EH <sub>74</sub>	16.7	X	119.07827	181.51661	151.93238	3.22360	0.1140260	0.23629446	2.5911965	20	6 23.3	20.4
279644 2011 EM <sub>74</sub>	16.4	X	321.51414	316.34665	268.97035	3.34271	0.1069601	0.21065507	2.7974013	20	2 23.2	19.9
279645 2011 EF <sub>75</sub>	16.0	X	210.24958	27.34873	188.01860	25.67013	0.1828164	0.17745184	3.1362864	20	12 15.3	21.4
279646 2011 ER <sub>75</sub>	16.1	X	354.27439	352.59978	203.72614	4.59322	0.0995474	0.21483942	2.7609597	20	3 6.2	19.4
279647 2011 ET <sub>75</sub>	15.6	X	274.70420	142.93022	29.73510	17.68093	0.1426400	0.18494281	3.0510155	20	—	—
279648 2011 FR	16.2	X	10.30375	181.14153	38.76254	11.93965	0.1320263	0.22640108	2.6661447	20	5 5.6	18.9
279649 2011 FS <sub>1</sub>	15.8	X	284.05258	331.72868	155.54072	4.52632	0.0577636	0.17677900	3.1442393	20	12 13.6	20.1
279650 2011 FT <sub>1</sub>	16.6	X	45.62540	34.15923	172.21955	12.09908	0.1072442	0.23317640	2.6142452	20	6 17.8	20.0
279651 2011 FB <sub>4</sub>	16.2	X	237.54714	64.38919	153.73058	9.55523	0.1917655	0.18491385	3.0513340	20	—	—
279652 2011 FJ <sub>4</sub>	17.3	X	226.74856	105.03867	156.54184	2.85935	0.1630524	0.29780672	2.2208184	20	—	—
279653 2011 FP <sub>4</sub>	17.5	X	230.64930	91.29746	53.22381	5.75974	0.1638934	0.27555658	2.3388132	20	11 2.0	20.4
279654 2011 FU <sub>5</sub>	17.0	X	169.45894	115.11784	88.56677	5.68499	0.1774681	0.26668088	2.3904232	20	11 10.9	20.7
279655 2011 FB <sub>7</sub>	16.9	X	352.90907	159.08465	24.48425	3.07883	0.1413306	0.21245655	2.7815655	20	2 15.1	20.0
279656 2011 FT <sub>7</sub>	15.1	X	176.47400	222.77235	21.52098	27.73983	0.1893401	0.17212691	3.2006403	20	12 12.6	20.9
279657 2011 FP <sub>9</sub>	16.0	X	232.25188	83.59733	138.32382	9.42154	0.0782713	0.18708126	3.0277211	20	—	—
279658 2011 FC <sub>10</sub>	17.2	X	125.14041	92.33307	136.85682	6.96379	0.1037105	0.26188950	2.4194909	20	11 2.0	20.8
279659 2011 FS <sub>10</sub>	17.3	X	240.34341	199.07138	32.74797	3.58185	0.1009916	0.29866779	2.2165479	20	—	—
279660 2011 FX <sub>10</sub>	16.5	X	321.41541	80.60129	151.36048	5.72782	0.0986459	0.21452343	2.7636703	20	3 5.6	19.9
279661 2011 FA <sub>11</sub>	17.7	X	123.47187	65.27550	145.14258	2.90480	0.1648229	0.25790904	2.4443215	20	10 7.5	21.6
279662 2011 FB <sub>11</sub>	16.7	X	207.48682	73.21254	337.80784	2.68304	0.0225978	0.23698774	2.5861406	20	6 10.2	20.1
279663 2011 FK <sub>11</sub>	16.7	X	339.51075	346.22727	212.54093	4.38689	0.0956741	0.21170627	2.7881335	20	2 16.1	20.2
279664 2011 FO <sub>11</sub>	16.4	X	312.84280	91.50070	78.19506	4.31097	0.0879480	0.19257549	2.9698559	20	—	—
279665 2011 FC <sub>12</sub>	16.0	X	214.45618	120.07604	147.63176	0.92034	0.1333542	0.18439714	3.0570316	20	—	—
279666 2011 FV <sub>17</sub>	16.0	X	228.85882	143.36635	119.18871	6.29467	0.2243832	0.19162664	2.9796514	20	—	—
279667 2011 FD <sub>18</sub>	17.7	X	55.62420	259.04199	341.72380	2.81084	0.1223162	0.24249183	2.5468575	20	8 24.3	20.8
279668 2011 FP <sub>18</sub>	17.1	X	357.13311	7.53326	326.40893	1.03748	0.1021269	0.25329951	2.4738868	20	10 1.2	19.6
279669 2011 FJ <sub>22</sub>	17.3	X	72.85919	84.35030	41.05632	5.41116	0.2184465	0.22363230	2.6881058	20	4 25.4	20.5
279670 2011 FK <sub>23</sub>	17.4	X	170.49576	81.44900	153.17690	7.14596	0.0762056	0.27472152	2.3435502	20	12 28.6	20.6
279671 2011 FZ <sub>23</sub>	17.7	X	164.95671	187.82842	10.94294	1.61528	0.1318055	0.26712530	2.3877712	20	11 1.1	21.2
279672 2011 FE <sub>28</sub>	14.9	X	228.09108	184.96297	17.52729	14.24440	0.1315023	0.17561910	3.1580685	20	12 23.7	19.8
279673 2011 FA <sub>29</sub>	16.3	X	358.17709	237.62859	25.33390	17.38050	0.1811248	0.23127948	2.6285201	20	6 13.9	19.1
279674 2011 FU <sub>29</sub>	15.6	X	166.96489	142.23642	117.77844	3.30936	0.0766502	0.17247732	3.1963038	20		

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Planet	H	G	M	$\omega$	$\Omega$	$i$	$e$	$\mu$	$a$	TE	Oppos.	V		
279681	2011	FV <sub>32</sub>	17.8	X	276.90914	85.03614	127.31432	3.71282	0.0512952	0.29846802	2.2175368	20	—	—
279682	2011	FY <sub>32</sub>	17.4	X	209.57263	131.92052	51.11681	6.99220	0.0410256	0.27372877	2.3492131	20	12 13.1	20.4
279683	2011	FM <sub>33</sub>	17.4	X	138.18809	81.49586	121.79767	3.40700	0.1149057	0.25739623	2.4475670	20	10 11.9	21.0
279684	2011	FO <sub>34</sub>	16.7	X	14.96710	25.45772	163.54535	6.30627	0.0381652	0.22047308	2.7137240	20	4 1.7	20.0
279685	2011	FZ <sub>34</sub>	16.2	X	196.16811	107.85180	167.53043	10.25110	0.2000750	0.18487144	3.0518007	20	—	—
279686	2011	FN <sub>36</sub>	17.5	X	269.50601	116.10929	57.77891	3.80614	0.1043765	0.29086606	2.2560082	20	—	—
279687	2011	FQ <sub>36</sub>	17.0	X	139.02080	205.78652	71.63716	4.31354	0.1606345	0.27625693	2.3348586	20	—	—
279688	2011	FS <sub>37</sub>	17.1	X	228.58290	283.88485	316.40545	5.62906	0.1299554	0.29701365	2.2247700	20	—	—
279689	2011	FT <sub>40</sub>	16.5	X	218.01109	57.99677	254.47309	3.07975	0.0908110	0.20994418	2.8037126	20	2 13.9	20.8
279690	2011	FB <sub>41</sub>	16.9	X	105.15299	310.06421	300.87329	5.78370	0.0990965	0.25949804	2.4343331	20	11 2.8	20.5
279691	2011	FN <sub>42</sub>	17.5	X	265.78336	90.90125	76.52037	7.95170	0.0485075	0.28905106	2.2654423	20	—	—
279692	2011	FQ <sub>43</sub>	15.6	X	141.49447	249.30301	48.81085	10.46456	0.1947390	0.17586880	3.1550786	20	—	—
279693	2011	FD <sub>44</sub>	15.6	X	118.37092	283.99524	11.32267	4.84148	0.1264539	0.17062884	3.2193468	20	12 26.8	20.8
279694	2011	FE <sub>45</sub>	16.5	X	180.56343	204.15567	102.49390	4.14054	0.0540931	0.19046815	2.9917214	20	1 2.7	20.7
279695	2011	FX <sub>46</sub>	15.5	X	22.26493	179.23388	214.48676	13.56129	0.1244788	0.16873501	3.2433906	20	—	—
279696	2011	FF <sub>47</sub>	17.7	X	284.72125	343.30449	156.63500	1.68267	0.1446463	0.28404406	2.2919875	20	—	—
279697	2011	FQ <sub>55</sub>	17.1	X	65.02721	105.75695	33.65064	4.96015	0.2076875	0.22552228	2.6730664	20	4 30.2	20.3
279698	2011	FA <sub>56</sub>	16.5	X	332.37317	331.46786	343.15825	4.17456	0.3293326	0.23515751	2.5995418	20	6 20.3	18.0
279699	2011	FK <sub>56</sub>	16.4	X	119.69776	280.59163	193.05455	11.33967	0.1336046	0.23256350	2.6188363	20	5 26.8	20.4
279700	2011	FN <sub>55</sub>	16.4	X	35.97748	282.71006	354.99960	10.43046	0.1137474	0.23362782	2.6108766	20	6 28.4	19.6
279701	2011	FC <sub>63</sub>	18.0	X	174.47773	257.35554	7.77485	3.94220	0.1487310	0.28425102	2.2908748	20	—	—
279702	2011	FN <sub>68</sub>	16.4	X	221.67964	334.14850	340.48556	3.77798	0.0571165	0.21009656	2.8023567	20	2 23.2	20.4
279703	2011	FQ <sub>92</sub>	15.9	X	225.55918	338.27702	3.85412	16.72803	0.0717167	0.22092988	2.7099821	20	3 29.4	19.9
279704	2011	FS <sub>140</sub>	15.9	X	172.59854	76.55498	176.88977	8.95557	0.1122705	0.17297550	3.1901638	20	12 28.3	21.0
279705	2011	FB <sub>142</sub>	16.4	X	324.05321	184.93664	92.40393	4.92622	0.1972788	0.22056220	2.7112929	20	4 26.9	19.4
279706	2011	FY <sub>149</sub>	15.4	X	286.05722	243.65710	259.62867	8.80703	0.0698581	0.18118825	3.0930198	20	—	—
279707	2011	FE <sub>150</sub>	15.9	X	300.12623	324.80006	200.31063	13.47317	0.0987506	0.18517356	3.0484804	20	—	—
279708	2011	GN <sub>3</sub>	16.6	X	35.42778	93.15029	154.79060	4.68619	0.1866263	0.23616770	2.5921237	20	8 12.3	19.4
279709	2011	GH <sub>4</sub>	16.6	X	142.90994	321.42182	179.39956	9.62808	0.0120478	0.23963162	2.5670834	20	7 16.7	20.2
279710	2011	GK <sub>12</sub>	16.9	X	270.85175	53.32884	226.06413	3.36521	0.0685697	0.21081356	2.7959990	20	3 3.5	20.8
279711	2011	GJ <sub>31</sub>	17.6	X	196.49151	47.93577	177.69740	2.20467	0.1618250	0.27862194	2.3216273	20	—	—
279712	2011	GY <sub>46</sub>	15.4	X	344.99496	312.76264	23.81217	14.03799	0.3565283	0.23769470	2.5810102	20	10 4.5	16.4
279713	2011	GB <sub>47</sub>	17.1	X	277.81302	354.48435	28.81062	3.78047	0.0384582	0.24193860	2.5507385	20	8 5.9	20.3
279714	2011	GG <sub>48</sub>	17.1	X	20.74977	32.15185	214.45006	3.04388	0.1405587	0.23207443	2.6225143	20	7 6.7	19.9
279715	2011	GD <sub>55</sub>	16.1	X	265.65543	168.38711	125.56301	5.12342	0.0793255	0.21154826	2.7895217	20	3 17.7	20.1
279716	2011	GJ <sub>57</sub>	14.9	X	147.91089	172.65695	46.01169	16.11398	0.0132466	0.15631662	3.4129710	20	10 25.3	19.8
279717	2011	GK <sub>59</sub>	15.3	X	358.68688	280.96771	145.48327	16.88399	0.0732653	0.17720202	3.1392334	20	—	—
279718	1579	T-2	17.8	X	323.18042	149.86986	191.54994	5.03827	0.2764218	0.29276683	2.2462330	20	7 27.6	18.8
279719	5449	T-2	15.7	X	89.38755	101.14188	250.18967	7.60017	0.1496527	0.19443779	2.9508622	20	—	—
279720	5475	T-2	16.4	X	151.24578	47.42311	344.43887	14.14929	0.2458058	0.22110051	2.7085876	20	3 21.3	21.1
279721	1172	T-3	16.0	X	271.47772	154.15236	216.97016	16.99698	0.2530381	0.17878961	3.1206222	20	6 5.9	20.8
279722	5741	T-3	16.2	X	157.69353	256.74855	126.81813	7.13274	0.1587236	0.21847704	2.7302276	20	3 17.2	20.5
279723	Wittenberg		16.7	X	350.06933	105.77930	257.03641	3.02582	0.2979385	0.23939373	2.5687837	20	11 22.1	18.6
279724	1991	RL <sub>28</sub>	16.8	X	49.81606	141.11483	145.69994	5.49118	0.2254506	0.24147318	2.5540150	20	11 3.6	20.4
279725	1993	DZ <sub>1</sub>	17.2	X	8.28483	195.89331	103.90186	5.83419	0.1139402	0.30129922	2.2036234	20	9 14.4	19.2
279726	1993	TG <sub>30</sub>	15.6	X	336.24123	358.66367	36.50152	11.01977	0.2850175	0.18268429	3.0761103	20	11 7.1	17.9
279727	1994	HH	16.9	X	133.67956	204.10585	307.05589	0.67256	0.0668669	0.23543012	2.5975348	20	7 24.3	20.5
279728	1994	SM <sub>1</sub>	17.0	X	191.98765	214.14592	26.57410	5.69343	0.1098440	0.27660275	2.3329121	20	—	—
279729	1995	HU <sub>1</sub>	17.0	X	334.67362	206.52699	96.78032	10.68386	0.2205521	0.27824113	2.3237451	20	6 26.2	18.4
279730	1995	MA <sub>6</sub>	17.0	X	179.54797	124.20898	212.36981	4.77511	0.1778999	0.29968310	2.2115387	20	1 29.2	20.4
279731	1995	OC <sub>9</sub>	16.3	X	257.29827	113.09358	160.82923	11.56251	0.0525863	0.22282724	2.6945766	20	2 10.7	20.3
279732	1995	UC <sub>66</sub>	17.0	X	11.85540	268.86547	26.00172	3.27721	0.1331921	0.23315571	2.6143999	20	9 1.6	19.7
279733	1995	UZ <sub>78</sub>	17.7	X	329.88566	4.71160	108.60624	2.97184	0.1577363	0.28323402	2.2963554	20	—	—
279734	1995	VC <sub>10</sub>	17.0	X	166.47756	228.11590	208.57182	1.90004	0.0480839	0.22366467	2.2878465	20	5 24.2	20.7
279735	1995	WB <sub>13</sub>	16.9	X	94.21657	351.93906	127.87199	4.41119	0.1476651	0.21702707	2.7423746	20	5 7.3	20.7
279736	1995	WF <sub>13</sub>	16.6	X	209.08331	214.45051	177.45319	4.89261	0.0256168	0.22161622	2.7043840	20	5 18.6	20.4
279737	1996	UO <sub>3</sub>	15.9	X	194.60552	170.69208	219.16075	9.76446	0.1072098	0.19227383	2.9729613	20	4 26.2	20.5
279738	1997	AW <sub>9</sub>	16.2	X	204.85109	290.56485	134.99216	9.38694	0.0997212	0.22846366	2.6500738	20	6 21.9	20.2
279739	1997	EF <sub>1</sub>	15.8	X	273.52359	10.00671	292.40333	9.53288	0.2027466	0.17607052	3.1526684	20	3 17.6	20.8
279740	1998	BO <sub>6</sub>	17.4	X	136.70007	165.94997	353.75460	0.99754	0.0513170	0.24025596	2.5626341	20	8 8.1	21.0
279741	1998	FL <sub>10</sub>	16.9	X	138.65325	238.42328	268.77712	1.85878	0.1449460	0.23547150	2.5972304	20	7 28.9	21.0
279742	1998	HG <sub>29</sub>	17.4	X	321.16392	209.49942	342.10716	4.18218	0.2271051	0.30630747	2.1795374	20	—	—
279743	1998	HE <sub>50</sub>	17.1	X	75.87952	110.85170	106.58868	3.14935	0.0716566	0.23416641	2.6068717	20	8 11.4	20.4
279744	1998	KM <sub>3</sub>	19.8	X	27.85701	85.21108	263.11768	4.66064	0.6109698	0.45617374	1.6712799	20	—	—
279745	1998	KG <sub>39</sub>	15.9	X	24.41480	1.00687	247.73714	12.74866	0.1268229	0.22705471	2.6610255	20	7 12.2	19.0
279746	1998	MK <sub>6</sub>	16.1	X	3.84055	94.63484	191.84480	15.82553	0.1294671	0.18332036	3.0689907	20	7 24.7	20.1
279747	1998	QA <sub>58</sub>	16.7	X	228.18269	191.79318	174.85035	3.79781	0.1118898	0.21172001	2.7880129	20	5 1.9	20.8
279748	1998	QH <sub>100</sub>	15.7	X	309.73104	322.02684	355.89970	10.17489	0.2588400	0.21832563	2.7314897	20	5 13.3	19.0
279749	1998	RH <sub>20</sub>	16.0	X	256.47111	148.68643	199.12607	7.30051	0.2326911	0.21455178	2.7634268	20	4 25.3	20.3
279750	1998	SL	17.4	X	218.59324	91.27999	184.10425	6.33305	0.1201519	0.29194874	2.2504272	20	—	—
279751	1998	ST <sub>8</sub>	17.4	X										

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
279761 1999 <i>FL</i> <sub>67</sub>	16.2	X	236.15245	343.08018	241.58670	2.00839	0.0247300	0.17589895	3.1547181	20	—	—
279762 1999 <i>FV</i> <sub>83</sub>	17.0	X	44.54035	30.54566	158.25187	16.00537	0.1675233	0.23621908	2.5917478	20	6 2.2	20.2
279763 1999 <i>GQ</i> <sub>1</sub>	17.0	X	225.49465	126.00833	7.42953	1.98887	0.1223662	0.25672851	2.4518090	20	10 13.3	20.3
279764 1999 <i>NB</i> <sub>59</sub>	15.8	X	49.43103	71.48197	234.34577	9.52556	0.2715878	0.24398439	2.5364600	20	12 1.4	19.5
279765 1999 <i>RH</i> <sub>2</sub>	17.1	X	343.76459	171.56386	163.05052	2.54051	0.1711148	0.23629855	2.5911666	20	9 7.5	19.5
279766 1999 <i>RE</i> <sub>3</sub>	16.5	X	2.70849	152.72101	182.42550	4.49568	0.3138851	0.23705413	2.5856577	20	11 11.9	18.8
279767 1999 <i>RT</i> <sub>56</sub>	16.5	X	309.92933	57.07049	309.09165	4.18169	0.2640358	0.23307270	2.6150206	20	7 29.4	18.9
279768 1999 <i>RH</i> <sub>104</sub>	19.1	X	307.09992	95.24519	219.78161	3.67995	0.3545943	0.32390801	2.0998499	20	4 15.8	21.2
279769 1999 <i>RG</i> <sub>114</sub>	15.8	X	305.88752	131.71348	146.53583	17.00150	0.2632225	0.18032398	3.1028948	20	3 25.3	20.1
279770 1999 <i>RN</i> <sub>146</sub>	16.5	X	17.63502	116.19029	212.98033	4.12994	0.3005781	0.23938068	2.5688770	20	11 26.7	19.5
279771 1999 <i>RO</i> <sub>146</sub>	17.5	X	271.17599	36.73747	282.47054	3.93382	0.1752947	0.31911140	2.1208396	20	4 1.7	20.2
279772 1999 <i>TO</i> <sub>24</sub>	16.7	X	320.00022	271.06325	30.09437	6.97690	0.0740059	0.22488877	2.6780841	20	6 6.8	20.1
279773 1999 <i>TV</i> <sub>60</sub>	17.1	X	359.45918	77.53327	205.42699	4.34546	0.0942820	0.22951853	2.6419477	20	7 16.9	20.1
279774 1999 <i>TL</i> <sub>61</sub>	16.4	X	211.39399	244.58937	186.63616	14.58285	0.1019348	0.22645382	2.6657308	20	7 4.3	20.7
279775 1999 <i>TO</i> <sub>79</sub>	17.1	X	240.08771	185.49689	163.83485	2.86440	0.0665437	0.22013117	2.7165333	20	4 27.0	21.0
279776 1999 <i>TA</i> <sub>122</sub>	17.8	X	286.97993	55.28749	270.58608	1.63754	0.2767998	0.32066537	2.1139823	20	4 17.5	20.5
279777 1999 <i>RT</i> <sub>144</sub>	16.4	X	296.85628	182.57582	188.64496	3.86835	0.2440549	0.23022677	2.6365267	20	7 13.4	19.3
279778 1999 <i>TD</i> <sub>196</sub>	15.4	X	111.05618	213.04330	234.09360	24.35402	0.1698758	0.21094680	2.7948216	20	4 13.7	19.7
279779 1999 <i>TX</i> <sub>205</sub>	16.6	X	301.49611	119.83534	249.96388	3.07843	0.2707892	0.22865518	2.6485937	20	7 14.9	19.3
279780 1999 <i>TJ</i> <sub>208</sub>	16.2	X	338.34707	113.17721	239.12011	15.87794	0.3417427	0.23382802	2.6093862	20	9 20.1	17.9
279781 1999 <i>TA</i> <sub>220</sub>	16.3	X	215.38032	185.61072	218.35309	11.34183	0.1757526	0.22220399	2.6996128	20	5 31.2	20.7
279782 1999 <i>TM</i> <sub>225</sub>	16.8	X	206.41602	91.52248	321.59374	2.96103	0.0847397	0.22450352	2.6811469	20	6 7.3	20.8
279783 1999 <i>TP</i> <sub>266</sub>	16.0	X	274.21882	117.92225	247.11070	10.93734	0.1877848	0.22690970	2.6621591	20	6 10.9	19.5
279784 1999 <i>TK</i> <sub>319</sub>	16.9	X	302.48295	235.20511	119.73869	2.30092	0.1892559	0.22894523	2.6463563	20	7 9.6	19.9
279785 1999 <i>KT</i> <sub>25</sub>	16.2	X	340.60225	100.46004	222.55752	24.97773	0.3198525	0.23173003	2.6251120	20	7 26.2	18.7
279786 1999 <i>VZ</i> <sub>15</sub>	16.4	X	272.05510	74.70638	278.91527	2.67166	0.1013324	0.22363040	2.6881210	20	6 5.8	20.0
279787 1999 <i>VA</i> <sub>42</sub>	16.8	X	234.99318	118.14430	243.46748	5.22517	0.0492887	0.21918330	2.7243595	20	5 7.3	20.7
279788 1999 <i>VH</i> <sub>60</sub>	16.5	X	301.67681	133.36577	214.39230	6.64464	0.2011872	0.22690382	2.6622051	20	6 25.1	19.6
279789 1999 <i>VM</i> <sub>73</sub>	18.3	X	4.27939	284.62320	164.65523	1.49721	0.1762470	0.29431522	2.2383478	20	—	—
279790 1999 <i>VL</i> <sub>79</sub>	15.7	X	296.27185	146.99143	217.52037	13.04826	0.2781794	0.22825175	2.6517137	20	6 25.6	19.1
279791 1999 <i>VU</i> <sub>100</sub>	16.2	X	239.09448	137.66850	228.19218	16.01402	0.1427960	0.21922719	2.7239958	20	5 8.5	20.4
279792 1999 <i>VR</i> <sub>102</sub>	16.4	X	233.71238	128.49126	228.79713	9.93300	0.0905866	0.21738108	2.7393965	20	4 25.9	20.4
279793 1999 <i>VZ</i> <sub>105</sub>	17.8	X	184.98768	143.63613	229.69412	2.89182	0.1926405	0.30886108	2.1675074	20	3 21.2	21.3
279794 1999 <i>XS</i> <sub>18</sub>	15.8	X	346.58977	280.80294	62.05899	6.28706	0.3233103	0.23476585	2.6024323	20	10 15.6	17.2
279795 1999 <i>XE</i> <sub>40</sub>	15.8	X	179.43833	349.07279	57.95945	13.56730	0.2008223	0.21629840	2.7485302	20	5 4.6	20.4
279796 1999 <i>XJ</i> <sub>74</sub>	15.8	X	238.14522	214.84715	250.70224	13.93846	0.0821949	0.22733083	2.6588703	20	9 16.6	19.9
279797 1999 <i>YC</i> <sub>26</sub>	16.6	X	234.42440	269.71233	97.07400	4.16090	0.0914545	0.21194398	2.7860484	20	5 10.9	20.8
279798 2000 <i>AC</i> <sub>146</sub>	17.1	X	238.07677	359.69272	127.34637	23.93704	0.0688008	0.37175531	1.9155696	20	12 5.6	19.4
279799 2000 <i>BP</i> <sub>6</sub>	17.0	X	40.78537	240.83032	112.01027	23.53008	0.0862219	0.37626334	1.9002385	20	—	—
279800 2000 <i>CC</i> <sub>105</sub>	17.6	X	138.21309	219.34838	137.31702	6.98886	0.1331785	0.29137839	2.2533630	20	1 8.7	20.5
279801 2000 <i>CO</i> <sub>131</sub>	17.4	X	330.60832	167.88794	318.89255	4.52934	0.0888187	0.28552102	2.2840766	20	—	—
279802 2000 <i>DA</i> <sub>88</sub>	16.9	X	187.39146	290.43843	320.16014	6.55280	0.1088532	0.27951806	2.3166627	20	—	—
279803 2000 <i>EJ</i> <sub>24</sub>	15.5	X	204.23212	189.75020	0.79647	16.51030	0.0779952	0.17480626	3.1678509	20	11 14.7	20.5
279804 2000 <i>ED</i> <sub>67</sub>	17.4	X	235.62441	165.01588	2.17761	2.72074	0.1506820	0.27467159	2.3438342	20	12 10.5	20.1
279805 2000 <i>EW</i> <sub>170</sub>	17.0	X	257.84494	91.56507	76.73254	6.05992	0.1699379	0.27835241	2.3231258	20	—	—
279806 2000 <i>EZ</i> <sub>184</sub>	16.3	X	289.67320	80.05575	112.19198	8.37856	0.2193630	0.18669964	3.0318454	20	—	—
279807 2000 <i>FN</i> <sub>1</sub>	15.9	X	348.91881	293.68189	194.21617	10.67333	0.0547572	0.18571751	3.0425249	20	—	—
279808 2000 <i>FH</i> <sub>68</sub>	17.4	X	325.03042	87.70535	24.87929	4.08091	0.1027769	0.27874865	2.3209237	20	—	—
279809 2000 <i>GD</i> <sub>11</sub>	16.0	X	91.24452	78.93301	184.30333	12.29712	0.0205311	0.21853915	2.7297103	20	10 22.7	19.7
279810 2000 <i>GU</i> <sub>20</sub>	16.6	X	279.21401	133.23822	7.26973	7.14174	0.0540753	0.27588606	2.3369506	20	—	—
279811 2000 <i>GN</i> <sub>21</sub>	17.6	X	181.24563	54.01583	186.66093	1.79364	0.1510257	0.27378476	2.3488928	20	—	—
279812 2000 <i>GV</i> <sub>43</sub>	17.7	X	119.58355	200.10113	27.47515	4.75325	0.1934011	0.26335422	2.4105114	20	10 25.8	21.7
279813 2000 <i>HS</i> <sub>17</sub>	17.8	X	193.87536	296.00109	265.57875	0.58815	0.1287317	0.26996894	2.3709743	20	12 6.0	21.2
279814 2000 <i>HT</i> <sub>28</sub>	16.1	X	229.20676	68.42410	191.04178	25.75442	0.3097750	0.18005516	3.1059825	20	—	—
279815 2000 <i>JT</i> <sub>3</sub>	16.1	X	152.06781	137.35075	176.94622	14.71085	0.3231335	0.27377683	2.3489382	20	—	—
279816 2000 <i>JE</i> <sub>5</sub>	19.1	X	137.42900	285.16573	41.24071	50.73793	0.4006234	0.71535054	1.2381980	20	—	—
279817 2000 <i>JA</i> <sub>7</sub>	15.6	X	221.35164	54.49469	209.53154	5.36753	0.0810849	0.18151050	3.0893578	20	—	—
279818 2000 <i>JA</i> <sub>45</sub>	16.9	X	188.42168	163.50429	59.05289	6.32627	0.1678717	0.27037846	2.3685796	20	12 22.4	20.3
279819 2000 <i>KK</i> <sub>67</sub>	15.6	X	294.16457	42.84538	127.93127	18.03109	0.2527243	0.18360965	3.0657663	20	—	—
279820 2000 <i>LJ</i> <sub>33</sub>	17.5	X	167.53655	142.79314	100.46568	3.66376	0.2305240	0.26937483	2.3744592	20	12 23.3	21.4
279821 2000 <i>QQ</i> <sub>103</sub>	16.1	X	290.11128	292.34741	12.10979	9.24731	0.2261603	0.23602423	2.5931740	20	4 4.9	19.6
279822 2000 <i>QM</i> <sub>110</sub>	17.6	X	49.77199	71.06975	261.41697	1.51671	0.2129735	0.25597466	2.4566205	20	12 29.9	21.1
279823 2000 <i>RD</i> <sub>8</sub>	15.9	X	230.41544	111.65889	323.59828	23.34412	0.2911606	0.28954714	2.2628540	20	7 22.2	19.7
279824 2000 <i>RS</i> <sub>67</sub>	16.1	X	115.33252	309.27105	29.36385	11.73145	0.3098018	0.26245564	2.4160103	20	—	—
279825 2000 <i>RB</i> <sub>90</sub>	17.2	X	78.83627	131.10883	196.13016	6.55194	0.2706092	0.25896171	2.4376930	20	—	—
279826 2000 <i>SF</i> <sub>19</sub>	17.8	X	303.26591	6.26109	323.49729							



ELEMENTS AND OPPOSITION DATES IN 2020

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>		
279841	2000	TA <sub>49</sub>	16.3	X	289.96729	305.73233	79.76440	7.62404	0.1316347	0.24152205	2.5536705	20	8 15.8	19.3
279842	2000	UR <sub>22</sub>	16.8	X	137.08575	215.38684	125.48655	3.17150	0.2519570	0.26549411	2.3975414	20	1 6.8	20.2
279843	2000	UD <sub>75</sub>	16.4	X	259.22342	332.16566	57.98481	14.73240	0.1686816	0.23591039	2.5940082	20	6 28.5	20.2
279844	2000	UF <sub>106</sub>	16.4	X	270.16865	277.72983	122.42225	5.32584	0.2137287	0.23919748	2.5701885	20	7 20.2	19.5
279845	2000	VY <sub>59</sub>	16.6	X	327.67568	308.05115	44.61546	10.29912	0.1049055	0.24160922	2.5530562	20	9 9.9	19.5
279846	2000	WM <sub>136</sub>	16.8	X	47.07409	88.60067	263.43227	6.28782	0.3086336	0.25386957	2.4701820	20	—	—
279847	2000	XV <sub>16</sub>	16.1	X	306.73525	68.31134	322.69340	4.58541	0.3103713	0.24172962	2.5522084	20	8 23.7	17.9
279848	2000	XJ <sub>22</sub>	15.9	X	289.21925	337.68572	41.47052	14.59935	0.1992382	0.23736518	2.5833983	20	7 25.8	19.2
279849	2000	YD <sub>8</sub>	16.1	X	282.83669	303.33585	92.39380	15.69222	0.1232961	0.23622634	2.5916946	20	8 21.7	19.5
279850	2000	YB <sub>38</sub>	16.1	X	157.71811	347.59164	115.12076	14.09370	0.1306468	0.22524832	2.6752334	20	6 20.9	20.3
279851	2000	YY <sub>98</sub>	15.9	X	86.82016	16.14658	118.54387	14.58058	0.1357783	0.21775081	2.7362946	20	5 19.0	19.9
279852	2001	AU <sub>18</sub>	15.9	X	111.45080	196.93226	281.55671	9.00435	0.1310162	0.21905316	2.7254384	20	5 21.0	19.9
279853	2001	AE <sub>19</sub>	16.6	X	45.85406	27.61757	115.30593	8.48457	0.2384544	0.21098765	2.7944609	20	4 11.9	19.6
279854	2001	AR <sub>50</sub>	16.5	X	63.18752	60.30399	110.04492	4.05455	0.1165879	0.21799724	2.7342322	20	5 26.9	19.9
279855	2001	BD <sub>83</sub>	16.7	X	188.09008	316.12115	118.12386	5.01138	0.1444065	0.22519366	2.6756663	20	6 13.8	20.9
279856	2001	CR <sub>15</sub>	15.2	X	167.37733	15.82455	116.82948	9.14882	0.1191180	0.17637422	3.1490483	20	8 4.5	20.2
279857	2001	DB <sub>23</sub>	16.1	X	48.32708	43.44938	129.44809	8.75456	0.1511814	0.21427725	2.7657866	20	5 14.6	19.4
279858	2001	DA <sub>48</sub>	16.9	X	21.08787	83.63507	90.29803	2.81246	0.1555521	0.20990178	2.8040901	20	3 25.5	19.7
279859	2001	DC <sub>87</sub>	16.1	X	138.64925	321.52640	142.04104	10.91901	0.0902990	0.21953068	2.7214847	20	5 31.8	20.3
279860	2001	FU <sub>6</sub>	18.8	X	271.70800	188.92529	66.90497	2.08263	0.2847011	0.30273083	2.1966706	20	1 5.5	22.3
279861	2001	FU <sub>7</sub>	17.2	X	304.86570	169.56425	102.24190	2.82820	0.0327512	0.21133389	2.7914078	20	4 14.2	20.8
279862	2001	FU <sub>111</sub>	15.8	X	260.74073	155.82028	3.17237	10.01311	0.0512119	0.18792453	3.0186568	20	12 25.6	20.1
279863	2001	HH	18.0	X	280.28578	114.38647	86.07929	4.99671	0.1429918	0.29600732	2.2298094	20	—	—
279864	2001	HP <sub>17</sub>	15.9	X	179.62259	175.70177	211.18621	8.83592	0.1402133	0.20520782	2.8466896	20	4 7.1	20.5
279865	2001	HU <sub>24</sub>	17.5	X	159.80663	169.93562	183.03751	3.67432	0.2032136	0.29824222	2.2186560	20	2 3.0	20.7
279866	2001	KH <sub>70</sub>	15.6	X	349.21730	348.70999	214.85076	14.60028	0.0819736	0.20290504	2.8681872	20	3 7.9	19.5
279867	2001	MA <sub>16</sub>	16.3	X	85.61564	313.37194	67.20298	9.75749	0.2510057	0.28160765	3.0051883	20	—	—
279868	2001	MV <sub>29</sub>	14.4	X	172.26404	55.84500	262.83028	16.99044	0.1753565	0.18241891	3.0790930	20	1 13.3	19.6
279869	2001	NK <sub>3</sub>	15.7	X	153.07280	234.67765	121.02872	5.82565	0.3103070	0.18462415	3.0545252	20	2 20.1	21.2
279870	2001	NL <sub>19</sub>	14.9	X	136.30269	110.28195	261.20588	15.93727	0.2692404	0.18204802	3.0832737	20	2 14.9	20.3
279871	2001	OR <sub>17</sub>	17.5	X	120.79609	122.09242	216.18460	2.05365	0.1995835	0.28250617	2.3002979	20	—	—
279872	2001	OD <sub>38</sub>	17.3	X	138.31797	261.43297	89.58214	8.24669	0.2401565	0.28508638	2.2863975	20	1 17.3	20.5
279873	2001	OR <sub>67</sub>	17.3	X	26.86256	162.20719	127.78618	24.23613	0.0698075	0.36752445	1.9302426	20	10 16.4	19.8
279874	2001	OA <sub>92</sub>	17.1	X	181.84937	206.26334	86.27829	5.76623	0.1526486	0.28589653	2.2820761	20	—	—
279875	2001	OG <sub>101</sub>	16.8	X	143.16916	130.95024	203.48379	6.61189	0.2411801	0.28410361	2.2916672	20	—	—
279876	2001	PJ <sub>8</sub>	16.1	X	119.27412	229.97673	114.51000	13.26367	0.2080997	0.22851225	2.6496981	20	—	—
279877	2001	PQ <sub>8</sub>	14.8	X	111.98927	256.78787	141.57120	23.82151	0.3382808	0.17790654	3.1309402	20	3 13.8	20.1
279878	2001	PE <sub>24</sub>	17.3	X	114.55199	176.85982	136.04498	21.61194	0.0558882	0.38136120	1.8832662	20	—	—
279879	2001	PZ <sub>34</sub>	15.2	X	93.20019	138.63606	254.72754	13.51686	0.2449733	0.17598424	3.1536987	20	1 30.2	19.8
279880	2001	PJ <sub>42</sub>	17.2	X	231.43304	3.63059	197.49523	22.21295	0.0498251	0.38246733	1.8796334	20	—	—
279881	2001	PX <sub>50</sub>	15.3	X	147.16823	39.06464	324.37927	23.22736	0.2322702	0.18125406	3.0922710	20	2 17.7	20.5
279882	2001	PO <sub>52</sub>	16.4	X	163.80878	242.74371	99.30341	9.40538	0.3248411	0.18302460	3.0722961	20	2 13.8	22.0
279883	2001	PE <sub>60</sub>	17.0	X	83.25063	241.21262	133.93621	4.58396	0.2621151	0.27943154	2.3171408	20	—	—
279884	2001	PE <sub>65</sub>	17.1	X	76.02734	93.24130	288.11641	6.10785	0.1206663	0.27790827	2.3256003	20	—	—
279885	2001	QO	17.3	X	179.24526	99.64184	151.14923	21.20577	0.0676241	0.38256325	1.8793192	20	—	—
279886	2001	QG <sub>36</sub>	15.8	X	156.78954	214.47376	147.02293	4.62117	0.2911049	0.18515296	3.0487064	20	2 27.4	21.2
279887	2001	QF <sub>45</sub>	17.0	X	106.91304	178.34346	149.84283	8.49050	0.1645132	0.27839334	2.3228981	20	—	—
279888	2001	QX <sub>90</sub>	17.0	X	34.48876	178.70060	213.61632	21.91157	0.0629445	0.38051448	1.8860589	20	—	—
279889	2001	QO <sub>92</sub>	17.2	X	28.97086	327.54491	78.26202	6.49151	0.2312063	0.27446389	2.3450165	20	—	—
279890	2001	QP <sub>105</sub>	15.1	X	110.36692	145.67826	219.76406	16.77428	0.2170588	0.17290220	3.1910654	20	1 14.0	20.1
279891	2001	QQ <sub>115</sub>	15.4	X	103.37765	80.21775	282.92438	5.81067	0.1603318	0.17492375	3.1664323	20	—	—
279892	2001	QH <sub>134</sub>	15.7	X	164.82733	115.51117	227.22307	17.21019	0.1788620	0.18285212	3.0742278	20	1 31.6	21.1
279893	2001	QZ <sub>136</sub>	16.6	X	95.56389	149.75658	121.94544	7.11593	0.3039363	0.27731755	2.3289016	20	—	—
279894	2001	QD <sub>146</sub>	15.7	X	97.83857	200.91053	172.54964	13.74385	0.1039614	0.17524863	3.1625177	20	—	—
279895	2001	QB <sub>152</sub>	16.4	X	47.72553	106.13929	254.69181	22.12551	0.0874914	0.37396612	1.9080125	20	—	—
279896	2001	QH <sub>163</sub>	15.7	X	104.99744	213.78731	164.41121	17.19536	0.1979957	0.17742661	3.1365837	20	1 22.4	20.4
279897	2001	QZ <sub>165</sub>	17.0	X	146.88946	294.40059	57.73239	3.81046	0.2024085	0.28617728	2.2805833	20	1 23.5	20.2
279898	2001	QP <sub>174</sub>	15.4	X	106.67857	139.67263	240.46170	9.17297	0.1094537	0.17869561	3.1217165	20	1 14.1	19.9
279899	2001	QY <sub>186</sub>	14.8	X	112.30700	107.05935	262.25872	16.38993	0.2085579	0.17638024	3.1489766	20	1 19.2	19.6
279900	2001	QP <sub>205</sub>	15.2	X	80.89474	343.78977	26.36765	11.63634	0.1074819	0.17275261	3.1929072	20	—	—
279901	2001	QW <sub>222</sub>	15.7	X	169.47555	169.67072	171.11285	12.87811	0.1688898	0.18410108	3.0603082	20	2 5.7	20.8
279902	2001	QT <sub>223</sub>	16.2	X	212.67030	168.52909	149.66285	4.83273	0.2013863	0.18878387	3.0094892	20	2 16.4	21.3
279903	2001	QD <sub>225</sub>	17.3	X	204.31232	149.92814	132.88942	5.04678	0.1868217	0.28761626	2.2729703	20	—	—
279904	2001	QZ <sub>228</sub>	15.5	X	162.03472	123.01851	203.64971	9.83868	0.0792302	0.17947020	3.1127278	20	1 8.6	20.4
279905	2001	QP <sub>229</sub>	17.5	X	128.82626	93.64932	238.67591	4.68558	0.1886741	0.28037080	2.3119629	20	—	—
279906	2001	QD <sub>244</sub>	15.7	X	174.17498	316.20266	357.77697	9.60768	0.2227890	0.17916790	3.1162282	20	1 17.1	21.1
279907	2001	QO <sub>249</sub>	16.9	X	146.87409	351.86077	12.99786	7.04896	0.1931685	0.28397666	2.2923501	20	2 9.7	20.3
279908	2001	QW <sub>249</sub>	16.7	X	38.53913	225.52042	95.64458	7.78932	0.2764454	0.21603490	2.7507647	20	12 30.3	20.6
279909	2001	QT <sub>281</sub>	15.1	X	98.80486	295.78622	80.03099	17.18606	0.2333872	0.17475704	3.1684456	20	1 20.4	19.7
279910	2001	QO <sub>288</sub>	15.3	X	157.57931	70.85488	253.20821	11.28683	0.1439393	0.17785231				

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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>		
279921	2001	<i>RM</i> <sub>82</sub>	15.2	X	139.45090	126.88083	218.16471	10.03631	0.1375628	0.17794167	3.1305282	20	1 12.2	20.1
279922	2001	<i>RU</i> <sub>87</sub>	17.6	X	132.31557	168.97595	172.40807	1.31752	0.1902191	0.28072691	2.3100073	20	—	—
279923	2001	<i>RL</i> <sub>104</sub>	17.0	X	15.60846	301.48408	75.14775	3.49798	0.2064259	0.26818055	2.3815034	20	—	—
279924	2001	<i>RL</i> <sub>120</sub>	15.9	X	151.28088	249.29329	99.22406	2.28522	0.1800405	0.18051514	3.1007039	20	2 2.1	20.7
279925	2001	<i>RS</i> <sub>145</sub>	15.9	X	182.05528	126.89558	188.81026	13.82780	0.1563878	0.18151267	3.0893332	20	1 18.1	21.2
279926	2001	<i>SC</i> <sub>8</sub>	15.4	X	202.30204	134.74336	157.52035	10.30466	0.0890690	0.18107679	3.0942889	20	1 9.9	20.3
279927	2001	<i>SJ</i> <sub>11</sub>	16.6	X	141.45433	3.40177	315.39263	6.46501	0.1317625	0.27997033	2.3141671	20	—	—
279928	2001	<i>SR</i> <sub>13</sub>	17.5	X	201.84598	206.91191	170.05312	7.06758	0.1511631	0.29542836	2.2327217	20	4 13.9	20.8
279929	2001	<i>SI</i> <sub>22</sub>	17.1	X	97.51889	166.09602	190.05686	6.47210	0.1501954	0.27719661	2.3295790	20	—	—
279930	2001	<i>SX</i> <sub>26</sub>	17.4	X	136.11376	333.88365	5.64752	2.69000	0.2198766	0.28121250	2.3073473	20	—	—
279931	2001	<i>SK</i> <sub>32</sub>	15.4	X	186.23853	121.03557	186.84943	26.23484	0.2019714	0.17931977	3.1144685	20	1 13.8	21.1
279932	2001	<i>SD</i> <sub>37</sub>	17.0	X	48.16768	203.78100	173.58000	5.75160	0.2449202	0.27131928	2.3631009	20	—	—
279933	2001	<i>SE</i> <sub>41</sub>	15.9	X	163.95062	148.94268	184.78973	17.28245	0.2056204	0.18052931	3.1005416	20	1 25.4	21.3
279934	2001	<i>SD</i> <sub>42</sub>	16.1	X	125.97820	196.94982	149.20748	1.29392	0.1705777	0.17535667	3.1612185	20	1 5.8	20.8
279935	2001	<i>SZ</i> <sub>44</sub>	17.2	X	240.00476	159.24940	164.17496	6.93738	0.1438448	0.29414170	2.2392280	20	3 12.1	20.2
279936	2001	<i>SV</i> <sub>64</sub>	16.6	X	89.06368	177.37833	191.25705	8.25561	0.2643031	0.27586652	2.3370610	20	—	—
279937	2001	<i>SL</i> <sub>74</sub>	15.6	X	134.64171	118.60173	236.86513	8.72101	0.2303197	0.17694884	3.1422271	20	1 27.9	20.8
279938	2001	<i>SJ</i> <sub>78</sub>	15.9	X	127.48734	339.35703	4.21023	4.71756	0.1226835	0.17559999	3.1582977	20	—	—
279939	2001	<i>SF</i> <sub>79</sub>	15.7	X	138.50153	180.70861	166.97145	10.32792	0.1868726	0.18075067	3.0980097	20	1 19.5	20.7
279940	2001	<i>SB</i> <sub>84</sub>	16.9	X	312.89688	223.34865	191.83181	6.65476	0.1079704	0.26496492	2.4007326	20	11 15.1	19.3
279941	2001	<i>SR</i> <sub>84</sub>	15.9	X	175.78590	83.44393	219.00566	4.45526	0.1148550	0.17848845	3.1241315	20	—	—
279942	2001	<i>SE</i> <sub>103</sub>	17.4	X	46.76278	182.10637	198.18400	6.21296	0.1187696	0.27261051	2.3556331	20	—	—
279943	2001	<i>SO</i> <sub>117</sub>	17.5	X	152.71600	77.19518	253.22176	4.62680	0.1941419	0.28365149	2.2941017	20	—	—
279944	2001	<i>SC</i> <sub>123</sub>	16.4	X	24.59486	140.89549	259.81026	5.24079	0.1275905	0.27335422	2.3513586	20	—	—
279945	2001	<i>SP</i> <sub>134</sub>	15.9	X	172.63285	141.07064	186.90305	16.78927	0.1872326	0.18043750	3.1015933	20	1 24.9	21.3
279946	2001	<i>SO</i> <sub>136</sub>	16.4	X	114.01691	305.94455	194.85167	14.50622	0.1147796	0.24580694	2.5239067	20	6 21.5	20.3
279947	2001	<i>SG</i> <sub>142</sub>	18.2	X	157.86177	100.33983	206.66940	4.84705	0.1839994	0.28141459	2.3062425	20	—	—
279948	2001	<i>SE</i> <sub>149</sub>	16.4	X	101.70162	103.01761	235.06327	5.51226	0.1379709	0.27468150	2.3437778	20	—	—
279949	2001	<i>SJ</i> <sub>157</sub>	15.9	X	158.51856	117.85489	219.74048	8.27673	0.2330559	0.17966483	3.1104795	20	1 27.4	21.3
279950	2001	<i>SE</i> <sub>177</sub>	17.0	X	137.19199	218.45126	106.86885	5.21313	0.1724329	0.27860220	2.3217370	20	—	—
279951	2001	<i>SO</i> <sub>179</sub>	17.0	X	126.38369	352.91004	44.74354	14.42401	0.2305161	0.28291644	2.2980735	20	3 11.2	20.5
279952	2001	<i>SC</i> <sub>186</sub>	17.8	X	112.39635	242.62590	87.93724	3.42054	0.2366991	0.27809760	2.3245446	20	—	—
279953	2001	<i>SH</i> <sub>187</sub>	16.3	X	128.59593	189.76594	173.28870	1.19872	0.1757548	0.17992530	3.1074768	20	1 27.8	21.0
279954	2001	<i>SA</i> <sub>197</sub>	17.3	X	88.45334	150.92952	181.67796	3.96875	0.0705836	0.27348773	2.3505932	20	—	—
279955	2001	<i>SM</i> <sub>223</sub>	17.5	X	176.07309	289.20835	8.00625	5.96659	0.2304012	0.28267691	2.2993716	20	—	—
279956	2001	<i>SB</i> <sub>225</sub>	17.7	X	138.15952	171.28739	162.12720	4.33061	0.2344823	0.28089077	2.3091089	20	—	—
279957	2001	<i>SM</i> <sub>235</sub>	17.9	X	85.45203	177.09058	187.09667	0.85022	0.2012771	0.27514027	2.3411718	20	—	—
279958	2001	<i>SX</i> <sub>235</sub>	15.6	X	124.16825	308.87099	51.44330	6.11042	0.2338331	0.17640079	3.1487320	20	1 28.9	20.5
279959	2001	<i>SG</i> <sub>252</sub>	17.6	X	131.97081	87.40064	197.05095	20.55657	0.0875965	0.37609079	1.9008197	20	—	—
279960	2001	<i>SK</i> <sub>267</sub>	16.2	X	120.56216	235.85877	106.61710	2.39423	0.1388089	0.17187254	3.2037975	20	—	—
279961	2001	<i>SK</i> <sub>305</sub>	15.6	X	140.30270	99.04391	212.42397	5.50885	0.0850954	0.17110534	3.2133670	20	—	—
279962	2001	<i>SD</i> <sub>312</sub>	17.1	X	146.33691	46.35017	255.54557	5.71863	0.1238388	0.27770128	2.3267558	20	—	—
279963	2001	<i>SF</i> <sub>314</sub>	17.0	X	154.11128	52.91645	248.91316	6.33701	0.1157744	0.27974921	2.3153864	20	—	—
279964	2001	<i>SE</i> <sub>325</sub>	17.1	X	142.68116	57.76214	266.56878	3.27527	0.1624151	0.28032842	2.3121959	20	—	—
279965	2001	<i>SP</i> <sub>332</sub>	15.6	X	140.58729	155.97970	181.48247	12.20238	0.0643867	0.17612106	3.1520651	20	—	—
279966	2001	<i>TD</i> <sub>8</sub>	16.9	X	334.35584	315.12618	107.51444	7.76709	0.1221503	0.26483933	2.4014916	20	—	—
279967	2001	<i>TA</i> <sub>14</sub>	17.1	X	130.06612	228.19481	63.34971	7.69765	0.1027647	0.27271207	2.3550483	20	—	—
279968	2001	<i>TC</i> <sub>25</sub>	17.4	X	108.44686	111.78771	234.89203	4.66927	0.1646046	0.27678465	2.3318900	20	—	—
279969	2001	<i>TF</i> <sub>28</sub>	16.5	X	146.43574	316.54429	348.68302	7.21599	0.1893839	0.27651055	2.3334307	20	—	—
279970	2001	<i>TZ</i> <sub>54</sub>	17.2	X	187.22638	4.33368	0.88905	6.55688	0.1849901	0.29134392	2.2535407	20	3 15.4	20.6
279971	2001	<i>TW</i> <sub>55</sub>	17.7	X	151.20994	150.15610	169.70217	4.19637	0.2672099	0.28165170	2.3049480	20	—	—
279972	2001	<i>TX</i> <sub>58</sub>	15.5	X	134.52736	129.18006	206.99006	16.06995	0.1634613	0.17382682	3.1797394	20	—	—
279973	2001	<i>TM</i> <sub>70</sub>	17.1	X	23.85430	162.88390	210.98687	2.45759	0.1756457	0.26689014	2.3891735	20	—	—
279974	2001	<i>TB</i> <sub>84</sub>	16.0	X	64.62932	223.59696	207.22611	14.55650	0.0690495	0.22864218	2.6486942	20	1 5.6	19.6
279975	2001	<i>TZ</i> <sub>94</sub>	16.9	X	76.21542	139.04537	223.21245	8.20149	0.2203804	0.27363725	2.3497369	20	—	—
279976	2001	<i>TQ</i> <sub>103</sub>	18.0	X	129.33649	262.60836	91.48619	6.58853	0.3144788	0.28216808	2.3021350	20	1 21.4	21.4
279977	2001	<i>TU</i> <sub>104</sub>	17.0	X	167.62194	288.08351	8.00786	4.31757	0.2041522	0.27994224	2.3143219	20	—	—
279978	2001	<i>TT</i> <sub>121</sub>	17.5	X	141.61389	39.94294	230.76004	20.80037	0.0346714	0.37580147	1.9017951	20	—	—
279979	2001	<i>TS</i> <sub>134</sub>	16.8	X	160.14155	127.65463	292.19756	6.39891	0.1390404	0.29343950	2.2427989	20	4 24.0	20.1
279980	2001	<i>TR</i> <sub>153</sub>	15.2	X	135.27506	66.88074	258.64966	9.99071	0.1482851	0.17269463	3.1936219	20	—	—
279981	2001	<i>TJ</i> <sub>167</sub>	16.9	X	80.68014	34.73548	26.08600	24.81525	0.2099585	0.27869623	2.3212147	20	2 13.1	20.0
279982	2001	<i>TE</i> <sub>171</sub>	15.3	X	177.44951	267.41354	55.66816	25.99324	0.2832247	0.17912033	3.1167798	20	2 5.7	21.3
279983	2001	<i>TF</i> <sub>176</sub>	16.3	X	59.67102	207.04972	202.04307	13.54090	0.0777286	0.22445582	2.6815267	20	—	—
279984	2001	<i>TA</i> <sub>188</sub>	16.9	X	21.40781	138.07486	241.32837	5.80205	0.1492694	0.26587918	2.3952260	20	—	—
279985	2001	<i>TJ</i> <sub>231</sub>	17.6	X	98.40843	8.29424	1.93754	4.68054	0.2431568	0.27705269	2.3303857	20	—	—
279986	2001	<i>TK</i> <sub>258</sub>	16.9	X	43.37631	321.68922	53.38524	7.34618	0.1352755	0.27088767	2.3656104	20	—	—
279987	2001	<i>UP</i> <sub>15</sub>	15.3	X	202.48322	182.86572	226.78040	11.34716	0.1192792	0.19025688	2.9939357	20	5 28.6	20.0
279988	2001	<i>UK</i> <sub>26</sub>	15.5	X	103.61079	78.01240	300.89461	7.03780	0.2976558	0.17402849	3.1772823	20	2 4.7	20.2
279989	2001	<i>UH</i> <sub>37</sub>	16.2	X	18.83933	144.25864	172.71514	13.75741	0.2161247	0.26057212	2.4276389	20	11 5.9	19.1