

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>
356001 2009 BO <sub>57</sub>	17.1	X	311.63803	97.86473	95.35899	3.52865	0.1136921	0.26247408	2.4158971	20	—	—
356002 2009 BA <sub>62</sub>	17.3	X	219.90190	282.27868	312.83313	3.20453	0.2059372	0.24495357	2.5297651	20	—	—
356003 2009 BM <sub>64</sub>	17.0	X	47.53480	216.83196	116.63029	5.78905	0.0969264	0.23414058	2.6070634	20	12 9.4	20.5
356004 2009 BP <sub>70</sub>	17.2	X	71.03555	296.94201	103.45656	6.37806	0.2450072	0.26330645	2.4108030	20	—	—
356005 2009 BK <sub>72</sub>	16.5	X	61.79894	176.24796	152.51310	11.28084	0.1749861	0.23812850	2.5778747	20	12 29.6	20.5
356006 2009 BR <sub>75</sub>	17.9	X	11.63672	137.41046	295.18440	1.79706	0.1613696	0.25387510	2.4701461	20	—	—
356007 2009 BH <sub>76</sub>	17.4	X	344.26164	92.05077	49.62483	1.44545	0.1579133	0.25877275	2.4388795	20	—	—
356008 2009 BL <sub>79</sub>	17.0	X	347.08258	183.16441	325.18055	6.12635	0.1442106	0.26270098	2.4145058	20	—	—
356009 2009 BD <sub>95</sub>	16.5	X	242.06766	291.02817	328.20133	6.32132	0.0905434	0.26019371	2.4299920	20	—	—
356010 2009 BX <sub>101</sub>	16.3	X	90.29599	197.99972	117.81595	13.28133	0.1999719	0.23513693	2.5996936	20	—	—
356011 2009 BZ <sub>103</sub>	16.9	X	304.54986	166.63778	318.01006	13.06541	0.1076075	0.24411080	2.5355843	20	—	—
356012 2009 BQ <sub>107</sub>	18.0	X	309.65339	36.08007	32.48264	2.90307	0.1872620	0.23533302	2.5982492	20	11 14.2	20.3
356013 2009 BC <sub>108</sub>	17.6	X	259.31578	188.39231	357.94958	5.17314	0.0891230	0.24358431	2.5392366	20	—	—
356014 2009 BO <sub>110</sub>	17.4	X	250.91969	150.09832	62.26567	2.79443	0.1296536	0.24619794	2.5212337	20	—	—
356015 2009 BF <sub>111</sub>	16.6	X	263.25398	12.52427	131.74433	8.38397	0.1048731	0.23680756	2.5874523	20	12 17.3	19.7
356016 2009 BM <sub>111</sub>	16.8	X	325.43630	13.31797	136.31930	5.92038	0.1204136	0.25758564	2.4463671	20	—	—
356017 2009 BH <sub>112</sub>	16.8	X	176.84975	214.39641	31.12547	4.54607	0.2201892	0.22932756	2.6434142	20	12 27.6	21.1
356018 2009 BZ <sub>112</sub>	17.6	X	257.60038	145.21225	52.17451	2.76457	0.2229515	0.24091815	2.5579361	20	—	—
356019 2009 BX <sub>116</sub>	16.9	X	203.17387	141.28077	105.20629	6.68489	0.1892770	0.24329780	2.5412297	20	—	—
356020 2009 BY <sub>122</sub>	17.0	X	299.73016	272.78267	148.85550	6.72457	0.1026761	0.22900479	2.6458974	20	10 24.1	20.1
356021 2009 BL <sub>134</sub>	16.6	X	214.65028	181.44598	131.31896	8.25708	0.1294813	0.26949954	2.3737266	20	2 5.2	20.1
356022 2009 BS <sub>136</sub>	17.3	X	213.17466	309.11502	333.36265	2.24009	0.2017586	0.25811929	2.4429941	20	—	—
356023 2009 BH <sub>140</sub>	17.2	X	324.98563	118.13409	319.17608	7.19246	0.2530839	0.24400085	2.5363460	20	—	—
356024 2009 BG <sub>145</sub>	17.2	X	25.20061	312.92174	122.70738	3.16583	0.2023190	0.25648102	2.4533861	20	—	—
356025 2009 BF <sub>147</sub>	16.8	X	159.11637	285.94073	321.19500	10.32307	0.1531620	0.23093597	2.6311261	20	12 18.3	21.1
356026 2009 BE <sub>150</sub>	18.3	X	265.76602	346.29474	186.12836	2.03619	0.1348283	0.24218365	2.5490176	20	—	—
356027 2009 BY <sub>150</sub>	16.6	X	306.81653	30.45374	51.12033	6.81750	0.2922630	0.24039221	2.5616657	20	11 22.7	18.0
356028 2009 BK <sub>157</sub>	16.6	X	357.28233	10.15187	340.35825	5.70249	0.0599635	0.22115938	2.7081069	20	10 12.3	20.0
356029 2009 BA <sub>158</sub>	17.4	X	306.16806	113.50467	349.99253	3.78178	0.0146320	0.23591159	2.5939994	20	—	—
356030 2009 BF <sub>162</sub>	16.4	X	280.11754	68.17166	99.69808	18.85746	0.1620954	0.24385144	2.5373819	20	—	—
356031 2009 BL <sub>163</sub>	17.2	X	345.01937	318.18737	102.62335	5.39418	0.2482266	0.24509095	2.5288197	20	—	—
356032 2009 BO <sub>163</sub>	17.8	X	315.10459	50.48662	49.41348	3.91134	0.1078370	0.24255798	2.5463944	20	—	—
356033 2009 BW <sub>165</sub>	17.6	X	78.61376	79.27912	317.57043	6.24857	0.1204110	0.25764521	2.4459899	20	—	—
356034 2009 BE <sub>177</sub>	16.9	X	3.03469	78.92578	333.81691	7.74780	0.0628079	0.23844309	2.5756068	20	—	—
356035 2009 BT <sub>182</sub>	16.6	X	281.66302	326.17411	148.88213	11.93774	0.1327288	0.23380719	2.6095411	20	12 4.4	19.8
356036 2009 BV <sub>185</sub>	16.6	X	294.88465	32.78183	63.08216	11.50148	0.1430869	0.23700426	2.5860204	20	11 28.2	19.0
356037 2009 BM <sub>186</sub>	17.5	X	0.07137	132.20218	266.30180	1.77215	0.1924860	0.24276737	2.5449300	20	—	—
356038 2009 BY <sub>187</sub>	17.7	X	294.58654	339.55753	167.41513	5.04994	0.1850648	0.24278876	2.5447805	20	—	—
356039 2009 BX <sub>188</sub>	17.2	X	300.89777	353.86983	143.96488	14.39682	0.0152468	0.24568014	2.5247750	20	—	—
356040 2009 BP <sub>189</sub>	17.3	X	352.53938	285.86302	222.40562	3.24657	0.1075544	0.26431516	2.4046654	20	—	—
356041 2009 CV <sub>14</sub>	17.8	X	279.13836	38.83806	128.12565	3.31020	0.1404213	0.24404786	2.5360202	20	—	—
356042 2009 CR <sub>18</sub>	16.6	X	297.17490	297.33041	238.21400	3.61851	0.0881967	0.25323543	2.4743041	20	—	—
356043 2009 CT <sub>29</sub>	17.7	X	225.75738	77.27485	92.56258	2.35689	0.0777005	0.23315405	2.6144123	20	12 2.1	21.2
356044 2009 CZ <sub>38</sub>	17.5	X	290.98380	283.53538	169.18257	4.21655	0.2488443	0.23550337	2.5969961	20	11 3.9	19.8
356045 2009 CS <sub>40</sub>	16.8	X	332.64093	247.45016	308.63057	5.82597	0.0391242	0.26899828	2.3766745	20	2 2.4	19.4
356046 2009 CL <sub>47</sub>	16.4	X	129.25616	253.37472	356.52920	12.57298	0.1585300	0.22396601	2.6854350	20	11 20.0	21.0
356047 2009 CW <sub>51</sub>	16.9	X	338.69530	354.05536	139.93323	6.32702	0.0461386	0.25519043	2.4616509	20	—	—
356048 2009 CM <sub>57</sub>	17.1	X	236.38946	151.59393	117.08986	3.33386	0.1791460	0.25573221	2.4581729	20	1 2.8	20.9
356049 2009 CY <sub>57</sub>	17.3	X	278.03549	81.27984	136.75258	3.63422	0.1262565	0.25733835	2.4479340	20	—	—
356050 2009 CM <sub>62</sub>	16.9	X	208.97271	168.80823	56.32848	4.62833	0.1590919	0.23307997	2.6149662	20	—	—
356051 2009 CW <sub>62</sub>	17.3	X	285.47080	129.43681	55.23607	3.19864	0.1202476	0.25429663	2.4674157	20	—	—
356052 2009 DC <sub>5</sub>	16.7	X	74.97172	139.71891	154.97665	3.78126	0.0588886	0.22572382	2.6714750	20	11 17.2	20.4
356053 2009 DQ <sub>5</sub>	17.6	X	254.81965	5.12027	143.57143	2.62265	0.0820986	0.23684937	2.5871477	20	12 13.6	20.8
356054 2009 DS <sub>5</sub>	17.2	X	216.68571	274.82504	329.70309	10.75683	0.2332214	0.24440490	2.5335498	20	—	—
356055 2009 DX <sub>9</sub>	16.4	X	242.60313	160.53356	0.40920	11.83326	0.1254050	0.23342796	2.6123667	20	12 2.6	20.0
356056 2009 DE <sub>13</sub>	17.8	X	330.12960	120.67604	338.96231	12.14131	0.2176083	0.24353356	2.5395894	20	—	—
356057 2009 DS <sub>25</sub>	17.5	X	172.13869	267.14664	1.60639	4.63083	0.1739408	0.24041649	2.5614932	20	—	—
356058 2009 DK <sub>27</sub>	16.5	X	276.52199	302.40686	152.33698	10.76704	0.0275010	0.22826818	2.6515865	20	11 11.4	20.1
356059 2009 DB <sub>34</sub>	16.5	X	236.45245	146.91723	10.24054	12.44039	0.1134936	0.22844344	2.6502301	20	11 19.2	20.2
356060 2009 DD <sub>35</sub>	16.4	X	7.26098	297.33902	33.13080	6.07852	0.0155306	0.21203671	2.7852361	20	9 28.7	20.0
356061 2009 DV <sub>38</sub>	17.1	X	16.63500	226.47823	157.84452	2.79229	0.0266996	0.23279599	2.6170927	20	12 23.5	20.5
356062 2009 DV <sub>41</sub>	16.9	X	265.03846	277.81121	192.99988	2.28026	0.0877023	0.22973557	2.6402835	20	11 5.9	20.3
356063 2009 DF <sub>50</sub>	17.1	X	147.21119	236.47709	328.74555	2.67060	0.0519929	0.21728332	2.7402181	20	10 14.7	21.1
356064 2009 DS <sub>50</sub>	16.8	X	275.49212	132.56396	356.62907	13.04169	0.0972804	0.23227381	2.6210133	20	12 13.6	20.2
356065 2009 DP <sub>51</sub>	17.2	X	167.69851	294.57459	337.69228	14.42652	0.1145282	0.24189846	2.5510207	20	—	—
356066 2009 DJ <sub>61</sub>	16.9	X	174.74053	198.28606	75.63142	5.01915	0.1785168	0.23766628	2.5812159	20	—	—
356067 2009 DH <sub>62</sub>	17.5	X	318.95351	330.48223	72.15932	2.86768	0.0890918	0.22780849	2.6551523	20	10 28.4	20.4
356068 2009 DD <sub>64</sub>	16.1	X	168.81222	238.17393	9.86722	12.93930	0.1649363	0.23072908	2.6326987	20	12 27.7	20.5
356069 2009 DE <sub>70</sub>	16.4	X	100.69131	182.92604	161.42011	12.39301	0.2149124	0.24534281	2.5270887	20	—	—
356070 2009 DD <sub>75</sub>	17.2	X	295.89517	340.30969	156.13553	8.07485	0.1123610	0.23994883	2.5648204	20	—	—
356071 2009 DO <sub>77</sub>	17.0	X	274.90683	19.50920	154.35542	13.03781	0.0741556	0.24616185	2.5214801	20	—	—
356072 2009 DC <sub>78</sub>	17.6	X	348.34415	324.24484	167.12321	1.88105	0.1291215	0.25705457	2.4497353	20	—	—
356073 2009 DZ <sub>81</sub>	16.5	X	28.57163	207.26217	135.71698	5.13614	0.1125452	0.22063265	2.7124153	20	11 26.8	20.1
356074 2009 DD <sub>85</sub>	17.5	X	119.26888	153.38060	105.98914	1.95126	0.0365610	0.22777771	2.6553916	20	11 22.5	21.2
356075 2009 DV <sub>92</sub>	17.0	X	197.46436	72.1407								

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>
356081 2009 DV <sub>105</sub>	16.8	X	161.14621	182.15038	356.55377	4.34342	0.0080465	0.21437260	2.7649664	20	9 28.1	20.4
356082 2009 DJ <sub>111</sub>	16.3	X	250.50868	110.21304	85.58535	17.50956	0.0822382	0.24314195	2.5423155	20	—	—
356083 2009 DJ <sub>113</sub>	17.2	X	260.55639	170.62856	3.84361	5.73832	0.0968762	0.23915309	2.5705065	20	—	—
356084 2009 DP <sub>117</sub>	17.1	X	203.28725	260.84422	336.64472	10.99217	0.1551514	0.23870691	2.5737087	20	—	—
356085 2009 DK <sub>120</sub>	16.6	X	227.09979	194.59560	348.94004	13.55252	0.1896990	0.23301009	2.6154890	20	12 2.4	20.6
356086 2009 DG <sub>128</sub>	16.4	X	341.74434	71.66170	332.85374	11.92757	0.2013973	0.23488059	2.6015847	20	12 20.6	19.1
356087 2009 DY <sub>131</sub>	16.9	X	195.25023	311.47281	329.67214	5.42554	0.1077515	0.25170771	2.4843057	20	—	—
356088 2009 DL <sub>133</sub>	17.2	X	197.07503	51.02177	171.60696	7.47267	0.0998060	0.23302507	2.6153769	20	12 30.7	21.0
356089 2009 DQ <sub>134</sub>	16.7	X	64.62765	249.43929	11.27750	3.30190	0.0393989	0.21107926	2.7936522	20	9 15.8	20.5
356090 2009 DM <sub>136</sub>	17.1	X	335.20514	237.98647	223.66577	4.98481	0.1130933	0.24541311	2.5266061	20	—	—
356091 2009 DX <sub>137</sub>	17.0	X	38.55972	22.81199	357.33736	8.92103	0.1442918	0.23636529	2.5906789	20	—	—
356092 2009 DS <sub>140</sub>	17.7	X	235.02474	257.93080	257.68359	3.93035	0.2183650	0.23130211	2.6283488	20	11 4.2	21.5
356093 2009 DM <sub>142</sub>	16.9	X	27.01021	301.81742	27.80905	6.91171	0.0795127	0.21526111	2.7573528	20	10 30.5	20.3
356094 2009 DQ <sub>142</sub>	17.0	X	51.65186	327.77279	318.80743	2.74900	0.0690072	0.21348643	2.7726127	20	10 5.4	20.8
356095 2009 DU <sub>142</sub>	16.5	X	53.08743	295.44917	352.06767	4.63987	0.1401858	0.21459362	2.7630676	20	10 19.0	20.2
356096 2009 EE <sub>4</sub>	16.1	X	158.48344	203.45605	23.93737	13.61963	0.1486290	0.22504856	2.6768162	20	11 19.9	20.5
356097 2009 EO <sub>4</sub>	16.3	X	163.44808	254.95148	352.97991	17.23649	0.0923130	0.23140758	2.6275501	20	12 28.1	20.6
356098 2009 EP <sub>16</sub>	16.9	X	240.36169	177.19027	344.40783	13.22619	0.1260739	0.23299813	2.6155785	20	11 29.9	20.6
356099 2009 EZ <sub>25</sub>	16.9	X	232.01737	3.00588	121.62565	5.94284	0.0723552	0.22066864	2.7121204	20	10 14.1	20.7
356100 2009 ED <sub>27</sub>	17.0	X	300.30398	57.63177	358.29702	5.07076	0.1282022	0.22156431	2.7048064	20	10 9.0	19.9
356101 2009 ER <sub>27</sub>	17.0	X	264.90019	275.17982	219.77514	22.32316	0.3342320	0.23542888	2.5975439	20	10 30.3	19.9
356102 2009 EK <sub>30</sub>	16.8	X	5.24147	175.42177	205.26261	3.09867	0.0789852	0.22590453	2.6700502	20	12 8.6	20.0
356103 2009 EV <sub>30</sub>	15.9	X	17.26717	142.96948	121.35618	14.59185	0.2024917	0.18751209	3.0230816	20	7 30.1	19.0
356104 2009 FC <sub>4</sub>	17.1	X	284.15971	32.05603	135.97148	7.19977	0.1613627	0.24309410	2.5426492	20	—	—
356105 2009 FT <sub>7</sub>	16.8	X	128.84872	171.82369	117.07568	4.52265	0.0567988	0.23196724	2.6233221	20	—	—
356106 2009 FW <sub>8</sub>	16.7	X	67.57232	197.83261	65.64885	4.75502	0.0548697	0.21057119	2.7981441	20	9 27.3	20.6
356107 2009 FC <sub>11</sub>	17.1	X	292.61328	353.47323	146.79961	15.52796	0.0493673	0.24202270	2.5501476	20	—	—
356108 2009 FU <sub>14</sub>	16.3	X	86.20408	350.32313	340.90463	10.21857	0.1299330	0.23752839	2.5822148	20	—	—
356109 2009 FT <sub>17</sub>	17.1	X	303.01991	321.20837	165.11596	7.16436	0.1289546	0.23990922	2.5651027	20	—	—
356110 2009 FS <sub>19</sub>	17.0	X	272.86966	61.99816	183.18105	5.66495	0.0930976	0.257490979	2.4474811	20	1 14.4	20.4
356111 2009 FE <sub>20</sub>	17.1	X	234.00754	112.35231	112.06940	4.71527	0.1314330	0.24162115	2.5529722	20	—	—
356112 2009 FY <sub>21</sub>	16.5	X	245.47844	336.43249	175.45931	10.91885	0.0799380	0.22806159	2.6531876	20	12 4.3	20.2
356113 2009 FQ <sub>22</sub>	16.6	X	181.10307	194.43963	37.97016	14.94196	0.2071337	0.22645759	2.6657012	20	12 14.1	21.2
356114 2009 FP <sub>23</sub>	16.8	X	228.98003	8.98967	187.41320	9.52633	0.0985255	0.23359944	2.6110881	20	—	—
356115 2009 FO <sub>27</sub>	17.4	X	272.56661	17.86102	167.79277	5.39180	0.0915880	0.24697400	2.5159493	20	—	—
356116 2009 FJ <sub>28</sub>	16.7	X	249.48966	110.60078	14.55912	12.38534	0.1062408	0.22596853	2.6695460	20	10 27.4	20.4
356117 2009 FR <sub>28</sub>	16.9	X	296.15142	21.61504	104.25818	5.83397	0.1726476	0.23828370	2.5767552	20	—	—
356118 2009 FL <sub>29</sub>	16.6	X	30.10328	165.69153	136.55256	5.13192	0.0512305	0.21237848	2.7822472	20	9 27.1	20.3
356119 2009 FW <sub>30</sub>	16.5	X	178.50790	269.17718	6.88665	12.38046	0.2621411	0.23439265	2.6051939	20	—	—
356120 2009 FX <sub>31</sub>	16.8	X	254.35226	312.71920	180.87536	13.30464	0.2039704	0.22932024	2.6434705	20	11 5.1	20.3
356121 2009 FM <sub>32</sub>	16.9	X	320.16193	13.86383	89.75064	5.83944	0.1843084	0.24221491	2.5487983	20	—	—
356122 2009 FS <sub>35</sub>	17.6	X	332.13212	355.73443	90.60448	3.87924	0.1937568	0.24001232	2.5643681	20	—	—
356123 2009 FR <sub>37</sub>	16.4	X	311.45022	248.03426	134.26366	6.02577	0.0594975	0.21188776	2.7865412	20	9 18.3	19.9
356124 2009 FD <sub>39</sub>	16.2	X	162.60688	195.63334	48.29683	14.79998	0.2080557	0.22669638	2.6638289	20	12 12.5	20.8
356125 2009 FE <sub>42</sub>	16.9	X	297.80366	342.96328	106.09065	5.22150	0.1433516	0.22829642	2.6513679	20	11 22.6	19.7
356126 2009 FR <sub>42</sub>	16.5	X	104.41256	155.62437	93.87421	5.02499	0.0488163	0.21504479	2.7592016	20	10 24.1	20.4
356127 2009 FZ <sub>45</sub>	16.3	X	232.18968	47.93900	138.68650	9.24775	0.0793292	0.23299956	2.6155678	20	12 31.1	19.8
356128 2009 FN <sub>46</sub>	16.7	X	219.02365	41.93709	185.44062	14.40670	0.2532700	0.23408683	2.6074624	20	—	—
356129 2009 FM <sub>47</sub>	16.6	X	103.24293	202.81667	89.30332	4.65130	0.1752684	0.21803144	2.7339462	20	12 20.5	21.0
356130 2009 FV <sub>47</sub>	17.2	X	234.55771	190.34940	23.24934	5.32612	0.1773513	0.23793947	2.5792398	20	—	—
356131 2009 FM <sub>55</sub>	16.7	X	318.39116	349.29740	92.05164	5.66775	0.1143252	0.23074628	2.6325679	20	12 19.6	19.4
356132 2009 FS <sub>55</sub>	16.5	X	170.32944	226.61925	26.05024	13.62979	0.2238761	0.22674933	2.6634142	20	12 30.2	21.2
356133 2009 FE <sub>56</sub>	16.3	X	143.11609	116.54112	134.49342	25.42484	0.2159445	0.22267297	2.6958210	20	12 11.6	21.4
356134 2009 FS <sub>58</sub>	17.0	X	357.56762	323.94531	24.29974	1.88044	0.0675523	0.21502357	2.7593831	20	10 11.4	20.3
356135 2009 FL <sub>59</sub>	16.8	X	106.94085	15.47203	221.57312	5.54197	0.0920537	0.20968669	2.8060074	20	10 11.2	20.9
356136 2009 FC <sub>60</sub>	16.4	X	194.32550	174.57256	14.19220	6.17435	0.0752657	0.22375284	2.6871403	20	11 15.4	20.4
356137 2009 FQ <sub>60</sub>	17.2	X	271.50273	272.45675	193.94352	12.29083	0.2262841	0.22802401	2.6534791	20	10 19.3	20.1
356138 2009 FX <sub>63</sub>	16.7	X	271.90777	292.11372	182.18973	6.75942	0.2138802	0.22777238	2.6554330	20	11 2.4	19.7
356139 2009 FD <sub>66</sub>	17.3	X	232.27749	32.43415	148.64528	4.95456	0.1972921	0.22891900	2.6465585	20	12 6.9	21.1
356140 2009 FF <sub>66</sub>	17.3	X	170.57939	150.28866	118.43192	1.94447	0.1511126	0.23415418	2.6069625	20	—	—
356141 2009 FR <sub>69</sub>	16.6	X	235.58746	25.68089	156.20493	8.25928	0.1329422	0.23120176	2.6291092	20	12 21.4	20.2
356142 2009 FX <sub>70</sub>	16.0	X	2.92261	228.71295	60.83480	11.88640	0.0863906	0.19198346	2.9759583	20	8 2.2	19.9
356143 2009 FR <sub>72</sub>	16.3	X	175.28334	118.54739	102.31005	13.95160	0.2138080	0.22314830	2.6919914	20	11 29.4	20.9
356144 2009 FK <sub>73</sub>	17.2	X	288.64782	64.02408	61.27320	5.53100	0.1331786	0.23459229	2.6037157	20	12 28.5	19.9
356145 2009 FD <sub>75</sub>	16.4	X	221.64927	312.43426	208.98156	3.63707	0.0264844	0.22228478	2.6989586	20	11 21.3	20.0
356146 2009 GV <sub>1</sub>	16.9	X	277.57163	328.55433	131.71106	4.02921	0.1470291	0.22720881	2.6598221	20	11 2.9	20.0
356147 2009 GW <sub>3</sub>	16.1	X	282.22689	291.25385	58.64100	10.72745	0.0173137	0.18577846	3.0418595	20	6 26.3	20.4
356148 2009 GT <sub>5</sub>	16.9	X	286.4185									

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>
356161 2009 HE <sub>35</sub>	16.7	X	288.01123	93.15159	311.86431	3.59430	0.1087501	0.20870746	2.8147775	20	9 3.9	20.2
356162 2009 HU <sub>36</sub>	16.7	X	182.70361	45.51324	192.05149	5.20187	0.1822165	0.22698401	2.6615780	20	12 25.2	21.0
356163 2009 HH <sub>37</sub>	15.9	X	128.50402	219.83914	37.55994	14.02199	0.1347360	0.21716622	2.7412030	20	11 28.1	20.3
356164 2009 HL <sub>42</sub>	16.3	X	239.23125	61.33026	57.29174	14.83567	0.0503712	0.21420812	2.7663817	20	10 19.9	20.2
356165 2009 HU <sub>45</sub>	16.3	X	255.85984	289.71671	202.28275	13.59812	0.1093162	0.22426204	2.6830713	20	11 17.3	19.8
356166 2009 HN <sub>47</sub>	16.8	X	274.46572	50.99108	41.01197	13.65792	0.2335163	0.22606201	2.6688101	20	10 6.7	20.1
356167 2009 HO <sub>48</sub>	15.9	X	236.98825	211.84135	136.69135	10.42165	0.1011474	0.17674339	3.1446616	20	4 24.1	20.8
356168 2009 HR <sub>56</sub>	16.4	X	332.54912	251.12929	173.07285	15.18687	0.0381849	0.22765982	2.6563081	20	12 15.9	20.1
356169 2009 HT <sub>59</sub>	16.3	X	173.91878	113.86151	116.57723	11.77265	0.1883621	0.22389841	2.6859755	20	12 9.8	20.8
356170 2009 HH <sub>70</sub>	16.6	X	12.99945	82.19422	199.72216	1.48153	0.0707588	0.19472532	2.9479567	20	8 2.9	20.3
356171 2009 HS <sub>73</sub>	16.3	X	182.21888	116.13863	135.20172	14.02648	0.2433732	0.22903903	2.6456338	20	—	—
356172 2009 HC <sub>74</sub>	16.4	X	166.60515	105.72874	117.88809	14.05768	0.1409876	0.22067963	2.7120304	20	11 28.9	20.9
356173 2009 HQ <sub>74</sub>	16.5	X	219.99334	64.55334	145.67494	13.52755	0.2163038	0.23206930	2.6225529	20	12 26.9	20.6
356174 2009 HH <sub>75</sub>	16.3	X	212.21932	55.02420	92.02828	5.14581	0.0753987	0.21636033	2.7480057	20	10 17.3	20.3
356175 2009 HK <sub>76</sub>	16.8	X	112.54523	220.63185	50.59405	9.65599	0.0835610	0.21916059	2.7245476	20	11 29.1	20.8
356176 2009 HH <sub>83</sub>	16.7	X	102.79515	77.50366	170.08057	13.36668	0.0668404	0.20901220	2.8120409	20	10 21.1	20.9
356177 2009 HF <sub>84</sub>	16.5	X	133.66498	97.07141	159.58960	9.59822	0.1342314	0.21845532	2.7304085	20	12 5.9	21.0
356178 2009 HR <sub>85</sub>	17.2	X	212.94766	45.75974	134.97563	4.74150	0.2004400	0.22517394	2.6758225	20	11 15.4	21.4
356179 2009 HS <sub>95</sub>	16.3	X	144.11155	89.81199	148.58856	10.41612	0.1122746	0.21440856	2.7646573	20	11 24.4	20.8
356180 2009 HM <sub>96</sub>	16.8	X	88.84212	162.13819	88.14998	6.44402	0.0984701	0.20482423	2.8502426	20	10 11.9	21.0
356181 2009 HS <sub>96</sub>	16.9	X	164.80208	126.05526	106.78192	5.87226	0.0332594	0.22050137	2.7134918	20	12 10.9	20.7
356182 2009 HC <sub>100</sub>	16.2	X	246.05018	295.31054	78.14071	10.13456	0.0453167	0.18491805	3.0512878	20	6 6.7	20.6
356183 2009 HU <sub>101</sub>	16.5	X	340.28519	142.10313	152.97388	11.11502	0.1029162	0.18704470	3.0281155	20	6 29.0	20.4
356184 2009 HO <sub>105</sub>	16.4	X	22.42682	232.80248	75.44854	3.03195	0.1155065	0.20046649	2.8914001	20	9 30.0	19.9
356185 2009 JE <sub>8</sub>	16.3	X	77.76641	94.46553	94.14719	9.73817	0.0701909	0.18880694	3.0092441	20	7 2.2	20.3
356186 2009 JX <sub>9</sub>	16.5	X	253.11212	58.84682	81.98252	13.29935	0.1348868	0.22574480	2.6713095	20	11 22.3	19.9
356187 2009 JE <sub>12</sub>	16.5	X	192.42370	353.99847	204.33162	12.87507	0.1848711	0.22005275	2.7171786	20	11 17.4	20.9
356188 2009 JF <sub>17</sub>	16.6	X	153.51497	343.63935	273.71355	6.27962	0.2555592	0.21959624	2.7209431	20	12 20.3	21.3
356189 2009 KE <sub>7</sub>	15.7	X	18.64025	195.87771	67.14107	21.09474	0.1566100	0.18801157	3.0177251	20	7 29.1	19.6
356190 2009 KV <sub>12</sub>	16.2	X	298.17359	131.82781	214.98290	8.03264	0.1086857	0.18792775	3.0186223	20	6 30.5	20.2
356191 2009 KO <sub>22</sub>	16.4	X	132.12492	357.96268	217.43461	12.12900	0.1730451	0.20996858	2.8034953	20	10 13.6	21.1
356192 2009 KE <sub>36</sub>	15.4	X	346.12956	173.17768	90.94732	13.85562	0.1328998	0.17934563	3.1141691	20	5 28.0	19.1
356193 2009 LG <sub>2</sub>	15.6	X	237.15156	171.80017	180.16445	17.30927	0.0394644	0.17276648	3.1927363	20	5 3.4	20.4
356194 2009 LA <sub>5</sub>	16.2	X	315.40275	209.31837	114.91000	11.59367	0.0307302	0.18750600	3.0231470	20	7 6.0	20.3
356195 2009 MD <sub>10</sub>	15.5	X	44.49514	294.37949	312.47616	16.51346	0.2228662	0.17939342	3.1136160	20	8 21.1	19.5
356196 2009 OX	15.7	X	345.87886	166.40381	135.70952	9.73789	0.2314619	0.17436690	3.1731701	20	7 13.2	18.8
356197 2009 OB <sub>1</sub>	15.5	X	24.30173	146.33721	128.82515	20.41413	0.2588201	0.18392998	3.0622057	20	9 9.3	19.2
356198 2009 OJ <sub>6</sub>	15.3	X	326.01815	155.17522	146.94885	19.31985	0.1291117	0.17191949	3.0570082	20	6 14.8	19.6
356199 2009 OO <sub>24</sub>	15.8	X	357.63002	146.71731	146.91631	11.04538	0.2221429	0.17806262	3.1291103	20	7 29.0	19.0
356200 2009 OO <sub>25</sub>	15.0	X	326.69566	167.67526	138.20626	14.74091	0.1173660	0.17198097	3.2024508	20	6 20.7	19.2
356201 2009 PF <sub>11</sub>	16.5	X	33.43492	124.66787	160.92075	9.05874	0.2157875	0.18460752	3.0547086	20	9 29.0	20.2
356202 2009 PH <sub>15</sub>	15.4	X	2.98574	110.95969	159.50964	20.48311	0.1240130	0.17005125	3.2266324	20	7 3.6	19.7
356203 2009 QX <sub>32</sub>	15.2	X	341.72846	128.19399	170.21127	26.75004	0.2440753	0.17287016	3.1914597	20	6 27.7	19.1
356204 2009 QJ <sub>52</sub>	15.5	X	26.78980	344.63405	283.61375	11.49081	0.1892097	0.17770701	3.1332834	20	8 14.8	19.3
356205 2009 QF <sub>65</sub>	13.6	X	303.92162	303.74984	110.97695	20.67247	0.0950741	0.08415463	5.1572405	20	9 30.9	20.4
356206 2009 RN <sub>13</sub>	13.8	X	243.06006	79.77968	21.86441	16.24510	0.0760606	0.08181457	5.2551159	20	9 13.2	20.9
356207 2009 RT <sub>20</sub>	13.9	X	278.79045	53.32387	18.16143	7.92867	0.1429350	0.08360862	5.1796692	20	9 6.9	20.7
356208 2009 RK <sub>25</sub>	13.0	X	310.03381	265.64969	128.33018	20.19624	0.0931697	0.08316603	5.1980295	20	9 10.8	19.7
356209 2009 RS <sub>31</sub>	13.5	X	273.62227	74.04291	4.29096	9.39311	0.0922082	0.08298551	5.2055652	20	9 14.0	20.3
356210 2009 RY <sub>31</sub>	13.6	X	288.07207	64.98336	357.60507	11.77771	0.0488081	0.08539875	5.1070295	20	9 17.9	20.4
356211 2009 RB <sub>63</sub>	14.2	X	305.41620	197.70940	193.42035	7.05655	0.0711729	0.08159558	5.2645143	20	8 29.3	20.9
356212 2009 RP <sub>64</sub>	13.9	X	275.97934	233.70104	197.89321	3.31887	0.0599052	0.08113078	5.2846019	20	9 11.1	20.8
356213 2009 RX <sub>64</sub>	14.2	X	260.01116	80.81413	16.03603	6.35506	0.1078960	0.08198437	5.2478570	20	9 17.5	21.2
356214 2009 RN <sub>73</sub>	13.4	X	147.41042	174.66261	26.24328	20.73040	0.0129150	0.08314865	5.1987536	20	9 27.4	20.4
356215 2009 SX <sub>40</sub>	13.9	X	227.66013	276.09499	209.87862	6.14942	0.0528510	0.08161871	5.2635194	20	9 19.3	21.0
356216 2009 SH <sub>69</sub>	14.1	X	305.82583	289.03870	121.44660	5.36560	0.0950374	0.08264712	5.2197646	20	9 22.0	20.7
356217 2009 Clymene	13.3	X	309.80888	54.36206	339.01261	18.01470	0.0902777	0.08118651	5.2821834	20	9 5.1	20.0
356218 2009 SZ <sub>117</sub>	14.6	X	270.17312	206.28129	232.71403	5.07745	0.1416996	0.08192167	5.2505345	20	8 31.9	21.6
356219 2009 SJ <sub>121</sub>	14.3	X	294.95732	109.97286	299.61176	1.95105	0.0984561	0.08313540	5.1993062	20	9 4.3	21.0
356220 2009 SM <sub>123</sub>	13.9	X	253.17991	164.60618	291.76616	5.43492	0.0493763	0.08339568	5.1884823	20	9 13.3	20.9
356221 2009 SF <sub>178</sub>	14.1	X	287.34686	353.88573	73.68690	3.68700	0.0702799	0.08463392	5.1377513	20	9 21.5	20.8
356222 2009 SF <sub>194</sub>	14.1	X	226.17918	256.74074	217.48090	6.43734	0.0626003	0.08197291	5.2483462	20	9 2.9	21.3
356223 2009 SH <sub>197</sub>	13.6	X	236.43552	252.13677	231.20258	9.35538	0.1459311	0.08292290	5.2081850	20	9 14.3	21.0
356224 2009 SW <sub>199</sub>	14.3	X	280.47777	178.01819	259.28396	4.31400	0.1178943	0.08385218	5.1696341	20	9 14.2	21.1
356225 2009 SY <sub>208</sub>	14.0	X	295.58333	52.21326	9.61938	6.41649	0.1157226	0.08388198	5.1684096	20	9 18.4	20.5
356226 2009 SF <sub>246</sub>	13.8	X	289.69090	16.54471	43.66965	7.73734	0.0935124	0.08374002	5.1742491	20	9 14.5	20.5
356227 2009 SE <sub>248</sub>	14.3	X	310.33846	346.38589	52.76653	7.12666	0.1036424	0.08332881	5.1912576	20	9 15.5	20.9
356228 2009 SJ <sub>248</sub>	14.1	X	145.26328	178.83196	26.02484	14.64050	0.0159187	0.08310396	5.2006174	20	9 27.1	21.1
356229 2009 SW <sub>273</sub>	14.5	X	270.03245	58.87682	17.31326	10.80841	0.1054165	0.08276266	5.2149051	20	9 7.9	21.4
356230 2009 SK <sub>277</sub>	15.6	X	55.34308	74.87135	187.21382	25.97745	0.1768256	0.17551832	3.1592773	20	9 19.1	20.0
356231 2009 SS <sub>293</sub>	13.9	X	292.78983	93.09740	312.95878	7.51677	0.0622432	0.08263182	5.2204088	20	8 31.8	20.7
356232 2009 SZ <sub>297</sub>	13.8	X	286.44377	332.28897	92.35742	5.13522	0.0430902	0.08481080	5.1306055	20	9 21.2	20.5
356233 2009 SG <sub>299</sub>	13.3	X	298.33613	89.72523	324.94166	10						

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>
356241 2009 SS <sub>354</sub>	13.5	X	294.01846	3.11783	57.32314	9.62485	0.0871877	0.08380578	5.1715423	20	9 22.1	20.2
356242 2009 SU <sub>354</sub>	14.4	X	233.61430	323.87323	161.64468	5.83117	0.0605093	0.08406851	5.1607617	20	9 26.9	21.4
356243 2009 SE <sub>355</sub>	13.8	X	275.16753	51.20314	21.68444	15.22598	0.1704362	0.08270876	5.2171706	20	9 4.3	20.8
356244 2009 SL <sub>357</sub>	13.9	X	259.54483	40.18448	59.85153	7.09658	0.0894219	0.08300663	5.2046818	20	9 24.9	20.9
356245 2009 TR <sub>15</sub>	13.3	X	300.38246	305.60245	106.28576	9.91986	0.0477381	0.08228014	5.2352733	20	9 24.2	20.2
356246 2009 TE <sub>25</sub>	17.7	X	149.49606	87.70651	211.24032	20.55036	0.0852966	0.38802543	1.8616409	20	—	—
356247 2009 UP <sub>7</sub>	14.6	X	295.62867	353.42326	60.68202	7.82652	0.0479890	0.08448026	5.1439794	20	9 20.7	21.3
356248 2009 UO <sub>12</sub>	14.4	X	243.77280	238.33081	216.16499	6.54907	0.0823341	0.08411792	5.1587408	20	8 28.2	21.5
356249 2009 UT <sub>48</sub>	14.2	X	306.73147	29.14493	27.25111	5.71055	0.0793262	0.08488710	5.1275304	20	9 30.9	20.7
356250 2009 UB <sub>49</sub>	14.3	X	206.29648	84.00208	68.02853	2.59035	0.0587666	0.08277623	5.2143354	20	9 28.5	21.3
356251 2009 UZ <sub>50</sub>	14.1	X	291.18201	219.55522	195.70722	3.41561	0.0523132	0.08060153	5.3077101	20	9 11.4	20.9
356252 2009 UT <sub>53</sub>	13.8	X	262.87195	86.24097	352.70903	17.90924	0.1196550	0.08354981	5.1820995	20	9 1.1	20.7
356253 2009 UK <sub>77</sub>	14.5	X	333.16341	25.56637	4.93709	5.83780	0.0311743	0.08500108	5.1229459	20	10 6.2	21.2
356254 2009 US <sub>78</sub>	13.9	X	317.90025	188.32201	218.61949	5.33948	0.0293117	0.08521401	5.1144083	20	10 6.2	20.6
356255 2009 UP <sub>120</sub>	14.3	X	265.13680	277.82439	165.77931	2.41636	0.0465865	0.08248276	5.2266963	20	9 15.0	21.2
356256 2009 UJ <sub>130</sub>	17.8	X	357.71033	337.79017	65.11698	23.43579	0.0929363	0.37202609	1.9146399	20	—	—
356257 2009 UL <sub>140</sub>	13.4	X	27.48223	276.65835	72.84984	8.48270	0.0453999	0.08380074	5.1717496	20	10 28.6	20.1
356258 2009 UN <sub>147</sub>	14.3	X	290.51799	353.40075	78.52564	5.81787	0.1064961	0.08453366	5.1418129	20	9 26.7	21.0
356259 2009 UV <sub>148</sub>	13.8	X	250.97868	51.46387	60.94632	8.46175	0.0695642	0.08500903	5.1226264	20	10 2.5	20.7
356260 2009 US <sub>153</sub>	17.1	X	7.42862	272.34606	143.52046	22.50251	0.1244877	0.37656924	1.8992093	20	—	—
356261 2009 VB <sub>3</sub>	12.6	X	290.54883	38.72309	17.49760	22.67433	0.0561603	0.07996628	5.3357823	20	9 18.9	19.6
356262 2009 VL <sub>15</sub>	14.3	X	314.88895	122.89816	289.63597	3.46106	0.0609512	0.08253302	5.2245742	20	10 5.3	21.0
356263 2009 VO <sub>21</sub>	13.4	X	16.11394	255.74595	97.99507	6.13929	0.0425920	0.08080441	5.2988222	20	10 19.3	20.2
356264 2009 VE <sub>25</sub>	13.1	X	334.53058	101.47823	272.78142	12.98962	0.0335738	0.08369818	5.1759734	20	9 13.3	20.0
356265 2009 VQ <sub>26</sub>	13.9	X	285.08694	56.33374	15.81505	8.71189	0.0796977	0.08232478	5.2333806	20	9 22.2	20.6
356266 2009 VY <sub>45</sub>	13.2	X	244.62111	90.43380	17.19454	10.86250	0.0627311	0.08138156	5.2737400	20	9 19.5	20.2
356267 2009 VS <sub>72</sub>	17.7	X	310.52068	77.44173	63.33724	22.38751	0.1194178	0.38171915	1.8820887	20	—	—
356268 2009 WV <sub>2</sub>	13.7	X	315.61363	338.50976	68.12844	6.95834	0.1230515	0.08311069	5.2003365	20	9 29.1	20.1
356269 2009 WR <sub>18</sub>	15.1	X	217.66979	193.08653	100.36288	4.10792	0.1601515	0.12303919	4.0035053	20	1 31.5	21.5
356270 2009 WJ <sub>107</sub>	13.8	X	280.11331	230.56440	216.36544	6.55072	0.05051764	0.08170020	5.2600187	20	10 9.6	20.7
356271 2009 WN <sub>113</sub>	14.2	X	269.91374	241.05947	205.98721	7.18316	0.0914569	0.08357142	5.1812062	20	9 16.9	21.1
356272 2009 WJ <sub>135</sub>	14.1	X	353.30091	109.53072	261.46043	2.79435	0.0575609	0.08207179	5.2441301	20	10 7.5	20.8
356273 2009 WL <sub>152</sub>	13.8	X	289.48628	118.43847	323.36357	7.67771	0.0645977	0.08042040	5.3156767	20	10 5.1	20.8
356274 2009 YC <sub>7</sub>	17.1	X	40.74133	283.57741	67.76509	22.90961	0.1019234	0.36538497	1.9377702	20	—	—
356275 2010 AU <sub>92</sub>	13.1	X	314.45422	15.88763	18.43370	17.38228	0.0324543	0.08321369	5.1960443	20	9 22.7	19.9
356276 2010 AJ <sub>107</sub>	13.5	X	308.53950	58.10053	357.81915	18.54110	0.1004932	0.08454602	5.1413118	20	9 27.6	20.1
356277 2010 BL <sub>5</sub>	13.4	X	221.26341	350.69382	134.85007	16.04859	0.0593938	0.08060417	5.3075940	20	9 16.2	20.6
356278 2010 BG <sub>28</sub>	16.7	X	84.64731	204.35504	107.88834	16.56300	0.2552629	0.23892306	2.5721562	20	—	—
356279 2010 BD <sub>41</sub>	12.7	X	315.09335	241.57528	156.70116	17.37735	0.0274278	0.08099038	5.2907077	20	9 26.1	19.6
356280 2010 BK <sub>89</sub>	13.7	X	311.85399	286.34847	122.59843	8.69240	0.1248084	0.08155787	5.2661367	20	9 26.2	20.3
356281 2010 CO <sub>107</sub>	17.3	X	162.31034	184.63791	164.72462	5.84662	0.1161906	0.28268162	2.2993460	20	1 25.8	20.5
356282 2010 CB <sub>170</sub>	18.0	X	317.74875	103.39723	166.76650	4.51438	0.1796394	0.30285336	2.1960781	20	3 30.8	20.2
356283 2010 CY <sub>217</sub>	18.1	X	355.27045	12.45205	159.12910	5.60256	0.1508464	0.28041592	2.3117149	20	1 15.4	20.3
356284 2010 CH <sub>242</sub>	14.0	X	258.04276	315.52680	160.91676	8.05224	0.0516671	0.08173390	5.2585729	20	10 14.7	21.0
356285 2010 DE	17.3	X	184.99347	277.05541	176.94423	23.97830	0.3963506	0.32056043	2.1144436	20	7 2.3	21.9
356286 2010 DO <sub>26</sub>	17.0	X	72.22106	216.11945	94.79196	11.80928	0.1256050	0.23199748	2.6230941	20	12 12.7	20.8
356287 2010 DG <sub>43</sub>	17.9	X	326.55160	286.43895	337.00934	4.50277	0.1043392	0.30170154	2.2016640	20	4 14.8	20.0
356288 2010 DP <sub>75</sub>	18.1	X	355.62188	255.77903	353.35163	3.23140	0.1432626	0.30365071	2.1922320	20	5 17.9	19.7
356289 2010 EQ <sub>37</sub>	17.5	X	296.34927	102.47801	169.78779	5.69495	0.1510942	0.28914181	2.2649683	20	3 7.2	20.2
356290 2010 EL <sub>70</sub>	17.4	X	274.43638	239.98773	22.10756	4.21422	0.2350041	0.27963127	2.3160374	20	1 22.8	21.0
356291 2010 ET <sub>98</sub>	15.6	X	356.36858	216.19482	170.42017	13.49721	0.1922602	0.24449503	2.5329271	20	12 24.3	18.6
356292 2010 EJ <sub>123</sub>	17.5	X	286.24318	79.28747	151.88231	8.09121	0.1491248	0.27626808	2.3347958	20	1 2.9	20.8
356293 2010 EH <sub>125</sub>	17.0	X	276.35155	243.07019	0.21254	9.38932	0.1694186	0.28414941	2.2914210	20	1 6.7	20.5
356294 2010 EQ <sub>128</sub>	18.0	X	135.25969	67.34070	3.34771	2.58047	0.1341888	0.29723049	2.2236878	20	4 13.1	20.8
356295 2010 EW <sub>137</sub>	17.6	X	5.56278	220.17927	358.21631	7.13541	0.1214302	0.29712567	2.2242108	20	4 16.9	19.5
356296 2010 FQ <sub>13</sub>	18.4	X	346.74070	94.96647	171.23382	3.47639	0.1587961	0.30370329	2.1919790	20	5 28.4	19.9
356297 2010 FY <sub>20</sub>	17.7	X	289.48404	129.84469	145.25136	4.73926	0.1480617	0.29195843	2.2503774	20	3 3.3	20.3
356298 2010 FT <sub>47</sub>	18.3	X	275.14685	86.17958	173.38945	4.40049	0.2030405	0.28125683	2.3071049	20	1 20.8	21.9
356299 2010 FN <sub>88</sub>	17.3	X	292.32392	258.61408	353.05336	7.37319	0.1709887	0.28347458	2.2950561	20	2 3.9	20.4
356300 2010 GF <sub>27</sub>	17.0	X	192.77344	197.38737	104.47494	7.50681	0.1286599	0.26621747	2.3931964	20	1 1.8	20.7
356301 2010 GH <sub>27</sub>	16.9	X	208.50705	196.02191	111.64030	6.04341	0.1666918	0.27088361	2.3656340	20	1 24.3	20.5
356302 2010 GB <sub>28</sub>	17.3	X	228.94195	146.01283	148.48556	7.13577	0.1105988	0.27338499	2.3511821	20	1 26.6	20.8
356303 2010 GL <sub>72</sub>	16.3	X	135.51176	172.51339	123.40271	14.67114	0.2756247	0.23631394	2.5910541	20	—	—
356304 2010 GI <sub>100</sub>	17.2	X	213.65739	204.96067	75.51949	4.66715	0.1678087	0.26578082	2.3958169	20	—	—
356305 2010 GS <sub>109</sub>	18.1	X	296.60581	178.91941	101.26730	2.79221	0.1702218	0.29026572	2.2591178	20	3 17.2	20.8
356306 2010 GQ <sub>116</sub>	16.9	X	5.96723	303.94755	206.41193	5.97118	0.0696095	0.27935552	2.3175612	20	1 12.8	19.4
356307 2010 GO <sub>124</sub>	17.7	X	347.06310	164.04189	89.31303	5.54289	0.0973908	0.29758086	2.2219420	20	5	

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>
356321 2010 JZ <sub>37</sub>	17.9	X	312.27765	146.70215	75.06906	5.65227	0.1693911	0.27910145	2.3189674	20	1 19.2	20.9
356322 2010 JD <sub>45</sub>	17.2	X	14.32768	329.74565	100.39713	15.36607	0.0574510	0.25434425	2.4671076	20	—	—
356323 2010 JJ <sub>45</sub>	16.8	X	22.36824	309.43764	85.75553	6.15698	0.1029230	0.24517609	2.5282342	20	—	—
356324 2010 JZ <sub>58</sub>	16.4	X	80.00003	348.65797	272.58604	7.10782	0.1831716	0.21229114	2.7830102	20	10 20.4	20.7
356325 2010 JK <sub>64</sub>	15.8	X	218.74483	224.84256	122.50552	14.52797	0.0656684	0.16953562	3.2331715	20	4 8.5	20.9
356326 2010 JG <sub>72</sub>	18.1	X	320.10392	106.96764	106.43107	8.46439	0.0737780	0.28000321	2.3139859	20	2 2.6	20.7
356327 2010 JV <sub>73</sub>	17.5	X	219.53356	214.10023	57.17219	3.30013	0.1523457	0.26427919	2.4048836	20	—	—
356328 2010 JL <sub>75</sub>	17.0	X	229.11439	240.94443	42.34503	4.73187	0.0703092	0.27116872	2.3639756	20	1 15.6	20.3
356329 2010 JM <sub>75</sub>	17.8	X	281.66299	146.50344	81.44300	3.73283	0.1137084	0.27450267	2.3447957	20	—	—
356330 2010 JU <sub>94</sub>	17.5	X	162.17694	144.18880	144.37852	3.85605	0.1896258	0.23969504	2.5666305	20	—	—
356331 2010 JU <sub>99</sub>	15.6	X	278.93896	10.35329	306.01621	15.76333	0.2188385	0.17772308	3.1330945	20	4 3.3	20.6
356332 2010 JV <sub>131</sub>	16.5	X	104.72666	141.63475	160.64370	12.44661	0.1908068	0.22610423	2.6684778	20	—	—
356333 2010 JS <sub>147</sub>	16.7	X	49.46483	191.89218	128.23398	4.12577	0.1080845	0.22978750	2.6398856	20	11 25.8	20.3
356334 2010 JV <sub>151</sub>	17.8	X	6.62048	120.88545	119.33193	5.61987	0.1375756	0.29909290	2.2144471	20	5 31.1	19.4
356335 2010 JZ <sub>172</sub>	18.0	X	252.61373	195.93468	68.81834	1.61796	0.1847109	0.27321347	2.3521661	20	1 9.9	21.8
356336 2010 KK <sub>38</sub>	17.6	X	19.97991	322.64508	205.69365	9.91431	0.1175177	0.28375832	2.2935259	20	2 26.7	19.9
356337 2010 KA <sub>62</sub>	17.1	X	259.23121	353.26894	253.60800	4.36017	0.1908217	0.26848506	2.3797023	20	—	—
356338 2010 KO <sub>77</sub>	15.9	X	336.44406	66.28455	251.77583	9.08227	0.0993357	0.19113673	2.9847407	20	7 22.2	19.6
356339 2010 KT <sub>96</sub>	16.1	X	160.30081	273.56922	354.67122	9.91117	0.0978763	0.23063397	2.6334224	20	—	—
356340 2010 KS <sub>102</sub>	15.4	X	274.44668	171.54386	166.76727	28.71490	0.1501778	0.17885522	3.1198590	20	5 17.9	20.4
356341 2010 KL <sub>111</sub>	15.8	X	160.03727	317.61903	282.81193	11.24550	0.1538162	0.22462929	2.6801460	20	12 9.7	20.1
356342 2010 KO <sub>117</sub>	17.1	X	239.10401	176.20259	93.77403	7.53417	0.1793719	0.26669024	2.3903673	20	1 5.4	20.8
356343 2010 KP <sub>122</sub>	16.4	X	226.00690	183.47853	88.03975	25.29764	0.1666654	0.27546979	2.3393044	20	—	—
356344 2010 KN <sub>125</sub>	15.5	X	287.15138	167.90542	148.74882	22.97998	0.1516653	0.17685519	3.1433363	20	5 7.9	20.3
356345 2010 LU <sub>2</sub>	15.6	X	259.83180	42.05510	327.99869	22.52280	0.1386662	0.17884683	3.1199566	20	5 22.8	20.8
356346 2010 LN <sub>4</sub>	16.3	X	96.36761	160.16502	164.11652	14.16479	0.3024156	0.22549580	2.6732757	20	—	—
356347 2010 LF <sub>31</sub>	15.5	X	134.05642	198.28155	173.83131	10.42555	0.0532650	0.17403389	3.1772167	20	5 31.4	20.1
356348 2010 LP <sub>34</sub>	17.2	X	302.99354	110.60114	123.67562	7.15134	0.0833934	0.27735938	2.3286675	20	2 5.8	20.0
356349 2010 LG <sub>60</sub>	16.3	X	212.21763	144.47668	246.58213	6.65388	0.0252270	0.17319695	3.1874439	20	5 20.8	21.0
356350 2010 LX <sub>61</sub>	17.4	X	309.72400	50.24537	198.04886	6.37678	0.0679261	0.28272694	2.2991003	20	3 4.8	20.1
356351 2010 LO <sub>63</sub>	17.2	X	11.65199	18.52502	129.93210	6.19789	0.1745044	0.27549397	2.3391675	20	1 10.8	19.3
356352 2010 LV <sub>68</sub>	15.7	X	281.56700	175.10931	157.99510	22.65245	0.0477119	0.17742553	3.1365965	20	6 3.5	20.5
356353 2010 LJ <sub>88</sub>	15.8	X	282.32457	284.16858	51.86859	4.42939	0.1184514	0.17777359	3.1325010	20	5 24.4	20.1
356354 2010 LV <sub>90</sub>	15.6	X	242.25523	89.10112	282.39048	7.69889	0.1054415	0.17441531	3.1725829	20	5 22.6	20.4
356355 2010 LW <sub>101</sub>	15.6	X	229.46147	25.35497	347.96596	16.67981	0.0406184	0.17227193	3.1988438	20	5 11.5	20.5
356356 2010 LZ <sub>102</sub>	15.7	X	241.35066	233.44806	145.74083	5.36668	0.1373794	0.17509560	3.1643601	20	5 29.8	20.6
356357 2010 LO <sub>103</sub>	15.5	X	261.03203	86.95832	269.48232	4.26210	0.1592603	0.17568478	3.1572814	20	5 18.7	20.3
356358 2010 LJ <sub>119</sub>	16.1	X	273.62374	358.56660	358.57123	10.09242	0.0985192	0.17956183	3.1116688	20	6 11.5	20.6
356359 2010 LZ <sub>121</sub>	15.4	X	357.85853	333.07737	307.42638	15.13778	0.0468440	0.18329336	3.0692922	20	7 9.6	19.6
356360 2010 LF <sub>125</sub>	16.3	X	334.73073	150.41544	142.24969	4.65196	0.1878766	0.18366879	3.0651082	20	6 9.3	19.7
356361 2010 LO <sub>128</sub>	15.4	X	248.48975	141.29224	237.25453	7.55640	0.0367605	0.17820372	3.1274584	20	6 17.0	19.9
356362 2010 LZ <sub>129</sub>	15.9	X	20.34970	279.50045	352.92741	11.78135	0.1399855	0.19049737	2.9914154	20	8 12.8	19.5
356363 2010 ME <sub>18</sub>	15.6	X	264.03562	11.73334	349.44497	15.50250	0.1271776	0.17705487	3.1409725	20	5 29.1	20.5
356364 2010 MD <sub>58</sub>	15.5	X	119.42016	299.88427	188.35986	19.19329	0.1048783	0.16918785	3.2376005	20	6 10.1	20.7
356365 2010 MP <sub>63</sub>	15.7	X	307.49128	14.06258	295.01970	8.11711	0.0746158	0.17544388	3.1601709	20	5 29.7	20.1
356366 2010 MB <sub>68</sub>	16.0	X	216.07346	281.66702	329.37568	10.61106	0.1556307	0.23812418	2.5779058	20	—	—
356367 2010 MQ <sub>79</sub>	15.8	X	4.97781	322.96456	322.72264	17.07700	0.1096039	0.18586367	3.0409297	20	7 31.1	19.4
356368 2010 MR <sub>84</sub>	15.4	X	306.28189	329.01344	329.52366	22.96940	0.1155583	0.17281681	3.1921164	20	4 27.8	20.2
356369 2010 MU <sub>89</sub>	15.4	X	299.42217	351.40943	4.60056	25.49643	0.2802681	0.18436839	3.0573494	20	6 15.8	19.9
356370 2010 MJ <sub>90</sub>	15.2	X	11.44382	174.44139	13.97048	9.89103	0.0121323	0.15746162	3.3964057	20	3 31.2	20.0
356371 2010 MC <sub>99</sub>	15.9	X	39.25617	71.62794	186.01951	15.42793	0.1090795	0.18788094	3.0191237	20	8 11.2	20.0
356372 2010 NR <sub>4</sub>	17.2	X	223.18307	160.12720	120.37675	5.03415	0.1650232	0.25656549	2.4528475	20	1 5.7	21.1
356373 2010 NF <sub>5</sub>	17.1	X	294.23003	149.97360	115.76759	8.44687	0.2513636	0.27561208	2.3384992	20	2 14.4	20.4
356374 2010 NR <sub>5</sub>	15.7	X	261.78483	25.75457	318.32844	14.41363	0.0561483	0.18070333	3.0985507	20	5 13.6	20.4
356375 2010 NB <sub>32</sub>	15.7	X	282.81429	318.75527	22.28173	9.06900	0.1923113	0.17578647	3.1560636	20	5 18.8	20.3
356376 2010 NW <sub>78</sub>	15.4	X	20.73583	233.51983	4.21766	8.32983	0.0497816	0.17100494	3.2146247	20	6 13.4	19.8
356377 2010 NZ <sub>81</sub>	15.7	X	304.48682	24.21665	284.20824	8.92242	0.2036245	0.18508931	3.0494053	20	5 3.3	19.7
356378 2010 NX <sub>113</sub>	15.9	X	9.67320	129.07243	179.91853	12.52825	0.1235208	0.19093356	2.9868577	20	9 6.8	19.6
356379 2010 OW <sub>4</sub>	16.8	X	126.54294	110.20699	164.78963	8.55245	0.2743919	0.21955778	2.7212607	20	12 11.8	21.8
356380 2010 OP <sub>19</sub>	16.0	X	338.10526	319.07451	346.32608	13.50012	0.2469192	0.18349166	3.0670804	20	7 1.4	19.2
356381 2010 OL <sub>20</sub>	15.7	X	357.30049	293.31082	351.96308	9.89041	0.0459710	0.17724797	3.1386908	20	7 15.3	20.0
356382 2010 ON <sub>28</sub>	15.4	X	281.60642	163.35114	131.78433	9.87469	0.1480415	0.16206033	3.3318459	20	4 3.3	20.3
356383 2010 OY <sub>39</sub>	15.8	X	299.80212	319.18437	18.80519	11.59692	0.1013186	0.17593993	3.1542282	20	6 22.4	20.2
356384 2010 OX <sub>40</sub>	15.3	X	314.83800	331.66828	354.63221	27.48789	0.1439105	0.17808838	3.1288805	20	6 27.9	19.8
356385 2010 OJ <sub>49</sub>	16.1	X	343.29625	284.20639	356.70714	2.03585	0.0485379	0.17131003	3.2108069	20	6 16.5	20.4
356386 2010 OK <sub>49</sub>	16.3	X	325.73366	201.47037	106.79637	3.21032	0.2041643	0.17878420	3.1206852	20	6 11.2	19.6
356387 2010 OF <sub>100</sub>	17.6	X	317.13467	67.79457	175.38138	6.52573	0.2558363	0.27588710	2.3369448	20	2 8.2	20.6
356388 2010 PX <sub>22</sub>	15.3	X	255.45063	52.24897	255.87001	8.87281	0.0766717	0.15305169	3.4613377	20	3 22.3	20.5
356389 2010 PW <sub>33</sub>	15.6	X	77.55626	198.42028	15.22705	15.06404	0.1261146	0.17475075	3.1685217	20	8 17.3	20.3
356390 2010 PB <sub>58</sub>	16.4	X	94.71397	138.49913	133.21242	1.59295	0.1331486	0.21669458	2.7451791	20	11 15.9	20.7
356391 2010 PF <sub>59</sub>	16.4	X	182.59901	320.07913	312.49241	8.67262	0.1047400	0.23919704	2.5701917	20	—	—
356392 2010 PX <sub>79</sub>	16.0	X	264.85740	209.03379	159.14655	10.34812	0.0836320	0.18103877	3.0947220	20	6 18.4	20.6
356393 2010 PC <sub>81</sub>	15.6	X	92.17345	311.57157	264.05212	7.71548	0.0330760	0.18779585	3.0200355	20	8 15.9	20.0
35639												

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>
356401 2010 RR <sub>114</sub>	16.2	X	58.82980	308.50749	317.23263	4.80620	0.1106256	0.19342851	2.9611180	20	9 20.3	20.2
356402 2010 RD <sub>128</sub>	16.2	X	1.06383	332.33868	318.91759	8.38642	0.1271162	0.18620519	3.0372103	20	7 30.9	19.6
356403 2010 RW <sub>162</sub>	16.7	X	79.53227	145.87876	171.18325	4.69993	0.1334386	0.22118540	2.7078946	20	12 25.5	20.9
356404 2010 RQ <sub>169</sub>	16.5	X	95.22532	59.26605	151.10707	2.76428	0.0949295	0.19240597	2.9716000	20	8 24.8	20.8
356405 2010 RG <sub>180</sub>	15.8	X	299.83454	324.62971	4.27404	9.66847	0.0890403	0.17433807	3.1735199	20	6 11.5	20.2
356406 2010 SG <sub>8</sub>	16.6	X	87.71989	74.07643	208.77177	2.90347	0.1271218	0.21164036	2.7887124	20	11 20.7	20.7
356407 2010 SY <sub>17</sub>	16.3	X	0.62123	294.21589	0.64936	9.38759	0.0203972	0.18427483	3.0583842	20	8 2.2	20.5
356408 2010 SC <sub>36</sub>	15.8	X	301.00589	53.79422	259.35310	7.72543	0.1382008	0.17909917	3.1170253	20	5 16.8	19.9
356409 2010 TM <sub>2</sub>	15.6	X	314.32850	263.44337	60.29469	7.14148	0.1929661	0.17751168	3.1355815	20	6 12.7	19.3
356410 2010 TQ <sub>49</sub>	15.9	X	186.26337	284.76931	89.78277	3.53477	0.0173004	0.15270400	3.4665897	20	4 3.1	20.8
356411 2010 TK <sub>70</sub>	16.4	X	356.06504	263.44790	0.68989	10.24228	0.0972210	0.17502165	3.1652513	20	6 11.8	20.5
356412 2010 TN <sub>98</sub>	16.1	X	69.16395	191.17730	20.65272	7.61608	0.0711324	0.17932694	3.1143854	20	7 23.0	20.5
356413 2010 TD <sub>100</sub>	16.4	X	20.23795	120.26471	146.58064	3.43981	0.1250002	0.18318261	3.0705291	20	7 29.1	20.2
356414 2010 TD <sub>108</sub>	16.6	X	123.47431	221.64407	52.31885	2.93619	0.1494952	0.21548681	2.7554271	20	12 15.3	21.1
356415 2010 TJ <sub>158</sub>	16.4	X	345.43351	145.67705	141.37188	2.81235	0.0347251	0.17539893	3.1607108	20	6 28.2	20.7
356416 2010 TM <sub>173</sub>	16.2	X	359.98373	337.43336	294.01828	7.54387	0.1228158	0.18249308	3.0782587	20	6 30.5	19.7
356417 2010 UG <sub>31</sub>	14.0	X	255.53722	145.85566	297.71939	2.88326	0.1172566	0.08155747	5.2661540	20	8 25.6	21.1
356418 2010 UT <sub>48</sub>	14.1	X	230.45131	48.16318	77.62237	4.55688	0.1030892	0.08336352	5.1898168	20	9 20.9	21.2
356419 2010 UL <sub>76</sub>	13.3	X	281.19638	155.14592	280.50074	8.98270	0.0905246	0.08261630	5.22210626	20	9 14.3	20.2
356420 2010 UU <sub>106</sub>	15.9	X	179.10896	301.57524	291.48734	10.36034	0.1299263	0.22480751	2.6787294	20	12 20.6	20.0
356421 2010 VC <sub>13</sub>	13.2	X	302.14334	350.02087	54.69893	15.69152	0.1180824	0.08326060	5.1940927	20	9 14.3	19.9
356422 2010 VO <sub>24</sub>	14.0	X	274.70383	15.94649	64.02321	6.59881	0.1053858	0.08335745	5.1900688	20	9 17.3	20.9
356423 2010 VG <sub>61</sub>	13.9	X	257.57327	64.47224	28.35945	4.59310	0.0850112	0.08122152	5.2806653	20	9 13.3	20.9
356424 2010 VP <sub>109</sub>	14.1	X	239.21829	306.61533	166.54592	6.56164	0.0495528	0.08556006	5.1006086	20	9 20.0	20.9
356425 2010 VS <sub>119</sub>	13.9	X	44.28819	135.86362	169.94302	2.54764	0.0533526	0.08367207	5.1770503	20	9 28.6	20.5
356426 2010 VB <sub>122</sub>	14.5	X	306.36915	111.61591	284.49599	6.06422	0.0722363	0.08417261	5.1565061	20	9 4.4	21.2
356427 2010 VJ <sub>122</sub>	13.8	X	265.79189	165.76040	272.82004	7.84123	0.0553269	0.08367916	5.1767579	20	9 5.3	20.8
356428 2010 VH <sub>153</sub>	13.5	X	264.03470	191.56922	265.76566	10.64012	0.2046656	0.08292477	5.2081064	20	9 4.2	20.7
356429 2010 VB <sub>176</sub>	13.7	X	278.44578	111.26577	318.49613	8.42120	0.1662126	0.08335641	5.1901117	20	8 28.5	20.6
356430 2010 VM <sub>178</sub>	13.7	X	263.65322	33.37572	55.04450	5.80470	0.0300702	0.08426742	5.1526376	20	9 23.5	20.5
356431 2010 VN <sub>179</sub>	13.8	X	257.42607	41.14714	58.65237	10.53350	0.0538386	0.08370498	5.1756933	20	9 28.4	20.8
356432 2010 VN <sub>192</sub>	13.8	X	258.08330	174.86323	285.49638	7.37656	0.0702172	0.08184634	5.2537556	20	9 19.1	20.8
356433 2010 VW <sub>202</sub>	13.8	X	236.75796	121.61262	348.78019	5.86015	0.1244505	0.08219006	5.2390977	20	9 5.9	21.0
356434 2010 VO <sub>204</sub>	15.7	X	23.89933	44.07215	226.98159	10.41814	0.1031330	0.17792438	3.1307309	20	8 3.1	19.9
356435 2010 WP <sub>3</sub>	14.6	X	273.31329	43.37459	30.15325	2.37967	0.2068249	0.08172280	5.2590491	20	8 23.8	21.5
356436 2010 WA <sub>5</sub>	14.0	X	267.97962	77.93996	17.100878	4.49516	0.0525034	0.08441963	5.1464422	20	9 30.6	20.7
356437 2010 WK <sub>11</sub>	14.3	X	271.26571	111.37586	324.40537	9.05802	0.0825626	0.08300308	5.2048304	20	9 6.6	21.2
356438 2010 WJ <sub>21</sub>	14.0	X	309.51022	152.11670	44.57962	3.01460	0.0574121	0.08073263	5.3019624	20	9 11.2	20.8
356439 2010 WH <sub>46</sub>	13.8	X	304.53095	160.88610	253.03102	6.21197	0.0420053	0.08290794	5.2088113	20	9 25.1	20.7
356440 2010 WV <sub>68</sub>	13.8	X	2.55570	85.65466	284.60687	7.75597	0.0373310	0.08623267	5.0740508	20	10 16.1	20.5
356441 2010 XX <sub>7</sub>	14.1	X	263.72594	297.08262	156.13669	8.50679	0.0813251	0.08155004	5.2664740	20	9 20.7	21.0
356442 2010 XR <sub>24</sub>	13.3	X	255.23625	272.49145	194.09019	14.08024	0.1223804	0.08344560	5.1864128	20	9 18.9	20.3
356443 2010 XR <sub>32</sub>	13.9	X	292.36184	126.10094	306.73224	9.13068	0.1100573	0.08470661	5.1348117	20	9 22.6	20.6
356444 2010 XK <sub>35</sub>	13.4	X	289.79694	314.13756	107.23009	7.21606	0.0960240	0.08401150	5.1630965	20	9 15.3	20.1
356445 2010 XD <sub>45</sub>	13.2	X	310.68398	317.38842	80.74431	20.28021	0.0853751	0.08392168	5.1667798	20	9 23.9	20.0
356446 2010 XD <sub>74</sub>	13.0	X	263.71722	345.72387	94.42953	10.31614	0.0297921	0.08252667	5.2248420	20	9 16.2	20.0
356447 2010 XW <sub>75</sub>	13.8	X	307.46531	319.12908	96.44830	6.22410	0.0848720	0.08271338	5.2169764	20	10 1.9	20.4
356448 2010 XU <sub>78</sub>	13.7	X	333.27120	161.63832	219.50002	8.07595	0.0684803	0.08117906	5.2825066	20	9 22.0	20.4
356449 2010 XU <sub>79</sub>	13.8	X	246.31837	5.57961	118.69478	8.45972	0.0850441	0.08364579	5.1781343	20	10 11.8	20.8
356450 2010 XF <sub>85</sub>	13.3	X	257.87425	348.31626	114.99538	13.14974	0.1201924	0.08246942	5.2272600	20	9 24.6	20.4
356451 2011 GP <sub>27</sub>	13.5	X	316.24150	89.58160	327.98335	4.56038	0.0977254	0.08427605	5.1522857	20	10 9.8	19.9
356452 2011 LK <sub>13</sub>	16.5	X	287.90512	174.89550	178.08713	15.43630	0.1471736	0.20374342	2.8603136	20	6 19.6	20.6
356453 2011 LT <sub>26</sub>	17.0	X	283.69863	75.64394	251.30453	6.47281	0.3193886	0.30564815	2.1826706	20	4 8.5	20.2
356454 2011 NM	17.4	X	208.94452	61.33052	257.82723	4.93003	0.2666552	0.28743703	2.2739151	20	2 4.7	21.4
356455 2011 OE <sub>4</sub>	17.5	X	100.26178	124.11096	226.93282	1.37977	0.2307089	0.26170233	2.4206444	20	—	—
356456 2011 OT <sub>16</sub>	16.1	X	149.78454	281.87615	161.45367	26.06013	0.3001333	0.17944614	3.1130061	20	5 30.9	22.1
356457 2011 OA <sub>17</sub>	17.2	X	287.60895	123.17931	296.29210	13.21978	0.1777501	0.22325867	2.6911040	20	9 8.9	20.6
356458 2011 OL <sub>18</sub>	16.7	X	71.56406	215.51734	156.96579	6.67709	0.1460476	0.25811403	2.4430272	20	—	—
356459 2011 PU <sub>13</sub>	17.4	X	349.74126	255.12218	165.18017	12.94526	0.1515086	0.24096124	2.5576312	20	—	—
356460 2011 QC <sub>1</sub>	17.5	X	63.07413	145.31570	250.47466	5.62107	0.0745520	0.26179105	2.4200974	20	—	—
356461 2011 QK <sub>2</sub>	17.7	X	266.52707	4.95098	323.66906	5.60429	0.1354804	0.30518899	2.1848593	20	4 14.8	20.6
356462 2011 QY <sub>8</sub>	17.9	X	126.72655	60.28205	329.07558	6.37708	0.1101731	0.27650540	2.3334597	20	2 7.0	20.8
356463 2011 QU <sub>22</sub>	17.0	X	148.28455	347.52609	336.95683	6.84275	0.1109231	0.26326341	2.4110657	20	—	—
356464 2011 QF <sub>25</sub>	16.8	X	321.07778	261.03666	165.32243	8.48471	0.1602168	0.23171444	2.6252297	20	12 6.2	19.6
356465 2011 QB <sub>34</sub>	16.0	X	314.79129	12.60708	354.30842	10.24459	0.2585132	0.21160502	2.7890229	20	8 12.4	18.6
356466 2011 QG <sub>37</sub>	17.8	X	269.90469	317.35800	352.48835	5.16561	0.1700102	0.30231190	2.1986995	20	3 22.0	20.5
356467 2011 QT <sub>38</sub>	17.0	X	69.41087	344.86154	23.58557	3.94472	0.1703666	0.25478836	2.4642400	20	—	—
356468 2011 QM <sub>40</sub>	17.0	X	341.67964	26.24476	322.56441	7.48811	0.1879854	0.21763801	2.7372400	20	9 17.8	19.7
356469 2011 QZ <sub>40</sub>	17.2	X	224.63958	340.98295	350.34155	10.95076	0.2492720	0.29159790	2.2522320	20	3 4.3	20.9
356470 2011 QM <sub>46</sub>	16.2	X	243.83559	115.79376	291.25427	15.30181	0.2746426	0.19878657	2.9076672	20	6 22.1	21.0
356471 2011 QU <sub>59</sub>	17.4	X	134.83489	159.68135	174.86516	2.12859	0.2462182	0.26515817	2.3995660	20	—	—
356472 2011 QT <sub>61</sub>	17.2	X	337.19549	297.21513	211.58537	6.22034	0.0805223	0.26624273	2.3930450	20	—	—
356473 2011 QO <sub>62</sub>	17.4	X	25.66408	148.05366	338.62710	7.01459	0.0829059	0.27527188	2.3404255	20	1 14.3	19

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>
356481 2011 QG <sub>96</sub>	16.2	X	38.42327	338.75528	347.25769	12.27520	0.2537230	0.23061388	2.6335754	20	12 7.9	20.1
356482 2011 RT <sub>1</sub>	17.2	X	315.24365	187.96270	196.75076	4.88918	0.1245961	0.22042309	2.7141343	20	9 21.6	20.1
356483 2011 RB <sub>2</sub>	16.6	X	219.25498	192.19637	177.41304	5.65485	0.2436158	0.18475582	3.0530737	20	4 20.7	21.9
356484 2011 RL <sub>9</sub>	17.0	X	113.75039	186.02726	169.70314	9.42801	0.2736673	0.26105564	2.4246403	20	1 2.8	20.2
356485 2011 RQ <sub>9</sub>	17.2	X	73.23344	177.21761	201.72957	6.17167	0.1298027	0.25661775	2.4525145	20	—	—
356486 2011 RW <sub>11</sub>	16.2	X	162.99665	242.73792	189.18563	15.23595	0.2059983	0.17842462	3.1248766	20	5 21.7	21.7
356487 2011 RJ <sub>16</sub>	17.5	X	289.03105	26.96735	271.35689	7.17786	0.2316392	0.30537195	2.1839865	20	3 16.4	20.5
356488 2011 RQ <sub>18</sub>	16.8	X	320.30237	143.53021	19.90998	6.80078	0.0509770	0.26406145	2.4062055	20	—	—
356489 2011 RS <sub>19</sub>	16.7	X	171.31936	268.93675	66.13731	7.36865	0.0844159	0.27414846	2.3468149	20	1 17.8	20.0
356490 2011 RU <sub>19</sub>	16.6	X	5.84764	199.82031	145.91062	15.42893	0.1888047	0.22229731	2.6988573	20	11 11.8	19.9
356491 2011 SB <sub>1</sub>	17.6	X	61.94355	217.65705	193.95917	5.29346	0.0995163	0.26160230	2.4212614	20	—	—
356492 2011 SF <sub>1</sub>	17.5	X	356.82309	299.90561	189.43160	6.17847	0.1060407	0.26569266	2.3963469	20	—	—
356493 2011 SY <sub>10</sub>	16.7	X	299.58331	114.64962	305.97459	6.72045	0.2082160	0.22002730	2.7173881	20	10 1.0	19.6
356494 2011 SA <sub>13</sub>	17.7	X	106.58444	167.99971	209.16190	4.48407	0.1157597	0.26505351	2.4001977	20	—	—
356495 2011 SE <sub>22</sub>	16.6	X	193.57230	83.50686	289.39388	8.41126	0.2525691	0.17716372	3.1396858	20	3 31.6	22.4
356496 2011 SW <sub>23</sub>	16.4	X	324.80612	348.59534	7.31495	14.20717	0.1975151	0.21193362	2.7861392	20	8 28.8	19.3
356497 2011 SL <sub>27</sub>	17.3	X	211.78638	196.39485	133.05108	4.83981	0.2576553	0.28908127	2.2652845	20	2 21.2	21.1
356498 2011 SE <sub>28</sub>	17.8	X	265.80975	162.00226	157.19218	5.62163	0.2142731	0.30398207	2.1906386	20	3 26.9	20.9
356499 2011 SV <sub>28</sub>	16.0	X	318.78069	12.87681	359.37450	25.50666	0.1584403	0.21320122	2.7750848	20	9 12.3	19.0
356500 2011 SO <sub>31</sub>	16.2	X	201.04360	45.01859	358.66642	10.92314	0.2448841	0.18426692	3.0584717	20	5 12.4	21.7
356501 2011 SE <sub>35</sub>	17.5	X	161.27859	193.76972	178.88305	3.67983	0.1188219	0.27761090	2.3272607	20	2 24.9	20.7
356502 2011 SS <sub>36</sub>	16.8	X	348.02797	264.11501	95.84941	3.00038	0.0966783	0.21806390	2.7336749	20	10 16.5	20.0
356503 2011 SH <sub>38</sub>	16.6	X	262.18033	285.24424	81.08257	3.71641	0.0987986	0.19107515	2.9853820	20	6 10.1	20.6
356504 2011 SA <sub>39</sub>	17.0	X	306.39115	307.72928	190.23507	16.90832	0.1208289	0.24568526	2.5247399	20	—	—
356505 2011 SZ <sub>39</sub>	16.7	X	234.56295	192.26111	166.48663	1.56102	0.1588069	0.18194378	3.0844512	20	4 25.4	21.5
356506 2011 SP <sub>42</sub>	17.9	X	343.28573	85.80740	354.79922	14.01417	0.1513819	0.24219080	2.5489675	20	—	—
356507 2011 SM <sub>48</sub>	18.1	X	112.82521	117.07167	0.75197	6.97680	0.0268610	0.29891585	2.2153215	20	5 4.1	20.7
356508 2011 SA <sub>49</sub>	16.6	X	213.92856	124.51484	352.08036	13.47198	0.1553709	0.21299619	2.7768654	20	9 1.7	20.8
356509 2011 SM <sub>51</sub>	16.7	X	339.45891	141.23142	211.54543	4.64627	0.0692523	0.21465353	2.7625535	20	9 17.9	20.2
356510 2011 SO <sub>52</sub>	17.0	X	323.44586	178.04212	188.02597	1.34252	0.0939573	0.21484116	2.7609448	20	9 10.9	20.1
356511 2011 SM <sub>56</sub>	17.9	X	219.68608	122.69862	160.53125	6.28821	0.1062848	0.27092802	2.3653755	20	1 3.7	21.4
356512 2011 ST <sub>60</sub>	17.0	X	211.44106	196.79383	107.59386	10.29780	0.1862296	0.27660370	2.3329068	20	1 22.5	20.7
356513 2011 SE <sub>68</sub>	17.0	X	322.07054	192.09677	188.21440	3.40406	0.2039737	0.21779970	2.7358852	20	9 23.3	19.4
356514 2011 SC <sub>71</sub>	16.9	X	271.02408	127.79880	290.46393	2.17800	0.0813731	0.21447144	2.7641169	20	9 2.1	20.5
356515 2011 SJ <sub>71</sub>	17.3	X	191.16854	174.85440	173.86164	6.78436	0.1380041	0.28155182	2.3054931	20	2 25.4	20.7
356516 2011 ST <sub>83</sub>	17.5	X	66.14618	110.23736	203.00057	3.57278	0.0837742	0.23085897	2.6317111	20	12 3.5	21.2
356517 2011 SX <sub>84</sub>	16.5	X	230.32509	342.65843	194.27871	12.13257	0.0346631	0.23220861	2.6215038	20	12 22.3	20.2
356518 2011 SY <sub>84</sub>	16.9	X	32.08732	291.55623	54.28631	7.02131	0.0372266	0.22457439	2.6805828	20	11 23.6	20.4
356519 2011 SC <sub>87</sub>	17.4	X	133.86218	25.28187	344.12414	4.73685	0.1252066	0.26901967	2.3765486	20	1 24.2	20.5
356520 2011 SV <sub>87</sub>	16.6	X	299.84160	35.03134	269.53923	2.82080	0.2438553	0.30742628	2.1742462	20	4 8.9	20.2
356521 2011 SV <sub>89</sub>	16.9	X	3.03030	138.41229	220.72111	5.33458	0.0503531	0.22287465	2.6941944	20	11 2.9	20.3
356522 2011 SH <sub>90</sub>	17.6	X	194.18629	321.69222	3.77846	7.48553	0.1278858	0.27515787	2.3410719	20	2 2.8	21.1
356523 2011 SQ <sub>90</sub>	16.3	X	76.20508	352.39252	252.95866	2.74725	0.0479975	0.20899401	2.8122040	20	9 9.6	20.1
356524 2011 SK <sub>91</sub>	16.5	X	295.91682	82.47030	199.69034	3.48530	0.0643709	0.21139176	2.7908983	20	9 17.9	20.2
356525 2011 SE <sub>92</sub>	17.4	X	24.32428	30.02904	345.90416	2.01791	0.1234276	0.23258293	2.6186904	20	—	—
356526 2011 SR <sub>102</sub>	16.8	X	101.98400	348.40324	11.90734	7.30468	0.1239819	0.25990328	2.4318020	20	—	—
356527 2011 SH <sub>104</sub>	16.5	X	242.16675	168.47516	0.47497	13.73391	0.1758867	0.23073076	2.6326859	20	12 3.7	20.3
356528 2011 SZ <sub>104</sub>	16.0	X	157.31096	184.54077	263.67859	6.56810	0.0655577	0.17991366	3.1076108	20	5 28.9	20.7
356529 2011 SA <sub>107</sub>	15.8	X	188.61279	9.82837	20.87529	12.40525	0.2756390	0.17585240	3.1552747	20	4 20.4	21.5
356530 2011 SX <sub>111</sub>	16.6	X	59.44109	8.16947	347.52249	14.62776	0.0566477	0.24181102	2.5516356	20	—	—
356531 2011 SJ <sub>112</sub>	17.3	X	105.36694	355.88295	11.49642	5.71069	0.1985876	0.25991885	2.4317049	20	—	—
356532 2011 ST <sub>115</sub>	17.4	X	107.65090	181.48898	189.04783	7.42398	0.1105612	0.26255782	2.4153834	20	—	—
356533 2011 SP <sub>125</sub>	17.1	X	66.09061	218.60127	111.39522	2.25280	0.0844577	0.23586921	2.5943101	20	12 25.2	20.8
356534 2011 SR <sub>131</sub>	17.4	X	240.56696	149.49389	159.35414	2.41170	0.1814754	0.28499120	2.2869065	20	2 21.1	20.7
356535 2011 SS <sub>132</sub>	16.7	X	239.22618	68.68874	33.90970	4.25887	0.0621621	0.21421859	2.7662915	20	9 23.5	20.5
356536 2011 SH <sub>134</sub>	16.5	X	68.52873	357.05734	322.38319	10.81637	0.2071252	0.23673783	2.5879603	20	12 28.8	20.6
356537 2011 SS <sub>134</sub>	17.0	X	61.96308	117.82403	200.62640	1.43318	0.0698194	0.23147108	2.6270695	20	12 3.2	20.6
356538 2011 SZ <sub>147</sub>	16.8	X	133.02603	77.17891	13.31775	4.41659	0.2297555	0.17400830	3.1775282	20	5 17.7	22.1
356539 2011 SM <sub>152</sub>	17.2	X	255.89266	14.77634	30.67394	2.27367	0.0628083	0.20462681	2.8520756	20	7 30.0	21.0
356540 2011 SO <sub>158</sub>	17.1	X	311.81491	184.06632	224.91214	4.15705	0.1112069	0.22071328	2.7117547	20	10 20.9	20.0
356541 2011 SL <sub>165</sub>	16.9	X	280.70221	88.41519	9.75226	5.13730	0.0787064	0.22156578	2.7047944	20	11 9.4	20.2
356542 2011 SO <sub>165</sub>	17.1	X	231.68190	4.61969	329.61141	6.40957	0.2344946	0.29391902	2.2403589	20	3 11.5	20.9
356543 2011 SZ <sub>166</sub>	16.6	X	9.86643	19.24038	10.38606	11.89936	0.1711765	0.23090572	2.6313558	20	—	—
356544 2011 SV <sub>174</sub>	16.9	X	356.49438	127.95890	28.35168	5.42746	0.1616688	0.26861664	2.3789251	20	—	—
356545 2011 SZ <sub>174</sub>	16.5	X	180.15044	52.37681	15.50090	12.65982	0.1520222	0.18396913	3.0617713	20	5 25.8	21.7
356546 2011 SV <sub>176</sub>	17.5	X	10.37730	73.63627	283.74731	5.13272	0.0797793	0.22567028	2.6718976	20	11 13.9	20.9
356547 2011 SM <sub>178</sub>	16.8	X	326.47349	26.21585	320.23373	3.87542	0.1624740	0.20937169	2.8088211	20	8 14.2	19.7
356548 2011 ST <sub>178</sub>	17.5	X	230.52661	30.76754	259.75115	2.05381	0.2329850	0.28061207	2.3106375	20	1 19.7	21.5
356549 2011 SC <sub>179</sub>	16.8	X	351.36019	22.90974	355.63534	5.56576	0.0646612	0.22450168	2.6811615	20	11 11.4	20.1
356550 2011 ST <sub>182</sub>	17.4	X	226.22766	292.15793	7.83404	6.17016	0.1472460	0.27735438	2.3286955	20	2 1.1	21.0
356551 2011 SB <sub>186</sub>	17.2	X	312.00019	161.58895	224.18849	3.81713	0.0777345	0.21416624	2.7667423	20	9 19.2	20.5
356552 2011 ST <sub>188</sub>	17.1	X	322.45928	201.82240	343.79234	5.71890	0.0264748	0.26975756	2.3722127	20	1 8.2	20.1
356553 2011 SW <sub>189</sub>	16.5	X	320.33117	334.35618	13.28424	5.63072	0.0980252	0.20871481	2.8147114	20	8 12.3	19.8
356554 2011 SP <sub>190</sub>	17.3	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>		
356561	2011	SR <sub>204</sub>	17.4	X	107.72460	193.65657	171.64422	6.44390	0.1301999	0.25920657	2.4361576	20	—	—
356562	2011	SA <sub>205</sub>	17.0	X	19.12527	118.43331	43.36030	6.06999	0.0750688	0.27887934	2.3201986	20	2 24.5	19.4
356563	2011	SW <sub>206</sub>	16.5	X	312.67006	143.89603	311.35770	11.88266	0.2317049	0.23818471	2.5774691	20	—	—
356564	2011	SX <sub>207</sub>	17.6	X	42.36367	68.81710	313.06504	1.55234	0.1200641	0.24768784	2.5111130	20	—	—
356565	2011	SG <sub>208</sub>	17.3	X	171.25539	68.49202	241.62294	3.48901	0.1690199	0.26925554	2.3751605	20	—	—
356566	2011	SR <sub>209</sub>	17.6	X	317.07759	53.24220	6.38799	6.56171	0.1450892	0.22814626	2.6525311	20	11 13.8	20.4
356567	2011	SW <sub>218</sub>	16.1	X	51.12359	226.81025	71.22724	13.93873	0.1602812	0.22452474	2.6809780	20	11 8.5	19.8
356568	2011	SC <sub>219</sub>	17.1	X	105.45687	36.33647	348.49068	6.03293	0.1261281	0.26420652	2.4053246	20	1 8.3	20.0
356569	2011	SN <sub>223</sub>	16.6	X	332.26268	215.62960	192.52409	12.41539	0.1636993	0.22707000	2.6609060	20	11 30.8	19.4
356570	2011	SK <sub>224</sub>	16.9	X	254.68169	141.22843	15.18076	9.74674	0.1124511	0.22997885	2.6384211	20	12 16.2	20.4
356571	2011	SV <sub>233</sub>	16.4	X	294.04635	199.27306	221.26107	9.42216	0.2103229	0.21616345	2.7496740	20	9 19.6	19.5
356572	2011	SE <sub>234</sub>	16.7	X	42.16662	14.56555	317.89131	6.66753	0.1082201	0.23106501	2.6301464	20	11 30.7	20.3
356573	2011	SU <sub>244</sub>	16.9	X	16.25838	74.02349	279.93901	10.57595	0.2022556	0.23029938	2.6359725	20	12 8.6	20.0
356574	2011	SJ <sub>245</sub>	16.9	X	30.33182	37.44936	347.48369	8.88683	0.0462970	0.23860302	2.5744557	20	—	—
356575	2011	SL <sub>245</sub>	15.9	X	267.37171	318.14729	28.49786	10.04052	0.1675789	0.18770921	3.0209648	20	5 11.0	20.3
356576	2011	SJ <sub>246</sub>	15.9	X	166.94208	195.10754	226.34000	4.21358	0.2051890	0.17384952	3.1794626	20	5 10.8	21.4
356577	2011	SB <sub>248</sub>	16.4	X	264.98061	83.46890	6.96875	3.04699	0.0750825	0.21865126	2.7287771	20	10 8.8	19.7
356578	2011	SY <sub>249</sub>	16.9	X	325.82408	205.25989	201.89777	5.77126	0.0912842	0.22618050	2.6678779	20	11 14.5	20.0
356579	2011	SL <sub>251</sub>	16.8	X	149.76084	254.08775	72.70952	7.07955	0.1253097	0.26752044	2.3854194	20	—	—
356580	2011	SO <sub>252</sub>	17.0	X	310.90277	238.95866	161.35287	3.77524	0.0459867	0.22219851	2.6996572	20	10 13.6	20.3
356581	2011	SE <sub>255</sub>	16.4	X	297.66791	264.31515	171.82231	13.46112	0.1482181	0.22981817	2.6396508	20	11 6.3	19.4
356582	2011	SN <sub>255</sub>	16.7	X	193.19719	10.23925	180.71371	14.56190	0.0803772	0.23590242	2.5940666	20	11 22.4	20.6
356583	2011	SV <sub>256</sub>	17.0	X	206.48284	351.11884	100.95937	3.26288	0.0742820	0.19545240	2.9406413	20	7 28.3	21.4
356584	2011	SF <sub>257</sub>	16.9	X	277.77926	273.79734	273.24324	5.68265	0.1365544	0.25382988	2.4704395	20	—	—
356585	2011	ST <sub>257</sub>	16.5	X	9.01008	245.87333	33.06819	1.77777	0.0083702	0.19871395	2.9083755	20	7 25.5	20.4
356586	2011	SS <sub>258</sub>	16.7	X	192.07618	16.59849	102.61634	3.29600	0.0142559	0.20296703	2.8676031	20	8 20.8	20.6
356587	2011	ST <sub>258</sub>	16.7	X	316.87418	351.14542	13.23770	7.60407	0.0742203	0.21391043	2.7689477	20	9 2.1	20.1
356588	2011	SZ <sub>258</sub>	16.5	X	97.86418	24.25707	113.64772	11.77609	0.0288046	0.17871855	3.1214494	20	5 20.8	21.1
356589	2011	SA <sub>259</sub>	15.9	X	14.82249	302.87786	47.12842	18.33038	0.0774232	0.21601333	2.7509478	20	11 9.4	19.2
356590	2011	SZ <sub>271</sub>	17.5	X	156.04456	181.35462	143.74716	7.03831	0.1418870	0.26786865	2.3833517	20	—	—
356591	2011	SB <sub>272</sub>	16.4	X	345.45189	246.37544	158.60267	13.83369	0.1624393	0.23129092	2.6284335	20	12 22.2	19.5
356592	2011	SN <sub>274</sub>	16.1	X	197.37647	16.59011	15.60888	6.11228	0.1588397	0.17726820	3.1384520	20	4 30.1	21.3
356593	2011	SC <sub>276</sub>	16.9	X	221.55341	98.44163	301.94395	1.23335	0.2148020	0.18641533	3.0349274	20	5 29.3	22.0
356594	2011	TA <sub>1</sub>	16.9	X	233.34090	150.09377	341.05907	5.21072	0.2322905	0.22319433	2.6916212	20	9 29.1	20.9
356595	2011	TE <sub>1</sub>	15.1	X	145.72299	277.45391	171.19391	25.81003	0.2225616	0.17128800	3.2110822	20	5 29.6	20.9
356596	2011	TJ <sub>1</sub>	16.8	X	29.35182	92.28721	309.30189	7.03645	0.0974982	0.24442252	2.5334280	20	—	—
356597	2011	TS <sub>1</sub>	17.4	X	120.32786	170.29067	150.56309	4.69609	0.1557531	0.25236199	2.4800100	20	—	—
356598	2011	TQ <sub>2</sub>	16.6	X	318.11901	57.91705	332.34370	5.45388	0.0497283	0.21670182	2.7451179	20	10 6.1	20.2
356599	2011	TZ <sub>2</sub>	17.0	X	326.22565	284.05896	101.87452	1.99876	0.0532165	0.21975607	2.7196236	20	10 16.1	20.4
356600	2011	TR <sub>7</sub>	16.8	X	351.50252	341.12037	9.07748	4.21341	0.0839791	0.21434648	2.7651910	20	10 5.4	20.1
356601	2011	TG <sub>10</sub>	16.0	X	179.49799	73.87158	336.16628	9.52918	0.1293119	0.17560785	3.1582035	20	5 2.9	21.2
356602	2011	TC <sub>12</sub>	17.3	X	110.84363	182.62761	170.53023	7.33030	0.1668124	0.25805602	2.4433933	20	—	—
356603	2011	TF <sub>12</sub>	16.8	X	245.88824	56.15865	55.08979	5.69698	0.1193366	0.21820423	2.7325027	20	10 6.4	20.6
356604	2011	TR <sub>12</sub>	16.8	X	200.05873	250.47416	161.73217	8.75296	0.0996265	0.18648304	3.0341927	20	5 31.4	21.6
356605	2011	TU <sub>12</sub>	17.2	X	147.99399	212.32194	135.40359	4.68333	0.2001274	0.26899704	2.3766818	20	1 19.8	20.7
356606	2011	TV <sub>12</sub>	16.0	X	214.75711	110.36409	278.27606	5.98712	0.1773581	0.18145564	3.0899805	20	5 10.3	21.2
356607	2011	TM <sub>16</sub>	16.5	X	220.15366	239.61357	294.82166	3.73847	0.0975426	0.22110360	2.7085624	20	11 24.8	20.4
356608	2011	UQ	16.4	X	260.05143	220.35521	144.16634	11.47952	0.1504875	0.19106442	2.9854938	20	5 31.7	21.0
356609	2011	UY <sub>1</sub>	16.9	X	34.65181	331.85154	7.46020	6.29283	0.0610492	0.22492101	2.6778281	20	11 20.7	20.5
356610	2011	UV <sub>2</sub>	15.5	X	215.98718	354.57633	35.20666	23.66074	0.1853244	0.18160816	3.0882502	20	5 9.6	20.8
356611	2011	UR <sub>3</sub>	17.7	X	297.17794	62.01305	221.71237	4.54461	0.1132595	0.29564863	2.2316126	20	3 28.7	20.3
356612	2011	UC <sub>6</sub>	17.6	X	272.41927	64.86727	224.51305	4.80102	0.1604668	0.28491247	2.2873278	20	2 27.6	20.9
356613	2011	UM <sub>8</sub>	16.9	X	312.12061	22.00867	59.02459	2.88441	0.0380787	0.22408886	2.6844534	20	12 7.2	20.1
356614	2011	US <sub>12</sub>	16.2	X	232.56063	75.39792	31.29180	4.88128	0.0728825	0.20903842	2.8118057	20	9 18.6	20.1
356615	2011	UC <sub>13</sub>	16.5	X	154.21667	154.87363	44.17261	3.12815	0.0264567	0.21582571	2.7525418	20	10 16.7	20.4
356616	2011	UN <sub>13</sub>	17.0	X	301.69993	262.87907	307.64680	6.65645	0.0635362	0.26787598	2.3833082	20	1 8.1	20.0
356617	2011	UX <sub>13</sub>	17.2	X	7.73763	65.20420	304.20645	5.08659	0.2489391	0.22716921	2.6601313	20	12 22.9	20.2
356618	2011	UT <sub>14</sub>	17.2	X	310.90295	251.03080	356.97669	7.67938	0.0982341	0.28396433	2.9242165	20	3 4.1	19.7
356619	2011	UT <sub>15</sub>	16.1	X	180.52148	74.06451	63.50978	11.82544	0.0652313	0.19851680	2.9103008	20	9 1.6	20.6
356620	2011	UH <sub>17</sub>	16.6	X	172.85725	139.77308	308.00559	0.75658	0.1179680	0.17927497	3.1149872	20	6 15.2	21.5
356621	2011	UP <sub>17</sub>	16.7	X	243.53367	196.27208	40.60976	12.48488	0.1397611	0.25361975	2.4718038	20	—	—
356622	2011	UQ <sub>17</sub>	16.4	X	221.35611	284.05950	248.06078	2.94756	0.0545353	0.22338996	2.6900495	20	11 30.4	20.0
356623	2011	US <sub>17</sub>	16.8	X	4.50059	292.78416	71.72775	3.73480	0.2572720	0.22575939	2.6711944	20	12 11.7	19.6
356624	2011	UV <sub>19</sub>	16.5	X	257.39886	314.06842	32.63440	5.10710	0.1189424	0.18533184	3.0467444	20	5 7.2	21.0
356625	2011	UF <sub>22</sub>	16.4	X	35.04077	325.10053	9.74783	14.68629	0.1235917	0.22635378	2.6665161	20	11 22.3	20.2
356626	2011	UH <sub>23</sub>	16.5	X	189.66563	65.67680	88.38883	13.27838	0.1204275	0.21107713	2.7936710	20	10 1.6	21.1
356627	2011	UF <sub>26</sub>	16.5	X	246.36002	272.95239	208.23410	7.49011	0.1615169	0.21321156	2.7749951	20	10 9.9	20.2
356628	2011	UP <sub>26</sub>	16.8	X	284.10378	220.96526	203.10764	3.85798	0.0792466	0.21118190	2.7927470	20	9 28.7	20.2
356629	2011	UZ <sub>28</sub>	16.2	X	223.11257	38.42110	10.34146	6.45235	0.1718818	0.18621121	3.0371448	20	6 12.4	21.1
356630	2011	US <sub>32</sub>	16.4	X	279.76391	45.2722								



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>		
356641	2011	UE <sub>45</sub>	17.0	X	113.25286	145.28750	229.77585	6.20477	0.1335086	0.26174517	2.4203803	20	1 5.7	20.0
356642	2011	UL <sub>48</sub>	17.1	X	314.29509	10.93213	30.04524	3.71338	0.0898627	0.21442090	2.7645512	20	10 14.8	20.4
356643	2011	UN <sub>48</sub>	16.5	X	346.18208	158.07780	222.21709	5.29550	0.0361687	0.21822781	2.7323059	20	11 4.7	20.0
356644	2011	UZ <sub>48</sub>	16.9	X	53.71557	323.06177	27.87429	2.85364	0.0465869	0.23205298	2.6226759	20	12 31.2	20.4
356645	2011	UF <sub>49</sub>	16.4	X	210.65071	176.39879	215.36443	3.76334	0.2287804	0.17988801	3.1079062	20	5 9.9	21.8
356646	2011	UK <sub>53</sub>	15.5	X	121.76432	253.45161	240.29897	11.82638	0.0913847	0.17653204	3.1471711	20	6 17.3	20.3
356647	2011	UN <sub>53</sub>	16.8	X	55.38081	102.67867	254.35162	3.43485	0.2230341	0.23641861	2.5902893	20	—	—
356648	2011	UR <sub>56</sub>	16.7	X	18.86139	307.59254	31.42167	5.27689	0.0859292	0.21635230	2.7480736	20	11 1.6	20.1
356649	2011	UG <sub>61</sub>	16.2	X	179.47660	42.56145	82.68350	6.08923	0.0831780	0.18949111	3.0019964	20	8 10.1	20.8
356650	2011	UH <sub>61</sub>	15.5	X	289.23812	238.73074	69.81643	16.41042	0.0616705	0.17246296	3.1964813	20	5 10.4	20.0
356651	2011	UK <sub>61</sub>	15.3	X	138.02541	178.03152	224.62373	7.17285	0.1169742	0.15426003	3.4432385	20	3 17.5	20.6
356652	2011	UX <sub>61</sub>	16.7	X	291.63462	211.26355	159.82590	2.21853	0.0996254	0.19471146	2.9480966	20	7 25.8	20.5
356653	2011	UF <sub>62</sub>	16.6	X	51.66921	271.70907	69.94092	5.10408	0.3567532	0.23394144	2.6085427	20	—	—
356654	2011	US <sub>65</sub>	16.4	X	227.31908	326.17075	56.82788	10.53515	0.0794704	0.18507210	3.0495944	20	5 23.5	20.8
356655	2011	UT <sub>65</sub>	17.0	X	231.87899	218.47691	77.73633	5.77677	0.1553726	0.27891199	2.3200175	20	1 31.7	20.7
356656	2011	UG <sub>67</sub>	16.6	X	344.86459	183.36076	152.92373	4.67181	0.1112930	0.20966459	2.8062046	20	9 5.7	19.8
356657	2011	UR <sub>67</sub>	16.3	X	257.87353	4.43276	50.18780	11.39334	0.0907848	0.20239170	2.8730350	20	8 13.6	20.5
356658	2011	UT <sub>71</sub>	16.8	X	311.05008	39.04714	0.61080	8.97781	0.1680640	0.21863676	2.7288978	20	10 1.1	19.5
356659	2011	UO <sub>72</sub>	16.9	X	305.83870	30.04230	50.31546	5.21231	0.0917668	0.22178455	2.7030155	20	11 24.4	20.1
356660	2011	UR <sub>73</sub>	16.4	X	331.11481	341.07273	52.72297	6.73287	0.0349860	0.21644568	2.7472832	20	11 1.6	19.9
356661	2011	UY <sub>74</sub>	16.6	X	274.26663	303.19624	89.96796	3.48024	0.1172854	0.20017447	2.8942115	20	7 29.4	20.6
356662	2011	UW <sub>75</sub>	16.3	X	163.69023	54.87125	13.45275	9.56007	0.0786252	0.17438688	3.1729277	20	5 9.5	21.3
356663	2011	US <sub>76</sub>	17.6	X	139.97904	53.89519	276.55423	4.01140	0.1186811	0.25564670	2.4587210	20	—	—
356664	2011	UA <sub>77</sub>	16.4	X	284.85716	160.38508	299.99032	3.67048	0.0256272	0.22358354	2.6884966	20	11 24.8	20.0
356665	2011	UT <sub>77</sub>	17.5	X	255.35680	353.34652	252.52524	4.18577	0.1180497	0.27432419	2.3458126	20	1 29.7	20.9
356666	2011	UN <sub>77</sub>	16.5	X	214.66369	29.82918	2.07997	4.64236	0.1362264	0.18045119	3.1014364	20	5 16.4	21.5
356667	2011	UY <sub>77</sub>	16.4	X	186.08736	147.64742	350.51909	4.51605	0.0621804	0.20204351	2.8763349	20	9 3.3	20.6
356668	2011	UO <sub>80</sub>	16.5	X	259.06751	61.55079	27.08335	7.37829	0.0565945	0.21040609	2.7996077	20	10 1.6	20.2
356669	2011	UB <sub>82</sub>	16.8	X	26.69658	204.77803	115.48802	1.69000	0.0714813	0.21282956	2.7783146	20	10 17.7	20.4
356670	2011	UR <sub>82</sub>	16.0	X	130.14806	96.32427	20.40420	11.00088	0.1116812	0.17544959	3.1598622	20	6 18.7	21.0
356671	2011	US <sub>84</sub>	15.9	X	117.88775	357.86411	257.51049	8.08081	0.1008295	0.21738993	2.7393221	20	11 16.0	20.2
356672	2011	UR <sub>86</sub>	16.9	X	37.40307	86.66330	241.11949	4.03624	0.1298072	0.21626315	2.7488288	20	11 19.4	20.4
356673	2011	UP <sub>87</sub>	16.2	X	277.54085	276.19558	76.93571	4.51657	0.0251134	0.18200247	3.0837881	20	6 23.4	20.4
356674	2011	UQ <sub>87</sub>	16.4	X	323.12599	355.00322	64.08175	6.57167	0.1138952	0.21853198	2.7297699	20	11 23.4	19.4
356675	2011	UZ <sub>89</sub>	16.5	X	243.53951	150.68558	224.65685	6.44188	0.1700215	0.18222421	3.0812859	20	5 23.2	21.2
356676	2011	UA <sub>91</sub>	16.6	X	187.60428	325.27835	108.76553	11.48580	0.0318362	0.18675945	3.0311981	20	6 15.5	21.0
356677	2011	UR <sub>93</sub>	17.2	X	278.70294	2.75812	204.65633	5.91477	0.0481201	0.26074962	2.4265371	20	—	—
356678	2011	UB <sub>94</sub>	17.3	X	76.11116	99.89409	206.41702	3.30966	0.0512595	0.22950329	2.6420647	20	12 2.2	20.9
356679	2011	UW <sub>97</sub>	17.2	X	85.37848	318.67248	344.69121	3.55508	0.0932726	0.23232977	2.6205924	20	12 13.5	21.1
356680	2011	UR <sub>99</sub>	16.9	X	218.92949	66.19491	334.09482	4.64316	0.1551431	0.18333085	3.0688737	20	5 29.9	21.9
356681	2011	UN <sub>101</sub>	16.5	X	94.80956	161.74152	86.55361	5.13482	0.0087505	0.20870341	2.8148139	20	10 5.9	20.4
356682	2011	UL <sub>103</sub>	15.8	X	203.49229	171.10155	256.78119	10.06672	0.1071785	0.18229112	3.0805319	20	6 21.2	20.5
356683	2011	UL <sub>104</sub>	16.6	X	282.44803	132.75401	283.40604	2.97943	0.0623293	0.21243310	2.7817702	20	9 17.2	20.3
356684	2011	US <sub>107</sub>	16.4	X	257.21397	241.92768	121.47917	11.67896	0.1580894	0.18986148	2.9980910	20	5 26.6	21.0
356685	2011	UT <sub>111</sub>	16.0	X	261.09707	238.38531	247.37842	13.59185	0.0779484	0.22070756	2.7118016	20	11 18.4	19.4
356686	2011	UF <sub>113</sub>	16.6	X	219.10971	359.32987	218.75398	9.58059	0.0206702	0.23741975	2.5830025	20	—	—
356687	2011	UK <sub>117</sub>	16.3	X	226.72633	316.94760	43.19304	6.26565	0.1516015	0.18008952	3.1055874	20	4 20.5	21.3
356688	2011	UF <sub>121</sub>	16.7	X	353.42456	72.43179	322.62208	4.42210	0.0444256	0.22588477	2.6702059	20	12 5.8	20.2
356689	2011	UB <sub>123</sub>	16.6	X	131.85031	135.39879	34.43326	5.58479	0.0386346	0.20030902	2.8929153	20	8 13.4	20.8
356690	2011	UG <sub>123</sub>	17.0	X	211.20623	102.10722	42.64024	3.49667	0.0232975	0.21799499	2.7342510	20	10 17.8	20.8
356691	2011	UR <sub>124</sub>	15.8	X	190.71884	251.19048	232.64116	6.94518	0.0223022	0.20553021	2.8437120	20	8 20.5	19.9
356692	2011	UF <sub>125</sub>	17.0	X	303.43630	56.84910	352.29606	5.50200	0.1100881	0.21749227	2.7384627	20	10 6.4	20.3
356693	2011	UA <sub>128</sub>	16.0	X	257.62572	85.85511	245.89923	8.84900	0.1400254	0.17752165	3.1354641	20	4 15.2	20.8
356694	2011	UL <sub>134</sub>	16.3	X	45.41607	256.19120	47.36015	8.30034	0.0750732	0.21427470	2.7658085	20	10 22.9	19.9
356695	2011	UM <sub>136</sub>	17.2	X	56.30189	326.15520	353.20385	3.18088	0.0440112	0.22138384	2.7062761	20	11 20.5	20.8
356696	2011	UL <sub>137</sub>	16.6	X	180.32072	88.72695	6.64001	3.34585	0.1597929	0.18503944	3.0499532	20	7 1.9	21.5
356697	2011	UW <sub>137</sub>	16.4	X	141.42325	99.20051	357.76196	15.17096	0.2398077	0.17472420	3.1688426	20	5 30.5	22.1
356698	2011	UM <sub>138</sub>	16.6	X	303.23274	12.30062	299.29387	2.17526	0.0970825	0.18073470	3.0981922	20	5 24.2	20.6
356699	2011	US <sub>138</sub>	16.8	X	337.47282	104.56724	277.08423	4.99160	0.0833637	0.21778843	2.7359795	20	10 24.4	20.1
356700	2011	UD <sub>140</sub>	16.5	X	309.55457	53.48891	260.40705	3.30583	0.1433688	0.18999532	2.9966828	20	5 30.3	20.3
356701	2011	UM <sub>140</sub>	17.2	X	89.46037	359.73757	321.33049	3.62883	0.1315133	0.23397531	2.6082909	20	—	—
356702	2011	UH <sub>141</sub>	15.5	X	161.29224	40.02912	48.61144	17.72730	0.1972953	0.17728017	3.1383107	20	6 4.7	20.9
356703	2011	UV <sub>141</sub>	16.7	X	313.58048	295.04781	92.03502	5.42585	0.0791284	0.21226896	2.7832041	20	9 27.8	20.2
356704	2011	UF <sub>142</sub>	16.6	X	9.72935	290.68255	73.69340	7.16975	0.1471626	0.22530805	2.6747606	20	12 2.8	19.7
356705	2011	UH <sub>143</sub>	16.1	X	281.87783	244.68133	115.01867	11.81858	0.1071380	0.19046883	2.9917142	20	6 26.1	20.2
356706	2011	UZ <sub>143</sub>	16.3	X	86.19769	140.73929	59.20225	9.89360	0.0741148	0.18407815	3.0605623	20	7 30.7	20.8
356707	2011	UG <sub>149</sub>	16.5	X	242.63393	213.55873	139.92103	2.19127	0.2867465	0.18284065	3.0743564	20	4 17.0	21.8
356708	2011	UQ <sub>149</sub>	17.0	X	201.81004	222.56572	78.16882	6.21389	0.0969626	0.26407509	2.4061226	20	1 8.9	20.5
356709	2011	UC <sub>151</sub>	17.0	X	312.97080	196.67872	42.16367	6.23703	0.0987997	0.27788074	2.3257539	20	2 26.1	19.8
356710														

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>
356721 2011 UK <sub>176</sub>	17.0	X	223.17026	211.62406	2.78342	3.82418	0.1357775	0.23834408	2.5763200	20	—	—
356722 2011 US <sub>176</sub>	16.2	X	6.60179	94.07788	253.89717	5.69588	0.0099006	0.21312861	2.7757151	20	10 16.4	20.1
356723 2011 UB <sub>178</sub>	16.4	X	186.43867	329.01677	108.31052	3.27382	0.0364093	0.18226329	3.0808455	20	6 17.4	20.9
356724 2011 UT <sub>179</sub>	16.1	X	164.14103	97.93300	343.02435	4.72606	0.1236245	0.17292463	3.1907894	20	5 28.5	21.2
356725 2011 UB <sub>181</sub>	16.8	X	126.65406	175.60815	317.38425	2.27274	0.1467207	0.17713445	3.1400316	20	6 27.2	21.7
356726 2011 UO <sub>181</sub>	17.1	X	87.26454	340.64159	5.45829	3.20758	0.0520798	0.23984594	2.5655538	20	—	—
356727 2011 UW <sub>183</sub>	16.9	X	154.46051	233.27144	40.30128	5.23227	0.1244726	0.23533908	2.5982046	20	—	—
356728 2011 UP <sub>185</sub>	16.2	X	212.63672	285.41093	121.63469	6.19247	0.1544450	0.18167527	3.0874896	20	6 3.1	21.2
356729 2011 UM <sub>187</sub>	15.8	X	12.72269	117.85329	237.55732	13.14810	0.1124315	0.22250125	2.6927078	20	11 19.6	18.9
356730 2011 US <sub>190</sub>	16.0	X	217.56467	253.38735	110.58081	10.56099	0.2395316	0.17821094	3.1273739	20	4 16.9	21.5
356731 2011 UT <sub>190</sub>	17.3	X	68.35152	318.68431	81.61085	3.54025	0.1978228	0.25630938	2.4544812	20	—	—
356732 2011 UJ <sub>191</sub>	16.0	X	169.42851	215.85094	217.44030	9.80948	0.1861859	0.17942149	3.1132912	20	5 26.9	21.2
356733 2011 UQ <sub>193</sub>	16.9	X	224.84543	118.26496	247.42363	1.43892	0.1943652	0.18113678	3.0936057	20	4 21.7	21.9
356734 2011 UM <sub>194</sub>	15.8	X	110.25361	112.62990	46.13879	10.66372	0.0581145	0.18216268	3.0819797	20	7 2.7	20.9
356735 2011 UP <sub>195</sub>	16.9	X	351.01103	37.64276	339.45026	5.70428	0.0351505	0.21847252	2.7302652	20	11 4.9	20.6
356736 2011 UH <sub>197</sub>	17.5	X	284.04990	325.21204	311.69119	3.06581	0.1063318	0.28193812	2.3033867	20	3 4.3	20.3
356737 2011 UJ <sub>199</sub>	15.5	X	310.92918	55.58929	278.97482	8.60041	0.0900621	0.18948593	3.0020510	20	7 6.7	19.3
356738 2011 UE <sub>201</sub>	16.7	X	45.96985	236.18841	97.13054	10.25295	0.1321302	0.22885284	2.6470685	20	12 11.1	20.3
356739 2011 UH <sub>202</sub>	16.5	X	193.58342	353.51968	89.02816	3.79096	0.0949962	0.18335206	3.0686371	20	6 30.1	21.0
356740 2011 UE <sub>203</sub>	16.6	X	23.59359	227.28318	110.05378	3.70521	0.0761832	0.21468842	2.7622542	20	11 6.2	20.2
356741 2011 UZ <sub>204</sub>	15.6	X	317.63388	197.32887	114.76545	15.63538	0.0524616	0.18886452	3.0086324	20	6 21.9	19.6
356742 2011 UC <sub>207</sub>	16.7	X	79.61441	339.19927	294.32056	4.02807	0.1216049	0.22098292	2.7095484	20	10 30.8	20.7
356743 2011 UL <sub>207</sub>	17.6	X	32.14222	50.38098	3.89604	7.33634	0.0512379	0.24581644	2.5238417	20	—	—
356744 2011 UG <sub>209</sub>	16.8	X	256.62819	160.25976	2.82503	7.55752	0.1827039	0.23266141	2.6181015	20	12 18.6	20.0
356745 2011 UT <sub>212</sub>	16.9	X	158.37488	281.81846	289.77035	4.59438	0.0139930	0.22322822	2.6913488	20	11 6.1	20.7
356746 2011 UT <sub>216</sub>	16.6	X	142.00817	254.25945	255.11585	4.67447	0.1574529	0.18641502	3.0349307	20	7 31.6	21.5
356747 2011 UZ <sub>216</sub>	16.6	X	161.38833	216.26392	238.98264	3.16807	0.0887852	0.17835678	3.1256688	20	6 12.3	21.3
356748 2011 UA <sub>224</sub>	17.1	X	37.14664	277.02702	46.63496	2.80086	0.1335010	0.22479648	2.6788170	20	11 16.2	20.7
356749 2011 UY <sub>235</sub>	16.9	X	52.93190	336.57214	359.04227	3.24468	0.1198601	0.22854971	2.6494085	20	12 19.7	20.6
356750 2011 UY <sub>237</sub>	16.7	X	61.40206	55.23101	270.88417	1.60609	0.0900650	0.22605114	2.6688956	20	12 13.3	20.4
356751 2011 UD <sub>239</sub>	16.8	X	74.71486	39.22467	276.67411	1.92355	0.1096834	0.22712751	2.6604569	20	12 18.1	20.5
356752 2011 UB <sub>240</sub>	16.2	X	103.79452	263.35959	235.90373	8.01124	0.0580723	0.17277042	3.1926879	20	5 30.8	20.8
356753 2011 UJ <sub>243</sub>	18.0	X	302.79111	230.90820	41.68693	2.98478	0.1522572	0.28500832	2.2868150	20	3 18.2	20.7
356754 2011 UY <sub>243</sub>	16.6	X	121.89467	166.48719	342.60891	0.86241	0.1154126	0.17864315	3.1223276	20	7 9.6	21.4
356755 2011 UR <sub>248</sub>	16.4	X	55.90040	350.62864	222.25201	4.56511	0.0831487	0.18062868	3.0994044	20	7 5.4	20.6
356756 2011 UP <sub>249</sub>	15.8	X	34.73029	156.23369	60.33561	11.33165	0.0579124	0.17544802	3.1601212	20	6 6.5	20.0
356757 2011 UY <sub>249</sub>	17.1	X	65.91971	64.04963	228.44228	3.58253	0.0425706	0.21240648	2.7820027	20	10 28.1	20.7
356758 2011 UP <sub>250</sub>	16.4	X	250.65588	277.47052	98.03699	3.24698	0.0790523	0.18210742	3.0826032	20	6 10.5	20.7
356759 2011 UZ <sub>250</sub>	16.7	X	297.18975	299.29440	95.84908	5.63489	0.1019047	0.20382036	2.8595938	20	9 8.9	20.2
356760 2011 UY <sub>254</sub>	16.5	X	322.41155	67.28912	327.87764	1.63758	0.0553636	0.21836186	2.7311876	20	10 20.6	19.8
356761 2011 UV <sub>254</sub>	16.1	X	143.07285	236.38341	223.35664	9.13224	0.2007099	0.17510691	3.1642238	20	6 5.7	21.4
356762 2011 UJ <sub>256</sub>	17.3	X	141.17166	45.38564	292.94370	10.08800	0.1930983	0.26751853	2.3854307	20	1 1.1	20.7
356763 2011 UJ <sub>258</sub>	16.7	X	192.15228	187.80250	226.25190	4.40893	0.1577054	0.17751745	3.1355135	20	5 23.1	21.7
356764 2011 UP <sub>261</sub>	17.0	X	71.43403	289.71359	29.00901	6.60597	0.0380599	0.22241277	2.6979231	20	12 7.7	20.7
356765 2011 UT <sub>262</sub>	16.8	X	348.83024	99.85721	242.12861	7.06211	0.0667349	0.20400694	2.8578500	20	9 13.9	20.5
356766 2011 UT <sub>269</sub>	16.5	X	24.22836	311.72409	60.07828	2.40424	0.2762925	0.23229994	2.6208167	20	—	—
356767 2011 UF <sub>270</sub>	16.6	X	21.08499	173.67530	145.56291	5.76966	0.1169024	0.21759047	2.7376388	20	10 16.9	20.0
356768 2011 UZ <sub>274</sub>	16.8	X	6.94863	34.46206	5.00867	3.17583	0.1220663	0.23108547	2.6299911	20	—	—
356769 2011 UR <sub>275</sub>	16.3	X	78.19909	240.29744	269.06372	3.66361	0.0824224	0.17077952	3.2174529	20	5 14.1	20.7
356770 2011 UE <sub>278</sub>	16.7	X	241.89453	338.31328	274.41899	6.22485	0.0978308	0.25515693	2.4618663	20	—	—
356771 2011 UM <sub>278</sub>	15.9	X	244.22780	126.60006	255.83023	7.96122	0.1525724	0.18389586	3.0625845	20	6 3.1	20.5
356772 2011 UM <sub>279</sub>	16.5	X	201.01031	87.73482	353.14361	2.68178	0.0939799	0.18321506	3.0701666	20	7 6.2	21.2
356773 2011 UR <sub>280</sub>	16.7	X	26.84431	337.73101	358.65097	6.33683	0.0662116	0.22016478	2.7162568	20	11 5.8	20.4
356774 2011 UT <sub>280</sub>	16.1	X	11.48049	110.71785	239.07973	8.19729	0.0589281	0.21922036	2.7240524	20	11 1.8	19.6
356775 2011 UL <sub>281</sub>	15.5	X	103.56209	266.35478	245.95984	15.05066	0.1439749	0.17348101	3.1839635	20	6 25.3	20.4
356776 2011 UF <sub>282</sub>	16.9	X	181.02439	254.43129	302.00179	2.48144	0.0181887	0.21981679	2.7191227	20	11 14.7	20.7
356777 2011 UD <sub>283</sub>	16.0	X	295.01841	205.16901	87.81708	6.29574	0.1571687	0.17585612	3.1552302	20	4 13.9	20.4
356778 2011 UA <sub>291</sub>	16.9	X	335.37701	310.51817	20.81010	2.31992	0.0609407	0.20144253	2.8820528	20	8 13.8	20.5
356779 2011 UP <sub>295</sub>	16.9	X	205.84642	299.79578	210.55513	3.71822	0.0069149	0.21568924	2.7537028	20	10 19.1	20.5
356780 2011 UQ <sub>296</sub>	15.6	X	216.78564	338.29163	49.86060	10.53913	0.0758205	0.17993790	3.1073317	20	5 18.4	20.3
356781 2011 UQ <sub>301</sub>	16.4	X	170.01022	110.62955	76.83280	3.01892	0.0123722	0.21438448	2.7648643	20	10 21.9	20.1
356782 2011 UJ <sub>302</sub>	15.8	X	227.73465	54.89506	322.58367	10.67310	0.0947756	0.18192870	3.0846217	20	5 12.6	20.6
356783 2011 UT <sub>303</sub>	17.7	X	328.83687	99.61256	171.56699	5.98377	0.1172088	0.30034151	2.2083054	20	5 3.9	19.7
356784 2011 UJ <sub>303</sub>	16.8	X	73.24227	162.56165	169.90442	6.13748	0.0607423	0.23641001	2.5903521	20	—	—
356785 2011 UO <sub>304</sub>	16.6	X	255.07314	291.36463	184.25010	7.41310	0.0745637	0.21893125	2.7264501	20	10 30.0	20.1
356786 2011 UU <sub>306</sub>	16.9	X	35.76035	234.40300	147.58624	10.19351	0.2164161	0.23782528	2.5800654	20	—	—
356787 2011 UF <sub>309</sub>	16.7	X	288.51282	19.88768	41.11167	4.85182	0.0581857	0.21289148	2.7777758	20	10 6.0	20.3
356788 2011 UC <sub>312</sub>	16.9	X	30.43607	87.66788	227.84519	3.41336	0.0993901	0.21546241	2.7556351	20	10 19.8	20.3
356789 2011 UL <sub>313</sub>	16.8	X	251.84591	60.76693	71.64281	5.25768	0.0317464	0.22196162	2.7015777	20	11 22.1	20.3
356790 2011 UT <sub>313</sub>	16.1	X	118.65067	81.71355	70.58843	6.54229	0.0856578	0.18267359	3.0762306	20	7 7.5	20.7
356791 2011 UK <sub>314</sub>	16.9	X	248.76114	315.65473	127.26085	2.95922	0.0413173	0.20554414	2.8435835	20	9 11.6	20.7
356792 2011 UA <sub>315</sub>	16.0	X	39.07090	259.96872	134.47248	3.86601	0.2255055	0.12432282	3.9759003	20	—	—
356793 2011 UM <sub>319</sub>	16.7	X	52.70191	297.44613	54.81571	4.14472	0.1047793	0.2303079				

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>		
356801	2011	UG <sub>331</sub>	16.6 <sup>m</sup>	X	196.64051	20.79027	40.84874	4.56349	0.1289415	0.17698722	3.1417728	20	6 5.5	21.6
356802	2011	UK <sub>335</sub>	16.1	X	225.55076	263.09154	130.57143	12.88889	0.1847206	0.18568705	3.0428576	20	5 29.8	21.2
356803	2011	UH <sub>336</sub>	17.6	X	254.41473	63.90297	260.06328	6.55619	0.1420409	0.29467599	2.2365205	20	3 24.4	20.8
356804	2011	UZ <sub>337</sub>	16.6	X	336.24588	230.84602	139.44964	12.70118	0.2166805	0.21875032	2.7279532	20	10 18.4	19.3
356805	2011	UF <sub>339</sub>	16.7	X	309.57096	234.00096	193.86209	9.23886	0.0816000	0.22266188	2.6959105	20	11 16.1	20.0
356806	2011	UO <sub>343</sub>	16.1	X	100.44129	174.14831	119.56226	16.07439	0.1060844	0.23286762	2.6165557	20	12 20.1	20.2
356807	2011	UV <sub>343</sub>	17.6	X	299.47700	223.11476	40.22288	4.71670	0.1310735	0.28134330	2.3066321	20	3 5.7	20.4
356808	2011	UA <sub>344</sub>	16.8	X	34.22323	309.50162	11.47504	4.89872	0.0675948	0.22003714	2.7173071	20	10 28.0	20.2
356809	2011	UH <sub>358</sub>	16.8	X	352.07060	284.40820	157.86798	12.28112	0.0913639	0.24106379	2.5569058	20	—	—
356810	2011	US <sub>359</sub>	16.0	X	194.62558	159.29395	242.96241	3.75992	0.1055078	0.17162624	3.2068620	20	5 11.8	20.9
356811	2011	UD <sub>362</sub>	15.6	X	265.65648	255.13593	68.46876	12.95137	0.1086637	0.17193367	3.2030380	20	4 24.7	20.4
356812	2011	UE <sub>369</sub>	16.8	X	48.78331	83.89896	227.93224	2.40291	0.0948497	0.21645271	2.7472238	20	11 8.7	20.3
356813	2011	US <sub>369</sub>	16.3	X	313.51896	344.32378	60.71161	3.94330	0.0883183	0.21735861	2.7395852	20	10 20.7	19.4
356814	2011	UU <sub>371</sub>	15.7	X	162.57449	357.78889	59.45853	10.67036	0.1302677	0.17356398	3.1829487	20	5 1.3	20.7
356815	2011	UT <sub>379</sub>	16.4	X	182.06220	167.21953	245.51550	1.41963	0.0929466	0.17059599	3.2197600	20	5 12.2	21.2
356816	2011	UN <sub>381</sub>	17.0	X	340.37899	223.99684	112.34715	3.23129	0.0743281	0.20258847	2.8711744	20	8 28.6	20.6
356817	2011	UN <sub>383</sub>	16.9	X	22.67985	52.38086	316.10939	5.36163	0.0566416	0.22588089	2.6702364	20	12 13.3	20.4
356818	2011	UT <sub>383</sub>	16.8	X	95.21365	12.80266	316.75167	4.48457	0.1329412	0.23893329	2.5720828	20	—	—
356819	2011	UC <sub>389</sub>	15.5	X	184.62263	145.82108	269.62649	10.29599	0.0597230	0.17780036	3.1321866	20	5 17.2	20.3
356820	2011	UC <sub>389</sub>	16.3	X	87.15555	15.43072	240.83773	3.33150	0.0140999	0.21118134	2.7927519	20	10 3.4	20.2
356821	2011	UZ <sub>389</sub>	16.3	X	220.13811	21.12366	5.33744	10.91709	0.1643173	0.18032744	3.1028551	20	5 11.2	21.4
356822	2011	UD <sub>391</sub>	15.7	X	157.75651	269.31670	190.80436	20.16155	0.2498764	0.17541251	3.1605477	20	6 18.9	21.6
356823	2011	UM <sub>391</sub>	16.0	X	287.22589	28.52673	79.58421	22.76221	0.0253039	0.22615539	2.6680753	20	12 9.6	19.3
356824	2011	UN <sub>391</sub>	15.8	X	158.91385	259.54007	122.23774	12.51331	0.2561156	0.16113615	3.3445734	20	3 26.8	21.7
356825	2011	UT <sub>391</sub>	15.9	X	192.61330	127.81115	288.48448	10.11965	0.0658267	0.18030344	3.1031305	20	5 27.1	20.7
356826	2011	UQ <sub>398</sub>	16.5	X	339.11289	187.23741	161.94961	5.82506	0.0918413	0.21171677	2.7880414	20	9 14.1	19.7
356827	2011	UY <sub>401</sub>	16.0	X	192.66792	147.63270	279.89965	8.74456	0.0810988	0.18293946	3.0732492	20	6 10.7	20.6
356828	2011	UA <sub>402</sub>	16.0	X	231.22996	240.63111	171.96042	14.57723	0.1060791	0.19064924	2.9898266	20	7 1.5	20.7
356829	2011	UF <sub>404</sub>	15.2	X	166.44852	281.04924	151.65715	25.94469	0.2684564	0.17509120	3.1644130	20	5 30.4	21.3
356830	2011	UV <sub>404</sub>	15.5	X	161.46437	282.88413	128.22051	9.06910	0.1701289	0.17435948	3.1732601	20	4 26.5	20.8
356831	2011	US <sub>407</sub>	17.1	X	25.74202	260.00001	71.10538	5.10757	0.1067035	0.22192474	2.7018769	20	11 6.7	20.6
356832	2011	UA <sub>408</sub>	15.7	X	90.10502	155.12673	325.54000	10.28219	0.0281820	0.16966641	3.2315098	20	4 11.2	20.4
356833	2011	VL	16.0	X	225.41309	64.21998	288.20203	10.32714	0.2027297	0.17530038	3.1618953	20	4 1.5	21.4
356834	2011	VZ	16.1	X	210.54793	63.06171	4.16599	12.30927	0.1721056	0.18698624	3.0287467	20	6 24.3	21.2
356835	2011	VJ <sub>1</sub>	16.3	X	221.27807	47.53984	333.77920	11.04105	0.1619322	0.18159708	3.0883758	20	5 5.2	21.5
356836	2011	VU <sub>1</sub>	16.0	X	178.77641	67.57832	355.94582	9.17899	0.1034455	0.18031002	3.1030550	20	5 19.5	21.0
356837	2011	VV <sub>6</sub>	15.7	X	286.29040	230.50123	102.99602	10.79643	0.1210007	0.18773764	3.0206598	20	5 28.2	19.9
356838	2011	VZ <sub>7</sub>	16.5	X	341.12632	252.56486	123.69652	5.78544	0.1211490	0.21551122	2.7552190	20	10 29.1	19.6
356839	2011	VB <sub>14</sub>	16.9	X	107.71372	46.75752	219.67562	4.28451	0.0720179	0.22017407	2.7161803	20	11 18.7	20.7
356840	2011	VL <sub>15</sub>	16.8	X	273.27150	267.68055	217.52452	1.80949	0.0859442	0.22583345	2.6706104	20	12 5.8	20.1
356841	2011	VM <sub>22</sub>	16.5	X	196.18531	86.68373	337.06214	8.59107	0.1140409	0.18038266	3.1022219	20	6 7.8	21.5
356842	2011	VP <sub>22</sub>	16.9	X	254.30798	0.57677	131.69657	5.97263	0.0623241	0.22029985	2.7151464	20	11 21.8	20.5
356843	2011	WJ <sub>2</sub>	15.8	X	212.37093	255.26926	148.45362	21.50318	0.2690750	0.18195081	3.0843718	20	5 28.3	21.6
356844	2011	WE <sub>3</sub>	15.8	X	186.61641	164.32906	254.69315	7.12749	0.1034148	0.17259394	3.1948639	20	5 24.3	20.7
356845	2011	WQ <sub>3</sub>	16.8	X	273.68533	114.53324	343.46008	2.58957	0.0621906	0.21632452	2.7483090	20	10 31.4	20.3
356846	2011	WD <sub>6</sub>	15.8	X	224.83342	26.23371	29.66769	10.3450	0.0340334	0.18510342	3.0492504	20	7 7.6	20.3
356847	2011	WC <sub>7</sub>	16.5	X	100.99304	260.56185	246.60304	1.99419	0.0293210	0.17616730	3.1515136	20	6 2.2	20.8
356848	2011	WE <sub>8</sub>	17.0	X	244.75253	115.44787	325.55403	1.21571	0.0371566	0.20213773	2.8754410	20	9 2.9	20.9
356849	2011	WM <sub>9</sub>	17.0	X	99.12971	169.09798	63.44927	2.92136	0.0155252	0.20346195	2.8629510	20	9 19.9	20.9
356850	2011	WM <sub>14</sub>	15.0	X	222.72697	296.11465	67.67985	17.43665	0.2507536	0.17749336	3.1357972	20	4 21.8	20.6
356851	2011	WT <sub>24</sub>	16.2	X	352.71498	87.24148	319.70821	10.93132	0.0646997	0.22848143	2.6499364	20	12 24.5	19.7
356852	2011	WY <sub>24</sub>	16.8	X	297.78350	315.41330	89.23989	6.22177	0.1633700	0.20942180	2.8083730	20	9 16.5	20.1
356853	2011	WR <sub>27</sub>	16.8	X	36.90080	257.80019	61.91733	7.12783	0.2293414	0.22168304	2.7038405	20	11 24.5	20.4
356854	2011	WT <sub>27</sub>	17.3	X	114.32445	289.95269	19.32428	3.99803	0.1027964	0.23711539	2.5852124	20	—	—
356855	2011	WG <sub>31</sub>	16.1	X	66.06525	66.82055	246.95339	6.45378	0.0662821	0.21775806	2.7362339	20	11 28.6	19.7
356856	2011	WL <sub>33</sub>	16.5	X	73.98469	161.90144	124.98625	4.76060	0.0743625	0.21674964	2.7447142	20	11 7.1	20.4
356857	2011	WL <sub>44</sub>	16.5	X	349.58958	341.25504	49.76091	5.93060	0.0722712	0.22246294	2.6975175	20	11 26.7	19.9
356858	2011	WU <sub>46</sub>	15.3	X	147.62561	192.92190	253.34045	17.57775	0.1389491	0.17326681	3.1865871	20	5 20.4	20.5
356859	2011	WF <sub>54</sub>	16.2	X	244.16558	33.95494	55.42277	9.88858	0.0990199	0.20604568	2.8389672	20	9 10.2	20.3
356860	2011	WV <sub>55</sub>	15.8	X	85.62552	108.87210	77.50756	6.23791	0.1088227	0.18130889	3.0916476	20	7 15.2	20.2
356861	2011	WD <sub>61</sub>	16.8	X	341.74047	248.35813	107.02669	3.21264	0.0757373	0.20488013	2.8497242	20	9 26.7	20.3
356862	2011	WP <sub>61</sub>	16.3	X	257.85344	122.74526	268.29422	3.56465	0.1587647	0.18992031	2.9974718	20	6 28.4	20.7
356863	Maathai		15.4	X	90.99965	142.88682	210.82368	3.91613	0.1105479	0.12543350	3.9523950	20	—	—
356864	2011	WW <sub>64</sub>	14.0	X	230.11423	70.66156	36.34766	5.26715	0.1044904	0.08179565	5.2559259	20	8 30.3	21.2
356865	2011	WZ <sub>70</sub>	15.5	X	68.26248	170.91631	61.40704	13.10295	0.0483175	0.18942588	3.0026854	20	8 18.3	19.9
356866	2011	WU <sub>72</sub>	16.2	X	200.25835	136.09921	274.84078	5.52463	0.0564536	0.17583855	3.1554405	20	5 29.9	21.0
356867	2011	WU <sub>77</sub>	16.7	X	56.42546	16.83928	280.65808	3.96695	0.1363109	0.21412753	2.7670757	20	11 4.3	20.6
356868	2011	WJ <sub>79</sub>	15.7	X	74.45549	308.31893	239.12434	12.75327	0.2171929	0.17369169	3.1813883	20	7 14.3	20.4
356869	2011	WT <sub>81</sub>	16.7	X	123.05523	52.89667	235.78067	6.61421	0.0833404	0.22995667	2.6385908	20	—	—
3														

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>		
356881	2011	WG <sub>129</sub>	16.4	X	290.99481	181.26009	145.80378	1.66468	0.1436393	0.18413057	3.0599814	20	5 21.2	20.4
356882	2011	WJ <sub>132</sub>	16.0	X	84.07439	228.77834	78.83249	13.01935	0.1955482	0.22611409	2.6684002	20	12 24.4	20.3
356883	2011	WV <sub>132</sub>	15.3	X	54.77166	166.35291	356.67409	15.65968	0.0707255	0.16384084	3.3076631	20	4 23.2	19.9
356884	2011	WH <sub>134</sub>	16.6	X	243.66235	65.68703	115.32998	12.64297	0.1176781	0.23529377	2.5985382	20	—	—
356885	2011	WL <sub>138</sub>	16.4	X	133.01426	190.81001	31.92620	5.47590	0.1007115	0.21197000	2.7858204	20	10 22.6	20.6
356886	2011	WE <sub>146</sub>	15.4	X	241.08617	295.65349	101.33686	12.46600	0.0591053	0.18412552	3.0600373	20	6 28.9	19.9
356887	2011	WF <sub>148</sub>	16.3	X	235.61782	264.82777	145.20093	8.21281	0.0990752	0.18615331	3.0377745	20	7 4.1	20.9
356888	2011	WV <sub>150</sub>	16.1	X	266.22379	118.59496	0.44063	7.65328	0.0083416	0.22163278	2.7042493	20	11 24.3	19.9
356889	2011	WE <sub>152</sub>	16.2	X	267.96835	98.08217	289.61297	10.68128	0.0706352	0.19429773	2.9522802	20	7 19.2	20.3
356890	2011	WP <sub>153</sub>	15.5	X	89.56049	52.36219	122.62414	11.51721	0.0579381	0.17813463	3.1282669	20	6 27.8	20.0
356891	2011	XN	16.0	X	24.04991	218.88635	157.70753	32.77540	0.2088215	0.23503473	2.6004471	20	—	—
356892	2011	XT	16.3	X	331.43210	70.99311	266.09478	8.30621	0.0331606	0.19419395	2.9533319	20	8 11.6	20.3
356893	2011	XL <sub>3</sub>	13.2	X	335.54426	35.68839	338.72335	28.12815	0.0422525	0.08212098	5.2420354	20	9 14.1	20.1
356894	2011	YN <sub>15</sub>	15.8	X	234.83868	234.35489	126.08062	17.11346	0.1319212	0.17165372	3.2065196	20	5 6.4	21.1
356895	2011	YO <sub>16</sub>	12.8	X	267.74998	135.27977	111.26662	21.87136	0.1044766	0.08156541	5.2658124	20	9 4.8	20.0
356896	2011	YX <sub>20</sub>	13.4	X	24.03788	55.19391	286.48006	10.52203	0.0594678	0.08245324	5.2279438	20	10 9.5	20.2
356897	2011	YF <sub>28</sub>	12.8	X	299.42580	304.26835	116.22328	28.49880	0.0552606	0.07900979	5.3787594	20	10 7.8	20.0
356898	2011	YT <sub>29</sub>	14.1	X	211.17881	277.88207	241.16640	6.21694	0.0583982	0.08372364	5.1749239	20	10 8.4	21.2
356899	2011	YL <sub>42</sub>	13.7	X	283.01042	114.84534	301.91780	10.00699	0.1195089	0.08307395	5.2018699	20	8 24.0	20.5
356900	2011	YJ <sub>43</sub>	13.8	X	309.16002	110.55797	290.16890	9.39405	0.1314359	0.08309711	5.2009030	20	9 5.2	20.4
356901	2011	YJ <sub>55</sub>	13.4	X	272.57585	137.34885	304.70328	13.85044	0.0595320	0.08056410	5.3093539	20	9 13.5	20.5
356902	2011	YF <sub>56</sub>	14.1	X	293.14540	119.50830	311.81064	6.28851	0.0918221	0.08453169	5.1418928	20	9 25.6	20.8
356903	2011	YH <sub>71</sub>	13.3	X	257.21350	356.15200	106.23332	10.56068	0.0196016	0.07975503	5.3452005	20	10 4.9	20.4
356904	2011	YT <sub>71</sub>	13.4	X	289.66876	35.22742	45.12239	5.38406	0.0731200	0.08455940	5.1407695	20	10 7.9	20.1
356905	2011	YC <sub>75</sub>	14.0	X	279.05340	305.26372	145.20392	8.20164	0.1019880	0.08407845	5.1603552	20	10 3.8	20.7
356906	2011	YE <sub>75</sub>	13.8	X	256.81484	90.94042	19.75400	3.22806	0.0654621	0.08183865	5.2540850	20	10 3.6	20.8
356907	2011	YF <sub>76</sub>	13.1	X	319.44211	123.74899	283.42942	12.28021	0.0847688	0.08384625	5.1698778	20	9 28.9	19.8
356908	2012	AE <sub>4</sub>	15.5	X	223.31896	312.43263	109.28607	10.55735	0.0746249	0.17603191	3.1531293	20	7 7.4	20.2
356909	2012	AP <sub>14</sub>	12.9	X	322.34595	277.54795	119.07363	34.31054	0.0904526	0.08249723	5.2260852	20	10 7.7	19.9
356910	2012	AA <sub>17</sub>	13.3	X	98.55962	344.62145	288.85193	13.46761	0.0601565	0.08219713	5.2387975	20	10 18.1	20.5
356911	2012	BQ <sub>5</sub>	13.9	X	304.47306	109.07742	309.30894	5.44961	0.0592181	0.08092355	5.2936198	20	9 28.3	20.7
356912	2012	BW <sub>36</sub>	13.5	X	329.45576	112.66973	174.19118	6.08181	0.0368877	0.08069673	5.3035349	20	9 24.3	20.4
356913	2012	BQ <sub>50</sub>	13.8	X	237.97490	13.99081	124.15189	8.60342	0.0528989	0.08340437	5.1881221	20	10 18.7	20.8
356914	2012	BJ <sub>57</sub>	13.9	X	288.78599	149.93591	283.15044	6.55990	0.0666677	0.08198629	5.2477750	20	9 24.4	20.8
356915	2012	BG <sub>61</sub>	14.0	X	301.92728	98.52798	331.27999	5.76294	0.0629801	0.08419179	5.1557226	20	10 8.4	20.6
356916	2012	BH <sub>61</sub>	14.0	X	279.13353	115.79289	341.12972	6.97440	0.0996956	0.08417605	5.1563652	20	10 7.0	20.8
356917	2012	BX <sub>105</sub>	15.9	X	193.43176	334.17131	196.77531	11.08190	0.0989949	0.19215367	2.9742006	20	10 18.3	20.3
356918	2012	BF <sub>119</sub>	14.1	X	313.60223	283.23449	128.49584	5.10285	0.1857796	0.08372245	5.1749732	20	9 24.1	20.3
356919	2012	BL <sub>126</sub>	15.4	X	91.81548	160.71018	128.52009	10.77443	0.0795807	0.19078861	2.9883704	20	11 26.6	20.0
356920	2012	BC <sub>139</sub>	16.2	X	144.50724	349.77889	193.15155	3.93208	0.0677997	0.17892945	3.1189961	20	9 9.6	20.8
356921	2012	CL	15.5	X	223.28789	330.89524	147.48626	17.17030	0.0296530	0.18096428	3.0955713	20	9 25.7	20.0
356922	2012	CP <sub>5</sub>	15.7	X	170.99899	91.90428	85.57964	11.83198	0.0877956	0.18549111	3.0450001	20	10 8.6	20.6
356923	2012	CP <sub>51</sub>	15.7	X	83.71337	82.11188	162.29311	11.35230	0.0969134	0.17301128	3.1897055	20	9 22.2	20.3
356924	2012	CJ <sub>54</sub>	16.2	X	97.47492	246.92332	115.70270	9.43788	0.0729589	0.22323316	2.6913091	20	—	—
356925	2012	QP <sub>37</sub>	17.0	X	130.85676	33.76282	279.80664	6.21398	0.1757745	0.29116462	2.2544658	20	—	—
356926	2012	RM <sub>13</sub>	15.9	X	182.56681	80.87796	335.12977	11.38071	0.1300902	0.21062253	2.7976894	20	5 12.2	20.5
356927	2012	RV <sub>22</sub>	16.3	X	308.18785	266.53855	170.45776	7.36040	0.0838523	0.25883785	2.4384706	20	12 6.5	19.1
356928	2012	RG <sub>31</sub>	16.0	X	291.41174	321.69350	22.30835	14.29729	0.1707526	0.22611910	2.6683608	20	6 5.8	19.6
356929	2012	RC <sub>36</sub>	16.8	X	138.03353	229.23849	8.26948	7.63002	0.0717748	0.26488691	2.4012040	20	11 21.8	20.3
356930	2012	SG <sub>13</sub>	16.8	X	235.36814	210.57292	163.21925	3.91437	0.1083033	0.21347612	2.7727019	20	5 19.1	21.0
356931	2012	SM <sub>13</sub>	16.8	X	172.19942	134.12989	264.97431	0.80662	0.0725525	0.20185472	2.8781280	20	4 13.5	21.0
356932	2012	SE <sub>30</sub>	16.6	X	110.78490	209.94018	240.44961	0.85416	0.0773315	0.19680287	2.9271733	20	4 8.9	20.8
356933	2012	SX <sub>58</sub>	15.9	X	150.62898	143.46715	178.03029	16.42351	0.2009465	0.17362551	3.1821967	20	1 2.9	21.3
356934	2012	TB <sub>15</sub>	12.8	X	287.88793	279.50991	31.06061	29.22830	0.0794927	0.08203481	5.2457058	20	5 2.9	19.7
356935	2012	TV <sub>56</sub>	16.0	X	97.58771	64.28708	26.30619	4.98272	0.1269738	0.17745070	3.1362998	20	4 2.4	20.3
356936	2012	TP <sub>90</sub>	16.7	X	161.16894	158.51834	42.31336	5.98719	0.0707860	0.25444017	2.4664875	20	10 31.9	20.1
356937	2012	TO <sub>150</sub>	18.1	X	11.37049	72.51967	9.20982	3.69311	0.1873803	0.27475005	2.3433880	20	—	—
356938	2012	TT <sub>150</sub>	16.6	X	294.57496	23.45122	358.26539	3.02314	0.1289308	0.23138996	2.6276834	20	8 15.0	19.6
356939	2012	TQ <sub>187</sub>	17.3	X	151.73725	304.39069	54.39221	8.37109	0.1979707	0.30479934	2.1867210	20	2 5.3	20.5
356940	2012	TX <sub>199</sub>	15.7	X	115.28482	177.86836	251.23011	9.53685	0.1112893	0.18060802	3.0996407	20	3 20.3	20.5
356941	2012	TA <sub>234</sub>	16.4	X	267.26770	269.95614	74.58144	12.28448	0.1221462	0.21548383	2.7554525	20	5 17.4	20.3
356942	2012	TO <sub>286</sub>	16.0	X	89.90579	51.49145	39.88422	7.75779	0.1696533	0.17424126	3.1746953	20	4 1.9	20.4
356943	2012	TB <sub>302</sub>	16.3	X	208.79864	3.16701	62.37571	6.79034	0.0561242	0.21724334	2.7405543	20	6 28.6	20.3
356944	2012	TS <sub>315</sub>	16.0	X	335.79354	306.08869	52.72554	7.44846	0.1654754	0.23621633	2.5917679	20	10 1.4	18.4
356945	2012	UN <sub>31</sub>	15.9	X	254.41882	267.47058	53.14992	9.96526	0.0687372	0.19175616	2.9783096	20	4 10.9	20.3
356946	2012	UW <sub>69</sub>	16.5	X	300.60967	11.07170	328.69029	6.06175	0.0646891	0.21512747	2.7584946	20	7 3.9	20.0
356947	2012	UO <sub>74</sub>	17.7	X	111.08905	157.80705	167.58601	3.53752	0.1631866	0.28499516	2.2868854	20	—	—
356948	2012	VE <sub>5</sub>	18.6	X	111.48290	237.50251	88.12664	2.36605	0.4111098	0.29650080	2.2273346	20	—	—
356949	2012	VU <sub>19</sub>	17.7	X	298.53085	346.75362	147.40422	1.62917	0.1347578	0.25831811	2.4417404	20	—	—
356950	2012	VF <sub>75&lt;/</sub>												

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>
356961 2012 XM <sub>56</sub>	18.0	X	285.05503	61.07652	84.80298	23.71821	0.0597461	0.39467242	1.8406796	20	—	—
356962 2012 XG <sub>120</sub>	13.3	X	252.44459	15.83298	69.11442	5.66725	0.0274436	0.08266709	5.2189236	20	9 7.4	20.3
356963 2012 XM <sub>120</sub>	16.1	X	125.43544	43.10728	91.57192	11.67655	0.0830744	0.18528830	3.0472217	20	6 22.4	20.5
356964 2012 XK <sub>133</sub>	16.3	X	348.61491	313.95947	46.10660	5.18876	0.2419770	0.24112918	2.5564435	20	11 6.3	18.4
356965 2012 XJ <sub>136</sub>	17.0	X	350.59805	349.20372	111.71496	7.30928	0.0551714	0.25982579	2.4322855	20	—	—
356966 2012 XM <sub>136</sub>	17.1	X	64.37812	186.60205	111.57659	24.67002	0.0595514	0.35602728	1.9715775	20	12 12.1	19.7
356967 2012 XO <sub>136</sub>	16.4	X	332.65926	201.56909	302.61547	11.56099	0.1310584	0.26289873	2.4132949	20	—	—
356968 2012 XP <sub>144</sub>	15.9	X	146.81698	139.99064	293.84699	4.13029	0.1312916	0.17653667	3.1471160	20	5 2.9	20.8
356969 2012 XL <sub>151</sub>	17.1	X	350.43162	111.41194	292.17626	2.46002	0.1541739	0.24505604	2.5290598	20	—	—
356970 1981 EG <sub>32</sub>	16.5	X	212.87942	356.49348	193.07127	20.59446	0.2515435	0.21671904	2.7449726	20	11 19.6	21.1
356971 1991 TK <sub>2</sub>	15.6	X	110.58913	139.04585	194.31589	12.43019	0.4812732	0.21584154	2.7524072	20	1 4.7	20.2
356972 1993 QH	18.4	X	251.97146	178.18143	139.21856	6.37826	0.1247574	0.28248672	2.3004035	20	3 21.2	21.7
356973 1994 CM <sub>7</sub>	17.7	X	43.90416	302.49349	135.75525	4.72546	0.1136190	0.26076583	2.4264365	20	—	—
356974 1994 SG <sub>6</sub>	16.3	X	34.00919	277.45788	16.63296	10.63712	0.1086741	0.18901432	3.0070426	20	9 25.9	20.2
356975 1994 TX <sub>1</sub>	15.4	X	192.98801	65.50528	10.13490	17.40763	0.1085732	0.17851327	3.1238420	20	6 19.3	20.6
356976 1995 DU <sub>6</sub>	17.2	X	191.02631	230.49968	352.63647	8.47840	0.2187205	0.22034940	2.7147393	20	12 10.9	21.8
356977 1995 SC <sub>63</sub>	18.9	X	160.73254	44.14608	44.55938	3.79526	0.0540262	0.30565395	2.1826430	20	6 1.9	21.5
356978 1995 SM <sub>64</sub>	17.0	X	240.87533	91.41512	308.56663	1.89340	0.1364746	0.18995102	2.9971487	20	6 23.5	21.4
356979 1995 TR <sub>11</sub>	18.7	X	166.78383	77.11125	24.86895	4.92909	0.0431167	0.30679422	2.1772315	20	6 30.2	21.3
356980 1996 AH <sub>7</sub>	15.9	X	134.28816	194.95459	314.64365	10.17074	0.0058846	0.17955810	3.1117119	20	7 15.8	20.3
356981 1996 RS <sub>8</sub>	18.4	X	316.93940	71.25845	168.17350	5.33499	0.1850245	0.27581695	2.3373410	20	2 14.7	21.1
356982 1996 RG <sub>24</sub>	17.2	X	168.09685	356.43541	352.07101	4.81275	0.2863053	0.26842765	2.3800416	20	2 14.9	21.2
356983 1997 EP <sub>26</sub>	16.3	X	210.95966	80.75600	1.23621	4.99155	0.0490122	0.18327675	3.0694776	20	7 22.9	20.8
356984 1997 GA <sub>2</sub>	16.7	X	130.49961	346.92201	188.83050	6.49419	0.1232386	0.18526980	3.0474246	20	8 19.8	21.4
356985 1997 SA	17.0	X	184.18980	118.79692	177.26539	12.99134	0.2728914	0.23625504	2.5914848	20	—	—
356986 1997 SA <sub>4</sub>	16.9	X	287.00052	324.04543	14.16155	10.52924	0.2301850	0.29279828	2.2460722	20	5 11.2	19.6
356987 1997 UJ <sub>6</sub>	13.2	X	302.60081	212.45738	214.77446	19.33997	0.1010325	0.08280264	5.2132265	20	10 1.7	19.9
356988 1998 BC <sub>31</sub>	18.1	X	36.21415	344.79823	144.98136	1.52566	0.0676585	0.26909020	2.3761332	20	2 5.1	20.5
356989 1998 FN <sub>6</sub>	17.4	X	304.00067	169.88374	25.99240	6.99913	0.0703259	0.26066291	2.4270751	20	—	—
356990 1998 KS <sub>10</sub>	16.1	X	120.46242	18.51975	170.74851	11.18458	0.0675136	0.18924373	3.0046119	20	8 22.4	20.5
356991 1998 QA <sub>1</sub>	18.9	X	67.13548	332.99106	299.00707	8.17279	0.5328208	0.32308629	2.1034088	20	12 3.7	23.2
356992 1998 QH <sub>29</sub>	16.2	X	32.27915	226.16813	183.35961	13.14921	0.1596468	0.23788638	2.5796235	20	—	—
356993 1998 RY <sub>13</sub>	15.8	X	15.28822	330.76389	328.33679	14.93740	0.1904333	0.18109052	3.0941324	20	9 7.8	19.4
356994 1998 RW <sub>56</sub>	18.1	X	161.24985	194.73592	202.40291	2.81886	0.2332681	0.29616348	2.2290256	20	4 3.2	21.5
356995 1998 ST <sub>31</sub>	16.8	X	133.67524	183.29241	167.22353	12.22368	0.1130394	0.24437232	2.5337750	20	—	—
356996 1998 SZ <sub>33</sub>	15.1	X	323.31102	318.35951	1.20541	27.28021	0.2094690	0.17297594	3.1901584	20	6 21.0	19.4
356997 1998 SY <sub>94</sub>	17.3	X	17.00487	330.94933	63.81555	3.70478	0.2456450	0.23201135	2.6229896	20	—	—
356998 1998 SD <sub>163</sub>	14.8	X	26.17231	278.14349	30.63253	25.88378	0.2226093	0.17913181	3.1166467	20	10 18.7	18.5
356999 1998 TV <sub>18</sub>	16.9	X	45.22836	357.56842	21.97713	4.59451	0.1794994	0.23365707	2.6106587	20	—	—
357000 1998 UO	16.9	X	23.71147	48.67761	1.23909	5.78536	0.1659964	0.23326915	2.6135522	20	—	—
357001 1998 UK <sub>14</sub>	17.1	X	80.83967	279.84714	43.19028	13.08215	0.2827251	0.23262813	2.6183512	20	—	—
357002 1999 BS <sub>28</sub>	16.7	X	274.17449	125.69142	317.65396	3.39171	0.0305251	0.21554363	2.7549428	20	10 16.3	20.5
357003 1999 CX <sub>142</sub>	16.9	X	253.07831	336.30456	135.70438	2.16879	0.3092559	0.21662236	2.7457892	20	9 17.5	21.0
357004 1999 FU <sub>12</sub>	17.2	X	314.03837	266.63685	19.62420	7.00192	0.1145197	0.28315077	2.2968055	20	4 28.7	19.7
357005 1999 HA <sub>2</sub>	17.9	X	204.62013	344.24950	147.21261	15.13965	0.6995641	0.21136996	2.7910902	20	8 14.0	24.2
357006 1999 RW <sub>236</sub>	17.0	X	348.01893	346.44818	63.62215	6.00889	0.2918631	0.24053601	2.5606447	20	—	—
357007 1999 TH <sub>61</sub>	16.0	X	213.69275	33.55923	352.59413	9.64744	0.1562383	0.17377121	3.1804177	20	5 5.5	21.3
357008 1999 TJ <sub>74</sub>	16.0	X	298.97050	313.53774	359.85117	9.19426	0.1599539	0.17830996	3.1262159	20	5 8.5	20.3
357009 1999 TG <sub>122</sub>	17.3	X	356.31905	205.02825	182.51311	6.10144	0.3289529	0.23877475	2.5732212	20	—	—
357010 1999 TS <sub>161</sub>	17.3	X	112.69243	184.33206	176.42303	4.24357	0.2462105	0.25209225	2.4817787	20	1 5.7	20.5
357011 1999 UB <sub>30</sub>	15.8	X	244.76256	0.73807	29.76352	9.41694	0.0919881	0.17674250	3.1446723	20	6 20.2	20.5
357012 1999 VS <sub>13</sub>	16.2	X	297.44110	45.81221	29.76188	32.09232	0.2869761	0.23346383	2.6120991	20	10 18.6	18.2
357013 1999 VL <sub>89</sub>	17.0	X	142.49726	181.97194	171.02648	4.05899	0.2101225	0.25433322	2.4671790	20	1 24.0	20.5
357014 1999 VB <sub>93</sub>	17.1	X	1.47337	16.42618	34.55487	7.39786	0.3180169	0.24158965	2.5531941	20	—	—
357015 1999 VH <sub>117</sub>	15.7	X	105.58814	140.00504	24.27612	12.57815	0.0463985	0.17628391	3.1501236	20	7 2.9	20.4
357016 1999 VR <sub>130</sub>	17.2	X	219.44666	259.34519	39.09539	6.71789	0.1291200	0.25665406	2.4522832	20	1 26.5	21.0
357017 1999 VK <sub>136</sub>	17.1	X	303.70256	78.96058	53.93716	14.27053	0.1425784	0.24079179	2.5588310	20	—	—
357018 1999 VK <sub>163</sub>	16.1	X	152.68339	322.71516	27.04970	5.40706	0.1472334	0.25490520	2.4634868	20	1 25.6	19.7
357019 1999 WH <sub>16</sub>	17.9	X	4.26288	201.12881	220.31399	3.45105	0.1776053	0.24171555	2.5523074	20	—	—
357020 1999 XU <sub>30</sub>	16.5	X	33.80620	314.44554	102.63214	14.03456	0.1339235	0.24285950	2.5442863	20	—	—
357021 1999 XT <sub>224</sub>	16.7	X	331.93548	120.61972	285.81766	12.30151	0.1807530	0.23180305	2.6245607	20	11 28.0	19.3
357022 1999 YG <sub>3</sub>	19.0	X	315.56650	250.21875	293.27840	34.51923	0.3294631	0.67682821	1.2847454	20	—	—
357023 1999 YZ <sub>3</sub>	16.2	X	277.73246	75.02910	48.69830	28.58896	0.3698756	0.23175065	2.6249563	20	11 2.3	18.9
357024 1999 YR <sub>14</sub>	19.5	X	262.69504	9.65126	2.99983	3.72668	0.4000684	0.46447399	1.6513094	20	5 9.2	21.7
357025 2000 DR <sub>59</sub>	16.9	X	323.46193	304.25222	166.01429	11.53206	0.0862555	0.23229696	2.6208391	20	—	—
357026 2000 DV <sub>82</sub>	16.4	X	305.77099	114.70254	19.41384	5.21559	0.2136073	0.23459487	2.6036966	20	—	—
357027 2000 EU <sub>9</sub>	17.0	X	229.03860	36.59422	167.97208	14.94547	0.0996164	0.23026329	2.6362479	20	—	—
357028 2000 EJ <sub>26</sub>	19.4	X	97.72048	285.88967	10.50072	9.22719	0.6148278	0.60618173	1.3827197	20	—	—
357029 2000 EK <sub>131</sub>	17.8	X	251.07955	34.95329	175.51080	23.03686	0.0811996	0.37936674	1.8989611	20	—	—
357030 2000 EX <sub>152</sub>	16.9	X	262.29556	170.88839	359.14329	12.71644	0.2186316	0.23016606	2.6369903	20	—	—
357031 2000 FG <sub>6</sub>	16.9	X	348.75060	33.83990	17.11610	14.74171	0.0155586	0.22323887	2.6912632	20	12 15.5	20.8
357032 2000 HT <sub>18</sub>	16.9	X	223.24898	68.83545	75.60576	3.65441	0.0379384	0.21816965	2.7327915	20	10 30.9	20.5
357033 2000 HN <sub>47</sub>	16.2	X	199.13861	172.11949	49.33570	12.52317	0.1276788	0.22364961	2.6879671	20	12 26.2	20.4
357034 2000 KR <sub>66</sub>	17.1	X	299.24259	27.03068	137.30790	22.37385	0.0524598	0.37498125	1.9045674	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>		
357041	2000	QH <sub>175</sub>	17.4	X	273.71965	80.78105	245.30045	2.25968	0.1724310	0.28653247	2.2786983	20	4 18.3	20.5
357042	2000	RB <sub>25</sub>	17.3	X	262.98532	21.93496	307.77038	5.55767	0.1907362	0.28437061	2.2902325	20	4 6.3	20.7
357043	2000	RE <sub>90</sub>	17.5	X	218.05133	1.57751	327.37890	5.32870	0.1952102	0.27821989	2.3238634	20	2 25.9	21.2
357044	2000	SS <sub>33</sub>	17.0	X	279.95813	285.49009	18.68469	7.16087	0.1226913	0.28312629	2.2969379	20	4 4.3	19.8
357045	2000	SG <sub>58</sub>	17.4	X	300.13448	108.45524	185.65607	4.63659	0.1632517	0.28501801	2.2867631	20	4 11.6	19.8
357046	2000	SW <sub>79</sub>	17.7	X	258.05956	174.78325	153.65421	3.32149	0.1944121	0.28287877	2.2982776	20	4 3.2	20.9
357047	2000	SH <sub>180</sub>	16.3	X	238.37886	50.81444	307.64429	12.58078	0.2837533	0.18206136	3.0831231	20	4 12.8	21.8
357048	2000	SC <sub>193</sub>	17.3	X	98.14169	134.72128	218.63938	5.07935	0.3073457	0.26209754	2.4182104	20	—	—
357049	2000	SO <sub>248</sub>	17.1	X	232.24801	311.67742	30.24270	7.37291	0.1430817	0.28065858	2.3103822	20	3 30.6	20.6
357050	2000	UJ <sub>13</sub>	15.5	X	1.74322	86.44089	236.01597	10.39894	0.0925308	0.19333909	2.9620311	20	9 6.0	19.4
357051	2000	WV <sub>10</sub>	16.3	X	239.33587	74.65330	101.47371	8.53053	0.1304114	0.24485922	2.5304149	20	12 22.9	19.4
357052	2000	WV <sub>17</sub>	17.6	X	73.41048	343.36677	61.43569	5.32150	0.2418918	0.26107297	2.4245331	20	—	—
357053	2000	WF <sub>36</sub>	16.6	X	202.37773	298.86380	110.03543	8.00263	0.3151953	0.22874990	2.6478626	20	5 22.7	21.5
357054	2000	WV <sub>155</sub>	17.0	X	70.95812	7.80044	28.46879	9.79906	0.1947262	0.26018762	2.4300300	20	—	—
357055	2000	YJ <sub>73</sub>	16.6	X	355.01264	18.71458	106.79912	12.80212	0.1974653	0.25640096	2.4538967	20	—	—
357056	2001	MN <sub>16</sub>	16.4	X	160.98813	339.38586	311.53673	5.33675	0.2147207	0.23147052	2.6270737	20	—	—
357057	2001	MR <sub>28</sub>	16.4	X	196.05008	336.31685	280.05686	10.98133	0.1679762	0.23288368	2.6164354	20	—	—
357058	2001	OG <sub>25</sub>	20.1	X	339.09788	142.59139	153.67670	10.69157	0.2496222	0.57216159	1.4370005	20	10 22.1	19.7
357059	2001	OJ <sub>37</sub>	16.4	X	80.35586	259.62925	52.80028	8.77874	0.2608615	0.22097588	2.7096060	20	12 31.1	21.0
357060	2001	OC <sub>99</sub>	16.5	X	147.88630	255.50639	133.85908	21.64070	0.2844942	0.28957248	2.2627219	20	3 22.9	20.6
357061	2001	PH <sub>44</sub>	17.3	X	303.50071	10.78676	306.85279	4.06107	0.2159836	0.30586876	2.1816210	20	5 9.6	19.6
357062	2001	PE <sub>55</sub>	17.7	X	172.97391	38.45509	334.72772	5.64779	0.1775682	0.29299867	2.2450479	20	3 10.7	21.2
357063	2001	PO <sub>59</sub>	17.6	X	229.51218	1.43787	335.37394	6.34229	0.3034166	0.29531911	2.2332723	20	3 10.8	21.7
357064	2001	QY <sub>32</sub>	17.7	X	164.56118	10.48140	304.01977	19.76079	0.0203758	0.38864138	1.8596734	20	—	—
357065	2001	QS <sub>33</sub>	17.0	X	198.97537	94.29529	172.97936	27.81748	0.3626656	0.23315342	2.6144170	20	—	—
357066	2001	QK <sub>46</sub>	16.1	X	110.70399	6.41919	318.21443	13.39530	0.0799209	0.22585946	2.6704054	20	—	—
357067	2001	QN <sub>69</sub>	16.2	X	110.59350	1.40371	309.61679	7.82093	0.2833061	0.22351733	2.6890275	20	—	—
357068	2001	QJ <sub>89</sub>	16.3	X	173.14096	22.46077	268.50771	10.94375	0.3433712	0.23019610	2.6367609	20	—	—
357069	2001	QX <sub>150</sub>	17.3	X	33.21485	146.60863	227.85752	19.02440	0.0986877	0.37646381	1.8995639	20	—	—
357070	2001	QH <sub>172</sub>	18.0	X	236.59804	91.97599	266.54739	5.05344	0.1806802	0.29970316	2.2114400	20	4 18.5	21.4
357071	2001	QC <sub>240</sub>	16.5	X	76.59236	146.04706	165.92915	8.64574	0.1974261	0.21834400	2.7313365	20	12 22.0	20.9
357072	2001	RG <sub>11</sub>	17.2	X	289.73362	175.84575	182.10530	5.69456	0.2285617	0.30517358	2.1849328	20	6 18.5	19.5
357073	2001	RK <sub>20</sub>	16.5	X	165.88805	112.64250	161.73146	13.54384	0.1655048	0.22752039	2.6573933	20	—	—
357074	2001	RA <sub>43</sub>	16.5	X	177.49145	93.51664	217.35344	10.27378	0.2445879	0.23318670	2.6141682	20	1 7.5	21.1
357075	2001	RQ <sub>53</sub>	16.6	X	98.73702	0.91769	295.30080	3.34884	0.1008009	0.21812758	2.7331429	20	12 16.7	20.8
357076	2001	RU <sub>84</sub>	18.1	X	301.60039	130.86965	192.04351	6.46831	0.1778838	0.30491248	2.1861800	20	5 24.9	20.2
357077	2001	RL <sub>110</sub>	15.7	X	198.91725	8.30614	359.45291	8.98326	0.0464371	0.19028388	2.9936682	20	4 3.4	20.0
357078	2001	RL <sub>117</sub>	17.2	X	350.31817	16.20820	355.16014	3.86827	0.2130661	0.21103580	2.7940358	20	11 10.9	19.9
357079	2001	RS <sub>138</sub>	16.9	X	134.93747	289.48548	359.83134	8.03822	0.1400636	0.22332562	2.6905662	20	—	—
357080	2001	SE <sub>6</sub>	17.3	X	93.66085	95.86824	185.43414	4.66865	0.0832109	0.21603193	1.7507899	20	11 22.4	21.3
357081	2001	SG <sub>37</sub>	17.6	X	307.03185	244.64181	183.94837	21.76912	0.1112394	0.36847633	1.9269169	20	12 31.3	19.7
357082	2001	SB <sub>41</sub>	17.4	X	176.33968	3.68400	28.85897	7.28266	0.2043415	0.29165240	2.2519514	20	4 10.2	21.1
357083	2001	SH <sub>56</sub>	16.6	X	109.82714	278.17631	49.03736	8.52270	0.3022387	0.22305452	2.6927458	20	—	—
357084	2001	SO <sub>174</sub>	16.3	X	113.45887	284.09338	22.71097	11.59589	0.2168789	0.22188536	2.7021967	20	—	—
357085	2001	SM <sub>207</sub>	18.1	X	321.27731	113.57990	180.59510	5.56764	0.1614285	0.30334779	2.1936912	20	5 19.1	20.0
357086	2001	SA <sub>228</sub>	16.3	X	67.29203	312.16506	16.84815	6.50902	0.0586820	0.21505276	2.7591334	20	12 16.9	20.3
357087	2001	SN <sub>237</sub>	16.5	X	6.30600	230.13229	132.78133	2.84728	0.1077270	0.21144470	2.7904325	20	11 17.3	19.8
357088	2001	SK <sub>253</sub>	16.6	X	259.22056	226.35420	188.91400	12.10180	0.2114154	0.19837837	2.9116544	20	7 21.9	21.1
357089	2001	SX <sub>273</sub>	16.8	X	97.15523	279.67112	13.33799	4.61758	0.0514710	0.21433422	2.7652965	20	12 5.8	20.9
357090	2001	SF <sub>299</sub>	16.5	X	279.36986	52.86047	351.68706	14.75162	0.1518812	0.20394279	2.8584492	20	8 19.7	20.2
357091	2001	ST <sub>299</sub>	17.3	X	28.14995	117.77467	221.49921	2.84217	0.1017531	0.21287194	2.7779458	20	11 16.9	21.0
357092	2001	SG <sub>320</sub>	17.6	X	98.73254	58.02446	32.29899	4.95784	0.1798096	0.28797453	2.2710847	20	4 6.2	20.2
357093	2001	SD <sub>356</sub>	16.8	X	52.03270	227.82170	80.40894	3.75175	0.1760391	0.21274698	2.7790335	20	11 19.4	20.6
357094	2001	TM	17.3	X	167.13522	7.01651	26.80969	7.46706	0.3289783	0.29132187	2.2536544	20	4 8.8	21.4
357095	2001	TD <sub>13</sub>	17.6	X	248.72202	195.96568	26.97533	21.10173	0.0403383	0.38386453	1.8750696	20	—	—
357096	2001	TR <sub>18</sub>	18.3	X	103.50393	12.11057	64.25671	4.97892	0.2479418	0.28452688	2.2893939	20	4 2.3	21.2
357097	2001	TL <sub>85</sub>	17.4	X	293.56518	0.61871	335.09057	6.64498	0.1498641	0.30290197	2.1958432	20	6 3.1	19.7
357098	2001	TN <sub>111</sub>	17.5	X	187.91149	1.59097	9.66525	6.73586	0.2050410	0.29044645	2.2581806	20	3 24.1	21.0
357099	2001	TG <sub>135</sub>	17.7	X	152.58663	87.10410	316.26329	8.14416	0.1700289	0.28967104	2.2622087	20	3 26.6	21.2
357100	2001	TM <sub>143</sub>	16.6	X	45.94955	253.13922	102.58026	3.77261	0.0788130	0.21565311	2.7540104	20	12 27.6	20.2
357101	2001	TK <sub>156</sub>	18.1	X	139.76682	32.96766	18.66908	3.45483	0.1528616	0.28856390	2.2679913	20	3 27.0	21.2
357102	2001	TR <sub>171</sub>	15.9	X	267.25963	318.35429	84.89238	13.70553	0.1589898	0.19830328	2.9123895	20	7 27.9	20.1
357103	2001	TP <sub>208</sub>	18.1	X	156.25504	26.34360	21.02793	1.91188	0.1823217	0.28963828	2.2623793	20	4 9.4	21.6
357104	2001	TX <sub>213</sub>	17.9	X	213.00009	31.35042	320.89165	7.76567	0.1566458	0.29249874	2.2476053	20	3 18.8	21.5
357105	2001	TS <sub>224</sub>	16.1	X	120.78807	271.54623	46.76726	13.38099	0.2930314	0.22562800	2.6722313	20	—	—
357106	2001	TW <sub>257</sub>	16.2	X	193.01678	36.15227	163.48366	10.08460	0.0671805	0.21411509	2.7671829	20	11 29.6	20.4
357107	2001	UG <sub>8</sub>	17.0	X	112.43161	34.57849	50.73991	6.00229	0.2001321	0.28713869	2.2754899	20	4 17.3	20.0
357108	2001	UQ <sub>77</sub>	17.4	X	120.50649	26.72081	48.84720	3.69281	0.1474985	0.28725862	2.2748565	20	4 6.3	20.3
357109	2001	UN <sub>86</sub>	17.9	X	113.55661	200.76609	236.67966	1.82111	0.1369845	0.28774713	2.2722811	20	3 27.6	20.7
357110	2001	UE <sub>99</sub>	16.2	X	27.23582	278.86908	50.94750	10.13203	0.1599727	0.2088				

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>
357121 2001 <i>XK</i> <sub>4</sub>	17.4	X	113.75936	252.26733	73.13677	24.36706	0.0560959	0.37544157	1.9030103	20	—	—
357122 2001 <i>XM</i> <sub>95</sub>	17.2	X	38.62733	75.21985	71.73631	5.56420	0.1516199	0.28092619	2.3089147	20	3 11.7	19.2
357123 2001 <i>XR</i> <sub>216</sub>	17.2	X	120.84762	335.95429	81.66107	6.23299	0.1437368	0.28195748	2.3032812	20	3 15.7	20.2
357124 2001 <i>XM</i> <sub>236</sub>	17.7	X	134.96004	352.36130	16.81764	2.76774	0.2026466	0.27946652	2.3169475	20	2 2.6	20.8
357125 2001 <i>XL</i> <sub>244</sub>	17.7	X	128.17670	81.79310	315.93011	2.30417	0.2338874	0.28302363	2.2974933	20	3 4.8	20.9
357126 2001 <i>XR</i> <sub>246</sub>	17.4	X	184.86391	70.30320	279.57900	4.75274	0.2791159	0.28609161	2.2810386	20	2 24.2	21.4
357127 2001 <i>XM</i> <sub>248</sub>	16.8	X	176.11689	325.23494	104.45272	6.56053	0.2728111	0.18316837	3.0706883	20	5 29.2	22.4
357128 2001 <i>XP</i> <sub>262</sub>	17.9	X	101.02625	280.50099	161.03645	1.90920	0.1619835	0.28348451	2.2950025	20	3 22.1	20.4
357129 2001 <i>XU</i> <sub>266</sub>	17.4	X	96.62554	241.55482	163.86163	22.59451	0.3620329	0.28572295	2.2830003	20	2 25.6	20.1
357130 2001 <i>YL</i> <sub>66</sub>	17.3	X	105.60339	0.92859	76.26805	4.67320	0.1789150	0.28110075	2.3079588	20	3 27.3	20.2
357131 2001 <i>YC</i> <sub>152</sub>	15.8	X	228.67304	4.07754	63.24733	15.65971	0.1448018	0.19018115	2.9947305	20	7 15.2	20.6
357132 2002 <i>AQ</i> <sub>21</sub>	17.5	X	26.98019	265.92482	117.21916	25.43576	0.0803622	0.36633548	1.9344168	20	—	—
357133 2002 <i>AU</i> <sub>103</sub>	17.6	X	30.93369	23.00396	109.68139	4.84336	0.1679018	0.27490579	2.3425028	20	1 30.1	19.4
357134 2002 <i>AD</i> <sub>105</sub>	18.0	X	40.91437	156.93780	312.25796	2.06470	0.1347131	0.27340212	2.3510839	20	1 14.8	19.9
357135 2002 <i>AJ</i> <sub>120</sub>	16.8	X	130.39050	274.99244	119.89539	7.57291	0.2058846	0.27740194	2.3284293	20	3 3.8	20.1
357136 2002 <i>AC</i> <sub>130</sub>	16.7	X	17.97025	193.25560	339.93806	24.14605	0.2051061	0.27753073	2.3277089	20	3 2.2	17.9
357137 2002 <i>AP</i> <sub>133</sub>	17.3	X	72.51104	59.04747	99.75384	21.73106	0.2421202	0.28517120	2.2859441	20	6 15.9	20.1
357138 2002 <i>AU</i> <sub>145</sub>	16.9	X	169.79347	339.75688	129.73935	5.12220	0.1539803	0.18488020	3.0517043	20	7 9.2	22.0
357139 2002 <i>AP</i> <sub>149</sub>	16.0	X	201.60837	344.03080	115.37049	11.83417	0.1102196	0.18852321	3.0122626	20	7 29.4	20.7
357140 2002 <i>AH</i> <sub>162</sub>	15.5	X	147.10668	193.44568	312.51917	15.86530	0.1121679	0.18404896	3.0608859	20	8 1.2	20.2
357141 2002 <i>AP</i> <sub>179</sub>	17.2	X	97.49969	308.70757	125.24816	6.26957	0.2264917	0.27685074	2.3315188	20	3 19.9	20.0
357142 2002 <i>AE</i> <sub>193</sub>	18.0	X	105.43783	325.52892	104.88898	4.85342	0.1701867	0.27923132	2.3182484	20	3 16.5	20.8
357143 2002 <i>AV</i> <sub>203</sub>	17.2	X	265.66777	157.81815	129.29408	7.29603	0.1139037	0.27636500	2.3342499	20	2 26.9	20.4
357144 2002 <i>AF</i> <sub>209</sub>	16.6	X	186.66369	322.19642	159.89128	10.21768	0.0733320	0.18724921	3.0259103	20	8 11.3	21.1
357145 2002 <i>AR</i> <sub>209</sub>	18.0	X	106.78363	298.69908	106.85872	2.41151	0.1661147	0.27484679	2.3428380	20	2 11.3	20.6
357146 2002 <i>BU</i> <sub>12</sub>	17.4	X	350.54676	227.21941	322.05246	3.61659	0.1131879	0.27424889	2.3462420	20	2 9.6	19.9
357147 2002 <i>CS</i>	18.0	X	305.51325	305.03430	153.88159	12.41595	0.1759554	0.36503155	1.9390207	20	—	—
357148 2002 <i>CZ</i>	16.9	X	303.59639	345.27936	234.25689	6.05641	0.0793922	0.27207752	2.3587085	20	1 17.3	20.0
357149 2002 <i>CB</i> <sub>3</sub>	17.4	X	40.60513	81.20636	44.60357	4.16822	0.1759310	0.27395314	2.3479303	20	2 12.5	19.1
357150 2002 <i>CW</i> <sub>6</sub>	16.7	X	162.67604	63.75440	7.15354	22.72198	0.4505613	0.18258659	3.0772076	20	5 16.1	23.1
357151 2002 <i>CG</i> <sub>9</sub>	15.7	X	272.16032	44.56755	326.30528	15.31425	0.0893659	0.18355549	3.0663694	20	7 2.4	20.2
357152 2002 <i>CO</i> <sub>15</sub>	17.3	X	267.99008	240.85557	168.49631	31.31049	0.3068857	0.35316302	1.9822233	20	7 22.4	20.1
357153 2002 <i>CO</i> <sub>23</sub>	17.0	X	115.64790	180.82559	206.62717	5.01318	0.3411354	0.27797874	2.3252072	20	2 20.1	20.4
357154 2002 <i>CZ</i> <sub>29</sub>	16.2	X	188.35701	77.18422	34.70765	7.19544	0.1589110	0.18681830	3.0305616	20	7 31.6	21.2
357155 2002 <i>CE</i> <sub>31</sub>	15.4	X	129.74495	213.74409	349.35060	12.03985	0.0658892	0.19061549	2.9901794	20	9 19.3	19.7
357156 2002 <i>CR</i> <sub>53</sub>	15.3	X	102.20999	263.30288	328.21731	19.92313	0.1799189	0.18619354	3.0373369	20	9 25.9	20.4
357157 2002 <i>CM</i> <sub>85</sub>	16.5	X	116.30449	83.54559	79.85155	2.62488	0.1602783	0.18168010	3.0874349	20	7 26.2	21.3
357158 2002 <i>CR</i> <sub>98</sub>	15.8	X	208.12695	102.86680	345.27762	8.43831	0.1712195	0.18411296	3.0601765	20	7 19.4	20.9
357159 2002 <i>CA</i> <sub>111</sub>	16.8	X	290.30382	194.90841	355.30300	7.57940	0.1128547	0.26236182	2.4165862	20	—	—
357160 2002 <i>CY</i> <sub>127</sub>	16.7	X	148.23160	345.91169	141.74726	9.24612	0.2478453	0.18154566	3.0889589	20	7 14.7	22.1
357161 2002 <i>CO</i> <sub>160</sub>	16.7	X	30.29168	74.00192	93.43293	7.92720	0.1431548	0.27818876	2.3240368	20	3 28.2	18.8
357162 2002 <i>CP</i> <sub>200</sub>	16.3	X	125.43242	64.36678	134.04127	11.15527	0.1960851	0.18675938	3.0311989	20	9 20.5	21.4
357163 2002 <i>CA</i> <sub>202</sub>	16.5	X	174.52556	354.21950	130.22543	10.10152	0.0679235	0.18463537	3.0544014	20	8 1.9	21.0
357164 2002 <i>CO</i> <sub>202</sub>	15.6	X	187.82255	316.05159	143.37766	13.17042	0.0639209	0.18285244	3.0742243	20	7 15.6	20.3
357165 2002 <i>CK</i> <sub>250</sub>	16.7	X	183.50089	335.35618	102.34685	2.29064	0.1577790	0.17990864	3.1076686	20	6 12.9	21.7
357166 2002 <i>CV</i> <sub>255</sub>	17.7	X	217.01285	234.22040	319.25556	17.19341	0.0828304	0.36133424	1.9522525	20	—	—
357167 2002 <i>CC</i> <sub>265</sub>	16.4	X	140.33041	223.34766	323.53434	4.28318	0.0909619	0.18907121	3.0064393	20	9 11.8	21.0
357168 2002 <i>CT</i> <sub>267</sub>	16.8	X	62.53253	71.16850	125.03561	0.38939	0.1137515	0.17743189	3.1365215	20	6 27.8	21.0
357169 2002 <i>CG</i> <sub>288</sub>	17.0	X	135.96981	87.59647	321.39330	5.69903	0.0462080	0.27846335	2.3225087	20	3 4.8	19.9
357170 2002 <i>CT</i> <sub>309</sub>	17.3	X	34.29188	299.89748	206.30683	4.05437	0.1666248	0.27556644	2.3387573	20	2 25.9	19.1
357171 2002 <i>CP</i> <sub>311</sub>	17.9	X	59.26384	332.09260	169.83856	6.37667	0.0705406	0.27725348	2.3292604	20	3 31.7	20.5
357172 2002 <i>DK</i> <sub>3</sub>	15.5	X	158.41426	120.20974	3.49629	22.72814	0.1506160	0.18010864	3.1053676	20	7 24.3	21.0
357173 2002 <i>DW</i> <sub>16</sub>	17.8	X	248.70511	182.69737	8.06746	19.58186	0.0566131	0.36606186	1.9353807	20	—	—
357174 2002 <i>ES</i> <sub>9</sub>	17.7	X	303.92691	271.21486	175.10973	22.74195	0.1400344	0.36033561	1.9558307	20	—	—
357175 2002 <i>EC</i> <sub>17</sub>	18.0	X	297.87957	64.55536	173.37252	2.16939	0.1792755	0.26990302	2.3713604	20	1 21.7	21.4
357176 2002 <i>EC</i> <sub>23</sub>	18.6	X	4.37747	174.27902	6.94298	1.21398	0.1239225	0.27327500	2.3518129	20	2 21.9	20.5
357177 2002 <i>EQ</i> <sub>34</sub>	17.6	X	40.56556	51.25687	73.93570	5.56313	0.1765077	0.27211262	2.3585057	20	2 12.3	19.4
357178 2002 <i>EV</i> <sub>59</sub>	16.2	X	141.35542	9.46695	169.55107	11.42792	0.1914778	0.18594109	3.0400855	20	9 7.1	21.4
357179 2002 <i>ED</i> <sub>70</sub>	15.8	X	101.20129	200.70461	359.55225	9.97596	0.1256449	0.18050733	3.1007934	20	8 24.1	20.5
357180 2002 <i>EY</i> <sub>77</sub>	17.7	X	263.72181	30.86107	193.52666	6.79444	0.1176231	0.26009234	2.4306234	20	—	—
357181 2002 <i>EK</i> <sub>95</sub>	17.7	X	344.20377	310.24252	165.88562	5.87002	0.1452593	0.26160564	2.4212408	20	—	—
357182 2002 <i>EX</i> <sub>97</sub>	16.4	X	314.69579	190.39797	17.81275	11.61098	0.1640100	0.26713811	2.3876948	20	1 8.4	19.7
357183 2002 <i>ET</i> <sub>102</sub>	13.7	X	269.67814	289.58460	162.47277	10.73014	0.0442832	0.08549543	5.1031788	20	10 1.8	20.4
357184 2002 <i>EK</i> <sub>104</sub>	17.9	X	255.08932	129.05229	15.65293	20.05607	0.0747639	0.35934823	1.9594118	20	—	—
357185 2002 <i>ET</i> <sub>109</sub>	16.2	X	66.63293	230.00607	3.50989	9.64213	0.2387282	0.17896199	3.1186180	20	9 9.3	20.7
357186 2002 <i>EZ</i> <sub>111</sub>	17.6	X	301.43625	220.38141	45.98068	2.05821	0.1777566	0.27331199	2.3516008	20	3 4.8	20.4
357187 2002 <i>EO</i> <sub>112</sub>	17.9	X	331.78522	81.24940	139.18510	2.69319	0.1572819	0.27191021	2.3596760	20	2 16.9	20.4
357188 2002 <i>EW</i> <sub>116</sub>	17.3	X	48.81097	316.44449	123.26777	3.09047	0.0838260	0.26563331	2.3967038	20	—	—
357189 2002 <i>ER</i> <sub>142</sub>	17.5	X	313.18514	152.68226	101.48470	1.35479	0.1861015	0.27323273	2.3520555	20	3 2.4	20.0
357190 2002 <i>ET</i> <sub>150</sub>	17.9	X	341.85560	54.87254	143.46747	1.72693	0.1274179	0.27019571	2.3696475	20	2 6.6	20.4
357191 2002 <i>EK</i> <sub>155</sub>	15.6	X	65.89179	239.26109	7.75149	16.51784	0.2080610	0.18092698	3.0959967	20	9 21.5	20.0

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>
357201 2002 GX <sub>5</sub>	16.8	X	23.65993	333.74207	159.30691	10.42570	0.2395027	0.26827385	2.3809512	20	1 9.2	18.6
357202 2002 GG <sub>34</sub>	17.6	X	347.05633	88.78879	70.06328	5.71650	0.1570581	0.26645241	2.3917895	20	—	—
357203 2002 GA <sub>38</sub>	17.4	X	322.21240	4.16064	206.23132	2.87063	0.1506716	0.26667191	2.3904768	20	1 20.7	20.4
357204 2002 GE <sub>38</sub>	15.0	X	42.35257	229.90554	36.44834	14.53188	0.2569217	0.17566503	3.1575180	20	9 26.5	19.2
357205 2002 GB <sub>43</sub>	16.9	X	336.90675	262.16935	293.15520	6.25833	0.1530980	0.26850555	2.3795812	20	1 21.5	19.6
357206 2002 GW <sub>68</sub>	15.6	X	66.97252	216.52725	22.48291	13.44922	0.1000169	0.17870650	3.1215896	20	9 1.3	20.1
357207 2002 GZ <sub>71</sub>	17.2	X	324.65542	155.37912	45.16891	4.14797	0.1748297	0.26698947	2.3885810	20	1 8.3	20.1
357208 2002 GJ <sub>103</sub>	14.9	X	19.80418	295.83736	22.80179	26.08534	0.3855388	0.17671055	3.1450512	20	11 6.0	18.8
357209 2002 GK <sub>112</sub>	15.1	X	42.01024	48.97271	196.67713	25.08648	0.1548929	0.17320207	3.1873812	20	8 2.5	19.7
357210 2002 GQ <sub>113</sub>	17.3	X	310.68936	62.93609	168.51346	10.78143	0.1921786	0.26821052	2.3813260	20	1 25.8	20.5
357211 2002 GU <sub>133</sub>	17.1	X	33.76238	133.24966	5.55287	4.43877	0.0995775	0.26840232	2.3801914	20	2 16.4	19.4
357212 2002 GV <sub>143</sub>	15.8	X	119.50645	293.87389	218.15040	20.60639	0.2784846	0.17504059	3.1650230	20	7 18.2	21.6
357213 2002 GX <sub>147</sub>	15.6	X	81.44766	181.65522	14.48339	10.81999	0.1504387	0.17673991	3.1447030	20	7 31.4	20.3
357214 2002 GC <sub>173</sub>	16.9	X	269.23666	258.89937	23.17134	5.11851	0.2180734	0.26721885	2.3872138	20	2 15.3	20.6
357215 2002 GH <sub>183</sub>	17.0	X	326.83756	218.42672	30.49590	7.10755	0.0887046	0.27271368	2.3550390	20	4 2.1	19.4
357216 2002 GD <sub>185</sub>	16.4	X	68.76490	145.10611	50.16940	1.57396	0.0918898	0.17216215	3.2002035	20	7 1.6	20.7
357217 2002 GY <sub>186</sub>	17.7	X	254.84171	144.34572	111.98153	2.47707	0.1661449	0.26197982	2.4189348	20	1 4.0	21.3
357218 2002 GK <sub>190</sub>	17.8	X	311.08654	345.64066	245.75120	4.13098	0.1876945	0.26665705	2.3905656	20	1 27.6	20.9
357219 2002 GP <sub>190</sub>	16.0	X	45.46243	1.62731	224.71626	6.09053	0.0931089	0.17174664	3.2053630	20	7 8.7	20.3
357220 2002 HP <sub>8</sub>	15.6	X	21.39351	50.79980	199.71028	12.47525	0.0188692	0.17179557	3.2047543	20	6 28.4	20.3
357221 2002 HK <sub>10</sub>	15.8	X	52.09097	54.90722	184.11290	27.11742	0.1755705	0.17390589	3.1787755	20	8 13.7	20.4
357222 2002 JY <sub>5</sub>	15.6	X	56.31972	76.24497	160.05768	14.93527	0.1251089	0.17415823	3.1750743	20	8 10.5	19.9
357223 2002 JV <sub>7</sub>	15.7	X	82.31270	132.65920	83.91604	17.90505	0.1480458	0.17627253	3.1502592	20	8 29.9	20.7
357224 2002 JN <sub>23</sub>	16.9	X	311.37206	31.76432	190.91175	5.81317	0.1226634	0.26560918	2.3968489	20	1 26.1	20.0
357225 2002 JY <sub>56</sub>	15.7	X	69.05660	206.19430	43.40632	13.11883	0.1445398	0.17727487	3.1383733	20	9 23.3	20.3
357226 2002 JJ <sub>60</sub>	16.0	X	97.55050	157.04109	58.99850	11.01924	0.2307175	0.17778742	3.1323385	20	9 21.6	21.2
357227 2002 JC <sub>92</sub>	17.3	X	258.33350	221.01017	46.58420	1.93549	0.1533397	0.26164711	2.4209849	20	1 22.6	20.8
357228 2002 JQ <sub>92</sub>	17.0	X	208.98732	3.04279	308.99275	1.75720	0.2395475	0.25811926	2.4429942	20	1 31.4	21.3
357229 2002 JF <sub>108</sub>	15.3	X	56.04564	157.09760	110.88303	17.96408	0.1761307	0.17889254	3.1194251	20	10 7.5	20.0
357230 2002 JO <sub>123</sub>	15.7	X	98.05510	118.76050	58.76048	27.80270	0.2147616	0.17474946	3.1685372	20	8 6.4	21.2
357231 2002 JE <sub>126</sub>	17.0	X	311.13431	162.05139	61.06608	11.92185	0.1897853	0.26602296	2.3943629	20	1 19.9	20.3
357232 2002 JB <sub>127</sub>	15.3	X	71.78801	49.90130	206.54283	21.82947	0.1920779	0.17768309	3.1335646	20	10 3.3	20.0
357233 2002 JQ <sub>150</sub>	17.6	X	249.05714	80.84770	189.09014	5.79482	0.2554007	0.25897199	2.4376285	20	1 10.4	21.9
357234 2002 JA <sub>151</sub>	17.5	X	232.76985	209.27697	56.95302	2.35639	0.1646342	0.25710687	2.4494031	20	—	—
357235 2002 KC <sub>1</sub>	17.0	X	232.11136	161.41450	138.53409	17.32385	0.2354051	0.25997727	2.4313406	20	2 3.2	21.1
357236 2002 KX <sub>3</sub>	15.8	X	79.59675	105.65437	140.20918	25.71633	0.3017721	0.17679540	3.1440449	20	10 19.3	21.3
357237 2002 LV <sub>53</sub>	15.1	X	89.51943	67.29973	115.99100	14.55718	0.0506928	0.16891509	3.2410850	20	7 6.7	19.7
357238 2002 LZ <sub>56</sub>	17.6	X	218.23041	109.36965	162.96599	7.99528	0.2129160	0.25436897	2.4669478	20	—	—
357239 2002 LB <sub>61</sub>	15.7	X	51.53563	98.55633	125.56457	12.77865	0.1016455	0.17118653	3.2123510	20	7 16.5	20.0
357240 2002 LQ <sub>63</sub>	17.1	X	274.16086	146.48014	95.00758	6.33485	0.2496300	0.25706718	2.4496552	20	—	—
357241 2002 MC <sub>6</sub>	16.6	X	120.04308	285.24370	47.86800	4.95412	0.2017823	0.24231401	2.5481033	20	—	—
357242 2002 OG <sub>25</sub>	16.8	X	99.65308	1.06951	321.84793	7.79969	0.1478493	0.23695185	2.5864017	20	—	—
357243 2002 OQ <sub>37</sub>	16.6	X	16.11759	255.02267	145.03292	14.44094	0.1625468	0.23478147	2.6023168	20	—	—
357244 2002 PQ <sub>9</sub>	17.3	X	32.53617	181.52766	195.19724	4.16649	0.2051390	0.23268619	2.6179156	20	—	—
357245 2002 PX <sub>17</sub>	17.1	X	351.66372	82.50784	303.43771	9.50630	0.2319809	0.22791202	2.6543483	20	12 14.8	19.8
357246 2002 PG <sub>34</sub>	17.5	X	132.66877	144.45781	135.51540	25.71205	0.0862295	0.34783359	2.0024194	20	—	—
357247 2002 PC <sub>36</sub>	17.2	X	164.17175	130.07543	177.29659	5.17777	0.2019983	0.24496035	2.5297185	20	—	—
357248 2002 PE <sub>60</sub>	16.6	X	28.37414	204.40277	160.49621	9.79489	0.3500054	0.22721283	2.6597908	20	—	—
357249 2002 PQ <sub>68</sub>	17.1	X	183.64714	52.72703	243.54197	2.55246	0.1240983	0.24648562	2.5192716	20	—	—
357250 2002 PN <sub>122</sub>	17.3	X	109.92484	183.34431	176.91602	6.56418	0.1674225	0.24291252	2.5439161	20	—	—
357251 2002 PR <sub>124</sub>	17.0	X	29.30951	178.29763	203.24718	1.67990	0.2206270	0.23152369	2.6266714	20	—	—
357252 2002 PF <sub>143</sub>	17.2	X	336.77633	357.30145	81.15364	5.20760	0.2160526	0.23623907	2.5916016	20	—	—
357253 2002 PQ <sub>171</sub>	17.5	X	152.20228	291.14306	355.55521	4.08831	0.1244037	0.24072802	2.5592828	20	—	—
357254 2002 PN <sub>173</sub>	17.7	X	307.92988	124.27128	259.84061	3.06284	0.2825897	0.21844754	2.7304734	20	8 14.9	20.3
357255 2002 PY <sub>177</sub>	16.8	X	76.09771	189.41273	163.44817	14.07463	0.1617562	0.23663306	2.5887241	20	—	—
357256 2002 PN <sub>194</sub>	17.1	X	82.69741	248.99193	89.51414	3.81703	0.1105827	0.23540715	2.5977038	20	—	—
357257 2002 PL <sub>197</sub>	17.2	X	67.60241	82.61405	283.37506	4.85218	0.0547074	0.23943942	2.5684569	20	—	—
357258 2002 QY <sub>23</sub>	16.4	X	357.99198	80.82461	337.73957	12.96096	0.0634520	0.23385008	2.6092220	20	—	—
357259 2002 QX <sub>51</sub>	16.7	X	4.80976	65.76048	342.03110	7.76336	0.1551464	0.23148079	2.6269960	20	—	—
357260 2002 QE <sub>94</sub>	17.4	X	59.03045	291.05616	76.49959	5.25441	0.1377569	0.23440208	2.6051241	20	—	—
357261 2002 QL <sub>111</sub>	16.5	X	350.57461	258.83044	149.37946	12.64759	0.1827602	0.22874679	2.6478866	20	—	—
357262 2002 QN <sub>111</sub>	16.8	X	81.66802	208.96475	162.91245	12.13000	0.1183725	0.23959401	2.5673520	20	—	—
357263 2002 QB <sub>141</sub>	16.4	X	6.51903	214.49633	146.95830	29.74071	0.1868529	0.22470364	2.6795548	20	12 6.7	20.3
357264 2002 QQ <sub>144</sub>	16.3	X	340.18374	333.75549	145.45046	9.09005	0.1093107	0.23964362	2.5669977	20	—	—
357265 2002 QM <sub>145</sub>	17.0	X	170.83375	262.46353	23.68403	9.93853	0.0798913	0.24139662	2.5545550	20	—	—
357266 2002 QT <sub>147</sub>	17.1	X	206.28264	278.30374	353.63148	10.53683	0.0973033	0.24656606	2.5187237	20	—	—
357267 2002 QP <sub>152</sub>	17.0	X	194.08059	123.04702	132.15009	13.53194	0.1497578	0.24254279	2.5465007	20	—	—
357268 2002 RU <sub>68</sub>	16.9	X	95.62147	176.95788	173.95562	12.47530	0.1436928	0.23706514	2.5855776	20	—	—
357269 2002 RP <sub>85</sub>	16.1	X	49.43720	189.36054	174.88182	6.80298	0.2987201	0.23045949	2.6347514	20	—	—
357270 2002 RH <sub>87</sub>	16.1	X	83.13410	173.41322	176.85133	17.44457	0.2525656	0.23430523	2.6058419	20	—	—
357271 2002 RE <sub>137</sub>	16.3	X	97.66647	12.56070	320.08769	12.74368	0.1747589	0.23602621	2.5931595	20	—	—
357272 2002 RG <sub>147</sub>	16.9	X	338.60639	313.01697	105.08517	2.74254	0.1370982	0.22720642	2.6598409	20	12 23.2	19.7
357273 2002 RM <sub>215</sub>	16.7	X	34.40994	308.23198	40.47330	7.09918	0.2078157	0.22782679	2.6550102	20	12 26.1	20.4
357274 2002 RA <sub>221</sub>	17.0	X	10.39326	315.19732	50.38728	3.65372	0.1849038	0.22599745	2.6693182	20	12 10.9	20.0



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>
357281 2002 SX <sub>62</sub>	17.1	X	184.86715	174.08403	100.64157	4.51694	0.1211074	0.24171953	2.5522795	20	—	—
357282 2002 SY <sub>66</sub>	16.8	X	75.31679	23.06345	312.88841	13.67809	0.1630198	0.23233862	2.6205259	20	—	—
357283 2002 TM <sub>82</sub>	16.5	X	307.62596	59.41819	347.74808	4.47515	0.1138866	0.21962283	2.7207234	20	10 9.9	19.5
357284 2002 TK <sub>123</sub>	16.6	X	20.67837	59.15344	300.22963	9.87345	0.0626092	0.22575985	2.6711908	20	11 28.8	20.2
357285 2002 TY <sub>131</sub>	16.6	X	281.97770	99.02323	334.95336	7.73748	0.2935845	0.21677109	2.7445332	20	9 5.8	19.9
357286 2002 TA <sub>156</sub>	16.3	X	115.32369	105.18978	220.80619	8.96689	0.1128857	0.23720644	2.5845507	20	—	—
357287 2002 TF <sub>172</sub>	15.8	X	72.92596	348.47425	355.14417	32.89520	0.1498852	0.23141480	2.6274954	20	—	—
357288 2002 TZ <sub>174</sub>	16.4	X	28.48593	338.79365	45.06589	13.72714	0.1540702	0.22884409	2.6471359	20	—	—
357289 2002 TE <sub>221</sub>	16.2	X	98.15709	9.79995	297.60647	10.99327	0.2620640	0.23193282	2.6235816	20	—	—
357290 2002 TZ <sub>324</sub>	17.1	X	291.57833	84.07959	10.69548	12.80652	0.2468473	0.22244090	2.6976957	20	10 29.6	19.8
357291 2002 TN <sub>327</sub>	17.1	X	273.48126	152.81572	23.60224	4.79670	0.0482997	0.23580609	2.5947730	20	—	—
357292 2002 UF <sub>35</sub>	16.1	X	296.12830	240.04368	131.38328	9.93518	0.1220588	0.21042517	2.7994385	20	7 31.5	19.3
357293 2002 UR <sub>62</sub>	16.8	X	295.96802	194.34915	212.60630	8.36743	0.2118803	0.21802324	2.7340148	20	9 3.7	19.9
357294 2002 UK <sub>74</sub>	17.2	X	19.42961	262.24571	126.52957	2.73702	0.1279193	0.22580009	2.6708735	20	—	—
357295 2002 VE <sub>2</sub>	16.1	X	93.92223	285.28380	47.31293	12.99502	0.0593791	0.22902338	2.6457542	20	—	—
357296 2002 VX <sub>20</sub>	16.7	X	291.67483	168.18434	256.60550	8.45018	0.2096939	0.21707467	2.7419737	20	9 20.0	19.9
357297 2002 VT <sub>57</sub>	17.1	X	261.86136	16.30601	66.60168	5.21863	0.2746540	0.21308675	2.7760786	20	8 27.3	21.1
357298 2002 VD <sub>74</sub>	16.4	X	96.71453	273.29545	62.57363	12.19683	0.1538081	0.23171283	2.6252419	20	—	—
357299 2002 VJ <sub>75</sub>	16.9	X	286.23394	27.73194	59.19132	20.60461	0.2014648	0.21704032	2.7422630	20	10 25.6	20.2
357300 2002 VT <sub>143</sub>	16.7	X	313.95008	345.40566	56.87927	6.03286	0.1120991	0.21718197	2.7410705	20	10 17.1	19.9
357301 2002 VC <sub>144</sub>	18.5	X	146.29408	347.95003	92.86516	1.67627	0.1522408	0.30740445	2.1743491	20	5 11.7	21.4
357302 2002 VM <sub>147</sub>	16.9	X	301.51994	220.84400	238.01235	7.26266	0.1416616	0.22288328	2.6941249	20	12 10.2	19.7
357303 2002 WE <sub>27</sub>	17.1	X	339.84862	143.05998	254.04473	2.92734	0.1467033	0.21916320	2.7245260	20	11 24.3	20.0
357304 2002 XK <sub>33</sub>	16.1	X	32.94530	42.94772	331.99137	11.98683	0.1895814	0.22580807	2.6708105	20	—	—
357305 2002 XT <sub>89</sub>	16.7	X	277.57013	304.16056	121.64580	11.54805	0.2703849	0.21192080	2.7862516	20	8 25.3	20.3
357306 2003 AC <sub>40</sub>	16.2	X	139.95209	293.47327	141.71306	9.43141	0.2784015	0.18796440	3.0182299	20	5 11.9	21.6
357307 2003 AV <sub>49</sub>	16.0	X	244.53516	210.34222	298.54177	11.86738	0.1138559	0.21358420	2.7717664	20	11 16.6	20.1
357308 2003 AM <sub>72</sub>	17.3	X	275.99619	2.10953	87.99833	24.92162	0.0789008	0.38059295	1.8857997	20	12 11.5	18.4
357309 2003 BY <sub>40</sub>	16.5	X	145.70516	66.44000	126.34967	18.11626	0.0831552	0.20288334	2.8683917	20	10 3.9	21.1
357310 2003 CM <sub>10</sub>	16.1	X	264.35462	359.86204	134.38013	10.61633	0.0980590	0.21400029	2.7681725	20	12 2.1	19.8
357311 2003 DC <sub>14</sub>	16.5	X	225.44108	10.10739	49.99812	12.84695	0.5612199	0.20044272	2.8916287	20	6 5.8	22.5
357312 2003 ET <sub>14</sub>	17.1	X	137.73402	349.09193	126.96140	6.86868	0.0976411	0.30235497	2.1984907	20	6 16.2	20.1
357313 2003 FK <sub>45</sub>	16.0	X	152.81277	183.99865	7.10945	16.73780	0.1364243	0.19799888	2.9153737	20	10 1.7	20.6
357314 2003 FX <sub>64</sub>	17.0	X	34.85097	348.55336	137.59138	7.62087	0.0670623	0.28371414	2.2937640	20	1 25.4	19.3
357315 2003 FL <sub>122</sub>	16.2	X	11.29054	353.92824	299.15708	10.46430	0.1746082	0.19018360	2.9947047	20	8 21.7	19.6
357316 2003 FX <sub>123</sub>	17.4	X	272.97648	137.81707	172.06940	5.84476	0.1709309	0.29228391	2.2487065	20	3 27.5	20.4
357317 2003 FL <sub>131</sub>	18.2	X	359.10741	31.07992	188.50082	3.17561	0.1489340	0.29063064	2.2572264	20	4 6.8	19.9
357318 2003 FS <sub>133</sub>	16.3	X	108.38608	176.60383	33.64861	9.37771	0.1067076	0.19194413	2.9763648	20	9 13.6	20.8
357319 2003 GR <sub>8</sub>	17.4	X	20.89172	203.06978	14.20619	6.44219	0.3148712	0.29210820	2.2496082	20	6 17.6	18.3
357320 2003 GB <sub>38</sub>	17.7	X	119.84447	347.86939	129.92426	4.56667	0.0298583	0.29375252	2.2412053	20	5 18.9	20.4
357321 2003 GZ <sub>54</sub>	16.9	X	139.39463	168.90948	40.55971	5.21950	0.1056210	0.19730440	2.9222108	20	10 11.9	21.4
357322 2003 HW <sub>5</sub>	17.4	X	25.12984	26.02800	203.25022	5.05908	0.0983584	0.29533240	2.2332053	20	6 16.7	19.5
357323 2003 HR <sub>20</sub>	17.4	X	16.73919	18.90625	208.83934	4.92014	0.1722859	0.29218164	2.2492312	20	6 3.9	18.9
357324 2003 HQ <sub>44</sub>	16.2	X	69.71438	112.07894	171.41855	9.30366	0.2742318	0.18881110	3.0091998	20	11 16.9	21.1
357325 2003 JL	16.4	X	152.22899	142.82978	41.36708	9.79229	0.1127107	0.19342261	2.9611783	20	9 26.4	21.1
357326 2003 JQ <sub>15</sub>	16.0	X	45.45894	239.67743	38.83035	11.46685	0.1597880	0.18759901	3.0221477	20	10 1.5	20.1
357327 2003 KE <sub>11</sub>	18.0	X	310.82286	103.36551	62.21957	22.70201	0.0582810	0.38799616	1.8617346	20	—	—
357328 2003 KA <sub>17</sub>	16.5	X	275.69743	256.92596	58.66309	23.79663	0.2344488	0.28451794	2.2894418	20	4 11.9	20.1
357329 2003 LK	16.1	X	25.95166	110.65069	135.17697	11.07725	0.1484436	0.17895132	3.1187420	20	7 12.3	19.8
357330 2003 MW <sub>1</sub>	17.4	X	244.88238	128.61917	116.56909	24.14202	0.1274426	0.38279152	1.8785720	20	—	—
357331 2003 NH <sub>6</sub>	15.9	X	10.11667	151.93040	161.85692	21.86420	0.3887457	0.17810265	3.1286415	20	10 26.9	19.3
357332 2003 NO <sub>6</sub>	15.8	X	58.97229	101.40728	146.59709	26.62322	0.2092449	0.18245520	3.0786848	20	9 15.6	20.2
357333 2003 NJ <sub>7</sub>	17.6	X	349.60493	326.03381	30.18965	9.35882	0.3013668	0.35261791	1.9842656	20	12 25.8	19.4
357334 2003 OJ <sub>12</sub>	16.8	X	229.25961	159.96474	176.16579	24.64754	0.238012	0.27225143	2.3577039	20	3 15.0	20.6
357335 2003 OE <sub>15</sub>	16.5	X	220.35350	134.73847	194.89199	11.48568	0.2934282	0.26997061	2.3709645	20	2 25.2	20.9
357336 2003 OT <sub>17</sub>	17.5	X	258.17433	324.77680	343.82916	5.89783	0.2490068	0.27660496	2.3328997	20	3 3.7	21.1
357337 2003 OG <sub>33</sub>	15.6	X	77.30673	114.42931	147.62675	22.27419	0.3268558	0.18361766	3.0656771	20	11 7.1	21.1
357338 2003 PE <sub>11</sub>	17.4	X	177.44354	168.64971	161.36642	6.10892	0.2352252	0.26321527	2.4113597	20	1 27.1	21.5
357339 2003 QB <sub>12</sub>	17.6	X	151.21109	287.58260	70.47720	2.16410	0.1996214	0.26249918	2.4157431	20	2 6.5	21.2
357340 2003 QN <sub>13</sub>	16.7	X	208.70095	180.08901	156.84552	15.27415	0.1936476	0.26818225	2.3814933	20	2 29.4	20.7
357341 2003 QU <sub>13</sub>	17.3	X	221.76990	193.10818	143.59927	6.44666	0.2426016	0.27129179	2.3632606	20	3 10.6	21.4
357342 2003 QK <sub>17</sub>	17.3	X	264.48736	323.49206	342.82004	4.26023	0.2310871	0.27598633	2.3363846	20	3 7.8	20.9
357343 2003 QJ <sub>23</sub>	15.1	X	20.51946	115.93369	172.96358	26.02417	0.2639926	0.17395425	3.1781863	20	9 15.6	18.6
357344 2003 QQ <sub>30</sub>	17.7	X	291.31595	178.45481	140.29308	19.22328	0.0473506	0.37206349	1.9145116	20	—	—
357345 2003 QB <sub>35</sub>	17.0	X	292.44583	129.75352	147.67458	9.91966	0.2132325	0.27719402	2.3295935	20	3 2.9	20.0
357346 2003 QC <sub>41</sub>	17.2	X	219.13231	344.67606	349.96447	6.82372	0.2621354	0.27013441	2.3700060	20	3 4.8	21.2
357347 2003 QA <sub>44</sub>	17.4	X	231.82964	2.32215	307.53188	2.03180	0.2568871	0.26957413	2.3732887	20	2 13.2	21.4
357348 2003 QJ <sub>46</sub>	17.5	X	357.51517	245.93948	160.81866	22.83185	0.1073682	0.36182130	1.9504731	20	—	—
357349 2003 QA <sub>52</sub>	15.6	X	38.14699	316.03870	346.55909	16.37789	0.2095155	0.17934852	3.1141356	20	10 16.8	20.0
357350 2003 QH <sub>58</sub>	16.3	X	299.17768	287.84477	350.76239	11.71623	0.2551928	0.27777514	2.3263433	20	3 6.2	19.3
357351 2003 QZ <sub>72</sub>	17.6	X	129.20011	334.36075	328.79951	18.45921	0.0526235	0.36802996	1.9284747	20	—	—
357352 2003 QE <sub>95</sub>	17.3	X	234.56602	278.39223	67.08164	6.66020	0.2590257	0.27366484	2.3495790	20	4 1.4	21.3
357353 2003 QT <sub>106</sub>	17.1	X	178.63463	310.14451	31.01870	5.49969	0.2340189	0.26561329	2.3968242	20	2 13.2	21.1
357354 2003 RJ <sub>3</sub>	16.9	X	223.24710</									

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>
357361 2003 SK <sub>93</sub>	16.9	X	353.00833	12.19501	46.03379	8.48822	0.2335310	0.24079413	2.5588144	20	—	—
357362 2003 SX <sub>113</sub>	17.2	X	231.29151	111.29614	216.07976	5.28092	0.1421370	0.27161569	2.3613815	20	3 8.0	20.9
357363 2003 SB <sub>142</sub>	16.7	X	80.70999	196.29100	87.98977	6.29710	0.2041252	0.24125896	2.5555266	20	11 27.9	20.6
357364 2003 SJ <sub>143</sub>	17.3	X	228.69237	78.57594	237.85370	4.69133	0.2345156	0.26799005	2.3826318	20	2 17.7	21.5
357365 2003 SH <sub>158</sub>	15.5	X	20.27408	284.83989	30.75441	14.97600	0.2608499	0.17769152	3.1334655	20	10 21.6	19.0
357366 2003 SU <sub>163</sub>	18.2	X	145.32528	295.47216	3.29846	19.36899	0.0448278	0.36942236	1.9236258	20	—	—
357367 2003 SP <sub>165</sub>	16.8	X	217.41248	148.73407	172.49313	11.05904	0.2076301	0.26523455	2.3991053	20	2 15.9	20.9
357368 2003 SC <sub>167</sub>	16.7	X	220.90753	323.48388	350.64269	8.36680	0.2492402	0.26598793	2.3945731	20	2 12.9	20.8
357369 2003 SM <sub>182</sub>	15.8	X	46.65150	69.89232	204.51008	15.66337	0.2452545	0.17472939	3.1687799	20	10 3.2	20.1
357370 2003 SW <sub>184</sub>	17.6	X	222.19796	195.03916	106.53364	2.17766	0.1805276	0.26499879	2.4005281	20	1 29.4	21.5
357371 2003 SH <sub>193</sub>	16.8	X	208.63601	6.03717	310.15601	5.91393	0.1054750	0.26282743	2.4137313	20	2 3.9	20.3
357372 2003 SG <sub>201</sub>	17.8	X	272.87158	279.29228	181.74145	22.65365	0.1595242	0.35477509	1.9762140	20	12 6.8	19.7
357373 2003 SO <sub>228</sub>	17.6	X	198.00634	312.76466	1.85854	2.03646	0.1909165	0.26344159	2.4099784	20	1 25.2	21.4
357374 2003 ST <sub>232</sub>	16.8	X	216.15340	302.48613	21.53834	6.23266	0.2140902	0.27022189	2.3694945	20	2 21.7	20.8
357375 2003 SB <sub>264</sub>	16.8	X	324.60788	6.23658	62.70994	5.23716	0.1859275	0.23840056	2.5759131	20	12 19.6	19.0
357376 2003 SW <sub>277</sub>	17.3	X	133.29481	93.37637	250.77353	5.70476	0.2570127	0.25563796	2.4587771	20	1 8.5	20.9
357377 2003 SW <sub>319</sub>	17.4	X	274.11883	234.58376	29.83578	2.36848	0.1564357	0.26770868	2.3843010	20	2 2.8	20.7
357378 2003 SF <sub>328</sub>	17.6	X	100.51037	57.53945	312.99009	5.01562	0.1144076	0.25496435	2.4631058	20	—	—
357379 2003 SH <sub>388</sub>	16.9	X	260.56894	79.18722	157.06925	6.90159	0.0779944	0.25819538	2.4425141	20	—	—
357380 2003 TF <sub>46</sub>	18.0	X	114.86877	13.96352	336.00750	5.10381	0.1268888	0.25179327	2.4837429	20	—	—
357381 2003 UH <sub>14</sub>	17.3	X	223.53897	89.05888	214.01405	4.18156	0.2001480	0.26428528	2.4048467	20	1 30.4	21.4
357382 2003 UD <sub>26</sub>	16.4	X	233.93751	177.10372	218.54289	7.48324	0.2364401	0.21616295	2.7496782	20	6 2.3	20.9
357383 2003 UM <sub>33</sub>	17.6	X	177.53602	175.90363	146.42101	1.90694	0.1866673	0.25970062	2.4330669	20	1 16.4	21.4
357384 2003 UP <sub>43</sub>	17.6	X	259.91442	160.48152	146.36977	1.78550	0.1872670	0.27138982	2.3626915	20	3 9.1	21.2
357385 2003 UH <sub>48</sub>	17.0	X	24.79700	291.93799	118.51789	4.50988	0.2137973	0.24307507	2.5427819	20	—	—
357386 2003 UN <sub>49</sub>	16.1	X	315.76330	208.43085	269.07055	14.20192	0.1067679	0.24211412	2.5495056	20	—	—
357387 2003 UW <sub>65</sub>	17.4	X	3.02354	247.07708	169.65740	11.88171	0.2879182	0.24062008	2.5600482	20	—	—
357388 2003 UK <sub>76</sub>	16.8	X	328.16572	103.77735	345.75593	14.12096	0.2450985	0.23920500	2.5701347	20	—	—
357389 2003 UA <sub>83</sub>	17.3	X	311.66832	234.87278	175.67663	6.01939	0.2729384	0.23075578	2.6324956	20	10 14.7	19.1
357390 2003 UF <sub>101</sub>	17.1	X	38.29583	225.16963	166.95214	4.36103	0.2139276	0.24414317	2.5353601	20	—	—
357391 2003 UO <sub>113</sub>	17.0	X	218.16638	178.70751	141.56340	5.04930	0.2280096	0.26537635	2.3982507	20	2 16.7	21.1
357392 2003 UM <sub>143</sub>	16.5	X	21.98143	358.56977	23.04498	10.64811	0.1787808	0.23887565	2.5724965	20	—	—
357393 2003 UP <sub>156</sub>	17.6	X	333.95158	264.91558	178.06969	6.05471	0.2961883	0.23844521	2.5755915	20	—	—
357394 2003 UC <sub>182</sub>	17.2	X	45.29451	155.76960	199.22398	4.54397	0.2855992	0.24065381	2.5598090	20	—	—
357395 2003 UU <sub>195</sub>	17.0	X	170.22901	252.47805	95.41725	2.61689	0.2009518	0.25933515	2.4353523	20	2 11.7	20.8
357396 2003 UO <sub>210</sub>	17.9	X	20.75681	53.53594	2.64081	1.95933	0.1759568	0.24361576	2.5390181	20	—	—
357397 2003 UF <sub>219</sub>	17.3	X	7.09611	90.33797	334.16782	1.97229	0.2021005	0.24276948	2.5449153	20	—	—
357398 2003 UZ <sub>228</sub>	17.6	X	307.22215	38.57972	18.50345	5.40211	0.3592273	0.23007388	2.6376946	20	9 27.5	19.3
357399 2003 UE <sub>232</sub>	17.2	X	168.01150	124.16593	202.37287	3.72821	0.0897702	0.25601805	2.4563429	20	1 4.9	20.6
357400 2003 UV <sub>240</sub>	16.9	X	175.93506	55.43925	252.14502	5.55448	0.1322382	0.25363299	2.4717178	20	—	—
357401 2003 UE <sub>245</sub>	16.5	X	352.56869	171.95032	221.65833	13.62140	0.0272890	0.23654815	2.5893435	20	12 4.7	19.9
357402 2003 UD <sub>249</sub>	17.1	X	198.03527	348.53992	348.65866	3.88487	0.0731509	0.26271030	2.4144487	20	2 19.8	20.6
357403 2003 UG <sub>291</sub>	17.3	X	178.77790	103.67496	207.23943	8.30901	0.2618102	0.25663013	2.4524356	20	1 7.2	21.6
357404 2003 UN <sub>341</sub>	16.7	X	162.04886	173.39850	195.74426	20.91787	0.1318010	0.26680747	2.3896670	20	2 19.8	20.6
357405 2003 UM <sub>382</sub>	17.6	X	278.58383	135.15868	113.87072	4.11314	0.1490549	0.26429272	2.4048016	20	1 19.6	21.1
357406 2003 VB <sub>3</sub>	19.5	X	195.39900	304.98467	191.61331	1.03732	0.3382434	0.33910335	2.0366418	20	9 5.1	22.9
357407 2003 WN <sub>12</sub>	15.8	X	341.29342	116.03239	346.54780	27.32975	0.1869064	0.23919380	2.5702149	20	—	—
357408 2003 WD <sub>15</sub>	16.6	X	70.55473	332.08302	50.10764	10.20764	0.0138831	0.24590760	2.5232178	20	—	—
357409 2003 WN <sub>81</sub>	17.4	X	342.64154	295.49947	124.81199	4.76106	0.1971598	0.23492856	2.6012305	20	—	—
357410 2003 WK <sub>98</sub>	17.7	X	28.18179	245.40633	167.05430	2.94216	0.1942797	0.24488707	2.5302230	20	—	—
357411 2003 WU <sub>126</sub>	16.6	X	324.00043	0.77056	63.18175	14.89499	0.2553563	0.23142268	2.6274357	20	12 10.0	18.4
357412 2003 WN <sub>172</sub>	16.0	X	306.78151	137.21580	309.30069	11.48761	0.2598297	0.22915119	2.6447703	20	11 25.6	18.3
357413 2003 WF <sub>190</sub>	15.9	X	44.82006	38.54599	334.24312	17.49392	0.3167691	0.23958741	2.5673991	20	—	—
357414 2003 XE	18.2	X	126.99420	17.38697	90.56376	26.94523	0.3535262	0.43986187	1.7123472	20	6 15.4	20.7
357415 2003 XA <sub>5</sub>	16.6	X	312.52323	134.33515	291.65996	12.22458	0.3063591	0.22942691	2.6426510	20	11 1.1	18.6
357416 2003 XF <sub>10</sub>	16.5	X	257.36105	72.34466	61.28030	23.34040	0.3515639	0.22543083	2.6737893	20	10 24.2	20.4
357417 2003 XH <sub>16</sub>	17.0	X	310.15486	319.94558	124.89506	4.65573	0.1555666	0.23278554	2.6171707	20	12 10.5	19.5
357418 2003 XJ <sub>42</sub>	16.2	X	6.68688	350.79233	78.71954	12.06454	0.2059671	0.17796381	3.1302684	20	—	—
357419 2003 YC <sub>12</sub>	16.4	X	336.37537	80.41300	28.88467	9.78599	0.1628573	0.23744630	2.5828099	20	—	—
357420 2003 YY <sub>20</sub>	17.0	X	307.04713	154.06633	299.46278	5.64538	0.1424429	0.22944352	2.6425235	20	12 15.3	19.8
357421 2003 YE <sub>29</sub>	17.8	X	292.74219	337.02051	92.70743	5.98843	0.3024678	0.22627211	2.6671577	20	9 24.1	20.4
357422 2003 YT <sub>54</sub>	17.1	X	21.62045	350.70247	73.71388	1.87204	0.1372596	0.24083234	2.5585437	20	—	—
357423 2003 YQ <sub>60</sub>	17.2	X	339.36836	159.77367	233.80183	3.46095	0.2022923	0.23151608	2.6267290	20	11 27.9	19.3
357424 2003 YZ <sub>65</sub>	16.6	X	60.00613	300.00316	86.08655	12.41062	0.1251486	0.24204167	2.5500143	20	—	—
357425 2003 YD <sub>79</sub>	16.0	X	66.83703	341.84028	68.38965	6.46196	0.1464683	0.24513569	2.5285120	20	—	—
357426 2003 YS <sub>87</sub>	16.8	X	307.53448	351.02336	100.68929	7.32290	0.3117413	0.23008971	2.6375736	20	12 6.7	18.4
357427 2003 YH <sub>121</sub>	15.8	X	164.95313	44.17109	121.17859	16.72190	0.1773940	0.21117721	2.7927883	20	9 18.3	20.7
357428 2003 YE <sub>123</sub>	16.5	X	284.37057	338.86043	105.11562	11.67098	0.1627483	0.22371020	2.6874818	20	10 24.1	19.8
357429 2003 YW <sub>133</sub>	16.3	X	334.12826	120.71371	316.45532	18.18400	0.0866326	0.23156630	2.6263492	20	—	—
357430 2003 YP <sub>135</sub>	16.1	X	320.19587	328.61098	86.28418	14.58640	0.3900946	0.22724859	2.6595118	20	11 17.2	17.0
357431 2003 YP <sub>138</sub>	15.9	X	215.54546	339.78114	117.37845	14.60706	0.1460907	0.21187244	2.7866755	20	8 9.5	20.2
357432 2003 YG <sub>141</sub>	16.3	X	337.37474	5.78110	52.41695	13.58290	0.1497391	0.23190707	2.6237758	20	12 23.1	19.2
357433 2003 YP <sub>144</sub>	16.4	X	325.65927	326.62290	115.52611	13.69564	0.1169215	0.23187782	2.6239965	20	—	—
357434 2004 AJ <sub>6</sub>	16.9	X	34.61726	306.07484	102.86298	5.94051	0.1870969					

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>
357441 2004 BK <sub>98</sub>	17.6	X	238.25795	159.88215	343.58036	8.24502	0.1156242	0.21885191	2.7271089	20	11 2.1	21.5
357442 2004 BG <sub>115</sub>	16.0	X	353.42115	67.47712	7.51384	15.20589	0.1792946	0.23403315	2.6078611	20	—	—
357443 2004 BC <sub>135</sub>	16.9	X	198.71521	129.39890	106.26306	5.57144	0.1198575	0.22471096	2.6794966	20	—	—
357444 2004 BS <sub>143</sub>	17.0	X	353.43959	293.47249	116.72325	3.49901	0.0608425	0.22837233	2.6507803	20	12 28.4	20.1
357445 2004 CX <sub>16</sub>	17.4	X	313.49812	90.60831	353.25703	2.27462	0.1223748	0.22551328	2.6731375	20	12 12.4	20.3
357446 2004 CY <sub>39</sub>	16.2	X	273.81672	160.52455	320.04353	11.23780	0.2054980	0.22399104	2.6852349	20	11 8.2	19.5
357447 2004 CH <sub>59</sub>	16.6	X	288.73387	25.61193	64.99627	5.17170	0.2375443	0.22500869	2.6771324	20	10 25.7	19.3
357448 2004 CS <sub>59</sub>	16.6	X	304.78300	326.78827	101.77102	10.11262	0.3242397	0.22624999	2.6673315	20	10 20.7	18.7
357449 2004 CB <sub>61</sub>	16.9	X	303.05150	115.83032	25.61405	6.49443	0.0861402	0.23302890	2.6153483	20	—	—
357450 2004 CJ <sub>72</sub>	16.5	X	143.39440	241.24074	332.54456	14.66957	0.0776225	0.21650639	2.7467697	20	10 15.3	20.9
357451 2004 CD <sub>83</sub>	16.3	X	201.66711	342.58070	144.86587	11.40782	0.2162308	0.21339277	2.7734238	20	8 28.7	21.0
357452 2004 CZ <sub>109</sub>	16.1	X	208.33221	293.24644	283.93899	11.51271	0.2177036	0.22433946	2.6824539	20	12 21.6	20.2
357453 2004 DK <sub>8</sub>	17.0	X	263.54609	109.37567	338.43304	4.72881	0.1557560	0.21743193	2.7389694	20	9 19.9	20.5
357454 2004 DH <sub>17</sub>	16.4	X	202.98241	265.52967	302.18406	12.13997	0.1070500	0.22404703	2.6847875	20	12 16.9	20.5
357455 2004 DJ <sub>36</sub>	16.9	X	301.02969	119.05963	339.67693	12.12508	0.1117102	0.22576357	2.6711615	20	12 10.7	20.2
357456 2004 DP <sub>39</sub>	16.4	X	183.03591	263.40809	313.99921	7.12236	0.1514741	0.21991482	2.7183146	20	12 1.9	20.8
357457 2004 EZ <sub>1</sub>	16.6	X	183.33764	91.08265	173.58898	14.58407	0.2777710	0.22371104	2.6874750	20	—	—
357458 2004 EL <sub>16</sub>	16.5	X	193.94276	43.09603	126.60206	8.83626	0.1538500	0.21469344	2.7622111	20	10 19.7	21.0
357459 2004 EP <sub>24</sub>	16.5	X	307.14021	78.80473	30.30382	13.42839	0.2818823	0.22889446	2.6467476	20	—	—
357460 2004 EA <sub>40</sub>	16.1	X	223.29015	197.94059	9.64775	14.11777	0.1971138	0.22462398	2.6801883	20	12 28.5	20.2
357461 2004 ER <sub>48</sub>	16.6	X	253.28903	335.36474	146.11940	7.00610	0.0430582	0.21724211	2.7405646	20	11 9.5	20.3
357462 2004 EQ <sub>64</sub>	16.5	X	209.52952	106.66965	98.29237	10.20718	0.1961519	0.22251203	2.6971208	20	12 10.4	20.6
357463 2004 EG <sub>69</sub>	16.1	X	210.32273	40.08182	169.19518	14.68932	0.0345386	0.22434839	2.6823827	20	—	—
357464 2004 EU <sub>83</sub>	16.1	X	169.86972	93.92565	169.54206	12.97096	0.1656339	0.22110228	2.7085731	20	—	—
357465 2004 ES <sub>90</sub>	17.2	X	214.08135	155.69331	33.41007	6.43037	0.1063069	0.21908505	2.7251739	20	12 4.2	21.2
357466 2004 EK <sub>91</sub>	16.5	X	70.16836	331.66635	0.80480	6.33281	0.0484679	0.22119742	2.7077964	20	12 25.4	20.4
357467 2004 EX <sub>95</sub>	16.0	X	168.49573	184.67095	37.14924	28.03748	0.2311645	0.21642124	2.7474900	20	11 15.4	21.0
357468 2004 EA <sub>96</sub>	16.3	X	206.09552	89.85368	138.14895	15.96873	0.2403528	0.22191825	2.7019297	20	12 29.7	20.7
357469 2004 FS <sub>41</sub>	16.0	X	182.99631	58.61529	189.65849	26.08624	0.2390902	0.22020874	2.7158952	20	12 30.7	21.1
357470 2004 FV <sub>42</sub>	16.6	X	221.55926	257.88891	329.50122	11.98723	0.1539422	0.22931140	2.6435383	20	—	—
357471 2004 FS <sub>53</sub>	16.6	X	292.19753	35.17503	28.72858	4.49142	0.0506369	0.21474843	2.7617395	20	10 15.2	20.1
357472 2004 FV <sub>58</sub>	17.2	X	198.71899	19.22428	184.00765	5.22222	0.1002788	0.21932342	2.7231990	20	12 6.6	21.3
357473 2004 FF <sub>84</sub>	16.1	X	238.22117	358.36526	134.03540	9.97328	0.0866422	0.21634306	2.7481520	20	10 30.2	20.0
357474 2004 FB <sub>87</sub>	16.3	X	225.12307	49.31720	135.13993	14.66593	0.0197807	0.22256854	2.6966642	20	12 26.1	20.2
357475 2004 FT <sub>94</sub>	16.6	X	240.86969	150.54639	20.02234	13.99627	0.1911879	0.22312434	2.6921841	20	11 29.6	20.4
357476 2004 FB <sub>109</sub>	16.6	X	231.74875	334.22565	199.17588	12.53299	0.1609188	0.21936607	2.7228460	20	11 29.9	20.5
357477 2004 FB <sub>111</sub>	16.1	X	145.08405	81.54222	199.27571	11.34754	0.1635710	0.21842658	2.7306464	20	—	—
357478 2004 FH <sub>131</sub>	15.9	X	158.21118	115.59860	126.91121	8.64315	0.0908533	0.21723533	2.7406216	20	12 12.5	20.1
357479 2004 GJ <sub>3</sub>	16.1	X	120.66939	96.95928	199.02750	14.92416	0.1440581	0.21708577	2.7418802	20	—	—
357480 2004 GL <sub>40</sub>	16.6	X	167.21824	48.30086	182.83133	5.71070	0.1953732	0.21487700	2.7606378	20	12 2.6	21.3
357481 2004 GC <sub>46</sub>	17.2	X	190.44118	139.32820	31.02133	10.33749	0.0567771	0.21077513	2.7963389	20	10 20.4	21.1
357482 2004 HR <sub>4</sub>	16.6	X	197.26875	18.12622	186.06885	8.09041	0.1695837	0.21666713	2.7454110	20	11 29.6	20.9
357483 2004 HZ <sub>24</sub>	16.9	X	200.66752	67.99561	189.19737	8.19044	0.2910269	0.22303666	2.6928896	20	—	—
357484 2004 HO <sub>37</sub>	16.4	X	195.57352	81.24818	115.84647	12.67414	0.2122373	0.21544498	2.7557838	20	11 18.7	21.1
357485 2004 JA <sub>29</sub>	16.4	X	142.98539	173.75301	64.55599	9.58200	0.1836360	0.21014738	2.8019049	20	11 20.4	21.0
357486 2004 JM <sub>31</sub>	16.3	X	161.48269	30.29910	212.12290	9.24415	0.1681505	0.21306883	2.7762342	20	12 11.1	20.9
357487 2004 JG <sub>39</sub>	15.2	X	256.11319	158.89748	108.55159	13.90060	0.0736095	0.17215070	3.2003455	20	2 8.6	20.0
357488 2004 JR <sub>47</sub>	16.8	X	137.61559	165.97086	78.50128	4.98783	0.0499061	0.21002438	2.8029988	20	11 21.9	20.8
357489 2004 KH	16.1	X	163.96228	59.23070	220.49690	12.25277	0.1244888	0.21731914	2.7399169	20	—	—
357490 2004 KN <sub>9</sub>	16.8	X	148.57057	229.90693	40.53305	8.53276	0.2755434	0.21249991	2.7811872	20	12 30.4	21.9
357491 2004 LH <sub>9</sub>	16.5	X	108.81225	90.29020	176.45756	12.17863	0.0190164	0.20704467	2.8298279	20	11 15.9	20.6
357492 2004 NL <sub>7</sub>	17.8	X	324.75506	154.14930	145.41552	6.29222	0.2227671	0.30468048	2.1872897	20	5 25.7	19.4
357493 2004 NH <sub>29</sub>	15.7	X	324.99198	178.97609	147.92762	18.03572	0.1699256	0.18186454	3.0853471	20	7 10.1	19.4
357494 2004 OY <sub>10</sub>	15.7	X	352.37285	180.28494	127.23450	12.45387	0.2593953	0.18281539	3.0746396	20	8 9.7	18.2
357495 2004 PG <sub>16</sub>	15.0	X	276.18629	17.37535	347.59489	11.50364	0.1458095	0.17543878	3.1602321	20	6 18.8	19.7
357496 2004 PK <sub>30</sub>	17.8	X	311.64998	315.91674	327.79980	7.28960	0.1463089	0.29685178	2.2255786	20	4 11.7	20.2
357497 2004 PP <sub>31</sub>	15.7	X	17.12380	156.45566	143.72220	11.03354	0.1110634	0.18644970	3.0345544	20	9 8.1	19.4
357498 2004 PK <sub>36</sub>	17.2	X	122.57735	184.15312	189.45727	5.75921	0.2559042	0.27660103	2.3329218	20	1 30.3	20.5
357499 2004 PM <sub>40</sub>	15.4	X	2.95552	150.41909	167.66845	14.30982	0.2645748	0.18441390	3.0568463	20	9 23.6	18.2
357500 2004 PT <sub>82</sub>	17.7	X	226.49240	349.59201	345.99166	4.78726	0.1658217	0.28966953	2.2622165	20	3 12.9	21.0
357501 2004 PO <sub>83</sub>	15.4	X	309.09744	336.55455	349.79950	17.64711	0.2430696	0.17654926	3.1469665	20	5 25.8	19.7
357502 2004 PW <sub>85</sub>	17.9	X	225.61517	183.33664	179.60547	5.39640	0.2232451	0.29246664	2.2477698	20	4 14.7	21.4
357503 2004 PA <sub>95</sub>	15.9	X	327.71530	8.79171	304.60939	8.55573	0.1049659	0.17921160	3.1157216	20	7 3.4	19.7
357504 2004 PL <sub>98</sub>	17.4	X	244.09719	337.57299	355.55834	7.31895	0.2033010	0.29300190	2.2450314	20	3 23.6	20.7
357505 2004 PG <sub>107</sub>	15.7	X	301.45936	326.86066	18.59000	14.65779	0.1554681	0.17742096	3.1366503	20	6 27.5	20.0
357506 2004 PK <sub>110</sub>	17.4	X	327.13423	306.69746	3.59477	4.06010	0.1945166	0.30347742	2.1930665	20	6 23.8	18.7
357507 2004 PX <sub>112</sub>	15.8	X	325.36906	156.01057	180.56645	16.84637	0.1306323	0.18195635	3.0843092	20	7 25.4	19.8
357508 2004 QP <sub>7</sub>	18.0	X	312.07458	314.45245	344.15064	1.32259	0.1693990	0.29897332	2.2150376	20	5 4.9	20.0
357509 2004 RT <sub>2</sub>	17.5	X	153.53390	32.98501	341.18258	5.12745	0.2684370	0.28019681	2.3129199	20	3 2.5	21.0
357510 2004 RD <sub>10</sub>	17.7	X	34.22104	52.68073	213.06070	1.76124	0.2436093	0.30972336	2.1634826	20	9 27.8	20.0
357511 2004 RQ <sub>14</sub>	15.9	X	280.93233	178.49163	163.65155	29.32995	0.1915944	0.17444540	3.1722181	20	5 25.0	21.0
357512 2004 RQ <sub>32</sub>	17.9	X	191.93401	234.34499	137.00039	6.72310	0.2449458	0.28714021	2.2754819	20	3 30.3	21.8
357513 2004 RX <sub>39</sub>	16.5	X	313.57121	325.91018	22.29701	3.57707	0.2138290	0.17981371	3.1087623	20	7 13.5	

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>
357521 2004 RA <sub>105</sub>	17.4	X	215.61559	51.79708	259.65155	6.20326	0.1364258	0.28198001	2.3031585	20	1 31.9	21.1
357522 2004 RV <sub>111</sub>	16.6	X	155.25599	23.44098	329.60479	25.59549	0.2195775	0.27621617	2.3350884	20	2 7.9	20.3
357523 2004 RT <sub>113</sub>	17.6	X	162.17010	195.97192	177.95857	2.00792	0.2214151	0.28326362	2.2961955	20	3 5.9	21.2
357524 2004 RS <sub>139</sub>	17.7	X	149.51545	214.48249	157.09844	1.92336	0.2460916	0.27929003	2.3179235	20	2 23.3	21.2
357525 2004 RO <sub>140</sub>	15.9	X	344.42355	345.84898	300.24170	5.58868	0.0844013	0.17546699	3.1598934	20	6 24.1	19.8
357526 2004 RQ <sub>141</sub>	17.8	X	136.01733	239.89318	141.74829	2.85390	0.1433356	0.27925866	2.3180971	20	2 11.6	20.6
357527 2004 RF <sub>144</sub>	17.2	X	292.69240	276.21606	41.85662	5.61347	0.1808659	0.29634748	2.2281028	20	5 1.4	19.4
357528 2004 RC <sub>153</sub>	17.6	X	265.68520	46.54166	275.13893	4.69405	0.1332554	0.29346439	2.2426721	20	4 5.4	20.6
357529 2004 RR <sub>161</sub>	16.2	X	332.54613	116.41388	177.86972	15.75018	0.0516242	0.17427064	3.1743384	20	6 18.9	20.8
357530 2004 RK <sub>164</sub>	17.4	X	141.81497	355.47546	30.97179	6.37006	0.1964311	0.28028435	2.3124383	20	3 3.9	20.8
357531 2004 RV <sub>172</sub>	15.9	X	120.94692	20.67174	198.47045	9.78928	0.0529892	0.18816935	3.0160379	20	9 28.4	20.2
357532 2004 RQ <sub>176</sub>	16.1	X	10.44286	133.55683	200.10685	7.97375	0.1050618	0.18841856	3.0133779	20	10 9.6	19.7
357533 2004 RL <sub>185</sub>	15.6	X	260.65456	38.00368	333.20980	11.92688	0.1213755	0.17486027	3.1671985	20	6 10.5	20.4
357534 2004 RO <sub>186</sub>	17.6	X	131.63650	44.11590	319.05779	6.53915	0.1275253	0.27493005	3.2423650	20	1 12.4	20.5
357535 2004 RO <sub>196</sub>	15.0	X	306.22319	95.30029	225.51725	13.44835	0.0952116	0.17185315	2.3040385	20	6 10.1	19.3
357536 2004 RV <sub>202</sub>	16.4	X	63.46245	87.87529	160.00693	6.22056	0.0451006	0.18245191	3.0787218	20	8 24.9	20.7
357537 2004 RJ <sub>238</sub>	16.3	X	300.76617	333.57245	300.52790	5.78469	0.1076238	0.17211407	3.2007995	20	5 20.0	20.7
357538 2004 RP <sub>240</sub>	16.1	X	349.22344	282.69392	352.10475	9.52444	0.0526007	0.17349990	3.1837324	20	6 16.8	20.5
357539 2004 RJ <sub>256</sub>	17.7	X	163.34472	26.34035	6.31825	3.73924	0.1727108	0.28491921	2.2872917	20	3 27.7	21.1
357540 2004 RC <sub>267</sub>	18.1	X	99.16334	93.35544	328.41158	3.35774	0.1939731	0.27715357	2.3298202	20	2 26.1	20.7
357541 2004 RO <sub>278</sub>	15.6	X	351.04882	102.96519	188.24769	11.03442	0.0660586	0.17644952	3.1481523	20	7 9.8	19.9
357542 2004 RP <sub>300</sub>	15.9	X	26.97439	269.62585	4.59442	7.34200	0.0543183	0.17930106	3.1146851	20	8 13.4	20.1
357543 2004 RJ <sub>317</sub>	17.6	X	103.84485	192.74611	232.63199	5.59392	0.1590698	0.27925206	2.3181336	20	2 29.2	20.5
357544 2004 RN <sub>322</sub>	17.4	X	225.15472	88.03437	234.48861	4.98014	0.1816335	0.28555941	2.2838718	20	2 22.1	21.0
357545 2004 RV <sub>324</sub>	17.5	X	156.30752	36.96867	335.45076	5.01782	0.1608361	0.27945242	2.3170254	20	2 23.6	20.7
357546 Edwardhalbach	15.8	X	28.42850	103.94905	185.49303	9.97744	0.0943167	0.18546358	3.0453015	20	9 5.7	19.8
357547 2004 ST <sub>20</sub>	15.6	X	3.65680	304.06922	14.84669	13.36029	0.2852719	0.18257229	3.0773683	20	9 29.2	18.3
357548 2004 SP <sub>32</sub>	17.7	X	117.01181	218.52350	152.87342	2.72956	0.2183642	0.27170176	2.3608827	20	1 17.6	20.6
357549 2004 SG <sub>34</sub>	16.2	X	39.75153	23.76524	225.08396	8.32648	0.1019321	0.17974592	3.1095438	20	7 29.9	20.5
357550 2004 SW <sub>43</sub>	15.7	X	8.93809	102.27466	188.96871	16.34665	0.1448631	0.18031584	3.1029882	20	8 10.0	19.6
357551 2004 SO <sub>44</sub>	17.7	X	85.13490	158.20383	244.62826	2.24996	0.2327404	0.27079863	2.3661289	20	1 15.5	19.8
357552 2004 SR <sub>46</sub>	17.7	X	272.08080	63.14931	256.98083	4.33491	0.1544030	0.29312325	2.2444118	20	4 8.9	20.8
357553 2004 SH <sub>50</sub>	15.1	X	295.74122	326.60764	16.34967	12.94559	0.0585122	0.17218661	3.1999004	20	6 30.2	19.7
357554 2004 SR <sub>58</sub>	17.5	X	90.21327	41.64472	12.73328	21.93402	0.0837623	0.40338919	1.8140665	20	—	—
357555 2004 TS <sub>26</sub>	15.5	X	322.70074	140.86349	194.92255	15.70142	0.0982515	0.17681246	3.1438427	20	7 21.7	19.8
357556 2004 TU <sub>29</sub>	17.3	X	78.95696	86.49371	21.82741	7.05745	0.1396844	0.27991220	2.3144874	20	3 25.1	19.6
357557 2004 TM <sub>31</sub>	17.9	X	31.70461	223.35762	330.23975	3.66357	0.0942623	0.28719638	2.2751851	20	4 30.1	20.2
357558 2004 TE <sub>32</sub>	15.7	X	318.82224	99.97020	227.99717	7.19503	0.0565894	0.17234509	3.1979384	20	7 11.0	20.0
357559 2004 TB <sub>34</sub>	18.4	X	48.83679	210.42382	216.59519	2.67164	0.1749490	0.26649389	2.3915413	20	—	—
357560 2004 TD <sub>43</sub>	17.0	X	195.06926	352.81853	6.31779	5.41013	0.0917224	0.28202949	2.3025463	20	3 14.4	20.1
357561 2004 TR <sub>44</sub>	17.6	X	62.62494	219.40623	220.11604	4.35162	0.0843108	0.27062770	2.3671251	20	1 8.0	20.1
357562 2004 TE <sub>63</sub>	16.0	X	348.65929	304.29856	19.07041	4.70880	0.2161538	0.17957587	3.1115067	20	8 24.1	19.0
357563 2004 TF <sub>79</sub>	17.3	X	135.47988	346.17905	39.77107	6.82816	0.2547110	0.27623526	2.3349808	20	3 3.8	20.9
357564 2004 TC <sub>81</sub>	16.6	X	89.25791	282.89445	343.49582	2.93707	0.2640716	0.19103153	2.9858364	20	11 10.0	21.5
357565 2004 TL <sub>85</sub>	17.9	X	228.42932	104.91965	202.68412	4.47703	0.1755535	0.28324340	2.2963047	20	2 7.6	21.6
357566 2004 TQ <sub>88</sub>	17.5	X	316.91232	249.34748	28.04918	6.40138	0.1350970	0.29321046	2.2439667	20	4 17.4	19.7
357567 2004 TC <sub>95</sub>	17.5	X	76.14063	225.58634	203.72354	3.72604	0.1313418	0.27169633	2.3609142	20	1 21.1	20.0
357568 2004 TL <sub>134</sub>	17.0	X	56.42766	237.37316	208.70684	10.30129	0.2189082	0.26751688	2.3854405	20	1 16.9	19.0
357569 2004 TG <sub>136</sub>	17.1	X	209.21156	73.78497	275.68870	5.00799	0.1984214	0.28486418	2.2875863	20	3 12.1	20.8
357570 2004 TZ <sub>142</sub>	17.9	X	71.92312	68.75430	35.53311	2.03409	0.1453587	0.27650482	2.3334630	20	3 8.2	20.2
357571 2004 TD <sub>145</sub>	17.3	X	123.39140	301.05024	51.28268	3.60702	0.1449705	0.26830202	2.3807845	20	—	—
357572 2004 TF <sub>153</sub>	16.9	X	34.10338	194.74070	15.00156	7.87547	0.1065290	0.29172813	2.2515616	20	5 31.9	19.1
357573 2004 TZ <sub>164</sub>	15.4	X	27.47924	281.07689	357.26518	10.32551	0.1324244	0.18061842	3.0995218	20	8 29.0	19.2
357574 2004 TJ <sub>167</sub>	17.7	X	75.99872	138.23394	0.94356	4.92606	0.0774095	0.28679549	2.2773049	20	4 20.9	20.3
357575 2004 TX <sub>170</sub>	17.5	X	151.25639	342.35936	60.19252	5.88795	0.1636997	0.28096164	2.3087205	20	3 31.0	21.0
357576 2004 TH <sub>174</sub>	15.4	X	51.94236	264.60340	13.22999	15.89135	0.1375028	0.18454593	3.0553882	20	10 2.2	19.5
357577 2004 TP <sub>231</sub>	16.6	X	299.45097	280.99431	13.80466	7.77123	0.1119235	0.28998612	2.2605697	20	4 18.0	19.2
357578 2004 TJ <sub>232</sub>	15.5	X	314.66896	300.78032	25.72502	15.38247	0.1389130	0.17155673	3.2077280	20	6 24.3	19.8
357579 2004 TG <sub>241</sub>	17.6	X	128.36380	29.04097	350.37596	5.88437	0.2627726	0.27404636	2.3473978	20	2 16.8	21.0
357580 2004 TS <sub>243</sub>	15.3	X	14.19741	265.84729	36.43760	16.21631	0.2551866	0.18022505	3.1040302	20	9 28.9	18.8
357581 2004 TF <sub>251</sub>	16.2	X	281.67800	157.08493	210.82515	10.02527	0.0647759	0.17333550	3.1857452	20	7 9.9	20.8
357582 2004 TV <sub>284</sub>	15.8	X	351.57269	252.84541	20.77865	13.19023	0.1693018	0.17182248	3.2044197	20	6 15.1	19.6
357583 2004 TV <sub>301</sub>	16.9	X	166.67885	114.59923	245.30978	6.17340	0.1312985	0.27732416	2.3288646	20	2 13.2	20.3
357584 2004 TS <sub>347</sub>	16.0	X	179.24776	78.20991	247.47730	24.22296	0.0604402	0.27097386	2.3651088	20	1 6.4	19.6
357585 2004 VB <sub>8</sub>	17.0	X	72.94153	359.97298	60.79677	7.99762	0.1751033	0.26804920	2.3822813	20	1 11.8	19.3
357586 2004 VH <sub>10</sub>	17.8	X	94.11783	228.62532	159.36826	1.45380	0.1942604	0.26852243	2.3794815	20	1 4.1	20.1
357587 2004 VF <sub>18</sub>	17.9	X	39.86268	47.89282	30.41116	5.52342	0.1633282	0.26466227	2.4025625	20	—	—
357588 2004 VS <sub>26</sub>	17.6	X	91.26310	50.53698	354.76569	4.77322	0.1980386	0.26901231	2.3765919	20	1 25.9	20.1
357589 2004 VK <sub>55</sub>	17.6	X	46.58126	40.55713	11.03569	20.21891	0.1341554	0.38676282	1.8656904	20	—	—
357590 2004 VS <sub>57</sub>	17.4	X	124.00996	157.18399	233.32359	5.99840	0.1660480	0.27258640	2.3557720	20	2 10.3	20.7
357591 2004 VD <sub>76</sub>	17.0	X	190.04014	120.77585	243.06058	6.01863	0.1878947	0.28302614	2.2974797	20	3 13.4	20.7
357592 2004 VX <sub>76</sub>	17.4	X	110.47800	264.85053	124.04027	3.36702	0.1909094	0.27043305	2.3682550	20	1 28.8	20.3
357593 2004 XM <sub>20</sub>	17.4	X	47.95046	26.54700	70.54118	2.46767	0.1955682	0.26517366	2.3994726	20	1 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>		
357601	2005	AZ <sub>10</sub>	17.4	X	54.44223	289.64733	127.51980	3.61049	0.2219562	0.25847949	2.4407239	20	—	—
357602	2005	AN <sub>36</sub>	16.6	X	277.73666	18.56133	102.68654	6.84846	0.0957884	0.24229637	2.5482270	20	12 11.3	19.5
357603	2005	AJ <sub>62</sub>	17.1	X	341.19692	9.45477	94.16304	24.62744	0.0788558	0.37807388	1.8941670	20	—	—
357604	2005	AZ <sub>76</sub>	16.6	X	324.58304	303.34727	114.86342	13.66147	0.1759672	0.24084463	2.5584567	20	12 6.9	19.2
357605	2005	BK <sub>1</sub>	16.2	X	181.27773	84.44420	91.93347	27.71323	0.3017969	0.22609890	2.6685197	20	10 21.7	21.6
357606	2005	BR <sub>13</sub>	16.6	X	285.43081	198.79661	310.91270	14.36994	0.0681058	0.24567130	2.5248355	20	—	—
357607	2005	BD <sub>21</sub>	17.3	X	354.34997	175.10459	337.55945	4.07583	0.1517588	0.25950895	2.4342648	20	—	—
357608	2005	BW <sub>23</sub>	17.7	X	52.62439	42.04611	22.67732	2.74874	0.2446291	0.25992382	2.4316739	20	—	—
357609	2005	BF <sub>29</sub>	18.3	X	6.90606	335.58962	124.47819	3.47434	0.1681695	0.25534322	2.4606688	20	—	—
357610	2005	CU <sub>18</sub>	16.8	X	8.27032	25.27545	135.67226	13.78086	0.0653313	0.26268824	2.4145839	20	2 5.5	19.4
357611	2005	CC <sub>20</sub>	17.8	X	44.91582	75.00198	330.08829	19.70186	0.0761819	0.37765236	1.8955762	20	—	—
357612	2005	CY <sub>37</sub>	17.7	X	66.76415	47.24094	330.21918	19.76398	0.0992193	0.37730985	1.8967232	20	—	—
357613	2005	CM <sub>60</sub>	17.5	X	22.75507	182.55546	309.85731	0.87814	0.1383521	0.26101977	2.4248625	20	1 16.7	19.7
357614	2005	CT <sub>61</sub>	17.3	X	254.68253	353.76982	149.35739	23.38354	0.0358088	0.36611087	1.9352079	20	—	—
357615	2005	EG <sub>2</sub>	17.1	X	30.40860	25.43969	338.99979	18.56873	0.0784160	0.36557025	1.9371153	20	—	—
357616	2005	EA <sub>15</sub>	16.0	X	252.67094	354.30714	161.82757	21.99206	0.0165584	0.23785784	2.5798299	20	12 29.8	19.9
357617	2005	EY <sub>15</sub>	17.4	X	115.24770	163.43874	163.24618	22.54762	0.0879813	0.37264204	1.9125295	20	—	—
357618	2005	EM <sub>30</sub>	19.1	X	84.52163	293.05421	1.80774	53.08122	0.3368590	0.74668345	1.2033123	20	—	—
357619	2005	EZ <sub>70</sub>	17.3	X	265.25356	129.66940	320.35556	18.87387	0.0870068	0.36071610	1.9544551	20	10 28.4	19.5
357620	2005	EA <sub>77</sub>	17.4	X	296.51583	154.84395	346.82533	18.88401	0.1621636	0.24344235	2.5402237	20	—	—
357621	2005	EG <sub>94</sub>	18.7	X	321.74211	38.35043	332.04063	10.74402	0.4647070	0.48477700	1.6048756	20	—	—
357622	2005	EY <sub>95</sub>	20.3	X	239.51756	342.08357	72.91655	3.16975	0.5382880	0.87391363	1.0834870	20	6 13.3	19.9
357623	2005	EB <sub>140</sub>	16.1	X	230.86767	218.02326	38.49805	19.95058	0.1784521	0.24587971	2.5234087	20	—	—
357624	2005	EK <sub>153</sub>	17.2	X	52.05947	344.12505	34.06070	22.27327	0.0269201	0.37139397	1.9168118	20	—	—
357625	2005	EE <sub>187</sub>	16.7	X	87.41033	199.53253	198.98573	8.66057	0.0526238	0.24734984	2.5134001	20	—	—
357626	2005	EE <sub>199</sub>	17.7	X	24.85638	197.66553	194.03970	21.63348	0.0913850	0.36509556	1.9387940	20	—	—
357627	2005	ET <sub>204</sub>	17.3	X	188.11797	264.15151	1.92706	14.57185	0.1607093	0.23903328	2.5713655	20	—	—
357628	2005	EH <sub>224</sub>	17.1	X	271.57977	98.43887	71.85729	5.33215	0.1518140	0.24303847	2.5430371	20	—	—
357629	2005	EL <sub>250</sub>	17.4	X	26.02895	253.05646	193.62182	21.72931	0.1257409	0.37920815	1.8903880	20	—	—
357630	2005	EH <sub>257</sub>	17.2	X	183.98423	311.75220	341.97952	4.41401	0.2396421	0.24212176	2.5494519	20	—	—
357631	2005	EU <sub>280</sub>	16.9	X	234.04458	188.15323	28.45200	10.35951	0.1335000	0.24307394	2.5427897	20	—	—
357632	2005	ET <sub>288</sub>	17.1	X	141.53503	69.26249	175.41138	0.94534	0.0579257	0.22856943	2.6492561	20	11 29.8	20.8
357633	2005	GP <sub>6</sub>	17.0	X	227.77377	184.13315	42.34122	8.67869	0.1160579	0.23970240	2.5665780	20	—	—
357634	2005	GT <sub>6</sub>	16.2	X	75.55973	348.12320	41.56141	10.22281	0.1234326	0.24240580	2.5474600	20	—	—
357635	2005	GW <sub>8</sub>	16.6	X	271.97736	260.59872	216.06286	27.51988	0.3703996	0.23397615	2.6082847	20	10 7.3	20.1
357636	2005	GF <sub>36</sub>	17.8	X	185.14138	339.25313	290.03078	0.56653	0.1394961	0.24147091	2.5540310	20	—	—
357637	2005	GM <sub>52</sub>	16.8	X	154.57319	297.80718	34.21476	11.96914	0.3096883	0.23753303	2.5821812	20	1 23.0	21.5
357638	2005	GD <sub>94</sub>	16.5	X	40.07312	328.28142	21.52555	10.72889	0.1533724	0.22968456	2.6406743	20	12 27.4	20.3
357639	2005	GM <sub>98</sub>	16.6	X	227.81759	217.36487	32.26346	18.91815	0.1675673	0.24132000	2.5550957	20	—	—
357640	2005	GZ <sub>104</sub>	16.7	X	342.80628	106.18665	31.69212	14.70081	0.0702257	0.24670888	2.5177515	20	—	—
357641	2005	GY <sub>115</sub>	17.1	X	244.72543	34.62750	190.85082	10.75430	0.0752526	0.24316784	2.5421351	20	—	—
357642	2005	GT <sub>124</sub>	16.3	X	229.01268	119.44960	118.53881	14.45410	0.1489096	0.24224528	2.5485852	20	—	—
357643	2005	GG <sub>126</sub>	16.8	X	224.42389	19.83259	202.43808	18.96770	0.1159644	0.23870497	2.5737226	20	—	—
357644	2005	GU <sub>128</sub>	17.4	X	252.54963	73.34982	83.40272	24.21801	0.0764404	0.36431993	1.9415449	20	—	—
357645	2005	GT <sub>130</sub>	16.3	X	283.22787	41.35497	163.90626	17.87726	0.1624982	0.24480937	2.5307584	20	—	—
357646	2005	GK <sub>136</sub>	17.9	X	239.21851	268.55661	198.02915	20.75770	0.1539377	0.35248844	1.9847514	20	10 5.9	19.8
357647	2005	GE <sub>154</sub>	17.4	X	222.66398	93.42579	118.63592	5.04127	0.1818235	0.23562482	2.5961037	20	—	—
357648	2005	GF <sub>154</sub>	16.6	X	270.40376	192.11181	11.35599	29.84972	0.1795659	0.24393085	2.5368312	20	—	—
357649	2005	GU <sub>154</sub>	16.4	X	236.38808	98.65844	100.75663	7.79374	0.0605652	0.23848937	2.5752736	20	—	—
357650	2005	GJ <sub>172</sub>	17.4	X	345.34275	337.48003	117.80680	3.36401	0.0957531	0.23988887	2.5652477	20	—	—
357651	2005	GT <sub>204</sub>	16.4	X	152.59207	240.09766	33.96838	15.48626	0.1264816	0.23178699	2.6246819	20	—	—
357652	2005	HL <sub>10</sub>	17.2	X	216.16523	293.46151	313.49492	2.99105	0.1879241	0.23957546	2.5674845	20	—	—
357653	2005	JK <sub>19</sub>	16.8	X	216.08632	89.82447	146.64238	5.73005	0.1017294	0.23670493	2.5882001	20	—	—
357654	2005	JZ <sub>19</sub>	16.4	X	276.27986	62.47054	108.54923	12.21112	0.1402017	0.23940618	2.5686946	20	—	—
357655	2005	JL <sub>58</sub>	16.2	X	212.79093	161.55906	84.57005	8.44272	0.0802071	0.23810175	2.5780677	20	—	—
357656	2005	JZ <sub>60</sub>	13.7	X	358.82672	233.36504	120.18057	9.43761	0.1096270	0.08381767	5.1710529	20	10 1.4	20.1
357657	2005	JD <sub>68</sub>	17.0	X	225.25976	247.14590	31.53410	6.08631	0.2322667	0.24307534	2.5427800	20	1 6.8	21.5
357658	2005	JX <sub>68</sub>	17.0	X	152.65430	126.43535	166.90097	12.93810	0.2531559	0.23112911	2.6296601	20	—	—
357659	2005	JT <sub>76</sub>	17.2	X	232.69352	197.68175	47.37987	5.06783	0.1692127	0.24054768	2.5605618	20	—	—
357660	2005	JS <sub>86</sub>	16.8	X	188.32538	111.67744	153.13462	15.53093	0.1847698	0.23374538	2.6100011	20	—	—
357661	2005	JG <sub>94</sub>	15.9	X	242.11341	94.99891	129.15734	15.47814	0.1331166	0.23912410	2.5707143	20	—	—
357662	2005	JZ <sub>102</sub>	16.9	X	261.56934	100.09660	120.47641	8.13487	0.2484092	0.24229968	2.5482038	20	—	—
357663	2005	JW <sub>108</sub>	16.5	X	174.03312	74.33561	209.95712	29.02002	0.3061311	0.23195206	2.6234365	20	—	—
357664	2005	JG <sub>109</sub>	16.2	X	286.29261	16.46843	142.48805	28.67546	0.1738156	0.23836561	2.5761648	20	—	—
357665	2005	JV <sub>109</sub>	17.3	X	201.73915	105.69910	159.72816	5.49684	0.2701150	0.23699713	2.5860723	20	—	—
357666	2005	JQ <sub>119</sub>	17.4	X	160.57152	57.02958	172.45933	5.22212	0.0978088	0.22475640	2.6791355	20	11 30.3	21.5
357667	2005	JX <sub>120</sub>	17.0	X	303.43440	332.99572	175.67693	5.48635	0.0450034	0.23660924	2.5888978	20	—	—
357668	2005	JS <sub>128</sub>	17.0	X	224.72739	200.63065	58.76725	12.29017	0.2422834	0.24246282	2.5470606	20	—	—
357669	2005	JW <sub>132</sub>	17.2	X	206.09824	156.32408	120.12859	5.95042	0.2162917	0.23859201	2.5745349	20	—	—
357670	2005	JU <sub>133</sub>	16.1	X	166.71358	213.78312	70.50276	15.08358	0.1589618	0.23354696	2.6114792	20	—	—
357671	2005	JL <sub>147</sub>	16.4	X	117.40937	176.13393	128.17352	15.10554	0.0967061	0.22708866	2.6607603	20	—	—
357672	2005	J												

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>		
357681	2005	MR <sub>19</sub>	16.5	X	358.16029	181.57201	165.74907	12.31165	0.0791356	0.21249811	2.7812029	20	10 14.3	20.0
357682	2005	MA <sub>28</sub>	16.9	X	147.61913	88.53794	159.16273	9.94290	0.1538949	0.21821858	2.7323830	20	12 7.6	21.5
357683	2005	MM <sub>35</sub>	16.2	X	351.44093	41.80133	303.90752	5.47499	0.1074248	0.20348289	2.8627546	20	9 25.5	19.7
357684	2005	MY <sub>35</sub>	16.4	X	289.46307	279.86626	115.70025	12.82994	0.0831592	0.20041205	2.8919237	20	8 31.4	20.2
357685	2005	NY <sub>4</sub>	16.7	X	123.98651	173.16670	122.24650	6.53606	0.0683179	0.22037580	2.7145225	20	—	—
357686	2005	NQ <sub>9</sub>	17.3	X	165.60643	103.08164	174.57150	2.24968	0.1756450	0.22540676	2.6739796	20	—	—
357687	2005	ND <sub>11</sub>	16.6	X	206.46156	81.24781	120.71474	11.31761	0.1520657	0.22289110	2.6940619	20	12 9.4	20.7
357688	2005	NE <sub>25</sub>	16.4	X	240.88865	217.86254	162.29954	10.04534	0.1220218	0.18712004	3.0273027	20	6 1.7	21.1
357689	2005	NZ <sub>25</sub>	16.9	X	4.19722	180.11685	155.83632	7.51912	0.2923094	0.20235042	2.8734257	20	11 2.4	19.7
357690	2005	NA <sub>27</sub>	16.7	X	94.91523	341.13624	273.08315	6.36401	0.0100364	0.20850616	2.8165888	20	10 7.8	20.8
357691	2005	NR <sub>56</sub>	17.2	X	51.18789	184.95158	131.94525	4.69218	0.0933407	0.20925922	2.8098275	20	11 17.9	21.0
357692	2005	NE <sub>64</sub>	16.6	X	338.59564	151.21647	194.03428	4.70169	0.1119932	0.20057440	2.8903630	20	9 3.9	20.0
357693	2005	NF <sub>68</sub>	16.1	X	100.46952	323.43091	339.03268	12.67081	0.1782279	0.21643916	2.7473384	20	12 31.7	20.8
357694	2005	OL <sub>17</sub>	16.1	X	167.42970	105.01102	158.56453	13.25906	0.1508855	0.22203681	2.7009678	20	—	—
357695	2005	OO <sub>17</sub>	16.3	X	250.85531	81.02089	299.37266	8.64017	0.1183776	0.18730384	3.0253220	20	6 11.9	20.8
357696	2005	OQ <sub>21</sub>	16.4	X	164.74252	299.12696	336.62282	12.34436	0.2467966	0.22424478	2.6832089	20	—	—
357697	2005	OF <sub>25</sub>	16.4	X	177.24367	113.57705	151.70030	13.32355	0.2488873	0.22558262	2.6725897	20	—	—
357698	2005	OP <sub>31</sub>	16.9	X	56.85978	59.96555	254.54650	2.74098	0.0908631	0.20959050	2.8068659	20	11 19.9	20.7
357699	2005	PQ <sub>2</sub>	16.0	X	344.14122	32.27350	319.00276	7.54506	0.2317538	0.20027911	2.8932033	20	9 23.6	18.7
357700	2005	PY <sub>10</sub>	16.2	X	136.31990	282.56749	331.77442	12.88430	0.1609355	0.21491915	2.7602768	20	12 1.8	21.0
357701	2005	PT <sub>15</sub>	16.1	X	311.73626	31.37529	339.75144	11.41893	0.0721359	0.19719312	2.9233100	20	8 29.8	19.6
357702	2005	PX <sub>18</sub>	16.9	X	169.65806	149.85134	143.96477	5.63215	0.2594244	0.22832690	2.6511319	20	—	—
357703	2005	PT <sub>23</sub>	16.3	X	91.34129	290.77908	6.32469	5.06134	0.1855226	0.21251006	2.8110986	20	12 15.3	20.9
357704	2005	PF <sub>29</sub>	16.7	X	115.67116	275.15752	27.56636	7.68087	0.2418194	0.21878194	2.7276903	20	—	—
357705	2005	QF <sub>4</sub>	15.9	X	86.05039	317.45203	340.76859	12.91994	0.1852801	0.21040775	2.7995930	20	12 10.9	20.6
357706	2005	QX <sub>15</sub>	16.7	X	282.56488	203.86448	170.64022	10.24721	0.1543316	0.18985147	2.9981964	20	7 7.9	20.9
357707	2005	QO <sub>18</sub>	16.4	X	8.06248	168.39072	168.02109	10.41766	0.0682610	0.19894016	2.9601704	20	10 10.3	20.1
357708	2005	QH <sub>32</sub>	17.1	X	190.31198	285.86603	337.78298	5.95520	0.3405594	0.22795107	2.6540451	20	—	—
357709	2005	QM <sub>34</sub>	16.3	X	249.77550	78.52913	333.05317	9.19308	0.1098541	0.19012150	2.9953568	20	7 23.7	20.6
357710	2005	QS <sub>34</sub>	16.8	X	52.77660	136.02437	167.73145	6.40876	0.1957410	0.20558963	2.8431640	20	11 17.1	20.9
357711	2005	QU <sub>40</sub>	16.2	X	135.43549	129.21171	173.27417	11.73316	0.3026150	0.22196517	2.7015488	20	—	—
357712	2005	QB <sub>41</sub>	16.2	X	117.00774	148.18211	178.62564	9.47709	0.2353535	0.21957979	2.7210789	20	—	—
357713	2005	QN <sub>43</sub>	16.4	X	87.78474	152.06045	173.09951	14.35600	0.1788530	0.21457259	2.7632481	20	—	—
357714	2005	QS <sub>52</sub>	16.5	X	89.86527	287.57324	13.82793	8.29974	0.2769377	0.21125418	2.7921099	20	12 25.1	21.5
357715	2005	QO <sub>62</sub>	16.7	X	35.98985	308.54837	3.90291	4.21161	0.1564467	0.20314055	2.8659700	20	10 29.1	20.3
357716	2005	QG <sub>63</sub>	16.0	X	241.51652	341.80427	3.28228	9.59890	0.0928488	0.17882637	3.1201946	20	4 18.9	20.8
357717	2005	QO <sub>78</sub>	16.1	X	212.76493	45.49003	350.23691	17.16204	0.2436367	0.17764404	3.1340238	20	5 8.9	21.8
357718	2005	QK <sub>81</sub>	16.8	X	262.88655	187.72409	165.42892	13.11861	0.1687687	0.18418896	3.0593346	20	5 18.8	21.6
357719	2005	QJ <sub>111</sub>	16.6	X	256.20119	211.90079	168.28716	11.41295	0.1129835	0.18508331	3.0494712	20	6 19.0	21.3
357720	2005	QZ <sub>116</sub>	16.5	X	202.29165	356.09677	154.56045	2.36465	0.0061024	0.20268048	2.8703053	20	10 13.8	20.4
357721	2005	QU <sub>126</sub>	16.3	X	280.88557	78.87978	339.73552	8.74231	0.0156271	0.19949103	2.9008179	20	9 21.9	20.3
357722	2005	QS <sub>127</sub>	18.7	X	189.44128	336.99793	73.92224	1.67758	0.1396625	0.31236682	2.1512594	20	5 15.1	21.7
357723	2005	QB <sub>133</sub>	16.7	X	228.31634	21.19387	37.08267	3.99615	0.1392766	0.18583224	3.0412726	20	7 3.0	21.4
357724	2005	QN <sub>134</sub>	16.0	X	49.85587	244.56997	358.52720	11.12223	0.0306304	0.18942928	3.0026496	20	8 3.5	20.2
357725	2005	QW <sub>136</sub>	16.8	X	359.25196	280.32657	42.74465	2.93142	0.1263350	0.19574039	2.9377562	20	9 12.0	20.1
357726	2005	QH <sub>137</sub>	16.5	X	270.96964	55.82170	7.68223	10.46168	0.0246192	0.19611091	2.9340547	20	9 17.4	20.6
357727	2005	QB <sub>138</sub>	16.2	X	329.94347	152.82004	159.91081	9.06281	0.0601609	0.18773458	3.0206926	20	7 8.5	20.3
357728	2005	QB <sub>139</sub>	16.2	X	216.76290	289.65069	163.50710	9.94583	0.0920287	0.19015344	2.9950214	20	8 6.6	20.8
357729	2005	QW <sub>172</sub>	16.6	X	11.63296	340.34309	349.15861	11.41311	0.1971397	0.19882223	2.9073194	20	10 15.7	20.0
357730	2005	QC <sub>181</sub>	15.9	X	273.71310	180.76356	217.85841	10.29072	0.0967480	0.18925841	3.0044566	20	8 2.7	20.2
357731	2005	QO <sub>189</sub>	16.3	X	154.15908	279.08059	338.64362	12.96382	0.1828988	0.21750164	2.7383841	20	12 23.6	21.1
357732	2005	RO <sub>5</sub>	16.1	X	282.61897	207.19850	168.26427	8.89997	0.2186750	0.18802350	3.0175974	20	6 29.8	20.4
357733	2005	RS <sub>10</sub>	16.1	X	109.28443	311.96549	359.05822	10.57661	0.1891118	0.21410033	2.7673101	20	—	—
357734	2005	RZ <sub>18</sub>	16.5	X	64.19165	282.46009	359.52845	10.75100	0.0783087	0.20073910	2.8887818	20	10 13.4	20.6
357735	2005	RR <sub>27</sub>	15.4	X	222.74440	24.24327	356.20407	14.56112	0.2853734	0.17577412	3.1562115	20	4 27.8	21.2
357736	2005	RJ <sub>40</sub>	16.0	X	23.23757	324.93927	339.42559	12.04035	0.0907407	0.19906240	2.9049805	20	9 18.3	19.6
357737	2005	RQ <sub>42</sub>	15.8	X	143.10652	285.08085	180.77598	25.59092	0.2729287	0.17321823	3.1871829	20	6 16.6	21.8
357738	2005	RJ <sub>47</sub>	17.0	X	147.11378	345.76906	176.29243	9.59110	0.0777897	0.19080567	2.9881923	20	8 18.2	21.7
357739	2005	RQ <sub>47</sub>	16.7	X	181.31130	199.35637	21.95621	16.64653	0.2250190	0.21099595	2.7943876	20	11 25.7	21.7
357740	2005	SR <sub>7</sub>	16.3	X	252.17439	134.55324	240.71268	1.30386	0.2370494	0.18100072	3.0951558	20	5 24.5	21.1
357741	2005	SO <sub>14</sub>	16.2	X	227.56311	318.00305	52.45817	2.39012	0.1766875	0.17665330	3.1457307	20	5 1.5	21.1
357742	2005	SU <sub>15</sub>	16.3	X	215.01058	100.80518	359.93832	8.27309	0.0853707	0.18956249	3.0012427	20	8 18.7	20.9
357743	2005	SS <sub>31</sub>	15.9	X	232.44091	11.91636	33.08674	10.27699	0.0722312	0.18128058	3.0919694	20	6 27.2	20.6
357744	2005	SN <sub>33</sub>	15.7	X	206.82068	18.29233	40.16281	13.01085	0.1639738	0.17756318	3.1349752	20	6 8.4	21.0
357745	2005	SJ <sub>50</sub>	15.7	X	268.58198	327.29972	21.98363	12.13406	0.2014196	0.18052113	3.1006353	20	5 10.4	20.5
357746	2005	SV <sub>51</sub>	15.7	X	249.20695	333.28709	29.67333	9.66584	0.0988736	0.17705216	3.1410046	20	5 19.6	20.5
357747	2005	SW <sub>53</sub>	16.0	X	181.54128	79.78741	18.48595	9.01012	0.1385794	0.17908669	3.1171701	20	7 7.6	21.2
357748	2005	SP <sub>58</sub>	16.3	X	100.17598	302.14238	8.66535	6.88291	0.2353263	0.21208727	2.7847934	20	—	—
357749	2005	SD <sub>64</sub>	16.5	X	219.99107	210.13314	196.76490	9.34323	0.0940294	0.17976973	3.1092693	20	6 13.7	21.3
357750	2005	SK <sub>71</sub>	16.7	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>		
357761	2005	SR <sub>109</sub>	16.6	X	190.67423	61.70554	14.34447	3.78355	0.1187541	0.17792642	3.1307070	20	6 18.0	21.6
357762	2005	SM <sub>110</sub>	16.3	X	230.04772	3.41953	13.04267	0.72204	0.0465498	0.17705988	3.1409132	20	5 21.8	20.7
357763	2005	SF <sub>119</sub>	16.0	X	208.07762	226.46607	167.93879	15.05346	0.3006559	0.17526868	3.1622764	20	5 11.7	21.9
357764	2005	SL <sub>125</sub>	16.0	X	115.76339	291.20947	18.89326	13.83588	0.1930260	0.21476949	2.7615590	20	—	—
357765	2005	SC <sub>128</sub>	16.3	X	214.32082	209.42142	186.31217	14.72397	0.2241304	0.17718991	3.1393764	20	5 19.5	21.8
357766	2005	SS <sub>129</sub>	15.6	X	331.98942	298.92634	24.47607	13.73418	0.0846711	0.18631100	3.0360602	20	7 30.5	19.7
357767	2005	SS <sub>130</sub>	15.7	X	161.97089	102.85115	27.87923	16.59460	0.0517227	0.18293252	3.0733270	20	8 1.9	20.6
357768	2005	ST <sub>147</sub>	16.3	X	232.27436	221.82766	182.09686	4.71069	0.1075851	0.18030485	3.1031143	20	6 21.8	21.0
357769	2005	SW <sub>159</sub>	15.4	X	247.38533	330.56350	333.73615	10.56276	0.1988417	0.17157565	3.2074922	20	2 29.5	20.7
357770	2005	SE <sub>160</sub>	16.5	X	140.39972	276.93917	195.14279	15.41338	0.2067898	0.17468055	3.1693706	20	6 17.9	22.0
357771	2005	SM <sub>170</sub>	16.0	X	322.41314	190.89441	215.99379	7.04290	0.0724630	0.20035258	2.8924959	20	11 1.6	19.5
357772	2005	SN <sub>176</sub>	16.4	X	114.07915	298.54445	255.41243	4.09634	0.0789407	0.18917471	3.0053427	20	8 21.6	20.8
357773	2005	SU <sub>182</sub>	15.8	X	219.31125	65.56337	10.61026	11.54624	0.0414750	0.18435558	3.0574911	20	7 28.9	20.4
357774	2005	SJ <sub>183</sub>	15.7	X	199.96725	72.49154	13.44604	12.29320	0.1309478	0.18085311	3.0968397	20	7 11.4	20.8
357775	2005	SH <sub>194</sub>	16.1	X	261.37818	169.07325	210.25365	10.08683	0.0968435	0.18157392	3.0886384	20	6 25.1	20.7
357776	2005	SX <sub>199</sub>	16.1	X	283.27406	167.65669	179.43073	11.76749	0.1807748	0.18546858	3.0452468	20	6 1.3	20.5
357777	2005	SN <sub>211</sub>	16.2	X	148.83399	93.38696	22.96714	12.00947	0.0253200	0.17839329	3.1252424	20	6 20.9	20.9
357778	2005	SJ <sub>212</sub>	16.4	X	132.24289	254.51847	210.41560	4.80101	0.1591475	0.17009561	3.2260714	20	5 30.5	21.6
357779	2005	SS <sub>230</sub>	15.8	X	210.50952	247.88849	196.75946	10.62696	0.0835355	0.18476694	3.0529513	20	7 19.3	20.6
357780	2005	SQ <sub>231</sub>	15.4	X	272.90417	167.46881	210.49817	9.28350	0.0587162	0.18256569	3.0774425	20	7 12.6	19.8
357781	2005	SB <sub>254</sub>	17.1	X	169.23237	309.55198	329.08939	5.64573	0.3014191	0.22544589	2.6736702	20	—	—
357782	2005	ST <sub>257</sub>	16.3	X	273.52342	325.25368	39.89318	3.28373	0.2148840	0.18494597	3.0509807	20	6 5.6	20.7
357783	2005	SE <sub>258</sub>	16.7	X	297.02445	197.66715	169.95409	8.99930	0.1475290	0.18992267	2.9974470	20	7 20.7	20.5
357784	2005	ST <sub>279</sub>	19.0	X	212.75533	257.81745	144.89910	2.61228	0.1621381	0.31245551	2.1508523	20	5 27.7	22.1
357785	2005	SA <sub>282</sub>	15.9	X	265.07919	199.14104	172.07936	16.73490	0.1811151	0.18145934	3.0899384	20	6 22.6	20.6
357786	2005	SR <sub>283</sub>	15.8	X	158.53300	324.20339	166.73690	16.95463	0.1446746	0.17885623	3.1198473	20	7 23.2	21.0
357787	2005	SX <sub>284</sub>	16.1	X	22.72374	196.10273	95.95831	11.75538	0.0295336	0.18915139	3.0055897	20	9 3.7	20.2
357788	2005	ST <sub>292</sub>	16.8	X	108.16026	178.61189	106.65706	2.16536	0.2252475	0.20986033	2.8044593	20	12 17.6	21.4
357789	2005	SF <sub>293</sub>	16.4	X	318.43034	211.26643	152.52838	13.56588	0.2446419	0.19269250	2.9686535	20	8 10.1	19.3
357790	2005	TX <sub>2</sub>	16.2	X	12.70578	334.24816	345.37898	8.72969	0.1108336	0.19643358	2.9308408	20	9 25.2	19.8
357791	2005	TE <sub>6</sub>	15.3	X	271.94535	66.04138	258.23943	11.11054	0.1058365	0.17706276	3.1408791	20	4 26.3	20.0
357792	2005	TX <sub>24</sub>	16.3	X	128.85488	115.37554	41.52411	4.05160	0.1183347	0.17881400	3.1203385	20	7 27.9	21.2
357793	2005	TY <sub>29</sub>	16.0	X	217.18848	240.64034	163.17332	27.19314	0.1924307	0.17947530	3.1126689	20	6 4.1	21.6
357794	2005	TO <sub>32</sub>	16.7	X	199.34189	250.55794	165.20765	9.74203	0.1014496	0.17814293	3.1281698	20	6 3.8	21.7
357795	2005	TP <sub>56</sub>	16.1	X	208.86630	78.43819	340.51955	9.24897	0.0932136	0.18069025	3.0987002	20	6 16.6	21.0
357796	2005	TE <sub>59</sub>	16.1	X	189.33654	47.45700	45.50560	5.31270	0.1221014	0.17857869	3.1230789	20	7 8.2	21.1
357797	2005	TP <sub>60</sub>	16.7	X	333.93011	82.10265	259.38153	3.19174	0.0738292	0.19155791	2.9803641	20	8 21.2	20.4
357798	2005	TW <sub>78</sub>	15.2	X	250.31496	321.50443	340.20757	24.39658	0.1797166	0.17961891	3.1110095	20	6 8.2	20.1
357799	2005	TW <sub>85</sub>	16.1	X	224.37048	210.51558	209.63583	10.46862	0.0871587	0.18238026	3.0795280	20	7 4.1	20.9
357800	2005	TG <sub>86</sub>	16.0	X	191.71645	41.53579	22.53942	9.70309	0.0298114	0.17647626	3.1478343	20	6 5.2	20.8
357801	2005	TV <sub>88</sub>	16.1	X	86.01782	136.94641	175.31770	14.80203	0.1150413	0.20914094	2.8108868	20	12 22.4	20.5
357802	2005	TM <sub>98</sub>	15.5	X	232.39980	21.27075	24.05421	17.79002	0.2034877	0.17803916	3.1293852	20	6 12.1	20.8
357803	2005	TP <sub>129</sub>	16.7	X	358.00055	105.89068	210.03616	4.17924	0.1329892	0.19045277	2.9918824	20	8 27.2	20.2
357804	2005	TG <sub>130</sub>	16.4	X	222.97933	354.84795	33.45713	9.69456	0.0812461	0.17581401	3.1557340	20	5 23.9	21.2
357805	2005	TJ <sub>136</sub>	16.4	X	333.54296	220.66827	117.97099	2.20501	0.0404052	0.19036808	2.9927697	20	8 19.8	20.2
357806	2005	TW <sub>143</sub>	16.3	X	174.84872	122.06810	44.40273	11.73778	0.1378999	0.19243836	2.9712666	20	9 27.2	21.2
357807	2005	TB <sub>155</sub>	15.8	X	201.74023	67.31385	356.85507	10.18713	0.1615692	0.17813736	3.1282350	20	6 11.7	21.0
357808	2005	TM <sub>157</sub>	16.5	X	80.82595	217.98871	6.46290	7.65603	0.0403051	0.18790336	3.0188835	20	8 19.9	20.7
357809	2005	TS <sub>161</sub>	15.9	X	167.91318	69.00730	14.64860	10.44348	0.0647010	0.17503128	3.1651352	20	6 2.0	20.8
357810	2005	TJ <sub>162</sub>	16.8	X	342.28159	310.83462	15.01153	9.55733	0.0217161	0.18734280	3.0249024	20	8 18.9	21.0
357811	2005	TP <sub>164</sub>	18.4	X	142.86759	222.16698	230.83107	4.46836	0.1699394	0.30524101	2.1846111	20	5 25.9	21.5
357812	2005	TM <sub>166</sub>	16.1	X	54.81263	23.75425	222.59448	5.24330	0.1107145	0.18618423	3.0374382	20	8 19.6	20.2
357813	2005	TZ <sub>172</sub>	16.0	X	242.13625	21.24751	18.51133	10.79947	0.1826293	0.18028469	3.1033456	20	6 18.7	21.0
357814	2005	TZ <sub>181</sub>	16.3	X	177.78399	282.12476	195.26630	10.56903	0.0443834	0.18377576	3.0639186	20	7 25.4	21.0
357815	2005	TH <sub>187</sub>	16.7	X	108.24387	190.80922	62.20690	2.98461	0.0619553	0.20064160	2.8897175	20	10 29.9	20.8
357816	2005	TC <sub>191</sub>	16.1	X	275.04723	328.62240	29.35801	9.77990	0.0495587	0.18205764	3.0831651	20	6 22.4	20.5
357817	2005	TJ <sub>192</sub>	16.1	X	345.84022	341.98974	9.72353	10.81818	0.0776727	0.19322392	2.9632079	20	9 25.4	19.8
357818	2005	TD <sub>194</sub>	16.3	X	121.90828	92.91088	19.63406	9.35526	0.1100265	0.17085093	3.2165562	20	5 22.3	21.2
357819	2005	UY <sub>23</sub>	16.2	X	119.32725	162.35938	9.04003	2.40566	0.1428715	0.18009008	3.1055810	20	8 6.8	21.1
357820	2005	UC <sub>27</sub>	16.3	X	232.53912	71.19982	313.11633	4.32613	0.1837370	0.17642476	3.1484468	20	5 21.0	21.3
357821	2005	UP <sub>27</sub>	15.7	X	312.92524	70.88573	222.20703	7.92442	0.0626426	0.17571089	3.1569686	20	5 19.4	20.0
357822	2005	UQ <sub>29</sub>	15.3	X	249.00603	170.98430	222.65024	7.84005	0.1148228	0.17919757	3.1158842	20	6 26.2	20.0
357823	2005	UT <sub>40</sub>	15.9	X	332.53695	230.20305	63.57020	10.67378	0.0824005	0.17563988	3.1578195	20	6 14.9	19.9
357824	2005	UL <sub>50</sub>	15.6	X	218.76651	16.90782	19.42391	7.21111	0.1190880	0.17532812	3.1615617	20	5 26.8	20.6
357825	2005	UA <sub>55</sub>	15.8	X	110.49502	299.76742	31.91176	15.09192	0.2979984	0.21492299	2.7602439	20	—	—
357826	2005	UR <sub>56</sub>	15.8	X	331.72288	350.73776	0.59674	9.73117	0.1054344	0.19004921	2.9961163	20	9 2.7	19.4
357827	2005	UA <sub>64</sub>	16.4	X	42.64194	42.56276	215.66272	5.02547	0.1084445	0.18248557	3.0783431	20	8 17.5	20.6
357828	2005	UV <sub>82</sub>	16.2	X	199.03380	213.52176	214.26596	9.07712	0.0666975	0.17722628	3.1389468	20	6 18.2	21.0
357829	2005	UQ <sub>86</sub>	16.4	X	201.50669	321.36708	78.80440	2.46977	0.1700607	0.17325208	3.1867			

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>		
357841	2005	<i>UZ</i> <sub>150</sub>	16.0	X	290.90446	78.79551	248.52346	3.82005	0.1363711	0.17708188	3.1406531	20	5 22.0	20.1
357842	2005	<i>UH</i> <sub>152</sub>	16.9	X	178.07991	120.77995	315.35365	0.99259	0.1006469	0.17213221	3.2005746	20	6 5.8	21.9
357843	2005	<i>UA</i> <sub>165</sub>	16.6	X	271.53982	38.67533	310.76436	0.65013	0.1076333	0.17839402	3.1252339	20	5 29.6	21.1
357844	2005	<i>UC</i> <sub>184</sub>	16.6	X	302.07758	161.76393	195.75855	0.84414	0.1687946	0.18444484	3.0565046	20	7 12.6	20.3
357845	2005	<i>UZ</i> <sub>189</sub>	16.5	X	214.64862	8.91513	40.54971	1.34624	0.1809883	0.17536133	3.1611626	20	6 5.3	21.7
357846	2005	<i>UQ</i> <sub>190</sub>	16.4	X	43.42105	270.51052	45.85347	11.92751	0.1204581	0.19619170	2.9332493	20	11 7.3	20.1
357847	2005	<i>UJ</i> <sub>191</sub>	16.3	X	165.03414	215.18447	234.04069	4.54498	0.1051585	0.17204530	3.2016524	20	6 9.0	21.4
357848	2005	<i>UE</i> <sub>195</sub>	15.8	X	303.35374	304.72497	56.07027	11.26082	0.0971152	0.18377447	3.0639330	20	8 1.9	19.9
357849	2005	<i>UJ</i> <sub>200</sub>	15.7	X	77.80979	149.67266	56.56592	7.39330	0.1064886	0.17839152	3.1252630	20	8 1.1	20.2
357850	2005	<i>UV</i> <sub>208</sub>	15.8	X	226.68564	20.97535	42.19240	13.56984	0.0538339	0.18169494	3.0872668	20	7 18.1	20.5
357851	2005	<i>UX</i> <sub>219</sub>	15.6	X	116.05396	266.14848	232.20495	16.41530	0.1126326	0.17259811	3.1948124	20	6 18.2	20.6
357852	2005	<i>UJ</i> <sub>220</sub>	15.9	X	141.86762	224.87555	254.24635	6.04654	0.1125398	0.17353587	3.1832925	20	6 22.5	20.7
357853	2005	<i>UD</i> <sub>227</sub>	16.0	X	107.42383	178.81105	53.62121	7.58160	0.1011198	0.19085668	2.9876597	20	10 7.9	20.6
357854	2005	<i>UK</i> <sub>227</sub>	16.0	X	99.63257	143.74077	57.88648	6.46496	0.0941645	0.18215576	3.0820578	20	8 20.7	20.6
357855	2005	<i>UU</i> <sub>235</sub>	16.2	X	342.84266	220.71063	118.38112	4.57720	0.1178589	0.18840718	3.0134993	20	9 3.7	19.7
357856	2005	<i>UG</i> <sub>250</sub>	15.8	X	245.62152	52.11637	326.40685	15.40045	0.2220943	0.18010337	3.1054281	20	5 19.8	21.1
357857	2005	<i>UG</i> <sub>255</sub>	16.2	X	3.19584	264.99184	39.00152	8.52012	0.0951957	0.18955561	3.0013153	20	8 23.5	20.0
357858	2005	<i>UG</i> <sub>258</sub>	15.9	X	166.82190	20.87250	52.73139	10.36704	0.1077246	0.17109840	3.2134539	20	5 22.1	20.8
357859	2005	<i>UH</i> <sub>263</sub>	16.8	X	147.66770	288.17112	179.82331	4.14222	0.0912013	0.17371787	3.1810687	20	6 13.9	21.7
357860	2005	<i>UK</i> <sub>268</sub>	15.4	X	183.75900	39.42559	52.29482	12.13929	0.0585978	0.17747254	3.1360425	20	7 1.8	20.2
357861	2005	<i>UH</i> <sub>279</sub>	15.6	X	167.43599	46.88742	50.02267	9.76563	0.0349304	0.17546508	3.1599163	20	6 18.9	20.3
357862	2005	<i>UH</i> <sub>287</sub>	16.3	X	7.58618	98.56289	190.81724	8.13990	0.0697427	0.18513566	3.0488964	20	8 1.9	20.3
357863	2005	<i>UY</i> <sub>290</sub>	15.8	X	191.48199	222.44516	254.63611	9.32187	0.0671965	0.18283459	3.0744243	20	8 7.7	20.6
357864	2005	<i>UU</i> <sub>294</sub>	17.9	X	116.65785	152.52460	14.75313	2.97877	0.1103535	0.31251492	2.1505797	20	8 5.5	20.7
357865	2005	<i>UL</i> <sub>301</sub>	18.2	X	176.65469	323.71165	127.05520	4.42138	0.1196483	0.30953630	2.1643541	20	6 25.9	21.2
357866	2005	<i>UE</i> <sub>308</sub>	15.9	X	322.66573	296.20113	47.81165	11.03977	0.0400565	0.18358148	3.0660800	20	8 15.3	20.2
357867	2005	<i>UB</i> <sub>310</sub>	16.2	X	33.95482	200.54521	57.08886	11.79854	0.0293066	0.17967134	3.1104043	20	7 30.3	20.6
357868	2005	<i>UQ</i> <sub>330</sub>	18.2	X	86.13422	342.30526	205.54511	3.82320	0.1057595	0.31194537	2.1531966	20	7 9.7	20.7
357869	2005	<i>UU</i> <sub>336</sub>	16.4	X	264.44268	161.93387	192.33002	4.70801	0.1083344	0.17626544	3.1503437	20	5 27.7	21.0
357870	2005	<i>US</i> <sub>342</sub>	15.9	X	238.10653	55.13314	8.55958	10.07504	0.0338384	0.18503752	3.0499744	20	8 5.8	20.3
357871	2005	<i>UN</i> <sub>365</sub>	16.5	X	261.37847	293.52661	97.16975	4.59452	0.0419539	0.18084263	3.0969594	20	7 18.8	20.9
357872	2005	<i>UG</i> <sub>367</sub>	15.1	X	99.15350	118.06077	61.29720	16.88076	0.0461188	0.17786045	3.1314811	20	7 14.6	19.8
357873	2005	<i>UC</i> <sub>369</sub>	15.8	X	171.07908	49.18471	66.02142	11.52318	0.0224627	0.17826105	3.1267878	20	7 18.5	20.4
357874	2005	<i>UH</i> <sub>378</sub>	16.4	X	138.36461	34.51987	126.76721	2.15407	0.1114323	0.17988988	3.1078847	20	8 10.6	21.1
357875	2005	<i>UL</i> <sub>384</sub>	15.3	X	322.72504	299.74281	35.66028	10.32359	0.1072617	0.18263312	3.0766849	20	7 27.9	19.3
357876	2005	<i>UU</i> <sub>384</sub>	15.9	X	46.32520	190.11791	50.85726	11.90874	0.0566772	0.17850558	3.1239316	20	7 28.9	20.3
357877	2005	<i>UO</i> <sub>416</sub>	16.0	X	198.32224	19.38908	51.08943	17.38512	0.0704506	0.17673465	3.1447654	20	6 19.0	20.9
357878	2005	<i>UV</i> <sub>420</sub>	16.6	X	150.32294	353.00421	139.79079	1.69599	0.1162769	0.17493441	3.1663036	20	7 18.1	21.6
357879	2005	<i>UK</i> <sub>432</sub>	16.7	X	139.74950	15.90019	69.07387	4.53581	0.1939542	0.16489010	3.2936162	20	5 15.9	22.0
357880	2005	<i>UL</i> <sub>437</sub>	16.8	X	52.80697	239.50053	59.31380	4.45341	0.1734265	0.19966721	2.8991113	20	11 5.8	20.9
357881	2005	<i>UC</i> <sub>440</sub>	15.6	X	144.06520	179.49653	351.09887	9.35380	0.0330805	0.18837151	3.0138797	20	8 26.9	20.0
357882	2005	<i>UH</i> <sub>441</sub>	15.6	X	284.48384	34.43997	299.30663	16.48229	0.2116238	0.18205017	3.0832495	20	5 5.6	20.3
357883	2005	<i>UJ</i> <sub>444</sub>	15.8	X	269.41833	43.94987	325.41670	10.77499	0.1245902	0.17953624	3.1119645	20	6 19.5	20.4
357884	2005	<i>UB</i> <sub>467</sub>	15.9	X	343.69349	5.90161	262.54210	7.75783	0.0540566	0.17390901	3.1787374	20	5 31.5	19.9
357885	2005	<i>UV</i> <sub>475</sub>	15.7	X	299.04685	211.54575	149.33719	12.56374	0.1735804	0.18573239	3.0423624	20	7 16.5	19.7
357886	2005	<i>UU</i> <sub>476</sub>	15.9	X	254.67016	203.46155	198.77620	9.63264	0.0907799	0.18211125	3.0825600	20	7 15.9	20.5
357887	2005	<i>UK</i> <sub>477</sub>	16.1	X	319.83869	145.76223	193.94158	10.39458	0.0875463	0.18532182	3.0468543	20	7 24.9	20.2
357888	2005	<i>UN</i> <sub>512</sub>	15.4	X	39.06313	0.88693	249.65576	16.33742	0.1201007	0.17873963	3.1212039	20	7 30.0	19.7
357889	2005	<i>UD</i> <sub>515</sub>	16.1	X	124.53404	302.88798	169.71683	14.61747	0.0996713	0.17004288	3.2267384	20	5 28.7	21.2
357890	2005	<i>UE</i> <sub>517</sub>	17.0	X	94.35599	49.53611	173.44095	11.21268	0.0155689	0.19043953	2.9920210	20	8 28.1	21.3
357891	2005	<i>UG</i> <sub>519</sub>	16.4	X	262.46196	211.12737	172.63834	15.77092	0.0557907	0.18104936	3.0946014	20	7 7.8	21.1
357892	2005	<i>UQ</i> <sub>519</sub>	16.1	X	9.42169	140.78678	170.61236	11.44953	0.0706150	0.19133288	2.9827005	20	9 5.6	20.0
357893	2005	<i>UT</i> <sub>519</sub>	15.9	X	195.10746	292.15527	133.13027	12.47495	0.0629013	0.17432691	3.1736553	20	6 12.7	20.8
357894	2005	<i>UU</i> <sub>520</sub>	16.2	X	7.74769	129.08352	173.92605	9.97412	0.0405119	0.18987539	2.9979446	20	8 19.5	20.2
357895	2005	<i>UH</i> <sub>521</sub>	16.4	X	340.28917	207.53779	112.13021	3.14930	0.0453599	0.18837497	3.0138427	20	8 3.9	20.3
357896	2005	<i>UL</i> <sub>522</sub>	16.8	X	226.02536	246.58782	168.15458	2.15080	0.0893042	0.18337121	3.0684234	20	6 30.4	21.3
357897	2005	<i>UF</i> <sub>524</sub>	16.1	X	132.98217	12.82678	162.80201	11.88351	0.0283987	0.18537083	3.0463171	20	8 16.5	20.6
357898	2005	<i>VX</i> <sub>17</sub>	15.2	X	223.11985	272.80863	121.04879	19.65798	0.1554525	0.17422387	3.1749066	20	5 31.8	20.5
357899	2005	<i>VZ</i> <sub>26</sub>	15.2	X	111.71568	311.39385	220.52437	26.35877	0.1382072	0.17909253	3.1171024	20	7 21.3	20.5
357900	2005	<i>VV</i> <sub>31</sub>	16.1	X	134.72351	68.01959	76.42469	1.78360	0.1221923	0.17330671	3.1860980	20	7 17.5	21.1
357901	2005	<i>VT</i> <sub>40</sub>	16.0	X	252.91774	156.16734	218.52572	9.04485	0.1031767	0.17573857	3.1566371	20	6 9.1	20.7
357902	2005	<i>VJ</i> <sub>56</sub>	16.7	X	29.39735	225.99715	57.70495	4.69759	0.0788221	0.18666748	3.0321937	20	9 1.9	20.6
357903	2005	<i>VP</i> <sub>65</sub>	17.0	X	87.55695	167.41930	108.96535	3.20214	0.0593847	0.19713903	2.9238447	20	11 3.9	21.2
357904	2005	<i>VC</i> <sub>67</sub>	18.2	X	134.81315	109.69675	26.63987	3.87354	0.0391764	0.31166887	2.1544699	20	7 7.6	20.8
357905	2005	<i>VY</i> <sub>69</sub>	18.0	X	231.31369	205.07745	171.39965	2.67296	0.1962295	0.30946599	2.1646820	20	5 8.7	21.2
357906	2005	<i>VZ</i> <sub>85</sub>	15.8	X	71.25838	312.22324	208.50090	9.31335	0.2006441	0.16309032	3.3178030	20	6 7.1	20.4
357907	2005	<i>VB</i> <sub>94</sub>	16.0	X	144.76961	122.45979	40.23885	9.99271	0.0734320	0.18288865	3.0738184	20	8 22.1	20.8
357908	2005	<i>VM</i> <												



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>
357921 2005 <i>WV</i> <sub>48</sub>	18.7	X	117.20722	48.35557	53.62266	2.52896	0.1448562	0.29795918	2.2200608	20	5 7.0	21.5
357922 2005 <i>WL</i> <sub>69</sub>	18.3	X	187.44018	183.99951	230.75819	0.85669	0.0995260	0.30451491	2.1880824	20	5 18.6	21.3
357923 2005 <i>WE</i> <sub>75</sub>	18.2	X	233.69161	330.28758	31.74211	4.47331	0.1847704	0.30836838	2.1698156	20	4 21.6	21.1
357924 2005 <i>WF</i> <sub>123</sub>	16.0	X	132.87085	160.30344	36.27535	14.37143	0.0832770	0.19092907	2.9869045	20	9 22.9	20.7
357925 2005 <i>WZ</i> <sub>129</sub>	18.2	X	342.10844	64.73784	244.57811	3.06747	0.1651841	0.31764861	2.1273457	20	8 5.1	19.4
357926 2005 <i>WN</i> <sub>138</sub>	16.8	X	52.55400	268.93452	294.85444	0.82148	0.0329031	0.17102541	3.2143682	20	6 12.4	21.1
357927 2005 <i>WO</i> <sub>143</sub>	15.5	X	89.83554	149.55052	69.49179	10.83054	0.0961254	0.17968366	3.1102621	20	9 2.8	20.2
357928 2005 <i>WX</i> <sub>144</sub>	15.6	X	81.13417	170.01070	63.25309	14.74506	0.1030207	0.18121517	3.0927134	20	9 14.3	20.3
357929 2005 <i>WO</i> <sub>146</sub>	15.8	X	246.80692	327.69359	58.79250	10.30546	0.0935169	0.17475738	3.1684415	20	6 17.2	20.5
357930 2005 <i>WT</i> <sub>159</sub>	16.2	X	269.86098	254.69156	103.76547	2.26553	0.1834857	0.17653543	3.1471309	20	5 28.8	20.8
357931 2005 <i>WV</i> <sub>159</sub>	17.8	X	90.08005	73.60346	73.69272	6.63486	0.1117181	0.30054184	2.2073240	20	5 31.6	20.1
357932 2005 <i>WX</i> <sub>210</sub>	18.5	X	64.73870	302.92991	184.66899	1.11467	0.1479373	0.29185948	2.2508860	20	3 28.1	20.5
357933 2005 <i>XV</i> <sub>46</sub>	15.6	X	2.08602	213.30757	64.00000	9.56213	0.0811625	0.17338555	3.1851321	20	7 10.7	19.7
357934 2005 <i>YR</i> <sub>55</sub>	16.5	X	44.11132	185.09931	38.04217	1.81724	0.1234152	0.17135483	3.2102473	20	7 7.9	20.7
357935 2005 <i>XP</i> <sub>111</sub>	17.6	X	293.06475	225.23691	1.75511	2.12037	0.1691182	0.27067968	2.3668221	20	1 4.3	20.8
357936 2005 <i>YL</i> <sub>5</sub>	18.2	X	108.90451	61.00936	48.96059	3.15768	0.1066618	0.29752901	2.2222002	20	5 2.4	20.7
357937 2005 <i>YO</i> <sub>12</sub>	18.2	X	134.55191	168.68958	278.31080	5.17455	0.1070284	0.29771097	2.2212946	20	4 30.6	21.3
357938 2005 <i>YO</i> <sub>22</sub>	17.9	X	56.06576	84.61425	96.16503	5.09988	0.1206283	0.29549898	2.2323660	20	5 30.9	20.2
357939 2005 <i>YU</i> <sub>36</sub>	18.0	X	202.85914	77.40861	305.49458	3.79673	0.1466874	0.29812532	2.2192359	20	4 19.2	21.4
357940 2005 <i>YZ</i> <sub>49</sub>	18.5	X	150.05725	224.50884	211.00484	1.43548	0.1081830	0.30025493	2.2087300	20	5 5.0	21.4
357941 2005 <i>YL</i> <sub>51</sub>	18.1	X	98.12224	197.40091	270.67420	1.24207	0.1731892	0.29158842	2.2522808	20	4 24.9	20.7
357942 2005 <i>YO</i> <sub>51</sub>	15.6	X	330.30455	239.40278	88.51427	13.12171	0.1154004	0.17954551	3.1118574	20	7 27.5	19.5
357943 2005 <i>YJ</i> <sub>53</sub>	18.0	X	143.42618	120.64507	307.41613	1.88808	0.1344265	0.29475256	2.2361332	20	4 18.5	21.1
357944 2005 <i>YZ</i> <sub>55</sub>	16.2	X	71.43453	263.44550	56.40646	9.63381	0.2252342	0.20125154	2.8838759	20	12 25.0	20.9
357945 2005 <i>YF</i> <sub>59</sub>	17.6	X	340.78179	165.44199	84.51996	5.79134	0.1151711	0.29403111	2.2397894	20	4 24.6	19.6
357946 2005 <i>YA</i> <sub>61</sub>	16.1	X	333.90589	266.42533	70.49797	11.51171	0.1215522	0.18431613	3.0579272	20	8 18.7	19.9
357947 2005 <i>YX</i> <sub>76</sub>	15.7	X	111.56049	244.25446	300.54710	9.80262	0.0326176	0.17244123	3.1967498	20	8 1.8	20.2
357948 2005 <i>YD</i> <sub>106</sub>	18.1	X	61.25805	331.28314	208.48850	1.15877	0.0759080	0.29791738	2.2202684	20	5 30.0	20.5
357949 2005 <i>YZ</i> <sub>135</sub>	18.1	X	185.81464	340.37378	76.91385	4.39242	0.0968627	0.30102953	2.2049394	20	5 20.7	21.2
357950 2005 <i>YO</i> <sub>165</sub>	17.0	X	79.36915	53.71542	108.62024	20.64944	0.1655280	0.29614785	2.2291040	20	6 18.7	19.8
357951 2005 <i>YJ</i> <sub>173</sub>	18.0	X	82.72999	96.20545	51.81998	5.39255	0.2529891	0.29435832	2.2381293	20	6 13.6	20.8
357952 2005 <i>YT</i> <sub>179</sub>	18.1	X	45.40499	157.65022	309.88058	5.60453	0.0615241	0.28111252	2.3078944	20	1 17.4	20.5
357953 2005 <i>YG</i> <sub>187</sub>	17.6	X	275.34714	139.99946	112.35262	6.91913	0.0781335	0.28373913	2.2936293	20	1 25.6	20.5
357954 2005 <i>YG</i> <sub>229</sub>	17.5	X	17.73981	92.51663	130.46006	5.27350	0.1427529	0.29118257	2.2543731	20	5 27.3	19.3
357955 2005 <i>YR</i> <sub>274</sub>	18.2	X	157.50364	26.53824	357.96383	1.65692	0.1444854	0.28860599	2.2677708	20	3 9.2	21.5
357956 2006 <i>AN</i> <sub>11</sub>	16.7	X	81.37619	122.03834	359.95484	25.70306	0.2868334	0.28815528	2.2701349	20	4 27.3	19.9
357957 2006 <i>AK</i> <sub>37</sub>	18.1	X	133.17718	97.90383	308.16233	3.82971	0.1148270	0.28718966	2.2752206	20	3 5.6	21.0
357958 2006 <i>AD</i> <sub>63</sub>	17.2	X	64.82828	170.03291	73.25618	4.09985	0.1044283	0.30941713	2.1649098	20	9 18.3	19.7
357959 2006 <i>AC</i> <sub>69</sub>	18.6	X	81.88988	303.45961	201.66693	1.28921	0.1595028	0.29530014	2.2333679	20	5 24.6	21.0
357960 2006 <i>BR</i> <sub>2</sub>	16.9	X	86.02395	214.03690	285.58557	5.80160	0.1072759	0.29158640	2.2522912	20	5 11.7	19.5
357961 2006 <i>BG</i> <sub>7</sub>	18.1	X	167.80908	336.43705	115.49646	5.19588	0.0563698	0.30118474	2.2041818	20	6 16.7	20.9
357962 2006 <i>BE</i> <sub>30</sub>	17.8	X	60.05006	28.56487	112.44930	3.48596	0.0911065	0.28775440	2.2722428	20	4 3.2	20.0
357963 2006 <i>BA</i> <sub>33</sub>	17.5	X	29.26032	334.07715	135.16881	7.06104	0.0658400	0.27332571	2.3515220	20	—	—
357964 2006 <i>BK</i> <sub>34</sub>	17.1	X	355.51858	81.91555	145.95896	6.94635	0.1261366	0.28640458	2.2793765	20	4 18.2	19.1
357965 2006 <i>BC</i> <sub>44</sub>	17.2	X	129.59171	312.63298	128.73110	6.79529	0.0855728	0.28980343	2.2615197	20	4 19.5	20.2
357966 2006 <i>BQ</i> <sub>64</sub>	18.3	X	27.13552	65.35820	138.43241	1.16811	0.1340921	0.29150455	2.2527128	20	5 13.5	19.9
357967 2006 <i>BT</i> <sub>67</sub>	17.0	X	291.09052	300.33758	326.04965	6.38841	0.0912811	0.28606697	2.2811696	20	2 29.8	19.9
357968 2006 <i>BV</i> <sub>73</sub>	17.9	X	66.03415	349.65728	107.55240	6.22568	0.1188150	0.28188887	2.3036549	20	2 12.0	20.0
357969 2006 <i>BK</i> <sub>79</sub>	17.3	X	338.70038	236.60245	5.84395	6.89356	0.0690632	0.28695703	2.2764501	20	4 10.5	19.8
357970 2006 <i>BE</i> <sub>96</sub>	16.9	X	309.20807	304.46207	336.43946	6.74174	0.1061119	0.28741738	2.2740187	20	4 11.9	19.4
357971 2006 <i>BJ</i> <sub>110</sub>	18.3	X	36.62332	59.40713	93.65424	3.16215	0.1595206	0.28445690	2.2897693	20	3 15.4	20.0
357972 2006 <i>BU</i> <sub>110</sub>	17.6	X	101.66980	135.52557	336.08292	6.17961	0.0725317	0.29082515	2.2562198	20	4 19.3	20.4
357973 2006 <i>BW</i> <sub>124</sub>	17.9	X	8.82341	238.68333	338.94922	5.04038	0.1393670	0.28727514	2.2747692	20	4 23.3	19.7
357974 2006 <i>BU</i> <sub>149</sub>	17.6	X	107.85568	126.50782	32.33041	5.42149	0.0715702	0.30106215	2.2047801	20	7 7.2	20.4
357975 2006 <i>BE</i> <sub>151</sub>	17.6	X	0.06726	112.77721	118.34063	9.54074	0.0275021	0.29253320	2.2474288	20	5 7.2	20.3
357976 2006 <i>BD</i> <sub>158</sub>	17.4	X	347.62449	219.58566	12.37668	2.25379	0.0991824	0.28584181	2.2823673	20	4 8.2	19.6
357977 2006 <i>BX</i> <sub>168</sub>	17.9	X	53.91215	129.48966	337.42909	6.72235	0.0853104	0.27816451	2.3241718	20	2 2.4	20.1
357978 2006 <i>BL</i> <sub>172</sub>	18.0	X	347.92071	78.14200	152.39569	3.17459	0.0713950	0.29039504	2.2584471	20	4 10.3	20.3
357979 2006 <i>BW</i> <sub>184</sub>	17.4	X	0.55264	142.47849	109.72935	5.72623	0.2124097	0.29373945	2.2412718	20	6 7.6	18.5
357980 2006 <i>BR</i> <sub>196</sub>	17.6	X	7.85092	317.44685	256.09885	1.85685	0.1038127	0.28749525	2.2736081	20	4 16.9	19.6
357981 2006 <i>BW</i> <sub>227</sub>	18.0	X	316.18192	56.24151	170.96420	1.30325	0.1398802	0.27796374	2.3252909	20	2 4.4	20.6
357982 2006 <i>BK</i> <sub>249</sub>	18.2	X	118.23389	350.60865	87.86751	1.93624	0.2144353	0.28923315	2.2644914	20	4 15.7	21.3
357983 2006 <i>BU</i> <sub>267</sub>	17.2	X	115.27154	30.36948	59.36224	5.61112	0.1416196	0.28954212	2.2628801	20	4 18.9	20.1
357984 2006 <i>CP</i> <sub>13</sub>	17.5	X	271.16551	284.56595	319.00205	5.65984	0.0475148	0.27721059	2.3295007	20	1 13.8	20.4
357985 2006 <i>CO</i> <sub>38</sub>	18.0	X	128.46053	235.84197	166.85771	4.58628	0.1551410	0.28232335	2.3012909	20	3 2.5	20.8
357986 2006 <i>CM</i> <sub>49</sub>	18.0	X	117.79396	120.00529	334.83575	2.12763	0.2039839	0.29241862	2.2480158	20	5 4.3	21.1
357987 2006 <i>CK</i> <sub>68</sub>	17.6	X	272.30526	99.97518	148.33641	7.58680	0.0678909	0.27474497	2.3434169	20	1 18.1	20.8
357988 2006 <i>DT</i> <sub>6</sub>	17.1	X	359.17153	137.19547	53.17403	4.77312	0.1134975	0.28168267	2.3047791	20	2 27.9	19.3
357989 2006 <i>DZ</i> <sub>13</sub>	16.8	X	306.68411	110.07011	121.01345	6.56641	0.0738618	0.27797789	2.3252120	20	2 8.0	19.6
357990 2006 <i>DJ</i> <sub>14</sub>	16.8	X	40.06622	152.13680	40.81011	6.94360	0.1337735	0.28729186	2.2746810	20	5 20.9	18.9
357991 2006 <i>DQ</i> <sub>28</sub>	18.3	X	93.61349	291.21673	152.14099	4.54708	0.1921106					

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>		
358001	2006	DD <sub>69</sub>	17.1	X	59.56916	119.70526	28.96600	10.66863	0.1176355	0.28715229	2.2754180	20	4 16.3	19.2
358002	2006	DW <sub>69</sub>	17.4	X	338.59473	287.38780	343.95644	3.48800	0.1500623	0.28959295	2.2626153	20	5 16.9	19.3
358003	2006	DX <sub>72</sub>	17.7	X	329.94456	228.50691	36.89145	1.88537	0.2036661	0.28747639	2.2737075	20	4 11.6	19.3
358004	2006	DR <sub>73</sub>	17.9	X	61.04443	348.31040	137.02655	3.05393	0.1671748	0.28287349	2.2983062	20	3 23.1	19.8
358005	2006	DT <sub>78</sub>	17.6	X	269.45707	332.56391	314.44449	2.57074	0.2214821	0.27804036	2.3248636	20	2 17.9	21.2
358006	2006	DZ <sub>80</sub>	18.3	X	66.83886	262.62964	172.43440	4.65480	0.2027860	0.27636274	2.3342627	20	1 20.7	20.2
358007	2006	DM <sub>92</sub>	17.4	X	257.90950	134.27416	164.97638	4.79199	0.1411392	0.27766753	2.3269443	20	2 29.5	20.8
358008	2006	DG <sub>97</sub>	17.9	X	290.60060	75.49940	194.71335	4.69363	0.1528306	0.27753110	2.3277068	20	2 25.9	21.0
358009	2006	DE <sub>107</sub>	17.9	X	100.78662	133.91142	278.27566	1.49213	0.1983203	0.27700817	2.3306353	20	2 15.7	20.5
358010	2006	DW <sub>107</sub>	17.7	X	231.95122	291.44451	333.99604	1.81977	0.1640327	0.26593204	2.3949086	20	—	—
358011	2006	DW <sub>115</sub>	17.1	X	227.05822	314.67115	13.16558	10.33921	0.2532131	0.27559837	2.3385767	20	3 5.2	21.1
358012	2006	DO <sub>128</sub>	17.5	X	318.70321	232.90401	8.60178	6.40358	0.0631199	0.28286506	2.2983518	20	3 12.3	19.9
358013	2006	DR <sub>137</sub>	18.2	X	82.02396	318.31557	133.88772	5.48331	0.1573989	0.28161246	2.3051621	20	3 9.5	20.6
358014	2006	DC <sub>144</sub>	17.7	X	277.76575	330.65666	8.55738	1.54212	0.1687153	0.29401810	2.3298555	20	5 12.8	20.2
358015	2006	DD <sub>155</sub>	17.4	X	314.66594	35.90035	212.36758	4.59002	0.1166479	0.27973881	2.3154438	20	3 4.4	20.0
358016	2006	DE <sub>164</sub>	17.6	X	327.12816	156.18042	57.01197	2.75688	0.1499375	0.27684924	2.3315272	20	1 31.7	20.3
358017	2006	DP <sub>171</sub>	17.8	X	301.60737	246.97515	15.14721	5.94087	0.1756278	0.27943476	2.3171230	20	3 2.6	20.6
358018	2006	DH <sub>174</sub>	18.0	X	345.41022	44.96391	126.27617	2.96825	0.1306808	0.27413080	2.3469157	20	1 3.7	20.3
358019	2006	DE <sub>176</sub>	17.5	X	102.59086	82.72617	356.22848	7.61241	0.1931640	0.28394553	2.2925176	20	3 24.3	20.2
358020	2006	DC <sub>185</sub>	17.5	X	279.63252	322.31366	330.17379	3.58936	0.2321728	0.27879306	2.3206773	20	3 4.4	20.7
358021	2006	DX <sub>191</sub>	16.9	X	67.53314	313.32973	155.45985	6.06928	0.1544825	0.27905403	2.3192302	20	3 7.8	19.0
358022	2006	DR <sub>207</sub>	16.8	X	247.16866	314.55599	354.85177	7.49547	0.1243872	0.27689902	2.3312478	20	3 4.8	20.0
358023	2006	DL <sub>211</sub>	18.0	X	31.72385	149.23798	18.02440	2.37279	0.1467630	0.28121144	2.3073531	20	3 25.7	19.7
358024	2006	EZ <sub>4</sub>	18.5	X	66.41964	53.43873	23.31287	3.05528	0.1544646	0.27623280	2.3349946	20	1 18.1	20.5
358025	2006	EH <sub>58</sub>	17.1	X	272.67555	311.64938	339.41348	7.13201	0.1227144	0.28037566	2.3119362	20	3 7.6	20.2
358026	2006	EU <sub>62</sub>	17.4	X	17.40446	355.88552	202.70932	5.97248	0.1222740	0.28331505	2.2959176	20	4 13.4	19.1
358027	2006	ED <sub>67</sub>	17.6	X	114.36887	272.24547	146.22709	6.03393	0.1166579	0.28042352	2.3116731	20	3 1.8	20.5
358028	2006	FX <sub>7</sub>	17.0	X	257.84866	88.40548	193.08764	11.90215	0.2204121	0.26943458	2.3741081	20	1 30.1	21.1
358029	2006	FV <sub>9</sub>	17.9	X	14.60572	320.72856	174.61678	2.48953	0.1560802	0.27372989	2.3492067	20	—	—
358030	2006	FU <sub>12</sub>	17.4	X	225.91180	147.22972	175.74343	6.47534	0.1661986	0.27401038	2.3476033	20	2 26.9	21.0
358031	2006	FJ <sub>13</sub>	15.7	X	261.97899	65.55773	165.55337	3.14104	0.1558735	0.12461790	3.9696214	20	—	—
358032	2006	FB <sub>18</sub>	18.2	X	289.14241	163.41774	110.23131	1.57989	0.1891788	0.27481310	2.3430295	20	2 26.1	21.3
358033	2006	FD <sub>25</sub>	17.9	X	317.61352	33.83868	210.94688	1.03897	0.1868207	0.27659060	2.3329805	20	2 23.1	20.4
358034	2006	FA <sub>28</sub>	17.9	X	5.78238	162.74263	39.59103	2.93777	0.1428641	0.27933764	2.3176601	20	3 26.9	19.7
358035	2006	FS <sub>34</sub>	17.0	X	343.46693	236.16877	339.45226	6.65754	0.1413373	0.27751372	2.3278040	20	3 2.2	18.9
358036	2006	FF <sub>37</sub>	17.0	X	26.30697	87.51685	88.43436	3.84301	0.0971941	0.28123528	2.3072227	20	3 28.4	19.2
358037	2006	FV <sub>52</sub>	17.8	X	60.15511	92.17266	32.61872	5.85366	0.1506031	0.27825558	2.3236647	20	3 19.7	20.0
358038	2006	GL <sub>6</sub>	16.5	X	258.84476	140.13138	182.47734	22.82908	0.1946340	0.27996770	2.3141816	20	3 26.9	19.9
358039	2006	GA <sub>21</sub>	17.2	X	254.74807	265.96514	49.15279	7.20911	0.1258523	0.27678865	2.3318675	20	3 22.9	20.5
358040	2006	GE <sub>21</sub>	17.7	X	303.77452	219.91337	49.40174	6.09346	0.1947290	0.27668101	2.3324722	20	3 11.2	20.7
358041	2006	GU <sub>22</sub>	18.0	X	355.77671	67.68266	153.67566	2.29495	0.1594933	0.28022073	2.3127883	20	4 3.4	19.7
358042	2006	GZ <sub>24</sub>	18.1	X	4.18820	130.41414	77.10610	1.52316	0.1626935	0.28006274	2.3136580	20	3 30.3	19.9
358043	2006	GF <sub>29</sub>	17.7	X	299.37837	58.63130	162.84883	1.30497	0.1385007	0.26882145	2.3777167	20	1 8.1	20.9
358044	2006	GB <sub>30</sub>	17.4	X	56.39773	16.29346	49.53663	7.02025	0.0990603	0.26407525	2.4061216	20	—	—
358045	2006	GL <sub>35</sub>	16.7	X	27.07127	115.19234	23.25074	23.68698	0.1924457	0.27529974	2.3402676	20	2 14.7	19.2
358046	2006	GR <sub>35</sub>	17.1	X	340.84657	239.93908	21.42055	22.00988	0.2978321	0.28204536	2.3028028	20	4 12.0	18.1
358047	2006	GM <sub>39</sub>	16.4	X	331.35817	250.79312	16.62872	23.91364	0.2345882	0.28461379	2.2889278	20	4 10.0	18.4
358048	2006	GB <sub>46</sub>	17.1	X	321.16825	184.56660	50.55578	10.76633	0.1699794	0.27434944	2.3456686	20	2 24.6	20.0
358049	2006	HZ <sub>12</sub>	17.5	X	313.67864	128.70152	77.04665	5.41085	0.1253425	0.26951143	2.3736568	20	1 7.5	20.5
358050	2006	HT <sub>17</sub>	17.2	X	236.70922	99.95990	174.69634	5.49999	0.1162546	0.26883574	2.3776324	20	1 9.9	20.9
358051	2006	HD <sub>19</sub>	16.1	X	163.41253	305.33629	51.17588	11.79435	0.2623868	0.26545164	2.3977972	20	2 24.6	20.3
358052	2006	HV <sub>19</sub>	17.8	X	316.79290	233.70738	30.12067	6.00235	0.1428155	0.28023290	2.3127211	20	3 29.2	20.3
358053	2006	HL <sub>22</sub>	17.5	X	36.10156	356.28388	99.53560	3.39128	0.1449630	0.26640854	2.3920520	20	—	—
358054	2006	HR <sub>22</sub>	17.5	X	250.07875	240.38055	76.86468	3.52377	0.2168101	0.27361245	2.3498789	20	3 11.8	21.3
358055	2006	HO <sub>25</sub>	17.4	X	17.69708	35.70496	97.52008	2.70529	0.1356363	0.26801109	2.3825071	20	1 6.4	19.5
358056	2006	HA <sub>28</sub>	17.3	X	302.67296	23.45077	127.16924	6.88363	0.0659390	0.25481695	2.4640556	20	—	—
358057	2006	HQ <sub>32</sub>	17.9	X	313.37013	254.11387	20.71348	3.31230	0.2115184	0.28143609	2.3061251	20	3 26.7	20.3
358058	2006	HZ <sub>35</sub>	17.8	X	312.47908	34.05030	206.49632	4.60724	0.1736214	0.27644540	2.3337973	20	2 10.8	20.9
358059	2006	HE <sub>43</sub>	18.1	X	335.10077	291.48103	271.37651	0.44829	0.1210490	0.27179829	2.3603237	20	2 2.9	20.5
358060	2006	HR <sub>49</sub>	17.8	X	345.56853	153.84035	121.79284	5.73807	0.4202935	0.28184600	2.3038886	20	5 2.6	18.1
358061	2006	HA <sub>63</sub>	17.8	X	326.61463	187.56073	69.70181	3.20348	0.1853796	0.27831080	2.3233573	20	3 29.3	20.1
358062	2006	HS <sub>66</sub>	17.4	X	333.96601	118.52309	58.12678	3.18834	0.1522573	0.26802712	2.3824121	20	—	—
358063	2006	HE <sub>67</sub>	17.9	X	213.47552	105.35655	198.03372	3.65478	0.2177242	0.26228203	2.4170763	20	1 23.2	21.9
358064	2006	HP <sub>70</sub>	17.8	X	9.39034	58.02229	158.76667	3.92460	0.1030131	0.28374623	2.2935910	20	4 28.0	19.9
358065	2006	HH <sub>78</sub>	17.2	X	348.67510	164.93709	51.42592	5.75626	0.1082481	0.27742802	2.3282834	20	3 20.6	19.6
358066	2006	HV <sub>80</sub>	18.0	X	258.48850	253.87416	38.26565	2.56336	0.2283326	0.26880753	2.3777987	20	2 16.1	21.8
358067	2006	HO <sub>81</sub>	16.6	X	217.20733	299.40696	36.38501	10.08830	0.1288909	0.27119125	2.3638446	20	3 11.9	20.3
358068	2006	HY <sub>84</sub>	17.3	X	304.93923	149.31878	92.77709	4.02381	0.1402587	0.27126262	2.3634300	20	2 11.9	20.2
358069	2006	HA <sub>89</sub>	17.5	X	321.61895	125.17549	97.95883	5.17101	0.1896327	0.27407701	2.3472228	20	1 31.3	20.4
358070	2006	HY <sub>98</sub>	16.7	X	315.80407	264.1236								

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>		
358081	2006	<i>JG</i> <sub>16</sub>	18.1 <sup>m</sup>	X	265.61284	238.72068	36.01977	1.71544	0.1747721	0.26914750	2.3757960	20	2 5.0	21.6
358082	2006	<i>JG</i> <sub>18</sub>	17.9	X	320.08953	31.39465	207.74891	5.88385	0.0821918	0.27412289	2.3469609	20	3 5.7	20.6
358083	2006	<i>JW</i> <sub>19</sub>	17.4	X	207.94729	101.90660	176.07129	9.45635	0.1032773	0.25828693	2.4419369	20	—	—
358084	2006	<i>JD</i> <sub>26</sub>	17.4	X	354.55964	284.78716	286.10550	5.39698	0.1959057	0.27801296	2.3250164	20	3 6.0	19.3
358085	2006	<i>JG</i> <sub>26</sub>	16.8	X	284.34255	273.23162	6.20594	6.68917	0.1175225	0.27412758	2.3469341	20	3 9.6	19.9
358086	2006	<i>JT</i> <sub>29</sub>	17.4	X	210.56334	89.71892	207.83247	6.04869	0.0892670	0.26391387	2.4071024	20	1 12.3	20.9
358087	2006	<i>JA</i> <sub>30</sub>	17.3	X	306.48301	57.46271	190.73028	5.91333	0.1241612	0.27332058	2.3515515	20	2 21.4	20.1
358088	2006	<i>JX</i> <sub>31</sub>	17.3	X	216.74390	123.28837	184.62384	5.79119	0.1033980	0.26574532	2.3960303	20	1 31.3	21.0
358089	2006	<i>JE</i> <sub>44</sub>	18.3	X	22.77265	33.58964	123.94643	2.74199	0.1399148	0.27398313	2.3477589	20	2 21.4	20.1
358090	2006	<i>JD</i> <sub>50</sub>	16.7	X	321.86237	306.94983	225.72017	2.05067	0.0996247	0.19505690	2.9446148	20	—	—
358091	2006	<i>JH</i> <sub>59</sub>	17.9	X	273.36103	33.24211	197.27825	0.88265	0.1335952	0.26448455	2.4036387	20	—	—
358092	2006	<i>JF</i> <sub>80</sub>	17.1	X	216.47718	158.78904	137.90032	7.63017	0.0645159	0.26243017	2.4161666	20	1 18.5	20.5
358093	2006	<i>KQ</i> <sub>3</sub>	17.6	X	299.00979	230.06185	57.75941	5.42723	0.1749889	0.27950303	2.3167457	20	4 1.4	20.3
358094	2006	<i>KU</i> <sub>3</sub>	16.6	X	189.19451	303.82396	41.61260	6.39347	0.2410456	0.26908608	2.3761575	20	2 27.2	20.7
358095	2006	<i>KG</i> <sub>9</sub>	17.6	X	291.11639	198.63595	58.65177	4.03200	0.1613547	0.27036516	2.3686573	20	2 12.5	20.7
358096	2006	<i>KN</i> <sub>19</sub>	17.8	X	328.70116	189.40822	43.94204	5.76119	0.1332029	0.27673847	2.3321493	20	3 7.7	20.3
358097	2006	<i>KQ</i> <sub>20</sub>	16.7	X	331.56180	97.11743	127.90678	22.57750	0.1883832	0.27323859	2.3525029	20	2 19.7	19.3
358098	2006	<i>KL</i> <sub>25</sub>	16.9	X	13.22773	332.39120	237.13746	5.96008	0.0740185	0.27878395	2.3207278	20	4 21.1	19.1
358099	2006	<i>KH</i> <sub>40</sub>	17.3	X	202.27741	151.37052	158.47658	3.12052	0.1840150	0.26005093	2.4308814	20	1 22.3	21.1
358100	2006	<i>KD</i> <sub>42</sub>	18.2	X	299.60449	178.12496	109.14666	0.99478	0.2861258	0.27486983	2.3427072	20	3 13.8	21.1
358101	2006	<i>KO</i> <sub>50</sub>	17.9	X	28.75507	357.07204	140.20377	1.82967	0.1310218	0.27047582	2.3680112	20	2 2.6	19.8
358102	2006	<i>KF</i> <sub>63</sub>	17.4	X	5.36454	121.82755	42.62698	6.11524	0.1382665	0.27302158	2.3532680	20	1 30.3	19.7
358103	2006	<i>KL</i> <sub>81</sub>	17.6	X	322.12116	120.33753	135.16487	2.74560	0.1832859	0.27544208	2.3394613	20	3 18.8	20.0
358104	2006	<i>KR</i> <sub>86</sub>	17.3	X	305.90640	126.85386	127.20067	22.90241	0.2261316	0.27138026	2.3627470	20	2 16.6	20.4
358105	2006	<i>KT</i> <sub>90</sub>	17.4	X	352.62168	70.94550	97.22139	5.25503	0.0868518	0.26731846	2.3866208	20	1 12.0	19.9
358106	2006	<i>KA</i> <sub>97</sub>	17.2	X	210.45562	114.55492	163.31832	5.98740	0.1376939	0.25115015	2.4879811	20	—	—
358107	2006	<i>KH</i> <sub>106</sub>	17.5	X	341.98766	313.25176	139.29883	4.56378	0.1680788	0.27383204	2.3486224	20	1 21.2	20.1
358108	2006	<i>KF</i> <sub>115</sub>	17.8	X	299.29036	38.94733	292.05566	3.50176	0.1571324	0.26837135	2.3803745	20	1 17.3	21.0
358109	2006	<i>KZ</i> <sub>123</sub>	16.0	X	240.95777	295.43467	30.19004	21.89183	0.3194280	0.26277435	2.4140563	20	3 17.6	20.6
358110	2006	<i>OF</i>	17.6	X	309.79174	96.50292	168.27021	3.96882	0.1912043	0.27002696	2.3706347	20	3 11.3	20.5
358111	2006	<i>OV</i> <sub>6</sub>	17.0	X	329.49490	105.88999	271.45570	1.78628	0.0944859	0.22056366	2.7129809	20	10 7.3	20.2
358112	2006	<i>OH</i> <sub>13</sub>	16.7	X	0.68050	48.08751	314.14009	7.03905	0.2890588	0.21744894	2.7388265	20	12 3.3	19.5
358113	2006	<i>OP</i> <sub>20</sub>	16.8	X	84.37191	348.44646	353.04641	13.67759	0.1857362	0.23356283	2.6113609	20	—	—
358114	2006	<i>PM</i> <sub>4</sub>	16.2	X	126.83205	349.22425	346.94639	11.93503	0.0711169	0.24223854	2.5486325	20	—	—
358115	2006	<i>PO</i> <sub>11</sub>	16.3	X	80.56040	187.50265	145.13057	13.95899	0.1565909	0.23099094	2.6307086	20	—	—
358116	2006	<i>PZ</i> <sub>12</sub>	17.1	X	4.41333	74.57013	308.62096	10.37550	0.1946267	0.22436616	2.6822411	20	12 27.2	20.2
358117	2006	<i>PC</i> <sub>15</sub>	17.7	X	251.25572	61.82849	144.76261	24.04877	0.0707384	0.38557719	1.8695130	20	—	—
358118	2006	<i>PF</i> <sub>19</sub>	16.7	X	31.35742	40.52322	31.33728	4.90531	0.2614475	0.22359141	2.6884335	20	—	—
358119	2006	<i>PN</i> <sub>20</sub>	16.3	X	119.88832	5.83349	310.46335	13.44500	0.0934340	0.23962600	2.5671235	20	—	—
358120	2006	<i>PK</i> <sub>25</sub>	16.9	X	152.94289	336.80623	323.12927	13.43673	0.1034883	0.24044982	2.5612565	20	—	—
358121	2006	<i>PD</i> <sub>26</sub>	17.0	X	222.99783	234.12338	83.70580	2.37761	0.1903880	0.25898362	2.4375555	20	2 19.8	21.1
358122	2006	<i>PQ</i> <sub>29</sub>	17.5	X	141.35153	342.13772	345.13427	2.52869	0.1425808	0.24397533	2.5365228	20	—	—
358123	2006	<i>PD</i> <sub>36</sub>	17.1	X	218.11602	184.29214	119.61622	5.10934	0.1712724	0.25562237	2.4588771	20	1 29.8	21.1
358124	2006	<i>PE</i> <sub>41</sub>	16.4	X	328.71384	217.83768	143.30701	13.03965	0.1541887	0.21472593	2.7619325	20	9 13.8	19.3
358125	2006	<i>QT</i> <sub>20</sub>	16.5	X	88.31435	354.23351	320.36956	4.69482	0.3523676	0.22920795	2.6443337	20	—	—
358126	2006	<i>QB</i> <sub>32</sub>	16.6	X	94.29788	162.72768	176.35827	18.60994	0.2593167	0.23243531	2.6197991	20	—	—
358127	2006	<i>QS</i> <sub>32</sub>	16.5	X	348.49232	54.38657	317.75008	13.41108	0.1711786	0.21718965	2.7410058	20	10 31.5	19.7
358128	2006	<i>QM</i> <sub>53</sub>	16.2	X	74.98198	150.36725	175.71749	13.46787	0.1650521	0.22575445	2.6712334	20	—	—
358129	2006	<i>QJ</i> <sub>54</sub>	16.1	X	164.32457	267.44950	57.17954	12.88266	0.1253988	0.24612547	2.5217286	20	1 4.2	20.0
358130	2006	<i>QP</i> <sub>83</sub>	17.0	X	59.21709	70.48108	308.96890	1.51612	0.1211510	0.23332996	2.6130981	20	—	—
358131	2006	<i>QQ</i> <sub>111</sub>	17.0	X	135.84684	53.39245	278.13894	6.53536	0.1561736	0.23991400	2.5650686	20	—	—
358132	2006	<i>QC</i> <sub>121</sub>	16.1	X	315.88860	102.48332	276.30477	6.30152	0.2386891	0.21061575	2.7977494	20	8 28.7	18.9
358133	2006	<i>QN</i> <sub>121</sub>	16.6	X	49.06890	166.81755	184.21292	14.83479	0.1107689	0.22621923	2.6675733	20	12 31.5	20.6
358134	2006	<i>QK</i> <sub>126</sub>	16.5	X	72.71121	350.92087	3.12535	15.83590	0.1942383	0.23089012	2.6314744	20	—	—
358135	2006	<i>QC</i> <sub>131</sub>	16.6	X	7.56309	293.45283	53.53926	8.78626	0.2223772	0.21664928	2.7455617	20	11 14.7	19.6
358136	2006	<i>QP</i> <sub>133</sub>	17.1	X	125.80921	156.52779	174.76390	13.24822	0.1260376	0.23885318	2.5726578	20	—	—
358137	2006	<i>QV</i> <sub>133</sub>	16.6	X	170.96781	313.56832	320.25414	16.65158	0.1862331	0.23939480	2.5687761	20	—	—
358138	2006	<i>QP</i> <sub>142</sub>	17.1	X	33.86430	70.03480	295.07467	16.59991	0.1053234	0.36921086	1.9243604	20	—	—
358139	2006	<i>QZ</i> <sub>145</sub>	17.2	X	355.59744	25.55142	358.10035	5.79151	0.1169574	0.22031440	2.7150268	20	11 29.3	20.4
358140	2006	<i>QA</i> <sub>148</sub>	16.8	X	37.78607	183.95033	158.68467	6.18609	0.0597261	0.22068396	2.7119949	20	11 30.8	20.5
358141	2006	<i>QZ</i> <sub>179</sub>	16.7	X	86.75300	357.90502	351.46747	4.82269	0.1348573	0.23356124	2.6113728	20	—	—
358142	2006	<i>QK</i> <sub>182</sub>	17.4	X	227.69914	69.19240	157.85090	6.85596	0.1631951	0.23735321	2.5834852	20	—	—
358143	2006	<i>QZ</i> <sub>183</sub>	16.9	X	276.27406	48.59885	12.21494	6.76254	0.0856573	0.20977428	2.8052262	20	9 14.2	20.5
358144	2006	<i>QH</i> <sub>185</sub>	17.2	X	345.42403	201.76001	173.63928	4.69337	0.1309235	0.21530020	2.7570190	20	11 3.6	20.2
358145	2006	<i>RU</i> <sub>8</sub>	16.2	X	61.92232	212.21233	181.10027	21.76627	0.0313573	0.23533637	2.5982246	20	—	—
358146	2006	<i>RA</i> <sub>13</sub>	16.6	X	21.15277	172.19667	198.01069	12.30317	0.1851969	0.22446040	2.6814903	20	12 30.9	20.3
358147	2006	<i>RB</i> <sub>17</sub>	16.7	X	83.83645	0.71184	320.75935	14.11770	0.2563969	0.22752919	2.6573248	20	—	—
358148	2006	<i>RJ</i> <sub>40</sub>	16.5	X	52.39379	330.33245	23.12144	6.99518	0.1603340	0.22529639	2.6748528	20	—	—
358149	2006	<i>RO</i> <sub>43</sub>	17.1	X	73.84472	271.28876	28.219							

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>
358161 2006 RR <sub>90</sub>	16.9 <sup>m</sup>	X	73.46736	289.68764	25.13033	2.12201	0.0717991	0.22037649	2.7145169	20	12 9.6	20.6
358162 2006 RZ <sub>92</sub>	16.9	X	359.58626	184.89181	194.93225	5.55276	0.0566992	0.21773445	2.7364318	20	11 25.3	20.4
358163 2006 RY <sub>93</sub>	17.1	X	233.53425	306.74554	293.25606	2.24052	0.1263864	0.23734628	2.5835355	20	—	—
358164 2006 RN <sub>95</sub>	15.8	X	54.20905	305.75257	11.44106	14.05752	0.0754637	0.21598751	2.7511671	20	11 15.0	19.8
358165 2006 RX <sub>103</sub>	16.7	X	284.42661	259.24552	164.63926	5.31285	0.1469194	0.21028786	2.8006569	20	9 20.4	19.9
358166 2006 RW <sub>112</sub>	17.2	X	164.86996	7.67124	156.61574	1.71840	0.1616597	0.20552917	2.8437215	20	9 11.5	21.8
358167 2006 RK <sub>119</sub>	17.2	X	226.32843	135.12389	1.35555	1.75450	0.0770202	0.21285223	2.7781173	20	10 16.9	21.2
358168 2006 SS <sub>12</sub>	17.5	X	184.18840	93.89094	189.28407	20.31012	0.0548360	0.38198190	1.8812255	20	—	—
358169 2006 SD <sub>14</sub>	17.9	X	76.44414	196.28890	188.04590	21.71317	0.1045410	0.37751253	1.8960443	20	—	—
358170 2006 SH <sub>37</sub>	17.0	X	265.48789	213.40647	254.56618	3.25963	0.0214088	0.21507939	2.7589057	20	11 7.7	20.5
358171 2006 SO <sub>41</sub>	17.5	X	178.91762	252.23290	55.36671	2.53951	0.1629262	0.24303340	2.5430725	20	—	—
358172 2006 SL <sub>56</sub>	17.0	X	95.78962	316.66797	30.42796	22.43200	0.0862243	0.37526203	1.9036172	20	—	—
358173 2006 SL <sub>57</sub>	17.3	X	1.41144	156.16069	201.92608	4.95312	0.0795428	0.21250650	2.7811297	20	10 31.3	20.6
358174 2006 SE <sub>57</sub>	15.9	X	67.71097	341.93583	326.64323	13.30911	0.2467841	0.22252725	2.6969977	20	12 15.2	20.4
358175 2006 SD <sub>62</sub>	17.7	X	161.82777	134.38622	175.74730	23.02048	0.0443069	0.38196361	1.8812856	20	—	—
358176 2006 SA <sub>68</sub>	16.7	X	306.42590	13.62001	27.57152	5.33723	0.1592075	0.21048264	2.7989289	20	9 25.9	19.8
358177 2006 SA <sub>68</sub>	16.9	X	314.88675	122.28635	8.40308	4.87803	0.0878965	0.23084507	2.6318168	20	—	—
358178 2006 SQ <sub>69</sub>	17.4	X	164.00837	104.04201	184.84182	8.29557	0.2131502	0.23821287	2.5772659	20	—	—
358179 2006 SZ <sub>77</sub>	16.7	X	267.93069	56.08710	39.76832	13.03591	0.0768477	0.21254247	2.7808159	20	10 20.8	20.2
358180 2006 ST <sub>78</sub>	16.1	X	67.57746	357.50868	325.98068	13.91800	0.2170275	0.22393911	2.6856500	20	—	—
358181 2006 SX <sub>90</sub>	16.7	X	201.49232	319.16023	39.31282	0.99974	0.1891855	0.18317613	3.0706015	20	3 25.7	21.8
358182 2006 SO <sub>81</sub>	16.8	X	30.76881	121.32953	188.55289	2.88425	0.0602792	0.21123566	2.7922731	20	10 7.3	20.5
358183 2006 SE <sub>82</sub>	17.4	X	283.52812	244.51543	174.78743	4.22999	0.0929634	0.20870686	2.8147829	20	9 19.9	20.8
358184 2006 SU <sub>85</sub>	16.4	X	63.12020	333.43395	219.64298	1.04453	0.0792153	0.19176499	2.9782181	20	6 19.8	20.5
358185 2006 SF <sub>89</sub>	16.8	X	176.23916	213.49287	21.47434	7.86271	0.1504847	0.22557900	2.6726183	20	12 17.9	21.1
358186 2006 ST <sub>89</sub>	16.8	X	285.71861	96.59730	3.65419	2.53689	0.0310270	0.21658712	2.7460870	20	11 23.8	20.4
358187 2006 SR <sub>95</sub>	16.7	X	255.22008	204.83928	193.02756	6.13128	0.1095443	0.19696478	2.9255689	20	7 10.1	20.9
358188 2006 SN <sub>96</sub>	17.2	X	250.68963	221.44844	36.91379	4.12812	0.1617268	0.24452878	2.5326940	20	1 5.8	21.2
358189 2006 SU <sub>97</sub>	16.3	X	101.94770	281.53909	21.67232	14.70633	0.1281485	0.22369145	2.6876319	20	12 31.9	20.8
358190 2006 SA <sub>99</sub>	16.6	X	177.16919	40.41316	202.32853	12.48949	0.1050255	0.22562181	2.6722802	20	12 30.7	20.8
358191 2006 SE <sub>99</sub>	16.7	X	349.07368	357.81428	21.31491	5.77647	0.0822557	0.21387048	2.7692924	20	11 8.2	20.0
358192 2006 SJ <sub>103</sub>	16.9	X	124.31934	279.14597	352.95259	1.27978	0.1329233	0.22494930	2.6776036	20	12 15.3	21.2
358193 2006 SH <sub>104</sub>	17.2	X	295.25554	55.87690	18.19575	5.09603	0.0910425	0.21458424	2.7631481	20	10 27.9	20.7
358194 2006 ST <sub>104</sub>	17.2	X	0.46526	176.51404	174.31774	4.75097	0.0800735	0.21317434	2.7753181	20	10 21.1	20.5
358195 2006 SL <sub>109</sub>	16.8	X	136.26573	140.25071	144.36315	2.24639	0.1084925	0.22598885	2.6693860	20	—	—
358196 2006 SP <sub>112</sub>	17.0	X	28.37999	150.45181	180.88682	4.83779	0.1193219	0.21791669	2.7349059	20	11 11.8	20.4
358197 2006 SB <sub>114</sub>	17.3	X	155.33946	218.28660	44.81724	2.34104	0.1138556	0.22912419	2.6449781	20	—	—
358198 2006 SO <sub>132</sub>	16.6	X	111.18777	160.27343	166.23531	14.58851	0.2666901	0.23207756	2.6224906	20	—	—
358199 2006 SO <sub>139</sub>	15.9	X	319.70469	32.49601	60.02003	13.06535	0.1683717	0.22032753	2.7149190	20	—	—
358200 2006 SF <sub>148</sub>	17.6	X	132.30378	293.42927	32.40484	3.27614	0.1812461	0.23687498	2.5869612	20	—	—
358201 2006 SO <sub>153</sub>	16.3	X	22.24061	220.80848	129.90241	14.30546	0.1619469	0.22016293	2.7162720	20	12 6.9	20.0
358202 2006 SL <sub>156</sub>	17.3	X	164.55186	107.06276	167.22670	4.35172	0.0840284	0.23428743	2.6059739	20	—	—
358203 2006 SV <sub>160</sub>	17.1	X	125.81369	156.60962	176.51889	6.00560	0.1652084	0.23466701	2.6031630	20	—	—
358204 2006 SK <sub>165</sub>	16.7	X	198.65140	251.92680	272.02522	3.63606	0.0285594	0.21598188	2.7512149	20	10 23.7	20.6
358205 2006 SJ <sub>173</sub>	16.4	X	1.36131	26.18899	351.29370	5.93931	0.0436484	0.21890062	2.7267044	20	11 21.1	20.0
358206 2006 SS <sub>184</sub>	16.9	X	74.03229	153.70250	196.43301	5.77264	0.0762220	0.22618758	2.6678222	20	—	—
358207 2006 SP <sub>188</sub>	17.0	X	6.46857	200.68780	161.29461	4.04003	0.0469682	0.21647670	2.7470207	20	11 10.9	20.5
358208 2006 SF <sub>189</sub>	17.0	X	240.40133	148.25288	73.13403	3.43125	0.1403698	0.23669532	2.5882702	20	—	—
358209 2006 SM <sub>189</sub>	17.2	X	142.13343	166.39128	118.65278	3.11550	0.1072082	0.23028670	2.6360692	20	—	—
358210 2006 SJ <sub>192</sub>	17.0	X	250.07869	72.97561	59.66267	4.09736	0.1169939	0.21669133	2.7452066	20	11 6.6	20.7
358211 2006 SL <sub>199</sub>	17.4	X	140.28109	113.25968	196.40113	3.00194	0.1434559	0.23501586	2.6005863	20	—	—
358212 2006 SK <sub>200</sub>	17.2	X	176.75444	36.67330	209.74350	2.84639	0.0441481	0.22504694	2.6768291	20	—	—
358213 2006 SL <sub>206</sub>	16.9	X	197.15746	269.68205	20.85357	12.76761	0.1715602	0.24176976	2.5519260	20	—	—
358214 2006 SB <sub>207</sub>	17.0	X	123.98809	15.24653	289.99717	2.99355	0.1870587	0.22976929	2.6400251	20	—	—
358215 2006 SM <sub>208</sub>	16.5	X	358.16683	237.20998	168.59051	8.43928	0.0934871	0.22301746	2.6930442	20	12 31.3	19.9
358216 2006 SR <sub>212</sub>	16.0	X	93.80554	249.60560	69.35079	15.24764	0.0763317	0.22447959	2.6813375	20	—	—
358217 2006 SY <sub>213</sub>	15.5	X	123.56519	114.78433	298.37967	10.58746	0.0838644	0.17809463	3.1287354	20	3 6.7	20.2
358218 2006 SK <sub>225</sub>	17.5	X	192.55068	272.74685	8.46688	5.04375	0.1465324	0.24291807	2.5438773	20	—	—
358219 2006 SH <sub>228</sub>	16.9	X	311.00910	193.01007	227.06696	5.14668	0.0290100	0.21648708	2.7469330	20	11 7.1	20.2
358220 2006 SM <sub>229</sub>	16.8	X	318.91105	93.22508	285.63322	2.87737	0.1107749	0.20954957	2.8072313	20	9 17.8	20.2
358221 2006 ST <sub>230</sub>	17.0	X	35.78634	9.43752	338.48071	4.27095	0.1233155	0.22026551	2.7154286	20	12 12.5	20.7
358222 2006 SA <sub>234</sub>	16.9	X	286.97643	61.05787	309.77877	3.87319	0.0471012	0.20202648	2.8764965	20	7 27.5	20.8
358223 2006 SZ <sub>243</sub>	16.7	X	40.87580	164.74389	168.87604	6.70353	0.0512813	0.21810487	2.7333326	20	11 21.9	20.4
358224 2006 SO <sub>244</sub>	16.3	X	0.59943	9.69786	17.49168	14.05394	0.0899521	0.21947352	2.7219572	20	12 6.8	20.0
358225 2006 SD <sub>255</sub>	16.9	X	335.78008	291.15650	109.12014	5.21216	0.2290399	0.21607393	2.7504334	20	11 26.9	19.4
358226 2006 SM <sub>257</sub>	17.0	X	251.56332	77.42048	12.80912	15.04792	0.2309529	0.20416207	2.8564021	20	9 2.4	21.3
358227 2006 SA <sub>258</sub>	16.6	X	306.05364	67.79088	12.87818	6.72236	0.0277595	0.21736927	2.7394957	20	11 25.6	20.3
358228 2006 SL <sub>262</sub>	16.7	X	69.51473	119.53066	193.62909	6.33633	0.0982134	0.21718123	2.7410767	20	12 6.3	20.7
358229 2006 SC <sub>265</sub>	16.7	X	263.43898	80.67662	316.18909	4.75720	0.1543194	0.19804904	2.9148814	20	7 14.2	20.8
358230 2006 SX <sub>278</sub>	16.7	X	131.61673	274.19299	24.15352	12.92854	0.1497881	0.23122655	2.6289213	20	—	—
358231 2006 SM <sub>290</sub>	17.1	X	267.66004	78.79784	333.46329	0.62380	0.1133499	0.20232169	2.8736977	20	8 15.0	21.0
358232 2006 SE <sub>293</sub>	17.1	X	282.01065	137.29320	282.67620	3.04602	0.0925717	0.21036705	2.7999540	20	9 17.1	20.8
358233 2006 SK <sub>302</sub>	16.6	X	39.82671	119.89167	221.62229	5.36504	0.0298456	0.22009855	2.7168016	20	11 26.7	20.3
358234 2006 SO <sub>310</sub>	16.9	X	218.99019	333.33994	239.67808	3.35332						

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>
358241 2006 SQ <sub>337</sub>	17.5	X	270.82984	334.55618	124.73619	4.68253	0.0560663	0.21436880	2.7649991	20	11 1.6	21.1
358242 2006 SU <sub>341</sub>	16.7	X	53.57419	345.12028	1.63098	12.36277	0.1635829	0.22231400	2.6987222	20	—	—
358243 2006 SO <sub>343</sub>	16.6	X	318.46798	75.66834	342.23128	3.81200	0.1479978	0.21372783	2.7705245	20	11 9.9	19.5
358244 2006 SJ <sub>362</sub>	15.9	X	126.23084	239.22319	44.89556	13.13161	0.1832758	0.22324388	2.6912229	20	12 31.6	20.6
358245 2006 SA <sub>366</sub>	16.9	X	136.79042	246.64625	47.28438	3.17605	0.0549911	0.22508557	2.6765228	20	—	—
358246 2006 SS <sub>381</sub>	17.1	X	32.36694	204.39805	149.41562	6.56048	0.0555239	0.21946307	2.7220436	20	12 6.8	20.9
358247 2006 SD <sub>408</sub>	17.0	X	32.45257	116.55011	222.61681	4.02751	0.0839176	0.21336747	2.7736431	20	11 20.3	20.5
358248 2006 SF <sub>413</sub>	17.7	X	217.78534	24.63221	192.28451	22.97255	0.0257863	0.37160576	1.9160835	20	—	—
358249 2006 TZ <sub>5</sub>	16.2	X	113.37796	332.41551	3.68554	7.54001	0.1966858	0.23182663	2.6243827	20	—	—
358250 2006 TU <sub>10</sub>	16.9	X	113.24049	307.99490	15.20609	4.19770	0.2165940	0.23002865	2.6380403	20	—	—
358251 2006 TH <sub>21</sub>	16.6	X	343.05791	177.42937	209.09055	9.73941	0.1384169	0.21215297	2.7842185	20	11 13.9	19.7
358252 2006 TD <sub>24</sub>	18.0	X	21.42187	46.89689	11.26042	20.59399	0.1223625	0.37435870	1.9066783	20	—	—
358253 2006 TO <sub>28</sub>	16.1	X	167.87556	186.11230	43.94294	12.56977	0.0962517	0.21821415	2.7324200	20	12 4.7	20.4
358254 2006 TM <sub>33</sub>	17.0	X	22.56895	336.90978	33.49399	3.68810	0.0819376	0.21800276	2.7341860	20	12 17.2	20.5
358255 2006 TN <sub>33</sub>	17.3	X	205.18243	205.32889	208.65691	5.02482	0.2657736	0.18816359	3.0160994	20	5 30.9	22.7
358256 2006 TX <sub>33</sub>	16.7	X	83.29319	73.56036	205.14223	4.88237	0.0439558	0.21201145	2.7854573	20	11 1.8	20.5
358257 2006 TW <sub>34</sub>	16.9	X	169.37742	202.65289	15.66459	3.88172	0.0412327	0.21510841	2.7586575	20	11 25.5	20.9
358258 2006 TL <sub>36</sub>	15.8	X	103.06443	258.44370	223.18206	23.15083	0.1669655	0.17776230	3.1326336	20	5 21.8	20.5
358259 2006 TN <sub>40</sub>	16.8	X	318.75633	28.54481	33.60615	4.73435	0.0537640	0.21319691	2.7751222	20	11 18.6	20.2
358260 2006 TC <sub>45</sub>	16.7	X	327.45874	10.01156	53.99683	7.41580	0.0159357	0.21456527	2.7633110	20	12 3.2	20.4
358261 2006 TV <sub>45</sub>	16.9	X	281.29311	211.47555	182.78916	2.20101	0.0613368	0.19952684	2.9004708	20	8 16.9	20.8
358262 2006 TZ <sub>53</sub>	16.7	X	145.67351	137.39100	156.49370	2.10708	0.1286562	0.22671710	2.6636666	20	—	—
358263 2006 TX <sub>60</sub>	16.7	X	184.05193	122.78257	81.76984	4.02328	0.0344868	0.21505750	2.7590929	20	11 27.0	20.4
358264 2006 TO <sub>71</sub>	16.4	X	59.53083	133.06094	213.78192	7.93245	0.0543611	0.22201310	2.7011600	20	12 30.4	20.2
358265 2006 TR <sub>91</sub>	16.3	X	192.73850	224.82698	41.29526	15.47422	0.0857368	0.22930191	2.6436113	20	—	—
358266 2006 TU <sub>97</sub>	16.4	X	181.77173	259.36120	35.46353	15.61125	0.1398783	0.23446608	2.6046500	20	—	—
358267 2006 TZ <sub>101</sub>	16.7	X	134.08550	71.64455	219.06699	8.39763	0.0667627	0.22444086	2.6816459	20	—	—
358268 2006 TW <sub>106</sub>	16.4	X	48.25304	301.70532	51.66351	7.42688	0.0361785	0.22076936	2.7112955	20	12 22.6	20.1
358269 2006 TL <sub>109</sub>	16.4	X	130.76811	215.62812	33.85641	9.01141	0.0549279	0.21483284	2.7610161	20	11 19.6	20.4
358270 2006 TZ <sub>110</sub>	17.0	X	334.64416	249.27965	134.40578	5.63647	0.0797723	0.21256384	2.7806295	20	10 26.1	20.4
358271 2006 TF <sub>120</sub>	17.8	X	270.29754	322.30888	145.53675	6.80962	0.0077313	0.21622927	2.7491159	20	11 18.3	21.6
358272 2006 TG <sub>121</sub>	16.5	X	130.36766	355.16057	138.16811	12.98431	0.2241724	0.18289907	3.0737017	20	7 6.5	21.7
358273 2006 TR <sub>123</sub>	16.7	X	160.15893	81.34482	51.74617	8.44429	0.0307175	0.19692507	2.9259622	20	7 30.7	21.0
358274 2006 UD <sub>4</sub>	17.0	X	45.20064	159.54178	170.78162	4.29335	0.1037324	0.21255998	2.7806631	20	11 28.8	20.7
358275 2006 UY <sub>13</sub>	16.1	X	129.00999	226.30863	55.32015	10.83525	0.1060959	0.22083229	2.7107804	20	12 29.9	20.4
358276 2006 UX <sub>16</sub>	17.2	X	352.86699	141.37956	210.80876	1.46888	0.1091675	0.21047522	2.7989946	20	10 11.2	20.3
358277 2006 UK <sub>21</sub>	16.9	X	36.83768	334.82717	340.24639	2.32671	0.0770404	0.21167007	2.7884514	20	10 23.8	20.6
358278 2006 UO <sub>31</sub>	17.1	X	253.14940	119.78538	29.42831	2.96761	0.0183727	0.21841962	2.7307060	20	12 15.5	20.8
358279 2006 UX <sub>33</sub>	16.7	X	130.22094	59.50987	208.71606	12.06445	0.0408188	0.21875310	2.7279301	20	12 13.8	20.8
358280 2006 UN <sub>38</sub>	16.7	X	266.11173	34.43204	33.10675	2.39427	0.0461678	0.20334605	2.8640387	20	9 13.3	20.5
358281 2006 UK <sub>40</sub>	16.7	X	187.54758	176.53973	42.10129	5.61528	0.0980107	0.21959568	2.7209477	20	12 12.6	20.8
358282 2006 UQ <sub>41</sub>	16.8	X	73.25556	91.87922	225.84469	1.63675	0.0653202	0.21618895	2.7494577	20	12 11.5	20.6
358283 2006 UU <sub>41</sub>	17.1	X	82.91423	125.81609	185.84077	0.36923	0.1884784	0.21962817	2.7206793	20	12 26.7	21.5
358284 2006 US <sub>44</sub>	16.3	X	105.85196	219.86815	48.33553	12.21620	0.0532844	0.21157799	2.7892604	20	11 15.1	20.4
358285 2006 UC <sub>47</sub>	17.3	X	309.24896	220.69907	167.54800	2.14114	0.0723035	0.20392469	2.8586183	20	9 18.7	20.6
358286 2006 UD <sub>49</sub>	16.6	X	46.64302	52.41031	299.86904	5.34162	0.0218289	0.22383981	2.6864442	20	12 18.3	20.1
358287 2006 UE <sub>61</sub>	17.0	X	184.97571	299.90291	9.59417	4.54053	0.2848022	0.24169272	2.5524682	20	1 14.8	21.5
358288 2006 UT <sub>65</sub>	16.4	X	48.72085	278.24824	95.16558	2.11329	0.0709462	0.22627660	2.6671224	20	—	—
358289 2006 UM <sub>71</sub>	16.8	X	60.18253	270.41523	60.96298	4.32303	0.1011835	0.21948512	2.7218613	20	12 18.2	20.5
358290 2006 US <sub>86</sub>	16.3	X	94.20676	257.72306	42.75181	10.28869	0.0549071	0.21581900	2.7525989	20	12 11.8	20.3
358291 2006 UZ <sub>87</sub>	16.8	X	49.71107	341.29555	336.03865	3.17755	0.0793131	0.21210731	2.7846180	20	11 12.6	20.6
358292 2006 UW <sub>94</sub>	16.6	X	95.85561	243.38704	67.41040	5.89808	0.1076184	0.22176981	2.7031352	20	—	—
358293 2006 UE <sub>96</sub>	17.1	X	235.00730	336.76443	117.16574	2.99592	0.1977171	0.20042118	2.8918358	20	8 18.7	21.6
358294 2006 UP <sub>96</sub>	16.6	X	64.11118	294.17159	58.42615	7.03748	0.0416746	0.22255899	2.6967413	20	—	—
358295 2006 UG <sub>101</sub>	16.8	X	100.96075	160.62576	173.59604	6.26501	0.0608824	0.22591590	2.6699606	20	—	—
358296 2006 UF <sub>102</sub>	16.9	X	62.41846	152.65146	176.90889	5.84318	0.0208364	0.21674077	2.7447890	20	12 8.2	20.7
358297 2006 UA <sub>110</sub>	16.7	X	168.11189	359.20945	275.72537	5.95935	0.1139839	0.23504331	2.6003838	20	—	—
358298 2006 UT <sub>117</sub>	17.0	X	310.88185	359.85353	44.11519	2.14860	0.0383557	0.21010282	2.8023011	20	10 15.7	20.7
358299 2006 UK <sub>125</sub>	17.1	X	107.76869	297.78665	327.55250	3.37552	0.0304927	0.21376374	2.7702142	20	11 11.6	21.0
358300 2006 UL <sub>127</sub>	15.8	X	257.35821	113.72367	27.94523	13.99182	0.1602577	0.21427050	2.7658447	20	11 17.3	19.4
358301 2006 US <sub>150</sub>	16.8	X	209.73112	194.65347	0.75620	9.14064	0.0947718	0.21931794	2.7232444	20	12 7.9	20.8
358302 2006 UZ <sub>160</sub>	16.9	X	169.00264	126.97779	149.41036	2.80450	0.1027646	0.23113394	2.6296234	20	—	—
358303 2006 UJ <sub>162</sub>	16.8	X	304.12620	295.57313	115.90460	2.97832	0.1065807	0.20993622	2.8037835	20	10 11.5	20.0
358304 2006 UW <sub>165</sub>	17.1	X	26.94496	198.44972	151.09377	4.31791	0.1148115	0.21601737	2.7509135	20	12 1.8	20.7
358305 2006 UC <sub>172</sub>	15.3	X	198.15669	223.90622	231.72735	18.75946	0.1038191	0.19033572	2.9931088	20	7 15.8	20.3
358306 2006 UA <sub>183</sub>	16.6	X	329.67250	54.74927	325.55500	7.99726	0.1617218	0.21212974	2.7844217	20	10 6.1	19.6
358307 2006 US <sub>185</sub>	16.7	X	48.17809	245.54355	118.15279	6.63411	0.0974763	0.22292826	2.6937625	20	—	—
358308 2006 UO <sub>226</sub>	16.9	X	13.06213	296.39934	63.74628	4.26663	0.2031009	0.21637439	2.7478867	20	12 7.9	19.9
358309 2006 UK <sub>229</sub>	16.2	X	211.32768	196.35351	208.13381	6.30689	0.3283444	0.18622807	3.0369615	20	5 22.0	21.7
358310 2006 UV <sub>240</sub>	16.9	X	175.98817	27.64463	69.43118	14.20618	0.2964027	0.18375704	3.0641268	20	6 29.0	22.6
358311 2006 UG <sub>255</sub>	15.3	X	178.68186	172.41441	240.17948	16.44349	0.2063140	0.18155152	3.0888924	20	5 9.0	20.6
358312 2006 UQ <sub>266</sub>	16.8	X	135.81577	345.60100	109.69273	2.37558	0.1432596	0.18085682	3.0967974	20	5 21.0	21.5
358313 2006 UG <sub>268</sub>	17.2	X	302.24039	175.06186	211.22354	1.30066	0.1028236	0.20313511	2.8660211	20	9 1.1	20.6
358314 2006 UW <sub>26</sub>												

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>
358321 2006 UY <sub>345</sub>	17.3	X	297.81906	173.88763	221.96528	1.29962	0.0709403	0.20290584	2.8681797	20	9 10.9	20.9
358322 2006 UX <sub>360</sub>	15.8	X	204.60688	309.15379	118.22087	12.61026	0.0506686	0.17660613	3.1462908	20	6 25.6	20.5
358323 2006 UZ <sub>360</sub>	16.1	X	170.57520	258.11578	193.03544	15.49199	0.2383485	0.18556010	3.0442453	20	6 18.1	21.7
358324 2006 VT <sub>6</sub>	16.4	X	214.42282	148.14862	244.72425	6.06119	0.2500884	0.18568786	3.0428488	20	5 12.6	21.6
358325 2006 VL <sub>16</sub>	16.8	X	45.31609	309.40091	38.62604	7.13289	0.1380978	0.21688781	2.7435484	20	12 25.8	20.7
358326 2006 VH <sub>20</sub>	16.6	X	240.87827	145.71728	252.03163	1.27934	0.1326435	0.19111571	2.9849596	20	6 21.1	20.9
358327 2006 VA <sub>24</sub>	17.3	X	184.55337	340.56531	113.08436	1.72281	0.2100193	0.18690566	3.0296171	20	7 2.4	22.4
358328 2006 VB <sub>29</sub>	16.3	X	150.73897	42.55858	52.06474	16.96151	0.3287677	0.17852945	3.1236532	20	6 8.5	22.1
358329 2006 VQ <sub>45</sub>	16.8	X	187.46348	87.35710	62.21263	3.18245	0.0506786	0.20132373	2.8831865	20	9 21.1	20.9
358330 2006 VK <sub>62</sub>	16.8	X	219.89890	169.15169	244.76416	4.81877	0.2337646	0.18844816	3.0130623	20	6 12.3	21.8
358331 2006 VF <sub>65</sub>	16.5	X	218.12153	49.91748	64.40388	14.42538	0.1092213	0.19823790	2.9130297	20	9 12.3	21.1
358332 2006 VT <sub>65</sub>	16.6	X	111.56271	277.93218	67.35583	5.77488	0.2786242	0.23132561	2.6281707	20	—	—
358333 2006 VY <sub>67</sub>	16.9	X	187.91528	337.93915	71.79002	2.64196	0.1577664	0.18103330	3.0947844	20	5 14.2	21.9
358334 2006 VL <sub>74</sub>	16.1	X	191.25455	17.35623	79.25761	10.04095	0.0991443	0.18802030	3.0176316	20	7 15.9	20.8
358335 2006 VH <sub>77</sub>	16.4	X	168.87324	135.39927	90.38564	4.95688	0.0717200	0.21390183	2.7690218	20	12 3.1	20.5
358336 2006 VQ <sub>79</sub>	16.6	X	204.75235	104.35143	102.39162	4.43483	0.0135990	0.21687408	2.7436641	20	12 27.2	20.1
358337 2006 VE <sub>81</sub>	15.9	X	220.63991	155.58217	232.30339	9.14685	0.0638208	0.18330502	3.0691619	20	5 24.1	20.3
358338 2006 VQ <sub>91</sub>	16.4	X	128.40867	222.75578	279.75916	2.84332	0.3123519	0.17575990	3.1563818	20	7 20.7	21.9
358339 2006 VM <sub>103</sub>	16.7	X	289.15332	279.16781	124.21498	2.78763	0.1569364	0.20038180	2.8922148	20	8 27.9	20.3
358340 2006 VZ <sub>105</sub>	16.7	X	148.34014	14.64051	254.65850	2.71379	0.1792780	0.22379007	2.6868423	20	—	—
358341 2006 VH <sub>112</sub>	16.4	X	136.03148	325.81317	9.20184	9.38275	0.3130653	0.23615272	2.5922333	20	1 11.0	20.7
358342 2006 VC <sub>115</sub>	16.9	X	191.33041	203.01739	32.32619	13.20405	0.1514745	0.22300843	2.6931168	20	—	—
358343 2006 VR <sub>135</sub>	16.3	X	90.74145	220.01286	325.16381	0.60957	0.0576441	0.18726713	3.0257173	20	7 12.6	20.4
358344 2006 VZ <sub>143</sub>	16.3	X	250.28738	54.30698	345.62635	9.76029	0.2505539	0.19461087	2.9491123	20	6 20.9	21.1
358345 2006 WE <sub>6</sub>	15.8	X	104.08617	271.38314	39.46424	16.33363	0.1029551	0.22507833	2.6765802	20	—	—
358346 2006 WR <sub>19</sub>	16.5	X	155.69766	344.99059	199.09831	9.11912	0.0654005	0.20269939	2.8701268	20	9 25.8	20.9
358347 2006 WZ <sub>38</sub>	17.2	X	161.13029	284.83827	170.04337	1.85549	0.1451407	0.18227249	3.0807417	20	6 13.4	22.1
358348 2006 WQ <sub>48</sub>	16.7	X	28.23058	294.24672	54.53896	6.79008	0.0843095	0.20987560	2.8043233	20	11 25.5	20.4
358349 2006 WS <sub>61</sub>	16.4	X	53.03700	302.12030	56.90831	7.00463	0.0477318	0.22013206	2.7165259	20	—	—
358350 2006 WE <sub>77</sub>	16.0	X	104.15715	278.20171	237.69181	15.26166	0.1941779	0.18110498	3.0939677	20	7 4.9	21.0
358351 2006 WX <sub>92</sub>	17.0	X	209.88899	286.70942	166.73436	2.00575	0.0611715	0.19358336	2.9595388	20	8 3.1	21.3
358352 2006 WV <sub>103</sub>	16.9	X	162.14855	31.44229	74.81630	3.18817	0.2178275	0.18238508	3.0794738	20	6 29.7	22.3
358353 2006 WZ <sub>103</sub>	16.9	X	214.55692	283.30102	151.32435	0.79603	0.1015929	0.18930726	3.0039396	20	7 12.1	21.3
358354 2006 WX <sub>109</sub>	16.8	X	285.71296	321.21618	113.36094	3.15402	0.0399662	0.20397589	2.8581399	20	10 20.4	20.5
358355 2006 WO <sub>111</sub>	17.1	X	220.93711	302.91947	119.63608	1.71298	0.1901394	0.18862752	3.0111520	20	6 26.6	22.0
358356 2006 WF <sub>116</sub>	16.9	X	18.83310	350.23719	9.80642	4.06774	0.1111492	0.21277314	2.7788057	20	12 1.0	20.4
358357 2006 WL <sub>123</sub>	16.3	X	93.36334	34.57872	125.67212	10.56160	0.0850919	0.17284635	3.1917527	20	6 17.9	21.0
358358 2006 WV <sub>143</sub>	16.7	X	215.57541	35.62455	99.72544	3.20806	0.0264572	0.20286415	2.8685726	20	10 9.4	20.6
358359 2006 WQ <sub>176</sub>	16.8	X	55.41783	196.49250	134.72375	7.05700	0.0486448	0.21298206	2.7769882	20	12 5.2	20.7
358360 2006 WM <sub>188</sub>	16.6	X	240.05834	358.69619	89.96592	3.12796	0.1024660	0.19831657	2.9122594	20	8 29.9	20.7
358361 2006 WF <sub>193</sub>	15.6	X	158.54798	227.81853	246.62686	10.35672	0.1859334	0.18259473	3.0771162	20	7 4.6	20.8
358362 2006 WX <sub>197</sub>	15.9	X	180.79351	194.44583	292.17150	9.84816	0.0196815	0.18907695	3.0063785	20	8 11.1	20.2
358363 2006 WK <sub>199</sub>	17.2	X	226.98354	215.40760	218.06466	0.51077	0.1281139	0.19193978	2.9764098	20	7 21.6	21.6
358364 2006 WL <sub>200</sub>	17.3	X	140.05963	57.79437	94.05271	3.00382	0.2220570	0.18523325	3.0478254	20	8 6.6	22.5
358365 2006 WL <sub>201</sub>	17.5	X	269.15765	116.26824	324.63465	16.34419	0.1414318	0.34446237	2.0154631	20	10 7.7	19.7
358366 2006 WW <sub>201</sub>	16.1	X	201.18458	313.20922	107.95890	4.52751	0.0876538	0.17560755	3.1582070	20	6 11.8	20.8
358367 2006 XT <sub>8</sub>	15.8	X	141.67323	0.94298	109.31033	15.71875	0.2911570	0.17791328	3.1308611	20	6 22.0	21.3
358368 2006 XW <sub>9</sub>	16.8	X	170.18729	76.29396	23.00250	1.16941	0.1884785	0.18099400	3.0952324	20	6 27.5	22.0
358369 2006 XE <sub>15</sub>	15.7	X	155.85708	352.32064	88.51695	18.62514	0.1679425	0.17700460	3.1415671	20	5 26.4	20.9
358370 2006 XC <sub>19</sub>	15.8	X	198.51012	349.91930	94.91435	12.10067	0.0959083	0.18407068	3.0606450	20	7 8.1	20.5
358371 2006 XM <sub>20</sub>	16.4	X	112.06230	230.92181	276.46982	8.53849	0.1738538	0.17542839	3.1603569	20	7 2.6	21.2
358372 2006 XN <sub>24</sub>	17.1	X	160.29118	196.97850	79.85760	23.36836	0.0501935	0.36868968	1.9261735	20	—	—
358373 2006 XL <sub>27</sub>	16.8	X	172.62245	41.17755	58.90026	3.22554	0.2856475	0.18175517	3.0865848	20	6 30.8	22.3
358374 2006 XS <sub>36</sub>	17.4	X	239.42501	41.59940	296.94156	2.84134	0.1602191	0.32054619	2.1145062	20	3 26.5	20.4
358375 2006 XE <sub>37</sub>	15.4	X	223.01093	248.85898	106.39375	20.19727	0.1489769	0.17312597	3.1883152	20	4 20.7	20.9
358376 Gwyn	15.4	X	75.18976	67.16086	156.86223	18.90946	0.0811198	0.17872866	3.1213316	20	8 13.6	19.9
358377 2006 XS <sub>69</sub>	16.3	X	172.68028	106.68677	60.51198	6.42942	0.0319569	0.19326480	2.9627900	20	9 27.5	20.6
358378 2006 XJ <sub>71</sub>	15.8	X	202.35442	159.35541	286.97897	8.43948	0.0771549	0.18359012	3.0659837	20	7 14.9	20.4
358379 2006 XY <sub>71</sub>	15.1	X	350.18686	333.53517	287.13262	11.04273	0.0239645	0.17637341	3.1490579	20	5 31.2	19.4
358380 2006 XZ <sub>72</sub>	16.3	X	65.19844	296.31744	292.99858	9.67889	0.1569662	0.18177253	3.0863882	20	8 17.2	20.7
358381 2006 XJ <sub>73</sub>	16.5	X	157.35541	0.66854	108.94167	3.85523	0.1213792	0.17922903	3.1155195	20	6 26.9	21.4
358382 2006 YZ <sub>10</sub>	16.0	X	176.56802	359.55265	108.83836	18.38994	0.2405496	0.18088542	3.0964710	20	7 13.4	21.3
358383 2006 YQ <sub>19</sub>	16.1	X	206.30041	117.01378	301.48704	7.51757	0.1651715	0.18030304	3.1031351	20	6 9.5	21.3
358384 2006 YT <sub>29</sub>	16.5	X	224.17778	105.65384	333.97045	4.48705	0.1187888	0.18736045	3.0247125	20	7 27.9	21.1
358385 2006 YK <sub>32</sub>	16.0	X	319.85429	14.19777	305.71744	16.19961	0.1503466	0.18323542	3.0699391	20	6 25.4	19.8
358386 2006 YE <sub>36</sub>	17.0	X	171.09876	96.19113	3.33368	4.16572	0.0809255	0.17897390	3.1184797	20	6 27.9	21.8
358387 2006 YP <sub>38</sub>	16.5	X	95.43790	224.02194	326.85483	4.32294	0.1190967	0.17889292	3.1194206	20	8 2.7	21.0
358388 2006 YJ <sub>42</sub>	15.6	X	93.95734	291.29338	102.12274	14.61837	0.1645960	0.18929488	3.0040706	20	9 20.5	20.5
358389 2006 YT <sub>42</sub>	15.8	X	116.91768	86.44482	91.77689	21.93800	0.2097589	0.18091082	3.0961811	20	8 22.9	21.2
358390 2006 YT <sub>45</sub>	16.9	X	213.59550	242.52805	201.85839	1.57101	0.0718670	0.19005775	2.9960265	20	7 25.6	21.3
358391 2006 YM <sub>51</sub>	16.8	X	178.61658	306.81930	137.14271	3.42383	0.0464190	0.17610538	3.1522523	20	6 16.5	21.5
358392 2007 AR <sub>7</sub>	16.1	X	113.00860	88.95230	124.56049	10.42445	0.0490051	0.18946195	3.0023043	20	9 16.5	20.5
358393 2007 AJ <sub>22</sub>	16.4	X	154.72639	36.18936	70.48605	7.86656	0.1269268	0.17669393	3.			

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
358401 2007 <i>BL</i> <sub>26</sub>	15.8	X	283.82991	14.49166	307.23932	10.92455	0.0611394	0.17314732	3.1880530	20	5 13.8	20.4
358402 2007 <i>BJ</i> <sub>35</sub>	16.1	X	242.59807	98.14766	304.63900	9.41137	0.1276074	0.18366492	3.0651512	20	6 30.5	20.6
358403 2007 <i>BR</i> <sub>40</sub>	17.3	X	134.01803	22.08519	133.79096	1.61052	0.1114611	0.18013942	3.1050139	20	7 30.3	21.9
358404 2007 <i>BX</i> <sub>43</sub>	15.3	X	206.81984	297.10430	142.73769	13.88417	0.1031702	0.17963636	3.1108080	20	7 9.6	20.3
358405 2007 <i>BO</i> <sub>54</sub>	16.5	X	249.62225	67.10031	318.28082	9.41134	0.1052641	0.17991253	3.1076238	20	6 18.6	21.2
358406 2007 <i>BM</i> <sub>58</sub>	15.9	X	82.59616	57.35667	137.42739	18.22544	0.1277421	0.17398371	3.1778276	20	7 23.4	20.5
358407 2007 <i>BJ</i> <sub>71</sub>	15.8	X	87.62958	52.15548	156.32817	9.94243	0.0270000	0.17815944	3.1279765	20	8 1.5	20.2
358408 2007 <i>BU</i> <sub>79</sub>	15.5	X	36.50154	304.41695	326.92748	11.33146	0.1157095	0.18093277	3.0959377	20	8 27.6	19.6
358409 2007 <i>CE</i> <sub>2</sub>	15.6	X	154.86434	164.05887	118.72411	13.46104	0.0714862	0.17624121	3.1506325	20	7 11.0	20.4
358410 2007 <i>CT</i> <sub>5</sub>	15.8	X	159.84661	73.96113	15.43518	24.63413	0.3040153	0.17538215	3.1609124	20	6 3.7	21.9
358411 2007 <i>CA</i> <sub>7</sub>	16.0	X	211.57750	109.60275	280.05759	7.39795	0.0883285	0.17471554	3.1689474	20	5 13.1	20.9
358412 2007 <i>CN</i> <sub>12</sub>	15.3	X	202.73971	287.31544	145.48993	27.48485	0.1188828	0.17630295	3.1498968	20	6 28.8	20.7
358413 2007 <i>CS</i> <sub>13</sub>	16.2	X	84.11803	251.57292	337.23642	4.82045	0.1257844	0.18159059	3.0884494	20	9 6.5	20.8
358414 2007 <i>CS</i> <sub>20</sub>	15.7	X	220.18586	84.68248	310.93457	8.36630	0.0912071	0.17506985	3.1646703	20	5 29.7	20.7
358415 2007 <i>CA</i> <sub>24</sub>	16.2	X	271.25798	252.73323	152.71191	10.53659	0.0881406	0.18575832	3.0420793	20	8 12.3	20.3
358416 2007 <i>CN</i> <sub>24</sub>	15.7	X	119.52403	56.21004	135.91622	11.61414	0.0629727	0.18450388	3.0558524	20	8 26.6	20.2
358417 2007 <i>CN</i> <sub>25</sub>	15.9	X	108.00174	359.87719	164.51292	15.60067	0.2011772	0.17241508	3.1970730	20	7 20.7	21.1
358418 2007 <i>CV</i> <sub>35</sub>	15.9	X	265.52191	236.51872	132.47483	11.06092	0.0164032	0.17666687	3.1455696	20	6 29.6	20.5
358419 2007 <i>CS</i> <sub>36</sub>	16.2	X	88.69853	266.77595	318.67517	7.96193	0.1095931	0.18234650	3.0799081	20	9 3.9	20.8
358420 2007 <i>CP</i> <sub>43</sub>	15.8	X	213.44092	279.90139	150.88659	10.43307	0.0752576	0.17837035	3.1255103	20	7 7.3	20.6
358421 2007 <i>CO</i> <sub>53</sub>	15.6	X	130.17116	142.33963	351.44189	9.99278	0.1629241	0.17334822	3.1855893	20	7 4.0	20.8
358422 2007 <i>CO</i> <sub>58</sub>	14.9	X	67.65483	213.91157	11.53095	17.94352	0.1858161	0.17228767	3.1986490	20	8 17.1	19.5
358423 2007 <i>CF</i> <sub>61</sub>	15.3	X	55.29146	294.46690	277.90017	11.78585	0.0201595	0.17685543	3.1433334	20	7 8.2	19.7
358424 2007 <i>CO</i> <sub>62</sub>	15.2	X	73.28002	268.36589	283.03006	16.52752	0.1181545	0.17221882	3.1995014	20	7 6.3	19.6
358425 2007 <i>DV</i> <sub>4</sub>	16.3	X	106.91966	63.85184	126.01668	10.67830	0.2204003	0.18064474	3.0992207	20	8 24.9	21.3
358426 2007 <i>DC</i> <sub>8</sub>	15.3	X	107.33391	112.66161	50.27718	6.39823	0.0640016	0.16951774	3.2333989	20	7 4.9	20.0
358427 2007 <i>DZ</i> <sub>13</sub>	15.9	X	249.88116	276.49242	135.09939	10.42669	0.1332984	0.18614018	3.0379174	20	7 18.2	20.4
358428 2007 <i>DR</i> <sub>14</sub>	15.9	X	242.99225	38.43985	355.24890	9.45514	0.1195714	0.17740295	3.1368626	20	6 19.4	20.8
358429 2007 <i>DK</i> <sub>15</sub>	15.9	X	32.52986	244.94691	359.93367	8.55638	0.0500620	0.17375878	3.1805694	20	7 12.2	20.3
358430 2007 <i>DM</i> <sub>16</sub>	15.8	X	12.89754	148.99890	129.79678	10.15274	0.0748295	0.17609006	3.1524350	20	7 28.5	19.9
358431 2007 <i>DM</i> <sub>18</sub>	16.0	X	297.40668	355.02307	340.05253	11.49360	0.1020955	0.17199671	3.2022554	20	6 14.9	20.5
358432 2007 <i>DZ</i> <sub>23</sub>	16.3	X	34.25531	105.15070	161.83070	10.07107	0.0544679	0.17657417	3.1466705	20	8 10.0	20.5
358433 2007 <i>DC</i> <sub>29</sub>	16.1	X	348.96078	130.00076	151.02083	8.37028	0.0646067	0.16903638	3.2395344	20	6 24.9	20.5
358434 2007 <i>DB</i> <sub>41</sub>	15.8	X	87.75315	169.72696	32.36328	17.84349	0.1565757	0.17568077	3.1573294	20	8 21.0	20.8
358435 2007 <i>DU</i> <sub>41</sub>	15.5	X	76.12361	104.01862	124.93242	18.06575	0.1630141	0.17903983	3.1177141	20	9 6.2	20.2
358436 2007 <i>DG</i> <sub>42</sub>	15.3	X	92.23809	230.11082	333.31555	12.11385	0.0643878	0.17745658	3.1362305	20	8 9.0	19.8
358437 2007 <i>DU</i> <sub>77</sub>	15.2	X	94.57628	31.43957	172.43344	29.26060	0.1722149	0.17408193	3.1766321	20	8 21.5	20.2
358438 2007 <i>DZ</i> <sub>82</sub>	17.6	X	154.32398	326.86388	173.71551	23.73634	0.2069636	0.32417268	2.0987068	20	8 9.0	21.2
358439 2007 <i>DL</i> <sub>86</sub>	15.6	X	24.73477	314.90155	325.42688	9.21899	0.1935249	0.17773180	3.1329920	20	8 31.2	19.2
358440 2007 <i>DP</i> <sub>90</sub>	15.8	X	280.43753	203.38483	149.96777	11.45146	0.0835416	0.17260743	3.1946974	20	6 19.4	20.5
358441 2007 <i>DB</i> <sub>94</sub>	15.6	X	116.58459	150.83601	358.79453	18.00590	0.1108838	0.17062466	3.2193994	20	7 7.1	20.8
358442 2007 <i>DF</i> <sub>98</sub>	15.6	X	0.73405	315.02308	337.92182	9.89556	0.0723005	0.17760824	3.1344449	20	7 31.2	19.6
358443 2007 <i>DF</i> <sub>99</sub>	15.7	X	337.35482	157.26088	146.55752	10.34167	0.0246544	0.17394241	3.1783305	20	7 8.8	20.2
358444 2007 <i>DV</i> <sub>116</sub>	15.5	X	56.97021	126.11383	92.08410	22.72490	0.0983718	0.17055367	3.2202927	20	7 15.9	19.9
358445 2007 <i>DC</i> <sub>117</sub>	15.3	X	80.63659	89.94520	114.98162	8.56605	0.1238135	0.17207695	3.2012597	20	8 3.2	19.8
358446 2007 <i>DJ</i> <sub>117</sub>	15.9	X	350.42554	299.60224	292.94603	1.62108	0.1632588	0.15744408	3.3966580	20	4 19.2	19.9
358447 2007 <i>EB</i> <sub>35</sub>	16.6	X	133.46044	161.12650	313.57069	3.65564	0.1461199	0.16976897	3.2302081	20	6 10.9	21.6
358448 2007 <i>EC</i> <sub>35</sub>	16.6	X	128.18711	305.36182	146.92636	5.21663	0.2828270	0.16477759	3.2951154	20	5 22.3	22.2
358449 2007 <i>EM</i> <sub>36</sub>	15.3	X	171.18266	107.75718	28.92869	16.07218	0.0542267	0.17747095	3.1360612	20	8 21.2	20.2
358450 2007 <i>EN</i> <sub>54</sub>	15.9	X	114.19562	185.09130	350.10460	9.80039	0.0370584	0.17693676	3.1423702	20	7 28.2	20.5
358451 2007 <i>EM</i> <sub>60</sub>	16.2	X	30.91288	165.28895	124.68927	2.60558	0.1117889	0.17834945	3.1257545	20	9 13.9	20.2
358452 2007 <i>EZ</i> <sub>82</sub>	15.8	X	230.96317	248.18381	153.40382	21.81393	0.2394803	0.18015521	3.1048324	20	6 9.6	21.4
358453 2007 <i>EH</i> <sub>88</sub>	15.8	X	257.82907	324.28924	3.81278	12.09115	0.0411905	0.82854315	1.1226886	20	2 17.7	20.6
358454 2007 <i>EG</i> <sub>100</sub>	19.4	X	264.52457	35.83053	348.38531	10.40949	0.0977487	0.17728281	3.1282796	20	7 7.7	20.0
358455 2007 <i>EG</i> <sub>131</sub>	16.4	X	137.86392	336.90127	175.80200	7.46978	0.2268720	0.17541880	3.1604721	20	8 3.5	21.8
358456 2007 <i>EP</i> <sub>138</sub>	16.6	X	144.32316	20.50707	110.22056	2.72010	0.1232333	0.17563221	3.1579114	20	7 10.1	21.3
358457 2007 <i>EA</i> <sub>152</sub>	15.9	X	22.98395	138.13928	139.26234	6.39792	0.1324286	0.17205000	3.2015941	20	8 17.0	19.9
358458 2007 <i>EF</i> <sub>157</sub>	15.8	X	202.33942	271.71739	176.02125	10.76698	0.0564695	0.17713719	3.1399992	20	7 16.3	20.6
358459 2007 <i>EG</i> <sub>158</sub>	15.2	X	146.68833	115.22942	27.11936	25.78234	0.1841896	0.17456883	3.1707226	20	8 9.9	20.9
358460 2007 <i>EA</i> <sub>162</sub>	16.4	X	115.75833	358.61467	172.77834	5.17338	0.1488939	0.17660426	3.1463130	20	8 1.7	21.3
358461 2007 <i>FS</i> <sub>15</sub>	15.2	X	128.17714	127.28090	8.04483	26.85679	0.1458766	0.17134422	3.2103797	20	7 5.0	20.8
358462 2007 <i>FJ</i> <sub>16</sub>	16.2	X	78.64131	49.13929	180.90927	1.04425	0.1104711	0.17904027	3.1177090	20	8 30.5	20.5
358463 2007 <i>GU</i> <sub>68</sub>	15.6	X	300.16484	79.63348	189.03349	9.65648	0.0363188	0.15381566	3.4498669	20	4 6.6	20.4
358464 2007 <i>HK</i> <sub>60</sub>	15.4	X	342.20597	161.26291	187.34231	14.93870	0.0768725	0.17873528	3.1212546	20	9 10.3	19.4
358465 2007 <i>JK</i> <sub>45</sub>	18.4	X	331.67908	71.33692	224.47657	5.05378	0.1896613	0.30457295	2.1878044	20	6 9.4	19.9
358466 2007 <i>LX</i> <sub>1</sub>	17.9	X	283.69521	134.22474	171.75210	5.58886	0.2065110	0.29558880	2.2319137	20	3 29.9	20.8
358467 2007 <i>MY</i> <sub>1</sub>	17.3	X	317.00002	131.45321	183.64724	6.99971	0.1878362	0.29650412	2.2273180	20	6 9.3	19.3
358468 2007 <i>MO</i> <sub>3</sub>	17.3	X	335.37832	167.64246	117.00005	5.95773	0.0982681	0.29930405	2.2134055	20	6 9.2	19.4
358469 2007 <i>NO</i> <sub>2</sub>	17.3	X	290.45443	160.90997	180.32693	7.72211	0.1926118	0.29728511	2.2234154	20	6 1.2	19.8
358470 2007 <i>NH</i> <sub>3</sub>	17.4	X	329.18291	131.83985	156.79849	9.13273	0.1796208	0.29774201	2.2211402	20	5 25.4	19.3
358471 2007 <i>NS</i> <sub>4</sub>	19.1	X	318.90577	47.50561	11.01689	5.787						

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>
358481 2007 QT <sub>17</sub>	17.7	X	73.45518	276.15972	130.41150	1.93101	0.1728539	0.25806982	2.4433062	20	—	—
358482 2007 RL	17.3	X	128.29404	47.98345	306.80243	5.72111	0.1786235	0.26150396	2.4218684	20	1 6.6	20.5
358483 2007 RU <sub>1</sub>	17.7	X	275.25765	150.87711	164.26068	3.26788	0.1746919	0.29115728	2.2545037	20	4 6.1	20.6
358484 2007 RG <sub>21</sub>	17.9	X	341.90516	312.88020	347.43069	2.06534	0.1339632	0.29881040	2.2158426	20	7 18.2	19.5
358485 2007 RF <sub>38</sub>	17.3	X	106.63430	338.38538	60.69531	3.78627	0.1853841	0.26170430	2.4206322	20	2 8.3	20.3
358486 2007 RD <sub>45</sub>	17.2	X	134.14112	96.44664	231.86255	4.04559	0.1907180	0.25741507	2.4474476	20	—	—
358487 2007 RU <sub>47</sub>	18.1	X	49.68082	230.81417	181.62592	6.88424	0.0769830	0.25188281	2.4831542	20	—	—
358488 2007 RL <sub>56</sub>	16.6	X	234.52561	298.70773	20.89399	7.65859	0.1177036	0.27366777	2.3495622	20	3 7.3	20.0
358489 2007 RP <sub>60</sub>	17.4	X	300.74329	87.95807	321.35795	6.34608	0.3217314	0.22606965	2.6687499	20	9 1.1	19.7
358490 2007 RU <sub>86</sub>	16.8	X	310.65317	103.21436	357.92213	29.14586	0.3334609	0.23588562	2.5941897	20	—	—
358491 2007 RT <sub>94</sub>	17.4	X	187.54241	315.10175	36.59689	2.95614	0.2117954	0.27119329	2.3638328	20	3 1.9	21.4
358492 2007 RZ <sub>95</sub>	16.6	X	300.45936	160.79697	18.97633	23.93158	0.1651656	0.25488397	2.4632636	20	—	—
358493 2007 RK <sub>98</sub>	17.5	X	16.16005	259.61529	136.80923	4.23049	0.2465143	0.23983046	2.5656643	20	—	—
358494 2007 RB <sub>105</sub>	17.4	X	282.21350	271.42972	31.97423	5.84540	0.1842769	0.28391558	2.2926789	20	3 29.3	20.4
358495 2007 RQ <sub>118</sub>	16.7	X	182.63221	349.36455	16.69611	6.27495	0.1345161	0.27098469	2.3650457	20	3 13.3	20.2
358496 2007 RQ <sub>120</sub>	17.4	X	351.48076	29.09378	172.35649	6.35099	0.0491967	0.27986546	2.3147451	20	3 5.7	19.9
358497 2007 RB <sub>142</sub>	16.9	X	211.79057	339.93296	359.67271	6.22611	0.2526882	0.27443873	2.3451598	20	3 5.8	20.9
358498 2007 RP <sub>145</sub>	17.1	X	202.84689	351.81384	335.62723	2.86815	0.3140928	0.27184466	2.3600553	20	2 13.7	21.3
358499 2007 RR <sub>148</sub>	17.6	X	270.06279	297.29819	40.67613	3.82975	0.1765649	0.28852318	2.2682047	20	4 30.4	20.7
358500 2007 RB <sub>151</sub>	17.1	X	344.61390	219.63265	2.04353	6.94777	0.0831722	0.27669712	2.3323817	20	3 21.3	19.6
358501 2007 RB <sub>153</sub>	14.1	X	7.85636	37.30946	334.84806	13.67455	0.0636311	0.08349187	5.1844964	20	10 22.8	20.9
358502 2007 RW <sub>153</sub>	17.4	X	192.66970	35.51619	258.83801	1.65572	0.1904814	0.26587339	2.3952608	20	—	—
358503 2007 RH <sub>173</sub>	18.0	X	6.26221	178.02383	91.69118	2.29622	0.2060864	0.29613428	2.2291721	20	7 29.1	19.3
358504 2007 RR <sub>173</sub>	16.8	X	283.74846	109.44598	157.93605	7.18451	0.1035919	0.27513797	2.3411848	20	2 22.0	19.6
358505 2007 RN <sub>178</sub>	17.0	X	352.70055	229.50581	39.96669	6.98663	0.0983469	0.29043708	2.2582291	20	6 17.4	19.1
358506 2007 RQ <sub>189</sub>	17.5	X	231.26541	276.06347	13.46385	6.75188	0.1041530	0.26928578	2.3749826	20	1 26.3	21.0
358507 2007 RQ <sub>196</sub>	17.7	X	237.25465	338.62001	338.96658	6.78678	0.1337586	0.28048914	2.3113126	20	3 2.9	20.9
358508 2007 RC <sub>205</sub>	17.5	X	343.10554	351.09900	293.96689	2.51744	0.2490972	0.29507729	2.2344923	20	6 14.4	18.2
358509 2007 RB <sub>211</sub>	17.6	X	337.71251	12.06382	185.18086	3.70615	0.0454726	0.27431178	2.3458833	20	2 8.6	20.4
358510 2007 RQ <sub>211</sub>	17.5	X	271.23547	55.68552	213.23140	6.03297	0.0849529	0.27322989	2.3520718	20	2 9.4	20.9
358511 2007 RB <sub>222</sub>	17.5	X	221.63616	5.04969	308.26540	0.60494	0.1916122	0.27148692	2.3621281	20	2 10.9	21.5
358512 2007 RJ <sub>237</sub>	17.0	X	301.26682	305.42479	3.76491	4.99129	0.1386514	0.29169754	2.2517191	20	5 7.4	19.5
358513 2007 RM <sub>255</sub>	14.0	X	336.97555	152.91665	238.01657	3.67011	0.0595001	0.08018122	5.3264242	20	10 8.9	20.7
358514 2007 RQ <sub>291</sub>	17.3	X	278.53420	68.07847	185.25979	7.02513	0.0839032	0.27065588	2.3669609	20	1 29.8	20.6
358515 2007 RQ <sub>294</sub>	17.9	X	224.23132	262.40863	15.88280	4.74446	0.1000012	0.26497673	2.4006613	20	1 4.1	21.4
358516 2007 RL <sub>295</sub>	17.5	X	311.44343	75.67268	193.18111	1.50756	0.1950397	0.28198985	2.3031050	20	3 17.1	20.0
358517 2007 RA <sub>309</sub>	17.0	X	341.52270	306.53170	160.73953	6.44524	0.1067127	0.25552098	2.4595274	20	—	—
358518 2007 RD <sub>309</sub>	14.3	X	340.18688	215.76965	183.25892	3.52533	0.0831027	0.08273874	5.2159103	20	10 23.6	20.8
358519 2007 RE <sub>309</sub>	14.1	X	218.79199	187.52363	330.92993	4.40434	0.0172234	0.08377276	5.1729008	20	10 19.3	21.0
358520 2007 RB <sub>310</sub>	17.2	X	177.47387	44.62123	269.75655	4.48140	0.1994280	0.26704726	2.3882363	20	1 6.6	20.9
358521 2007 RG <sub>314</sub>	17.2	X	310.55992	241.60838	223.82351	6.51870	0.1660292	0.23206967	2.6225501	20	—	—
358522 2007 RH <sub>318</sub>	17.0	X	7.18112	230.97232	1.68687	5.97084	0.1339913	0.28730512	2.2746110	20	5 15.6	18.9
358523 2007 RH <sub>325</sub>	17.1	X	326.36625	73.00083	42.29242	12.51108	0.1568550	0.23707280	2.5855219	20	—	—
358524 2007 SL <sub>2</sub>	17.4	X	252.50239	266.83212	58.40350	0.93374	0.1692035	0.27887882	2.3202015	20	3 26.4	20.7
358525 2007 SS <sub>17</sub>	17.5	X	317.19016	81.54273	176.26439	6.09414	0.1005079	0.28308540	2.2971591	20	3 26.7	19.9
358526 2007 SV <sub>23</sub>	17.1	X	8.68021	150.88060	229.68891	3.54650	0.2791878	0.23160473	2.6260587	20	—	—
358527 2007 TE <sub>7</sub>	16.6	X	199.37767	331.49132	4.62144	6.02784	0.1514437	0.26882025	2.3777238	20	2 21.5	20.2
358528 2007 TR <sub>9</sub>	17.4	X	145.64565	274.56598	90.78856	1.79735	0.1291078	0.26414600	2.4056920	20	2 2.2	20.6
358529 2007 TN <sub>13</sub>	16.1	X	215.09234	301.72167	37.22865	13.30157	0.2621192	0.27330547	2.3516382	20	3 12.7	20.4
358530 2007 TR <sub>22</sub>	16.8	X	351.19193	41.13124	11.31723	13.79806	0.1613879	0.23359061	2.6111539	20	—	—
358531 2007 TU <sub>25</sub>	17.9	X	227.11483	72.82042	239.12235	0.47811	0.1984504	0.27283741	2.3543269	20	2 13.5	21.6
358532 2007 TN <sub>31</sub>	17.1	X	1.23710	313.28581	174.50370	8.22154	0.1118471	0.25981513	2.4323520	20	—	—
358533 2007 TP <sub>35</sub>	17.2	X	318.28632	241.54440	181.16719	7.44206	0.2883994	0.22811129	2.6528022	20	11 23.0	18.9
358534 2007 TU <sub>35</sub>	16.9	X	10.78906	14.82193	34.77948	14.96514	0.1351626	0.23803742	2.5785322	20	—	—
358535 2007 TN <sub>49</sub>	17.1	X	255.59078	7.40695	277.36939	1.28825	0.1165005	0.27008656	2.3702859	20	2 11.3	20.3
358536 2007 TX <sub>52</sub>	17.5	X	18.83085	194.61371	190.06005	1.12126	0.1718350	0.23730088	2.5838650	20	—	—
358537 2007 TY <sub>56</sub>	17.7	X	207.57532	106.81285	217.30329	3.96454	0.2534744	0.26966318	2.3727662	20	2 11.2	21.8
358538 2007 TR <sub>66</sub>	18.2	X	356.30431	208.15179	202.98410	1.74738	0.1945960	0.23781748	2.5801218	20	—	—
358539 2007 TM <sub>73</sub>	17.5	X	336.83931	237.54588	40.42913	8.10196	0.2259088	0.29388121	2.2405510	20	5 13.7	18.7
358540 2007 TS <sub>92</sub>	18.0	X	297.75853	96.46526	195.29493	1.40146	0.2388046	0.28641019	2.2793468	20	3 22.8	20.6
358541 2007 TZ <sub>100</sub>	18.3	X	334.93784	305.75087	141.20689	2.22760	0.1864107	0.23924299	2.5698626	20	—	—
358542 2007 TV <sub>115</sub>	17.5	X	332.12432	230.69087	171.31066	2.65125	0.1229122	0.22831853	2.6511966	20	11 19.5	20.2
358543 2007 TM <sub>120</sub>	17.1	X	304.95332	102.09369	323.17235	12.48740	0.1570380	0.22824873	2.6517371	20	10 23.7	20.2
358544 2007 TC <sub>123</sub>	16.7	X	320.68911	247.83344	191.48180	5.86541	0.2836243	0.23200820	2.6230133	20	12 28.8	18.4
358545 2007 TU <sub>126</sub>	17.8	X	224.68467	260.47065	51.68783	2.41120	0.1960226	0.26957795	2.3732663	20	2 13.3	21.6
358546 2007 TE <sub>127</sub>	17.8	X	315.04477	303.79190	155.62181	1.83102	0.1143044	0.23611174	2.5925332	20	—	—
358547 2007 TJ <sub>132</sub>	17.1	X	355.42048	311.23663	209.46265	14.65417	0.0740448	0.25882896	2.4385265	20	1 12.6	20.3
358548 2007 TP <sub>148</sub>	17.2	X	18.63942	195.41317	185.27468	7.15241	0.2899918	0.23625458	2.5914882	20	—	—
358549 2007 TQ <sub>154</sub>	17.0	X	305.55159	81.34772	325.89482	3.82353	0.1623953	0.22610139	2.6685002	20	10 2.9	19.8
358550 2007 TM <sub>155</sub>	17.2	X	286.69609	35.68238	269.60629	4.05333	0.1856284	0.28363634	2.2941834	20	4 2.5	20.1
358551 2007 TC <sub>157</sub>	17.1	X	321.26724	335.70812	346.86254	4.64403	0.3132934	0.29582008	2.2307502	20	6 5.8	18.5
358552 2007 TG <sub>162</sub>	17.6	X	266.65325	128.51677	182.80901	2.48923	0.2187484	0.28152340	2.3056482	20	3 17.1	21.0
358553 2007 TD <sub>163</sub>	17.4	X	296.73172	15.29247	54.45420	2.74015	0.2450402	0.22653230	2.6651150	20	10 10.1	19.7
358554 2007 TL <sub>165</sub>	16.9	X	304.66575	46.99134	35.9928							



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>
358561 2007 TO <sub>232</sub>	17.2	X	277.77273	239.55642	220.08401	8.39297	0.1742842	0.22529899	2.6748323	20	10 26.6	20.3
358562 2007 TC <sub>235</sub>	17.1	X	278.98036	210.54149	27.17878	7.22808	0.0754444	0.26311143	2.4119941	20	1 15.7	20.4
358563 2007 TV <sub>239</sub>	17.5	X	208.79730	333.86950	337.59638	0.56859	0.1778839	0.26365104	2.4087019	20	1 29.9	21.4
358564 2007 TP <sub>241</sub>	17.4	X	297.72371	56.23422	52.38257	2.68709	0.1530700	0.23246571	2.6195706	20	12 19.5	19.9
358565 2007 TS <sub>247</sub>	17.0	X	347.90435	192.21581	262.86323	3.67332	0.1241865	0.24371155	2.5383528	20	—	—
358566 2007 TG <sub>301</sub>	17.4	X	308.38233	251.26700	18.72197	3.40709	0.1389621	0.27677683	2.3319339	20	3 24.9	19.9
358567 2007 TF <sub>332</sub>	17.1	X	359.21011	144.75714	277.42611	1.93647	0.1397024	0.23812339	2.5779115	20	—	—
358568 2007 TY <sub>336</sub>	17.2	X	17.44818	277.34725	143.88350	3.91558	0.2539472	0.24520167	2.5280584	20	—	—
358569 2007 TD <sub>340</sub>	17.4	X	315.68419	198.05692	36.58247	5.81322	0.0613268	0.27528625	2.3403441	20	3 1.1	20.3
358570 2007 TM <sub>353</sub>	17.0	X	236.94175	252.15322	35.89893	7.06552	0.0872273	0.26702839	2.3883488	20	1 31.8	20.6
358571 2007 TY <sub>353</sub>	17.0	X	319.53374	341.63879	37.71145	5.07279	0.1726147	0.22385102	2.6863545	20	9 22.5	19.5
358572 2007 TD <sub>363</sub>	17.0	X	279.92678	156.64574	73.91433	5.07010	0.0833530	0.25504879	2.4625622	20	1 6.7	20.3
358573 2007 TA <sub>383</sub>	16.8	X	296.89867	179.62169	39.71152	7.70741	0.1627603	0.25894803	2.4377789	20	1 1.6	20.4
358574 2007 TK <sub>395</sub>	16.9	X	345.24106	259.16749	277.74858	5.45573	0.0676967	0.26152208	2.4217565	20	1 22.3	19.6
358575 2007 TJ <sub>423</sub>	17.6	X	302.42657	265.39254	201.25268	2.61707	0.1620134	0.23462321	2.6034869	20	12 26.3	20.2
358576 2007 TO <sub>423</sub>	16.6	X	245.44374	308.91630	215.28678	12.18630	0.0896036	0.23508651	2.6000652	20	12 18.5	20.1
358577 2007 TM <sub>424</sub>	16.9	X	76.91813	252.08874	101.13168	6.09279	0.0493614	0.22308051	2.6925367	20	10 16.9	20.7
358578 2007 TE <sub>426</sub>	17.7	X	315.91234	70.06617	24.86984	9.15279	0.1304886	0.23863781	2.5742055	20	—	—
358579 2007 TE <sub>441</sub>	16.7	X	34.97609	273.93649	142.21784	10.73688	0.1477875	0.24446152	2.5331585	20	—	—
358580 2007 TS <sub>450</sub>	16.1	X	187.82566	300.73006	101.13168	6.10098	0.1022833	0.19739954	2.9212717	20	5 6.3	20.7
358581 2007 UD <sub>5</sub>	17.1	X	293.99174	62.30590	39.39623	5.92693	0.2013092	0.23142061	2.6274514	20	11 26.5	19.7
358582 2007 UE <sub>8</sub>	17.0	X	15.64233	89.33416	303.86414	5.34768	0.1863849	0.23668151	2.5883708	20	—	—
358583 2007 UP <sub>12</sub>	17.6	X	130.63601	144.19715	246.56932	2.21659	0.1752953	0.26201539	2.4187158	20	2 22.2	20.9
358584 2007 UB <sub>24</sub>	17.7	X	36.98881	280.02317	121.89500	3.05943	0.0919262	0.24277804	2.5448554	20	—	—
358585 2007 UG <sub>30</sub>	17.3	X	31.65976	217.01263	126.48031	5.24928	0.2557749	0.23545019	2.5973871	20	12 24.9	20.9
358586 2007 UE <sub>31</sub>	17.3	X	16.58732	319.04086	79.39799	6.13546	0.2026963	0.23951375	2.5679255	20	—	—
358587 2007 UP <sub>31</sub>	17.4	X	116.03038	326.97816	44.56738	6.29064	0.0871158	0.25693521	2.5404936	20	—	—
358588 2007 UU <sub>36</sub>	16.9	X	330.91494	92.14593	342.74521	3.97309	0.1403260	0.23439107	2.6052061	20	—	—
358589 2007 UV <sub>37</sub>	17.2	X	336.98446	244.06022	148.01876	6.63950	0.2420366	0.23040439	2.6351715	20	11 25.6	19.4
358590 2007 UJ <sub>55</sub>	17.8	X	348.06062	39.59781	43.33684	2.60527	0.1572463	0.23878074	2.5731781	20	—	—
358591 2007 UJ <sub>56</sub>	17.7	X	325.96448	76.89794	27.03720	6.54306	0.2231272	0.23911897	2.5707511	20	—	—
358592 2007 UN <sub>56</sub>	16.9	X	187.45073	312.76915	38.62878	7.95592	0.1373337	0.26806046	2.3822146	20	3 2.1	20.6
358593 2007 UD <sub>76</sub>	17.0	X	273.64025	218.05339	20.15317	4.93880	0.1418917	0.25916566	2.4364140	20	1 2.8	20.6
358594 2007 UW <sub>80</sub>	17.9	X	75.44156	354.94219	26.89992	1.94518	0.0185969	0.24771995	2.5108960	20	—	—
358595 2007 UZ <sub>86</sub>	17.6	X	297.40844	244.98098	79.25200	3.89342	0.2480570	0.28725422	2.2748797	20	5 7.3	20.1
358596 2007 UW <sub>94</sub>	17.6	X	280.49732	275.69221	339.89694	1.61467	0.1505103	0.26618341	2.3934006	20	1 29.8	21.0
358597 2007 US <sub>100</sub>	16.8	X	135.56813	261.18512	56.11588	10.55051	0.0980478	0.24509442	2.5287959	20	—	—
358598 2007 UE <sub>105</sub>	17.6	X	284.85174	17.14572	98.08877	5.29986	0.1635832	0.22790977	2.6543657	20	12 2.7	20.4
358599 2007 UP <sub>127</sub>	17.3	X	279.74715	279.99630	218.44823	12.25117	0.2170858	0.23349527	2.6118646	20	12 19.5	20.0
358600 2007 UX <sub>136</sub>	17.3	X	4.82251	236.58235	184.06480	5.09729	0.1160374	0.23707629	2.5854966	20	—	—
358601 2007 UL <sub>137</sub>	17.1	X	207.34914	27.89986	277.15752	3.80762	0.1372093	0.26161865	2.4211605	20	1 20.1	20.9
358602 2007 VA <sub>2</sub>	16.8	X	12.21655	198.84039	188.82128	4.81885	0.3356667	0.23483979	2.6018860	20	—	—
358603 2007 VP <sub>3</sub>	16.3	X	6.58536	77.23140	3.43096	8.94100	0.2171536	0.24087324	2.5582541	20	—	—
358604 2007 VQ <sub>3</sub>	16.5	X	252.70029	153.06237	176.51724	9.16720	0.3165005	0.27824403	2.3237290	20	3 20.2	20.5
358605 2007 VE <sub>12</sub>	16.5	X	263.09662	50.12693	57.73370	9.92913	0.2476659	0.22188379	2.7022094	20	10 7.8	20.1
358606 2007 VZ <sub>27</sub>	17.2	X	11.28914	343.51183	90.66675	3.45655	0.1188595	0.24228286	2.5483217	20	—	—
358607 2007 VQ <sub>29</sub>	16.2	X	307.45883	28.69964	60.83782	22.65902	0.0365708	0.22974736	2.6401931	20	12 10.7	19.6
358608 2007 VB <sub>33</sub>	16.8	X	46.55738	71.63032	315.33181	2.74237	0.0473164	0.24203785	2.5500412	20	—	—
358609 2007 VC <sub>48</sub>	17.9	X	220.06774	96.34851	20.13578	9.57276	0.1000594	0.21698787	2.7427049	20	9 15.2	20.9
358610 2007 VK <sub>60</sub>	16.6	X	346.66400	112.49645	2.68058	3.24733	0.1694701	0.24142261	2.5543717	20	—	—
358611 2007 VM <sub>66</sub>	16.3	X	281.90168	2.82755	118.29644	12.70600	0.1384702	0.23212354	2.6221443	20	12 11.3	19.3
358612 2007 VG <sub>77</sub>	17.3	X	303.93982	95.42939	55.62127	8.04593	0.0611550	0.24339309	2.5405664	20	—	—
358613 2007 VH <sub>78</sub>	17.4	X	225.17264	112.99134	154.49179	1.65402	0.1702149	0.25618714	2.4552619	20	—	—
358614 2007 VT <sub>87</sub>	16.9	X	311.68040	86.13593	24.26856	10.05713	0.2159135	0.23351684	2.6117037	20	—	—
358615 2007 VQ <sub>89</sub>	17.3	X	163.59978	294.65533	66.09332	7.60650	0.1807375	0.26433090	2.4045700	20	2 22.5	21.1
358616 2007 VV <sub>96</sub>	17.3	X	341.42513	29.96007	25.67080	10.05723	0.0875979	0.23221528	2.6214537	20	12 21.1	20.5
358617 2007 VZ <sub>114</sub>	17.0	X	191.26169	29.23061	217.49896	5.99828	0.0386940	0.23834790	2.5762924	20	—	—
358618 2007 VK <sub>119</sub>	16.9	X	18.35330	227.23128	173.59822	8.91221	0.1637430	0.23785470	2.5798526	20	—	—
358619 2007 VO <sub>120</sub>	17.5	X	28.12098	96.70610	281.66572	5.52845	0.1221086	0.23625581	2.5914792	20	—	—
358620 2007 VF <sub>121</sub>	17.6	X	328.18206	140.56637	280.14997	4.00012	0.1875028	0.23005200	2.6378618	20	12 11.7	19.9
358621 2007 VM <sub>122</sub>	16.9	X	142.38085	55.61784	278.73518	3.45990	0.1203413	0.25217871	2.4812114	20	—	—
358622 2007 VJ <sub>141</sub>	17.3	X	331.41483	111.50727	15.56177	3.28629	0.1452079	0.24208287	2.5497250	20	—	—
358623 2007 VD <sub>143</sub>	16.2	X	197.57522	261.85197	106.25451	2.80913	0.1193917	0.19091163	2.9870864	20	4 4.2	20.9
358624 2007 VN <sub>147</sub>	17.1	X	297.45852	342.12267	93.61993	6.09266	0.1309529	0.22349462	2.6892097	20	11 4.3	20.1
358625 2007 VM <sub>153</sub>	17.1	X	279.45381	189.33994	44.32131	6.18405	0.0464005	0.26327952	2.4109674	20	1 14.0	20.3
358626 2007 VY <sub>153</sub>	17.6	X	218.93040	82.57645	219.14690	6.06009	0.1218036	0.26667425	2.3904628	20	1 25.0	21.3
358627 2007 VA <sub>159</sub>	17.3	X	284.58461	271.98430	217.34508	10.61392	0.2497353	0.22936340	2.6431388	20	12 10.7	19.8
358628 2007 VW <sub>160</sub>	17.1	X	253.75560	90.65867	122.07833	5.46936	0.0773570	0.24567899	2.5247829	20	—	—
358629 2007 VN <sub>166</sub>	17.2	X	291.90559	234.26534	76.58956	6.41936	0.3064486	0.28223807	2.3017544	20	4 4.8	20.3
358630 2007 VB <sub>168</sub>	16.9	X	185.84966	259.43708	60.83971	3.11358	0.1157156	0.25574046	2.4581201	20	1 19.1	20.6
358631 2007 VA <sub>179</sub>	17.7	X	13.06213	323.64134	112.58949	2.18509	0.0261018	0.24500254	2.5294280	20	—	—
358632 2007 VA <sub>202</sub>	16.8	X	343.77212	290.21906	164.98961	13.73179	0.1370523	0.24048835	2.5609829	20	—	—
358633 2007 VY <sub>214</sub>	17.5	X	248.61359	192.04713	103.72703	5.48839	0.2148319	0.26842468	2.3800592	20	2 13.1	21.3
358634 2007 VX <sub>230</sub>	17.6	X	51.29593	315.37180	55.26418	2.47587	0.1808456	0.23981071	2.5658051	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>
358641 2007 VJ <sub>270</sub>	16.7	X	4.94176	335.32213	50.40812	8.59555	0.1670237	0.23084944	2.6317835	20	12 28.4	19.8
358642 2007 VC <sub>280</sub>	17.0	X	244.99712	22.52623	236.04079	4.81136	0.1010349	0.25607660	2.4559685	20	1 1.2	20.7
358643 2007 VS <sub>281</sub>	17.1	X	333.92142	161.18159	238.15568	2.13553	0.1158797	0.22636091	2.6664601	20	11 17.3	19.7
358644 2007 VZ <sub>292</sub>	17.0	X	12.33548	246.89755	160.32688	9.77070	0.2056203	0.23804191	2.5784998	20	—	—
358645 2007 VT <sub>295</sub>	16.8	X	258.02602	261.71070	171.83768	7.84631	0.2133604	0.21639527	2.7477098	20	8 15.6	20.8
358646 2007 VE <sub>300</sub>	17.4	X	44.25855	246.12706	143.99963	2.20911	0.2030974	0.24177624	2.5518803	20	—	—
358647 2007 VV <sub>305</sub>	17.0	X	302.18623	330.64008	100.31895	3.23348	0.0627629	0.21905880	2.7253916	20	11 8.7	20.3
358648 2007 VO <sub>306</sub>	17.4	X	304.93802	142.16911	260.06850	3.88172	0.1639576	0.22089256	2.7102873	20	9 22.4	20.3
358649 2007 VP <sub>310</sub>	16.6	X	176.21119	307.65866	297.79059	10.26862	0.0388195	0.22315706	2.6919209	20	—	—
358650 2007 VL <sub>312</sub>	16.9	X	81.22948	58.66583	266.34821	2.89755	0.1995251	0.23680797	2.5874492	20	—	—
358651 2007 VB <sub>317</sub>	17.2	X	306.20322	157.90116	271.30372	3.17354	0.0992185	0.22329493	2.6908128	20	11 9.4	20.2
358652 2007 VO <sub>318</sub>	17.3	X	269.94566	239.26729	205.92020	4.08582	0.0906095	0.22007411	2.7170028	20	10 6.6	20.8
358653 2007 VG <sub>321</sub>	16.9	X	326.51297	44.64182	11.64289	12.23546	0.1671006	0.22917435	2.6445922	20	11 26.8	19.8
358654 2007 VF <sub>323</sub>	16.4	X	43.72880	295.21160	66.97685	17.91881	0.2453425	0.23562308	2.5961164	20	—	—
358655 2007 VF <sub>325</sub>	17.2	X	322.66952	55.12763	338.16407	2.05029	0.1810491	0.22230732	2.6987762	20	10 16.2	19.8
358656 2007 VY <sub>325</sub>	16.6	X	192.80128	258.14208	71.81796	6.65194	0.1658244	0.26056221	2.4277004	20	2 9.6	20.6
358657 2007 VZ <sub>327</sub>	16.4	X	320.06470	194.19125	255.33051	21.32242	0.0417340	0.23502752	2.6005003	20	12 29.9	19.8
358658 2007 VJ <sub>331</sub>	17.4	X	22.64160	117.57992	261.32742	2.58315	0.1653682	0.23370220	2.6103226	20	—	—
358659 2007 VK <sub>334</sub>	16.1	X	278.01334	228.53980	254.64363	8.03636	0.0582264	0.22857881	2.6491837	20	12 13.7	19.4
358660 2007 WY <sub>2</sub>	17.2	X	286.20908	87.78653	19.37353	12.90413	0.2247337	0.22826933	2.6515776	20	11 11.2	20.0
358661 2007 WK <sub>6</sub>	16.9	X	330.87079	126.20616	299.11765	5.34709	0.1894146	0.23069151	2.6329845	20	12 24.9	19.4
358662 2007 WB <sub>8</sub>	17.0	X	59.28238	78.12226	296.11903	4.96825	0.1789871	0.24099186	2.5574146	20	—	—
358663 2007 WU <sub>8</sub>	16.0	X	13.81669	317.13046	75.29545	14.61366	0.2447593	0.23169061	2.6254097	20	—	—
358664 2007 WJ <sub>9</sub>	17.5	X	293.98840	99.15140	357.92491	8.20183	0.0414941	0.23150980	2.6267766	20	12 2.9	21.0
358665 2007 WR <sub>19</sub>	16.6	X	272.34964	36.51522	109.14882	3.77818	0.1231659	0.23108712	2.6299787	20	12 28.4	19.4
358666 2007 WE <sub>39</sub>	16.9	X	352.69369	64.04207	18.20527	5.61292	0.0851296	0.23726331	2.5841377	20	—	—
358667 2007 WV <sub>60</sub>	16.0	X	290.55653	281.26337	126.48878	11.84360	0.2899890	0.21068401	2.7971452	20	8 15.9	19.2
358668 2007 XE	17.1	X	345.14906	43.87151	353.31298	4.94400	0.2563688	0.22877793	2.6476463	20	12 21.6	19.5
358669 2007 XQ <sub>4</sub>	16.2	X	305.79570	333.43336	105.96997	14.36319	0.2008517	0.22153423	2.7050512	20	11 21.2	19.0
358670 2007 XJ <sub>21</sub>	17.1	X	299.28025	111.15886	333.97175	1.06622	0.2246199	0.22593445	2.6698145	20	11 8.8	19.3
358671 2007 XP <sub>21</sub>	15.5	X	191.77279	97.17070	261.75789	12.19393	0.0726034	0.18596349	3.0398414	20	3 11.3	20.4
358672 2007 XA <sub>34</sub>	16.4	X	308.65656	8.39291	151.81883	3.54239	0.2601654	0.22164826	2.7041234	20	10 19.8	18.4
358673 2007 XG <sub>51</sub>	16.1	X	168.30341	104.19376	145.41796	9.14741	0.1037780	0.21761412	2.7374404	20	12 29.6	20.3
358674 2007 XC <sub>52</sub>	16.9	X	236.39809	121.66409	32.04449	5.37289	0.0566964	0.21977877	2.7194363	20	11 23.9	20.6
358675 Bente	16.0	X	112.92677	261.23029	95.05830	7.24723	0.1591333	0.24597259	2.5227734	20	—	—
358676 2007 YE <sub>4</sub>	17.4	X	313.04388	28.63678	73.87925	6.72634	0.1610654	0.23357728	2.6112532	20	—	—
358677 2007 YM <sub>4</sub>	17.4	X	334.27979	129.36236	342.36032	3.63882	0.1415841	0.23967503	2.5667734	20	—	—
358678 2007 YF <sub>18</sub>	16.9	X	308.93414	63.35436	353.88150	7.72613	0.2120656	0.22040903	2.7142496	20	10 17.0	19.6
358679 2007 YF <sub>20</sub>	16.4	X	28.23284	95.73366	265.69744	5.02685	0.0254169	0.22317077	2.6918107	20	12 6.7	20.1
358680 2007 YS <sub>20</sub>	16.4	X	151.53266	229.06782	118.51148	3.08924	0.2380301	0.25204898	2.4820627	20	1 28.9	20.4
358681 2007 YG <sub>24</sub>	16.7	X	299.67272	4.49410	80.12942	5.87265	0.0813908	0.22146195	2.7056397	20	11 21.9	19.9
358682 2007 YA <sub>36</sub>	16.6	X	254.28486	334.68852	79.02980	3.15225	0.0600205	0.20397030	2.8581921	20	8 8.5	20.6
358683 2007 YT <sub>45</sub>	16.6	X	356.49504	107.36508	290.75770	5.04396	0.0776312	0.22106876	2.7088469	20	12 16.8	20.0
358684 2007 YH <sub>51</sub>	16.1	X	236.59678	35.29269	109.66330	14.41540	0.0893977	0.21732084	2.7399026	20	11 14.1	20.1
358685 2007 YY <sub>53</sub>	16.6	X	214.91978	156.53832	312.65573	7.30767	0.0442409	0.24572546	2.5244646	20	1 10.1	20.2
358686 2007 YR <sub>55</sub>	16.8	X	60.14020	1.17668	118.11241	4.73467	0.0322292	0.21534921	2.7566007	20	11 21.9	20.6
358687 2007 YD <sub>61</sub>	16.7	X	254.60458	94.99225	24.88755	9.54084	0.1785456	0.21640001	2.7476697	20	10 17.4	20.5
358688 2007 YY <sub>61</sub>	16.1	X	129.95518	203.24597	323.56467	12.74165	0.1032600	0.19192289	2.9765843	20	8 9.8	20.5
358689 2007 YG <sub>66</sub>	16.7	X	151.71179	145.82155	125.30090	4.88806	0.0297637	0.22397916	2.6853299	20	—	—
358690 2008 AM <sub>5</sub>	16.3	X	265.09650	138.50604	69.47155	13.97447	0.0650473	0.24813424	2.5081004	20	—	—
358691 2008 AS <sub>7</sub>	16.9	X	264.16071	356.30119	123.15288	4.48301	0.1327279	0.21802332	2.7340141	20	11 8.1	20.3
358692 2008 AN <sub>17</sub>	16.7	X	5.40635	225.36709	136.77032	6.68428	0.0741136	0.21405446	2.7677054	20	11 13.2	20.2
358693 2008 AQ <sub>21</sub>	17.1	X	174.69868	254.15091	348.09499	4.15370	0.0591640	0.21997837	2.7177911	20	12 31.8	21.0
358694 2008 AP <sub>25</sub>	16.9	X	156.36406	154.08647	43.21209	2.77717	0.0156270	0.20741385	2.8264689	20	10 15.7	20.9
358695 2008 AK <sub>28</sub>	16.1	X	40.52134	151.88504	154.01465	17.90390	0.0925543	0.19966843	2.8990995	20	10 22.9	20.2
358696 2008 AQ <sub>30</sub>	16.4	X	184.91188	259.69621	320.86078	10.72306	0.1197809	0.22019008	2.7160487	20	12 10.4	20.7
358697 2008 AR <sub>43</sub>	16.4	X	292.66785	13.38511	132.73114	12.40197	0.1007870	0.22629906	2.6669460	20	—	—
358698 2008 AS <sub>44</sub>	16.1	X	219.36961	175.65817	310.83554	13.94697	0.0865206	0.20611055	2.8383715	20	9 17.4	20.6
358699 2008 AC <sub>61</sub>	17.2	X	228.81737	0.56147	139.30949	7.73591	0.0733034	0.21353170	2.7722208	20	10 28.4	21.1
358700 2008 AD <sub>64</sub>	15.6	X	153.43384	304.05545	80.67382	16.95099	0.1231214	0.17651455	3.1473790	20	3 21.8	20.8
358701 2008 AU <sub>64</sub>	16.3	X	166.93993	83.79204	149.38139	7.44690	0.2148547	0.21437424	2.7649523	20	12 4.3	21.1
358702 2008 AW <sub>70</sub>	16.7	X	50.54515	31.74287	293.72770	5.19216	0.0439200	0.21394969	2.7686089	20	11 19.1	20.5
358703 2008 AL <sub>78</sub>	16.9	X	336.78775	47.63706	342.51389	3.98862	0.1003841	0.21597439	2.7512785	20	11 4.5	20.2
358704 2008 AW <sub>80</sub>	16.8	X	306.15147	248.95666	194.26474	2.38690	0.1491102	0.21913153	2.7247885	20	11 25.7	19.7
358705 2008 AB <sub>83</sub>	17.0	X	252.71728	135.84416	323.68405	4.27506	0.1225168	0.21274032	2.7790915	20	9 24.6	20.8
358706 2008 AC <sub>83</sub>	16.7	X	18.47511	275.24257	92.41459	6.46298	0.0664651	0.22090746	2.7101654	20	12 7.3	20.1
358707 2008 AU <sub>92</sub>	17.0	X	297.20725	65.58444	7.96614	4.60964	0.1104570	0.21697495	2.7428138	20	10 28.7	20.1
358708 2008 AK <sub>94</sub>	17.1	X	292.11013	67.71460	335.03535	1.62664	0.1805800	0.21049375	2.7988304	20	8 28.9	20.5
358709 2008 AP <sub>102</sub>	17.2	X	221.81675	172.41732	322.51625	4.31581	0.1089261	0.20990298	2.8040794	20	10 3.7	21.3
358710 2008 AP <sub>104</sub>	17.1	X	290.04492	6.28430	124.52735	2.92858	0.1037423	0.22675910	2.6633377	20	—	—
358711 2008 AL <sub>106</sub>	17.1	X	189.43950	154.31772	343.88685	4.35549	0.0713648	0.20628652	2.8367571	20	9 6.7	21.4
358712 2008 AO <sub>121</sub>	16.5	X	193.24065	97.53519	117.59699	16.75988	0.1017980	0.21982103	2.7190877	20	12 16.4	20.7
358713 2008 AU <sub>129</sub>	16.2	X	231.07203	42.46376	90.09578	18.40070	0.0731378	0.21193779	2.7861026	20	10 27.7	20.4
358714 2008 AF <sub>135</sub>	16.1											

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
358721 2008 BE <sub>45</sub>	16.6	X	307.92722	13.80967	36.81732	8.62677	0.2173971	0.21488715	2.7605509	20	10 7.9	19.3
358722 2008 BK <sub>46</sub>	16.2	X	195.32195	225.46421	318.58994	9.20038	0.0589328	0.20968562	2.8060169	20	11 7.6	20.4
358723 2008 BX <sub>47</sub>	16.5	X	157.67647	323.37107	167.28068	9.68947	0.0942332	0.18554361	3.0444257	20	7 21.5	21.3
358724 2008 CD <sub>1</sub>	15.8	X	226.83159	199.23310	336.43708	16.03384	0.1554634	0.21571807	2.7534574	20	11 21.3	20.1
358725 2008 CJ <sub>2</sub>	16.2	X	313.09888	79.63478	325.43279	11.18227	0.2234926	0.21614331	2.7498448	20	10 2.1	18.9
358726 2008 CP <sub>14</sub>	16.5	X	221.44482	36.69612	114.12827	6.13645	0.0971562	0.20947128	2.8079307	20	10 29.1	20.6
358727 2008 CD <sub>16</sub>	16.5	X	284.53777	61.42545	55.72745	5.75689	0.0613849	0.22027735	2.7153312	20	12 12.2	19.9
358728 2008 CT <sub>17</sub>	16.5	X	10.05707	119.61693	162.42165	13.42493	0.0522036	0.18899502	3.0072473	20	7 26.7	20.6
358729 2008 CE <sub>20</sub>	16.4	X	253.16136	73.25398	52.18730	3.74512	0.1709901	0.21342960	2.7731048	20	10 23.9	20.1
358730 2008 CT <sub>20</sub>	16.4	X	258.54156	113.65398	342.14915	8.28840	0.1252365	0.20990435	2.8040672	20	9 26.1	20.3
358731 2008 CM <sub>30</sub>	17.1	X	28.16742	246.72416	100.12345	3.56234	0.0572598	0.21329608	2.7742619	20	11 21.0	20.7
358732 2008 CD <sub>33</sub>	16.1	X	121.08733	133.51191	138.93399	10.35997	0.1416194	0.21144389	2.7904396	20	12 11.9	20.7
358733 2008 CO <sub>37</sub>	16.7	X	49.33292	23.01448	249.47308	0.93730	0.0656844	0.19609163	2.9342471	20	9 11.6	20.6
358734 2008 CH <sub>39</sub>	16.4	X	355.22731	279.68465	130.88780	6.60256	0.0453299	0.21938436	2.7226947	20	12 27.1	19.9
358735 2008 CK <sub>41</sub>	16.2	X	111.33346	126.64860	172.35513	9.23327	0.2099749	0.21259714	2.7803391	20	—	—
358736 2008 CZ <sub>43</sub>	16.0	X	87.31548	193.53760	14.66903	8.98247	0.0674558	0.18900451	3.0071466	20	8 12.2	20.3
358737 2008 CM <sub>45</sub>	16.0	X	309.99848	56.31914	7.92418	8.21292	0.3423239	0.21651441	2.7407018	20	10 13.9	17.8
358738 2008 CW <sub>55</sub>	16.4	X	253.23838	34.91468	358.99940	8.98609	0.1315629	0.19265973	2.9689901	20	7 1.4	20.8
358739 2008 CE <sub>63</sub>	17.1	X	309.60885	193.05610	210.80326	4.67011	0.1584108	0.21235223	2.7824764	20	10 3.8	20.1
358740 2008 CE <sub>83</sub>	16.4	X	187.50603	125.55352	136.99082	12.05610	0.1676434	0.22226290	2.6991358	20	—	—
358741 2008 CO <sub>89</sub>	16.6	X	187.52869	94.67089	139.54291	4.32226	0.1903623	0.21402694	2.7679427	20	12 22.8	21.1
358742 2008 CC <sub>93</sub>	16.5	X	299.26542	337.28398	115.76753	5.87009	0.0815120	0.21695068	2.7430183	20	12 1.5	19.8
358743 2008 CO <sub>100</sub>	17.1	X	304.69714	74.26379	350.74960	4.23580	0.0540080	0.21038609	2.7997851	20	11 1.1	20.7
358744 2008 CR <sub>118</sub>	18.9	X	268.87516	157.04075	121.53820	3.92349	0.5111522	0.39482886	1.8401933	20	1 12.5	22.3
358745 2008 CR <sub>120</sub>	16.5	X	198.20500	162.08934	63.04102	9.89780	0.0638000	0.22227994	2.6989979	20	—	—
358746 2008 CQ <sub>124</sub>	16.5	X	87.22819	176.13671	163.56432	5.32094	0.0522330	0.22309100	2.6924523	20	—	—
358747 2008 CQ <sub>126</sub>	16.9	X	348.02302	251.69764	159.47619	6.58175	0.0322823	0.21742669	2.7390133	20	12 16.8	20.6
358748 2008 CG <sub>130</sub>	16.6	X	105.45691	333.81550	293.07232	2.36883	0.0551681	0.20851348	2.8165229	20	11 12.3	20.7
358749 2008 CB <sub>131</sub>	16.5	X	129.58805	286.19313	332.18842	2.94551	0.0553978	0.21170018	2.7881870	20	11 29.4	20.5
358750 2008 CR <sub>140</sub>	16.4	X	224.11876	285.86711	160.16049	13.22022	0.2385242	0.19854239	2.9100506	20	7 23.7	21.3
358751 2008 CL <sub>141</sub>	16.5	X	65.96779	5.01068	204.04837	3.51256	0.0528766	0.18467048	3.0540143	20	7 9.9	20.8
358752 2008 CF <sub>151</sub>	16.2	X	16.71338	165.53304	188.56585	7.95134	0.0709066	0.20887892	2.8132369	20	11 16.3	19.9
358753 2008 CP <sub>152</sub>	16.3	X	168.06621	286.00019	176.05033	9.56336	0.0670310	0.18618944	3.0373816	20	6 27.2	21.0
358754 2008 CP <sub>168</sub>	16.0	X	275.16977	147.46574	325.33850	10.58074	0.0426083	0.21452047	2.7636957	20	11 21.6	19.9
358755 2008 CJ <sub>176</sub>	16.1	X	233.87293	54.49346	90.10760	10.20240	0.0991362	0.21434816	2.7651766	20	11 6.5	20.1
358756 2008 CZ <sub>176</sub>	16.0	X	209.75113	256.99497	268.90072	7.93771	0.1521354	0.21127568	2.7919204	20	10 23.7	20.4
358757 2008 CJ <sub>183</sub>	16.0	X	132.25051	2.70951	154.39395	7.58772	0.0640987	0.18589714	3.0405647	20	7 26.1	20.5
358758 2008 CA <sub>187</sub>	16.0	X	79.32374	271.39089	359.69185	8.82210	0.1004375	0.20498033	2.8487954	20	10 21.5	20.2
358759 2008 CO <sub>189</sub>	15.5	X	68.74762	209.51394	49.05340	11.91642	0.0693204	0.19653030	2.9298791	20	9 25.9	19.7
358760 2008 CQ <sub>190</sub>	17.9	X	48.70355	256.38927	181.91837	21.50537	0.0972539	0.39087914	1.8525690	20	—	—
358761 2008 CL <sub>196</sub>	16.1	X	6.11096	297.95131	4.94186	11.43180	0.0153749	0.18852326	3.0122621	20	8 21.3	20.3
358762 2008 CH <sub>206</sub>	16.9	X	185.52101	323.16902	156.78900	4.01950	0.0629927	0.19558634	2.9392986	20	8 8.9	21.4
358763 2008 CJ <sub>206</sub>	16.3	X	0.82442	132.35769	154.64704	9.98072	0.0881018	0.18822495	3.0154439	20	7 21.4	20.1
358764 2008 CW <sub>211</sub>	16.2	X	82.80680	363.77736	349.51636	10.26183	0.1838735	0.19697904	2.9254277	20	10 11.1	20.7
358765 2008 CW <sub>215</sub>	16.0	X	356.23150	284.72989	2.27060	21.35235	0.1072098	0.18231687	3.0802419	20	7 22.9	20.2
358766 2008 DF <sub>4</sub>	16.8	X	53.06125	103.86891	177.21821	9.44462	0.0229700	0.19906797	2.9049263	20	9 22.5	20.7
358767 2008 DB <sub>7</sub>	16.6	X	139.39861	330.47093	280.45790	1.42688	0.1345901	0.21349405	2.7725467	20	12 2.0	21.0
358768 2008 DH <sub>9</sub>	16.6	X	273.93718	294.55855	163.97895	6.26416	0.0360838	0.21226469	2.7832414	20	11 6.8	20.4
358769 2008 DR <sub>13</sub>	15.7	X	139.16123	288.05700	159.07694	25.76992	0.2816429	0.18172735	3.0868997	20	5 27.5	21.5
358770 2008 DD <sub>18</sub>	16.0	X	247.15776	224.53865	148.05240	12.12305	0.1267961	0.18536182	3.0464159	20	5 30.5	20.8
358771 2008 DG <sub>18</sub>	16.5	X	202.43725	188.21514	347.97129	13.01263	0.1322464	0.20956097	2.8071295	20	10 27.8	21.1
358772 2008 DJ <sub>28</sub>	17.0	X	127.92358	267.24925	342.14770	3.10497	0.0505582	0.21383267	2.7696189	20	11 16.5	21.1
358773 2008 DG <sub>34</sub>	16.3	X	118.74254	54.49385	181.22406	9.29516	0.1117384	0.19902390	3.0053551	20	10 24.2	20.8
358774 2008 DK <sub>38</sub>	16.2	X	123.62133	173.39270	3.77987	11.43152	0.1797247	0.18803787	3.0174436	20	8 24.2	21.1
358775 2008 DJ <sub>43</sub>	16.5	X	167.20975	87.15412	197.69302	6.66691	0.2175428	0.21907880	2.7252257	20	—	—
358776 2008 DW <sub>43</sub>	16.6	X	157.42916	83.49124	108.95295	3.10108	0.0913434	0.20236864	2.8732532	20	10 10.4	20.9
358777 2008 DG <sub>56</sub>	15.4	X	355.78562	135.00894	167.89338	22.51830	0.1633836	0.18657296	3.0332177	20	8 4.9	19.1
358778 2008 DF <sub>58</sub>	15.6	X	99.31226	105.69500	118.81679	16.98287	0.0429428	0.19222547	2.9734600	20	9 15.8	20.1
358779 2008 CA <sub>63</sub>	16.6	X	48.30624	269.53180	357.47941	13.09456	0.1800439	0.19040096	2.9924251	20	9 19.9	20.4
358780 2008 DF <sub>63</sub>	16.9	X	126.52200	225.52758	35.11038	3.78507	0.0475364	0.20965681	2.8062739	20	11 28.2	20.9
358781 2008 DB <sub>82</sub>	16.0	X	348.60037	286.11880	14.51056	8.13144	0.0700005	0.18398811	3.0615607	20	7 23.4	20.0
358782 2008 DA <sub>83</sub>	16.7	X	287.11131	299.21516	87.33679	1.91631	0.0297178	0.19262100	2.9693881	20	8 19.7	20.6
358783 2008 DD <sub>83</sub>	16.0	X	30.15776	80.04155	201.37230	10.14305	0.1159268	0.18524237	3.0477254	20	8 30.1	20.0
358784 2008 DX <sub>83</sub>	16.1	X	280.53563	317.65789	25.49514	11.18276	0.0805286	0.17716977	3.1396144	20	6 4.1	20.6
358785 2008 DZ <sub>84</sub>	16.5	X	166.96008	292.35925	154.72569	7.59048	0.2078315	0.18129457	3.0918104	20	6 11.1	21.8
358786 2008 DW <sub>88</sub>	17.7	X	325.49058	299.96772	179.67925	20.37272	0.0679814	0.38198017	1.8812312	20	—	—
358787 2008 EL <sub>5</sub>	16.5	X	101.17723	179.62711	77.39304	3.14312	0.0223131	0.20355478	2.8620805	20	10 23.9	20.5
358788 2008 EJ <sub>10</sub>	16.2	X	170.83362	113.67545	20.74456	9.62456	0.0601447	0.19201487	2.9756338	20	8 15.2	20.7
358789 2008 EQ <sub>10</sub>	15.9	X	63.24976	168.16547	141.69388	10.29014	0.0712839	0.20485465	2.8499604	20	11 21.3	20.1
358790 2008 EG <sub>16</sub>	16.1	X	2.84780	89.51531	185.19676	9.50110	0.0435106	0.18040763	3.1019357	20	7 5.9	20.4
358791 2008 EV <sub>16</sub>	16.6	X	165.41397	314.59331	180.03637	7.37998	0.0757325	0.18802121	3.0176219	20	8 3.3	21.2
358792 2008 EH <sub>20</sub>	15.6	X	323.64709	113.02860	186.64901	16.48557	0.0645143	0.17793121	3.1306508	20	6 12.3	20.0
358793 2008 EE <sub>25</sub>	16.7	X	168.98338	213.33041	24.82445	9.03325	0.1854552	0.21096753				

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>		
358801	2008	EV <sub>58</sub>	16.5	X	24.80931	139.43473	144.45168	2.74451	0.0653116	0.19467172	2.9484978	20	8 23.4	20.2
358802	2008	EA <sub>62</sub>	16.1	X	326.66899	144.88561	204.46177	8.75654	0.1220335	0.19530710	2.9420995	20	8 16.4	19.7
358803	2008	EO <sub>72</sub>	16.2	X	127.91013	334.15011	139.12345	10.55626	0.0494968	0.17875905	3.1209779	20	5 28.2	20.9
358804	2008	EB <sub>77</sub>	16.5	X	42.86777	89.49995	153.32236	4.92379	0.2551350	0.17934428	3.1141847	20	8 21.8	20.3
358805	2008	EA <sub>79</sub>	16.2	X	223.20039	301.37928	173.27113	10.44585	0.0618770	0.20016267	2.8943252	20	9 15.9	20.4
358806	2008	EL <sub>79</sub>	16.3	X	121.70405	306.92901	191.81728	9.63482	0.2006714	0.18372000	3.0645386	20	7 2.9	21.4
358807	2008	ED <sub>80</sub>	16.2	X	102.65990	91.07395	112.67754	4.61993	0.0925093	0.18952676	3.0016199	20	8 25.6	20.6
358808	2008	EZ <sub>80</sub>	16.4	X	52.21078	265.83353	25.57251	5.98169	0.0428409	0.19901454	2.9054462	20	10 7.9	20.4
358809	2008	EF <sub>83</sub>	15.5	X	53.02177	49.78466	214.67888	9.45197	0.0216730	0.19270235	2.9685524	20	8 27.1	19.8
358810	2008	EU <sub>90</sub>	15.4	X	48.90753	137.09956	106.68861	20.25460	0.1508611	0.18336881	3.0684502	20	8 19.7	19.7
358811	2008	EZ <sub>110</sub>	16.2	X	334.95725	318.48220	59.72337	6.98057	0.0827790	0.20231131	2.8737961	20	10 16.9	19.8
358812	2008	EP <sub>112</sub>	16.2	X	88.89462	250.69597	346.32336	9.62344	0.0622927	0.19248709	2.9707651	20	9 15.2	20.5
358813	2008	EJ <sub>116</sub>	16.8	X	51.45052	125.42281	152.63350	2.68777	0.0412409	0.19199883	2.9757994	20	9 18.5	20.7
358814	2008	EO <sub>118</sub>	16.6	X	83.00534	0.16636	324.29109	5.75666	0.0727874	0.21745111	2.7388083	20	—	—
358815	2008	ER <sub>121</sub>	16.2	X	186.26819	80.32187	358.43053	15.96183	0.1030938	0.18175263	3.0866134	20	6 16.8	21.3
358816	2008	EU <sub>122</sub>	16.0	X	227.64811	117.99487	336.57431	8.97852	0.0415600	0.19201630	2.9756190	20	8 28.4	20.3
358817	2008	ES <sub>123</sub>	17.0	X	164.47270	66.51031	128.80103	4.92860	0.0230036	0.20838718	2.8176609	20	10 24.7	21.0
358818	2008	ES <sub>124</sub>	16.7	X	3.25560	85.48086	268.02711	4.44958	0.0757457	0.20723144	2.8281273	20	10 24.2	20.3
358819	2008	EU <sub>125</sub>	16.7	X	40.17061	276.13697	2.23816	9.71253	0.1851097	0.18609222	3.0384394	20	9 23.6	20.6
358820	2008	EZ <sub>142</sub>	16.1	X	143.78267	73.12409	138.08952	11.43147	0.1798856	0.19711942	2.9240386	20	10 22.6	21.1
358821	2008	EC <sub>143</sub>	16.1	X	153.14460	122.82225	319.24307	11.07605	0.1760240	0.17984464	3.1084059	20	5 19.9	21.4
358822	2008	EV <sub>148</sub>	15.7	X	56.68420	292.25548	347.00570	10.96011	0.0846219	0.19277323	2.9678246	20	9 29.9	19.8
358823	2008	EZ <sub>150</sub>	16.3	X	131.15568	346.89971	171.94800	6.12068	0.0670132	0.18291081	3.0735702	20	7 26.8	20.9
358824	2008	EQ <sub>152</sub>	15.9	X	170.68638	272.26041	163.58942	11.22413	0.0579104	0.17434620	3.1734212	20	5 30.3	20.8
358825	2008	EM <sub>153</sub>	16.9	X	105.34885	86.43602	145.80714	3.14147	0.1701937	0.19255934	2.9700219	20	10 9.9	21.5
358826	2008	EV <sub>153</sub>	16.5	X	189.70268	308.95176	189.88069	11.09950	0.0274897	0.19191651	2.9766504	20	9 7.1	20.9
358827	2008	EH <sub>156</sub>	15.7	X	44.99515	327.84829	330.60700	9.98211	0.0923289	0.19658493	2.9293363	20	10 9.1	19.7
358828	2008	EY <sub>158</sub>	16.6	X	39.42360	278.08388	24.93026	12.51191	0.1157355	0.19261980	2.9694005	20	10 15.2	20.5
358829	2008	EW <sub>164</sub>	16.5	X	357.66498	165.36749	148.17263	3.60992	0.0870315	0.18852790	3.0122126	20	8 22.5	20.1
358830	2008	EZ <sub>164</sub>	16.6	X	337.52049	219.32158	157.33413	2.29883	0.0802474	0.20065197	2.8896179	20	10 16.8	20.2
358831	2008	EE <sub>165</sub>	16.2	X	333.91480	285.49867	32.55044	0.38459	0.0831027	0.18501172	3.0502579	20	7 21.0	19.8
358832	2008	EN <sub>165</sub>	16.1	X	95.26418	206.99036	11.47755	8.94577	0.0882376	0.18785543	3.0193970	20	9 5.5	20.5
358833	2008	ED <sub>168</sub>	15.4	X	318.55898	331.79710	12.28448	10.17567	0.0946206	0.18385190	3.0630727	20	8 3.8	19.4
358834	2008	FC <sub>3</sub>	16.2	X	296.19131	38.63015	344.08178	6.73409	0.0606285	0.19519366	2.9432393	20	8 23.8	20.0
358835	2008	FL <sub>10</sub>	16.6	X	127.96031	196.32279	297.76916	2.24811	0.0553623	0.18366301	3.0651725	20	6 21.8	20.9
358836	2008	FW <sub>18</sub>	16.7	X	74.05670	204.09942	3.21571	4.65784	0.0701081	0.18440516	3.0569430	20	7 22.8	20.9
358837	2008	FA <sub>26</sub>	15.4	X	78.91449	225.42286	26.64105	15.00239	0.1683495	0.18709009	3.0276258	20	10 7.9	20.0
358838	2008	FC <sub>27</sub>	15.3	X	50.44913	49.77721	215.20561	12.10490	0.1779218	0.18202893	3.0834892	20	9 15.2	19.6
358839	2008	FP <sub>28</sub>	16.3	X	288.10309	62.66291	342.82721	10.10272	0.0190348	0.20037927	2.8922391	20	9 15.1	20.3
358840	2008	FF <sub>31</sub>	16.8	X	314.65833	245.71086	182.53393	3.63648	0.0821591	0.21232993	2.7826713	20	11 21.1	20.1
358841	2008	FD <sub>53</sub>	16.3	X	16.30520	95.95936	194.78770	9.75816	0.2739821	0.17916461	3.1162663	20	9 10.5	19.6
358842	2008	FD <sub>54</sub>	16.4	X	34.05075	151.75185	128.26142	2.46413	0.1111270	0.18444875	3.0564613	20	9 6.0	20.3
358843	2008	FN <sub>56</sub>	16.2	X	233.46456	94.61461	38.53379	6.64209	0.0315767	0.20183415	2.8783236	20	10 26.5	20.2
358844	2008	FY <sub>57</sub>	15.7	X	40.40014	56.79854	202.09518	16.31194	0.1940292	0.17841295	3.1250128	20	8 25.1	19.9
358845	2008	FV <sub>61</sub>	16.9	X	86.65317	230.52684	33.50669	2.05083	0.0741513	0.19665113	2.9286788	20	10 19.2	20.9
358846	2008	FL <sub>62</sub>	16.9	X	83.29036	37.98208	242.86017	1.13899	0.0314708	0.20418027	2.8562324	20	10 31.9	20.8
358847	2008	FS <sub>62</sub>	17.0	X	108.57235	77.31982	115.95587	3.65447	0.0837414	0.19047300	2.9916706	20	8 17.7	21.4
358848	2008	FW <sub>63</sub>	15.7	X	86.14929	228.67331	22.71708	19.22380	0.3287428	0.18825360	3.0151380	20	10 24.9	20.9
358849	2008	FG <sub>64</sub>	17.8	X	314.11834	289.67877	187.32005	21.19039	0.0880280	0.37908314	1.8908035	20	—	—
358850	2008	FM <sub>65</sub>	16.0	X	206.69485	239.50142	178.52809	9.82793	0.1113570	0.17964272	3.1107347	20	6 12.8	21.0
358851	2008	FR <sub>73</sub>	16.2	X	340.16564	165.04272	159.33039	9.84378	0.0948451	0.18299896	3.0725831	20	8 6.8	20.1
358852	2008	FJ <sub>75</sub>	16.4	X	240.57365	44.52389	116.13128	4.70475	0.1641292	0.21373228	2.7704861	20	11 23.1	20.2
358853	2008	FC <sub>77</sub>	16.7	X	208.22900	59.13583	40.50559	0.60117	0.0488844	0.18984663	2.9982474	20	8 10.5	20.9
358854	2008	FZ <sub>77</sub>	15.8	X	330.52980	323.97021	4.54212	11.99840	0.0677767	0.18487268	3.0517870	20	8 4.3	19.9
358855	2008	FS <sub>81</sub>	16.8	X	155.82040	142.00437	19.33053	11.06714	0.0889324	0.19209545	2.9748015	20	9 2.1	21.4
358856	2008	FR <sub>85</sub>	16.3	X	96.25801	37.37072	174.14164	12.14509	0.0181327	0.19016804	2.9948681	20	8 15.3	20.6
358857	2008	FT <sub>87</sub>	16.0	X	31.78628	264.96453	17.80663	9.11239	0.1325765	0.18565329	3.0432266	20	9 11.8	19.8
358858	2008	FZ <sub>88</sub>	16.7	X	179.84909	270.27269	179.86750	9.94791	0.2484729	0.18553080	3.0445658	20	6 23.9	22.2
358859	2008	FN <sub>100</sub>	16.6	X	71.45029	28.01856	174.19604	11.79197	0.0412276	0.17699645	3.1416636	20	7 5.8	21.2
358860	2008	FY <sub>101</sub>	16.2	X	117.21184	44.42964	149.26146	6.86007	0.1518269	0.18618874	3.0373892	20	9 1.9	20.9
358861	2008	FC <sub>102</sub>	15.9	X	31.12351	104.57810	189.53238	15.66798	0.0565149	0.18572480	3.0424454	20	9 10.4	20.0
358862	2008	FN <sub>103</sub>	16.1	X	13.10250	201.67572	102.58199	6.28739	0.1630066	0.18109527	3.0940783	20	9 13.3	19.7
358863	2008	FY <sub>103</sub>	16.3	X	98.02751	35.55057	177.85695	10.82807	0.0386917	0.18392099	3.0623055	20	8 22.2	20.7
358864	2008	FS <sub>105</sub>	16.6	X	357.80618	179.54835	117.12218	4.34022	0.0825684	0.18136469	3.0910134	20	7 30.1	20.3
358865	2008	FF <sub>107</sub>	16.2	X	200.21106	308.72686	187.92868	13.76909	0.0223035	0.19358654	2.9595063	20	9 18.5	20.3
358866	2008	FG <sub>107</sub>	16.2	X	322.39567	149.67804	185.12881	10.95522	0.0258728	0.18321567	3.0701598	20	7 27.3	20.6
358867	2008	FY <sub>109</sub>	16.3	X	5.18087	140.97941	168.14709	9.88126	0.1196429	0.18676459	3.0311425	20	8 29.9	19.8
358868	2008	FE <sub>111</sub>	15.5	X	348.80926	276.31743	23.04901	10.24226	0.0801241	0.17666610	3.1455788	20	7 21.8	19.6
358869	2008	FO <sub>116</sub>	15.9	X	298.66737	305.66834	33.73939	9.61093	0.0930347	0.17544356	3.1601747	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>
358881 2008 GK <sub>4</sub>	15.5	X	78.21092	154.29598	74.32936	17.85712	0.2797124	0.18148352	3.0896640	20	9 28.6	20.7
358882 2008 GL <sub>11</sub>	15.2	X	70.41353	250.20086	41.29110	18.73570	0.3627392	0.18613773	3.0379441	20	11 29.2	20.4
358883 2008 GO <sub>17</sub>	16.4	X	5.58011	203.75095	156.03090	2.22420	0.0775487	0.20388530	2.8589865	20	11 6.7	20.1
358884 2008 GJ <sub>19</sub>	16.2	X	97.88506	87.37511	97.60886	8.89869	0.1050111	0.18092289	3.0960433	20	7 27.8	20.8
358885 2008 GK <sub>21</sub>	15.8	X	301.62489	312.49092	26.40893	10.20697	0.0358671	0.17863437	3.1224299	20	7 6.5	20.2
358886 2008 GX <sub>25</sub>	16.2	X	160.75224	96.17089	43.87817	9.38522	0.0833826	0.18738661	3.0244310	20	8 10.7	20.9
358887 2008 GB <sub>28</sub>	16.1	X	320.57271	170.43803	176.46356	10.72147	0.0736689	0.18526527	3.0474742	20	8 6.5	20.2
358888 2008 GE <sub>33</sub>	16.0	X	285.17066	155.00945	190.67528	10.08549	0.1091112	0.17802983	3.1294945	20	6 11.7	20.4
358889 2008 GL <sub>36</sub>	15.7	X	145.21985	26.52214	77.72720	7.62833	0.1154414	0.17319803	3.1874307	20	6 7.9	20.7
358890 2008 GL <sub>37</sub>	16.0	X	286.98218	154.03086	205.54440	13.32674	0.0599661	0.17574535	3.1565559	20	7 6.7	20.6
358891 2008 GT <sub>38</sub>	16.1	X	38.06581	196.12423	86.90966	6.28083	0.1104307	0.18157221	3.0886579	20	9 18.0	20.2
358892 2008 GA <sub>41</sub>	15.4	X	45.69241	201.45210	43.00205	18.06332	0.1587549	0.17858659	3.1229868	20	8 22.7	19.9
358893 2008 GL <sub>41</sub>	16.4	X	112.68250	31.28304	140.40919	6.17934	0.0871556	0.18033401	3.1027798	20	7 24.5	21.0
358894 Demetrescu	16.1	X	94.10854	188.19407	26.37107	10.24724	0.0457571	0.18372719	3.0644586	20	8 26.4	20.6
358895 2008 GN <sub>46</sub>	16.2	X	92.52897	63.73899	168.40794	9.00394	0.0626951	0.18558701	3.0439511	20	9 13.4	20.5
358896 2008 GD <sub>47</sub>	15.6	X	52.30808	210.05011	64.66258	18.31425	0.2573147	0.18120755	3.0927979	20	10 22.0	20.2
358897 2008 GA <sub>50</sub>	15.6	X	327.91608	122.09882	201.09392	10.25485	0.1184597	0.17679557	3.1440429	20	7 12.8	19.6
358898 2008 GC <sub>50</sub>	16.1	X	84.94107	99.04926	198.03001	9.54861	0.1075721	0.19778529	2.9174722	20	11 30.9	20.5
358899 2008 GM <sub>52</sub>	16.6	X	45.72568	111.14800	189.28089	7.25721	0.0458858	0.19518082	2.9433684	20	10 10.6	20.5
358900 2008 GY <sub>56</sub>	16.5	X	80.63032	91.50920	178.74769	5.17960	0.1389809	0.19321218	2.9633279	20	10 28.1	20.9
358901 2008 GZ <sub>62</sub>	16.4	X	120.67342	319.30748	220.61236	4.53397	0.1622432	0.18700138	3.0285832	20	8 17.9	21.3
358902 2008 GR <sub>80</sub>	16.4	X	168.81822	316.13969	156.85821	10.68606	0.0804381	0.18271927	3.0757178	20	7 11.4	21.2
358903 2008 GG <sub>88</sub>	16.0	X	352.67338	280.64138	40.15065	9.20673	0.0815249	0.18525559	3.0479094	20	8 28.5	20.0
358904 2008 GJ <sub>89</sub>	16.4	X	73.05229	24.79861	179.66214	3.56514	0.1408804	0.17889985	3.1193401	20	7 25.8	20.8
358905 2008 GV <sub>93</sub>	16.8	X	139.23553	100.97103	121.96646	2.49935	0.10709202	0.20343642	2.8631905	20	10 28.2	21.0
358906 2008 GQ <sub>94</sub>	16.0	X	329.84054	309.46103	22.50129	12.94272	0.1490786	0.18328677	3.0693658	20	8 3.2	19.8
358907 2008 GH <sub>96</sub>	16.8	X	92.66956	84.69002	133.77359	5.99347	0.1110818	0.18565256	3.0432345	20	9 3.5	21.2
358908 2008 GG <sub>100</sub>	16.6	X	18.86372	170.14064	104.46343	2.41333	0.1492400	0.17760766	3.1344518	20	8 9.2	20.1
358909 2008 GT <sub>100</sub>	16.6	X	92.70452	183.32738	40.20419	12.34458	0.0877514	0.18543644	3.0455986	20	9 12.1	21.2
358910 2008 GD <sub>103</sub>	15.9	X	261.99303	178.46001	185.76681	7.88069	0.0506533	0.17142609	3.2093576	20	6 14.0	20.5
358911 2008 GZ <sub>114</sub>	16.6	X	113.12984	126.77114	105.62316	6.04980	0.0760047	0.19275201	2.9680425	20	10 12.4	21.0
358912 2008 GR <sub>122</sub>	16.0	X	343.27802	284.51919	41.90719	12.02506	0.0579878	0.18388411	3.0627150	20	8 22.6	20.2
358913 2008 GB <sub>128</sub>	16.2	X	186.65897	128.61994	14.58194	13.99452	0.1228551	0.19616562	2.9335092	20	9 10.7	20.9
358914 2008 GT <sub>128</sub>	15.3	X	104.37278	58.50365	127.67572	28.18092	0.1532746	0.18087882	3.0965463	20	8 10.5	20.0
358915 2008 GT <sub>129</sub>	16.4	X	128.96384	357.62269	148.51412	6.72832	0.0812158	0.18246071	3.0786228	20	7 10.1	21.0
358916 2008 GX <sub>130</sub>	16.5	X	95.34395	21.12126	187.75546	16.37442	0.0896195	0.18398856	3.0615557	20	8 18.2	21.2
358917 2008 GH <sub>131</sub>	15.7	X	32.91630	261.20865	49.65241	12.31124	0.2407672	0.18573689	3.0423133	20	11 3.2	19.6
358918 2008 GQ <sub>139</sub>	16.6	X	14.68473	49.92074	183.83483	1.13912	0.1198786	0.17015063	3.2253760	20	6 3.9	20.4
358919 2008 HK <sub>1</sub>	15.8	X	322.10955	209.37447	119.86792	10.62366	0.0907956	0.17457776	3.1706144	20	7 15.9	19.8
358920 2008 HD <sub>8</sub>	16.1	X	353.83922	211.80495	113.58332	10.45107	0.0883941	0.18371554	3.0645882	20	9 4.1	20.0
358921 2008 HU <sub>9</sub>	15.9	X	320.11184	317.40422	24.00359	9.90216	0.0969917	0.18296055	3.0730131	20	8 2.2	19.9
358922 2008 HT <sub>10</sub>	16.1	X	86.51447	123.29971	41.79128	9.83431	0.1106325	0.17201748	3.2019975	20	6 17.7	20.8
358923 2008 HA <sub>12</sub>	15.6	X	23.33034	232.48879	27.85036	5.24693	0.1462896	0.17671464	3.1450027	20	7 29.4	19.5
358924 2008 HR <sub>15</sub>	15.8	X	64.25645	343.86408	202.71213	17.11687	0.0942771	0.16921872	3.2372069	20	6 14.1	20.5
358925 2008 HJ <sub>16</sub>	16.3	X	160.28757	345.19885	149.61873	9.15422	0.0750816	0.18050160	3.1008590	20	7 29.4	21.1
358926 2008 HV <sub>17</sub>	16.1	X	49.07286	89.85859	153.34555	10.12902	0.0910172	0.17829595	3.1263797	20	8 5.2	20.3
358927 2008 HR <sub>25</sub>	17.1	X	132.44164	91.12712	46.94096	1.73955	0.1028425	0.17832302	3.1260634	20	7 6.0	21.9
358928 2008 HV <sub>33</sub>	15.3	X	52.98781	15.86444	230.81485	16.73588	0.1539649	0.17893628	3.1189167	20	8 18.3	19.9
358929 2008 HX <sub>34</sub>	16.0	X	342.27781	139.35631	178.98647	16.51000	0.1369569	0.17261936	3.1945501	20	7 29.2	20.1
358930 2008 HW <sub>36</sub>	15.7	X	78.37830	165.85161	77.98753	13.59606	0.1555639	0.18319946	3.0703409	20	9 30.5	20.5
358931 2008 HM <sub>43</sub>	16.4	X	136.70067	280.35594	203.03878	7.04006	0.1200945	0.17630674	3.1498516	20	6 22.9	21.3
358932 2008 HL <sub>46</sub>	15.9	X	31.03587	182.34159	81.74315	6.60417	0.1999913	0.17355199	3.1612748	20	8 24.9	19.7
358933 2008 HD <sub>50</sub>	16.5	X	52.45932	131.79458	99.19157	2.71395	0.1293692	0.17561715	3.1580919	20	7 31.8	20.5
358934 2008 HJ <sub>53</sub>	16.2	X	345.42737	159.93623	146.65522	10.13008	0.0908047	0.17476131	3.1683941	20	7 22.0	20.2
358935 2008 HO <sub>53</sub>	15.9	X	348.08385	173.64759	146.14103	10.37365	0.0842898	0.17828993	3.1264501	20	8 13.9	19.8
358936 2008 HB <sub>56</sub>	15.9	X	142.73507	32.62359	93.38291	18.44177	0.1788825	0.17483169	3.1675436	20	7 5.4	21.1
358937 2008 HT <sub>60</sub>	15.7	X	332.82913	132.77948	166.08137	10.17616	0.1983351	0.17431906	3.1737506	20	6 13.3	19.4
358938 2008 HL <sub>61</sub>	16.3	X	74.86505	175.31989	40.47716	2.31310	0.1476816	0.17825459	3.1268633	20	8 14.2	20.7
358939 2008 HS <sub>62</sub>	14.8	X	23.38707	162.88053	97.89628	29.40773	0.1645555	0.17518902	3.1632351	20	7 31.0	18.8
358940 2008 JS <sub>3</sub>	15.9	X	75.57010	136.34661	94.28779	11.59309	0.1338690	0.18209420	3.0827524	20	9 5.2	20.5
358941 2008 JH <sub>6</sub>	15.7	X	61.34641	80.56691	167.88401	13.29774	0.1233835	0.18235519	3.0798102	20	9 3.2	19.9
358942 2008 JM <sub>6</sub>	15.9	X	102.66264	89.66705	134.79285	10.88318	0.0614302	0.18757082	3.0224505	20	9 18.7	20.4
358943 2008 JS <sub>9</sub>	16.6	X	144.90309	330.90710	212.32523	6.94636	0.1161871	0.18831351	3.0144984	20	9 11.6	21.4
358944 2008 JR <sub>22</sub>	16.2	X	351.56619	121.81432	160.88333	9.51596	0.0757197	0.17208731	3.2011313	20	6 30.3	20.4
358945 2008 JN <sub>25</sub>	15.5	X	62.49349	58.10708	182.30216	12.20271	0.1212437	0.17870067	3.1216576	20	8 22.9	19.9
358946 2008 JY <sub>26</sub>	15.8	X	106.87397	220.73388	54.97761	14.68106	0.1588525	0.19595052	2.9392116	20	11 28.8	20.5
358947 2008 JS <sub>27</sub>	16.9	X	41.18917	80.88924	166.75766	5.55914	0.1095560	0.17617668	3.1514017	20	8 2.0	21.0
358948 2008 JA <sub>29</sub>	16.2	X	102.15061	2.39048	182.28773	13.91671	0.2391104	0.18245107	3.0787312	20	8 11.9	21.3
358949 2008 JD <sub>29</sub>	15.9	X	69.49866	13.31844	205.71332	17.97781	0.1437648	0.17832875	3.1259964	20	8 4.9	20.7
358950 2008 JD <sub>31</sub>	16.1	X	137.90796	7.27684	202.58636	9.55264	0.0848342	0.19233638	2.9723168	20	10 8.1	20.5
358951 2008 KJ <sub>3</sub>	16.2	X	330.80227	192.04722	101.68939	6.02529	0.0831002	0.16842632	3.2473523	20	6 13.0	20.3
358952 2008 KR <sub>7</sub>	15.9	X	33.43369	36.82728	228.65850	9.83074	0.0888430	0.17867963	3.1219026	20	8 8.5	20.2
358953 2008 KE <sub>8</sub>	16.1	X	17.00918	169.28257	103.78643	3.80738	0.1867271	0.17321405				

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>
358961 2008 LQ <sub>14</sub>	15.8	X	7.45960	123.62735	177.49069	10.46948	0.0831863	0.17684461	3.1434617	20	8 17.6	20.0
358962 2008 LA <sub>16</sub>	16.2	X	49.71103	87.36032	175.30141	8.90398	0.0544876	0.18247937	3.0784129	20	8 26.2	20.5
358963 2008 NA <sub>1</sub>	14.9	X	18.51504	213.54378	114.95597	23.58795	0.1012581	0.17569974	3.1571022	20	10 23.8	19.5
358964 2008 QD <sub>14</sub>	18.5	X	154.21282	224.19838	175.25709	2.18743	0.2073651	0.29709550	2.2243613	20	3 29.8	21.9
358965 2008 RU <sub>9</sub>	18.0	X	52.77567	207.42769	312.52435	3.39546	0.0921633	0.29974214	2.2112483	20	4 14.5	20.1
358966 2008 RY <sub>16</sub>	14.1	X	317.16805	119.67405	290.44596	3.62159	0.0624757	0.08356787	5.1813528	20	10 5.4	20.8
358967 2008 RE <sub>26</sub>	18.0	X	229.78361	142.32216	213.65425	3.68323	0.1776145	0.30509744	2.1852964	20	4 9.9	21.4
358968 2008 RM <sub>94</sub>	14.1	X	339.74779	210.91338	184.22310	4.92926	0.0941043	0.08357976	5.1808612	20	10 18.7	20.4
358969 2008 RA <sub>98</sub>	18.0	X	106.92925	177.69526	224.53400	1.86924	0.2058074	0.27856887	2.3219222	20	2 11.2	20.6
358970 2008 RD <sub>101</sub>	18.0	X	251.06628	164.57531	190.40416	5.50400	0.1252113	0.30584965	2.1817118	20	5 8.4	20.8
358971 2008 RQ <sub>112</sub>	13.9	X	348.87954	148.03561	224.88102	9.26283	0.1363276	0.08266454	5.2190310	20	10 3.1	20.2
358972 2008 RY <sub>126</sub>	14.4	X	333.07911	349.72941	199.85549	9.23952	0.1280982	0.12571407	5.2455122	20	2 4.4	19.6
358973 2008 RS <sub>146</sub>	17.6	X	71.98833	215.83451	209.94226	4.86257	0.1846934	0.27553160	2.3389545	20	1 14.5	19.6
358974 2008 SN <sub>7</sub>	18.1	X	258.41721	231.53927	129.23922	2.52954	0.2140098	0.31222187	2.1519252	20	5 13.8	20.9
358975 2008 SY <sub>16</sub>	14.0	X	165.75872	297.25894	260.56106	3.89987	0.0332722	0.08232937	5.2331863	20	10 5.9	21.1
358976 2008 SZ <sub>38</sub>	13.4	X	314.70903	228.77204	188.93898	13.31748	0.0507216	0.08158406	5.2650098	20	10 13.9	20.1
358977 2008 SA <sub>77</sub>	14.3	X	320.77284	207.30980	196.90596	7.59713	0.1248499	0.08204384	5.2453211	20	9 29.4	20.6
358978 2008 SO <sub>83</sub>	18.0	X	190.45139	210.63699	159.83179	1.38380	0.1696658	0.29805256	2.2195971	20	3 24.1	21.2
358979 2008 SK <sub>88</sub>	17.7	X	212.29017	12.94002	13.93832	7.85401	0.1422297	0.30534270	2.1841260	20	5 3.9	20.9
358980 2008 SX <sub>109</sub>	17.6	X	112.37840	181.89984	115.26720	2.08411	0.1764072	0.26622059	2.3931777	20	—	—
358981 2008 SK <sub>113</sub>	14.1	X	24.70879	238.13655	83.17007	3.55808	0.0619777	0.08283204	5.2119929	20	9 24.4	20.7
358982 2008 SO <sub>118</sub>	18.2	X	199.14199	17.90005	15.41178	6.18305	0.1757243	0.30246157	2.1979742	20	4 29.3	21.7
358983 2008 SZ <sub>124</sub>	18.2	X	301.78696	331.14317	357.85100	2.30013	0.0419554	0.31253284	2.1504975	20	6 26.9	20.4
358984 2008 SK <sub>127</sub>	18.4	X	108.48892	60.04556	18.45496	3.44567	0.2003603	0.28808203	2.2705197	20	4 1.9	21.1
358985 2008 SB <sub>140</sub>	17.5	X	88.59027	274.62819	200.36257	4.37593	0.1274938	0.29445505	2.2376391	20	4 14.2	19.8
358986 2008 SM <sub>155</sub>	17.6	X	177.77907	17.61936	38.28952	6.55186	0.1528724	0.30274906	2.1965825	20	5 9.4	20.9
358987 2008 SW <sub>165</sub>	17.7	X	131.25813	59.20831	15.67311	7.52340	0.1257273	0.29618037	2.2289408	20	4 13.1	20.5
358988 2008 SC <sub>216</sub>	14.2	X	262.22304	283.77277	174.81423	3.89842	0.0305239	0.08201718	5.2464575	20	9 30.7	21.0
358989 2008 SQ <sub>229</sub>	13.6	X	283.84012	92.35312	354.02387	21.34674	0.0880733	0.08215109	5.2407545	20	9 29.9	20.4
358990 2008 SF <sub>255</sub>	17.6	X	184.42264	221.44264	137.88901	5.28207	0.1564598	0.29319843	2.2440281	20	3 4.9	20.9
358991 2008 SS <sub>255</sub>	17.9	X	133.70670	350.67189	67.90811	5.66468	0.1331223	0.29163430	2.2520446	20	3 29.6	20.9
358992 2008 SG <sub>275</sub>	14.1	X	290.84157	150.77168	288.13254	6.71029	0.0375770	0.08345776	5.1859091	20	10 7.0	21.0
358993 2008 SQ <sub>275</sub>	14.2	X	334.62870	69.62081	332.53909	7.05155	0.0132184	0.08322080	5.1957487	20	10 18.9	21.0
358994 2008 SN <sub>279</sub>	14.1	X	315.40722	76.33587	358.93601	4.45182	0.0245571	0.08363960	5.1783898	20	11 3.4	20.9
358995 2008 SW <sub>287</sub>	18.4	X	3.08552	16.88442	252.66904	2.94534	0.1199541	0.31491334	2.1396464	20	7 12.4	19.8
358996 2008 SN <sub>289</sub>	18.5	X	50.68895	114.47683	351.11306	2.78005	0.1751377	0.28056246	2.3109099	20	1 30.8	20.3
358997 2008 TQ <sub>3</sub>	16.3	X	213.04058	2.37888	8.79198	29.67464	0.2020838	0.30223089	2.1990924	20	4 7.7	20.0
358998 2008 TH <sub>89</sub>	18.4	X	147.70170	60.82678	23.32395	2.85174	0.1021045	0.29999778	2.2099919	20	5 13.2	21.2
358999 2008 TC <sub>94</sub>	18.1	X	143.80413	43.19336	33.97210	6.30267	0.0748881	0.30018696	2.2090633	20	4 26.4	20.8
359000 2008 TP <sub>108</sub>	13.8	X	328.18560	256.58431	153.73893	7.20236	0.0575199	0.08405934	5.1611370	20	10 23.6	20.4
359001 2008 TP <sub>150</sub>	13.4	X	306.44003	242.69580	176.80426	9.73599	0.0348121	0.08215365	5.2406457	20	10 7.9	20.3
359002 2008 TD <sub>190</sub>	16.5	X	35.60451	40.49701	30.47565	12.31577	0.1817734	0.25648525	2.4533591	20	—	—
359003 2008 UY <sub>4</sub>	16.6	X	26.85289	251.79229	215.54078	23.06111	0.3486859	0.26799553	2.3825993	20	—	—
359004 2008 UP <sub>23</sub>	14.2	X	324.42664	3.36077	28.52825	11.49870	0.0156757	0.08010548	5.3295993	20	9 30.7	21.1
359005 2008 UE <sub>36</sub>	17.8	X	92.34808	101.52877	28.05737	6.43153	0.0876845	0.29798676	2.2199238	20	5 3.4	20.2
359006 2008 UR <sub>84</sub>	17.6	X	120.06470	180.59935	240.39818	4.71545	0.1605105	0.28756934	2.2732175	20	3 15.0	20.6
359007 2008 UJ <sub>122</sub>	17.7	X	194.71188	108.78009	315.30989	4.65375	0.0443898	0.30482963	2.1865761	20	6 11.3	20.3
359008 2008 UG <sub>179</sub>	17.7	X	47.29882	261.83498	306.75273	3.07656	0.0890411	0.30186217	2.2008828	20	6 22.9	19.7
359009 2008 UO <sub>184</sub>	18.4	X	50.77112	184.72514	242.37568	3.70206	0.1873030	0.26972210	2.3724207	20	—	—
359010 2008 UV <sub>203</sub>	18.0	X	219.12317	5.53697	11.07216	4.52904	0.1569329	0.30319661	2.1944203	20	4 27.5	21.3
359011 2008 UY <sub>205</sub>	14.1	X	303.83476	202.26337	234.84254	5.26809	0.0832850	0.08382544	5.1707334	20	10 17.8	20.8
359012 2008 UD <sub>215</sub>	18.0	X	139.59327	79.81532	343.70560	5.27026	0.1518877	0.29260124	2.2470804	20	4 9.0	21.2
359013 2008 UJ <sub>251</sub>	18.2	X	93.54287	177.53530	232.80699	2.39769	0.2220811	0.27853642	2.3221025	20	2 5.5	20.6
359014 2008 UG <sub>256</sub>	17.6	X	93.38730	309.84378	208.49534	4.73257	0.0716495	0.30193949	2.2005071	20	6 15.4	20.2
359015 2008 UM <sub>274</sub>	17.9	X	127.02312	15.79826	42.93633	3.83006	0.1133242	0.28767579	2.2726567	20	3 18.1	20.8
359016 2008 UD <sub>288</sub>	17.8	X	89.20622	79.07132	64.35839	6.00273	0.1060717	0.29802432	2.2197373	20	5 23.6	20.2
359017 2008 UA <sub>296</sub>	17.6	X	68.70179	58.21883	33.63953	6.80096	0.1405204	0.28024210	2.3126707	20	2 14.1	19.9
359018 2008 UC <sub>299</sub>	17.7	X	214.19165	73.60713	264.26430	5.33248	0.2367745	0.29490683	2.2353533	20	2 29.7	21.6
359019 2008 UN <sub>314</sub>	17.7	X	85.81563	226.33708	342.50377	3.51349	0.0621578	0.31298969	2.1484044	20	8 19.5	19.9
359020 2008 UP <sub>323</sub>	18.0	X	249.64573	54.80786	276.64894	5.61027	0.2586858	0.30347959	2.1930560	20	3 19.3	21.7
359021 2008 UL <sub>361</sub>	16.6	X	281.02029	95.60095	339.69462	10.80680	0.1448070	0.24268826	2.5454830	20	10 2.6	19.6
359022 2008 UU <sub>366</sub>	17.6	X	168.99091	246.98439	120.13900	4.75909	0.1050305	0.29040057	2.2584184	20	2 25.7	20.6
359023 2008 UO <sub>367</sub>	17.7	X	213.47861	34.73197	345.57887	7.02274	0.1378088	0.30244909	2.1980346	20	4 25.7	21.0
359024 2008 UW <sub>370</sub>	16.6	X	139.21745	52.01169	8.59916	9.41499	0.1951379	0.27729263	2.3290412	20	4 10.2	20.2
359025 2008 VM <sub>16</sub>	14.3	X	316.97239	17.83657	53.58142	7.63608	0.0146495	0.08090043	5.2946283	20	11 3.1	21.2
359026 2008 VD <sub>46</sub>	17.6	X	10.17984	331.05020	188.33607	8.67014	0.1391663	0.27951138	2.3166996	20	1 25.3	19.9
359027 2008 VV <sub>51</sub>	18.1	X	243.83589	23.15357	5.24152	5.91886	0.0892344	0.31179823	2.1538739	20	6 20.5	20.7
359028 2008 VG <sub>68</sub>	17.1	X	317.71384	143.79685	109.13919	6.24400	0.1358597	0.28225449	2.3016651	20	3 17.5	19.7
359029 2008 VA <sub>79</sub>	16.8	X	268.42240	133.12233	104.77119	8.88779	0.0785101	0.26462630	2.4027802	20	1 1.4	20.2
359030 2008 WF <sub>31</sub>	15.8	X	51.55926	349.84466	262.15250	10.98803	0.0824775	0.22584358	2.6705306	20	8 19.6	19.5
359031 2008 WF <sub>32</sub>	16.2	X	321.67628	150.53097	266.18584	29.62152	0.2041261	0.24236994	2.5477113	20	11 28.1	18.5
359032 2008 WQ <sub>45</sub>	17.4	X	3.60481	134.62476	48.59603	4.40797	0.0143948	0.28480331	2.2879122	20	3 3.0	20.0
359033 2008 WM <sub>63</sub>	16.9	X	57.11776	59.53795	53.03973	7.50411	0.0993945	0.27847138</				

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>		
359041	2008	WN <sub>125</sub>	18.1	X	72.99343	193.19042	263.16751	0.79348	0.1524782	0.27434540	2.3456917	20	2 27.3	20.4
359042	2008	WT <sub>130</sub>	17.8	X	285.18930	300.40996	247.79201	2.78053	0.0241559	0.26667672	2.3904481	20	—	—
359043	2008	WA <sub>135</sub>	18.0	X	43.28017	16.23710	64.35624	2.11803	0.1580751	0.26895504	2.3769293	20	—	—
359044	2008	WG <sub>137</sub>	18.0	X	58.93461	236.73668	230.56388	1.85060	0.1739291	0.27674021	2.3321396	20	2 19.3	20.0
359045	2008	XT <sub>4</sub>	16.7	X	15.43463	175.72184	297.93615	5.48021	0.1907189	0.26546541	2.3977142	20	—	—
359046	2008	XL <sub>36</sub>	17.5	X	25.10497	271.10531	269.15488	6.82998	0.1703735	0.28450077	2.2895339	20	3 27.6	19.4
359047	2008	XY <sub>36</sub>	16.8	X	235.13748	330.05285	16.82517	2.36412	0.0837091	0.20951126	2.8075735	20	4 15.8	20.9
359048	2008	XN <sub>43</sub>	17.6	X	83.72756	55.49331	309.64921	4.38016	0.1437550	0.26032114	2.4291990	20	—	—
359049	2008	XR <sub>47</sub>	17.5	X	355.84431	240.11159	280.39955	6.20577	0.0489799	0.27026680	2.3692320	20	1 16.5	20.2
359050	2008	XP <sub>50</sub>	17.4	X	312.41309	91.91546	108.13661	7.34398	0.1375282	0.26312111	2.4119349	20	—	—
359051	2008	YE <sub>10</sub>	18.2	X	79.99561	206.55891	245.63254	5.02716	0.0865648	0.28169823	2.3046942	20	2 19.4	20.9
359052	2008	YH <sub>16</sub>	17.8	X	9.90955	96.53382	114.63941	2.75391	0.1408328	0.28209148	2.3025518	20	4 19.8	19.7
359053	2008	YC <sub>17</sub>	17.2	X	33.53958	174.26294	292.33628	3.61701	0.1051976	0.26565308	2.3965849	20	—	—
359054	2008	YD <sub>20</sub>	17.0	X	281.77919	161.29002	110.54519	6.07987	0.0717835	0.27636302	2.3342611	20	3 3.5	19.9
359055	2008	YZ <sub>20</sub>	17.6	X	30.04917	180.77439	281.38632	1.67138	0.1608887	0.26400565	2.4065446	20	—	—
359056	2008	YN <sub>24</sub>	17.1	X	22.69133	243.49937	264.44169	3.57176	0.1938666	0.27069707	2.3667207	20	2 2.7	18.7
359057	2008	YA <sub>37</sub>	17.8	X	86.52102	88.83757	309.83961	4.44502	0.0970119	0.26347414	2.4097799	20	—	—
359058	2008	YY <sub>37</sub>	17.3	X	307.99736	162.40671	124.13941	6.10351	0.1211236	0.28816834	2.2700663	20	4 22.4	19.8
359059	2008	YL <sub>49</sub>	16.7	X	290.23956	170.67201	104.06746	7.78209	0.1130039	0.27795280	2.3253519	20	3 13.7	19.7
359060	2008	YQ <sub>55</sub>	17.4	X	12.30181	46.55948	99.29111	7.06978	0.0607912	0.26732002	2.3866115	20	1 21.8	20.1
359061	2008	YR <sub>78</sub>	16.8	X	149.35143	78.81648	275.99394	6.70496	0.0946378	0.26657979	2.3910275	20	1 18.2	20.0
359062	2008	YO <sub>81</sub>	17.7	X	295.15661	305.70547	901.90070	5.92436	0.0620138	0.27680141	2.3317958	20	2 14.9	20.6
359063	2008	YF <sub>88</sub>	17.3	X	331.00786	58.86856	98.73735	3.21216	0.1568213	0.26195190	2.4191066	20	—	—
359064	2008	YT <sub>91</sub>	17.8	X	343.87466	108.54613	87.99966	2.16781	0.1266589	0.27334535	2.3514094	20	2 7.8	20.2
359065	2008	YB <sub>98</sub>	17.7	X	128.04256	36.20105	13.99258	2.25432	0.0602855	0.27454454	2.3445573	20	2 29.7	20.7
359066	2008	YB <sub>99</sub>	18.0	X	295.60952	303.47393	303.33868	0.76892	0.1428684	0.27296928	2.3535686	20	2 4.4	21.0
359067	2008	YV <sub>105</sub>	17.4	X	312.20955	87.67104	114.79745	5.25783	0.1316394	0.26444363	2.4038866	20	—	—
359068	2008	YW <sub>108</sub>	17.3	X	300.08440	323.43916	311.53752	6.43158	0.1024013	0.28027052	2.3125144	20	3 21.7	20.3
359069	2008	YH <sub>118</sub>	16.7	X	93.16420	326.22031	95.04940	2.24262	0.1797805	0.18364261	3.0653995	20	2 28.3	20.9
359070	2008	YH <sub>122</sub>	18.2	X	23.96902	332.15415	188.22338	2.21015	0.1509553	0.27454706	2.3445429	20	2 26.8	20.1
359071	2008	YL <sub>126</sub>	17.6	X	73.50280	7.47156	95.72813	4.39937	0.1826549	0.27550336	2.3391143	20	3 17.4	19.9
359072	2008	YP <sub>127</sub>	16.9	X	219.95919	357.88724	300.62174	6.35451	0.1049064	0.26773267	2.3841586	20	1 23.9	20.2
359073	2008	YX <sub>132</sub>	17.3	X	294.89395	195.36329	6.47449	2.38586	0.1273298	0.26071473	2.4267535	20	—	—
359074	2008	YZ <sub>136</sub>	17.5	X	297.29797	301.05720	314.56513	4.84831	0.0998672	0.27856148	2.3219633	20	2 22.9	20.3
359075	2008	YP <sub>138</sub>	16.6	X	212.20782	230.83811	282.77805	10.71706	0.1349793	0.23186180	2.6241174	20	10 13.5	20.7
359076	2008	YF <sub>141</sub>	17.1	X	268.46985	120.87634	138.13285	7.80334	0.0877348	0.26864998	2.3787283	20	1 26.6	20.3
359077	2008	YX <sub>141</sub>	17.8	X	79.27236	326.53442	82.60342	3.62497	0.1833858	0.26749654	2.3855614	20	1 7.2	19.9
359078	2008	YC <sub>143</sub>	17.8	X	311.11842	223.48485	97.01320	3.22056	0.1888531	0.29972611	2.2113272	20	6 5.3	19.6
359079	2008	YF <sub>143</sub>	17.8	X	75.66337	127.38926	247.37457	2.44076	0.2100788	0.25866947	2.4395287	20	—	—
359080	2008	YO <sub>144</sub>	17.6	X	17.71213	4.02189	150.96922	1.65793	0.1255607	0.27036948	2.3686321	20	2 7.8	19.8
359081	2008	YC <sub>146</sub>	17.9	X	61.68566	159.06908	264.53702	2.57278	0.0709573	0.26183105	2.4198509	20	—	—
359082	2008	YQ <sub>149</sub>	17.1	X	108.65118	275.29808	105.68035	6.93318	0.1463008	0.26939362	2.3743487	20	1 8.7	19.8
359083	2008	YC <sub>151</sub>	17.7	X	336.24666	34.22403	160.61771	1.41854	0.1049675	0.27132399	2.3630736	20	1 26.9	20.3
359084	2008	YW <sub>151</sub>	17.7	X	96.17955	208.88179	167.90984	2.30204	0.2279695	0.26390477	2.4071578	20	—	—
359085	2008	YM <sub>154</sub>	17.8	X	75.41162	154.29302	262.18481	3.22589	0.1889706	0.26742675	2.3859765	20	1 11.0	20.0
359086	2008	YJ <sub>159</sub>	17.2	X	45.07667	44.02434	3.76939	1.55475	0.1717312	0.25504944	2.4625580	20	—	—
359087	2008	YQ <sub>165</sub>	17.7	X	312.66948	22.97546	179.49057	2.38083	0.1327816	0.26365319	2.4086888	20	1 1.4	20.9
359088	2008	YM <sub>168</sub>	17.7	X	23.91605	93.67178	1.56008	4.69699	0.1815158	0.26242669	2.4161879	20	—	—
359089	2008	YU <sub>172</sub>	17.7	X	93.93186	349.30932	52.65652	2.23610	0.1763665	0.27007941	2.3703277	20	1 20.9	20.3
359090	2009	AG	17.2	X	48.60138	188.52034	253.60726	1.77245	0.1961049	0.26514306	2.3996572	20	—	—
359091	2009	AL <sub>13</sub>	17.6	X	300.60598	357.07689	161.76423	2.43015	0.1530488	0.25381723	2.4705215	20	—	—
359092	2009	AG <sub>15</sub>	16.9	X	7.02345	15.80615	109.04369	4.63726	0.1357098	0.26086685	2.4258100	20	—	—
359093	2009	AC <sub>17</sub>	17.6	X	357.39462	19.29740	97.60670	3.47464	0.1497801	0.25921250	2.4361204	20	—	—
359094	2009	AC <sub>21</sub>	16.8	X	239.15452	264.80940	329.92948	10.67478	0.2609708	0.24168719	2.5525071	20	—	—
359095	2009	AF <sub>26</sub>	17.2	X	9.81249	29.50639	116.55664	2.50311	0.1340206	0.26746612	2.3857423	20	1 10.7	19.6
359096	2009	AX <sub>28</sub>	17.5	X	63.13928	296.59267	115.47145	4.80483	0.1938093	0.26299631	2.4126979	20	—	—
359097	2009	AV <sub>33</sub>	17.6	X	294.03647	215.05837	61.50691	3.51288	0.1385433	0.27943581	2.3171172	20	3 15.2	20.4
359098	2009	AB <sub>38</sub>	17.8	X	297.10010	51.37067	142.62783	1.67392	0.1200460	0.25970125	2.4330630	20	—	—
359099	2009	AG <sub>42</sub>	17.5	X	144.30713	158.05665	256.14903	3.89175	0.1450061	0.28188021	2.3037021	20	4 1.7	20.7
359100	2009	AH <sub>42</sub>	16.8	X	254.03748	135.97027	96.99837	5.37853	0.0992584	0.25639178	2.4539553	20	—	—
359101	2009	AB <sub>46</sub>	17.5	X	119.12021	27.15804	11.97635	1.57332	0.1758351	0.27248033	2.3563834	20	2 20.3	20.6
359102	2009	AN <sub>47</sub>	17.1	X	277.32708	145.01319	139.24698	7.53361	0.1078792	0.27529651	2.3402859	20	3 9.0	20.2
359103	2009	Ottopiene	17.0	X	207.79093	12.49263	323.63992	11.96131	0.2026470	0.28049453	2.3112830	20	2 24.8	20.8
359104	2009	BP <sub>4</sub>	17.3	X	322.06804	291.38695	234.47107	5.00945	0.1472612	0.25829269	2.4419006	20	—	—
359105	2009	BD <sub>7</sub>	17.2	X	302.02981	242.42250	194.80191	4.01338	0.2811832	0.24026167	2.5625935	20	11 3.1	18.9
359106	2009	BJ <sub>7</sub>	17.7	X	26.82024	168.52265	271.66447	4.97870	0.1552004	0.25905678	2.4370966	20	—	—
359107	2009	BY <sub>8</sub>	17.7	X	40.21302	335.84346	129.42525	3.07582	0.1619086	0.26688662	2.3891945	20	1 9.2	19.7
359108	2009	BH <sub>23</sub>	17.4	X	69.20506	87.80858	0.98181	5.39176	0.1753711	0.26937563	2.3744545	20	2 16.0	19.6
359109	2009	BY <sub>23</sub>	17.7	X	53.90181	32.49109	79.59940	4.16290	0.0653756	0.26834843	2.3805100	20	2 10.3	20.4
359110	2009	BP <sub>27</sub>	17.5	X	83.26868	45.52176	81.43498	3.63943	0.0933803	0.28085314	2.3093151	20	4 20.3	20.2
359111	2009	BY <sub>28</sub>	17.3	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>
359121 2009 BP <sub>51</sub>	17.6	X	342.51059	84.53623	106.80344	2.12368	0.1230531	0.26844948	2.3799126	20	1 30.2	20.2
359122 2009 BE <sub>52</sub>	17.4	X	108.24958	80.61912	314.61957	6.07450	0.1113336	0.26710922	2.3878670	20	1 22.9	20.1
359123 2009 BZ <sub>52</sub>	17.6	X	64.48704	303.43667	101.61023	2.61216	0.1759477	0.25985243	2.4321192	20	—	—
359124 2009 BC <sub>54</sub>	17.8	X	93.80498	300.83175	95.19238	3.55134	0.1999510	0.26524682	2.3990314	20	1 17.0	20.3
359125 2009 BL <sub>64</sub>	17.3	X	34.26598	9.69268	106.13046	3.38280	0.1008780	0.26558160	2.3970149	20	1 13.9	19.5
359126 2009 BJ <sub>65</sub>	17.6	X	240.20668	27.54032	235.79072	1.23304	0.1770635	0.25641214	2.4538254	20	—	—
359127 2009 BS <sub>65</sub>	17.7	X	55.13329	289.58711	141.24493	5.47898	0.1652678	0.26101186	2.4249115	20	—	—
359128 2009 BY <sub>66</sub>	16.4	X	134.78414	139.07901	159.91564	6.90060	0.1148144	0.24245324	2.5471277	20	—	—
359129 2009 BU <sub>70</sub>	17.2	X	33.90471	188.89695	275.93706	1.30696	0.1748428	0.26302448	2.4125256	20	—	—
359130 2009 BD <sub>72</sub>	17.2	X	344.30537	271.64524	239.02336	3.78335	0.1375643	0.26052499	2.4279317	20	—	—
359131 2009 BL <sub>77</sub>	15.8	X	76.89205	88.61060	100.27219	16.09758	0.0921288	0.20511309	2.8475660	20	7 5.4	19.6
359132 2009 BN <sub>78</sub>	16.8	X	267.58680	88.41137	63.55343	13.56338	0.1258190	0.23877846	2.5731946	20	12 31.4	19.8
359133 2009 BR <sub>78</sub>	17.1	X	30.41889	9.12296	106.98358	7.32988	0.1269543	0.26541640	2.3980094	20	1 6.6	19.2
359134 2009 BB <sub>83</sub>	17.1	X	7.09491	84.35035	40.21546	9.03192	0.1645570	0.26024728	2.4296586	20	—	—
359135 2009 BZ <sub>85</sub>	17.8	X	27.88216	321.08245	185.22569	1.09080	0.1263832	0.27034580	2.3687704	20	2 14.4	19.8
359136 2009 BD <sub>86</sub>	17.8	X	294.55289	242.62556	357.39162	0.96637	0.1490128	0.26688589	2.3891989	20	1 25.7	20.9
359137 2009 BM <sub>87</sub>	17.3	X	303.67260	127.25644	109.15781	2.79868	0.1391889	0.26803104	2.3823889	20	2 2.5	20.1
359138 2009 BR <sub>88</sub>	17.9	X	66.58324	152.23644	274.75093	1.96218	0.0703534	0.26276787	2.4140960	20	—	—
359139 2009 BS <sub>88</sub>	17.9	X	278.87590	311.43434	265.35965	1.46313	0.1302107	0.25804088	2.4434889	20	—	—
359140 2009 BU <sub>91</sub>	17.7	X	108.88897	260.08929	127.22115	6.01239	0.2278048	0.26713264	2.3877274	20	1 30.9	20.7
359141 2009 BE <sub>92</sub>	17.5	X	60.95677	296.61934	146.79868	3.42597	0.1759411	0.26634135	2.3924543	20	1 21.0	19.6
359142 2009 BP <sub>94</sub>	17.3	X	298.32621	290.13383	298.87768	2.56588	0.0813517	0.26521403	2.3992291	20	1 25.3	20.3
359143 2009 BK <sub>96</sub>	16.7	X	21.32615	28.10977	92.89091	5.72765	0.1326111	0.26223269	2.4173794	20	—	—
359144 2009 BQ <sub>96</sub>	17.5	X	342.16388	150.70716	4.51835	6.25213	0.2203184	0.25876812	2.4389087	20	—	—
359145 2009 BU <sub>103</sub>	16.8	X	222.43183	296.08032	317.86563	13.74394	0.0943535	0.25200720	2.4823370	20	—	—
359146 2009 BL <sub>105</sub>	17.5	X	101.55872	161.21565	221.04543	1.88133	0.2483446	0.26252889	2.4155609	20	1 17.6	20.3
359147 2009 BZ <sub>106</sub>	17.5	X	50.53200	307.90878	147.64787	2.60548	0.1791671	0.26628789	2.3927745	20	1 17.7	19.4
359148 2009 BV <sub>111</sub>	17.5	X	176.85374	57.97040	287.57339	5.65680	0.1280681	0.27109079	2.3644286	20	2 7.3	21.0
359149 2009 BB <sub>117</sub>	16.9	X	81.87880	46.69969	349.53251	7.49519	0.1182198	0.25858912	2.4400340	20	—	—
359150 2009 BO <sub>119</sub>	17.3	X	269.07308	236.45058	31.73741	2.63077	0.1683256	0.26634703	2.3924203	20	2 1.5	20.7
359151 2009 BU <sub>119</sub>	18.2	X	71.45992	25.57468	18.88674	2.87569	0.1642358	0.25986444	2.4320443	20	—	—
359152 2009 BN <sub>120</sub>	16.7	X	213.16041	119.49110	163.36307	5.97386	0.1185384	0.25758508	2.4463706	20	—	—
359153 2009 BF <sub>124</sub>	17.5	X	6.58240	171.33040	316.82760	5.94485	0.0879538	0.25922020	2.4360722	20	—	—
359154 2009 BG <sub>127</sub>	17.8	X	9.27596	175.26950	293.10455	1.56703	0.1530778	0.25777646	2.4451596	20	—	—
359155 2009 BQ <sub>129</sub>	17.2	X	89.62576	331.57335	91.04304	2.92448	0.1623937	0.26730417	2.3867058	20	2 10.7	19.9
359156 2009 BA <sub>130</sub>	17.8	X	18.93843	145.85193	4.18949	6.13575	0.0798297	0.26541306	2.3980295	20	2 8.4	20.4
359157 2009 BK <sub>130</sub>	17.8	X	316.54870	166.96760	49.64899	3.26524	0.1343237	0.26305972	2.4123102	20	1 26.3	20.7
359158 2009 BT <sub>137</sub>	17.9	X	28.20128	321.04678	124.12093	4.90207	0.2013579	0.25969676	2.4330911	20	—	—
359159 2009 BR <sub>138</sub>	17.4	X	277.29635	312.55690	277.18676	1.28918	0.1496908	0.26021240	2.4298757	20	—	—
359160 2009 BU <sub>141</sub>	17.6	X	97.41870	291.77701	106.70650	2.46217	0.1883170	0.26592404	2.3949566	20	1 23.9	20.1
359161 2009 BF <sub>145</sub>	17.2	X	58.39589	310.01973	116.80029	3.59077	0.1625070	0.26179733	2.4200588	20	—	—
359162 2009 BD <sub>150</sub>	17.5	X	319.35465	240.30345	325.47511	2.76317	0.0728963	0.26291560	2.4131916	20	1 24.5	20.3
359163 2009 BN <sub>158</sub>	17.5	X	27.13618	257.30785	157.27745	14.20977	0.0779256	0.24577294	2.5241394	20	—	—
359164 2009 BS <sub>158</sub>	17.0	X	236.42274	270.18798	316.22476	2.68533	0.0420015	0.24762061	2.5115675	20	—	—
359165 2009 BM <sub>161</sub>	17.8	X	319.50243	116.77083	336.35981	11.20571	0.1482854	0.24098660	2.5574518	20	—	—
359166 2009 BD <sub>168</sub>	17.1	X	273.73570	359.43432	270.77841	5.93209	0.1094480	0.26796177	2.3827994	20	2 11.8	20.4
359167 2009 BM <sub>173</sub>	16.9	X	124.97994	33.45277	323.67572	15.48889	0.1126656	0.25870589	2.4392997	20	—	—
359168 2009 BH <sub>185</sub>	16.4	X	256.46836	153.92613	82.70906	7.48101	0.0598774	0.25691893	2.4505974	20	—	—
359169 2009 CX <sub>3</sub>	17.5	X	349.65229	115.12633	77.70342	3.86893	0.1189468	0.27011670	2.3701096	20	2 14.9	19.9
359170 2009 CN <sub>5</sub>	20.0	X	356.58460	53.24194	349.71856	11.90590	0.4652384	0.51326569	1.5449267	20	—	—
359171 2009 CH <sub>12</sub>	17.8	X	347.46985	234.66392	284.20475	1.41666	0.1177306	0.25892166	2.4379444	20	—	—
359172 2009 CD <sub>14</sub>	16.4	X	56.84774	40.63720	9.24071	13.71066	0.1458821	0.25774256	2.4453740	20	—	—
359173 2009 CG <sub>17</sub>	17.5	X	259.55350	198.26012	4.77789	4.72430	0.2177368	0.24215106	2.5492463	20	—	—
359174 2009 CT <sub>20</sub>	17.9	X	325.00765	86.96982	150.23949	6.43744	0.0771043	0.27548961	2.3391921	20	3 14.5	20.4
359175 2009 CW <sub>20</sub>	17.5	X	332.85937	46.73278	161.58297	3.94899	0.1145905	0.26940455	2.3742846	20	2 7.9	20.2
359176 2009 CA <sub>22</sub>	17.4	X	322.48681	4.37834	184.40031	1.52843	0.1468610	0.26160052	2.4212724	20	—	—
359177 2009 CD <sub>23</sub>	17.5	X	243.33631	93.19155	166.83253	4.39349	0.0618322	0.26131646	2.4230267	20	1 2.5	20.8
359178 2009 CL <sub>30</sub>	17.6	X	60.37991	311.24478	101.62512	3.14174	0.2108612	0.25827407	2.4420179	20	—	—
359179 2009 CN <sub>33</sub>	17.2	X	310.93446	325.93567	143.38862	9.35142	0.0701378	0.23935417	2.5690667	20	—	—
359180 2009 CL <sub>35</sub>	17.1	X	7.73827	133.94001	353.26413	5.62344	0.0297088	0.26199620	2.4188339	20	—	—
359181 2009 CE <sub>37</sub>	17.5	X	351.12248	64.48507	56.52524	3.31342	0.1573971	0.25709489	2.4494792	20	—	—
359182 2009 CC <sub>38</sub>	17.7	X	10.37448	180.58199	301.13986	0.59550	0.1472055	0.25946115	2.4345638	20	—	—
359183 2009 CT <sub>40</sub>	18.2	X	0.03091	318.87016	146.84485	2.10926	0.1361348	0.25622806	2.4550005	20	—	—
359184 2009 CV <sub>41</sub>	17.6	X	267.26307	331.82967	262.89812	1.62680	0.1402202	0.25916191	2.4364375	20	—	—
359185 2009 CK <sub>45</sub>	17.3	X	97.03950	268.55657	130.36247	7.41030	0.1132931	0.26691368	2.3890330	20	1 11.2	20.1
359186 2009 CX <sub>45</sub>	16.8	X	239.76574	354.16162	308.58608	6.97979	0.1250447	0.27413211	2.3469083	20	2 15.8	20.3
359187 2009 CN <sub>48</sub>	17.6	X	336.67053	159.89818	16.22218	5.16292	0.1022719	0.25969206	2.4331204	20	1 5.6	20.5
359188 2009 CQ <sub>56</sub>	17.5	X	200.76739	249.53343	11.51228	4.96727	0.0427731	0.24627026	2.5207401	20	—	—
359189 2009 CO <sub>58</sub>	17.6	X	340.29864	111.71913	349.43847	10.20648	0.1809402	0.24459419	2.5322425	20	—	—
359190 2009 CT <sub>63</sub>	16.5	X	296.12189	220.36888	3.41885	10.96415	0.1720071	0.25904899	2.4371454	20	1 6.7	20.1
359191 2009 CD <sub>65</sub>	16.8	X	305.61412	280.90790	198.59432	12.42060	0.2260294	0.23331629	2.6132001	20	—	—
359192 2009 DZ <sub>4</sub>	17.3	X	68.19371	281.45537	155.85146	6.19553	0.1042667	0.26258385	2.4152238	20	1 17.9	19.9
359193 2009 DV <sub>5</sub>	16.5	X	77.17874	40.10317	300.67612	13.46475	0.0222949	0.23805653	2.5783942	20	—	—
359194 2009 DP <sub>11</sub>	16.3	X	247.06946	206.58912	326.29429	12.55901	0.2742630	0.23506542	2.6002208	20	12 2.4	19.9
359195 2009 DQ <sub>11</sub>	17.6	X	300.63738	128.88924	90.15687	0.25339	0.1627483	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>
359201 2009 DQ <sub>56</sub>	18.2	X	303.63817	143.79300	3.45937	6.74926	0.1075822	0.24548119	2.5261390	20	—	—
359202 2009 DU <sub>57</sub>	17.3	X	290.20622	287.05658	146.56328	5.95236	0.3506523	0.23332214	2.6131565	20	9 14.5	19.8
359203 2009 DP <sub>58</sub>	17.4	X	192.91533	272.68074	353.34288	16.17275	0.1448199	0.24219684	2.5489250	20	—	—
359204 2009 DL <sub>60</sub>	17.3	X	242.58988	214.09302	10.52692	9.97934	0.0752221	0.24606335	2.5221530	20	—	—
359205 2009 DN <sub>61</sub>	17.5	X	257.36091	111.90460	58.80060	5.07262	0.1530662	0.23794816	2.5791770	20	—	—
359206 2009 DN <sub>67</sub>	16.5	X	201.34268	111.64828	266.79595	1.07155	0.0922442	0.19121806	2.9838944	20	4 19.1	21.1
359207 2009 DC <sub>72</sub>	16.9	X	295.96001	223.03564	8.82085	6.50027	0.0725028	0.26388035	2.4073063	20	1 29.9	20.1
359208 2009 DW <sub>74</sub>	16.8	X	274.63249	279.59325	307.73170	6.80906	0.2335283	0.25503716	2.4626371	20	—	—
359209 2009 DQ <sub>80</sub>	16.3	X	53.00288	8.96382	355.72900	15.16906	0.1297948	0.23692125	2.5866244	20	—	—
359210 2009 DQ <sub>81</sub>	17.2	X	348.82899	36.42510	153.25360	6.59565	0.0517041	0.26285990	2.4135325	20	2 16.4	20.0
359211 2009 DA <sub>83</sub>	17.3	X	210.33921	94.53141	154.47564	5.72451	0.1903138	0.23844445	2.5755970	20	—	—
359212 2009 DE <sub>89</sub>	17.3	X	201.25558	120.81239	130.71513	5.07697	0.0553124	0.24057824	2.5603450	20	—	—
359213 2009 DZ <sub>97</sub>	17.9	X	40.75316	297.91313	150.03137	5.63550	0.0441872	0.26060813	2.4274153	20	—	—
359214 2009 DR <sub>101</sub>	17.4	X	287.39779	65.14758	103.73499	5.45278	0.1650400	0.24473071	2.5313007	20	—	—
359215 2009 DV <sub>102</sub>	17.4	X	250.37024	128.75345	74.24675	3.87103	0.1535500	0.24187136	2.5512112	20	—	—
359216 2009 DM <sub>104</sub>	17.5	X	257.29943	192.61801	6.92335	5.32195	0.1039618	0.24233699	2.5479423	20	—	—
359217 2009 DY <sub>107</sub>	16.8	X	330.07390	144.22298	49.93102	6.60121	0.0559270	0.26255534	2.4153986	20	1 28.2	19.8
359218 2009 DO <sub>113</sub>	17.5	X	196.19226	58.73600	164.76999	6.13828	0.1623612	0.23235065	2.6204354	20	12 24.3	21.6
359219 2009 DQ <sub>116</sub>	17.6	X	10.22086	282.14538	145.79141	2.30654	0.1706033	0.24635692	2.5201489	20	—	—
359220 2009 DD <sub>117</sub>	17.7	X	246.87388	37.00353	152.42518	1.82797	0.0184055	0.24060265	2.5601718	20	—	—
359221 2009 DR <sub>120</sub>	17.4	X	200.13629	210.96838	356.87738	2.19987	0.0737569	0.23195255	2.6234328	20	12 19.1	21.0
359222 2009 DL <sub>125</sub>	16.8	X	26.60117	234.62027	170.71732	8.04101	0.1213494	0.23871092	2.5736798	20	—	—
359223 2009 DJ <sub>126</sub>	16.7	X	324.44394	208.04465	181.35547	6.18916	0.0525717	0.21908030	2.7252133	20	10 17.9	20.2
359224 2009 DL <sub>127</sub>	17.5	X	341.86984	144.27917	19.70726	6.42404	0.0930435	0.25785565	2.4446589	20	—	—
359225 2009 DM <sub>127</sub>	16.9	X	110.01764	339.99421	352.19444	6.03761	0.1036029	0.23889665	2.5723457	20	—	—
359226 2009 DB <sub>134</sub>	17.5	X	277.41163	272.48715	273.36851	1.15769	0.0964557	0.24522923	2.5278690	20	—	—
359227 2009 DD <sub>138</sub>	17.2	X	267.33824	24.78327	183.45511	12.28815	0.1003734	0.24558222	2.5254461	20	—	—
359228 2009 DL <sub>138</sub>	17.4	X	168.78084	267.26072	340.10797	2.74873	0.1301459	0.23081599	2.6320378	20	12 28.7	21.4
359229 2009 DY <sub>138</sub>	15.9	X	163.60843	340.28781	255.76264	12.02318	0.2935622	0.22429829	2.6827821	20	12 2.6	20.8
359230 2009 DO <sub>139</sub>	17.0	X	203.89882	217.65034	12.78631	12.90492	0.1973242	0.23323163	2.6138325	20	—	—
359231 2009 DO <sub>142</sub>	16.7	X	57.90296	203.53306	188.73727	14.23358	0.1450932	0.23927087	2.5696630	20	—	—
359232 2009 EJ <sub>15</sub>	17.2	X	348.54570	143.91294	1.24719	6.18396	0.0865926	0.25632064	2.4544093	20	—	—
359233 2009 EJ <sub>16</sub>	17.4	X	308.86607	324.79237	260.76939	1.44779	0.1581669	0.26161369	2.4211911	20	1 23.3	20.3
359234 2009 EO <sub>16</sub>	16.8	X	195.72716	124.77508	180.09005	5.97054	0.1539213	0.25343474	2.4730066	20	1 10.2	20.8
359235 2009 EP <sub>17</sub>	16.5	X	174.34053	228.07794	357.05438	12.93471	0.2075019	0.22741793	2.6581914	20	11 28.9	21.1
359236 2009 EV <sub>18</sub>	17.9	X	31.78547	82.30531	18.88578	5.53248	0.2000868	0.26038552	2.4287986	20	—	—
359237 2009 EA <sub>20</sub>	16.8	X	301.03916	101.78443	70.82967	6.09620	0.1079699	0.25069642	2.4909822	20	—	—
359238 2009 EV <sub>26</sub>	17.4	X	317.85842	134.06716	40.27741	4.80534	0.1316779	0.25506037	2.4624876	20	—	—
359239 2009 EC <sub>28</sub>	17.0	X	346.89493	91.50166	16.38484	22.61620	0.0862063	0.24446551	2.5331310	20	—	—
359240 2009 EL <sub>28</sub>	16.8	X	104.63667	235.75785	36.55405	6.68960	0.0215656	0.22009134	2.7168610	20	11 17.5	20.4
359241 2009 EU <sub>28</sub>	16.4	X	232.76812	314.26732	185.90646	15.67931	0.1770945	0.22640132	2.6661428	20	10 20.3	20.2
359242 2009 FT	18.9	X	204.01647	220.61101	90.68860	14.56787	0.7241538	0.50030764	1.5714888	20	1 23.5	22.4
359243 2009 FW	16.8	X	349.36012	152.99553	12.41427	22.86827	0.2478721	0.25990926	2.4317647	20	—	—
359244 2009 FO <sub>1</sub>	16.4	X	278.83155	87.84740	167.04031	9.90738	0.0787118	0.26085342	2.4258933	20	2 3.5	19.7
359245 2009 FH <sub>2</sub>	16.6	X	174.17464	274.85107	0.10794	14.48510	0.0938308	0.23906442	2.5711421	20	—	—
359246 2009 FD <sub>3</sub>	16.3	X	309.84994	131.80657	0.36274	13.04773	0.0868972	0.23997053	2.5646658	20	—	—
359247 2009 FZ <sub>7</sub>	17.2	X	294.07464	304.46444	164.66793	13.75050	0.2348825	0.23577324	2.5950140	20	12 8.8	19.7
359248 2009 FQ <sub>12</sub>	17.2	X	168.45826	297.16176	358.28976	10.94999	0.1720612	0.24127297	2.5554277	20	—	—
359249 2009 FD <sub>16</sub>	16.8	X	75.32673	285.57123	105.76597	5.53153	0.1772204	0.24510125	2.5287488	20	—	—
359250 2009 FU <sub>17</sub>	16.7	X	327.56201	277.31499	169.61559	12.58858	0.1127020	0.23664849	2.5886116	20	—	—
359251 2009 FF <sub>20</sub>	16.2	X	171.87493	161.62860	136.00510	6.67627	0.1663249	0.24199761	2.5503239	20	—	—
359252 2009 FZ <sub>24</sub>	17.4	X	303.48250	29.77218	90.20775	5.27079	0.2258425	0.24083769	2.5585058	20	—	—
359253 2009 FY <sub>25</sub>	17.1	X	243.95941	142.90920	63.80164	16.51735	0.0848918	0.24157251	2.5533149	20	—	—
359254 2009 FL <sub>28</sub>	17.5	X	314.67179	33.78151	99.28251	4.30476	0.0589184	0.24283643	2.5444475	20	—	—
359255 2009 FC <sub>32</sub>	16.0	X	136.03371	264.16004	332.78722	12.77085	0.1576373	0.21224279	2.7834329	20	11 7.8	20.8
359256 2009 FK <sub>32</sub>	17.5	X	212.83392	58.95132	160.80912	5.22585	0.1307782	0.23120242	2.6291042	20	—	—
359257 2009 FK <sub>33</sub>	17.3	X	282.67498	193.58301	31.65193	5.46891	0.1487423	0.25581045	2.4576717	20	—	—
359258 2009 FP <sub>36</sub>	17.1	X	87.15011	151.05546	136.94088	5.71439	0.0913288	0.22069515	2.7119032	20	11 25.7	21.2
359259 2009 FF <sub>41</sub>	17.0	X	275.70704	76.99256	75.04943	6.00082	0.0624271	0.23673343	2.5879924	20	—	—
359260 2009 FQ <sub>43</sub>	16.9	X	240.98227	117.18391	46.88712	31.53980	0.2628088	0.23080432	2.6321265	20	11 13.9	20.6
359261 2009 FK <sub>56</sub>	16.3	X	275.24154	84.94655	84.35913	18.40481	0.1437505	0.24344790	2.5401851	20	—	—
359262 2009 FO <sub>56</sub>	16.0	X	294.28067	215.24038	297.81407	21.56902	0.0732087	0.23924428	2.5698534	20	—	—
359263 2009 FH <sub>60</sub>	16.7	X	246.89211	289.71578	287.30909	1.72315	0.0588968	0.24036187	2.5618813	20	—	—
359264 2009 FP <sub>63</sub>	17.5	X	213.39426	167.87104	35.12102	5.07835	0.1044518	0.22925863	2.6439440	20	12 23.9	21.2
359265 2009 FV <sub>63</sub>	17.2	X	225.97099	78.81757	180.32654	9.61950	0.1475526	0.24250905	2.5467369	20	—	—
359266 2009 FO <sub>67</sub>	17.7	X	35.82757	49.20295	27.05639	4.04764	0.0524494	0.24760232	2.5116912	20	—	—
359267 2009 FQ <sub>69</sub>	17.0	X	321.65695	352.35960	136.15850	5.71329	0.1690894	0.24242170	2.5473486	20	—	—
359268 2009 FQ <sub>71</sub>	17.1	X	165.58068	60.84387	161.83028	4.36751	0.0592425	0.22263132	2.6961572	20	11 28.7	21.0
359269 2009 FV <sub>74</sub>	16.9	X	2.10185	103.36762	46.75898	10.57021	0.1624884	0.25844392	2.4409478	20	1 1.6	19.6
359270 2009 FF <sub>76</sub>	16.7	X	203.59042	136.08321	111.13328	4.70623	0.1221885	0.23345144	2.6121915	20	—	—
359271 2009 FQ <sub>76</sub>	16.2	X	124.13258	143.78614	75.73971	9.87595	0.1022813	0.21080427	2.7960812	20	10 14.2	20.6
359272 2009 FT <sub>76</sub>	16.4	X	276.45392	177.94191	38.53299	8.54291	0.1450677	0.24317908	2.5420567	20	—	—
359273 2009 FL <sub>77</sub>	16.8	X	259.94872	299.79660	200.25432	12.66954	0.1859255	0.23091496	2.6312857	20	11 23.6	20.1
359274 2009 GY <sub>5</sub>	17.1	X	133.07952	119.36085	176.55186	1.52439	0.2059935	0.22595043	2.6696886	20	—	—
359275 2009 HB <sub>2</sub>	16.4	X	202.12452	115.59384	106.51057	11.93781	0.1220339	0.23013571	2.6372221			

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>
359281 2009 HP <sub>8</sub>	16.7	X	45.75484	234.12040	104.20283	7.15187	0.0302872	0.21830150	2.7316910	20	11 30.6	20.4
359282 2009 HA <sub>19</sub>	16.7	X	196.08584	31.98822	215.01694	12.72161	0.2129869	0.23132055	2.6282091	20	—	—
359283 2009 HZ <sub>19</sub>	16.8	X	251.13034	103.18342	120.20840	5.76296	0.1113735	0.24243343	2.5472665	20	—	—
359284 2009 HM <sub>20</sub>	16.1	X	238.91456	124.00666	76.85893	14.28748	0.1322781	0.23232285	2.6206444	20	—	—
359285 2009 HM <sub>24</sub>	16.7	X	299.34051	356.08218	189.71675	14.44647	0.0376692	0.24379388	2.5377812	20	—	—
359286 2009 HD <sub>25</sub>	16.8	X	227.49703	2.96285	214.53482	16.55495	0.2413511	0.23426951	2.6061067	20	—	—
359287 2009 HO <sub>28</sub>	16.4	X	161.09297	259.18687	31.53303	13.09757	0.2611211	0.22837705	2.6507437	20	—	—
359288 2009 HE <sub>30</sub>	17.3	X	133.45161	115.53290	158.33253	6.78051	0.1032620	0.22617377	2.6679308	20	12 26.0	21.5
359289 2009 HL <sub>38</sub>	16.6	X	96.80484	299.09079	36.04395	10.56916	0.1308772	0.23238278	2.6201938	20	—	—
359290 2009 HK <sub>40</sub>	17.3	X	178.65405	100.89941	172.41383	10.71305	0.2521859	0.23349185	2.6118901	20	—	—
359291 2009 HN <sub>41</sub>	17.2	X	190.77154	157.00636	89.29433	4.53767	0.0907619	0.23139843	2.6276193	20	—	—
359292 2009 HR <sub>43</sub>	16.7	X	247.31684	149.03417	60.41830	7.06083	0.1525046	0.23772342	2.5808023	20	—	—
359293 2009 HL <sub>44</sub>	16.9	X	195.56196	133.32101	68.25413	6.22113	0.0808340	0.22287532	2.6941890	20	12 3.2	20.8
359294 2009 HS <sub>45</sub>	16.7	X	116.13190	158.16698	92.35023	4.53840	0.1912191	0.21322330	2.7748932	20	11 13.9	21.3
359295 2009 HZ <sub>45</sub>	17.4	X	230.96491	226.02190	24.97442	3.44306	0.1863373	0.24072186	2.5593265	20	—	—
359296 2009 HR <sub>49</sub>	16.8	X	294.70749	355.65564	154.11999	9.65751	0.0701702	0.23952073	2.5678756	20	—	—
359297 2009 HR <sub>77</sub>	16.6	X	180.17855	171.18668	30.99120	7.81066	0.1196762	0.22001286	2.7175070	20	11 12.8	20.8
359298 2009 HL <sub>78</sub>	16.8	X	124.07894	99.28872	169.13049	5.16912	0.0901152	0.22163068	2.7042664	20	12 9.7	20.9
359299 2009 HA <sub>80</sub>	16.3	X	203.04390	56.62826	169.32447	11.82605	0.1403207	0.22692321	2.6620534	20	—	—
359300 2009 HD <sub>83</sub>	16.6	X	18.43488	197.12270	171.71781	6.48925	0.0588739	0.22442566	2.6817670	20	12 9.0	20.1
359301 2009 HN <sub>83</sub>	16.4	X	231.32056	59.37292	82.50239	14.59319	0.0974064	0.21821418	2.7324196	20	11 2.9	20.4
359302 2009 HM <sub>84</sub>	17.0	X	163.72998	115.48068	106.49525	6.08532	0.1078252	0.21704546	2.7422197	20	11 23.0	21.3
359303 2009 HL <sub>85</sub>	16.4	X	224.09004	136.49127	81.49763	15.47591	0.1483156	0.23264292	2.6182402	20	—	—
359304 2009 HN <sub>85</sub>	16.5	X	178.45918	53.97653	194.26420	15.01721	0.0200885	0.23036713	2.6354556	20	—	—
359305 2009 HO <sub>85</sub>	16.7	X	144.28735	183.90583	80.25783	5.94141	0.1284317	0.22363311	2.6880994	20	12 24.0	21.0
359306 2009 HD <sub>89</sub>	17.1	X	112.37596	51.74350	230.10471	5.23781	0.0603520	0.21574076	2.7532644	20	12 10.9	21.1
359307 2009 HY <sub>90</sub>	17.2	X	271.90651	137.70384	22.00594	4.30782	0.2112921	0.23530047	2.5984888	20	—	—
359308 2009 HT <sub>91</sub>	16.3	X	190.43502	216.57173	46.92532	14.30073	0.0935039	0.23287230	2.6165207	20	—	—
359309 2009 HG <sub>93</sub>	16.6	X	286.73710	350.91465	201.53376	14.76657	0.1702709	0.24073545	2.5592302	20	—	—
359310 2009 HH <sub>103</sub>	17.0	X	108.13523	174.30950	104.79680	5.33706	0.0391461	0.21556560	2.7547556	20	12 2.0	20.9
359311 2009 JQ <sub>1</sub>	16.8	X	226.25010	125.09453	74.10251	5.92674	0.0488699	0.22881934	2.6473268	20	—	—
359312 2009 JE <sub>2</sub>	16.0	X	132.77398	229.22692	48.12787	16.40511	0.2118721	0.21805868	2.7337185	20	12 27.4	20.9
359313 2009 JD <sub>6</sub>	16.3	X	194.19550	53.20055	193.73892	13.05387	0.2197120	0.22814955	2.6525056	20	—	—
359314 2009 JV <sub>6</sub>	17.0	X	214.70103	89.21581	110.74670	8.95012	0.0798212	0.22526517	2.6751000	20	12 24.3	20.8
359315 2009 JW <sub>6</sub>	16.9	X	201.15198	26.91109	150.17732	8.64349	0.1473126	0.21777358	2.7361039	20	11 4.8	21.2
359316 2009 JX <sub>6</sub>	16.7	X	228.01889	5.69306	136.23135	8.93475	0.1464873	0.21649309	2.7468821	20	10 21.5	20.8
359317 2009 JK <sub>7</sub>	17.3	X	140.98076	114.71694	154.31195	0.94734	0.1883527	0.21961654	2.7207754	20	12 25.3	21.9
359318 2009 JS <sub>12</sub>	16.9	X	243.76815	181.14603	85.04547	6.34308	0.1929043	0.24409186	2.5357155	20	1 7.3	21.1
359319 2009 JV <sub>12</sub>	16.8	X	167.40783	87.03412	200.89738	12.33783	0.2647508	0.22741161	2.6582407	20	—	—
359320 2009 JE <sub>18</sub>	17.0	X	199.93457	123.46827	116.78322	12.87088	0.1464627	0.22969962	2.6405589	20	—	—
359321 2009 KU <sub>3</sub>	17.0	X	226.69140	49.44143	176.48395	13.16189	0.1094710	0.23349377	2.6118758	20	—	—
359322 2009 KU <sub>11</sub>	16.8	X	40.12512	306.01461	85.01836	6.39570	0.0697553	0.22672793	2.6635818	20	—	—
359323 2009 KV <sub>14</sub>	15.9	X	155.58720	149.96317	81.78181	9.69506	0.1444926	0.21576173	2.7530859	20	11 25.4	20.4
359324 2009 KP <sub>15</sub>	16.7	X	306.46135	334.73752	109.26919	6.55358	0.0572745	0.21876611	2.7278219	20	12 2.2	20.1
359325 2009 KQ <sub>18</sub>	16.8	X	244.93223	357.83098	199.56783	17.13944	0.1632341	0.23245300	2.6196661	20	—	—
359326 2009 KN <sub>20</sub>	16.7	X	302.61817	37.28970	83.77052	7.66989	0.0887013	0.22603287	2.6690394	20	—	—
359327 2009 KW <sub>21</sub>	16.0	X	115.19079	185.49991	98.71930	14.42874	0.1557741	0.21366752	2.7710459	20	12 20.4	20.4
359328 2009 KD <sub>28</sub>	16.5	X	240.80501	124.89338	85.90794	15.64048	0.2021454	0.23355489	2.6114201	20	—	—
359329 2009 MD <sub>7</sub>	16.2	X	10.94446	105.22445	224.95919	6.15306	0.1351244	0.18930093	3.0040066	20	10 8.2	19.7
359330 2009 OO <sub>6</sub>	16.1	X	18.81820	147.97876	150.22378	11.78036	0.2251481	0.18363321	3.0655041	20	9 23.7	19.6
359331 2009 OD <sub>12</sub>	15.8	X	321.72879	146.36935	201.79326	10.04843	0.2316443	0.17563992	3.1578190	20	7 22.9	19.4
359332 2009 PD <sub>13</sub>	15.7	X	155.75500	163.80683	109.50367	15.21802	0.1453371	0.21218937	2.7839000	20	—	—
359333 2009 PG <sub>19</sub>	15.7	X	56.12698	257.00335	354.74119	9.33817	0.1947843	0.17784912	3.1316141	20	9 11.8	19.9
359334 2009 QV <sub>5</sub>	15.3	X	10.50105	117.16823	183.60755	22.49297	0.2322851	0.17985265	3.1083135	20	9 6.1	18.8
359335 2009 QA <sub>14</sub>	15.7	X	32.42700	292.00828	340.39327	15.25376	0.1851923	0.17628511	3.1501093	20	9 2.4	19.5
359336 2009 QR <sub>38</sub>	18.2	X	105.80876	189.43587	163.20613	23.15496	0.0793589	0.39034124	1.8542705	20	—	—
359337 2009 QL <sub>43</sub>	16.2	X	18.49747	281.70891	23.09182	3.10827	0.2093078	0.17954310	3.1118852	20	9 26.9	19.8
359338 2009 RW <sub>24</sub>	15.2	X	352.17066	103.08330	205.10796	10.74390	0.0870417	0.17256328	3.1952423	20	8 1.2	19.4
359339 2009 RL <sub>40</sub>	13.0	X	204.15402	147.41282	1.78871	25.60005	0.1020831	0.08345051	5.1862096	20	9 21.1	20.2
359340 2009 RX <sub>73</sub>	14.0	X	271.77828	287.41132	168.07929	6.57287	0.0265079	0.08462024	5.1383051	20	10 9.7	20.7
359341 2009 SS <sub>14</sub>	15.9	X	9.18561	67.63165	252.74364	3.97652	0.1314395	0.17865599	3.1221781	20	9 19.0	19.6
359342 2009 SV <sub>119</sub>	15.4	X	32.50952	99.59134	193.52628	26.04621	0.1360267	0.17680587	3.1439207	20	9 20.7	19.5
359343 2009 SE <sub>143</sub>	14.2	X	278.18717	228.09821	199.02381	8.47694	0.0754785	0.08167367	5.2611577	20	9 5.5	21.1
359344 2009 SK <sub>175</sub>	15.8	X	14.73069	134.35223	162.53574	17.04457	0.1662629	0.17709622	3.1404835	20	9 2.5	19.4
359345 2009 SE <sub>198</sub>	14.2	X	309.48023	58.35534	331.66942	6.69972	0.0694165	0.08166284	5.2616232	20	9 3.3	20.9
359346 2009 SE <sub>205</sub>	13.9	X	319.58396	188.45037	220.61567	6.03139	0.0116072	0.08599148	5.0835345	20	10 11.9	20.6
359347 2009 SX <sub>207</sub>	14.0	X	292.77284	104.50383	308.48745	2.53133	0.1207537	0.08202565	5.2460962	20	9 2.4	20.7
359348 2009 SB <sub>233</sub>	16.5	X	94.07166	262.51550	33.77163	9.32445	0.3201709	0.19860960	2.9093942	20	12 22.4	21.8
359349 2009 SG <sub>248</sub>	14.3	X	304.30927	206.89564	204.89582	5.99477	0.1220100	0.08401418	5.1629865	20	9 15.3	20.8
359350 2009 SD <sub>254</sub>	13.9	X	313.31517	155.41548	177.16961	5.39861	0.0576178	0.08435715	5.1489829	20	9 22.1	20.6
359351 2009 SH <sub>289</sub>	13.9	X	299.72365	5.03157	55.49654	8.48617	0.1130516	0.08371311	5.1753581	20	9 25.4	20.5
359352 2009 SH <sub>290</sub>	13.7	X	239.98332	75.05989	55.77090	13.48442	0.1346612	0.08297712	5.2059159	20	10 5.9	21.0
359353 2009 SX <sub>305</sub>	16.8	X	355.33370	90.80553	210.64305	4.60604	0.2857561	0.17563277	3.1579046	20	8 5.6	19.5
359354 2009 SG <sub>347</sub>	14.0	X	278.17323	13.00548	62.93693	8.81308	0.1527206	0.08249604	5.2261352	20	9 11.6	

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>
359361 2009 US <sub>55</sub>	14.1	X	305.44877	31.76737	34.00547	7.85077	0.1006064	0.08294710	5.2071719	20	10 7.7	20.7
359362 2009 UL <sub>102</sub>	15.9	X	331.96636	209.16890	193.05375	8.98255	0.0674311	0.18201190	3.0836816	20	11 6.8	19.9
359363 2009 UR <sub>105</sub>	14.5	X	289.58022	78.73765	354.22003	5.58293	0.1472891	0.08233288	5.2330373	20	9 18.3	21.0
359364 2009 UF <sub>130</sub>	13.4	X	250.21873	12.17717	97.43117	11.75563	0.1340400	0.08294537	5.2072442	20	9 22.4	20.6
359365 2009 VN <sub>11</sub>	14.2	X	325.44408	319.42787	92.00716	2.81985	0.0606202	0.08097879	5.2912123	20	10 19.7	20.8
359366 2009 VK <sub>20</sub>	13.8	X	256.62455	116.85055	0.86399	5.80394	0.0762055	0.08314770	5.1987934	20	10 8.9	20.6
359367 2009 VR <sub>38</sub>	15.4	X	35.45886	258.76184	54.45483	13.56292	0.2313944	0.17880005	3.1205007	20	11 6.9	19.6
359368 2009 WC <sub>57</sub>	13.7	X	347.14231	304.81613	78.23549	8.59847	0.0622539	0.08218739	5.2392113	20	10 17.9	20.4
359369 2009 YG	18.5	X	96.36873	67.48029	138.86710	3.38815	0.6980662	0.31351771	2.1459915	20	10 9.8	23.4
359370 2009 YX <sub>14</sub>	16.8	X	306.28482	83.76862	84.15888	7.91008	0.0490398	0.28423072	2.2909839	20	—	—
359371 2010 AC <sub>27</sub>	17.7	X	34.40602	262.87683	129.80973	24.27424	0.1156094	0.36771792	1.9295655	20	—	—
359372 2010 CN <sub>189</sub>	16.5	X	224.75955	163.57348	189.58364	23.17321	0.1691638	0.28558570	2.2837317	20	4 3.8	19.9
359373 2010 CX <sub>222</sub>	17.3	X	121.04338	295.13869	145.63219	21.90121	0.1588954	0.29030120	2.2589337	20	4 21.6	20.9
359374 2010 DD <sub>18</sub>	17.4	X	267.34300	199.00654	106.95170	6.46546	0.2023142	0.28171117	2.3046236	20	3 15.9	20.8
359375 2010 DU <sub>21</sub>	17.4	X	282.11714	168.28975	311.88375	21.23613	0.0537095	0.35880058	1.9614051	20	—	—
359376 2010 DW <sub>31</sub>	17.5	X	333.25604	349.19578	269.23656	1.84421	0.1440174	0.29052523	2.2577723	20	4 15.4	19.5
359377 2010 EZ <sub>35</sub>	17.4	X	259.94543	309.94288	180.11867	25.02442	0.0723327	0.34835828	2.0004082	20	12 31.5	20.0
359378 2010 ED <sub>42</sub>	17.7	X	279.79901	262.31675	28.46666	7.49286	0.1266409	0.28964358	2.2623517	20	3 17.9	20.6
359379 2010 ED <sub>44</sub>	16.9	X	58.43539	223.76777	19.84055	23.76849	0.1843313	0.31405016	2.1435652	20	9 27.7	19.7
359380 2010 EO <sub>83</sub>	17.4	X	281.29979	259.74069	26.68377	6.37380	0.0880563	0.28918772	2.2647285	20	3 18.8	20.2
359381 2010 FE <sub>64</sub>	17.8	X	138.48001	119.55702	357.42885	3.70185	0.0794665	0.30848814	2.1692540	20	6 16.4	20.6
359382 2010 FA <sub>75</sub>	17.8	X	317.41730	323.72322	300.77827	4.46871	0.2617085	0.28233335	2.3012365	20	3 6.6	20.4
359383 2010 FM <sub>92</sub>	17.8	X	330.78797	53.60927	220.15130	6.28021	0.1629333	0.29811929	2.2192659	20	5 3.2	19.3
359384 2010 GH <sub>29</sub>	18.1	X	76.06806	103.32621	50.71516	7.13660	0.0966195	0.30072144	2.2064451	20	5 17.4	20.4
359385 2010 GA <sub>123</sub>	17.6	X	308.94085	98.72552	190.51766	4.85008	0.1712131	0.29461641	2.2368220	20	4 16.1	19.8
359386 2010 GQ <sub>126</sub>	17.7	X	359.74605	20.82742	228.07722	4.94053	0.1475317	0.29956542	2.2121178	20	5 29.2	19.2
359387 2010 GJ <sub>127</sub>	17.2	X	207.56388	173.11571	124.10708	7.17875	0.1142247	0.26861849	2.3789142	20	1 9.6	20.8
359388 2010 GR <sub>131</sub>	18.5	X	107.12026	260.65739	249.26885	0.86318	0.0616850	0.30571705	2.1823427	20	6 20.9	20.8
359389 2010 GE <sub>153</sub>	16.6	X	174.82839	164.33600	159.46245	9.67971	0.1687974	0.25301407	2.4757471	20	1 14.7	20.6
359390 2010 GO <sub>154</sub>	16.8	X	258.25474	57.65545	108.58163	12.48703	0.0553292	0.23763546	2.5814391	20	—	—
359391 2010 GU <sub>171</sub>	17.2	X	192.18288	160.92572	110.18577	7.55111	0.0639869	0.26579380	2.3957389	20	—	—
359392 2010 HF <sub>6</sub>	17.4	X	266.56450	140.91120	129.69866	5.55700	0.2224009	0.26802905	2.3824007	20	1 27.2	21.1
359393 2010 HC <sub>20</sub>	17.5	X	275.84941	256.99242	60.16489	3.64249	0.0873364	0.29174068	2.2514971	20	4 5.8	20.5
359394 2010 HE <sub>55</sub>	16.5	X	86.34871	159.12344	162.65313	8.25365	0.3537542	0.22453730	2.6808780	20	—	—
359395 2010 HM <sub>79</sub>	17.9	X	334.13213	94.82812	187.24005	4.75326	0.1844968	0.29944228	2.2127243	20	5 23.0	19.4
359396 2010 HS <sub>82</sub>	16.7	X	95.54882	214.72626	90.67797	8.30061	0.1966687	0.22546935	2.6734847	20	12 31.9	21.1
359397 2010 HT <sub>106</sub>	17.3	X	23.17801	221.97363	211.08490	7.34704	0.0821386	0.25968123	2.4331880	20	—	—
359398 2010 HT <sub>106</sub>	17.7	X	319.98633	110.82269	194.38325	5.24401	0.0598262	0.30674283	2.1774746	20	6 17.5	19.9
359399 2010 JD	18.2	X	302.39192	87.16240	203.43915	5.78874	0.1932378	0.29420926	2.2388852	20	4 2.9	20.6
359400 2010 JQ <sub>23</sub>	16.5	X	67.55787	77.74761	260.82380	5.62156	0.1412723	0.22387511	2.6861618	20	—	—
359401 2010 JB <sub>40</sub>	18.0	X	358.01149	243.87953	47.73777	3.10727	0.2891450	0.30317898	2.1945054	20	9 3.7	18.7
359402 2010 JN <sub>43</sub>	17.6	X	95.64512	45.53911	107.17008	3.68570	0.0801736	0.30009381	2.2095205	20	6 11.7	20.0
359403 2010 JS <sub>78</sub>	18.4	X	18.93090	37.16604	194.53037	4.06335	0.1376101	0.29926948	2.2135760	20	6 12.6	20.1
359404 2010 JH <sub>79</sub>	17.6	X	343.22984	38.70878	168.20619	5.36871	0.0874242	0.28323438	2.2963535	20	2 24.2	19.9
359405 2010 JK <sub>79</sub>	17.7	X	358.40489	352.04306	178.45820	5.30380	0.1043378	0.27892292	2.3199569	20	1 25.5	20.1
359406 2010 JV <sub>84</sub>	16.9	X	127.38320	253.72597	113.49149	7.17087	0.0573479	0.26776766	2.3839508	20	1 2.3	19.7
359407 2010 JW <sub>99</sub>	16.9	X	96.13880	214.77585	70.58188	4.26845	0.0096560	0.21885671	2.7270691	20	11 23.1	20.6
359408 2010 JG <sub>115</sub>	16.7	X	269.53181	233.31129	41.03073	7.70736	0.1052882	0.28192438	2.3034615	20	2 17.2	19.9
359409 2010 JO <sub>118</sub>	17.4	X	238.38383	282.76620	63.62432	6.47572	0.1345486	0.28849091	2.2683738	20	4 12.9	20.6
359410 2010 JS <sub>121</sub>	18.0	X	356.43576	138.86926	124.50697	7.77785	0.1510086	0.29816689	2.2190297	20	6 16.7	19.6
359411 2010 KD <sub>46</sub>	15.4	X	255.21287	35.39980	304.48554	15.09099	0.0923487	0.17474106	3.1686388	20	4 23.8	20.4
359412 2010 KX <sub>56</sub>	16.1	X	87.13313	351.87959	345.47709	14.65797	0.2621543	0.22620089	2.6677175	20	—	—
359413 2010 KR <sub>77</sub>	16.0	X	336.05318	42.35333	278.72380	5.67203	0.1353592	0.19180141	2.9778411	20	7 25.7	19.4
359414 2010 KQ <sub>96</sub>	17.3	X	266.86356	103.43021	130.88005	9.38164	0.1731541	0.25387819	2.4701261	20	—	—
359415 2010 KU <sub>114</sub>	16.1	X	33.30659	350.12866	343.03002	22.94631	0.2496082	0.20990968	2.8040198	20	12 3.0	20.4
359416 2010 KZ <sub>121</sub>	15.9	X	284.62844	19.03310	314.40789	9.76240	0.0927550	0.17938888	3.1136684	20	5 26.4	20.4
359417 2010 LQ <sub>1</sub>	17.2	X	306.05795	185.43014	105.99309	6.68705	0.1366675	0.28928561	2.2642176	20	4 24.2	19.7
359418 2010 LT <sub>4</sub>	15.7	X	255.86142	25.49596	343.66271	9.92402	0.2342702	0.17720389	3.1392113	20	5 17.8	20.8
359419 2010 LL <sub>8</sub>	15.8	X	278.48462	8.89689	326.94282	15.93342	0.2285616	0.17789467	3.1310795	20	4 26.6	20.8
359420 2010 LF <sub>10</sub>	16.0	X	242.88906	215.59712	163.94293	9.53463	0.1846492	0.17627903	3.1501818	20	5 27.8	21.1
359421 2010 LF <sub>16</sub>	17.6	X	6.54430	184.05732	71.88533	6.35199	0.1604886	0.29888110	2.2154931	20	6 28.4	19.1
359422 2010 LQ <sub>16</sub>	15.9	X	146.20297	326.35125	320.76328	27.35478	0.1351771	0.23087910	2.6315581	20	—	—
359423 2010 LY <sub>39</sub>	16.6	X	104.42226	114.03358	179.48589	11.55544	0.1505724	0.22085611	2.7105855	20	12 22.4	21.1
359424 2010 LU <sub>43</sub>	15.8	X	75.83768	309.16295	330.34756	16.16545	0.2547372	0.21210020	2.7846802	20	11 11.3	20.6
359425 2010 LO <sub>54</sub>	16.9	X	93.80799	121.29578	179.94427	6.98007	0.1500720	0.21912257	2.7248628	20	12 21.5	21.3
359426 Lacks	16.1	X	253.78705	90.69311	268.12832	8.04064	0.1019420	0.17525029	3.1624977	20	5 20.4	20.9
359427 2010 LD <sub>82</sub>	15.6	X	278.77969	13.05892	315.78905	17.31866	0.2531879	0.17607650	3.1525967	20	4 13.6	20.7
359428 2010 LJ <sub>86</sub>	16.0	X	259.62754	63.40385	289.69617	8.25181	0.0973839	0.17527502	3.1622003	20	5 19.9	20.8
359429 2010 LA <sub>88</sub>	16.5	X	149.90413	302.54753	320.28460	14.12634	0.2171633	0.22743119	2.6580881	20	12 27.5	21.2
359430 2010 LJ <sub>115</sub>	16.6	X	198.74969	286.33353	341.02563	11.20964	0.1651931	0.24038184	2.5617394	20	—	—
359431 2010 LB <sub>118</sub>	16.2	X	261.03317	52.67262	343.69110	9.94238	0.0484833	0.18631749	3.0359898	20	7 27.5	20.5
359432 2010 MY <sub>7</sub>	15.0	X	43.40294	222.28651	253.22303	8.65760	0.0399346	0.14747714	3.5480216	20	2 11.5	20.0
359433 2010 MO <sub>33</sub>	15.9	X	314.06194	130.98483	199.62515	8.78491	0.1740932	0.18421317	3.0590666	20	6 24.6	19.7
359434 2010 MJ <sub>43</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>
359441 2010 <i>MS</i> <sub>77</sub>	16.2	X	173.77410	309.11770	344.60304	7.72619	0.0893836	0.23529835	2.5985044	20	—	—
359442 2010 <i>MG</i> <sub>86</sub>	16.3	X	271.40409	12.01946	359.47022	27.73353	0.1357287	0.17979031	3.1090320	20	6 23.8	21.3
359443 2010 <i>MK</i> <sub>88</sub>	15.1	X	83.59617	170.46612	3.66267	30.18157	0.2149949	0.17240175	3.1972377	20	7 22.2	20.4
359444 2010 <i>MS</i> <sub>88</sub>	17.8	X	342.74557	37.76858	220.08995	3.55876	0.1630492	0.28624454	2.2802261	20	5 3.3	19.3
359445 2010 <i>MH</i> <sub>96</sub>	16.3	X	222.25587	279.14866	185.79284	6.30262	0.0663242	0.19109152	2.9852115	20	8 30.6	20.6
359446 2010 <i>MZ</i> <sub>97</sub>	16.0	X	219.95072	85.73120	342.63071	15.77978	0.0811337	0.17879855	3.1205182	20	7 15.6	20.9
359447 2010 <i>MZ</i> <sub>101</sub>	16.8	X	39.43645	245.39962	98.30359	1.84141	0.0773348	0.20912862	2.8109971	20	12 2.9	20.6
359448 2010 <i>MT</i> <sub>106</sub>	16.3	X	117.88541	193.53559	52.54292	1.03446	0.0389637	0.20424006	2.8556749	20	10 30.7	20.3
359449 2010 <i>NV</i> <sub>11</sub>	15.8	X	202.19316	81.95179	10.02473	12.65090	0.0197455	0.18177687	3.0863390	20	7 30.6	20.4
359450 2010 <i>NQ</i> <sub>12</sub>	17.3	X	149.09158	162.26928	131.92102	2.93231	0.1792133	0.22983654	2.6395102	20	—	—
359451 2010 <i>NZ</i> <sub>14</sub>	15.1	X	263.37370	333.47675	14.47091	18.69186	0.1288215	0.17174680	3.2053610	20	5 9.1	20.1
359452 2010 <i>NR</i> <sub>24</sub>	16.2	X	94.95013	224.14968	27.77039	8.67501	0.1301463	0.20150682	2.8814398	20	10 20.1	20.4
359453 2010 <i>NK</i> <sub>29</sub>	15.5	X	279.09149	263.22267	84.65825	10.53982	0.0988051	0.17519720	3.1631366	20	6 7.9	19.9
359454 2010 <i>NH</i> <sub>30</sub>	15.5	X	169.25184	88.24235	267.35896	8.26085	0.1016620	0.14616864	3.5691646	20	2 21.0	21.1
359455 2010 <i>NW</i> <sub>37</sub>	15.4	X	280.61443	312.70967	12.83781	14.77580	0.0783950	0.17011531	3.2258224	20	5 10.5	20.2
359456 2010 <i>NG</i> <sub>42</sub>	15.8	X	12.91432	155.12553	203.91775	14.68097	0.1452665	0.20450688	2.8531905	20	11 25.6	19.4
359457 2010 <i>NE</i> <sub>45</sub>	16.0	X	59.47898	50.98968	241.38213	4.23695	0.0904105	0.20101522	2.8861358	20	10 24.1	20.0
359458 2010 <i>NE</i> <sub>49</sub>	16.4	X	10.26928	41.34732	262.08623	1.22497	0.1439498	0.19107463	2.9853874	20	9 2.9	19.8
359459 2010 <i>NJ</i> <sub>49</sub>	16.0	X	75.29121	188.80843	26.79303	15.26848	0.0449867	0.18138216	3.0908149	20	8 5.2	20.6
359460 2010 <i>NJ</i> <sub>51</sub>	16.1	X	302.50453	12.74579	293.25288	5.97621	0.1282326	0.17218529	3.1999168	20	5 10.3	20.5
359461 2010 <i>NS</i> <sub>53</sub>	15.8	X	214.97617	243.53523	179.28340	15.92040	0.1001700	0.17378407	3.1802609	20	6 26.9	21.0
359462 2010 <i>NA</i> <sub>55</sub>	15.4	X	136.11007	305.40255	1.37682	31.12230	0.2608689	0.23055083	2.6340555	20	—	—
359463 2010 <i>NG</i> <sub>56</sub>	16.2	X	164.89222	263.30159	356.18917	10.98313	0.1638002	0.22351279	2.6890639	20	—	—
359464 2010 <i>NG</i> <sub>61</sub>	15.7	X	166.83401	39.73187	355.80677	4.94622	0.0672125	0.15443521	3.4406342	20	4 5.2	20.9
359465 2010 <i>NX</i> <sub>61</sub>	15.1	X	224.08458	103.73287	297.72071	20.18795	0.0261783	0.17219639	3.1997793	20	6 19.2	19.9
359466 2010 <i>NB</i> <sub>62</sub>	16.8	X	159.29709	87.28976	182.45235	11.17907	0.1697719	0.22496355	2.6774905	20	—	—
359467 2010 <i>NF</i> <sub>64</sub>	16.0	X	315.80125	112.09176	199.12075	12.61012	0.0208731	0.17387520	3.1791499	20	6 19.6	20.6
359468 2010 <i>NH</i> <sub>70</sub>	15.6	X	304.32586	334.08474	358.92958	14.02754	0.1458947	0.17821050	3.1273791	20	6 15.6	19.9
359469 2010 <i>NH</i> <sub>75</sub>	15.0	X	220.75992	24.22279	29.71649	27.69986	0.1846067	0.17158610	3.2073620	20	6 9.6	20.7
359470 2010 <i>NE</i> <sub>80</sub>	15.7	X	92.24140	154.24312	22.20091	28.00903	0.1197093	0.17212243	3.2006958	20	7 17.7	20.9
359471 2010 <i>ND</i> <sub>99</sub>	15.8	X	221.03084	52.89786	24.99001	11.04682	0.0180866	0.18162227	3.0880903	20	8 4.9	20.3
359472 2010 <i>NZ</i> <sub>114</sub>	16.3	X	132.35657	103.48384	176.42374	13.00771	0.0983221	0.21717694	2.7411128	20	12 29.8	20.7
359473 2010 <i>NZ</i> <sub>117</sub>	17.2	X	248.15200	155.80062	149.84145	9.59888	0.2271139	0.26818406	2.3814826	20	2 22.9	20.9
359474 2010 <i>OQ</i> <sub>4</sub>	15.5	X	303.67403	355.44745	341.48360	11.38650	0.0595568	0.17681617	3.1437987	20	7 4.4	19.9
359475 2010 <i>OO</i> <sub>10</sub>	15.9	X	321.95992	15.96689	358.47888	15.28395	0.0589693	0.19186200	2.9772142	20	9 18.7	19.5
359476 2010 <i>OT</i> <sub>13</sub>	17.2	X	175.93781	245.34069	39.80899	11.98717	0.1832899	0.23336866	2.6128092	20	—	—
359477 2010 <i>OK</i> <sub>15</sub>	16.0	X	348.88636	331.36460	6.84615	13.69713	0.1093666	0.19097970	2.9863766	20	9 14.6	19.6
359478 2010 <i>OE</i> <sub>17</sub>	16.0	X	4.43125	148.27414	137.96269	10.88799	0.0620945	0.18022438	3.1040379	20	7 24.8	20.0
359479 2010 <i>OH</i> <sub>20</sub>	15.7	X	199.39900	101.11322	342.30664	15.48192	0.0791101	0.17320336	3.1873653	20	7 11.2	20.7
359480 2010 <i>OT</i> <sub>26</sub>	16.4	X	147.37174	238.63767	25.76576	10.76793	0.0938795	0.21562769	2.7542268	20	12 26.5	20.8
359481 2010 <i>OT</i> <sub>29</sub>	16.2	X	191.05005	75.38792	41.17124	9.68493	0.0669423	0.18172332	3.0869453	20	8 18.3	21.0
359482 2010 <i>OC</i> <sub>31</sub>	16.2	X	201.38965	122.91451	181.94365	28.79321	0.1095882	0.24248221	2.5469248	20	1 14.2	20.7
359483 2010 <i>OX</i> <sub>33</sub>	16.0	X	61.87454	33.22340	191.33159	9.31189	0.1024681	0.17804930	3.1292664	20	7 29.8	20.5
359484 2010 <i>OR</i> <sub>34</sub>	16.3	X	311.70626	293.18094	10.76190	3.89448	0.0710358	0.17017001	3.2251310	20	5 29.5	20.7
359485 2010 <i>OO</i> <sub>37</sub>	15.7	X	121.20789	27.23166	261.37733	14.32029	0.2377621	0.21967804	2.7202676	20	12 31.8	20.5
359486 2010 <i>OB</i> <sub>39</sub>	15.6	X	153.93419	271.81673	33.29355	15.53725	0.1756164	0.23109655	2.6299071	20	—	—
359487 2010 <i>OM</i> <sub>43</sub>	15.2	X	315.34061	251.30788	82.87270	17.26386	0.1050999	0.17963614	3.1108107	20	7 10.9	19.2
359488 2010 <i>OL</i> <sub>53</sub>	16.0	X	78.12286	325.05551	14.74912	14.48151	0.1561842	0.21657308	2.7462058	20	—	—
359489 2010 <i>ON</i> <sub>59</sub>	15.1	X	72.03486	210.18036	359.21584	25.37646	0.0709445	0.17419911	3.1752074	20	8 1.3	20.0
359490 2010 <i>OK</i> <sub>72</sub>	16.2	X	118.26073	305.20597	41.63523	12.69312	0.2968166	0.23116435	2.6293929	20	1 6.5	20.2
359491 2010 <i>OL</i> <sub>81</sub>	15.7	X	305.09918	355.99746	334.28810	8.71275	0.1014556	0.17448107	3.1717857	20	6 20.5	19.9
359492 2010 <i>OR</i> <sub>82</sub>	15.8	X	18.72204	199.60797	76.62464	3.53376	0.0372297	0.17861258	3.1226839	20	8 1.0	19.9
359493 2010 <i>OD</i> <sub>96</sub>	16.0	X	138.94244	309.40673	280.18524	7.03328	0.1548634	0.20069265	2.8892275	20	11 2.8	20.8
359494 2010 <i>OP</i> <sub>99</sub>	15.9	X	333.14442	348.73923	344.27150	9.90224	0.2376679	0.18572849	3.0424050	20	8 2.2	18.8
359495 2010 <i>OY</i> <sub>107</sub>	15.2	X	310.24871	213.93352	100.32595	11.47946	0.1272477	0.17231947	3.1982554	20	6 4.7	19.3
359496 2010 <i>OA</i> <sub>118</sub>	15.6	X	43.40375	329.57886	309.71139	8.05115	0.0686904	0.18684837	3.0302364	20	9 8.9	19.7
359497 2010 <i>OJ</i> <sub>127</sub>	15.9	X	324.04322	124.02486	216.81587	11.64987	0.1381010	0.19544970	2.9406683	20	7 28.5	19.6
359498 2010 <i>PK</i> <sub>61</sub>	17.3	X	150.87327	132.29568	159.99758	3.12633	0.1663780	0.23424666	2.6062763	20	—	—
359499 2010 <i>PJ</i> <sub>66</sub>	17.0	X	216.89894	52.93109	164.18698	15.12385	0.0754599	0.23405657	2.6076872	20	—	—
359500 2010 <i>PA</i> <sub>74</sub>	15.9	X	264.40771	32.40894	324.64324	9.56580	0.1097802	0.18210450	3.0826361	20	5 28.6	20.5
359501 2010 <i>PE</i> <sub>78</sub>	15.4	X	232.66526	38.91260	4.48907	14.69620	0.0368452	0.16805104	3.2521850	20	6 30.4	20.3
359502 2010 <i>PV</i> <sub>78</sub>	15.8	X	272.94280	42.32728	325.34405	9.04060	0.1229779	0.18447988	3.0561174	20	6 22.2	20.1
359503 2010 <i>PQ</i> <sub>80</sub>	16.7	X	339.24097	173.10076	117.46785	7.47602	0.1228343	0.28131900	2.3067649	20	6 24.0	18.7
359504 2010 <i>QM</i>	17.1	X	258.92513	123.54059	149.66464	1.70649	0.1530607	0.26073840	2.4266067	20	1 29.5	20.8
359505 2010 <i>QD</i> <sub>5</sub>	16.0	X	267.23779	171.93035	179.09947	17.87437	0.2200316	0.17751099	3.1355896	20	5 14.5	21.0
359506 2010 <i>RV</i> <sub>7</sub>	17.4	X	219.88768	54.26303	189.86293	5.59564	0.2083178	0.24217728	2.5490623	20	—	—
359507 2010 <i>RP</i> <sub>10</sub>	16.5	X	207.54116	245.81920	351.70228	12.48819	0.293261	0.23209521	2.6223577	20	—	—
359508 2010 <i>RJ</i> <sub>12</sub>	16.0	X	288.25626	187.43942	169.16801	18.48087	0.3318968	0.18332983	3.0688851	20	5 29.8	20.7
359509 2010 <i>RA</i> <sub>14</sub>	16.8	X	215.82291	236.70104	346.21528	6.76140	0.1660739	0.23143047	2.6273768	20	—	—
359510 2010 <i>RX</i> <sub>43</sub>	15.4	X	124.95211	275.14497	168.36255	10.74715	0.1215509	0.15456950	3.4386411	20	4 26.6	20.7
359511 2010 <i>RV</i> <sub>46</sub>	16.1	X	5.52393	105.79679	194.00595	8.69712	0.1518115	0.18939518	3.0030099	20	8 18.7	19.7
359512 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>
359521 2010 RV <sub>65</sub>	16.8	X	40.78214	13.11815	313.94927	7.50037	0.1255637	0.20991233	2.8039962	20	11 18.9	20.7
359522 2010 RR <sub>75</sub>	17.3	X	48.69726	169.49238	182.56797	5.19160	0.0762237	0.21774704	2.7363262	20	12 26.4	21.2
359523 2010 RT <sub>78</sub>	15.8	X	210.57172	48.52671	352.19352	11.88206	0.1054681	0.17238645	3.1974269	20	5 22.8	20.9
359524 2010 RW <sub>83</sub>	16.2	X	305.65341	151.05538	156.64245	9.79295	0.0876815	0.17728105	3.1383003	20	5 26.6	20.5
359525 2010 RF <sub>88</sub>	15.9	X	160.49579	110.30391	3.51888	9.32052	0.0522190	0.17909025	3.1171288	20	7 4.6	20.6
359526 2010 RG <sub>90</sub>	15.9	X	235.54194	234.96498	150.37573	8.98500	0.0893986	0.17553086	3.1591268	20	6 5.5	20.7
359527 2010 RL <sub>93</sub>	16.1	X	305.41713	177.74134	210.65420	9.74020	0.0348090	0.19657421	2.9294428	20	9 12.4	20.1
359528 2010 RZ <sub>101</sub>	16.3	X	159.27691	304.06933	248.87104	2.22926	0.1068037	0.19731874	2.9220692	20	10 9.6	20.8
359529 2010 RT <sub>102</sub>	16.4	X	36.06991	328.91596	276.42435	2.30738	0.0321671	0.17838739	3.1253113	20	7 14.0	20.6
359530 2010 RD <sub>107</sub>	15.6	X	280.61526	342.36743	15.80239	10.39160	0.0594329	0.17596531	3.1539249	20	6 29.3	20.2
359531 2010 RV <sub>107</sub>	16.5	X	57.78775	107.20812	174.65036	1.81463	0.0919578	0.19588687	2.9362915	20	10 9.3	20.4
359532 2010 RC <sub>108</sub>	16.1	X	27.69500	244.41760	18.97087	9.47157	0.0284461	0.17907063	3.1173565	20	7 29.3	20.5
359533 2010 RQ <sub>112</sub>	16.5	X	116.17621	209.87441	36.18219	4.08614	0.0394334	0.20256998	2.8713491	20	10 28.4	20.4
359534 2010 RS <sub>113</sub>	16.2	X	355.66142	320.25006	344.13093	10.18161	0.1136851	0.18555211	3.0443327	20	8 9.9	19.8
359535 2010 RC <sub>116</sub>	17.1	X	151.01637	217.99690	71.20858	4.23688	0.1166613	0.22718979	2.6599707	20	—	—
359536 2010 RK <sub>125</sub>	16.5	X	2.68067	318.19319	34.40514	6.30362	0.0881013	0.20076478	2.8885354	20	10 23.9	20.0
359537 2010 RX <sub>131</sub>	16.7	X	59.44934	97.66669	205.19320	1.44244	0.0431210	0.20493454	2.8492198	20	11 1.2	20.5
359538 2010 RF <sub>137</sub>	16.4	X	321.61235	31.75626	344.96687	1.82689	0.0732971	0.19748178	2.9204607	20	9 20.6	19.9
359539 2010 RB <sub>143</sub>	16.9	X	170.86028	268.07617	348.12101	13.10273	0.1457534	0.22512510	2.6762095	20	—	—
359540 2010 RX <sub>144</sub>	15.8	X	351.80768	92.73491	202.50677	8.70969	0.0413451	0.17942231	3.1132817	20	7 16.2	20.1
359541 2010 RU <sub>158</sub>	16.5	X	43.48387	358.52769	338.67454	6.32458	0.0336968	0.21335393	2.7737605	20	11 22.8	20.4
359542 2010 RM <sub>162</sub>	15.9	X	228.13920	216.22840	177.66089	11.01893	0.0897047	0.17541635	3.1605015	20	6 7.5	20.8
359543 2010 RD <sub>165</sub>	17.8	X	345.88894	3.72258	3.55838	0.86130	0.1822899	0.30084648	2.2058336	20	11 24.3	19.5
359544 2010 RG <sub>179</sub>	16.3	X	115.97484	285.80029	13.87437	11.00840	0.1603358	0.22244160	2.6976900	20	—	—
359545 2010 RS <sub>179</sub>	15.7	X	277.68786	6.05100	13.53101	9.41461	0.0478983	0.18100184	3.0951430	20	7 27.8	20.1
359546 2010 ST <sub>4</sub>	15.7	X	205.14103	80.85877	342.84779	14.28583	0.0793836	0.17385242	3.1794273	20	6 19.7	20.8
359547 2010 SG <sub>5</sub>	17.1	X	117.75126	168.52235	156.31029	5.77377	0.1698849	0.22713416	2.6604050	20	—	—
359548 2010 SU <sub>17</sub>	17.1	X	167.41700	317.61531	350.15551	1.48051	0.1468414	0.23774161	2.5806706	20	—	—
359549 2010 SO <sub>22</sub>	16.7	X	76.03450	95.09068	158.22782	2.18803	0.0717893	0.19616561	2.9335093	20	9 23.1	20.8
359550 2010 SQ <sub>23</sub>	15.6	X	256.98570	66.87167	301.87857	7.84362	0.0956876	0.17458522	3.1705241	20	6 6.7	20.3
359551 2010 SJ <sub>23</sub>	15.9	X	199.41135	165.78494	274.30835	8.28074	0.0499286	0.17712873	3.1400993	20	7 4.9	20.5
359552 2010 SF <sub>28</sub>	16.2	X	358.32491	79.09209	204.88742	9.39589	0.0758685	0.17883416	3.1201039	20	7 11.4	20.3
359553 2010 SP <sub>31</sub>	15.8	X	355.82919	300.21907	354.57278	10.25807	0.0664648	0.18301894	3.0723594	20	7 27.3	19.9
359554 2010 ST <sub>37</sub>	15.9	X	201.62236	257.08868	165.83129	4.91045	0.1053278	0.17527390	3.1622137	20	6 13.7	20.8
359555 2010 SU <sub>37</sub>	16.4	X	158.98742	333.15307	317.88809	11.85512	0.1363269	0.23513506	2.5997073	20	—	—
359556 2010 SW <sub>38</sub>	15.6	X	297.07058	350.70676	30.01418	12.14515	0.1623313	0.18320334	3.0702975	20	8 11.8	19.6
359557 2010 SW <sub>40</sub>	15.7	X	313.17355	356.82942	333.96426	20.85072	0.2017795	0.18232117	3.0801934	20	6 21.9	19.8
359558 2010 SC <sub>42</sub>	16.1	X	36.49307	330.57087	318.00512	9.37436	0.0681836	0.19123981	2.9836681	20	9 11.7	20.1
359559 2010 TG <sub>5</sub>	15.7	X	220.77891	65.50315	21.82072	11.62995	0.0311259	0.18331871	3.0690092	20	8 16.2	20.2
359560 2010 TD <sub>33</sub>	16.9	X	283.50724	298.44769	59.67235	1.38440	0.0735752	0.17635756	3.1492466	20	6 30.5	21.0
359561 2010 TF <sub>33</sub>	16.6	X	89.85009	121.90858	191.04299	7.31609	0.2055175	0.21628094	2.7486781	20	—	—
359562 2010 TU <sub>86</sub>	16.0	X	78.67846	343.42216	324.76151	8.17804	0.0948017	0.21428870	2.7656881	20	12 8.0	20.1
359563 2010 TN <sub>91</sub>	16.9	X	89.27061	257.51608	31.70619	2.29050	0.0256098	0.20643347	2.8354107	20	11 18.1	20.7
359564 2010 TW <sub>100</sub>	17.2	X	156.44993	132.41569	142.92744	2.84524	0.1714714	0.22591169	2.6699938	20	—	—
359565 2010 TY <sub>104</sub>	16.6	X	135.12830	298.69402	315.72014	3.34936	0.1620262	0.21238417	2.7821975	20	12 1.9	21.2
359566 2010 TC <sub>106</sub>	16.7	X	135.93423	265.47692	356.70768	2.94896	0.1144816	0.21271380	2.7793225	20	12 11.7	21.0
359567 2010 TT <sub>116</sub>	16.2	X	141.17787	53.79953	199.43719	8.83509	0.1598438	0.21165916	2.7885472	20	12 6.7	20.9
359568 2010 TX <sub>119</sub>	16.0	X	231.95706	53.74004	324.99324	9.30884	0.0351418	0.17013314	3.2255970	20	5 26.4	20.8
359569 2010 TD <sub>121</sub>	16.7	X	67.35041	135.17451	101.78483	1.05911	0.1169234	0.18889225	3.0083380	20	8 27.9	20.9
359570 2010 TU <sub>126</sub>	16.1	X	348.16802	44.43227	255.97999	1.96258	0.0711139	0.17902924	3.1178370	20	7 19.1	20.2
359571 2010 TP <sub>128</sub>	15.3	X	44.73488	239.92645	17.63422	11.37938	0.0590378	0.17897509	3.1184658	20	8 19.5	19.7
359572 2010 TZ <sub>152</sub>	16.7	X	130.90972	99.92206	155.92512	5.38459	0.1248729	0.21150923	2.7898649	20	11 30.7	21.1
359573 2010 TJ <sub>153</sub>	15.8	X	60.45347	346.66300	264.46459	8.02961	0.0225317	0.18425223	3.0586342	20	8 18.7	20.3
359574 2010 TT <sub>160</sub>	16.5	X	132.05159	214.10534	52.93422	6.31447	0.1253586	0.21431864	2.7654305	20	12 14.1	20.9
359575 2010 TF <sub>162</sub>	16.8	X	184.37218	177.53925	138.43862	6.09379	0.2698504	0.24244120	2.5472121	20	1 19.9	21.4
359576 2010 TR <sub>163</sub>	16.0	X	318.21293	5.26385	323.11573	8.58718	0.0850078	0.17870271	3.1216339	20	7 11.0	20.0
359577 2010 TY <sub>174</sub>	15.9	X	206.14532	293.70325	324.80756	10.78312	0.1569462	0.23657301	2.5891622	20	—	—
359578 2010 TR <sub>184</sub>	16.2	X	316.17816	339.43939	356.35705	11.30859	0.0961450	0.17871843	3.1214507	20	7 18.5	20.4
359579 2010 TM <sub>187</sub>	16.2	X	296.42133	173.25268	165.88235	12.06395	0.0785777	0.17635689	3.1492545	20	6 22.9	20.6
359580 2010 TE <sub>188</sub>	15.8	X	7.38928	314.53099	3.28585	11.53404	0.1792044	0.19061722	2.9901614	20	9 22.7	19.0
359581 2010 UA <sub>16</sub>	15.7	X	296.48350	327.29881	42.55804	10.54753	0.0980763	0.18012717	3.1051546	20	8 3.6	19.9
359582 2010 UX <sub>20</sub>	16.2	X	1.94763	309.72827	33.55718	12.41901	0.0691256	0.19342917	2.9611114	20	10 9.9	19.9
359583 2010 UQ <sub>41</sub>	15.9	X	344.62902	304.07669	29.29761	10.00679	0.0811988	0.18491736	3.0512954	20	9 1.7	19.8
359584 2010 UA <sub>46</sub>	15.2	X	2.55082	59.29658	234.53178	21.73312	0.1364612	0.17989282	3.1078508	20	7 27.3	19.4
359585 2010 UA <sub>47</sub>	13.9	X	245.52334	89.65236	17.93647	8.41924	0.2237814	0.08399847	5.1636302	20	9 3.8	21.2
359586 2010 UA <sub>53</sub>	16.0	X	330.38346	325.08534	12.66574	7.20808	0.1236589	0.18176328	3.0864928	20	8 11.2	19.7
359587 2010 UN <sub>62</sub>	16.2	X	118.20017	260.69632	25.76369	25.28200	0.1348646	0.21078988	2.7962085	20	12 21.5	21.1
359588 2010 UE <sub>85</sub>	15.9	X	295.96989	163.53869	170.01843	4.41430	0.1580662	0.17412499	3.1761083	20	6 3.6	20.1
359589 2010 UB <sub>95</sub>	15.4	X	260.08488	350.43174	46.91210	10.17752	0.0718510	0.17407983	3.1766576	20	7 22.9	20.0
359590 2010 UA <sub>98</sub>	15.6	X	353.57018	6.07552	340.70655	10.31983	0.0896742	0.19076260	2.9886419	20	9 26.9	19.4
359591 2010 UT <sub>107</sub>	15.7	X	303.95179	295.41829	52.16999	10.41488	0.1110100	0.17425888	3.1744813	20	7 11.1	19.9
359592 2010 VA <sub>1</sub>	19.8	X	161.45499	54.85778	207.14726	11.74799	0.2323950	0.63001611	1.3476226	20	—	—
359593 2010 VD <sub>59</sub>	15.7	X	330.59149	344.99180	327.66044	8.67368	0.0279623	0.17244933	3.1966497	20	7 12.7	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>		
359601	2010	VF <sub>207</sub>	15.3	X	20.00316	356.76608	259.53296	5.52783	0.0859224	0.17038257	3.2224481	20	7 9.5	19.5
359602	2010	VX <sub>210</sub>	15.5	X	55.96083	204.15940	37.98130	17.51982	0.1719780	0.17661647	3.1461680	20	9 5.1	20.1
359603	2010	WU <sub>5</sub>	13.9	X	277.72371	39.64585	39.27599	8.90561	0.1413663	0.08286603	5.2105675	20	9 15.4	20.7
359604	2010	WZ <sub>9</sub>	14.4	X	271.70078	86.72650	355.19972	6.28014	0.2042137	0.08284450	5.2114702	20	9 1.0	21.3
359605	2010	WG <sub>13</sub>	14.1	X	229.85733	179.79837	79.36088	6.97847	0.1398127	0.12565267	3.9477977	20	1 4.6	20.2
359606	2010	WV <sub>63</sub>	14.0	X	285.69828	359.75364	78.32762	11.12429	0.1098878	0.08274212	5.2157684	20	9 29.8	20.8
359607	2010	WD <sub>64</sub>	13.9	X	272.94410	354.64711	101.51737	4.99213	0.0970260	0.08336876	5.1895991	20	10 3.7	20.7
359608	2010	WQ <sub>72</sub>	15.1	X	321.82740	297.45863	256.88415	2.81455	0.1447785	0.12360586	3.9912598	20	1 26.0	20.3
359609	2010	WP <sub>74</sub>	15.7	X	238.87469	16.13284	56.58873	12.66661	0.0570829	0.18073770	3.0981580	20	8 16.5	20.4
359610	2010	XG <sub>39</sub>	13.8	X	286.46651	142.30657	306.33682	8.63127	0.1934534	0.08250163	5.2258993	20	9 22.2	20.6
359611	2010	XP <sub>88</sub>	16.8	X	138.23334	181.11248	199.83210	3.18526	0.1216524	0.23983995	2.5655965	20	2 14.3	20.4
359612	2011	BK <sub>78</sub>	15.7	X	280.48806	220.34507	146.05365	11.18845	0.0689166	0.17900400	3.1181301	20	7 7.5	20.1
359613	2011	BH <sub>153</sub>	16.0	X	304.71786	353.35910	4.99193	9.98386	0.0578513	0.18052271	3.1006173	20	8 5.3	20.2
359614	2011	GK <sub>3</sub>	13.4	X	317.18475	273.32566	121.56765	10.52497	0.0458211	0.08092388	5.2936056	20	9 24.8	20.3
359615	2011	JR <sub>3</sub>	17.4	X	91.00404	213.27295	145.99969	24.18072	0.1261045	0.37417195	1.9073127	20	—	—
359616	2011	JA <sub>11</sub>	13.1	X	219.33874	118.09416	251.95386	20.21904	0.1027080	0.08410449	5.1592901	20	4 28.4	20.5
359617	2011	QK <sub>13</sub>	17.0	X	344.39294	195.08930	222.82506	3.49504	0.2920003	0.24181503	2.5516071	20	—	—
359618	2011	OY <sub>18</sub>	17.3	X	325.62593	324.76354	112.38816	24.33373	0.1057401	0.36387687	1.9431206	20	—	—
359619	2011	OC <sub>23</sub>	17.2	X	39.73308	274.62896	81.68543	5.47688	0.2671503	0.24355364	2.5394498	20	—	—
359620	2011	OR <sub>49</sub>	16.6	X	10.68022	14.32271	34.23287	8.96535	0.2610541	0.24473768	2.5312526	20	—	—
359621	2011	OS <sub>59</sub>	16.5	X	33.07865	201.81188	54.16910	9.62103	0.1055905	0.21723732	2.7406049	20	8 9.6	20.0
359622	2011	PZ <sub>8</sub>	17.8	X	100.94105	153.93597	319.64224	5.16835	0.0682445	0.29578775	2.2309128	20	4 17.3	20.5
359623	2011	QW <sub>9</sub>	17.5	X	204.22735	85.25390	316.76333	7.31549	0.1250112	0.30501956	2.1856683	20	5 16.7	20.8
359624	2011	QR <sub>12</sub>	17.3	X	224.13671	206.21151	317.23594	17.06573	0.0517345	0.35388317	1.9795332	20	12 31.9	19.4
359625	2011	QJ <sub>13</sub>	16.8	X	339.26630	249.00627	169.13058	29.79214	0.3072811	0.23319071	2.6141383	20	—	—
359626	2011	QL <sub>16</sub>	16.3	X	335.19181	243.20532	144.83954	13.86487	0.2894957	0.22530741	2.6747656	20	11 19.9	18.5
359627	2011	QP <sub>18</sub>	17.2	X	99.35918	181.56694	231.08195	6.02313	0.1003860	0.27498317	2.3420634	20	1 28.0	20.0
359628	2011	QV <sub>19</sub>	17.7	X	38.43723	228.23101	204.54903	2.62252	0.1806518	0.25853364	2.4403831	20	—	—
359629	2011	QX <sub>20</sub>	18.0	X	120.10154	128.86390	263.03452	1.91277	0.1603800	0.27404436	2.3474092	20	2 8.3	21.0
359630	2011	QY <sub>28</sub>	17.6	X	336.15500	250.54591	172.05933	11.57557	0.2024332	0.23552075	2.5968683	20	—	—
359631	2011	QU <sub>42</sub>	17.7	X	66.53283	226.93376	224.31828	6.91806	0.1749478	0.27594441	2.3366212	20	2 7.9	20.0
359632	2011	QK <sub>47</sub>	17.8	X	264.47339	318.35846	19.71012	6.30354	0.1393177	0.30140142	2.2031252	20	4 27.1	20.6
359633	2011	QB <sub>49</sub>	17.2	X	129.23137	225.28367	138.76256	6.56227	0.1188526	0.26892652	2.3770973	20	1 9.1	20.3
359634	2011	QX <sub>60</sub>	18.2	X	242.55912	118.86562	215.85504	5.41294	0.1641358	0.29884581	2.2156676	20	3 25.9	21.4
359635	2011	QB <sub>61</sub>	17.4	X	46.78014	164.40116	310.65862	6.05215	0.0655220	0.27824315	2.3237339	20	1 30.7	19.9
359636	2011	QM <sub>62</sub>	17.7	X	107.24331	135.03110	336.42714	5.70793	0.0934531	0.29536221	2.2330550	20	4 27.4	20.5
359637	2011	QP <sub>66</sub>	16.9	X	78.56705	173.97027	196.63241	6.40400	0.1808777	0.25691667	2.4506118	20	—	—
359638	2011	QO <sub>67</sub>	17.6	X	274.36768	339.71275	331.35328	4.43707	0.1916578	0.30520561	2.1847800	20	3 24.8	20.5
359639	2011	QD <sub>68</sub>	17.4	X	200.50009	159.33262	188.23999	8.04653	0.1709031	0.28806236	2.2706231	20	3 3.2	20.9
359640	2011	QF <sub>70</sub>	17.3	X	41.01976	338.29749	351.92544	18.09650	0.0878296	0.34868072	1.9991748	20	12 25.4	20.1
359641	2011	QV <sub>72</sub>	17.7	X	166.05584	47.08027	321.21238	7.32536	0.2244857	0.28148715	2.3058462	20	3 1.3	21.5
359642	2011	QV <sub>91</sub>	17.7	X	114.14662	209.73907	225.08415	5.07073	0.1453488	0.28377607	2.2934302	20	3 25.4	20.6
359643	2011	RD <sub>2</sub>	18.0	X	127.38441	225.08464	175.85576	3.43501	0.1153596	0.27813846	2.3243170	20	2 22.5	20.8
359644	2011	RO <sub>11</sub>	17.4	X	93.67992	107.96338	283.42318	1.18844	0.1767175	0.26291646	2.4131864	20	1 6.7	19.9
359645	2011	RQ <sub>12</sub>	17.6	X	215.15459	29.62650	4.49323	4.95751	0.1279035	0.30202568	2.2000884	20	5 18.6	20.8
359646	2011	RF <sub>13</sub>	18.3	X	65.55710	90.05469	332.42684	2.88555	0.1584459	0.26410607	2.4059345	20	—	—
359647	2011	RJ <sub>18</sub>	18.1	X	187.46710	28.01897	28.13537	4.57696	0.0716881	0.30064095	2.2068389	20	5 19.9	21.1
359648	2011	SQ	17.3	X	314.20447	88.40885	334.20157	6.40479	0.1949003	0.22789175	2.6545056	20	11 9.8	19.8
359649	2011	SN <sub>3</sub>	17.3	X	145.71947	79.34693	297.22384	5.81017	0.1134506	0.27897435	2.3196718	20	2 11.3	20.3
359650	2011	ST <sub>4</sub>	17.4	X	142.02586	48.77499	329.36590	6.11437	0.1826772	0.27610919	2.3356915	20	2 18.7	20.8
359651	2011	SU <sub>4</sub>	17.7	X	185.56779	128.81498	204.36865	6.00562	0.1480179	0.27940225	2.3173028	20	1 31.0	21.4
359652	2011	SM <sub>11</sub>	17.3	X	141.63586	31.86980	326.29660	6.20114	0.1328484	0.26993937	2.3711474	20	1 19.6	20.5
359653	2011	ST <sub>28</sub>	16.3	X	332.31123	88.74768	351.23639	12.51365	0.1793395	0.23257916	2.6187146	20	—	—
359654	2011	SO <sub>35</sub>	17.1	X	144.81354	49.74715	26.73248	7.58233	0.0612880	0.28979960	2.2615396	20	4 25.2	19.9
359655	2011	SR <sub>35</sub>	17.5	X	257.34526	179.61010	176.33901	5.79371	0.1857730	0.30438770	2.1886920	20	5 10.2	20.6
359656	2011	SA <sub>36</sub>	15.9	X	199.30214	37.94646	21.22070	12.91061	0.3170218	0.18324370	3.0698466	20	5 28.3	21.7
359657	2011	ST <sub>49</sub>	17.7	X	237.87159	258.67494	127.47116	3.62891	0.1881367	0.30509238	2.1853205	20	5 29.4	20.9
359658	2011	SV <sub>53</sub>	18.2	X	331.94367	322.88361	134.01160	2.87682	0.1828194	0.23914846	2.5705397	20	—	—
359659	2011	SP <sub>54</sub>	17.7	X	25.13542	165.93305	54.19190	4.89953	0.0849896	0.30101989	2.2049864	20	5 30.7	19.8
359660	2011	SV <sub>63</sub>	17.0	X	135.63864	238.81970	169.89071	10.25515	0.1753774	0.27544549	2.3394419	20	3 22.5	20.2
359661	2011	SO <sub>67</sub>	17.4	X	133.74361	55.20915	291.12062	3.98558	0.2312002	0.26319569	2.4114793	20	1 8.2	20.8
359662	2011	SQ <sub>76</sub>	16.9	X	306.44459	162.10621	349.14106	6.22619	0.0792274	0.25569061	2.4584396	20	—	—
359663	2011	SW <sub>82</sub>	15.6	X	171.98841	230.35692	197.00239	11.26435	0.0660207	0.17806557	3.1290758	20	5 20.6	20.4
359664	2011	SW <sub>87</sub>	17.7	X	75.37164	31.87640	329.13160	3.64675	0.1290789	0.24716859	2.5146287	20	—	—
359665	2011	SF <sub>88</sub>	16.9	X	25.61086	9.91536	5.73889	11.97868	0.1884356	0.23491757	2.6013116	20	—	—
359666	2011	SN <sub>91</sub>	16.6	X	28.71007	24.08369	356.46470	5.93754	0.1592060	0.23542859	2.5975460	20	—	—
359667	2011	SU <sub>92</sub>	17.5	X	345.15756	74.79717	325.92669	2.60934	0.2384101	0.22805527	2.6532366	20	12 23.8	19.9
359668	2011	SW <sub>104</sub>	17.4	X	334.31573	85.32998	4.16002	14.64348	0.0563569	0.23753207	2.5821881	20	—	—
359669	2011	SP <sub>105</sub>	17.0	X	312.90322	129.27817	269.22486	4.98983	0.2000894	0.21551541	2.7551833	20	9 27.1	19.9
359670	2011	SJ <sub>106</sub>	15.6	X	242.53000	114.39624	301.54607	10.14653	0.1000447	0.191245				

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>		
359681	2011	<i>SJ</i> <sub>142</sub>	17.6	X	58.08826	350.69843	14.95884	6.02558	0.1431146	0.24291488	2.5438996	20	—	—
359682	2011	<i>SE</i> <sub>144</sub>	17.7	X	101.80409	261.95147	164.45573	6.02690	0.1761419	0.27283270	2.3543540	20	3 5.2	20.4
359683	2011	<i>SK</i> <sub>144</sub>	17.3	X	101.65074	207.52672	173.08692	7.30338	0.0911639	0.26277453	2.4140552	20	—	—
359684	2011	<i>SC</i> <sub>154</sub>	17.7	X	344.93084	285.52955	126.00639	0.77837	0.0887947	0.23434571	2.6055418	20	12 22.4	20.7
359685	2011	<i>SN</i> <sub>163</sub>	18.3	X	224.94336	4.22711	343.24171	7.33355	0.1162870	0.29092238	2.2557171	20	3 27.4	21.6
359686	2011	<i>SR</i> <sub>163</sub>	18.3	X	351.25073	311.11330	315.67190	5.18122	0.1039558	0.30639051	2.1791436	20	6 10.4	20.0
359687	2011	<i>SW</i> <sub>171</sub>	17.4	X	293.99892	131.36266	318.14787	1.67584	0.0375551	0.22404166	2.6848304	20	11 22.6	20.8
359688	2011	<i>SH</i> <sub>172</sub>	17.0	X	319.72387	89.02071	324.20143	1.64745	0.1879695	0.22009824	2.7168042	20	11 7.7	19.4
359689	2011	<i>SY</i> <sub>172</sub>	15.6	X	71.40064	314.34629	216.11810	9.16944	0.0352769	0.17851185	3.1238585	20	5 26.5	19.9
359690	2011	<i>SN</i> <sub>179</sub>	17.1	X	324.02848	16.85910	353.34840	3.68597	0.1118034	0.21269066	2.7795240	20	9 16.8	20.3
359691	2011	<i>SQ</i> <sub>182</sub>	16.3	X	263.21536	38.86625	17.27169	15.14821	0.1323800	0.20382885	2.8595143	20	8 18.8	20.5
359692	2011	<i>SB</i> <sub>183</sub>	17.0	X	297.78243	73.26020	344.60116	3.12407	0.1042067	0.21591598	2.7517746	20	10 8.8	20.1
359693	2011	<i>SL</i> <sub>184</sub>	16.7	X	356.49264	313.16657	67.24542	5.47861	0.1135670	0.22414683	2.6839905	20	11 28.5	19.6
359694	2011	<i>SC</i> <sub>185</sub>	17.5	X	358.10183	326.64286	109.95475	4.34646	0.0706270	0.24036889	2.5618314	20	—	—
359695	2011	<i>ST</i> <sub>205</sub>	17.1	X	165.87044	245.37775	181.94355	6.83119	0.10705721	0.29335289	2.2432403	20	5 11.8	20.1
359696	2011	<i>SD</i> <sub>210</sub>	16.7	X	10.34694	195.79485	163.67842	14.88686	0.1386984	0.22615782	2.6680562	20	11 29.1	20.2
359697	2011	<i>SW</i> <sub>211</sub>	17.8	X	157.80904	22.10616	336.54511	1.10205	0.2000853	0.27359612	2.3499724	20	2 11.7	21.2
359698	2011	<i>SG</i> <sub>215</sub>	17.3	X	105.36021	44.77045	22.20922	5.11469	0.1027961	0.27034552	2.3687720	20	3 1.6	20.2
359699	2011	<i>SX</i> <sub>218</sub>	17.7	X	174.63694	230.53813	167.18990	10.75360	0.2006472	0.28737349	2.2742502	20	4 17.4	21.4
359700	2011	<i>SX</i> <sub>222</sub>	16.4	X	354.12454	205.75163	162.02173	15.42085	0.1521372	0.22723041	2.6596536	20	11 16.8	19.6
359701	2011	<i>SS</i> <sub>228</sub>	17.6	X	332.85518	322.78737	300.09811	4.51885	0.1816354	0.30185894	2.2008985	20	4 12.6	19.4
359702	2011	<i>SB</i> <sub>233</sub>	16.8	X	65.68625	33.62234	306.54869	7.97390	0.1737515	0.23797552	2.5789793	20	—	—
359703	2011	<i>SB</i> <sub>249</sub>	17.0	X	183.10891	20.49923	22.55591	0.86915	0.1731177	0.17841678	3.1249681	20	5 1.6	22.0
359704	2011	<i>SP</i> <sub>249</sub>	16.6	X	306.95228	315.28038	77.41558	9.18848	0.1552170	0.21269125	2.7795189	20	9 19.9	19.8
359705	2011	<i>ST</i> <sub>250</sub>	15.7	X	228.33075	94.48081	282.82502	10.22415	0.1510695	0.18051749	3.1006770	20	5 9.8	20.8
359706	2011	<i>SL</i> <sub>257</sub>	17.9	X	42.03060	323.90395	180.50508	4.26419	0.0920266	0.28058444	2.3107892	20	3 5.9	20.1
359707	2011	<i>ST</i> <sub>272</sub>	16.6	X	292.85925	78.94280	322.86856	10.91316	0.1488837	0.21609105	2.7502881	20	9 1.3	19.8
359708	2011	<i>SP</i> <sub>274</sub>	17.5	X	130.52629	82.53751	13.87723	6.24202	0.0777024	0.29570241	2.2313420	20	5 5.6	20.3
359709	2011	<i>TS</i> <sub>3</sub>	16.7	X	192.31013	74.51585	11.22059	12.03976	0.1398297	0.18821391	3.0155619	20	7 2.5	21.7
359710	2011	<i>TE</i> <sub>4</sub>	18.0	X	262.17283	67.74849	278.94752	2.94454	0.1404805	0.30315717	2.1946107	20	5 6.4	20.8
359711	2011	<i>TX</i> <sub>5</sub>	15.8	X	237.63827	224.39677	201.48951	9.87736	0.1188930	0.19169193	2.9789748	20	7 22.4	20.4
359712	2011	<i>TJ</i> <sub>8</sub>	17.1	X	119.90546	279.99429	7.51634	19.91185	0.0767285	0.35363377	1.9804637	20	—	—
359713	2011	<i>TV</i> <sub>9</sub>	17.1	X	131.84569	339.12006	45.21524	6.03213	0.2635120	0.27205955	2.3588124	20	2 28.3	20.7
359714	2011	<i>TT</i> <sub>11</sub>	17.7	X	185.98372	309.96451	97.67410	5.97975	0.1209598	0.29569769	2.2313658	20	5 9.2	21.0
359715	2011	<i>TD</i> <sub>16</sub>	16.5	X	187.20241	187.72240	35.79397	15.20766	0.0583629	0.22677082	2.6632459	20	12 23.2	20.5
359716	2011	<i>TE</i> <sub>16</sub>	16.0	X	136.68803	132.61023	359.12108	5.25604	0.0831587	0.17852022	3.1237608	20	7 1.5	20.7
359717	2011	<i>UO</i> <sub>1</sub>	15.4	X	74.37347	299.76241	223.38231	17.26639	0.0648705	0.17687450	3.1431075	20	5 25.0	19.8
359718	2011	<i>UD</i> <sub>3</sub>	16.8	X	338.71960	8.83583	35.66308	4.95158	0.1886657	0.22521090	2.6755297	20	12 7.8	19.3
359719	2011	<i>UV</i> <sub>5</sub>	16.8	X	4.70460	209.10917	206.04047	3.13533	0.1176287	0.23361671	2.6109594	20	—	—
359720	2011	<i>UN</i> <sub>6</sub>	16.7	X	256.44460	62.40468	225.42433	7.60346	0.0319915	0.27470692	2.3436332	20	2 20.9	20.0
359721	2011	<i>UK</i> <sub>9</sub>	16.5	X	224.99055	300.11511	218.73811	8.65418	0.1282902	0.21772120	2.7365427	20	11 7.3	20.2
359722	2011	<i>UG</i> <sub>12</sub>	16.5	X	89.61294	263.74339	99.04734	9.21460	0.2563292	0.25430325	2.4673728	20	—	—
359723	2011	<i>UL</i> <sub>13</sub>	16.6	X	292.23691	8.30601	46.74566	4.90947	0.1974513	0.21154216	2.7895754	20	9 15.6	19.8
359724	2011	<i>UH</i> <sub>24</sub>	17.0	X	170.65359	87.44006	233.82419	4.81801	0.2536747	0.26767415	2.3845061	20	1 11.9	21.1
359725	2011	<i>UE</i> <sub>25</sub>	16.9	X	303.09147	32.13944	25.13970	4.13546	0.0944393	0.21652128	2.7466437	20	10 18.7	19.9
359726	2011	<i>UD</i> <sub>28</sub>	16.5	X	297.11425	59.88696	6.45796	8.08909	0.1295464	0.21496770	2.7598612	20	10 15.8	19.8
359727	2011	<i>UU</i> <sub>28</sub>	16.4	X	338.91487	52.52104	27.47860	13.98890	0.1206811	0.23194422	2.6234957	20	—	—
359728	2011	<i>UT</i> <sub>29</sub>	17.7	X	136.11667	51.36551	119.53073	1.23128	0.0576032	0.31066944	2.1590881	20	8 30.6	20.1
359729	2011	<i>UQ</i> <sub>30</sub>	15.3	X	112.20519	287.39390	228.73570	16.07120	0.1053646	0.17955150	3.1117881	20	7 3.9	20.2
359730	2011	<i>UA</i> <sub>31</sub>	17.1	X	266.51154	56.73111	72.98003	3.66817	0.1294856	0.22119585	2.7078093	20	11 24.6	20.4
359731	2011	<i>UY</i> <sub>36</sub>	17.1	X	322.12766	256.75292	167.86810	1.88399	0.0593181	0.22152136	2.7051560	20	11 29.9	20.3
359732	2011	<i>UG</i> <sub>37</sub>	16.6	X	312.34239	340.75648	64.33350	5.35497	0.0638398	0.21266953	2.7797082	20	10 19.9	20.0
359733	2011	<i>UY</i> <sub>37</sub>	17.1	X	299.71620	9.64659	253.81100	5.74642	0.1518899	0.28323728	2.2963378	20	2 26.1	20.1
359734	2011	<i>UN</i> <sub>39</sub>	17.5	X	326.22383	68.22164	351.83617	1.42204	0.1332031	0.22693903	2.6619297	20	12 2.9	20.3
359735	2011	<i>UP</i> <sub>45</sub>	17.3	X	281.04727	42.43398	162.64621	14.77815	0.0985446	0.25842625	2.4410591	20	—	—
359736	2011	<i>UJ</i> <sub>49</sub>	16.7	X	77.60762	82.38502	220.60781	5.21418	0.0198210	0.22346399	2.6894555	20	11 24.7	20.4
359737	2011	<i>UR</i> <sub>50</sub>	16.9	X	306.74789	2.18517	64.63999	4.39727	0.0593206	0.21913650	2.7247473	20	11 9.7	20.1
359738	2011	<i>UU</i> <sub>50</sub>	16.7	X	309.35978	323.26970	133.14626	2.23314	0.0729470	0.22809136	2.6529567	20	12 24.1	19.9
359739	2011	<i>UN</i> <sub>51</sub>	17.2	X	311.52447	295.55259	171.63926	2.88440	0.0711688	0.23123223	2.6288783	20	—	—
359740	2011	<i>UR</i> <sub>51</sub>	16.8	X	352.65983	231.51492	198.13282	7.56766	0.1000377	0.23415742	2.6069384	20	—	—
359741	2011	<i>UE</i> <sub>54</sub>	15.7	X	154.63666	236.62463	231.96638	16.54366	0.1320201	0.17787730	3.1312833	20	6 21.9	20.8
359742	2011	<i>UN</i> <sub>56</sub>	16.4	X	239.60871	271.66706	243.90185	6.48781	0.1452521	0.22018518	2.7160890	20	11 18.2	19.9
359743	2011	<i>UA</i> <sub>58</sub>	18.0	X	10.03937	164.89212	62.14942	4.80165	0.0983811	0.29441492	2.2378424	20	5 14.1	19.8
359744	2011	<i>UN</i> <sub>61</sub>	17.3	X	340.57281	332.55588	113.25216	2.05334	0.0929590	0.23094541	2.6310544	20	—	—
359745	2011	<i>UM</i> <sub>70</sub>	17.3	X	98.96794	255.93688	199.40343	6.16877	0.0672645	0.28290706	2.2981243	20	3 21.9	20.1
359746	2011	<i>UO</i> <sub>70</sub>	17.1	X	5.03133	222.68380	199.38299	13.09342	0.1482222	0.23784656	2.5799115	20	—	—
359747	2011	<i>UV</i> <sub>73</sub>	17.5	X	51.14182	239.70599	130.38376	0.70244	0.1460679	0.23732890	2.5836616	20	—	—
359748	2011	<i>UV</i> <sub>78</sub>	16.5	X	208.45301	41.64915	21.13204	8.58181	0.1916387	0.18526031	3.0475286	20	6 14.9	21.7</

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>
359761 2011 <i>UE</i> <sub>105</sub>	17.3	X	272.50230	230.07798	44.56228	7.05614	0.1333168	0.27455238	2.3445126	20	2 19.6	20.7
359762 2011 <i>UF</i> <sub>108</sub>	16.6	X	24.98186	195.48855	187.73533	14.04151	0.2535985	0.23511799	2.5998332	20	—	—
359763 2011 <i>UA</i> <sub>113</sub>	16.7	X	118.93394	344.08474	55.57702	8.40217	0.1135125	0.26471300	2.4022555	20	2 16.3	19.9
359764 2011 <i>UP</i> <sub>113</sub>	16.9	X	174.04597	334.95980	107.83313	2.57691	0.1466548	0.17777465	3.1324885	20	6 10.6	21.8
359765 2011 <i>UQ</i> <sub>116</sub>	17.2	X	57.89183	53.11165	294.18072	2.81167	0.1009007	0.23499517	2.6007390	20	—	—
359766 2011 <i>UH</i> <sub>122</sub>	17.4	X	74.75529	82.85105	54.65374	5.66911	0.0244173	0.29126902	2.2539270	20	4 11.4	19.9
359767 2011 <i>UV</i> <sub>122</sub>	16.9	X	40.80272	127.70888	202.65432	6.23437	0.0473423	0.22466099	2.6798939	20	11 17.8	20.4
359768 2011 <i>UH</i> <sub>126</sub>	17.8	X	275.81218	45.27065	282.46643	4.83602	0.1660514	0.30013192	2.2093334	20	4 21.9	20.6
359769 2011 <i>UP</i> <sub>126</sub>	17.2	X	95.33465	54.02036	274.38422	4.65991	0.1885496	0.24234074	2.5479159	20	—	—
359770 2011 <i>UZ</i> <sub>126</sub>	16.7	X	261.23935	233.74248	237.71165	5.21033	0.0781732	0.21613879	2.7498832	20	10 29.7	20.2
359771 2011 <i>UV</i> <sub>127</sub>	16.6	X	16.17241	199.19787	179.61001	6.29547	0.0462735	0.22527114	2.6750527	20	12 16.8	20.2
359772 2011 <i>UH</i> <sub>133</sub>	17.8	X	353.98609	349.03056	354.13179	3.73682	0.1592397	0.32712460	2.0860622	20	11 5.2	19.4
359773 2011 <i>US</i> <sub>134</sub>	17.5	X	195.70652	172.82361	179.37520	3.08299	0.1139594	0.28066564	2.3103435	20	3 5.4	20.8
359774 2011 <i>UH</i> <sub>135</sub>	16.2	X	227.21135	314.72125	248.70782	10.62609	0.0862024	0.23368303	2.6104654	20	—	—
359775 2011 <i>UK</i> <sub>137</sub>	15.6	X	140.17952	239.31685	230.65996	11.29568	0.0844781	0.17926575	3.1150941	20	6 7.7	20.4
359776 2011 <i>UM</i> <sub>139</sub>	16.8	X	292.98375	204.58703	228.21124	5.52745	0.0460626	0.21448621	2.7639900	20	10 27.5	20.5
359777 2011 <i>UX</i> <sub>140</sub>	15.9	X	261.70286	110.85489	246.91854	7.78342	0.1529620	0.18514646	3.0487778	20	5 22.2	20.2
359778 2011 <i>UH</i> <sub>142</sub>	16.4	X	215.99512	261.44111	150.02503	5.89521	0.1390223	0.18693865	3.0292607	20	6 12.4	21.2
359779 2011 <i>UR</i> <sub>145</sub>	16.9	X	338.58273	13.54516	35.34470	5.76357	0.1110306	0.22074024	2.7115339	20	12 5.5	20.1
359780 2011 <i>UP</i> <sub>146</sub>	17.0	X	315.61107	20.49238	40.68027	3.93569	0.1871014	0.21643154	2.7474028	20	11 9.6	19.5
359781 2011 <i>UM</i> <sub>148</sub>	15.9	X	212.25613	156.42182	228.00493	10.05817	0.0565104	0.17739858	3.1369141	20	5 10.7	20.6
359782 2011 <i>UC</i> <sub>159</sub>	16.4	X	268.84957	297.00979	191.70677	5.33038	0.0434788	0.21368141	2.7709257	20	10 4.7	20.1
359783 2011 <i>UZ</i> <sub>159</sub>	15.7	X	262.53701	64.67419	291.42495	8.46675	0.0562244	0.18234668	3.0799061	20	6 2.8	20.1
359784 2011 <i>UR</i> <sub>160</sub>	16.8	X	14.75822	345.88318	57.02249	3.66182	0.1238089	0.23094263	2.6310755	20	—	—
359785 2011 <i>UT</i> <sub>160</sub>	15.6	X	148.93172	86.62003	54.98816	10.20433	0.0566546	0.18615307	3.0377772	20	7 28.6	20.3
359786 2011 <i>UM</i> <sub>163</sub>	17.0	X	194.39745	25.83633	269.75767	5.68381	0.1328854	0.25734398	2.4478983	20	—	—
359787 2011 <i>UV</i> <sub>163</sub>	17.0	X	313.63906	81.60403	328.37282	2.98569	0.0519612	0.21152567	2.7897203	20	10 25.3	20.6
359788 2011 <i>UC</i> <sub>183</sub>	16.6	X	7.46851	35.77450	47.90796	4.72983	0.0822873	0.23868651	2.5738553	20	—	—
359789 2011 <i>UP</i> <sub>183</sub>	16.8	X	29.27550	99.86643	260.18132	5.31130	0.0458195	0.22089866	2.7102373	20	12 8.6	20.2
359790 2011 <i>UE</i> <sub>185</sub>	15.8	X	224.49346	313.60823	112.34117	11.78812	0.1321101	0.19008604	2.9957293	20	7 9.1	20.5
359791 2011 <i>UA</i> <sub>186</sub>	17.0	X	5.93328	44.90513	112.68817	6.55609	0.0785315	0.26561877	2.3967912	20	1 26.8	19.5
359792 2011 <i>UD</i> <sub>191</sub>	16.8	X	5.13543	277.37557	128.54609	1.44165	0.0139468	0.22894072	2.6463910	20	—	—
359793 2011 <i>UV</i> <sub>193</sub>	16.8	X	346.13241	176.66427	207.58703	4.80107	0.0798888	0.22301882	2.6903332	20	11 14.4	20.0
359794 2011 <i>UF</i> <sub>198</sub>	16.9	X	0.72208	216.28133	178.25739	0.88423	0.0935079	0.22620949	2.6676499	20	12 21.8	20.1
359795 2011 <i>UE</i> <sub>200</sub>	16.9	X	351.94846	97.65617	291.34329	5.21685	0.0649876	0.21842629	2.7306505	20	11 25.5	20.4
359796 2011 <i>UB</i> <sub>202</sub>	17.0	X	336.58119	6.33301	214.80238	7.93249	0.1382394	0.27427849	2.3460731	20	2 24.9	19.6
359797 2011 <i>UN</i> <sub>203</sub>	15.4	X	146.60673	259.15067	328.85313	15.10278	0.0718387	0.18114355	3.0935286	20	7 3.9	20.3
359798 2011 <i>UE</i> <sub>211</sub>	17.7	X	315.20766	237.11009	229.28242	3.91727	0.0923954	0.27061847	2.3671789	20	1 15.5	20.5
359799 2011 <i>UG</i> <sub>238</sub>	17.3	X	279.59641	180.48638	266.58859	3.13566	0.0364516	0.21547343	2.7555411	20	10 28.3	20.8
359800 2011 <i>UM</i> <sub>238</sub>	17.3	X	229.39058	242.85954	39.16987	8.38031	0.0372754	0.26329588	2.4108675	20	1 17.4	20.7
359801 2011 <i>UF</i> <sub>241</sub>	17.5	X	178.46774	140.73166	222.18151	3.57902	0.1328089	0.27946250	2.3169697	20	2 29.7	21.0
359802 2011 <i>UC</i> <sub>244</sub>	16.8	X	25.85924	116.80564	236.19788	5.28953	0.0501058	0.21998163	2.7177642	20	11 25.7	20.4
359803 2011 <i>UJ</i> <sub>245</sub>	17.2	X	313.86996	203.80992	37.11379	4.04387	0.0320920	0.27868417	2.3212817	20	3 10.3	20.0
359804 2011 <i>UR</i> <sub>247</sub>	17.2	X	358.95757	36.57318	221.99517	4.69212	0.1631658	0.29731976	2.2232427	20	6 13.8	18.6
359805 2011 <i>UU</i> <sub>249</sub>	16.3	X	215.95234	5.74362	59.12902	3.75465	0.0850393	0.18532335	3.0468375	20	7 2.7	20.8
359806 2011 <i>US</i> <sub>251</sub>	17.0	X	199.01690	299.88146	167.11300	3.30554	0.1878837	0.18900725	3.0071176	20	7 30.9	21.9
359807 2011 <i>UZ</i> <sub>251</sub>	17.2	X	180.32390	265.81015	118.22175	3.16000	0.1720198	0.28034174	2.3121227	20	4 3.5	20.7
359808 2011 <i>UC</i> <sub>252</sub>	17.0	X	279.89817	332.93140	199.61003	5.91370	0.0950029	0.23674378	2.5879169	20	—	—
359809 2011 <i>UA</i> <sub>259</sub>	17.2	X	238.30170	202.41207	311.82219	3.11213	0.0481641	0.22254734	2.6968354	20	11 29.2	20.7
359810 2011 <i>UJ</i> <sub>263</sub>	17.6	X	166.02960	281.26594	55.36903	2.32042	0.1516151	0.26189911	2.4194317	20	1 21.1	21.3
359811 2011 <i>UZ</i> <sub>263</sub>	16.3	X	320.88354	6.29697	76.01145	14.32315	0.1374241	0.22703892	2.6611489	20	12 24.0	19.1
359812 2011 <i>UC</i> <sub>264</sub>	16.8	X	283.59932	163.83703	320.69234	4.97333	0.1075031	0.22935717	2.6431867	20	12 19.4	19.8
359813 2011 <i>UC</i> <sub>266</sub>	16.6	X	38.67740	135.02229	226.46053	5.21030	0.0659502	0.22619137	2.6677924	20	12 26.4	20.3
359814 2011 <i>UA</i> <sub>267</sub>	16.3	X	26.43874	251.77808	109.35489	13.02791	0.0959615	0.22730150	2.6590990	20	12 16.3	19.9
359815 2011 <i>UM</i> <sub>275</sub>	17.2	X	354.90902	341.47849	251.08846	5.66153	0.0638175	0.28922290	2.2645449	20	4 23.3	19.5
359816 2011 <i>UO</i> <sub>279</sub>	15.9	X	213.81650	343.16186	56.88828	9.92974	0.0775980	0.17670641	3.1451004	20	5 29.8	20.7
359817 2011 <i>UH</i> <sub>280</sub>	16.7	X	286.44519	197.81202	279.67714	2.67560	0.0299330	0.22333574	2.6904850	20	12 19.1	20.0
359818 2011 <i>UW</i> <sub>280</sub>	16.1	X	205.34535	89.54095	298.92942	9.52979	0.1886474	0.17641559	3.1485559	20	4 29.5	21.6
359819 2011 <i>UY</i> <sub>281</sub>	16.8	X	64.49122	281.06244	24.69742	13.45037	0.1347556	0.22379191	2.6868276	20	11 23.6	20.8
359820 2011 <i>UA</i> <sub>290</sub>	17.3	X	200.50638	220.85850	125.42548	7.46654	0.1326660	0.28207623	2.3026348	20	3 5.3	20.7
359821 2011 <i>UP</i> <sub>293</sub>	17.5	X	23.21076	304.99605	84.48688	3.16007	0.0982237	0.23073325	2.6326670	20	—	—
359822 2011 <i>UW</i> <sub>298</sub>	16.3	X	200.11114	257.20780	151.18961	11.56137	0.1457933	0.18007516	3.1057525	20	5 26.2	21.5
359823 2011 <i>US</i> <sub>301</sub>	17.1	X	334.49283	234.35989	202.78416	3.95162	0.1751764	0.22904377	2.6455972	20	—	—
359824 2011 <i>UJ</i> <sub>305</sub>	16.3	X	327.82506	266.70621	137.21179	14.78694	0.1269098	0.22014430	2.7164252	20	11 16.8	19.6
359825 2011 <i>UT</i> <sub>305</sub>	17.8	X	155.37243	262.75724	142.42292	2.70619	0.0741160	0.28290686	2.2981255	20	3 29.5	20.8
359826 2011 <i>UR</i> <sub>307</sub>	16.9	X	4.08979	65.06272	337.13000	9.41724	0.0571711	0.23052337	2.6342647	20	—	—
359827 2011 <i>US</i> <sub>311</sub>	16.2	X	113.49931	276.15812	231.90119	9.71617	0.1820149	0.17492507	3.1664163	20	6 22.8	21.2
359828 2011 <i>UX</i> <sub>316</sub>	16.8	X	176.60444	313.32541	237.93421	2.25917	0.1069649	0.21290332	2.7776728	20	10 27.4	21.2
359829 2011 <i>UG</i> <sub>317</sub>	17.0	X	212.68435	26.13922	24.02716	1.25627	0.1718186	0.18159138	3.0884404	20	6 4.9	22.0
359830 2011 <i>UJ</i> <sub>318</sub>	18.3	X	251.02534	287.94614	175.14583	3.74927	0.2125417	0.29631199	2.2282807	20	4 21.8	21.4
359831 2011 <i>UX</i> <sub>319</sub>	17.2	X	295.91458	3.50887	110.84860	3.22773	0.0527989					



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>
359841 2011 UX <sub>342</sub>	16.4	X	184.07206	71.99735	38.17061	7.90381	0.1603431	0.18701588	3.0284267	20	7 25.3	21.4
359842 2011 UG <sub>343</sub>	16.9	X	293.77316	256.16429	214.96041	3.16597	0.1656243	0.22410382	2.6843339	20	12 11.5	19.6
359843 2011 UL <sub>343</sub>	17.3	X	29.09658	137.34188	28.15463	6.74203	0.0565676	0.27439851	2.3453890	20	3 17.3	19.8
359844 2011 UN <sub>343</sub>	16.2	X	164.19629	312.33646	125.60991	12.37340	0.1744891	0.17642821	3.1484057	20	5 30.0	21.6
359845 2011 UU <sub>345</sub>	16.8	X	162.49763	192.06947	277.77171	2.98873	0.0977487	0.18422780	3.0589047	20	7 1.9	21.4
359846 2011 UR <sub>351</sub>	16.7	X	174.92827	93.71639	21.94263	2.86425	0.0701239	0.19275010	2.9680620	20	7 23.6	21.1
359847 2011 UK <sub>352</sub>	16.6	X	77.80087	321.36447	333.64316	4.33710	0.0127439	0.22016141	2.7162845	20	11 11.3	20.3
359848 2011 UU <sub>353</sub>	16.7	X	236.99445	106.86260	334.51878	2.58248	0.0754482	0.19979825	2.8978435	20	8 19.4	20.6
359849 2011 UR <sub>359</sub>	16.9	X	312.48994	17.34341	243.15988	6.00192	0.0943774	0.27965552	2.3159035	20	3 21.1	19.8
359850 2011 UY <sub>359</sub>	16.7	X	324.54471	118.92399	240.50433	3.60473	0.1247716	0.20862258	2.8155409	20	8 29.9	19.8
359851 2011 UH <sub>369</sub>	16.8	X	76.99943	138.43750	213.84844	5.53935	0.0872257	0.23565770	2.5958622	20	—	—
359852 2011 UF <sub>382</sub>	16.4	X	183.37327	89.99805	327.75536	9.00643	0.2251468	0.17740462	3.1368428	20	5 16.8	22.0
359853 2011 UQ <sub>382</sub>	15.7	X	237.07165	8.71315	53.99598	10.36183	0.0567966	0.19018089	2.9947331	20	7 30.8	20.1
359854 2011 UB <sub>383</sub>	17.2	X	296.29372	85.83808	328.55622	4.01915	0.1156294	0.21190973	2.7863486	20	9 28.9	20.4
359855 2011 UN <sub>383</sub>	16.5	X	356.54449	335.66294	23.2958	7.01636	0.0997960	0.21595809	2.7514169	20	10 27.1	19.8
359856 2011 US <sub>384</sub>	17.3	X	310.74567	90.13140	318.86383	4.31083	0.0842896	0.21351913	2.7723296	20	10 17.5	20.8
359857 2011 UN <sub>400</sub>	16.8	X	42.19593	283.13358	47.60684	6.94636	0.0320468	0.21907883	2.7252255	20	11 15.4	20.5
359858 2011 UU <sub>401</sub>	15.7	X	45.07453	333.40012	59.87589	2.07347	0.1804047	0.12391638	3.9845893	20	—	—
359859 2011 UF <sub>406</sub>	16.8	X	48.25982	214.80881	155.57530	13.86606	0.3108509	0.23820107	2.5773510	20	—	—
359860 2011 VF <sub>1</sub>	16.2	X	217.91992	141.57285	275.65158	8.97043	0.0923191	0.18819538	3.0157598	20	6 24.6	20.7
359861 2011 VL <sub>2</sub>	15.6	X	321.68868	176.89453	252.53527	21.10604	0.0367905	0.22566126	2.6719687	20	12 6.0	19.1
359862 2011 VD <sub>3</sub>	16.1	X	212.56392	95.95326	293.72284	10.49949	0.1470656	0.18026546	3.1035663	20	5 9.6	21.3
359863 2011 VR <sub>4</sub>	16.0	X	174.32866	137.22131	316.53968	9.85119	0.0537771	0.18406913	3.0606622	20	6 24.7	20.6
359864 2011 VE <sub>12</sub>	16.8	X	33.89917	248.61636	74.24728	4.19541	0.1213641	0.21365474	2.7711564	20	11 7.6	20.3
359865 2011 VR <sub>13</sub>	17.0	X	255.52282	166.28370	70.40622	3.62090	0.1129591	0.25657535	2.4527847	20	—	—
359866 2011 VC <sub>18</sub>	17.6	X	336.43584	197.05474	61.72711	4.51551	0.0521644	0.28950883	2.2630536	20	5 5.3	19.9
359867 2011 VW <sub>20</sub>	16.6	X	96.68013	230.97739	72.67370	7.26999	0.1098209	0.22627327	2.6671486	20	12 25.8	20.7
359868 2011 WG	17.5	X	358.09879	209.56692	36.29954	7.42712	0.1044928	0.29671484	2.2262634	20	5 19.1	19.5
359869 2011 WW <sub>3</sub>	16.4	X	88.32068	302.72250	51.05139	2.55143	0.1824616	0.24078264	2.5588958	20	—	—
359870 2011 WC <sub>6</sub>	15.6	X	129.49819	44.28646	16.53585	7.89982	0.1549318	0.15666923	3.4078482	20	4 4.9	20.8
359871 2011 WO <sub>8</sub>	16.8	X	171.90718	145.22390	340.89560	0.86699	0.1890323	0.18744933	3.0237564	20	7 31.7	21.7
359872 2011 WL <sub>10</sub>	17.2	X	65.52325	92.42045	230.68424	6.87564	0.0562400	0.22390050	2.6859587	20	12 9.8	20.9
359873 2011 WD <sub>11</sub>	17.1	X	105.45659	75.07710	226.95520	4.34237	0.1125422	0.23177055	2.6248060	20	—	—
359874 2011 WX <sub>11</sub>	17.3	X	142.57395	184.90217	224.34000	4.22919	0.1071496	0.27507097	2.3415650	20	3 21.1	20.6
359875 2011 WE <sub>13</sub>	16.6	X	140.68797	109.68279	68.00016	11.74484	0.1764933	0.19299704	2.9655297	20	9 11.6	21.7
359876 2011 WA <sub>21</sub>	16.1	X	99.75436	76.88274	65.89599	13.26435	0.1175726	0.16783595	3.2549630	20	6 6.4	20.9
359877 2011 WO <sub>22</sub>	16.8	X	358.45573	299.13264	94.91182	1.60223	0.1012560	0.22243489	2.6977442	20	12 17.6	19.8
359878 2011 WR <sub>26</sub>	16.9	X	44.77379	122.76141	215.27639	6.26246	0.0039428	0.22187166	2.7023079	20	11 25.4	20.6
359879 2011 WX <sub>28</sub>	15.5	X	332.65819	30.02250	252.84860	8.86080	0.0963509	0.18028733	3.1033153	20	5 31.1	19.2
359880 2011 WX <sub>30</sub>	16.3	X	210.52377	59.45632	6.25617	9.34622	0.1178616	0.18264679	3.0765314	20	6 25.7	21.2
359881 2011 WW <sub>32</sub>	17.6	X	69.74625	39.41700	157.80226	4.12507	0.0731497	0.29853551	2.2172026	20	7 8.5	20.2
359882 2011 WA <sub>34</sub>	17.1	X	308.40812	188.05443	221.51185	3.69757	0.0624172	0.21292954	2.7774448	20	10 17.7	20.7
359883 2011 WE <sub>43</sub>	16.1	X	175.36379	36.34795	64.13407	16.58591	0.1858643	0.17814187	3.1281823	20	7 2.7	21.5
359884 2011 WS <sub>43</sub>	15.6	X	187.76054	2.77147	78.68740	11.73572	0.0676116	0.17924117	3.1153789	20	6 22.9	20.2
359885 2011 WV <sub>43</sub>	16.2	X	264.25892	348.39015	113.52176	4.88963	0.0559312	0.21065201	2.7974284	20	10 26.6	20.0
359886 2011 WW <sub>43</sub>	16.0	X	163.30518	9.99173	265.64748	11.78164	0.1418301	0.23475329	2.6025251	20	—	—
359887 2011 WN <sub>44</sub>	16.6	X	293.99892	74.30439	285.22957	3.16435	0.0385897	0.19367441	2.9586111	20	7 22.4	20.5
359888 2011 WZ <sub>44</sub>	16.2	X	179.42654	217.71171	253.45518	5.05969	0.0186189	0.18591176	3.0404052	20	7 21.6	20.5
359889 2011 WO <sub>48</sub>	16.4	X	227.40990	64.65412	354.52970	5.17911	0.1643910	0.18857570	3.0117036	20	7 1.2	21.1
359890 2011 WP <sub>48</sub>	16.0	X	218.71948	103.10692	291.79581	8.62907	0.2202262	0.18115297	3.0934213	20	5 18.7	21.4
359891 2011 WL <sub>49</sub>	16.6	X	93.52919	247.36808	96.92757	10.92317	0.0512520	0.23759564	2.5817275	20	—	—
359892 2011 WP <sub>52</sub>	16.9	X	241.04182	103.63996	324.82379	1.08825	0.0826166	0.19369717	2.9583794	20	8 6.1	21.2
359893 2011 WT <sub>55</sub>	16.2	X	149.26021	96.96173	70.01260	5.33458	0.1443305	0.18717197	3.0267428	20	9 1.3	21.1
359894 2011 WD <sub>58</sub>	16.6	X	154.48915	338.05818	186.93149	3.13322	0.1071909	0.19157958	2.9801393	20	9 1.2	21.5
359895 2011 WU <sub>58</sub>	17.1	X	313.94443	157.13085	109.08311	3.91719	0.1467148	0.28336968	2.2956224	20	3 27.9	19.6
359896 2011 WN <sub>59</sub>	17.3	X	252.52540	79.56643	224.06283	6.08714	0.1373947	0.27771633	2.3266717	20	2 27.3	20.8
359897 2011 WJ <sub>60</sub>	17.5	X	220.24296	262.11849	91.49425	5.59817	0.1845495	0.28520596	2.2857584	20	4 2.1	21.1
359898 2011 WQ <sub>60</sub>	16.9	X	331.72699	272.82735	162.04016	2.01494	0.0769181	0.22459493	2.6804194	20	12 28.9	20.0
359899 2011 WA <sub>61</sub>	17.3	X	10.56558	265.63865	143.54162	3.09231	0.1072725	0.22994926	2.6386475	20	—	—
359900 2011 WE <sub>63</sub>	17.2	X	231.43467	221.00371	63.54203	6.63129	0.1419286	0.26203311	2.4186068	20	1 18.9	21.0
359901 2011 WB <sub>69</sub>	16.8	X	327.31281	107.33987	6.80986	8.12872	0.0955872	0.23614154	2.5923151	20	—	—
359902 2011 WK <sub>71</sub>	16.6	X	143.74510	202.41442	252.45378	3.82100	0.1315748	0.17018180	3.2249821	20	5 26.9	21.7
359903 2011 WE <sub>73</sub>	17.5	X	296.51380	291.03556	56.32542	5.28627	0.1295690	0.30704504	2.1760456	20	7 2.8	19.5
359904 2011 WP <sub>81</sub>	16.9	X	290.47818	272.83697	201.33748	1.54004	0.0364696	0.22474985	2.6791875	20	12 20.3	20.2
359905 2011 WX <sub>82</sub>	16.8	X	229.76770	107.33413	71.98016	12.94702	0.1189916	0.22270989	2.6955230	20	12 10.1	20.4
359906 2011 WY <sub>88</sub>	16.8	X	172.98276	96.55732	346.99452	0.67499	0.1421123	0.17263517	3.1943551	20	6 10.2	21.8
359907 2011 WS <sub>90</sub>	16.5	X	32.90507	313.79875	76.81125	15.16546	0.1447172	0.23257181	2.6187739	20	—	—
359908 2011 WW <sub>90</sub>	16.6	X	253.58920	91.72534	89.39910	5.43947	0.0441285	0.23050170	2.6344298	20	—	—
359909 2011 WF <sub>101</sub>	15.7	X	133.67109	32.44626	76.12292	9.15826	0.1433088	0.17050875	3.2208582	20	6 3.8	20.7
359910 2011 WD <sub>102</sub>	14.9	X	350.31683	45.83918	266.10653	26.26039	0.0869005	0.19836588	2.9117767	20	7 29.1	19.0
359911 2011 WY <sub>102</sub>	16.3	X	232.19372	230.57118	150.22044	11.26279	0.1126114	0.17855893	3.1233093	20	5 26.1	21.2
359912 2011 WS <sub>108</sub>	16.8	X	146.85928	171.95434	76.37905	6.51779	0.0534035	0.22362214	2.6881873	20	12 9.1	20.5
359913 2011 WA <sub>110</sub>	16.9	X	171.19370	281.32050	193.93674	1.17783	0.1056974	0.18417481	3.0594914	20	7 17.4	21.7
359914 2011 WJ <sub>114</sub>	15.9	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>
359921 2011 WY <sub>134</sub>	16.2	X	50.79910	198.16926	174.28495	6.11434	0.3417612	0.23727921	2.5840223	20	—	—
359922 2011 WN <sub>137</sub>	16.0	X	219.66566	249.94395	284.43295	4.40706	0.0282229	0.21522316	2.7576769	20	12 2.6	19.8
359923 2011 WR <sub>137</sub>	15.7	X	262.03108	34.25514	301.47572	8.60514	0.0903517	0.17752544	3.1354194	20	4 29.9	20.5
359924 2011 WY <sub>137</sub>	17.5	X	357.76996	204.51070	18.48816	4.58656	0.1240170	0.28377451	2.2934386	20	4 11.7	19.2
359925 2011 WD <sub>145</sub>	16.7	X	11.85836	309.81438	67.17823	5.64889	0.1214874	0.22093084	2.7099742	20	12 17.2	19.9
359926 2011 WA <sub>146</sub>	16.2	X	148.78834	54.04009	72.04115	11.01901	0.0561441	0.17677383	3.1443007	20	7 5.7	20.9
359927 2011 WJ <sub>147</sub>	16.4	X	226.40194	77.51551	310.58627	7.39309	0.1444709	0.18125444	3.0923690	20	5 22.3	21.3
359928 2011 WB <sub>151</sub>	16.0	X	178.64431	203.06370	168.52618	8.25160	0.1753142	0.18322208	3.0700881	20	7 17.3	21.2
359929 2011 WH <sub>151</sub>	16.5	X	164.76048	263.49933	309.16095	12.61568	0.0376504	0.22133123	2.7067050	20	11 11.3	20.6
359930 2011 WN <sub>152</sub>	15.6	X	48.23717	243.20658	305.57002	7.91524	0.0144743	0.17397266	3.1779621	20	5 14.1	20.1
359931 2011 WR <sub>152</sub>	16.2	X	169.84940	349.65128	137.31249	9.25213	0.0753456	0.18843888	3.0131612	20	7 30.8	20.6
359932 2011 XX <sub>3</sub>	16.7	X	44.53299	77.51083	272.48572	5.22340	0.0322232	0.22044567	2.7139489	20	12 13.3	20.4
359933 2011 YF <sub>2</sub>	15.5	X	189.05427	283.12566	149.45450	11.68823	0.0924814	0.17627265	3.1502578	20	6 14.1	20.5
359934 2011 YX <sub>16</sub>	15.6	X	187.32876	352.80154	97.63711	11.80552	0.0375840	0.17369638	3.1813312	20	7 4.6	20.2
359935 2011 YX <sub>17</sub>	16.5	X	201.73201	106.81828	75.18034	11.76088	0.1101502	0.21377587	2.7701095	20	11 13.6	20.7
359936 2011 YW <sub>20</sub>	15.3	X	235.89635	270.87979	117.26636	19.60792	0.1653121	0.17218709	3.1998945	20	6 4.6	20.6
359937 2011 YQ <sub>24</sub>	13.4	X	326.55415	295.81997	102.46234	9.71550	0.0385468	0.08188677	5.2520264	20	10 11.2	20.2
359938 2011 YN <sub>34</sub>	15.9	X	168.67095	337.36015	320.21070	5.10878	0.2585862	0.23362840	2.6108722	20	—	—
359939 2011 YF <sub>38</sub>	13.2	X	287.10319	316.91118	134.92834	15.23987	0.0618020	0.08223869	5.2370325	20	10 22.5	20.2
359940 2011 YR <sub>44</sub>	13.4	X	280.16263	305.10025	138.48212	8.31751	0.0522247	0.08115797	5.2834215	20	10 3.7	20.3
359941 2011 YQ <sub>52</sub>	15.7	X	229.48302	215.51785	213.10790	14.53251	0.2346187	0.18854276	3.0120544	20	7 5.9	20.9
359942 2011 YQ <sub>61</sub>	15.7	X	259.99882	282.19262	132.40042	10.65740	0.0937886	0.18456491	3.0551787	20	8 9.5	19.8
359943 2011 YG <sub>75</sub>	13.9	X	295.28238	9.37603	65.32665	8.45174	0.0929091	0.08438085	5.1480186	20	10 8.1	20.5
359944 2012 AS <sub>1</sub>	15.9	X	259.44849	97.32152	290.92337	7.81239	0.1118996	0.17809586	3.1287209	20	7 2.9	20.3
359945 2012 AR <sub>8</sub>	14.3	X	301.65493	309.94469	120.09821	18.54299	0.1096483	0.08390770	5.1673537	20	10 12.7	21.1
359946 2012 AX <sub>15</sub>	15.4	X	219.00778	333.85615	90.78660	16.58712	0.0564882	0.17521517	3.1629203	20	7 7.7	20.1
359947 2012 AN <sub>19</sub>	16.3	X	142.99902	280.40287	48.73412	13.26139	0.1666852	0.24285732	2.5443015	20	—	—
359948 2012 AG <sub>24</sub>	15.5	X	298.24892	266.12087	96.63747	9.50021	0.0807928	0.17671100	3.1450459	20	7 26.9	19.7
359949 2012 BM	15.6	X	170.13581	203.01964	303.29277	9.66917	0.0681663	0.18313345	3.0710786	20	8 21.9	20.2
359950 2012 BF <sub>2</sub>	16.3	X	318.78377	339.24442	60.70408	6.35631	0.1219794	0.20286656	2.8685498	20	10 18.5	19.5
359951 2012 BD <sub>12</sub>	15.3	X	318.07062	233.88322	110.69593	15.09092	0.1337813	0.17854816	3.1234349	20	7 26.6	19.1
359952 2012 BL <sub>29</sub>	16.1	X	95.88365	272.86552	347.74130	1.54566	0.0669429	0.19529540	2.9422170	20	10 23.8	20.4
359953 2012 BS <sub>31</sub>	15.8	X	304.30160	18.05850	327.03193	11.17287	0.0791002	0.17580839	3.1558013	20	7 13.7	20.0
359954 2012 BT <sub>31</sub>	15.6	X	24.82472	211.41116	102.16392	15.19408	0.1298401	0.19106405	2.9854976	20	10 17.4	19.7
359955 2012 BZ <sub>31</sub>	15.8	X	139.09933	76.95825	71.32026	5.91982	0.0824891	0.17165464	3.2065082	20	7 25.0	20.7
359956 2012 BB <sub>41</sub>	16.9	X	114.05946	244.61618	80.59164	3.28118	0.1123586	0.22314655	2.6920055	20	—	—
359957 2012 BY <sub>50</sub>	13.9	X	248.90206	0.09647	127.97588	8.73355	0.0992588	0.08367202	5.1770523	20	10 13.7	20.9
359958 2012 BV <sub>51</sub>	15.7	X	36.81192	139.76539	139.96623	11.32073	0.0740191	0.17496351	3.1659525	20	9 4.2	19.9
359959 2012 BW <sub>59</sub>	15.7	X	28.40454	317.68219	317.40274	9.79382	0.0720887	0.17719220	3.1393494	20	8 15.1	19.8
359960 2012 BQ <sub>61</sub>	13.5	X	322.97883	304.06872	110.72332	6.75063	0.0505740	0.08242350	5.2292011	20	10 22.9	20.2
359961 2012 BN <sub>71</sub>	13.6	X	315.70484	102.41331	325.35263	9.66842	0.0433189	0.08278064	5.2141502	20	10 22.2	20.4
359962 2012 BB <sub>76</sub>	16.3	X	55.95724	207.79595	99.60893	4.87038	0.1085292	0.19850515	2.9104147	20	11 11.9	20.4
359963 2012 BX <sub>76</sub>	13.8	X	310.74836	317.44599	99.02434	4.97215	0.1654771	0.08253883	5.2243290	20	9 28.1	20.1
359964 2012 BV <sub>88</sub>	15.4	X	115.34504	72.98104	114.25799	9.99928	0.0422756	0.17362526	3.1821998	20	8 12.7	20.0
359965 2012 BA <sub>97</sub>	13.5	X	358.60982	350.70596	23.81465	9.74359	0.0186249	0.08313634	5.1992670	20	10 18.3	20.1
359966 2012 BP <sub>129</sub>	13.9	X	8.20925	268.23450	121.78192	7.87867	0.0035880	0.08251152	5.2254816	20	11 16.6	20.9
359967 2012 BD <sub>151</sub>	15.6	X	244.26623	16.56645	95.46259	16.35687	0.0963035	0.20535771	2.8453042	20	10 13.4	19.9
359968 2012 BT <sub>151</sub>	14.5	X	277.33099	119.14875	133.55172	4.83396	0.1126041	0.12572269	3.9463319	20	2 13.8	20.1
359969 2012 CM <sub>17</sub>	13.7	X	351.23345	232.43761	157.27335	10.93040	0.0799038	0.08199737	5.2473024	20	10 30.0	20.3
359970 2012 DV <sub>97</sub>	16.3	X	40.75579	319.09453	99.46407	7.23258	0.0536635	0.21572290	2.7534163	20	—	—
359971 2012 DJ <sub>98</sub>	16.0	X	242.59641	70.89090	149.29986	17.47143	0.1108891	0.21633942	2.7481828	20	—	—
359972 2012 FF <sub>77</sub>	15.8	X	264.48449	92.57231	22.87712	11.81192	0.0768651	0.19149351	2.9810323	20	11 1.9	19.9
359973 2012 GO <sub>14</sub>	16.9	X	176.34999	328.02973	335.32603	1.69536	0.1621993	0.20887124	2.8133059	20	—	—
359974 2012 HS <sub>2</sub>	13.4	X	307.17949	78.17181	323.87283	19.19778	0.1204625	0.08188817	5.2519664	20	9 4.5	20.1
359975 2012 HQ <sub>13</sub>	13.7	X	321.05841	343.59339	66.05702	9.73202	0.0662650	0.08459725	5.1392361	20	10 15.0	20.3
359976 2012 TZ <sub>166</sub>	16.2	X	258.43875	356.45784	45.79095	14.87862	0.1124257	0.22540852	2.6739657	20	7 26.4	20.1
359977 2012 TR <sub>169</sub>	16.2	X	259.81761	211.47626	217.76999	13.47946	0.1810963	0.23117711	2.6292961	20	8 14.4	20.1
359978 2012 TB <sub>241</sub>	15.8	X	148.77107	323.31968	67.19856	6.05101	0.1693175	0.18128731	3.0918930	20	3 21.1	20.8
359979 2012 TJ <sub>318</sub>	15.9	X	249.15531	27.42964	31.48161	10.12735	0.0335606	0.22660092	2.6645770	20	8 18.9	19.7
359980 2012 UZ <sub>32</sub>	16.2	X	343.29604	65.67401	130.65506	4.14329	0.0463974	0.18087599	3.0965785	20	3 1.4	20.4
359981 2012 UK <sub>86</sub>	16.2	X	232.10347	301.08365	31.44426	3.03977	0.0758066	0.18965727	3.0002427	20	3 28.4	20.7
359982 2012 UQ <sub>109</sub>	15.1	X	111.38076	6.40728	116.36194	26.25150	0.1387459	0.17189582	3.2035081	20	6 4.5	20.3
359983 2012 UM <sub>169</sub>	16.0	X	212.38627	184.42934	283.45375	12.49805	0.1375081	0.22595058	2.6696874	20	8 15.9	20.3
359984 2012 VE <sub>16</sub>	15.9	X	181.03222	117.16873	280.80056	5.66357	0.1266510	0.19124212	2.9836441	20	4 20.8	20.8
359985 2012 VU <sub>30</sub>	17.6	X	343.37898	278.35086	199.41046	1.97645	0.1474733	0.27260222	2.3553468	20	—	—
359986 2012 VQ <sub>33</sub>	15.9	X	93.71890	20.66667	84.76712	6.55132	0.1075494	0.18010504	3.1054090	20	4 15.5	20.3
359987 2012 VR <sub>33</sub>	16.4	X	117.03817	315.38331	121.78700	4.58747	0.1552220	0.17919075	3.1			