

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>
128001 2003 HV <sub>51</sub>	15.3	X	44.26335	91.29276	128.24314	6.04221	0.2516814	0.23671164	2.5881512	20	7 28.7	18.2
128002 2003 HU <sub>52</sub>	16.3	X	112.65141	110.31570	57.81864	5.69315	0.0785738	0.24151755	2.5537022	20	7 24.7	19.9
128003 2003 HM <sub>53</sub>	15.6	X	198.86320	243.61529	84.56027	15.00079	0.0930547	0.22199744	2.7012870	20	2 18.5	19.9
128004 2003 HY <sub>53</sub>	16.3	X	279.39275	319.51483	12.81150	7.23799	0.2166118	0.29500120	2.2348765	20	4 26.3	19.2
128005 2003 HH <sub>54</sub>	15.8	X	55.66069	248.09329	206.05105	1.70785	0.0494055	0.22178900	2.7029793	20	1 24.8	19.1
128006 2003 HG <sub>55</sub>	16.0	X	135.09049	57.67618	201.10923	1.44532	0.0216607	0.20247757	2.8722227	20	12 4.2	20.1
128007 2003 HS <sub>55</sub>	15.9	X	168.92754	8.53668	202.29199	1.89884	0.1465596	0.25519522	2.4616201	20	11 18.0	19.5
128008 2003 JQ <sub>1</sub>	14.7	X	283.34742	291.60143	63.82166	10.37664	0.0953438	0.18030068	3.1031622	20	6 23.2	18.9
128009 2003 JY <sub>6</sub>	15.5	X	297.56415	152.02242	67.33545	13.27944	0.0605633	0.21914254	2.7246973	20	1 24.9	19.4
128010 2003 JY <sub>7</sub>	15.7	X	290.47767	217.75201	87.04377	8.56346	0.2473016	0.22837233	2.6507803	20	4 8.3	19.5
128011 2003 JK <sub>8</sub>	15.6	X	174.00127	223.79075	82.46190	9.48854	0.1355119	0.21219662	2.7838366	20	—	—
128012 2003 JV <sub>9</sub>	15.3	X	323.90303	222.89371	86.80191	2.43382	0.1940027	0.17847744	3.1242600	20	6 10.9	18.6
128013 2003 JO <sub>10</sub>	15.0	X	303.49609	194.39820	103.88417	6.28228	0.1616320	0.17369746	3.1813179	20	5 1.0	19.2
128014 2003 JR <sub>10</sub>	16.4	X	72.65224	15.92896	124.88374	4.98163	0.0920008	0.28931639	2.2640570	20	4 24.5	18.8
128015 2003 JR <sub>11</sub>	14.6	X	276.66497	230.47468	85.45263	10.67038	0.0808184	0.17470453	3.1690806	20	5 1.4	19.2
128016 2003 JK <sub>13</sub>	15.9	X	332.48476	167.31922	44.09475	6.88368	0.1031194	0.22545471	2.6736004	20	2 24.6	19.2
128017 2003 JL <sub>13</sub>	16.5	X	120.52357	69.68511	162.28540	3.80605	0.1300439	0.30760231	2.1734166	20	11 7.3	19.5
128018 2003 JA <sub>14</sub>	14.3	X	330.53345	172.08892	90.81142	19.42661	0.1317781	0.17291213	3.1909432	20	5 6.1	18.6
128019 2003 JB <sub>15</sub>	16.4	X	103.21552	249.68902	713.00408	4.00395	0.0555956	0.23207846	2.6224839	20	4 9.7	20.0
128020 2003 JK <sub>16</sub>	15.5	X	126.41242	210.83330	215.90357	9.66010	0.1397101	0.20043459	2.8917069	20	12 29.9	20.1
128021 2003 JN <sub>17</sub>	16.7	X	136.16546	229.82221	50.32496	3.01745	0.1815107	0.25884092	2.4384513	20	—	—
128022 2003 Peterantreasian	15.8	X	17.17609	202.28200	112.58534	10.01114	0.2320290	0.24551970	2.5258748	20	10 31.8	18.7
128023 2003 KE	15.7	X	243.51117	42.97741	77.94916	25.69046	0.2201308	0.25713743	2.4492090	20	10 20.8	19.5
128024 2003 KH	15.4	X	286.72261	120.68714	102.17710	10.01720	0.1484920	0.21857067	2.7294478	20	1 2.8	19.2
128025 2003 KK	16.1	X	216.31993	148.09515	112.21509	10.03929	0.0629634	0.26995824	2.3710370	20	—	—
128026 2003 KE <sub>1</sub>	16.5	X	299.04059	308.29060	167.33137	4.78272	0.1116424	0.26130581	2.4230925	20	—	—
128027 2003 KT <sub>3</sub>	14.4	X	310.62985	238.24853	43.49101	19.62770	0.1288190	0.17135569	3.2102365	20	4 24.8	18.6
128028 2003 KM <sub>5</sub>	14.6	X	4.30389	186.74640	69.42998	18.70038	0.1477412	0.17879789	3.1205259	20	6 15.8	18.2
128029 2003 KV <sub>7</sub>	16.2	X	176.09725	63.64043	115.04806	8.61326	0.0326193	0.25272207	2.4776537	20	10 26.8	19.7
128030 2003 KK <sub>14</sub>	17.2	X	280.04425	280.69080	28.83931	2.07812	0.1473239	0.28814528	2.2701874	20	4 7.7	20.1
128031 2003 KM <sub>14</sub>	16.0	X	13.66383	108.98345	192.22673	3.71863	0.2256778	0.24302253	2.5431483	20	9 28.6	18.2
128032 2003 KW <sub>17</sub>	16.1	X	268.68759	93.70338	143.40144	6.05687	0.1917075	0.27399620	2.3476842	20	—	—
128033 2003 KX <sub>17</sub>	15.5	X	240.01713	225.35042	87.33036	8.34731	0.1002735	0.22118883	2.7078665	20	3 11.7	19.7
128034 2003 KB <sub>18</sub>	14.8	X	64.29892	171.42699	119.20501	9.74922	0.0640840	0.19031313	2.9933458	20	10 27.5	19.2
128035 2003 KK <sub>18</sub>	16.7	X	285.51195	23.70383	229.79791	5.63632	0.0857833	0.27877110	2.3207991	20	2 5.6	19.8
128036 2003 Rafaelnadal	15.8	X	181.53110	186.43153	68.28494	10.71961	0.2283282	0.26109417	2.4244018	20	—	—
128037 2003 KU <sub>18</sub>	16.4	X	1.38808	291.69830	316.11487	5.57375	0.0966612	0.29068696	2.2569348	20	5 29.4	18.6
128038 2003 KX <sub>23</sub>	15.4	X	352.73196	40.81627	221.18628	4.25273	0.1079759	0.17850897	3.1238920	20	6 4.6	19.1
128039 2003 KC <sub>35</sub>	15.3	X	264.64757	225.33301	89.71240	4.50810	0.2327294	0.22332462	2.6905742	20	3 25.0	19.5
128040 2003 KR <sub>35</sub>	16.3	X	348.25168	73.71235	142.05686	5.53416	0.0964294	0.28387402	2.2929026	20	3 18.0	18.5
128041 2003 KG <sub>36</sub>	15.6	X	58.62515	27.15326	156.31752	3.74154	0.1323566	0.23394476	2.6085180	20	6 9.6	18.8
128042 2003 LU	16.3	X	165.68195	170.01156	129.31630	8.18185	0.1455489	0.26637477	2.3922542	20	—	—
128043 2003 LV <sub>1</sub>	15.0	X	281.44547	216.80372	72.80062	9.41487	0.1832433	0.22435207	2.6823534	20	3 19.2	19.0
128044 2003 LA <sub>3</sub>	16.1	X	147.57770	17.89867	49.79047	7.94937	0.0556154	0.23073386	2.6326623	20	4 21.2	19.7
128045 2003 LH <sub>6</sub>	15.2	X	329.07838	259.76563	23.19712	1.16070	0.1564545	0.17314589	3.1880705	20	5 19.0	19.1
128046 2003 MY <sub>1</sub>	15.0	X	71.13744	307.55347	294.81674	14.44242	0.0793996	0.23540962	2.5976855	20	9 1.3	18.7
128047 2003 MC <sub>2</sub>	15.3	X	52.77907	182.40406	95.40992	8.75514	0.1652946	0.23976280	2.5661469	20	10 20.1	18.9
128048 2003 MG <sub>3</sub>	16.2	X	246.80480	354.99326	285.09551	6.24290	0.2288037	0.27458570	2.3443230	20	1 20.6	20.2
128049 2003 MA <sub>6</sub>	14.6	X	38.33447	25.78996	284.79039	15.37823	0.1592403	0.18176693	3.0864515	20	10 20.5	19.0
128050 2003 MJ <sub>6</sub>	14.6	X	24.64427	187.87586	173.03772	12.00894	0.0730819	0.18795373	3.0183441	20	12 1.2	18.8
128051 2003 MT <sub>6</sub>	14.9	X	34.08783	115.16666	174.15679	13.10315	0.1995514	0.24171829	2.5522881	20	10 13.7	18.0
128052 2003 MW <sub>8</sub>	15.5	X	123.25067	315.62191	227.39571	11.39027	0.1055367	0.23712663	2.5851306	20	8 21.5	19.6
128053 2003 MB <sub>9</sub>	14.6	X	2.53898	103.82770	192.73963	17.12513	0.1472944	0.17920328	3.1158180	20	8 5.2	18.6
128054 2003 Eranyavneh	14.9	X	39.35311	184.89838	150.87247	1.66087	0.0731189	0.18052468	3.1005947	20	11 16.4	19.2
128055 2003 MM <sub>10</sub>	15.6	X	7.21435	29.39672	271.89382	4.51793	0.2139710	0.23400071	2.6081022	20	9 8.7	18.0
128056 2003 MU <sub>12</sub>	13.8	X	9.77746	24.32044	274.79240	20.04228	0.0746066	0.17049743	3.2210008	20	8 10.2	18.3
128057 2003 NR	16.5	X	217.44732	340.01376	305.09274	3.57882	0.2511475	0.26817708	2.3815239	20	1 5.3	20.6
128058 2003 NJ <sub>2</sub>	15.6	X	313.67631	270.49367	54.62430	3.60147	0.1035192	0.22996718	2.6385104	20	6 28.6	18.7
128059 2003 NW <sub>2</sub>	13.1	X	15.93821	307.55814	77.77009	11.90938	0.2345558	0.12437856	3.9747124	20	12 20.1	17.9
128060 2003 NJ <sub>3</sub>	14.2	X	338.61616	83.29654	267.66746	22.71877	0.0815706	0.17255807	3.1953066	20	8 26.5	18.9
128061 2003 NN <sub>3</sub>	14.6	X	284.64099	238.25723	124.56802	14.92449	0.0756903	0.16915114	3.2380690	20	7 7.4	19.1
128062 2003 Szrogh	14.9	X	19.50508	201.89820	126.15068	13.89759	0.1611442	0.18311223	3.0713158	20	10 28.7	19.0
128063 2003 NB <sub>8</sub>	16.1	X	266.58136	190.46958	97.31172	3.02843	0.2012672	0.27509984	2.3414012	20	2 19.6	19.7
128064 2003 NK <sub>9</sub>	15.7	X	350.53011	195.97636	156.37906	4.11007	0.1748158	0.23837936	2.5760658	20	10 22.0	18.1
128065 2003 Bartbenjamin	14.9	X	17.34657	183.09900	222.92030	7.82153	0.1366851	0.19126732	2.9833820	20	—	—
128066 2003 OM	16.1	X	152.56305	327.64755	4.52718	2.30787	0.2238998	0.26260279	2.4151077	20	1 8.9	19.8
128067 2003 OK <sub>4</sub>	14.9	X	42.25656	58.73438	320.19768	10.17736	0.0889300	0.19090035	2.9872041	20	—	—
128068 2003 OT <sub>4</sub>	14.3	X	108.24199	4.22502	281.67309	12.95828	0.1265852	0.19088886	2.9873240	20	12 10.3	19.0
128069 2003 OF <sub>7</sub>	14.9	X	60.34483	66.35266	281.50802	9.10806	0.1079771	0.18993251	2.9973434	20	—	—
128070 2003 OE <sub>8</sub>	15.0	X	243.30330	349.39841	326.66266	14.22481	0.1945108	0.21623956	2.7490287	20	3 5.1	19.5
128071 2003 OS <sub>9</sub>	14.4	X	197.45664	164.61164	282.13090	10.97034	0.0413815	0.17013079	3.2256266	20	7 11.1	19.0
128072 2003 OV <sub>9</sub>	15.0	X	113.81178	6.94683	285.80432	10.85675	0.0770711	0.19148219	2.9811498	20	12 21.4	19.5
128073 2003 OQ <sub>10</sub>	15.6	X	281.38332	147.17088	107.19632	9.07409	0.1703400	0.21531592	2.7568848	20	2 3.2	19.6
128074 2003 OF <sub>13</sub>	15.9	X	322.01093	315.82284	24.83493	2.42412	0.1407116	0.23242823				

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Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
128081 2003 OO <sub>21</sub>	15.4	X	154.31586	155.67046	315.68869	14.10856	0.0877111	0.22730384	2.6590808	20	6 27.8	19.5
128082 2003 OS <sub>23</sub>	14.8	X	104.26167	35.28704	285.03441	8.35897	0.0673545	0.19304470	2.9650417	20	—	—
128083 2003 OJ <sub>26</sub>	15.6	X	25.76521	145.94694	141.27819	9.95358	0.1131725	0.23515287	2.5995760	20	9 12.7	18.6
128084 2003 OP <sub>29</sub>	15.2	X	338.28723	148.41627	230.61808	1.40304	0.1347566	0.17827813	3.1265880	20	10 15.7	18.9
128085 2003 OT <sub>29</sub>	15.7	X	274.93972	318.12396	321.01353	2.63951	0.0587311	0.21318796	2.7751999	20	3 9.9	19.6
128086 2003 OQ <sub>31</sub>	14.6	X	271.06500	279.72614	139.49824	16.06630	0.1366328	0.17728680	3.1382325	20	8 23.2	18.8
128087 2003 PH	15.9	X	77.10290	273.29652	28.19479	4.73214	0.2116446	0.24621451	2.5211206	20	12 15.8	20.0
128088 2003 PL	14.8	X	29.09536	73.52453	268.13264	7.89714	0.1084330	0.18323951	3.0698935	20	11 14.0	19.0
128089 2003 PG <sub>3</sub>	15.5	X	302.53956	288.30016	302.15659	8.08592	0.0527711	0.21300369	2.7768002	20	2 12.1	19.2
128090 2003 PJ <sub>4</sub>	15.3	X	313.35007	18.98890	357.19007	9.11991	0.0901454	0.23574722	2.5952050	20	9 13.2	18.2
128091 2003 PY <sub>5</sub>	15.7	X	156.15277	62.60103	247.22063	4.84192	0.0551851	0.19843287	2.9111214	20	—	—
128092 2003 PJ <sub>6</sub>	14.3	X	249.94981	131.33846	315.59549	13.50774	0.0535002	0.17546158	3.1599583	20	9 6.8	19.0
128093 2003 PE <sub>7</sub>	15.5	X	166.23549	176.22102	186.01042	3.80061	0.1113736	0.21063571	2.7975727	20	2 23.0	19.7
128094 2003 PT <sub>7</sub>	15.9	X	153.50287	95.48353	221.32566	2.14755	0.1845204	0.20141861	2.8822810	20	—	—
128095 2003 PU <sub>7</sub>	15.0	X	80.02898	44.93275	293.94973	8.52423	0.0899390	0.19281470	2.9673991	20	—	—
128096 2003 PZ <sub>7</sub>	15.9	X	359.17396	325.24907	261.15054	4.02639	0.2143788	0.28316887	2.2967076	20	4 11.6	17.2
128097 2003 PS <sub>8</sub>	15.0	X	323.52150	27.46577	328.04288	4.31517	0.1731809	0.17366427	3.1817232	20	8 15.4	18.6
128098 2003 PX <sub>8</sub>	15.5	X	329.06715	321.68482	322.52225	8.30166	0.0833270	0.22490381	2.6779646	20	5 26.5	18.9
128099 2003 PC <sub>9</sub>	15.0	X	346.72118	122.01366	309.52759	12.27235	0.1037481	0.19027987	2.9936945	20	—	—
128100 2003 PY <sub>9</sub>	15.2	X	231.36188	252.27446	184.90472	5.31164	0.1173661	0.17127084	3.2112967	20	7 29.7	20.2
128101 2003 PG <sub>11</sub>	15.3	X	189.21318	349.92780	327.38779	14.57161	0.1341060	0.20442232	2.8539772	20	1 27.7	19.9
128102 2003 PA <sub>12</sub>	16.1	X	6.81591	337.05124	316.37820	5.11658	0.3170966	0.23460471	2.6036238	20	9 13.6	18.0
128103 2003 QW <sub>1</sub>	15.3	X	227.36715	13.36598	243.50152	1.09938	0.0126016	0.19967939	2.8989934	20	—	—
128104 2003 QG <sub>4</sub>	15.3	X	52.82137	338.62395	302.95598	5.45832	0.1504681	0.17898700	3.1183275	20	10 5.2	19.7
128105 2003 QK <sub>6</sub>	15.3	X	56.03477	328.20353	2.40311	4.09564	0.1641071	0.18326034	3.0696608	20	12 12.3	19.8
128106 2003 QQ <sub>7</sub>	14.5	X	352.99838	0.64627	331.10080	8.87026	0.0988896	0.17444425	3.1722320	20	9 5.4	18.5
128107 2003 QY <sub>9</sub>	15.5	X	320.11575	2.58154	359.47858	12.65281	0.1075373	0.23372891	2.6101237	20	9 5.2	18.4
128108 2003 QP <sub>13</sub>	15.5	X	330.22189	168.25146	157.72297	14.65898	0.2649173	0.22810335	2.6528637	20	7 12.6	17.8
128109 2003 QB <sub>14</sub>	15.2	X	37.32386	296.63273	280.86918	10.95681	0.1370432	0.22463788	2.6800777	20	6 23.7	18.1
128110 2003 QJ <sub>15</sub>	14.7	X	238.42149	144.95849	305.56979	9.10335	0.0682347	0.17354399	3.1831932	20	8 28.0	19.4
128111 2003 QJ <sub>17</sub>	15.7	X	209.62769	240.20827	134.47251	4.47062	0.1060681	0.21684699	2.7438926	20	4 23.8	19.9
128112 2003 QP <sub>18</sub>	15.4	X	20.90566	284.95548	72.38738	2.28405	0.1792896	0.18139667	3.0906501	20	12 2.9	19.3
128113 2003 QK <sub>19</sub>	15.0	X	296.28782	287.64464	335.15440	11.03130	0.1291677	0.21455527	2.7633969	20	3 4.9	18.7
128114 2003 QW <sub>19</sub>	14.4	X	272.03137	52.13768	350.73482	14.99114	0.0459651	0.17059170	3.2198140	20	8 19.6	18.9
128115 2003 QC <sub>26</sub>	15.2	X	53.59307	136.79382	235.42166	2.46041	0.1068498	0.19013200	2.9952465	20	—	—
128116 2003 QE <sub>30</sub>	14.7	X	37.52470	89.41625	117.98150	16.63094	0.0596441	0.22561960	2.6722977	20	6 3.4	18.3
128117 2003 QP <sub>33</sub>	14.9	X	123.89104	192.26160	121.51451	7.87505	0.2057894	0.19654440	2.9297423	20	—	—
128118 2003 QY <sub>33</sub>	14.8	X	18.41808	303.66923	150.81878	9.97051	0.0670035	0.18344907	3.0675514	20	11 14.4	19.0
128119 2003 QF <sub>34</sub>	15.4	X	1.70549	199.70753	164.81289	2.52770	0.0302939	0.18266693	3.0763053	20	10 29.6	19.4
128120 2003 QS <sub>34</sub>	15.4	X	176.17747	156.63076	127.15866	3.07073	0.0421568	0.19819536	2.9134466	20	—	—
128121 2003 QA <sub>35</sub>	14.2	X	9.11822	7.84219	22.12195	1.09165	0.2886639	0.12545964	3.9518461	20	12 22.3	18.6
128122 2003 QD <sub>35</sub>	15.0	X	335.13216	244.53186	150.32381	9.87847	0.1228795	0.18087497	3.0965902	20	11 4.5	18.8
128123 2003 QR <sub>35</sub>	14.9	X	327.75722	261.37312	149.68511	13.55537	0.1412864	0.18178780	3.0862154	20	11 14.1	18.7
128124 2003 QY <sub>38</sub>	14.7	X	297.34823	235.59683	159.03123	10.84527	0.0768910	0.17415371	3.1757592	20	9 4.6	18.9
128125 2003 QK <sub>39</sub>	15.1	X	127.02232	52.04800	328.98964	1.17933	0.0812397	0.20305683	2.8667576	20	2 2.6	19.0
128126 2003 QY <sub>39</sub>	14.0	X	1.81585	160.67624	246.14729	1.77023	0.2495525	0.12416742	3.9792169	20	12 23.8	18.5
128127 2003 QN <sub>40</sub>	15.9	X	158.77051	49.31656	256.98112	1.49999	0.1521262	0.20020310	2.8939356	20	—	—
128128 2003 QO <sub>40</sub>	14.5	X	212.49798	21.55399	171.76861	8.86924	0.1442650	0.15460945	3.4380487	20	3 12.4	20.0
128129 2003 QR <sub>40</sub>	15.2	X	304.59220	276.04492	330.41753	8.31879	0.1111118	0.21520960	2.7577928	20	2 27.1	18.9
128130 2003 QU <sub>44</sub>	15.3	X	287.23263	344.72329	336.11887	13.51751	0.1810595	0.22233716	2.6985347	20	4 24.0	19.2
128131 2003 QV <sub>44</sub>	15.0	X	148.00341	278.82724	351.47466	8.84303	0.0970568	0.19182568	2.9775900	20	12 29.9	19.7
128132 2003 QW <sub>45</sub>	15.4	X	113.20506	228.21710	117.34467	2.94579	0.1271463	0.19529426	2.9422285	20	—	—
128133 2003 QT <sub>46</sub>	14.7	X	302.17332	339.51992	86.99532	10.32610	0.0550436	0.18236896	3.0796552	20	10 29.6	18.9
128134 2003 QX <sub>46</sub>	14.4	X	314.65304	52.19990	291.58578	11.37933	0.0426137	0.17151428	3.2082574	20	7 27.2	18.8
128135 2003 QL <sub>48</sub>	16.5	X	288.39203	29.70639	272.56188	5.40222	0.1238189	0.27718991	2.3296165	20	4 10.1	19.6
128136 2003 QR <sub>50</sub>	14.7	X	54.43002	134.31793	104.17909	5.48402	0.0412996	0.16733584	3.2614451	20	7 31.0	19.1
128137 2003 QO <sub>52</sub>	14.7	X	274.74065	302.52245	139.89401	11.55667	0.0613108	0.17994654	3.1072323	20	10 11.3	19.1
128138 2003 QD <sub>54</sub>	14.4	X	307.92929	245.03424	145.98098	22.64326	0.0238403	0.17603153	3.1531338	20	9 23.9	18.9
128139 2003 QU <sub>55</sub>	14.8	X	359.25611	221.31429	89.21903	5.90854	0.0644607	0.17119960	3.2121875	20	8 19.9	19.0
128140 2003 QK <sub>56</sub>	15.3	X	311.41620	227.54979	147.23111	9.83858	0.1661819	0.17109999	3.2134341	20	8 19.9	18.9
128141 2003 QE <sub>58</sub>	15.1	X	316.96623	75.25707	323.80920	4.15332	0.1118587	0.17789497	3.1310759	20	10 5.2	19.0
128142 2003 QH <sub>60</sub>	15.4	X	133.85416	254.49890	89.69208	3.26009	0.1242180	0.19275131	2.9227351	20	1 3.1	19.5
128143 2003 QS <sub>60</sub>	15.1	X	24.20979	202.78531	129.49583	5.48625	0.1756394	0.17757775	3.1348037	20	11 6.9	19.1
128144 2003 QA <sub>61</sub>	13.5	X	51.07861	249.21351	15.66045	17.62085	0.1912674	0.17330888	3.1860714	20	9 23.9	17.9
128145 2003 QL <sub>61</sub>	14.5	X	30.59600	203.61171	147.23982	11.91244	0.0986844	0.18022811	3.1039951	20	11 29.2	18.9
128146 2003 QO <sub>65</sub>	15.1	X	16.39037	300.13119	17.78791	4.52608	0.1244797	0.17578555	3.1560746	20	9 28.9	18.8
128147 2003 QX <sub>68</sub>	15.0	X	286.15421	149.13384	104.33884	10.57115	0.1970944	0.21477443	2.7615167	20	2 4.4	19.1
128148 2003 QH <sub>69</sub>	15.1	X	308.60139	170.96374	135.03924	14.81681	0.1573867	0.22276137	2.6951077	20	5 20.5	18.7
128149 2003 QX <sub>71</sub>	14.4	X	146.88669	340.32366	248.27155	14.66185	0.0628342	0.17928509	3.1148701	20	11 5.5	19.2
128150 2003 QK <sub>77</sub>	14.6	X	49.44665	9.75375	317.06060	3.12493	0.0724026	0.18039968	3.1020267	20	11 16.5	19.0
128151 2003 QZ <sub>78</sub>	14.5	X	62.42758	304.69633	16.45994	13.21092	0.2084480	0.23754282	2.5821102	20	12 24.2	18.7
128152 2003 QW <sub>79</sub>	14.5	X	8.29438	195.29323	110.58318	13.09757	0.2272674	0.17527798	3.1621646	20	9 15.5	18.0
128153 2003 QT <sub>81</sub>	15.6	X	70.43534	354.47539	356.69117	6.51077	0.0814368	0.18875615	3.0097838	20	—	—
128154 2003 QX <sub>88&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>
128161 2003 QV <sub>102</sub>	15.4	X	63.62996	114.68258	201.05593	1.28009	0.0766302	0.18396179	3.0618527	20	11 22.6	19.7
128162 2003 QC <sub>103</sub>	14.8	X	26.52207	334.35826	340.92711	6.91580	0.0269934	0.17775897	3.1326727	20	9 26.8	19.2
128163 2003 QP <sub>103</sub>	16.1	X	231.66380	265.55788	42.21805	4.55789	0.1995330	0.20975831	2.8053686	20	2 19.9	20.9
128164 2003 QJ <sub>104</sub>	14.1	X	330.84184	26.53744	351.43401	15.54783	0.2066645	0.17703601	3.1411955	20	9 26.0	17.4
128165 2003 QR <sub>104</sub>	14.6	X	324.47900	9.99897	344.48172	3.95911	0.1257317	0.17141411	3.2095071	20	8 19.9	18.3
128166 Carora	14.4	X	52.11202	311.01822	12.65267	14.36682	0.0804095	0.17772288	3.1330968	20	11 13.2	19.0
128167 2003 QA <sub>106</sub>	15.3	X	51.64359	47.48452	313.01439	2.72030	0.1118063	0.18505002	3.0498370	20	—	—
128168 2003 QC <sub>109</sub>	14.8	X	72.08292	174.95103	113.81694	10.60904	0.0820084	0.18195244	3.0843533	20	11 4.3	19.4
128169 2003 RD <sub>1</sub>	14.9	X	352.79547	229.65050	156.64875	5.42885	0.1549269	0.17910778	3.1169255	20	11 22.6	18.6
128170 2003 RA <sub>2</sub>	15.0	X	54.75799	167.64756	169.83831	11.62214	0.1050598	0.18519822	3.0482097	20	12 13.1	19.5
128171 2003 RT <sub>2</sub>	15.6	X	160.93933	165.73112	109.46938	1.54835	0.1042180	0.19414086	2.9538702	20	—	—
128172 2003 RA <sub>4</sub>	15.1	X	196.33730	196.00662	352.46439	1.42098	0.0457889	0.18453511	3.0555077	20	11 13.8	19.6
128173 2003 RD <sub>8</sub>	15.8	X	62.73570	212.12574	71.32000	5.84595	0.2143723	0.24030483	2.5622867	20	11 10.7	19.5
128174 2003 RW <sub>8</sub>	15.3	X	111.21685	188.69968	158.30044	1.93890	0.1327523	0.19516437	2.9435338	20	—	—
128175 2003 RP <sub>9</sub>	13.5	X	354.22396	174.71540	242.82349	9.60614	0.1952681	0.12437416	3.9748060	20	12 17.8	18.1
128176 2003 RB <sub>10</sub>	14.8	X	33.33384	324.02412	2.81865	4.35684	0.1649759	0.17676405	3.1444167	20	11 8.0	18.9
128177 Griffioen	15.6	X	194.22388	123.20399	173.58751	7.54040	0.0293421	0.20222148	2.8746470	20	1 2.4	19.8
128178 2003 RE <sub>12</sub>	14.6	X	338.98883	324.86343	35.29598	9.93026	0.0724481	0.17613535	3.1518947	20	9 25.6	18.7
128179 2003 RV <sub>12</sub>	14.6	X	46.78545	270.37114	348.95685	2.57246	0.1143812	0.17184270	3.2041683	20	8 26.9	18.9
128180 2003 RY <sub>13</sub>	14.3	X	111.63414	349.21685	261.54969	17.32405	0.0877569	0.17964669	3.1106888	20	10 24.9	19.3
128181 2003 RS <sub>14</sub>	15.6	X	242.08218	173.48452	138.60179	5.02688	0.0558659	0.21188092	2.7866012	20	3 15.0	19.5
128182 2003 RO <sub>18</sub>	14.6	X	61.96071	338.62544	267.96602	6.03752	0.1146004	0.17227052	3.1988613	20	8 27.7	19.2
128183 2003 RP <sub>22</sub>	14.9	X	281.00094	37.30264	270.12823	11.46620	0.1757994	0.21767733	2.7369104	20	3 31.8	19.2
128184 2003 RN <sub>23</sub>	15.7	X	35.26268	348.24962	161.95143	1.49771	0.0151628	0.20980557	3.2049473	20	3 9.1	19.5
128185 2003 SP	14.6	X	84.78811	43.24714	178.61728	8.00803	0.0219214	0.16981026	2.8299625	20	8 12.9	19.2
128186 2003 SG <sub>1</sub>	15.6	X	208.14122	247.87564	242.59394	3.66802	0.1220154	0.17366795	3.1816783	20	9 8.0	20.5
128187 2003 SJ <sub>2</sub>	16.0	X	207.78953	262.26903	358.53734	1.61184	0.0607526	0.19683229	2.9268816	20	—	—
128188 2003 SB <sub>3</sub>	14.4	X	127.09100	224.68465	355.57183	8.40931	0.0409682	0.17449115	3.1716635	20	10 3.5	19.1
128189 2003 SR <sub>6</sub>	14.6	X	324.69997	186.51676	189.46283	3.25888	0.1663680	0.17133539	3.2104900	20	9 14.2	18.2
128190 2003 SW <sub>6</sub>	14.5	X	16.23106	313.24570	30.88131	1.75459	0.1178215	0.17667732	3.1454456	20	10 30.8	18.4
128191 2003 SW <sub>8</sub>	15.0	X	213.17776	240.68263	340.27148	3.73648	0.0103367	0.18838566	3.0137287	20	—	—
128192 2003 SQ <sub>11</sub>	15.3	X	119.70820	180.82805	199.44143	1.86368	0.1055869	0.20084216	2.8877934	20	1 27.1	19.4
128193 2003 SA <sub>13</sub>	14.3	X	304.40804	20.79695	354.25541	5.63709	0.0938592	0.17022201	3.2244742	20	8 19.2	18.4
128194 2003 SP <sub>14</sub>	14.6	X	208.55586	334.77548	173.27148	8.00454	0.0329981	0.17729247	3.1381656	20	10 11.7	19.1
128195 2003 SC <sub>17</sub>	14.6	X	0.04587	328.10950	25.64692	1.92494	0.1789378	0.17567253	3.1574282	20	10 23.6	18.1
128196 2003 SN <sub>27</sub>	15.0	X	69.60431	342.33240	273.02128	8.18171	0.0544527	0.17540435	3.1606457	20	9 7.7	19.7
128197 2003 SR <sub>35</sub>	14.3	X	233.26734	147.12037	212.86996	9.04791	0.0928488	0.15584835	3.4198042	20	5 1.8	19.3
128198 2003 SR <sub>39</sub>	13.8	X	26.58210	55.85155	335.91812	8.33368	0.2112070	0.12467522	3.9684046	20	—	—
128199 2003 SP <sub>43</sub>	14.9	X	307.96838	92.57270	320.79479	8.47465	0.0876219	0.17827334	3.1266441	20	10 9.2	19.0
128200 2003 SE <sub>45</sub>	15.5	X	135.20461	209.55771	132.05325	2.75130	0.1058144	0.19668647	2.9283280	20	—	—
128201 2003 SZ <sub>46</sub>	14.3	X	348.43596	54.31878	286.01138	2.33741	0.1204230	0.17204635	3.2016393	20	9 9.5	18.0
128202 2003 SX <sub>47</sub>	14.9	X	67.20274	357.20493	262.73295	4.15945	0.1425717	0.17329866	3.1861967	20	9 24.7	19.5
128203 2003 SN <sub>52</sub>	15.1	X	49.31527	240.09107	142.38636	3.57543	0.3104582	0.12703600	3.9190864	20	—	—
128204 2003 SX <sub>53</sub>	14.5	X	7.28710	269.81912	74.77371	11.68228	0.0551135	0.17774567	3.1328290	20	10 17.9	18.8
128205 2003 SW <sub>56</sub>	14.8	X	264.69521	266.59597	186.47753	11.59942	0.0329224	0.17719345	3.1393346	20	10 11.7	19.1
128206 2003 SU <sub>58</sub>	14.5	X	304.88710	122.75770	259.02379	8.71651	0.0259172	0.17341064	3.1848248	20	8 30.2	19.0
128207 2003 SL <sub>61</sub>	14.8	X	15.64273	214.75892	137.39594	10.56948	0.0561299	0.17975982	3.1093836	20	11 6.7	19.2
128208 2003 SZ <sub>62</sub>	14.3	X	149.35791	213.16558	262.31401	5.90129	0.0181756	0.16200459	3.3326101	20	6 20.2	18.9
128209 2003 SS <sub>65</sub>	13.9	X	353.36346	284.90572	115.16439	3.13118	0.1531082	0.12398091	3.9832066	20	11 23.7	18.7
128210 2003 SJ <sub>67</sub>	14.7	X	332.58441	84.28877	12.21532	13.89989	0.1081062	0.18524043	3.0477466	20	—	—
128211 2003 SG <sub>70</sub>	14.4	X	307.39776	98.36318	11.07324	11.28263	0.1160105	0.18402473	3.0611546	20	12 22.2	18.3
128212 2003 SC <sub>73</sub>	14.8	X	50.79377	322.93900	332.01737	3.63495	0.1152951	0.17647552	3.1478430	20	10 15.1	19.2
128213 2003 SK <sub>73</sub>	15.0	X	123.62217	320.77431	2.84935	11.16510	0.1064038	0.19232796	2.9724035	20	—	—
128214 2003 SF <sub>75</sub>	15.3	X	155.38281	134.51199	235.59392	1.07782	0.0814317	0.20369151	2.8607996	20	2 20.2	19.6
128215 2003 SL <sub>77</sub>	15.1	X	320.21877	10.03787	265.02729	6.27814	0.1537441	0.21854037	2.7297001	20	4 19.3	18.5
128216 2003 SS <sub>77</sub>	14.7	X	94.11206	359.35640	291.31581	7.76403	0.1356000	0.18333894	3.0687834	20	12 1.1	19.5
128217 2003 SN <sub>79</sub>	14.6	X	299.68367	266.51632	344.09479	13.74460	0.1290733	0.20979903	2.8050056	20	2 26.0	18.4
128218 2003 SX <sub>79</sub>	15.0	X	43.14857	17.75523	318.01580	4.32386	0.1656864	0.18063283	3.0993570	20	12 1.8	19.3
128219 2003 SP <sub>82</sub>	15.2	X	210.08269	158.80234	122.32170	3.11666	0.0678802	0.19931564	2.9025194	20	1 2.5	19.4
128220 2003 SN <sub>88</sub>	15.1	X	219.76980	249.12077	41.34334	2.59150	0.0687687	0.20175870	2.8790411	20	1 24.1	19.3
128221 2003 SZ <sub>99</sub>	15.7	X	105.82617	333.67598	293.94328	0.53310	0.0218586	0.18357983	3.0660983	20	11 6.6	20.2
128222 2003 SP <sub>101</sub>	14.2	X	3.02605	33.01066	320.46850	9.06963	0.2618631	0.17557226	3.1586302	20	11 3.9	17.7
128223 2003 SG <sub>102</sub>	14.7	X	166.92244	290.29157	240.56763	18.48035	0.1677656	0.17230055	3.1984896	20	9 10.5	20.3
128224 2003 SZ <sub>102</sub>	13.9	X	113.53759	238.18645	328.89694	15.94606	0.1009962	0.17067381	3.2187812	20	9 5.3	18.9
128225 2003 SP <sub>106</sub>	14.5	X	60.26595	30.02665	250.50514	8.83214	0.1067930	0.17528759	3.1620490	20	10 5.8	19.1
128226 2003 SB <sub>114</sub>	15.2	X	19.72776	17.44613	285.71399	4.14753	0.1602306	0.17400134	3.1776129	20	9 16.1	19.1
128227 2003 SG <sub>114</sub>	16.0	X	231.86150	148.75001	108.30183	8.78870	0.1929168	0.26283166	2.4137054	20	—	—
128228 2003 SV <sub>123</sub>	15.1	X	309.83876	157.44440	157.52143	6.24273	0.0327877	0.21934355	2.7230324	20	6 17.0	18.7
128229 2003 SO <sub>125</sub>	15.4	X	102.32453	358.16402	342.08258	8.50312	0.1569929	0.19160771	2.9798477	20	—	—
128230 2003 SQ <sub>126</sub>	14.5	X	13.03560	176.12704	177.45994	10.86181	0.0419844	0.17502820	3.1651723	20	10 31.9	18.8
128231 2003 SH <sub>140</sub>	14.5	X	145.17768	289.43512	299.11245	17.92569	0.1908990	0.18110250	3.0939960	20	10 31.6	20.1
128232 2003 SO <sub>146</sub>	14.4	X	148.19978	318.64200	321.03301	8.79237	0.0639795	0.18613154	3.0380114	20	—	—
128233 2003 SD <sub>148</sub>	14.6	X	110.89884	258.97729	74.87350	11.58104	0.0774408	0.19211701	2.9745790	20	—	—
128234 2003 SC <sub>149</sub>	15.5	X	81.05098	257.701								

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>
128241 2003 SO <sub>166</sub>	15.0	X	250.06790	152.77550	29.38139	9.18466	0.0298481	0.18999637	2.9966718	20	—	—
128242 2003 SF <sub>171</sub>	15.7	X	352.99590	340.32849	261.95434	1.08275	0.0392431	0.21827418	2.7319189	20	5 10.1	19.2
128243 2003 SO <sub>173</sub>	14.9	X	171.18093	286.31996	167.52370	9.67396	0.1161332	0.15911413	3.3728489	20	6 20.8	20.3
128244 2003 SZ <sub>175</sub>	14.8	X	260.52565	277.22044	167.59510	11.13404	0.0491746	0.17540343	3.1606567	20	9 23.7	19.2
128245 2003 SU <sub>176</sub>	14.2	X	293.11531	221.06340	354.95653	17.26181	0.2641050	0.20441388	2.8540558	20	—	—
128246 2003 SC <sub>177</sub>	15.6	X	224.22711	217.25976	34.77981	2.38820	0.0673548	0.19630048	2.9321654	20	—	—
128247 2003 SW <sub>203</sub>	15.3	X	75.41897	208.09187	122.46626	2.18767	0.0392076	0.18431823	3.0579041	20	12 19.1	19.6
128248 2003 SD <sub>216</sub>	14.5	X	27.66620	161.80169	200.38738	0.08163	0.1761489	0.17918843	3.1159902	20	12 17.1	18.4
128249 2003 SR <sub>236</sub>	15.3	X	172.94793	3.91580	282.03148	8.83595	0.0473101	0.19350864	2.9603006	20	—	—
128250 2003 SB <sub>238</sub>	14.7	X	52.41373	33.46231	294.40833	10.17566	0.0950048	0.18393498	3.0621502	20	11 24.9	19.2
128251 2003 SA <sub>247</sub>	14.9	X	63.31733	178.46156	185.99251	10.24915	0.1072846	0.18681159	3.0306341	20	—	—
128252 2003 SG <sub>249</sub>	15.4	X	126.98077	232.93011	149.22390	2.71770	0.0799727	0.19883107	2.9072333	20	2 3.9	19.5
128253 2003 SU <sub>258</sub>	15.1	X	96.15118	255.00504	74.12298	3.26313	0.0987742	0.18636507	3.0354730	20	—	—
128254 2003 SL <sub>259</sub>	14.6	X	47.06246	353.67594	32.11983	3.10339	0.2744423	0.12546879	3.9516539	20	—	—
128255 2003 SG <sub>270</sub>	14.5	X	74.85460	176.33591	151.24224	12.79751	0.0985545	0.18235172	3.0798494	20	12 22.0	19.2
128256 2003 SG <sub>284</sub>	14.9	X	66.51521	303.26033	327.16177	8.26058	0.0801690	0.17480254	3.1678958	20	9 27.3	19.5
128257 2003 SG <sub>292</sub>	14.8	X	221.49078	277.01649	296.17402	9.11740	0.1023108	0.18870363	3.0103423	20	—	—
128258 2003 SF <sub>297</sub>	16.1	X	231.67898	359.73575	341.68013	4.26980	0.0830835	0.21425119	2.7660109	20	4 3.8	20.1
128259 2003 SQ <sub>297</sub>	14.0	X	216.96918	121.05639	340.80096	32.01052	0.0070164	0.17013392	3.2255871	20	8 29.3	18.5
128260 2003 SP <sub>298</sub>	14.7	X	327.81803	34.51966	328.79189	21.20461	0.1522504	0.17118704	3.2123446	20	8 31.7	18.4
128261 2003 SX <sub>298</sub>	16.6	X	304.86915	139.91744	148.98548	3.73475	0.2297539	0.27625876	2.3348483	20	4 1.4	19.2
128262 2003 SL <sub>301</sub>	15.5	X	188.62264	259.38249	77.00627	3.06722	0.0710312	0.20494843	2.8490910	20	2 15.6	19.7
128263 2003 SL <sub>303</sub>	14.7	X	77.46673	259.46516	323.56290	10.29476	0.2329995	0.22589652	2.6701133	20	9 7.7	18.8
128264 2003 SZ <sub>303</sub>	13.8	X	123.52438	236.92666	4.75834	10.58905	0.0506365	0.17601306	3.1533545	20	10 24.8	18.6
128265 2003 SF <sub>304</sub>	14.3	X	80.53587	245.33817	33.42575	11.81835	0.0965557	0.17604931	3.1529215	20	10 29.1	18.8
128266 2003 TB <sub>1</sub>	14.2	X	120.85051	4.80137	277.64036	18.37613	0.0921520	0.18368138	3.0649681	20	12 15.8	19.0
128267 2003 TM <sub>6</sub>	14.5	X	74.47741	198.06097	111.47182	11.92916	0.0342820	0.17986532	3.1081675	20	11 24.3	19.1
128268 2003 TB <sub>7</sub>	13.8	X	31.68306	230.74966	70.10315	17.67550	0.1395986	0.17312346	3.1883459	20	10 10.7	18.3
128269 2003 TD <sub>14</sub>	14.0	X	18.23259	23.30822	304.96506	16.24411	0.0969466	0.17409678	3.1764514	20	10 1.3	18.5
128270 2003 TV <sub>49</sub>	14.6	X	272.01610	324.45092	155.57660	10.06603	0.0668648	0.18194625	3.0844233	20	11 21.4	18.9
128271 2003 UY <sub>3</sub>	15.8	X	83.39926	191.73514	156.16753	3.88740	0.0237111	0.18629038	3.0362843	20	—	—
128272 2003 UD <sub>38</sub>	15.7	X	63.07864	242.51824	71.59306	5.68540	0.1724208	0.23567514	2.5957341	20	12 12.1	19.5
128273 2003 UC <sub>52</sub>	16.1	X	210.59484	14.95121	324.81993	8.05753	0.2510072	0.26706749	2.3881157	20	3 3.1	20.2
128274 2003 UB <sub>58</sub>	14.8	X	270.28299	167.30902	357.07801	15.81226	0.0280481	0.18647794	3.0342480	20	—	—
128275 2003 UJ <sub>63</sub>	14.6	X	70.36192	151.34275	151.56547	11.05987	0.1364525	0.17908682	3.1171686	20	11 23.9	19.4
128276 2003 UM <sub>74</sub>	15.7	X	311.05432	285.92468	354.28626	11.54615	0.2645464	0.21645370	2.7472154	20	3 25.8	19.1
128277 2003 UR <sub>119</sub>	14.9	X	18.50815	298.33625	202.26974	13.09383	0.1597186	0.21835697	2.7312284	20	6 26.3	17.8
128278 2003 UL <sub>134</sub>	14.6	X	116.55728	27.68124	255.39080	8.34951	0.1086547	0.18143232	3.0902452	20	12 12.1	19.4
128279 2003 UG <sub>137</sub>	15.1	X	245.75666	164.39230	129.12192	2.45754	0.1435939	0.20516902	2.8470484	20	2 17.7	19.6
128280 2003 UE <sub>139</sub>	14.7	X	142.49488	183.91997	65.42829	13.30685	0.0464999	0.18136659	3.0909919	20	11 27.0	19.0
128281 2003 UQ <sub>145</sub>	15.4	X	207.15098	258.80247	106.79873	3.42754	0.0751262	0.20641029	2.8356230	20	4 11.3	19.6
128282 2003 UR <sub>156</sub>	14.8	X	35.58370	203.75362	179.59613	11.72626	0.0973713	0.18270174	3.0759145	20	—	—
128283 2003 UY <sub>166</sub>	14.8	X	150.77495	325.60940	354.92223	9.76703	0.1027426	0.19172210	2.9786623	20	—	—
128284 2003 UZ <sub>167</sub>	14.8	X	90.74898	279.56980	68.97772	14.69541	0.0478332	0.18617912	3.0374938	20	—	—
128285 2003 UE <sub>183</sub>	15.8	X	85.27662	100.98290	255.85706	1.27956	0.0727369	0.18725728	3.0258234	20	—	—
128286 2003 UC <sub>187</sub>	14.6	X	102.31065	297.91240	357.01221	8.85897	0.0640441	0.17915975	3.1163227	20	12 6.9	19.4
128287 2003 UZ <sub>196</sub>	15.3	X	126.62397	193.14266	111.97659	1.64349	0.1847144	0.18740144	3.0242714	20	—	—
128288 2003 UZ <sub>209</sub>	15.3	X	206.53238	273.76851	17.48196	3.95102	0.1691908	0.19690492	2.9261618	20	1 12.2	20.1
128289 2003 UZ <sub>254</sub>	15.5	X	166.75958	76.40073	193.28392	2.47270	0.1173308	0.18705004	3.0280580	20	—	—
128290 2003 UR <sub>258</sub>	15.4	X	83.31346	161.18019	120.69651	0.57358	0.1472245	0.17607044	3.1526693	20	11 10.9	20.1
128291 2003 UQ <sub>258</sub>	14.0	X	79.39321	241.75131	64.32156	18.36846	0.2133020	0.17769372	3.1334396	20	12 10.4	19.0
128292 2003 WR <sub>39</sub>	14.7	X	210.92030	216.93644	21.21486	9.38607	0.0928124	0.18523070	3.0478534	20	—	—
128293 2003 WM <sub>64</sub>	14.0	X	84.46648	216.96597	59.07718	27.64102	0.1565572	0.17511324	3.1641476	20	11 10.1	18.9
128294 2003 WM <sub>95</sub>	14.9	X	145.65541	246.00372	115.15890	3.14023	0.1093735	0.19479099	2.9472941	20	2 3.7	19.2
128295 2003 WD <sub>111</sub>	14.6	X	63.32292	52.44176	319.86157	4.89200	0.1682059	0.12375231	3.9881104	20	—	—
128296 2003 WH <sub>153</sub>	14.9	X	6.95811	161.78042	185.28032	18.35693	0.1413218	0.17056744	3.2201193	20	10 23.7	18.9
128297 Ashlevi	15.7	X	199.54719	113.57572	279.86617	0.95538	0.0768859	0.20319044	2.8655009	20	5 6.0	20.0
128298 2003 XR <sub>38</sub>	15.5	X	342.92515	338.87663	71.03335	16.43782	0.0976241	0.23204732	2.6227185	20	12 16.2	18.6
128299 2003 YL <sub>61</sub>	11.6	X	335.95463	155.82284	104.68299	21.80260	0.0684414	0.08123861	5.2799245	20	5 18.8	18.5
128300 2003 YH <sub>80</sub>	16.1	X	246.89972	23.71616	69.73633	4.33638	0.1750407	0.21981786	2.7191139	20	9 6.8	20.0
128301 2003 YZ <sub>139</sub>	12.1	X	312.75607	210.50524	84.53357	26.11230	0.0522717	0.08491230	5.1265161	20	5 27.7	18.9
128302 2004 AR <sub>9</sub>	16.9	X	152.04128	97.11706	145.99624	3.89584	0.0829805	0.28488105	2.2874960	20	12 20.6	20.0
128303 2004 AS <sub>26</sub>	15.0	X	164.16245	149.67279	105.08325	16.86585	0.1974612	0.22521788	2.6754745	20	12 28.6	19.4
128304 2004 BV <sub>10</sub>	15.0	X	146.34449	191.40482	149.98036	10.12847	0.0452462	0.18215185	3.0821018	20	1 6.4	19.5
128305 2004 BL <sub>47</sub>	14.9	X	175.68373	163.96359	120.80048	10.19057	0.0509183	0.17799197	3.1299383	20	—	—
128306 2004 BD <sub>55</sub>	16.3	X	93.93084	120.75123	141.21678	3.12601	0.1702905	0.27640024	2.3340515	20	11 16.2	19.9
128307 2004 BV <sub>56</sub>	16.0	X	92.67845	243.99362	323.41879	3.38300	0.2013866	0.26553072	2.3973211	20	8 28.4	19.4
128308 2004 BV <sub>72</sub>	15.8	X	199.08427	91.49432	153.09643	13.96957	0.2018950	0.22904142	2.6456154	20	—	—
128309 2004 BV <sub>93</sub>	15.8	X	335.71560	269.16386	311.16559	11.67384	0.0773821	0.24644374	2.5195570	20	3 4.6	18.9
128310 2004 BM <sub>114</sub>	16.2	X	115.98295	49.68882	185.82076	3.54669	0.1819147	0.27209858	2.3585868	20	11 3.1	19.9
128311 2004 CG <sub>74</sub>	14.1	X	38.11321	235.37008	114.84104	18.95048	0.1945971	0.17499576	3.1655635	20	12 19.3	18.6
128312 2004 CN <sub>75</sub>	15.2	X	216.08050	200.12717	146.44918	11.60232	0.0602628	0.19322718	2.9631745	20	3 31.6	19.7
128313 2004 CB <sub>95</sub>	14.6	X	225.76752	78.12743	147.58410	3.65670	0.2377269	0.16543646	3.2863607	20	—	—
128314 Coraliejackman	15.6	X	217.836									

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>
128321 Philipdumont	16.5 <sup>m</sup>	X	119.79636	81.95429	154.61101	2.60739	0.1507522	0.27083462	2.3659193	20	11 6.9	20.2
128322 2004 <i>EH</i> <sub>60</sub>	16.4	X	283.51648	298.40952	326.11612	4.70488	0.1192209	0.30084272	2.2058520	20	2 12.9	19.0
128323 Peterwolff	16.9	X	266.08412	133.48396	192.48613	3.91024	0.2109297	0.31110277	2.1570827	20	4 3.9	19.7
128324 2004 <i>EQ</i> <sub>79</sub>	16.6	X	255.91535	166.88458	82.04956	4.85190	0.1821893	0.29097716	2.2554339	20	—	—
128325 2004 <i>EF</i> <sub>115</sub>	15.6	X	180.55848	240.09575	156.09955	2.24229	0.1199024	0.19363773	2.9589847	20	4 21.1	20.2
128326 2004 <i>FN</i>	17.1	X	28.40036	185.68901	186.11595	20.30605	0.0546196	0.40288033	1.8155937	20	—	—
128327 Ericcarranza	17.1	X	279.19311	38.61804	196.14523	21.69691	0.0444148	0.35795630	1.9644880	20	—	—
128328 2004 <i>FU</i> <sub>15</sub>	16.7	X	3.07609	332.09598	239.68130	19.71685	0.0403632	0.37080019	1.9188576	20	3 22.4	18.8
128329 2004 <i>FK</i> <sub>21</sub>	16.8	X	152.53594	85.59978	209.08660	5.57027	0.1154902	0.28678942	2.2773370	20	—	—
128330 2004 <i>FX</i> <sub>27</sub>	16.0	X	328.92652	354.75726	349.75136	2.38278	0.2018948	0.26383701	2.4075699	20	8 24.9	17.6
128331 2004 <i>FM</i> <sub>46</sub>	17.4	X	310.20654	148.24655	106.33601	3.02545	0.1584521	0.30517038	2.1849481	20	2 28.8	19.9
128332 2004 <i>FC</i> <sub>50</sub>	16.1	X	113.15475	106.45308	203.72510	8.02471	0.2226075	0.27923021	2.3182545	20	—	—
128333 2004 <i>FL</i> <sub>55</sub>	15.6	X	231.89280	275.34388	142.47039	2.72314	0.0527361	0.20313313	2.8660398	20	7 16.1	19.7
128334 2004 <i>FO</i> <sub>65</sub>	16.5	X	182.51505	145.70756	140.62212	3.35810	0.1442234	0.28673984	2.2775995	20	—	—
128335 2004 <i>FP</i> <sub>79</sub>	15.3	X	110.96662	184.22347	189.08534	4.70545	0.2948438	0.23664819	2.5886138	20	1 28.0	19.0
128336 2004 <i>FP</i> <sub>107</sub>	16.2	X	176.07316	81.79024	228.36676	4.10055	0.1758606	0.28960975	2.2625278	20	—	—
128337 2004 <i>FD</i> <sub>111</sub>	16.4	X	213.06575	351.67816	196.37331	9.26139	0.1511954	0.27780154	2.3261959	20	12 10.2	19.5
128338 2004 <i>FQ</i> <sub>111</sub>	16.2	X	72.64479	192.31879	130.35529	0.16750	0.2274025	0.27547112	2.3392968	20	—	—
128339 2004 <i>FP</i> <sub>118</sub>	16.0	X	187.28002	237.57782	61.58567	3.92288	0.1605280	0.28801750	2.2708588	20	—	—
128340 2004 <i>FM</i> <sub>121</sub>	15.8	X	129.00031	151.93084	132.85222	9.84275	0.1345663	0.21685956	2.7437833	20	—	—
128341 Dalestanbridge	16.4	X	301.90724	284.81080	77.91729	21.25929	0.0543576	0.38124958	1.8836338	20	9 15.8	18.6
128342 2004 <i>FS</i> <sub>157</sub>	15.6	X	184.95422	186.49747	179.42319	10.08406	0.2962629	0.24537171	2.5268903	20	3 18.9	20.2
128343 Brianpage	16.1	X	171.03977	265.82021	29.62956	7.10435	0.1859935	0.22343675	2.6896740	20	—	—
128344 2004 <i>GW</i> <sub>7</sub>	16.9	X	86.21852	127.93657	348.07562	2.89847	0.0761057	0.30676282	2.1773800	20	4 1.3	19.0
128345 Danielbamberger	15.5	X	159.74925	318.11790	58.16579	8.34808	0.1588957	0.23714889	2.5849689	20	3 10.7	19.7
128346 2004 <i>GQ</i> <sub>19</sub>	16.0	X	286.20985	286.30496	65.76002	24.23820	0.0682963	0.37622697	1.9003609	20	7 5.3	18.0
128347 2004 <i>GB</i> <sub>23</sub>	16.9	X	308.82959	209.77804	92.85228	2.19606	0.1706654	0.31018386	2.1613408	20	5 6.1	18.8
128348 Jasonleonard	15.5	X	255.46110	215.52404	106.83646	12.60157	0.2608013	0.23799735	2.5788216	20	3 25.8	19.9
128349 2004 <i>GP</i> <sub>30</sub>	16.5	X	212.17366	88.63621	192.06430	6.00434	0.1450651	0.28919945	2.2646673	20	—	—
128350 2004 <i>GE</i> <sub>31</sub>	16.3	X	326.60606	233.04351	15.23349	3.43262	0.0909388	0.30480426	2.1866974	20	3 26.8	18.4
128351 2004 <i>GD</i> <sub>35</sub>	17.5	X	223.22627	167.95955	85.19193	1.70691	0.1495424	0.28874491	2.2670433	20	—	—
128352 2004 <i>GY</i> <sub>37</sub>	15.8	X	229.84009	304.44565	46.97367	5.76270	0.1984135	0.30222981	2.1990977	20	4 5.3	19.1
128353 2004 <i>GK</i> <sub>39</sub>	16.0	X	276.77672	261.84032	80.54572	2.73833	0.2359711	0.30790974	2.1719697	20	5 6.5	18.7
128354 2004 <i>GL</i> <sub>42</sub>	16.3	X	178.98803	139.45871	130.08408	2.49655	0.0529413	0.22352123	2.6889963	20	—	—
128355 2004 <i>GE</i> <sub>66</sub>	17.3	X	70.81550	324.88829	344.77036	1.04137	0.1866197	0.27117773	2.3639232	20	12 22.9	20.9
128356 2004 <i>GD</i> <sub>76</sub>	16.4	X	244.65449	38.67785	315.14921	0.63293	0.1513017	0.25226434	2.4806499	20	4 26.8	20.1
128357 2004 <i>HV</i> <sub>2</sub>	16.0	X	238.93051	304.32583	512.24206	11.99732	0.1280186	0.23188741	2.6239241	20	—	—
128358 2004 <i>HS</i> <sub>4</sub>	16.5	X	265.01628	283.62844	53.06032	6.79375	0.2033599	0.30783249	2.1723331	20	4 19.9	19.5
128359 2004 <i>HV</i> <sub>4</sub>	16.7	X	118.92681	216.32121	74.11904	4.05512	0.1563650	0.27586707	2.3370579	20	—	—
128360 2004 <i>HK</i> <sub>18</sub>	15.8	X	259.59980	271.44478	52.02981	5.37684	0.2559708	0.23888189	2.5724517	20	3 27.4	19.9
128361 2004 <i>HP</i> <sub>18</sub>	16.2	X	149.86479	82.08231	255.96921	4.74924	0.1916726	0.28804801	2.2706984	20	1 5.8	19.3
128362 2004 <i>HW</i> <sub>19</sub>	16.2	X	232.86176	136.52524	196.59340	4.69254	0.1448433	0.30155642	2.2023702	20	3 15.6	19.3
128363 2004 <i>HL</i> <sub>28</sub>	16.6	X	77.18580	213.13499	87.16374	6.76950	0.2413643	0.26711169	2.3878522	20	12 20.5	20.4
128364 2004 <i>HM</i> <sub>29</sub>	16.3	X	198.43126	109.65503	214.97709	5.09090	0.2042148	0.29388698	2.2405217	20	2 1.6	19.9
128365 2004 <i>HJ</i> <sub>44</sub>	16.5	X	214.70892	10.59387	308.98387	4.19052	0.2129096	0.29496364	2.2350662	20	2 10.2	20.3
128366 2004 <i>HX</i> <sub>44</sub>	17.4	X	203.46848	32.67704	234.36913	0.73267	0.1970412	0.28562724	2.2835103	20	—	—
128367 2004 <i>HM</i> <sub>53</sub>	16.7	X	345.36236	331.59479	45.09265	1.82892	0.1320580	0.26716158	2.3875550	20	11 19.3	18.8
128368 2004 <i>HH</i> <sub>59</sub>	16.8	X	246.17553	215.68891	32.00235	3.60300	0.1169620	0.28965179	2.2623089	20	—	—
128369 2004 <i>HT</i> <sub>62</sub>	15.7	X	305.57128	338.58864	320.92722	0.80764	0.1973792	0.18453830	3.0554724	20	4 26.7	19.6
128370 2004 <i>HB</i> <sub>72</sub>	16.1	X	317.97063	176.64096	38.87125	4.71309	0.0417770	0.23652091	2.5895424	20	2 15.1	19.4
128371 2004 <i>HO</i> <sub>74</sub>	15.1	X	303.33780	304.20845	61.30935	10.98594	0.1396762	0.19495839	2.9456068	20	8 3.6	18.9
128372 Danielwiibben	16.2	X	242.78843	287.62004	97.15531	24.82956	0.1134206	0.37528840	1.9035281	20	6 14.1	18.3
128373 Kevinjohnson	14.9	X	304.54036	188.82337	136.31217	12.51434	0.0817792	0.18992343	2.9974390	20	6 17.0	19.0
128374 2004 <i>JW</i> <sub>26</sub>	17.2	X	302.16969	19.67127	233.03905	2.15219	0.1656178	0.29901535	2.2148300	20	2 12.6	19.8
128375 2004 <i>JO</i> <sub>27</sub>	16.3	X	78.59846	223.53406	71.05222	7.27702	0.1894194	0.26531702	2.3986082	20	12 10.6	19.9
128376 2004 <i>JS</i> <sub>27</sub>	16.6	X	110.13581	29.69806	246.83718	1.67238	0.2153644	0.26803952	2.3823387	20	12 17.7	20.4
128377 2004 <i>JB</i> <sub>28</sub>	15.5	X	229.42889	255.44837	52.44664	2.39394	0.1955792	0.17212398	3.2006766	20	2 20.6	20.9
128378 2004 <i>JB</i> <sub>29</sub>	16.2	X	2.68740	229.19432	65.23091	11.22296	0.2338381	0.25330202	2.4738704	20	9 5.2	18.4
128379 2004 <i>JQ</i> <sub>33</sub>	17.2	X	346.29282	344.77714	206.01013	5.62528	0.1256681	0.29831542	2.1829300	20	1 26.8	19.5
128380 2004 <i>JF</i> <sub>34</sub>	16.1	X	189.52209	271.31643	94.44077	7.78401	0.1631140	0.29684901	2.2255925	20	3 21.1	19.6
128381 2004 <i>JB</i> <sub>35</sub>	15.7	X	151.75018	82.76783	215.98936	8.40756	0.1517096	0.21694813	2.7430398	20	—	—
128382 2004 <i>JH</i> <sub>35</sub>	16.6	X	358.17320	102.69327	180.58553	3.53962	0.1676315	0.31136785	2.1558583	20	7 28.8	18.0
128383 2004 <i>JW</i> <sub>52</sub>	13.0	X	61.45733	93.44669	207.72366	9.71587	0.0301897	0.08404175	5.1618574	20	10 9.6	19.7
128384 2004 <i>KV</i> <sub>3</sub>	16.3	X	5.59341	212.28123	220.12836	5.45796	0.0696654	0.28111424	2.3078849	20	—	—
128385 2004 <i>KD</i> <sub>4</sub>	15.7	X	309.32355	22.67792	255.72455	4.14268	0.2240819	0.24053209	2.5606724	20	3 24.8	18.8
128386 2004 <i>KL</i> <sub>5</sub>	16.7	X	12.09725	177.43175	202.25292	2.76684	0.0502165	0.27230557	2.3573914	20	12 25.6	19.6
128387 2004 <i>KH</i> <sub>8</sub>	15.9	X	237.19218	284.14246	34.82							

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>
128401 2004 LO <sub>9</sub>	16.1	X	238.13917	31.89851	243.43158	1.16927	0.1690040	0.22819155	2.6521801	20	1 15.8	20.3
128402 2004 LS <sub>9</sub>	16.5	X	139.98126	334.34579	310.68332	1.58424	0.1911949	0.26979669	2.3719834	20	—	—
128403 2004 LT <sub>10</sub>	16.7	X	88.15610	114.98868	247.31975	6.19935	0.1436175	0.28091885	2.3089550	20	—	—
128404 2004 LU <sub>13</sub>	15.6	X	249.51254	153.69784	180.58008	4.56639	0.2171084	0.23701087	2.5859723	20	4 2.3	19.6
128405 2004 LE <sub>15</sub>	15.3	X	238.83742	237.88153	79.21496	13.24220	0.1799539	0.23067758	2.6330905	20	3 12.3	19.8
128406 2004 LF <sub>15</sub>	15.9	X	95.23973	221.28987	78.24261	7.80010	0.1026925	0.26578108	2.3958153	20	12 27.3	19.2
128407 2004 LP <sub>15</sub>	14.7	X	280.22149	248.48320	91.13215	15.88077	0.2952847	0.18115752	3.0933695	20	5 7.6	19.5
128408 Mikehughes	15.6	X	36.91127	258.40420	127.34220	21.47141	0.3049184	0.26195034	2.4191163	20	—	—
128409 2004 LL <sub>16</sub>	15.7	X	96.67517	218.43853	122.53338	12.16924	0.2856191	0.26826804	2.3809856	20	—	—
128410 2004 LM <sub>16</sub>	16.3	X	82.90566	169.28978	172.44482	3.33956	0.1944352	0.26652099	2.3913792	20	—	—
128411 2004 LO <sub>16</sub>	15.5	X	322.57354	221.52214	99.20854	13.87559	0.1368186	0.24418341	2.5350816	20	7 4.7	18.0
128412 2004 LZ <sub>16</sub>	14.7	X	262.92175	261.56883	55.63050	10.44858	0.2290145	0.17646452	3.1479738	20	3 31.4	19.8
128413 2004 LR <sub>17</sub>	15.9	X	192.26456	7.12358	295.72162	12.42179	0.1156198	0.28182890	2.3039817	20	—	—
128414 2004 LO <sub>18</sub>	14.9	X	143.58024	261.79127	101.64324	26.92466	0.1131590	0.22560771	2.6723916	20	2 1.7	19.0
128415 2004 LZ <sub>21</sub>	15.4	X	253.08951	152.62386	154.25109	13.16028	0.1826806	0.23507219	2.6001708	20	3 6.5	19.4
128416 2004 LC <sub>22</sub>	14.8	X	91.91391	48.39202	223.34120	13.03503	0.2270904	0.19909679	2.9046459	20	11 17.9	19.5
128417 Chrismcaca	14.8	X	7.94854	99.95962	91.11912	11.85481	0.2527907	0.17891517	3.1191621	20	4 3.2	19.1
128418 2004 LN <sub>24</sub>	14.5	X	268.70391	80.22333	303.19790	24.81158	0.2304011	0.17733170	3.1377027	20	6 24.8	19.4
128419 2004 LK <sub>29</sub>	16.6	X	94.72406	85.57628	192.56178	3.42376	0.1145222	0.26195039	2.4191160	20	11 30.5	20.1
128420 2004 MS	13.8	X	314.65895	116.10148	209.82573	7.13233	0.1877570	0.12431543	3.9760578	20	6 16.1	18.8
128421 2004 MB <sub>1</sub>	15.6	X	241.81481	97.75400	264.86461	11.83659	0.2448999	0.23598687	2.5934477	20	4 24.7	20.0
128422 2004 MC <sub>1</sub>	15.4	X	239.35914	89.51598	263.98272	12.66129	0.1383466	0.23558586	2.5963888	20	4 18.9	19.6
128423 2004 MD <sub>1</sub>	15.9	X	178.57690	9.86233	257.56794	8.71614	0.1927908	0.27582101	2.3373181	20	—	—
128424 2004 MM <sub>1</sub>	15.9	X	67.99643	248.72795	271.14230	18.05997	0.0844542	0.36689635	1.9324449	20	5 4.7	17.9
128425 2004 MT <sub>5</sub>	15.1	X	248.39201	258.59223	105.40713	9.41233	0.1746144	0.17605466	3.1528577	20	5 16.2	20.1
128426 Vekardi	17.0	X	86.92777	185.37738	221.33449	5.60534	0.0907683	0.28679809	2.2772911	20	—	—
128427 2004 MQ <sub>7</sub>	15.6	X	251.39615	298.75477	54.18850	6.75118	0.1029879	0.23876711	2.5732761	20	5 9.7	19.3
128428 2004 NJ	16.4	X	55.08434	286.16221	45.82029	1.96299	0.2226085	0.26192906	2.4192473	20	—	—
128429 2004 NK	16.1	X	250.07988	279.42371	42.74176	2.38173	0.0934703	0.23408447	2.6074799	20	3 30.7	19.9
128430 2004 NC <sub>1</sub>	15.7	X	98.48119	159.85763	134.62569	5.78111	0.1941716	0.20285697	2.8686403	20	12 17.9	20.4
128431 2004 NO <sub>1</sub>	16.0	X	310.81750	173.35360	125.19444	7.03686	0.1546250	0.24015169	2.5633758	20	5 11.2	19.0
128432 2004 NX <sub>1</sub>	16.3	X	98.63751	230.01083	91.54923	7.42544	0.1388349	0.26763158	2.3847589	20	—	—
128433 2004 NY <sub>1</sub>	14.7	X	334.50055	231.26089	87.01640	13.78835	0.2573692	0.18249026	3.0782904	20	7 8.7	17.7
128434 2004 NJ <sub>2</sub>	15.2	X	113.96865	12.09514	307.64842	14.42998	0.2315028	0.26999765	2.3708062	20	—	—
128435 2004 NF <sub>4</sub>	14.6	X	86.10509	19.18391	243.74278	19.67967	0.2382476	0.19513085	2.9438709	20	11 1.1	19.5
128436 2004 NA <sub>7</sub>	15.8	X	293.93065	94.58803	281.22670	6.14783	0.3126498	0.17934626	3.1141618	20	7 1.0	19.6
128437 2004 NQ <sub>7</sub>	16.3	X	342.98465	106.26786	148.68591	23.17740	0.0869058	0.36038887	1.9556380	20	5 12.9	18.6
128438 2004 NY <sub>9</sub>	14.6	X	318.67523	31.10241	290.87868	10.56054	0.1288446	0.18185048	3.0855061	20	6 27.5	18.4
128439 Chriswaters	16.7	X	167.69117	42.14176	298.32315	5.64131	0.1662652	0.28132135	2.3067521	20	1 25.5	20.0
128440 2004 NG <sub>13</sub>	15.5	X	328.59019	128.26123	204.97939	2.01650	0.0812907	0.18610961	3.0382501	20	8 1.6	19.2
128441 2004 NR <sub>14</sub>	16.2	X	234.86177	225.46161	129.77333	6.42330	0.1806636	0.23400783	2.6080493	20	4 20.1	20.4
128442 2004 NE <sub>15</sub>	14.7	X	249.85609	55.21161	280.22147	9.39831	0.2438287	0.17091704	3.2157268	20	3 31.0	20.2
128443 2004 NN <sub>16</sub>	14.8	X	359.43177	253.08201	114.25755	12.13322	0.1385055	0.19388510	2.9564674	20	11 14.7	18.5
128444 2004 NO <sub>16</sub>	15.9	X	318.29335	231.28505	79.64355	3.96400	0.1383404	0.24134803	2.5548979	20	6 11.2	18.4
128445 2004 ND <sub>20</sub>	15.7	X	122.12728	125.51953	288.98388	20.46340	0.1969462	0.28518202	2.2858820	20	3 3.7	19.3
128446 2004 NJ <sub>21</sub>	16.2	X	131.94262	323.44881	303.98439	1.48394	0.1878214	0.26559082	2.3969642	20	12 23.9	20.1
128447 2004 NZ <sub>21</sub>	16.2	X	99.32122	357.00842	296.47260	5.46652	0.1487263	0.26302345	2.4125319	20	12 25.8	20.0
128448 2004 NU <sub>23</sub>	14.2	X	213.99179	94.32125	303.07241	20.23554	0.1595476	0.17151974	3.2081892	20	5 19.3	19.8
128449 2004 NX <sub>23</sub>	14.8	X	49.37059	72.44004	290.77628	11.04044	0.0968369	0.20093611	2.8868932	20	—	—
128450 2004 NX <sub>24</sub>	15.6	X	138.04309	76.73397	331.35430	21.76912	0.1658679	0.28254716	2.3000755	20	3 13.8	19.1
128451 2004 NC <sub>25</sub>	16.0	X	168.29320	3.46579	356.72649	7.93890	0.2964040	0.27996124	2.3142171	20	2 29.1	20.1
128452 2004 NJ <sub>25</sub>	16.5	X	158.94955	4.93128	343.66420	4.88882	0.1667127	0.27777745	2.3263304	20	1 28.9	19.9
128453 2004 NR <sub>26</sub>	15.4	X	352.82595	110.26156	198.41495	2.52846	0.1644944	0.18530083	3.0470843	20	8 8.4	18.8
128454 2004 NK <sub>26</sub>	14.5	X	197.24612	272.87731	133.50167	23.04885	0.1179894	0.17272637	3.1932306	20	5 26.1	19.9
128455 2004 NZ <sub>27</sub>	16.4	X	105.92452	44.67544	284.40869	5.52064	0.1259303	0.26950514	2.3736938	20	—	—
128456 2004 NL <sub>28</sub>	16.8	X	164.88207	16.12574	239.92538	2.24973	0.1290013	0.27009176	2.3702555	20	—	—
128457 2004 NW <sub>28</sub>	15.8	X	36.97205	89.64058	138.02607	15.13612	0.0558530	0.24285301	2.5443317	20	6 28.1	19.1
128458 2004 NE <sub>29</sub>	15.4	X	90.44174	241.61478	157.66525	10.87937	0.2411505	0.21282153	2.7783844	20	1 31.4	19.1
128459 2004 NS <sub>29</sub>	16.0	X	145.06723	150.99662	192.97113	5.84757	0.0670678	0.21699807	2.7426189	20	1 4.5	19.9
128460 2004 NZ <sub>31</sub>	15.5	X	25.91896	273.86267	107.84542	7.83148	0.1190851	0.20373126	2.8604274	20	—	—
128461 2004 OA	16.7	X	253.22476	344.94366	247.24749	8.52513	0.0890571	0.28091577	2.3089718	20	—	—
128462 2004 OU <sub>4</sub>	15.9	X	36.07323	79.04186	217.56056	1.11432	0.1933113	0.19224399	2.9732690	20	10 13.2	19.7
128463 2004 OD <sub>5</sub>	15.6	X	280.27335	282.16094	291.41974	4.46327	0.0087571	0.21943087	2.7223099	20	1 1.2	19.4
128464 2004 OZ <sub>7</sub>	15.4	X	310.31038	45.50238	285.68267	7.89639	0.2164225	0.18182368	3.0858093	20	6 12.9	19.0
128465 2004 OJ <sub>9</sub>	15.7	X	44.66920	209.91539	125.58758	2.98169	0.0973093	0.19599416	2.9352198	20	11 29.6	19.7
128466 2004 OH <sub>10</sub>	15.6	X	60.22776	338.03387	69.03639	6.88129	0.0203293	0.21376155	2.7702331	20	—	—
128467 2004 OH <sub>11</sub>	15.6	X	146.32519	235.34497	73.17706	8.74357	0.2184483	0.21094562	2.7948320	20	—	—
128468 2004 OK <sub>11</sub>	15.2	X	299.88223	285.39719	54.32417	9.38163	0.1937981	0.17877114	3.1208372	20	6 10.4	19.1
128469 2004 OH <sub>12</sub>	15.9	X	284.46889	316.61774	11.34900	1.18197	0.1927150	0.17477915	3.1681784	20	5 6.1	20.4
128470 2004 OX <sub>12</sub>	15.0	X	283.17893	269.16316	28.93980	5.03077	0.1567313	0.17268836	3.1936991	20	4 3.8	19.5
128471 2004 OG <sub>13</sub>	16.3	X	356.58640	251.40013	162.58596	6.13496	0.0926562	0.26383403	2.4075880	20	—	—
128472 2004 PS	16.2	X	88.59184	40.80035	306.90622	4.83208	0.3102399	0.26594252	2.3948457	20	—	—
128473 2004 PV	15.5	X	129.30648	209.48491	271.33312	1.83071	0.0943267	0.23589222	2.5941413	20	6 10.8	19.0
128474 Arbacia	15.2	X	353.24476	32.68925	279.41511	10.17738	0.0750875	0.18286034	3.0741357	20	8 9.1	19.1
128475 2004 PW <sub>1</sub>	15.3	X	355.84525</									

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>
128481 2004 PE <sub>6</sub>	16.1	X	249.50753	201.48433	207.47421	6.82927	0.2041573	0.24124557	2.5556212	20	7 7.2	20.0
128482 2004 PH <sub>7</sub>	15.4	X	285.28721	218.89839	144.56627	5.07633	0.2178826	0.17765750	3.1338655	20	6 18.2	19.8
128483 2004 PV <sub>8</sub>	17.0	X	122.22604	16.49369	356.26838	3.29964	0.1828957	0.27601555	2.3362197	20	1 21.2	20.0
128484 2004 PZ <sub>9</sub>	16.3	X	319.59144	305.39092	290.09583	1.41339	0.1597025	0.23104420	2.6303043	20	2 24.1	19.4
128485 2004 PD <sub>10</sub>	17.0	X	200.19915	219.16919	139.54586	7.34308	0.2130713	0.28872631	2.2671407	20	3 20.7	20.8
128486 2004 PB <sub>11</sub>	16.2	X	121.19812	9.15931	231.25702	1.40547	0.1354395	0.25994834	2.4315209	20	11 9.9	19.8
128487 2004 PN <sub>11</sub>	16.3	X	15.46300	5.45899	271.51552	2.13115	0.1091841	0.24629632	2.5205623	20	8 9.3	18.8
128488 2004 PX <sub>12</sub>	15.6	X	336.87439	214.38190	129.42837	3.15066	0.1589118	0.18509041	3.0493933	20	8 28.2	19.0
128489 2004 PU <sub>13</sub>	16.2	X	38.43559	346.45286	356.65364	0.98226	0.1927850	0.25829313	2.4418978	20	12 29.2	19.4
128490 2004 PW <sub>13</sub>	14.6	X	214.30162	90.06940	330.01108	24.68600	0.2048936	0.17314513	3.1880799	20	6 18.7	20.3
128491 2004 PF <sub>15</sub>	17.2	X	156.68667	302.70815	67.05332	3.75310	0.1715678	0.28143038	2.3061563	20	2 23.1	20.5
128492 2004 PH <sub>15</sub>	15.0	X	5.13251	168.60070	123.34018	12.26531	0.0675883	0.18096383	3.0955764	20	8 3.7	18.9
128493 2004 PQ <sub>15</sub>	16.1	X	191.52377	257.06607	133.44869	6.90649	0.3065418	0.22583834	2.6705719	20	4 24.7	21.1
128494 2004 PE <sub>16</sub>	16.4	X	198.15624	177.56513	101.44544	5.16916	0.1270662	0.27609997	2.3357435	20	—	—
128495 2004 PP <sub>16</sub>	14.9	X	297.45211	27.22007	308.53850	3.89288	0.1891937	0.17551335	3.1593370	20	6 2.6	19.0
128496 2004 PV <sub>16</sub>	17.3	X	36.17986	78.06773	216.95559	3.35324	0.0720077	0.31496898	2.1393944	20	10 16.5	19.6
128497 2004 PA <sub>17</sub>	14.9	X	345.90866	77.16381	309.80314	10.01192	0.0433906	0.19382631	2.9570652	20	11 3.8	19.0
128498 2004 PB <sub>17</sub>	16.1	X	17.64993	213.75745	154.09332	9.31166	0.2600832	0.25661113	2.4525567	20	—	—
128499 2004 PH <sub>17</sub>	15.9	X	56.91770	87.03525	292.52142	0.78676	0.0802365	0.20310956	2.8662615	20	—	—
128500 2004 PJ <sub>17</sub>	16.2	X	223.12463	52.37072	280.26489	1.55932	0.0901920	0.22523658	2.6753264	20	3 13.9	20.1
128501 2004 PO <sub>17</sub>	14.7	X	255.98642	227.11057	128.75315	12.22563	0.0623158	0.17418647	3.1753610	20	5 28.1	19.5
128502 2004 PD <sub>18</sub>	16.7	X	129.10709	85.13970	266.50343	0.83108	0.2034648	0.27443865	2.3451603	20	1 4.2	19.6
128503 2004 PF <sub>18</sub>	14.8	X	250.54421	193.31578	166.80980	7.34786	0.1184126	0.17164064	3.2066825	20	5 18.9	19.7
128504 2004 PP <sub>18</sub>	16.6	X	226.27530	153.12860	166.50501	4.25836	0.1578894	0.28804560	2.2707111	20	2 21.8	19.9
128505 2004 PK <sub>19</sub>	15.8	X	346.22215	274.78884	141.86841	7.05657	0.0913541	0.25985561	2.4320994	20	—	—
128506 2004 PF <sub>30</sub>	15.7	X	69.35213	51.50186	338.43589	4.46677	0.2069709	0.20550410	2.8439528	20	—	—
128507 2004 PO <sub>31</sub>	15.7	X	102.38429	266.75352	145.73751	7.53851	0.3092787	0.21427533	2.7658031	20	3 14.1	19.7
128508 2004 PJ <sub>33</sub>	16.5	X	3.90630	249.71864	139.35965	4.98199	0.1475701	0.25865135	2.4396426	20	—	—
128509 2004 PS <sub>34</sub>	15.2	X	329.83486	173.40220	137.61414	7.78307	0.1771452	0.17934176	3.1142138	20	6 26.2	18.8
128510 2004 PA <sub>35</sub>	16.5	X	173.94420	204.78481	50.80893	4.83187	0.16018079	0.26903158	2.3764784	20	—	—
128511 2004 PO <sub>37</sub>	15.6	X	359.97515	183.41545	176.70205	1.85492	0.1240890	0.19178454	2.9780157	20	10 31.1	19.0
128512 2004 PS <sub>37</sub>	16.6	X	111.17814	168.10737	147.95815	3.34600	0.2327803	0.26743175	2.3859467	20	—	—
128513 2004 PU <sub>37</sub>	15.1	X	95.63762	245.69366	137.23901	8.68802	0.2490472	0.20943027	2.8082973	20	1 20.2	18.8
128514 2004 PC <sub>38</sub>	15.0	X	260.85315	17.92298	342.30095	3.15426	0.1345672	0.17244932	3.1966498	20	5 26.1	19.7
128515 2004 PR <sub>38</sub>	17.1	X	95.47579	164.60537	173.77414	4.76124	0.1993182	0.26695660	2.3887770	20	—	—
128516 2004 PS <sub>38</sub>	15.6	X	312.35950	277.04862	39.71364	0.52561	0.1711601	0.17731434	3.1379076	20	6 3.6	19.4
128517 2004 PX <sub>38</sub>	16.5	X	221.34413	103.48100	286.43333	3.12866	0.1403169	0.23275958	2.6173653	20	5 20.3	20.6
128518 2004 PE <sub>39</sub>	16.6	X	239.66318	1.83814	335.79418	6.16349	0.1357243	0.29149417	2.2527662	20	3 28.7	19.9
128519 2004 PV <sub>40</sub>	16.5	X	252.54072	323.91456	314.26948	6.24194	0.1118649	0.28482451	2.2877987	20	1 29.8	19.8
128520 2004 PZ <sub>40</sub>	16.3	X	125.79641	285.48302	54.49552	3.77679	0.2488233	0.27030129	2.3690304	20	—	—
128521 2004 PA <sub>41</sub>	16.9	X	286.47037	185.68227	139.85265	6.84906	0.2136773	0.29703160	2.2246803	20	5 1.0	19.6
128522 2004 PD <sub>42</sub>	14.8	X	208.85278	296.09176	150.81763	16.98647	0.1981549	0.17812024	3.1284354	20	7 14.2	20.1
128523 Johnmuir	17.0	X	66.18864	81.83324	291.42931	1.32661	0.2044611	0.26385620	2.4074532	20	—	—
128524 2004 PR <sub>43</sub>	15.3	X	59.95024	330.58745	265.43439	2.63462	0.0442206	0.18233028	3.0800908	20	8 4.4	19.5
128525 2004 PD <sub>48</sub>	15.5	X	156.43229	286.64429	141.41367	14.65047	0.0860438	0.23231744	2.6206851	20	5 7.9	19.7
128526 2004 PX <sub>48</sub>	16.2	X	139.99979	20.18173	344.36860	7.40896	0.1105323	0.28066313	2.3103573	20	1 22.2	19.2
128527 2004 PV <sub>49</sub>	16.0	X	96.04697	274.36664	111.07125	5.15579	0.2129668	0.21105969	2.7938249	20	1 18.7	19.6
128528 2004 PY <sub>49</sub>	16.5	X	121.55210	270.33050	42.40006	3.10673	0.1977521	0.26934466	2.3746365	20	—	—
128529 2004 PT <sub>52</sub>	15.8	X	7.75077	293.56928	38.46944	4.45284	0.2005932	0.18907535	3.0063954	20	10 15.4	19.1
128530 2004 PW <sub>52</sub>	14.8	X	276.56449	36.69199	346.52389	16.40532	0.2322757	0.17733507	3.1376630	20	7 2.7	19.5
128531 2004 PY <sub>52</sub>	16.5	X	106.92147	272.44049	70.00499	3.19534	0.1510375	0.26939449	2.3743436	20	—	—
128532 2004 PG <sub>56</sub>	16.5	X	234.25948	59.97585	315.46102	10.66856	0.2012499	0.23293476	2.6160529	20	5 6.5	20.9
128533 2004 PS <sub>56</sub>	16.1	X	3.91340	243.59300	167.94115	6.29528	0.1472564	0.26356728	2.4092122	20	—	—
128534 2004 PY <sub>57</sub>	16.3	X	16.79458	6.38963	272.07912	2.82588	0.1361368	0.24646053	2.5194426	20	8 16.9	19.0
128535 2004 PY <sub>58</sub>	15.7	X	144.43217	41.49495	286.19921	6.69250	0.0816553	0.21356798	2.7719068	20	—	—
128536 2004 PG <sub>59</sub>	16.1	X	17.85616	171.53118	305.17582	6.23130	0.0822605	0.27849212	2.3223488	20	—	—
128537 2004 PS <sub>59</sub>	16.1	X	306.50743	161.48681	168.95351	3.51155	0.0767072	0.24130613	2.5551936	20	6 28.3	19.2
128538 2004 PU <sub>60</sub>	15.6	X	116.91114	209.59731	191.70523	3.01776	0.1979183	0.21570545	2.7535648	20	2 28.4	19.7
128539 2004 PD <sub>65</sub>	17.0	X	203.56973	74.49984	295.83722	1.44340	0.1359965	0.28940332	2.2636036	20	4 4.9	20.3
128540 2004 PV <sub>65</sub>	15.6	X	134.76981	61.59104	318.38747	8.30561	0.0708117	0.21729770	2.7400972	20	2 7.0	19.4
128541 2004 PC <sub>66</sub>	16.2	X	16.19993	196.21971	171.82691	1.01100	0.2059394	0.25768986	2.4457074	20	—	—
128542 2004 PT <sub>66</sub>	15.5	X	67.89654	258.30712	142.64585	22.95994	0.2580719	0.27190503	2.3597060	20	—	—
128543 2004 PO <sub>67</sub>	13.9	X	258.31537	69.76820	276.75994	14.58918	0.1210726	0.17109183	3.2135363	20	5 5.7	18.9
128544 2004 PV <sub>67</sub>	15.4	X	17.00556	240.51775	202.56711	6.46574	0.1139816	0.20888361	2.8131948	20	—	—
128545 2004 PJ <sub>68</sub>	15.6	X	138.64126	101.76164	283.00425	10.53498	0.1029079	0.21828674	2.7318142	20	2 16.8	19.7
128546 2004 PF <sub>72</sub>	15.0	X	290.21907	253.61555	117.87251	6.04916	0.1896557	0.18028561	3.1033351	20	7 9.7	19.2
128547 2004 PN <sub>72</sub>	16.3	X	45.57654	301.16334	63.32476	1.99525	0.1653095	0.26347593	2.4097690	20	—	—
128548 2004 PY <sub>72</sub>	15.1	X	219.21489	70.87622	328.93574	7.51504	0.1479482	0.17269749	3.1935866	20	5 29.6	20.3
128549 2004 PZ <sub>72</sub>	15.5	X	9.17387	19.67301	333.59921	6.00750	0.1613494	0.25504156	2.4626087	20	11 25.8	18.4
128550 2004 PL <sub>73</sub>	16.7	X	77.26222	233.14732	132.02233	5.85759	0.2381600	0.26729209	2.3867777	20	—	—
128551 2004 PW <sub>75</sub>	14.9	X	75.12437	268.88973	301.85950	9.56556	0.0169183	0.17818932	3.1276268	20	7 19.3	19.3
128552 2004 PA <sub>77</sub>	14.6	X	188.04789	124.53256	204.46709	6.38384	0.1281971	0.15928513	3.3704346	20	2 9.2	20.1
128553 2004 PF <sub>77</sub>	16.1	X	6.63516	44.25672	210.46537	4.64104	0.1149855	0.24139354	2.5545767	20	6 20.5	18.7
128554 2004 PL <sub>79</sub>	16.0	X	83.61834	220.10735	184.23686	7.07125	0.1083532	0.27494115	2.3423020	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>
128561 2004 PK <sub>90</sub>	15.1	X	312.00504	110.82244	249.22136	9.02759	0.0727543	0.18308331	3.0716393	20	8 9.2	19.2
128562 Murdin	15.7	X	191.88797	33.85036	240.78983	8.00456	0.1181048	0.21303849	2.7764978	20	—	—
128563 2004 PS <sub>90</sub>	14.8	X	147.72281	342.27360	6.04465	13.42187	0.2271950	0.21170026	2.7881863	20	2 3.6	19.5
128564 2004 PX <sub>90</sub>	16.1	X	213.88972	30.16524	357.48268	2.67092	0.2585381	0.22730621	2.6590623	20	5 4.5	20.7
128565 2004 PY <sub>92</sub>	15.4	X	15.64887	233.26427	77.88718	6.95634	0.1282297	0.25133313	2.4867734	20	10 7.4	18.2
128566 2004 PZ <sub>92</sub>	14.5	X	277.14444	249.41881	101.88275	12.51725	0.1433284	0.17665675	3.1456898	20	6 4.6	19.0
128567 2004 PJ <sub>93</sub>	15.7	X	111.23420	294.00906	172.46638	4.82552	0.0788897	0.23228470	2.6209314	20	4 30.3	19.3
128568 2004 PK <sub>94</sub>	16.3	X	344.15618	233.77296	166.85056	6.64123	0.1436503	0.25537778	2.4604468	20	12 19.7	18.9
128569 2004 PM <sub>97</sub>	16.0	X	120.70147	345.14106	3.09050	2.04852	0.0906150	0.21139863	2.7908379	20	—	—
128570 2004 PV <sub>99</sub>	16.1	X	51.22399	327.17889	45.29390	7.55915	0.1147329	0.26071680	2.4267407	20	—	—
128571 2004 PB <sub>100</sub>	15.5	X	329.36206	214.98759	62.97775	15.46554	0.0864275	0.23692684	2.5865838	20	5 19.9	18.6
128572 2004 PN <sub>101</sub>	14.2	X	326.53592	356.98031	1.31605	23.03286	0.1457389	0.17943192	3.1131705	20	9 4.6	18.0
128573 2004 PO <sub>101</sub>	16.1	X	231.86773	117.30235	211.41598	6.41893	0.1402042	0.28520499	2.2857636	20	3 9.2	19.6
128574 2004 PX <sub>101</sub>	14.9	X	299.59117	134.70859	276.58496	4.17051	0.1538325	0.18073289	3.0982129	20	9 18.6	18.6
128575 2004 PL <sub>102</sub>	15.3	X	118.68304	71.38156	250.30351	5.15609	0.0566653	0.20475863	2.8508513	20	—	—
128576 2004 PB <sub>104</sub>	14.5	X	202.98920	92.85508	2.19242	15.46088	0.2019916	0.16825060	3.2496130	20	7 23.7	20.1
128577 2004 PO <sub>104</sub>	14.4	X	264.53180	250.83304	83.89616	25.98753	0.1273404	0.17278986	3.1924484	20	5 10.2	19.4
128578 2004 PW <sub>104</sub>	15.1	X	358.55571	319.89126	46.52814	10.71560	0.0985334	0.19319112	2.9635433	20	11 4.1	18.8
128579 2004 PH <sub>105</sub>	14.9	X	5.31112	31.61984	339.67316	23.97210	0.2318154	0.25777975	2.4451388	20	—	—
128580 2004 PT <sub>105</sub>	14.8	X	340.81817	167.90276	247.75717	11.38487	0.1708629	0.19532675	2.9419022	20	12 14.9	18.0
128581 2004 PX <sub>105</sub>	16.4	X	269.48175	226.02956	156.07169	7.58029	0.2020373	0.23704152	2.5857494	20	6 26.2	20.0
128582 2004 PC <sub>106</sub>	15.8	X	240.76557	254.21485	68.42841	4.74299	0.2506291	0.22592857	2.6698607	20	3 12.2	20.3
128583 2004 PU <sub>108</sub>	16.2	X	234.28659	263.06639	150.60510	12.02486	0.1827972	0.23628338	2.5912775	20	6 30.4	20.3
128584 2004 PR <sub>112</sub>	15.8	X	179.06153	256.66610	86.36282	6.81419	0.0478720	0.22127960	2.7071259	20	2 11.3	19.7
128585 Alfrede maria	16.3	X	222.36058	290.32254	301.31656	3.48400	0.0811679	0.26731117	2.3866642	20	—	—
128586 Jeremias	14.5	X	256.83702	211.97394	193.97246	14.80319	0.0935890	0.17512586	3.1639956	20	7 21.4	19.3
128587 2004 QU <sub>1</sub>	15.2	X	291.87907	123.20794	300.55328	14.45978	0.1835384	0.18582049	3.0414007	20	9 13.6	19.2
128588 2004 QW <sub>1</sub>	15.3	X	97.79700	99.75932	291.82517	11.90702	0.0449695	0.21158168	2.7892279	20	1 4.6	18.9
128589 2004 QY <sub>1</sub>	14.4	X	137.31948	197.76916	283.16638	11.37994	0.0392302	0.16970937	3.2309644	20	6 14.6	19.1
128590 2004 QO <sub>3</sub>	16.2	X	136.69018	48.80309	286.14149	5.78984	0.0999220	0.27247100	2.3564371	20	—	—
128591 2004 QD <sub>4</sub>	16.5	X	101.35541	329.62466	142.71651	7.26314	0.0503820	0.28694556	2.2765108	20	4 19.9	19.3
128592 2004 QM <sub>5</sub>	16.1	X	70.58464	180.68909	89.62101	6.95304	0.0677077	0.25345146	2.4728979	20	10 19.9	19.4
128593 2004 QJ <sub>6</sub>	15.8	X	167.09620	173.02997	179.69599	3.43866	0.2072222	0.21729047	2.7401579	20	2 17.5	20.4
128594 2004 QJ <sub>8</sub>	15.3	X	258.35282	8.50886	19.21814	14.24316	0.1581971	0.24112507	2.5564725	20	6 26.6	19.2
128595 2004 QK <sub>10</sub>	14.7	X	313.02855	302.32945	114.32516	12.31313	0.0722640	0.19121337	2.9839432	20	11 3.5	18.7
128596 2004 QS <sub>10</sub>	15.2	X	24.49777	242.67441	93.71369	10.62071	0.0791022	0.19106986	2.9854371	20	11 4.3	19.3
128597 2004 QA <sub>11</sub>	16.3	X	207.59503	254.97929	124.74279	13.39124	0.1779111	0.22898292	2.6460659	20	4 28.9	20.9
128598 2004 QO <sub>11</sub>	16.6	X	18.46411	241.60033	107.17218	7.86341	0.1368444	0.25540990	2.4620405	20	12 2.9	19.5
128599 2004 QP <sub>11</sub>	16.8	X	253.29058	222.95648	106.02976	6.08497	0.1210278	0.29378082	2.2410614	20	4 8.1	19.9
128600 2004 QT <sub>11</sub>	16.8	X	232.15419	192.99442	95.04509	6.59783	0.1323908	0.28445656	2.2897712	20	1 20.9	20.3
128601 2004 QS <sub>12</sub>	14.9	X	25.21579	250.41260	86.85792	11.34011	0.0385179	0.19229617	2.9727311	20	11 1.7	19.0
128602 Careyparish	14.8	X	330.45742	109.24182	201.90445	15.31165	0.0725427	0.17848521	3.1241693	20	7 4.2	19.2
128603 2004 QP <sub>13</sub>	15.0	X	308.23244	72.07627	278.72380	8.11773	0.0987951	0.17981304	3.1087700	20	7 21.8	18.9
128604 Markfisher	14.8	X	238.55575	63.31179	316.53621	19.02384	0.1780131	0.17114938	3.2128159	20	5 18.5	20.3
128605 2004 QF <sub>15</sub>	15.6	X	16.24192	172.72098	300.21522	8.17444	0.1073072	0.21069753	2.7970255	20	—	—
128606 2004 QY <sub>17</sub>	15.6	X	298.20923	38.70250	310.24212	13.19201	0.1845262	0.23600794	2.5932933	20	6 26.1	18.7
128607 Richhund	16.4	X	234.57850	145.24165	164.41663	1.99123	0.1169643	0.28201564	2.3029645	20	2 19.8	19.8
128608 Chucklove	17.0	X	173.36414	190.31585	162.47205	7.24441	0.0988770	0.28250942	2.3002803	20	2 10.5	20.3
128609 2004 QB <sub>19</sub>	14.6	X	311.27813	351.85766	326.57543	8.20319	0.0824794	0.17440132	3.1727525	20	6 16.2	18.9
128610 Stasiabehent	14.6	X	205.34124	198.65113	249.02164	15.25924	0.0955779	0.17621286	3.1509704	20	7 14.9	19.6
128611 Paulnowak	15.6	X	258.44522	228.28981	158.47940	5.93603	0.2565409	0.23307434	2.6150083	20	6 12.7	19.6
128612 2004 QB <sub>21</sub>	15.4	X	310.04847	29.91692	292.89677	4.06857	0.1514244	0.17234195	3.1979773	20	4 18.3	19.7
128613 2004 QB <sub>22</sub>	14.4	X	256.06702	125.06909	283.89935	25.93071	0.1727520	0.17175703	3.1397648	20	7 14.6	19.1
128614 Juliabest	16.3	X	71.17152	298.83537	75.97728	3.74802	0.2409992	0.26571801	2.3691944	20	—	—
128615 Jimharris	16.8	X	314.48219	331.44842	352.22187	6.90607	0.1632675	0.30177929	2.2012858	20	6 22.6	18.7
128616 2004 QA <sub>25</sub>	15.7	X	3.16633	331.46154	41.53308	22.69007	0.1039255	0.25840734	2.4411782	20	12 2.2	18.8
128617 2004 QB <sub>25</sub>	16.7	X	28.69601	251.64141	64.14705	20.53115	0.0662475	0.37919142	1.8904436	20	11 20.9	18.3
128618 2004 QH <sub>25</sub>	14.0	X	320.83963	63.41027	270.75271	12.18736	0.2337746	0.17342234	3.1846816	20	7 9.9	17.4
128619 2004 QM <sub>25</sub>	14.9	X	157.69505	158.03732	278.74624	21.24198	0.0414478	0.22738330	2.6584612	20	5 2.7	19.1
128620 2004 QC <sub>26</sub>	14.5	X	125.15532	212.98399	255.42095	25.05788	0.0595389	0.23207915	2.6224787	20	5 16.0	18.3
128621 2004 RD	15.7	X	265.37148	94.79862	359.37743	0.96796	0.1391715	0.18825837	3.0150870	20	9 29.5	19.6
128622 Rudis	15.8	X	298.23355	37.25032	2.81418	0.52877	0.0784889	0.18522180	3.0479511	20	9 14.2	19.7
128623 2004 RP <sub>2</sub>	17.2	X	24.22015	170.04442	232.77662	2.58913	0.1229488	0.26279971	2.4139010	20	—	—
128624 2004 RU <sub>3</sub>	16.6	X	109.70599	216.04267	109.53159	7.35487	0.1149795	0.26802919	2.3823998	20	—	—
128625 2004 RO <sub>4</sub>	15.0	X	49.57087	186.71263	99.45897	11.56889	0.0890621	0.18694189	3.0292257	20	10 8.2	19.4
128626 2004 RF <sub>7</sub>	14.9	X	64.77244	187.96775	50.59911	10.57056	0.0298648	0.18040225	3.1019973	20	8 17.4	19.4
128627 Ottmarshheim	14.9	X	313.04531	32.70218	263.96165	4.60160	0.1421940	0.17215979	3.2002327	20	5 12.6	18.9
128628 2004 RX <sub>8</sub>	15.9	X	175.87446	161.24478	180.66702	3.37528	0.2032778	0.21717740	2.7411089	20	2 11.8	20.4
128629 2004 RS <sub>10</sub>	15.0	X	8.61996	28.88180	332.78079	12.19050	0.1351551	0.18928421	3.0041835	20	11 11.2	18.9
128630 2004 RM <sub>11</sub>	15.6	X	262.11066	111.52231	313.19160	4.89522	0.1668312	0.18214528	3.0821760	20	8 13.7	19.9
128631 2004 RN <sub>11</sub>	16.8	X	62.44035	126.15571	322.67590	6.69479	0.0643001	0.27932203	2.3177465	20	1 19.2	19.3
128632 2004 RT <sub>11</sub>	14.1	X	136.32530	217.88195	338.39043	6.06937	0.0500200	0.12591150	3.9423858	20	9 10.3	19.8
128633 Queyras	14.4	X	173.10094	326.16334	41.56387	6.51271	0.0515228	0.15514706	3.4301019	20	3 13.2	19.5
128634 2004 RF <sub>13</sub>	16.5	X	207.47445	355.40123	11.68794	4.18937	0.1654076	0.28874954	2.2670191	20	4 4.7	



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>		
128641	2004	RE <sub>25</sub>	16.8	X	72.74227	251.29459	175.05277	2.86392	0.1431456	0.27583065	2.3372636	20	1 11.8	19.1
128642	2004	RK <sub>27</sub>	16.6	X	236.92473	316.07627	119.16892	6.14351	0.2139721	0.24066862	2.5597040	20	7 28.4	20.5
128643	2004	RM <sub>30</sub>	17.1	X	208.95741	102.12753	337.32415	8.30046	0.1557532	0.30106678	2.2047575	20	7 15.1	20.3
128644	2004	RW <sub>32</sub>	17.0	X	0.53397	343.74425	64.91495	2.17591	0.1814038	0.25912425	2.4366735	20	—	—
128645	2004	RA <sub>35</sub>	16.8	X	99.07175	244.88058	104.55152	4.55520	0.1196036	0.26824389	2.3811284	20	—	—
128646	2004	RT <sub>36</sub>	15.5	X	148.94135	311.33329	99.83295	4.99950	0.0898807	0.22319925	2.6915816	20	4 6.1	19.5
128647	2004	RC <sub>39</sub>	16.3	X	112.40645	316.84584	65.06568	0.70003	0.0843617	0.21318528	2.7752232	20	1 16.1	20.0
128648	2004	RT <sub>42</sub>	15.1	X	274.42165	130.94769	265.46243	10.65324	0.1246610	0.18103865	3.0947234	20	7 27.7	19.5
128649	2004	RC <sub>44</sub>	16.4	X	59.52950	175.80826	233.14050	5.29662	0.0930433	0.27071181	2.3666348	20	—	—
128650	2004	RN <sub>44</sub>	15.2	X	284.48905	217.67000	242.25399	10.01747	0.3127277	0.18849492	3.0125640	20	10 3.7	19.0
128651	2004	RP <sub>44</sub>	16.4	X	76.44128	221.91250	175.59994	6.26455	0.1158013	0.27324550	2.3519822	20	—	—
128652	2004	RJ <sub>45</sub>	17.5	X	46.31229	305.63861	326.57486	2.69994	0.1683894	0.31169458	2.5435154	20	10 11.4	19.9
128653	2004	RT <sub>45</sub>	15.4	X	320.60148	295.63607	32.23930	2.13374	0.1644335	0.17850287	3.1239632	20	7 4.2	19.0
128654	2004	RU <sub>47</sub>	16.3	X	256.49212	254.86624	9.02841	1.52026	0.2612852	0.22276531	2.6950759	20	1 13.7	20.8
128655	2004	RD <sub>49</sub>	16.9	X	266.33735	62.89046	0.74346	6.52622	0.1801908	0.24399657	2.5363756	20	8 24.6	20.0
128656	2004	RG <sub>49</sub>	15.8	X	220.59404	159.35755	13.10086	6.32671	0.0828911	0.25854884	2.4402875	20	12 2.7	19.0
128657	2004	RN <sub>50</sub>	16.5	X	131.36040	239.13059	162.30407	6.97644	0.1258119	0.28071771	2.3100578	20	2 29.7	19.6
128658	2004	RJ <sub>51</sub>	16.3	X	92.01263	272.80738	51.69531	3.24766	0.2051682	0.26386781	2.4073825	20	—	—
128659	2004	RC <sub>52</sub>	15.7	X	107.39172	304.55603	75.54788	2.50612	0.1368813	0.21064059	2.7975295	20	1 15.7	19.4
128660	2004	RH <sub>55</sub>	16.5	X	172.16012	144.56605	127.27610	3.76787	0.1886126	0.27005076	2.3704954	20	—	—
128661	2004	RT <sub>55</sub>	16.3	X	169.49840	227.71167	138.03574	5.21240	0.1299653	0.28202097	2.3029356	20	2 26.6	19.6
128662	2004	RV <sub>55</sub>	15.1	X	45.08151	225.01884	60.12947	4.90255	0.1242258	0.18596088	3.0398699	20	10 1.9	19.1
128663	2004	RY <sub>55</sub>	16.6	X	31.87169	263.75861	317.69970	7.10684	0.0882141	0.29871561	2.2163114	20	6 15.4	18.8
128664	2004	RJ <sub>56</sub>	16.6	X	55.34540	275.28411	95.33778	4.00591	0.1930116	0.26245014	2.4160440	20	—	—
128665	2004	RK <sub>57</sub>	15.5	X	79.21746	268.79891	105.75656	3.89230	0.2126986	0.20418155	2.8562204	20	—	—
128666	2004	RE <sub>59</sub>	16.2	X	169.42455	242.01020	146.92840	7.34337	0.1485743	0.28470726	2.2884268	20	3 29.9	19.7
128667	2004	RL <sub>59</sub>	17.2	X	277.35816	183.81751	144.94761	5.73452	0.1498127	0.29560133	2.2318506	20	5 2.9	19.9
128668	2004	RP <sub>60</sub>	16.9	X	272.99132	299.82310	335.62034	3.64499	0.1621331	0.28837780	2.2689670	20	2 12.2	19.9
128669	2004	RA <sub>61</sub>	15.9	X	249.29507	225.12702	103.91325	4.42238	0.2385017	0.22861683	2.6488900	20	3 27.3	20.2
128670	2004	RB <sub>61</sub>	15.5	X	199.59185	4.74400	22.30509	11.21882	0.1329203	0.22661659	2.6644541	20	4 24.7	19.7
128671	2004	RG <sub>61</sub>	16.8	X	56.00286	183.68728	198.67515	2.91784	0.1517469	0.26458144	2.4030518	20	—	—
128672	2004	RK <sub>61</sub>	16.8	X	250.19148	308.87031	306.06976	2.33146	0.0450216	0.27838570	2.3229406	20	1 2.5	19.6
128673	2004	RM <sub>61</sub>	15.9	X	167.91775	194.01483	188.49093	4.85475	0.0772652	0.22208402	2.7005849	20	3 17.9	19.9
128674	2004	RJ <sub>62</sub>	16.7	X	134.43370	47.36001	256.80446	0.83506	0.1894061	0.26846180	2.3798397	20	—	—
128675	2004	RU <sub>62</sub>	16.2	X	231.79412	83.36847	288.25416	1.29191	0.1081299	0.23108568	2.6299895	20	5 10.6	20.2
128676	2004	RC <sub>63</sub>	16.1	X	97.69901	89.80602	345.15491	6.87164	0.0670252	0.28074068	2.3099318	20	2 22.6	18.6
128677	2004	RD <sub>63</sub>	15.2	X	331.93011	347.72211	334.30953	2.23526	0.1218745	0.17828017	3.1265642	20	7 20.5	18.8
128678	2004	RW <sub>64</sub>	16.6	X	148.45974	285.00727	359.61944	2.28096	0.1693785	0.26757110	2.3851165	20	—	—
128679	2004	RB <sub>65</sub>	16.3	X	91.48488	55.30128	1.66176	6.36843	0.0913948	0.27621252	2.3351089	20	1 24.9	18.9
128680	2004	RF <sub>69</sub>	15.2	X	13.85442	235.18132	89.51726	2.22045	0.1537623	0.18558414	3.0439825	20	10 9.8	18.7
128681	2004	RS <sub>75</sub>	15.5	X	68.58384	34.62455	26.10187	6.58782	0.0918511	0.20868806	2.8149519	20	1 8.4	19.1
128682	2004	RT <sub>75</sub>	15.5	X	304.41710	284.68916	84.60690	2.24652	0.1802855	0.17828981	3.1264516	20	7 30.9	19.1
128683	2004	RJ <sub>77</sub>	14.7	X	301.43555	195.11157	160.18156	5.69658	0.1858039	0.17587791	3.1549697	20	7 5.2	18.7
128684	2004	RN <sub>77</sub>	15.6	X	25.10041	325.51411	180.64459	24.41399	0.1891420	0.27620204	2.3351680	20	2 1.6	17.9
128685	2004	RT <sub>79</sub>	14.2	X	312.96460	265.00911	101.27085	26.96876	0.1967491	0.17680093	3.1439794	20	8 10.6	18.1
128686	2004	RE <sub>80</sub>	16.4	X	313.39453	234.08817	174.99826	3.58580	0.0824536	0.25407367	2.4688589	20	11 4.3	19.1
128687	2004	RV <sub>81</sub>	17.1	X	312.68004	108.01182	218.39098	2.98373	0.1762394	0.30036572	2.2081868	20	6 20.8	18.7
128688	2004	RT <sub>82</sub>	16.3	X	355.98232	283.05050	161.21743	6.86905	0.0847731	0.26445512	2.4038170	20	—	—
128689	2004	RE <sub>83</sub>	16.0	X	11.79019	210.71450	17.22542	2.53330	0.1330956	0.23336593	2.6128295	20	5 20.8	18.8
128690	2004	RZ <sub>85</sub>	15.3	X	142.05974	148.91896	162.81414	9.33590	0.1517682	0.21215953	2.7841611	20	—	—
128691	2004	RL <sub>89</sub>	15.6	X	160.58568	160.53708	285.56124	13.09913	0.1784174	0.23271701	2.6176845	20	6 2.9	20.0
128692	2004	RO <sub>90</sub>	17.2	X	345.52590	358.18269	278.75640	3.40442	0.1081659	0.30179782	2.2011957	20	6 15.7	18.9
128693	2004	RZ <sub>92</sub>	15.2	X	240.52115	124.55529	308.41701	14.92363	0.2502446	0.17715582	3.1397791	20	7 22.7	20.2
128694	2004	RD <sub>93</sub>	15.7	X	90.98837	138.82138	276.21875	7.86566	0.0770764	0.21541497	2.7560397	20	1 26.8	19.3
128695	2004	RH <sub>97</sub>	14.7	X	220.31948	134.37279	300.35219	9.19861	0.1136132	0.17415576	3.1757343	20	7 16.9	19.6
128696	2004	RV <sub>97</sub>	16.1	X	295.58255	51.45272	230.17251	3.10730	0.1071219	0.23042001	2.6350524	20	3 30.5	19.7
128697	2004	RW <sub>97</sub>	17.1	X	234.97146	15.28675	321.54330	5.41607	0.1058249	0.29057613	2.2575087	20	3 24.6	20.2
128698	2004	RD <sub>99</sub>	16.2	X	302.46210	90.10598	208.21291	3.31606	0.1481112	0.23423657	2.6063511	20	4 26.4	19.4
128699	2004	RX <sub>99</sub>	16.4	X	251.35821	337.66956	309.64657	5.67902	0.1190261	0.28571332	2.2830516	20	2 7.9	19.7
128700	2004	RA <sub>100</sub>	16.1	X	103.73572	76.67082	317.99457	7.24076	0.2202155	0.21135853	2.7911908	20	2 9.6	20.0
128701	2004	RN <sub>100</sub>	16.2	X	26.67485	297.96311	299.92620	2.79253	0.0973790	0.23738080	2.5832850	20	6 30.4	18.9
128702	2004	RN <sub>101</sub>	16.7	X	282.74708	335.65175	328.30558	5.80076	0.1443219	0.29368236	2.2415623	20	3 31.6	19.7
128703	2004	RB <sub>103</sub>	15.7	X	171.60823	348.14913	309.85508	2.97761	0.0782840	0.20976641	2.8052964	20	—	—
128704	2004	RA <sub>104</sub>	15.8	X	207.83955	77.55915	266.82080	4.09057	0.0596528	0.22230876	2.6987646	20	3 11.9	19.9
128705	2004	RE <sub>104</sub>	14.5	X	20.30024	35.91827	267.04448	6.83559	0.0792835	0.18316408	3.0707362	20	9 7.1	18.7
128706	2004	RK <sub>104</sub>	16.4	X	140.23937	10.70088	280.20072	4.98337	0.1386135	0.26597594	2.3946451	20	—	—
128707	2004	RQ <sub>104</sub>	14.8	X	266.91042	42.24820	342.58849	12.26060	0.1231704	0.17436995	3.1731331	20	7 8.2	19.5
128708	2004	RT <sub>104</sub>	14.7	X	321.93038	44.88656	328.79027	8.93962	0.0895378	0.18332699	3.0689168	20	9 11.8	18.5
128709	2004	RU <sub>105</sub>	14.9	X	262.31519	248.83042	255.05823	8.94354	0.0936754	0.19397842	2.9555191	20	12 4.6	18.9
128710	2004	RF <sub>106</sub>	16.8	X	119.28962	358.46906	345.94775	6.73904	0.1381926					

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>
128721 2004 <i>RU</i> <sub>136</sub>	15.9	X	270.83418	293.43270	297.53957	3.68155	0.0098952	0.21281609	2.7784318	20	1 12.2	19.5
128722 2004 <i>RT</i> <sub>137</sub>	15.2	X	164.10725	30.59008	259.19641	10.92806	0.0483771	0.20937261	2.8088129	20	—	—
128723 2004 <i>RG</i> <sub>140</sub>	14.9	X	78.38683	121.69550	56.09373	5.86412	0.0060561	0.17010830	3.2259110	20	6 8.7	19.5
128724 2004 <i>RK</i> <sub>140</sub>	15.4	X	137.34223	327.87547	48.50543	6.87210	0.0401036	0.21518540	2.7579995	20	2 4.5	19.3
128725 2004 <i>RL</i> <sub>140</sub>	15.1	X	296.64683	289.53487	106.20023	5.93907	0.1598615	0.18136429	3.0910179	20	8 27.8	19.0
128726 2004 <i>RN</i> <sub>143</sub>	15.7	X	189.79846	243.51596	104.94642	6.01460	0.1255134	0.21928945	2.7234802	20	3 3.2	20.0
128727 2004 <i>RR</i> <sub>143</sub>	16.7	X	30.41780	227.56385	156.75804	4.12335	0.1769326	0.25894889	2.4377735	20	—	—
128728 2004 <i>RB</i> <sub>144</sub>	15.6	X	149.20982	252.01828	138.98082	8.29097	0.0692810	0.21727246	2.7403094	20	3 9.8	19.6
128729 2004 <i>RC</i> <sub>144</sub>	14.9	X	303.72967	278.54178	146.18888	7.79604	0.1583582	0.18529416	3.0471574	20	10 19.3	18.5
128730 2004 <i>RE</i> <sub>150</sub>	15.6	X	75.51576	263.30720	164.04491	9.18518	0.1434519	0.21044502	2.7992624	20	1 31.2	19.2
128731 2004 <i>RX</i> <sub>151</sub>	15.7	X	252.74182	214.04405	147.41837	5.89048	0.2542724	0.22965275	2.6409182	20	5 7.5	20.0
128732 2004 <i>RT</i> <sub>152</sub>	16.0	X	103.96955	33.62960	278.88987	6.17739	0.0991958	0.26356034	2.4092545	20	—	—
128733 2004 <i>RV</i> <sub>152</sub>	14.6	X	179.45498	216.84797	315.28057	14.24199	0.1320448	0.18852884	3.0122027	20	9 26.0	19.7
128734 2004 <i>RV</i> <sub>153</sub>	14.9	X	229.75312	256.45858	257.20499	8.60291	0.0355331	0.19338189	2.9615939	20	11 12.9	19.1
128735 2004 <i>RT</i> <sub>153</sub>	15.2	X	259.40507	245.90285	292.55237	7.27081	0.0245140	0.20303064	2.8670042	20	—	—
128736 2004 <i>RJ</i> <sub>156</sub>	16.6	X	45.43682	26.27193	306.11406	4.32773	0.1964198	0.25653084	2.4530684	20	12 23.6	20.1
128737 2004 <i>RS</i> <sub>156</sub>	15.2	X	338.19449	41.95201	249.33308	3.53150	0.2126055	0.17682456	3.1436992	20	6 11.4	18.3
128738 2004 <i>RB</i> <sub>157</sub>	16.3	X	341.65186	262.89764	199.47505	4.26716	0.0894955	0.26422097	2.4052369	20	—	—
128739 2004 <i>RD</i> <sub>159</sub>	17.0	X	130.67392	219.14719	304.16505	3.56539	0.0757115	0.30335365	2.1936630	20	8 11.9	19.7
128740 2004 <i>RW</i> <sub>159</sub>	16.5	X	49.22641	235.90292	334.81539	7.65276	0.0780438	0.29644946	2.2275918	20	6 28.4	19.0
128741 2004 <i>RE</i> <sub>161</sub>	14.9	X	281.49407	70.64898	350.10832	15.15199	0.0838488	0.17998339	3.1068081	20	9 15.1	19.1
128742 2004 <i>RM</i> <sub>162</sub>	15.1	X	345.02176	102.89835	216.78858	12.56052	0.1175954	0.18221831	3.0813524	20	8 4.6	19.1
128743 2004 <i>RM</i> <sub>163</sub>	14.6	X	253.73625	119.45535	342.55608	26.49886	0.1735606	0.17897421	3.1184760	20	9 14.0	19.2
128744 2004 <i>RG</i> <sub>169</sub>	16.4	X	188.60520	339.81570	284.67615	5.97436	0.1005448	0.26982271	2.3718309	20	—	—
128745 2004 <i>RO</i> <sub>170</sub>	14.7	X	57.14961	18.07929	253.85387	9.76165	0.1042339	0.18460742	3.0547097	20	9 20.5	19.1
128746 2004 <i>RJ</i> <sub>176</sub>	16.4	X	20.23824	351.59310	281.90821	7.14649	0.1178360	0.30624332	2.1798417	20	8 19.8	18.4
128747 2004 <i>RL</i> <sub>176</sub>	16.1	X	232.31738	112.60542	312.25813	11.73251	0.1751993	0.23820187	2.5773453	20	7 15.3	20.0
128748 2004 <i>RS</i> <sub>180</sub>	16.5	X	317.35723	241.94122	301.80261	6.12462	0.0570511	0.27648966	2.3335483	20	—	—
128749 2004 <i>RG</i> <sub>181</sub>	15.8	X	115.38104	204.06253	211.20198	6.99980	0.0890199	0.28010553	2.3134224	20	2 19.9	18.8
128750 2004 <i>RX</i> <sub>181</sub>	14.9	X	326.92693	95.80915	289.51263	5.47365	0.1185571	0.18611919	3.0381458	20	10 3.7	18.6
128751 2004 <i>RL</i> <sub>182</sub>	15.8	X	144.29084	115.97818	236.25129	4.13299	0.1778441	0.21278063	2.7787404	20	1 25.6	20.1
128752 2004 <i>RA</i> <sub>183</sub>	16.3	X	320.94833	79.40556	258.37924	3.37892	0.1222537	0.24117227	2.5561390	20	7 28.1	19.1
128753 2004 <i>RE</i> <sub>183</sub>	15.2	X	8.38528	65.95896	343.59394	10.95496	0.1477401	0.19648117	2.9303675	20	—	—
128754 2004 <i>RQ</i> <sub>185</sub>	14.8	X	332.07562	88.14409	215.51129	8.31300	0.0683881	0.17421761	3.1749825	20	6 28.2	19.1
128755 2004 <i>RD</i> <sub>187</sub>	15.5	X	135.77005	139.49216	324.71439	12.31222	0.1354842	0.22693971	2.6619244	20	5 28.6	19.8
128756 2004 <i>RE</i> <sub>188</sub>	16.6	X	1.18020	308.61148	309.48880	5.81925	0.1592654	0.29903610	2.2147275	20	6 18.7	18.2
128757 2004 <i>RJ</i> <sub>189</sub>	16.3	X	246.71444	324.54506	273.61626	5.75031	0.0681893	0.27281105	2.3544786	20	—	—
128758 2004 <i>RR</i> <sub>190</sub>	14.4	X	4.37843	7.40719	329.24110	10.20461	0.0875713	0.18358957	3.0659899	20	9 27.7	18.5
128759 2004 <i>RT</i> <sub>190</sub>	15.0	X	74.99550	162.78170	244.13890	10.35101	0.0798948	0.20679551	2.8321004	20	—	—
128760 2004 <i>RU</i> <sub>190</sub>	15.0	X	194.49702	146.16439	304.80820	9.94036	0.0828684	0.17041719	3.2220117	20	7 12.3	19.8
128761 2004 <i>RW</i> <sub>190</sub>	16.8	X	132.30242	125.28461	232.17630	1.46056	0.2224966	0.27374696	2.3491091	20	1 17.7	20.0
128762 2004 <i>RZ</i> <sub>190</sub>	15.2	X	156.64540	121.69830	240.25238	10.49814	0.0611781	0.21419141	2.7665255	20	2 4.9	19.4
128763 2004 <i>RF</i> <sub>191</sub>	15.3	X	216.67613	24.72847	322.23756	9.51269	0.1526659	0.22309165	2.6924470	20	3 19.7	19.8
128764 2004 <i>RJ</i> <sub>191</sub>	16.4	X	318.96866	347.86085	288.26430	4.71911	0.1973789	0.29560528	2.2318307	20	4 4.5	18.6
128765 2004 <i>RQ</i> <sub>191</sub>	15.2	X	330.11672	77.64190	330.51114	8.97390	0.1254322	0.18814957	3.0162492	20	11 8.2	18.9
128766 2004 <i>RF</i> <sub>192</sub>	16.6	X	98.36853	26.62091	333.50333	5.92149	0.1289781	0.26919093	2.3755405	20	—	—
128767 2004 <i>RL</i> <sub>192</sub>	14.8	X	320.55137	96.33107	287.97000	8.58441	0.1259245	0.18264532	3.0765479	20	9 18.5	18.6
128768 2004 <i>RP</i> <sub>192</sub>	14.6	X	228.42594	145.42104	257.21149	9.65394	0.0482638	0.16899467	3.2400674	20	6 21.5	19.2
128769 2004 <i>RJ</i> <sub>193</sub>	14.6	X	16.07602	64.84744	272.92626	8.43730	0.0821880	0.18522713	3.0478925	20	10 16.6	18.8
128770 2004 <i>RY</i> <sub>193</sub>	16.1	X	203.34028	88.11946	242.77554	3.84723	0.1638568	0.21928493	2.7235176	20	2 19.7	20.7
128771 2004 <i>RB</i> <sub>194</sub>	15.9	X	131.15955	119.77834	221.76843	5.90861	0.1410879	0.27077841	2.3662467	20	—	—
128772 2004 <i>RC</i> <sub>194</sub>	16.2	X	279.56101	26.09997	302.02787	7.31560	0.1819138	0.29394294	2.2402373	20	4 23.9	19.2
128773 2004 <i>RA</i> <sub>195</sub>	15.9	X	242.77520	351.74233	318.45575	3.39785	0.2009800	0.22356902	2.6886130	20	2 28.2	20.4
128774 2004 <i>RH</i> <sub>195</sub>	15.7	X	312.19113	134.82226	203.50747	21.92664	0.0977010	0.26725909	2.3869742	20	—	—
128775 2004 <i>RL</i> <sub>196</sub>	14.4	X	24.66180	341.07282	270.05472	7.67084	0.0955507	0.17350659	3.1836506	20	7 10.9	18.3
128776 2004 <i>RZ</i> <sub>196</sub>	15.7	X	248.25209	4.71894	281.33260	8.03480	0.2005989	0.22066196	2.7121751	20	2 3.5	20.2
128777 2004 <i>RX</i> <sub>197</sub>	15.6	X	215.37394	341.07645	297.28070	2.78130	0.0497762	0.21126634	2.7920028	20	1 3.2	19.5
128778 2004 <i>RP</i> <sub>200</sub>	14.6	X	234.87200	121.14281	256.78700	16.31556	0.1994165	0.22605519	2.6688637	20	5 13.5	18.9
128779 2004 <i>RQ</i> <sub>200</sub>	14.9	X	290.40550	292.99814	18.96726	13.00188	0.1907397	0.22802533	2.6534688	20	4 19.6	18.6
128780 2004 <i>RE</i> <sub>201</sub>	14.4	X	333.62690	344.74532	34.42977	13.14448	0.2495031	0.17991071	3.1076448	20	10 10.2	17.2
128781 2004 <i>RN</i> <sub>203</sub>	15.8	X	105.56774	350.07915	20.46828	1.84343	0.0508242	0.20621066	2.8374528	20	—	—
128782 2004 <i>RP</i> <sub>206</sub>	14.8	X	321.62585	36.77885	280.02166	15.04359	0.0489763	0.1792765	3.1306926	20	7 2.7	18.8
128783 2004 <i>RH</i> <sub>207</sub>	15.6	X	195.79403	30.94354	238.38405	13.19741	0.1689751	0.21233103	2.7826616	20	—	—
128784 2004 <i>RN</i> <sub>212</sub>	14.8	X	213.69304	347.09592	265.63979	16.63942	0.0768586	0.20845955	2.8170087	20	—	—
128785 2004 <i>RE</i> <sub>213</sub>	15.0	X	284.19975	89.59518	302.62606	14.71399	0.2194837	0.17703154	3.1412484	20	7 23.8	19.1
128786 2004 <i>RN</i> <sub>213</sub>	15.4	X	306.28626	37.25086	302.71100	12.84248	0.1589910	0.23828182	2.5767688	20	7 1.2	18.2
128787 2004 <i>RS</i> <sub>213</sub>	15.5	X	263.40429	42.18422	288.49924	12.20517	0.2107802	0.23010563	2.6374519	20	4 5.2	19.8
128788 2004 <i>RS</i> <sub>214</sub>	14.7	X	324.94471	80.68560	255.03172	10.19430	0.0961406	0.17802053	3.1296036	20	7 25.9	18.8
128789 2004 <i>RE</i> <sub>216</sub>	15.5	X	112.17775	20.43064	318.64758	12.63966	0.2167634	0.26771512	2.3842628	20	—	—
128790 2004 <i>RP</i> <sub>216</sub>	15.3	X	240.03347	16.94923	279.93885	11.57443	0.1289108	0.22004435	2.7172477	20	2 11.3	19.6
128791 2004 <i>RG</i> <sub>218</sub>	15.4	X	165.92431	141.41008	279.00468	11.97227	0.0757982	0.22422819	2.6833413	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>		
128801	2004	RZ <sub>233</sub>	16.8	X	65.32204	221.29638	23.65216	5.71880	0.0628967	0.30385389	2.1912546	20	9 13.5	19.3
128802	2004	RE <sub>234</sub>	15.4	X	169.82122	341.98853	29.68580	6.66408	0.0509519	0.21745520	2.7387739	20	3 8.5	19.4
128803	2004	RF <sub>235</sub>	16.4	X	31.25880	243.96191	201.24428	6.09804	0.0376607	0.27052253	2.3677386	20	—	—
128804	2004	RM <sub>247</sub>	15.5	X	80.51495	201.49020	195.74157	25.06498	0.2030212	0.27230371	2.3574022	20	—	—
128805	2004	RK <sub>250</sub>	17.1	X	184.35195	334.37013	355.55976	3.04129	0.1899830	0.27822322	2.3238449	20	1 30.7	20.8
128806	2004	RS <sub>250</sub>	15.4	X	192.43640	44.82406	357.05255	13.74020	0.1425857	0.22281305	2.6946909	20	5 2.5	19.9
128807	2004	RC <sub>255</sub>	15.6	X	188.23385	306.87306	122.73047	14.07744	0.1415931	0.23031747	2.6358345	20	6 9.9	20.0
128808	2004	RP <sub>255</sub>	15.4	X	230.37466	206.57187	121.51192	14.91646	0.1721556	0.22406039	2.6846808	20	3 16.9	19.9
128809	2004	RO <sub>255</sub>	15.0	X	288.24978	250.71074	135.92178	15.66798	0.1161371	0.17778707	3.1323426	20	8 6.9	19.2
128810	2004	RR <sub>255</sub>	15.4	X	202.08143	342.27468	56.61776	15.56678	0.1013876	0.22835639	2.6509036	20	5 14.9	19.3
128811	2004	RV <sub>255</sub>	14.6	X	290.01439	234.04125	126.14483	16.25474	0.2049939	0.17432421	3.1736881	20	6 23.2	19.0
128812	2004	RW <sub>255</sub>	15.8	X	37.34953	193.41527	92.49458	13.66329	0.1338521	0.24583311	2.5237275	20	10 9.9	19.2
128813	2004	RH <sub>288</sub>	16.7	X	97.86632	275.03822	84.79650	2.20085	0.2027318	0.26579923	2.3957062	20	—	—
128814	2004	RJ <sub>288</sub>	15.6	X	177.14859	276.85451	131.76250	2.62395	0.0516198	0.22289144	2.6940591	20	5 1.1	19.4
128815	2004	RK <sub>288</sub>	15.9	X	237.90422	262.55862	151.87093	0.22906	0.1808096	0.16983951	3.2293137	20	7 3.1	20.9
128816	2004	RX <sub>290</sub>	15.6	X	327.59651	47.03983	331.33789	4.41532	0.1317308	0.18284060	3.0743569	20	9 25.9	19.3
128817	2004	RE <sub>291</sub>	16.0	X	220.78316	241.77541	205.68142	6.86715	0.1628263	0.24161755	2.5525975	20	7 30.6	19.9
128818	2004	RH <sub>294</sub>	14.9	X	43.20968	29.92842	292.98917	8.25488	0.0804220	0.18396829	3.0617807	20	11 3.9	19.3
128819	2004	RX <sub>295</sub>	16.6	X	355.91057	161.99006	345.69753	5.25669	0.0775386	0.27588097	2.3369794	20	—	—
128820	2004	RO <sub>303</sub>	16.5	X	310.08679	6.15404	227.81517	6.65077	0.1700903	0.22529333	2.6748771	20	2 6.2	20.2
128821	2004	RC <sub>306</sub>	14.8	X	190.06344	288.55175	182.16430	16.39763	0.2389404	0.17026457	3.2239369	20	7 23.5	20.6
128822	2004	RK <sub>306</sub>	16.4	X	265.62984	208.75633	136.86347	5.62414	0.1854191	0.29274861	2.2463262	20	5 6.6	19.4
128823	2004	RS <sub>307</sub>	16.1	X	118.63397	126.50207	315.09343	1.92706	0.1715851	0.21961545	2.7207843	20	4 16.7	20.2
128824	2004	RA <sub>308</sub>	14.6	X	275.86267	181.83462	217.32872	10.54427	0.1818163	0.17571551	3.1569133	20	7 23.8	19.2
128825	2004	RS <sub>308</sub>	16.1	X	209.09175	23.46962	306.39529	5.98166	0.1315591	0.28253402	2.3001468	20	2 18.4	19.6
128826	2004	RP <sub>310</sub>	16.9	X	85.93679	64.23178	235.97315	1.24334	0.1819623	0.25733564	2.4479512	20	12 22.3	20.7
128827	2004	RT <sub>310</sub>	16.7	X	42.21883	38.47575	351.48189	0.73766	0.1731757	0.26097669	2.4251294	20	—	—
128828	2004	RW <sub>310</sub>	16.7	X	83.64983	193.48711	196.22485	2.30714	0.1899361	0.26794591	2.3828935	20	—	—
128829	2004	RQ <sub>313</sub>	16.0	X	39.24065	189.42657	184.33042	1.85650	0.0911555	0.19695122	2.9257032	20	—	—
128830	2004	RZ <sub>313</sub>	16.4	X	285.53753	319.99719	7.63602	2.44707	0.1259306	0.23388542	2.6089592	20	5 15.2	19.7
128831	2004	RC <sub>315</sub>	16.3	X	18.74989	319.55680	157.14030	6.15772	0.0352708	0.27407504	2.3472340	20	—	—
128832	2004	RQ <sub>321</sub>	16.0	X	285.06384	271.54390	210.34025	5.59080	0.0689787	0.25727250	2.4483517	20	12 29.9	18.8
128833	2004	RU <sub>322</sub>	14.8	X	156.12380	191.89151	319.74173	8.59881	0.0150433	0.17747124	3.1360579	20	8 13.9	19.2
128834	2004	RT <sub>323</sub>	15.6	X	285.17541	6.31369	283.83222	5.86640	0.0236685	0.22382650	2.6865507	20	4 8.0	19.4
128835	2004	RC <sub>324</sub>	14.8	X	269.16946	176.10274	243.23387	8.45356	0.0709506	0.17832866	3.1259975	20	8 25.8	19.3
128836	2004	RG <sub>324</sub>	14.7	X	252.97647	125.84200	319.54317	9.47869	0.0698250	0.17922036	3.1156200	20	9 8.7	19.1
128837	2004	RP <sub>332</sub>	15.4	X	96.35296	341.80494	92.99660	14.83040	0.1843445	0.21365121	2.7711869	20	3 24.7	19.5
128838	2004	RS <sub>332</sub>	15.3	X	116.58913	45.59781	99.23975	14.79273	0.0515580	0.23116571	2.6293825	20	6 23.1	18.8
128839	2004	RV <sub>332</sub>	15.4	X	153.45093	316.49786	111.39313	15.69315	0.1177433	0.22256277	2.6967108	20	5 8.0	19.8
128840	2004	RH <sub>333</sub>	15.5	X	161.62790	288.41384	87.67493	5.78600	0.1598239	0.21908988	2.7251338	20	3 12.3	19.9
128841	2004	RA <sub>334</sub>	16.0	X	186.48377	262.37352	140.93905	13.39369	0.2697143	0.22591548	2.6699639	20	5 8.3	21.0
128842	2004	RU <sub>338</sub>	15.3	X	253.51325	264.79959	139.64209	22.48120	0.0843431	0.23620744	2.5918329	20	7 23.5	18.9
128843	2004	RH <sub>341</sub>	14.4	X	147.48992	208.15298	295.27255	15.91721	0.0701565	0.17273589	3.1931133	20	7 25.3	19.2
128844	2004	SW <sub>4</sub>	15.8	X	253.80233	343.76479	328.48367	2.81535	0.0842789	0.22246620	2.6974911	20	3 22.6	19.5
128845	2004	SV <sub>8</sub>	16.1	X	26.13206	179.80899	206.74653	2.10327	0.1071935	0.19666509	2.9285402	20	—	—
128846	2004	ST <sub>10</sub>	14.7	X	263.59815	294.56531	75.74195	10.45545	0.0892867	0.17426305	3.1744307	20	6 17.7	19.3
128847	2004	SM <sub>11</sub>	15.6	X	182.82220	325.23916	114.38786	13.13207	0.1662180	0.23157245	2.6263028	20	6 16.3	20.0
128848	2004	SY <sub>11</sub>	15.7	X	0.68935	208.16721	82.28830	14.61801	0.1294351	0.24172213	2.5522612	20	8 8.0	18.5
128849	2004	SM <sub>14</sub>	15.7	X	204.14762	323.79001	113.30059	9.36398	0.1270589	0.23391629	2.6087296	20	7 4.2	19.6
128850	2004	SO <sub>14</sub>	15.9	X	280.58929	280.63366	64.30489	9.91318	0.1294215	0.23476215	2.6024596	20	5 31.9	19.1
128851	2004	SB <sub>15</sub>	15.0	X	192.27661	4.26887	84.23273	8.48872	0.1476959	0.16947094	3.2339941	20	7 3.9	20.2
128852	2004	SF <sub>16</sub>	15.8	X	169.15607	286.50399	88.32679	7.62308	0.0387648	0.22031102	2.7150546	20	3 11.9	19.8
128853	2004	SH <sub>16</sub>	16.1	X	186.58162	203.10195	111.25359	7.94426	0.1322286	0.27772143	2.3266432	20	1 9.7	19.6
128854	2004	SL <sub>16</sub>	14.9	X	301.10888	314.31188	113.06504	9.71041	0.2141238	0.18679085	3.0308584	20	10 13.8	18.4
128855	2004	SU <sub>17</sub>	15.4	X	141.19167	339.09501	134.97619	13.55861	0.1617523	0.22886723	2.6469575	20	6 20.9	19.7
128856	2004	SD <sub>18</sub>	14.8	X	15.40660	281.67320	66.60807	13.20011	0.1061693	0.18896752	3.0075390	20	11 8.0	18.6
128857	2004	SV <sub>19</sub>	16.3	X	281.23523	343.96851	304.87406	8.61398	0.1293979	0.28620424	2.2804401	20	3 10.1	19.5
128858	2004	SQ <sub>20</sub>	14.5	X	321.83273	225.45160	208.71412	2.21691	0.2224416	0.12407683	3.9811536	20	11 7.6	18.8
128859	2004	ST <sub>21</sub>	16.9	X	79.78583	267.12509	168.00286	4.29831	0.1180011	0.27900892	2.3194802	20	2 1.4	19.2
128860	2004	SL <sub>26</sub>	14.8	X	286.35311	247.12480	138.54787	28.80049	0.1696806	0.23538550	2.5978630	20	7 30.9	17.9
128861	2004	SK <sub>30</sub>	16.3	X	210.05969	189.04144	170.62178	1.59462	0.1139510	0.28720621	2.2751332	20	3 30.3	19.6
128862	2004	SY <sub>30</sub>	15.8	X	237.50041	237.77950	194.37118	0.53705	0.1518211	0.17444258	3.1722523	20	7 27.6	20.7
128863	2004	SD <sub>31</sub>	15.6	X	114.83052	221.35895	162.42800	4.31336	0.1097265	0.21055165	2.7983173	20	1 24.6	19.4
128864	2004	SJ <sub>31</sub>	15.7	X	38.95046	251.88564	153.31936	2.56178	0.0721859	0.20054315	2.8906632	20	—	—
128865	2004	SK <sub>31</sub>	15.8	X	205.51371	151.03892	169.28656	3.41903	0.1797196	0.21813333	2.7330948	20	2 10.4	20.5
128866	2004	SF <sub>32</sub>	16.9	X	43.57566	256.46785	141.33353	2.41286	0.1843006	0.26220957	2.4175216	20	—	—
128867	2004	SV <sub>32</sub>	15.5	X	43.44039	278.41359	106.48882	3.17533	0.1246942	0.19725529	2.9226957	20	—	—
128868	2004	SQ <sub>33</sub>	16.1	X	172.19371	283.08244	48.61582	8.48149	0.1493198	0.27504079	2.3417363	20	1 20.5	19.7
128869	2004	SU <sub>33</sub>	14.8	X	258.81523	276.71846	165.13599	11.09224	0.1609403	0.17865935	3.1221389	20	8 31.7	19.2
128870	2004	SW <sub>33</sub>	15.9											

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>		
128881	2004	<i>SN</i> <sub>55</sub>	16.5	X	250.85282	199.08471	125.25332	2.37296	0.2420557	0.28885500	2.2664673	20	3 17.6	20.1
128882	2004	<i>SX</i> <sub>55</sub>	16.9	X	220.34920	190.38833	107.41152	3.93399	0.1825428	0.28026278	2.3125569	20	1 21.5	20.7
128883	2004	<i>ST</i> <sub>56</sub>	16.6	X	120.17409	347.58109	157.39789	5.19395	0.0755401	0.29642615	2.2277086	20	7 2.5	19.4
128884	2004	<i>SV</i> <sub>57</sub>	15.1	X	252.80279	90.64841	7.92878	10.25450	0.1705909	0.18046909	3.1012314	20	9 15.7	19.6
128885	2004	<i>SY</i> <sub>57</sub>	15.7	X	178.64004	6.81509	357.44150	5.07968	0.1761202	0.21772774	2.7364880	20	3 11.4	20.3
128886	2004	<i>SF</i> <sub>58</sub>	15.6	X	134.56347	235.01757	179.16011	6.19061	0.0600756	0.21723672	2.7406099	20	3 19.1	19.5
128887	2004	<i>SL</i> <sub>58</sub>	15.1	X	60.57708	354.11797	3.42054	12.52039	0.0512036	0.19512100	2.9439699	20	—	—
128888	2004	<i>SE</i> <sub>58</sub>	15.8	X	226.35785	291.70404	170.12518	19.24108	0.1816226	0.24087372	2.5582507	20	8 22.7	19.7
128889	2004	<i>SF</i> <sub>59</sub>	15.4	X	148.63885	289.19792	142.61757	12.33043	0.0844982	0.21942212	2.7223823	20	5 3.7	19.6
128890	2004	<i>SH</i> <sub>59</sub>	15.4	X	145.85547	77.39142	348.09566	6.54076	0.1500024	0.21939043	2.7226445	20	4 20.8	19.8
128891	2004	<i>SP</i> <sub>59</sub>	15.5	X	299.41313	238.13385	145.83222	9.03772	0.1784064	0.23887331	2.5725133	20	8 19.5	17.8
128892	2004	<i>TH</i>	17.0	X	143.59398	319.89384	354.30471	1.37439	0.1964370	0.26880359	2.3778220	20	—	—
128893	2004	<i>TK</i>	16.1	X	116.67033	253.39759	31.72619	2.90153	0.1610958	0.26056137	2.4277057	20	12 31.3	19.9
128894	2004	<i>TL</i>	15.1	X	26.85168	42.98257	24.92742	6.20376	0.0457206	0.20292353	2.8680130	20	—	—
128895	Bright Spring		16.8	X	210.68181	278.97523	9.99282	2.44751	0.1666142	0.27691065	2.3311825	20	1 2.7	20.4
128896	2004	<i>TA</i> <sub>2</sub>	16.2	X	175.44932	29.15128	326.51374	0.89168	0.0964435	0.21734940	2.7396626	20	2 23.7	20.2
128897	2004	<i>TD</i> <sub>3</sub>	16.5	X	236.59757	181.67737	38.22110	1.71299	0.1678831	0.26645932	2.3917481	20	—	—
128898	2004	<i>TY</i> <sub>6</sub>	14.4	X	237.63494	296.18073	107.80572	19.66469	0.1324912	0.16924819	3.2368310	20	6 25.7	19.4
128899	2004	<i>TH</i> <sub>7</sub>	15.4	X	61.21811	281.74445	108.38396	8.17464	0.1344321	0.20206200	2.8761594	20	—	—
128900	2004	<i>TE</i> <sub>15</sub>	14.8	X	317.62781	248.98809	46.63614	13.99974	0.1668381	0.23001126	2.6381733	20	5 13.2	17.6
128901	2004	<i>TH</i> <sub>15</sub>	17.0	X	211.54769	283.61481	47.01689	4.98277	0.1954777	0.28134216	2.3066383	20	2 25.2	20.7
128902	2004	<i>TU</i> <sub>15</sub>	14.6	X	200.79331	113.34569	24.42696	22.80008	0.1239005	0.17634140	3.1494389	20	9 15.9	20.1
128903	2004	<i>TV</i> <sub>20</sub>	16.2	X	303.32972	312.57958	357.99594	2.86650	0.1930539	0.23237174	2.6202768	20	5 6.3	19.4
128904	2004	<i>TG</i> <sub>21</sub>	15.6	X	182.54998	279.40509	42.94942	3.84105	0.0813408	0.21520390	2.7578414	20	1 22.3	19.7
128905	2004	<i>TM</i> <sub>21</sub>	15.9	X	196.16475	277.99107	153.01958	12.62643	0.1548052	0.22875394	2.6478314	20	6 17.9	20.4
128906	2004	<i>TR</i> <sub>34</sub>	15.3	X	303.15072	252.25516	79.28149	1.94534	0.1601401	0.17274120	3.1930478	20	6 10.5	19.2
128907	2004	<i>TT</i> <sub>41</sub>	16.3	X	293.66501	312.59293	356.34803	4.61209	0.1915510	0.29369166	2.2415150	20	4 16.3	18.9
128908	2004	<i>TU</i> <sub>43</sub>	15.7	X	282.37979	177.52308	262.36559	1.87084	0.0715206	0.18350457	3.0669365	20	10 12.6	19.8
128909	2004	<i>TX</i> <sub>44</sub>	16.2	X	19.23994	36.68544	242.68902	2.49473	0.0857544	0.23737111	2.5833553	20	8 14.9	19.2
128910	2004	<i>TY</i> <sub>48</sub>	15.0	X	322.26546	344.61154	49.04612	2.27531	0.2484681	0.18269997	3.0759343	20	10 1.7	17.8
128911	2004	<i>TX</i> <sub>51</sub>	16.1	X	188.89604	106.55565	249.95683	2.25714	0.1032281	0.21627544	2.7487247	20	3 8.5	20.4
128912	2004	<i>TF</i> <sub>53</sub>	16.2	X	159.81867	31.86226	32.65658	2.00459	0.0674265	0.22121504	2.7076526	20	5 1.0	19.9
128913	2004	<i>TU</i> <sub>53</sub>	16.3	X	176.58844	68.41896	55.27581	2.33191	0.1282268	0.23245271	2.6196683	20	8 6.2	20.4
128914	2004	<i>TV</i> <sub>53</sub>	15.4	X	319.79874	174.40720	231.31033	0.36702	0.0795225	0.18349186	3.0670782	20	10 22.9	19.2
128915	2004	<i>TG</i> <sub>56</sub>	16.8	X	184.73718	72.65482	227.25067	2.93283	0.1373644	0.27576440	2.3376380	20	—	—
128916	2004	<i>TV</i> <sub>57</sub>	16.7	X	301.69168	315.00344	250.39313	1.64690	0.1475250	0.27597446	2.3364516	20	—	—
128917	2004	<i>TY</i> <sub>58</sub>	15.1	X	96.66321	17.07600	191.30359	13.18373	0.2020334	0.24120835	2.5558841	20	9 7.1	19.2
128918	2004	<i>TG</i> <sub>60</sub>	15.5	X	252.97334	122.08698	288.77678	0.66726	0.1865759	0.17347696	3.1840131	20	7 13.8	20.2
128919	2004	<i>TU</i> <sub>60</sub>	15.5	X	49.64311	350.98857	57.83653	3.00803	0.0607777	0.20350720	2.8625266	20	—	—
128920	2004	<i>TE</i> <sub>65</sub>	15.9	X	80.25123	29.43753	58.78264	2.66242	0.2163462	0.21213306	2.7843926	20	3 18.9	19.4
128921	2004	<i>TT</i> <sub>66</sub>	15.7	X	9.22761	138.27988	152.74324	6.70623	0.1376732	0.23917627	2.5703405	20	8 21.8	18.2
128922	2004	<i>TM</i> <sub>67</sub>	14.8	X	345.66865	276.50908	86.69721	11.33152	0.1240754	0.18275929	3.0752687	20	10 14.9	18.6
128923	2004	<i>TD</i> <sub>68</sub>	16.4	X	176.34619	240.77278	113.17505	6.51498	0.1385832	0.27931225	2.3178005	20	2 20.2	19.9
128924	2004	<i>TR</i> <sub>68</sub>	15.3	X	138.32984	247.48241	139.72540	6.03699	0.0476003	0.21466227	2.7624785	20	2 17.9	19.2
128925	Conwell		15.4	X	46.84458	2.22564	255.86086	1.25309	0.2525054	0.18297402	3.0728623	20	9 15.8	19.5
128926	2004	<i>TM</i> <sub>70</sub>	15.0	X	3.58132	267.31791	108.28501	11.80209	0.1294370	0.18882283	3.0090753	20	11 27.8	18.8
128927	2004	<i>TZ</i> <sub>74</sub>	16.1	X	239.36374	357.96444	24.83550	4.27835	0.2182305	0.22995647	2.6385923	20	5 22.4	20.2
128928	2004	<i>TB</i> <sub>76</sub>	14.8	X	30.07371	292.99669	16.03520	11.13629	0.0245462	0.18166394	3.0876179	20	9 27.3	19.1
128929	2004	<i>TL</i> <sub>77</sub>	15.0	X	130.24359	276.63855	59.97962	2.76007	0.0954338	0.20253501	2.8716796	20	—	—
128930	2004	<i>TA</i> <sub>79</sub>	16.3	X	135.12321	16.74753	323.81778	4.36763	0.2381427	0.27090842	2.3654896	20	1 2.4	19.5
128931	2004	<i>TB</i> <sub>84</sub>	16.0	X	64.22648	18.76039	6.84544	1.74218	0.0747099	0.20201721	2.8765845	20	—	—
128932	2004	<i>TW</i> <sub>94</sub>	16.2	X	285.93710	166.04882	10.80367	1.82306	0.0115990	0.20247100	2.8722848	20	—	—
128933	2004	<i>TG</i> <sub>95</sub>	17.0	X	228.35660	30.65892	199.87115	3.66482	0.1616388	0.26637804	2.3922346	20	—	—
128934	2004	<i>TD</i> <sub>101</sub>	15.5	X	219.60439	91.66068	45.69027	1.98574	0.1494191	0.18323202	3.0699771	20	9 28.9	20.1
128935	2004	<i>TF</i> <sub>107</sub>	14.8	X	271.82895	27.21771	74.43324	9.50188	0.1657133	0.18630418	3.0361343	20	10 17.9	18.9
128936	2004	<i>TD</i> <sub>108</sub>	15.2	X	154.13372	310.19055	55.71764	10.24566	0.1694667	0.21493664	2.7601271	20	2 25.2	19.7
128937	2004	<i>TH</i> <sub>109</sub>	14.8	X	319.12808	294.80674	65.23942	2.89851	0.1271140	0.17574578	3.1565508	20	8 19.6	18.5
128938	2004	<i>TK</i> <sub>109</sub>	15.0	X	245.25407	326.53968	138.53217	1.52656	0.1492393	0.17881561	3.1203197	20	9 16.2	19.6
128939	2004	<i>TU</i> <sub>110</sub>	15.3	X	336.79302	178.96320	70.80727	15.71819	0.0420203	0.22432208	2.6825925	20	5 1.4	18.8
128940	2004	<i>TD</i> <sub>114</sub>	14.6	X	216.64297	90.59983	44.83827	17.95701	0.0874157	0.17909126	3.1171172	20	10 5.9	19.4
128941	2004	<i>TS</i> <sub>118</sub>	15.4	X	331.92499	337.56862	114.64331	2.34994	0.0578816	0.19384215	2.9569041	20	—	—
128942	2004	<i>TC</i> <sub>126</sub>	15.3	X	146.75272	315.07562	57.55809	7.14921	0.1045734	0.21483226	2.7610210	20	2 18.7	19.5
128943	2004	<i>TT</i> <sub>127</sub>	15.4	X	200.46115	229.96457	107.89718	5.87905	0.1212386	0.21896702	2.7261531	20	2 29.3	19.7
128944	2004	<i>TW</i> <sub>128</sub>	15.5	X	321.26370	51.66595	88.92495	3.26151	0.0104780	0.20342873	2.8632626	20	—	—
128945	2004	<i>TE</i> <sub>129</sub>	15.1	X	181.90060	234.95846	91.68406	7.12154	0.0488755	0.21237992	2.7822346	20	1 25.4	19.1
128946	2004	<i>TG</i> <sub>131</sub>	15.6	X	172.90998	216.58377	103.77304	10.49967	0.2774847	0.21173610	2.7878717	20	1 20.7	20.6
128947	2004	<i>TK</i> <sub>131</sub>	14.4	X	201.98316	85.75342	48.407334	27.01146	0.0725990	0.17661595	3.1461742	20	9 28.4	19.6
128948	2004	<i>TO</i> <sub>131</sub>	15.1	X	200.02159	264.27761	60.03127	13.53315	0.1503352	0.21405735	2.7676805	20	2 16.9	19.8
128949	2004	<i>TV</i> <sub>131</sub>	15.2	X	252									

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>
128961 2004 TY <sub>144</sub>	14.9	X	268.28689	166.95395	227.15680	4.15192	0.1610300	0.17146158	3.2089147	20	7 12.9	19.4
128962 2004 TZ <sub>145</sub>	16.1	X	248.62358	307.54130	356.44562	2.82992	0.0687678	0.21990890	2.7183634	20	3 9.2	20.0
128963 2004 TA <sub>146</sub>	15.7	X	278.44352	65.34266	357.55873	1.48448	0.1425168	0.17990182	3.1077472	20	9 5.8	19.9
128964 2004 TJ <sub>146</sub>	16.0	X	222.51701	221.95193	32.34344	7.14442	0.0851260	0.26943595	2.3741001	20	—	—
128965 2004 TU <sub>146</sub>	16.6	X	295.97916	314.13039	280.34669	2.61913	0.0691604	0.27915034	2.3186967	20	1 28.7	19.5
128966 2004 TQ <sub>147</sub>	15.8	X	228.59555	230.65384	291.72807	2.94326	0.1000314	0.18963444	3.0004835	20	11 13.0	20.2
128967 2004 TT <sub>152</sub>	16.7	X	179.67288	268.42695	4.33158	1.94479	0.2031271	0.26896246	2.3768856	20	—	—
128968 2004 TW <sub>159</sub>	15.2	X	287.60799	102.90871	2.53211	2.30002	0.2324000	0.18549176	3.0449930	20	10 31.7	18.6
128969 2004 TU <sub>162</sub>	16.3	X	311.18364	62.59471	194.34270	1.85985	0.0173202	0.21950471	2.7216993	20	4 3.2	19.8
128970 2004 TY <sub>162</sub>	16.3	X	128.00906	169.32366	173.13832	1.97333	0.0749579	0.20325641	2.8648808	20	—	—
128971 2004 TW <sub>163</sub>	16.2	X	266.42173	168.80750	46.83124	7.60587	0.0684755	0.26747080	2.3857145	20	—	—
128972 2004 TQ <sub>165</sub>	16.9	X	3.28224	202.95509	237.36858	2.90460	0.1168571	0.27982320	2.3149782	20	2 2.9	18.9
128973 2004 TB <sub>167</sub>	16.1	X	304.42333	63.68410	239.73022	1.38359	0.0847386	0.23234465	2.6204805	20	5 16.3	19.3
128974 2004 TK <sub>169</sub>	15.0	X	192.44256	33.76996	50.84725	11.82247	0.1108736	0.16776547	3.2558745	20	6 30.4	20.2
128975 2004 TX <sub>172</sub>	15.0	X	326.22903	70.03935	300.31518	9.84837	0.1415128	0.17937532	3.1138254	20	9 8.2	18.7
128976 2004 TF <sub>173</sub>	15.7	X	228.77315	69.50809	344.82336	8.75017	0.1178979	0.23116678	2.6293744	20	7 3.1	19.7
128977 2004 TB <sub>174</sub>	15.6	X	28.28473	118.88296	283.50930	1.30948	0.0366143	0.19948836	2.9008438	20	—	—
128978 2004 TH <sub>176</sub>	16.4	X	206.27974	284.02375	49.16399	0.56290	0.2020752	0.27998202	2.3141027	20	2 21.9	20.0
128979 2004 TU <sub>178</sub>	16.5	X	272.26528	218.84312	181.12559	2.99328	0.1028374	0.24092307	2.5579013	20	8 9.5	19.5
128980 2004 TV <sub>182</sub>	16.0	X	303.52690	46.67734	250.44696	3.50657	0.1921587	0.23176331	2.6248607	20	4 17.9	19.3
128981 2004 TA <sub>190</sub>	15.6	X	288.81081	309.43267	186.23887	2.88828	0.0322722	0.19679700	2.9272315	20	—	—
128982 2004 TR <sub>194</sub>	15.0	X	183.45042	268.16310	232.94009	6.17531	0.1657126	0.17532643	3.1615821	20	8 25.4	20.3
128983 2004 TQ <sub>198</sub>	16.1	X	31.28423	244.31599	184.32906	1.24913	0.0978375	0.20068763	2.8892757	20	—	—
128984 2004 TP <sub>204</sub>	15.4	X	352.78307	17.51529	4.38970	0.76342	0.0076766	0.18380471	3.0635969	20	11 6.4	19.7
128985 2004 TY <sub>206</sub>	15.5	X	293.16719	338.43209	90.65640	1.33879	0.0627840	0.18141937	3.0903923	20	10 15.9	19.6
128986 2004 TN <sub>207</sub>	15.1	X	250.03029	270.32524	202.70635	1.68698	0.0717095	0.18061498	3.0995611	20	10 12.2	19.4
128987 2004 TZ <sub>207</sub>	15.1	X	169.52801	35.17864	89.61394	2.59186	0.1092569	0.16741498	3.2604172	20	7 27.3	20.2
128988 2004 TR <sub>211</sub>	15.9	X	62.37017	192.85072	10.44941	6.52110	0.0979648	0.29287957	2.2456565	20	7 12.4	18.5
128989 2004 TN <sub>212</sub>	15.5	X	323.04683	339.53049	59.76655	2.10684	0.1760256	0.18400154	3.0614117	20	10 16.4	18.8
128990 2004 TV <sub>212</sub>	15.5	X	356.39067	73.53171	296.32290	1.27323	0.0927705	0.18442530	3.0567204	20	11 1.6	19.3
128991 2004 TZ <sub>212</sub>	15.8	X	52.88155	290.57689	33.22571	1.30608	0.0259774	0.18604610	3.0389415	20	11 12.6	20.0
128992 2004 TH <sub>216</sub>	15.4	X	212.44183	171.00666	287.60055	3.24592	0.0345111	0.17309594	3.1886838	20	8 13.1	20.0
128993 2004 TN <sub>222</sub>	15.2	X	275.66380	258.50238	134.65446	10.65688	0.2819561	0.17269653	3.1935985	20	7 4.2	19.9
128994 2004 TE <sub>228</sub>	16.9	X	227.86388	14.78088	269.92596	1.69539	0.1528016	0.27773828	2.3265491	20	1 12.4	20.3
128995 2004 TZ <sub>232</sub>	15.8	X	66.95990	19.95578	225.89533	4.61913	0.0909804	0.23951665	2.5679048	20	9 8.0	19.2
128996 2004 TN <sub>236</sub>	15.0	X	298.22860	80.81299	307.06640	9.43968	0.0831915	0.17665229	3.1457427	20	8 24.9	19.2
128997 2004 TQ <sub>242</sub>	15.5	X	181.27653	333.43559	82.44278	14.46798	0.1139590	0.22834702	2.6509761	20	5 17.5	19.7
128998 2004 TU <sub>242</sub>	14.9	X	301.39270	271.99067	115.05337	11.66582	0.1302710	0.18091169	3.0961712	20	8 28.7	18.9
128999 2004 TB <sub>247</sub>	14.8	X	335.39342	216.91785	135.93912	12.09094	0.2290139	0.18053120	3.1005201	20	9 5.5	17.8
129000 2004 TO <sub>247</sub>	15.7	X	313.74212	222.93539	150.48001	14.82322	0.1656898	0.24198975	2.5503791	20	9 4.7	18.1
129001 2004 TY <sub>247</sub>	14.6	X	229.36861	175.51036	93.45985	16.60588	0.2168076	0.21054069	2.7984144	20	1 1.8	19.5
129002 2004 TR <sub>256</sub>	14.7	X	307.63307	79.53064	11.37706	8.57580	0.2191912	0.12385632	3.9858775	20	10 31.6	19.4
129003 2004 TQ <sub>268</sub>	15.6	X	154.18583	208.89917	141.88335	1.67828	0.0815537	0.20991795	2.8039461	20	1 26.2	19.6
129004 2004 TS <sub>286</sub>	16.3	X	347.07458	145.92963	161.74858	3.47441	0.1966161	0.24035266	2.5619467	20	8 3.2	18.3
129005 2004 TK <sub>291</sub>	16.5	X	81.12162	289.68912	221.49216	0.87858	0.0294727	0.22584827	2.6704936	20	5 11.9	19.8
129006 2004 TV <sub>294</sub>	16.0	X	113.59406	32.95256	10.19808	5.32382	0.0472491	0.20867085	2.8151067	20	2 10.1	19.9
129007 2004 TP <sub>296</sub>	15.1	X	3.81577	213.31010	194.53273	0.97454	0.2920037	0.12710967	3.9175719	20	—	—
129008 2004 TV <sub>296</sub>	15.7	X	234.44919	334.74631	214.92717	3.95101	0.1028235	0.19102122	2.9859439	20	12 22.6	19.9
129009 2004 TT <sub>302</sub>	15.8	X	108.12800	282.82992	60.74458	2.90537	0.0960760	0.20135461	2.8828917	20	—	—
129010 2004 TB <sub>303</sub>	16.5	X	278.00209	74.47031	348.24973	2.52936	0.0999000	0.24231531	2.5480942	20	9 20.6	19.4
129011 2004 TG <sub>306</sub>	15.1	X	135.96018	344.76483	269.68931	9.69163	0.0375629	0.19248030	2.9708350	20	11 27.5	19.4
129012 2004 TM <sub>307</sub>	16.2	X	222.83055	316.50059	313.02996	6.33934	0.0972959	0.27307139	2.3529819	20	—	—
129013 2004 TX <sub>310</sub>	14.9	X	267.22895	130.70911	321.57038	8.35705	0.0411779	0.18225303	3.0809610	20	10 8.7	19.2
129014 2004 TE <sub>317</sub>	15.7	X	275.42192	347.84852	262.46993	3.18153	0.1261041	0.21465021	2.7625819	20	1 26.4	19.8
129015 2004 TJ <sub>321</sub>	14.8	X	264.52820	201.65983	264.37618	13.45088	0.0494448	0.18270018	3.0759321	20	10 21.1	19.3
129016 2004 TS <sub>321</sub>	16.0	X	267.66330	246.42064	4.67233	4.17043	0.0568033	0.20876270	2.8142809	20	1 29.4	20.0
129017 2004 TD <sub>324</sub>	15.4	X	187.20738	120.84600	91.99452	2.69346	0.1400508	0.18658247	3.0331146	20	11 26.7	20.3
129018 2004 TF <sub>324</sub>	15.8	X	5.90765	281.58206	179.17580	1.92090	0.0422816	0.19885356	2.9070141	20	—	—
129019 2004 TS <sub>325</sub>	15.5	X	286.24691	124.01601	355.33913	2.00799	0.0859097	0.18982783	2.9984452	20	12 6.8	19.5
129020 2004 TL <sub>328</sub>	16.0	X	246.52062	201.92246	110.45027	7.52687	0.1309222	0.28571079	2.2830651	20	3 8.9	19.3
129021 2004 TS <sub>330</sub>	15.9	X	277.72260	331.83718	32.42634	2.38922	0.1737804	0.23348402	2.6119485	20	6 16.9	19.3
129022 2004 TM <sub>335</sub>	16.6	X	196.62769	213.92631	23.77337	1.31526	0.1398401	0.26007038	2.4307602	20	—	—
129023 2004 TB <sub>336</sub>	15.9	X	155.93343	230.60545	1.16614	0.11956	0.0648575	0.18635930	3.0355356	20	11 21.3	20.4
129024 2004 TA <sub>339</sub>	14.8	X	269.42082	296.31315	153.41419	17.03386	0.1373277	0.18049807	3.1008994	20	10 1.9	19.1
129025 2004 TX <sub>343</sub>	16.1	X	90.19185	228.12331	159.04098	0.61437	0.0508463	0.20241310	2.8728325	20	—	—
129026 2004 Conormcmenamin	14.5	X	302.72994	324.10280	58.35774	17.91754	0.0822118	0.17405227	3.1769930	20	9 6.1	19.0
129027 2004 TJ <sub>345</sub>	14.8	X	325.02728	222.57563	137.43229	15.37953	0.2066344	0.17827086	3.1266731	20	8 23.2	18.0
129028 2004 TR <sub>346</sub>	16.5	X	352.02368	278.32770	356.70644	4.51114	0.0867883	0.29462370	2.2367851	20	6 26.4	18.6
129029 2004 TQ <sub>348</sub>	16.3	X	213.44227	223.46110	49.11476	6.91715	0.0924570	0.26766924	2.3845352	20	—	—
129030 2004 TR <sub>349</sub>	15.5	X	35.80816	249.47000	120.85875	3.09947	0.1151780	0.19099188	2.9862496	20	12 31.8	19.6
129031 2004 TW <sub>349</sub>	15.7	X	65.06543	238.59016	143.37436	2.51179	0.0943653	0.19810166	2.9143652	20	—	—
129032 2004 TS <sub>356</sub>	14.5	X	258.30921	241.54300	167.51381	23.64082	0.1960545	0.17331675	3.1859750	20	7 15.1	19.6
129033 2004 TV <sub>356</sub>	15.1	X	145.80996	321.37236	119.92905	12.64744	0.1689826	0.22243017	2.6977824	20	5 18.2	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>
129041 2004 <i>UV</i> <sub>7</sub>	15.3	X	266.62202	120.11798	291.02275	3.32593	0.1198713	0.17382993	3.1797015	20	8 7.9	19.8
129042 2004 <i>VF</i> <sub>2</sub>	14.4	X	344.66323	281.55419	53.12364	16.44998	0.0285797	0.17427099	3.1743343	20	9 6.4	19.0
129043 2004 <i>VN</i> <sub>3</sub>	16.3	X	237.22373	175.30064	65.21809	5.12486	0.0972890	0.26671407	2.3902249	20	—	—
129044 2004 <i>VW</i> <sub>3</sub>	15.1	X	54.38715	179.14561	127.36959	1.75534	0.1791097	0.18600575	3.0393809	20	11 15.2	19.5
129045 2004 <i>VR</i> <sub>4</sub>	15.4	X	158.43812	99.74116	338.41045	11.46497	0.0888223	0.22339220	2.6900316	20	5 14.3	19.6
129046 2004 <i>VY</i> <sub>4</sub>	14.7	X	59.97501	60.62483	260.38061	8.48220	0.0257394	0.18573197	3.0423671	20	11 17.0	18.9
129047 2004 <i>VR</i> <sub>5</sub>	15.1	X	139.56203	352.97591	295.78786	10.78558	0.0193936	0.19532444	2.9419254	20	—	—
129048 2004 <i>VV</i> <sub>5</sub>	15.0	X	2.50896	88.91906	53.44339	13.37300	0.1023048	0.20503411	2.8482972	20	1 12.6	18.6
129049 2004 <i>VQ</i> <sub>6</sub>	16.7	X	305.94640	190.79870	134.75079	1.96235	0.2049305	0.29622842	2.2286998	20	5 31.4	18.5
129050 Lowellcogburn	15.8	X	96.60226	91.86595	342.50445	14.79343	0.1313592	0.21236071	2.7824024	20	3 7.8	19.5
129051 Chrismay	15.2	X	64.53176	348.86082	342.33019	9.84257	0.0661787	0.18956999	3.0011635	20	12 10.9	19.6
129052 Nimeshdave	14.6	X	68.07148	311.40045	357.88412	16.03983	0.0695958	0.18562635	3.0435210	20	11 13.4	19.2
129053 Derekshannon	14.4	X	283.87911	151.71708	276.64138	11.98418	0.1052222	0.17845757	3.1244919	20	9 18.6	18.8
129054 2004 <i>VM</i> <sub>13</sub>	15.1	X	303.28037	148.88204	129.29481	14.79402	0.1458409	0.22317387	2.6917857	20	4 7.5	18.8
129055 2004 <i>VC</i> <sub>16</sub>	15.7	X	82.39983	255.54331	153.63128	10.87123	0.1539440	0.20482397	2.8502450	20	1 20.9	19.4
129056 2004 <i>VQ</i> <sub>17</sub>	15.3	X	325.69724	305.69023	193.77895	5.38560	0.0714708	0.19855925	2.9098860	20	—	—
129057 2004 <i>VL</i> <sub>18</sub>	15.7	X	64.33231	87.00553	290.10458	1.05070	0.0595851	0.19681452	2.9270577	20	—	—
129058 2004 <i>VQ</i> <sub>18</sub>	16.1	X	135.22068	255.75444	44.96996	3.40996	0.0803734	0.25993082	2.4316302	20	—	—
129059 2004 <i>VS</i> <sub>18</sub>	14.8	X	147.42602	152.21582	42.90206	17.89313	0.1576140	0.17785594	3.1315341	20	10 6.7	20.1
129060 Huntskretsch	15.4	X	328.27945	323.06500	118.15133	2.64360	0.1540475	0.18852535	3.0122398	20	12 22.6	18.7
129061 Karlfortney	15.2	X	356.27964	31.39769	36.00659	9.81665	0.0561044	0.19278179	2.9677367	20	—	—
129062 2004 <i>VL</i> <sub>25</sub>	15.6	X	262.35116	60.17310	292.51246	4.75062	0.1396303	0.22912418	2.6449782	20	5 16.5	19.4
129063 Joshwood	14.5	X	282.45974	178.74235	248.54484	8.22290	0.0574061	0.17925984	3.1151626	20	9 24.9	18.9
129064 Jeanneladewig	15.0	X	264.93338	236.79079	257.40298	10.21094	0.1601260	0.18528827	3.0472220	20	11 13.6	19.1
129065 2004 <i>VV</i> <sub>27</sub>	14.8	X	346.52723	118.39023	244.95147	9.31336	0.1128201	0.18012707	3.1051558	20	10 5.8	18.8
129066 2004 <i>VY</i> <sub>28</sub>	15.2	X	247.58144	127.24374	30.01951	0.07302	0.1101787	0.18549129	3.0449981	20	11 27.8	19.2
129067 2004 <i>VD</i> <sub>31</sub>	16.9	X	263.73416	178.86594	93.32242	3.06843	0.0887670	0.27814800	2.3242638	20	1 28.7	20.5
129068 Alexmay	15.5	X	37.85508	289.50228	80.74925	1.65163	0.0852846	0.19065096	2.9898086	20	12 30.0	19.5
129069 2004 <i>VD</i> <sub>53</sub>	15.5	X	301.39204	239.47760	155.55455	1.96336	0.1874645	0.17647166	3.1478889	20	8 27.9	19.3
129070 2004 <i>VV</i> <sub>53</sub>	15.1	X	288.20506	271.93390	228.61696	9.98488	0.0627342	0.19032529	2.9932182	20	—	—
129071 Catriegle	14.6	X	290.86339	114.77783	287.66261	14.31547	0.0588143	0.17731502	3.1378995	20	8 31.7	19.1
129072 2004 <i>VD</i> <sub>57</sub>	14.9	X	63.56902	223.61025	105.48432	16.65008	0.1350082	0.19279303	2.9676215	20	12 18.6	19.3
129073 Sandfyfreund	15.2	X	202.39698	223.43988	287.17846	3.29392	0.1377207	0.17649107	3.1476582	20	9 25.7	20.2
129074 2004 <i>VE</i> <sub>61</sub>	15.1	X	332.34257	299.87211	149.95331	13.43396	0.1415318	0.19112404	2.9848729	20	—	—
129075 2004 <i>VA</i> <sub>62</sub>	14.5	X	177.98902	84.70727	92.82590	12.98429	0.0986900	0.18094970	3.0957376	20	10 15.1	19.5
129076 2004 <i>VB</i> <sub>62</sub>	15.0	X	36.86633	226.52819	123.30212	10.05942	0.0719958	0.18854530	3.0120273	20	12 3.4	19.2
129077 2004 <i>VC</i> <sub>62</sub>	15.2	X	298.16164	353.94013	103.60870	11.29278	0.0749311	0.18814651	3.0162819	20	11 29.5	19.1
129078 Animoo	16.5	X	257.00118	182.07976	141.13982	3.16548	0.1850199	0.28744084	2.2738950	20	3 27.1	19.8
129079 2004 <i>VZ</i> <sub>70</sub>	14.3	X	347.71018	24.52772	46.24673	2.32470	0.2122570	0.12552131	3.9505516	20	12 23.8	18.8
129080 2004 <i>VM</i> <sub>75</sub>	14.3	X	136.22638	308.32508	151.65439	13.86493	0.1308349	0.15638440	3.4119848	20	5 28.8	19.8
129081 2004 <i>VH</i> <sub>75</sub>	15.0	X	268.64632	264.75049	202.69582	9.26764	0.0819975	0.18406387	3.0607206	20	10 28.9	19.0
129082 Oliviabillett	16.6	X	318.81971	6.06834	299.49578	3.60319	0.1764420	0.29656583	2.2270090	20	5 28.4	18.5
129083 2004 <i>VC</i> <sub>80</sub>	15.1	X	220.44558	92.62966	334.98952	6.24663	0.1092966	0.16743760	3.2601236	20	7 9.1	20.2
129084 2004 <i>VM</i> <sub>88</sub>	15.2	X	285.31081	191.66007	15.78498	5.58457	0.1199832	0.20268730	2.8702410	20	—	—
129085 2004 <i>VY</i> <sub>88</sub>	15.2	X	182.09053	127.26522	346.43540	4.80498	0.1189341	0.16770322	3.2566802	20	7 26.6	20.4
129086 2004 <i>VK</i> <sub>89</sub>	15.7	X	268.29336	50.44143	286.29954	4.89691	0.0891617	0.22532910	2.6745940	20	5 9.7	19.5
129087 2004 <i>VW</i> <sub>90</sub>	15.7	X	20.64314	45.79827	64.21782	3.05156	0.0258425	0.20483265	2.8501645	20	—	—
129088 2004 <i>VE</i> <sub>91</sub>	14.9	X	153.54728	246.27886	309.12339	8.09474	0.0283605	0.17934022	3.1142317	20	9 30.9	19.5
129089 2004 <i>VX</i> <sub>91</sub>	15.6	X	64.16824	358.87425	116.46038	5.45118	0.0183251	0.21209003	2.7847692	20	3 4.3	19.3
129090 2004 <i>WB</i>	14.8	X	294.76593	305.27900	72.06669	10.49603	0.0813851	0.17404586	3.1770710	20	8 12.4	19.2
129091 2004 <i>WE</i> <sub>5</sub>	15.3	X	330.15336	284.88999	131.36743	1.90971	0.1965460	0.18559744	3.0438370	20	11 23.1	18.4
129092 Snowdonia	15.1	X	337.52581	305.86081	133.94352	11.88361	0.0754912	0.18922530	3.0048070	20	—	—
129093 2004 <i>WR</i> <sub>10</sub>	14.8	X	235.53184	111.26486	353.30644	16.60514	0.0975725	0.17696122	3.1420805	20	9 11.5	19.3
129094 2004 <i>XZ</i>	14.8	X	293.93823	177.00599	292.49045	12.20653	0.0792221	0.18840410	3.0135321	20	12 5.6	18.9
129095 Martyschmitzer	14.9	X	96.73349	261.95118	296.70754	12.38473	0.0668564	0.23167519	2.6255262	20	8 8.9	18.7
129096 Andrewleung	15.1	X	349.58387	69.41836	307.71085	8.14574	0.1432092	0.18238345	3.0794922	20	10 31.0	18.8
129097 2004 <i>XX</i> <sub>1</sub>	14.4	X	208.34389	217.88352	280.27374	16.86839	0.0298251	0.17896413	3.1185931	20	9 18.8	19.2
129098 2004 <i>XQ</i> <sub>2</sub>	14.9	X	208.15012	301.00626	289.25316	10.04577	0.0486554	0.19238605	2.9718051	20	—	—
129099 Spoelhof	15.2	X	230.30400	16.31728	154.38994	7.49026	0.1793995	0.18250505	3.0781241	20	11 16.6	20.0
129100 Aaronammons	15.4	X	173.72749	79.77538	345.51185	2.81983	0.0515333	0.22103118	2.7091540	20	5 16.8	19.3
129101 Geoffcollyer	15.1	X	217.72655	99.95992	78.48152	1.11235	0.0779677	0.18566487	3.0431000	20	11 22.9	19.5
129102 Charlicamarotte	15.6	X	54.60130	36.47596	29.71799	2.15042	0.0684860	0.19988967	2.8969599	20	—	—
129103 2004 <i>XG</i> <sub>15</sub>	17.0	X	108.59008	293.55483	114.90303	2.22530	0.1790337	0.27035754	2.3687018	20	2 20.3	20.0
129104 2004 <i>XW</i> <sub>17</sub>	14.6	X	235.54204	344.43597	176.96067	17.84175	0.1478395	0.18191845	3.0847376	20	11 15.8	19.4
129105 2004 <i>XT</i> <sub>20</sub>	15.2	X	351.96612	308.36774	100.54834	3.49195	0.2023737	0.18623515	3.0368845	20	12 26.5	18.6
129106 2004 <i>XD</i> <sub>21</sub>	15.2	X	95.98297	285.76966	93.83566	3.09793	0.0332120	0.19890317	2.9065307	20	—	—
129107 2004 <i>XH</i> <sub>21</sub>	15.3	X	27.75648	280.93694	108.69923	2.64055	0.1610891	0.19040287	2.9924051	20	—	—
129108 Krist												

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>
129121 2004 XS <sub>123</sub>	15.1	X	184.48798	176.23645	349.16421	15.51930	0.0551294	0.23897925	2.5717530	20	10 6.3	18.9
129122 2004 XA <sub>126</sub>	14.9	X	341.12993	275.00619	153.12607	11.04060	0.1577565	0.18870232	3.0103562	20	12 28.7	18.5
129123 2004 XY <sub>142</sub>	16.1	X	244.21679	314.77053	354.63871	4.39867	0.1654794	0.21439328	2.7647887	20	3 3.8	20.3
129124 2004 XB <sub>144</sub>	15.2	X	296.58815	272.01708	142.91943	16.05249	0.0641549	0.17863269	3.1224495	20	10 6.3	19.5
129125 Chrisvoth	14.9	X	25.90098	74.95444	330.26236	9.19720	0.0910728	0.19248437	2.9707931	20	—	—
129126 2004 XJ <sub>165</sub>	15.1	X	246.52514	294.97963	261.48304	10.86169	0.0063953	0.19460425	2.9491793	20	—	—
129127 2004 XA <sub>167</sub>	15.6	X	300.51525	231.99105	126.44714	4.33042	0.1391869	0.23332587	2.6131286	20	7 19.7	18.7
129128 2004 XE <sub>182</sub>	14.6	X	19.20078	56.70803	260.87857	9.30943	0.1224047	0.18037704	3.1022864	20	9 28.1	18.6
129129 2004 YJ	14.9	X	298.88257	88.51803	337.34633	25.33197	0.2031941	0.18018482	3.1044922	20	9 21.9	18.8
129130 2004 YP <sub>20</sub>	13.1	X	317.80587	118.98130	170.11758	1.48898	0.0698794	0.08481487	5.1304411	20	5 21.4	19.6
129131 2004 YY <sub>27</sub>	15.0	X	208.31919	124.88194	356.85821	4.54916	0.1171744	0.17119440	3.2122526	20	8 31.3	19.8
129132 2004 YS <sub>28</sub>	16.7	X	173.60970	117.89134	3.76292	1.37881	0.0195203	0.22940525	2.6428174	20	8 1.8	20.2
129133 2004 YZ <sub>31</sub>	12.2	X	12.27640	106.75719	105.99065	23.21083	0.0442342	0.08359331	5.1803014	20	5 12.8	19.1
129134 2005 AC <sub>5</sub>	12.2	X	282.72316	196.39016	99.03083	14.77129	0.0668557	0.08274455	5.2156659	20	4 23.1	19.2
129135 2005 AD <sub>21</sub>	12.1	X	264.67231	198.96647	120.06792	33.11491	0.0390616	0.08093794	5.2929926	20	5 9.9	19.5
129136 2005 AM <sub>22</sub>	14.5	X	177.91418	271.88516	320.45057	9.20225	0.0367925	0.18303241	3.0722087	20	12 16.2	19.1
129137 Hippolochos	12.9	X	232.46200	230.91454	114.51456	12.51042	0.0576117	0.08473265	5.1337597	20	4 24.7	20.0
129138 Williamfrost	16.5	X	215.23044	303.80736	253.75289	3.81558	0.1838664	0.24099308	2.5574059	20	12 11.8	20.1
129139 2005 AV <sub>48</sub>	15.1	X	42.89369	194.09195	118.31721	2.35791	0.1806898	0.17363309	3.1821041	20	11 6.6	19.5
129140 2005 AO <sub>50</sub>	12.6	X	313.86958	105.95620	171.87631	9.36195	0.0168877	0.08351821	5.1834066	20	5 10.9	19.5
129141 2005 AL <sub>57</sub>	15.6	X	199.74230	334.49240	289.20949	8.36403	0.0441947	0.18600992	3.0393355	20	—	—
129142 2005 AS <sub>60</sub>	13.0	X	108.96519	112.71430	11.15260	1.29678	0.0475722	0.08246336	5.2275159	20	5 17.3	20.0
129143 2005 BZ <sub>16</sub>	16.3	X	347.92586	357.54047	52.23086	2.81325	0.0667099	0.24455889	2.5324862	20	12 25.5	19.4
129144 2005 BP <sub>25</sub>	12.2	X	278.78875	191.33358	138.64661	27.70589	0.0779376	0.08422529	5.1543554	20	5 27.2	19.4
129145 2005 CE	12.6	X	71.93992	358.24058	172.81618	18.40948	0.0514976	0.08156581	5.2657948	20	5 31.9	19.7
129146 Stevenglenn	14.6	X	254.73860	268.49358	136.22900	19.75413	0.1610684	0.17051166	3.2208215	20	7 11.3	19.5
129147 2005 CY <sub>70</sub>	12.4	X	316.45575	305.58727	342.06426	16.47808	0.0565253	0.08327062	5.1936761	20	5 13.6	19.3
129148 Sheilahaggard	16.0	X	85.36881	11.95293	204.12531	4.49001	0.0253260	0.21807249	2.7336031	20	8 11.3	19.7
129149 Richwitherspoon	16.1	X	122.24955	138.11829	147.61079	1.66442	0.0607369	0.23501002	2.6006294	20	12 30.5	19.8
129150 2005 EF <sub>93</sub>	15.0	X	71.06563	193.93523	93.80689	16.33794	0.2021193	0.22609291	2.6685669	20	11 23.4	19.2
129151 Angelaboggs	16.4	X	286.41358	244.64118	187.52337	5.83594	0.1986583	0.23340345	2.6125496	20	10 1.3	19.0
129152 Jaystpierre	15.6	X	151.12934	344.38815	113.16613	9.96031	0.1002931	0.211477709	2.7901475	20	6 6.4	19.9
129153 2005 EL <sub>140</sub>	12.4	X	242.50655	194.76448	164.85656	26.73339	0.0061920	0.08316911	5.1979012	20	5 25.7	19.6
129154 Georgesondecker	16.4	X	355.29608	324.24767	351.36245	2.68013	0.1758113	0.27679892	2.3318098	20	9 12.9	18.1
129155 2005 EV <sub>260</sub>	16.9	X	233.56605	189.41857	41.05939	5.05448	0.1753240	0.24426221	2.5345364	20	—	—
129156 2005 EN <sub>264</sub>	16.2	X	185.45492	313.75485	195.87917	4.42506	0.1003583	0.22296949	2.6934304	20	9 16.1	20.3
129157 2005 ET <sub>305</sub>	16.7	X	291.94122	128.74699	133.18444	1.84389	0.1573400	0.25771017	2.4455789	20	2 20.1	20.1
129158 Michaelmellman	15.0	X	335.59359	121.10276	96.88956	11.13794	0.0318361	0.19421273	2.9531415	20	3 22.9	19.2
129159 2005 GS <sub>16</sub>	15.7	X	261.85009	94.51642	301.10245	1.47268	0.0693049	0.21486022	2.7607815	20	7 23.8	19.3
129160 Ericpeters	16.0	X	290.18435	183.99209	156.79646	6.56182	0.0356602	0.21764889	2.7371488	20	6 23.7	19.7
129161 Mykallefevre	15.8	X	118.04035	171.30636	110.58591	15.24444	0.0712189	0.23148479	2.6269657	20	12 21.6	19.7
129162 2005 GF <sub>65</sub>	14.1	X	324.57232	294.75094	141.84594	21.39851	0.0852638	0.17119352	3.2122636	20	12 8.9	18.6
129163 2005 GX <sub>69</sub>	15.9	X	286.27059	294.24877	200.47751	1.88000	0.0928441	0.17641997	3.1485038	20	12 21.7	19.9
129164 2005 GE <sub>97</sub>	15.4	X	297.83542	204.66778	291.86537	21.32407	0.0465864	0.24073175	2.5592564	20	—	—
129165 Kevinstout	15.7	X	65.25877	231.74469	180.13175	7.79805	0.1131947	0.18816537	3.0160804	20	—	—
129166 2005 GX <sub>161</sub>	15.3	X	86.23780	269.60848	64.43163	13.98446	0.1294633	0.23298641	2.6156662	20	—	—
129167 Dianelambert	15.9	X	24.97059	277.18680	46.98453	2.75540	0.0463333	0.21777556	2.7360874	20	10 17.7	19.5
129168 2005 JU <sub>27</sub>	15.6	X	352.48695	250.83584	74.41985	7.24130	0.0144807	0.21463838	2.7626835	20	9 4.0	19.3
129169 2005 JR <sub>77</sub>	15.2	X	226.37865	206.47799	121.90267	10.52541	0.0424185	0.19162370	2.9796818	20	3 22.8	19.7
129170 2005 JK <sub>124</sub>	14.9	X	195.83774	175.47437	104.12930	10.31169	0.0288055	0.17538358	3.1608952	20	—	—
129171 2005 JE <sub>132</sub>	14.9	X	278.69959	170.53771	8.00397	15.99168	0.1830767	0.17523933	3.1626296	20	—	—
129172 Jodziazeski	15.5	X	64.77353	300.92695	60.00340	15.38256	0.1322319	0.23319127	2.6141340	20	—	—
129173 Mattgoman	15.1	X	317.56928	354.98535	189.47668	17.29594	0.1445207	0.18051996	3.1006487	20	—	—
129174 2005 JK <sub>179</sub>	14.4	X	101.95196	206.13302	201.75884	12.80242	0.2218685	0.18060170	3.0997131	20	2 24.2	19.0
129175 2005 KT <sub>11</sub>	16.4	X	4.03215	226.08138	71.81043	3.48442	0.1777003	0.26959925	2.3731413	20	9 4.1	18.3
129176 Gerardcarter	14.7	X	145.46990	140.58461	200.27298	13.22561	0.1427568	0.17208998	3.2010981	20	1 14.1	19.9
129177 Jeanneeha	15.0	X	247.48538	155.44525	151.19022	9.73401	0.0973441	0.18597429	3.0397237	20	3 12.7	19.5
129178 2005 LK <sub>6</sub>	16.2	X	90.34601	332.35018	198.90538	6.95901	0.0611628	0.26668876	2.3903761	20	6 26.7	19.3
129179 2005 LN <sub>15</sub>	15.0	X	321.93267	242.79208	245.29063	21.12360	0.1201399	0.23700425	2.5860205	20	—	—
129180 2005 LB <sub>17</sub>	15.4	X	93.59197	209.30478	233.88832	8.64142	0.0789948	0.18525724	3.0475623	20	3 7.5	19.8
129181 2005 LM <sub>34</sub>	16.4	X	326.70658	271.09146	184.02941	7.27673	0.0842176	0.29449445	2.2374396	20	—	—
129182 2005 LK <sub>38</sub>	16.5	X	295.44608	163.94813	120.27287	6.22434	0.1257379	0.25630311	2.4545213	20	4 2.1	19.6
129183 2005 LH <sub>39</sub>	15.9	X	260.47251	16.71311	223.66296	14.13256	0.0638904	0.24292081	2.5438582	20	—	—
129184 2005 LL <sub>41</sub>	16.6	X	98.86475	120.70993	106.03521	4.42162	0.1537505	0.27375993	2.3490348	20	10 6.9	20.1
129185 Jonburroughs	16.6	X	320.54412	241.34112	56.33995	1.14477	0.2207976	0.26184366	2.4197733	20	5 12.5	18.6
129186 Joshgrindlay	16.0	X	42.66535	179.80418	107.62066	7.25251	0.1133253	0.27180300	2.3602964	20	10 16.9	19.0
129187 Danielalfred	15.6	X	171.95655	214.89395	125.35707	29.19224	0.1293806	0.23529777	2.5985087	20	2 1.6	19.5
129188 Dangallagher	15.8	X	160.64156	137.03454	86.29044	12.68903	0.1385087	0.22255316	2.6967884	20	11 22.4	20.1
129189 2005 ML <sub>8</sub>	16.0	X	247.08284	317.71311	292.83500	5.62504	0.1685238	0.23720585	2.5845551	20	—	—
129190 2005 MW <sub>12</sub>	16.7	X	183.96769	38.70639	203.30508	4.03754	0.1816941	0.29113416	2.2546230	20	—	—
129191 2005 MG <sub>15</sub>	16.9	X	129.76269	121.93028	142.58245	6.47338	0.1598531	0.28328373	2.2960868	20	12 22.1	20.5
129192 2005 MQ <sub>32</sub>	15.2	X	303.32008	225.15660	84.01144	10.38024	0.1718947	0.18903258	3.0068489	20	5 12.8	19.1
129193 2005 MU <sub>39</sub>	16.5	X	141.26562	338.20353	287.48114	5.65425	0.0732551	0.28418164	2.2912477	20	—	—
129194 2005 MS <sub>40</sub>	15.9	X	58.40345	351.87567	136.59773	13.68161	0.0836922	0.24455158	2.5325366	20	3 19.2	19.0
129195 2005 ML <sub>46</sub>	16.1	X	25.42452	259.39636	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>
129201 Brandenallen	15.1 <sup>m</sup>	X	304.78807	195.26173	287.96410	13.59303	0.0500958	0.22333050	2.6905270	20	—	—
129202 2005 NO <sub>21</sub>	17.1	X	73.32302	132.90693	216.96335	2.94496	0.2294946	0.28391374	2.2926888	20	—	—
129203 2005 NF <sub>28</sub>	15.3	X	79.78071	165.98428	171.68400	6.52225	0.3117989	0.21623024	2.7491077	20	—	—
129204 2005 NN <sub>32</sub>	14.9	X	278.70590	151.90251	170.92086	9.00995	0.0164421	0.18780874	3.0198974	20	5 20.0	19.2
129205 2005 NP <sub>32</sub>	15.5	X	17.55462	105.95567	165.25106	9.77446	0.0024147	0.19617604	2.9334054	20	7 20.3	19.6
129206 2005 NU <sub>32</sub>	15.8	X	81.23306	142.07741	184.24489	7.38955	0.2404880	0.21653527	2.7465254	20	—	—
129207 2005 ND <sub>41</sub>	12.8	X	341.67856	228.94412	174.42842	3.48605	0.0653681	0.08060050	5.3077555	20	10 30.5	19.4
129208 2005 NO <sub>56</sub>	15.8	X	2.64119	24.89592	258.45880	1.45009	0.1025317	0.19157528	2.9801839	20	7 21.0	19.2
129209 Robertburt	15.1	X	246.50044	180.44331	126.15711	10.91438	0.0754326	0.17820153	3.1274840	20	3 16.5	19.8
129210 2005 NZ <sub>64</sub>	15.0	X	288.48180	11.63618	280.94688	9.17863	0.0450160	0.18324691	3.0698108	20	4 13.7	19.4
129211 2005 NC <sub>66</sub>	15.9	X	297.60079	263.85296	264.00506	3.34645	0.0554871	0.22834733	2.6509738	20	—	—
129212 2005 NA <sub>69</sub>	16.2	X	300.09992	350.86621	15.94590	5.41778	0.2084586	0.26094628	2.4253177	20	7 24.9	18.6
129213 2005 NF <sub>69</sub>	15.9	X	6.53059	51.12782	266.43081	0.97758	0.0632984	0.20290117	2.8682236	20	9 10.6	19.4
129214 Gordoncasto	15.7	X	171.75717	270.09159	185.81508	2.59194	0.0486696	0.19145485	2.9814235	20	6 23.8	20.0
129215 2005 NQ <sub>79</sub>	14.4	X	335.57325	239.84418	312.95659	21.11347	0.0802763	0.17696120	3.1420808	20	2 9.7	18.7
129216 Chloecastle	14.8	X	254.03443	110.94606	239.08246	15.04564	0.2534239	0.17943723	3.1131091	20	4 22.3	19.9
129217 2005 NB <sub>85</sub>	14.8	X	225.24586	240.96321	110.29306	10.73189	0.0430059	0.19071563	2.9891326	20	4 21.0	19.3
129218 2005 NP <sub>96</sub>	16.2	X	32.96291	345.21671	344.82101	1.61914	0.1977250	0.27233914	2.3571977	20	12 9.7	19.1
129219 2005 NO <sub>99</sub>	15.8	X	203.64361	290.46110	181.82401	7.73816	0.0464966	0.19913773	2.9042478	20	8 20.4	20.0
129220 2005 NK <sub>102</sub>	14.6	X	224.14523	103.62688	263.96113	24.06512	0.3085653	0.17637603	3.1490266	20	4 11.4	20.6
129221 2005 OC <sub>4</sub>	16.0	X	251.31963	156.38779	210.97584	8.57615	0.1046903	0.25434828	2.4670816	20	5 29.1	19.5
129222 2005 OL <sub>12</sub>	16.7	X	3.31041	39.10081	15.05720	2.14330	0.1952808	0.27802054	2.3249742	20	—	—
129223 2005 OQ <sub>14</sub>	16.5	X	143.18685	194.63393	145.34359	6.87028	0.2420132	0.29260416	2.2470654	20	1 6.4	19.7
129224 2005 OR <sub>14</sub>	16.1	X	29.79034	208.19575	146.76472	3.27460	0.1755644	0.27335562	2.3513505	20	—	—
129225 2005 OX <sub>14</sub>	16.5	X	13.79907	352.99396	325.95557	1.51739	0.2283430	0.26534308	2.3984511	20	10 30.7	18.8
129226 2005 OX <sub>19</sub>	16.0	X	138.11214	167.24588	133.34354	10.02731	0.2251059	0.22234192	2.6984962	20	—	—
129227 2005 OY <sub>20</sub>	16.8	X	0.39669	323.01443	347.36677	1.86924	0.0783555	0.26384540	2.4075189	20	9 2.2	19.3
129228 2005 OM <sub>23</sub>	15.4	X	67.14135	297.84552	239.35391	7.62094	0.0519812	0.18734182	3.0249131	20	5 31.4	19.3
129229 2005 PB <sub>1</sub>	16.1	X	300.70783	298.40065	98.41167	5.57263	0.0875282	0.26689675	2.3891341	20	9 30.7	18.6
129230 2005 PX <sub>1</sub>	16.1	X	36.90891	218.68768	56.34928	3.30412	0.1969383	0.26669484	2.3903398	20	10 1.6	18.8
129231 2005 PE <sub>2</sub>	16.8	X	76.92262	185.44681	112.35095	4.09966	0.1646563	0.27711934	2.3300120	20	12 13.6	20.3
129232 2005 PG <sub>3</sub>	14.5	X	278.40235	345.41343	14.97314	6.34010	0.2733064	0.18346031	3.0674298	20	5 27.2	19.1
129233 2005 PH <sub>3</sub>	14.9	X	241.31725	207.07163	199.97389	5.20342	0.2650760	0.17995322	3.1071554	20	6 19.5	20.1
129234 Silly	17.0	X	262.79693	60.64796	140.47456	6.68008	0.0376404	0.29334556	2.2432777	20	—	—
129235 2005 PS <sub>18</sub>	16.7	X	4.38479	190.53804	212.70793	3.15398	0.1406528	0.27897794	2.3196518	20	—	—
129236 2005 PE <sub>19</sub>	16.8	X	213.53608	11.87920	264.47296	0.59799	0.1601465	0.29914171	2.2142062	20	—	—
129237 2005 PJ <sub>19</sub>	15.6	X	340.17505	303.29902	128.65056	4.67939	0.0784067	0.21293052	2.7774363	20	—	—
129238 2005 QV	16.6	X	141.88804	201.29848	132.47913	5.50406	0.1549512	0.29412150	2.2393305	20	—	—
129239 2005 QD <sub>4</sub>	15.6	X	83.79860	149.45423	165.59707	6.51720	0.0410997	0.21095428	2.7947555	20	12 16.8	19.7
129240 2005 QK <sub>5</sub>	16.5	X	296.39961	49.21551	341.50222	2.02297	0.1840171	0.26380064	2.4077912	20	8 27.3	18.8
129241 2005 QS <sub>13</sub>	14.5	X	332.13017	338.20455	338.98661	1.93834	0.2377203	0.12504694	3.9605364	20	6 29.7	19.0
129242 2005 QB <sub>14</sub>	15.3	X	44.83416	64.72975	197.45499	1.88225	0.0432534	0.19424345	2.9528301	20	8 19.4	19.1
129243 2005 QQ <sub>18</sub>	17.1	X	178.06959	245.15096	36.92559	1.99202	0.1611198	0.29040190	2.2584115	20	—	—
129244 2005 QC <sub>21</sub>	16.3	X	12.13793	276.88691	9.70539	2.30370	0.2044463	0.27032286	2.3689044	20	12 4.7	18.9
129245 2005 QN <sub>24</sub>	16.5	X	77.17310	264.86418	9.89504	5.32844	0.2315191	0.27167983	2.3610098	20	11 18.2	20.2
129246 2005 QE <sub>25</sub>	15.7	X	8.33357	235.11494	105.01535	2.88510	0.0239973	0.19901057	2.9054848	20	10 10.8	19.5
129247 2005 QJ <sub>26</sub>	16.4	X	330.62122	6.64066	22.19671	4.21327	0.1639625	0.26645291	2.3917865	20	11 10.3	18.3
129248 2005 QV <sub>33</sub>	17.5	X	128.51727	356.33530	328.30762	1.59627	0.2647397	0.28984370	2.2613102	20	—	—
129249 2005 QQ <sub>41</sub>	16.3	X	73.33790	166.75208	209.70864	5.05290	0.1330862	0.28539216	2.2847640	20	—	—
129250 2005 QY <sub>41</sub>	15.1	X	246.65889	160.81488	186.08158	6.86605	0.2410224	0.17984914	3.1083539	20	4 16.1	20.2
129251 2005 QA <sub>42</sub>	16.0	X	281.15219	137.14675	327.30915	7.63410	0.1024459	0.27275954	2.3547750	20	11 30.1	18.5
129252 2005 QW <sub>49</sub>	15.2	X	225.03672	269.87918	119.55664	7.66114	0.1993952	0.18000923	3.1065108	20	5 22.6	20.3
129253 2005 QP <sub>66</sub>	15.7	X	125.73320	134.55062	158.42429	14.06319	0.2254229	0.21642475	2.7474603	20	—	—
129254 2005 QU <sub>66</sub>	14.8	X	246.53668	330.17131	11.38730	15.26686	0.1660050	0.17817220	3.1278272	20	4 13.0	19.7
129255 2005 QC <sub>69</sub>	15.0	X	275.23749	215.81506	112.06808	11.45481	0.1113189	0.18358874	3.0659991	20	5 10.5	19.5
129256 2005 QG <sub>70</sub>	15.3	X	210.37391	287.21591	152.02391	10.75540	0.0968352	0.18741472	3.0241285	20	7 13.0	20.0
129257 2005 QL <sub>72</sub>	14.9	X	232.63310	30.86245	308.73084	4.37626	0.2072184	0.17545512	3.1600359	20	3 26.6	20.2
129258 2005 QZ <sub>74</sub>	15.9	X	128.01483	329.89985	320.54646	4.94273	0.0874366	0.21573946	2.7532754	20	—	—
129259 Tapolca	14.6	X	358.98818	177.07662	241.94085	8.68735	0.0640840	0.15152360	3.4845704	20	12 24.7	19.3
129260 2005 QC <sub>84</sub>	15.9	X	76.57351	328.33411	358.58097	1.73344	0.0680782	0.21016185	2.8017763	20	12 25.4	20.0
129261 2005 QM <sub>87</sub>	16.5	X	102.08041	154.83802	177.54160	22.63379	0.0677748	0.35145118	1.9886547	20	—	—
129262 2005 QD <sub>89</sub>	15.0	X	228.32230	140.38948	192.29049	27.19696	0.2225627	0.17352081	3.1834766	20	3 14.7	20.5
129263 2005 QM <sub>95</sub>	16.8	X	101.39752	279.33653	11.05620	1.92074	0.1719364	0.28002923	2.3138425	20	12 28.0	20.3
129264 2005 QS <sub>105</sub>	15.3	X	178.06829	13.46823	23.52827	9.45487	0.0701308	0.17595125	3.1540929	20	4 18.2	20.1
129265 2005 QG <sub>110</sub>	16.6	X	156.49911	84.42202	216.48160	1.50534	0.1446424	0.28981213	2.2614744	20	—	—
129266 2005 QT <sub>112</sub>	16.2	X	120.56487	157.44172	151.38339	25.27721	0.1701325	0.28463901	2.2887926	20	—	—
129267 2005 QF <sub>124</sub>	15.9	X	181.83099	138.63689	350.70254	1.22224	0.0345504	0.19328290	2.9626051	20	8 18.4	20.2
129268 2005 QK <sub>126</sub>	16.1	X	300.14265	283.70942	142.40742	2.71523	0.0484481	0.20361978	2.8614714	20	10 28.1	19.7
129269 2005 QG <sub>145</sub>	15.4	X	64.28702	220.30958	143.64087	10.18643	0.1770821	0.21403397	2.7678820	20	—	—
129270 2005 QS <sub>159</sub>	16.0	X	25.36942	232.68781	108.00069	7.45087	0.1387823	0.27234162	2.3571834	20	12 6.2	18.9
129271 2005 QK <sub>161</sub>	16.3	X	341.44486	341.03753	42.58885	6.73006	0.1152696	0.27047213	2.3680327	20	11 20.9	18.6
129272 2005 QD <sub>173</sub>	16.2	X	338.98381	182.99850	188.92863	6.24204	0.1203495	0.26531025	2.3986490	20	10 30.9	18.4
129273 2005 QJ <sub>173</sub>	15.2	X	262.56462	33.56066	299.88081	2.52501	0.1286752	0.17808014	3.1289051	20	4 25.1	19.8
129274 2005 QC <sub>176</sub>	16.2	X	5.96645	331.08562	51.35532	3.53383	0.1700945	0.27167053	2.3610637	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>		
129281	2005	RP <sub>21</sub>	15.2	X	254.53284	140.95760	192.39845	12.43465	0.0923057	0.17928480	3.1148734	20	4 22.7	19.7
129282	2005	RN <sub>31</sub>	14.1	X	238.13243	85.47819	247.15435	20.87615	0.0224252	0.17156797	3.2075879	20	4 3.9	19.0
129283	2005	RC <sub>33</sub>	16.3	X	24.01482	201.66439	178.10495	6.47978	0.1385419	0.27546335	2.3393408	20	—	—
129284	2005	RX <sub>33</sub>	14.9	X	151.92647	68.81458	325.17522	14.15820	0.1321554	0.23087830	2.6315642	20	3 13.9	19.0
129285	2005	SG <sub>4</sub>	15.1	X	257.54259	136.71701	202.00511	4.20246	0.1735917	0.17671625	3.1449837	20	4 22.4	19.8
129286	2005	SW <sub>6</sub>	16.9	X	323.07693	87.73126	341.97554	1.90350	0.1787136	0.26850044	2.3796115	20	12 30.9	18.7
129287	2005	SP <sub>14</sub>	15.9	X	318.76153	14.82462	50.71439	2.82221	0.0599169	0.20292397	2.8680088	20	11 20.9	19.4
129288	2005	SO <sub>18</sub>	15.5	X	317.36010	112.19324	217.83559	0.50658	0.1492194	0.18779194	3.0200775	20	7 3.6	19.0
129289	2005	SE <sub>41</sub>	16.4	X	103.69217	97.24612	182.67902	5.79003	0.2253519	0.27596840	2.3364858	20	12 18.3	20.3
129290	2005	SQ <sub>47</sub>	16.9	X	303.68792	115.83473	305.85918	1.78671	0.2025924	0.26433796	2.4045272	20	10 29.6	18.5
129291	2005	SJ <sub>60</sub>	14.9	X	275.43514	322.53173	24.46781	5.85781	0.1670887	0.18082683	3.0971398	20	5 21.7	19.3
129292	2005	SD <sub>70</sub>	15.9	X	95.56418	240.69368	94.65551	3.52739	0.0660743	0.21161731	2.7889148	20	—	—
129293	2005	SX <sub>75</sub>	16.3	X	48.16783	238.07098	180.96870	5.09662	0.0361838	0.21959568	2.7209476	20	—	—
129294	2005	SK <sub>105</sub>	15.0	X	176.79806	201.33893	177.80965	18.41985	0.2871159	0.23396644	2.6083568	20	3 30.4	19.8
129295	2005	SS <sub>111</sub>	16.5	X	14.86816	56.84545	340.96830	3.72571	0.2182315	0.27363131	2.3497709	20	—	—
129296	2005	SB <sub>117</sub>	15.6	X	70.45338	55.10990	15.54449	22.30732	0.0406197	0.22705920	2.6609904	20	1 21.3	19.6
129297	2005	SP <sub>125</sub>	16.0	X	22.21940	338.46318	83.84032	7.59721	0.1330513	0.27302120	2.3532702	20	—	—
129298	2005	SW <sub>131</sub>	15.1	X	256.19890	338.05240	356.55157	1.17115	0.1875639	0.17642007	3.1485026	20	4 14.1	19.9
129299	2005	SU <sub>148</sub>	15.3	X	314.78803	164.01025	186.64625	8.91947	0.0970861	0.18784349	3.0195249	20	7 31.5	19.2
129300	2005	SK <sub>151</sub>	15.5	X	348.58023	267.27625	204.41876	13.52861	0.1856508	0.21118993	2.7926761	20	—	—
129301	2005	ST <sub>152</sub>	15.8	X	205.52549	193.64678	195.64564	10.01497	0.2004857	0.23939483	2.5687758	20	5 3.6	20.1
129302	2005	SE <sub>161</sub>	16.5	X	352.36186	285.22687	197.42747	5.64978	0.190584	0.28655474	2.2785802	20	—	—
129303	2005	SA <sub>164</sub>	14.9	X	205.11543	272.64889	171.77188	8.16060	0.1545875	0.17976834	3.1092853	20	7 9.9	20.1
129304	2005	SL <sub>164</sub>	14.6	X	286.26757	242.73970	48.93543	18.69409	0.2487772	0.17604493	3.1529739	20	3 26.8	19.5
129305	2005	SK <sub>167</sub>	16.2	X	286.71168	348.12579	85.07605	7.86130	0.0820244	0.26452144	2.4034152	20	10 30.2	18.9
129306	2005	SX <sub>186</sub>	16.1	X	63.42053	232.13843	81.81693	3.19632	0.2488443	0.27373892	2.3491550	20	12 27.1	19.6
129307	Tomconnors		15.0	X	60.04799	123.71373	14.03835	13.23915	0.1017043	0.22913261	2.6449134	20	4 3.5	18.0
129308	2005	SB <sub>193</sub>	14.6	X	306.01275	353.25039	19.04946	15.70833	0.0554015	0.18858876	3.0115645	20	9 1.4	18.8
129309	2005	SI <sub>194</sub>	16.4	X	264.59320	215.23934	81.71743	3.32948	0.1121885	0.28880240	2.2667425	20	—	—
129310	2005	SC <sub>202</sub>	15.7	X	191.56042	19.23184	282.39218	7.79590	0.1206147	0.22877010	2.6477067	20	1 5.3	19.7
129311	2005	SP <sub>203</sub>	16.1	X	308.23017	99.35134	267.41335	6.66643	0.0769833	0.26001079	2.4311316	20	8 22.4	18.9
129312	Drouetdaubigny		14.9	X	256.45882	299.32071	18.50304	17.94093	0.1973774	0.17282239	3.1920477	20	3 27.8	19.9
129313	2005	SA <sub>218</sub>	16.3	X	37.34536	249.27247	182.02291	6.54360	0.0855123	0.28330578	2.2959676	20	—	—
129314	Dathongolish		14.3	X	150.64525	127.26652	358.41168	26.99105	0.1542577	0.17646289	3.1479932	20	7 20.9	19.9
129315	2005	SS <sub>257</sub>	14.5	X	300.90308	284.47830	22.06709	13.66934	0.1446792	0.17725245	3.1386379	20	5 4.8	18.7
129316	2005	TY <sub>14</sub>	14.0	X	106.88279	242.23040	252.34189	21.02175	0.1260686	0.16945250	3.2342287	20	6 5.9	18.8
129317	2005	TM <sub>18</sub>	16.5	X	13.93869	293.28312	104.96127	3.22975	0.2091691	0.27371479	2.3492931	20	—	—
129318	Sarachslieder		16.0	X	89.38295	207.68311	132.04507	1.09654	0.0767653	0.21241519	2.7819267	20	—	—
129319	2005	TE <sub>23</sub>	15.2	X	212.82591	105.07571	205.94527	13.47827	0.1288253	0.22901932	2.6457855	20	2 1.8	19.6
129320	2005	TV <sub>23</sub>	15.6	X	100.75926	218.36793	142.05025	10.53319	0.2227151	0.21802611	2.7339908	20	—	—
129321	Tannercampbell		17.1	X	291.84238	20.38797	203.08222	3.75938	0.1349751	0.29267356	2.2467102	20	—	—
129322	2005	TN <sub>45</sub>	16.5	X	155.22479	268.96799	17.18671	11.36778	0.2727317	0.28555503	2.2838952	20	—	—
129323	2005	TO <sub>47</sub>	15.8	X	6.63813	321.63009	343.59305	0.57111	0.0092101	0.18679196	3.0308465	20	8 20.4	19.8
129324	Johnweirich		16.7	X	86.49212	242.44459	56.64220	3.14177	0.2028435	0.27366512	2.3495774	20	12 25.7	20.5
129325	Jedhancock		14.4	X	323.81962	241.79925	65.51844	13.15968	0.2028116	0.18417305	3.0595109	20	6 5.5	17.8
129326	2005	TJ <sub>83</sub>	15.4	X	206.98706	306.33077	25.64073	18.30332	0.3363654	0.23313176	2.6145789	20	3 3.1	20.6
129327	Davehamara		14.9	X	14.58549	212.46077	319.62883	12.26261	0.2115915	0.22892969	2.6464761	20	2 28.9	17.3
129328	Loriharrison		15.3	X	217.79042	58.69731	296.74912	9.25913	0.0224957	0.23539355	2.5978038	20	4 4.5	19.0
129329	2005	TW <sub>172</sub>	17.0	X	98.80827	38.04656	341.83276	6.37119	0.1312457	0.28619556	2.2804862	20	—	—
129330	Karlharshman		15.5	X	251.86456	201.83754	215.21270	2.77329	0.0872459	0.18541418	3.0458423	20	8 2.2	19.8
129331	2005	UZ <sub>25</sub>	16.0	X	136.29235	165.10835	48.67037	3.00929	0.1654275	0.26070094	2.4268391	20	10 23.2	19.8
129332	Markhunen		15.3	X	208.69072	283.03525	28.52705	12.09096	0.0642238	0.22669955	2.6638041	20	2 8.0	19.4
129333	Ashleylancaster		16.2	X	263.92656	351.79986	38.76074	1.35082	0.1877742	0.18152847	3.0891539	20	6 30.8	19.5
129334	2005	UN <sub>68</sub>	15.9	X	84.93819	211.15803	133.61059	7.50518	0.1425834	0.27827092	2.3235793	20	—	—
129335	Edwardliddle		16.6	X	232.16003	8.44876	272.25265	5.64826	0.1578978	0.29644874	2.2275954	20	1 8.7	20.0
129336	2005	UC <sub>73</sub>	15.2	X	98.79711	283.31605	214.11787	10.37330	0.2755774	0.23249224	2.6193713	20	6 18.8	19.4
129337	2005	UE <sub>74</sub>	16.7	X	133.39251	149.17607	218.22512	4.60159	0.1275243	0.28876132	2.2669575	20	1 15.9	19.5
129338	Andrewlowman		15.0	X	301.03114	147.49510	218.39978	7.73519	0.0921417	0.18378706	3.0637931	20	7 30.6	19.1
129339	2005	UT <sub>109</sub>	15.6	X	212.37611	70.48286	283.86932	3.24148	0.0873802	0.23311515	2.6147031	20	3 28.2	19.6
129340	2005	UR <sub>119</sub>	15.6	X	185.66306	174.14725	31.33925	12.33529	0.0807755	0.20147577	2.8817358	20	11 20.8	20.0
129341	2005	UR <sub>131</sub>	14.7	X	309.27545	228.15355	123.33361	13.34517	0.1869086	0.18521870	3.0479850	20	7 13.8	18.3
129342	Ependes		15.7	X	212.81112	189.43062	153.30713	5.08313	0.2227127	0.23287903	2.6164702	20	3 13.2	20.1
129343	2063	P-L	16.2	X	347.75244	211.51275	216.40247	3.58883	0.2354658	0.26548355	2.3976050	20	—	—
129344	2094	P-L	16.9	X	113.38110	17.25469	348.43351	1.54646	0.1340083	0.28583697	2.2823931	20	—	—
129345	2116	P-L	15.6	X	78.91629	165.05588	225.38220	6.74090	0.1439462	0.21902870	2.7256413	20	—	—
129346	2222	P-L	16.5	X	116.15222	117.21746	274.53632	2.23958	0.1889106	0.22085745	2.7105745	20	2 14.1	20.3
129347	2234	P-L	17.1	X	85.64201	21.68317	3.56802	7.02547	0.1445597	0.28524574	2.2855458	20	—	—
129348	2513	P-L	15.3	X	273.95254	72.59824	351.72354	1.71196	0.2203710	0.17826521	3.1267392	20	8 20.6	19.4
129349	2514	P-L	16.1	X	301.94853	322.38242	8.60633	11.88168	0.1849771	0.22751722	2.6574180	20	6 1.7	19.5
129350	2515	P-L	16.2	X	51.12470	5.54614	5.49063	6.55483	0.1349559	0.26671513	2.3902186	20	—	—
129351	2652	P-L	15.7	X	333.47029	229.31167	164.04500	1.20744	0.1448980	0.18104516	3.0946493	20	10 27.7	19.3

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>
129361 4324 <i>P-L</i>	15.2 <sup>m</sup>	X	69.13859	222.29327	344.41849	11.41843	0.1309006	0.22702125	2.6612870	20	7 29.9	18.9
129362 4327 <i>P-L</i>	14.7	X	169.92198	270.75902	194.91916	16.93563	0.1611331	0.17510977	3.1641893	20	7 2.7	20.2
129363 4330 <i>P-L</i>	16.9	X	37.26253	69.83632	311.89233	2.43354	0.1434195	0.26647025	2.3916827	20	—	—
129364 4719 <i>P-L</i>	17.2	X	18.53790	221.72435	163.93207	1.20058	0.1987743	0.26577205	2.3958696	20	—	—
129365 4751 <i>P-L</i>	16.9	X	123.01885	357.34292	356.55599	2.40270	0.2029687	0.26956391	2.3733487	20	—	—
129366 4752 <i>P-L</i>	16.3	X	113.00754	350.41068	346.03837	2.06375	0.1940003	0.21886346	2.7270130	20	—	—
129367 4795 <i>P-L</i>	15.8	X	34.09457	278.45876	169.74358	9.37457	0.2591513	0.21873332	2.7280945	20	—	—
129368 4823 <i>P-L</i>	15.9	X	255.75020	183.35415	145.71298	1.12427	0.1775563	0.17701953	3.1413905	20	4 8.7	20.8
129369 4909 <i>P-L</i>	17.2	X	67.93302	354.02755	36.89739	1.85940	0.1897759	0.26823046	2.3812079	20	—	—
129370 6258 <i>P-L</i>	15.2	X	331.71462	95.06715	218.39595	4.16189	0.1555969	0.17918125	3.1160734	20	7 4.7	18.8
129371 6266 <i>P-L</i>	16.5	X	324.29144	17.56401	330.90622	1.41378	0.2069029	0.26211334	2.4181132	20	8 18.3	18.3
129372 6291 <i>P-L</i>	17.0	X	44.63689	13.80698	286.89113	1.01360	0.2342706	0.26438843	2.4042212	20	11 18.6	20.1
129373 6318 <i>P-L</i>	15.9	X	95.31822	101.20943	350.65867	10.87945	0.1556501	0.22251187	2.6971220	20	3 29.8	19.6
129374 6340 <i>P-L</i>	15.9	X	62.19601	68.61124	334.06626	4.61809	0.0772714	0.21904591	2.7254985	20	—	—
129375 6350 <i>P-L</i>	16.3	X	202.71111	224.42386	220.36730	3.72196	0.2239575	0.24290279	2.5439840	20	7 7.2	20.6
129376 6357 <i>P-L</i>	15.9	X	119.64798	124.66443	190.51926	9.36928	0.1242647	0.21839224	2.7309343	20	—	—
129377 6716 <i>P-L</i>	15.1	X	82.53146	49.63861	14.04903	11.63050	0.0897907	0.20462429	2.8520990	20	2 5.2	19.0
129378 6729 <i>P-L</i>	14.8	X	167.21162	229.05717	3.90594	18.83943	0.1037059	0.18414657	3.0598041	20	11 27.4	19.9
129379 6799 <i>P-L</i>	16.3	X	232.62221	296.50336	123.23035	2.25630	0.1851064	0.24345680	2.5401231	20	7 6.5	20.2
129380 6839 <i>P-L</i>	15.8	X	10.48304	193.20316	106.23435	3.17822	0.1421074	0.24601860	2.5224588	20	9 9.5	18.3
129381 6850 <i>P-L</i>	15.6	X	108.05048	225.99172	111.89348	3.09053	0.0661184	0.20213489	2.8754679	20	—	—
129382 6852 <i>P-L</i>	16.3	X	326.76602	278.08503	130.50142	3.31744	0.2760132	0.19793274	2.9160231	20	11 10.0	18.5
129383 7623 <i>P-L</i>	16.2	X	0.23600	278.15808	129.31661	3.12738	0.2035886	0.26558590	2.3969890	20	—	—
129384 1218 <i>T-1</i>	16.7	X	19.98525	238.10439	345.23636	3.98384	0.0754449	0.30357751	2.1925844	20	5 24.5	18.7
129385 4041 <i>T-1</i>	15.8	X	93.29120	104.52759	22.19057	10.61823	0.1742366	0.22345988	2.6894884	20	5 14.6	19.6
129386 1027 <i>T-2</i>	15.5	X	186.71832	122.52540	178.76730	8.41436	0.1102348	0.19797173	2.9156402	20	1 3.5	20.1
129387 1129 <i>T-2</i>	15.7	X	245.68369	2.04338	349.29522	7.07850	0.2180704	0.22545375	2.6736081	20	4 17.4	20.1
129388 1149 <i>T-2</i>	16.7	X	160.31738	346.64425	6.74069	5.29037	0.1709542	0.28355742	2.2946091	20	2 5.6	20.1
129389 1285 <i>T-2</i>	16.3	X	285.39724	179.93382	183.07877	2.41585	0.1894927	0.31226569	2.1517238	20	6 26.6	18.4
129390 1291 <i>T-2</i>	15.9	X	243.48777	228.42442	213.55769	1.91765	0.2359205	0.18556541	3.0441873	20	8 5.8	20.7
129391 1319 <i>T-2</i>	16.3	X	84.08106	236.99621	198.37874	6.27467	0.1367296	0.28282165	2.2985870	20	2 9.7	18.8
129392 1339 <i>T-2</i>	14.9	X	23.40661	31.06194	12.14628	10.22321	0.0296465	0.19359961	2.9593732	20	—	—
129393 1362 <i>T-2</i>	16.2	X	82.78787	47.18945	10.74643	6.25753	0.1031934	0.28206731	2.3026833	20	1 12.3	18.6
129394 1402 <i>T-2</i>	16.3	X	237.34984	22.30964	338.59850	2.51787	0.1316036	0.24628431	2.5206442	20	4 29.6	20.1
129395 1421 <i>T-2</i>	17.2	X	185.54983	3.42826	8.57080	3.03224	0.1903464	0.28588974	2.2821123	20	3 22.7	20.6
129396 1424 <i>T-2</i>	17.1	X	89.65898	130.11216	277.86427	1.77183	0.1576069	0.28174692	2.3044286	20	1 16.1	19.3
129397 1508 <i>T-2</i>	16.3	X	77.97722	288.33937	352.72669	8.16924	0.1474255	0.27524615	2.3405173	20	11 18.9	19.8
129398 2109 <i>T-2</i>	16.4	X	117.36298	316.21670	356.71648	5.69727	0.1997734	0.27922575	2.3182792	20	—	—
129399 2186 <i>T-2</i>	15.2	X	94.09802	8.67015	9.90031	1.83137	0.0852384	0.19614184	2.9337463	20	—	—
129400 2321 <i>T-2</i>	17.5	X	164.75927	191.72916	174.90580	2.20853	0.2281805	0.28422897	2.2909933	20	2 28.4	21.2
129401 3098 <i>T-2</i>	16.5	X	206.73242	334.60618	24.02513	6.61403	0.1615492	0.28663498	2.2781549	20	3 25.9	19.9
129402 4093 <i>T-2</i>	15.5	X	147.81244	52.04078	49.06621	2.21131	0.1277313	0.24568784	2.5247223	20	6 7.8	19.4
129403 4185 <i>T-2</i>	15.9	X	147.30125	174.86859	180.24881	17.02736	0.2281546	0.24058808	2.5602752	20	1 31.8	20.3
129404 5021 <i>T-2</i>	15.8	X	278.42566	131.77357	286.46588	8.54896	0.2080376	0.18689680	3.0297129	20	8 18.2	20.0
129405 5046 <i>T-2</i>	15.3	X	30.34381	58.43358	316.52805	11.49178	0.1513309	0.21327429	2.7744509	20	—	—
129406 5092 <i>T-2</i>	16.6	X	85.71451	132.69822	307.59390	7.35914	0.1162009	0.28322918	2.2963816	20	2 16.8	19.0
129407 5177 <i>T-2</i>	15.2	X	348.83731	104.54135	238.72375	8.88709	0.1171047	0.18831239	3.0145103	20	9 13.9	19.0
129408 1045 <i>T-3</i>	14.8	X	61.16407	305.69408	331.45246	8.23650	0.0101499	0.18261432	3.0768961	20	9 20.9	19.1
129409 2033 <i>T-3</i>	16.6	X	78.92933	178.69616	240.88158	5.29788	0.1254976	0.28453971	2.2893250	20	1 8.1	18.8
129410 2150 <i>T-3</i>	15.1	X	299.66460	204.54720	223.87081	9.17636	0.0979042	0.18376468	3.0640418	20	10 19.5	18.9
129411 2154 <i>T-3</i>	16.8	X	175.11255	55.14144	343.03004	4.89216	0.1601747	0.28968960	2.2621121	20	4 12.6	20.2
129412 2160 <i>T-3</i>	15.2	X	279.97107	121.74531	253.24673	4.19571	0.1781458	0.17898940	3.1182996	20	7 1.6	19.4
129413 2226 <i>T-3</i>	16.4	X	313.24012	88.61944	346.54128	5.90825	0.0955877	0.25451487	2.4660049	20	12 9.1	19.1
129414 2231 <i>T-3</i>	16.2	X	124.24413	348.95661	308.72669	1.37306	0.2131015	0.25872316	2.4391912	20	—	—
129415 2277 <i>T-3</i>	16.8	X	138.74742	85.98885	340.68235	4.47476	0.1359509	0.28874861	2.2670240	20	4 11.1	19.8
129416 2291 <i>T-3</i>	16.9	X	166.67606	38.93735	352.31854	6.67864	0.1161220	0.28876646	2.2669306	20	3 24.6	20.0
129417 2613 <i>T-3</i>	15.6	X	112.44464	175.16531	271.80886	4.46604	0.0328651	0.21943831	2.7222484	20	3 27.6	19.4
129418 2617 <i>T-3</i>	15.6	X	333.77391	14.58837	326.70207	4.39451	0.1590197	0.18123398	3.0924995	20	8 17.4	19.1
129419 2619 <i>T-3</i>	14.4	X	130.25267	301.54844	204.84656	18.88263	0.1746428	0.17601917	3.1532814	20	7 15.1	19.9
129420 3114 <i>T-3</i>	15.3	X	263.82408	158.46090	187.62682	0.15706	0.1949762	0.17805103	3.1292461	20	5 5.1	20.0
129421 3147 <i>T-3</i>	16.0	X	250.75741	272.99444	58.64520	1.52388	0.2706888	0.17789647	3.1310583	20	3 30.1	21.3
129422 3223 <i>T-3</i>	15.9	X	104.05295	330.59046	35.59820	5.35709	0.1243688	0.21401528	2.7680432	20	—	—
129423 3379 <i>T-3</i>	16.6	X	160.13430	178.97749	180.78717	2.78566	0.2437692	0.21780159	2.7358694	20	2 22.2	21.1
129424 3415 <i>T-3</i>	14.9	X	349.32589	305.65294	33.83148	4.80386	0.3084649	0.18311203	3.0713181	20	9 24.6	17.2
129425 3497 <i>T-3</i>	15.8	X	157.47068	225.03239	169.95263	2.56645	0.0579717	0.24234907	2.5478575	20	3 19.5	19.4
129426 3516 <i>T-3</i>	16.1	X	59.35670	37.32602	16.73990	9.71313	0.2061826	0.21344763	2.7729486	20	—	—
129427 4123 <i>T-3</i>	15.1	X	178.06800	268.61946	189.83994	17.63680	0.2445131	0.17463892	3.1698742	20	7 1.0	20.9
129428 4164 <i>T-3</i>	15.9	X	170.26472	247.40905	113.31381	4.49902	0.1584635	0.28757773	2.2731733	20	2 22.8	19.2

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>
129441 1981 <i>DJ</i> <sub>3</sub>	15.5	X	178.73858	175.02839	284.77865	6.87515	0.1797130	0.20854223	2.8162640	20	7 6.1	20.2
129442 1981 <i>EC</i> <sub>15</sub>	15.8	X	189.78305	191.53066	337.72989	5.49581	0.1856217	0.23887746	2.5724835	20	10 10.3	19.9
129443 1981 <i>EP</i> <sub>21</sub>	15.7	X	172.24499	260.58945	357.87577	11.39895	0.2462817	0.24263871	2.5458295	20	—	—
129444 1981 <i>EN</i> <sub>23</sub>	16.9	X	341.03070	247.05215	342.52919	1.78525	0.1897811	0.27791058	2.3255874	20	3 11.3	19.1
129445 1981 <i>EA</i> <sub>24</sub>	15.5	X	300.59301	262.89694	355.34336	7.35200	0.1789260	0.20112046	2.8851288	20	3 1.3	19.5
129446 1981 <i>EB</i> <sub>30</sub>	14.6	X	136.67219	329.66907	344.71862	15.43774	0.1459413	0.24459685	2.5322241	20	—	—
129447 1981 <i>EP</i> <sub>33</sub>	16.7	X	4.95209	6.80761	206.59465	6.28568	0.0608406	0.27922322	2.3182932	20	4 13.7	19.0
129448 1989 <i>SX</i> <sub>1</sub>	16.2	X	179.08742	324.08420	48.86711	6.31987	0.2469684	0.27329121	2.3517200	20	3 23.3	20.2
129449 1990 <i>WE</i> <sub>1</sub>	15.4	X	128.68492	12.53477	82.37233	11.71915	0.2563219	0.21455975	2.7633584	20	5 23.4	20.0
129450 1991 <i>JM</i>	16.5	X	352.52139	353.30491	64.30887	24.49737	0.1263841	0.39126936	1.8513370	20	—	—
129451 1991 <i>KD</i>	15.1	X	352.54313	117.01900	103.41496	23.07485	0.2807620	0.27047776	2.3679999	20	3 23.2	17.5
129452 1991 <i>TJ</i> <sub>16</sub>	15.5	X	7.32581	333.42189	72.45544	7.12299	0.1574110	0.17416134	3.1756664	20	—	—
129453 1991 <i>TO</i> <sub>16</sub>	15.9	X	230.87298	231.16105	202.49621	14.14408	0.1081591	0.23103941	2.6303407	20	7 27.2	20.0
129454 1991 <i>UQ</i> <sub>2</sub>	15.2	X	1.85745	319.55952	37.92477	13.17269	0.3056866	0.23922976	2.5699574	20	12 8.1	17.9
129455 1992 <i>BR</i> <sub>2</sub>	15.6	X	109.80453	198.00409	256.41448	6.40618	0.2664692	0.21802009	2.7340411	20	5 4.3	19.9
129456 1992 <i>DR</i> <sub>7</sub>	16.8	X	40.37333	104.02004	60.07301	2.51058	0.1354130	0.28310862	2.2970335	20	4 7.5	18.7
129457 1992 <i>EH</i> <sub>5</sub>	16.1	X	48.41765	82.22693	107.05779	4.53085	0.1192242	0.28627775	2.2800497	20	5 30.6	18.4
129458 1992 <i>EQ</i> <sub>6</sub>	16.0	X	137.45763	11.07703	125.67159	6.60895	0.0422421	0.29008087	2.2600775	20	7 10.2	18.7
129459 1992 <i>ED</i> <sub>10</sub>	15.3	X	60.13844	335.25641	164.99222	8.22281	0.1620769	0.21400344	2.7681453	20	4 19.6	18.6
129460 1992 <i>PW</i> <sub>2</sub>	15.3	X	240.55867	132.05851	215.64192	7.24948	0.3000867	0.20253818	2.8716496	20	4 5.2	20.3
129461 1993 <i>FJ</i> <sub>5</sub>	16.2	X	162.76954	340.97348	159.52875	4.12783	0.1249436	0.23026887	2.6362053	20	8 12.4	20.2
129462 1993 <i>FU</i> <sub>9</sub>	15.5	X	0.72368	111.19223	171.87500	12.74005	0.2572736	0.22459906	2.6803866	20	7 28.4	17.8
129463 1993 <i>FA</i> <sub>10</sub>	16.1	X	105.60853	207.55299	34.13034	5.23668	0.1252668	0.23224096	2.6212604	20	10 28.1	20.2
129464 1993 <i>FF</i> <sub>23</sub>	16.8	X	129.54832	50.12960	210.69465	3.54967	0.1623059	0.30849064	2.1692423	20	12 21.8	20.1
129465 1993 <i>FC</i> <sub>41</sub>	15.4	X	110.39767	10.18775	180.17770	10.79316	0.1541927	0.22864159	2.6486987	20	8 23.6	19.5
129466 1993 <i>FM</i> <sub>44</sub>	15.9	X	112.89156	45.89592	189.21515	4.74942	0.1059150	0.23296155	2.6158523	20	10 21.2	19.7
129467 1993 <i>FM</i> <sub>47</sub>	15.6	X	284.81333	293.82047	8.55804	6.44907	0.1106312	0.22077221	2.7112722	20	4 12.9	19.2
129468 1993 <i>FZ</i> <sub>52</sub>	16.9	X	132.97457	179.73170	39.02486	4.67728	0.0929530	0.30648337	2.1787034	20	11 1.2	19.8
129469 1993 <i>FU</i> <sub>69</sub>	16.0	X	59.63424	33.70076	200.96806	10.96970	0.0996677	0.22713173	2.6604239	20	8 12.2	19.7
129470 1993 <i>KC</i>	16.0	X	72.85948	37.79563	228.32676	25.28778	0.3569256	0.30070396	2.2065306	20	11 18.9	19.7
129471 1993 <i>OL</i> <sub>8</sub>	15.4	X	313.27093	175.44928	117.25825	12.19476	0.2268876	0.21543347	2.7558818	20	4 29.2	18.9
129472 1993 <i>PS</i> <sub>5</sub>	15.3	X	155.83774	218.51881	164.98385	11.84796	0.2495472	0.20345863	2.8629821	20	3 20.4	20.3
129473 1993 <i>TK</i>	16.7	X	155.61726	351.88896	349.19355	5.33556	0.2491515	0.27336911	2.3512732	20	1 24.4	20.4
129474 1993 <i>TF</i> <sub>16</sub>	15.5	X	338.81244	127.64543	193.26012	9.77337	0.2123091	0.21588661	2.7520241	20	7 28.4	18.2
129475 1993 <i>TK</i> <sub>16</sub>	17.3	X	325.21119	168.82536	157.40367	2.09534	0.2024134	0.28876159	2.2669560	20	7 15.7	18.7
129476 1993 <i>TN</i> <sub>20</sub>	16.3	X	186.00730	341.28204	28.69368	7.61947	0.1394148	0.27754103	2.3276513	20	3 21.9	19.9
129477 1993 <i>TB</i> <sub>26</sub>	15.3	X	19.82085	351.44459	74.32743	3.58081	0.1628256	0.19068984	2.9894022	20	—	—
129478 1993 <i>TU</i> <sub>27</sub>	15.9	X	106.06109	240.93657	128.23508	2.37960	0.2240453	0.19521060	2.9430691	20	1 15.1	19.9
129479 1993 <i>TO</i> <sub>41</sub>	15.4	X	96.34063	322.88606	102.33707	3.26517	0.0323407	0.19936453	2.9020448	20	2 14.1	19.3
129480 1993 <i>UQ</i> <sub>8</sub>	16.0	X	307.59254	235.53856	174.69699	8.59414	0.2773060	0.18030188	3.1031484	20	9 16.6	19.3
129481 1994 <i>CL</i> <sub>15</sub>	15.7	X	173.27441	46.09535	73.65930	2.56044	0.1132096	0.23973929	2.5663146	20	7 29.2	19.7
129482 1994 <i>GL</i> <sub>4</sub>	14.8	X	337.61946	236.49642	202.01058	9.01440	0.0714215	0.17447850	3.1718168	20	12 25.9	19.1
129483 1994 <i>GO</i> <sub>8</sub>	15.2	X	317.28701	344.93545	349.44533	13.25310	0.1899805	0.23519598	2.5992584	20	7 11.2	18.0
129484 1994 <i>PG</i> <sub>15</sub>	15.9	X	53.72280	146.14893	171.53508	2.81932	0.1443537	0.23381197	2.6095055	20	12 3.2	19.5
129485 1994 <i>PM</i> <sub>30</sub>	16.3	X	131.65854	139.25887	187.97917	6.54072	0.1887449	0.24271385	2.5453041	20	—	—
129486 1994 <i>PN</i> <sub>30</sub>	16.1	X	77.01908	10.32750	278.27600	3.65056	0.2149467	0.23491312	2.6013445	20	12 1.0	20.3
129487 1994 <i>RX</i> <sub>14</sub>	16.0	X	9.38447	356.52672	337.80852	0.90352	0.2242068	0.23067401	2.6331177	20	11 4.2	18.7
129488 1994 <i>SW</i> <sub>2</sub>	15.2	X	333.64959	231.18187	349.90224	7.08249	0.1569971	0.21377057	2.7701553	20	3 1.6	18.5
129489 1994 <i>TN</i> <sub>5</sub>	15.5	X	4.72835	0.88960	170.06982	3.89903	0.0337698	0.20972480	2.8056675	20	2 23.1	19.0
129490 1994 <i>TP</i> <sub>10</sub>	16.0	X	75.94787	78.32845	198.83196	12.65527	0.2562510	0.23218962	2.6216468	20	11 18.9	20.3
129491 1994 <i>TA</i> <sub>12</sub>	15.1	X	18.81558	292.85541	31.50764	11.72593	0.2096129	0.22814417	2.6525473	20	11 2.5	18.1
129492 1994 <i>TF</i> <sub>13</sub>	15.6	X	151.10564	250.49725	198.06431	12.08583	0.0957526	0.21550761	2.7552498	20	5 25.5	19.9
129493 1995 <i>BM</i> <sub>2</sub>	15.4	X	54.69314	268.04318	248.00856	20.68612	0.3066310	0.27971654	2.3155666	20	5 23.7	17.4
129494 1995 <i>BB</i> <sub>15</sub>	16.1	X	285.19346	172.92080	142.63622	7.66097	0.1782328	0.28358693	2.2944499	20	4 21.7	19.0
129495 1995 <i>DP</i> <sub>6</sub>	16.8	X	188.17863	238.70615	146.01742	3.22156	0.1667592	0.27981372	2.3150305	20	4 11.3	20.3
129496 1995 <i>EK</i>	15.7	X	76.28188	105.25605	11.75569	8.43010	0.1629140	0.27769116	2.3268123	20	4 4.8	18.0
129497 1995 <i>FA</i> <sub>3</sub>	16.1	X	71.11351	300.39863	85.40918	2.89773	0.0730157	0.18803352	3.0174902	20	—	—
129498 1995 <i>FF</i> <sub>4</sub>	15.8	X	124.48745	185.21861	139.62252	4.29823	0.1044847	0.18590011	3.0405323	20	—	—
129499 1995 <i>FG</i> <sub>6</sub>	16.4	X	55.59630	105.89392	8.98728	5.65842	0.1010826	0.27464188	2.3440033	20	2 19.7	18.8
129500 1995 <i>GW</i> <sub>2</sub>	15.2	X	244.10002	138.13116	29.03694	14.20161	0.2233604	0.18171479	3.0870419	20	11 16.6	19.9
129501 1995 <i>HJ</i> <sub>5</sub>	16.1	X	117.99702	182.43730	164.38956	3.89156	0.1173807	0.26155562	2.4215495	20	—	—
129502 1995 <i>MT</i> <sub>6</sub>	15.1	X	154.27336	126.85048	117.03896	10.42410	0.0495848	0.17502383	3.1652250	20	12 3.7	19.9
129503 1995 <i>OZ</i> <sub>1</sub>	16.1	X	243.34722	144.65439	147.35901	14.29268	0.2853928	0.26421308	2.4052848	20	1 30.4	20.5
129504 1995 <i>SU</i> <sub>8</sub>	16.8	X	179.38616	155.88304	167.40669	1.95875	0.2235266	0.25711923	2.4493246	20	1 21.3	21.0
129505 1995 <i>SE</i> <sub>24</sub>	16.2	X	222.17551	56.48360	24.77561	4.64254	0.1958105	0.22999855	2.6382705	20	7 23.8	20.4
129506 1995 <i>SJ</i> <sub>32</sub>	16.2	X	269.78073	290.39205	185.12148	1.22675	0.1091299	0.24313965	2.5423316	20	11 19.4	19.0
129507 1995 <i>SU</i> <sub>45</sub>	16.4	X	208.74515	221.66029	171.22493	2.38528	0.2122377	0.22625035	2.6673287	20	5 9.9	21.0
129508 1995 <i>SO</i> <sub>52</sub>	16.7	X	188.61701	284.63394	208.57216	2.49882	0.0755196	0.23258129	2.6187027	20	8 31.9	20.4
129509 1995 <i>ST</i> <sub>52</sub>	16.6	X	20.08298	275.49626	27.21111	3.37578	0.0664749	0.23350333	2.6118045	20	9 17.8	19.8
129510 1995 <i>SQ</i> <sub>85</sub>	15.9	X	201.29468	345.10738	199.16178	3.73495	0.1219007	0.24013621	2.5634860	20	11 17.8	19.5
129511 1995 <i>TN</i> <sub>7</sub>	16.3	X	120.85186	140.25954	279.76507	1.25114	0.1800766	0.25585616	2.4573789	20	3 21.6	19.9
129512 1995 <i>UZ</i> <sub>1</sub>	16.2	X	269.582									

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>
129521 1995 WH <sub>40</sub>	16.0	X	154.86612	63.02559	75.08770	13.96009	0.1495726	0.22497088	2.6774324	20	8 5.4	20.5
129522 1995 XY <sub>3</sub>	16.2	X	92.61387	165.87361	120.45001	4.46451	0.0684343	0.23720284	2.5845769	20	11 30.2	19.8
129523 1995 XY <sub>4</sub>	16.3	X	211.44251	353.14591	149.13987	4.35895	0.0476768	0.23283916	2.6167689	20	10 15.5	19.9
129524 1995 YK <sub>8</sub>	17.2	X	72.63673	275.01315	72.28723	4.03310	0.1657053	0.24330042	2.5412115	20	—	—
129525 1996 AG <sub>11</sub>	16.6	X	46.30890	354.80633	275.00320	3.46560	0.0108058	0.30460678	2.1876424	20	9 9.3	19.0
129526 1996 AZ <sub>11</sub>	16.2	X	255.86733	156.97297	207.39220	5.65322	0.0404444	0.21701374	2.7424869	20	6 8.5	20.0
129527 1996 AJ <sub>14</sub>	16.3	X	228.45892	158.86945	230.11810	1.70048	0.2111523	0.22457971	2.6805405	20	5 21.7	20.5
129528 1996 BQ <sub>8</sub>	15.4	X	283.03819	236.84254	119.19654	10.56951	0.1477248	0.21866273	2.7286817	20	6 17.7	19.1
129529 1996 EM <sub>7</sub>	15.9	X	174.96344	147.46078	164.96109	2.12883	0.0679687	0.19775113	2.9178082	20	1 3.1	20.1
129530 1996 EB <sub>9</sub>	15.6	X	343.80325	122.83786	155.73001	7.53557	0.0539481	0.21436859	2.7650009	20	6 15.6	19.2
129531 1996 EX <sub>9</sub>	16.0	X	31.86279	346.22446	132.78233	3.18499	0.1978303	0.20392018	2.8586605	20	1 30.4	18.8
129532 1996 EO <sub>13</sub>	16.9	X	194.37643	65.35065	357.76296	7.20235	0.1066848	0.29583509	2.2306748	20	6 5.9	20.2
129533 1996 EN <sub>14</sub>	16.2	X	339.95529	17.39992	151.34529	2.42755	0.0236404	0.20227113	2.8741766	20	1 20.8	20.2
129534 1996 HA <sub>5</sub>	15.0	X	272.12715	283.94164	31.37717	14.97697	0.1603457	0.20500650	2.8485529	20	4 11.1	19.1
129535 1996 HH <sub>7</sub>	15.8	X	200.13852	295.51668	61.16627	3.83032	0.0746633	0.20287611	2.8684599	20	3 24.1	20.0
129536 1996 JQ <sub>6</sub>	15.3	X	37.61004	196.49734	206.96574	12.00391	0.0736336	0.18894845	3.0077414	20	—	—
129537 1996 KA <sub>2</sub>	15.7	X	322.14275	170.39830	189.12360	4.74375	0.1950513	0.29644433	2.2761715	20	9 11.5	17.1
129538 1996 NM	14.9	X	131.44600	232.64251	104.81986	7.77167	0.2218961	0.18298672	3.0727201	20	1 5.7	19.6
129539 1996 NO <sub>1</sub>	16.2	X	336.10151	39.85115	241.81129	6.16991	0.2237465	0.28416754	2.2913235	20	5 20.3	17.8
129540 1996 PU <sub>2</sub>	16.4	X	248.91447	46.26115	246.75443	1.70307	0.2333007	0.27551833	2.3390296	20	2 6.4	20.3
129541 1996 PQ <sub>9</sub>	14.8	X	281.40671	97.67532	128.13273	19.62658	0.3007665	0.28726862	2.2748037	20	8 31.4	16.8
129542 1996 RK <sub>5</sub>	13.9	X	64.81960	136.82251	198.39837	10.86151	0.1030514	0.17140509	3.2096196	20	12 17.5	18.7
129543 1996 RU <sub>5</sub>	16.8	X	206.39439	238.49641	102.59511	1.85916	0.2193035	0.27254338	2.3560199	20	3 3.7	20.6
129544 1996 RE <sub>24</sub>	16.2	X	138.21334	355.34075	4.84355	5.12010	0.2463106	0.26577720	2.3958386	20	2 1.9	19.8
129545 1996 SE <sub>3</sub>	16.2	X	200.56276	161.24259	162.93450	6.28710	0.1600036	0.27070405	2.3666800	20	2 5.1	19.9
129546 1996 TZ <sub>1</sub>	16.2	X	160.63960	153.85743	15.94794	19.46221	0.0203082	0.37023298	1.9208169	20	10 11.3	17.8
129547 1996 TC <sub>6</sub>	16.1	X	293.58659	113.35863	201.21707	5.42017	0.1678636	0.27727280	2.3291522	20	5 1.4	18.6
129548 1996 TC <sub>7</sub>	17.0	X	294.10997	280.52057	19.95386	2.04063	0.2285862	0.27932857	2.3177102	20	4 1.6	19.6
129549 1996 TG <sub>9</sub>	16.6	X	256.04881	2.14520	245.54142	1.59530	0.1859049	0.26405827	2.4062248	20	—	—
129550 Fukuten	16.6	X	279.24119	137.65055	191.79328	2.70688	0.2403880	0.27866979	2.3213616	20	4 21.6	19.5
129551 1996 TQ <sub>19</sub>	15.1	X	79.51500	70.96083	248.68297	6.21717	0.0763695	0.17199283	3.2023035	20	12 12.4	19.8
129552 1996 TH <sub>30</sub>	16.9	X	148.38952	330.65405	41.29967	1.95746	0.1944857	0.26583772	2.3954750	20	2 20.4	20.6
129553 1996 TZ <sub>45</sub>	14.7	X	171.50326	286.80886	37.65376	18.19726	0.1401246	0.18008652	3.1056219	20	1 25.4	20.0
129554 1996 TC <sub>63</sub>	15.4	X	83.79439	221.11285	179.59968	13.79053	0.1095654	0.26329277	2.4108865	20	—	—
129555 Armazones	16.3	X	177.48550	135.54235	238.04108	4.25768	0.1667769	0.27032396	2.3688980	20	3 15.6	20.0
129556 1996 VY <sub>5</sub>	16.4	X	58.75298	330.08055	67.24025	2.33948	0.1767694	0.25680560	2.4513184	20	—	—
129557 1996 XA <sub>1</sub>	15.5	X	293.51493	2.38877	40.15643	5.52376	0.1590970	0.24113071	2.5564327	20	9 11.6	18.2
129558 1996 XQ <sub>8</sub>	17.1	X	262.97511	286.15843	40.08550	14.18533	0.3409866	0.27607932	2.3358599	20	3 27.7	21.2
129559 1996 YH	14.8	X	268.20628	182.65584	281.11419	12.42016	0.1092822	0.24150551	2.5537871	20	10 26.3	18.2
129560 1997 CW <sub>12</sub>	16.4	X	96.22271	233.60758	29.39472	4.98134	0.0767113	0.23579808	2.5948317	20	11 4.1	20.1
129561 Chuhachi	16.3	X	122.88346	247.95307	5.44073	2.24762	0.1045544	0.23762281	2.5815307	20	11 22.5	20.2
129562 1997 CJ <sub>23</sub>	16.3	X	181.72008	114.40093	128.61390	3.73808	0.0419394	0.24578188	2.5240782	20	—	—
129563 1997 ER <sub>8</sub>	16.4	X	191.37401	270.96851	174.50396	3.74584	0.2589483	0.23023479	2.6364655	20	6 27.7	21.1
129564 Christy	15.8	X	42.95538	79.72022	181.24474	14.33753	0.0808394	0.22513367	2.6761416	20	8 22.2	19.3
129565 1997 GS <sub>1</sub>	16.3	X	336.70901	47.75525	226.48361	1.06395	0.0326133	0.22026878	2.7154017	20	5 30.6	19.9
129566 1997 GS <sub>8</sub>	15.8	X	246.92773	131.59176	180.65035	2.22080	0.0579351	0.21288982	2.7777903	20	3 19.1	19.8
129567 1997 GR <sub>9</sub>	15.7	X	70.31836	208.68549	2.75446	7.83748	0.1205007	0.22247274	2.6974382	20	8 4.4	19.4
129568 1997 GE <sub>11</sub>	15.9	X	204.24091	254.02880	210.03772	3.25698	0.1803125	0.22845316	2.6501550	20	8 3.3	20.2
129569 1997 GJ <sub>21</sub>	15.5	X	23.32548	51.80351	209.45041	15.82930	0.1415786	0.21983805	2.7189474	20	7 27.5	19.0
129570 1997 GE <sub>34</sub>	15.8	X	348.65831	132.69048	150.22225	3.23163	0.1580202	0.21957171	2.7211457	20	6 26.7	18.5
129571 1997 GS <sub>35</sub>	14.9	X	45.87002	346.18808	221.20072	8.94829	0.1297416	0.21741328	2.7391259	20	6 21.5	18.3
129572 1997 GF <sub>44</sub>	15.4	X	2.91033	309.59386	219.43826	14.73464	0.1640250	0.20932481	2.8092404	20	2 4.5	18.8
129573 1997 HY <sub>1</sub>	15.9	X	310.42466	220.14958	8.65815	0.18195	0.2519335	0.20861778	2.8155841	20	1 24.5	19.7
129574 1997 JU <sub>8</sub>	16.0	X	207.96324	96.87325	116.32456	6.89747	0.0351582	0.23757851	2.5818516	20	—	—
129575 1997 LM	14.8	X	281.88674	221.76113	83.78013	17.11143	0.2182263	0.21053159	2.7984950	20	4 9.5	19.2
129576 1997 RG <sub>2</sub>	16.1	X	153.26861	6.49042	42.55913	3.65731	0.0931957	0.28161402	2.3051536	20	4 3.1	19.1
129577 1997 RA <sub>8</sub>	16.5	X	123.77379	50.11740	279.17740	1.51296	0.2363709	0.27382340	2.3486718	20	—	—
129578 1997 RM <sub>10</sub>	17.1	X	131.82819	329.36469	236.13286	1.78738	0.0865796	0.30275933	2.1965328	20	10 11.7	20.0
129579 1997 SF <sub>1</sub>	15.9	X	201.91427	205.78866	197.78151	24.15018	0.2554543	0.28700089	2.2762182	20	5 16.2	20.1
129580 1997 SV <sub>3</sub>	14.9	X	354.57857	24.82192	357.71650	8.24493	0.3602821	0.21692272	2.7432540	20	—	—
129581 1997 SB <sub>6</sub>	15.0	X	50.45491	354.43337	357.24677	10.14823	0.1129716	0.17972145	3.1098261	20	12 24.2	19.6
129582 1997 SC <sub>9</sub>	15.8	X	188.86047	153.94435	245.14264	3.50059	0.1383329	0.28597156	2.2816769	20	4 28.3	19.3
129583 1997 SV <sub>14</sub>	12.6	X	301.52201	139.92007	292.38897	3.9525	0.0872113	0.08432256	5.1503907	20	10 8.3	19.1
129584 1997 SY <sub>17</sub>	17.4	X	66.57537	256.24221	166.41907	2.40399	0.2150240	0.27396836	2.3478433	20	1 3.6	19.0
129585 1997 SM <sub>21</sub>	17.4	X	46.68213	160.12027	16.20504	4.38647	0.0853971	0.28433527	2.2904223	20	4 30.3	19.8
129586 1997 TE <sub>18</sub>	14.4	X	101.73327	294.26882	20.92068	17.84068	0.1442017	0.17945276	3.1129296	20	—	—
129587 1997 TH <sub>21</sub>	17.3	X	71.83371	56.46966	17.43117	3.24635	0.1599450	0.27425991	2.3461791	20	1 25.8	19.4
129588 1997 TN <sub>21</sub>	16.5	X	55.00763	230.70164	25.22527	5.42879	0.1521263	0.29705688	2.2245541	20	9 27.5	19.2
129589 1997 UD	16.1	X	221.65262	206.56208	202.17967	6.15667	0.0532286	0.29102068	2.2552091	20	6 24.1	19.0
129590 1997 UN	15.1	X	131.50388	309.86600	30.51570	11.36531	0.1201175	0.18624999	3.0367232	20	—	—
129591 1997 UL <sub>12</sub>	16.9	X	84.41770	43.64512	27.75558	3.61468	0.1590450	0.27639028	2.3341076	20	2 13.3	19.2
129592 1997 UP <sub>24</sub>	16.5	X	262.27031	110.69412	214.10095	2.96541	0.1446209	0.28979127	2.2615830	20	4 6.5	19.5
129593 1997 UZ <sub>24</sub>	15.1	X	212.23427	22.63976	194.39731	11.04484	0.0947202	0.18306257	3.0718713	20	12 29.1	19.8
129594 1997 UP <sub>25</sub>	16.9	X	201.53794	219.94195	179.68359	0.83140	0.2341970	0.28791743	2.2713850	20	5 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>
129601 1997 WE <sub>9</sub>	16.0	X	28.26762	84.92507	40.41968	5.70869	0.2517121	0.27238965	2.3569063	20	1 8.4	17.3
129602 1997 WA <sub>12</sub>	12.1	X	59.17475	78.31733	225.41032	16.61705	0.0320266	0.08109792	5.2860295	20	10 7.7	19.2
129603 1997 WF <sub>12</sub>	16.5	X	30.78013	65.31398	71.29534	3.09844	0.1529367	0.27004482	2.3705301	20	2 7.1	18.4
129604 1997 WL <sub>12</sub>	17.5	X	21.66786	137.89779	308.86963	1.01649	0.1560140	0.26895060	2.3769554	20	—	—
129605 1997 WH <sub>29</sub>	15.4	X	306.97848	200.52980	240.38687	8.16197	0.0695112	0.17375613	3.1806017	20	11 15.8	19.6
129606 1997 WU <sub>57</sub>	16.8	X	232.67805	252.84962	156.74041	3.11667	0.1582829	0.29101406	2.2552433	20	6 27.4	20.0
129607 1997 WE <sub>58</sub>	16.9	X	157.13201	243.97725	144.35202	2.27661	0.2174434	0.28006034	2.3136712	20	3 20.4	20.6
129608 1997 YQ <sub>8</sub>	16.8	X	69.17898	10.34003	56.45866	3.54339	0.1647172	0.26895983	2.3769010	20	1 11.4	19.0
129609 1997 YO <sub>16</sub>	15.7	X	200.42659	186.34351	283.36057	3.24320	0.2177240	0.24457786	2.5323552	20	8 6.1	19.9
129610 1998 AA <sub>1</sub>	16.0	X	352.40461	34.27473	103.20895	5.58754	0.2401392	0.26393358	2.4069826	20	—	—
129611 1998 AE <sub>2</sub>	16.2	X	180.97723	3.44807	294.35995	1.70644	0.1881741	0.26545413	2.3977822	20	—	—
129612 1998 AS <sub>2</sub>	16.8	X	294.66389	297.58488	308.95452	1.77111	0.1917374	0.27037668	2.3685900	20	1 27.9	20.1
129613 1998 BR <sub>6</sub>	16.5	X	100.12956	306.74186	122.47505	4.34965	0.2731285	0.27292212	2.3538398	20	3 23.7	19.5
129614 1998 BB <sub>25</sub>	14.8	X	126.51472	225.06630	348.67398	5.31417	0.0550161	0.24428414	2.5343846	20	10 5.7	18.4
129615 1998 BP <sub>30</sub>	16.3	X	273.91579	357.99507	238.33568	5.76510	0.0862711	0.26760788	2.3848997	20	1 3.7	19.5
129616 1998 BP <sub>34</sub>	16.5	X	202.77520	229.13517	27.76187	1.98998	0.1082216	0.25769493	2.4456753	20	—	—
129617 1998 BV <sub>41</sub>	16.4	X	230.99591	165.06400	1.08345	5.61884	0.0829814	0.25187985	2.4831737	20	12 6.7	19.8
129618 1998 DS <sub>11</sub>	15.7	X	23.00690	345.60964	149.89209	7.96533	0.1323927	0.26589508	2.3951305	20	1 19.9	18.1
129619 1998 DR <sub>17</sub>	16.0	X	80.71342	268.88687	141.48424	6.91270	0.0979764	0.26400500	2.4065485	20	—	—
129620 1998 EA <sub>3</sub>	16.0	X	178.88444	63.56019	56.81670	5.05012	0.1915964	0.24039369	2.5616552	20	8 3.9	20.2
129621 1998 ES <sub>5</sub>	15.6	X	141.12518	188.97507	129.29246	3.05976	0.1868655	0.25799441	2.4437823	20	—	—
129622 1998 FV <sub>2</sub>	16.4	X	293.77352	350.45830	226.49077	5.26264	0.0864974	0.26370340	2.4083831	20	1 2.9	19.6
129623 1998 FS <sub>20</sub>	16.0	X	297.24681	95.61910	102.88485	3.17680	0.1519830	0.26131607	2.4230291	20	—	—
129624 1998 FT <sub>25</sub>	15.8	X	134.39683	35.72390	177.06807	12.78553	0.2220433	0.24176274	2.5519753	20	10 20.5	20.2
129625 1998 FJ <sub>133</sub>	15.5	X	97.50105	204.38719	346.88657	4.12262	0.0946865	0.23572217	2.5953888	20	8 7.4	19.2
129626 1998 HN <sub>1</sub>	16.5	X	118.21586	286.85274	208.32160	21.21713	0.0810904	0.36373654	1.9436203	20	6 16.4	19.1
129627 1998 HA <sub>3</sub>	16.2	X	11.90286	267.36495	37.11257	21.66485	0.0770719	0.36781729	1.9292179	20	10 11.8	18.0
129628 1998 HH <sub>12</sub>	15.6	X	284.04557	35.23217	26.05839	23.15196	0.0859410	0.24010882	2.5636809	20	10 5.8	18.8
129629 1998 HW <sub>31</sub>	16.7	X	154.26833	130.21800	44.51247	21.07982	0.0736187	0.37138200	1.9168530	20	10 15.4	19.1
129630 1998 HK <sub>32</sub>	16.0	X	169.45006	343.32804	205.51222	4.21975	0.1714000	0.24273235	2.5451748	20	10 19.2	19.9
129631 1998 HF <sub>35</sub>	15.5	X	120.52257	130.61562	82.82062	5.45315	0.0497211	0.23928299	2.5695762	20	10 1.6	19.1
129632 1998 HV <sub>36</sub>	16.0	X	158.92499	35.37688	201.97169	6.48436	0.2094457	0.24531546	2.5272766	20	12 6.9	20.4
129633 1998 HD <sub>38</sub>	16.0	X	157.88646	15.86688	231.96254	3.98282	0.1418005	0.24656675	2.5187189	20	12 21.1	19.9
129634 1998 HP <sub>43</sub>	14.0	X	291.75633	106.73834	111.49643	2.58323	0.1852281	0.12647951	3.9305736	20	1 12.3	19.5
129635 1998 HN <sub>53</sub>	16.2	X	268.19745	17.35312	183.46068	2.26732	0.1392790	0.25564622	2.4587241	20	—	—
129636 1998 HF <sub>89</sub>	15.5	X	270.67060	64.40386	42.74813	5.83439	0.1108028	0.24476928	2.5310347	20	11 9.0	18.2
129637 1998 HH <sub>96</sub>	15.8	X	140.26437	164.82056	85.74890	5.20004	0.1829890	0.24344222	2.5402246	20	12 7.3	19.8
129638 1998 HE <sub>137</sub>	16.2	X	275.28589	50.00965	122.07800	5.38670	0.1252765	0.25426374	2.4676284	20	—	—
129639 1998 HS <sub>150</sub>	15.6	X	102.06846	190.62931	85.26358	5.71428	0.2565394	0.23984817	2.5655380	20	12 8.0	19.9
129640 1998 KB <sub>1</sub>	16.2	X	157.28990	95.83722	216.35399	11.90221	0.1403618	0.24467061	2.5317152	20	12 30.2	20.3
129641 1998 KC <sub>1</sub>	15.6	X	276.04568	121.79509	216.82068	13.25649	0.2845058	0.26894542	2.3769860	20	4 24.4	18.9
129642 1998 KU <sub>5</sub>	15.6	X	275.35648	242.58326	146.43426	14.73821	0.1279514	0.22966470	2.6408266	20	7 24.4	19.1
129643 1998 KH <sub>6</sub>	16.6	X	92.76505	325.39376	224.57753	20.00748	0.0565421	0.36493972	1.9393460	20	7 26.7	19.3
129644 1998 KQ <sub>8</sub>	16.3	X	160.84651	144.82518	95.77754	10.35336	0.2499926	0.24411816	2.5355333	20	12 10.6	20.7
129645 1998 KA <sub>22</sub>	16.2	X	249.08887	125.48394	119.78047	0.28008	0.1792675	0.25582274	2.4575929	20	—	—
129646 1998 KR <sub>26</sub>	14.3	X	188.97543	203.85979	220.13173	29.70730	0.1575899	0.22367089	2.6877966	20	5 30.7	18.9
129647 1998 LX <sub>2</sub>	15.6	X	126.81048	114.35328	151.48413	8.12023	0.1771703	0.24048696	2.5609928	20	12 14.2	19.9
129648 1998 MB <sub>4</sub>	15.2	X	329.42651	240.50290	116.73481	11.40197	0.1526942	0.18072887	3.0982588	20	9 4.1	18.8
129649 1998 MM <sub>4</sub>	15.8	X	96.51536	92.47100	167.96046	11.11888	0.2651409	0.23605771	2.5929288	20	11 18.1	20.4
129650 1998 MC <sub>19</sub>	15.5	X	110.21327	161.65820	104.43950	14.79378	0.1367852	0.23911271	2.5707960	20	11 30.6	19.6
129651 1998 MF <sub>24</sub>	16.2	X	79.93402	124.89162	128.95177	4.52819	0.1233645	0.23061851	2.6335401	20	10 11.9	19.9
129652 1998 OA <sub>4</sub>	15.8	X	347.14896	93.55668	215.33400	2.62339	0.0431851	0.22344052	2.6896437	20	8 1.5	19.1
129653 1998 QL <sub>3</sub>	15.5	X	273.66673	54.38598	343.83951	18.46192	0.0828284	0.35783851	1.9649191	20	8 31.3	16.9
129654 1998 QA <sub>12</sub>	15.9	X	276.05227	162.25715	197.46633	4.99079	0.2289043	0.21864702	2.7288124	20	5 31.7	19.7
129655 1998 QT <sub>15</sub>	14.9	X	69.28678	75.61142	305.98724	9.75415	0.2087251	0.23758074	2.5818354	20	—	—
129656 1998 QO <sub>16</sub>	15.5	X	45.57356	137.50810	159.35579	12.65328	0.2754967	0.23016884	2.6369690	20	11 17.4	19.5
129657 1998 QQ <sub>33</sub>	15.7	X	56.32692	138.41469	168.81625	12.01136	0.2834743	0.23173080	2.6251062	20	12 9.8	20.0
129658 1998 QV <sub>44</sub>	16.1	X	339.79018	138.59374	193.35033	3.51109	0.2258450	0.22315582	2.6919308	20	8 20.8	18.2
129659 1998 QZ <sub>44</sub>	15.3	X	282.94554	168.43197	181.51295	9.67733	0.1713849	0.21745260	2.7387958	20	6 5.8	19.1
129660 1998 QJ <sub>51</sub>	14.8	X	276.98848	241.46133	166.69232	26.57336	0.2571527	0.17455506	3.1708894	20	7 27.1	19.6
129661 1998 QR <sub>54</sub>	15.9	X	345.72568	126.31428	181.80139	13.41470	0.3660012	0.22254715	2.6968369	20	7 23.4	17.3
129662 1998 QJ <sub>57</sub>	16.2	X	224.25969	317.63969	302.50388	0.93146	0.0414197	0.19850656	2.9104008	20	—	—
129663 1998 QS <sub>57</sub>	15.9	X	232.05241	42.45884	335.65361	2.02530	0.1326792	0.21330490	2.7741855	20	5 17.1	20.2
129664 1998 QS <sub>80</sub>	14.7	X	232.66292	159.60984	241.42083	14.79877	0.2675275	0.21603777	2.7507403	20	6 5.0	19.3
129665 1998 QX <sub>84</sub>	16.1	X	43.27799	125.29554	185.71006	12.48485	0.2802811	0.23018776	2.6368246	20	12 1.1	20.1
129666 1998 QT <sub>97</sub>	16.9	X	294.71998	122.33365	188.67901	22.11299	0.1109772	0.35079967	1.9911162	20	5 6.9	19.1
129667 1998 QY <sub>104</sub>	14.8	X	267.97418	286.69464	21.43429	12.46589	0.2084916	0.21144853	2.7903987	20	3 23.6	19.1
129668 1998 QE <sub>111</sub>	15.6	X	35.21273	134.77370	156.82295	15.49246	0.1910819	0.22807724	2.6530662	20	10 16.5	19.1
129669 1998 RY	15.8	X	76.38587	156.55295	232.76216	3.43188	0.3022212	0.23854131	2.5748997	20	—	—
129670 1998 RU <sub>6</sub>	15.1	X	13.82203	308.60454	344.81643	11.93833	0.1430930	0.22398165	2.6853100	20	9 2.1	17.9
129671 1998 RA <sub>23</sub>	15.4	X	68.57952	284.92857	101.44676	3.87400	0.2481625	0.23909781	2.5709027	20	—	—
129672 1998 RR <sub>24</sub>	15.8	X	304.58701	174.92073	185.38054	5.33927	0.1699574	0.22117983	2.7079400	20	7 22.5	18.8
129673 1998 RN <sub>27</sub>	15.4	X	176.83771	161.67943	180.52882	15.43888	0.1492330	0.20358935	2.8617565	20	2 10.2	20.3
129674 1998 RQ <sub>36</sub>	15.8	X	271.6844									

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>
129681 1998 RB <sub>60</sub>	15.4	X	307.57591	166.58115	193.77638	9.65223	0.2461189	0.22021970	2.7158052	20	7 14.8	18.5
129682 1998 RQ <sub>67</sub>	16.0	X	71.73384	137.86646	240.85910	2.90124	0.2069978	0.23731287	2.5837779	20	—	—
129683 1998 RO <sub>71</sub>	15.4	X	256.47098	346.27163	22.80999	6.46566	0.1244511	0.21480104	2.7612886	20	6 2.2	19.4
129684 1998 RD <sub>73</sub>	15.8	X	230.83712	198.51339	191.45900	8.94693	0.2429421	0.21283458	2.7782709	20	5 23.9	20.5
129685 1998 RX <sub>75</sub>	16.1	X	53.43834	273.52091	102.49205	2.08900	0.2447378	0.18945153	3.0024145	20	—	—
129686 1998 RB <sub>78</sub>	15.3	X	147.09934	354.91296	14.52438	17.75030	0.1278892	0.20082990	2.8879110	20	2 23.4	20.0
129687 1998 SO <sub>8</sub>	16.3	X	123.92513	172.90977	185.20962	8.14168	0.3063806	0.24228911	2.5482779	20	1 22.8	20.2
129688 1998 SK <sub>14</sub>	14.8	X	114.32896	7.06841	356.14306	24.98262	0.2824665	0.19773380	2.9179373	20	2 3.3	19.6
129689 1998 SN <sub>15</sub>	15.4	X	86.30040	176.43309	217.85463	1.33159	0.0669689	0.19719300	2.9233032	20	—	—
129690 1998 SF <sub>16</sub>	15.4	X	98.91742	261.50092	177.47021	1.98832	0.0626759	0.20397492	2.8581490	20	3 8.2	19.3
129691 1998 SH <sub>16</sub>	16.1	X	138.51975	29.13084	359.05267	1.60807	0.0803518	0.20285450	2.8686636	20	2 24.5	20.2
129692 1998 SR <sub>25</sub>	15.5	X	70.86034	284.13047	72.11132	5.07945	0.2295814	0.23474537	2.6025836	20	—	—
129693 1998 SW <sub>39</sub>	14.8	X	3.34176	241.65279	189.52375	10.47550	0.0879690	0.18907439	3.0064056	20	—	—
129694 1998 SP <sub>46</sub>	15.7	X	307.60115	286.19693	24.26660	8.88465	0.1850449	0.21407059	2.7675663	20	5 13.7	19.0
129695 1998 SY <sub>46</sub>	17.4	X	215.98559	259.97151	160.77105	0.31038	0.1536069	0.30369008	2.1920425	20	6 25.1	20.4
129696 1998 SG <sub>62</sub>	15.4	X	118.37248	67.86314	241.64820	8.70701	0.2688580	0.23791214	2.5794373	20	—	—
129697 1998 SO <sub>69</sub>	15.7	X	5.08382	97.98715	221.30419	8.41353	0.1570907	0.22441094	2.6818843	20	9 21.5	18.6
129698 1998 SH <sub>77</sub>	15.0	X	265.53688	42.30385	278.27283	3.32676	0.0674337	0.21145031	2.7903831	20	4 18.5	19.0
129699 1998 SN <sub>82</sub>	15.4	X	226.45072	35.55291	242.40937	5.00653	0.0328865	0.19997061	2.8961781	20	1 16.2	19.6
129700 1998 SS <sub>89</sub>	15.3	X	290.20150	42.70969	357.76101	4.54061	0.1504539	0.17611395	3.1521500	20	8 23.9	19.3
129701 1998 SL <sub>93</sub>	15.6	X	129.40966	320.83834	18.22458	1.80129	0.1087990	0.19536994	2.9414686	20	—	—
129702 1998 SH <sub>118</sub>	15.5	X	33.67661	102.44893	198.31706	13.17615	0.2736427	0.22607582	2.6687013	20	11 5.2	19.0
129703 1998 SU <sub>120</sub>	15.4	X	327.62697	239.32070	33.94393	12.55931	0.1218717	0.21323703	2.7747741	20	5 4.9	18.6
129704 1998 SG <sub>124</sub>	14.4	X	258.18497	63.08855	20.45109	16.43545	0.2318846	0.17519010	3.1632220	20	8 31.2	19.2
129705 1998 SV <sub>135</sub>	15.0	X	91.96143	249.74921	33.80158	12.34831	0.2601037	0.23117905	2.6292814	20	12 6.2	19.7
129706 1998 SZ <sub>143</sub>	14.7	X	93.41767	151.26322	207.48966	8.49035	0.0675147	0.19107713	2.9853614	20	—	—
129707 1998 SM <sub>147</sub>	14.9	X	112.71416	296.05215	81.07338	3.26576	0.1031959	0.19548927	2.9402715	20	1 16.4	18.9
129708 1998 SS <sub>150</sub>	16.7	X	57.49196	163.51721	212.73248	2.31375	0.1943394	0.23556136	2.5965699	20	—	—
129709 1998 SW <sub>157</sub>	15.6	X	85.49081	168.98540	248.32346	3.60920	0.1310477	0.19764468	2.9188557	20	2 2.2	19.3
129710 1998 SX <sub>159</sub>	15.7	X	292.81399	247.14927	89.87517	4.66367	0.1011925	0.21517126	2.7581203	20	6 12.4	19.1
129711 1998 SH <sub>168</sub>	15.7	X	121.39035	200.21240	98.27482	6.01336	0.1612715	0.23797422	2.5789887	20	—	—
129712 1998 TH <sub>3</sub>	15.9	X	125.63315	319.57635	32.43878	12.44444	0.3041416	0.24200006	2.5503066	20	1 21.8	20.0
129713 1998 TR <sub>4</sub>	15.1	X	358.29272	246.77917	1.33607	12.01479	0.2176932	0.21553813	2.7549897	20	5 19.2	17.8
129714 1998 TE <sub>19</sub>	14.8	X	72.20764	329.65017	20.81706	11.07718	0.1079399	0.18739289	3.0243635	20	—	—
129715 1998 TW <sub>24</sub>	15.8	X	319.89923	70.53536	196.55445	4.21695	0.1588328	0.21079061	2.7962020	20	4 10.2	19.2
129716 1998 TA <sub>28</sub>	15.8	X	21.43708	198.23148	183.60069	1.58691	0.0374424	0.18681718	3.0305737	20	12 16.1	20.0
129717 1998 TT <sub>34</sub>	15.0	X	128.95570	252.79349	122.96522	3.02717	0.1337700	0.19752462	2.9200384	20	2 5.7	19.3
129718 1998 UR <sub>13</sub>	15.7	X	193.05622	166.25113	205.13892	5.86559	0.0996831	0.20464358	2.8519197	20	4 1.1	20.0
129719 1998 UG <sub>14</sub>	16.0	X	306.75271	345.24340	131.11044	1.52115	0.1627413	0.18397983	3.0616526	20	12 27.6	19.2
129720 1998 UZ <sub>30</sub>	14.9	X	267.11889	282.92224	72.22550	13.77816	0.1566120	0.21192092	2.7862505	20	5 25.3	18.8
129721 1998 VU <sub>2</sub>	15.8	X	97.77648	4.53800	45.67540	2.57838	0.0895613	0.19546634	2.9405015	20	2 6.1	19.8
129722 1998 VK <sub>19</sub>	15.0	X	57.20483	156.65629	195.17756	7.63030	0.0968319	0.18488491	3.0516524	20	12 30.3	19.5
129723 1998 VU <sub>19</sub>	15.0	X	258.77197	131.24024	207.20582	20.17960	0.2365376	0.21078754	2.7962291	20	4 14.8	19.4
129724 1998 VV <sub>33</sub>	15.5	X	279.65837	47.57304	52.72045	3.52147	0.1475345	0.17839636	3.1252065	20	10 24.7	19.5
129725 1998 VQ <sub>34</sub>	15.2	X	196.73525	139.06148	239.63677	8.41976	0.2278866	0.20564044	2.8426956	20	4 10.8	20.3
129726 1998 VP <sub>37</sub>	15.0	X	75.92245	88.46304	228.73879	11.50162	0.2147658	0.23035932	2.6355152	20	12 29.8	19.4
129727 1998 VX <sub>49</sub>	15.3	X	48.47074	340.90553	36.42110	3.13348	0.1424984	0.18649786	3.0340319	20	—	—
129728 1998 WT <sub>9</sub>	15.2	X	37.97398	358.79072	14.42869	18.20404	0.1935548	0.23051129	2.6343567	20	—	—
129729 1998 WB <sub>19</sub>	15.6	X	61.70117	285.64219	77.36743	6.90934	0.2832233	0.23273349	2.6175609	20	—	—
129730 1998 WF <sub>21</sub>	15.7	X	6.86315	141.62054	259.59709	5.87940	0.2320044	0.22881233	2.6473809	20	—	—
129731 1998 WC <sub>28</sub>	14.8	X	37.97220	321.85493	54.50145	2.50643	0.1634353	0.18483696	3.0521802	20	—	—
129732 1998 WP <sub>33</sub>	15.0	X	328.57823	234.45166	216.46760	8.19282	0.2418746	0.18236042	3.0797514	20	—	—
129733 1998 XM <sub>13</sub>	14.6	X	71.73630	90.90116	231.90379	7.29024	0.0994972	0.18188675	3.0850960	20	12 12.4	19.1
129734 1998 XY <sub>24</sub>	15.0	X	297.12513	256.09042	77.85973	12.75023	0.2098152	0.21306101	2.7763022	20	5 28.8	18.5
129735 1998 YU	16.1	X	298.49265	120.75928	310.86072	1.94330	0.1502628	0.31147130	2.1553809	20	11 25.2	17.6
129736 1998 YW <sub>21</sub>	16.3	X	57.24463	8.01162	297.45530	4.44303	0.1575551	0.30786220	2.1721933	20	12 7.9	19.1
129737 1999 AA <sub>9</sub>	16.5	X	25.96711	335.02727	95.55327	4.43873	0.2660713	0.32482622	2.0958909	20	—	—
129738 1999 BT	14.5	X	337.09674	91.33450	284.75008	11.38860	0.1873759	0.21731142	2.7399818	20	10 15.2	17.5
129739 1999 CA <sub>9</sub>	16.1	X	49.00555	131.95495	144.24075	0.68844	0.1728895	0.29898951	2.2149576	20	10 20.6	18.6
129740 1999 CK <sub>34</sub>	15.6	X	207.14387	121.61607	335.78018	4.46551	0.0750196	0.29879186	2.2159343	20	8 13.8	18.3
129741 1999 CT <sub>51</sub>	15.4	X	247.16619	72.84308	40.87586	4.07726	0.0394863	0.30496182	2.1859442	20	11 7.9	17.5
129742 1999 CU <sub>65</sub>	14.9	X	255.23281	265.58188	148.75941	17.76363	0.1862385	0.20899808	2.8121675	20	7 21.9	19.1
129743 1999 CF <sub>82</sub>	16.7	X	155.11759	42.94214	101.54648	2.67823	0.0876689	0.29830692	2.2183351	20	8 16.2	19.7
129744 1999 CP <sub>108</sub>	15.8	X	244.44241	178.33671	263.82598	6.07399	0.1025046	0.30254615	2.1975645	20	9 3.6	18.5
129745 1999 CX <sub>109</sub>	16.2	X	191.37345	244.54457	247.69334	5.64763	0.0692745	0.30091757	2.2054862	20	9 9.4	19.1
129746 1999 CE <sub>119</sub>	8.4	X	11.36832	35.64909	171.53715	1.47356	0.2713447	0.00396933	39.5055344	20	5 8.2	23.0
129747 1999 CZ <sub>133</sub>	16.9	X	181.98607	337.76512	140.60855	2.08641	0.0925496	0.29813731	2.2191764	20	8 10.3	19.7
129748 1999 CB <sub>136</sub>	16.3	X	351.87521	65.21222	155.16068	5.80383	0.1427642	0.28269535	2.2992716	20	3 26.7	18.2
129749 1999 CJ <sub>137</sub>	15.1	X	144.01215	315.61989	152.48923	5.84985	0.0533083	0.15307226	3.4610275	20	6 7.8	20.3
129750 1999 CA <sub>143</sub>	16.8	X	358.85857	156.75588	341.27481	4.39427	0.1586592	0.27670531	2.3323357	20	—	—
129751 1999 CP <sub>145</sub>	17.2	X	134.56763	70.77620	335.94211	1.54375	0.1628968	0.28280209	2.2986930	20	3 15.6	20.3
129752 1999 CX <sub>146</sub>	17.2	X	332.93104	93.50167	270.82413	0.58651	0.0407873	0.30097580	2.2052018	20	10 11.5	19.3
129753 1999 DG <sub>3</sub>	15.5	X	297.51748	59.94918	316.83156	5.68225	0.1721703	0.30115630	2.2043206	20	8 14.6	17.2
129754 1999 EE	15.8	X	235.69116	7.19857	58.96316	3.21509	0.1700572	0.2976141				

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>
129761 1999 <i>GL</i> <sub>6</sub>	15.0	X	336.83738	106.01111	192.99998	10.82250	0.2357775	0.28281565	2.2986195	20	6 22.4	16.6
129762 1999 <i>GZ</i> <sub>10</sub>	16.7	X	318.64983	249.74824	32.18141	4.02704	0.0406936	0.28478804	2.2879940	20	5 11.7	19.0
129763 1999 <i>GD</i> <sub>11</sub>	16.5	X	87.67249	303.30932	188.01140	5.19467	0.1011991	0.28478360	2.2880178	20	5 3.9	19.1
129764 1999 <i>GK</i> <sub>25</sub>	15.8	X	254.89843	99.59907	148.29809	5.13256	0.1958916	0.27131820	2.3631073	20	—	—
129765 1999 <i>GG</i> <sub>36</sub>	16.2	X	37.05431	220.26437	3.49883	5.15852	0.1565544	0.28650178	2.2788610	20	7 10.5	18.3
129766 1999 <i>GC</i> <sub>43</sub>	16.5	X	331.39134	185.07540	39.03788	4.77311	0.1780562	0.27883751	2.3204306	20	2 19.3	19.0
129767 1999 <i>GT</i> <sub>53</sub>	16.2	X	319.04790	348.56642	281.52038	5.60559	0.2143995	0.28059816	2.3107139	20	3 24.3	18.7
129768 1999 <i>GG</i> <sub>61</sub>	15.9	X	33.04436	253.50342	15.41680	23.75808	0.2508269	0.28919280	2.2647020	20	10 1.9	18.3
129769 1999 <i>HN</i>	16.4	X	322.86483	315.54571	241.29555	2.82088	0.1098521	0.27420477	2.3464936	20	1 8.7	19.2
129770 1999 <i>HV</i>	15.3	X	272.25774	243.13465	65.91770	22.78166	0.2261085	0.27710646	2.3300842	20	4 2.7	19.2
129771 1999 <i>HQ</i> <sub>1</sub>	15.9	X	331.14488	258.17270	28.78315	9.01729	0.1555781	0.28422116	2.2910353	20	5 25.4	17.9
129772 1999 <i>HR</i> <sub>11</sub>	7.2	X	1.36440	133.74887	83.39370	3.29950	0.0371513	0.00339937	43.8063508	20	4 29.5	23.5
129773 Catmerrill	16.5	X	303.96587	59.37774	197.19600	6.05143	0.1821908	0.27768048	2.3268719	20	2 19.6	19.6
129774 1999 <i>JM</i> <sub>5</sub>	15.7	X	52.13936	281.64652	234.80328	20.94586	0.2614654	0.28107440	2.3081030	20	5 9.7	17.6
129775 1999 <i>JU</i> <sub>11</sub>	15.0	X	59.13779	30.69701	87.75120	25.92315	0.2409461	0.27707583	2.3302559	20	4 9.1	17.9
129776 1999 <i>JL</i> <sub>13</sub>	15.0	X	223.86481	60.25902	233.20509	23.29796	0.2266203	0.26968098	2.3726618	20	1 13.1	19.5
129777 1999 <i>JO</i> <sub>23</sub>	16.0	X	313.57920	228.83331	55.46613	3.91351	0.2426033	0.28006505	2.3136453	20	4 5.6	18.4
129778 1999 <i>JY</i> <sub>35</sub>	16.4	X	310.16118	161.17392	90.60556	4.60803	0.1888687	0.27667297	2.3325174	20	2 24.5	19.2
129779 1999 <i>JV</i> <sub>38</sub>	16.2	X	43.81716	285.92259	16.50852	4.31408	0.1930541	0.29347650	2.2426104	20	11 19.4	19.0
129780 1999 <i>JJ</i> <sub>42</sub>	16.4	X	273.07266	242.05607	60.66294	5.15488	0.2328551	0.27597434	2.3364523	20	3 14.3	19.8
129781 1999 <i>JK</i> <sub>46</sub>	16.5	X	57.20512	114.60866	185.10553	4.54247	0.1741558	0.29492461	2.2352634	20	11 30.7	19.5
129782 1999 <i>JJ</i> <sub>53</sub>	15.7	X	212.87321	145.23330	101.80684	7.17973	0.0564989	0.26330513	2.4108110	20	—	—
129783 1999 <i>JG</i> <sub>55</sub>	16.1	X	187.16530	124.08274	169.30697	4.49247	0.1928000	0.26374921	2.4081042	20	—	—
129784 1999 <i>JB</i> <sub>57</sub>	16.3	X	38.87022	240.71200	47.58068	5.07055	0.2055950	0.29063586	2.2571993	20	10 27.9	19.1
129785 1999 <i>JF</i> <sub>64</sub>	16.0	X	324.00981	215.84884	63.68105	12.87981	0.2730682	0.27912730	2.3188243	20	4 15.9	18.3
129786 1999 <i>JU</i> <sub>64</sub>	16.2	X	47.10176	34.73883	224.62916	5.17608	0.1797608	0.28869158	2.2673225	20	9 21.1	18.9
129787 1999 <i>JZ</i> <sub>71</sub>	15.9	X	13.47480	75.09260	100.61514	4.54145	0.0708637	0.27699916	2.3306859	20	3 5.7	18.3
129788 1999 <i>JV</i> <sub>73</sub>	15.9	X	260.62040	151.00696	91.01592	7.13003	0.0873925	0.26929497	2.3749286	20	—	—
129789 1999 <i>JT</i> <sub>85</sub>	16.0	X	45.89432	41.41560	167.07724	4.66696	0.0941648	0.28450491	2.2895117	20	6 20.6	18.4
129790 1999 <i>JN</i> <sub>108</sub>	16.0	X	266.48205	185.73463	44.11303	7.90929	0.0689124	0.26896122	2.3768928	20	—	—
129791 1999 <i>JC</i> <sub>109</sub>	16.8	X	347.07829	148.42057	47.37325	3.26103	0.1502219	0.27612564	2.3355987	20	2 8.9	19.1
129792 1999 <i>JR</i> <sub>110</sub>	16.7	X	273.66807	216.64898	44.39818	2.85107	0.1985070	0.27259679	2.3557122	20	1 24.4	20.2
129793 1999 <i>JH</i> <sub>111</sub>	16.6	X	345.83687	158.53955	108.33445	6.43121	0.1817493	0.28169247	2.3047256	20	5 26.4	18.3
129794 1999 <i>JT</i> <sub>116</sub>	16.6	X	301.84152	340.88565	299.19974	1.25070	0.2068674	0.27738553	2.3285211	20	3 17.4	19.4
129795 1999 <i>JP</i> <sub>118</sub>	16.1	X	140.80014	101.95852	89.71287	5.00816	0.0866869	0.29428674	2.2384922	20	10 5.5	19.2
129796 1999 <i>JE</i> <sub>121</sub>	16.5	X	307.95992	139.23588	164.17661	4.66892	0.2591953	0.27924089	2.3181954	20	4 21.9	18.9
129797 1999 <i>JW</i> <sub>123</sub>	16.4	X	331.88515	186.24654	31.96342	3.13512	0.1500824	0.27648584	2.3335698	20	2 15.7	18.8
129798 1999 <i>JL</i> <sub>129</sub>	16.1	X	239.40839	151.98589	119.21904	7.13617	0.1125088	0.26919079	2.3755413	20	1 9.1	19.6
129799 1999 <i>JT</i> <sub>130</sub>	16.4	X	263.39575	152.09691	128.92991	5.95680	0.1210761	0.27455431	2.3445016	20	2 15.1	19.6
129800 1999 <i>JS</i> <sub>131</sub>	15.9	X	50.55064	69.32608	91.65648	7.58112	0.0489179	0.27794494	2.3253957	20	4 15.1	18.6
129801 Tommcmahon	16.9	X	299.02195	158.43615	94.46232	3.18022	0.1996476	0.27508554	2.3414823	20	2 9.3	20.1
129802 1999 <i>KP</i> <sub>5</sub>	17.2	X	353.60392	32.44934	218.13905	7.36596	0.2436147	0.28098169	2.3086107	20	5 11.4	18.1
129803 1999 <i>KF</i> <sub>9</sub>	16.9	X	86.55932	164.32027	105.59096	5.44180	0.1154863	0.29710347	2.2243216	20	11 18.9	19.9
129804 1999 <i>KG</i> <sub>10</sub>	16.4	X	140.87497	47.19625	248.93773	1.48464	0.1767643	0.25824639	2.4421924	20	—	—
129805 1999 <i>KR</i> <sub>10</sub>	16.8	X	292.08398	59.43267	228.87356	1.68733	0.2264539	0.27659441	2.3329591	20	3 13.5	19.8
129806 1999 <i>KL</i> <sub>11</sub>	16.8	X	285.07300	160.24408	120.23327	3.71397	0.1668929	0.27527662	2.3403986	20	3 4.9	19.8
129807 Stefanodougherty	16.4	X	196.17509	92.23644	181.43715	2.09582	0.1691809	0.26371098	2.4083369	20	—	—
129808 1999 <i>KF</i> <sub>18</sub>	16.1	X	223.52852	118.28217	173.05834	12.24942	0.2314386	0.26923741	2.3752671	20	1 15.4	20.4
129809 1999 <i>LO</i> <sub>20</sub>	16.1	X	223.10706	32.31019	263.52372	1.36845	0.1895467	0.26907154	2.3762431	20	1 30.5	20.0
129810 1999 <i>LD</i> <sub>26</sub>	16.2	X	16.59200	177.98632	95.03902	12.70374	0.2408866	0.28513709	2.2861264	20	9 9.9	18.5
129811 Stacyoliver	16.6	X	72.01877	154.67496	100.31444	5.15484	0.1070403	0.29169200	2.2517476	20	10 12.3	19.5
129812 1999 <i>MA</i> <sub>1</sub>	16.4	X	254.83144	135.25382	93.99960	3.25233	0.1575177	0.26298597	2.4127611	20	—	—
129813 1999 <i>NJ</i>	16.9	X	295.82555	199.33760	104.24294	6.40397	0.2937076	0.27546240	2.3393462	20	4 2.1	20.0
129814 1999 <i>NU</i> <sub>5</sub>	16.2	X	118.99005	218.34660	151.16835	2.78677	0.2147549	0.25785233	2.4446800	20	1 19.3	19.5
129815 1999 <i>NV</i> <sub>5</sub>	15.7	X	44.82155	10.13626	288.41893	8.76869	0.1543285	0.28906951	2.2653459	20	11 7.2	18.7
129816 1999 <i>NC</i> <sub>23</sub>	16.3	X	223.62422	99.25118	237.84933	1.83229	0.2288945	0.26889836	2.3772633	20	3 10.9	20.4
129817 1999 <i>NE</i> <sub>25</sub>	16.2	X	18.93203	174.60862	74.81918	6.01492	0.2245249	0.28205152	2.3027693	20	7 26.9	17.9
129818 1999 <i>NE</i> <sub>28</sub>	16.0	X	266.04684	255.76227	80.35160	5.67015	0.2526878	0.27412636	2.3469410	20	4 17.1	19.5
129819 1999 <i>NG</i> <sub>30</sub>	16.4	X	197.54141	238.21780	84.88527	3.12428	0.1900673	0.26413926	2.4057329	20	2 4.2	20.2
129820 1999 <i>NQ</i> <sub>51</sub>	16.3	X	260.56776	106.81876	162.94680	13.18495	0.2469158	0.26858096	2.3791358	20	1 18.2	20.5
129821 1999 <i>ND</i> <sub>53</sub>	15.1	X	341.61083	178.32697	182.79144	12.77984	0.2304459	0.23833315	2.5763987	20	10 21.4	17.1
129822 1999 <i>NV</i> <sub>53</sub>	15.4	X	257.79909	191.13514	172.09583	13.62190	0.2767251	0.22709048	2.6607461	20	5 13.1	19.8
129823 1999 <i>NJ</i> <sub>55</sub>	15.9	X	350.70519	33.84104	267.92808	11.12448	0.2137380	0.28118977	2.3074716	20	8 6.0	17.6
129824 1999 <i>NT</i> <sub>55</sub>	16.1	X	354.68934	100.01514	221.50174	7.28183	0.2183670	0.28328983	2.2960538	20	9 26.3	17.8
129825 1999 <i>NA</i> <sub>56</sub>	14.6	X	278.32107	165.00891	229.34145	12.51350	0.1886789	0.23223789	2.6212835	20	7 23.1	18.2
129826 1999 <i>NM</i> <sub>56</sub>	14.6	X	197.39541	118.07057	264.81245	12.37033	0.2165445	0.22028148	2.7152973	20	4 13.7	19.5
129827 1999 <i>NQ</i> <sub>56</sub>	16.0	X	273.40713	25.59055	263.92284	8.31285	0.2790743	0.27013935	2.3699771	20	2 16.7	20.0
129828 1999 <i>PZ</i> <sub>3</sub>	16.7	X	270.22670	130.51364	339.89034	20.58619	0.0924921	0.38508024	1.8711211	20	—	—
129829 1999 <i>RP</i>	16.4	X	122.38555	266.90931	64.68476	3.71509	0.1985448	0.25259925	2.4784568	20	—	—
129830 1999 <i>RQ</i> <sub>3</sub>	16.0	X	125.33457	131.96568	210.68722	5.79247	0.1323903	0.25559349	2.4590623	20	—	—
129831 1999 <i>RQ</i> <sub>7</sub>	16.3	X	92.46940	262.38925	23.38244	2.99803	0.1563627	0.24233197	2.5479774	20	12 6.1	20.3
129832 1999 <i>RC</i> <sub>8</sub>	17.0	X	158.06910	159.23698	184.16031	2.23935	0.2093792					

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>
129841 1999 <i>RG</i> <sub>25</sub>	15.0	X	179.58049	60.39499	345.81905	8.52248	0.1987092	0.21838559	2.7309897	20	4 28.5	19.8
129842 1999 <i>RT</i> <sub>25</sub>	16.6	X	9.63659	134.32519	199.40267	4.35214	0.2639534	0.23726445	2.5841295	20	11 13.6	19.2
129843 1999 <i>RY</i> <sub>25</sub>	16.3	X	324.87916	17.22562	16.34907	5.12434	0.2513244	0.23581175	2.5947315	20	10 25.7	18.1
129844 1999 <i>RC</i> <sub>26</sub>	16.1	X	61.31102	212.78599	137.74981	3.50744	0.1971045	0.24507436	2.5289338	20	—	—
129845 1999 <i>RG</i> <sub>27</sub>	16.7	X	285.11587	23.18831	4.50374	22.64694	0.1744103	0.37292057	1.9115771	20	9 1.7	18.1
129846 1999 <i>RO</i> <sub>29</sub>	16.2	X	137.46868	170.43901	194.89042	15.44929	0.2658592	0.25793321	2.4441689	20	2 5.0	20.3
129847 1999 <i>RH</i> <sub>40</sub>	15.9	X	185.40777	21.45593	285.33390	8.02961	0.1450862	0.25881532	2.4386121	20	1 2.8	19.4
129848 1999 <i>RY</i> <sub>48</sub>	15.5	X	328.88828	245.63378	125.18081	4.32708	0.3204629	0.23614581	2.5922839	20	10 1.3	16.6
129849 1999 <i>RJ</i> <sub>55</sub>	16.2	X	321.33549	297.73204	51.55415	2.82110	0.2481643	0.28118139	2.3075175	20	8 12.5	17.3
129850 1999 <i>RW</i> <sub>63</sub>	16.2	X	142.03624	162.50341	163.47986	6.30685	0.1415834	0.25506468	2.4624599	20	—	—
129851 1999 <i>RV</i> <sub>65</sub>	16.3	X	153.10184	116.04818	187.11311	6.41487	0.1265987	0.25389946	2.4699881	20	—	—
129852 1999 <i>RN</i> <sub>91</sub>	16.1	X	194.10821	264.19936	144.80599	2.65456	0.2060902	0.26822035	2.3812678	20	5 17.4	20.0
129853 1999 <i>RJ</i> <sub>94</sub>	16.2	X	163.90579	154.05548	156.75986	9.68059	0.2604383	0.25568684	2.4584637	20	—	—
129854 1999 <i>RT</i> <sub>94</sub>	15.7	X	223.35183	281.70647	94.03795	2.49431	0.1160720	0.22154642	2.7049520	20	5 7.5	19.8
129855 1999 <i>RX</i> <sub>96</sub>	16.9	X	136.73238	160.84456	172.71116	1.93769	0.2245857	0.25427916	2.4675287	20	—	—
129856 1999 <i>RX</i> <sub>101</sub>	15.1	X	223.52264	87.77359	297.89734	9.45377	0.2216809	0.22410333	2.6843379	20	5 9.8	19.8
129857 1999 <i>RH</i> <sub>107</sub>	16.4	X	190.93907	71.91841	226.05783	5.41689	0.1298125	0.25789278	2.4444243	20	—	—
129858 1999 <i>RW</i> <sub>113</sub>	15.5	X	58.87708	107.45705	213.18435	11.91772	0.1128142	0.24316227	2.5421739	20	12 10.4	19.2
129859 1999 <i>RV</i> <sub>115</sub>	16.4	X	278.94969	58.57318	315.03317	3.74214	0.2437818	0.27796740	2.3252705	20	6 21.8	19.1
129860 1999 <i>RJ</i> <sub>139</sub>	15.7	X	132.53389	151.34629	158.62000	6.48098	0.1317987	0.25265732	2.4780770	20	—	—
129861 1999 <i>RM</i> <sub>142</sub>	15.9	X	40.84108	260.89308	117.60202	3.57895	0.0961531	0.24571215	2.5245557	20	—	—
129862 1999 <i>RN</i> <sub>155</sub>	16.8	X	324.42523	42.81637	262.53836	3.43261	0.2506087	0.27736005	2.3286637	20	5 27.7	18.5
129863 1999 <i>RJ</i> <sub>157</sub>	15.8	X	139.52730	174.95824	143.71386	8.06813	0.1602738	0.25391471	2.4698892	20	—	—
129864 1999 <i>RJ</i> <sub>161</sub>	16.5	X	328.96892	68.65757	218.90228	6.12378	0.2390259	0.27658169	2.3330306	20	5 10.8	18.4
129865 1999 <i>RA</i> <sub>170</sub>	16.2	X	254.46304	307.67420	339.23868	5.47599	0.2391392	0.26610417	2.3938757	20	2 5.7	20.1
129866 1999 <i>RQ</i> <sub>171</sub>	15.6	X	305.92213	174.74772	160.69871	12.96242	0.2108897	0.22960855	2.6412571	20	6 14.7	18.9
129867 1999 <i>RT</i> <sub>173</sub>	16.2	X	3.24359	273.84768	84.35954	3.58597	0.2418304	0.23895535	2.5719245	20	12 2.9	18.8
129868 1999 <i>RC</i> <sub>187</sub>	15.7	X	235.07590	15.62448	348.32564	7.41265	0.1707886	0.22279047	2.6948731	20	4 26.7	20.1
129869 1999 <i>RJ</i> <sub>198</sub>	15.9	X	349.90492	183.63458	192.94226	13.29409	0.2886094	0.23884110	2.5727446	20	12 11.7	18.4
129870 1999 <i>RF</i> <sub>200</sub>	14.6	X	210.98991	237.60200	310.88933	14.85532	0.1122654	0.24397945	2.5364942	20	12 4.4	18.4
129871 1999 <i>RH</i> <sub>203</sub>	16.1	X	292.22433	97.19119	229.78105	7.37774	0.1300825	0.27384561	2.3485449	20	5 23.7	18.6
129872 1999 <i>RW</i> <sub>212</sub>	15.0	X	138.68537	305.61880	341.76286	12.29537	0.1031763	0.24652304	2.5190167	20	—	—
129873 1999 <i>RH</i> <sub>214</sub>	16.8	X	251.22013	85.92259	278.74175	4.99199	0.1298114	0.27203971	2.3589271	20	5 12.4	20.2
129874 1999 <i>RN</i> <sub>219</sub>	16.8	X	300.03899	213.27014	123.26844	2.61433	0.2271420	0.27745109	2.3281543	20	6 2.7	19.0
129875 1999 <i>RZ</i> <sub>248</sub>	16.1	X	18.60768	305.60424	45.28800	1.35429	0.1834380	0.24037880	2.5617610	20	12 7.8	19.0
129876 Stevenpeterson	16.8	X	240.49069	117.10144	209.22581	4.14631	0.2368082	0.26913596	2.3758639	20	3 10.7	20.9
129877 1999 <i>SP</i> <sub>2</sub>	15.4	X	291.39803	359.59280	345.65357	25.66913	0.2234650	0.27334599	2.3514058	20	5 23.8	19.0
129878 1999 <i>SQ</i> <sub>2</sub>	15.4	X	294.72553	2.70135	28.47356	14.24460	0.1805403	0.23208017	2.6224710	20	8 28.5	18.6
129879 Tishasaltzman	15.6	X	291.11508	204.22019	200.54963	14.80739	0.0906778	0.23465237	2.6032712	20	9 13.2	18.9
129880 1999 <i>SX</i> <sub>4</sub>	15.5	X	175.99545	259.66885	145.22208	3.94531	0.1979936	0.21744779	2.3783861	20	4 28.7	20.2
129881 Chucksee	16.5	X	197.71647	156.75035	257.40075	5.17965	0.2115566	0.26939192	2.3743588	20	5 25.9	20.4
129882 Ustica	16.3	X	189.65422	116.75889	283.48190	0.73560	0.1736298	0.26639639	2.3921247	20	5 1.5	19.9
129883 1999 <i>TO</i> <sub>2</sub>	14.9	X	326.71967	260.18081	93.95276	13.61600	0.2169764	0.23257701	2.6187349	20	9 3.1	17.4
129884 1999 <i>TB</i> <sub>4</sub>	15.6	X	258.23889	108.63029	339.66620	4.44741	0.0861854	0.18378097	3.0638608	20	9 19.2	19.7
129885 1999 <i>TW</i> <sub>7</sub>	15.8	X	52.76407	142.10111	168.79922	14.82091	0.3172392	0.24101112	2.5572783	20	12 15.8	20.2
129886 1999 <i>TA</i> <sub>9</sub>	15.7	X	203.36967	25.45576	31.32298	4.13459	0.2235570	0.22105731	2.7089405	20	6 2.4	20.3
129887 1999 <i>TT</i> <sub>17</sub>	15.8	X	133.06940	106.90999	25.45777	2.70992	0.0824270	0.22231775	2.6986918	20	6 29.3	19.8
129888 1999 <i>TF</i> <sub>21</sub>	16.7	X	225.23957	261.28760	206.85791	22.30084	0.0557743	0.37413212	1.9074480	20	10 7.6	18.6
129889 1999 <i>TH</i> <sub>25</sub>	15.5	X	300.67566	332.44110	16.32123	12.73839	0.1794842	0.22752050	2.6573924	20	6 29.9	18.9
129890 1999 <i>TE</i> <sub>29</sub>	16.5	X	58.99216	173.74042	202.45182	5.18469	0.1721805	0.24709743	2.5151114	20	—	—
129891 1999 <i>TO</i> <sub>29</sub>	16.0	X	45.26888	136.26395	200.66909	4.65743	0.2044690	0.24171956	2.5522792	20	12 26.4	19.7
129892 1999 <i>TS</i> <sub>34</sub>	15.4	X	298.54056	346.53594	31.16903	15.85598	0.1540556	0.23050479	2.6344062	20	8 20.4	18.7
129893 1999 <i>TK</i> <sub>34</sub>	15.8	X	113.31840	284.03104	206.42378	21.47462	0.1366869	0.36153506	1.9515025	20	1 10.5	18.6
129894 1999 <i>TK</i> <sub>35</sub>	16.4	X	192.59906	113.32146	198.12507	14.22012	0.2583907	0.25915225	2.4364980	20	6 16.2	19.9
129895 1999 <i>TM</i> <sub>35</sub>	16.3	X	20.17910	85.56153	190.24315	22.01999	0.0531562	0.37227435	1.9137886	20	8 21.5	18.3
129896 1999 <i>TP</i> <sub>35</sub>	15.2	X	269.06442	192.50743	189.94641	28.86712	0.1661150	0.22700007	2.6614525	20	6 28.8	19.6
129897 1999 <i>TV</i> <sub>35</sub>	16.1	X	15.09320	176.66468	192.21481	14.82456	0.1422609	0.24070284	2.5594613	20	12 19.9	19.6
129898 Sanfordselznick	16.4	X	37.72063	89.50929	183.45760	21.34853	0.0588095	0.37241166	1.9133182	20	9 22.6	17.9
129899 1999 <i>TC</i> <sub>41</sub>	15.6	X	143.41602	292.48344	179.50643	21.69896	0.0503920	0.22422771	2.6833451	20	6 12.9	19.9
129900 1999 <i>TE</i> <sub>44</sub>	15.6	X	322.28864	225.56727	342.44047	3.83448	0.0113691	0.21065257	2.7974234	20	2 17.2	19.4
129901 1999 <i>TM</i> <sub>53</sub>	15.3	X	69.05070	259.25068	13.80504	14.92688	0.1778870	0.23611926	2.5924782	20	10 26.1	19.2
129902 1999 <i>TO</i> <sub>61</sub>	16.0	X	175.78625	124.65567	340.25357	3.42084	0.0804986	0.22633773	2.6664222	20	7 12.0	19.9
129903 1999 <i>TO</i> <sub>64</sub>	15.9	X	262.97914	348.85418	331.72174	1.57169	0.0901538	0.22174197	2.7033615	20	4 12.6	19.6
129904 1999 <i>TF</i> <sub>69</sub>	15.8	X	40.29221	276.53652	345.69460	2.36147	0.0994671	0.22889113	2.6467732	20	8 26.3	19.1
129905 1999 <i>TV</i> <sub>69</sub>	16.7	X	342.35272	126.24401	227.55362	1.57413	0.0169453	0.23245774	2.6196306	20	9 26.5	20.1
129906 1999 <i>TF</i> <sub>78</sub>	16.2	X	43.67796	341.10543	358.96468	3.14255	0.2114005	0.24436731	2.5338096	20	12 30.5	19.8
129907 1999 <i>TN</i> <sub>78</sub>	16.3	X	237.81504	218.47776	167.24785	2.19011	0.0936882	0.22395712	2.6855061	20	6 7.3	20.2
129908 1999 <i>TN</i> <sub>89</sub>	16.2	X	336.46037	293.94062	58.71917	4.27530	0.2821304	0.23445907	2.6047019	20	9 23.9	17.7
129909 1999 <i>TH</i> <sub>97</sub>	15.1	X	111.55809	16.81352	59.14785	9.99803	0.2983030	0.21083570	2.7958034	20	4 20.6	19.6
129910 1999 <i>TO</i> <sub>97</sub>	15.4	X	278.83457	320.88020	389.56971	5.48478	0.2091825	0.23070584	2.6328755	20	8 18.3	18.7
129911 1999 <i>TH</i> <sub>99</sub>	15.5	X	283.74995	168.81753	162.49662	14.64551	0.2619781	0.22520668	2.6755631	20	5 2.2	19.5
129912 1999 <i>TK</i> <sub>99</sub>	15.2	X	75.32246									



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>
129921 1999 TF <sub>123</sub>	16.1	X	297.85461	296.63610	80.33483	2.63981	0.1516894	0.23007070	2.6377189	20	8 10.1	18.9
129922 1999 TD <sub>124</sub>	15.6	X	200.00059	218.19960	168.63980	6.61042	0.1457799	0.21833586	2.7314044	20	4 28.1	20.0
129923 1999 TJ <sub>126</sub>	15.8	X	343.57819	158.49318	190.19776	14.53460	0.1339082	0.23397115	2.6083218	20	9 25.7	18.5
129924 1999 TK <sub>127</sub>	16.2	X	342.76379	176.01801	185.12440	4.18584	0.2061135	0.23475641	2.6025020	20	10 19.4	18.2
129925 1999 TM <sub>127</sub>	15.7	X	49.83218	86.11529	198.02297	3.87182	0.0559709	0.23409382	2.6074105	20	10 2.2	19.0
129926 1999 TO <sub>127</sub>	15.9	X	12.26290	195.92696	191.49048	10.68419	0.1305352	0.24102338	2.5571916	20	—	—
129927 1999 TU <sub>127</sub>	16.4	X	355.12352	241.25220	148.33231	3.55853	0.2714157	0.23869608	2.5737865	20	—	—
129928 1999 TN <sub>131</sub>	15.5	X	94.37399	246.72448	211.84219	4.38067	0.1405838	0.21357787	2.7718212	20	4 6.7	19.3
129929 1999 TV <sub>141</sub>	15.7	X	53.45997	118.55887	196.10800	5.43269	0.1101360	0.23876006	2.5733267	20	11 25.8	19.3
129930 1999 TX <sub>141</sub>	16.7	X	153.32335	170.18763	177.32090	1.06875	0.2041891	0.25660568	2.4525914	20	1 26.7	20.4
129931 1999 TV <sub>144</sub>	16.3	X	10.81857	101.74815	270.02078	2.64820	0.1967883	0.24020751	2.5629787	20	12 26.3	19.4
129932 1999 TB <sub>148</sub>	16.3	X	295.00755	43.71873	244.15414	3.77825	0.2166264	0.27016950	2.3698008	20	3 17.1	19.5
129933 1999 TE <sub>149</sub>	15.9	X	358.37825	170.99849	258.66700	2.44969	0.2136611	0.19574110	2.9377491	20	—	—
129934 1999 TA <sub>151</sub>	15.7	X	158.65042	20.18538	50.94760	3.99739	0.1759047	0.21697266	2.7428331	20	5 13.7	20.1
129935 1999 TJ <sub>153</sub>	15.3	X	231.54687	351.41626	14.25644	9.66762	0.1058026	0.22042069	2.7141540	20	5 1.2	19.3
129936 1999 TY <sub>153</sub>	15.8	X	296.40133	184.03314	194.87269	11.19681	0.1751725	0.22971372	2.6404509	20	8 2.2	19.0
129937 1999 TB <sub>156</sub>	15.7	X	26.43394	208.42222	167.75007	5.84793	0.1634198	0.24035037	2.5619630	20	—	—
129938 1999 TA <sub>163</sub>	16.2	X	81.80117	179.88154	171.34174	3.53060	0.1265082	0.24656023	2.5187633	20	—	—
129939 1999 TH <sub>163</sub>	15.9	X	76.47372	253.53716	64.45199	5.78559	0.1301407	0.24191553	2.5509007	20	12 27.7	19.6
129940 1999 TS <sub>166</sub>	16.2	X	243.34012	57.48090	268.75719	5.66433	0.1540994	0.26562021	2.3967826	20	3 17.0	19.9
129941 1999 TB <sub>170</sub>	15.5	X	71.93235	178.94550	209.75540	1.24525	0.0953001	0.20135305	2.8829066	20	—	—
129942 1999 TR <sub>171</sub>	16.2	X	247.68753	7.36278	30.90920	5.76752	0.0626490	0.22460261	2.6803583	20	7 11.2	19.9
129943 1999 TK <sub>174</sub>	16.1	X	45.19606	183.99376	165.36300	4.78062	0.2362028	0.24103455	2.5571126	20	—	—
129944 1999 TC <sub>182</sub>	15.6	X	134.40287	358.73885	216.81250	7.08801	0.1399033	0.23714374	2.5850063	20	10 19.1	19.5
129945 1999 TS <sub>184</sub>	14.9	X	181.07226	44.46998	351.31976	25.30162	0.1391285	0.21664973	2.7455580	20	4 8.7	19.7
129946 1999 TQ <sub>191</sub>	15.4	X	200.64121	10.39813	3.04884	12.25541	0.1983436	0.21641137	2.7475736	20	4 7.5	20.1
129947 1999 TR <sub>195</sub>	16.4	X	286.31141	26.08469	315.28078	1.38818	0.2692645	0.22501697	2.6770668	20	5 12.9	19.9
129948 1999 TL <sub>212</sub>	15.5	X	46.78020	264.53409	12.16561	11.54276	0.1716584	0.23328343	2.6134456	20	10 6.1	18.9
129949 1999 TG <sub>213</sub>	15.8	X	315.81636	270.80771	7.44018	21.22369	0.2332208	0.27162237	2.3613427	20	3 30.9	18.5
129950 1999 TH <sub>214</sub>	17.2	X	212.27580	94.20584	22.26396	20.30350	0.1138478	0.37349146	1.9096287	20	9 28.8	19.2
129951 1999 TV <sub>219</sub>	14.6	X	154.44832	218.10182	2.12472	9.81409	0.1587377	0.23872141	2.5736045	20	11 9.7	18.8
129952 1999 TW <sub>220</sub>	15.6	X	243.65873	89.70190	268.01295	5.57813	0.1347666	0.26853004	2.3794366	20	4 30.7	19.2
129953 1999 TE <sub>225</sub>	15.3	X	192.26614	124.20086	350.65228	8.07771	0.1345142	0.22977480	2.6399829	20	8 11.5	19.4
129954 1999 Corksauve	16.2	X	24.19689	278.61593	98.37041	4.82055	0.1226506	0.24156315	2.5533808	20	—	—
129955 1999 Eriksyrstad	15.4	X	269.48462	173.93938	204.19156	14.12886	0.2263168	0.22438644	2.6820795	20	6 16.6	19.5
129956 1999 TT <sub>255</sub>	16.3	X	34.38100	246.29220	185.74450	1.77609	0.0528394	0.20434497	2.8546974	20	—	—
129957 1999 TQ <sub>262</sub>	16.0	X	298.45285	169.78729	190.99398	5.01736	0.0926578	0.22994562	2.6386754	20	7 25.0	19.2
129958 1999 TV <sub>265</sub>	15.1	X	21.91426	47.99937	261.28965	13.30293	0.1342371	0.23586021	2.5943760	20	10 1.9	18.5
129959 1999 TW <sub>272</sub>	15.5	X	32.76686	297.80473	14.38226	14.01597	0.1548288	0.23543877	2.5974711	20	10 28.5	18.8
129960 1999 TP <sub>276</sub>	15.9	X	74.97072	243.57004	4.52632	7.28264	0.1648486	0.23340031	2.6125279	20	10 1.9	19.6
129961 1999 TP <sub>288</sub>	16.4	X	33.68185	202.98499	156.77034	2.19056	0.2202273	0.24068714	2.5595726	20	—	—
129962 1999 Williamverts	16.2	X	194.82694	94.62862	240.44236	5.68738	0.1606001	0.26259387	2.4151624	20	2 12.6	20.1
129963 1999 Marvinwalthall	16.4	X	253.52120	232.05621	86.82386	2.86580	0.1379029	0.26658458	2.3909988	20	3 24.3	19.7
129964 1999 TY <sub>314</sub>	16.0	X	45.58881	127.85389	208.29040	8.09219	0.1746397	0.23827204	2.5768393	20	12 21.1	19.7
129965 1999 UZ <sub>4</sub>	16.3	X	92.02059	279.01866	43.93035	15.29945	0.1457096	0.24300568	2.5432659	20	—	—
129966 1999 Michaelward	16.1	X	263.56481	314.72749	2.42608	3.92475	0.2401211	0.26735597	2.3863975	20	3 20.7	19.9
129967 1999 UL <sub>10</sub>	16.1	X	183.29699	67.54493	14.13422	20.74282	0.1118890	0.36224419	1.9489548	20	6 20.4	19.1
129968 1999 Mitchwhiteley	15.4	X	116.90601	18.52164	42.75585	8.78118	0.1998017	0.20972535	2.8056625	20	3 28.6	19.0
129969 1999 Bradwilliams	15.7	X	53.87295	335.51802	26.92263	5.28094	0.2761379	0.24379095	2.5378016	20	—	—
129970 1999 UH <sub>19</sub>	16.1	X	352.71072	331.88113	74.76506	0.71494	0.0334836	0.24013757	2.5634763	20	12 23.2	19.3
129971 1999 UM <sub>22</sub>	16.8	X	114.56679	93.08892	212.97868	13.22251	0.1778326	0.24549294	2.5260583	20	—	—
129972 1999 UF <sub>23</sub>	15.7	X	317.38529	334.04140	38.55591	13.20549	0.1775642	0.23146632	2.6271055	20	9 14.7	18.4
129973 1999 Michaeldaly	15.5	X	236.05890	202.50096	214.38859	12.58961	0.1819389	0.22532073	2.6746602	20	7 4.1	19.8
129974 1999 US <sub>33</sub>	16.1	X	302.10106	195.14311	35.80827	4.25834	0.3079737	0.21022982	2.8011724	20	2 17.8	19.9
129975 1999 UA <sub>36</sub>	15.7	X	124.74996	204.71660	4.69341	8.26811	0.1422063	0.23627037	2.5913727	20	10 2.3	19.7
129976 1999 UJ <sub>36</sub>	17.0	X	244.85908	67.44464	219.13645	3.21806	0.2988758	0.26525526	2.3989805	20	1 24.4	21.3
129977 1999 UK <sub>36</sub>	16.6	X	159.68688	38.42807	212.93730	4.02107	0.1436916	0.24760039	2.5117043	20	12 26.9	20.6
129978 1999 UC <sub>39</sub>	15.6	X	260.05858	92.58496	290.46902	12.41054	0.2072351	0.27337899	2.3512165	20	6 16.4	18.9
129979 1999 UF <sub>40</sub>	15.9	X	76.69170	319.55459	311.03358	3.22349	0.1124285	0.23560980	2.5962139	20	10 25.4	19.7
129980 1999 Catherinejohnson	15.9	X	294.24545	85.65033	256.48779	5.41190	0.2589763	0.27468884	2.3437361	20	5 26.1	18.5
129981 1999 UZ <sub>44</sub>	16.3	X	96.59180	160.99439	181.00633	2.77723	0.1641782	0.24563896	2.5250572	20	—	—
129982 1999 Jeffseabrook	15.5	X	28.93142	146.13863	245.27951	14.38333	0.1335256	0.24394444	2.5367369	20	—	—
129983 1999 UR <sub>48</sub>	16.0	X	246.36096	232.44559	70.21350	8.88821	0.2540949	0.26160126	2.4212678	20	2 20.5	20.3
129984 1999 UC <sub>51</sub>	15.5	X	341.69787	293.04169	111.13997	14.37719	0.1861505	0.23792944	2.5793123	20	12 19.8	18.0
129985 1999 Jimfreemantle	15.3	X	257.73372	335.70671	85.45532	10.08017	0.0929746	0.22738948	2.6584131	20	8 23.4	19.0
129986 1999 UP <sub>53</sub>	16.5	X	17.42001	262.29049	37.14484	3.18402	0.0799836	0.22921319	2.6442934	20	9 10.4	19.6
129987 1999 UL <sub>62</sub>	16.6	X	200.81437	96.68885	66.79000	21.83716	0.0693052	0.37658647	1.8991513	20	11 26.5	18.4
129988 1999 Camerondickinson	15.3	X	258.15443	12.09291	38.88766	15.17343	0.1352939	0.22819142	2.6521811	20	8 5.9	19.2
129989 1999 VS <sub>5</sub>	16.7	X	316.44514	160.13862	149.46211	1.14122	0.3740903	0.27396634	2.3478549	20	4 22.9	18.8
129990 1999 VW <sub>13</sub>	16.9	X	93.86164	261.55330	11.12735	20.06906	0.0327999	0.37951713	1.8893618	20	12 9.1	19.4
129991 1999 VL <sub>14</sub>	16.4	X	322.78392	317.89122	61.47196	23.32857	0.0831817	0.37231854	1.9136372	20	11 13.0	17.7
129992 1999 VQ <sub>16</sub>	15.9	X	21.97486	300.58258	355.14205	3.71802	0.0784734	0.23076030	2.6324612	20	9 11.2	18.9
129993 1999 VN <sub>18</sub>	15.8	X	252.69198	42.58121	271.49030	1.57576	0.1234410	0.26428000	2.4048787	20	3 16.2	19.2
129994 1999 VQ <sub>18</sub>	16.2	X	139.90645	249.81080	27.71890							

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>
130001 1999 VC <sub>34</sub>	15.7	X	9.60462	293.24368	58.15214	10.73131	0.1488778	0.23426877	2.6061123	20	11 18.0	18.4
130002 1999 VR <sub>35</sub>	15.4	X	178.93602	341.59896	63.57203	7.27580	0.2524087	0.21471518	2.7620247	20	5 1.9	20.2
130003 1999 VB <sub>39</sub>	16.2	X	60.35125	283.75762	54.46273	4.23906	0.3240732	0.24165681	2.5527211	20	—	—
130004 1999 VN <sub>42</sub>	16.6	X	5.98577	118.35755	256.30454	3.05370	0.0695375	0.23809262	2.5781336	20	12 3.5	19.7
130005 1999 VE <sub>43</sub>	16.1	X	100.71886	190.27324	86.22903	4.26446	0.1512633	0.23638212	2.5905559	20	12 1.9	20.1
130006 Imranaslam	16.0	X	193.30254	73.60338	256.51074	6.40671	0.2397244	0.26003837	2.4309597	20	2 7.4	20.3
130007 Frankteti	15.7	X	121.59708	60.15632	5.55383	7.84346	0.1561128	0.21140700	2.7907642	20	3 30.2	19.9
130008 1999 VU <sub>46</sub>	16.5	X	241.63374	17.54351	47.77022	22.87673	0.1111321	0.36901023	1.9250578	20	9 1.5	19.2
130009 1999 VH <sub>52</sub>	16.1	X	37.31099	313.69589	38.34366	12.55836	0.2306637	0.23949277	2.5680397	20	—	—
130010 1999 VR <sub>52</sub>	16.4	X	151.44314	217.43337	238.50157	19.19966	0.0911465	0.35928578	1.9596388	20	6 3.1	18.6
130011 1999 VP <sub>53</sub>	16.2	X	288.20579	11.62028	36.44467	4.19883	0.1803468	0.23103257	2.6303926	20	9 4.3	19.1
130012 1999 VR <sub>53</sub>	16.0	X	2.96603	352.38318	29.70281	1.19990	0.1210330	0.23857498	2.5746574	20	12 16.0	19.1
130013 1999 VB <sub>56</sub>	15.8	X	10.15973	159.75792	216.62753	9.04715	0.1363743	0.23871013	2.5736855	20	12 21.2	19.0
130014 1999 VZ <sub>56</sub>	16.1	X	77.22345	159.74796	165.43442	1.42687	0.1643753	0.24221934	2.5487672	20	—	—
130015 1999 VF <sub>57</sub>	16.2	X	278.90218	157.42146	220.70049	1.25776	0.0973964	0.22646926	2.6656096	20	7 19.7	19.7
130016 1999 VU <sub>59</sub>	15.7	X	1.87008	104.06082	222.14232	4.70316	0.1876393	0.23262825	2.6183503	20	10 2.9	18.2
130017 1999 VR <sub>66</sub>	16.5	X	275.65191	272.76925	104.32763	1.88970	0.1402031	0.22518843	2.6757077	20	7 6.9	20.0
130018 1999 VK <sub>67</sub>	16.0	X	250.01557	336.24698	58.81329	3.85550	0.1156674	0.22324860	2.6911850	20	7 1.5	19.7
130019 1999 VV <sub>68</sub>	16.1	X	103.51499	98.85422	232.12556	4.51453	0.1491171	0.24515937	2.5283492	20	—	—
130020 1999 VC <sub>69</sub>	16.3	X	301.21895	354.34892	39.39287	4.35318	0.1039851	0.23091839	2.6312596	20	9 16.9	19.4
130021 1999 VY <sub>74</sub>	15.7	X	238.05769	277.94985	198.24351	13.96883	0.1404760	0.23385687	2.6091715	20	9 28.9	19.2
130022 1999 VD <sub>77</sub>	15.9	X	63.32227	262.13982	161.66662	2.24095	0.0621769	0.20118065	2.8845533	20	1 2.3	19.5
130023 1999 VV <sub>77</sub>	15.1	X	53.69991	50.32532	26.68542	9.18451	0.1530445	0.20169956	2.8796039	20	1 14.8	18.5
130024 1999 VK <sub>80</sub>	15.4	X	199.05899	198.37397	206.36234	9.45012	0.1144010	0.21822170	2.7323569	20	5 19.6	19.7
130025 1999 VU <sub>80</sub>	15.5	X	31.39841	287.65990	31.96417	9.96227	0.1109917	0.23417864	2.6067809	20	11 1.1	18.7
130026 1999 VG <sub>84</sub>	16.4	X	156.69723	284.06339	16.75552	3.25252	0.1987692	0.25363013	2.4717364	20	—	—
130027 1999 VE <sub>88</sub>	15.2	X	204.68759	9.23765	59.12496	15.01859	0.0749735	0.21938002	2.7227306	20	6 25.3	19.3
130028 1999 VO <sub>90</sub>	16.4	X	73.49997	115.04290	208.53568	8.60682	0.2188637	0.24312630	2.5424246	20	—	—
130029 1999 VR <sub>93</sub>	15.4	X	97.61294	69.84643	29.96577	13.34975	0.1718250	0.21216507	2.7841126	20	4 17.8	19.3
130030 1999 VH <sub>95</sub>	16.0	X	279.98566	221.88000	206.55224	5.90091	0.0711330	0.23341216	2.6124845	20	10 3.5	19.2
130031 1999 VT <sub>96</sub>	16.2	X	20.90969	284.32152	58.22592	1.57694	0.0657264	0.23587352	2.5942785	20	11 11.3	19.4
130032 1999 VE <sub>98</sub>	15.4	X	128.35759	197.85189	48.96827	11.99365	0.1654373	0.23706629	2.5855693	20	11 20.7	19.6
130033 1999 VP <sub>98</sub>	15.7	X	141.59549	17.47049	226.07530	8.58190	0.0625233	0.23751380	2.5823205	20	11 30.4	19.4
130034 1999 VT <sub>99</sub>	15.5	X	315.44499	244.05627	48.54349	5.57316	0.1421815	0.22063910	2.7123625	20	5 10.1	18.8
130035 1999 VA <sub>123</sub>	16.0	X	53.69982	115.70314	202.04566	2.66421	0.2040445	0.23748421	2.5825351	20	12 11.2	19.7
130036 1999 VO <sub>125</sub>	16.6	X	74.23373	260.36977	46.84075	9.34784	0.1683699	0.23904324	2.5712940	20	12 14.5	20.6
130037 1999 VR <sub>125</sub>	15.9	X	40.88600	264.12627	46.89770	10.69719	0.1113287	0.23421616	2.6065025	20	11 4.1	19.3
130038 1999 VM <sub>127</sub>	15.9	X	240.57748	265.85087	170.94141	2.83682	0.0510521	0.22989193	2.6390862	20	8 23.8	19.4
130039 1999 VY <sub>136</sub>	16.7	X	325.60266	149.13036	234.19669	1.20692	0.0602401	0.23187979	2.6239816	20	10 12.6	19.8
130040 1999 VO <sub>137</sub>	16.9	X	70.95561	286.84480	47.09543	9.98207	0.1984896	0.24197344	2.5504936	20	—	—
130041 1999 VL <sub>140</sub>	15.6	X	135.90416	333.02387	222.64285	11.13113	0.1332392	0.23025446	2.6363153	20	9 22.1	19.9
130042 1999 VE <sub>147</sub>	16.2	X	61.59065	85.63442	230.83123	11.50815	0.1882365	0.23744457	2.5828224	20	12 15.4	20.2
130043 1999 VZ <sub>148</sub>	15.9	X	339.13025	34.86753	192.05373	2.45584	0.0022515	0.21175737	2.7876850	20	4 3.3	19.5
130044 1999 VP <sub>149</sub>	15.7	X	256.70754	159.54199	213.72350	5.76250	0.0299648	0.22023831	2.7156522	20	6 22.7	19.4
130045 1999 VZ <sub>157</sub>	15.9	X	87.92051	278.69873	44.79130	6.37417	0.1608210	0.24252180	2.5466476	20	—	—
130046 1999 VF <sub>159</sub>	15.7	X	262.68845	7.55110	32.91751	15.69017	0.1304672	0.22655346	2.6649491	20	7 28.3	19.6
130047 1999 VJ <sub>163</sub>	15.9	X	351.34640	318.94086	27.17484	3.48253	0.2317138	0.23378765	2.6096865	20	10 17.9	18.1
130048 1999 VG <sub>164</sub>	15.7	X	29.01199	106.02364	236.26315	13.40101	0.1344153	0.23664474	2.5886390	20	12 2.6	19.0
130049 1999 VP <sub>166</sub>	15.7	X	60.45383	295.32329	35.09792	6.53366	0.2106715	0.23974174	2.5662972	20	—	—
130050 1999 VL <sub>167</sub>	15.4	X	25.57918	278.21930	53.28608	13.09768	0.2318185	0.23523585	2.5989647	20	11 27.4	18.5
130051 1999 VK <sub>168</sub>	15.6	X	208.94704	52.65355	281.40521	4.21073	0.1700880	0.25870501	2.4393053	20	2 25.0	19.5
130052 1999 VO <sub>171</sub>	16.2	X	173.77786	135.63838	303.17942	1.69137	0.1564614	0.21667599	2.7453361	20	6 5.5	20.6
130053 1999 VV <sub>171</sub>	16.6	X	50.19185	1.94795	254.06961	18.32446	0.0432755	0.36795426	1.9287391	20	8 30.4	19.1
130054 1999 VM <sub>173</sub>	15.8	X	280.84025	314.29133	43.63511	6.56368	0.0484681	0.22235969	2.6983524	20	7 2.7	19.4
130055 1999 VY <sub>173</sub>	15.8	X	192.67859	49.80665	317.59069	5.56814	0.1464141	0.26243936	2.4161102	20	3 21.6	19.7
130056 1999 VA <sub>177</sub>	15.6	X	82.09206	140.90401	195.51116	12.79088	0.1780838	0.24440624	2.5335405	20	—	—
130057 1999 VA <sub>179</sub>	16.2	X	171.08947	248.34606	85.51360	13.71678	0.2579950	0.25644879	2.4535916	20	1 31.6	20.5
130058 1999 VV <sub>179</sub>	15.1	X	169.33021	211.34741	162.34928	9.52779	0.1563203	0.21096313	2.7946774	20	3 14.7	19.5
130059 1999 VT <sub>181</sub>	16.3	X	159.23347	191.64786	219.50670	3.85804	0.0320876	0.21336646	2.7736519	20	4 10.8	20.3
130060 1999 VO <sub>185</sub>	15.1	X	57.47011	37.17316	218.87686	7.89556	0.0951093	0.22716896	2.6601332	20	9 7.0	18.8
130061 1999 VR <sub>187</sub>	16.2	X	303.00348	248.00621	114.65085	3.16982	0.2218220	0.22780780	2.6551577	20	7 16.5	19.0
130062 1999 VO <sub>188</sub>	15.1	X	102.11471	274.96657	213.24717	8.42038	0.1139583	0.21335934	2.7737136	20	5 22.4	19.0
130063 1999 VZ <sub>191</sub>	16.4	X	349.89705	300.23187	43.29949	4.18453	0.1818956	0.23133993	2.6280623	20	10 5.9	18.8
130064 1999 VB <sub>192</sub>	15.7	X	36.01863	298.44727	27.32213	4.57711	0.2097482	0.23664680	2.5886239	20	11 30.8	19.1
130065 1999 VC <sub>192</sub>	15.3	X	196.31295	184.85301	47.54574	15.45819	0.0593932	0.24217048	2.5491100	20	—	—
130066 Timhaltigin	15.4	X	235.74052	354.03535	60.52394	12.04080	0.0708836	0.22346690	2.6894321	20	7 17.3	19.3
130067 Marius-Phaneuf	15.5	X	43.23015	271.13537	82.64352	14.97833	0.2442134	0.24063092	2.5599713	20	—	—
130068 1999 VH <sub>196</sub>	15.0	X	250.08350	234.42472	197.81146	26.05672	0.1391179	0.22694003	2.6619219	20	8 11.5	19.3
130069 Danielgaudreau	15.2	X	305.94376	149.30311	190.83483	15.12620	0.2434950	0.22598118	2.6694463	20	6 14.6	18.5
130070 1999 VK <sub>197</sub>	15.6	X	52.29846	323.19335	40.20322	15.70826	0.1377132	0.24425315	2.5345990	20	—	—
130071 Claudebrunet	16.0	X	26.33501	158.74511	186.61838	12.79079	0.2623329	0.23872278	2.5735946	20	12 22.4	19.7
130072 Ilincaignat	15.4	X	25.83582	349.23017	114.68953	9.98289	0.1755604	0.20159917	2.8805598	20	—	—
130073 1999 VH <sub>204</sub>	16.2	X	228.20845	53.91886	306.20286	3.77432	0.2097315	0.26653925	2.3912699	20	4 12.2	20.0
130074 1999 VG <sub>205</sub>	15.6	X	46.72468	38.29910	213.98915	3.4763						

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>
130081 1999 WM <sub>12</sub>	16.3	X	154.31975	90.82272	216.70322	2.02974	0.2255860	0.25294741	2.4761820	20	—	—
130082 1999 WP <sub>13</sub>	14.4	X	260.55694	102.60333	238.94508	12.54997	0.2212737	0.21845858	2.7303814	20	4 19.8	18.8
130083 1999 WV <sub>14</sub>	15.3	X	322.96318	60.40313	235.38513	5.54269	0.0038155	0.21904050	2.7255434	20	6 11.9	18.8
130084 1999 WM <sub>16</sub>	16.4	X	249.24789	181.03576	221.03778	5.38434	0.0789029	0.22396689	2.6854279	20	7 13.8	20.1
130085 1999 WX <sub>16</sub>	15.6	X	316.80035	265.69148	28.07493	8.32731	0.0533839	0.22254170	2.6968810	20	5 24.3	19.0
130086 1999 WW <sub>17</sub>	16.6	X	41.38820	144.20137	203.92954	0.65070	0.1497379	0.23933318	2.5692169	20	12 28.5	19.9
130087 1999 WA <sub>25</sub>	15.6	X	54.07570	230.01772	73.46638	14.10765	0.1742062	0.23433325	2.6056341	20	11 20.9	19.2
130088 Grantcunningham	15.7	X	357.23273	144.48858	226.50743	13.05851	0.1813372	0.23535021	2.5981227	20	11 29.5	18.4
130089 Saadatanwar	15.5	X	199.65610	357.74791	77.15646	11.76859	0.2454154	0.21975793	2.7196802	20	6 21.1	20.1
130090 Heatherbowles	15.8	X	76.78749	104.94727	245.54998	13.69426	0.1547794	0.24267087	2.5456046	20	—	—
130091 1999 XC <sub>10</sub>	16.4	X	76.91602	204.06953	96.92158	24.66736	0.0924256	0.37470024	1.9055195	20	—	—
130092 1999 XD <sub>13</sub>	15.6	X	286.59792	171.59419	187.22831	8.07432	0.2438260	0.22590490	2.6700472	20	6 10.9	19.1
130093 1999 XP <sub>14</sub>	15.4	X	204.60485	317.50007	23.67907	11.24063	0.2946747	0.26448318	2.4036470	20	3 6.4	19.8
130094 1999 XW <sub>14</sub>	16.6	X	109.56277	79.81120	90.32680	23.96851	0.0725233	0.36272765	1.9472226	20	8 2.1	19.1
130095 1999 XR <sub>16</sub>	14.8	X	37.57770	284.44525	78.73090	28.31528	0.2080131	0.23909544	2.5709197	20	—	—
130096 1999 XJ <sub>19</sub>	16.1	X	44.97211	298.10988	71.85790	3.08250	0.2655520	0.24416775	2.5351900	20	—	—
130097 1999 XW <sub>20</sub>	15.4	X	144.76388	30.67837	31.04791	14.27151	0.2272912	0.21427701	2.7657887	20	4 22.7	19.9
130098 1999 XM <sub>21</sub>	15.5	X	111.47939	268.84867	189.11155	7.27166	0.1962413	0.21109127	2.7935462	20	5 5.2	19.7
130099 1999 XU <sub>22</sub>	15.5	X	124.94882	12.09532	61.03681	10.95355	0.2762351	0.21112140	2.7932805	20	4 26.5	20.1
130100 1999 XY <sub>28</sub>	15.3	X	38.75880	338.06121	228.71957	10.89293	0.1049367	0.21529696	2.5710467	20	6 6.0	18.6
130101 1999 XM <sub>29</sub>	14.8	X	44.00102	283.88690	233.77148	16.06829	0.0854017	0.20913109	2.8109750	20	4 1.1	18.5
130102 1999 XO <sub>30</sub>	14.8	X	26.12752	246.93560	101.61196	14.55390	0.1869966	0.23538071	2.5978983	20	12 15.5	18.2
130103 1999 XR <sub>30</sub>	15.4	X	44.81461	226.41236	119.53426	8.34321	0.2278827	0.23747639	2.5825917	20	—	—
130104 1999 XB <sub>41</sub>	15.0	X	118.19563	231.93118	243.87851	8.13855	0.1116702	0.21489891	2.7604501	20	5 24.2	18.9
130105 1999 XW <sub>42</sub>	16.4	X	161.52290	155.65830	247.48924	1.24464	0.2099489	0.26080919	2.4261675	20	4 11.2	20.2
130106 1999 XT <sub>47</sub>	15.1	X	204.46294	240.40499	244.83122	13.65094	0.0318703	0.22764694	2.6564084	20	9 6.8	19.2
130107 1999 XS <sub>51</sub>	16.4	X	25.36395	287.49849	65.88575	3.66616	0.2664809	0.23766681	2.5812121	20	—	—
130108 1999 XQ <sub>58</sub>	15.2	X	68.96411	268.29358	78.38109	10.37727	0.1205318	0.24044006	2.5613259	20	—	—
130109 1999 XC <sub>65</sub>	15.7	X	281.44113	294.34225	80.92980	8.11203	0.0939304	0.22339819	2.6899835	20	7 21.1	19.1
130110 1999 XQ <sub>65</sub>	16.2	X	0.31328	223.41100	188.92472	1.55471	0.2591054	0.19141814	2.9818147	20	—	—
130111 1999 XR <sub>67</sub>	15.2	X	176.33703	20.72291	135.04773	2.95251	0.1368807	0.17779360	3.1322659	20	9 10.0	20.1
130112 1999 XF <sub>70</sub>	15.5	X	263.04787	319.05582	82.23372	10.25712	0.0600973	0.22318347	2.6917085	20	8 6.9	19.2
130113 1999 XY <sub>72</sub>	15.5	X	81.49988	128.29964	250.55023	7.31823	0.0538411	0.24417777	2.5351206	20	—	—
130114 1999 XS <sub>73</sub>	15.8	X	219.87860	185.62588	234.80104	0.97281	0.1855718	0.21989323	2.7184926	20	6 24.1	20.1
130115 1999 XO <sub>78</sub>	15.6	X	87.49121	161.69302	243.65467	1.09538	0.0494060	0.20085408	2.8876792	20	1 10.4	19.5
130116 1999 XH <sub>79</sub>	15.9	X	330.52228	279.83125	71.05427	3.67603	0.1293420	0.22737433	2.6585312	20	9 5.1	18.7
130117 1999 XD <sub>80</sub>	15.3	X	289.66517	102.72033	246.60607	4.06940	0.0789564	0.22063422	2.7124025	20	6 28.1	18.8
130118 1999 XR <sub>80</sub>	15.9	X	261.11429	152.06455	196.60073	3.28021	0.1112468	0.21751581	2.7382651	20	5 15.5	19.7
130119 1999 XH <sub>81</sub>	15.3	X	185.51058	14.64916	82.40792	15.59952	0.0671029	0.21898510	2.7260031	20	7 12.4	19.4
130120 1999 XH <sub>84</sub>	14.9	X	351.18466	279.01583	93.20445	13.45468	0.2040688	0.23141660	2.6274817	20	11 24.4	17.6
130121 1999 XH <sub>86</sub>	14.8	X	289.81874	94.82592	285.10113	9.42002	0.1676064	0.22285242	2.6943736	20	7 26.1	18.1
130122 1999 XZ <sub>90</sub>	15.5	X	209.02884	93.69970	267.52902	3.99395	0.2220384	0.25901411	2.4373642	20	3 28.3	19.7
130123 1999 XJ <sub>92</sub>	15.4	X	274.59548	236.25875	232.37018	2.56944	0.1842929	0.18365008	3.0653164	20	10 22.6	19.3
130124 1999 XJ <sub>105</sub>	15.9	X	154.38753	158.34247	208.80512	18.75653	0.1415276	0.35554355	1.9733654	20	4 6.9	19.0
130125 1999 XV <sub>105</sub>	14.7	X	351.85271	137.36560	253.89612	16.93726	0.2058693	0.23350553	2.6117881	20	12 19.9	17.3
130126 Stillmanchase	15.5	X	212.69301	8.67413	30.99781	10.95341	0.2547102	0.22003879	2.7172935	20	5 17.2	20.3
130127 Zoltanfarkas	15.5	X	129.65431	20.15661	91.89521	5.31935	0.0541210	0.21631652	2.7483767	20	5 27.1	19.4
130128 Tarafisher	15.1	X	318.51037	139.09407	252.27354	10.57522	0.1087753	0.18399043	3.0615349	20	9 25.8	19.1
130129 1999 XS <sub>127</sub>	16.4	X	264.18991	291.86445	129.32418	23.71185	0.1156142	0.37046932	1.9200000	20	9 25.9	18.4
130130 1999 XB <sub>133</sub>	14.7	X	319.81863	42.60213	317.48450	12.38061	0.1801864	0.22592483	2.6698903	20	8 20.4	17.2
130131 1999 XC <sub>133</sub>	15.0	X	24.16039	314.38786	44.48230	12.22582	0.1996541	0.23457687	2.6038298	20	12 26.4	18.5
130132 1999 XQ <sub>133</sub>	14.7	X	41.66532	271.93354	54.02740	15.21316	0.2283473	0.23194471	2.6234919	20	12 8.3	18.4
130133 1999 XP <sub>134</sub>	16.3	X	204.78160	79.08865	71.21880	22.31234	0.0935595	0.37542519	1.9030657	20	11 13.2	18.3
130134 1999 XR <sub>135</sub>	16.3	X	241.75731	127.04249	255.34669	18.13675	0.1062226	0.36223460	1.9489892	20	6 6.9	18.4
130135 1999 XF <sub>136</sub>	16.3	X	283.49881	56.18298	60.54454	22.22220	0.0920084	0.37625991	1.9002501	20	—	—
130136 1999 XP <sub>137</sub>	15.5	X	315.31162	160.47697	220.00161	13.22070	0.1261228	0.22993879	2.6387275	20	9 13.4	18.6
130137 1999 XT <sub>137</sub>	15.9	X	19.50028	324.02855	45.73103	8.59574	0.2031159	0.23862809	2.5742754	20	—	—
130138 1999 XT <sub>145</sub>	15.5	X	260.38525	244.54253	65.94399	4.88491	0.0881511	0.21385726	2.7694065	20	3 31.4	19.5
130139 1999 XF <sub>148</sub>	15.9	X	25.35033	25.08620	83.32816	1.93709	0.1153345	0.20092473	2.8870022	20	1 4.1	19.1
130140 1999 XC <sub>150</sub>	15.6	X	87.32157	36.51465	240.64985	6.86528	0.1792226	0.23444224	2.6048266	20	11 21.6	19.6
130141 1999 XZ <sub>153</sub>	15.7	X	359.32944	131.47481	235.24294	13.72446	0.1893565	0.23354224	2.6115144	20	11 27.6	18.3
130142 1999 XP <sub>157</sub>	15.6	X	167.48064	204.13563	186.45937	3.50810	0.1933365	0.21017326	2.8016749	20	4 3.2	20.1
130143 1999 XC <sub>177</sub>	14.8	X	76.86894	21.92921	11.24902	8.32764	0.2312605	0.24396219	2.5366139	20	—	—
130144 1999 XQ <sub>182</sub>	14.4	X	46.55495	45.43077	297.81462	12.66004	0.2015556	0.23817998	2.5775032	20	—	—
130145 1999 XD <sub>186</sub>	15.0	X	91.96497	293.02370	17.39200	7.33477	0.2012916	0.23901569	2.5714916	20	—	—
130146 1999 XS <sub>191</sub>	14.8	X	254.90678	211.45252	331.59616	8.42650	0.0322049	0.19105090	2.9856346	20	—	—
130147 1999 XF <sub>199</sub>	15.4	X	156.28928	42.28865	47.12899	14.79602	0.1548612	0.21433753	2.7652680	20	5 31.5	19.9
130148 1999 XT <sub>202</sub>	14.5	X	122.24602	262.74734	292.12425	29.21351	0.1797684	0.21944045	2.7222307	20	8 26.8	19.5
130149 1999 XZ <sub>204</sub>	15.2	X	208.55675	356.73102	62.54314	14.09746	0.1574557	0.21616658	2.7496475	20	6 12.5	19.6
130150 1999 XJ <sub>206</sub>	15.0	X	243.60527	335.25541	69.94316	15.37477	0.1529761	0.21832326	2.7315095	20	7 1.8	19.1
130151 1999 XB <sub>209</sub>	15.0	X	329.84450	68.13699	306.32208	12.79194	0.1487114	0.22992716	2.6388165	20	9 28.4	17.9
130152 1999 XV <sub>213</sub>	15.2	X	266.30813	268.10540	95.67328	15.64365	0.2119189	0.22111396	2.7084778	20	5 30.0	19.3
130153 1999 XA <sub>217</sub>	16.5	X	120.03784	245.28982	101.69054	3.74806	0.1991309	0.24386853	2.5372634	20	—	—
130154 1999 XQ <sub>220</sub>	15.3	X	151.51873	306.72188	109.27895							

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>
130161 Iankubik	15.5 <sup>m</sup>	X	147.81880	44.17813	335.99811	1.29924	0.1250198	0.20648816	2.8349100	20	2 28.4	19.8
130162 1999 YM	16.7	X	252.42371	333.85900	115.07689	25.54406	0.0757053	0.37143955	1.9166550	20	11 4.8	19.2
130163 1999 YX <sub>5</sub>	16.1	X	255.58657	73.31067	336.91160	18.48199	0.1166942	0.36928130	1.9241156	20	8 16.2	17.8
130164 1999 YW <sub>9</sub>	16.0	X	267.08251	195.98082	123.81642	2.89786	0.1869214	0.21722014	2.7407494	20	4 6.6	20.1
130165 1999 YV <sub>11</sub>	15.7	X	334.22473	112.18644	246.00917	1.73798	0.1207285	0.22838724	2.6506649	20	9 20.1	18.4
130166 1999 YL <sub>17</sub>	16.2	X	276.36108	236.22345	200.92678	0.63734	0.1553963	0.17798816	3.1299830	20	9 18.6	20.1
130167 1999 YV <sub>27</sub>	14.8	X	301.91504	21.64244	46.80690	16.64188	0.0863839	0.18075584	3.0979507	20	10 27.1	18.8
130168 1999 YX <sub>27</sub>	14.4	X	76.80500	25.15575	14.69881	15.26952	0.1903783	0.24472167	2.5313630	20	—	—
130169 2000 AG <sub>1</sub>	14.9	X	295.08587	63.60094	300.38196	22.07937	0.2608878	0.27655538	2.3331786	20	7 3.2	17.4
130170 2000 AL <sub>4</sub>	14.6	X	223.95312	51.47853	126.02664	11.32442	0.0571859	0.18161861	3.0881317	20	12 2.8	19.2
130171 2000 AS <sub>6</sub>	14.9	X	250.65140	120.19918	293.35192	10.35916	0.1155479	0.17502412	3.1652216	20	7 23.1	19.4
130172 2000 AU <sub>6</sub>	15.7	X	209.66028	358.08984	53.82216	10.24553	0.1475890	0.21817426	2.7327530	20	6 4.9	20.0
130173 2000 AU <sub>10</sub>	15.0	X	290.02931	296.74586	75.30706	12.92065	0.1808049	0.22333773	2.6904689	20	7 15.4	18.4
130174 2000 AO <sub>18</sub>	15.3	X	208.73258	324.71627	80.87488	9.86747	0.1895162	0.21640091	2.7476622	20	5 26.9	19.8
130175 2000 AL <sub>20</sub>	14.9	X	190.69158	136.62096	317.08041	1.09365	0.1700256	0.16937368	3.2352320	20	7 8.1	20.3
130176 2000 AO <sub>28</sub>	15.0	X	316.18848	36.84280	89.93839	3.94602	0.1019903	0.18965985	3.0002155	20	—	—
130177 2000 AH <sub>36</sub>	15.9	X	149.60406	85.29322	341.14499	1.37106	0.2336542	0.21055623	2.7982767	20	5 2.7	20.5
130178 2000 AD <sub>39</sub>	15.4	X	200.87420	320.41882	93.85978	8.36896	0.2576753	0.21504079	2.7592358	20	5 28.9	20.3
130179 2000 AC <sub>45</sub>	15.8	X	262.96641	309.70021	88.69354	4.34160	0.1897842	0.22078486	2.7111685	20	7 11.4	19.4
130180 2000 AP <sub>52</sub>	15.2	X	70.63957	38.26829	304.92311	4.11826	0.1979476	0.24311972	2.5424705	20	—	—
130181 2000 AZ <sub>52</sub>	15.1	X	104.31549	135.58141	260.40737	13.81609	0.1421333	0.20442944	2.8539110	20	1 28.4	19.2
130182 2000 AZ <sub>55</sub>	15.6	X	313.67151	121.63058	10.32650	0.70081	0.2841855	0.18840830	3.0134873	20	—	—
130183 2000 AS <sub>58</sub>	14.6	X	266.12617	178.84822	308.69675	14.83630	0.2317025	0.18192599	3.0846523	20	10 20.1	19.1
130184 2000 AA <sub>60</sub>	14.5	X	290.28921	170.37390	310.37804	4.81800	0.2636220	0.18452890	3.0555762	20	11 19.9	17.8
130185 2000 AE <sub>66</sub>	14.7	X	243.49123	152.40086	322.26405	17.64027	0.1717954	0.17675239	3.1445549	20	9 15.4	19.6
130186 2000 AE <sub>70</sub>	14.6	X	64.10355	206.13273	237.87116	6.85860	0.1411820	0.20204041	2.8763643	20	2 4.0	18.1
130187 2000 AJ <sub>83</sub>	15.4	X	9.40224	243.91940	124.90858	6.66746	0.2143416	0.23308562	2.6149239	20	12 21.1	18.4
130188 2000 AZ <sub>85</sub>	14.8	X	336.13960	74.93458	284.91063	11.28125	0.2010866	0.22576783	2.6711278	20	9 19.6	17.5
130189 2000 AY <sub>86</sub>	15.3	X	250.77560	262.01064	227.59299	2.62771	0.1817124	0.18059907	3.0997431	20	10 17.7	19.8
130190 2000 AG <sub>90</sub>	12.0	X	1.01137	77.17424	292.10144	14.72236	0.0450636	0.08193350	5.2500291	20	10 8.9	18.9
130191 2000 AS <sub>92</sub>	16.7	X	156.00438	104.11045	320.33412	17.07214	0.1056068	0.35392345	1.9793829	20	4 12.9	19.6
130192 2000 AB <sub>93</sub>	16.6	X	353.55031	282.23071	286.62388	16.49873	0.0714229	0.35037257	1.9927339	20	2 26.3	18.8
130193 2000 AM <sub>95</sub>	14.6	X	212.37352	39.49066	129.77897	9.97745	0.2662046	0.17675145	3.1445661	20	10 22.5	20.0
130194 2000 AZ <sub>128</sub>	14.8	X	272.16559	154.60403	290.15256	16.85502	0.1823189	0.17875839	3.1209856	20	9 9.2	19.4
130195 2000 AM <sub>129</sub>	15.6	X	332.25430	179.38976	273.09965	6.66356	0.1601965	0.23477716	2.6023487	20	—	—
130196 2000 AW <sub>133</sub>	15.4	X	301.90764	36.14747	30.28579	3.11377	0.2868015	0.18379958	3.0636539	20	9 27.8	18.7
130197 2000 AL <sub>152</sub>	16.3	X	25.39631	110.44001	120.75681	24.29558	0.0566624	0.35907353	1.9604110	20	6 21.7	18.3
130198 2000 AY <sub>152</sub>	16.3	X	331.66427	216.63958	132.02390	24.20008	0.0815750	0.36751510	1.9302753	20	10 14.2	18.5
130199 2000 AC <sub>161</sub>	15.3	X	280.38298	72.50983	41.06166	5.21763	0.1472706	0.18256521	3.0774478	20	11 11.5	19.1
130200 2000 AG <sub>167</sub>	14.6	X	242.52350	285.23196	187.94504	8.78914	0.3068245	0.17900364	3.1181342	20	9 2.9	19.7
130201 2000 AE <sub>170</sub>	15.5	X	282.48119	166.39378	230.92442	13.70249	0.1084413	0.22591458	2.6699710	20	8 13.0	19.2
130202 2000 AJ <sub>171</sub>	15.1	X	179.78456	287.07311	128.81875	13.78043	0.1359604	0.21449092	2.7639495	20	5 17.9	19.8
130203 2000 AT <sub>176</sub>	15.8	X	329.21366	292.09503	173.87878	7.25921	0.1372196	0.23851669	2.5750769	20	—	—
130204 2000 AZ <sub>176</sub>	15.2	X	162.00923	204.58732	217.46005	9.73165	0.1590017	0.21173370	2.7878927	20	5 5.3	19.6
130205 2000 AY <sub>181</sub>	15.1	X	297.76369	291.32827	191.49470	7.91808	0.2104610	0.18617432	3.0375460	20	12 16.4	18.5
130206 2000 AK <sub>201</sub>	16.2	X	184.54648	66.60005	134.21719	26.21837	0.1250418	0.37433240	1.9067676	20	12 23.2	18.8
130207 2000 AV <sub>205</sub>	14.8	X	50.55635	340.58882	101.81038	10.19760	0.0876380	0.19613653	2.9337992	20	1 10.7	18.5
130208 2000 AB <sub>211</sub>	15.3	X	278.03092	245.69316	294.74329	0.68724	0.0342979	0.18929447	3.0040749	20	—	—
130209 2000 AZ <sub>214</sub>	15.7	X	23.12965	260.09949	92.14846	5.07787	0.2711972	0.23606618	2.5928668	20	12 28.1	18.9
130210 2000 AX <sub>217</sub>	16.1	X	32.80186	65.44111	285.68711	2.58453	0.0170770	0.23087033	2.6316248	20	11 29.9	19.5
130211 2000 AF <sub>219</sub>	15.1	X	134.04542	28.28895	301.11941	9.93742	0.1028240	0.19259034	2.9697033	20	—	—
130212 2000 AD <sub>220</sub>	15.2	X	110.65971	274.86829	79.35990	2.86102	0.0592917	0.19259331	2.9696726	20	—	—
130213 2000 AX <sub>222</sub>	15.9	X	154.00320	342.18652	93.74054	5.63716	0.0488965	0.21196978	2.7858223	20	5 9.9	20.0
130214 2000 AC <sub>227</sub>	16.4	X	229.88840	296.79813	195.33890	0.69270	0.1277786	0.17557879	3.1585518	20	10 4.0	21.1
130215 2000 AK <sub>228</sub>	15.5	X	340.76605	71.57184	134.76572	2.81254	0.0049737	0.20126782	2.8837204	20	3 11.7	19.5
130216 2000 AC <sub>238</sub>	15.1	X	311.43996	91.28283	253.85196	22.17610	0.3244417	0.27578053	2.3375468	20	6 17.7	17.0
130217 2000 AA <sub>239</sub>	15.9	X	308.11892	26.54244	115.13429	2.41932	0.1550599	0.18909296	3.0062088	20	—	—
130218 2000 AG <sub>239</sub>	15.3	X	227.66350	17.21299	106.21413	2.85933	0.1377246	0.17727204	3.1384067	20	9 21.6	20.0
130219 2000 AG <sub>242</sub>	14.7	X	263.46752	232.15544	261.58750	14.83953	0.2216485	0.18107801	3.0942750	20	10 30.0	19.1
130220 2000 AM <sub>245</sub>	14.5	X	43.63039	55.61809	115.62062	31.51335	0.0638333	0.21060191	2.7978720	20	5 6.9	18.9
130221 2000 AG <sub>248</sub>	16.5	X	240.57220	305.77812	66.16814	0.60875	0.0890272	0.21349933	2.7725010	20	5 23.7	20.4
130222 2000 BM	15.0	X	222.32050	258.97370	298.79055	7.51106	0.0261487	0.18479004	3.0526969	20	12 28.0	19.2
130223 2000 BA <sub>2</sub>	15.3	X	225.04659	0.16199	231.10515	0.28957	0.2232637	0.18446560	3.0562752	20	—	—
130224 2000 BL <sub>7</sub>	15.3	X	111.01389	324.13291	89.24389	3.05034	0.0749604	0.20082485	2.8879594	20	2 23.9	19.2
130225 2000 BW <sub>10</sub>	15.8	X	61.85605	358.99443	113.87848	6.87350	0.0782713	0.20290207	2.8682151	20	3 6.6	19.5
130226 2000 BT <sub>20</sub>	15.8	X	228.08962	279.61903	123.86713	13.92900	0.2233254	0.21670888	2.7450584	20	6 9.6	20.5
130227 2000 BC <sub>22</sub>	15.2	X	349.73788	141.45280	98.04845	1.88183	0.0421958	0.15929304	3.3703230	20	5 4.5	19.7
130228 2000 BV <sub>32</sub>	15.5	X	206.00948	112.11128	2.06013	0.57500	0.1343834	0.17260740	3.1946978	20	8 18.0	20.6
130229 Igorlazbin	15.4	X	252.07627	21.04348	107.50110	3.01917	0.1321127	0.17945189	3.1129396	20	10 26.4	19.8
130230 2000 BN <sub>36</sub>	15.7	X	21.81167	336.41420	113.44708	3.10910	0.0602762	0.19426922	2.9525690	20	—	—
130231 2000 BS <sub>38</sub>	15.9	X	308.97915	213.64510	131.23144	6.02552	0.1769165	0.21859769	2.7292229	20	7 7.7	19.0
130232 2000 BC <sub>50</sub>	16.1	X	123.56441	317.09236	111.27917	3.19318	0.0471450	0.20400612	2.8578576	20	3 24.9	20.0
130233 2000 CJ <sub>8</sub>	16.7	X	13.12231	153.88329	126.43382	24.19518	0.0535126	0.36241901	1.9483280	20	8 22.7	18.4
130234 2000 CR <sub>13</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>		
130241	2000	CE <sub>53</sub>	15.1	X	285.82824	24.25742	125.81874	10.81679	0.0611899	0.18693465	3.0293039	20	—	—
130242	2000	CR <sub>54</sub>	15.2	X	249.45011	347.22585	154.47062	13.94114	0.2506173	0.17857977	3.1230663	20	10 25.9	20.0
130243	2000	CA <sub>75</sub>	16.4	X	93.71367	311.96534	299.62637	19.22592	0.0558457	0.36684609	1.9326214	20	11 1.7	19.2
130244	2000	CD <sub>76</sub>	14.8	X	236.79095	211.91976	333.37643	14.55714	0.1370815	0.18055810	3.1002121	20	12 13.5	19.5
130245	2000	CO <sub>77</sub>	14.7	X	231.68669	217.18756	342.80366	16.73276	0.1030015	0.18201220	3.0836782	20	—	—
130246	2000	CN <sub>83</sub>	14.1	X	197.69790	240.79190	334.05672	25.81435	0.1874859	0.17864081	3.1223548	20	11 28.9	19.6
130247	2000	CE <sub>85</sub>	15.0	X	295.63152	61.40114	96.64096	2.62535	0.1515505	0.18623120	3.0369274	20	—	—
130248	2000	CV <sub>90</sub>	15.0	X	254.12031	287.90241	200.51555	9.28729	0.1461913	0.17958390	3.1114139	20	10 26.1	19.4
130249	Markminer		14.9	X	331.98690	256.71016	225.45396	13.13230	0.2304090	0.18992997	2.9973702	20	—	—
130250	2000	CD <sub>116</sub>	14.7	X	30.57938	349.43111	327.99185	8.78017	0.0760465	0.17476018	3.1684077	20	10 8.1	19.0
130251	2000	CM <sub>118</sub>	14.9	X	133.70591	248.34476	141.70298	10.04671	0.1247540	0.19953485	2.9003932	20	2 27.4	19.2
130252	2000	CN <sub>135</sub>	16.0	X	279.98131	71.04622	141.16766	2.18506	0.1401527	0.19041693	2.9922578	20	—	—
130253	2000	DV <sub>2</sub>	15.8	X	291.91959	246.28622	112.57954	1.94082	0.0311341	0.19241512	2.9715058	20	—	—
130254	2000	DJ <sub>14</sub>	15.2	X	225.06403	150.76109	345.02485	1.12781	0.1861463	0.19202744	2.9755039	20	1 31.9	20.3
130255	2000	DQ <sub>18</sub>	15.4	X	230.99288	353.65043	164.98104	5.96602	0.2159427	0.17876594	3.1208977	20	10 28.9	20.2
130256	2000	DG <sub>24</sub>	14.8	X	196.31567	221.50019	336.94575	9.49380	0.1714756	0.17757882	3.1347910	20	11 11.2	20.0
130257	2000	DK <sub>31</sub>	14.7	X	16.13374	215.09197	147.63776	10.14115	0.0912814	0.17837637	3.1254400	20	11 22.9	19.0
130258	2000	DL <sub>33</sub>	14.9	X	131.81713	84.91766	160.64733	11.45400	0.0942218	0.17477347	3.1682471	20	11 14.5	20.0
130259	2000	DV <sub>33</sub>	15.4	X	204.62824	208.66268	311.02505	3.82427	0.1454806	0.17461014	3.1702225	20	10 7.7	20.5
130260	2000	DP <sub>38</sub>	14.4	X	271.05382	273.37206	157.60365	15.86841	0.0449800	0.17212737	3.2006346	20	9 20.9	18.8
130261	2000	DV <sub>38</sub>	15.1	X	210.15380	82.10885	188.51917	3.18118	0.1742236	0.18685930	3.0301182	20	—	—
130262	2000	DY <sub>39</sub>	14.6	X	138.67898	139.38149	166.80776	10.70587	0.1205769	0.18352731	3.0666832	20	—	—
130263	2000	DP <sub>42</sub>	15.1	X	271.12938	85.47150	352.63126	5.03240	0.1214650	0.17445583	3.1720916	20	9 17.3	19.5
130264	2000	DZ <sub>44</sub>	15.3	X	12.62812	25.11880	332.15897	18.72435	0.1776279	0.22440047	2.6819677	20	11 28.0	18.9
130265	2000	DB <sub>48</sub>	15.1	X	173.55499	279.28374	346.65989	5.95444	0.1490248	0.18127694	3.0920108	20	—	—
130266	2000	DF <sub>50</sub>	16.1	X	297.54842	265.03959	147.55913	7.94110	0.0746553	0.22198187	2.7014134	20	10 9.5	19.4
130267	2000	DK <sub>53</sub>	15.4	X	175.56616	260.65399	169.97760	11.21561	0.2813765	0.21071577	2.7968641	20	5 30.7	20.7
130268	2000	DP <sub>54</sub>	14.8	X	231.39211	23.31826	161.88301	11.37867	0.0392930	0.18033662	3.1027499	20	12 20.9	19.4
130269	2000	DU <sub>54</sub>	15.5	X	176.07406	46.38821	167.53129	1.78604	0.1146619	0.17561312	3.1581403	20	11 17.4	20.3
130270	2000	DZ <sub>54</sub>	15.2	X	322.75829	73.61015	356.15260	1.64227	0.1862382	0.18085861	3.0967769	20	11 23.8	18.5
130271	2000	DJ <sub>60</sub>	15.3	X	201.85734	48.20050	130.17220	1.27219	0.0609410	0.17533113	3.1615256	20	11 5.6	20.0
130272	2000	DY <sub>60</sub>	15.0	X	195.26320	71.65562	132.07718	2.00937	0.1097698	0.17691383	3.1426416	20	11 24.6	19.9
130273	2000	DV <sub>64</sub>	15.5	X	298.94852	310.54669	180.39334	4.45949	0.1629895	0.18323990	3.0698891	20	—	—
130274	2000	DT <sub>65</sub>	15.4	X	166.95131	38.78749	195.02428	2.17367	0.0920148	0.17714385	3.1399205	20	12 2.7	20.2
130275	2000	DD <sub>70</sub>	15.3	X	110.20053	305.75137	73.52918	2.13511	0.0574151	0.19015301	2.9950258	20	1 10.4	19.5
130276	2000	DY <sub>76</sub>	16.9	X	128.51617	85.21030	171.15097	6.07232	0.1630343	0.31921537	2.1203791	20	12 17.5	20.1
130277	2000	DT <sub>79</sub>	14.9	X	246.31596	147.05038	14.56911	4.87158	0.1003135	0.18160820	3.0882497	20	12 1.2	19.2
130278	2000	DZ <sub>82</sub>	15.0	X	327.91614	124.79966	356.66729	7.22006	0.0526578	0.18714900	3.0269904	20	—	—
130279	2000	DO <sub>87</sub>	14.4	X	59.19445	164.47146	132.77792	21.15132	0.1108100	0.17259397	3.1948634	20	11 5.2	19.3
130280	2000	DJ <sub>103</sub>	14.9	X	250.61142	135.24974	6.62830	13.93210	0.1037942	0.17810765	3.1285829	20	11 7.7	19.4
130281	2000	EM	15.4	X	324.72894	70.70330	19.66080	5.66228	0.1519276	0.18172594	3.0869157	20	12 25.7	19.0
130282	2000	EZ <sub>2</sub>	15.7	X	194.64586	124.89989	226.48145	0.99619	0.1139593	0.19791317	2.9162153	20	3 10.2	20.4
130283	Elizabethgraham		15.1	X	279.69261	88.18038	52.90841	17.16858	0.0669199	0.17901605	3.1179901	20	12 22.4	19.4
130284	2000	EL <sub>17</sub>	15.1	X	262.68928	350.06200	178.76366	6.60613	0.2014791	0.18135029	3.0911770	20	12 17.5	19.2
130285	2000	EW <sub>18</sub>	14.8	X	158.97021	112.31731	146.24514	10.81296	0.0687100	0.17984466	3.1084056	20	12 24.8	19.7
130286	2000	EN <sub>22</sub>	15.7	X	77.45272	233.72588	153.23641	3.88791	0.0977290	0.19085793	2.9876467	20	—	—
130287	2000	EW <sub>27</sub>	14.3	X	292.55321	272.74878	129.07886	19.49684	0.1382437	0.17287349	3.1914187	20	9 1.3	18.5
130288	2000	ED <sub>35</sub>	14.9	X	268.36098	329.48455	196.46162	9.45881	0.2075602	0.18339886	3.0681150	20	12 21.1	18.9
130289	2000	EX <sub>35</sub>	15.2	X	217.24953	124.59695	197.29187	1.57683	0.1136779	0.19577104	2.9374496	20	2 25.9	19.8
130290	2000	EO <sub>39</sub>	14.8	X	229.27852	168.30672	11.50184	7.95936	0.1510877	0.17718794	3.1393996	20	11 24.8	19.6
130291	2000	ES <sub>39</sub>	14.9	X	305.43891	0.59984	121.86766	2.15701	0.1315568	0.18139441	3.0906758	20	—	—
130292	2000	ER <sub>41</sub>	14.8	X	195.32993	185.11309	20.17958	9.59585	0.0582714	0.17466578	3.1695493	20	11 28.0	19.5
130293	2000	EH <sub>44</sub>	15.0	X	214.11394	241.60538	309.69880	2.53453	0.1148397	0.17621280	3.1509710	20	11 27.7	19.6
130294	2000	EA <sub>59</sub>	15.4	X	267.11629	296.14665	173.11419	0.36240	0.1542442	0.17957015	3.1115727	20	10 17.3	19.7
130295	2000	EF <sub>60</sub>	15.5	X	115.95544	290.37665	322.76329	0.79464	0.2762576	0.16801153	3.2526949	20	11 13.5	21.2
130296	2000	EF <sub>62</sub>	15.6	X	221.23865	16.47791	155.45231	1.49230	0.1317075	0.17558928	3.1584261	20	11 11.3	20.3
130297	2000	ET <sub>62</sub>	14.5	X	114.22684	108.01814	176.59194	25.29804	0.2247930	0.17193742	3.2029914	20	12 16.5	20.4
130298	2000	EA <sub>68</sub>	14.4	X	79.72276	121.35653	179.16349	14.38619	0.1238359	0.17118401	3.2123825	20	11 27.4	19.4
130299	2000	EQ <sub>68</sub>	14.7	X	127.50507	67.47172	185.08216	12.51989	0.1045365	0.17098794	3.2148378	20	11 17.2	19.8
130300	2000	EV <sub>69</sub>	14.7	X	128.95514	284.51545	11.99683	9.61993	0.0596729	0.17722955	3.1389083	20	—	—
130301	2000	EP <sub>71</sub>	15.5	X	108.64710	170.32638	176.98250	2.79712	0.1193089	0.18507042	3.0496128	20	—	—
130302	2000	EH <sub>78</sub>	15.3	X	208.63519	103.92585	45.70314	2.50759	0.2275153	0.17422461	3.1748976	20	9 26.1	20.6
130303	2000	EO <sub>79</sub>	14.6	X	196.74155	245.40790	347.76744	16.96051	0.0234367	0.18204188	3.0833430	20	—	—
130304	2000	EY <sub>82</sub>	14.5	X	155.82979	219.38200	13.21717	17.35323	0.1281805	0.17434975	3.1733782	20	11 14.2	19.8
130305	2000	EW <sub>88</sub>	14.6	X	327.21376	290.83798	138.52963	17.56073	0.1482923	0.18092615	3.0960062	20	12 6.3	18.5
130306	2000	EN <sub>96</sub>	14.8	X	191.94441	54.09095	155.02476	10.64853	0.0978389	0.17490897	3.1666105	20	11 29.7	19.8
130307	2000	EP <sub>102</sub>	16.5	X	356.87545	203.09010	193.57832	3.02108	0.1888779	0.22683957	2.6627078	20	12 31.7	19.4
130308	2000	EZ <sub>102</sub>	14.5	X	174.27610	170.59558	53.65411	17.01156	0.1558999	0.17426423	3.1744163	20	11 24.1	19.7
130309	2000	EM <sub>103</sub>	14.6	X	238.68836	62.44662	91.50245	19.76340	0.2145618	0.17718079	3.1394842	20	11 6.4	19.6
130310	2000	EP <sub>103</sub>	14.2	X	178.93385	151.13689								

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>
130321 2000 <i>EW</i> <sub>163</sub>	15.2	X	177.00003	80.85648	143.53715	3.00943	0.1820585	0.17511689	3.1641035	20	11 27.3	20.4
130322 2000 <i>EO</i> <sub>166</sub>	15.3	X	168.25913	172.38166	0.00512	19.48117	0.0656357	0.36548286	1.9374241	20	10 14.6	17.7
130323 2000 <i>ED</i> <sub>169</sub>	14.6	X	291.06488	72.09080	53.62594	12.38197	0.1935038	0.18266564	3.0763197	20	12 7.1	18.1
130324 2000 <i>EC</i> <sub>170</sub>	14.8	X	212.02311	0.80148	152.16473	29.93073	0.1904235	0.17383585	3.1796292	20	10 9.6	20.2
130325 2000 <i>EV</i> <sub>178</sub>	14.2	X	134.98436	180.03601	114.09296	17.06009	0.0402190	0.18235445	3.0798186	20	—	—
130326 2000 <i>EJ</i> <sub>183</sub>	15.2	X	244.60034	57.35136	134.55879	16.34009	0.1284644	0.18163042	3.0879978	20	—	—
130327 2000 <i>EU</i> <sub>189</sub>	15.7	X	232.73451	42.39572	200.57500	3.51440	0.0698220	0.18724570	3.0259481	20	—	—
130328 2000 <i>FT</i> <sub>6</sub>	15.3	X	81.53060	184.70603	200.45607	7.67226	0.0996931	0.18384460	3.0631538	20	—	—
130329 2000 <i>FG</i> <sub>11</sub>	14.6	X	272.57868	170.27251	23.96802	12.52908	0.1441560	0.18652665	3.0337197	20	—	—
130330 2000 <i>FK</i> <sub>11</sub>	14.7	X	205.48132	109.86309	87.47039	11.13628	0.1819010	0.17754681	3.1351679	20	11 22.4	19.7
130331 2000 <i>FJ</i> <sub>14</sub>	15.6	X	318.40923	80.38464	32.40988	1.84721	0.1474373	0.18140591	3.0905452	20	—	—
130332 2000 <i>FC</i> <sub>23</sub>	14.5	X	164.52189	225.48626	36.54846	27.65946	0.1189585	0.17691745	3.1425987	20	12 30.0	19.9
130333 2000 <i>FT</i> <sub>23</sub>	14.7	X	178.51292	94.67189	156.34648	17.52297	0.0971708	0.17696076	3.1420860	20	—	—
130334 2000 <i>FD</i> <sub>24</sub>	14.1	X	133.40012	238.03180	49.70825	26.05590	0.2762201	0.17296264	3.1903220	20	—	—
130335 2000 <i>FZ</i> <sub>26</sub>	14.8	X	217.80668	249.20432	13.01780	22.35285	0.2939294	0.18116454	3.0932897	20	—	—
130336 2000 <i>FU</i> <sub>27</sub>	15.0	X	287.65495	289.45505	194.85352	25.80583	0.2193754	0.17992162	3.1075191	20	11 27.2	19.0
130337 2000 <i>FR</i> <sub>29</sub>	15.1	X	241.96199	151.75759	19.82955	7.46262	0.1071471	0.17698799	3.1417638	20	12 5.7	19.7
130338 2000 <i>FO</i> <sub>34</sub>	14.5	X	202.61232	100.14786	136.32971	17.09768	0.1041980	0.17913418	3.1166192	20	—	—
130339 2000 <i>FC</i> <sub>34</sub>	14.0	X	140.76505	257.22376	24.38411	26.76940	0.1520477	0.17474315	3.1686135	20	—	—
130340 2000 <i>FU</i> <sub>43</sub>	15.1	X	247.49978	23.91756	175.97752	17.47062	0.1586563	0.18099732	3.0995196	20	—	—
130341 2000 <i>FU</i> <sub>47</sub>	15.2	X	206.66019	124.82006	77.09797	9.59606	0.1659334	0.17527953	3.1621460	20	11 28.5	20.0
130342 2000 <i>FK</i> <sub>53</sub>	14.8	X	246.34749	29.87384	15.83635	17.03876	0.0930775	0.16011483	3.3587809	20	7 14.7	20.0
130343 2000 <i>FB</i> <sub>56</sub>	15.0	X	179.69360	82.76518	177.52024	15.90311	0.2047157	0.17377402	3.1372036	20	—	—
130344 2000 <i>FL</i> <sub>57</sub>	15.0	X	10.32612	19.79514	103.29792	11.71101	0.0566385	0.18995599	2.9970965	20	1 4.5	18.8
130345 2000 <i>FQ</i> <sub>57</sub>	14.7	X	315.13117	131.63104	17.83838	11.86205	0.0071659	0.18454162	3.0554358	20	—	—
130346 2000 <i>FA</i> <sub>61</sub>	15.3	X	318.03009	308.33856	173.75112	17.55988	0.1601409	0.18234374	3.0799392	20	—	—
130347 2000 <i>FV</i> <sub>63</sub>	14.6	X	267.53703	68.02366	48.36379	10.17620	0.0586094	0.17478746	3.1680780	20	11 8.3	18.8
130348 2000 <i>FJ</i> <sub>72</sub>	16.4	X	217.50928	157.28568	15.08444	1.18416	0.1293908	0.17554084	3.1590071	20	11 7.6	21.0
130349 2000 <i>FC</i> <sub>73</sub>	14.9	X	208.07467	111.60938	102.07792	7.53707	0.1025946	0.17791167	3.1308801	20	12 19.7	19.5
130350 2000 <i>GS</i> <sub>4</sub>	15.7	X	54.25709	214.32097	36.86491	22.35331	0.0504440	0.35638115	1.9702722	20	9 24.7	18.1
130351 2000 <i>GQ</i> <sub>16</sub>	14.9	X	196.37894	88.05020	193.23915	13.34630	0.1095449	0.18353307	3.0666191	20	—	—
130352 2000 <i>GU</i> <sub>19</sub>	14.9	X	76.05881	88.39705	194.39761	12.16985	0.0906041	0.16912579	3.2383925	20	10 17.2	19.5
130353 2000 <i>GD</i> <sub>21</sub>	15.1	X	223.56543	20.79631	208.79921	4.66690	0.0805282	0.18091716	3.0961088	20	—	—
130354 2000 <i>GF</i> <sub>25</sub>	15.2	X	315.36221	247.33960	216.16836	1.08316	0.0749721	0.17831779	3.1261244	20	12 26.6	19.3
130355 2000 <i>GG</i> <sub>35</sub>	15.1	X	316.32049	240.36916	203.13936	8.67494	0.0675062	0.17506002	3.1647888	20	12 3.4	19.3
130356 2000 <i>GW</i> <sub>43</sub>	14.8	X	160.51927	25.91320	195.85438	12.81759	0.1079456	0.17075687	3.2177373	20	11 12.4	19.9
130357 2000 <i>GD</i> <sub>47</sub>	15.3	X	196.28758	327.67790	224.13851	2.03847	0.1478569	0.17240192	3.1972357	20	11 7.7	20.2
130358 2000 <i>GT</i> <sub>61</sub>	14.9	X	135.50151	93.54974	206.14482	15.50218	0.1042603	0.17615893	3.1516134	20	—	—
130359 2000 <i>GQ</i> <sub>65</sub>	14.0	X	157.64395	63.68843	207.65183	22.45317	0.2492179	0.17304279	3.1893367	20	12 29.2	19.9
130360 2000 <i>GW</i> <sub>70</sub>	15.0	X	274.68934	286.87891	215.81245	8.69934	0.0514265	0.17530288	3.1618652	20	12 19.8	19.4
130361 2000 <i>GN</i> <sub>86</sub>	15.4	X	209.73391	85.95462	124.85712	13.60758	0.2327285	0.17735083	3.1374771	20	12 7.6	20.6
130362 2000 <i>GY</i> <sub>87</sub>	14.2	X	263.81741	83.55915	65.10186	10.88196	0.1794256	0.17771133	3.1332326	20	11 26.4	18.5
130363 2000 <i>GH</i> <sub>93</sub>	14.5	X	167.42695	146.43681	148.28002	13.18657	0.1997504	0.17845611	3.1245089	20	—	—
130364 2000 <i>GJ</i> <sub>97</sub>	14.7	X	126.11303	261.93507	33.05911	10.58920	0.0763397	0.17732558	3.1737749	20	—	—
130365 2000 <i>GV</i> <sub>100</sub>	15.0	X	207.08779	114.74261	139.95375	5.14162	0.0733890	0.18267015	3.0762691	20	—	—
130366 2000 <i>GT</i> <sub>116</sub>	15.4	X	236.40314	248.61191	199.01384	3.82958	0.0729196	0.16774725	3.2561103	20	8 22.3	20.1
130367 2000 <i>GS</i> <sub>118</sub>	15.5	X	323.78844	185.96382	186.33246	10.51628	0.0504782	0.16812769	3.2511966	20	9 13.6	19.9
130368 2000 <i>GF</i> <sub>121</sub>	15.4	X	300.97294	55.05638	9.73624	0.48416	0.1610716	0.17227417	3.1988161	20	10 8.3	19.0
130369 2000 <i>GI</i> <sub>124</sub>	14.3	X	137.86732	117.15521	205.84953	20.67556	0.3589556	0.17308967	3.1887609	20	1 4.7	20.1
130370 2000 <i>GP</i> <sub>129</sub>	15.6	X	285.97479	244.77550	192.63487	15.92822	0.2301407	0.17373572	3.1808508	20	9 19.4	19.6
130371 2000 <i>GZ</i> <sub>147</sub>	14.8	X	120.06606	128.89479	191.05643	10.18572	0.0663240	0.18112788	3.0937070	20	—	—
130372 2000 <i>GO</i> <sub>149</sub>	16.2	X	218.46148	64.76566	140.04505	0.69565	0.1052832	0.17871193	3.1215265	20	12 20.1	20.7
130373 2000 <i>GU</i> <sub>156</sub>	14.8	X	120.35934	295.31465	18.18652	8.57119	0.1951258	0.17396215	3.1780901	20	—	—
130374 2000 <i>GB</i> <sub>164</sub>	14.7	X	249.48485	29.17367	125.96868	10.52361	0.1966843	0.17484149	3.1674254	20	11 20.2	19.3
130375 2000 <i>GX</i> <sub>170</sub>	14.7	X	121.85872	284.80269	352.94024	8.65843	0.0760086	0.17352137	3.1834698	20	12 6.9	19.7
130376 2000 <i>GJ</i> <sub>178</sub>	14.9	X	186.50896	114.80138	97.50254	6.47424	0.0939995	0.17363940	3.1820270	20	11 26.9	19.9
130377 2000 <i>GJ</i> <sub>183</sub>	15.3	X	341.69406	207.97477	187.54438	9.17745	0.0687763	0.17423973	3.1747138	20	11 10.8	19.4
130378 2000 <i>HR</i>	15.0	X	347.29044	12.46809	57.35650	6.37063	0.1716277	0.17751232	3.1355740	20	—	—
130379 2000 <i>HO</i> <sub>15</sub>	14.0	X	322.26701	113.59811	206.11263	16.87663	0.1540288	0.15500823	3.4321496	20	6 24.2	18.5
130380 2000 <i>HN</i> <sub>33</sub>	15.4	X	97.82472	247.22364	44.91722	3.70637	0.2667446	0.16721349	3.2630358	20	12 13.1	21.0
130381 2000 <i>HR</i> <sub>35</sub>	14.8	X	148.79690	205.33432	78.22679	12.09886	0.1806612	0.17421725	3.1749870	20	—	—
130382 2000 <i>HW</i> <sub>60</sub>	14.7	X	107.83168	154.58242	40.15184	5.95035	0.0790257	0.15957081	3.3664106	20	8 17.4	19.7
130383 2000 <i>HA</i> <sub>61</sub>	17.0	X	90.70371	115.52678	177.79983	1.42026	0.1936884	0.31423263	2.1427353	20	12 29.1	20.2
130384 2000 <i>HB</i> <sub>77</sub>	14.3	X	95.31036	279.57160	60.82758	24.99649	0.1827925	0.17371981	3.1810450	20	—	—
130385 2000 <i>JS</i> <sub>29</sub>	15.1	X	98.98637	332.71892	292.93180	2.85082	0.2465264	0.16363423	3.3104468	20	11 12.2	20.6
130386 2000 <i>JY</i> <sub>33</sub>	15.7	X	331.60173	76.04976	281.90533	5.14977	0.2969692	0.30430487				

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>
130401 2000 <i>NX</i> <sub>18</sub>	15.9	X	71.68763	293.59527	309.47154	7.48036	0.1255912	0.30007588	2.2096085	20	9 22.2	18.8
130402 2000 <i>OP</i> <sub>6</sub>	16.0	X	12.31367	94.05887	247.39338	5.57644	0.1556261	0.30350611	2.1929282	20	11 28.4	18.0
130403 2000 <i>OZ</i> <sub>13</sub>	16.1	X	123.48350	300.90322	321.98397	1.74509	0.0650850	0.31008472	2.1618015	20	12 20.4	18.8
130404 2000 <i>OQ</i> <sub>16</sub>	15.8	X	102.45385	223.16294	67.99722	2.89471	0.1086187	0.31000302	2.1621813	20	—	—
130405 2000 <i>OO</i> <sub>17</sub>	16.0	X	60.06003	192.34492	147.17577	1.73498	0.1634954	0.30920752	2.1658881	20	—	—
130406 2000 <i>OF</i> <sub>25</sub>	13.8	X	176.37067	35.42697	319.57201	14.04656	0.2379165	0.17877466	3.1207962	20	2 28.8	19.3
130407 2000 <i>OV</i> <sub>29</sub>	16.4	X	318.41591	133.01082	209.90597	3.25021	0.2241125	0.29538696	2.2329303	20	7 25.2	17.7
130408 2000 <i>ON</i> <sub>32</sub>	16.2	X	16.68742	90.94451	219.23321	5.73715	0.2073373	0.30064703	2.2068901	20	10 28.4	18.1
130409 2000 <i>OB</i> <sub>33</sub>	16.1	X	319.75717	163.44350	202.85413	4.65014	0.1957479	0.29863747	2.2166979	20	9 16.0	17.4
130410 2000 <i>OW</i> <sub>40</sub>	16.6	X	206.62522	120.80252	216.38984	3.31908	0.2113882	0.27854596	2.3220495	20	2 25.6	20.5
130411 2000 <i>OU</i> <sub>44</sub>	15.6	X	206.98118	53.97739	299.12632	5.63479	0.1713526	0.27900051	2.3195267	20	3 15.3	19.3
130412 2000 <i>OT</i> <sub>45</sub>	16.2	X	19.77403	77.50421	265.09520	4.04728	0.1214997	0.30284191	2.1961335	20	12 5.2	18.6
130413 2000 <i>OO</i> <sub>47</sub>	15.9	X	177.19133	19.34080	336.85138	2.74153	0.1749411	0.27430046	2.3459479	20	2 24.6	19.5
130414 2000 <i>OU</i> <sub>51</sub>	15.5	X	243.48946	118.05768	251.32659	5.68741	0.1248690	0.28480248	2.2879167	20	5 18.4	18.7
130415 2000 <i>OH</i> <sub>57</sub>	14.9	X	189.27493	316.57085	128.02971	25.46805	0.2829623	0.28867684	2.2673997	20	6 28.2	19.2
130416 2000 <i>OJ</i> <sub>58</sub>	16.4	X	348.32035	250.32145	106.24498	5.21092	0.1517241	0.30080668	2.2060282	20	11 9.8	18.2
130417 2000 <i>OV</i> <sub>58</sub>	16.0	X	166.51293	35.66082	116.03997	3.28795	0.0592904	0.29843145	2.2177180	20	9 10.5	18.7
130418 2000 <i>OV</i> <sub>60</sub>	14.4	X	286.10300	237.90449	120.72334	12.69313	0.2333224	0.14243661	3.6312401	20	6 11.5	19.5
130419 2000 <i>PP</i>	16.6	X	177.52811	244.76407	184.71402	6.46028	0.0740577	0.28845687	2.2685523	20	5 28.7	19.7
130420 2000 <i>PB</i> <sub>10</sub>	16.1	X	251.13973	283.22669	57.25098	6.10174	0.1883631	0.28442765	2.2899263	20	4 13.4	19.4
130421 2000 <i>PN</i> <sub>11</sub>	15.6	X	206.32138	260.81793	95.29511	10.30510	0.1001240	0.27918344	2.3185134	20	3 28.0	19.1
130422 2000 <i>PZ</i> <sub>15</sub>	16.2	X	126.67015	351.25228	290.74061	3.61269	0.0712028	0.31237207	2.1512353	20	—	—
130423 2000 <i>PA</i> <sub>16</sub>	16.0	X	208.77767	298.09312	140.42487	6.19762	0.0960248	0.29355198	2.2422259	20	7 15.5	19.0
130424 2000 <i>PV</i> <sub>18</sub>	15.7	X	316.94765	351.70493	323.85861	5.18404	0.1150129	0.29193424	2.2505018	20	6 21.1	17.7
130425 2000 <i>PF</i> <sub>19</sub>	15.8	X	201.35254	17.31582	354.25821	7.26355	0.1252225	0.28230726	2.3013783	20	4 4.0	19.2
130426 2000 <i>PT</i> <sub>21</sub>	16.0	X	267.79539	314.50085	7.90465	5.57159	0.1780424	0.28607685	2.2811170	20	4 5.8	19.1
130427 2000 <i>PU</i> <sub>21</sub>	16.3	X	72.46762	233.50161	14.14322	6.43040	0.2130800	0.30125261	2.2038507	20	10 13.7	19.4
130428 2000 <i>PF</i> <sub>22</sub>	16.6	X	17.62839	245.75897	53.18050	7.75956	0.1532563	0.29796505	2.2200316	20	10 6.5	18.8
130429 2000 <i>PY</i> <sub>22</sub>	16.0	X	338.41411	282.63418	108.22809	5.02659	0.1771367	0.30460910	2.1876313	20	12 17.7	17.5
130430 2000 <i>PM</i> <sub>24</sub>	16.2	X	339.40850	276.91569	69.62210	7.94959	0.2250743	0.29617521	2.2289667	20	10 13.8	17.5
130431 2000 <i>PQ</i> <sub>24</sub>	16.1	X	149.65147	48.04475	334.22516	9.82965	0.0204197	0.27680512	2.3317750	20	2 14.8	18.9
130432 2000 <i>QM</i> <sub>4</sub>	15.8	X	127.91102	250.00514	157.17838	8.41248	0.1187322	0.27444040	2.3451503	20	3 4.4	18.7
130433 2000 <i>QO</i> <sub>9</sub>	16.1	X	65.72466	164.56064	246.94298	3.55808	0.1781322	0.26217392	2.4177407	20	—	—
130434 2000 <i>QU</i> <sub>11</sub>	16.6	X	107.53387	308.64194	342.46841	2.22203	0.1084376	0.31049540	2.1598948	20	—	—
130435 2000 <i>QB</i> <sub>12</sub>	15.5	X	190.30650	267.69724	145.92416	6.18605	0.1854327	0.28531170	2.2851936	20	5 21.1	19.2
130436 2000 <i>QY</i> <sub>13</sub>	15.9	X	50.86280	257.39881	156.91608	2.72034	0.1822824	0.26648978	2.3915659	20	—	—
130437 2000 <i>QJ</i> <sub>15</sub>	16.5	X	69.09696	105.59396	280.77313	1.25678	0.2158526	0.26423360	2.4051603	20	—	—
130438 2000 <i>QS</i> <sub>17</sub>	16.0	X	118.54403	330.80837	142.15669	6.58646	0.0431421	0.28501777	2.2867644	20	5 13.2	18.9
130439 2000 <i>QO</i> <sub>18</sub>	16.4	X	130.92497	136.42837	206.31088	1.75543	0.2104686	0.26823345	2.3811902	20	—	—
130440 2000 <i>QW</i> <sub>18</sub>	16.3	X	131.99241	41.15696	353.59647	4.74541	0.1763501	0.27388585	2.3483148	20	2 29.5	19.6
130441 2000 <i>QQ</i> <sub>20</sub>	15.6	X	247.89453	16.13528	343.15644	2.27551	0.1402119	0.28562218	2.2835373	20	5 7.3	18.8
130442 2000 <i>QL</i> <sub>24</sub>	15.3	X	284.47504	333.86277	321.04717	5.99351	0.1170405	0.28309958	2.2970823	20	3 26.0	18.2
130443 2000 <i>QC</i> <sub>26</sub>	15.4	X	221.19298	8.53798	358.55933	7.85287	0.1454843	0.28286168	2.2983701	20	4 17.0	18.9
130444 2000 <i>QJ</i> <sub>29</sub>	15.9	X	314.67937	321.04074	355.21440	6.09880	0.2111529	0.29036640	2.2585956	20	5 30.3	18.0
130445 2000 <i>QV</i> <sub>31</sub>	16.4	X	209.54966	354.21183	31.25191	4.33472	0.2570823	0.28284383	2.2984669	20	4 27.8	20.4
130446 2000 <i>QO</i> <sub>36</sub>	16.8	X	204.69570	186.11893	157.91616	6.01090	0.1875316	0.27950741	2.3167215	20	3 4.9	20.4
130447 2000 <i>QZ</i> <sub>42</sub>	16.4	X	279.24041	230.80068	167.95307	6.05542	0.2548651	0.24348477	2.5399286	20	7 23.6	19.5
130448 2000 <i>QP</i> <sub>43</sub>	16.5	X	188.72171	252.92933	160.57943	4.30729	0.0394619	0.28617147	2.2806142	20	5 20.6	19.5
130449 2000 <i>QJ</i> <sub>48</sub>	16.6	X	205.80887	254.57951	141.33635	0.89902	0.1779812	0.28401926	2.2921209	20	5 11.0	20.0
130450 2000 <i>QP</i> <sub>50</sub>	16.3	X	129.93692	235.56643	139.81567	3.86998	0.1624842	0.27127814	2.3633399	20	1 30.7	19.5
130451 2000 <i>QE</i> <sub>56</sub>	17.1	X	72.01913	144.66574	136.18493	3.44679	0.1203024	0.30381130	2.1914594	20	11 18.4	19.9
130452 2000 <i>QX</i> <sub>56</sub>	16.3	X	322.32753	90.92347	144.43181	11.88066	0.1107767	0.28213289	2.3023265	20	3 1.6	18.9
130453 2000 <i>QT</i> <sub>59</sub>	13.9	X	211.03523	293.35397	354.95896	3.26817	0.1563287	0.12421288	3.9782460	20	1 20.7	20.2
130454 2000 <i>QK</i> <sub>61</sub>	16.1	X	81.91594	30.31042	23.08444	2.70013	0.1269962	0.26849054	2.3796699	20	1 9.9	18.6
130455 2000 <i>QD</i> <sub>63</sub>	15.9	X	275.82978	275.72209	53.44190	7.23990	0.1022948	0.28600700	2.2814885	20	5 7.3	18.6
130456 2000 <i>QE</i> <sub>63</sub>	15.8	X	228.20436	323.34681	55.95191	6.95704	0.1313376	0.28485357	2.2876431	20	5 14.2	18.9
130457 2000 <i>QZ</i> <sub>65</sub>	15.8	X	67.64360	18.67105	70.66093	7.15202	0.0877655	0.27075694	2.3663718	20	2 2.7	18.4
130458 2000 <i>QG</i> <sub>66</sub>	15.8	X	248.41375	348.94005	44.90538	8.35562	0.1929008	0.28785192	2.2717295	20	6 18.9	19.1
130459 2000 <i>QZ</i> <sub>66</sub>	16.1	X	183.66463	221.45748	136.65398	7.20549	0.1345878	0.27640513	2.3340240	20	3 3.6	19.5
130460 2000 <i>QL</i> <sub>67</sub>	15.5	X	10.41724	241.78002	52.63506	6.15253	0.1441714	0.29545495	2.2325877	20	9 13.8	17.5
130461 2000 <i>QR</i> <sub>71</sub>	15.9	X	310.90727	9.81897	319.24250	5.35331	0.1335704	0.29172568	2.2515742	20	6 28.9	18.1
130462 2000 <i>QU</i> <sub>73</sub>	15.6	X	42.86286	348.56276	321.33340	3.27133	0.1611188	0.30247841	2.1978926	20	11 26.0	18.4
130463 2000 <i>QR</i> <sub>74</sub>	15.8	X	63.15017	216.10100	214.26739	1.74322	0.1400062	0.26859531	2.3790511	20	1 1.6	18.1
130464 2000 <i>QU</i> <sub>77</sub>	16.6	X	162.19403	100.98328	254.31868	1.33132	0.2175787	0.27309687	2.3528355	20	2 12.2	20.2
130465 2000 <i>QF</i> <sub>78</sub>	16.4	X	113.41686	198.97341	168.97781	2.22957	0.1649464	0.26759556	2.3849729	20	—	—
130466 2000 <i>QL</i> <sub>78</sub>	16.6	X	161.28812	43.76226	299.60911	1.93612	0.1467267	0.27177813	2.3604404	20	1 22.5	19.8
130467 2000 <i>QO</i> <sub>78</sub>	16.2	X	316.74929	159.39933	182.25836	3.29115	0.1571002	0.29304749	2.2447986	20	7 28.1	18.0
130468 2000 <i>QQ</i> <sub>79</sub>	15.9	X	69.44242	121.97199	257.19923	1.00369	0.1922486	0.26210835	2.4181439	20	—	—
130469 2000 <i>QQ</i> <sub>80</sub>	14.7	X	141.29628	186.69281	346.23256	11.85343	0.0880461	0.24430730	2.5342245	20	9 2.8	18.3
130470 2000 <i>QM</i> <sub>82</sub>	16.4	X	354.95902	250.33021	171.39276	2.53318	0.1866689	0.25729029	2.4482388	20	—	—
130471 2000 <i>QJ</i> <sub>85</sub>	16.6	X	330.36748	152.34829	184.94161	4.03753	0.1677349	0.29544891	2.2326182	20	8 22.3	18.0
13												

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>
130481 2000 QQ <sub>97</sub>	16.0	X	273.38480	195.39871	146.16088	5.35796	0.1645152	0.28682169	2.2771662	20	5 13.5	18.9
130482 2000 QX <sub>97</sub>	16.2	X	186.67177	282.10448	111.00947	3.80379	0.2307534	0.27956764	2.3163887	20	4 21.7	20.1
130483 2000 QX <sub>100</sub>	15.9	X	179.99534	281.78515	135.23637	7.16277	0.0910495	0.28200062	2.3030463	20	5 15.9	19.2
130484 2000 QY <sub>101</sub>	16.1	X	311.09066	179.43271	129.54222	6.98405	0.1213327	0.28767252	2.2726739	20	5 30.8	18.5
130485 2000 QN <sub>103</sub>	16.1	X	47.49127	279.13385	108.27861	2.48283	0.1927338	0.25979312	2.4324894	20	—	—
130486 2000 QA <sub>106</sub>	15.6	X	59.50087	314.78016	122.30974	8.74661	0.2418958	0.26484034	2.4014854	20	1 16.7	17.1
130487 2000 QJ <sub>112</sub>	16.7	X	220.24067	4.15404	26.65816	0.88293	0.2094643	0.28431546	2.2905287	20	5 15.8	20.3
130488 2000 QS <sub>112</sub>	16.4	X	63.42916	33.89497	2.25699	2.06185	0.1812513	0.26318660	2.4115348	20	—	—
130489 2000 QN <sub>113</sub>	16.1	X	157.40175	134.55513	159.06934	6.17072	0.1134320	0.26596784	2.3946937	20	—	—
130490 2000 QY <sub>116</sub>	16.3	X	17.16734	187.24663	130.06376	7.66296	0.1896850	0.29782995	2.2207030	20	11 8.6	18.7
130491 2000 QT <sub>117</sub>	16.6	X	277.80318	223.64907	172.01857	6.95772	0.3126720	0.24181421	2.5516132	20	7 7.9	20.1
130492 2000 QT <sub>118</sub>	16.5	X	19.40817	0.39861	273.06018	4.53760	0.1702683	0.29417750	2.2390463	20	8 25.8	18.5
130493 2000 QV <sub>118</sub>	15.7	X	154.30921	167.23542	230.70941	5.66843	0.0672143	0.27686986	2.3314114	20	3 14.7	18.8
130494 2000 QH <sub>120</sub>	16.6	X	333.86998	100.44136	193.14801	5.50894	0.2036782	0.29048346	2.2579887	20	6 9.1	18.2
130495 2000 QX <sub>126</sub>	16.0	X	110.02225	359.66960	55.42196	5.12750	0.0798892	0.27242462	2.3567046	20	2 17.4	18.9
130496 2000 QT <sub>127</sub>	15.4	X	210.43179	331.49328	16.32789	5.71100	0.1740859	0.27686517	2.3314378	20	3 15.9	19.0
130497 2000 QJ <sub>127</sub>	16.0	X	281.35982	216.48695	186.86742	4.58098	0.2029822	0.24077649	2.5589394	20	7 31.9	19.0
130498 2000 QW <sub>128</sub>	16.0	X	257.37084	0.98563	300.88557	5.49238	0.1134395	0.27925739	2.3181041	20	3 3.8	19.2
130499 2000 QB <sub>129</sub>	15.4	X	118.43573	206.79673	193.84635	4.75963	0.2187822	0.27047798	2.3679986	20	2 25.7	18.6
130500 2000 QR <sub>134</sub>	15.8	X	122.07712	353.99688	25.74632	2.83771	0.2132015	0.27095692	2.3652073	20	2 4.4	18.9
130501 2000 QK <sub>136</sub>	17.1	X	205.38683	250.98202	137.95304	1.43162	0.1759020	0.28396075	2.2924357	20	5 1.8	20.5
130502 2000 QR <sub>138</sub>	16.7	X	227.63783	141.87583	170.32328	2.79870	0.1628826	0.27695999	2.3309057	20	2 14.6	20.3
130503 2000 QC <sub>140</sub>	15.7	X	18.15517	41.99199	10.39176	6.72084	0.1182411	0.25831695	2.4417476	20	—	—
130504 2000 QL <sub>140</sub>	15.5	X	147.77076	23.14467	4.94865	7.20683	0.1027836	0.27367285	2.3495331	20	3 2.3	18.6
130505 2000 QQ <sub>141</sub>	15.7	X	72.02022	321.64940	95.60953	3.60774	0.1609703	0.26586333	2.3953212	20	1 2.6	17.6
130506 2000 QN <sub>144</sub>	16.6	X	218.84460	342.88150	32.92195	2.99388	0.2041848	0.28238869	2.3009359	20	4 25.4	20.2
130507 2000 QS <sub>144</sub>	15.8	X	25.02090	62.96007	27.91240	5.77125	0.1480793	0.26422371	2.4052203	20	—	—
130508 2000 QQ <sub>145</sub>	15.7	X	28.95030	79.15655	36.39991	6.79110	0.0703823	0.26929356	2.3749369	20	1 4.9	18.3
130509 2000 QK <sub>145</sub>	16.4	X	151.73672	292.77766	155.60970	2.92253	0.1698680	0.27016815	2.3698087	20	1 22.2	19.7
130510 2000 QS <sub>151</sub>	16.2	X	272.29567	164.22069	166.50596	5.72352	0.2069299	0.28877693	2.2668758	20	4 20.7	19.4
130511 2000 QG <sub>152</sub>	16.0	X	79.54036	15.65783	51.92038	6.31038	0.1749641	0.26954350	2.3734685	20	2 4.4	18.4
130512 2000 QS <sub>154</sub>	15.6	X	221.13201	213.30944	204.97889	8.33632	0.1668880	0.28941934	2.2635201	20	6 25.2	19.0
130513 2000 QG <sub>159</sub>	16.2	X	315.02365	111.18668	188.71123	9.80876	0.1766228	0.28953349	2.2629251	20	5 14.3	18.4
130514 2000 QR <sub>163</sub>	16.3	X	259.42971	203.94882	213.18945	6.88422	0.1433885	0.29595353	2.2300796	20	8 12.3	19.0
130515 2000 QC <sub>165</sub>	15.7	X	179.85042	138.44523	255.20971	5.48846	0.1183123	0.28043500	2.3116101	20	4 10.3	19.3
130516 2000 QJ <sub>166</sub>	15.8	X	101.49936	212.29445	203.60743	7.11070	0.1145109	0.27212365	2.3584420	20	2 6.9	18.7
130517 2000 QW <sub>168</sub>	15.7	X	6.19015	264.22289	186.67014	6.63324	0.1116653	0.26357489	2.4091658	20	—	—
130518 2000 QN <sub>169</sub>	16.5	X	94.61144	58.65394	245.56217	3.83063	0.2061556	0.30893963	2.1671400	20	—	—
130519 2000 QQ <sub>172</sub>	15.7	X	47.81145	303.59314	273.20584	5.57738	0.0672069	0.29101796	2.2552232	20	7 2.4	17.9
130520 2000 QV <sub>175</sub>	16.3	X	148.33746	174.28976	244.06581	5.32545	0.1165117	0.27887750	2.3202088	20	4 9.3	19.7
130521 2000 QV <sub>180</sub>	15.5	X	155.05100	115.12048	268.81047	7.20780	0.1227757	0.26810803	2.3819328	20	3 1.8	19.2
130522 2000 QC <sub>182</sub>	15.9	X	120.95197	4.90767	356.83449	1.94594	0.2274775	0.26466812	2.4025271	20	1 13.0	18.9
130523 2000 QX <sub>183</sub>	17.0	X	221.20516	179.12355	125.93596	1.49968	0.2213948	0.27836508	2.3230553	20	1 30.7	21.0
130524 2000 QB <sub>189</sub>	15.9	X	74.10478	189.72129	93.85560	5.85054	0.1599500	0.30427480	2.1892334	20	11 27.9	18.9
130525 2000 QX <sub>191</sub>	16.1	X	75.06958	195.69174	66.25276	7.11572	0.1429338	0.30138316	2.2032142	20	10 30.4	19.0
130526 2000 QQ <sub>194</sub>	16.5	X	67.70004	51.31694	0.39428	1.68935	0.1775152	0.26533813	2.3984809	20	—	—
130527 2000 QW <sub>198</sub>	15.9	X	54.18744	52.72018	354.70363	6.79969	0.0878570	0.26516245	2.3995402	20	—	—
130528 2000 QY <sub>199</sub>	15.8	X	88.98961	291.47145	145.82949	12.45261	0.1044851	0.27382687	2.3486520	20	2 19.2	18.4
130529 2000 QY <sub>200</sub>	16.2	X	28.42680	168.80419	117.01895	3.68916	0.1652802	0.29784440	2.2206311	20	10 5.3	18.5
130530 2000 QK <sub>201</sub>	15.8	X	165.07945	38.04963	17.85173	5.49467	0.1520683	0.28069026	2.3102084	20	4 26.9	19.3
130531 2000 QY <sub>201</sub>	15.8	X	84.42501	51.16780	6.56233	4.67502	0.2192534	0.26874083	2.3781922	20	2 5.3	18.1
130532 2000 QB <sub>202</sub>	16.6	X	200.92928	333.38334	19.14641	3.10300	0.1720677	0.27853853	2.3220908	20	3 12.8	20.1
130533 2000 QK <sub>204</sub>	16.5	X	95.85875	192.50627	73.39822	4.19839	0.0996746	0.30314082	2.1946896	20	11 22.7	19.4
130534 2000 QX <sub>204</sub>	16.8	X	144.04678	192.23220	179.40496	2.93094	0.2504006	0.27167400	2.3610435	20	2 18.9	20.5
130535 2000 QU <sub>207</sub>	16.2	X	152.71680	26.72305	358.78805	2.68309	0.2600882	0.27368580	2.3494590	20	3 15.8	20.0
130536 2000 QV <sub>208</sub>	16.2	X	114.57964	334.13929	83.36162	3.87377	0.1602522	0.27168799	2.3609625	20	3 9.6	19.3
130537 2000 QV <sub>210</sub>	16.7	X	110.13882	347.40089	2.42308	3.43615	0.1657075	0.26457087	2.4031158	20	—	—
130538 2000 QC <sub>213</sub>	16.3	X	260.92552	258.66420	140.76516	5.07496	0.1125639	0.29167585	2.2518307	20	7 26.4	18.9
130539 2000 QG <sub>213</sub>	16.4	X	160.19478	344.25145	4.48909	7.47663	0.0862968	0.27212450	2.3584370	20	1 24.4	19.7
130540 2000 QJ <sub>213</sub>	16.7	X	170.60296	12.06220	20.49507	3.67767	0.1823834	0.27794980	2.3253686	20	4 4.5	20.3
130541 2000 QJ <sub>215</sub>	15.9	X	31.36686	70.20592	358.30465	6.61943	0.0845774	0.26345273	2.4099105	20	—	—
130542 2000 QZ <sub>215</sub>	16.8	X	185.07363	345.14389	50.91016	4.14002	0.2468442	0.27929686	2.3178857	20	4 23.1	20.6
130543 2000 QH <sub>216</sub>	16.6	X	75.14807	53.46733	13.38249	2.45578	0.1951085	0.26827787	2.3809274	20	1 28.0	18.7
130544 2000 QP <sub>221</sub>	15.6	X	5.08785	75.85575	1.69583	7.11244	0.2419815	0.26121786	2.4236364	20	—	—
130545 2000 QK <sub>223</sub>	16.6	X	340.23080	290.87988	40.60492	5.20865	0.1853454	0.29643502	2.2276641	20	9 12.5	17.9
130546 2000 QW <sub>227</sub>	16.2	X	227.97214	110.72574	178.76025	9.92928	0.0866038	0.27344570	2.3508341	20	1 18.8	19.8
130547 2000 QX <sub>229</sub>	16.3	X	18.88287	132.96031	144.48578	5.92316	0.0657864	0.29290167	2.2455436	20	8 17.4	18.6
130548 2000 QL <sub>230</sub>	16.2	X	282.89121	313.83849	58.90162	6.03897	0.1113104	0.29025519	2.2591725	20	7 22.6	18.6
130549 2000 RT	16.6	X	177.41718	307.38405	111.81999	4.02091	0.1812917	0.28298084	2.2977249	20	5 15.9	20.2
130550 2000 RO <sub>1</sub>	16.3	X	24.87269	325.71268	351.07494	5.82878	0.1495727	0.29879783	2.2159048	20	11 7.2	18.7
130551 2000 RV <sub>4</sub>	15.9	X	329.06222	115.48066	178.12468	5.44465	0.1117861	0.28743836	2.2739080	20	6 9.6	18.1
130552 2000 RX <sub>13</sub>	15.3	X	39.79558	235.34139	268.95233	9.16947	0.1267482	0.27683082	2.3316306	20	2 28.2	17.7
130553 2000 RV <sub>14</sub>	15.7	X	129.53014	139.91005	229.91531	6.40953	0.1164395	0.27046621	2.3680673	20	1 15.3	18.8



ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
130561 2000 RW <sub>32</sub>	16.2	X	249.10725	86.26528	264.45296	3.56043	0.1600343	0.28342347	2.2953320	20	4 24.5	19.4
130562 2000 RE <sub>33</sub>	15.9	X	175.93031	64.88117	229.36821	6.78543	0.1135699	0.26597784	2.3946337	20	—	—
130563 2000 RE <sub>35</sub>	15.4	X	263.97807	215.31981	198.42928	12.61340	0.1762654	0.24066199	2.5597509	20	8 2.1	19.0
130564 2000 RC <sub>38</sub>	15.8	X	198.85971	222.36607	156.30438	2.16648	0.1959851	0.27926236	2.3180766	20	4 12.7	19.4
130565 2000 RH <sub>38</sub>	16.2	X	320.14197	134.57856	164.90909	4.51265	0.1526196	0.28757015	2.2732133	20	5 27.1	18.3
130566 2000 RW <sub>38</sub>	15.3	X	230.02827	186.10012	247.49718	8.76341	0.1053652	0.23376134	2.6098823	20	7 27.7	19.2
130567 2000 RV <sub>39</sub>	16.0	X	348.94731	298.52475	5.58226	7.49639	0.2094455	0.29119552	2.2543063	20	8 17.1	17.3
130568 2000 RN <sub>41</sub>	15.7	X	112.95991	33.86176	324.93478	10.75344	0.2093505	0.26511707	2.3998140	20	—	—
130569 2000 RD <sub>44</sub>	15.3	X	128.63843	74.45822	296.04020	6.64890	0.1315309	0.26756239	2.3851700	20	1 19.2	18.4
130570 2000 RR <sub>45</sub>	15.4	X	276.55117	215.12593	210.42948	5.64214	0.2722352	0.24235390	2.5478237	20	8 22.3	18.5
130571 2000 RJ <sub>46</sub>	16.1	X	153.56002	7.71712	348.84650	5.87188	0.2419836	0.26943424	2.3741101	20	2 10.3	19.9
130572 2000 RF <sub>48</sub>	15.7	X	171.18307	57.50959	301.08829	5.88402	0.1340320	0.27114159	2.3641333	20	2 18.3	19.3
130573 2000 RZ <sub>55</sub>	16.9	X	66.75184	187.96475	194.19965	1.28278	0.1790817	0.26228573	2.4170536	20	—	—
130574 2000 RF <sub>60</sub>	16.3	X	258.17498	172.80121	179.82987	6.33903	0.2030477	0.28479610	2.2879509	20	5 5.0	19.5
130575 2000 RV <sub>67</sub>	15.9	X	169.35743	346.45744	40.24729	5.27896	0.1775040	0.27401506	2.3475765	20	3 28.5	19.6
130576 2000 RK <sub>68</sub>	15.7	X	327.01258	242.36001	39.14608	5.95383	0.0869491	0.28535745	2.2849493	20	5 18.8	18.1
130577 2000 RF <sub>69</sub>	15.7	X	98.05302	45.78844	38.16085	3.69691	0.1333652	0.27326307	2.3518814	20	3 18.8	18.5
130578 2000 RO <sub>69</sub>	16.3	X	236.20821	346.51211	36.97838	4.40118	0.1487929	0.28525187	2.2855131	20	5 26.5	19.5
130579 2000 RX <sub>69</sub>	16.2	X	232.19268	303.48411	23.99528	7.38542	0.1375628	0.27884466	2.3203910	20	3 13.2	19.6
130580 2000 RO <sub>71</sub>	16.7	X	268.41382	214.88859	179.43725	5.15465	0.3076709	0.23815589	2.5776770	20	6 26.1	20.5
130581 2000 RQ <sub>71</sub>	15.3	X	41.59921	148.10892	235.70484	1.06596	0.1746722	0.25626984	2.4547337	20	—	—
130582 2000 RH <sub>75</sub>	15.6	X	69.77657	116.07822	303.95365	6.51915	0.0783599	0.26602804	2.3943324	20	—	—
130583 2000 RS <sub>75</sub>	14.7	X	235.11879	111.43697	356.27775	12.03201	0.2518243	0.24039685	2.5616327	20	9 4.4	18.6
130584 2000 RA <sub>77</sub>	15.9	X	208.51392	336.30022	21.42412	4.52669	0.2375568	0.27655134	2.3332012	20	3 25.2	19.8
130585 2000 RU <sub>77</sub>	15.8	X	29.09773	265.76004	132.74843	3.13235	0.1888656	0.25538974	2.4603700	20	—	—
130586 2000 RG <sub>78</sub>	16.7	X	275.09876	283.82297	67.87249	8.27995	0.1458640	0.28794961	2.2712157	20	5 31.4	19.1
130587 2000 RT <sub>80</sub>	15.9	X	98.34675	39.39949	212.83887	6.66002	0.1448554	0.30153307	2.2024839	20	11 10.1	19.0
130588 2000 RD <sub>83</sub>	12.6	X	236.32897	11.12590	356.37436	31.91309	0.0517294	0.08266021	5.2192135	20	5 3.6	20.0
130589 2000 RD <sub>85</sub>	16.4	X	178.45280	214.41305	150.74524	7.58513	0.1517446	0.27661682	2.3328331	20	3 7.6	19.9
130590 2000 RH <sub>87</sub>	17.1	X	249.84589	104.40597	215.60843	1.32932	0.2392028	0.28138164	2.3064226	20	3 10.6	20.9
130591 2000 RM <sub>87</sub>	17.1	X	329.54741	98.47446	186.74288	1.65242	0.2200801	0.28894612	2.2659908	20	5 11.1	18.5
130592 2000 RT <sub>87</sub>	12.5	X	135.06585	102.94302	346.15006	19.33360	0.0155459	0.08130270	5.2771498	20	4 25.2	19.7
130593 2000 RX <sub>88</sub>	16.5	X	47.55205	333.35994	273.78576	3.98612	0.1283165	0.29386195	2.2406489	20	8 26.8	19.0
130594 2000 RA <sub>90</sub>	16.3	X	41.01631	45.79609	229.11156	6.99718	0.1388958	0.29731888	2.2232471	20	9 29.0	18.8
130595 2000 RP <sub>90</sub>	15.6	X	307.45878	213.33222	232.50882	8.83382	0.1495345	0.25203843	2.4821320	20	12 13.6	17.9
130596 2000 RV <sub>91</sub>	16.0	X	101.03329	224.01351	196.90961	10.09971	0.1512047	0.27009839	2.3702167	20	2 18.9	19.0
130597 2000 RT <sub>93</sub>	16.1	X	215.39432	4.87548	50.26841	4.93485	0.1550305	0.28631810	2.2798355	20	6 15.9	19.5
130598 2000 RH <sub>94</sub>	16.0	X	283.78637	285.46662	6.37618	8.33738	0.2176087	0.28209062	2.3025565	20	3 11.5	19.3
130599 2000 RF <sub>95</sub>	16.4	X	260.73682	248.19772	153.49552	5.73584	0.2539419	0.23881659	2.5729206	20	7 4.4	20.1
130600 2000 RU <sub>96</sub>	14.5	X	250.29575	70.11284	300.16755	23.90752	0.0771140	0.28657622	2.2784664	20	6 4.8	17.9
130601 2000 SD	14.1	X	203.10236	105.20742	325.60708	28.83062	0.3139422	0.23051434	2.6343334	20	6 20.9	19.4
130602 2000 SE <sub>4</sub>	16.5	X	328.21135	284.84168	43.37223	3.22789	0.2005855	0.29205844	2.2498637	20	7 30.6	17.7
130603 2000 SE <sub>7</sub>	15.7	X	265.92349	295.66616	113.36610	6.41522	0.2518162	0.23917718	2.5703340	20	7 21.2	19.0
130604 2000 SH <sub>10</sub>	15.4	X	51.59612	204.41947	212.58107	7.07492	0.1101392	0.26152170	2.4217589	20	—	—
130605 2000 SH <sub>14</sub>	15.9	X	183.59807	211.94750	218.79046	11.82453	0.1588175	0.28509967	2.2863264	20	6 5.2	19.5
130606 2000 SV <sub>14</sub>	15.4	X	18.97755	55.82161	71.66217	13.13850	0.1314101	0.26865132	2.3787204	20	—	—
130607 2000 SY <sub>14</sub>	16.1	X	55.26900	2.80946	245.72240	3.38189	0.1290984	0.29589895	2.2303539	20	9 9.9	18.7
130608 2000 SV <sub>17</sub>	16.2	X	357.99795	277.41633	327.91742	6.17822	0.0783031	0.28487395	2.2875340	20	5 17.9	18.6
130609 2000 SE <sub>19</sub>	13.8	X	261.90550	53.03109	210.77638	14.45397	0.1230077	0.12485868	3.9645165	20	2 4.9	19.9
130610 2000 SK <sub>22</sub>	16.7	X	54.36854	327.11974	80.60783	2.45437	0.1723439	0.26251169	2.4156663	20	—	—
130611 2000 SP <sub>23</sub>	16.4	X	25.32773	65.82543	21.91972	2.54201	0.1687005	0.26335865	2.4104844	20	—	—
130612 2000 SQ <sub>24</sub>	16.2	X	24.48704	276.36121	45.35546	5.08247	0.1815892	0.30105682	2.2048061	20	11 21.4	18.6
130613 2000 SG <sub>29</sub>	16.1	X	315.99079	15.68531	213.96793	4.68819	0.1224725	0.27767688	2.3268921	20	2 8.6	19.0
130614 2000 SD <sub>29</sub>	16.1	X	348.47635	63.10192	29.55769	1.98001	0.1550359	0.25987053	2.4320063	20	—	—
130615 2000 SX <sub>33</sub>	16.0	X	58.28380	275.83206	141.39833	5.43620	0.0981476	0.26487347	2.4012852	20	—	—
130616 2000 SX <sub>34</sub>	16.6	X	243.23308	318.69511	66.41457	1.16548	0.1060761	0.28698410	2.2763070	20	6 11.9	19.4
130617 2000 SQ <sub>36</sub>	16.3	X	75.13189	331.94963	109.58892	5.08021	0.2219568	0.26835926	2.3804460	20	2 24.2	18.5
130618 2000 SU <sub>36</sub>	16.5	X	97.58275	217.23509	172.07370	3.90680	0.1047868	0.26706141	2.3881520	20	—	—
130619 2000 SJ <sub>36</sub>	16.0	X	267.55609	40.28672	21.52134	4.97193	0.1369354	0.24405911	2.5359423	20	8 31.1	19.0
130620 2000 SJ <sub>38</sub>	16.8	X	202.16951	215.83532	155.77051	3.14559	0.1208374	0.27951933	2.3166556	20	4 7.9	20.2
130621 2000 SV <sub>39</sub>	16.6	X	36.83781	324.38173	90.52635	3.29165	0.1914074	0.25975336	2.4327376	20	—	—
130622 2000 SM <sub>41</sub>	15.9	X	81.21565	358.05308	42.40768	6.87038	0.1154651	0.26537676	2.3982482	20	—	—
130623 2000 SP <sub>41</sub>	16.2	X	179.36837	272.06880	52.89968	6.26162	0.1156873	0.27049138	2.3679204	20	1 16.8	19.7
130624 2000 SC <sub>43</sub>	16.1	X	181.12137	220.61338	164.79717	5.99042	0.1231190	0.27723127	2.3293848	20	4 4.7	19.5
130625 2000 SJ <sub>44</sub>	15.7	X	334.61133	267.28750	25.36671	23.55920	0.2625507	0.28883329	2.2665808	20	5 18.9	17.7
130626 2000 SO <sub>49</sub>	16.5	X	342.69323	90.53285	235.76747	3.11302	0.0399057	0.29411404	2.2393684	20	8 27.8	19.0
130627 2000 SV <sub>53</sub>	15.6	X	227.73516	339.87957	35.83394	7.50470	0.1483069	0.28382284	2.2931783	20	5 6.7	18.9
130628 2000 SG <sub>54</sub>	16.7	X	10.55517	245.28505	195.67223	4.88593	0.1489177	0.26087303	2.4257717	20	—	—
130629 2000 SX <sub>55</sub>	16.7	X	68.93641	182.62968	205.36484	2.45078	0.1867790	0.26250785	2.4156899	20	—	—
130630 2000 SB <sub>57</sub>	16.6	X	72.17791	239.20466	202.23716	3.87969	0.1240711	0.26958100	2.3732484	20	1 30.9	19.1
130631 2000 SD <sub>57</sub>	16.2	X	305.73035	63.12436	189.14910	6.21709	0.0882107	0.27901696	2.3194356	20	3 2.3	18.9
130632 2000 SN <sub>57</sub>	16.3	X	120.52137	307.72945	182.85418	7.12114	0.0287628	0.28468310	2.2885560	20	6 6.9	19.2
130633 2000 SA <sub>59</sub>	15.9	X	350.96660	218.16150	212.00855	3.28336	0.1343543	0.25666540	2.4522110	20	—	—
130634 2000 SP <sub>61</sub>	16.3	X	0.19858	244.23474	24.52763	3.43625	0.1526373	0.28959721				

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>
130641 2000 <i>SP</i> <sub>68</sub>	16.3	X	110.16002	3.41699	19.28536	4.71093	0.1417033	0.26730038	2.3867284	20	1 13.9	19.1
130642 2000 <i>SE</i> <sub>70</sub>	16.6	X	207.32735	312.12332	23.73572	2.96539	0.1659914	0.27603198	2.3361270	20	2 27.2	20.3
130643 2000 <i>SD</i> <sub>71</sub>	16.7	X	331.20307	176.96588	146.42586	3.22173	0.1941923	0.29204985	2.2499078	20	7 28.4	18.1
130644 2000 <i>SU</i> <sub>71</sub>	15.7	X	296.07153	7.80710	44.49714	1.72909	0.0794865	0.24655360	2.5188085	20	10 8.9	18.3
130645 2000 <i>SC</i> <sub>73</sub>	16.4	X	56.77405	293.20887	96.97618	2.47883	0.1885385	0.25988957	2.4318875	20	—	—
130646 2000 <i>SW</i> <sub>74</sub>	16.5	X	207.04490	266.06933	96.59563	2.76042	0.1380551	0.27806784	2.3247105	20	4 1.4	19.9
130647 2000 <i>SG</i> <sub>75</sub>	15.8	X	167.38196	287.77667	82.67774	3.36833	0.2253070	0.27352962	2.3503532	20	3 8.9	19.6
130648 2000 <i>SW</i> <sub>76</sub>	12.9	X	290.06122	14.62513	309.34426	3.94232	0.0586126	0.08463950	5.1375255	20	5 27.9	19.7
130649 2000 <i>SR</i> <sub>81</sub>	15.5	X	338.76501	105.69680	47.06316	3.22059	0.1116521	0.26590215	2.3950880	20	—	—
130650 2000 <i>SB</i> <sub>83</sub>	16.5	X	287.13467	30.06817	198.36964	4.14464	0.0768471	0.27278508	2.3546280	20	1 9.3	19.7
130651 2000 <i>SA</i> <sub>86</sub>	15.7	X	202.02680	258.76862	178.42521	12.70534	0.2743895	0.23290329	2.6162885	20	6 25.0	20.6
130652 2000 <i>SG</i> <sub>86</sub>	15.8	X	156.68025	261.12117	173.02333	12.49817	0.2459007	0.22699579	2.6614859	20	5 20.8	20.6
130653 2000 <i>SO</i> <sub>88</sub>	16.1	X	223.03424	298.96727	50.26108	6.56864	0.1522734	0.27868049	2.3213021	20	3 31.4	19.7
130654 2000 <i>SN</i> <sub>94</sub>	16.0	X	174.87475	201.45429	239.70661	4.86052	0.0639983	0.28492715	2.2872492	20	6 9.9	19.1
130655 2000 <i>ST</i> <sub>95</sub>	16.5	X	357.58698	350.70218	284.87453	3.58016	0.1040162	0.28969517	2.2620831	20	7 8.3	18.5
130656 2000 <i>SD</i> <sub>97</sub>	15.9	X	287.92872	299.85378	312.57133	5.98163	0.1049101	0.27666639	2.3325544	20	2 6.9	18.9
130657 2000 <i>SE</i> <sub>97</sub>	16.0	X	43.08830	237.66801	248.98051	4.08919	0.0574368	0.27281229	2.3544714	20	2 8.9	18.7
130658 2000 <i>SQ</i> <sub>98</sub>	16.3	X	304.90363	10.64969	314.02765	3.22756	0.0663644	0.28768103	2.2726291	20	6 20.7	18.6
130659 2000 <i>SY</i> <sub>98</sub>	16.5	X	74.65671	194.59514	242.33666	4.35229	0.1313913	0.26878491	2.3779322	20	1 29.6	19.0
130660 2000 <i>SR</i> <sub>101</sub>	16.9	X	89.60626	34.21688	354.21595	3.12800	0.1281437	0.26573305	2.3961040	20	—	—
130661 2000 <i>SG</i> <sub>103</sub>	16.5	X	83.82349	68.35810	341.29539	0.63681	0.1837697	0.26614323	2.3936414	20	1 16.6	18.8
130662 2000 <i>SM</i> <sub>104</sub>	16.0	X	102.08067	155.06841	345.55764	0.61897	0.0516790	0.28200150	2.3030415	20	5 28.9	18.8
130663 2000 <i>SY</i> <sub>104</sub>	16.1	X	76.12821	261.35243	198.93522	4.22870	0.1468765	0.27109473	2.3644057	20	3 8.3	18.6
130664 2000 <i>SZ</i> <sub>106</sub>	16.3	X	82.29000	158.07214	230.40228	1.09496	0.2167329	0.26352006	2.4095000	20	—	—
130665 2000 <i>SD</i> <sub>107</sub>	16.2	X	205.65164	169.10420	199.39003	3.96174	0.1320048	0.27889655	2.3201031	20	4 6.0	19.6
130666 2000 <i>SH</i> <sub>109</sub>	16.5	X	111.31545	67.31904	343.59133	0.72780	0.1583140	0.27000252	2.3707777	20	2 23.5	19.3
130667 2000 <i>ST</i> <sub>109</sub>	16.5	X	93.78550	87.07276	299.71659	1.20498	0.2132198	0.26484641	2.4014487	20	1 6.1	18.9
130668 2000 <i>SE</i> <sub>111</sub>	16.2	X	159.40442	341.87347	30.38039	3.24963	0.1748074	0.27259760	2.3557075	20	2 29.5	19.8
130669 2000 <i>SF</i> <sub>111</sub>	15.9	X	40.33198	44.71916	27.02512	6.68484	0.1170330	0.26251991	2.4156159	20	—	—
130670 2000 <i>ST</i> <sub>111</sub>	16.1	X	115.49407	312.74340	19.26221	2.66572	0.1960548	0.26251550	2.4156430	20	—	—
130671 2000 <i>SH</i> <sub>113</sub>	16.0	X	141.21809	213.35140	184.49267	5.77746	0.0961918	0.27275063	2.3548263	20	3 3.9	19.1
130672 2000 <i>SC</i> <sub>114</sub>	16.5	X	35.38278	305.63763	31.47181	3.36837	0.2100728	0.30216242	2.1994246	20	12 30.9	19.4
130673 2000 <i>SY</i> <sub>114</sub>	16.6	X	261.93431	263.93880	179.05963	3.86515	0.2556477	0.24283741	2.5444406	20	8 30.4	19.8
130674 2000 <i>SB</i> <sub>116</sub>	15.6	X	8.88727	1.50209	37.06113	7.12226	0.1151132	0.25406846	2.4688927	20	—	—
130675 2000 <i>SF</i> <sub>117</sub>	16.3	X	70.75961	324.61976	76.06175	3.15019	0.1765928	0.26257580	2.4152731	20	—	—
130676 2000 <i>SH</i> <sub>117</sub>	16.5	X	173.10736	205.75024	142.90014	3.15066	0.1865293	0.27179645	2.3603344	20	2 12.4	20.0
130677 2000 <i>ST</i> <sub>117</sub>	16.2	X	164.00063	299.55846	49.31277	5.52590	0.1552862	0.27023300	2.3694295	20	2 4.1	19.7
130678 2000 <i>SS</i> <sub>118</sub>	15.7	X	183.86874	316.52604	47.13840	3.57519	0.1983649	0.27488015	2.3426485	20	3 13.2	19.4
130679 2000 <i>SD</i> <sub>119</sub>	16.4	X	78.40236	15.86837	38.49176	5.07114	0.1336512	0.26513105	2.3997297	20	1 7.2	18.9
130680 2000 <i>SD</i> <sub>119</sub>	15.7	X	136.63894	295.51125	34.84432	6.98830	0.1370864	0.26403104	2.4063902	20	—	—
130681 2000 <i>SK</i> <sub>121</sub>	15.9	X	101.45696	345.73183	64.65121	6.63000	0.1098171	0.26784501	2.3834919	20	2 4.3	18.8
130682 2000 <i>SM</i> <sub>122</sub>	15.4	X	111.23945	341.64698	42.63120	7.59122	0.1241387	0.26620101	2.3932951	20	1 15.5	18.4
130683 2000 <i>SV</i> <sub>123</sub>	15.7	X	220.72149	28.65246	38.31425	15.88152	0.2104614	0.23463605	2.6033920	20	7 1.9	20.2
130684 2000 <i>SH</i> <sub>126</sub>	16.4	X	34.91749	229.08316	180.82690	6.52251	0.1509371	0.25912389	2.4366758	20	—	—
130685 2000 <i>SP</i> <sub>127</sub>	15.4	X	160.64696	199.58345	141.30395	6.06040	0.2543627	0.26847615	2.3797550	20	1 27.7	19.3
130686 2000 <i>SR</i> <sub>128</sub>	16.3	X	214.53467	196.45653	136.85553	6.54925	0.162921	0.27441098	2.3453179	20	3 2.5	19.7
130687 2000 <i>SZ</i> <sub>131</sub>	12.3	X	250.01832	69.72685	286.41082	19.05483	0.0928631	0.08288182	5.2099056	20	5 13.5	19.6
130688 2000 <i>SR</i> <sub>136</sub>	16.0	X	35.44044	87.89167	333.85064	7.09093	0.0841112	0.26167817	2.4207934	20	—	—
130689 2000 <i>SM</i> <sub>138</sub>	15.5	X	249.62100	89.65562	237.50464	3.98764	0.1864231	0.28111149	2.3079000	20	3 22.2	18.9
130690 2000 <i>SO</i> <sub>140</sub>	15.8	X	357.15026	86.17917	299.06886	1.81652	0.1878769	0.25131290	2.4869069	20	12 25.4	18.4
130691 2000 <i>SW</i> <sub>145</sub>	15.8	X	76.32771	80.85575	14.29066	6.54530	0.0812720	0.26815937	2.3816287	20	1 27.4	18.5
130692 2000 <i>SK</i> <sub>148</sub>	16.7	X	137.63649	21.30951	323.04542	2.03966	0.1963134	0.26643917	2.3918687	20	1 5.2	19.9
130693 2000 <i>SB</i> <sub>149</sub>	16.0	X	97.96900	228.35928	197.50357	3.89170	0.1386708	0.26919342	2.3755258	20	2 21.2	18.7
130694 2000 <i>SO</i> <sub>149</sub>	16.5	X	41.49954	46.33389	31.24674	2.88179	0.1621113	0.26227960	2.4170912	20	—	—
130695 2000 <i>SJ</i> <sub>150</sub>	16.6	X	168.79735	333.05510	7.92843	3.08145	0.1706896	0.27009645	2.3702280	20	1 30.1	20.2
130696 2000 <i>SK</i> <sub>152</sub>	15.7	X	243.38165	223.70635	190.93065	5.23365	0.2213053	0.23674425	2.5879135	20	7 6.3	19.7
130697 2000 <i>SP</i> <sub>153</sub>	16.8	X	96.84920	351.08648	46.65476	3.13321	0.2207403	0.26561025	2.3968425	20	1 28.3	19.4
130698 2000 <i>SW</i> <sub>153</sub>	16.9	X	305.36683	285.73116	71.90912	1.18110	0.1780572	0.29058818	2.2574462	20	7 28.0	18.7
130699 2000 <i>SG</i> <sub>156</sub>	16.2	X	178.03659	283.17808	15.18481	6.30677	0.1589846	0.26622744	2.3931367	20	—	—
130700 2000 <i>SA</i> <sub>160</sub>	14.9	X	45.67084	259.38344	216.76873	21.83110	0.2318004	0.26893066	2.3770729	20	2 2.7	17.3
130701 2000 <i>SG</i> <sub>168</sub>	15.8	X	104.17744	116.74672	291.69029	6.37322	0.0987559	0.26858490	2.3791126	20	1 31.3	18.7
130702 2000 <i>ST</i> <sub>169</sub>	16.3	X	206.83668	329.97478	349.45966	2.53555	0.2171811	0.27345989	2.3507528	20	2 6.6	20.2
130703 2000 <i>SH</i> <sub>170</sub>	16.1	X	143.28493	349.42147	16.90821	6.67636	0.1141149	0.26829955	2.3807991	20	1 31.4	19.4
130704 2000 <i>SH</i> <sub>176</sub>	16.1	X	161.41073	149.08547	244.71740	6.16107	0.1776002	0.27423492	2.3463216	20	3 25.7	19.8
130705 2000 <i>SF</i> <sub>178</sub>	15.5	X	35.18354	236.27040	221.50645	24.56842	0.1673896	0.26264376	2.4148565	20	—	—
130706 2000 <i>SP</i> <sub>179</sub>	15.6	X	239.45195	87.26935	20.69730	12.26572	0.2248522	0.24115074	2.5562911	20	9 14.9	19.4
130707 2000 <i>ST</i> <sub>179</sub>	15.5	X	223.61546	80.66943	344.16376	3.81820	0.2270903	0.23376796	2.6098330	20	6 27.4	20.0
130708 2000 <i>SE</i> <sub>186</sub>	16.5	X	16.14504	73.52163	193.44909	3.16708	0.1221374	0.29035482	2.2586556	20	8 1.6	18.5
130709 2000 <i>SR</i> <sub>186</sub>	15.6	X	43.23009	234.87271	219.25042	22.90462	0.2135939	0.26681988	2.3895929	20	—	—
130710 2000 <i>SN</i> <sub>187</sub>	16.0	X	18.65319	18.35128	135.52398	1.60151	0.0233843	0.27253793	2.3560513	20	2 11.9	18.5
130711 2000 <i>SR</i> <sub>191</sub>	16.1	X	322.40018	208.34082	306.74083	1.38816	0.1481116	0.26509308	2.3999588	20	—	—
130712 2000 <i>SP</i> <sub>193</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>
130721 2000 SB <sub>213</sub>	16.0	X	271.15252	162.21268	112.50157	7.00662	0.1583063	0.27765955	2.3269889	20	2 11.8	19.2
130722 2000 SS <sub>214</sub>	16.2	X	17.21195	165.52583	12.53442	7.55036	0.0572009	0.27685330	2.3315044	20	3 15.1	18.6
130723 2000 SO <sub>216</sub>	16.2	X	68.23676	156.57704	135.69688	6.76644	0.1648509	0.30074085	2.2063502	20	12 3.4	19.4
130724 2000 SH <sub>218</sub>	15.7	X	136.32150	247.98253	125.24607	6.45254	0.2202449	0.26891871	2.3771433	20	2 12.2	19.0
130725 2000 SJ <sub>218</sub>	16.3	X	317.31868	209.50895	98.79341	7.80359	0.1338715	0.28631870	2.2798323	20	6 7.5	18.5
130726 2000 SE <sub>223</sub>	16.4	X	157.48982	153.02151	194.76288	6.73525	0.0486802	0.26943264	2.3741195	20	1 12.4	19.6
130727 2000 SM <sub>223</sub>	16.2	X	12.06250	92.59515	9.63910	2.31690	0.1464826	0.26222925	2.4174006	20	—	—
130728 2000 SJ <sub>224</sub>	16.2	X	207.16407	112.67883	160.45970	1.24334	0.1860790	0.26756613	2.3851478	20	—	—
130729 2000 SK <sub>227</sub>	16.4	X	224.08606	282.29545	171.47023	3.81809	0.2596745	0.23789591	2.5795546	20	8 3.2	20.6
130730 2000 SO <sub>227</sub>	16.0	X	127.52501	264.96838	127.51170	6.97212	0.1194121	0.26854261	2.3793623	20	2 14.7	19.0
130731 2000 SF <sub>230</sub>	16.5	X	133.73311	344.43078	29.72535	4.14050	0.2145279	0.26853844	2.3793869	20	2 11.1	19.9
130732 2000 SQ <sub>230</sub>	16.6	X	129.90470	18.25996	29.89266	2.89272	0.1987790	0.271108107	2.3644852	20	3 18.7	20.0
130733 2000 SU <sub>231</sub>	15.6	X	14.57636	190.18132	5.13288	22.23976	0.1705487	0.27940732	2.3172748	20	3 30.6	17.4
130734 2000 SW <sub>233</sub>	15.5	X	227.98397	359.53474	86.76640	7.48641	0.2879605	0.23905166	2.5712337	20	7 27.7	19.8
130735 2000 SC <sub>236</sub>	15.6	X	312.92676	16.21583	100.77975	5.97629	0.1404928	0.25619678	2.4552003	20	—	—
130736 2000 ST <sub>241</sub>	15.7	X	174.69795	352.64011	17.74494	6.93792	0.1244865	0.27702056	2.3305659	20	3 10.4	19.2
130737 2000 SM <sub>241</sub>	16.4	X	135.56303	342.02603	60.52159	5.35426	0.1678888	0.27539331	2.3973734	20	3 12.1	19.6
130738 2000 SJ <sub>246</sub>	15.8	X	4.94450	80.50426	22.76489	11.30357	0.1511082	0.26301228	2.4126002	20	—	—
130739 2000 SK <sub>247</sub>	16.0	X	45.26610	290.89298	160.78048	12.58624	0.0371064	0.26826932	2.3809780	20	—	—
130740 2000 SH <sub>251</sub>	16.4	X	7.27327	165.48036	126.52790	4.40918	0.1657227	0.29328807	2.2435708	20	9 3.7	18.1
130741 2000 SZ <sub>253</sub>	16.7	X	19.13739	280.18926	45.25558	4.81177	0.1483544	0.29885386	2.2156278	20	11 13.0	19.0
130742 2000 SA <sub>256</sub>	15.6	X	357.28507	127.65553	45.94714	7.40688	0.0665636	0.27176803	2.3604989	20	2 7.5	18.3
130743 2000 SQ <sub>256</sub>	15.5	X	85.65549	89.40575	81.48638	6.86082	0.1911890	0.28161176	2.3051659	20	7 11.2	18.5
130744 2000 SH <sub>259</sub>	16.6	X	266.34472	78.33039	284.17619	1.77159	0.1367410	0.28560553	2.2836260	20	6 5.4	19.4
130745 2000 ST <sub>259</sub>	15.8	X	213.79962	237.92945	78.58653	7.11546	0.1356116	0.27302991	2.3532202	20	2 10.9	19.5
130746 2000 SF <sub>260</sub>	16.5	X	159.81824	340.69174	28.33091	2.05664	0.1562587	0.27119779	2.3638066	20	2 24.0	19.9
130747 2000 SV <sub>260</sub>	16.3	X	50.99615	289.32113	174.85081	6.21489	0.1176754	0.26827520	2.3809432	20	1 25.7	18.6
130748 2000 ST <sub>264</sub>	16.4	X	41.01896	219.39474	179.15407	6.14061	0.1176465	0.25932088	2.4354416	20	—	—
130749 2000 SP <sub>265</sub>	16.2	X	354.83991	7.00409	65.11634	6.76463	0.1278950	0.25622204	2.4550390	20	—	—
130750 2000 SV <sub>267</sub>	16.2	X	264.29213	223.96877	102.63111	2.78697	0.1423663	0.28163676	2.3050295	20	4 14.1	19.2
130751 2000 SH <sub>274</sub>	16.3	X	174.44295	166.25683	184.46385	5.74563	0.1456542	0.27111822	2.3642691	20	2 12.4	19.8
130752 2000 SP <sub>274</sub>	16.2	X	315.99109	295.76953	44.57708	5.14326	0.1605360	0.28971395	2.2619853	20	7 26.3	18.0
130753 2000 SA <sub>275</sub>	16.2	X	108.95453	193.85905	183.05106	6.02714	0.1214926	0.26443831	2.4039188	20	—	—
130754 2000 SV <sub>275</sub>	16.4	X	178.88535	213.70295	182.30900	4.93857	0.2244923	0.27618673	2.3352543	20	4 18.2	20.3
130755 2000 SX <sub>275</sub>	15.5	X	181.54510	143.57774	191.12138	10.45784	0.2362181	0.27033708	2.3688213	20	2 2.6	19.6
130756 2000 SB <sub>276</sub>	16.0	X	235.24936	261.24677	38.83896	7.01370	0.1356853	0.27353258	2.3503363	20	2 11.7	19.6
130757 2000 SL <sub>277</sub>	16.2	X	140.25825	280.43677	87.40061	2.71478	0.2995401	0.26811406	2.3818971	20	2 17.4	20.0
130758 2000 SM <sub>277</sub>	15.0	X	316.29498	327.89514	48.03216	14.31391	0.1748611	0.24173302	2.5521845	20	9 21.4	17.7
130759 2000 SX <sub>278</sub>	16.2	X	139.35462	212.60719	162.99180	2.42262	0.2347800	0.26814995	2.3816845	20	2 18.8	19.8
130760 2000 SD <sub>279</sub>	14.6	X	121.93956	327.21264	30.14960	14.26393	0.1133351	0.26320677	2.4114116	20	—	—
130761 2000 SW <sub>281</sub>	16.1	X	87.05987	222.98498	243.16580	6.51147	0.0571586	0.27656802	2.3331075	20	3 16.5	19.0
130762 2000 SV <sub>285</sub>	16.2	X	346.66485	83.84888	19.20444	6.94413	0.0813970	0.26170738	2.4206132	20	—	—
130763 2000 SV <sub>288</sub>	16.4	X	95.13613	38.82243	225.11550	7.40576	0.1414243	0.30221715	2.1991591	20	11 21.8	19.5
130764 2000 SM <sub>298</sub>	16.1	X	1.58987	158.21657	268.48735	4.85901	0.1014689	0.25738501	2.4476381	20	—	—
130765 2000 SX <sub>299</sub>	16.0	X	328.91759	326.83663	293.93698	4.31740	0.2436599	0.28448441	2.2896217	20	3 22.8	18.0
130766 2000 SJ <sub>301</sub>	15.9	X	347.80791	240.18297	250.32848	3.76957	0.0753033	0.26358340	2.4091140	20	—	—
130767 2000 SR <sub>307</sub>	15.9	X	298.10050	63.55998	263.19921	5.90931	0.1401063	0.28637199	2.2795495	20	5 30.6	18.4
130768 2000 SV <sub>308</sub>	15.8	X	317.26912	10.23167	267.12486	6.39183	0.1279179	0.28227922	2.3015307	20	4 16.9	18.4
130769 2000 SA <sub>314</sub>	15.1	X	201.74414	107.45261	252.96357	12.32959	0.1595105	0.27664183	2.3326924	20	3 16.8	19.1
130770 2000 SS <sub>321</sub>	16.4	X	19.35525	255.35129	205.22465	0.53777	0.1500258	0.26496403	2.4007380	20	—	—
130771 2000 SU <sub>324</sub>	16.5	X	25.70875	38.80240	194.84915	22.29537	0.1188094	0.28560052	2.2836527	20	6 24.8	19.4
130772 2000 SD <sub>326</sub>	16.1	X	154.87339	238.84848	12.92404	10.09742	0.1082908	0.25640711	2.4538575	20	12 27.1	19.9
130773 2000 SH <sub>326</sub>	16.1	X	298.16257	184.72683	14.38836	7.24636	0.0503224	0.26752475	2.3853937	20	—	—
130774 2000 SX <sub>329</sub>	16.6	X	54.16423	24.88140	68.75244	3.20412	0.1625689	0.26548722	2.3975829	20	1 22.6	18.5
130775 2000 SB <sub>335</sub>	16.6	X	75.10245	3.59241	80.51807	4.71764	0.1093320	0.27033210	2.3688504	20	2 9.7	19.2
130776 2000 SB <sub>348</sub>	15.5	X	61.60546	277.05542	107.12396	15.62848	0.1772528	0.25898737	2.4375320	20	—	—
130777 2000 SA <sub>364</sub>	16.2	X	30.92575	177.52250	105.93536	7.66707	0.1287317	0.29730993	2.2232917	20	10 1.7	18.7
130778 2000 SX <sub>369</sub>	15.7	X	59.61108	337.82858	88.62062	7.18094	0.0972202	0.26656845	2.3910953	20	—	—
130779 2000 TQ <sub>1</sub>	15.9	X	232.35364	38.71331	45.30588	12.15287	0.1607674	0.23685532	2.5871044	20	8 15.4	19.9
130780 2000 TH <sub>3</sub>	16.3	X	8.07012	350.17830	165.98690	6.49247	0.0648803	0.27310529	2.3527871	20	1 26.3	18.9
130781 2000 TF <sub>4</sub>	16.6	X	54.70661	82.87626	15.95725	1.42831	0.1507759	0.26876643	2.3780411	20	1 29.4	18.7
130782 2000 TH <sub>6</sub>	16.4	X	328.38446	193.88006	304.29408	0.71055	0.1317681	0.26243734	2.4161226	20	—	—
130783 2000 TD <sub>11</sub>	16.4	X	247.18440	76.50745	178.50199	4.58384	0.1123899	0.26966456	2.3727581	20	—	—
130784 2000 TF <sub>11</sub>	16.5	X	54.89227	223.49064	36.83935	4.04848	0.1395252	0.29432053	2.2383209	20	10 1.1	19.1
130785 2000 TM <sub>12</sub>	16.0	X	118.90371	307.93203	115.07057	7.15551	0.1067472	0.27214631	2.3583111	20	3 15.8	19.1
130786 2000 TH <sub>16</sub>	16.2	X	219.59196	276.21383	180.45817	4.52093	0.2913133	0.23720588	2.5845549	20	7 31.2	20.6
130787 2000 TE <sub>17</sub>	16.7	X	261.12066	71.09024	28.24876	7.21247	0.2321918	0.24425954	2.5345548	20	9 27.3	19.9
130788 2000 TY <sub>18</sub>	16.3	X	170.25403	274.23851	208.20445	7.37736	0.2506835	0.23323572	2.6138019	20	7 25.5	21.0
130789 2000 TT <sub>19</sub>	16.1	X	266.61393	199.21132	127.35342	7.49195	0.1332208	0.28339629	2.2954787	20	4 20.2	19.3
130790 2000 TW <sub>20</sub>	16.6	X	48.36614	192.85860	103.17879	6.66737	0.1940041	0.30045196	2.2077642	20	11 20.5	19.5
130791 2000 TQ <sub>26</sub>	15.8	X	337.64598	75.96470	51.05460	8.32197	0.1646046	0.26084106	2.4259699	20	—	—
130792 2000 TW <sub>27</sub>	15.4	X	147.10337	295.89946	204.52699	29.14899	0.3354602	0.23106467	2.6301490	20	7 27.5	20.9
130793 2000 TL <sub>31</sub>	16.6	X	56.02189	135.09221	49.53330	7.02391	0.0937412	0.28277217	2.2988551	20	5 30.5	19.1
130794 2000 TH <sub>34</sub>	16.0	X	353.64488	76.83328	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>
130801 2000 <i>TO</i> <sub>49</sub>	15.8	X	257.64953	332.86686	120.78912	8.55014	0.1543331	0.24476207	2.5310845	20	9 29.4	19.1
130802 2000 <i>TX</i> <sub>51</sub>	15.9	X	11.01103	296.21628	122.15703	9.15583	0.1432534	0.25563537	2.4587937	20	—	—
130803 2000 <i>TS</i> <sub>52</sub>	16.5	X	249.56239	64.15375	213.27032	3.88565	0.0813388	0.27237087	2.3570147	20	1 27.9	19.8
130804 2000 <i>TE</i> <sub>55</sub>	15.6	X	301.99188	316.49408	209.45758	10.32154	0.2008604	0.25983227	2.4322451	20	—	—
130805 2000 <i>TU</i> <sub>62</sub>	15.6	X	251.86575	38.18555	60.87264	8.31232	0.1511906	0.24368819	2.5385149	20	9 29.4	18.9
130806 2000 <i>TB</i> <sub>66</sub>	15.8	X	319.22899	185.94863	23.46982	7.40967	0.0770205	0.27089344	2.3655768	20	1 29.6	18.8
130807 2000 <i>TY</i> <sub>67</sub>	15.9	X	149.09680	147.14546	252.29718	2.92808	0.1092950	0.27359625	2.3499717	20	3 15.9	19.2
130808 2000 <i>UU</i>	16.4	X	259.55214	157.24634	220.10628	4.06775	0.1711135	0.28510358	2.2863055	20	6 12.8	19.3
130809 2000 <i>UJ</i> <sub>5</sub>	16.0	X	10.96363	87.90390	233.60767	4.85380	0.2356185	0.29448711	2.2374767	20	11 8.2	17.9
130810 2000 <i>UN</i> <sub>5</sub>	16.4	X	334.61095	141.86335	195.63887	5.72227	0.1553918	0.29135595	2.2534787	20	8 31.8	18.0
130811 2000 <i>UH</i> <sub>6</sub>	16.5	X	298.48722	313.49471	28.38292	4.54017	0.1904552	0.28783356	2.2718262	20	6 14.6	18.7
130812 2000 <i>UP</i> <sub>6</sub>	15.8	X	264.94866	219.70022	214.34857	2.52295	0.2133519	0.24163031	2.5529077	20	8 28.3	19.2
130813 2000 <i>UM</i> <sub>8</sub>	15.9	X	90.77396	19.95439	47.58710	12.01760	0.1354534	0.26689822	2.3891253	20	2 20.7	18.9
130814 2000 <i>UW</i> <sub>8</sub>	15.1	X	271.89791	169.73986	231.67022	13.14791	0.1739664	0.23830300	2.5766160	20	7 26.0	18.7
130815 2000 <i>UD</i> <sub>9</sub>	15.5	X	122.97278	318.61161	49.21531	8.91287	0.1168318	0.26403285	2.4063793	20	1 7.9	18.6
130816 2000 <i>UJ</i> <sub>9</sub>	15.9	X	78.04966	344.40535	33.57269	1.67694	0.1933790	0.25938295	2.4350531	20	—	—
130817 2000 <i>UO</i> <sub>9</sub>	16.2	X	57.61651	315.80082	68.04087	3.07013	0.1915563	0.25710015	2.4494458	20	—	—
130818 2000 <i>UM</i> <sub>13</sub>	15.4	X	3.46056	149.80163	238.04990	7.00927	0.1637404	0.25165825	2.4846312	20	—	—
130819 2000 <i>UQ</i> <sub>14</sub>	16.5	X	203.06191	61.60996	5.27897	12.73634	0.2638674	0.23213957	2.6220236	20	6 12.4	21.3
130820 2000 <i>UH</i> <sub>17</sub>	15.9	X	156.70708	171.08223	156.44045	6.17263	0.1352985	0.26601369	2.3944185	20	—	—
130821 2000 <i>UT</i> <sub>19</sub>	16.5	X	235.00661	126.68197	67.22364	2.57255	0.0534992	0.25626303	2.4547772	20	—	—
130822 2000 <i>UD</i> <sub>20</sub>	16.6	X	265.99776	285.46695	44.16651	4.29800	0.1096863	0.28124928	2.3071461	20	4 23.8	19.4
130823 2000 <i>UJ</i> <sub>22</sub>	15.9	X	236.55998	353.96070	96.88281	3.13099	0.1480675	0.23974334	2.5662857	20	8 26.8	19.5
130824 2000 <i>UQ</i> <sub>25</sub>	15.9	X	148.14509	246.94494	114.07937	4.55249	0.2018560	0.26827317	2.3809552	20	2 6.7	19.4
130825 2000 <i>UJ</i> <sub>25</sub>	15.8	X	200.24665	262.05718	92.02664	8.29455	0.1342748	0.27404085	2.3474293	20	3 17.9	19.5
130826 2000 <i>UT</i> <sub>28</sub>	16.5	X	18.32641	207.66674	260.19913	1.65757	0.1444839	0.26221264	2.4175027	20	—	—
130827 2000 <i>UB</i> <sub>34</sub>	15.7	X	343.81541	48.67454	300.47447	1.35408	0.0517645	0.24382804	2.5375442	20	9 25.3	18.7
130828 2000 <i>UL</i> <sub>36</sub>	16.3	X	16.16202	66.57575	25.96525	2.44333	0.1644412	0.25961459	2.4336045	20	—	—
130829 2000 <i>UX</i> <sub>36</sub>	16.4	X	44.80155	9.49249	352.16630	2.34662	0.2047578	0.25429938	2.4673978	20	—	—
130830 2000 <i>UJ</i> <sub>40</sub>	15.9	X	135.55236	347.70479	40.67148	7.11660	0.1215555	0.26905433	2.3763444	20	2 21.9	19.2
130831 2000 <i>UL</i> <sub>43</sub>	16.6	X	81.19609	183.17797	184.93790	0.69260	0.2037256	0.25950252	2.4343050	20	—	—
130832 2000 <i>UG</i> <sub>44</sub>	15.6	X	302.19523	22.44201	25.65313	3.87954	0.1958095	0.24368730	2.5385211	20	9 30.4	17.7
130833 2000 <i>UH</i> <sub>44</sub>	16.3	X	256.35460	288.18401	27.41915	3.36218	0.2422401	0.27855411	2.3220042	20	3 12.3	19.8
130834 2000 <i>US</i> <sub>44</sub>	16.9	X	110.50272	272.24193	89.96546	0.40044	0.2221865	0.26304685	2.4123888	20	—	—
130835 2000 <i>US</i> <sub>46</sub>	16.0	X	345.26945	282.86474	43.31222	7.56404	0.1875167	0.29125539	2.2539974	20	9 16.6	17.6
130836 2000 <i>UJ</i> <sub>47</sub>	16.5	X	306.34647	297.42645	45.18485	4.05301	0.1755169	0.28759236	2.2730962	20	7 4.8	18.5
130837 2000 <i>UU</i> <sub>47</sub>	15.5	X	216.70855	219.74879	235.87595	6.63781	0.1563797	0.23621294	2.5917927	20	8 5.8	19.6
130838 2000 <i>UJ</i> <sub>47</sub>	16.3	X	237.15573	195.37415	142.79722	0.96001	0.2181210	0.27805051	2.3248071	20	3 24.6	19.9
130839 2000 <i>UY</i> <sub>50</sub>	15.4	X	248.36783	250.41473	238.91439	23.58569	0.2115236	0.24286639	2.5442382	20	10 17.9	19.2
130840 2000 <i>UN</i> <sub>51</sub>	16.3	X	207.19320	0.41265	22.39686	2.83280	0.2252661	0.27889161	2.3201305	20	4 23.5	20.0
130841 2000 <i>UG</i> <sub>52</sub>	16.4	X	86.57917	327.78883	75.45217	1.38713	0.1487608	0.26312999	2.4118807	20	1 7.4	18.9
130842 2000 <i>UY</i> <sub>54</sub>	16.4	X	338.58083	260.33271	95.73665	5.70394	0.2222448	0.29412456	2.2393150	20	10 26.3	17.7
130843 2000 <i>UP</i> <sub>60</sub>	16.8	X	38.39700	102.50577	334.21597	1.99966	0.1707161	0.26132803	2.4229552	20	—	—
130844 2000 <i>UL</i> <sub>61</sub>	15.7	X	219.55188	70.78602	15.31732	12.94041	0.1356193	0.23708996	2.5853972	20	8 6.5	19.8
130845 2000 <i>UQ</i> <sub>62</sub>	15.1	X	131.28097	97.03671	280.64247	4.91398	0.1548346	0.26794921	2.3828739	20	2 2.8	18.2
130846 2000 <i>UL</i> <sub>63</sub>	15.7	X	97.20796	111.82462	309.38675	2.28845	0.0442538	0.26812341	2.3818417	20	1 31.5	18.6
130847 2000 <i>UB</i> <sub>64</sub>	16.7	X	125.00753	86.28382	328.44988	7.95450	0.2528203	0.22028993	2.7152279	20	3 27.1	21.1
130848 2000 <i>UF</i> <sub>64</sub>	16.7	X	28.16536	34.93019	268.26372	5.29458	0.1367286	0.29595525	2.2300709	20	10 20.6	19.1
130849 2000 <i>UJ</i> <sub>64</sub>	16.0	X	339.69652	103.36411	1.99744	7.24195	0.0342305	0.25880727	2.4386627	20	—	—
130850 2000 <i>UU</i> <sub>66</sub>	16.2	X	345.22268	129.55111	339.26226	5.66578	0.0740565	0.25865653	2.4396101	20	—	—
130851 2000 <i>UO</i> <sub>68</sub>	17.0	X	9.02749	68.63857	18.55178	2.61159	0.1728975	0.25781492	2.4449164	20	—	—
130852 2000 <i>UR</i> <sub>68</sub>	16.4	X	282.30645	5.58071	278.00508	2.92352	0.1513080	0.27813049	2.3243614	20	3 4.8	19.5
130853 2000 <i>UW</i> <sub>68</sub>	16.1	X	342.22697	286.49740	276.32587	2.29100	0.0546252	0.27223147	2.3578192	20	2 22.2	18.7
130854 2000 <i>UD</i> <sub>73</sub>	16.1	X	290.66116	230.37375	155.03359	5.16008	0.1876476	0.23883109	2.5728165	20	8 3.4	18.9
130855 2000 <i>UX</i> <sub>73</sub>	15.7	X	142.45265	310.43749	46.78529	7.18197	0.1386323	0.26634165	2.3924525	20	1 21.4	19.1
130856 2000 <i>UZ</i> <sub>73</sub>	16.0	X	61.35345	324.59670	84.00543	3.66233	0.0964224	0.25959867	2.4337039	20	—	—
130857 2000 <i>UV</i> <sub>77</sub>	15.8	X	280.55359	239.23271	192.05700	3.16022	0.1895205	0.24158820	2.5532043	20	9 22.5	18.5
130858 2000 <i>UJ</i> <sub>79</sub>	15.5	X	221.95510	284.31143	40.79437	5.09900	0.2205004	0.27358012	2.3500640	20	2 27.2	19.5
130859 2000 <i>UO</i> <sub>81</sub>	14.6	X	264.24880	168.44667	261.20177	5.16877	0.2565577	0.23840654	2.5758700	20	8 13.1	18.1
130860 2000 <i>UY</i> <sub>82</sub>	15.8	X	255.49304	232.13862	54.39521	10.42863	0.1032333	0.27403961	2.3474363	20	2 19.7	19.3
130861 2000 <i>UH</i> <sub>85</sub>	16.4	X	70.71338	17.52675	57.65423	7.50922	0.0940102	0.26590449	2.3950740	20	1 19.7	19.1
130862 2000 <i>US</i> <sub>86</sub>	16.1	X	175.32461	212.39331	120.03689	5.23365	0.0830352	0.26777622	2.3839001	20	1 18.6	19.4
130863 2000 <i>UB</i> <sub>103</sub>	15.4	X	123.94468	74.32847	268.78678	6.02958	0.1476476	0.26104651	2.4246969	20	—	—
130864 2000 <i>UD</i> <sub>103</sub>	15.0	X	322.58569	336.24234	41.72389	14.63644	0.1719429	0.24262203	2.5459462	20	10 6.2	17.4
130865 2000 <i>UJ</i> <sub>107</sub>	16.7	X	346.50729	225.77148	108.19821	6.22633	0.1577309	0.29285850	2.2457642	20	9 30.1	18.5
130866 2000 <i>UO</i> <sub>109</sub>	15.2	X	177.94929	5.18821	103.15134	7.49194	0.2441501	0.23067087	2.6331416	20	7 16.3	19.8
130867 2000 <i>US</i> <sub>110</sub>	15.7	X	166.18314	67.32212	33.17111	23.21473	0.2515656	0.22752742	2.6573385	20	6 25.6	20.8
130868 2000 <i>VZ</i>	16.3	X	352.64734	283.69282	66.37587	2.56250	0.0651723	0.24370791	2.5383780	20	10 13.1	19.2
130869 2000 <i>VH</i> <sub>1</sub>	14.8	X	247.72569	206.49725	239.18575	12.73991	0.2618877	0.23627587	2.5913324	20	8 10.6	18.9
130870 2000 <i>VK</i> <sub>1</sub>	15.1	X	284.91097	244.09990	203.41620	4.52359	0.2768974	0.24179547	2.5517450	20	10 9.3	17.3
130871 2000 <i>VG</i> <sub>2</sub>	14.3	X	70.28257	221.19911	281.48817	22.45777	0.3168896	0.21388784	2.7691426	20	5 31.2	18.2
130872 2000 <i>VQ</i> <sub>2</sub>	16.0	X	228.43619	289.78403	186.88777	4.51882</						

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>		
130881	2000	VX <sub>13</sub>	15.8 <sup>m</sup>	X	142.78683	309.33279	67.48947	6.93546	0.1265916	0.26854122	2.3793705	20	2 15.4	19.2
130882	2000	VN <sub>15</sub>	16.4	X	59.10610	191.15041	186.89669	1.73792	0.1772726	0.25698378	2.4501852	20	—	—
130883	2000	VU <sub>15</sub>	16.9	X	342.67348	220.74414	126.62958	2.54923	0.2131292	0.29382181	2.2408530	20	10 18.4	18.1
130884	2000	VY <sub>17</sub>	16.1	X	116.00099	327.12075	81.41189	5.50016	0.1251673	0.26761499	2.3848574	20	2 24.2	19.1
130885	2000	VV <sub>21</sub>	15.9	X	310.21549	120.24018	99.63792	4.43394	0.0909964	0.26848482	2.3797037	20	1 27.4	18.8
130886	2000	VO <sub>22</sub>	15.8	X	249.28862	40.69528	67.46069	5.88463	0.1964083	0.24206850	2.5498259	20	9 29.8	19.2
130887	2000	VB <sub>23</sub>	16.0	X	264.65853	20.98931	27.70289	2.57021	0.2216757	0.23841327	2.5758215	20	7 24.3	19.4
130888	2000	VU <sub>23</sub>	16.4	X	96.83680	330.64192	43.73034	3.40079	0.2070725	0.26238259	2.4164587	20	—	—
130889	2000	VX <sub>23</sub>	16.3	X	92.29194	350.05313	43.65578	3.83423	0.1770843	0.26342264	2.4100940	20	1 8.2	18.8
130890	2000	VE <sub>24</sub>	15.9	X	152.25572	316.20983	38.51060	6.94229	0.1166953	0.26675779	2.3899637	20	1 27.0	19.3
130891	2000	VP <sub>24</sub>	15.5	X	334.82220	334.51079	29.17279	2.46857	0.0962892	0.24256681	2.5463326	20	10 3.5	18.2
130892	2000	VY <sub>24</sub>	16.2	X	48.28067	50.76478	47.37713	6.77918	0.0861135	0.26559873	2.3969118	20	1 13.8	18.8
130893	2000	VA <sub>27</sub>	16.9	X	19.21249	205.70261	221.19391	1.41048	0.1917616	0.25652695	2.4530932	20	—	—
130894	2000	VE <sub>28</sub>	15.7	X	277.17485	328.00828	117.32671	5.22439	0.2159695	0.24319396	2.5419531	20	10 6.2	18.5
130895	2000	VM <sub>28</sub>	16.3	X	212.92448	205.09218	184.27099	4.13439	0.2306207	0.27946436	2.3169594	20	5 7.6	20.1
130896	2000	VY <sub>28</sub>	14.9	X	243.90509	8.12025	81.84387	7.06568	0.3177222	0.23817493	2.5775396	20	8 13.8	19.0
130897	2000	VS <sub>30</sub>	16.1	X	242.90179	303.39533	80.77426	7.67535	0.1830502	0.28236186	2.3010816	20	6 1.3	19.2
130898	2000	VQ <sub>31</sub>	15.9	X	122.38658	357.71547	49.17922	7.24563	0.1215536	0.26807225	2.3821447	20	3 1.9	19.1
130899	2000	VG <sub>32</sub>	16.6	X	32.66588	9.61151	55.59622	3.50624	0.1856990	0.25724291	2.4485394	20	—	—
130900	2000	VH <sub>32</sub>	15.6	X	58.04411	326.61461	61.19764	3.13229	0.2012664	0.25722014	2.4488045	20	—	—
130901	2000	VB <sub>33</sub>	15.4	X	155.86815	232.67568	231.64686	13.41937	0.3113664	0.22636844	2.6664010	20	6 24.3	20.4
130902	2000	VM <sub>33</sub>	16.1	X	96.32988	187.75772	231.21911	8.13786	0.1848524	0.26533530	2.3984980	20	2 14.8	19.1
130903	2000	VE <sub>35</sub>	14.6	X	351.86605	312.48687	74.68561	13.76821	0.1672319	0.24656489	2.5187316	20	12 13.6	17.2
130904	2000	VH <sub>39</sub>	14.9	X	198.35038	34.92149	91.05212	33.68427	0.2199452	0.23267188	2.6180229	20	9 4.5	19.9
130905	2000	VO <sub>39</sub>	16.2	X	315.49611	6.49037	280.74316	4.28657	0.2011373	0.28431761	2.2905171	20	4 16.5	18.6
130906	2000	VD <sub>42</sub>	15.9	X	7.28535	258.80271	257.54081	3.08815	0.0353992	0.26842560	2.3800537	20	1 28.8	18.7
130907	2000	VQ <sub>44</sub>	16.1	X	179.21419	66.18078	50.23470	13.28149	0.2056135	0.23306572	2.6150728	20	7 31.8	20.7
130908	2000	VH <sub>45</sub>	15.7	X	221.76257	284.63010	64.35571	8.67962	0.0908514	0.27566138	2.3382203	20	4 3.7	19.1
130909	2000	VG <sub>46</sub>	16.4	X	252.63831	237.13364	185.94834	8.69697	0.1496101	0.23869444	2.5737984	20	8 5.3	20.1
130910	2000	VY <sub>53</sub>	15.7	X	39.40914	308.50175	1.22171	4.83474	0.0511800	0.24404469	2.5360422	20	10 22.4	18.9
130911	2000	VK <sub>54</sub>	16.1	X	303.73169	75.02353	257.96219	6.10868	0.1531798	0.28574310	2.2828930	20	6 17.3	18.3
130912	2000	VJ <sub>56</sub>	16.0	X	208.59685	343.27012	345.99150	2.06901	0.2254628	0.27246159	2.3564914	20	2 19.6	20.1
130913	2000	VY <sub>62</sub>	15.2	X	201.11584	68.34073	42.10722	22.44536	0.0843043	0.23236864	2.6203002	20	8 30.2	19.6
130914	2000	WY	16.3	X	1.15962	91.44768	68.19279	7.73196	0.0572295	0.26652812	2.3913365	20	1 25.4	19.1
130915	2000	WO <sub>2</sub>	15.4	X	244.25947	12.70967	94.00150	5.42711	0.2054556	0.23822407	2.5771851	20	9 19.6	19.0
130916	2000	WY <sub>4</sub>	15.0	X	305.66599	127.09967	279.01668	21.97217	0.0859050	0.24247085	2.5470044	20	9 30.8	18.6
130917	2000	WE <sub>8</sub>	15.6	X	257.80307	125.79269	118.81443	7.43991	0.0949300	0.26465357	2.4026151	20	—	—
130918	2000	WP <sub>8</sub>	15.1	X	130.53944	211.78140	284.03808	12.94816	0.1465192	0.22611902	2.6683615	20	7 6.1	19.2
130919	2000	WU <sub>8</sub>	15.8	X	216.71063	6.40290	49.40966	10.65443	0.1323976	0.22965073	2.6409337	20	6 18.4	20.0
130920	2000	WL <sub>11</sub>	14.8	X	69.63141	225.02940	314.87898	8.98163	0.2222651	0.21947098	2.7219782	20	7 5.6	18.5
130921	2000	WF <sub>15</sub>	15.7	X	164.53957	11.37647	87.51938	13.03354	0.1520858	0.22927729	2.6438006	20	6 22.4	19.8
130922	2000	WK <sub>15</sub>	16.4	X	229.63803	103.19706	315.34490	2.82107	0.2725526	0.23317762	2.6142361	20	6 24.2	20.7
130923	2000	WB <sub>16</sub>	16.6	X	256.11986	225.66930	243.64154	3.68096	0.2200489	0.24279758	2.5447189	20	10 1.9	19.9
130924	2000	WH <sub>17</sub>	16.0	X	187.62232	302.92710	57.55292	4.93616	0.1935397	0.27209217	2.3586239	20	3 13.4	19.8
130925	2000	WY <sub>17</sub>	15.5	X	258.79078	0.55879	96.62591	5.47164	0.2721668	0.24108166	2.5567795	20	9 15.4	18.9
130926	2000	WF <sub>19</sub>	14.9	X	197.98970	249.13482	194.17625	11.76259	0.2473066	0.23144218	2.6272882	20	6 29.7	19.7
130927	2000	WM <sub>22</sub>	16.1	X	213.77601	32.37029	66.57708	14.68697	0.2139359	0.23708007	2.5854691	20	8 9.6	20.5
130928	2000	WN <sub>25</sub>	16.1	X	309.67266	78.28309	57.77199	6.82064	0.0826362	0.25472082	2.4646756	20	—	—
130929	2000	WA <sub>26</sub>	15.9	X	184.59371	213.83559	270.12127	3.47922	0.2128589	0.23298615	2.6156682	20	8 9.6	20.2
130930	2000	WR <sub>26</sub>	16.3	X	311.33099	260.17027	63.80979	7.45061	0.1395195	0.28365666	2.2940738	20	6 19.2	18.6
130931	2000	WF <sub>29</sub>	15.7	X	161.66385	68.32328	79.79938	28.19037	0.2078993	0.23249721	2.6193340	20	9 2.1	20.7
130932	2000	WP <sub>29</sub>	15.4	X	63.12967	323.45218	238.99889	23.37200	0.1648092	0.27865288	2.3214555	20	7 13.4	18.7
130933	2000	WL <sub>31</sub>	15.5	X	257.94901	313.75245	106.73261	8.39789	0.0441609	0.23769117	2.5810357	20	8 30.6	18.9
130934	2000	WA <sub>32</sub>	15.8	X	217.21646	69.63931	91.44186	12.67231	0.0898977	0.24448591	2.5329901	20	11 14.6	19.4
130935	2000	WL <sub>35</sub>	16.5	X	188.47294	296.03177	152.70700	5.89481	0.2430264	0.22952312	2.6419124	20	6 29.8	21.2
130936	2000	WD <sub>40</sub>	15.5	X	140.47760	211.57479	216.46993	7.42869	0.1828554	0.22112761	2.7083663	20	4 23.4	19.7
130937	2000	WM <sub>40</sub>	15.7	X	240.78533	265.42442	153.40172	5.03609	0.1722622	0.23341181	2.6124872	20	7 14.7	19.6
130938	2000	WK <sub>41</sub>	15.2	X	195.73606	237.90121	241.32922	10.92746	0.1574438	0.23179085	2.6246528	20	8 12.4	19.6
130939	2000	WR <sub>41</sub>	15.5	X	326.04197	265.00836	145.69892	7.16183	0.0862335	0.24398052	2.5364868	20	11 25.7	18.5
130940	2000	WE <sub>43</sub>	16.0	X	224.68250	56.20154	78.54487	15.12284	0.1087485	0.24231778	2.5480769	20	10 21.3	19.8
130941	2000	WY <sub>43</sub>	16.0	X	257.55530	347.99938	64.69029	4.43916	0.0166882	0.23811014	2.5780071	20	8 22.9	19.3
130942	2000	WB <sub>50</sub>	16.5	X	282.26148	246.46711	104.00474	7.44141	0.1464088	0.28635989	2.2796137	20	6 9.9	19.2
130943	2000	WY <sub>51</sub>	17.1	X	233.44609	14.37087	261.59548	0.34757	0.1545588	0.26622296	2.3931635	20	1 8.4	20.9
130944	2000	WK <sub>54</sub>	15.9	X	296.19566	102.27519	255.84371	4.97819	0.1946311	0.28807689	2.2705467	20	7 5.6	18.0
130945	2000	WC <sub>55</sub>	15.5	X	212.40871	6.16967	87.60212	5.93337	0.2275465	0.23057508	2.6338708	20	7 27.7	19.9
130946	2000	WT <sub>61</sub>	15.6	X	304.44793	343.79049	95.44804	7.20165	0.2404546	0.24352948	2.5396178	20	11 20.5	17.4
130947	2000	WP <sub>62</sub>	15.6	X	194.86439	20.82552	60.87341	22.93790	0.0647291	0.22781434	2.6551069	20	7 1.7	19.7
130948	2000	WM <sub>66</sub>	15.9	X	239.24710	24.29365	57.50336	17.91990	0.1215890	0.23754290	2.5821096	20	8 30.0	19.9
130949	2000	WQ <sub>66</sub>	16.1	X	279.56428	277.02319	65.39486	6.65957	0.2167378	0.28339138	2.2955053	20	5 13.6	18.8
130950	2000	WS <sub>72</sub>	15.9	X	238.98101	257.63965								

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>		
130961	2000	WV <sub>98</sub>	15.4	X	292.96781	352.46535	91.72157	6.53932	0.1417753	0.24307982	2.5427487	20	11 12.3	18.0
130962	2000	WX <sub>98</sub>	17.0	X	143.49307	154.58949	247.25798	0.69776	0.1835074	0.27023662	2.3694083	20	3 21.7	20.6
130963	2000	WD <sub>101</sub>	14.7	X	174.38460	26.06565	92.68192	12.49897	0.1299477	0.22911332	2.6450618	20	7 28.9	18.9
130964	2000	WV <sub>101</sub>	15.6	X	79.15573	342.85064	91.96033	12.51230	0.1635803	0.26594511	2.3948301	20	2 14.3	18.3
130965	2000	WK <sub>106</sub>	16.4	X	331.54487	195.94631	161.89012	6.90493	0.2648745	0.24288781	2.5440886	20	9 18.1	17.7
130966	2000	WA <sub>112</sub>	16.3	X	165.56240	325.75246	33.92350	7.03312	0.1230472	0.26775480	2.3840272	20	2 18.2	19.8
130967	2000	WX <sub>112</sub>	15.5	X	268.21327	46.59067	55.82550	11.54825	0.0807048	0.24368302	2.5385509	20	11 4.6	18.6
130968	2000	WC <sub>113</sub>	16.0	X	176.16883	96.59910	17.91719	4.86450	0.1999601	0.23064532	2.6333361	20	7 24.3	20.4
130969	2000	WC <sub>114</sub>	15.8	X	170.78977	39.69622	61.27758	13.04687	0.1200029	0.22904231	2.6456085	20	6 30.7	20.0
130970	2000	WD <sub>114</sub>	16.3	X	356.03454	64.18552	27.72694	2.97670	0.1503919	0.25418422	2.4681431	20	—	—
130971	2000	WP <sub>114</sub>	15.7	X	142.88760	358.38499	30.78903	3.10591	0.1831977	0.26852885	2.3794436	20	3 6.6	19.1
130972	2000	WB <sub>116</sub>	15.2	X	88.14807	37.59680	308.13070	5.83592	0.1816850	0.25483202	2.4639585	20	—	—
130973	2000	WS <sub>116</sub>	16.4	X	18.79349	45.21680	18.08932	2.58728	0.1730181	0.25381683	2.4705241	20	—	—
130974	2000	WX <sub>116</sub>	16.2	X	32.10019	20.45853	39.93501	6.43002	0.1402219	0.25493502	2.4632948	20	—	—
130975	2000	WB <sub>118</sub>	15.3	X	152.77162	71.36057	75.27040	13.53059	0.0984564	0.23021859	2.6365891	20	8 14.7	19.5
130976	2000	WV <sub>118</sub>	15.8	X	264.10739	108.37024	356.06106	2.67330	0.1005870	0.24316173	2.5421777	20	10 26.8	19.0
130977	2000	WQ <sub>123</sub>	16.0	X	268.17889	352.19901	48.52783	2.90030	0.2142926	0.23501603	2.6005850	20	7 18.2	19.5
130978	2000	WN <sub>125</sub>	15.7	X	64.77670	287.60791	78.64036	2.06694	0.2478820	0.25409423	2.4687257	20	—	—
130979	2000	WF <sub>126</sub>	15.7	X	147.89964	295.84842	38.17177	7.69577	0.1262874	0.26221462	2.4174905	20	—	—
130980	2000	WJ <sub>126</sub>	14.9	X	196.62059	20.06422	59.02308	12.07099	0.1783012	0.22663739	2.6642911	20	6 26.3	19.4
130981	2000	WX <sub>126</sub>	15.8	X	104.45906	265.97502	86.58873	2.86393	0.2725571	0.25975304	2.4327396	20	—	—
130982	2000	WH <sub>130</sub>	16.0	X	188.04922	30.49831	77.40363	3.20962	0.1603002	0.23129857	2.6283756	20	7 26.9	20.2
130983	2000	WM <sub>130</sub>	15.8	X	145.55873	297.58814	104.29706	12.32931	0.1476160	0.27280184	2.3545316	20	3 27.1	19.5
130984	2000	WA <sub>133</sub>	16.2	X	260.09405	57.99104	3.53336	11.60287	0.1778909	0.23929051	2.5695223	20	8 15.6	19.7
130985	2000	WJ <sub>133</sub>	15.3	X	6.64445	17.35760	22.00031	14.32644	0.0846803	0.25168638	2.4844461	20	—	—
130986	2000	WD <sub>138</sub>	16.8	X	63.24243	51.70629	21.72959	1.33472	0.1546836	0.26321502	2.4113612	20	1 9.8	19.0
130987	2000	WO <sub>140</sub>	15.6	X	158.43642	278.15791	70.83771	7.89702	0.1588542	0.26579594	2.3957261	20	1 30.5	19.2
130988	2000	WT <sub>141</sub>	14.9	X	74.09514	350.06248	26.31343	10.26101	0.2915505	0.25517583	2.4617448	20	—	—
130989	2000	WL <sub>142</sub>	15.4	X	284.79583	311.61181	118.96266	13.87859	0.1611073	0.24460997	2.5321336	20	10 12.0	18.4
130990	2000	WF <sub>153</sub>	15.9	X	39.84086	84.73349	321.62908	1.40416	0.1686766	0.25558863	2.4590934	20	—	—
130991	2000	WC <sub>158</sub>	14.7	X	118.98261	39.19863	50.41078	11.72608	0.3228073	0.21809658	2.7334018	20	5 12.6	19.2
130992	2000	WT <sub>159</sub>	16.0	X	323.66355	219.35505	72.54276	11.72324	0.1116261	0.28132176	2.3067498	20	5 27.3	18.2
130993	2000	WZ <sub>159</sub>	15.8	X	235.65195	48.58578	92.32554	8.45940	0.1534171	0.24404103	2.5360675	20	11 1.7	19.3
130994	2000	WA <sub>162</sub>	15.7	X	246.93967	292.51542	129.13572	10.83004	0.1466840	0.23647120	2.5899053	20	7 29.6	19.4
130995	2000	WZ <sub>166</sub>	16.5	X	69.00620	276.85369	136.03613	2.07657	0.2319930	0.26198086	2.4189284	20	—	—
130996	2000	WE <sub>167</sub>	15.9	X	166.13298	182.47215	176.38420	4.04907	0.1355376	0.26973009	2.3723738	20	2 14.4	19.3
130997	2000	WS <sub>167</sub>	16.6	X	4.21174	239.23308	94.27018	8.47990	0.1925764	0.29473494	2.2362223	20	11 10.3	18.7
130998	2000	WY <sub>170</sub>	15.7	X	314.04586	28.57864	109.83579	7.19512	0.0811620	0.25627827	2.4546799	20	—	—
130999	2000	WU <sub>172</sub>	15.4	X	257.26021	222.88188	106.14143	24.00695	0.2474626	0.27968481	2.3157418	20	4 9.9	19.6
131000	2000	WL <sub>178</sub>	15.0	X	148.39988	174.49529	268.42469	14.16063	0.0727374	0.22228712	2.6989397	20	5 10.2	19.2
131001	2000	WJ <sub>180</sub>	15.8	X	98.95048	51.79586	89.66558	13.82427	0.2431894	0.22278146	2.6949457	20	6 20.7	19.7
131002	2000	WP <sub>188</sub>	16.2	X	16.77654	27.49245	260.19267	5.01539	0.1289682	0.29044813	2.2581719	20	9 4.4	18.5
131003	2000	WC <sub>192</sub>	15.5	X	255.80596	354.77811	98.83389	16.02444	0.1541856	0.24279476	2.5447386	20	10 1.5	19.1
131004	2000	WT <sub>195</sub>	16.4	X	123.10643	322.89756	71.98099	2.91958	0.1041602	0.26559326	2.3969447	20	2 10.9	19.6
131005	2000	XF <sub>2</sub>	15.1	X	190.66997	250.10073	268.28007	3.55262	0.1984427	0.23552303	2.5968516	20	9 26.6	19.5
131006	2000	XW <sub>3</sub>	15.6	X	162.75559	129.44876	21.97010	12.24704	0.2411632	0.23389070	2.6089199	20	8 31.8	20.3
131007	2000	XL <sub>8</sub>	15.3	X	210.21209	358.19797	57.39830	13.30782	0.2167827	0.22848703	2.6498931	20	6 6.3	19.8
131008	2000	XM <sub>8</sub>	15.0	X	276.56700	75.81882	346.89484	6.72432	0.1993656	0.23862104	2.5743261	20	9 2.4	17.9
131009	2000	XP <sub>9</sub>	14.8	X	230.89305	16.41494	65.99996	16.44966	0.1108673	0.23158979	2.6261716	20	8 18.4	18.9
131010	2000	XQ <sub>9</sub>	15.4	X	158.30255	50.35530	31.70698	13.14270	0.2443071	0.22272106	2.6954329	20	5 26.8	20.2
131011	2000	XA <sub>10</sub>	15.1	X	165.10607	107.93237	65.00094	14.35812	0.0768018	0.23477610	2.6023565	20	10 4.9	19.2
131012	2000	XJ <sub>10</sub>	15.2	X	117.11179	109.31018	63.87384	15.09999	0.1087079	0.22630512	2.6668983	20	8 11.6	19.5
131013	2000	XK <sub>10</sub>	15.3	X	296.48629	353.72031	60.57232	16.29062	0.1069158	0.23774856	2.5806204	20	10 15.3	18.4
131014	2000	XG <sub>13</sub>	16.7	X	160.69073	329.95003	57.56817	1.65322	0.2240081	0.27003923	2.3705629	20	3 23.5	20.5
131015	2000	XV <sub>15</sub>	14.9	X	57.15748	309.62357	321.94184	12.82690	0.0375089	0.24154113	2.5535360	20	9 18.3	18.3
131016	2000	XX <sub>25</sub>	15.4	X	144.28244	358.83258	50.37887	11.45311	0.2014056	0.21960138	2.7209006	20	4 9.2	19.9
131017	2000	XR <sub>26</sub>	15.3	X	169.49025	93.17407	30.09884	13.75370	0.0575298	0.23070549	2.6328782	20	8 3.6	19.4
131018	2000	XA <sub>27</sub>	15.8	X	171.76269	25.04654	35.77202	12.40985	0.1779018	0.22421281	2.6834639	20	5 10.9	20.4
131019	2000	XC <sub>31</sub>	15.5	X	214.36336	106.54067	46.18887	15.39732	0.1379687	0.24085757	2.5583650	20	10 24.0	19.2
131020	2000	XG <sub>32</sub>	15.0	X	273.98787	87.02247	296.76611	15.46305	0.2378634	0.23511098	2.5998848	20	6 30.2	18.5
131021	2000	XR <sub>33</sub>	15.4	X	155.91085	110.22481	24.33911	11.57688	0.1379612	0.22910286	2.6451423	20	8 3.0	19.8
131022	2000	XQ <sub>37</sub>	14.6	X	288.29178	354.76672	3.93738	14.00246	0.2279498	0.23219413	2.6216128	20	6 13.9	18.2
131023	2000	XK <sub>38</sub>	15.4	X	181.88749	64.42200	33.07142	16.27483	0.1887015	0.22574667	2.6712948	20	7 7.9	20.2
131024	2000	XD <sub>39</sub>	15.2	X	208.81980	91.36708	358.12594	11.73301	0.1511773	0.23255788	2.6188785	20	7 27.4	19.4
131025	2000	XO <sub>39</sub>	15.2	X	208.94650	195.22250	322.22297	14.45519	0.0758935	0.24094164	2.5577699	20	10 20.6	19.1
131026	2000	XE <sub>41</sub>	15.4	X	196.66149	140.99566	321.85487	11.97034	0.2170894	0.23221546	2.6214523	20	7 26.9	19.8
131027	2000	XP <sub>42</sub>	15.2	X	239.10754	40.89762	27.91297	15.12983	0.1080529	0.23374189	2.6100271	20	8 11.1	19.2
131028	2000	XQ <sub>42</sub>	15.5	X	167.62034	95.59038	9.23924	12.88829	0.1226700	0.22766720	2.6562507	20	7 4.3	19.9
131029	2000	XV <sub>42</sub>	14.9	X	239.47850	98.40485	322.28799	16.72209	0.1657083	0.23311362	2.6147146	20	7 19.9	18.9
131030	2000	XG <sub>46</sub>	15.5	X	192.									

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>
131041 2000 YA <sub>13</sub>	15.4	X	108.52802	302.47274	213.29622	10.08289	0.2157276	0.22230982	2.6987559	20	7 13.4	19.8
131042 2000 YF <sub>16</sub>	15.4	X	219.92310	236.10028	239.03616	2.96493	0.1930136	0.23486301	2.6017145	20	8 31.7	19.4
131043 2000 YU <sub>25</sub>	15.8	X	253.36646	56.29661	39.58491	2.20230	0.1582081	0.23786188	2.5798006	20	9 21.6	19.0
131044 2000 YB <sub>26</sub>	15.7	X	214.69507	259.57738	187.59512	3.89752	0.1184931	0.23334814	2.6129623	20	7 28.4	19.7
131045 2000 YH <sub>32</sub>	16.3	X	84.21612	240.83517	136.09041	4.44498	0.2685868	0.30865312	2.1684809	20	—	—
131046 2000 YX <sub>32</sub>	16.3	X	48.21297	69.79351	285.54924	7.01575	0.2309792	0.29988594	2.2105413	20	—	—
131047 2000 YB <sub>35</sub>	15.2	X	83.67438	332.01448	136.28410	13.90931	0.2867964	0.21277571	2.7787833	20	5 3.4	19.4
131048 2000 YM <sub>38</sub>	15.9	X	195.30748	310.40861	170.82933	2.82864	0.0572972	0.23285570	2.6166449	20	8 25.9	19.6
131049 2000 YP <sub>38</sub>	16.0	X	239.02464	124.76043	242.80513	3.81852	0.1710303	0.27697671	2.3308118	20	5 6.2	19.4
131050 2000 YF <sub>48</sub>	15.9	X	126.63964	185.34441	188.73271	2.18369	0.2279278	0.26193207	2.4192287	20	2 3.6	19.2
131051 2000 YK <sub>48</sub>	16.4	X	76.98600	26.74014	111.13569	3.83140	0.1091194	0.26865408	2.3787041	20	4 30.2	19.2
131052 2000 YW <sub>48</sub>	16.3	X	298.45308	280.40324	96.79713	7.48072	0.1224590	0.28555219	2.2839103	20	8 26.3	18.5
131053 2000 YY <sub>50</sub>	15.5	X	140.27076	328.41529	116.09682	14.86158	0.1746955	0.22046476	2.7137922	20	5 18.2	20.1
131054 2000 YA <sub>53</sub>	15.8	X	278.45713	331.77342	106.99835	4.97496	0.1885520	0.23988157	2.5652998	20	10 2.9	18.6
131055 2000 YP <sub>54</sub>	15.8	X	257.42051	315.44657	104.80547	2.73410	0.2153719	0.23452956	2.6041799	20	7 31.2	19.2
131056 2000 YU <sub>54</sub>	15.1	X	173.52567	84.13726	107.13269	8.42593	0.1218346	0.23695837	2.5863543	20	10 31.2	19.2
131057 2000 YE <sub>56</sub>	15.7	X	133.75207	38.20097	110.12883	12.54427	0.0662741	0.22711274	2.6605722	20	7 20.2	19.4
131058 2000 YE <sub>58</sub>	16.1	X	101.89671	204.55704	172.91198	1.07410	0.1956156	0.25924920	2.4358905	20	1 4.1	18.7
131059 2000 YP <sub>59</sub>	15.6	X	285.97505	73.20532	330.81131	1.81474	0.1964161	0.23653859	2.5894134	20	8 21.6	18.3
131060 2000 YB <sub>62</sub>	15.3	X	108.27555	255.41292	294.61368	11.61451	0.1339752	0.22676121	2.6633212	20	8 17.3	19.5
131061 2000 YG <sub>62</sub>	16.0	X	331.00002	296.16771	243.46690	1.92792	0.1082679	0.25739945	2.4475466	20	—	—
131062 2000 YG <sub>69</sub>	16.1	X	229.44989	258.72304	217.03218	4.30089	0.2000854	0.23901263	2.5715135	20	9 10.9	19.9
131063 2000 YP <sub>69</sub>	15.9	X	228.62265	11.52083	100.92214	4.56966	0.1361843	0.23886845	2.5725482	20	9 17.5	19.6
131064 2000 YA <sub>70</sub>	15.6	X	223.72388	52.40192	99.93167	4.80891	0.1801497	0.24194419	2.5506992	20	10 28.1	19.2
131065 2000 YS <sub>75</sub>	16.5	X	253.07093	125.38493	282.70617	1.13579	0.2379829	0.23481906	2.6020391	20	7 6.6	20.4
131066 2000 YF <sub>77</sub>	14.9	X	129.90091	227.34416	266.99630	13.62167	0.0551781	0.22707041	2.6609028	20	6 25.3	18.6
131067 2000 YO <sub>78</sub>	15.2	X	109.44210	275.27942	277.11604	11.61488	0.1994033	0.22964542	2.6409744	20	8 25.4	19.7
131068 2000 YT <sub>79</sub>	16.3	X	56.75381	77.83358	267.50490	4.94747	0.2054984	0.30077108	2.2062023	20	—	—
131069 2000 YD <sub>83</sub>	15.6	X	278.65725	155.38976	245.16474	3.00955	0.1444832	0.23670301	2.5882141	20	8 12.1	18.7
131070 2000 YJ <sub>85</sub>	15.2	X	171.44784	87.72999	112.18616	15.15880	0.1313803	0.23947425	2.5682078	20	11 10.9	19.4
131071 2000 YR <sub>89</sub>	16.1	X	247.41663	332.43989	67.06127	2.57945	0.1379320	0.23091627	2.6312758	20	7 1.5	19.7
131072 2000 YH <sub>91</sub>	16.4	X	174.44110	22.89066	345.71899	0.63732	0.1945286	0.26815166	2.3816744	20	3 9.9	20.3
131073 2000 YQ <sub>91</sub>	15.7	X	49.85822	359.10273	67.58240	3.37283	0.1610033	0.25686865	2.4509173	20	—	—
131074 2000 YZ <sub>92</sub>	15.7	X	175.03872	281.86574	263.46131	10.63526	0.0874116	0.23868452	2.5738696	20	10 20.3	19.6
131075 2000 YP <sub>94</sub>	15.7	X	114.20589	285.81259	273.80525	4.03077	0.0411549	0.23134604	2.6280160	20	8 29.7	19.3
131076 2000 YC <sub>103</sub>	15.3	X	139.03248	320.16554	158.56029	7.51485	0.2272253	0.22258673	2.6965173	20	6 27.2	20.0
131077 2000 YL <sub>105</sub>	14.9	X	112.43473	98.86142	9.79177	8.72963	0.3157902	0.21589524	2.7519508	20	5 28.2	19.6
131078 2000 YL <sub>106</sub>	15.5	X	87.84157	358.75034	357.02365	2.37109	0.2009215	0.25672492	2.4518319	20	—	—
131079 2000 YG <sub>110</sub>	15.1	X	184.56436	306.51190	99.55605	17.89212	0.1201576	0.22196103	2.7015825	20	5 12.2	19.6
131080 2000 YC <sub>111</sub>	15.7	X	159.27276	92.98834	86.57716	4.61076	0.1030901	0.23389114	2.6089167	20	10 1.2	19.6
131081 2000 YG <sub>119</sub>	16.4	X	143.88025	68.43415	1.39462	9.50254	0.2272253	0.22002711	2.7173897	20	4 28.9	21.1
131082 2000 YG <sub>121</sub>	15.2	X	221.94115	350.37295	123.46195	14.74546	0.1143620	0.23344073	2.6122714	20	9 15.9	19.1
131083 2000 YV <sub>122</sub>	15.2	X	212.71956	300.14270	132.60755	12.14460	0.2541402	0.23165005	2.6257162	20	6 29.3	19.9
131084 2000 YE <sub>123</sub>	15.5	X	187.58799	283.88617	221.17578	9.30721	0.1710006	0.23308206	2.6149506	20	9 6.9	19.9
131085 2000 YL <sub>124</sub>	15.9	X	110.62425	260.72643	130.39361	3.37540	0.1711235	0.26461362	2.4028570	20	1 29.8	18.9
131086 2000 YT <sub>126</sub>	15.5	X	164.01795	79.67676	102.61228	13.38205	0.1173856	0.23331706	2.6131944	20	10 13.5	19.8
131087 2000 YM <sub>127</sub>	15.8	X	182.83802	74.10210	88.49381	4.82902	0.1383593	0.23386510	2.6091103	20	10 2.3	19.8
131088 2000 YZ <sub>131</sub>	15.2	X	226.38398	66.78732	109.19155	3.55710	0.0601356	0.19181229	2.9777285	20	12 3.8	19.4
131089 2000 YJ <sub>134</sub>	15.6	X	237.53786	168.01978	266.85005	13.52091	0.1524483	0.23826791	2.5768690	20	7 31.1	19.5
131090 2000 YY <sub>136</sub>	15.1	X	209.48155	273.35037	247.80145	13.93224	0.0935956	0.23712807	2.5851202	20	10 28.6	18.8
131091 2000 YG <sub>140</sub>	15.2	X	244.20469	38.27280	68.10341	15.82474	0.0677154	0.23367910	2.6104946	20	10 14.1	18.9
131092 2000 YP <sub>142</sub>	16.1	X	188.38099	103.62353	98.98636	5.56143	0.0804739	0.24006981	2.5639586	20	11 30.9	19.7
131093 2000 YV <sub>142</sub>	15.1	X	215.96082	254.14208	201.85014	26.96750	0.2576916	0.23374861	2.6099771	20	7 24.8	20.1
131094 2001 AQ <sub>3</sub>	15.4	X	157.74718	320.57470	121.53404	13.58011	0.1633241	0.22298916	2.6932720	20	5 29.3	20.0
131095 2001 AW <sub>3</sub>	15.8	X	304.07934	204.43005	207.63772	4.54094	0.1620122	0.24024716	2.5626967	20	10 12.2	18.2
131096 2001 AT <sub>5</sub>	15.6	X	198.88236	238.61465	240.30835	3.15809	0.2180389	0.23117335	2.6293246	20	8 14.8	20.0
131097 2001 AG <sub>8</sub>	16.0	X	219.76071	246.92123	98.41156	9.72386	0.1542012	0.27087621	2.3656771	20	3 26.3	19.8
131098 2001 AL <sub>13</sub>	15.8	X	155.99901	317.48840	146.24122	9.01350	0.1548620	0.22325736	2.6911146	20	6 20.9	20.2
131099 2001 AP <sub>13</sub>	15.3	X	38.36502	82.44403	114.43322	8.54862	0.0986345	0.21850175	2.7300217	20	5 23.8	18.6
131100 2001 AB <sub>20</sub>	15.3	X	356.81982	147.23547	230.90951	7.42208	0.0703642	0.24225309	2.5485305	20	11 26.3	18.4
131101 2001 AA <sub>21</sub>	16.3	X	119.94367	259.79090	147.17383	6.75022	0.1368939	0.26598351	2.3945996	20	2 26.9	19.4
131102 2001 AB <sub>24</sub>	16.1	X	110.19165	254.91197	145.43477	3.46485	0.1950495	0.26175477	2.4203210	20	2 14.5	19.1
131103 2001 AS <sub>26</sub>	15.2	X	222.70775	325.00467	54.91665	8.70215	0.2753593	0.22757598	2.6569605	20	5 2.8	19.7
131104 2001 AN <sub>28</sub>	15.3	X	77.99451	114.37962	36.35504	11.27842	0.1415780	0.21757937	2.7377318	20	5 22.6	18.9
131105 2001 AV <sub>28</sub>	16.0	X	37.15987	30.52716	36.88818	3.05782	0.1705534	0.25692113	2.4505835	20	—	—
131106 2001 AN <sub>29</sub>	15.8	X	27.48978	37.24899	17.17432	3.30437	0.1740778	0.25379562	2.4706618	20	—	—
131107 2001 AV <sub>30</sub>	15.5	X	226.76631	65.42034	84.65638	14.30512	0.1195241	0.24103430	2.5571144	20	11 8.4	19.1
131108 2001 AO <sub>32</sub>	15.5	X	213.44432	94.57331	44.09879	5.66526	0.1377849	0.23724237	2.5842898	20	10 3.5	19.3
131109 2001 AA <sub>33</sub>	16.0	X	282.65807	29.17375	36.48071	4.15472	0.1676728	0.23908686	2.5709813	20	9 23.2	18.8
131110 2001 AS <sub>34</sub>	15.1	X	297.59151	28.68177	42.79965	4.71921	0.1945065	0.24230518	2.5481652	20	10 25.9	17.4
131111 2001 AN <sub>35</sub>	15.2	X	116.60990	74.31515	31.34592	9.26953	0.1386889	0.21839855	2.7308816	20	5 10.9	19.3
131112 2001 AQ <sub>35</sub>	14.7	X	76.52743	293.12373	321.43147	12.15268	0.1511828	0.23284006	2.6167622	20	10 4.3	18.7
131113 2001 AO <sub>45</sub>	15.5	X	55.36227	136.46849	39.84085	6.17817	0.2143426	0.2179				

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>
131121 2001 BS <sub>7</sub>	15.8 <sup>m</sup>	X	153.42265	75.42996	45.02015	3.70798	0.1351370	0.22485652	2.6783401	20	7 9.1	20.1
131122 2001 BG <sub>11</sub>	16.6	X	189.43100	174.57361	177.90438	2.59326	0.2350075	0.26740306	2.3861173	20	3 3.5	20.5
131123 2001 BO <sub>22</sub>	15.7	X	237.25405	280.93480	131.51893	3.62935	0.1224129	0.23040301	2.6351820	20	7 8.4	19.6
131124 2001 BT <sub>22</sub>	16.1	X	233.00302	149.89290	313.87498	1.64141	0.0756054	0.23551205	2.5969323	20	9 16.2	19.7
131125 2001 BD <sub>24</sub>	15.0	X	130.22919	125.45236	117.74121	19.02616	0.2581413	0.23556725	2.5965266	20	11 25.3	19.9
131126 2001 BD <sub>28</sub>	15.2	X	131.60677	38.08926	125.30774	15.09497	0.0569578	0.22630941	2.6668647	20	8 6.2	19.0
131127 2001 BJ <sub>31</sub>	16.0	X	217.35308	4.18938	125.88679	4.47654	0.1511517	0.23423586	2.6063563	20	9 24.8	19.9
131128 2001 BX <sub>31</sub>	16.5	X	189.79735	3.35159	100.05214	0.40674	0.2941898	0.22774987	2.6556079	20	7 17.7	21.4
131129 2001 BE <sub>36</sub>	15.5	X	163.85465	41.60488	33.83785	3.30635	0.0777669	0.22130073	2.7069536	20	5 19.9	19.6
131130 2001 BH <sub>36</sub>	15.1	X	40.44336	120.45949	117.33027	13.82243	0.1127296	0.22304674	2.6928085	20	7 24.3	18.2
131131 2001 BL <sub>36</sub>	15.2	X	71.18027	186.30518	336.13753	8.74148	0.0771003	0.21576576	2.7530517	20	5 17.9	19.0
131132 2001 BW <sub>36</sub>	16.4	X	353.03264	66.48662	120.86952	6.85797	0.0603130	0.26226719	2.4171675	20	2 20.6	19.2
131133 2001 BA <sub>41</sub>	15.6	X	88.55111	163.58301	283.31104	7.33608	0.1246784	0.21177503	2.7875300	20	3 9.3	19.4
131134 2001 BD <sub>44</sub>	15.1	X	97.32613	26.15197	143.32260	15.58320	0.1205437	0.21813243	2.7331023	20	7 10.1	19.1
131135 2001 BW <sub>46</sub>	15.4	X	27.03942	277.72160	237.37280	8.15519	0.2151986	0.21008128	2.8024926	20	3 6.9	18.2
131136 2001 BT <sub>47</sub>	15.3	X	54.81308	249.52654	324.00751	12.88614	0.0705616	0.21940896	2.7224911	20	7 7.8	19.0
131137 2001 BC <sub>50</sub>	15.1	X	74.48108	331.36065	149.78413	12.66361	0.1734827	0.21065003	2.7974460	20	4 19.7	18.8
131138 2001 BV <sub>50</sub>	15.4	X	69.04541	145.24924	22.88856	7.49208	0.1486361	0.21555319	2.7548614	20	6 4.5	19.0
131139 2001 BE <sub>52</sub>	15.6	X	60.50132	153.79748	116.02379	4.01044	0.1051611	0.23193332	2.6235778	20	10 6.9	19.2
131140 2001 BV <sub>52</sub>	14.9	X	121.42172	297.49465	244.81406	11.53334	0.1068651	0.22683964	2.6627073	20	8 17.2	19.2
131141 2001 BX <sub>53</sub>	15.7	X	169.93411	57.90414	165.33762	7.82810	0.1469448	0.23927389	2.5696413	20	12 2.4	19.8
131142 2001 BF <sub>57</sub>	15.9	X	350.49737	357.11033	166.22280	6.78111	0.1132985	0.25705473	2.4497343	20	1 6.7	18.7
131143 2001 BM <sub>62</sub>	15.2	X	91.96050	333.25705	149.58616	9.85195	0.1434887	0.21404962	2.7677471	20	5 9.6	19.2
131144 2001 BF <sub>63</sub>	15.4	X	227.29411	337.66898	148.35415	12.97045	0.1076790	0.23541287	2.5976617	20	10 8.6	19.2
131145 2001 BZ <sub>72</sub>	15.0	X	307.71766	339.47018	244.52905	6.11841	0.1299823	0.20489937	2.8495456	20	1 31.0	19.1
131146 2001 BN <sub>73</sub>	15.6	X	95.10404	267.24542	274.73610	10.76829	0.1074386	0.22365401	2.6879319	20	7 21.0	19.4
131147 2001 BD <sub>75</sub>	15.2	X	263.18840	268.49060	178.80450	16.58889	0.2918112	0.23684111	2.5872079	20	8 30.2	18.7
131148 2001 BM <sub>79</sub>	16.6	X	97.01903	144.84996	304.53969	1.03676	0.2033746	0.21351459	2.7723688	20	4 7.2	20.5
131149 2001 BF <sub>80</sub>	16.1	X	179.06593	226.47760	201.49731	10.09685	0.2286541	0.22306245	2.6926820	20	5 29.0	20.9
131150 2001 BE <sub>82</sub>	15.2	X	60.94056	334.44640	293.96894	12.15058	0.1475049	0.23016829	2.6369733	20	10 2.2	19.1
131151 2001 CD <sub>7</sub>	15.4	X	73.15110	36.68785	124.26751	5.71862	0.0534045	0.21656560	2.7462690	20	5 19.6	19.1
131152 2001 CH <sub>9</sub>	15.9	X	117.90279	127.20408	49.59700	5.00224	0.0783025	0.22417861	2.6837369	20	8 10.9	19.8
131153 2001 CV <sub>9</sub>	14.8	X	120.07680	335.54080	326.22762	13.79033	0.1968861	0.24472774	2.5313212	20	—	—
131154 2001 CZ <sub>9</sub>	15.7	X	79.54182	123.18216	25.69553	8.01580	0.2596491	0.21566546	2.7539052	20	6 9.9	19.7
131155 2001 CC <sub>10</sub>	15.7	X	60.30016	2.52191	235.72342	7.95070	0.0710252	0.22642927	2.6659234	20	8 13.3	19.4
131156 2001 CK <sub>14</sub>	15.8	X	87.22769	236.07136	339.09911	4.79589	0.1796764	0.22480153	2.6787769	20	9 4.1	19.8
131157 2001 CH <sub>16</sub>	15.4	X	267.35076	345.39622	100.70942	6.56408	0.1714141	0.18608177	3.0385531	20	9 20.2	19.6
131158 2001 CD <sub>18</sub>	15.5	X	311.18553	312.05833	256.14783	2.28485	0.1869958	0.20539545	2.8449556	20	1 12.0	19.2
131159 2001 CS <sub>19</sub>	15.1	X	107.55783	37.61841	75.12562	9.59390	0.2681684	0.21528533	2.7571459	20	5 26.9	19.4
131160 2001 CQ <sub>21</sub>	15.0	X	139.46731	345.64891	99.48411	9.61077	0.1622016	0.21921349	2.7241093	20	5 15.2	19.4
131161 2001 CL <sub>23</sub>	15.0	X	49.79439	305.61009	312.73116	10.82442	0.1592984	0.22657542	2.6647769	20	9 8.4	18.5
131162 2001 CO <sub>24</sub>	16.2	X	257.32643	322.67634	169.49700	4.85103	0.0913575	0.24070335	2.5594577	20	11 25.9	19.4
131163 2001 CT <sub>26</sub>	15.1	X	29.85492	279.53572	324.32434	11.63890	0.0943455	0.22152797	2.7051021	20	7 15.3	18.4
131164 2001 CW <sub>27</sub>	15.7	X	36.33986	161.30733	353.41355	13.01759	0.1744330	0.21072900	2.7967470	20	3 25.3	18.6
131165 2001 CU <sub>28</sub>	15.0	X	319.72320	168.29071	101.26487	10.62034	0.1506717	0.21417740	2.7666462	20	4 19.8	18.5
131166 2001 CK <sub>30</sub>	15.6	X	112.97374	111.56800	119.29317	1.12257	0.1079056	0.23218728	2.6216644	20	10 15.9	19.6
131167 2001 CH <sub>31</sub>	15.7	X	118.81170	244.62506	50.11036	6.14855	0.0711826	0.24233752	2.5479385	20	—	—
131168 2001 CR <sub>32</sub>	15.2	X	125.94056	154.92976	37.46091	13.92569	0.0837536	0.23033599	2.6356932	20	9 15.6	19.3
131169 2001 CC <sub>32</sub>	15.2	X	37.22688	84.65596	64.92286	14.25712	0.1325325	0.21158859	2.7891672	20	3 26.9	18.6
131170 2001 CD <sub>34</sub>	15.3	X	122.66885	18.29343	74.55220	14.25823	0.1876228	0.21678399	2.7444243	20	5 10.9	19.7
131171 2001 CO <sub>36</sub>	15.3	X	290.97604	23.56226	39.19765	5.82267	0.3019998	0.23771569	2.5808582	20	9 11.8	17.8
131172 2001 CV <sub>37</sub>	15.0	X	134.94137	75.81394	86.29073	22.75379	0.0389406	0.22568422	2.6717875	20	8 11.4	19.1
131173 2001 CN <sub>38</sub>	15.6	X	180.17647	125.34816	43.43885	12.35061	0.1504530	0.23454558	2.6040613	20	10 8.4	19.8
131174 2001 CW <sub>38</sub>	15.4	X	105.34276	34.54886	93.89288	14.22035	0.1132955	0.21913338	2.7247732	20	5 28.3	19.4
131175 2001 CX <sub>38</sub>	15.8	X	93.49147	357.25657	82.85220	9.29209	0.1955204	0.21305497	2.7763546	20	3 26.8	19.7
131176 2001 CE <sub>39</sub>	14.9	X	113.88900	203.93097	18.47273	10.55623	0.1957609	0.23031354	2.6358644	20	10 10.9	19.1
131177 2001 CL <sub>39</sub>	15.3	X	98.13490	108.82051	89.06119	12.14937	0.2160306	0.22395496	2.6855233	20	9 2.3	19.7
131178 2001 CK <sub>40</sub>	14.9	X	61.17376	59.96420	62.48013	10.37068	0.1300054	0.21119923	2.7925942	20	3 26.9	18.4
131179 2001 CW <sub>40</sub>	15.4	X	120.59348	200.86189	66.65485	15.70659	0.0791452	0.23794667	2.5791878	20	12 6.7	19.3
131180 2001 CR <sub>41</sub>	15.4	X	238.75704	181.22839	359.15105	2.17002	0.1280996	0.19098341	2.9863380	20	12 13.7	19.6
131181 2001 CT <sub>41</sub>	15.7	X	176.73356	185.75677	199.55712	5.76852	0.0515161	0.21435356	2.7651302	20	3 30.7	19.8
131182 2001 CC <sub>43</sub>	15.0	X	173.00061	12.97230	109.15746	22.74611	0.0359708	0.22356347	2.6886575	20	8 1.3	18.9
131183 2001 CJ <sub>45</sub>	14.7	X	142.85514	343.63855	129.18888	26.56724	0.1921571	0.21979021	2.7193420	20	6 24.7	19.5
131184 2001 CE <sub>46</sub>	15.2	X	200.39577	4.86047	89.55561	18.02646	0.1430633	0.22448274	2.6813123	20	7 22.3	19.5
131185 2001 CR <sub>46</sub>	15.9	X	118.42594	83.85410	26.74860	10.63421	0.1619968	0.21899823	2.7258941	20	5 21.0	20.1
131186 Pauluckas	15.6	X	49.85903	96.48719	128.77572	4.49994	0.1201263	0.22026611	2.7154237	20	7 21.9	18.8
131187 2001 DW	16.3	X	61.71094	176.59068	101.67591	1.71645	0.0929995	0.23058471	2.6337974	20	10 16.2	19.9
131188 2001 DE <sub>2</sub>	15.3	X	30.48116	123.72506	143.58887	12.26078	0.0474778	0.22484895	2.6784002	20	8 10.1	18.5
131189 2001 DO <sub>3</sub>	15.8	X	76.62743	334.53670	74.26720	7.29401	0.1860366	0.25754380	2.4466320	20	1 4.9	18.1
131190 2001 DH <sub>6</sub>	15.0	X	60.39720	196.12493	359.35505	11.78362	0.1025999	0.21868451	2.7285005	20	6 23.9	18.7
131191 2001 DC <sub>7</sub>	15.4	X	13.26125	240.56599	356.08033	8.99534	0.0189809	0.21777170	2.7361197	20	5 29.8	19.2
131192 2001 DN <sub>7</sub>	15.6	X	251.50862	301.54934	138.83608	12.59615	0.1909713	0.23137479	2.6277982	20	8 23.6	19.2
131193 2001 DY <sub>7</sub>	15.9	X	67.56420	2.57191	137.66869	3.44305	0.1242325	0.21327063	2.7744827	20	4 24.4	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>
131201 2001 <i>DN</i> <sub>27</sub>	16.2	X	139.79049	81.41237	26.00923	5.01262	0.1355507	0.21938824	2.7226625	20	6 7.5	20.5
131202 2001 <i>DS</i> <sub>28</sub>	15.5	X	37.21649	174.02218	30.65250	5.48597	0.0774466	0.21586687	2.7521920	20	5 27.2	18.9
131203 2001 <i>DT</i> <sub>29</sub>	15.2	X	38.60073	57.93651	116.00902	7.33185	0.0070621	0.21248806	2.7812906	20	4 16.0	19.0
131204 2001 <i>DE</i> <sub>32</sub>	15.6	X	86.57108	124.87272	130.59900	9.85404	0.1807037	0.22982415	2.6396050	20	10 28.9	19.8
131205 2001 <i>DK</i> <sub>36</sub>	15.6	X	170.49028	358.28757	162.85497	3.02516	0.0319127	0.23112084	2.6297228	20	9 19.5	19.0
131206 2001 <i>DV</i> <sub>41</sub>	15.9	X	8.91145	281.57603	132.89448	3.45933	0.1736859	0.24661084	2.5184187	20	—	—
131207 2001 <i>DH</i> <sub>43</sub>	15.3	X	213.54818	236.38006	158.54685	6.17313	0.0373677	0.21854353	2.7296737	20	5 27.7	19.2
131208 2001 <i>DH</i> <sub>48</sub>	15.4	X	133.65341	28.07112	70.17528	5.80516	0.0739605	0.21906903	2.7253068	20	5 15.8	19.3
131209 2001 <i>DS</i> <sub>48</sub>	15.1	X	24.97779	141.01713	78.18258	9.71762	0.0918489	0.21787006	2.7352961	20	5 30.7	18.4
131210 2001 <i>DV</i> <sub>48</sub>	15.9	X	66.93630	98.96608	91.69665	8.66027	0.2291511	0.21809639	2.7334034	20	7 16.9	19.6
131211 2001 <i>DE</i> <sub>49</sub>	15.4	X	143.22751	189.12816	93.58896	10.15121	0.0214137	0.24457760	2.5323570	20	—	—
131212 2001 <i>DU</i> <sub>49</sub>	15.8	X	82.26459	110.14244	47.50989	8.48889	0.1337444	0.21742703	2.7390105	20	6 6.5	19.5
131213 2001 <i>DP</i> <sub>50</sub>	15.2	X	156.92880	331.87333	102.75304	13.72914	0.1315665	0.21886934	2.7269642	20	5 18.5	19.6
131214 2001 <i>DE</i> <sub>62</sub>	16.0	X	132.82413	319.07344	165.10806	2.63043	0.0106620	0.21993702	2.7181317	20	6 11.3	19.6
131215 2001 <i>DB</i> <sub>63</sub>	15.3	X	30.08914	109.81884	149.22761	14.14062	0.0515564	0.22347355	2.6893787	20	7 28.6	18.9
131216 2001 <i>DL</i> <sub>63</sub>	15.3	X	82.25004	87.10518	153.46046	14.63231	0.1175704	0.22734170	2.6587856	20	9 27.1	19.2
131217 2001 <i>DU</i> <sub>67</sub>	15.4	X	196.27353	290.79975	157.78418	13.81556	0.1537571	0.22460422	2.6803454	20	7 8.7	19.9
131218 2001 <i>DL</i> <sub>71</sub>	15.4	X	122.04546	17.61411	156.43053	6.57873	0.1016233	0.22298208	2.6933290	20	8 11.2	19.3
131219 2001 <i>DT</i> <sub>76</sub>	15.4	X	303.11307	296.24603	287.55036	4.19953	0.2519891	0.20166602	2.8799232	20	1 11.2	19.7
131220 2001 <i>DN</i> <sub>78</sub>	15.8	X	51.72170	107.78545	64.62761	1.60705	0.0115749	0.21276551	2.7788721	20	4 28.5	19.5
131221 2001 <i>DZ</i> <sub>80</sub>	15.7	X	64.78662	95.37760	37.66971	8.90823	0.1014555	0.21145916	2.7903052	20	4 7.8	19.2
131222 2001 <i>DW</i> <sub>82</sub>	16.1	X	179.51056	336.16928	159.35407	8.86255	0.0728386	0.22643198	2.6659021	20	8 24.6	20.0
131223 2001 <i>DQ</i> <sub>91</sub>	15.4	X	339.87440	89.58830	168.86469	7.91543	0.1831271	0.21191212	2.7863276	20	5 2.8	18.3
131224 2001 <i>DT</i> <sub>92</sub>	15.5	X	146.08255	300.73078	107.30150	4.55588	0.0966015	0.21183762	2.7869809	20	3 31.1	19.7
131225 2001 <i>DD</i> <sub>93</sub>	15.3	X	146.02850	309.29085	180.32235	10.74084	0.1298939	0.22219969	2.6996476	20	7 11.2	19.7
131226 2001 <i>DM</i> <sub>93</sub>	15.3	X	31.25394	249.78017	284.76371	6.61694	0.1587732	0.21202545	2.7853347	20	4 9.7	18.5
131227 2001 <i>DZ</i> <sub>95</sub>	15.9	X	225.24185	19.89516	78.42050	4.11640	0.0297207	0.23086242	2.6316849	20	9 7.6	19.5
131228 2001 <i>DK</i> <sub>97</sub>	15.5	X	297.46884	291.09707	132.76489	10.05163	0.0523231	0.23505597	2.6002904	20	10 31.0	18.9
131229 2001 <i>DU</i> <sub>100</sub>	15.2	X	139.92196	137.85221	25.92466	12.07368	0.1258617	0.22781617	2.6550927	20	8 25.3	19.5
131230 2001 <i>DD</i> <sub>101</sub>	15.6	X	130.67823	26.15894	79.58497	8.20150	0.0896629	0.21941814	2.7224152	20	5 23.9	19.5
131231 2001 <i>DJ</i> <sub>101</sub>	15.3	X	339.56032	295.48862	14.25644	14.11877	0.0638896	0.22630098	2.6669309	20	7 28.4	18.8
131232 2001 <i>DC</i> <sub>103</sub>	15.1	X	305.57412	151.97865	119.70030	10.32961	0.1147360	0.21166448	2.7885005	20	4 6.6	18.9
131233 2001 <i>DL</i> <sub>105</sub>	16.3	X	169.95767	264.63744	216.15122	2.97514	0.1896770	0.22623981	2.6674116	20	7 24.4	20.7
131234 2001 <i>DT</i> <sub>107</sub>	15.4	X	65.02340	113.64319	162.64856	11.73425	0.1901851	0.22714315	2.6603347	20	11 1.5	19.4
131235 2001 <i>DA</i> <sub>109</sub>	16.0	X	29.17441	103.76742	27.48726	2.75075	0.1018160	0.20507852	2.8478860	20	2 9.5	19.4
131236 2001 <i>ER</i>	15.2	X	103.08090	15.00612	178.02291	16.61098	0.0440752	0.22364696	2.6879883	20	8 5.4	19.2
131237 2001 <i>EE</i> <sub>1</sub>	15.4	X	110.28881	205.99251	9.92449	11.60751	0.1073245	0.22836884	2.6508073	20	9 24.3	19.3
131238 2001 <i>EW</i> <sub>1</sub>	15.3	X	119.51269	36.26156	91.61413	9.15941	0.1119398	0.21803837	2.7338883	20	6 10.9	19.2
131239 2001 <i>EB</i> <sub>2</sub>	15.0	X	134.69362	64.12988	104.16454	12.44611	0.1359377	0.22473182	2.6793308	20	8 23.5	19.3
131240 2001 <i>EN</i> <sub>8</sub>	14.8	X	303.92023	206.55149	122.67075	3.87433	0.1315025	0.21866035	2.7287014	20	6 14.0	18.0
131241 2001 <i>EY</i> <sub>8</sub>	15.3	X	190.59918	237.28042	139.60861	5.59321	0.0214139	0.21070679	2.7969435	20	4 7.7	19.2
131242 2001 <i>EE</i> <sub>9</sub>	15.9	X	171.22623	348.87788	146.43024	4.55183	0.1359179	0.22543278	2.6737738	20	8 14.1	20.1
131243 2001 <i>EV</i> <sub>14</sub>	15.5	X	33.84422	126.38060	115.07983	13.27322	0.2069591	0.21597205	2.7512983	20	8 2.4	18.5
131244 2001 <i>FD</i>	15.6	X	75.20887	40.92906	121.41868	8.89028	0.1534679	0.21275798	2.7789377	20	6 8.5	19.4
131245 Bakich	15.5	X	205.11307	183.02549	188.41490	4.34695	0.0846318	0.21173897	2.7878465	20	4 14.6	19.6
131246 2001 <i>FH</i> <sub>4</sub>	15.9	X	77.03275	125.70780	129.67671	3.42490	0.0676522	0.22991836	2.6388839	20	10 2.6	19.4
131247 2001 <i>FU</i> <sub>4</sub>	14.8	X	140.32993	167.40286	192.33063	10.09497	0.0972878	0.19586600	2.9365000	20	1 23.4	19.3
131248 2001 <i>FX</i> <sub>8</sub>	15.3	X	28.52579	194.45344	19.17762	15.43113	0.1005209	0.21304262	2.7764619	20	5 24.4	18.8
131249 2001 <i>FI</i> <sub>12</sub>	15.6	X	126.03378	50.25848	82.92380	3.26071	0.1745328	0.21760810	2.7374909	20	6 30.1	19.7
131250 2001 <i>FV</i> <sub>13</sub>	15.6	X	320.94923	92.91902	46.84920	2.73698	0.0462423	0.19415771	2.9536993	20	—	—
131251 2001 <i>FY</i> <sub>13</sub>	15.0	X	42.90358	46.80592	48.56427	2.39764	0.0302444	0.19950615	2.9006713	20	1 12.8	18.7
131252 2001 <i>FI</i> <sub>16</sub>	15.6	X	112.70543	340.58910	183.09414	12.67192	0.0875769	0.21829817	2.7317187	20	7 14.9	19.8
131253 2001 <i>FA</i> <sub>18</sub>	15.2	X	1.09315	107.59563	193.63516	12.68507	0.1406419	0.21961888	2.7207560	20	8 14.9	18.4
131254 2001 <i>FI</i> <sub>18</sub>	14.7	X	355.47974	259.92888	201.19071	10.40395	0.0766684	0.19349954	2.9603934	20	—	—
131255 2001 <i>FB</i> <sub>23</sub>	14.8	X	151.58490	217.72203	32.79272	23.08693	0.0393012	0.18167333	3.0875115	20	12 2.9	19.6
131256 2001 <i>FA</i> <sub>25</sub>	15.2	X	335.08992	99.91047	173.21587	13.23022	0.2039761	0.21197857	2.7857454	20	5 12.9	18.3
131257 2001 <i>FG</i> <sub>29</sub>	14.1	X	169.87087	75.32304	197.55972	17.08491	0.2417810	0.18231845	3.0802240	20	—	—
131258 2001 <i>FD</i> <sub>30</sub>	15.5	X	110.27199	336.72291	279.05017	11.98780	0.3008798	0.22882042	2.6473185	20	11 19.5	20.4
131259 2001 <i>FE</i> <sub>30</sub>	15.0	X	35.83491	37.54277	41.72724	12.60846	0.0114628	0.19695374	2.9256783	20	—	—
131260 2001 <i>FG</i> <sub>33</sub>	15.1	X	79.53846	359.10634	198.42072	14.40196	0.1235632	0.21867143	2.7286093	20	7 22.5	19.2
131261 2001 <i>FU</i> <sub>35</sub>	15.2	X	126.27739	184.35061	11.13669	0.73431	0.1532568	0.17469799	3.1691595	20	9 11.3	20.2
131262 2001 <i>FD</i> <sub>36</sub>	14.9	X	72.96216	351.01257	182.01277	6.57015	0.0663587	0.21529903	2.7570290	20	6 5.8	18.6
131263 2001 <i>FX</i> <sub>39</sub>	14.6	X	125.62171	22.22878	348.64381	6.21169	0.1721008	0.25088420	2.4897391	20	1 25.9	18.0
131264 2001 <i>FA</i> <sub>43</sub>	15.1	X	47.68967	50.64314	358.91455	11.85088	0.1003420	0.24530711	2.5273339	20	—	—
131265 2001 <i>FD</i> <sub>43</sub>	15.3	X	286.06631	65.16329	192.40310	12.55833	0.0580279	0.20416495	2.8563752	20	2 24.6	19.4
131266 2001 <i>FM</i> <sub>44</sub>	16.2	X	192.76756	355.61193	197.46715	5.16840	0.1853126	0.23419316	2.6066732	20	11 13.2	20.3
131267 2001 <i>FX</i> <sub>45</sub>	15.0	X	290.35129	265.58315	8.87806	10.39854	0.1246343	0.20493801	2.8491875	20	3 16.8	18.9
131268 2001 <i>FW</i> <sub>50</sub>	15.3	X	2.48924	80.30261	191.17261	10.97900	0.1952678	0.21466317	2.7624708	20	7 8.4	18.2
131269 2001 <i>FF</i> <sub>51</sub>	14.8	X	101.34807	321.78569	10.70634	8.56728	0.0772506	0.18776856	3.0203282	20	—	—
131270 2001 <i>FY</i> <sub>59</sub>	15.6	X	100.06184	67.60405	21.74291	4.58646	0.0552955	0.20856139	2.8160916	20	3 22.4	19.3
131271 2001 <i>FT</i> <sub>61</sub>	15.4	X	347.57915	316.73013	9.97332	10.10997	0.0984810	0.22445196	2.6815575	20	9 2.3	18.4
131272 2001 <i>FR</i> <sub>63</sub>	15.2											

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>		
131281	2001	FP <sub>92</sub>	15.1	X	305.89533	218.13095	72.97873	8.02647	0.1110734	0.21264925	2.7798849	20	4 30.7	18.7
131282	2001	FW <sub>93</sub>	15.2	X	96.09229	353.62303	114.29152	10.53963	0.1490784	0.21151291	2.7898325	20	4 27.7	19.3
131283	2001	FX <sub>96</sub>	14.5	X	145.65219	218.52088	35.82480	15.40527	0.1741112	0.18159548	3.0883940	20	12 3.7	19.8
131284	2001	FH <sub>97</sub>	14.9	X	21.25137	8.43475	102.73630	6.88702	0.0301301	0.19748181	2.9204603	20	1 3.9	18.6
131285	2001	FO <sub>104</sub>	15.4	X	327.85813	227.71146	89.61374	5.67825	0.1371917	0.21927679	2.7235850	20	7 8.2	18.4
131286	2001	FP <sub>104</sub>	15.5	X	329.07269	172.10033	86.72008	4.32142	0.0410463	0.21192065	2.7862529	20	4 29.5	19.2
131287	2001	FS <sub>106</sub>	15.1	X	344.43001	242.24310	35.89062	5.55731	0.1983321	0.21544176	2.7558112	20	6 6.8	17.7
131288	2001	FT <sub>106</sub>	15.9	X	95.85825	111.80790	8.14360	1.99780	0.1030689	0.21338913	2.7734554	20	4 30.9	19.8
131289	2001	FD <sub>107</sub>	15.2	X	261.48545	282.27445	35.26701	4.85511	0.0620603	0.21132317	2.7915022	20	4 12.4	18.9
131290	2001	FL <sub>109</sub>	15.8	X	263.31754	260.18423	332.17574	1.92454	0.1518296	0.19630933	2.9320774	20	—	—
131291	2001	FD <sub>111</sub>	15.2	X	31.15228	6.39387	136.20579	2.80261	0.0233247	0.20405393	2.8574112	20	2 24.3	18.9
131292	2001	FD <sub>112</sub>	14.4	X	308.24048	250.49246	60.08350	31.73222	0.1235842	0.21263753	2.7799871	20	5 24.9	17.8
131293	2001	FY <sub>112</sub>	15.5	X	245.93949	357.48866	33.94711	6.52089	0.0420299	0.22047357	2.7137200	20	7 2.2	19.2
131294	2001	FM <sub>115</sub>	15.7	X	344.85908	347.33091	220.49540	1.40230	0.0920128	0.20606683	2.8387730	20	3 9.4	19.2
131295	2001	FH <sub>121</sub>	14.4	X	110.96259	263.57084	27.40800	25.83552	0.2278264	0.17943529	3.1131316	20	12 17.9	20.1
131296	2001	FK <sub>121</sub>	15.3	X	107.83571	48.12466	245.24398	13.26346	0.1965152	0.23330652	2.6132731	20	12 28.1	19.7
131297	2001	FK <sub>125</sub>	14.9	X	110.00506	148.15590	184.77362	10.48824	0.1192440	0.18884261	3.0088651	20	—	—
131298	2001	FJ <sub>125</sub>	15.7	X	306.47739	321.86697	202.20916	5.92522	0.1698829	0.19590866	2.9360737	20	—	—
131299	2001	FE <sub>128</sub>	14.8	X	339.33820	122.30696	63.45795	40.13337	0.1364713	0.20527350	2.8460824	20	2 5.4	19.2
131300	2001	FF <sub>131</sub>	15.7	X	351.12039	106.83401	137.87260	4.16402	0.0372484	0.21298309	2.7769792	20	5 12.6	19.2
131301	2001	FG <sub>139</sub>	15.3	X	5.07908	232.22326	214.63924	2.17597	0.1183991	0.19420617	2.9532080	20	—	—
131302	2001	FO <sub>143</sub>	15.3	X	68.82988	332.22614	196.78123	12.57857	0.1055775	0.21137971	2.7910044	20	5 31.9	19.1
131303	2001	FV <sub>144</sub>	15.1	X	92.38138	152.47766	124.40901	16.44295	0.1485086	0.22786195	2.6547370	20	11 26.9	19.5
131304	2001	FA <sub>145</sub>	15.1	X	88.00546	158.87865	93.58958	15.15943	0.2202407	0.22368580	2.6876772	20	10 31.8	19.7
131305	2001	FF <sub>145</sub>	14.6	X	123.71170	195.82963	89.01916	18.53318	0.1721879	0.18071959	3.0983649	20	12 22.7	19.7
131306	2001	FE <sub>152</sub>	15.4	X	330.04793	123.37913	105.23589	5.66220	0.0717878	0.20862948	2.8154789	20	3 20.2	19.1
131307	2001	FD <sub>154</sub>	14.7	X	51.10341	3.22163	101.56175	7.23405	0.0361694	0.20096360	2.8866329	20	2 5.3	18.5
131308	2001	FN <sub>154</sub>	16.7	X	51.12841	128.23932	92.09332	4.06106	0.1517070	0.26979654	2.3719843	20	7 27.2	19.3
131309	2001	FL <sub>158</sub>	15.7	X	17.71046	247.31361	339.91211	6.84545	0.1618543	0.21321657	2.7749516	20	6 1.8	18.7
131310	2001	FZ <sub>158</sub>	15.5	X	177.21157	356.93671	163.89297	13.45264	0.0370128	0.23083539	2.6318903	20	9 27.8	19.2
131311	2001	FF <sub>159</sub>	15.0	X	221.19529	27.25525	187.77909	11.63604	0.0610336	0.18903718	3.0068001	20	—	—
131312	2001	FR <sub>160</sub>	15.7	X	99.29408	138.95174	147.82081	11.93376	0.1686052	0.23063221	2.6334359	20	12 13.9	20.1
131313	2001	FO <sub>171</sub>	15.0	X	24.94240	92.65813	134.39285	16.27632	0.1611319	0.21259449	2.7803622	20	6 19.3	18.3
131314	2001	FW <sub>173</sub>	15.4	X	267.37952	103.49124	23.00604	8.57928	0.2232610	0.18537487	3.0462729	20	10 28.9	19.3
131315	2001	FK <sub>177</sub>	16.9	X	298.64046	220.03357	346.72002	1.16185	0.0436427	0.20137018	2.8827432	20	1 13.7	20.7
131316	2001	FE <sub>179</sub>	14.7	X	129.08460	235.52820	82.75002	11.10116	0.0313172	0.19191300	2.9766866	20	—	—
131317	2001	FF <sub>180</sub>	15.4	X	127.98186	225.18009	52.76841	13.55021	0.1372852	0.23636981	2.5906458	20	12 27.4	19.6
131318	2001	FL <sub>194</sub>	7.8	X	32.79456	172.59852	2.14208	13.71127	0.1746919	0.00397385	39.4755870	20	4 26.8	23.1
131319	2001	GB <sub>5</sub>	15.3	X	98.90515	147.38501	139.23854	14.06010	0.1718429	0.23035983	2.6355113	20	12 13.9	19.8
131320	2001	GJ <sub>8</sub>	15.2	X	210.27191	153.80457	76.86512	9.92510	0.1505971	0.18672267	3.0315962	20	—	—
131321	2001	GW <sub>8</sub>	15.1	X	280.56408	154.34652	36.08446	10.64583	0.0269077	0.19224636	2.9732446	20	—	—
131322	2001	GK <sub>9</sub>	14.9	X	214.20167	85.97380	117.68340	10.00361	0.0859782	0.18452784	3.0555879	20	12 18.3	19.4
131323	2001	GE <sub>11</sub>	15.2	X	317.42543	59.63367	189.52883	8.56823	0.2076906	0.20255826	2.8714599	20	3 5.2	18.8
131324	2001	HH <sub>7</sub>	16.6	X	199.42490	141.58561	354.69144	20.83493	0.0703970	0.38104215	1.8843173	20	10 5.5	18.7
131325	2001	HW <sub>8</sub>	15.0	X	175.32931	88.42181	187.15104	5.73733	0.1595008	0.18576837	3.0419696	20	—	—
131326	2001	HG <sub>18</sub>	14.8	X	169.72203	50.33573	169.08286	27.22869	0.1323022	0.17825706	3.1268344	20	11 21.1	20.3
131327	2001	HC <sub>23</sub>	15.2	X	334.88783	62.12276	31.57543	14.28781	0.0882941	0.18995489	2.9971080	20	—	—
131328	2001	HM <sub>23</sub>	15.9	X	334.53823	85.47961	183.34750	4.53124	0.0204035	0.21290583	2.7776510	20	5 21.9	19.5
131329	2001	HP <sub>24</sub>	15.2	X	9.14346	310.20418	56.84755	3.84499	0.1787371	0.17452879	3.1712076	20	11 24.9	19.0
131330	2001	HW <sub>26</sub>	14.0	X	123.41516	59.51457	219.26634	21.99842	0.1065611	0.17873166	3.1212967	20	12 11.9	19.1
131331	2001	HC <sub>27</sub>	14.5	X	165.24369	51.78605	203.70501	15.71113	0.1842673	0.18027933	3.1034071	20	12 22.0	19.9
131332	2001	HK <sub>30</sub>	16.1	X	304.51626	76.97931	82.08924	26.98324	0.0532263	0.39581866	1.8371243	20	—	—
131333	2001	HZ <sub>31</sub>	14.8	X	160.32216	203.90915	68.57233	18.19073	0.1726549	0.18098524	3.0953322	20	—	—
131334	2001	HD <sub>34</sub>	15.4	X	170.65451	29.84901	228.61026	6.58706	0.2084453	0.18144802	3.0900670	20	12 29.3	20.6
131335	2001	HO <sub>34</sub>	15.7	X	94.94185	13.26631	210.30582	1.68762	0.1692980	0.22010385	2.7167580	20	9 20.8	19.8
131336	2001	HP <sub>35</sub>	14.6	X	147.37928	23.41294	237.62642	10.85962	0.1775191	0.17933108	3.1143375	20	12 14.7	19.9
131337	2001	HP <sub>37</sub>	14.3	X	163.68874	208.37673	58.26102	11.74386	0.0207684	0.18332153	3.0689777	20	—	—
131338	2001	HU <sub>41</sub>	14.7	X	64.18075	315.75846	34.97653	9.87075	0.0589886	0.18482454	3.0523169	20	—	—
131339	2001	HZ <sub>42</sub>	15.5	X	169.50333	73.14582	196.60812	10.67025	0.1263254	0.18557918	3.0440367	20	—	—
131340	2001	HW <sub>44</sub>	14.5	X	160.34352	312.43032	21.22084	14.94047	0.1974651	0.19249857	2.9706470	20	1 28.4	19.6
131341	2001	HN <sub>47</sub>	14.8	X	189.66151	254.49769	22.13168	11.48270	0.0631478	0.19025514	2.9939540	20	—	—
131342	2001	HG <sub>49</sub>	15.2	X	76.48630	21.03084	241.98872	10.86470	0.1497556	0.22315907	2.6919048	20	10 16.9	19.3
131343	2001	HX <sub>53</sub>	15.0	X	185.79936	132.03177	118.10238	16.68762	0.0964015	0.18477503	3.0528621	20	—	—
131344	2001	HK <sub>54</sub>	14.7	X	115.34314	94.86740	193.29703	12.53628	0.1449535	0.18017020	3.1046602	20	12 18.3	19.9
131345	2001	HY <sub>55</sub>	15.0	X	198.54790	119.27223	97.44105	10.42488	0.1286231	0.18205501	3.0831948	20	12 12.3	19.8
131346	2001	HU <sub>56</sub>	15.1	X	179.98781	213.52528	5.91671	6.17541	0.1119967	0.18025019	3.1037416	20	11 26.6	20.1
131347	2001	HE <sub>58</sub>	14.8	X	92.21030	39.49862	98.43048	9.97349	0.1002488	0.21246506	2.7814913	20	5 22.3	18.7
131348	2001	HB <sub>59</sub>	15.0	X	21.57897	19.82521	255.53138	13.57148	0.3275307	0.21615984	2.7497046	20	9 10.3	18.1
131349	2001	HN <sub>59</sub>	15.5	X	187.16492	103.03633	186.37833	4.79751	0.1944368	0.18875966	3.0097465	20	—	—
131350	2001	HC <sub>64</sub>	14.8	X	187.42022	183.37682	44.87973	12.						

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	$\omega$	$\Omega$	<i>i</i>	<i>e</i>	$\mu$	<i>a</i>	TE	Oppos.	<i>V</i>
131361 2001 KN <sub>5</sub>	14.8	X	144.11654	227.45153	45.82046	17.80832	0.1758181	0.17919631	3.1158987	20	12 24.8	20.2
131362 2001 KO <sub>5</sub>	15.2	X	166.87075	145.54486	136.82735	0.83080	0.2588478	0.18202837	3.0834955	20	—	—
131363 2001 KF <sub>7</sub>	14.3	X	101.62440	36.56069	242.94141	15.53422	0.1963062	0.17269808	3.1935794	20	11 28.5	19.4
131364 2001 KR <sub>7</sub>	14.9	X	182.57793	262.31816	78.08222	10.49864	0.0920196	0.19581468	2.9370131	20	2 18.6	19.6
131365 2001 KN <sub>11</sub>	14.6	X	97.90390	90.69075	233.31548	14.43913	0.1006615	0.17917965	3.1160919	20	—	—
131366 2001 KE <sub>16</sub>	15.1	X	149.64851	106.73279	96.59905	8.49552	0.1760637	0.17405926	3.1769079	20	10 15.4	20.5
131367 2001 KS <sub>16</sub>	14.7	X	161.32034	0.72191	220.16690	13.74064	0.1298156	0.17594119	3.1542131	20	11 11.4	19.7
131368 2001 KR <sub>18</sub>	14.2	X	39.39838	152.66560	201.68046	10.59892	0.2075537	0.17246587	3.1964453	20	12 24.6	18.8
131369 2001 KX <sub>18</sub>	16.8	X	211.24940	262.05227	227.70088	20.01576	0.0975301	0.37840064	1.8930764	20	10 11.6	18.9
131370 2001 KF <sub>22</sub>	15.2	X	350.77983	296.92733	58.51222	13.47911	0.1951914	0.21965621	2.7204478	20	10 26.4	17.9
131371 2001 KJ <sub>25</sub>	14.9	X	146.05279	257.77374	41.55465	10.11722	0.1873693	0.18239737	3.0793355	20	—	—
131372 2001 KR <sub>26</sub>	14.6	X	172.99999	36.38921	245.36548	10.09160	0.1112064	0.18403091	3.0610860	20	—	—
131373 2001 KS <sub>26</sub>	14.6	X	186.22840	115.28925	242.44562	9.72439	0.2113284	0.19535302	2.9416385	20	3 7.6	19.8
131374 2001 KQ <sub>29</sub>	15.3	X	257.86371	153.06004	41.46168	1.58765	0.1558515	0.18895640	3.0076570	20	—	—
131375 2001 KL <sub>30</sub>	14.6	X	138.30129	104.43569	236.42959	8.90699	0.2545892	0.18527844	3.0473298	20	1 16.4	19.7
131376 2001 KX <sub>31</sub>	14.2	X	87.75451	236.29193	62.64796	27.72596	0.2305465	0.17525015	3.1624993	20	12 8.9	19.4
131377 2001 KQ <sub>33</sub>	14.5	X	156.67581	131.92637	72.80234	10.52425	0.0526664	0.17453110	3.1711795	20	10 23.1	19.3
131378 2001 KP <sub>35</sub>	15.0	X	182.27171	60.96588	190.56385	4.28699	0.1959922	0.18151752	3.0892782	20	12 31.5	20.1
131379 2001 KT <sub>38</sub>	14.7	X	155.13979	185.41210	81.47165	18.89331	0.1626969	0.17978381	3.1091070	20	12 27.4	19.8
131380 2001 KL <sub>39</sub>	15.2	X	167.76070	128.44430	155.62995	11.94442	0.1943905	0.18255246	3.0775911	20	—	—
131381 2001 KU <sub>39</sub>	13.8	X	124.18661	81.44174	211.92850	18.90588	0.1391767	0.17710328	3.1404000	20	12 28.8	19.2
131382 2001 KY <sub>39</sub>	14.0	X	161.48670	145.02255	215.70737	18.57825	0.2935655	0.18911730	3.0059509	20	2 24.0	19.6
131383 2001 KJ <sub>40</sub>	14.8	X	230.56541	25.24454	191.38686	11.41307	0.2580967	0.18469932	3.0536964	20	12 28.9	19.6
131384 2001 KE <sub>41</sub>	16.5	X	176.07433	65.41563	84.10134	24.14314	0.0197768	0.37546080	1.9029453	20	10 21.9	19.1
131385 2001 KC <sub>41</sub>	14.7	X	135.92857	221.14073	97.70375	18.18537	0.1806408	0.18359845	3.0658910	20	—	—
131386 2001 KR <sub>42</sub>	14.7	X	163.61316	134.40274	100.34131	13.47756	0.1060426	0.17925275	3.1152446	20	12 2.2	19.7
131387 2001 KN <sub>49</sub>	13.9	X	94.99849	103.79273	249.35277	19.80323	0.2825925	0.17922729	3.1155397	20	—	—
131388 2001 KQ <sub>52</sub>	14.8	X	112.51249	190.01908	33.19104	29.65636	0.0651291	0.22347794	2.6893435	20	10 10.4	18.9
131389 2001 KG <sub>53</sub>	14.8	X	126.80601	284.48513	71.51482	11.39767	0.1248031	0.18897384	3.0074720	20	1 11.4	19.3
131390 2001 KN <sub>55</sub>	15.2	X	350.65352	221.12424	75.59667	17.44801	0.2543464	0.21220143	2.7837946	20	7 24.9	17.7
131391 2001 KR <sub>55</sub>	14.4	X	234.37895	53.38223	101.02014	17.24355	0.0470377	0.17816538	3.1279071	20	11 20.7	19.0
131392 2001 KS <sub>55</sub>	14.7	X	150.01449	75.46097	191.82275	9.79278	0.0687409	0.17913943	3.1165583	20	12 24.9	19.6
131393 2001 KS <sub>56</sub>	15.0	X	48.94362	193.12660	94.74095	11.30055	0.1368481	0.22174355	2.7033486	20	10 22.2	18.8
131394 2001 KC <sub>60</sub>	14.6	X	181.28220	135.76688	166.77013	10.14627	0.2653937	0.18196516	3.0842096	20	1 7.8	20.2
131395 2001 KS <sub>61</sub>	14.6	X	151.88031	50.15813	193.05267	20.08984	0.2204747	0.17799520	3.1299005	20	11 29.1	20.2
131396 2001 KK <sub>62</sub>	14.6	X	320.55238	261.19003	193.97061	9.09396	0.0577606	0.18330622	3.0691486	20	12 24.9	18.8
131397 2001 KX <sub>62</sub>	15.0	X	156.98823	72.24542	176.44626	13.96053	0.1656240	0.17807414	3.1289754	20	12 9.8	20.4
131398 2001 KZ <sub>64</sub>	14.9	X	173.40970	81.77447	146.53810	17.23155	0.1213744	0.17964585	3.1106985	20	12 4.7	20.1
131399 2001 KN <sub>65</sub>	15.0	X	206.59420	71.72491	116.06164	12.23806	0.1633454	0.18146844	3.0898351	20	11 16.6	20.1
131400 2001 KT <sub>74</sub>	14.0	X	124.70068	68.80008	260.04230	21.79924	0.2516033	0.17624533	3.1505833	20	—	—
131401 2001 LY	14.6	X	121.56943	235.49426	93.39891	12.72922	0.2005509	0.18063341	3.0993502	20	—	—
131402 2001 LP <sub>3</sub>	14.3	X	147.77225	72.88561	258.65697	9.26819	0.3564806	0.18268592	3.0760921	20	1 20.8	19.9
131403 2001 LS <sub>3</sub>	14.9	X	311.30497	341.66895	273.78956	10.05217	0.2889152	0.19911713	2.9044482	20	2 18.8	19.1
131404 2001 LZ <sub>4</sub>	15.1	X	163.15501	60.42729	202.22710	8.66148	0.0875958	0.18043533	3.1016181	20	12 31.9	20.0
131405 2001 LB <sub>8</sub>	15.0	X	132.26521	308.05620	332.11617	3.26970	0.0916549	0.17369349	3.1813663	20	12 21.7	19.9
131406 2001 LB <sub>12</sub>	14.0	X	116.19594	55.63716	269.61538	15.98143	0.1138742	0.17666974	3.1455356	20	—	—
131407 2001 LR <sub>18</sub>	15.1	X	206.18967	354.29304	247.00628	10.21186	0.1726149	0.18016793	3.1046863	20	—	—
131408 2001 MN <sub>3</sub>	13.8	X	107.10361	76.06717	194.08181	32.22424	0.1073608	0.17160266	3.2071556	20	11 16.9	19.1
131409 2001 MX <sub>5</sub>	14.6	X	262.28295	231.96663	85.42074	15.50571	0.2848338	0.19662098	2.9289783	20	3 28.3	19.7
131410 2001 MN <sub>8</sub>	14.3	X	168.13835	176.73613	112.86975	28.44882	0.2367799	0.17984769	3.1083707	20	—	—
131411 2001 MN <sub>9</sub>	16.6	X	354.99351	98.83131	146.88538	24.47545	0.0598724	0.35463443	1.9767365	20	5 23.2	19.1
131412 2001 MP <sub>16</sub>	14.5	X	23.84363	283.91684	77.87262	9.40754	0.0538366	0.16853183	3.2459968	20	11 23.5	18.9
131413 2001 NT	16.0	X	20.63375	18.82118	207.23163	20.82260	0.0358951	0.35499436	1.9754002	20	5 28.9	18.1
131414 2001 NB <sub>6</sub>	14.8	X	114.55921	182.60845	144.78475	19.65059	0.0691815	0.17688889	3.1429370	20	—	—
131415 2001 NA <sub>19</sub>	16.7	X	61.56849	113.76316	161.05377	22.63468	0.0502048	0.36916757	1.9245108	20	11 6.5	19.2
131416 2001 OA	15.3	X	198.15406	143.90356	110.22046	2.69937	0.2938362	0.18133223	3.0913823	20	—	—
131417 2001 OC <sub>5</sub>	14.1	X	213.14500	43.70781	301.84163	21.74050	0.3290146	0.18987524	2.9979461	20	3 5.4	20.0
131418 2001 OO <sub>5</sub>	14.1	X	217.24535	333.36998	301.45924	21.90032	0.0795683	0.18146573	3.0898659	20	1 7.3	18.9
131419 2001 OH <sub>13</sub>	16.5	X	21.20575	312.60655	135.52321	25.23228	0.0678505	0.38673885	1.8657675	20	—	—
131420 2001 OO <sub>45</sub>	17.0	X	77.12368	104.86208	149.28378	23.94271	0.1050664	0.37039790	1.9202468	20	11 5.4	19.9
131421 2001 OL <sub>58</sub>	14.1	X	105.69195	211.26643	147.08757	3.75960	0.1541260	0.12356181	3.9922085	20	1 4.3	19.7
131422 2001 OU <sub>71</sub>	14.8	X	76.04176	220.14302	121.99721	18.90397	0.1926637	0.17187608	3.2037534	20	—	—
131423 2001 OF <sub>77</sub>	14.6	X	185.60281	308.76625	4.95411	18.12640	0.2302742	0.17958554	3.1113950	20	1 29.6	20.2
131424 2001 OZ <sub>79</sub>	15.4	X	140.31581	89.46956	190.71934	0.89151	0.1648526	0.17293874	3.1906159	20	12 29.6	20.6
131425 2001 OK <sub>81</sub>	14.2	X	161.81470	0.54823	323.20872	18.92711	0.2773056	0.17835462	3.1256941	20	1 22.7	19.7
131426 2001 OX <sub>93</sub>	15.0	X	156.02365	181.13165	110.58725	10.71330	0.1456921	0.17769299	3.1334482	20	—	—
131427 2001 OW <sub>98</sub>	13.8	X	113.14779	62.44248	314.92918	14.73517	0.2074157	0.17589768	3.1547333	20	2 2.5	18.3
131428 2001 OO <sub>100</sub>	14.9	X	116.05640	202.92447	91.21410	6.58102	0.1448189	0.17081848	3.2169637	20	12 24.0	20.1
131429 2001 OH <sub>101</sub>	12.9	X	74.44008	165.65503	291.76739	22.33926	0.1357939	0.18584072	3.0411801	20	2 28.4	17.3
131430 2001 OX <sub>102</sub>	13.8	X	119.92968	122.14399	247.26370	7.72231	0.2397506	0.17654367	3.1470329	20	1 31.8	18.8
131431 2001 PL <sub>4</sub>	16.3	X	11.47954	142.01043	275.67480	19.59015	0.0826930	0.38000896	1.8877312	20	—	—
131432 2001 PX <sub>39</sub>	15.1	X	237.99033	318.91709	284.56297	7.80041	0.2096111	0.18030108	3.1031575	20	—	—
131433 2001 PB <sub>40</sub>	14.6	X	123.69943	105.49381	282.18453	8.93962	0.0912203	0.18098029	3.0953888	20	2 8.3	19.2
131434 2001 PX <sub>40</sub>	14.6	X	161.35614	49.61525								

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>
131441 2001 QS <sub>82</sub>	14.9	X	322.33668	130.64232	329.20287	22.77896	0.2748915	0.26804466	2.3823082	20	—	—
131442 2001 QX <sub>86</sub>	13.9	X	126.30826	45.78658	307.08881	15.71603	0.0985370	0.17659940	3.1463707	20	1 6.9	18.5
131443 2001 QH <sub>88</sub>	15.3	X	84.59332	126.27725	148.88159	1.94727	0.1646742	0.16379891	3.3082276	20	11 4.7	20.4
131444 2001 QA <sub>91</sub>	16.1	X	212.41227	131.48447	254.40700	18.73606	0.0796768	0.35235178	1.9852646	20	5 4.5	18.7
131445 2001 QG <sub>94</sub>	16.7	X	60.38230	122.90647	189.92899	22.01999	0.1162328	0.37494302	1.9046969	20	12 30.9	19.7
131446 2001 QP <sub>100</sub>	15.1	X	132.53615	148.26679	158.34612	17.57718	0.1917776	0.17460762	3.1702530	20	—	—
131447 2001 QZ <sub>113</sub>	11.9	X	255.03811	315.26589	33.23882	33.82282	0.0394026	0.08248455	5.2266205	20	5 10.6	19.1
131448 2001 QD <sub>128</sub>	14.8	X	265.94078	13.94684	271.28786	7.97993	0.0681685	0.19107302	2.9854042	20	3 4.4	19.2
131449 2001 QL <sub>134</sub>	14.5	X	195.89558	28.48325	265.08177	10.18561	0.1496447	0.17894495	3.1188160	20	1 6.4	19.6
131450 2001 QH <sub>151</sub>	16.2	X	244.44036	183.27853	289.21392	19.80077	0.0614286	0.36637600	1.9342742	20	11 8.6	18.5
131451 2001 QD <sub>174</sub>	12.4	X	255.94551	335.11766	8.53606	27.25686	0.0768462	0.08566553	5.0964210	20	4 29.7	19.6
131452 2001 QV <sub>186</sub>	15.2	X	196.26435	132.17072	168.36084	10.08860	0.0634983	0.18047253	3.1011920	20	1 12.8	20.0
131453 2001 QR <sub>189</sub>	14.2	X	197.79475	333.92097	283.52461	18.05735	0.2198408	0.17679618	3.1440357	20	—	—
131454 2001 QE <sub>190</sub>	15.1	X	130.79871	106.42897	284.49978	18.63123	0.2673766	0.18089108	3.0964063	20	3 1.2	20.6
131455 2001 QG <sub>190</sub>	14.2	X	106.08018	128.03880	267.58145	15.46928	0.2214487	0.17825805	3.1268229	20	2 11.1	19.0
131456 2001 QF <sub>191</sub>	17.0	X	263.37558	165.21893	215.72009	20.31144	0.0914436	0.35778725	1.9651067	20	7 5.1	19.6
131457 2001 QJ <sub>191</sub>	16.2	X	278.30518	135.28988	215.96470	20.28046	0.0819741	0.35631549	1.9705143	20	6 15.6	18.5
131458 2001 QA <sub>194</sub>	14.3	X	56.51323	144.05804	259.57207	11.11002	0.1485003	0.17101173	3.2145397	20	—	—
131459 2001 QC <sub>194</sub>	14.5	X	167.47111	345.29363	299.20977	14.02455	0.1853871	0.17319399	3.1874803	20	—	—
131460 2001 QE <sub>194</sub>	12.6	X	250.28559	1.17325	340.58414	27.76220	0.0613340	0.08528414	5.1116041	20	4 19.3	19.9
131461 2001 QF <sub>221</sub>	14.5	X	137.49367	79.23056	293.38464	10.54817	0.1317525	0.18360569	3.0658104	20	2 9.6	19.3
131462 2001 QL <sub>227</sub>	15.3	X	186.27081	119.69964	224.38825	9.36515	0.1258839	0.18537040	3.0463219	20	2 20.8	20.4
131463 2001 QT <sub>286</sub>	15.1	X	206.95990	127.44803	218.92875	10.77737	0.1409111	0.18941746	3.0027745	20	3 13.3	20.0
131464 2001 QK <sub>289</sub>	14.3	X	78.28080	200.85309	124.85250	23.07379	0.0679139	0.16913002	3.2383386	20	12 19.5	19.3
131465 2001 QJ <sub>290</sub>	16.9	X	301.44981	144.09728	181.14626	22.83526	0.0852034	0.35819042	1.9636319	20	6 15.2	19.4
131466 2001 QU <sub>326</sub>	14.4	X	93.02890	265.43013	125.73477	22.53279	0.0707344	0.17850889	3.1238929	20	1 7.8	18.8
131467 2001 RZ <sub>5</sub>	16.8	X	139.15309	2.04177	283.26511	19.10864	0.0633676	0.37937273	1.8898412	20	—	—
131468 2001 RM <sub>7</sub>	14.5	X	154.16111	346.48270	340.71932	6.66250	0.2058089	0.12632197	3.9338409	20	1 20.0	20.8
131469 2001 RR <sub>9</sub>	16.0	X	249.08405	221.44715	235.37458	19.60594	0.1010078	0.36915554	1.9245526	20	10 17.9	18.0
131470 2001 RN <sub>46</sub>	16.3	X	241.56213	115.29230	285.73479	19.23192	0.0747122	0.37059972	1.9195495	20	12 26.7	17.9
131471 2001 RY <sub>46</sub>	16.1	X	343.18920	261.50028	39.06687	21.78436	0.0545431	0.35930082	1.9595841	20	8 10.4	18.5
131472 2001 RV <sub>67</sub>	14.3	X	199.86137	85.53943	202.28098	15.68923	0.2075339	0.17840451	3.1251113	20	1 2.8	19.9
131473 2001 RQ <sub>73</sub>	15.7	X	288.30011	356.83075	21.33185	12.61095	0.0353712	0.22992313	2.6388474	20	—	—
131474 2001 RA <sub>82</sub>	14.7	X	153.78941	47.57602	320.56973	9.81835	0.1150437	0.18302127	3.0723334	20	2 20.5	19.5
131475 2001 RL <sub>82</sub>	14.2	X	122.12759	108.53119	292.20280	8.95129	0.1042871	0.18183861	3.0856404	20	2 22.8	18.8
131476 2001 RB <sub>92</sub>	15.5	X	204.81000	273.75443	12.28102	4.74701	0.2779876	0.18080349	3.0974063	20	1 6.9	21.1
131477 2001 RN <sub>93</sub>	14.9	X	140.07375	216.87587	107.91551	2.30799	0.1513066	0.17420440	3.1751431	20	—	—
131478 2001 RV <sub>95</sub>	17.1	X	216.34160	272.36232	142.66377	2.05490	0.1219938	0.30078201	2.2061489	20	6 20.2	19.9
131479 2001 RG <sub>99</sub>	17.5	X	241.61410	257.47842	159.42555	4.83786	0.2042998	0.30641808	2.1790128	20	7 12.6	20.4
131480 2001 RY <sub>101</sub>	14.4	X	323.69882	215.72327	147.91681	16.94421	0.0981893	0.15469113	3.4368383	20	8 30.6	18.7
131481 2001 RT <sub>111</sub>	14.4	X	148.90885	253.95094	72.68725	0.51680	0.1361024	0.12431949	3.9759713	20	1 9.5	20.5
131482 2001 SF <sub>30</sub>	17.7	X	337.38981	335.04810	66.18858	0.69765	0.1119864	0.31721685	2.1292757	20	12 26.6	19.6
131483 2001 SS <sub>34</sub>	14.9	X	141.87286	190.48007	136.76680	2.28187	0.1348089	0.17418000	3.1754396	20	—	—
131484 2001 SU <sub>38</sub>	14.7	X	138.11060	284.54355	22.41312	14.48133	0.2235993	0.17124956	3.2115627	20	—	—
131485 2001 SO <sub>68</sub>	14.7	X	145.98813	161.01343	196.01262	17.23120	0.2195173	0.17677220	3.1443201	20	2 6.3	20.1
131486 2001 SZ <sub>78</sub>	17.1	X	57.92248	133.31702	160.57797	22.17735	0.0701398	0.37268787	1.9123727	20	12 2.1	19.9
131487 2001 SS <sub>90</sub>	16.8	X	71.08286	250.32502	186.30487	4.17731	0.1561591	0.28365084	2.2941052	20	1 23.2	18.8
131488 2001 SL <sub>94</sub>	16.3	X	85.56182	134.17436	321.83897	6.85559	0.1170973	0.28837283	2.2689930	20	3 9.1	18.8
131489 2001 SA <sub>159</sub>	16.4	X	189.96888	232.84136	218.30649	4.78684	0.1328116	0.30029055	2.2085553	20	7 9.5	19.7
131490 2001 SJ <sub>164</sub>	14.7	X	120.61115	320.34601	21.23603	19.67467	0.2283559	0.17228372	3.1986979	20	1 3.8	19.9
131491 2001 SW <sub>178</sub>	16.6	X	121.67993	212.41517	169.01070	5.77869	0.1498172	0.28073451	2.3099656	20	1 24.4	19.4
131492 2001 SP <sub>181</sub>	14.6	X	72.69031	307.32077	141.54708	7.59685	0.1953361	0.18226738	3.0807993	20	3 9.3	18.5
131493 2001 SP <sub>185</sub>	15.7	X	218.74914	149.41981	126.17018	2.38958	0.1579715	0.18227213	3.0807459	20	1 5.2	20.8
131494 2001 ST <sub>227</sub>	17.5	X	296.88019	9.61974	28.44086	1.77168	0.0851462	0.31064125	2.1592187	20	10 2.4	19.3
131495 2001 SW <sub>236</sub>	17.2	X	212.00199	42.42030	28.21363	4.51547	0.0937984	0.30296976	2.1955156	20	7 10.8	20.0
131496 2001 SM <sub>239</sub>	16.6	X	230.88674	197.53704	121.29225	5.04624	0.1425957	0.29085168	2.2560826	20	2 27.3	19.9
131497 2001 SQ <sub>248</sub>	17.2	X	233.38046	218.24662	184.73213	4.83419	0.1787077	0.30053371	2.2073638	20	6 17.2	20.4
131498 2001 ST <sub>260</sub>	16.8	X	63.89246	83.00946	337.96576	3.47955	0.0993658	0.27863915	2.3215317	20	—	—
131499 2001 SU <sub>266</sub>	16.3	X	165.70211	34.31503	51.07983	6.73244	0.1174472	0.29438510	2.2379936	20	6 5.3	19.5
131500 2001 SK <sub>270</sub>	13.9	X	148.18833	195.65566	139.48823	15.79324	0.1886636	0.17662884	3.1460211	20	1 15.5	19.0
131501 2001 SX <sub>272</sub>	14.3	X	169.19049	285.76766	68.08862	23.00278	0.1855867	0.18166760	3.0875766	20	3 5.5	19.9
131502 2001 SW <sub>273</sub>	14.3	X	218.09140	265.60549	11.56932	2.77301	0.1682281	0.12566567	3.9475256	20	1 13.7	20.5
131503 2001 SS <sub>279</sub>	16.7	X	170.62433	45.67835	21.10256	5.12914	0.1681385	0.29341289	2.2429345	20	5 16.9	20.2
131504 2001 SX <sub>280</sub>	16.8	X	237.81876	199.40762	196.70474	2.91526	0.1407012	0.30045371	2.2077556	20	6 16.9	19.8
131505 2001 SK <sub>283</sub>	16.5	X	92.13006	357.99397	86.53229	3.99073	0.1911309	0.28157228	2.3053814	20	3 20.7	19.1
131506 2001 SP <sub>288</sub>	14.7	X	147.38180	82.27661	241.14913	8.58381	0.0775290	0.17390840	3.1787449	20	—	—
131507 2001 SC <sub>305</sub>	18.1	X	295.76381	97.78752	307.08062	0.59165	0.1172615	0.31126041	2.1563543	20	10 7.6	19.9
131508 2001 SE <sub>318</sub>	16.5	X	15.97400	129.63477	11.51627	5.88841	0.0722503	0.28275768	2.2989337	20	1 18.0	19.0
131509 2001 TK <sub>11</sub>	16.1	X	154.35619	62.10905	1.14283	2.4603	0.2307989	0.23735784	2.5834516	20	5 1.7	20.3
131510 2001 TV <sub>33</sub>	16.7	X	294.58164	60.47134	331.98667	4.96205	0.1772063	0.30675256	2.1774286	20	9 4.2	18.3
131511 2001 TL <sub>43</sub>	15.8	X	248.88599	346.40355	22.32289	8.46524	0.1643508	0.29302714	2.2449025	20	5 17.4	19.0
131512 2001 TS <sub>46</sub>	15.6	X	63.90535	65.37178	52.24865	21.93182	0.2739948	0.27615616	2.3354266	20	4 14.9	18.1
131513 2001 TD <sub>69</sub>	17.6	X	303.30334	26.42231	15.84410	1.44284	0.1417944	0.31146415	1.1554139	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>		
131521	2001	TJ <sub>193</sub>	15.9 <sup>m</sup>	X	252.54121	72.99560	311.81638	5.34354	0.1828884	0.29721140	2.2237830	20	6 12.9	18.8
131522	2001	TW <sub>196</sub>	14.3	X	180.87496	272.10195	52.32090	27.05635	0.1659962	0.18027529	3.1034535	20	2 7.5	19.9
131523	2001	TY <sub>199</sub>	14.6	X	126.92733	203.83945	107.12306	9.47486	0.0981945	0.16977731	3.2301023	20	—	—
131524	2001	TD <sub>236</sub>	16.7	X	60.95627	269.72543	124.59282	6.70334	0.1319026	0.27368625	2.3494565	20	—	—
131525	2001	UZ <sub>41</sub>	17.1	X	310.90087	345.37387	56.35056	4.35520	0.1189747	0.31170510	2.1543030	20	11 4.3	18.7
131526	2001	UJ <sub>46</sub>	17.3	X	286.64207	304.70103	147.12519	2.66183	0.1570335	0.31326122	2.1471627	20	12 3.6	18.7
131527	2001	UQ <sub>52</sub>	17.1	X	36.89508	241.75655	95.67562	1.97692	0.1258532	0.31615644	2.1340341	20	12 25.3	19.7
131528	2001	UT <sub>52</sub>	16.7	X	351.50567	142.06984	187.90544	5.71383	0.0539665	0.30735763	2.1745700	20	9 21.9	18.7
131529	2001	UE <sub>73</sub>	15.7	X	113.69876	198.57175	143.93033	0.85232	0.2155681	0.17154890	3.2078257	20	—	—
131530	2001	UO <sub>79</sub>	16.6	X	136.46693	329.44918	204.69556	2.38189	0.0674127	0.30435618	2.1888431	20	9 3.0	19.4
131531	2001	UL <sub>81</sub>	16.5	X	221.51893	36.83468	77.77869	2.56827	0.1092768	0.30698945	2.1763083	20	9 23.9	19.1
131532	2001	UK <sub>95</sub>	17.1	X	196.72318	71.67160	12.20611	6.94314	0.0901557	0.29920924	2.2138731	20	7 11.7	20.1
131533	2001	UV <sub>103</sub>	17.8	X	292.47420	216.05802	184.61761	5.51520	0.1237829	0.30917264	2.1660510	20	9 22.6	19.5
131534	2001	UQ <sub>104</sub>	16.9	X	354.16054	42.82261	91.32986	3.15865	0.1431278	0.27681179	2.3317375	20	—	—
131535	2001	UU <sub>111</sub>	16.8	X	101.72816	69.93649	15.23582	3.94961	0.0808674	0.28656896	2.2785048	20	3 15.3	19.3
131536	2001	UW <sub>112</sub>	16.3	X	196.49329	186.35509	271.62556	3.55566	0.0685715	0.30041379	2.2079512	20	7 31.0	19.0
131537	2001	UV <sub>115</sub>	17.6	X	321.37744	200.92441	189.13735	1.80399	0.0864709	0.31092227	2.1579174	20	11 5.2	19.5
131538	2001	UH <sub>123</sub>	15.9	X	179.52384	205.55223	211.47682	4.69971	0.0713402	0.29182355	2.2510708	20	5 12.9	18.7
131539	2001	US <sub>133</sub>	13.1	X	235.20658	120.16922	229.25499	1.57691	0.0909963	0.08310567	5.2005460	20	4 23.7	20.2
131540	2001	UX <sub>150</sub>	17.4	X	180.83433	261.38923	162.70063	1.92103	0.1873594	0.29329400	2.2435406	20	5 24.8	20.9
131541	2001	UE <sub>153</sub>	17.3	X	28.31439	312.39118	67.43009	1.39131	0.1441640	0.31884511	2.1220203	20	—	—
131542	2001	UH <sub>153</sub>	16.7	X	53.07273	248.51518	221.09307	4.52685	0.1358623	0.27942207	2.3171932	20	2 5.1	18.8
131543	2001	UZ <sub>163</sub>	17.3	X	242.46324	201.42643	175.20601	6.34563	0.1772573	0.29858882	2.2169387	20	5 23.1	20.4
131544	2001	UD <sub>177</sub>	15.2	X	172.27833	109.18854	211.61209	14.23747	0.2542008	0.17808919	3.1287991	20	1 19.2	20.9
131545	2001	UK <sub>209</sub>	16.8	X	145.37377	156.68084	316.23011	3.84780	0.1211589	0.29782707	2.207173	20	6 21.9	19.8
131546	2001	VJ <sub>3</sub>	13.5	X	330.23884	264.13128	21.77640	4.29115	0.0325995	0.08267213	5.2187117	20	6 4.6	20.3
131547	2001	VF <sub>12</sub>	16.4	X	251.36024	11.76953	3.06059	8.52027	0.1394948	0.29805275	2.2195962	20	6 1.3	19.4
131548	2001	VD <sub>17</sub>	16.9	X	40.22950	60.33990	33.86717	2.51222	0.1622606	0.27532046	2.3401502	20	—	—
131549	2001	VJ <sub>21</sub>	16.8	X	58.00609	190.68314	285.41376	1.65264	0.1906778	0.28098782	2.3085771	20	3 3.9	18.5
131550	2001	VX <sub>21</sub>	16.5	X	112.05913	96.41634	44.67860	5.57404	0.08221915	0.29360597	2.2419511	20	6 16.8	19.3
131551	2001	VX <sub>23</sub>	16.4	X	136.48941	227.80556	252.68970	4.19653	0.0835636	0.29393464	2.2402795	20	6 19.1	19.4
131552	2001	VG <sub>27</sub>	16.7	X	215.02374	190.25005	244.22304	1.86912	0.0970555	0.29899515	2.2149297	20	7 18.3	19.7
131553	2001	VN <sub>29</sub>	16.8	X	106.94643	18.94648	69.81275	7.81802	0.1677069	0.28462651	2.2888596	20	4 13.1	19.8
131554	2001	VK <sub>31</sub>	16.7	X	254.96330	351.69897	95.02851	2.67449	0.1270072	0.30612834	2.1803875	20	9 28.5	18.8
131555	2001	VS <sub>32</sub>	16.7	X	221.30258	8.46192	33.80161	3.69225	0.1292202	0.29577526	2.2309756	20	6 6.7	19.8
131556	2001	VP <sub>33</sub>	16.9	X	251.93281	190.02338	202.24867	2.84506	0.1881043	0.29965681	2.2116681	20	6 22.3	19.7
131557	2001	VS <sub>34</sub>	16.7	X	116.11319	247.63455	214.22289	3.45002	0.1557436	0.28685082	2.2770120	20	5 7.4	19.7
131558	2001	VB <sub>36</sub>	16.4	X	265.76999	183.28454	210.25766	3.99006	0.1328109	0.30107869	2.2046993	20	7 21.3	18.8
131559	2001	VU <sub>37</sub>	15.9	X	77.70421	49.76295	76.47189	22.04138	0.1652378	0.28350957	2.2948672	20	5 1.6	18.9
131560	2001	VT <sub>41</sub>	16.6	X	88.33805	158.48960	41.40487	5.04883	0.0913180	0.29797335	2.2199904	20	8 14.4	19.4
131561	2001	VN <sub>42</sub>	16.3	X	158.25286	78.25205	52.18781	3.52592	0.0540445	0.29713655	2.2241564	20	7 31.1	19.1
131562	2001	VR <sub>42</sub>	16.5	X	345.59538	33.84198	317.69063	1.35032	0.2273961	0.30901253	2.1667991	20	11 7.8	17.6
131563	2001	VY <sub>44</sub>	16.0	X	174.19526	346.37678	58.60532	4.75379	0.1477107	0.28860260	2.2677885	20	4 23.2	19.3
131564	2001	VR <sub>45</sub>	16.1	X	183.79654	1.58698	69.01240	7.34160	0.1261557	0.29244090	2.2479017	20	6 5.1	19.3
131565	2001	VX <sub>48</sub>	16.0	X	144.33048	311.44821	105.73814	4.22321	0.1634748	0.28398733	2.2922927	20	4 11.4	19.3
131566	2001	VM <sub>52</sub>	16.5	X	138.90771	86.52192	17.32868	7.72505	0.0560207	0.29417918	2.2390378	20	5 24.7	19.4
131567	2001	VG <sub>60</sub>	17.1	X	120.23091	93.99817	18.44739	3.91799	0.2102463	0.28969694	2.2620738	20	5 31.7	20.3
131568	2001	VK <sub>61</sub>	16.4	X	168.06221	216.14329	279.46602	6.95457	0.0384741	0.30209377	2.199578	20	8 17.2	19.3
131569	2001	VE <sub>63</sub>	17.2	X	261.13428	28.35200	14.84188	4.97720	0.1448246	0.30291778	2.1957668	20	7 30.2	19.6
131570	2001	VJ <sub>66</sub>	16.5	X	139.80050	98.82638	41.74639	7.99646	0.1039334	0.29643644	2.2276570	20	7 25.7	19.7
131571	2001	VM <sub>66</sub>	16.0	X	276.17338	156.70221	279.80626	3.48306	0.1095718	0.30871849	2.1681748	20	10 19.2	17.9
131572	2001	VT <sub>66</sub>	16.3	X	77.45236	349.56822	36.07509	6.41756	0.2394474	0.27417794	2.3466467	20	—	—
131573	2001	VX <sub>78</sub>	16.8	X	107.60502	277.69143	242.71440	4.49347	0.0841740	0.29660989	2.2267885	20	7 9.1	19.7
131574	2001	VE <sub>86</sub>	16.7	X	10.38627	235.18707	31.64272	8.27411	0.0950727	0.29911520	2.2143370	20	7 22.8	18.9
131575	2001	VP <sub>86</sub>	13.6	X	53.27186	163.29893	275.01212	21.40872	0.0839347	0.17758312	3.1347405	20	1 10.6	17.8
131576	2001	VT <sub>86</sub>	14.5	X	125.08693	123.43111	266.31525	11.02083	0.2230976	0.17884476	3.1199806	20	2 24.4	19.6
131577	2001	VW <sub>111</sub>	16.2	X	154.29105	295.83648	271.92910	2.69628	0.0962737	0.30936844	2.1651370	20	11 10.1	19.0
131578	2001	VT <sub>113</sub>	16.7	X	79.04278	227.64588	43.89261	3.27701	0.0585847	0.30883432	2.1676326	20	11 7.3	19.0
131579	2001	VA <sub>120</sub>	17.0	X	216.54268	65.60264	45.47087	3.65835	0.1036786	0.30256936	2.1974521	20	9 12.8	19.7
131580	2001	VX <sub>120</sub>	16.0	X	132.96522	31.61893	72.46511	6.51400	0.1028473	0.28774405	2.2722973	20	5 24.6	18.9
131581	2001	VG <sub>121</sub>	13.1	X	266.52112	28.20445	281.32762	2.84269	0.0500778	0.08252469	5.2249258	20	4 15.4	20.1
131582	2001	WK <sub>4</sub>	16.5	X	120.79348	54.48309	66.38044	9.33516	0.1985093	0.29133352	2.2535944	20	6 11.8	19.7
131583	2001	WM <sub>4</sub>	16.2	X	21.50575	271.72951	66.32638	22.32727	0.1077189	0.36603863	1.9354625	20	12 14.0	18.2
131584	2001	WT <sub>5</sub>	14.8	X	27.15802	208.10554	286.46669	23.60390	0.2805011	0.27340581	2.3510628	20	1 15.4	15.7
131585	2001	WW <sub>7</sub>	16.8	X	116.44507	319.93006	126.82614	4.73844	0.1247611	0.28644889	2.2791415	20	4 14.8	19.7
131586	2001	WH <sub>8</sub>	17.0	X	127.08510	326.03968	142.13599	2.78759	0.0999807	0.29071555	2.2567869	20	5 23.3	19.9
131587	2001	WA <sub>10</sub>	16.9	X	251.31694	267.34498	183.13494	3.46954	0.09912456	0.30614301	2.1803179	20	10 3.1	19.1
131588	2001	WF <sub>28</sub>	16.9	X	138.78878	302.44239	176.01189	4.62634	0.0985020	0.29359200	2.2420222	20	6 20.3	19.9
131589	2001	WW <sub>35</sub>	17.3	X	283.70722	282.88451	124.05391	3.03841	0.1442427	0.30616157	2.1802298	20	9 13.3	19.1
131590	2001	WV <sub>39</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>		
131601	2001	XV <sub>9</sub>	16.1	X	53.80913	57.38664	3.60274	3.44008	0.1726096	0.21925754	2.7237445	20	—	—
131602	2001	XS <sub>16</sub>	16.6	X	84.72520	114.36620	21.09424	10.40519	0.1562404	0.28378212	2.2933976	20	5 11.1	19.3
131603	2001	XD <sub>18</sub>	16.6	X	356.48542	174.59784	348.89224	4.99487	0.1574176	0.27506377	2.3416058	20	1 7.9	18.9
131604	2001	XE <sub>18</sub>	15.6	X	149.02352	47.15599	37.12554	6.38289	0.1402407	0.28868416	2.2673614	20	5 17.5	18.9
131605	2001	XH <sub>18</sub>	16.3	X	61.27772	59.24210	52.91129	10.39320	0.1047039	0.27895781	2.3197634	20	2 29.5	18.9
131606	2001	XM <sub>18</sub>	16.2	X	75.08525	203.80353	308.77160	6.52033	0.1071750	0.28602752	2.2813793	20	5 13.8	18.8
131607	2001	XQ <sub>19</sub>	16.0	X	345.58851	172.19190	36.69498	7.09870	0.1152810	0.28020053	2.3128994	20	3 3.3	18.4
131608	2001	XV <sub>19</sub>	15.9	X	112.26649	182.02730	309.58973	8.05791	0.0557064	0.28883726	2.2665601	20	5 29.6	18.9
131609	2001	XJ <sub>21</sub>	15.8	X	194.86103	331.15284	45.89070	7.36367	0.1418371	0.28650513	2.2788432	20	4 8.2	19.2
131610	2001	XN <sub>22</sub>	16.7	X	120.94519	17.16393	42.10102	5.52523	0.2468851	0.28176228	2.3043449	20	3 29.5	20.0
131611	2001	XX <sub>22</sub>	15.8	X	147.86675	32.44719	26.53860	4.56678	0.1111060	0.28527548	2.2853870	20	4 10.8	19.0
131612	2001	XU <sub>24</sub>	16.0	X	128.10956	13.59738	53.04895	5.79549	0.0867765	0.28272253	2.2991242	20	4 8.9	19.3
131613	2001	XA <sub>27</sub>	15.9	X	91.50809	88.03944	346.55731	7.25697	0.1659491	0.27644163	2.3338185	20	2 29.2	18.5
131614	2001	XK <sub>27</sub>	16.2	X	191.52384	14.78098	60.57510	7.32505	0.0896094	0.28991016	2.2609646	20	6 21.2	19.2
131615	2001	XF <sub>28</sub>	15.6	X	248.34765	304.52249	67.40381	7.66265	0.1758033	0.29162103	2.2521129	20	5 22.2	18.5
131616	2001	XX <sub>29</sub>	16.3	X	343.11216	289.88531	237.32195	5.03073	0.2634800	0.26944373	2.3740544	20	—	—
131617	2001	XU <sub>31</sub>	16.7	X	158.56825	246.87613	283.97888	4.22537	0.0940601	0.30347486	2.1930788	20	9 23.1	19.7
131618	2001	XX <sub>33</sub>	16.6	X	242.79449	30.23072	143.87621	1.73939	0.1372579	0.26101846	2.4248706	20	12 28.8	19.2
131619	2001	XE <sub>40</sub>	16.1	X	89.48690	110.77977	13.19681	7.40459	0.0523790	0.28539482	2.2847499	20	4 15.4	18.7
131620	2001	XQ <sub>41</sub>	16.5	X	128.47654	136.20727	339.56279	8.23361	0.0920045	0.28914844	2.2649336	20	6 1.5	19.6
131621	2001	XP <sub>45</sub>	16.2	X	294.07720	354.42655	350.04641	6.98796	0.1609073	0.29694161	2.2251298	20	6 16.8	18.6
131622	2001	XE <sub>46</sub>	16.6	X	76.51531	54.04073	21.45945	6.81040	0.1956566	0.27602420	2.3361709	20	2 13.3	18.8
131623	2001	XG <sub>46</sub>	16.2	X	209.41383	61.42234	12.37944	6.71437	0.1146130	0.29455484	2.2371337	20	7 10.3	19.3
131624	2001	XF <sub>52</sub>	16.2	X	216.98079	9.50658	85.31730	2.17214	0.0261752	0.30209279	2.1997626	20	8 30.9	18.6
131625	2001	XN <sub>56</sub>	16.4	X	227.63026	266.34682	89.79980	7.27297	0.1380644	0.29077806	2.2564634	20	4 15.3	19.7
131626	2001	XR <sub>58</sub>	15.9	X	194.55335	138.61942	238.05624	5.38287	0.1499279	0.28848222	2.2684194	20	4 3.3	19.3
131627	2001	XF <sub>60</sub>	15.7	X	339.27721	314.37439	86.02849	3.56903	0.0954255	0.31141521	2.1556397	20	12 24.1	17.7
131628	2001	XX <sub>60</sub>	16.3	X	0.00469	121.55138	73.81164	3.17481	0.1089763	0.28269490	2.2992740	20	3 7.4	18.4
131629	2001	XB <sub>62</sub>	15.8	X	85.90730	177.28712	270.69782	5.82755	0.1027383	0.27972355	2.3155279	20	2 24.9	18.4
131630	2001	XO <sub>64</sub>	16.0	X	204.26151	170.47868	266.14316	3.44288	0.0867640	0.29408274	2.2395273	20	7 8.8	19.0
131631	2001	XQ <sub>66</sub>	16.1	X	346.09326	189.51068	257.75325	3.02484	0.1321054	0.26343192	2.4100374	20	—	—
131632	2001	XT <sub>66</sub>	16.0	X	135.83666	177.99285	277.89081	4.29565	0.1034635	0.28650074	2.2788665	20	5 15.4	19.1
131633	2001	XK <sub>67</sub>	16.6	X	338.95914	309.01303	145.86964	0.66709	0.1707197	0.26440763	2.4041048	20	—	—
131634	2001	XN <sub>68</sub>	15.2	X	58.04351	218.67908	309.65279	23.45437	0.2823989	0.28031223	2.3122849	20	6 16.1	18.1
131635	2001	XW <sub>71</sub>	12.8	X	237.99871	295.32540	74.61938	3.65405	0.0647360	0.08048817	5.3126927	20	5 22.4	19.8
131636	2001	XJ <sub>72</sub>	17.0	X	263.84995	43.35590	88.94499	2.37117	0.1359159	0.26045630	2.4283585	20	12 4.2	19.6
131637	2001	XU <sub>72</sub>	16.3	X	211.58610	209.39695	176.70228	6.05111	0.1442705	0.29292342	2.2454324	20	5 6.1	19.6
131638	2001	XB <sub>73</sub>	15.9	X	137.44030	124.06843	89.45206	5.76075	0.0796839	0.30799346	2.1715761	20	11 1.8	18.8
131639	2001	XE <sub>76</sub>	17.2	X	236.53793	197.91100	241.46436	2.88910	0.0718086	0.30400159	2.1905448	20	8 26.4	19.8
131640	2001	XK <sub>77</sub>	16.2	X	302.31158	265.30844	183.32129	5.91222	0.1577277	0.26048772	2.4281632	20	12 10.9	18.4
131641	2001	XX <sub>82</sub>	16.8	X	251.31389	340.48898	106.66052	4.78097	0.0862963	0.30538681	2.1839157	20	10 1.6	19.1
131642	2001	XO <sub>85</sub>	15.6	X	318.05549	143.56415	199.32113	3.22043	0.1205435	0.29855893	2.2170867	20	8 6.7	17.5
131643	2001	XS <sub>85</sub>	16.8	X	55.59146	315.03363	133.90542	2.90618	0.1869484	0.27434659	2.3456849	20	1 16.9	18.5
131644	2001	XM <sub>86</sub>	16.1	X	288.27056	180.25311	244.14727	3.55429	0.1739053	0.30572058	2.1823259	20	10 14.5	17.7
131645	2001	XS <sub>87</sub>	16.8	X	184.36609	6.32049	32.13007	6.66594	0.1811116	0.28717033	2.2753227	20	4 23.9	20.3
131646	2001	XH <sub>88</sub>	15.8	X	144.55078	110.45881	305.36716	5.06145	0.1546922	0.28282365	2.2985762	20	4 4.1	19.2
131647	2001	XP <sub>90</sub>	15.2	X	122.51146	221.22942	286.17306	2.20835	0.1335357	0.18767972	3.0212813	20	7 10.0	19.6
131648	2001	XH <sub>99</sub>	15.4	X	114.11210	348.54962	346.63122	2.20239	0.1131979	0.31963347	2.1185297	20	—	—
131649	2001	XK <sub>101</sub>	16.3	X	98.20878	208.04868	325.29408	4.29356	0.0595858	0.29232615	2.2484899	20	7 12.9	18.9
131650	2001	XA <sub>103</sub>	16.7	X	158.78910	21.87338	210.56480	2.37608	0.0623166	0.31247671	2.1507550	20	12 22.5	19.3
131651	2001	XC <sub>105</sub>	16.5	X	72.49422	165.66299	153.32926	1.34968	0.1305307	0.31051660	2.1597989	20	—	—
131652	2001	XM <sub>105</sub>	16.5	X	152.01487	170.72267	20.46258	6.84183	0.0829296	0.30487605	2.1863513	20	10 16.3	19.5
131653	2001	XO <sub>106</sub>	16.3	X	205.47106	20.83532	28.78857	6.83512	0.0722969	0.29473896	2.2362019	20	6 1.7	19.2
131654	2001	XC <sub>107</sub>	16.8	X	15.57318	112.18653	323.90214	3.99091	0.1255965	0.26994731	2.3711010	20	—	—
131655	2001	XT <sub>112</sub>	17.1	X	234.79465	233.09539	186.91893	4.27851	0.1412666	0.29884482	2.2156725	20	7 16.3	20.1
131656	2001	XL <sub>114</sub>	16.1	X	83.72282	280.65301	329.00265	5.15256	0.0636322	0.30323003	2.1942591	20	10 10.8	18.8
131657	2001	XP <sub>114</sub>	16.3	X	358.45985	203.77407	4.98617	4.43613	0.0666927	0.28317293	2.2966857	20	3 26.2	18.6
131658	2001	XM <sub>118</sub>	16.6	X	288.03143	312.30129	73.54595	6.51547	0.1542786	0.29924420	2.2137006	20	8 16.9	18.7
131659	2001	XQ <sub>134</sub>	16.8	X	121.50559	167.80968	77.21888	6.05816	0.1282936	0.30954110	2.1643318	20	11 24.8	19.9
131660	2001	XM <sub>144</sub>	16.0	X	187.03982	325.80845	99.43181	6.80998	0.1400189	0.23958733	2.5673997	20	6 1.9	20.0
131661	2001	XX <sub>146</sub>	16.6	X	145.00374	46.46218	81.12547	2.75150	0.0253485	0.29463697	2.2367179	20	7 6.5	19.3
131662	2001	XX <sub>149</sub>	16.6	X	339.08210	213.29300	94.53736	2.18566	0.0234396	0.29726082	2.2235365	20	7 26.6	19.0
131663	2001	XE <sub>150</sub>	16.6	X	201.07596	357.93755	86.09646	1.01519	0.0317584	0.29669602	2.2263575	20	7 20.8	19.0
131664	2001	XZ <sub>164</sub>	16.9	X	47.35600	153.29130	76.67973	1.91411	0.0696987	0.29449051	2.2374595	20	7 23.4	19.1
131665	2001	XA <sub>167</sub>	16.4	X	158.26497	298.89087	90.23523	7.12989	0.0888730	0.28324956	2.2962714	20	3 15.6	19.6
131666	2001	XC <sub>167</sub>	15.8	X	160.31968	358.63069	89.13614	7.10532	0.0640145	0.29085243	2.2560787	20	6 1.6	18.6
131667	2001	XW <sub>168</sub>	15.8	X	170.20166	318.58844	95.19379	3.75416	0.1535449	0.23509724	2.5999861	20	5 2.8	19.9
131668	2001	XO <sub>171</sub>	16.6	X	27.29263	55.97316	238.25910	1.05624	0.0295754	0.30199389	2.2002428	20	9 21.1	18.9
131669	2001	XP <sub>175</sub>	16.0	X	41.00934	135.50880	107.82742	6.40190	0.0673321	0.29393495	2.2402779	20	8 2.7	18.3
131670	2001	XJ <sub>176</sub>	16.5	X	288.45323									

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>		
131681	2001	XK <sub>189</sub>	17.4	X	165.50582	196.59777	275.37645	1.46907	0.0623215	0.29296441	2.2452229	20	7 12.2	20.1
131682	2001	XX <sub>192</sub>	16.2	X	330.74351	163.83303	117.07457	6.95334	0.1749673	0.28748511	2.2736615	20	5 16.5	18.1
131683	2001	XP <sub>194</sub>	16.2	X	284.22396	168.69602	220.73860	1.81150	0.1318021	0.29951161	2.2123828	20	8 15.3	18.3
131684	2001	XG <sub>197</sub>	16.1	X	88.92507	235.45196	263.67364	5.61340	0.1333309	0.28322917	2.2963816	20	5 20.9	19.0
131685	2001	XH <sub>201</sub>	16.5	X	143.71724	79.77716	103.47084	7.02689	0.0551426	0.29909220	2.2144506	20	9 29.1	19.4
131686	2001	XG <sub>204</sub>	16.1	X	11.95196	172.33536	38.30863	4.91575	0.1302601	0.28578209	2.2826853	20	4 21.8	17.7
131687	2001	XW <sub>206</sub>	16.5	X	84.78723	5.31843	149.13309	3.65465	0.1359809	0.28845963	2.2685378	20	6 8.0	19.2
131688	2001	XW <sub>207</sub>	16.6	X	104.62696	291.34419	207.57135	5.02319	0.0834226	0.28990735	2.2609792	20	6 4.5	19.4
131689	2001	XT <sub>209</sub>	16.5	X	175.32765	262.23866	221.89912	5.82082	0.1131860	0.29754308	2.2221301	20	8 7.3	19.8
131690	2001	XR <sub>214</sub>	15.8	X	199.17489	245.25328	211.30406	6.02291	0.1289410	0.29481800	2.2358023	20	7 26.0	19.1
131691	2001	XN <sub>232</sub>	16.8	X	300.94403	120.75864	353.94144	1.75038	0.1276506	0.26262493	2.4149719	20	—	—
131692	2001	XK <sub>233</sub>	16.5	X	286.93165	190.43382	309.15773	1.53041	0.1447709	0.26323896	2.4112150	20	—	—
131693	2001	XC <sub>239</sub>	16.4	X	180.81114	26.40908	48.01797	2.67863	0.1412984	0.29268915	2.2466304	20	6 7.0	19.7
131694	2001	XZ <sub>239</sub>	15.7	X	87.00126	358.70811	307.40384	4.84042	0.1810967	0.31237829	2.1512068	20	—	—
131695	2001	XS <sub>254</sub>	7.7	X	37.14498	2.79970	94.79524	4.26787	0.0477714	0.00437343	37.0329142	20	2 8.1	23.2
131696	2001	XT <sub>254</sub>	7.4	X	4.20065	133.66273	359.10874	0.52131	0.3166870	0.00258956	52.5192708	20	2 10.4	23.0
131697	2001	XH <sub>255</sub>	8.2	X	321.16548	222.89169	323.13231	2.86835	0.0724925	0.00480725	34.7700341	20	2 10.6	23.4
131698	2001	XS <sub>257</sub>	17.0	X	202.41592	76.16758	342.77461	3.33473	0.1123558	0.29533583	2.2331880	20	6 9.8	20.2
131699	2001	YA	16.8	X	36.61648	3.51852	182.12577	2.46338	0.0928825	0.28671398	2.2777365	20	4 29.2	19.0
131700	2001	YN	15.6	X	120.46563	324.31259	100.44174	26.04735	0.2467196	0.28120198	2.3074049	20	4 18.2	19.7
131701	2001	YV	15.8	X	255.43458	134.73637	27.00038	10.04133	0.1970780	0.25573028	2.4581853	20	12 19.5	18.6
131702	2001	YZ <sub>3</sub>	14.7	X	216.28064	223.24917	283.46661	30.51156	0.4016993	0.24978045	2.4970683	20	9 2.9	20.0
131703	2001	YF <sub>9</sub>	16.5	X	77.72113	133.35557	23.23062	4.79431	0.0477601	0.28746991	2.2737417	20	5 14.9	19.0
131704	2001	YB <sub>10</sub>	16.7	X	340.91015	175.59916	304.07638	1.57581	0.1638470	0.26758649	2.3850268	20	—	—
131705	2001	YE <sub>11</sub>	16.1	X	193.40950	153.99203	252.38209	2.17192	0.1306382	0.28825387	2.2696172	20	5 13.2	19.3
131706	2001	YS <sub>18</sub>	16.0	X	172.81504	141.01041	278.82212	1.16397	0.1262068	0.23443695	2.6048658	20	5 10.8	20.1
131707	2001	YB <sub>39</sub>	16.6	X	87.53510	221.42707	49.47535	3.14704	0.1917024	0.30871097	2.1682100	20	11 26.9	20.0
131708	2001	YM <sub>44</sub>	17.0	X	65.13402	116.38074	48.44640	2.92039	0.0985072	0.28700490	2.2761970	20	5 17.0	19.4
131709	2001	YE <sub>49</sub>	16.0	X	55.34134	273.77647	26.04009	3.51852	0.0727657	0.30778512	2.1725559	20	11 16.9	18.7
131710	2001	YJ <sub>50</sub>	16.3	X	211.17651	13.96202	24.10945	0.73175	0.1980996	0.24011208	2.5636578	20	5 18.1	20.5
131711	2001	YJ <sub>54</sub>	16.2	X	79.31896	326.04913	33.86375	2.45978	0.1920698	0.26872054	2.3783119	20	—	—
131712	2001	YE <sub>65</sub>	16.7	X	337.48461	77.32777	61.29220	2.05422	0.1348690	0.26876895	2.3780263	20	—	—
131713	2001	YI <sub>65</sub>	16.9	X	44.37030	135.92182	321.42609	2.84138	0.1203843	0.27403830	2.3474438	20	1 3.5	18.9
131714	2001	YZ <sub>70</sub>	16.5	X	91.81132	197.09026	315.37987	0.93530	0.1192633	0.23358983	2.6111596	20	6 10.8	19.8
131715	2001	YD <sub>71</sub>	16.5	X	140.65152	95.44567	91.93626	4.42697	0.0455580	0.30030544	2.2084823	20	9 29.7	19.2
131716	2001	YJ <sub>71</sub>	16.6	X	114.20012	200.24628	77.09841	4.02394	0.0942207	0.31030756	2.1607664	20	12 28.9	19.4
131717	2001	YL <sub>71</sub>	16.0	X	191.62330	276.06689	76.26069	6.59499	0.1936988	0.28299335	2.2976572	20	3 6.9	19.8
131718	2001	YI <sub>75</sub>	16.3	X	101.18137	232.87045	319.99512	4.94433	0.0847640	0.29444006	2.2377151	20	8 17.2	19.2
131719	2001	YR <sub>77</sub>	16.2	X	138.15788	28.77423	55.44219	2.67388	0.0496902	0.23194521	2.6234882	20	4 29.7	19.9
131720	2001	YG <sub>78</sub>	16.4	X	65.07429	347.67060	79.76781	3.57376	0.2075101	0.27377799	2.3489315	20	1 7.4	18.1
131721	2001	YK <sub>80</sub>	16.1	X	322.97737	250.35029	97.58548	4.29475	0.2014278	0.30115335	2.2043349	20	8 25.4	17.2
131722	2001	YR <sub>82</sub>	16.2	X	3.92737	78.37592	45.18746	3.18057	0.1790620	0.26989593	2.3714019	20	—	—
131723	2001	YT <sub>82</sub>	16.4	X	275.71476	11.42158	359.49620	3.04035	0.1438292	0.29662809	2.2266974	20	7 1.4	18.7
131724	2001	YI <sub>83</sub>	16.3	X	12.86278	188.35017	341.95974	2.20250	0.0975617	0.27725997	2.3292241	20	2 22.2	18.3
131725	2001	YB <sub>86</sub>	17.1	X	168.11981	76.97496	40.52567	2.70389	0.1007840	0.29341470	2.2429253	20	7 24.1	20.1
131726	2001	YS <sub>86</sub>	16.4	X	61.61945	10.42314	102.20766	3.54379	0.1148372	0.27708958	2.3301788	20	2 27.5	18.7
131727	2001	YH <sub>87</sub>	16.2	X	142.57995	46.52861	12.91374	3.29644	0.0804328	0.22870737	2.6481908	20	4 5.5	19.9
131728	2001	YJ <sub>87</sub>	16.2	X	271.26892	149.19045	41.93835	3.52735	0.1129009	0.26433273	2.4045589	20	—	—
131729	2001	YP <sub>91</sub>	16.1	X	139.39800	2.90492	106.25948	5.38748	0.1038582	0.28769170	2.2725729	20	6 8.7	19.3
131730	2001	YE <sub>92</sub>	15.5	X	216.36502	77.19022	132.50661	4.41064	0.1518355	0.28970975	2.2620071	20	5 12.4	18.8
131731	2001	YX <sub>94</sub>	16.8	X	27.13323	270.92235	185.94696	1.34418	0.1483842	0.27082626	2.3659680	20	—	—
131732	2001	YK <sub>103</sub>	17.1	X	61.34158	291.58466	158.83131	3.14119	0.1471433	0.27582192	2.3373129	20	1 26.6	19.1
131733	2001	YY <sub>108</sub>	17.0	X	170.63669	84.67874	24.23656	2.73179	0.1438673	0.29464852	2.2366595	20	7 14.5	20.3
131734	2001	YI <sub>111</sub>	15.9	X	157.32700	46.18365	31.39619	7.72300	0.0621454	0.28640287	2.2793857	20	5 12.3	18.8
131735	2001	YG <sub>113</sub>	16.3	X	149.37871	330.20996	154.75201	5.24013	0.1357477	0.28903038	2.2655504	20	7 12.6	19.6
131736	2001	YB <sub>114</sub>	16.1	X	19.89516	323.11977	206.42481	3.98303	0.0940681	0.27478685	2.3431787	20	3 3.6	18.3
131737	2001	YD <sub>114</sub>	15.7	X	181.43953	273.14996	158.99926	5.63046	0.2800233	0.23612259	2.5924538	20	6 4.8	20.4
131738	2001	YF <sub>114</sub>	15.2	X	112.34335	134.89308	260.94640	12.20849	0.1891056	0.27447896	2.3449307	20	2 3.6	18.3
131739	2001	YJ <sub>115</sub>	16.2	X	57.27719	82.15678	38.14339	3.39940	0.0982531	0.27721969	2.3294497	20	2 29.5	18.6
131740	2001	YH <sub>117</sub>	16.3	X	15.77580	7.25511	102.42412	4.99627	0.1580809	0.26970133	2.3725424	20	—	—
131741	2001	YV <sub>121</sub>	16.9	X	248.41766	25.81145	354.13589	5.01899	0.1612932	0.29756403	2.2220258	20	6 3.0	19.9
131742	2001	YI <sub>121</sub>	16.6	X	178.56528	236.60749	313.01547	5.31124	0.0335229	0.30997057	2.1623321	20	11 19.9	19.2
131743	2001	YH <sub>125</sub>	16.5	X	115.48682	100.68109	38.54842	6.20759	0.1768588	0.28967940	2.2621651	20	6 29.9	19.9
131744	2001	YI <sub>125</sub>	16.3	X	4.07038	197.37142	340.03962	4.75090	0.0553867	0.28005417	2.3137052	20	2 20.3	18.9
131745	2001	YT <sub>130</sub>	16.9	X	215.52333	35.79711	44.39548	5.21807	0.0912551	0.29618314	2.2289269	20	7 29.9	19.9
131746	2001	YV <sub>130</sub>	16.2	X	93.93946	359.73005	77.91666	7.29823	0.0765257	0.27771749	2.3266652	20	2 25.6	19.0
131747	2001	YJ <sub>133</sub>	15.2	X	213.48915	191.44335	203.54435	3.81552	0.1661202	0.29118768	2.2543468	20	5 17.9	18.6
131748	2001	YU <sub>133</sub>	17.1	X	302.99881	173.48395	41.20340	3.42063	0.1640256	0.27160895	2.3614205	20	—	—
131749	2001	YE <sub>134</sub>	16.2	X	117.13651	271.20306	326.86875	4.10975	0.1117371	0.30759863	2.1734340	20	11 8.4	19.2
131750	2001	YS <sub>137</sub>	15.8	X	95.42374	101.33702								

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>
131761 2002 AB <sub>10</sub>	15.9 <sup>m</sup>	X	322.26117	96.24187	110.81124	2.96464	0.1628747	0.27113391	2.3641780	20	1 14.3	18.6
131762 2002 Csonka	16.7	X	207.77086	285.04544	165.45461	4.56390	0.2159510	0.24300842	2.5432468	20	7 19.2	21.0
131763 2002 Donátbánci	16.9	X	62.75281	300.27254	138.18021	1.76165	0.1664443	0.27143629	2.3624218	20	1 14.9	18.7
131764 2002 AZ <sub>11</sub>	16.9	X	253.18949	353.61591	54.44197	2.32088	0.1352750	0.29760338	2.2218299	20	7 25.8	19.5
131765 2002 AF <sub>12</sub>	15.8	X	254.38608	244.73481	108.03850	7.75702	0.1451316	0.28980047	2.2615350	20	5 9.2	19.0
131766 2002 AT <sub>12</sub>	16.3	X	354.59132	349.79710	134.67227	5.46542	0.1002969	0.26662417	2.3907622	20	—	—
131767 2002 AZ <sub>12</sub>	16.3	X	299.28863	151.53024	134.88426	7.93830	0.1265818	0.28119959	2.3074179	20	4 8.9	19.1
131768 2002 AB <sub>14</sub>	16.0	X	42.42466	100.02973	74.88217	3.70795	0.1306819	0.27879212	2.3206825	20	4 28.8	18.1
131769 2002 AE <sub>15</sub>	16.0	X	59.22097	83.35938	13.38742	12.81716	0.1407073	0.27561296	2.3384942	20	2 7.4	18.4
131770 2002 AZ <sub>16</sub>	15.8	X	75.14723	297.90806	244.45035	5.95406	0.0439363	0.28935308	2.2638656	20	6 19.0	18.5
131771 2002 AB <sub>17</sub>	16.0	X	286.54634	132.74256	222.62622	5.06788	0.1119206	0.29541400	2.2327941	20	6 29.7	18.5
131772 2002 AV <sub>18</sub>	16.0	X	32.91028	88.22452	28.29163	2.80906	0.1033736	0.27131123	2.3631477	20	1 11.6	18.4
131773 2002 AW <sub>18</sub>	15.9	X	111.65493	341.23753	106.10049	4.63115	0.1786703	0.28031388	2.3122759	20	4 17.6	19.0
131774 2002 AZ <sub>18</sub>	15.2	X	127.36127	293.85405	119.38595	23.21314	0.3133708	0.27988417	2.3146420	20	4 12.3	19.5
131775 2002 AF <sub>20</sub>	15.9	X	260.27760	224.22419	216.25401	6.66708	0.0804447	0.30241820	2.1981843	20	10 1.4	18.2
131776 2002 AM <sub>20</sub>	15.9	X	328.16855	91.91339	141.37518	7.64273	0.0959935	0.27939807	2.3173259	20	3 10.9	18.5
131777 2002 AE <sub>21</sub>	16.6	X	58.23905	299.22358	42.89256	2.82616	0.2468292	0.31380731	2.1446710	20	—	—
131778 2002 AL <sub>23</sub>	16.5	X	83.76411	311.58267	246.35939	6.77015	0.0923462	0.29138797	2.2533136	20	7 30.7	19.3
131779 2002 AO <sub>23</sub>	16.0	X	90.53757	246.04657	148.73490	5.14345	0.1160905	0.28390979	2.2927101	20	5 14.2	18.6
131780 2002 AM <sub>24</sub>	17.1	X	103.98732	243.12571	257.10786	2.84728	0.2301333	0.27662850	2.3327674	20	2 9.1	19.9
131781 2002 AL <sub>25</sub>	16.0	X	140.31778	196.04736	320.36009	7.12818	0.0803175	0.29357208	2.2421236	20	8 13.8	18.9
131782 2002 AZ <sub>26</sub>	16.7	X	58.04553	292.09215	186.69041	1.74339	0.1766581	0.27638409	2.3341424	20	3 7.6	18.6
131783 2002 AE <sub>27</sub>	16.0	X	302.66081	75.62797	120.97892	7.44230	0.1616133	0.26446416	2.4037622	20	—	—
131784 2002 AL <sub>27</sub>	16.3	X	44.61480	142.06374	36.04619	3.02035	0.0784479	0.28302929	2.2974627	20	4 29.6	18.7
131785 2002 AU <sub>27</sub>	16.6	X	4.16327	81.68356	23.57831	5.07171	0.0741579	0.26724036	2.3870857	20	—	—
131786 2002 AH <sub>28</sub>	17.1	X	154.77640	81.88668	31.23318	3.16216	0.1595652	0.29012419	2.2598525	20	7 3.8	20.5
131787 2002 AR <sub>29</sub>	16.2	X	66.65220	140.66286	101.11055	4.76320	0.0538660	0.29811283	2.2192979	20	9 8.7	18.8
131788 2002 AS <sub>30</sub>	16.5	X	19.18247	106.96235	117.35630	6.10738	0.1546700	0.28486913	2.2875598	20	6 2.8	18.3
131789 2002 AU <sub>34</sub>	16.1	X	46.53039	130.21339	134.90594	1.76990	0.1726644	0.27115717	2.3640427	20	—	—
131790 2002 AH <sub>39</sub>	17.0	X	78.02898	216.69555	192.86927	1.87764	0.2127166	0.27274672	2.3548488	20	1 8.1	19.0
131791 2002 AU <sub>39</sub>	17.0	X	79.16801	244.11356	172.65210	2.38060	0.2141854	0.27371380	2.3492988	20	1 20.9	19.1
131792 2002 AC <sub>41</sub>	16.5	X	201.97110	306.16228	173.89577	4.00950	0.1268920	0.24414681	2.5353350	20	8 27.3	20.4
131793 2002 AF <sub>41</sub>	16.8	X	352.99940	302.93421	236.74927	2.07154	0.1034006	0.27393823	2.3480155	20	1 31.3	19.4
131794 2002 AJ <sub>46</sub>	16.6	X	32.54909	226.69258	149.41120	1.79483	0.1963479	0.26165949	2.4209086	20	—	—
131795 2002 AU <sub>50</sub>	17.2	X	138.48714	106.07879	303.98124	1.56191	0.1985869	0.28163016	2.3050655	20	3 27.4	20.6
131796 2002 AB <sub>51</sub>	16.7	X	7.83936	234.63602	285.19492	1.26894	0.1567252	0.27361569	2.3498603	20	1 23.3	18.5
131797 2002 AQ <sub>52</sub>	16.9	X	358.68838	310.63053	135.09662	2.21648	0.1600584	0.26401511	2.4064871	20	—	—
131798 2002 AJ <sub>52</sub>	16.9	X	1.25026	183.31484	297.87399	3.02591	0.0630938	0.26792504	2.3830172	20	—	—
131799 2002 AD <sub>53</sub>	17.1	X	97.41390	210.48228	216.44150	2.10446	0.1403647	0.27650803	2.3334449	20	2 21.4	19.6
131800 2002 AM <sub>53</sub>	17.1	X	189.42505	180.39726	198.91648	2.11601	0.1762488	0.28615184	2.2807185	20	4 3.9	20.6
131801 2002 AU <sub>53</sub>	15.9	X	100.68733	3.02750	178.54224	2.25052	0.0669710	0.23659601	2.5889943	20	7 24.2	19.4
131802 2002 AR <sub>56</sub>	17.0	X	44.57245	60.19384	162.51394	1.43486	0.1586747	0.28850004	2.2683260	20	7 21.8	19.1
131803 2002 AD <sub>59</sub>	15.9	X	27.42857	157.67648	137.60364	6.63302	0.1715738	0.29603906	2.2296501	20	10 19.6	18.3
131804 2002 AJ <sub>62</sub>	15.7	X	349.67597	303.79856	296.42792	9.46439	0.1335072	0.27980908	2.3150560	20	4 16.8	18.1
131805 2002 AE <sub>64</sub>	16.3	X	43.93266	295.78456	210.56336	1.95232	0.1509035	0.27466152	2.3438915	20	3 18.4	18.3
131806 2002 AS <sub>66</sub>	16.1	X	29.10996	344.65739	180.19137	3.74444	0.1757618	0.27432296	2.3458196	20	3 17.9	17.8
131807 2002 AN <sub>75</sub>	16.4	X	336.45934	64.25484	312.25030	1.43571	0.2091939	0.25443184	2.4665414	20	11 3.4	18.3
131808 2002 AB <sub>77</sub>	17.4	X	52.48273	138.16162	17.60610	2.53052	0.1012998	0.28159096	2.3052794	20	4 12.2	19.4
131809 2002 AM <sub>85</sub>	16.6	X	262.81731	355.43909	177.73960	3.75161	0.1447037	0.26039759	2.4287235	20	—	—
131810 2002 AV <sub>86</sub>	16.4	X	88.74672	353.23198	228.34122	5.65178	0.0504673	0.29613870	2.2291499	20	9 4.1	19.2
131811 2002 AC <sub>87</sub>	15.7	X	133.83035	39.46815	158.74536	5.51797	0.1288891	0.24438401	2.5336942	20	9 29.2	19.5
131812 2002 AK <sub>87</sub>	16.9	X	354.61260	271.44423	191.48265	3.54692	0.1744887	0.26581147	2.3956328	20	—	—
131813 2002 AR <sub>87</sub>	16.2	X	20.95811	150.44389	253.90297	5.91446	0.1454940	0.26224992	2.4172736	20	—	—
131814 2002 AW <sub>87</sub>	16.3	X	15.50999	335.63782	203.36056	3.30839	0.1741848	0.27825597	2.3236625	20	3 6.8	18.0
131815 2002 AT <sub>88</sub>	16.0	X	11.33991	77.53043	143.65404	6.92226	0.0727556	0.28473974	2.2882528	20	5 9.7	18.4
131816 2002 AS <sub>89</sub>	15.9	X	77.63948	177.98578	247.12817	4.20371	0.1674380	0.27254900	2.3559875	20	1 22.6	18.1
131817 2002 AH <sub>90</sub>	15.7	X	15.52520	176.68205	261.04843	4.46034	0.1620348	0.26422574	2.4052080	20	—	—
131818 2002 AB <sub>91</sub>	16.3	X	230.72368	290.89454	309.35902	1.21464	0.1294902	0.26660435	2.3908806	20	—	—
131819 2002 AO <sub>93</sub>	17.5	X	59.86867	199.18767	308.10129	1.22656	0.1399683	0.28104741	2.3082508	20	4 17.7	19.7
131820 2002 AX <sub>93</sub>	17.1	X	105.54420	85.41222	75.94267	3.91240	0.0785841	0.29006832	2.2601427	20	7 7.6	19.9
131821 2002 AG <sub>95</sub>	16.4	X	344.33898	123.74701	88.34392	3.60286	0.1072711	0.27875856	2.3208687	20	3 5.4	18.7
131822 2002 AM <sub>96</sub>	17.4	X	86.77040	61.59678	47.81135	1.63886	0.1439136	0.28055553	2.3109479	20	4 7.5	20.0
131823 2002 AY <sub>97</sub>	15.9	X	26.24740	345.69696	339.86845	4.60878	0.2446115	0.30562904	2.1827616	20	12 9.8	18.6
131824 2002 AQ <sub>98</sub>	16.1	X	358.34934	157.17453	96.74076	8.46314	0.1072325	0.28682762	2.2771348	20	6 4.6	18.1
131825 2002 AP <sub>99</sub>	15.9	X	189.32542	285.38688	94.06953	6.56075	0.1631672	0.28447949	2.2896481	20	4 7.6	19.5
131826 2002 AS <sub>101</sub>	16.0	X	1.32361	21.93569	300.43958	5.51513	0.2074897	0.30130966	2.2035725	20	10 15.6	17.9
131827 2002 AO <sub>102</sub>	16.5	X	79.95930	219.13641	0.10537	2.92035	0.0433712	0.29458107	2.2370009	20	8 21.9	19.0
131828 2002 AQ <sub>106</sub>	16.3	X	62.18790	24.01573	300.57906	4.28399	0.2226179	0.30953688	2.1643514	20	—	—
131829 2002 AM <sub>107</sub>	16.7	X	345.83200	243.54738	343.73143	1.67425	0.1587486	0.27938030	2.3174242	20	3 21.7	18.9
131830 2002 AQ <sub>107</sub>	16.1	X	226.04513	141.05261	112.51386	6.97354	0.1156911	0.26630716	2.3926590	20	—	—
131831 2002 AC <sub>108</sub>	17.0	X	6.14294	103.77146	340.23661	0.76674	0.1570178	0.26514200	2.3996636	20	—	—
131832 2002 AK <sub>108</sub>	16.1	X	126.88817	177.09430	316.23724	4.68013	0.1087691	0.28854006	2.2681162	20	6 28.1	19.2
131833 2002 AJ <sub>110</sub>	16.2	X	89.92182	27.73758	87.34789	3.33673	0.0489271	0.28067725	2.3102798	20	4 6.0	18.8
131834 2002 AO <sub>110</sub>	16.5	X	319.05526	131.78398	72.54680	3.19405	0.1453030	0.27				



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>
131841 2002 AK <sub>117</sub>	16.3	X	61.58583	32.39110	133.63111	6.74075	0.0566789	0.28186176	2.3038027	20	5 9.5	19.0
131842 2002 AY <sub>117</sub>	16.1	X	358.49938	231.48717	330.74846	3.03068	0.1621893	0.27583118	2.3372606	20	3 8.2	18.1
131843 2002 AM <sub>118</sub>	16.1	X	69.31954	149.60481	340.57975	0.97291	0.1210694	0.27815008	2.3242522	20	4 5.7	18.5
131844 2002 AW <sub>119</sub>	16.9	X	320.56895	99.41374	106.91530	1.96770	0.2560177	0.27012192	2.3700790	20	—	—
131845 2002 AH <sub>120</sub>	16.3	X	29.83823	190.94480	321.62423	1.72446	0.1516762	0.27544521	2.3394435	20	2 27.3	18.2
131846 2002 AU <sub>120</sub>	16.8	X	164.37177	59.00453	50.27975	1.98194	0.1414123	0.29062273	2.2572674	20	7 7.9	20.2
131847 2002 AN <sub>121</sub>	15.3	X	263.90934	256.66394	119.45169	7.38468	0.1858878	0.29363523	2.2418021	20	6 14.7	18.1
131848 2002 AK <sub>123</sub>	15.7	X	323.60933	135.27655	106.84106	6.44586	0.2238071	0.27522453	2.3406939	20	2 25.2	18.2
131849 2002 AP <sub>125</sub>	16.1	X	358.91040	30.03722	111.45054	5.20051	0.0757715	0.26689795	2.3891269	20	—	—
131850 2002 AT <sub>125</sub>	16.3	X	349.87165	9.92050	130.46677	5.69526	0.1746941	0.26708840	2.3879911	20	—	—
131851 2002 AW <sub>125</sub>	15.7	X	293.90288	236.45243	318.01489	9.49256	0.2084887	0.26370890	2.4083496	20	—	—
131852 2002 AC <sub>128</sub>	16.7	X	206.41646	289.68256	124.81590	0.96021	0.0792774	0.28903013	2.2655517	20	6 10.7	19.5
131853 2002 AL <sub>129</sub>	16.7	X	304.32383	296.93212	184.10444	6.71008	0.0901177	0.25944174	2.4346852	20	—	—
131854 2002 AK <sub>130</sub>	16.6	X	330.01203	329.30174	183.00636	3.57592	0.1333178	0.26656527	2.3911143	20	—	—
131855 2002 AL <sub>132</sub>	16.9	X	10.69729	220.99874	244.57262	0.42432	0.1476789	0.27000973	2.3707355	20	—	—
131856 2002 AQ <sub>137</sub>	16.4	X	18.76064	276.44274	87.22078	4.92044	0.1417643	0.30860049	2.1687274	20	—	—
131857 2002 AY <sub>144</sub>	16.9	X	263.18103	280.48968	267.07928	0.59571	0.1478276	0.26189607	2.4194504	20	—	—
131858 2002 AC <sub>145</sub>	16.1	X	278.14337	129.78961	125.13021	5.33707	0.1307717	0.27471823	2.3435689	20	1 27.1	19.3
131859 2002 AS <sub>147</sub>	16.5	X	300.88160	136.93401	74.57026	3.41385	0.1623456	0.26975213	2.3722446	20	—	—
131860 2002 AN <sub>148</sub>	16.3	X	352.75719	90.26615	71.02005	11.79050	0.0985919	0.27208205	2.3586823	20	1 7.0	19.0
131861 2002 AS <sub>148</sub>	16.0	X	297.07865	29.95905	138.21787	2.79566	0.1542223	0.26007162	2.4307525	20	—	—
131862 2002 AA <sub>151</sub>	16.3	X	88.16608	108.64683	319.23480	2.00679	0.1550391	0.27430224	2.3459377	20	2 12.3	18.6
131863 2002 AG <sub>152</sub>	16.8	X	346.25942	141.83210	36.93078	2.77326	0.1204780	0.27169695	2.3609106	20	1 18.6	19.3
131864 2002 AM <sub>152</sub>	16.4	X	114.39706	64.26136	333.51356	1.91599	0.1556412	0.27359514	2.3499780	20	2 9.1	19.3
131865 2002 AD <sub>153</sub>	16.3	X	47.06482	99.85296	344.79293	0.81404	0.1579220	0.26982142	2.3718384	20	—	—
131866 2002 AG <sub>153</sub>	16.2	X	36.59478	151.08164	331.63078	4.30332	0.1773473	0.27264023	2.3554619	20	1 28.1	17.9
131867 2002 AA <sub>154</sub>	16.3	X	42.24805	92.81112	34.39934	3.11377	0.1056383	0.27351720	2.3504244	20	2 13.9	18.5
131868 2002 AW <sub>154</sub>	16.1	X	175.72718	141.09570	324.09225	3.38792	0.2094701	0.23719258	2.5846514	20	7 11.3	20.4
131869 2002 AJ <sub>155</sub>	16.0	X	22.91750	41.49204	33.03665	1.83684	0.1526614	0.26400438	2.4065523	20	—	—
131870 2002 AP <sub>156</sub>	16.3	X	207.88183	260.88564	149.60688	5.45423	0.1560643	0.23653477	2.5894412	20	6 2.9	20.4
131871 2002 AP <sub>157</sub>	16.9	X	66.92009	311.54188	145.63126	1.60286	0.1250322	0.27482309	2.3429728	20	2 14.2	19.0
131872 2002 AN <sub>158</sub>	16.6	X	9.67794	267.34823	192.39066	2.93867	0.1649942	0.26676543	2.3899181	20	—	—
131873 2002 AJ <sub>159</sub>	16.4	X	10.88741	328.72167	291.90672	5.40484	0.1562224	0.28708046	2.2757976	20	7 15.8	18.1
131874 2002 AP <sub>160</sub>	16.5	X	156.37736	312.06860	153.21068	5.93143	0.0399231	0.28806369	2.2706161	20	6 20.1	19.4
131875 2002 AR <sub>161</sub>	16.5	X	18.87440	25.66336	141.75373	2.93259	0.1008222	0.27563274	2.3383823	20	2 29.3	18.8
131876 2002 AZ <sub>161</sub>	16.6	X	4.16251	330.06091	160.66304	2.53697	0.1390365	0.26881911	2.3777305	20	—	—
131877 2002 AG <sub>163</sub>	16.2	X	210.19308	10.89925	213.83123	1.66200	0.1408640	0.25694438	2.4504356	20	—	—
131878 2002 AY <sub>163</sub>	16.5	X	256.79718	30.13814	185.13710	2.15021	0.1296073	0.26268344	2.4146133	20	—	—
131879 2002 AR <sub>164</sub>	16.1	X	243.93097	248.47468	301.24158	4.00573	0.1368094	0.25706764	2.4496523	20	—	—
131880 2002 AP <sub>164</sub>	16.4	X	321.12864	12.53113	156.81304	7.03465	0.0521548	0.26690149	2.3891058	20	—	—
131881 2002 AZ <sub>165</sub>	16.4	X	313.19807	24.00136	184.62156	2.82917	0.0715933	0.27072886	2.3665355	20	1 17.7	19.3
131882 2002 AA <sub>166</sub>	16.5	X	325.06495	311.52632	245.55920	2.62193	0.1321453	0.27007702	2.3703417	20	1 9.4	19.4
131883 2002 AF <sub>166</sub>	15.7	X	278.36824	23.65012	201.51980	3.10533	0.1268516	0.26685953	2.3893562	20	—	—
131884 2002 AJ <sub>166</sub>	16.0	X	271.95425	41.94407	156.56608	3.26127	0.1530968	0.26195774	2.4190707	20	—	—
131885 2002 AP <sub>168</sub>	16.8	X	357.63106	295.61218	216.53440	0.46098	0.1262320	0.27023451	2.3694207	20	—	—
131886 2002 AU <sub>168</sub>	16.9	X	236.37104	147.83007	234.99431	2.30580	0.1631018	0.29306252	2.2447218	20	5 25.0	20.0
131887 2002 AC <sub>175</sub>	16.5	X	354.18038	114.74697	318.71734	4.51289	0.0898937	0.26092194	2.4254686	20	—	—
131888 2002 AY <sub>177</sub>	16.7	X	276.07624	190.65081	356.63749	0.99562	0.1763158	0.26158727	2.4213542	20	—	—
131889 2002 AD <sub>179</sub>	17.0	X	18.96691	350.36124	24.49969	0.84567	0.1592061	0.31082343	2.1583749	20	—	—
131890 2002 AE <sub>179</sub>	16.0	X	330.10424	134.59485	118.02532	8.29756	0.1074200	0.28086706	2.3092388	20	4 12.8	18.5
131891 2002 AQ <sub>179</sub>	16.2	X	280.13809	129.10434	43.28812	2.58112	0.1400038	0.26030266	2.4293139	20	—	—
131892 2002 AJ <sub>182</sub>	16.8	X	113.74113	37.87170	7.77932	4.82804	0.2174503	0.27720602	2.3295263	20	2 20.7	19.8
131893 2002 AW <sub>182</sub>	16.9	X	45.58293	140.60864	31.90230	6.31144	0.1360057	0.28174374	2.3044460	20	4 29.9	19.1
131894 2002 AK <sub>184</sub>	16.4	X	261.35018	304.76297	67.80347	4.53165	0.1858490	0.29408081	2.2395371	20	6 5.9	19.3
131895 2002 AH <sub>186</sub>	16.1	X	290.69920	261.05240	62.13152	8.37454	0.1705048	0.28980600	2.2615063	20	5 9.1	18.7
131896 2002 AQ <sub>189</sub>	15.5	X	68.15597	221.79408	210.64502	11.78410	0.1735213	0.27217659	2.3581361	20	1 14.3	17.9
131897 2002 AL <sub>198</sub>	16.6	X	82.34656	219.97564	212.67912	5.27258	0.1463065	0.27530586	2.3402329	20	2 5.9	19.1
131898 2002 BB <sub>1</sub>	15.4	X	187.73059	333.76405	137.15662	16.06934	0.1187092	0.24114684	2.5563167	20	7 31.7	19.2
131899 2002 BC <sub>1</sub>	17.6	X	111.29017	271.26533	185.19057	1.98195	0.1934435	0.28216965	2.3021285	20	4 29.5	20.7
131900 2002 BG <sub>1</sub>	16.3	X	18.75785	92.24449	64.95973	2.99896	0.1532861	0.27380376	2.3487842	20	2 12.8	18.1
131901 2002 BY <sub>1</sub>	16.2	X	343.87846	222.23100	308.56210	1.28299	0.1043807	0.26923659	2.3752719	20	1 6.0	18.8
131902 2002 BA <sub>2</sub>	15.7	X	110.14251	30.23602	143.75088	14.64898	0.1939256	0.23418929	2.6067019	20	8 7.7	19.9
131903 2002 BE <sub>7</sub>	16.0	X	133.50902	1.85686	63.96710	7.75657	0.0967756	0.27999990	2.3140041	20	4 5.4	19.1
131904 2002 BD <sub>8</sub>	15.7	X	357.71088	196.77593	326.13879	7.86857	0.1322279	0.27151195	2.3619829	20	1 14.2	18.0
131905 2002 BQ <sub>9</sub>	15.6	X	33.08528	121.60622	129.11110	9.17212	0.2907179	0.28506911	2.2864899	20	9 11.2	18.0
131906 2002 BA <sub>10</sub>	15.8	X	158.92375	307.24409	101.69982	2.65691	0.1989716	0.28253739	2.3001285	20	4 16.5	19.4
131907 2002 BG <sub>14</sub>	15.6	X	2.08032	279.22530	257.55019	1.55724	0.1543343	0.27310373	2.3527961	20	2 6.5	17.7
131908 2002 BO <sub>14</sub>	17.0	X	80.13607	313.54319	178.43541	3.19360	0.1105098	0.27975026	2.3153806	20	4 25.1	19.5
131909 2002 BX <sub>14</sub>	16.9	X	99.98147	248.87502	171.25693	2.36524	0.1895653	0.27468954	2.3437321	20	2 24.6	19.5
131910 2002 BR <sub>15</sub>	16.2	X	314.24896	340.92234	248.18687	3.91683	0.2111494	0.27224427	2.3577453	20	1 24.4	19.1
131911 2002 BC <sub>16</sub>	16.9	X	334.28418	10.29396	202.26955	2.28136	0.1704860	0.27381617	2.3487132	20	2 6.2	19.4
131912 2002 BQ <sub>16</sub>	16.4	X	8.04511	306.79529	228.05840	2.10311	0.1005943	0.27381006	2.3487482	20	2 19.4	18.8
131913 2002 BA <sub>17</sub>	15.9	X	337.85733	7.66369	148.07748	6.32010	0.0631558	0.26650922	2.3914496	20	—	—
131914 2002 BD <sub>17</sub>	14.9	X	31.00555	235.51933	332.52807	12.39914	0.0958471	0.22602042	2.6691374	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>
131921 2002 BH <sub>27</sub>	16.2	X	15.84431	200.96067	6.86022	7.96081	0.0681228	0.28395109	2.2924877	20	4 21.6	18.5
131922 2002 BX <sub>28</sub>	15.4	X	138.10316	121.31757	70.24323	10.31796	0.0752173	0.23977733	2.5660432	20	9 27.6	19.3
131923 2002 CR <sub>1</sub>	16.4	X	311.13886	194.68949	25.53743	2.58424	0.1666617	0.27075826	2.3663641	20	1 17.4	19.4
131924 2002 CT <sub>1</sub>	15.7	X	142.57196	19.21601	351.85026	7.49046	0.1265704	0.27517491	2.3409753	20	2 5.9	18.9
131925 2002 CB <sub>2</sub>	16.2	X	359.06685	62.76258	350.39208	7.41417	0.1220828	0.25958237	2.4338058	20	—	—
131926 2002 CQ <sub>2</sub>	17.0	X	67.62925	85.59999	74.26926	5.32286	0.0940147	0.28244076	2.3006531	20	5 13.9	19.4
131927 2002 CE <sub>3</sub>	16.1	X	339.95214	111.75461	37.68879	4.66507	0.1226602	0.26726178	2.3869582	20	—	—
131928 2002 CV <sub>4</sub>	15.9	X	16.06833	167.38766	19.28401	6.64193	0.1394335	0.27748617	2.3279581	20	3 24.5	17.7
131929 2002 CN <sub>5</sub>	16.7	X	4.40126	205.25201	355.61912	3.13787	0.0835104	0.27708123	2.3022562	20	3 24.0	18.8
131930 2002 CC <sub>6</sub>	16.1	X	285.35289	168.32060	29.21779	1.69319	0.1133374	0.26375521	2.4080677	20	—	—
131931 2002 CQ <sub>8</sub>	17.1	X	16.95978	290.25903	221.36009	1.49633	0.1528526	0.27385391	2.3484974	20	1 29.1	19.1
131932 2002 CB <sub>11</sub>	16.2	X	249.00105	110.10495	131.38558	3.49077	0.1596026	0.26357373	2.4091729	20	—	—
131933 2002 CC <sub>13</sub>	15.6	X	35.50040	5.54166	109.87172	9.77842	0.1712145	0.27169451	2.3609247	20	1 13.4	17.1
131934 2002 CF <sub>13</sub>	15.4	X	14.70181	33.10901	31.65154	5.97223	0.2120847	0.26276002	2.4141441	20	—	—
131935 2002 CW <sub>13</sub>	16.5	X	300.66735	149.03663	354.84396	2.43887	0.1419947	0.25925805	2.4358351	20	—	—
131936 2002 CQ <sub>14</sub>	16.5	X	6.25339	335.14964	113.80267	5.56539	0.1780805	0.26214644	2.4179097	20	—	—
131937 2002 CB <sub>15</sub>	16.2	X	336.67495	275.53079	162.92960	3.45444	0.1637728	0.25926673	2.4357807	20	—	—
131938 2002 CC <sub>15</sub>	16.5	X	128.49365	11.56371	79.52764	0.73023	0.0554574	0.28211410	2.3024287	20	4 25.1	19.3
131939 2002 CH <sub>15</sub>	16.7	X	49.71745	159.41570	126.80833	6.50036	0.1573314	0.29725612	2.2235600	20	11 4.3	19.6
131940 2002 CR <sub>24</sub>	16.1	X	333.70392	330.43991	237.97217	5.90848	0.0807874	0.27319518	2.3522710	20	2 11.6	18.8
131941 2002 CB <sub>25</sub>	16.2	X	208.39615	238.40121	19.55132	1.36421	0.1605537	0.26061199	2.4273913	20	—	—
131942 2002 CS <sub>28</sub>	15.9	X	191.25247	329.68808	59.38577	5.90665	0.1518670	0.28546361	2.2843828	20	4 19.9	19.4
131943 2002 CS <sub>28</sub>	15.9	X	222.44770	342.21151	31.45214	4.67698	0.1268373	0.28681304	2.2772120	20	4 30.1	19.3
131944 2002 CF <sub>29</sub>	16.4	X	308.44145	156.53016	8.60446	4.22983	0.0188707	0.26608777	2.3939740	20	—	—
131945 2002 CL <sub>29</sub>	15.6	X	119.60861	28.67713	2.60539	6.09736	0.2232094	0.27569758	2.3380157	20	2 18.1	18.7
131946 2002 CQ <sub>30</sub>	16.0	X	275.49436	163.19149	46.43647	4.39347	0.0923197	0.26612169	2.3937706	20	—	—
131947 2002 CM <sub>31</sub>	16.9	X	342.07565	111.15849	20.76574	6.51094	0.1271786	0.26591835	2.3949907	20	—	—
131948 2002 CS <sub>31</sub>	16.0	X	295.88726	237.77126	3.91394	5.73973	0.1510372	0.27287995	2.3540823	20	1 29.9	19.2
131949 2002 CC <sub>33</sub>	16.6	X	129.67615	0.67856	65.70703	5.83514	0.1135056	0.27953900	2.3165470	20	4 2.7	19.7
131950 2002 CO <sub>33</sub>	16.8	X	103.62259	88.42094	40.48935	7.35098	0.0492359	0.28310378	2.2970596	20	5 13.0	19.4
131951 2002 CS <sub>33</sub>	16.6	X	153.43315	19.83953	45.33970	5.70891	0.1811406	0.28371314	2.2937694	20	4 30.3	20.2
131952 2002 CQ <sub>34</sub>	16.0	X	252.88161	341.72419	11.69520	5.12058	0.2261496	0.28854913	2.2680687	20	4 25.2	19.4
131953 2002 CB <sub>36</sub>	16.3	X	328.95678	77.83225	121.61743	3.41697	0.1145474	0.27258417	2.3557849	20	1 20.8	19.1
131954 2002 CD <sub>36</sub>	16.2	X	315.89283	99.41479	113.88295	3.09789	0.1477083	0.27205444	2.3588419	20	1 16.3	19.0
131955 2002 CS <sub>36</sub>	16.8	X	66.54990	99.03004	89.92185	2.61771	0.0892260	0.28575313	2.2828396	20	6 23.6	19.2
131956 2002 CK <sub>37</sub>	16.0	X	206.47693	123.53250	115.86287	2.38272	0.1455471	0.25786100	2.4446252	20	—	—
131957 2002 CG <sub>39</sub>	16.4	X	295.19491	321.30941	261.54561	2.59123	0.0926409	0.27073922	2.3664751	20	1 10.6	19.6
131958 2002 CS <sub>41</sub>	16.3	X	317.16148	27.91077	213.93259	9.63394	0.1075395	0.27676691	2.3319896	20	2 27.9	19.3
131959 2002 CJ <sub>42</sub>	15.9	X	334.27160	269.35783	268.96319	11.33147	0.1581652	0.26945315	2.3739991	20	—	—
131960 2002 CB <sub>43</sub>	15.9	X	77.23550	74.76141	32.69547	4.45855	0.1883806	0.27628277	2.3347131	20	3 29.5	18.3
131961 2002 CD <sub>43</sub>	15.6	X	299.05956	78.37160	86.04638	7.21440	0.1328555	0.26139017	2.4225712	20	—	—
131962 2002 CG <sub>45</sub>	16.8	X	83.53519	337.75166	115.16835	1.92022	0.1332458	0.27561063	2.3385074	20	3 8.9	19.3
131963 2002 CT <sub>49</sub>	16.3	X	118.80584	185.27998	213.54702	6.18638	0.1201081	0.27408072	2.3472016	20	2 8.2	19.4
131964 2002 CY <sub>49</sub>	16.5	X	352.79965	295.44853	243.92908	5.64367	0.1213819	0.27272321	2.3549841	20	1 27.2	19.0
131965 2002 CU <sub>50</sub>	16.6	X	230.78321	164.23286	212.24381	1.99930	0.1748678	0.28837990	2.2689559	20	5 9.6	20.0
131966 2002 CP <sub>51</sub>	16.0	X	69.70408	317.57573	170.57306	1.34175	0.1904574	0.27767209	2.3269188	20	4 16.1	18.2
131967 2002 CR <sub>52</sub>	15.5	X	242.37162	212.89795	43.72005	7.43731	0.0949771	0.26478720	2.4018068	20	—	—
131968 2002 CY <sub>52</sub>	16.2	X	284.37751	158.18145	201.50053	3.47920	0.1936054	0.29546023	2.2325611	20	6 18.4	18.7
131969 2002 CG <sub>53</sub>	15.8	X	349.70022	35.67212	153.35722	8.14664	0.2094310	0.27183515	2.3601103	20	1 23.6	18.0
131970 2002 CW <sub>53</sub>	16.3	X	318.36243	354.10179	234.10848	1.63464	0.1578867	0.27220382	2.3579788	20	2 6.4	19.1
131971 2002 CQ <sub>54</sub>	16.6	X	346.43280	346.98165	208.76904	2.79280	0.1739001	0.27232772	2.3527636	20	2 2.1	18.8
131972 2002 CG <sub>56</sub>	15.9	X	172.82891	144.10723	309.14924	1.49196	0.0696727	0.23259269	2.6186172	20	6 22.9	19.6
131973 2002 CK <sub>56</sub>	15.9	X	352.75940	3.53572	197.10530	2.11115	0.1574559	0.27287285	2.3541231	20	2 23.9	17.9
131974 2002 CJ <sub>57</sub>	16.3	X	3.67494	271.46929	209.07605	1.77687	0.1594155	0.26529110	2.3987644	20	—	—
131975 2002 CB <sub>58</sub>	16.7	X	9.35375	131.37380	130.85045	1.08034	0.1774431	0.28613955	2.2807838	20	7 17.4	18.3
131976 2002 CM <sub>61</sub>	15.9	X	122.26615	8.30714	31.37314	7.15580	0.1489001	0.27541876	2.3395933	20	2 23.7	19.0
131977 2002 CB <sub>62</sub>	16.2	X	350.87125	91.61930	36.72852	6.35966	0.1359850	0.26632204	2.3925700	20	—	—
131978 2002 CE <sub>62</sub>	15.9	X	308.19900	139.22666	60.38770	7.45578	0.0450641	0.26953554	2.3735152	20	1 4.3	18.9
131979 2002 CJ <sub>64</sub>	16.5	X	98.27997	41.67252	43.94403	7.17339	0.1663978	0.27739783	2.3284523	20	3 27.9	19.3
131980 2002 CG <sub>70</sub>	16.7	X	126.92794	17.20981	112.89522	6.95755	0.0215348	0.28723702	2.2749705	20	6 14.2	19.4
131981 2002 CQ <sub>72</sub>	17.1	X	47.50877	52.26375	125.92854	0.86238	0.1531959	0.28055768	2.3109361	20	5 16.3	19.1
131982 2002 CG <sub>73</sub>	16.9	X	31.31008	4.62102	121.56372	4.50016	0.1427318	0.27235156	2.3571260	20	1 21.3	19.0
131983 2002 CH <sub>77</sub>	16.9	X	36.14525	351.13090	105.38949	2.34291	0.1384104	0.26928116	2.3750098	20	—	—
131984 2002 CZ <sub>77</sub>	16.4	X	306.58130	140.27265	103.41518	3.31530	0.1238476	0.27418754	2.3465919	20	2 18.2	19.3
131985 2002 CL <sub>80</sub>	16.7	X	279.10777	175.32430	64.54898	2.37059	0.1362456	0.26885708	2.3775066	20	1 9.5	20.1
131986 2002 CF <sub>81</sub>	16.2	X	315.16805	269.30413	327.27551	4.50763	0.1868457	0.27278546	2.3546258	20	2 9.7	19.1
131987 2002 CR <sub>82</sub>	15.3	X	132.37020	266.74039	35.12666	2.39220	0.0419674	0.20364881	2.8611995	20	—	—
131988 2002 CS <sub>83</sub>	16.2	X	199.90703	163.51272	114.24216	4.87599	0.1675621	0.26179041	2.4201014	20	—	—
131989 2002 CF <sub>87</sub>	16.7	X	246.84553	128.17587	330.86661	2.66912	0.0484677	0.24676677	2.5173577	20	10 3.6	19.9
131990 2002 CX <sub>89</sub>	17.0	X	323.77208	254.65891	338.10076	1.82919	0.1824219	0.27360443	2.3499248	20	2 17.3	19.6
131991 2002 CU <sub>92</sub>	16.7	X	157.29842	55.62306	333.63108	1.86675	0.1752239	0.27884463	2.3203911	20	3 17.7	20.2
131992 2002 CE <sub>94</sub>	16.1	X	277.74340	186.13622	26.52781	1.75049	0.1222791	0.26424987	2.4050616	20	—	—
131993 2002 CQ <sub>94</sub>	16.7	X	307.14422	190.66900	28.29200	2.56446	0.1304744	0.26945794	2.3739709	20	1 16.1	19.7
131994 2002 CH <sub>95</sub>	15.5	X	53.81192	109.11602	146.12353	6.23025	0.0595724	0.23762880	2.5814873	20	8 31.4	18.6
131												