

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>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
504001 2005 AO ₉	16.2	X	146.53345	165.83953	292.03097	26.00947	0.2081116	0.21511368	2.7586125	20	6 8.5	21.1
504002 2005 AM ₁₆	16.6	X	118.03743	225.00001	291.26841	12.41842	0.1774472	0.21882184	2.7273588	20	7 21.2	20.8
504003 2005 AH ₇₀	17.0	X	166.88383	138.89849	310.81246	12.89417	0.1738866	0.21758275	2.7377034	20	6 13.5	21.7
504004 2005 BS ₈	16.1	X	152.42104	127.29381	317.87058	16.19765	0.0948915	0.21431485	2.7654632	20	5 16.8	20.6
504005 2005 CA ₇₃	17.3	X	149.06484	97.37485	351.01295	4.27886	0.1354340	0.21162431	2.7888534	20	5 23.2	21.7
504006 2005 EP ₁₁₆	17.9	X	71.83561	73.23467	167.50723	6.29735	0.1095651	0.28145840	2.3060032	20	9 18.6	20.6
504007 2005 EQ ₂₅₂	17.6	X	71.52405	268.69581	5.70612	20.59827	0.0411198	0.35137396	1.9889460	20	10 30.3	20.1
504008 2005 FA ₁	18.3	X	250.95916	284.63846	150.89646	23.67574	0.1248598	0.35425362	1.9781529	20	9 14.5	21.0
504009 2005 FV ₄	17.2	X	92.28797	186.46084	25.92826	24.48807	0.2101702	0.27917000	2.3185878	20	9 25.1	20.1
504010 2005 GQ ₉₆	17.1	X	268.36719	217.85287	73.76891	2.45153	0.0856623	0.19297479	2.9657577	20	3 18.1	21.4
504011 2005 GT ₁₃₃	18.2	X	283.59117	161.94075	115.84150	3.31273	0.2481476	0.25505931	2.4624945	20	2 20.6	22.0
504012 2005 JC ₄₆	16.5	X	244.20932	204.60159	69.25381	38.62953	0.5029161	0.17664143	3.1458716	20	1 6.1	23.1
504013 2005 JF ₈₀	18.0	X	281.88874	117.60134	216.63527	9.91946	0.1966921	0.26221092	2.4175133	20	5 8.7	21.2
504014 2005 JN ₉₂	17.7	X	54.79948	196.95001	42.92333	6.99025	0.1594438	0.27297355	2.3535441	20	9 4.4	20.6
504015 2005 JA ₁₂₅	16.1	X	256.82812	174.75456	106.61512	15.05473	0.1521996	0.18351916	3.0667740	20	2 18.1	21.0
504016 2005 JT ₁₄₉	18.1	X	135.62463	201.01990	46.07892	21.95059	0.0536191	0.35533871	1.9741237	20	12 22.7	20.8
504017 2005 JR ₁₈₂	16.4	X	246.93625	284.81746	42.75320	10.77699	0.0474283	0.19246921	2.9709491	20	4 7.6	20.9
504018 2005 MP ₂₉	17.6	X	26.42516	23.87940	242.93708	4.97405	0.1570461	0.26437421	2.4043074	20	8 21.3	20.1
504019 2005 MH ₃₀	16.6	X	190.42295	77.07468	271.47401	7.76063	0.2136342	0.17279040	3.1924417	20	3 2.4	22.1
504020 2005 NZ ₂₄	16.5	X	228.21437	11.96543	285.41992	15.00027	0.2209654	0.17412054	3.1761625	20	2 2.2	22.0
504021 2005 NH ₆₁	16.2	X	179.80221	262.13855	130.86847	16.98399	0.2403134	0.17611348	3.1521556	20	4 24.4	22.0
504022 2005 ND ₁₂₅	16.4	X	227.16413	5.52455	314.01750	9.83090	0.2057809	0.17674551	3.1446365	20	2 27.8	21.8
504023 2005 QP ₁₃₀	16.6	X	218.06592	213.11907	143.61619	10.04983	0.0945964	0.17566904	3.1574700	20	4 14.5	21.5
504024 2005 QA ₁₈₁	18.7	X	275.44427	127.92678	346.12053	24.03045	0.0864115	0.40832927	1.7994055	20	—	—
504025 2005 RQ ₆	18.9	X	239.78050	5.47337	36.17806	12.46944	0.2502131	0.24847422	2.5058121	20	5 21.9	24.0
504026 2005 SU ₂₂₃	16.9	X	151.98099	228.01537	189.99198	10.84841	0.0749195	0.17015840	3.2252777	20	4 18.1	21.8
504027 2005 SV ₂₄₈	19.9	X	345.93859	346.27127	353.44897	0.98550	0.1724070	0.32899152	2.0781629	20	10 16.9	21.1
504028 2005 SQ ₂₆₆	16.4	X	214.01127	46.60489	287.28090	4.35554	0.2023594	0.17202403	3.2019163	20	3 5.7	21.8
504029 2005 TZ ₁₁₇	18.2	X	207.50783	53.56551	8.46646	5.38755	0.1364476	0.24690635	2.5164089	20	6 17.5	22.1
504030 2005 TF ₁₉₅	18.5	X	220.87577	299.86096	91.93351	9.20133	0.1526129	0.24538572	2.5267941	20	5 22.0	22.2
504031 2005 UG ₁₅₂	18.5	X	200.73905	206.47650	231.43615	3.77801	0.2575963	0.24347871	2.5399708	20	6 25.8	22.9
504032 2005 UL ₁₅₄	18.0	X	257.26453	116.61008	231.77456	1.50853	0.1995925	0.24306105	2.5428796	20	4 28.4	21.9
504033 2005 UN ₁₅₇	18.3	X	273.55086	210.01711	21.66505	44.47860	0.8560269	0.24686182	2.5167115	20	11 27.5	22.7
504034 2005 UJ ₁₅₉	17.6	X	127.91252	95.52184	80.66964	35.48327	0.8315593	0.16140663	3.3408358	20	10 1.6	25.6
504035 2005 UH ₁₉₁	18.3	X	252.34406	121.93760	236.23178	4.28727	0.2106905	0.24435144	2.5339193	20	5 4.6	22.1
504036 2005 US ₂₀₃	18.3	X	209.80760	22.91216	55.90071	1.74624	0.2325641	0.24578061	2.5240869	20	7 6.1	22.5
504037 2005 UP ₂₂₁	18.2	X	250.41049	4.78915	0.99805	3.61026	0.2595422	0.24612246	2.5217492	20	5 6.9	22.3
504038 2005 UQ ₂₃₃	17.8	X	250.82296	315.46831	57.88428	13.36027	0.1706087	0.24551404	2.5259136	20	5 26.8	21.5
504039 2005 UW ₂₉₁	18.7	X	191.58556	199.07282	255.11950	4.27158	0.2698718	0.24381995	2.5376004	20	7 8.4	23.3
504040 2005 UW ₃₀₉	18.4	X	235.68354	332.10139	58.63486	4.47921	0.1910746	0.24482785	2.5306311	20	6 1.0	22.1
504041 2005 UL ₄₀₅	17.5	X	261.77265	147.04452	228.64453	14.18373	0.1333401	0.24537729	2.5268520	20	6 17.2	21.1
504042 2005 UX ₄₁₉	19.1	X	237.18714	133.62038	209.68475	12.64994	0.3002941	0.24171410	2.5523177	20	3 26.0	23.7
504043 2005 VJ ₁₈	18.5	X	274.65007	110.09061	220.96385	5.51297	0.2742544	0.24662709	2.5183081	20	4 14.8	22.2
504044 2005 VB ₆₅	15.8	X	96.07542	10.67157	48.50182	15.10784	0.0713792	0.15618254	3.4149241	20	2 24.0	20.9
504045 2005 VC ₁₁₃	18.3	X	314.60814	30.38783	35.76650	1.64989	0.1374703	0.26553868	2.3972732	20	12 3.5	20.4
504046 2005 VB ₁₂₇	16.7	X	214.57922	150.37761	185.85066	10.42548	0.0540050	0.16875046	3.2431926	20	3 15.5	21.5
504047 2005 WN ₈	18.3	X	231.91665	135.29946	242.22091	11.97856	0.2606274	0.24257501	2.5462752	20	5 5.8	22.6
504048 2005 WG ₂₁	17.9	X	187.54984	74.83946	23.34077	6.20278	0.0876440	0.24409563	2.5356894	20	7 17.1	21.6
504049 2005 WN ₆₈	17.9	X	190.16252	231.15287	236.21917	4.98598	0.1941580	0.24514511	2.5284472	20	7 25.4	22.1
504050 2005 WC ₉₆	17.9	X	258.54849	190.32632	186.33119	0.80563	0.1908738	0.24463739	2.5319444	20	6 7.4	21.5
504051 2005 WN ₁₃₄	18.1	X	231.02129	118.45644	267.84172	2.79606	0.2801463	0.24014936	2.5633924	20	5 15.1	22.5
504052 2005 WA ₁₄₈	17.4	X	231.47882	331.60023	71.46861	15.74563	0.0951898	0.24273202	2.5451771	20	6 21.9	21.0
504053 2005 XR ₃₂	17.6	X	155.04651	31.63229	77.26339	14.13870	0.1235872	0.23792868	2.5793178	20	6 24.9	21.6
504054 2005 XG ₄₂	18.2	X	211.11248	142.67873	279.43504	4.96836	0.2029858	0.24258978	2.5461718	20	6 17.4	22.4
504055 2005 XX ₅₁	18.3	X	205.93434	42.30120	28.16632	3.59199	0.1449850	0.24008489	2.5638513	20	6 26.7	22.3
504056 2005 XM ₇₀	17.2	X	291.83242	17.86556	285.34820	10.56912	0.1004435	0.23439384	2.6051851	20	4 20.5	20.9
504057 2005 XM ₁₁₅	17.3	X	162.23255	163.67171	298.68530	9.04528	0.2325428	0.23250334	2.6192880	20	6 26.8	21.9
504058 2005 YH ₁₉	19.1	X	220.02523	335.40372	82.83755	5.72737	0.2819050	0.24345628	2.5401268	20	6 15.4	23.5
504059 2005 YS ₃₁	17.8	X	224.01738	302.54626	108.41654	11.07507	0.2882374	0.24071446	2.5593790	20	6 10.2	22.2
504060 2005 YJ ₆₅	16.4	X	319.27243	189.77248	100.84676	13.81809	0.1429360	0.23276264	2.6173424	20	5 17.9	19.6
504061 2005 YE ₇₄	17.0	X	13.28508	296.45079	286.42486	7.85865	0.0212081	0.23056370	2.6339575	20	5 10.9	20.6
504062 2005 YQ ₈₇	17.8	X	231.19155	110.58773	275.73021	1.30312	0.2434960	0.23900409	2.5715748	20	5 17.9	22.1
504063 2005 YZ ₉₂	18.0	X	204.10680	303.68129	137.57095	2.27215	0.0918257	0.23893335	2.5720823	20	7 12.0	21.6
504064 2005 YJ ₁₆₀	16.8	X	298.42223	185.76937	115.49379	15.25245	0.0865349	0.23180852	2.6245194	20	5 10.8	20.5
504065 2005 YC ₁₆₆	18.0	X	184.05350	337.58539	124.56651	5.94875	0.2309005	0.23872415	2.5735848	20	7 13.5	22.4
504066 2005 YR ₁₇₃	16.8	X	219.46117	154.71786	258.89669	12.45269	0.2481489	0.23941978	2.5685974	20	6 11.2	20.9
504067 2005 YM ₁₇₆	17.4	X	246.41676	271.61404	107.20042	9.67344	0.1777889	0.23841121	2.5758364	20	5 30.9	21.4
504068 2005 YD ₁₇₇	17.6	X	142.95388	197.81291	288.87631	5.21345	0.1410728	0.23457106	2.6038728	20	7 6.9	21.6
504069 2005 YB ₁₇₉	17.4	X	189.39461	312.30840	118.93090	12.43420	0.1670327	0.23416188	2.6069053	20	6 12.1	21.7
504070 2005 YS ₂₀₆	17.2	X	260.85105	94.40175	290.90394	14.32453	0.2939459	0.24455638	2.5325035	20	6 8.5	21.3
504071 2005 YU ₂₁₆	17.6	X	198.40534	114.62719	322.93458	3.92819	0.2090972	0.23931081	2.5693770	20	6 25.7	21.9
504072 2005 YW ₂₄₀	17.5	X	218.89287	54.12952	347.39266	2.49348	0.2010699	0.23640297	2.5904036	20	5 28.8	21.8
504073 2005 YU ₂₄₇	17.5	X	211.8									

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>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
504081 2006 <i>BM</i> ₁₁₁	17.7	X	181.59503	13.42850	45.35574	2.99832	0.0377936	0.22671864	2.6636545	20	5 18.2	21.5
504082 2006 <i>BG</i> ₁₃₆	16.6	X	83.44132	203.54065	318.25741	13.93695	0.1483664	0.22675725	2.6633522	20	6 17.7	20.5
504083 2006 <i>BQ</i> ₁₃₆	17.6	X	178.74799	118.31732	339.04340	4.34188	0.1859101	0.23522438	2.5990492	20	7 4.4	21.9
504084 2006 <i>BJ</i> ₁₇₈	17.1	X	248.13470	25.96780	321.13869	13.71458	0.2792160	0.23041890	2.6350609	20	4 4.7	21.8
504085 2006 <i>BW</i> ₁₉₆	16.3	X	314.64536	117.33467	155.96933	17.20792	0.0975368	0.21952636	2.7215205	20	4 24.0	20.0
504086 2006 <i>BY</i> ₂₃₇	16.6	X	295.41483	198.29498	122.91386	14.74602	0.1903763	0.23003815	2.6379677	20	5 16.4	20.2
504087 2006 <i>BU</i> ₂₈₁	17.3	X	217.90628	89.78297	322.61398	9.87814	0.1235599	0.23290991	2.6162390	20	6 16.9	21.4
504088 2006 <i>CT</i> ₁₅	16.3	X	43.50274	216.91249	336.32972	14.42786	0.1098211	0.22286603	2.6942639	20	5 21.5	19.8
504089 2006 <i>CG</i> ₅₄	18.1	X	189.16995	173.64741	335.22142	5.92214	0.0799500	0.31340874	2.1464889	20	10 1.9	20.8
504090 2006 <i>DW</i>	17.9	X	202.80521	86.15385	354.58252	25.75880	0.4557107	0.23798999	2.5788748	20	6 26.5	23.6
504091 2006 <i>DD</i> ₂₁	17.3	X	88.29757	246.69407	270.13539	0.95412	0.0421233	0.22693292	2.6619775	20	5 31.2	20.6
504092 2006 <i>DO</i> ₂₈	17.0	X	24.10214	194.28879	7.72863	4.84779	0.0901957	0.21696068	2.7429340	20	5 2.8	20.2
504093 2006 <i>DP</i> ₃₄	17.5	X	78.94347	358.21414	166.51672	9.93185	0.0995398	0.22052452	2.7133019	20	6 8.5	21.3
504094 2006 <i>DM</i> ₇₈	17.6	X	148.75072	349.25574	150.39468	4.85766	0.2229473	0.23322401	2.6138895	20	7 31.2	22.0
504095 2006 <i>DO</i> ₈₈	17.1	X	110.65856	2.44080	169.01267	11.67192	0.1942134	0.22861498	2.6489042	20	8 3.3	21.4
504096 2006 <i>DT</i> ₁₀₄	18.0	X	8.68882	298.37549	342.20687	7.62848	0.1486380	0.29608940	2.2293973	20	8 16.5	19.8
504097 2006 <i>DU</i> ₁₀₆	18.1	X	131.40495	198.55376	339.76624	5.40081	0.0434282	0.30305308	2.1951132	20	9 2.2	20.7
504098 2006 <i>DN</i> ₁₄₁	16.7	X	224.22325	235.38158	152.77628	14.18966	0.0937647	0.22512154	2.6762377	20	5 28.7	20.9
504099 2006 <i>DJ</i> ₁₈₃	16.4	X	292.17745	293.83793	5.26449	24.51729	0.1258591	0.21557623	2.7546651	20	4 10.5	20.4
504100 2006 <i>DX</i> ₁₉₆	16.4	X	159.53829	167.37962	294.79805	12.79768	0.1966608	0.23158058	2.6262413	20	6 23.8	20.8
504101 2006 <i>DT</i> ₂₀₆	18.7	X	165.20419	307.20328	207.53331	3.69260	0.0524269	0.30563117	2.1827515	20	9 11.7	21.4
504102 2006 <i>DR</i> ₂₁₂	17.6	X	192.06819	200.63508	241.03341	1.61034	0.1910299	0.23088099	2.6315438	20	6 25.5	21.9
504103 2006 <i>EZ</i> ₄₀	17.0	X	167.39341	120.14389	331.22085	3.64106	0.1132287	0.2252684	2.6733030	20	6 14.7	21.1
504104 2006 <i>FN</i> ₂	17.4	X	25.68423	33.04902	186.99125	12.43110	0.0599946	0.21789942	2.7350504	20	5 31.4	21.0
504105 2006 <i>FX</i> ₃₆	16.4	X	47.23428	74.17942	134.04981	12.98571	0.1783712	0.21983646	2.7189605	20	7 3.4	19.7
504106 2006 <i>GT</i> ₂₃	16.9	X	143.67650	87.83098	37.09135	9.46822	0.1210750	0.22341589	2.6898414	20	7 4.5	21.2
504107 2006 <i>HU</i> ₃₆	17.3	X	152.04003	68.81560	76.46323	30.13623	0.3127104	0.22911140	2.6450766	20	8 20.1	22.8
504108 2006 <i>HW</i> ₈₁	18.3	X	34.66389	198.71830	49.75889	7.37764	0.0891718	0.29026065	2.2591442	20	8 5.7	20.8
504109 2006 <i>HJ</i> ₉₅	16.8	X	124.67425	231.74568	225.07495	6.78197	0.0129401	0.20982246	2.8047968	20	4 24.9	20.6
504110 2006 <i>HT</i> ₁₃₁	17.8	X	251.25953	341.54875	353.18098	3.56072	0.1029181	0.21862355	2.7290077	20	4 15.3	21.8
504111 2006 <i>KN</i> ₂₄	18.0	X	79.31100	8.42708	234.35785	6.11949	0.0316866	0.29765979	2.2215492	20	9 19.2	20.7
504112 2006 <i>KA</i> ₅₄	18.5	X	348.30794	107.58360	209.31045	4.84232	0.1574944	0.29004552	2.2602611	20	8 28.2	20.3
504113 2006 <i>KV</i> ₈₄	17.2	X	48.17640	119.88837	92.93991	7.83153	0.0931342	0.21595013	2.7514845	20	6 27.7	20.6
504114 2006 <i>OH</i> ₁	16.9	X	219.96744	190.38650	121.72110	10.92441	0.2840807	0.18778298	3.0201736	20	2 14.4	22.3
504115 2006 <i>PF</i> ₁₉	17.9	X	337.39638	163.43945	140.71329	7.98918	0.1819262	0.27863353	2.3215629	20	7 8.5	19.7
504116 2006 <i>QY</i> ₅₄	16.8	X	32.35112	229.06540	157.13077	15.55995	0.1450521	0.23010285	2.6374731	20	—	—
504117 2006 <i>QM</i> ₈₈	17.7	X	298.33141	13.62779	346.46543	8.75910	0.1343605	0.27661588	2.3238383	20	7 26.1	20.1
504118 2006 <i>RR</i> ₂₉	16.5	X	286.71316	301.10763	315.85471	12.16409	0.1493673	0.18878756	3.0094500	20	2 15.5	20.9
504119 2006 <i>RF</i> ₄₂	18.2	X	269.02010	188.14724	183.99341	5.52899	0.2520665	0.27038583	2.3685366	20	6 5.9	21.5
504120 2006 <i>RF</i> ₄₃	16.6	X	226.16218	151.08519	182.64679	10.83588	0.1021576	0.18311382	3.0712981	20	3 21.6	21.4
504121 2006 <i>RB</i> ₄₄	16.2	X	126.39028	243.44864	182.74442	11.10843	0.1328297	0.17767803	3.1336241	20	4 5.7	20.9
504122 2006 <i>RC</i> ₄₆	16.9	X	178.36344	11.18195	17.56066	11.64467	0.2542166	0.18187894	3.0851843	20	4 11.4	22.2
504123 2006 <i>RQ</i> ₄₉	16.2	X	116.27956	89.21230	14.57832	16.32943	0.0815606	0.18278805	3.0749462	20	4 29.3	20.9
504124 2006 <i>RQ</i> ₅₃	18.0	X	272.68896	226.61495	155.11350	2.43054	0.1912289	0.27154916	2.3617671	20	7 2.9	20.8
504125 2006 <i>RS</i> ₇₅	18.9	X	289.24878	315.63818	29.96379	1.56430	0.2033197	0.27143682	2.3624188	20	6 2.4	21.5
504126 2006 <i>RY</i> ₇₅	16.7	X	151.96018	212.12120	182.88387	10.94280	0.1182408	0.17901114	3.1180471	20	3 22.9	21.4
504127 2006 <i>RN</i> ₇₉	18.4	X	258.35194	356.50831	21.28104	1.77325	0.2061889	0.26953838	2.3734986	20	6 6.5	21.7
504128 2006 <i>RE</i> ₈₄	17.0	X	137.87331	248.35387	192.55626	10.01215	0.1070147	0.18358969	3.0659885	20	5 3.4	21.7
504129 2006 <i>RY</i> ₈₅	18.2	X	266.22437	344.93608	358.06396	2.44814	0.2198910	0.26655498	2.3911759	20	4 27.1	21.7
504130 2006 <i>RG</i> ₈₆	17.2	X	179.13456	42.64341	5.16823	6.08328	0.1855837	0.18539728	3.0460275	20	5 2.3	22.3
504131 2006 <i>RR</i> ₈₉	18.1	X	272.83881	160.95184	220.04178	1.71898	0.2454286	0.27186662	2.3599752	20	6 23.4	21.0
504132 2006 <i>RR</i> ₈₉	16.7	X	129.93057	233.16910	196.17701	9.13870	0.1816733	0.17800586	3.1297784	20	4 17.4	21.6
504133 2006 <i>RA</i> ₉₀	16.4	X	232.53647	158.65850	194.34539	19.02116	0.1314631	0.18762586	3.0218594	20	4 19.1	21.2
504134 2006 <i>RM</i> ₉₇	16.1	X	179.65597	332.34557	11.15768	16.37654	0.1016629	0.17452487	3.1712550	20	2 24.3	21.2
504135 2006 <i>RC</i> ₁₀₅	17.0	X	213.62374	304.42651	40.79413	0.76125	0.2671642	0.18451320	3.0557495	20	3 17.9	22.4
504136 2006 <i>RU</i> ₁₂₀	16.4	X	170.90586	187.51881	200.20298	17.58939	0.2018322	0.17954068	3.1119132	20	4 3.6	21.6
504137 2006 <i>SG</i> ₁₅	18.1	X	324.38041	348.02467	328.81017	3.06305	0.2074468	0.27441128	2.3453162	20	6 24.9	19.8
504138 2006 <i>SP</i> ₂₇	18.0	X	257.73234	86.14421	310.43855	4.92364	0.2411425	0.27143206	2.3624464	20	6 27.6	21.4
504139 2006 <i>SD</i> ₃₈	16.8	X	238.29242	114.48396	208.85389	9.32881	0.2448957	0.18694905	3.0291484	20	3 9.1	22.1
504140 2006 <i>SG</i> ₃₉	16.3	X	219.14254	4.64780	344.31395	8.73278	0.1443817	0.18522139	3.0479555	20	3 28.4	21.3
504141 2006 <i>SH</i> ₆₈	18.5	X	290.09594	321.08516	31.92399	3.21361	0.1110230	0.27204613	2.3588900	20	7 1.8	21.0
504142 2006 <i>SO</i> ₉₄	16.7	X	208.77970	282.44963	63.91777	2.09118	0.1941896	0.18116119	3.0933278	20	3 18.3	21.9
504143 2006 <i>SP</i> ₁₂₉	18.3	X	294.42768	39.42153	300.25157	1.95348	0.1964219	0.27287700	2.3540992	20	6 2.9	20.8
504144 2006 <i>SY</i> ₁₂₉	18.1	X	297.10713	243.15976	185.10623	24.79567	0.0759995	0.35875276	1.9615794	20	12 7.3	20.5
504145 2006 <i>SU</i> ₁₄₆	16.8	X	142.28176	71.42687	9.92778	9.25795	0.0781221	0.18468074	3.0539011	20	5 2.2	21.4
504146 2006 <i>SE</i> ₁₄₇	18.5	X	350.31116	319.34417	328.76917	0.99152	0.1828943	0.27359451	2.3499816	20	7 13.9	20.0
504147 2006 <i>SP</i> ₁₅₇	18.4	X	272.51207	350.96658	11.40098	5.71061	0.1809684	0.27029859	2.3690462	20	6 5.7	21.5
504148 2006 <i>ST</i> ₁₆₁	18.1	X	25.69416	249.37503	29.77369	1.83812	0.2009131	0.28013467	2.3132619	20	9 21.9	20.3
504149 2006 <i>SG</i> ₁₈₁	17.2	X	165.19708	206.01088	186.12062	1.12698	0.1159439	0.18140353	3.0905722	20	4 1.1	21.8
504150 2006 <i>SD</i> ₁₈₄	18.4	X	311.23723	295.55256	26.33089	2.86791	0.2072412	0.27167489	2.3610384	20	6 3.3	20.5
504151 2006 <i>SA</i> ₂₂₀	16.9	X	185.05809	8.19837	14.75974	1.65069						

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>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
504161 2006 SE ₃₁₃	18.4	X	227.39222	235.44122	182.54054	7.29067	0.1570097	0.26802635	2.3824167	20	7 1.8	22.0
504162 2006 SP ₃₁₆	18.5	X	237.82419	4.36773	54.25879	3.29818	0.1845981	0.26959654	2.3731572	20	7 12.5	21.8
504163 2006 SX ₃₁₆	18.1	X	269.28794	272.83452	117.44815	2.04914	0.1882907	0.27201404	2.3590755	20	7 11.2	20.7
504164 2006 SP ₃₂₅	16.5	X	233.48802	275.95117	35.34457	5.52803	0.1329662	0.17990331	3.1077300	20	3 3.0	21.4
504165 2006 SW ₃₃₄	18.1	X	229.10283	107.76387	19.64772	20.23545	0.0757062	0.35576653	1.9725408	20	11 1.1	20.1
504166 2006 SA ₃₅₅	16.7	X	205.53163	259.75596	101.49026	2.48341	0.1885891	0.18188281	3.0851405	20	4 2.2	21.8
504167 2006 SU ₃₅₅	18.2	X	253.20360	242.87179	138.19494	3.10722	0.2045934	0.26706162	2.3881507	20	6 5.9	21.6
504168 2006 SQ ₃₆₀	17.9	X	274.77818	196.99264	190.00166	4.82725	0.1414219	0.27079175	2.3661690	20	7 21.3	20.6
504169 2006 SQ ₃₆₅	18.1	X	354.12273	0.66417	26.61357	20.94158	0.0811614	0.36009856	1.9566890	20	—	—
504170 2006 SC ₃₇₈	17.2	X	232.61601	128.61749	175.05393	12.34204	0.1279853	0.18122762	3.0925718	20	2 18.6	22.2
504171 2006 SK ₃₇₉	17.0	X	198.19386	200.04031	148.00592	1.51972	0.1800410	0.18213278	3.0823170	20	3 11.1	22.2
504172 2006 SX ₃₈₀	16.7	X	101.47123	345.52076	124.48580	14.42429	0.1281775	0.17599194	3.1536067	20	5 6.3	21.5
504173 2006 SS ₃₈₈	17.0	X	157.22774	258.44316	137.50240	10.74616	0.1204926	0.17691343	3.1426464	20	3 31.9	22.0
504174 2006 SK ₃₉₆	17.0	X	67.89131	122.26029	219.57747	4.23348	0.0683176	0.22553926	2.6729322	20	—	—
504175 2006 SN ₃₉₇	17.4	X	159.73105	48.34021	3.04561	5.32532	0.2236918	0.17949933	3.1123911	20	4 22.4	22.7
504176 2006 SD ₄₀₁	16.8	X	220.51417	316.86449	20.97566	1.18234	0.1862206	0.18035013	3.1025949	20	3 17.5	21.9
504177 2006 SX ₄₀₂	18.0	X	276.25674	351.28789	31.58309	6.00862	0.1179291	0.26978167	2.3720714	20	7 24.9	20.8
504178 2006 SS ₄₀₂	17.2	X	189.03439	217.53868	167.82568	0.58234	0.1937893	0.18212036	3.0824571	20	4 15.9	22.4
504179 2006 SM ₄₀₃	17.0	X	204.21824	324.04927	37.55754	7.82491	0.1672099	0.17957980	3.1114613	20	4 2.8	22.1
504180 2006 SH ₄₀₈	16.0	X	144.65459	190.68468	234.45526	22.99060	0.1701439	0.17982279	3.1086576	20	4 22.8	21.1
504181 2006 TC	18.7	X	80.91194	61.18390	152.10179	19.60833	0.9118721	0.51659950	1.5382729	20	10 28.7	23.1
504182 2006 TM ₂	18.4	X	86.61327	279.63078	22.30416	20.52719	0.0300504	0.36465650	1.9403500	20	—	—
504183 2006 TU ₉	17.6	X	292.71901	334.50739	23.65554	9.94324	0.2293280	0.27279706	2.3545591	20	6 22.1	20.3
504184 2006 TW ₁₆	18.2	X	254.34991	202.65234	189.26092	2.30637	0.2554625	0.26856134	2.3792517	20	6 15.4	21.7
504185 2006 TK ₂₇	16.6	X	206.17376	329.78144	27.85946	0.56418	0.1809845	0.18121559	3.0927087	20	3 28.4	21.8
504186 2006 TE ₂₉	16.1	X	128.08677	65.38714	36.79651	16.77254	0.1067744	0.18166048	3.0876572	20	5 15.1	20.8
504187 2006 TC ₃₃	16.0	X	158.52528	196.40542	210.13338	21.47686	0.0301576	0.17917740	3.1161180	20	4 5.3	20.6
504188 2006 TQ ₃₇	16.6	X	180.81974	332.75019	35.33545	4.80132	0.2677058	0.17769549	3.1334189	20	3 22.9	22.1
504189 2006 TW ₃₈	16.7	X	184.72640	334.15220	45.83938	2.24880	0.1275780	0.17923168	3.1154889	20	4 6.5	21.8
504190 2006 TA ₃₉	16.7	X	196.54456	298.65855	55.84752	1.91729	0.2863328	0.17965707	3.1105691	20	3 17.5	22.3
504191 2006 TY ₄₂	16.5	X	118.33164	248.95082	220.45542	9.10646	0.1970636	0.17757952	3.1347828	20	5 26.0	21.4
504192 2006 TL ₄₈	18.8	X	249.67867	356.17596	39.44629	2.78722	0.2194047	0.26696963	2.3886993	20	6 19.5	22.4
504193 2006 TM ₅₇	16.9	X	211.12691	140.31071	210.36399	8.82065	0.1268635	0.17982696	3.1086096	20	3 24.7	21.8
504194 2006 TY ₈₃	16.8	X	106.10663	98.07942	346.34683	6.23920	0.1118822	0.17427945	3.1742315	20	3 31.8	21.5
504195 2006 TN ₈₄	16.1	X	29.92133	324.10105	239.51338	10.86712	0.0572658	0.18435382	3.0575105	20	5 13.9	20.0
504196 2006 TH ₈₆	18.4	X	282.28140	87.07322	268.19668	2.54729	0.2665752	0.26919456	2.3755191	20	5 26.9	21.4
504197 2006 TH ₉₇	16.9	X	201.34007	307.42465	31.80360	1.44590	0.1699872	0.17863234	3.1224536	20	3 4.2	22.0
504198 2006 TZ ₁₀₄	16.7	X	189.11865	329.99115	48.81096	9.80823	0.1071222	0.17990719	3.1076853	20	4 10.9	21.7
504199 2006 TM ₁₁₅	16.5	X	234.19541	210.64537	114.61993	12.17394	0.1920903	0.18160987	3.0882308	20	3 18.5	21.7
504200 2006 TC ₁₂₀	16.9	X	149.13842	247.44810	178.32739	9.82115	0.0882827	0.18334203	3.0687489	20	4 25.7	21.6
504201 2006 TE ₁₂₃	16.5	X	46.22059	301.71955	224.67129	26.10517	0.2340171	0.17441106	3.1726344	20	5 12.7	20.1
504202 2006 TB ₁₂₅	17.0	X	142.34214	124.42888	302.11949	4.04648	0.1718151	0.17662113	3.1461127	20	4 22.4	22.0
504203 2006 TA ₁₂₉	16.4	X	100.94770	28.27871	54.04654	9.93099	0.0905488	0.17283438	3.1919001	20	3 26.6	21.0
504204 2006 UY ₁₄	15.8	X	236.08153	281.11654	49.58458	27.05872	0.1619025	0.18098131	3.0953771	20	4 6.2	21.1
504205 2006 UP ₁₈	18.0	X	160.14838	120.60847	6.00333	6.98991	0.0602331	0.26778541	2.3838455	20	7 27.1	21.3
504206 2006 UX ₁₉	16.6	X	130.86487	204.34962	223.72511	8.26671	0.0763568	0.17792032	3.1307786	20	4 4.2	21.2
504207 2006 UY ₃₅	18.2	X	199.63048	71.04501	16.53268	3.06496	0.1597137	0.26472386	2.4021899	20	7 13.4	21.8
504208 2006 UY ₃₈	17.3	X	141.47261	16.24009	43.72786	0.87602	0.1873749	0.17618928	3.1512515	20	4 16.8	22.4
504209 2006 UE ₃₉	18.5	X	36.15591	307.80439	31.97625	21.18377	0.0864550	0.35996693	1.9571659	20	—	—
504210 2006 UM ₃₉	18.6	X	203.55490	61.14499	20.56114	2.27171	0.1888207	0.26426712	2.4049569	20	7 7.5	22.4
504211 2006 UL ₄₂	16.9	X	136.98311	243.30827	218.37390	8.75384	0.1742475	0.18025171	3.1037242	20	6 1.2	21.9
504212 2006 UU ₄₆	18.4	X	303.30851	183.88574	161.00390	1.73069	0.1944594	0.27014020	2.3699721	20	6 27.4	20.7
504213 2006 UG ₅₂	17.2	X	211.77918	141.70714	193.17513	8.73425	0.1572273	0.17912345	3.1167437	20	3 6.0	22.3
504214 2006 UE ₅₇	16.1	X	147.30866	84.40737	344.22919	15.92272	0.1131544	0.18550175	3.0448837	20	4 19.9	21.1
504215 2006 UX ₆₂	17.8	X	247.47903	154.83774	247.91021	7.38985	0.2805472	0.26851534	2.3795234	20	6 19.7	21.6
504216 2006 UM ₆₆	16.8	X	187.91118	100.82124	208.14830	12.86664	0.2688379	0.17260616	3.1947131	20	1 18.2	22.7
504217 2006 UR ₇₂	16.5	X	129.09467	70.70108	0.68125	10.38431	0.0934888	0.17783051	3.1318326	20	4 7.7	21.2
504218 2006 UR ₇₈	16.7	X	165.85813	175.62595	226.62483	10.79349	0.2105554	0.17962079	3.1109879	20	4 16.1	22.0
504219 2006 US ₉₃	18.5	X	305.33152	145.54540	183.53100	3.47920	0.2040205	0.26948024	2.3738399	20	6 5.0	20.9
504220 2006 UL ₉₇	16.9	X	155.18626	215.70903	184.32524	5.87320	0.1754760	0.17689383	3.1428785	20	4 4.9	22.0
504221 2006 UH ₁₀₀	18.5	X	201.22530	11.46409	73.96406	6.25253	0.2179044	0.26372725	2.4082379	20	7 8.6	22.5
504222 2006 UT ₁₀₃	17.9	X	288.86539	270.84210	55.27813	8.43563	0.1870877	0.26288079	2.4134046	20	5 18.9	20.9
504223 2006 UX ₁₁₇	16.6	X	284.20416	249.70029	34.20991	12.38262	0.0165295	0.18101419	3.0950023	20	4 8.2	21.0
504224 2006 UA ₁₂₂	18.0	X	63.28019	153.95712	93.89543	2.26183	0.0935978	0.27508647	2.3414770	20	9 14.7	20.9
504225 2006 UA ₁₂₄	17.0	X	174.12346	175.14847	204.98702	11.63376	0.0767548	0.17844402	3.1246500	20	3 23.7	21.7
504226 2006 UM ₁₃₂	15.7	X	138.82196	197.06910	226.77548	16.09895	0.1761630	0.17758304	3.1347414	20	4 16.5	20.8
504227 2006 UR ₁₃₂	16.6	X	122.55644	53.39141	40.67996	11.20760	0.0493694	0.17981801	3.1087127	20	4 25.7	21.0
504228 2006 UQ ₁₆₈	16.6	X	178.63182	173.86278	188.87881	9.56881	0.0749010	0.17620212	3.1510983	20	3 8.0	21.5
504229 2006 UW ₁₇₉	16.5	X	161.90041	290.99100	66.46854	13.24988	0.2316434	0.17265076	3.1941628	20	3 1.4	22.1
504230 2006 UW ₁₉₂	16.1	X	218.22678	119.81336	233.88672	12.59466	0.3349507	0.18422835	3.0588985	20	3 24.7	21.9
504231 2006 UZ ₁₉₇	17.1	X	144.14689	24.63451	58.58812	1.95656	0.1612378	0.17971479	3.1099029	20	5 15.1	22.0
504232 2006 UR ₂₀₀	17.9	X	275.60759	17.60834	353.99483	2.74194	0.2624639	0.26992361	2.3712397	20	6 10.8	20.9
504233 2006 UQ ₂₀₁	16.7	X	166.22358	350.12082	50.36573	3.66969	0.2871899	0.1776				

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>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
504241 2006 UZ ₂₅₆	16.9	X	217.76770	98.61257	229.84878	8.56023	0.2026845	0.18073682	3.0981680	20	2 29.3	22.3
504242 2006 US ₂₆₆	18.0	X	273.63624	296.42900	79.19431	2.36335	0.0960591	0.26864464	2.3787598	20	7 11.9	20.6
504243 2006 UY ₂₆₇	15.8	X	116.71774	211.32210	243.09607	27.01873	0.2151748	0.17455011	3.1709493	20	5 7.1	20.9
504244 2006 UG ₂₇₈	16.1	X	233.82713	292.60496	37.36040	12.14695	0.1408124	0.18147609	3.0897483	20	3 26.5	21.0
504245 2006 UP ₂₈₀	16.8	X	192.10023	135.59221	219.10874	8.62181	0.0990975	0.17501281	3.1653579	20	3 11.1	21.9
504246 2006 UL ₂₈₂	17.9	X	221.00592	31.60417	51.05977	12.89659	0.1839852	0.26680111	2.3897050	20	7 29.9	21.8
504247 2006 UP ₂₈₃	17.4	X	143.14625	222.89929	226.30816	11.80252	0.2352902	0.17959930	3.1112360	20	5 26.1	22.7
504248 2006 UD ₂₈₇	16.1	X	183.80667	344.41571	54.89297	18.14653	0.1988956	0.18078122	3.0976607	20	4 30.9	21.4
504249 2006 UT ₃₂₃	17.1	X	257.88636	268.46061	44.10627	2.69898	0.0697592	0.18550337	3.0448660	20	4 2.7	21.4
504250 2006 UT ₃₃₁	18.2	X	263.16320	184.37875	194.52789	6.03132	0.1101026	0.27098368	2.3650516	20	6 28.4	21.3
504251 2006 UO ₃₃₄	16.7	X	166.78453	161.02332	220.94301	9.60292	0.1003915	0.17661204	3.1462207	20	3 18.4	21.7
504252 2006 UT ₃₃₄	15.4	X	274.92337	16.99967	242.02631	22.96601	0.1340105	0.16920394	3.2373953	20	2 1.5	20.7
504253 2006 UJ ₃₃₇	16.9	X	121.30119	41.65431	57.55615	11.26680	0.2163872	0.17572065	3.1568517	20	5 17.8	22.0
504254 2006 UC ₃₆₁	17.5	X	260.55947	61.33182	317.68071	8.74758	0.2117680	0.26867205	2.3785980	20	6 9.8	21.0
504255 2006 VK ₉	18.3	X	253.08884	15.72425	31.91940	1.89607	0.1796506	0.26884813	2.3775594	20	7 16.0	21.4
504256 2006 VD ₁₃	18.9	X	325.84061	162.88639	313.97741	11.72522	0.4846529	0.36274747	1.9471517	20	—	—
504257 2006 VP ₁₈	17.8	X	224.25124	144.91538	262.14337	3.33330	0.0989191	0.26300390	2.4126515	20	6 19.7	21.3
504258 2006 VX ₂₀	16.1	X	197.42187	309.41381	53.75796	10.99971	0.1709424	0.17778406	3.1323780	20	4 1.5	21.4
504259 2006 VU ₄₇	17.0	X	130.05417	48.07630	50.65584	17.34776	0.2112076	0.17744231	3.1363987	20	5 22.9	22.1
504260 2006 VV ₄₉	16.3	X	152.12177	175.24494	248.04600	14.47803	0.2553153	0.17582484	3.1556044	20	5 1.6	21.8
504261 2006 VP ₅₂	17.5	X	107.17374	234.71718	298.62137	5.65696	0.1117762	0.26122130	2.4236152	20	7 28.5	20.9
504262 2006 VA ₆₆	17.4	X	153.24379	164.28710	228.92219	2.51518	0.1831262	0.17255630	3.1953285	20	3 25.7	22.6
504263 2006 VC ₈₉	15.7	X	159.81090	338.21136	71.96659	30.00702	0.2057299	0.17584396	3.1553757	20	5 3.4	21.3
504264 2006 VZ ₁₀₁	15.9	X	138.15944	206.19254	230.65240	25.88622	0.0309107	0.17936727	3.1139185	20	4 18.4	20.6
504265 2006 VG ₁₀₄	15.9	X	133.85629	227.25137	210.90219	16.92673	0.2474568	0.17969392	3.1101437	20	5 13.6	21.1
504266 2006 VU ₁₀₅	18.5	X	230.39231	30.65280	49.43562	3.29820	0.1857183	0.26821530	2.3812976	20	8 2.9	21.9
504267 2006 VX ₁₀₅	16.6	X	144.98597	186.01288	238.04891	10.26994	0.0947548	0.17614394	3.1517293	20	4 16.1	21.5
504268 2006 VD ₁₁₈	18.2	X	241.33708	24.59947	29.79064	1.74924	0.1471693	0.26636934	2.3922867	20	7 15.2	21.4
504269 2006 VN ₁₄₃	17.7	X	278.66007	8.17563	17.63884	2.27600	0.2017656	0.27592822	2.3367126	20	7 17.3	20.3
504270 2006 VH ₁₇₃	16.5	X	136.89753	351.67779	70.05849	12.79722	0.1650727	0.17200638	3.2021353	20	4 18.2	21.7
504271 2006 WJ ₂₀	16.0	X	181.00965	349.72656	45.12111	17.89999	0.2235146	0.17899850	3.1181940	20	4 23.3	21.4
504272 2006 WR ₃₀	16.2	X	124.66952	35.12023	56.09067	11.29484	0.0715142	0.17663333	3.1459678	20	4 28.7	20.8
504273 2006 WV ₄₂	18.0	X	219.75056	227.94571	190.18006	5.64452	0.1393300	0.26200863	2.4187575	20	6 25.5	21.6
504274 2006 WO ₅₀	16.3	X	211.91201	249.98671	87.00838	11.03231	0.2414181	0.17541064	3.1605701	20	3 13.5	21.9
504275 2006 WK ₅₉	17.8	X	184.85800	191.55245	266.59856	7.61758	0.1879454	0.26058479	2.4275602	20	7 10.4	21.6
504276 2006 WX ₅₉	15.7	X	251.99863	50.03601	228.68688	26.51811	0.1780968	0.17460521	3.1702822	20	1 28.3	21.3
504277 2006 WV ₆₅	16.1	X	129.80181	164.86287	283.90370	7.11628	0.0481735	0.17677655	3.1442684	20	4 24.3	20.7
504278 2006 WB ₆₉	18.1	X	254.65134	308.56193	83.19704	5.37241	0.2404760	0.26495930	2.4007666	20	6 17.1	21.6
504279 2006 WJ ₈₅	16.3	X	262.49858	75.54163	235.27462	7.73600	0.0694369	0.17566862	3.1574750	20	4 3.6	20.9
504280 2006 WZ ₉₃	18.3	X	237.38290	234.20233	196.23127	3.02977	0.1023240	0.26809414	2.3820150	20	8 6.5	21.5
504281 2006 WE ₁₀₂	16.1	X	156.02426	3.62586	75.85928	19.88310	0.1573579	0.18095070	3.0957262	20	5 23.5	21.1
504282 2006 WR ₁₂₀	16.3	X	190.85684	130.23737	233.47708	21.83622	0.2224207	0.17760528	3.1344797	20	3 17.1	22.1
504283 2006 WZ ₁₃₅	18.1	X	134.95783	7.04047	233.64354	20.74761	0.0236612	0.35474034	1.9763431	20	12 15.6	20.4
504284 2006 WP ₁₇₂	18.3	X	263.24259	136.13672	235.58253	1.38950	0.1856817	0.26339996	2.4102324	20	6 7.1	21.6
504285 2006 XY ₁₂	17.8	X	116.26001	180.97282	340.27971	1.09930	0.1238917	0.25698749	2.4501616	20	7 24.1	21.2
504286 2006 XS ₂₂	17.9	X	246.75374	159.63654	249.55627	6.48866	0.0810759	0.26414832	2.4056779	20	7 22.1	21.0
504287 2006 XG ₂₄	16.2	X	92.98768	62.12865	88.85376	26.63121	0.2854450	0.17276872	3.1927088	20	6 29.4	21.3
504288 2006 XK ₂₅	16.3	X	156.82224	166.49372	233.36854	17.37497	0.2472149	0.17443275	3.1723715	20	4 5.9	21.9
504289 2006 XC ₂₇	15.9	X	14.56541	260.91136	291.38917	27.01812	0.3513662	0.23187270	2.6240351	20	3 8.1	18.3
504290 2006 XP ₄₉	17.9	X	194.23842	337.57537	107.28479	7.15386	0.0904723	0.25562867	2.4588366	20	7 6.6	21.4
504291 2006 XW ₅₁	17.6	X	252.27346	167.72582	242.87558	5.92283	0.1031315	0.26644706	2.3918215	20	7 28.1	20.8
504292 2006 YV ₁₉	16.5	X	169.93032	157.36593	295.99861	14.68685	0.1913122	0.17823464	3.1270967	20	6 20.9	21.8
504293 2007 BA ₅₆	17.9	X	204.97734	133.50294	338.27437	4.40288	0.1815597	0.26136704	2.4227141	20	8 17.8	21.7
504294 2007 BG ₇₂	16.6	X	151.39926	76.79736	64.92116	24.97247	0.2161073	0.25395806	2.4696081	20	8 14.9	21.3
504295 2007 CG ₂	17.3	X	112.31657	329.46169	148.21315	2.00585	0.3198062	0.16812043	3.2512902	20	6 10.3	22.7
504296 2007 DG ₄₆	17.1	X	48.06641	264.58330	298.25499	7.46205	0.1255541	0.24583893	2.5236877	20	6 19.6	20.1
504297 2007 DB ₄₈	16.7	X	22.55495	243.59226	342.69103	13.47258	0.0423390	0.23963980	2.5670249	20	5 29.2	20.2
504298 2007 EM ₄₉	18.7	X	177.02034	210.79145	253.16147	1.19620	0.1574719	0.25056147	2.4918766	20	7 11.4	22.5
504299 2007 EO ₁₀₂	17.1	X	336.14162	230.64422	21.55775	11.34845	0.2345042	0.22818218	2.6522527	20	4 5.5	19.6
504300 2007 EF ₁₁₄	16.6	X	7.14998	231.79528	349.45353	12.88046	0.1986457	0.23000741	2.6382027	20	4 25.5	19.2
504301 2007 EK ₁₃₂	17.4	X	77.07282	0.38689	177.19717	11.33676	0.1042665	0.23902819	2.5714019	20	6 23.4	21.0
504302 2007 EN ₂₂₄	15.1	X	162.57632	280.84604	27.16480	7.81606	0.3002816	0.12454904	3.9710846	20	1 9.9	21.9
504303 2007 GC ₄₄	17.8	X	85.25646	333.24639	204.59278	12.17804	0.1107277	0.23809629	2.5781072	20	7 4.1	21.5
504304 2007 GC ₄₄	17.7	X	78.36228	129.35828	49.18735	12.36575	0.1217906	0.23489868	2.6014511	20	6 29.1	21.3
504305 2007 GV ₄₉	16.8	X	241.08528	125.81899	230.88188	4.68393	0.1846720	0.22735055	2.6587166	20	4 24.4	20.9
504306 2007 HL ₂₂	15.6	X	183.49223	193.77653	97.57468	4.05926	0.1582967	0.12431503	3.9760664	20	1 1.4	22.0
504307 2007 HZ ₄₈	17.4	X	305.89621	189.42485	94.15743	4.91405	0.1431148	0.22463377	2.6801104	20	4 14.9	20.7
504308 2007 HV ₅₁	17.6	X	47.03279	147.85528	56.28693	10.64653	0.1067714	0.23246235	2.6195959	20	6 15.3	20.7
504309 2007 HG ₇₉	16.8	X	315.45153	202.49377	84.83447	13.44360	0.1578656	0.22800088	2.6536585	20	5 5.1	20.0
504310 2007 HR ₇₉	16.6	X	302.46070	47.75252	202.68894	28.91434	0.2071182	0.21623646	2.7490550	20	2 9.7	21.1
504311 2007 HU ₇₉	16.8	X	231.58210	282.41942	60.79039	7.47433	0.0958831	0.22266027	2.6959235	20	4 8.8	20.9
504312 2007 LV ₁	16.5	X	314.48988	192.75033	91.68187	14.28808	0.1718174	0.22384676	2.6863887	20	4 29.2	19.9
504313 2007 LG ₁₄	16.9	X	250.79329	244.93687	123.4							

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>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
504321 2007 RE ₁₄₁	17.9	X	294.07823	209.39083	166.69229	5.42141	0.1818499	0.29857948	2.2169849	20	8 2.9	19.8
504322 2007 RL ₁₉₂	18.3	X	295.20905	213.68929	132.28527	3.43094	0.2764246	0.29544710	2.2326273	20	5 31.2	20.5
504323 2007 RR ₁₉₉	18.6	X	278.63109	131.94669	230.70021	1.82221	0.1967720	0.29273111	2.2464157	20	6 13.5	21.0
504324 2007 RH ₂₆₉	16.6	X	171.00317	155.44457	196.48168	9.83718	0.1169873	0.19038625	2.9925792	20	2 15.9	21.4
504325 2007 RL ₂₈₇	18.3	X	267.30990	232.92537	179.76164	4.29768	0.0863244	0.29881820	2.2158041	20	8 30.6	20.5
504326 2007 RW ₂₈₈	17.0	X	204.81216	139.95958	239.07415	5.33963	0.2462077	0.19603695	2.9347926	20	4 18.3	22.2
504327 2007 RW ₃₁₈	17.3	X	197.51360	199.10304	181.28684	1.93285	0.0860974	0.19860923	2.9093977	20	4 18.2	21.7
504328 2007 SP ₇	18.2	X	262.45508	43.40856	24.25519	6.39014	0.1597012	0.29889628	2.2154182	20	9 5.6	20.6
504329 2007 TO ₂₇	18.6	X	241.58895	82.10389	19.55437	6.99245	0.2355217	0.29808424	2.2194398	20	9 12.3	21.4
504330 2007 TD ₂₉	18.3	X	291.86732	186.76049	202.10042	1.84484	0.1695474	0.29752256	2.2222322	20	8 22.4	20.1
504331 2007 TH ₈₁	18.0	X	342.31370	285.98954	29.18339	4.62913	0.2256031	0.29832369	2.2182520	20	8 20.2	18.9
504332 2007 TL ₁₀₃	16.9	X	215.09790	281.76227	50.84790	10.73433	0.0688107	0.18930997	3.0039109	20	3 15.6	21.5
504333 2007 TZ ₁₀₆	17.7	X	273.98545	34.32304	12.30232	7.95636	0.0958982	0.29801222	2.2197974	20	9 3.6	20.0
504334 2007 TE ₁₄₀	17.8	X	228.76203	51.96149	44.78961	6.45872	0.0977933	0.29649219	2.2273778	20	9 10.2	20.5
504335 2007 TH ₁₄₅	17.9	X	332.74725	296.92220	22.01046	2.29412	0.2414432	0.29700720	2.2248021	20	7 22.6	18.6
504336 2007 TA ₁₅₂	18.5	X	329.60627	102.56665	244.02945	1.96096	0.2015934	0.30190909	2.2006548	20	9 7.9	19.7
504337 2007 TA ₁₆₉	18.6	X	289.90890	300.58241	61.07673	5.29018	0.2487260	0.29380961	2.2409150	20	6 20.1	20.7
504338 2007 TA ₁₈₅	17.9	X	271.71456	139.84259	260.48129	6.29464	0.0725216	0.29377145	2.2411091	20	8 18.0	20.6
504339 2007 TU ₁₉₉	17.2	X	162.30380	178.94057	218.11820	5.61460	0.1010921	0.19316559	2.9638044	20	4 1.6	21.7
504340 2007 TH ₂₀₀	17.1	X	179.14514	133.62468	210.07984	10.61113	0.1902821	0.18852871	3.0122041	20	2 15.9	22.3
504341 2007 TM ₂₁₄	17.8	X	297.09844	8.35407	12.75948	6.55500	0.1270670	0.29620141	2.2288352	20	8 30.6	19.7
504342 2007 TF ₂₂₆	16.3	X	143.14028	142.09259	225.67743	10.85373	0.1390869	0.18561883	3.0436032	20	2 8.4	21.2
504343 2007 TK ₂₃₂	17.0	X	203.82894	172.40606	208.22532	1.31599	0.1229683	0.19624618	2.9327063	20	4 23.7	21.5
504344 2007 TP ₂₃₃	16.7	X	159.10671	349.85544	50.70813	12.15940	0.1130317	0.18986985	2.9980029	20	4 8.8	21.4
504345 2007 TR ₂₅₅	16.8	X	237.59385	138.08526	283.14344	3.13715	0.0565633	0.21333393	2.7739338	20	7 27.8	20.7
504346 2007 TB ₂₅₉	16.6	X	129.36721	192.87100	207.79645	10.28489	0.1416786	0.18776105	3.0204087	20	3 5.7	21.3
504347 2007 TQ ₃₀₈	17.2	X	201.93742	303.56042	52.85529	6.40605	0.0671100	0.19385038	2.9568204	20	3 27.4	21.6
504348 2007 TG ₃₁₆	17.8	X	348.89063	268.76440	51.38655	6.35037	0.2106375	0.29804356	2.2196418	20	9 19.3	19.1
504349 2007 TU ₃₁₆	17.7	X	161.69363	18.27692	45.21564	17.43430	0.2017930	0.19487608	2.9464361	20	5 8.2	22.7
504350 2007 TV ₃₂₀	17.0	X	40.84306	242.41009	338.15581	7.48621	0.1243160	0.22008808	2.7168878	20	7 2.9	20.3
504351 2007 TN ₃₃₁	18.4	X	213.33838	88.63119	11.86256	5.60787	0.1069926	0.29159194	2.2522627	20	8 23.3	21.3
504352 2007 TO ₃₃₈	18.9	X	226.76267	87.53939	8.13629	3.07810	0.1476208	0.29437118	2.2380641	20	8 27.0	21.9
504353 2007 TD ₃₆₇	18.0	X	90.78097	271.99622	43.00376	21.59217	0.1163848	0.39342702	1.8445620	20	—	—
504354 2007 TV ₃₇₈	17.3	X	177.01156	350.11542	49.13922	11.59630	0.1222426	0.19330688	2.9623600	20	4 22.7	21.9
504355 2007 TW ₄₂₈	17.5	X	168.54030	56.72373	350.15856	1.37535	0.0870148	0.19647086	2.9304701	20	4 19.9	22.0
504356 2007 TX ₄₂₈	17.3	X	247.50821	338.08911	1.61956	1.67326	0.0795782	0.20107260	2.8855867	20	4 21.4	21.3
504357 2007 UP ₂₉	17.6	X	232.18637	180.55880	217.80074	24.24223	0.1562792	0.28502772	2.2867112	20	6 9.7	21.3
504358 2007 US ₃₃	15.9	X	128.67506	144.50975	248.65649	13.24603	0.1495885	0.18317616	3.0706011	20	2 22.9	20.8
504359 2007 UZ ₅₃	16.6	X	242.98357	114.43421	230.39035	11.18753	0.0758324	0.19794404	2.9159121	20	4 22.5	20.8
504360 2007 UN ₈₅	18.9	X	255.62853	204.87621	215.42076	2.68868	0.1194798	0.29291914	2.2454543	20	8 16.9	21.6
504361 2007 UY ₈₆	18.8	X	214.64956	276.04790	173.79423	1.97506	0.1636014	0.28794862	2.2712209	20	7 31.9	21.9
504362 2007 UH ₉₀	17.0	X	215.93212	112.78008	249.83719	1.02791	0.1317939	0.19722322	2.9230126	20	4 12.6	21.5
504363 2007 UL ₉₃	16.6	X	163.62199	30.26190	37.41259	12.58273	0.0234254	0.19753487	2.9199374	20	5 6.9	20.8
504364 2007 US ₉₇	17.0	X	111.36491	234.90046	220.85011	4.23443	0.1459825	0.18908588	3.0062838	20	4 25.6	21.4
504365 2007 UT ₁₀₈	16.5	X	109.40026	244.39999	226.13039	12.37495	0.1449614	0.19097948	2.9863789	20	5 12.1	20.8
504366 2007 US ₁₁₄	16.9	X	179.07866	3.92904	31.02557	5.61419	0.0685659	0.19288634	2.9666643	20	4 16.7	21.3
504367 2007 VK ₉	18.5	X	264.20015	234.50343	170.08218	4.09270	0.2295789	0.29172617	2.2515718	20	7 18.7	21.4
504368 2007 VM ₄₆	17.0	X	15.53831	285.60516	179.97609	5.71207	0.0489796	0.27075252	2.3663975	20	4 4.1	19.7
504369 2007 VE ₅₃	18.0	X	280.59074	141.60762	280.58000	3.78485	0.2089386	0.28376574	2.2934859	20	4 30.4	21.0
504370 2007 VA ₆₀	16.7	X	150.70040	119.80297	265.83213	6.27891	0.2270882	0.18737490	3.0245570	20	3 14.3	21.8
504371 2007 VB ₆₀	16.3	X	232.05432	93.67729	251.31212	12.02037	0.2162383	0.19885687	2.9069818	20	3 27.9	21.4
504372 2007 VK ₇₁	18.1	X	317.22837	186.86548	229.58966	21.03504	0.0607533	0.38649823	1.8665418	20	12 28.9	20.0
504373 2007 VT ₇₂	16.8	X	195.17587	312.95718	70.97338	3.26328	0.1284626	0.19261929	2.9694905	20	4 20.4	21.6
504374 2007 VL ₇₃	17.7	X	206.23233	263.64308	240.31416	21.82970	0.2377005	0.29302257	2.2449258	20	9 19.6	21.6
504375 2007 VV ₇₃	18.5	X	200.27490	264.51260	200.68689	6.01086	0.1027201	0.29271021	2.2465227	20	8 10.2	21.6
504376 2007 VK ₈₁	17.0	X	154.00696	186.00107	223.23357	11.38737	0.0586857	0.19127734	2.9832778	20	4 4.0	21.4
504377 2007 VL ₉₄	17.8	X	352.94392	279.53230	37.48584	3.72715	0.2041851	0.29678193	2.2259278	20	9 20.6	19.0
504378 2007 VR ₉₆	18.2	X	285.71066	105.41525	288.60909	3.94070	0.1128627	0.29486285	2.2355755	20	8 26.9	20.5
504379 2007 VS ₉₆	18.1	X	191.48147	157.51140	337.09418	3.59415	0.0775825	0.29351849	2.2423965	20	9 13.8	21.0
504380 2007 VE ₁₂₄	16.5	X	232.23731	288.07327	61.13556	7.03288	0.2348757	0.19750486	2.9202332	20	4 8.4	21.5
504381 2007 VA ₁₄₅	16.3	X	96.79799	206.95975	224.10257	11.20267	0.1391006	0.17955883	3.1117035	20	3 5.3	20.8
504382 2007 VL ₁₅₃	18.1	X	227.70879	38.20071	46.55934	5.37746	0.1542735	0.29377003	2.2411163	20	8 13.4	21.1
504383 2007 VK ₁₆₁	17.0	X	241.32588	332.45150	5.88368	4.11293	0.0858637	0.19424845	2.9527795	20	4 12.1	21.2
504384 2007 VE ₁₇₀	18.4	X	283.23411	132.09699	263.17102	1.68391	0.1939533	0.29326593	2.2436837	20	8 10.8	20.3
504385 2007 VB ₁₈₅	17.9	X	292.28390	35.02946	353.20593	4.81075	0.1533943	0.29500098	2.2348776	20	8 26.6	19.8
504386 2007 VN ₁₉₂	16.4	X	149.52312	357.66922	90.40175	9.49952	0.2095457	0.18846488	3.0128842	20	5 29.3	21.5
504387 2007 VS ₁₉₃	15.9	X	155.98688	105.06125	281.62209	14.11860	0.0954993	0.17672508	3.1448789	20	3 8.2	21.0
504388 2007 VG ₂₀₀	18.4	X	8.35495	240.47212	45.05027	6.24046	0.1403878	0.29292342	2.2454324	20	8 24.7	20.4
504389 2007 VT ₂₀₂	18.1	X	303.73287	104.86869	251.15051	5.42596	0.2261245	0.29481029	2.2358412	20	7 11.6	19.8
504390 2007 VB ₂₀₅	17.1	X	202.94494	322.28952	51.46335	4.21557	0.1875543	0.19706643	2.9245628	20	4 13.9	21.9
504391 2007 VU ₂₃₈	16.4	X	130.24010	185.94985	243.47623	17.60645	0.0967172	0.18625204	3.0367010	20	4 3.7	21.2
504392 2007 VO ₂₄₃	19.5	X	49.99730	230.56802	95.91180	9.62531	0.4007114	0.39393456	1.8429773	20	—	—
504393 2007 VM ₂₅₉	17.4	X	221.47055	149.42675	185.68781							

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>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
504401 2007 VY ₃₃₁	16.9	X	114.58617	33.57625	88.65425	13.73670	0.2322279	0.18483837	3.0521647	20	6 10.5	21.7
504402 2007 WM ₁	16.7	X	174.09755	141.76669	249.22544	11.03756	0.1607256	0.19186829	2.9771490	20	4 5.4	21.7
504403 2007 WF ₁₅	17.3	X	173.39525	271.61811	161.92812	2.14345	0.0836431	0.19655266	2.9296569	20	5 29.2	21.8
504404 2007 WM ₃₆	16.6	X	43.63556	117.82799	51.40926	20.01668	0.0697660	0.18764175	3.0216888	20	4 24.8	20.6
504405 2007 WR ₄₅	17.0	X	163.15520	17.39318	32.89737	11.40538	0.1094282	0.19182840	2.9775618	20	4 20.5	21.7
504406 2007 WB ₆₂	18.1	X	259.71294	56.72681	332.27360	4.74186	0.2617485	0.28763167	2.2728891	20	6 16.6	21.3
504407 2007 XD ₁₆	18.0	X	278.36587	337.53337	60.06184	5.88372	0.1806763	0.29232259	2.2485081	20	8 11.7	20.3
504408 2007 XM ₂₁	16.5	X	136.48151	207.39325	252.82910	15.95522	0.2520595	0.19139123	2.9820942	20	6 3.5	21.5
504409 2007 XM ₃₆	16.0	X	170.23386	348.95896	75.18359	20.70799	0.2207761	0.19269242	2.9686543	20	5 19.8	21.2
504410 2007 XZ ₅₁	18.2	X	186.20196	247.84949	283.36005	17.54634	0.0599981	0.37198328	1.9147868	20	11 12.6	20.6
504411 2007 XO ₅₂	16.5	X	198.33268	282.49577	83.73732	17.01542	0.2573844	0.19149293	2.9810383	20	4 8.6	22.1
504412 2007 XK ₅₈	16.3	X	147.62401	103.59753	314.31519	9.26113	0.0089357	0.18014359	3.1049660	20	4 1.2	20.8
504413 2007 YF ₅	16.2	X	114.46843	140.49268	273.19023	16.22057	0.2089473	0.18099046	3.0952728	20	3 8.1	21.3
504414 2007 YH ₁₈	16.1	X	115.80084	182.43978	261.59303	12.38782	0.1285158	0.18276047	3.0752556	20	4 9.9	20.9
504415 2007 YW ₁₉	18.5	X	212.63526	193.60667	264.79014	2.47273	0.1207060	0.28469136	2.2885120	20	8 14.1	21.6
504416 2007 YM ₂₄	17.5	X	144.10929	35.73555	26.70265	5.96204	0.1549440	0.18261601	3.0768771	20	4 19.3	22.4
504417 2007 YF ₆₆	17.0	X	141.29809	165.91089	296.72497	6.50545	0.1986264	0.18664222	3.0324672	20	6 7.0	22.1
504418 2007 YM ₆₈	17.4	X	67.34944	115.51043	113.35212	7.56604	0.0696701	0.27501879	2.3418611	20	8 20.8	20.2
504419 2007 YS ₇₀	18.4	X	241.67448	312.16492	113.59873	10.98717	0.1658559	0.28300523	2.2975929	20	7 30.3	21.3
504420 2007 YK ₇₃	16.2	X	159.50721	286.65878	117.84642	15.74331	0.0584157	0.17899346	3.1182525	20	4 14.4	21.1
504421 2008 AC ₁₀	17.3	X	123.39340	303.23050	163.64871	2.78300	0.1604057	0.18411240	3.0601827	20	5 24.5	22.0
504422 2008 AL ₁₄	16.1	X	126.86701	161.73372	285.35648	9.55121	0.0436646	0.18026364	3.1035872	20	4 16.6	20.8
504423 2008 AZ ₂₈	17.0	X	163.57696	135.84508	261.47030	7.03786	0.2782562	0.18516194	3.0486079	20	4 9.3	22.6
504424 2008 AB ₄₁	16.7	X	182.31914	64.94891	331.79374	9.84696	0.4200817	0.18903853	3.0067858	20	4 20.6	22.8
504425 2008 AV ₄₄	18.5	X	291.19111	150.39337	307.40907	19.04733	0.0928186	0.37694325	1.8979528	20	—	—
504426 2008 AW ₅₀	17.5	X	149.36423	151.37676	292.69602	9.20018	0.3196102	0.18888707	3.0083930	20	5 27.1	23.1
504427 2008 AW ₅₃	16.3	X	74.98973	191.99903	302.00765	9.50370	0.1091094	0.17831840	3.1261173	20	4 20.2	20.8
504428 2008 AN ₅₅	18.2	X	179.93097	354.76506	139.82140	3.02661	0.1405136	0.28172203	2.3045644	20	8 26.8	21.6
504429 2008 AJ ₅₆	16.6	X	186.42653	262.66519	126.27095	10.75683	0.1343624	0.18410552	3.0602589	20	4 22.1	21.7
504430 2008 AR ₅₆	17.7	X	348.13312	180.61552	123.70565	7.69019	0.1214554	0.27753378	2.3276918	20	8 5.2	19.7
504431 2008 AH ₅₉	16.7	X	184.19006	84.86147	298.96747	15.73613	0.2381676	0.18425645	3.0585875	20	4 2.0	22.3
504432 2008 AP ₈₀	16.4	X	127.58302	131.90150	294.99441	8.33432	0.0951448	0.17500014	3.1655107	20	3 29.7	21.3
504433 2008 AV ₉₃	18.0	X	211.98016	18.27885	95.25263	6.62989	0.0646973	0.28416969	2.2913119	20	9 12.6	20.9
504434 2008 AQ ₉₇	17.8	X	81.77621	190.65395	24.47978	2.94243	0.1109909	0.27449851	2.3448193	20	8 26.7	20.8
504435 2008 AM ₁₁₆	16.4	X	134.95588	309.39570	104.38969	11.06548	0.0979887	0.17538137	3.1609218	20	3 31.9	21.3
504436 2008 AN ₁₁₇	16.6	X	22.14627	34.08139	140.99971	11.21033	0.1623076	0.17135489	3.2102465	20	4 5.5	20.4
504437 2008 AB ₁₂₈	17.5	X	71.74062	285.94126	280.27258	4.28944	0.1986873	0.26786378	2.3833806	20	8 9.6	20.5
504438 2008 BD ₁₇	16.6	X	135.90942	305.58195	122.03150	9.91896	0.1947876	0.18148778	3.0896157	20	4 25.4	21.7
504439 2008 BR ₄₂	18.4	X	222.19551	197.87524	319.74936	19.44118	0.0561893	0.37259790	1.9126806	20	12 25.4	20.5
504440 2008 BA ₄₃	16.4	X	184.61845	272.11190	302.41864	23.85097	0.1358736	0.21731294	2.7399691	20	11 30.9	21.1
504441 2008 BU ₄₆	17.5	X	100.12027	237.80450	327.62153	6.47835	0.0709572	0.27314783	2.3525429	20	8 29.3	20.4
504442 2008 BF ₅₂	16.5	X	83.81661	159.68612	357.54043	6.92247	0.1367143	0.18199907	3.0838265	20	6 8.0	21.0
504443 2008 CU	16.4	X	103.38064	105.61843	40.32559	18.87231	0.3187415	0.18271008	3.0758209	20	7 7.9	21.8
504444 2008 CK ₉	16.5	X	82.56845	0.64303	139.93069	11.94810	0.0636513	0.17804141	3.1293589	20	5 10.5	21.1
504445 2008 CR ₅₇	16.5	X	10.57100	326.01290	259.26287	3.77067	0.0866713	0.18005246	3.1060136	20	5 14.7	20.3
504446 2008 CC ₇₅	17.3	X	130.02972	41.63987	46.79775	7.84042	0.2473140	0.18236673	3.0796803	20	5 14.5	22.4
504447 2008 CF ₇₇	16.2	X	58.09048	39.07845	121.64771	11.28509	0.1612624	0.17552444	3.1592039	20	5 16.9	20.4
504448 2008 CR ₉₁	18.1	X	82.69164	52.36495	151.36949	5.86212	0.1154482	0.26828305	2.3808967	20	8 10.1	21.0
504449 2008 CK ₁₁₀	18.0	X	162.16499	277.01753	210.82972	0.30409	0.1741581	0.27436299	2.345914	20	7 29.7	21.8
504450 2008 CO ₁₁₈	18.2	X	199.38505	239.49328	305.63222	21.90308	0.0387642	0.37665711	1.8989139	20	—	—
504451 2008 CV ₁₂₄	18.6	X	206.85720	183.45030	326.68579	1.69041	0.1905011	0.27681166	2.3317382	20	7 24.2	22.1
504452 2008 CJ ₁₂₇	16.2	X	138.25729	90.08704	265.15891	7.98654	0.1527190	0.17399763	3.1776581	20	4 2.2	21.2
504453 2008 CH ₁₂₉	17.6	X	133.66461	240.99319	220.26224	1.47161	0.3040963	0.18401571	3.0612546	20	6 5.7	23.0
504454 2008 CK ₁₄₂	18.1	X	233.61637	105.79510	332.88836	5.22515	0.1937757	0.27893879	3.1986889	20	8 4.0	21.3
504455 2008 CS ₁₆₂	16.6	X	154.70281	81.28956	323.61415	10.28761	0.1665217	0.17621643	3.1509278	20	4 4.6	21.8
504456 2008 CC ₁₆₃	16.5	X	96.74723	329.69581	147.07941	15.64699	0.2295945	0.17743426	3.1364936	20	5 20.8	21.5
504457 2008 CY ₁₈₅	18.2	X	227.15832	210.12655	296.80874	19.99534	0.0460240	0.37314395	1.9108141	20	12 17.2	20.1
504458 2008 CZ ₁₈₉	16.6	X	144.81973	231.49814	298.31903	23.19560	0.1924700	0.27565824	2.3382381	20	8 26.5	20.8
504459 2008 CF ₂₀₉	17.5	X	188.46363	284.10491	194.86917	3.50107	0.0849185	0.27914138	2.3187463	20	8 16.4	20.8
504460 2008 CX ₂₀₉	16.2	X	86.51862	349.25259	153.30465	17.79358	0.1362560	0.17803985	3.1293771	20	5 28.5	21.0
504461 2008 CQ ₂₁₀	18.0	X	110.96015	160.15756	14.96134	2.50523	0.1457301	0.26645011	2.3918032	20	8 9.4	21.4
504462 2008 CF ₂₁₁	17.7	X	47.37964	235.92785	348.83291	7.45079	0.1298183	0.26443611	2.4039322	20	7 25.0	20.4
504463 2008 DU ₉	16.3	X	81.56038	4.74844	135.00500	16.12658	0.0530876	0.17892721	3.1190221	20	5 8.5	20.9
504464 2008 DS ₂₀	16.3	X	103.84961	310.28155	191.74788	14.51873	0.1978570	0.18248050	3.0784002	20	6 20.1	21.3
504465 2008 DN ₂₉	16.6	X	137.97097	312.19899	131.56199	10.21507	0.0825367	0.17993369	3.1073802	20	5 7.3	21.4
504466 2008 DQ ₄₅	16.3	X	87.82687	130.65612	6.83370	10.32204	0.1750521	0.17713993	3.1399669	20	5 22.4	20.9
504467 2008 DR ₅₀	16.0	X	57.66087	77.30094	94.62856	17.50442	0.1838252	0.17551023	3.1593744	20	6 2.3	20.1
504468 2008 DT ₅₅	18.6	X	171.54733	217.06162	351.41870	19.43681	0.0432229	0.36898576	1.9251429	20	12 25.1	21.2
504469 2008 DA ₆₂	16.9	X	136.13782	86.98235	347.12577	25.54684	0.2413549	0.17718862	3.1393916	20	4 19.8	22.6
504470 2008 DZ ₆₇	18.1	X	69.14250	258.62673	350.33967	17.38910	0.0868823	0.35052638	1.9921509	20	9 29.2	20.3
504471 2008 DW ₈₃	18.0	X	102.00257	162.13541	23.89464	1.83107	0.1240071	0.26630610	2.3926654	20	8 11.6	21.2
504472 2008 DA ₈₆	16.5	X	66.67948	168.97989	323.37234	2.79400	0.1034097	0.17019272	3.2248442	20	4 9.7	20.9
504473 2008 ER ₂₃	18.6	X	270.41923	127.33287	2.26392	19.08636	0.095					

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>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
504481 2008 FA ₂₇	16.6 ^m	X	69.69429	130.27072	32.17754	17.95569	0.1645693	0.16994245	3.2280094	20	5 28.2	21.2
504482 2008 FP ₃₁	16.7	X	79.74508	296.65822	181.98031	5.47735	0.1201065	0.17056552	3.2201434	20	4 14.5	21.0
504483 2008 FE ₇₂	18.1	X	195.54255	23.27717	86.68305	2.83046	0.1274063	0.27440349	2.3453606	20	8 10.9	21.4
504484 2008 FL ₁₀₃	17.4	X	287.13872	91.69624	189.28132	14.64038	0.2640378	0.23650512	2.5896577	20	2 24.5	21.4
504485 2008 FV ₁₁₉	16.2	X	103.90333	316.60723	170.86412	12.66961	0.2119709	0.17519153	3.1632048	20	6 5.6	21.3
504486 2008 FO ₁₂₀	17.9	X	129.65580	34.25902	125.77993	5.21897	0.0523144	0.26537587	2.3982535	20	8 1.6	20.9
504487 2008 FN ₁₂₄	18.6	X	276.28126	283.73843	202.01641	21.58420	0.0674725	0.37078484	1.9189106	20	—	—
504488 2008 FK ₁₂₆	17.6	X	52.99452	148.39733	70.42459	5.87265	0.0613770	0.25768444	2.4457417	20	7 11.6	20.5
504489 2008 GE ₁₆	16.3	X	339.89606	296.38752	25.28932	7.10160	0.0961568	0.18317148	3.0706536	20	8 6.8	20.2
504490 2008 GD ₂₇	16.5	X	99.63376	307.24644	182.15782	27.52348	0.2124923	0.17735999	3.1373691	20	6 3.5	21.8
504491 2008 GD ₁₀₁	18.1	X	109.91868	116.22629	60.61613	2.29817	0.1149117	0.26154375	2.4216227	20	8 7.1	21.5
504492 2008 GK ₁₁₂	17.0	X	151.98672	110.02874	72.66193	22.69634	0.2764018	0.27560317	2.3385495	20	10 11.7	21.6
504493 2008 GD ₁₁₄	18.0	X	76.26393	331.39479	252.44005	1.64040	0.0720925	0.26514074	2.3996712	20	8 22.6	21.0
504494 2008 HN ₅	17.9	X	156.87598	149.82693	355.05715	1.11430	0.1159662	0.26846041	2.3798480	20	8 15.8	21.4
504495 2008 HT ₄₇	18.0	X	167.91428	309.34091	210.63285	20.70725	0.0571665	0.35010514	1.9937486	20	9 27.3	20.6
504496 2008 JZ ₃	18.5	X	131.41322	38.00517	202.24681	22.10224	0.0440302	0.35884362	1.9612482	20	12 10.9	21.2
504497 2008 JK ₁₉	16.2	X	266.14027	67.66552	237.54259	29.11601	0.3196663	0.23205121	2.6226892	20	2 21.1	21.3
504498 2008 JH ₂₇	17.9	X	340.03421	343.92112	59.26277	23.75244	0.0895167	0.36196153	1.9499693	20	—	—
504499 2008 KQ ₁₂	17.6	X	283.19404	235.30783	61.90624	13.19949	0.2964304	0.23668189	2.5883681	20	3 17.9	21.8
504500 2008 KF ₃₀	17.4	X	306.55123	129.05962	172.99683	13.14462	0.1864434	0.24354060	2.5395404	20	5 4.2	20.5
504501 2008 LD ₂	17.9	X	241.46207	244.99170	228.40318	19.77484	0.0930322	0.35282689	1.9834820	20	10 31.8	19.6
504502 2008 LX ₄	17.3	X	335.50164	25.91347	265.06803	5.21854	0.2014006	0.24270634	2.5453566	20	6 7.3	19.5
504503 2008 LM ₁₀	17.9	X	259.46045	75.26295	71.56458	25.03356	0.1426164	0.369321127	1.9239768	20	—	—
504504 2008 MS	17.2	X	297.27637	194.26592	107.43342	17.05281	0.3112520	0.23583197	2.5945832	20	4 7.1	21.2
504505 2008 MH ₁	18.3	X	228.88691	15.54738	303.80503	7.73486	0.05760472	0.22104598	2.7090330	20	2 15.6	24.2
504506 2008 MX ₁	17.4	X	296.31651	6.14089	271.92116	11.49178	0.1045675	0.23144885	2.6272377	20	3 21.6	21.3
504507 2008 NB ₂	16.1	X	336.86896	300.29360	302.22043	30.25602	0.2190497	0.23416620	2.6068733	20	3 2.9	19.6
504508 2008 OS ₂₂	17.6	X	225.66434	205.25725	166.60298	5.89602	0.1462552	0.22624815	2.6673460	20	5 3.7	21.7
504509 2008 PS ₁₀	16.8	X	249.99465	8.63588	322.66193	13.41959	0.2579061	0.22657351	2.6647918	20	3 21.2	21.5
504510 2008 PO ₁₉	17.1	X	153.82482	105.54306	336.26896	21.50165	0.0572969	0.22577064	2.6711057	20	5 6.0	21.5
504511 2008 QT ₁₃	17.8	X	203.88059	131.38889	249.78861	8.03630	0.2945052	0.22063366	2.7124071	20	4 17.5	22.9
504512 2008 QO ₂₁	17.1	X	270.59642	28.21369	301.48290	8.92701	0.1999087	0.22924245	2.6440685	20	4 14.8	21.2
504513 2008 QK ₂₇	16.5	X	309.03143	129.30294	153.78879	31.36960	0.3015630	0.23241676	2.6199385	20	3 24.7	20.1
504514 2008 QC ₃₂	16.6	X	217.64484	130.98649	238.98207	7.67544	0.2136081	0.22148237	2.7054735	20	4 17.3	21.3
504515 2008 QT ₄₆	16.5	X	281.16101	335.57681	328.8527	16.60710	0.2222676	0.22717459	2.6600893	20	3 19.7	20.7
504516 2008 RL ₅	17.3	X	206.96695	241.58054	160.65437	5.91623	0.0670809	0.22485815	2.6783272	20	5 27.4	21.3
504517 2008 RA ₆	16.5	X	336.28960	306.49968	334.41961	14.33553	0.0992453	0.23332083	2.6131662	20	5 31.7	19.8
504518 2008 RP ₁₅	17.2	X	219.06284	148.27356	249.86282	3.30215	0.2347818	0.22537003	2.6742701	20	5 23.2	21.6
504519 2008 RH ₃₇	17.7	X	202.82772	71.68270	340.78036	1.98738	0.1744156	0.22502004	2.6770424	20	5 29.5	22.1
504520 2008 RA ₅₁	17.1	X	166.22303	80.56943	285.31170	5.41366	0.0562922	0.21138384	2.7909680	20	2 22.5	21.1
504521 2008 RC ₅₂	17.3	X	221.08102	181.13974	202.07508	5.92480	0.3034001	0.22501044	2.6771186	20	5 4.0	22.0
504522 2008 RE ₆₈	17.3	X	231.21006	310.54207	53.92676	3.55682	0.1679026	0.22273613	2.6953113	20	4 27.2	21.6
504523 2008 RX ₆₈	16.8	X	197.62121	83.42681	351.05421	14.14786	0.1404839	0.22672712	2.6635881	20	6 24.1	21.3
504524 2008 RO ₇₂	17.1	X	253.63155	185.38417	168.55406	2.00933	0.2252000	0.22936221	2.6431480	20	4 30.4	21.3
504525 2008 RD ₈₆	17.0	X	172.94453	124.17030	329.72159	11.92136	0.1815629	0.22412593	2.6841574	20	6 25.1	21.6
504526 2008 RK ₈₉	17.4	X	234.25936	28.34446	339.60609	9.01880	0.1283593	0.22339720	2.6899915	20	5 3.6	21.6
504527 2008 RY ₁₀₃	16.8	X	115.65863	140.84837	346.86433	12.30596	0.1260826	0.22047479	2.7137100	20	6 5.7	21.0
504528 2008 RZ ₁₀₃	17.3	X	221.01432	143.37129	235.55895	5.23986	0.0950180	0.22274576	2.6952337	20	5 9.7	21.4
504529 2008 RQ ₁₂₁	17.7	X	236.35335	62.33278	319.97923	1.09929	0.0901331	0.22828906	2.6514248	20	5 31.9	21.3
504530 2008 RD ₁₃₅	17.1	X	230.40571	25.52009	1.19818	8.84600	0.0834827	0.22736348	2.6586157	20	5 29.6	21.1
504531 2008 RR ₁₄₄	17.1	X	238.69429	71.75205	227.02755	5.91789	0.1927744	0.21524619	2.7574802	20	2 10.9	21.9
504532 2008 SH ₂	17.1	X	234.90818	184.63192	194.73538	7.79020	0.2239890	0.22638500	2.6662709	20	5 15.6	21.5
504533 2008 SS ₁₅	17.6	X	215.46752	23.93946	308.14907	1.62816	0.1669839	0.21780936	2.7358043	20	3 3.9	22.0
504534 2008 SH ₂₀	17.2	X	267.34278	38.02789	303.76994	2.85687	0.1735198	0.23074942	2.6325440	20	5 3.5	20.9
504535 2008 SX ₄₆	17.9	X	224.58655	180.90031	190.69149	9.00712	0.1832135	0.22041242	2.7142219	20	4 29.8	22.4
504536 2008 SF ₄₈	17.0	X	243.49222	356.81067	354.91181	10.09599	0.1943374	0.22438780	2.6820687	20	4 17.1	21.4
504537 2008 SG ₅₅	17.0	X	142.67830	296.98329	194.71440	17.64203	0.1443127	0.22567927	2.6718266	20	7 10.1	21.6
504538 2008 SR ₆₁	17.7	X	237.38016	147.85556	198.98597	2.20283	0.2012486	0.22517382	2.6758235	20	4 8.1	22.1
504539 2008 ST ₉₀	17.3	X	234.29156	158.73824	210.40800	4.22989	0.1795928	0.22311331	2.6922728	20	5 4.9	21.5
504540 2008 SZ ₉₄	17.4	X	230.73046	131.07580	236.06639	4.25023	0.1329262	0.22090625	2.7101753	20	5 1.9	21.4
504541 2008 SP ₉₅	17.1	X	208.19835	67.28163	130.18052	2.33742	0.0720359	0.21702677	2.7423771	20	4 24.2	21.1
504542 2008 SQ ₁₁₇	16.7	X	234.07032	318.46720	31.86144	10.55261	0.1761000	0.21595359	2.7514551	20	3 22.3	21.0
504543 2008 SJ ₁₂₅	17.5	X	222.49538	160.91769	214.59486	4.92442	0.1085217	0.21955677	2.7212692	20	5 6.5	21.6
504544 2008 SQ ₁₂₅	17.1	X	236.06841	334.34541	8.88010	4.98468	0.1708899	0.21766780	2.7369903	20	4 4.7	21.4
504545 2008 SY ₁₃₁	17.2	X	249.05431	318.76939	16.09840	5.46388	0.0722985	0.21641910	2.7475082	20	4 16.9	21.1
504546 2008 SX ₁₃₉	17.5	X	230.19864	27.80420	335.59078	4.41646	0.2429377	0.22272545	2.6953975	20	4 17.8	22.2
504547 2008 SX ₁₄₀	16.8	X	282.17993	16.93707	260.43963	9.48274	0.1444162	0.21774840	2.7363148	20	2 29.2	21.0
504548 2008 SC ₁₄₇	17.0	X	217.29610	125.65684	196.91927	27.16364	0.2675772	0.21408521	2.7674404	20	2 17.3	22.4
504549 2008 SJ ₁₉₄	17.5	X	210.65785	255.73850	118.72803	4.33015	0.2068356	0.21735337	2.7396293	20	4 20.8	22.2
504550 2008 SZ ₂₁₀	17.2	X	233.35424	52.72047	330.44047	10.34581	0.1298622	0.22611847	2.6683658	20	5 23.1	21.4
504551 2008 SW ₂₂₉	17.3	X	165.36950	146.95586	333.12128	7.02629	0.2037735	0.22826625	2.6516015	20	7 21.9	21.7
504552 2008 SK ₂₆₀	17.6	X	235.82987	114.15393	253.36767	4.99732	0.0552285	0.22101871	2.7092559	20	5 15.4	21.4
504553 2008 SQ ₂₆₀	17.4	X	229.61961	94.76819	248.69780	2.47389	0.10520					

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>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
504561 2008 SG ₂₉₈	17.9	X	184.70987	241.35799	196.82642	8.13209	0.2973674	0.22167608	2.7038971	20	6 13.6	22.9
504562 2008 SO ₃₀₄	17.3	X	245.99252	156.27827	193.81465	5.88513	0.0827838	0.22023187	2.7157051	20	5 3.2	21.1
504563 2008 SF ₃₀₅	17.5	X	165.62073	142.24011	285.03180	3.26569	0.0405769	0.21636439	2.7479713	20	5 9.4	21.5
504564 2008 TB ₁₀	16.8	X	236.13034	265.93227	101.19975	8.67273	0.1093270	0.22383449	2.6864868	20	5 12.8	20.8
504565 2008 TS ₁₆	17.5	X	198.33531	158.86738	235.00328	1.34657	0.1267502	0.22034126	2.7148062	20	5 3.7	21.6
504566 2008 TQ ₁₇	16.7	X	206.69711	28.72343	30.04235	13.86322	0.0936262	0.22213735	2.7001527	20	6 12.9	20.9
504567 2008 TN ₂₁	17.4	X	191.59976	30.60125	32.52115	5.42002	0.1179609	0.21945646	2.7220983	20	6 2.6	21.6
504568 2008 TO ₂₆	19.9	X	168.02665	330.14349	37.97800	19.84508	0.0850262	0.254543752	1.4835632	20	1 13.4	21.1
504569 2008 TL ₃₄	17.3	X	210.79005	223.51837	139.96781	2.80410	0.1629573	0.21528522	2.7571469	20	4 8.3	21.8
504570 2008 TC ₃₆	17.2	X	268.15862	346.13809	358.05051	8.27780	0.0760689	0.22688559	2.6623477	20	5 20.3	21.0
504571 2008 TV ₃₈	17.1	X	276.53172	320.58901	353.01245	3.45481	0.0843546	0.21854802	2.7296364	20	4 20.8	21.0
504572 2008 TF ₅₀	17.3	X	224.62694	355.90991	21.42609	5.43543	0.0460964	0.22204393	2.7009100	20	5 14.8	21.1
504573 2008 TM ₅₀	17.6	X	310.64235	121.41174	184.88798	2.00796	0.2029831	0.230522294	2.6342679	20	5 11.9	20.4
504574 2008 TE ₅₉	16.6	X	184.73508	17.94128	35.48458	5.79297	0.0528973	0.21918429	2.7234512	20	5 14.5	20.5
504575 2008 TY ₆₇	16.8	X	120.94801	63.83034	42.73222	12.36954	0.0618196	0.21385007	2.7694686	20	5 8.8	20.7
504576 2008 TK ₇₀	17.6	X	200.39119	258.00574	160.30267	4.74104	0.0884450	0.22192833	2.7018478	20	6 8.1	21.7
504577 2008 TJ ₉₅	17.2	X	272.31983	336.69083	344.98552	11.07684	0.0875309	0.22261706	2.6962723	20	4 21.7	21.1
504578 2008 TC ₁₀₇	17.6	X	182.09709	309.79483	139.54364	4.00184	0.1542841	0.22526680	2.6750871	20	6 26.8	21.9
504579 2008 TV ₁₀₇	15.8	X	121.84203	44.17100	44.25037	11.08623	0.2149003	0.12487325	3.9642081	20	5 6.2	22.0
504580 2008 TJ ₁₀₉	17.5	X	236.23601	19.14415	37.46976	13.30919	0.2783700	0.22936012	2.6431640	20	6 26.4	22.1
504581 2008 TB ₁₃₂	16.8	X	199.84670	89.78389	295.16815	3.59327	0.1397714	0.21632586	2.7482976	20	4 22.4	21.2
504582 2008 TT ₁₃₈	17.7	X	166.21624	200.18315	224.38486	8.62475	0.1570453	0.21493808	2.7601148	20	5 12.1	22.0
504583 2008 TX ₁₅₂	18.0	X	179.88912	40.67516	48.77029	3.26427	0.1649914	0.22414658	2.6839926	20	6 24.8	22.3
504584 2008 TB ₁₈₄	16.9	X	253.58878	54.15913	335.84260	12.86181	0.2314773	0.22958291	2.6414537	20	6 13.9	21.2
504585 2008 TN ₁₈₈	17.5	X	197.65906	9.62959	11.03629	8.20186	0.2354148	0.21420719	2.7663897	20	4 14.4	22.3
504586 2008 UY ₇	17.3	X	210.49553	151.19432	222.82910	4.14360	0.1151540	0.21980018	2.7192597	20	4 21.1	21.3
504587 2008 UK ₁₀	17.5	X	193.78731	64.45840	337.68260	3.68676	0.1362316	0.22001416	2.7174963	20	5 8.2	21.9
504588 2008 UY ₁₈	17.4	X	181.66328	213.39154	218.35489	1.56108	0.0544608	0.22177993	2.7030530	20	6 4.7	21.2
504589 2008 UY ₂₈	17.3	X	246.29997	160.01943	207.17464	5.77668	0.0512029	0.22039627	2.7143544	20	5 29.6	21.1
504590 2008 UY ₅₀	17.2	X	238.54505	311.43011	33.13209	6.81494	0.0624800	0.21621485	2.7492382	20	4 18.9	21.2
504591 2008 UM ₅₅	17.5	X	213.76392	217.08498	201.54672	4.35121	0.1379250	0.22710042	2.6606685	20	6 19.3	21.7
504592 2008 UB ₆₂	16.8	X	262.39862	92.15942	230.43772	13.45828	0.1451269	0.21678803	2.7443901	20	4 5.8	21.0
504593 2008 UB ₆₅	17.5	X	195.90813	152.59985	258.11020	7.39124	0.1873927	0.21690725	2.7433844	20	5 20.8	22.2
504594 2008 UE ₇₄	16.3	X	84.41805	259.52098	264.56602	8.63753	0.0996810	0.21285967	2.7780525	20	6 13.7	20.0
504595 2008 UR ₇₉	16.7	X	210.47518	175.72070	231.13696	9.92720	0.2228453	0.22166247	2.7040078	20	5 27.8	21.3
504596 2008 UP ₁₀₆	17.1	X	289.98920	267.83799	21.20908	12.65053	0.2677573	0.22451768	2.6810342	20	3 15.8	21.0
504597 2008 UH ₁₁₃	17.2	X	238.63506	26.88927	347.62228	4.23397	0.0515566	0.22086662	2.7104995	20	5 28.1	21.1
504598 2008 UH ₁₁₃	17.6	X	167.47698	162.74464	284.98341	2.40101	0.1665239	0.21745201	2.7388007	20	6 11.1	21.9
504599 2008 UP ₁₁₆	17.2	X	245.26333	81.72484	279.76950	4.86787	0.0353802	0.21895101	2.7262860	20	5 21.5	20.9
504600 2008 UR ₁₂₁	17.1	X	143.69945	205.60829	278.02555	7.77282	0.1502215	0.21712595	2.7415420	20	7 3.4	21.4
504601 2008 UD ₁₂₆	17.3	X	221.18261	12.21344	356.27583	3.83079	0.1177715	0.21328110	2.7743918	20	4 24.3	21.5
504602 2008 UH ₁₃₄	17.4	X	229.68621	346.56642	35.07894	5.72800	0.0893816	0.22056722	2.7129518	20	5 22.7	21.3
504603 2008 UT ₁₃₉	17.3	X	252.09885	303.65634	51.06012	3.16579	0.1164862	0.21998271	2.7177553	20	5 11.4	21.0
504604 2008 UT ₁₄₃	17.9	X	232.63462	140.23496	218.65396	7.01955	0.2420620	0.21861741	2.7290588	20	4 15.7	22.5
504605 2008 UT ₁₄₇	17.4	X	183.15723	65.45265	340.97682	0.77264	0.0907191	0.21238396	2.7821993	20	5 4.4	21.5
504606 2008 UM ₁₅₃	17.4	X	214.58738	218.76595	169.23128	1.81166	0.0997739	0.21973619	2.7197876	20	5 14.7	21.4
504607 2008 UC ₁₅₉	17.1	X	156.53112	203.35039	259.81159	11.38605	0.3040584	0.21256054	2.7806583	20	6 23.8	22.1
504608 2008 UL ₁₆₀	16.9	X	198.01781	49.74692	52.32143	13.64274	0.1644677	0.22389988	2.6859637	20	7 31.6	21.4
504609 2008 UO ₁₇₁	17.4	X	179.67186	42.26688	300.05226	6.77962	0.0739982	0.21724376	2.7405507	20	6 1.9	21.5
504610 2008 UT ₁₈₈	17.2	X	172.37426	43.30716	47.72828	1.63703	0.0875576	0.22185360	2.7024545	20	6 19.3	21.3
504611 2008 UO ₁₉₄	17.6	X	206.78112	235.13218	164.02564	4.39062	0.1846911	0.21826696	2.7319792	20	5 17.7	22.1
504612 2008 UO ₂₃₃	17.2	X	264.58805	349.82675	359.16139	6.99504	0.0916443	0.22155563	2.7048770	20	5 20.3	21.1
504613 2008 UY ₂₅₉	17.8	X	191.62190	327.54661	59.70383	5.25780	0.2139631	0.21184955	2.7868763	20	4 20.2	22.6
504614 2008 UG ₂₆₄	17.1	X	276.95052	57.09621	279.21700	5.04604	0.0449021	0.22170675	2.7036477	20	5 28.3	20.8
504615 2008 UN ₂₆₈	17.2	X	157.96793	7.32493	60.62075	5.05112	0.0900089	0.21244255	2.7816878	20	5 5.6	21.3
504616 2008 UB ₂₇₇	17.5	X	187.44395	211.02389	215.81515	2.55490	0.0853577	0.22000557	2.7175670	20	6 4.6	21.5
504617 2008 UA ₃₁₃	17.3	X	134.80738	289.39762	164.04451	4.56622	0.0315803	0.21434441	2.7652088	20	5 7.4	21.2
504618 2008 UF ₃₁₄	16.9	X	212.50510	103.46824	245.46565	8.47877	0.2910131	0.21467810	2.7623427	20	3 15.4	22.1
504619 2008 UG ₃₁₄	16.3	X	259.44573	43.76429	300.28802	4.67155	0.0903019	0.22113742	2.7082862	20	5 7.9	20.2
504620 2008 UK ₃₁₇	16.7	X	231.32400	97.00118	258.23695	16.70066	0.1735382	0.22051167	2.7134073	20	4 9.6	21.4
504621 2008 UQ ₃₂₃	17.1	X	181.72535	201.10548	252.50291	9.88807	0.2668764	0.21923345	2.7239439	20	6 29.5	22.1
504622 2008 UK ₃₄₂	17.0	X	2.39033	206.38906	49.49684	11.68868	0.0365113	0.22232413	2.6986402	20	6 10.8	20.4
504623 2008 UN ₃₄₇	17.3	X	218.84969	145.92230	239.34646	10.45510	0.0874515	0.21896424	2.7261762	20	5 16.1	21.3
504624 2008 UL ₃₅₀	17.2	X	124.95716	191.01105	271.60273	3.67009	0.1194384	0.20932978	2.8091960	20	5 15.1	21.4
504625 2008 UO ₃₅₇	17.2	X	216.66133	228.79546	176.95405	11.96283	0.2266166	0.22163580	2.7042247	20	6 1.7	21.9
504626 2008 UN ₃₅₈	16.7	X	160.41292	338.32684	90.93062	10.13322	0.1316071	0.21028714	2.8006633	20	5 13.9	21.2
504627 2008 UL ₃₆₀	17.4	X	184.94809	102.42149	301.25219	2.50856	0.0965867	0.21162817	2.7888194	20	5 2.2	21.6
504628 2008 VY ₁₃	16.4	X	219.41594	179.74045	216.47398	14.76307	0.2137919	0.21964537	2.7205373	20	5 23.1	21.0
504629 2008 VG ₁₅	17.2	X	173.92613	1.13842	42.96246	4.96541	0.0688109	0.21231341	2.7828156	20	4 21.9	21.1
504630 2008 VB ₄₉	17.5	X	183.88744	208.25608	230.52658	7.10122	0.1431593	0.21664928	2.7455617	20	6 15.1	21.9
504631 2008 VF ₆₉	16.9	X	320.01563	192.21351	66.93447	4.77727	0.0464207	0.20993754	2.8037717	20	4 16.9	20.5
504632 2008 WO ₄	17.2	X	279.83294	79.93655	230.36433	7.28847	0.0785176	0.21705843	2.7421104	20	4 21.9	20.8
504633 2008 WR ₃₂	16.9	X	258.49960	317.54								

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>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
504641 2008 WY ₁₂₇	17.3	X	181.60368	349.96700	57.04444	1.15388	0.0738827	0.20995835	2.8035864	20	5 3.8	21.4
504642 2008 WD ₁₂₈	17.2	X	236.95262	265.19066	75.94821	5.41305	0.0730151	0.20959165	2.8068556	20	4 14.1	21.3
504643 2008 WE ₁₃₄	17.9	X	181.90286	319.54599	107.69651	2.77055	0.2395301	0.21542449	2.7559585	20	5 29.8	22.8
504644 2008 XL ₄	16.3	X	204.07022	352.11891	62.43921	15.85027	0.1759827	0.21661279	2.7458701	20	6 1.7	20.7
504645 2008 XF ₃₃	17.5	X	218.17914	1.25939	30.30258	3.88901	0.2023682	0.21738639	2.7393518	20	5 15.7	22.0
504646 2008 XD ₃₄	17.2	X	222.28421	325.68307	34.95724	5.60651	0.0706273	0.20938457	2.8087059	20	4 20.3	21.4
504647 2008 XW ₃₈	17.0	X	242.49489	65.84438	274.93980	4.30732	0.0502066	0.20832799	2.8181945	20	4 18.4	21.1
504648 2008 YP ₁	17.2	X	280.26478	95.56425	226.41526	14.82435	0.1712235	0.22415300	2.6839413	20	4 23.8	20.9
504649 2008 YQ ₃₉	16.3	X	204.46681	256.02049	93.21986	9.68631	0.0349087	0.19219151	2.9738102	20	3 24.6	20.8
504650 2008 YM ₁₀₂	18.9	X	258.93870	257.43595	159.02906	1.33099	0.1147318	0.31040237	2.1603264	20	8 20.3	20.9
504651 2008 YS ₁₂₂	16.5	X	114.23313	184.92319	271.56000	6.55661	0.0486380	0.19740612	2.9212068	20	4 14.4	20.7
504652 2008 YY ₁₅₀	16.9	X	93.52846	22.07569	117.45064	11.45763	0.0933760	0.20116661	2.8846875	20	5 25.9	21.1
504653 2008 YQ ₁₅₂	17.1	X	108.26167	203.88976	267.65226	4.68829	0.0457695	0.19856018	2.9098769	20	4 27.1	21.2
504654 2008 YQ ₁₅₄	15.9	X	253.08049	332.19990	294.25760	22.23785	0.1518113	0.18167447	3.0874986	20	1 23.7	20.7
504655 2008 YT ₁₅₆	17.2	X	145.84353	38.37186	34.03643	2.22806	0.0809354	0.19620272	2.9331394	20	4 27.3	21.6
504656 2008 YJ ₁₆₀	16.3	X	261.76828	327.78625	319.24741	11.60990	0.0490840	0.18544008	3.0455587	20	3 5.3	20.7
504657 2008 AD ₁₈	16.3	X	79.10899	163.11707	289.15641	11.41813	0.1299437	0.18923990	3.0046524	20	3 4.7	20.5
504658 2009 AH ₂₅	16.8	X	196.78675	290.37098	114.84116	11.17592	0.0853641	0.20581374	2.8410997	20	5 21.1	21.2
504659 2009 AK ₂₉	16.2	X	252.53944	16.41887	295.98721	10.88582	0.0265435	0.19770713	2.9182410	20	3 24.7	20.5
504660 2009 AT ₃₂	17.7	X	58.89024	332.84165	121.54670	3.94341	0.1219327	0.26793693	2.3829467	20	1 27.8	20.0
504661 2009 AS ₃₅	16.9	X	172.20949	99.81298	307.10406	5.46457	0.0804578	0.19903147	2.9052814	20	4 21.4	21.3
504662 2009 AC ₄₀	17.4	X	185.11105	231.39825	200.71799	1.60518	0.0579969	0.20718074	2.8285887	20	6 9.1	21.6
504663 2009 AW ₄₅	16.6	X	149.04957	339.36877	119.16178	16.32560	0.1033304	0.20563854	2.8427132	20	6 7.2	21.2
504664 2009 BR ₈₅	17.1	X	84.62124	197.66983	298.02509	6.27724	0.1347484	0.19498085	2.9453805	20	5 10.9	21.3
504665 2009 BW ₁₀₆	17.8	X	203.01966	180.11337	294.43622	5.10469	0.0863112	0.30578309	2.1820284	20	8 29.9	20.5
504666 2009 BX ₁₃₅	17.8	X	345.42765	24.38746	302.50450	5.82089	0.0213097	0.30477617	2.1868318	20	9 2.3	20.2
504667 2009 BA ₁₅₄	17.0	X	219.25737	325.62064	61.56606	3.00258	0.1032554	0.20430644	2.8550564	20	5 18.3	21.4
504668 2009 BU ₁₇₈	17.7	X	98.97649	242.58716	336.46441	7.54180	0.1217591	0.29582946	2.2307031	20	9 22.4	20.8
504669 2009 BN ₁₈₄	15.9	X	313.00267	245.68860	331.21469	15.33764	0.1799400	0.17685057	3.1433910	20	1 31.2	20.3
504670 2009 BB ₁₉₀	16.7	X	55.75979	38.87080	147.64449	6.73937	0.0224459	0.19620668	2.9330999	20	5 25.7	20.8
504671 2009 CC ₁₂	16.6	X	249.69961	339.69499	310.02940	8.97557	0.0778714	0.18036780	3.1023923	20	2 22.8	21.2
504672 2009 CE ₁₈	16.4	X	132.42611	84.00718	292.20478	8.93410	0.1591896	0.17977711	3.1091842	20	2 12.1	21.2
504673 2009 CE ₅₁	16.4	X	100.68528	28.00670	139.72541	17.35719	0.1648797	0.20274294	2.8697158	20	7 16.2	20.9
504674 2009 CP ₅₂	16.9	X	121.09528	141.12477	326.90410	13.15408	0.1359109	0.19740578	2.9212102	20	5 16.3	21.6
504675 2009 DN ₃	17.7	X	320.36566	84.69638	171.52479	5.00824	0.1640167	0.26900766	2.7366193	20	3 20.3	20.3
504676 2009 DU ₁₆	17.9	X	125.47505	67.50428	128.98564	6.06924	0.1680727	0.30111547	2.2045198	20	9 28.1	21.2
504677 2009 DJ ₃₇	18.1	X	162.70128	188.53376	328.97519	5.69408	0.0732757	0.30336992	2.1935845	20	9 11.3	20.9
504678 2009 DK ₆₉	15.9	X	225.79232	330.90659	337.73421	13.49637	0.0470307	0.17790909	3.1309102	20	2 24.6	20.4
504679 2009 DV ₁₀₄	16.4	X	55.02114	0.58231	172.41008	9.57426	0.1748239	0.18738961	3.0243987	20	5 28.4	20.3
504680 2009 EO ₂	19.8	X	18.88297	220.43531	264.73745	11.49252	0.4811713	0.44013664	1.7116345	20	—	—
504681 2009 FA ₂	16.7	X	28.26114	141.87696	16.91578	8.00248	0.1104123	0.17855844	3.1233150	20	3 19.7	20.5
504682 2009 FQ ₆	16.0	X	340.66904	229.44007	347.69941	11.28542	0.0449962	0.18336125	3.0685345	20	3 20.8	20.2
504683 2009 FG ₂₆	18.6	X	108.64309	51.90273	154.22423	4.96847	0.0972784	0.29616500	2.2290179	20	9 16.7	21.6
504684 2009 FT ₃₅	16.4	X	98.99346	111.30455	22.41472	10.07911	0.0517444	0.19012416	2.9953288	20	5 14.2	20.6
504685 2009 FL ₄₀	15.9	X	213.16745	63.59415	13.67829	15.07954	0.1296040	0.20582079	2.8410348	20	7 16.3	20.6
504686 2009 FH ₅₇	16.5	X	97.23746	274.86545	186.63851	21.21032	0.0942994	0.18221382	3.0814031	20	4 11.3	20.8
504687 2009 FZ ₅₇	16.4	X	51.80709	125.65638	30.44914	16.19982	0.2261060	0.18256318	3.0774706	20	5 4.2	20.0
504688 2009 FT ₆₄	15.9	X	257.38538	271.54226	24.44359	10.73139	0.1107554	0.17364350	3.1819769	20	3 12.5	20.7
504689 2009 HV	17.6	X	101.28119	182.27964	38.48979	7.71869	0.1306548	0.29358948	2.2420350	20	10 2.5	20.7
504690 2009 HO ₄₃	16.7	X	90.22028	19.44404	125.89590	3.74122	0.1295890	0.18596419	3.0398337	20	6 1.3	20.9
504691 2009 HV ₆₀	18.4	X	67.55967	162.12626	63.12202	4.16620	0.0779569	0.28813857	2.2702227	20	8 19.0	21.1
504692 2009 HP ₆₅	18.1	X	5.59087	179.39579	109.97177	5.17326	0.0963349	0.28159817	2.3052401	20	8 15.7	20.3
504693 2009 HT ₇₂	18.3	X	340.94226	43.44014	50.01482	25.03430	0.0644400	0.40679683	1.8039217	20	—	—
504694 2009 HE ₉₂	16.8	X	78.47864	77.22555	77.60122	3.38611	0.2215597	0.18437509	3.0572754	20	6 10.8	20.9
504695 2009 HR ₉₂	18.3	X	343.18058	96.78204	198.69037	6.04094	0.1595031	0.27588697	2.3369455	20	7 7.8	20.3
504696 2009 HE ₉₉	17.7	X	274.89417	348.02151	44.14056	7.50796	0.0924555	0.28787425	2.2716121	20	8 13.8	20.3
504697 2009 HP ₁₀₀	16.8	X	338.51011	204.10488	126.13323	3.91754	0.0942017	0.19449834	2.9502498	20	8 15.1	20.3
504698 2009 JF ₈	17.7	X	88.60509	113.01178	117.27231	5.71772	0.1366849	0.28956401	2.2627661	20	10 1.6	20.8
504699 2009 KF ₂₀	16.1	X	59.82644	283.82798	237.31260	13.77774	0.0544848	0.17597472	3.1538125	20	4 30.1	20.5
504700 2009 PK ₁₀	18.2	X	274.56551	189.65416	156.55298	2.92353	0.2183184	0.25589349	2.4571400	20	5 13.3	21.5
504701 2009 PX ₁₇	17.7	X	293.95060	1.77166	347.91650	6.23259	0.1392298	0.25916047	2.4364465	20	6 27.9	20.6
504702 2009 QE ₂	18.0	X	357.22641	84.16929	295.89515	18.71243	0.1358918	0.37458847	1.9058986	20	—	—
504703 2009 RU ₁₀	17.9	X	109.66134	272.02808	1.83366	20.08686	0.0581754	0.37503819	1.9043746	20	—	—
504704 2009 RZ ₂₁	17.2	X	205.25048	182.77106	242.01939	5.34198	0.1720553	0.25322620	2.4743642	20	6 17.2	21.1
504705 2009 RT ₃₉	17.7	X	223.09501	123.28376	269.51221	4.93842	0.0876932	0.24666051	2.5180806	20	5 30.5	21.4
504706 2009 SD ₁₉	18.6	X	272.34280	169.51469	180.72933	2.05494	0.2735317	0.25336665	2.4734497	20	5 8.3	22.2
504707 2009 SH ₃₅	17.0	X	231.77863	13.11026	8.37725	13.48838	0.0954495	0.24444795	2.5332523	20	5 20.8	21.0
504708 2009 SY ₆₅	18.5	X	196.04822	167.95180	21.61403	20.46083	0.0497898	0.37121014	1.9174446	20	—	—
504709 2009 SC ₁₀₄	17.6	X	293.34473	280.75958	53.70463	1.97777	0.1964883	0.25656786	2.4528324	20	5 24.7	20.4
504710 2009 SH ₁₄₄	17.7	X	275.04463	332.64465	29.06013	2.02483	0.1925990	0.25531612	2.4608429	20	6 6.9	20.9
504711 2009 SP ₁₇₁	19.3	X	160.62444	285.17753	223.11206	25.61944	0.3559975	0.62441885	1.3556639	20	9 6.9	21.7
504712 2009 SO ₁₈₇	17.6	X	271.87623	181.01401	157.49422	5.51146	0.2040648	0.24712020	2.5149569	20	5 2.9	21.1
504713 2009 SH ₂₅₈	18.5	X	259.40039	231.43546	147.81782	3.16637	0.2050656	0.25296583	2.4760618	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>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
504721 2009 UD ₃₅	17.1	X	182.07902	168.20639	230.19117	10.66848	0.2064297	0.23111748	2.6297483	20	4 23.1	21.5
504722 2009 UR ₅₂	18.1	X	242.41510	158.26852	212.73685	8.50090	0.0720265	0.24268239	2.5455241	20	5 27.2	21.6
504723 2009 UG ₅₅	17.4	X	178.88440	178.95017	219.80748	13.20575	0.2455559	0.23228998	2.6208917	20	4 21.9	21.9
504724 2009 UQ ₁₀₈	17.2	X	226.29951	194.29408	225.02422	15.38209	0.0842565	0.24638675	2.5199455	20	7 6.7	21.1
504725 2009 US ₁₂₇	18.2	X	266.30988	317.90264	19.87578	7.43350	0.2874466	0.24622723	2.5210338	20	4 14.1	22.1
504726 2009 UR ₁₂₉	17.1	X	191.17558	180.90387	236.82581	21.35086	0.1101020	0.23809441	2.5781207	20	5 27.1	21.0
504727 2009 UG ₁₄₃	18.8	X	220.17450	346.92904	50.01665	6.15852	0.2697851	0.24163433	2.5528794	20	5 20.4	23.3
504728 2009 UD ₁₄₉	19.2	X	232.29725	147.77452	231.76306	4.08563	0.2847184	0.24283187	2.5444793	20	5 7.8	23.6
504729 2009 VH ₇	18.0	X	354.59059	338.08643	43.20198	22.55217	0.0598948	0.36535978	1.9378592	20	—	—
504730 2009 VO ₃₂	18.1	X	213.75396	79.01110	288.49289	4.02677	0.2716391	0.23461988	2.6035115	20	4 8.3	22.8
504731 2009 VS ₃₇	16.7	X	183.63369	182.00443	237.00642	32.03855	0.1400268	0.23456426	2.6039231	20	5 20.7	20.9
504732 2009 VO ₃₉	16.5	X	147.20499	240.93879	228.87427	25.83792	0.1514230	0.23643369	2.5901792	20	6 16.7	20.9
504733 2009 VD ₅₂	18.0	X	298.98414	243.11464	224.47596	19.54246	0.0992261	0.37334554	1.9101262	20	—	—
504734 2009 VY ₆₈	17.6	X	151.80018	202.28707	254.17948	12.39680	0.1384460	0.23234415	2.6204842	20	6 6.5	21.7
504735 2009 VW ₆₉	17.0	X	246.48207	298.80451	60.60004	15.55621	0.1332269	0.23745811	2.5827242	20	5 10.5	20.9
504736 2009 VC ₇₀	17.3	X	304.38272	32.74402	291.18514	2.60088	0.1688541	0.24458652	2.5322954	20	5 31.8	20.0
504737 2009 VD ₇₀	18.1	X	221.29717	27.66595	32.31765	2.90748	0.1536317	0.24324849	2.5415732	20	6 28.2	22.0
504738 2009 VX ₇₃	15.7	X	47.17776	274.62293	215.74884	2.06428	0.2050079	0.12339926	3.9957135	20	3 27.9	20.6
504739 2009 VB ₇₄	18.1	X	211.09949	202.10793	215.70805	1.56741	0.1806202	0.24424339	2.5346666	20	6 13.3	22.1
504740 2009 VD ₉₅	17.9	X	183.55574	15.38636	59.93279	4.62875	0.1958543	0.23545912	2.5973215	20	6 9.9	22.3
504741 2009 VL ₁₀₆	17.1	X	164.15632	256.47774	189.27059	28.74296	0.3186000	0.23391651	2.6087280	20	6 8.8	22.5
504742 2009 VC ₁₀₇	16.5	X	147.80553	180.21967	250.67998	12.38061	0.1594331	0.22978278	2.6399218	20	4 30.4	20.8
504743 2009 VH ₁₁₃	17.0	X	97.18191	267.30911	232.89776	13.38998	0.0521504	0.23358641	2.6111852	20	5 22.4	20.3
504744 2009 WH ₁₀	16.7	X	225.71502	176.80224	222.56783	8.47627	0.2771593	0.24166280	2.5526788	20	5 28.1	21.1
504745 2009 WQ ₂₄	16.3	X	211.08028	314.43067	72.87991	32.41787	0.1877728	0.23439751	2.6051579	20	5 14.3	20.8
504746 2009 WJ ₂₅	16.4	X	254.78492	86.18466	300.60694	28.77480	0.3407645	0.24033204	2.5620932	20	5 30.9	21.2
504747 2009 WU ₃₁	17.4	X	260.18300	124.29585	242.59531	14.51495	0.1298069	0.24264611	2.5457778	20	6 4.4	20.8
504748 2009 WY ₅₀	18.0	X	160.61642	79.29435	21.71345	2.27698	0.0956598	0.23784936	2.5798912	20	6 19.9	21.9
504749 2009 WE ₅₁	17.1	X	178.55480	168.68936	263.76939	13.95750	0.0603997	0.23740969	2.5830754	20	6 1.9	20.7
504750 2009 WR ₅₁	17.2	X	181.01856	15.23539	83.12074	15.38922	0.2069799	0.23527092	2.5987064	20	7 6.7	21.7
504751 2009 WW ₅₂	17.8	X	219.76274	326.21581	69.73921	10.25095	0.1629281	0.23910251	2.5708691	20	5 25.8	21.8
504752 2009 WR ₆₄	18.3	X	219.65211	277.14247	117.42227	2.87295	0.2321384	0.23891016	2.5722488	20	5 20.1	22.7
504753 2009 WU ₆₆	18.2	X	14.83228	305.60112	56.29331	23.21545	0.0843892	0.36703240	1.9319673	20	—	—
504754 2009 WD ₆₉	17.1	X	235.68080	122.43600	264.01107	14.09033	0.1148554	0.23865385	2.5740902	20	6 3.1	20.8
504755 2009 WW ₇₁	17.1	X	162.82162	359.64304	67.22213	15.34647	0.0668850	0.23151910	2.6267062	20	5 10.1	21.0
504756 2009 WA ₇₅	17.3	X	159.00889	40.62951	75.27752	12.72611	0.1446710	0.23894621	2.5719901	20	7 9.4	21.5
504757 2009 WM ₇₅	17.5	X	237.09072	159.32739	223.09900	8.00217	0.1656504	0.24131446	2.5551348	20	5 25.7	21.3
504758 2009 WK ₈₀	17.4	X	237.69724	87.07672	281.05632	7.06692	0.2149473	0.23759982	2.5816973	20	5 1.8	21.6
504759 2009 WP ₈₀	16.5	X	265.62108	90.47719	266.38366	12.24633	0.1985541	0.24192653	2.5508234	20	5 17.9	20.3
504760 2009 WA ₈₉	17.2	X	282.02924	122.67543	226.06044	5.43898	0.1830925	0.24465894	2.5317957	20	5 31.3	20.3
504761 2009 WX ₈₉	17.3	X	203.87498	171.56928	188.44162	3.93839	0.2177708	0.22800189	2.6536506	20	3 26.3	21.8
504762 2009 WL ₉₂	17.6	X	286.05075	40.39598	273.65715	10.76977	0.0760006	0.23663370	2.5887195	20	5 2.9	21.1
504763 2009 WZ ₉₃	17.9	X	198.94573	313.87848	100.82146	6.90744	0.2285422	0.23805231	2.5784246	20	5 28.6	22.4
504764 2009 WN ₁₀₃	18.1	X	235.22926	3.84919	30.72483	7.52357	0.2332846	0.24450474	2.5328600	20	5 31.8	22.2
504765 2009 WB ₁₄₂	16.9	X	183.54451	163.11141	221.97139	11.37268	0.1927851	0.22792905	2.6542160	20	4 7.3	21.4
504766 2009 WQ ₁₅₂	17.2	X	269.73017	41.97219	302.71107	5.79748	0.2531172	0.24538710	2.5267847	20	4 28.0	21.1
504767 2009 WY ₁₅₅	17.9	X	337.22537	348.02686	64.76713	23.67031	0.0947760	0.36610806	1.9352178	20	—	—
504768 2009 WF ₁₆₃	17.9	X	205.35890	25.73904	44.98864	2.69561	0.1039774	0.24123593	2.5556893	20	6 28.9	21.8
504769 2009 WY ₁₇₁	17.3	X	249.67087	305.19814	39.75483	12.15089	0.0770716	0.23569668	2.5955759	20	4 29.9	21.0
504770 2009 WJ ₂₀₈	17.1	X	74.17699	268.28668	269.79959	6.49461	0.1054960	0.23222130	2.6214083	20	6 20.2	20.2
504771 2009 WQ ₂₀₈	17.7	X	229.36902	354.74895	44.75710	3.58542	0.0875078	0.24111626	2.5565348	20	6 16.0	21.3
504772 2009 WG ₂₁₂	17.5	X	222.96764	25.50310	349.61471	4.20708	0.0816410	0.23383504	2.6093339	20	5 6.3	21.3
504773 2009 WV ₂₄₄	16.9	X	234.36489	67.67168	243.36481	9.68405	0.0540954	0.21897713	2.7260692	20	2 27.3	21.1
504774 2009 WD ₂₅₂	16.6	X	174.32180	204.37827	254.39921	21.38225	0.0264419	0.23983041	2.5656646	20	6 29.6	20.3
504775 2009 WO ₂₆₃	16.2	X	194.38391	205.91119	240.47405	21.59132	0.0824908	0.24003119	2.5642337	20	7 3.9	20.3
504776 2009 XV ₇	18.2	X	354.09138	314.59773	74.18397	27.12954	0.1320924	0.36605902	1.9353907	20	—	—
504777 2009 XA ₁₆	17.0	X	181.33172	331.39915	109.11524	13.92211	0.1271690	0.23096858	2.6308784	20	6 16.3	21.2
504778 2009 XO ₂₄	16.5	X	116.28789	177.81264	267.73575	16.26330	0.2092517	0.21963151	2.7206517	20	4 19.5	21.0
504779 2009 YB ₂	17.1	X	198.37271	317.85411	108.72605	11.92264	0.2288027	0.23468063	2.6030622	20	6 11.9	21.6
504780 2009 YE ₂	17.4	X	162.70194	2.23563	111.25772	14.26048	0.1489984	0.23320615	2.6140228	20	7 9.5	21.6
504781 2009 YR ₁₁	18.0	X	179.98538	99.97555	349.56390	2.78728	0.1908439	0.23355681	2.6114058	20	6 25.0	22.3
504782 2009 YV ₁₁	16.9	X	112.99572	16.57855	88.94052	10.37577	0.0909462	0.21909565	2.7250860	20	5 5.6	20.8
504783 2009 YA ₁₄	18.7	X	190.45818	100.28092	335.98492	4.10343	0.2616566	0.23432985	2.6056593	20	6 15.7	23.3
504784 2009 YX ₂₃	17.6	X	168.15173	149.84886	330.58947	13.85261	0.3488744	0.23527991	2.5986402	20	7 26.3	22.6
504785 2009 YA ₂₅	16.2	X	248.37669	228.06769	121.18753	15.96654	0.1039959	0.21906582	2.7253334	20	5 8.2	20.5
504786 2010 AB ₆	17.7	X	224.33540	96.89856	280.27334	2.53066	0.2073677	0.23426690	2.6061261	20	5 2.4	21.9
504787 2010 AH ₂₅	17.5	X	153.49871	346.91445	111.33912	3.29528	0.1706064	0.22510856	2.6763406	20	6 11.9	21.7
504788 2010 AM ₃₂	17.6	X	169.92086	332.87158	136.99645	10.99609	0.1687160	0.22976080	2.6400902	20	7 11.3	21.9
504789 2010 AY ₃₃	17.1	X	298.71545	206.54830	105.97065	7.74114	0.0893701	0.22412956	2.6841285	20	5 21.9	20.5
504790 2010 AF ₆₁	17.1	X	143.03458	219.90705	263.08827	11.14543	0.2409292	0.22854686	2.6494306	20	7 5.7	21.7
504791 2010 AM ₆₂	17.1	X	185.49905	156.21634	292.66709	3.71845	0.1412630	0.23450649	2.6043507	20	6 30.1	21.0
504792 2010 AO ₆₂	16.9	X	174.33970	351.87543	102.93199	13.08386	0.1892168	0.23293724	2.6160343	20	6 26.8	21.3
504793 2010 AF ₆₅	17.0	X	115.35840	179.46538	314.18784	11.79352						

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>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
504801 2010 <i>CY</i> ₃	16.4	X	97.91658	161.38183	337.74437	16.31853	0.1990661	0.21329037	2.7743115	20	6 10.2	20.8
504802 2010 <i>CG</i> ₂₀	17.5	X	138.30700	9.27398	141.08693	13.64612	0.2191044	0.22855053	2.6494022	20	8 4.5	22.0
504803 2010 <i>CO</i> ₂₈	17.4	X	114.49843	315.34842	182.41990	9.10616	0.2483912	0.22135279	2.7065292	20	6 30.7	21.9
504804 2010 <i>CT</i> ₆₅	16.8	X	127.50549	258.46132	262.18872	10.26979	0.2385910	0.22859063	2.6490924	20	8 6.0	21.5
504805 2010 <i>CZ</i> ₉₄	17.4	X	141.08710	322.08841	129.74277	2.83716	0.0634062	0.21163795	2.7887335	20	5 15.6	21.4
504806 2010 <i>CL</i> ₁₀₀	17.3	X	143.30409	314.80910	137.87184	5.42670	0.0418906	0.21668009	2.7453015	20	5 18.2	21.2
504807 2010 <i>CD</i> ₁₀₄	17.9	X	150.49548	97.76048	19.28158	3.31495	0.1548060	0.22109175	2.7086592	20	7 2.4	22.2
504808 2010 <i>CP</i> ₁₂₅	17.1	X	176.12966	307.57889	160.02097	14.82290	0.1974209	0.22689779	2.6622522	20	7 13.1	21.8
504809 2010 <i>CZ</i> ₁₆₀	17.1	X	167.30575	146.10790	301.11337	4.51061	0.1571971	0.21969786	2.7201039	20	6 10.0	21.4
504810 2010 <i>CX</i> ₁₈₂	16.3	X	310.38305	297.26802	316.94814	9.03165	0.0727192	0.20174395	2.8791814	20	3 19.5	20.3
504811 2010 <i>CN</i> ₂₂₁	16.2	X	260.32469	337.20262	306.36414	15.61282	0.0412570	0.18366824	3.0651143	20	2 27.3	20.8
504812 2010 <i>DB</i> ₅₃	15.4	X	311.11601	307.86737	252.13750	25.73889	0.1866765	0.17547727	3.1597700	20	—	—
504813 2010 <i>EM</i> ₃₁	16.3	X	113.14878	155.44614	347.96368	25.47844	0.0839207	0.21744645	2.7388474	20	6 21.9	20.8
504814 2010 <i>EW</i> ₁₀₄	16.4	X	211.65112	92.46691	15.92802	26.87810	0.3469764	0.23844549	2.5755895	20	8 20.6	21.5
504815 2010 <i>EU</i> ₁₂₇	17.0	X	161.88705	54.95799	86.85446	12.75999	0.2227159	0.23286200	2.6165977	20	8 17.8	21.7
504816 2010 <i>ET</i> ₁₃₉	16.7	X	285.51411	195.36694	48.74905	4.28995	0.2022964	0.18213676	3.0822721	20	1 26.9	21.4
504817 2010 <i>FF</i> ₂	16.7	X	125.04940	109.76353	12.95631	15.18147	0.0739032	0.21447436	2.7640918	20	6 2.5	21.0
504818 2010 <i>GH</i> ₃₂	16.5	X	238.29963	254.51718	38.88807	26.02796	0.3208859	0.17528554	3.1620737	20	2 15.9	22.6
504819 2010 <i>GL</i> ₆₇	17.2	X	180.98381	288.49122	208.95378	28.02066	0.3648036	0.23491992	2.6012943	20	8 13.5	22.7
504820 2010 <i>GW</i> ₁₄₉	15.2	X	261.95351	216.26373	70.33970	28.71462	0.1509912	0.17087359	3.2162719	20	3 14.5	20.7
504821 2010 <i>HS</i> ₁₀₆	17.3	X	149.78204	297.61867	206.01156	3.10213	0.2438793	0.22506592	2.6766786	20	8 5.4	22.0
504822 2010 <i>JV</i> ₁	16.2	X	291.76394	177.32418	72.59104	18.65888	0.2073267	0.18204410	3.0833179	20	2 13.3	21.0
504823 2010 <i>JO</i> ₆₆	17.0	X	141.25889	299.10889	186.11580	6.37656	0.0462146	0.22376287	2.6870600	20	6 26.3	20.9
504824 2010 <i>JW</i> ₁₁₅	16.5	X	246.03149	123.33287	173.86567	16.56207	0.1231887	0.17884389	3.1199907	20	2 24.6	21.4
504825 2010 <i>JK</i> ₁₅₇	17.0	X	249.93887	123.43213	159.37030	10.75168	0.1790949	0.17660583	3.1462944	20	2 7.9	22.1
504826 2010 <i>KH</i> ₃₈	16.4	X	223.75323	226.47111	94.84339	13.46490	0.0870637	0.17928924	3.1148220	20	3 11.7	21.4
504827 2010 <i>KZ</i> ₁₁₇	19.1	X	323.28090	321.35382	314.17731	33.17033	0.5126405	0.28834000	2.2691652	20	2 13.3	22.3
504828 2010 <i>LL</i> ₆₂	16.0	X	174.86828	210.48979	170.46584	27.68935	0.1408638	0.17881673	3.1203067	20	3 30.9	21.1
504829 2010 <i>MR</i> ₁₄	15.5	X	197.41770	56.59866	298.00289	8.57682	0.2327911	0.15748775	3.3960302	20	3 16.7	20.6
504830 2010 <i>MU</i> ₂₄	17.2	X	252.25587	167.88963	188.77624	12.17590	0.0605108	0.27319510	2.3522715	20	4 29.0	21.0
504831 2010 <i>MV</i> ₇₅	17.9	X	289.33207	187.64686	195.76513	2.73471	0.1456792	0.28824014	2.2696893	20	8 10.9	20.0
504832 2010 <i>NE</i>	17.8	X	356.66658	349.16757	288.63076	3.27154	0.2433736	0.29558586	2.2319285	20	7 18.9	18.6
504833 2010 <i>NZ</i> ₁₅	17.5	X	338.28340	280.02530	41.17345	22.02667	0.2105366	0.29027611	2.2590639	20	9 2.9	19.7
504834 2010 <i>NE</i> ₈₈	15.9	X	226.66455	80.13627	238.40315	15.12411	0.1653263	0.18629136	3.0362736	20	2 23.3	21.2
504835 2010 <i>OT</i> ₂₅	18.0	X	289.64590	230.06354	112.33564	7.22286	0.2656108	0.27903319	2.3193456	20	5 20.9	21.0
504836 2010 <i>PO</i> ₁₄	16.1	X	287.59774	324.51384	268.76246	16.09381	0.1191724	0.17757787	3.1348023	20	1 22.2	20.8
504837 2010 <i>RC</i> ₄₇	18.2	X	291.27924	24.98631	343.06249	4.18143	0.1517029	0.28621738	2.2803703	20	7 21.9	20.3
504838 2010 <i>RA</i> ₆₅	18.2	X	306.37604	6.21785	341.02466	3.06947	0.261825	0.28739409	2.2741415	20	6 28.9	20.1
504839 2010 <i>RO</i> ₆₈	17.9	X	328.59966	160.27454	173.74435	6.01088	0.2378664	0.29086889	2.2559936	20	8 5.1	19.0
504840 2010 <i>RM</i> ₁₂₈	18.0	X	233.95296	128.23520	262.79007	4.86974	0.1694734	0.27501463	2.3418847	20	6 1.8	21.3
504841 2010 <i>RE</i> ₁₂₉	18.0	X	285.88910	353.93349	28.92057	6.39629	0.2165735	0.28661852	2.2782422	20	7 24.8	20.3
504842 2010 <i>RE</i> ₁₃₇	16.9	X	279.95113	101.57199	261.26107	20.55073	0.2562129	0.27501487	2.3418834	20	6 5.6	19.8
504843 2010 <i>RT</i> ₁₆₄	18.2	X	308.28824	332.25709	17.54087	0.47981	0.2313591	0.28859839	2.2678106	20	7 10.7	19.6
504844 2010 <i>RL</i> ₁₆₇	17.6	X	260.70455	172.48784	169.36815	13.64070	0.2351647	0.27379137	2.3488550	20	4 21.8	21.2
504845 2010 <i>RO</i> ₁₇₆	19.0	X	242.44220	65.09731	352.86661	2.93820	0.2658884	0.27932857	2.3177102	20	7 7.5	22.5
504846 2010 <i>RS</i> ₁₈₁	17.9	X	259.93098	122.47553	284.36605	6.60800	0.0851883	0.28943736	2.2634261	20	8 8.1	20.7
504847 2010 <i>RE</i> ₁₈₈	6.3	X	350.34697	209.04880	189.18029	6.75505	0.1479640	0.00315173	46.0719553	20	10 19.6	22.2
504848 2010 <i>SG</i> ₃	18.9	X	293.62835	25.09698	318.89182	2.50715	0.3204368	0.28186379	2.3037916	20	5 16.5	21.7
504849 2010 <i>SA</i> ₄	18.1	X	260.27979	158.62220	261.85135	5.03432	0.1177986	0.29026542	2.2591194	20	8 22.7	20.6
504850 2010 <i>SC</i> ₁₀	18.1	X	39.17363	265.34126	348.31131	4.32700	0.1015091	0.28176405	2.3043352	20	8 19.9	20.4
504851 2010 <i>TU</i> ₁₀	18.0	X	234.36533	223.83293	210.33765	3.00645	0.0801556	0.28651562	2.2787876	20	8 12.6	20.8
504852 2010 <i>TB</i> ₁₃	18.6	X	270.76565	87.93245	328.41461	4.36716	0.1422754	0.28993812	2.2608192	20	8 31.2	20.8
504853 2010 <i>TB</i> ₂₀	18.6	X	320.46413	138.30888	184.75035	5.32636	0.1927531	0.28522372	2.2856635	20	6 28.7	20.5
504854 2010 <i>TO</i> ₄₆	18.3	X	226.76049	34.91977	21.15793	4.35101	0.1579903	0.27608555	2.3358248	20	6 29.6	21.8
504855 2010 <i>TP</i> ₁₀₀	18.1	X	257.71727	31.68370	36.98335	3.91857	0.1349004	0.28935647	2.2638479	20	9 1.8	20.6
504856 2010 <i>TZ</i> ₁₄₀	18.0	X	267.37935	142.26708	234.92216	7.59895	0.1311647	0.27811795	2.3244312	20	6 28.5	21.0
504857 2010 <i>TY</i> ₁₄₈	17.7	X	268.04653	342.16328	6.61089	5.87685	0.2900336	0.27503902	2.3417463	20	4 27.3	21.3
504858 2010 <i>TZ</i> ₁₆₇	18.4	X	304.56979	325.87434	13.64840	2.77335	0.2179443	0.28259220	2.2998311	20	6 17.2	20.6
504859 2010 <i>TH</i> ₁₇₆	17.8	X	303.01063	206.63850	133.34851	2.70824	0.2334110	0.28148492	2.3058583	20	6 12.3	19.8
504860 2010 <i>UT</i> ₁₂	17.8	X	317.06444	324.35876	23.15047	7.28671	0.1236874	0.28481044	2.2878741	20	8 15.5	19.9
504861 2010 <i>UT</i> ₁₄	18.3	X	276.91254	134.34551	244.47460	1.81938	0.2559885	0.27924025	2.3181989	20	6 24.4	21.0
504862 2010 <i>UG</i> ₃₃	17.8	X	306.67834	324.06833	0.86235	6.21114	0.2407001	0.27950175	2.3167528	20	5 22.5	20.1
504863 2010 <i>UU</i> ₅₃	18.5	X	242.58196	22.09502	11.31691	4.67849	0.1775042	0.27367320	2.3495311	20	6 13.3	21.9
504864 2010 <i>UR</i> ₅₆	18.0	X	247.62354	21.34909	31.31796	5.80560	0.2054027	0.27658348	2.3330205	20	7 13.9	21.3
504865 2010 <i>US</i> ₅₆	17.8	X	226.73290	192.17617	249.63504	7.08981	0.0723042	0.27760823	2.3272757	20	8 11.5	20.9
504866 2010 <i>UB</i> ₆₇	18.0	X	214.80916	281.84709	107.32128	2.59030	0.2031790	0.26572929	2.3961266	20	5 10.3	22.0
504867 2010 <i>UD</i> ₇₄	18.3	X	307.58424	41.91755	304.41542	4.55653	0.1802275	0.28087204	2.3092115	20	7 12.2	20.1
504868 2010 <i>UU</i> ₈₁	18.0	X	268.51876	333.43927	43.16037	6.15190	0.2502028	0.27817054	2.3241383	20	6 10.6	21.0
504869 2010 <i>VQ</i> ₂₅	17.9	X	265.14360	307.99032	53.55009	9.57136	0.3083240	0.27408573	2.3471730	20	5 10.9	21.6
504870 2010 <i>VD</i> ₂₇	18.5	X	279.86402	316.43526	65.44682	5.87264	0.2449633	0.27982151	2.3149875	20	7 5.5	21.1
504871 2010 <i>VA</i> ₃₈	18.1	X	300.15995	189.96019	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>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
504881 2010 VQ ₁₃₈	17.9	X	287.14556	121.09986	227.65312	5.33426	0.1396727	0.27385049	2.3485169	20	6 15.3	20.6
504882 2010 VQ ₁₆₀	18.3	X	284.37610	104.88260	259.00930	5.81166	0.1316287	0.27896136	2.3197437	20	7 4.9	20.8
504883 2010 VG ₁₇₀	18.6	X	277.98638	149.07633	241.67610	6.03720	0.1140693	0.27962270	2.3160847	20	8 5.3	21.3
504884 2010 VN ₁₇₀	18.2	X	210.31332	209.78422	246.80716	3.38627	0.1813092	0.27414892	2.3468123	20	8 2.3	21.7
504885 2010 VT ₁₉₃	18.0	X	253.59238	303.94062	106.28176	3.42848	0.1744951	0.27825856	2.3236481	20	7 21.4	20.8
504886 2010 VZ ₂₀₈	18.1	X	197.64629	139.58918	331.44751	3.12480	0.1194646	0.27772797	2.3266067	20	8 14.9	21.4
504887 2010 WL	19.8	X	263.53318	129.74937	266.27156	22.85764	0.5359272	0.28056085	2.3109187	20	5 31.2	24.0
504888 2010 WZ ₁₄	18.5	X	220.80691	241.19405	185.85102	2.02238	0.1796431	0.27134687	2.3629408	20	7 5.4	22.0
504889 2010 WR ₃₁	18.1	X	280.42778	143.15233	220.75688	0.52322	0.1986839	0.27527387	2.3404142	20	6 17.2	20.9
504890 2010 WM ₃₅	18.1	X	252.19377	314.12904	106.28675	1.65976	0.2008449	0.27861736	2.3216528	20	7 30.2	20.9
504891 2010 WG ₄₅	18.6	X	239.34320	36.86686	17.95554	3.72803	0.1903179	0.27413891	2.3468694	20	7 8.6	22.0
504892 2010 WE ₆₅	17.7	X	195.22271	198.75593	270.50721	5.60293	0.0927428	0.27293498	2.3537658	20	8 9.1	20.9
504893 2010 XH ₂₁	17.6	X	265.25416	10.74991	32.67611	8.05515	0.1194644	0.27763788	2.3271099	20	8 9.8	20.4
504894 2010 XK ₂₅	16.4	X	170.28129	238.39264	265.94764	23.96440	0.1152137	0.27475420	2.3433644	20	8 16.2	20.5
504895 2010 XK ₂₆	17.9	X	215.11657	224.93818	242.89112	5.47342	0.1380570	0.27823143	2.3237991	20	8 25.6	21.3
504896 2010 XV ₄₇	17.6	X	237.30760	337.39326	70.75972	7.71310	0.1427204	0.27473220	2.3434895	20	7 2.3	20.8
504897 2010 XB ₆₉	18.1	X	235.53550	275.78967	151.91891	3.92218	0.1694333	0.27422027	2.3464052	20	7 23.4	21.3
504898 2010 XP ₇₄	16.5	X	267.76918	3.63018	68.65602	10.86007	0.0864790	0.18284881	3.0742650	20	9 18.1	20.9
504899 2011 AX ₄	17.7	X	211.39364	340.25813	118.87699	5.75273	0.2422842	0.26940616	2.3742751	20	8 3.1	21.5
504900 2011 AX ₉	18.3	X	239.81395	297.24200	99.08358	3.45382	0.1681455	0.26290458	2.4132591	20	6 15.6	21.8
504901 2011 AJ ₁₁	17.5	X	193.84439	73.62423	73.85258	21.69199	0.3436897	0.27212268	2.3584476	20	9 25.4	22.2
504902 2011 AP ₁₁	18.3	X	196.52448	343.77491	124.64503	3.41346	0.1745341	0.26800301	2.3825550	20	8 5.7	22.0
504903 2011 AQ ₁₆	18.6	X	270.28515	322.30986	65.09705	2.45391	0.1918725	0.27858654	2.3218240	20	7 8.6	21.5
504904 2011 AV ₃₂	18.1	X	250.26004	86.53961	322.11363	3.81235	0.2194950	0.26991141	2.3713112	20	7 8.5	21.5
504905 2011 AV ₃₃	15.8	X	63.01512	83.53502	35.25563	3.16184	0.1861154	0.12418538	3.9788333	20	4 4.8	20.9
504906 2011 AL ₄₂	17.8	X	135.43684	93.33690	41.18687	2.64865	0.1292118	0.25337676	2.4733839	20	7 9.8	21.6
504907 2011 AD ₅₃	17.6	X	160.74976	61.89197	95.41522	5.99051	0.1655047	0.26287383	2.4134473	20	9 6.8	21.5
504908 2011 AZ ₅₅	18.6	X	194.08881	132.03213	343.64159	3.81628	0.1356856	0.26708515	2.3880104	20	8 15.7	22.1
504909 2011 AS ₅₈	17.9	X	223.39765	323.53130	118.23194	7.86924	0.1080945	0.26673985	2.3900709	20	8 5.5	21.2
504910 2011 AZ ₆₂	18.0	X	180.20858	0.97003	117.18782	5.24624	0.2096111	0.26072322	2.4267008	20	8 1.6	21.9
504911 2011 AM ₇₀	18.5	X	217.64953	15.31765	78.95613	2.91282	0.1367732	0.26886279	2.3774730	20	8 13.3	21.8
504912 2011 BR ₄	17.9	X	165.03900	326.94308	155.44945	1.65135	0.1332365	0.25930988	2.4355105	20	7 24.2	21.6
504913 2011 BU ₁₁	17.2	X	186.43051	132.50422	339.44272	5.45035	0.1665320	0.26174488	2.4203820	20	8 1.5	20.9
504914 2011 BH ₂₂	17.0	X	21.43231	251.46456	313.25839	11.64681	0.1454374	0.23226534	2.6210770	20	4 30.3	20.1
504915 2011 BO ₂₃	18.2	X	141.06102	223.17093	278.22106	1.87413	0.1234696	0.25403601	2.4691029	20	7 23.9	21.8
504916 2011 BH ₂₉	18.4	X	204.02687	65.89766	17.96587	3.56702	0.1597683	0.26184664	2.4197549	20	7 12.8	22.1
504917 2011 BK ₃₄	17.7	X	99.03291	186.54068	3.94889	5.16341	0.0785687	0.25170241	2.4843406	20	8 8.4	21.1
504918 2011 BL ₃₆	18.5	X	209.06889	218.03161	245.96866	1.19554	0.1464081	0.26595399	2.3947768	20	8 13.9	22.0
504919 2011 BW ₅₂	17.8	X	221.10592	97.86469	331.44210	7.07292	0.0934961	0.26037938	2.4288368	20	7 18.4	21.2
504920 2011 BF ₇₄	17.3	X	289.14802	23.42792	309.09900	9.17888	0.1108927	0.24392089	2.5369002	20	5 28.8	20.7
504921 2011 BO ₇₅	16.8	X	297.02503	336.37647	305.41616	9.91484	0.1971582	0.22588704	2.6701880	20	3 15.4	20.6
504922 2011 BN ₁₀₀	17.1	X	114.50868	261.27750	277.35262	5.37125	0.0706008	0.25279111	2.4772026	20	8 7.3	20.6
504923 2011 BA ₁₀₁	17.4	X	79.96048	191.27153	319.81578	6.76109	0.1363633	0.23580075	2.5948122	20	5 25.2	20.8
504924 2011 BI ₁₀₇	17.2	X	254.90894	124.83440	254.46339	4.13595	0.0886258	0.25248838	2.4791823	20	6 20.8	20.3
504925 2011 BU ₁₂₃	16.9	X	237.58541	181.44741	123.35428	9.20322	0.0220496	0.22418955	2.6836496	20	3 3.4	20.6
504926 2011 BT ₁₃₃	18.6	X	207.68555	123.30618	336.71327	1.92156	0.1363540	0.26726577	2.3869344	20	8 8.9	22.2
504927 2011 BE ₁₅₄	18.4	X	235.96109	80.13587	323.48846	1.22210	0.1839491	0.26189872	2.4194341	20	6 19.4	22.1
504928 2011 CO ₂	18.4	X	255.50622	352.83652	104.08613	32.44268	0.4520430	0.28843582	2.2686626	20	8 24.3	22.3
504929 2011 CB ₅	18.2	X	323.09786	303.81532	151.91486	23.02373	0.0542380	0.39507099	1.8394414	20	—	—
504930 2011 CC ₁₈	18.1	X	152.84205	59.09318	81.59849	2.27781	0.1338248	0.25664421	2.4523460	20	8 5.7	21.8
504931 2011 CB ₃₀	17.7	X	179.00119	131.15288	352.76155	2.78290	0.1899864	0.26228653	2.4170487	20	8 8.9	21.7
504932 2011 CK ₃₅	17.8	X	177.55803	232.45822	262.09607	4.06013	0.1443166	0.26228312	2.4170696	20	8 20.3	21.5
504933 2011 CW ₃₅	16.9	X	350.63974	285.51895	329.94804	7.34662	0.0688812	0.24238781	2.5475860	20	5 21.3	19.9
504934 2011 CQ ₄₅	18.1	X	222.89480	325.70653	99.14758	6.06217	0.2234764	0.26129200	2.4231780	20	6 30.8	21.7
504935 2011 CF ₅₄	18.6	X	233.47814	72.79395	356.01740	1.03239	0.1518924	0.26312110	2.4119350	20	7 24.8	21.9
504936 2011 CT ₅₇	16.7	X	277.72687	326.34441	323.90651	15.44167	0.2564501	0.22475399	2.6791546	20	2 28.3	21.0
504937 2011 CU ₇₄	17.8	X	212.49295	147.42406	351.92336	4.92033	0.1684085	0.27282886	2.3543761	20	10 1.9	21.1
504938 2011 CC ₇₈	16.3	X	63.78037	303.77516	165.82549	25.04257	0.1488696	0.21679929	2.7442951	20	3 10.4	19.5
504939 2011 CH ₇₉	18.3	X	264.42597	96.85536	287.18783	1.65985	0.2642058	0.26192033	2.4193011	20	6 14.4	21.6
504940 2011 CU ₈₃	17.4	X	39.50351	278.72375	289.14344	4.47394	0.1406688	0.23685001	2.5871431	20	6 13.9	20.2
504941 2011 CG ₈₇	18.7	X	333.17183	119.24120	312.81055	20.70045	0.0560563	0.39596351	1.8366762	20	—	—
504942 2011 DK ₃	17.0	X	197.94281	194.14315	331.24178	13.23302	0.0366035	0.27448715	2.3448840	20	10 29.8	20.3
504943 2011 DP ₃	18.9	X	299.41368	127.09327	348.07588	19.76299	0.0590916	0.39452187	1.8411478	20	—	—
504944 2011 DV ₁₁	17.2	X	112.18633	327.87422	168.29818	15.47315	0.0727505	0.23708958	2.5853999	20	6 9.9	21.1
504945 2011 DM ₂₂	18.7	X	289.92276	88.99967	353.65252	20.34355	0.1101448	0.38299429	1.8779089	20	—	—
504946 2011 DV ₃₀	17.9	X	212.43606	72.11064	32.88191	1.81420	0.1410898	0.26635602	2.3923665	20	8 20.9	21.2
504947 2011 DL ₃₈	17.6	X	327.55474	57.70544	189.47210	2.65191	0.0943169	0.22575282	2.6712462	20	4 2.9	20.6
504948 2011 EO ₃₃	16.4	X	58.99518	336.89989	164.76990	25.68337	0.0631009	0.22493437	2.6777221	20	4 6.2	20.0
504949 2011 EK ₆₂	16.0	X	335.62854	335.82124	105.06273	10.60897	0.0913434	0.18312720	3.0711485	20	12 30.1	19.7
504950 2011 ED ₆₆	16.9	X	293.01376	343.80091	352.89034	13.77669	0.0737730	0.24159101	2.5531845	20	6 16.4	20.4
504951 2011 EC ₈₄	17.7	X	205.77190	353.23461	77.02127	2.42188	0.1673822	0.25444070	2.4664842	20	6 25.2	21.5
504952 2011 FA ₅	16.9	X	17.79901	221.34882	27.19809	14.16719	0.1233791	0.23623217	2.5916520	20	7 4.2	20.0
504953 2011 FO ₁₅	17.1	X	38.13043	298.03430	13.84087	6.86939	0.1265867	0.26014461	2.4302978	20	11 7.1</	

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>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
504961 2011 FQ ₁₀₃	17.4	X	16.27476	78.96995	159.69115	13.47656	0.2204235	0.23202770	2.6228663	20	6 24.9	20.0
504962 2011 FJ ₁₁₁	17.1	X	236.80848	31.78729	352.67345	15.37946	0.1390117	0.23849501	2.5752330	20	5 25.9	21.3
504963 2011 FG ₁₂₅	16.6	X	258.17005	28.57435	341.35847	10.81387	0.0960964	0.23817019	2.5775738	20	6 9.8	20.4
504964 2011 FQ ₁₃₈	17.4	X	287.88822	154.01591	194.09320	4.05332	0.1137471	0.24541309	2.5266063	20	6 19.2	20.6
504965 2011 FW ₁₄₃	17.5	X	193.20477	196.85184	252.42473	3.79392	0.2375416	0.25057574	2.4917819	20	7 4.9	21.7
504966 2011 FS ₁₅₂	18.4	X	27.06756	300.05584	34.01124	20.78020	0.0869568	0.36783358	1.9291610	20	12 10.7	20.8
504967 2011 FS ₁₅₆	17.3	X	271.28658	58.94363	55.05239	6.76933	0.1032062	0.27733522	2.3288027	20	11 29.5	19.5
504968 2011 GY ₃	18.8	X	343.39212	253.52886	190.98270	20.59359	0.0980656	0.39443596	1.8414152	20	—	—
504969 2011 GD ₁₇	17.4	X	73.78942	270.53305	277.73336	2.41137	0.1215113	0.23552248	2.5968556	20	7 6.5	20.8
504970 2011 GB ₃₁	17.1	X	97.44074	148.05550	23.67327	8.32144	0.0713873	0.23587066	2.5942994	20	7 8.9	20.8
504971 2011 GP ₃₂	17.0	X	34.55675	352.80177	199.39972	13.61221	0.1271082	0.22048011	2.7136663	20	5 13.1	20.1
504972 2011 GG ₃₆	17.3	X	345.38491	63.84072	196.09222	12.22580	0.1075775	0.22767024	2.6562271	20	5 20.9	20.4
504973 2011 GA ₄₆	16.4	X	269.49508	336.41491	30.65645	15.44044	0.1257888	0.24158886	2.5531997	20	6 15.3	20.1
504974 2011 GQ ₆₃	16.3	X	318.79970	194.70555	52.10222	21.83170	0.2383036	0.21174532	2.7877908	20	3 13.6	20.2
504975 2011 GF ₆₈	17.7	X	31.66233	270.35325	102.71730	23.96123	0.1339130	0.38346836	1.8763608	20	—	—
504976 2011 GA ₆₉	18.1	X	31.88392	157.36158	172.36224	22.10216	0.0863197	0.36539446	1.9377366	20	12 16.6	20.9
504977 2011 GF ₇₇	16.7	X	134.31439	116.43837	29.32327	16.23525	0.0922392	0.23867024	2.5739723	20	7 24.9	20.8
504978 2011 GN ₈₀	16.7	X	219.98797	5.61206	37.34060	10.66544	0.0381187	0.23160742	2.6260384	20	6 12.9	20.4
504979 2011 HM	18.3	X	208.92256	143.12824	47.79181	22.82273	0.0235037	0.38150058	1.8828075	20	—	—
504980 2011 HO ₉	16.7	X	44.37654	129.99955	66.15282	10.37467	0.0257425	0.22536731	2.6742916	20	5 21.7	20.0
504981 2011 HD ₁₃	16.7	X	340.84292	168.89753	50.75233	10.60729	0.1778514	0.21260271	2.7802905	20	3 14.6	19.9
504982 2011 HN ₁₈	17.4	X	183.77070	1.44863	77.68610	9.85646	0.0522669	0.23311310	2.6147185	20	6 16.9	21.1
504983 2011 HS ₂₈	18.0	X	143.23459	213.20496	51.60459	21.60037	0.0389358	0.38151970	1.8827446	20	—	—
504984 2011 HC ₃₂	16.8	X	30.54035	154.87745	86.57898	13.63435	0.1271886	0.22924427	2.6440544	20	7 16.2	19.8
504985 2011 HT ₃₃	17.3	X	325.50987	111.21712	141.31713	8.21769	0.1838880	0.21316948	2.7753603	20	4 1.9	20.5
504986 2011 HE ₃₉	16.4	X	327.12612	126.55490	135.54661	9.02059	0.1427343	0.21420269	2.7664284	20	4 21.3	19.8
504987 2011 HZ ₅₀	17.4	X	115.03906	73.96632	91.80699	12.80107	0.1894463	0.23867679	2.5739252	20	8 4.4	21.5
504988 2011 HD ₅₉	17.0	X	14.75705	37.88490	191.36477	12.51736	0.1362602	0.22221764	2.6995023	20	5 30.9	20.1
504989 2011 HT ₅₉	16.6	X	56.96971	128.72807	77.74957	13.88934	0.1119701	0.22882292	2.6472992	20	7 5.7	20.0
504990 2011 HV ₅₉	16.8	X	37.23114	118.39338	77.43412	14.79484	0.1485486	0.22102502	2.7092043	20	5 25.7	19.8
504991 2011 HY ₆₂	16.7	X	282.94119	229.60938	77.77970	16.27195	0.2555213	0.21200314	2.7855301	20	4 7.5	21.1
504992 2011 HC ₇₈	17.6	X	106.03182	305.54233	203.87628	7.22283	0.1199883	0.23382927	2.6093768	20	6 24.1	21.4
504993 2011 HT ₁₀₀	16.4	X	254.98071	160.42527	181.83292	25.79627	0.2053967	0.21082902	2.7958623	20	4 21.6	21.0
504994 2011 JU ₂	18.4	X	353.00685	301.27830	47.23710	56.09598	0.4606654	0.34482005	2.0140691	20	—	—
504995 2011 JS ₁₄	16.6	X	348.83157	165.47148	91.54856	14.31957	0.0475426	0.22258573	2.6965254	20	5 26.7	20.0
504996 2011 JE ₂₂	17.1	X	290.44681	220.72985	75.33894	15.38036	0.1139447	0.21404353	2.7677997	20	4 20.1	21.1
504997 2011 JU ₃₁	16.5	X	351.51439	121.23755	131.17301	13.66830	0.2346077	0.22542264	2.6738541	20	5 17.8	19.1
504998 2011 KU ₂	17.2	X	351.54429	153.24679	90.40988	9.42415	0.2193954	0.21636937	2.7479291	20	5 3.3	19.7
504999 2011 KS ₉	16.3	X	163.66773	7.24432	83.09182	12.32740	0.0367231	0.22377895	2.6869313	20	6 7.6	20.1
505000 2011 KU ₁₀	16.4	X	237.49004	255.90587	96.89642	8.13294	0.1289124	0.21215654	2.7841872	20	4 25.4	20.7
505001 2011 KO ₁₅	16.7	X	255.50011	326.45773	258.82241	24.68734	0.5042317	0.18668007	3.0320574	20	12 31.0	21.3
505002 2011 KR ₃₇	17.1	X	314.91776	160.07498	107.57531	5.51353	0.0263147	0.21295091	2.7772590	20	4 24.3	20.8
505003 2011 LP ₂₄	16.7	X	4.00851	125.29408	122.80324	6.30867	0.1043594	0.22077005	2.7112898	20	6 5.9	19.8
505004 2011 LF ₂₈	17.0	X	234.48261	32.08820	284.92821	5.37711	0.2197337	0.19645508	2.9306270	20	2 28.7	22.1
505005 2011 MA ₉	16.3	X	197.54044	61.53490	278.84092	14.80288	0.2173863	0.18158852	3.0884728	20	2 23.8	21.9
505006 2011 MH ₉	16.4	X	258.82900	357.89955	273.79949	10.77515	0.1037226	0.18539697	3.0460308	20	2 6.6	21.1
505007 2011 NK ₃	15.9	X	167.59015	70.23390	294.98776	18.34705	0.2172248	0.17173123	3.2055547	20	2 28.4	21.6
505008 2011 OY ₁₂	16.6	X	249.08766	167.49506	134.64648	19.02879	0.2285543	0.18836838	3.0139131	20	2 27.7	21.7
505009 2011 OD ₁₃	16.2	X	211.66570	48.06247	286.62562	7.78855	0.1515616	0.18324244	3.0698607	20	3 3.6	21.3
505010 2011 OH ₁₅	18.4	X	130.80787	257.10449	318.76871	16.74273	0.0735980	0.35001190	1.9941026	20	10 23.9	21.4
505011 2011 OW ₃₉	16.4	X	195.33191	20.61299	313.31124	29.04339	0.2168970	0.17368324	3.1814916	20	2 16.0	22.0
505012 2011 PR ₃	16.9	X	276.74401	11.21525	285.99618	11.00324	0.0092946	0.18829806	3.0146633	20	4 8.2	21.4
505013 2011 PU ₅	16.4	X	235.90062	23.23737	293.06368	8.39717	0.1331965	0.18662863	3.0326145	20	3 4.5	21.3
505014 2011 PP ₁₂	16.4	X	205.26231	258.87612	75.69145	7.07251	0.1810984	0.18004126	3.1061423	20	3 4.6	21.6
505015 2011 QF ₁	16.6	X	212.22759	123.95851	163.16741	26.08861	0.3413529	0.17066273	3.2189206	20	1 12.3	22.9
505016 2011 QJ ₂	16.5	X	167.23484	64.70180	326.78702	17.45350	0.1078250	0.17920324	3.1158185	20	4 6.1	21.6
505017 2011 QU ₂	16.6	X	265.66370	338.71004	292.12181	11.98761	0.2578199	0.18893242	3.0079115	20	1 30.5	21.7
505018 2011 QR ₁₆	16.6	X	252.55192	333.63619	314.09979	6.99883	0.2329236	0.18199269	3.0838986	20	2 11.8	21.6
505019 2011 QH ₂₁	18.7	X	143.50996	269.39318	241.30234	22.84147	0.2334321	0.65912336	1.3076502	20	8 31.6	20.6
505020 2011 QR ₂₂	16.0	X	222.72951	68.42445	275.85362	7.90875	0.0826602	0.18460994	3.0546820	20	3 27.8	20.8
505021 2011 QW ₂₄	16.4	X	255.46741	326.40212	339.84348	14.87838	0.1574832	0.18336511	3.0684915	20	3 11.3	21.3
505022 2011 QQ ₃₂	16.2	X	241.47457	143.70711	155.32604	16.52270	0.2508529	0.17925110	3.1152638	20	2 14.9	21.5
505023 2011 QP ₃₄	16.1	X	246.02038	308.99969	336.70666	14.80264	0.2355176	0.18032510	3.1028821	20	2 7.5	21.4
505024 2011 QY ₄₀	16.2	X	204.91085	90.72115	260.26088	15.22392	0.2706045	0.17763745	3.1341013	20	3 11.3	22.1
505025 2011 QN ₆₀	15.8	X	315.33463	320.19208	307.01116	8.83736	0.0725194	0.18695673	3.0290654	20	4 12.5	20.0
505026 2011 QJ ₆₁	16.4	X	235.10139	32.84842	299.29739	8.14947	0.0761915	0.18112487	3.0937413	20	3 26.8	21.2
505027 2011 QR ₆₁	16.2	X	179.20413	77.56715	323.02987	9.55438	0.0600437	0.18248005	3.0784053	20	4 19.3	21.0
505028 2011 QE ₆₃	16.2	X	315.09594	335.60826	282.25192	9.19066	0.0452808	0.18828344	3.0148194	20	4 3.5	20.5
505029 2011 QK ₆₃	16.1	X	177.05634	36.00946	343.06346	25.47923	0.0999420	0.17598819	3.1536515	20	3 20.4	21.3
505030 2011 QP ₆₄	16.6	X	154.95208	243.75082	175.51264	11.97207	0.1714915	0.17761819	3.1343279	20	4 29.2	21.8
505031 2011 QE ₆₉	16.7	X	219.48033	200.32435	134.67268	1.89147	0.1949960	0.18075956	3.0979081	20	3 13.4	21.7
505032 2011 QH ₇₆	16.7	X	202.32945	208.85645	134.92064	2.32728	0.1532016	0.17471498	3.1689541	20	3 10.8	21.9
505033 2011 QA ₇₇	16.9	X	198.42681	83.42527	271.69082	3.53340	0.2010207	0.17625707	3.1504			

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>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
505041 2011 <i>RN</i> ₅	17.0	X	161.49830	177.67620	203.99595	8.59428	0.0966454	0.17504639	3.1649531	20	3 13.7	21.9
505042 2011 <i>RJ</i> ₇	16.7	X	48.72016	165.68635	338.88083	9.42358	0.0574969	0.17571679	3.1568980	20	3 23.8	20.9
505043 2011 <i>RE</i> ₁₁	16.5	X	204.29192	165.64551	203.84124	17.87934	0.1902772	0.17843536	3.1247512	20	4 9.3	21.8
505044 2011 <i>RU</i> ₁₁	16.9	X	222.69168	132.95695	186.53854	27.86916	0.2571742	0.17482364	3.1676409	20	2 22.1	22.7
505045 2011 <i>RY</i> ₁₅	16.5	X	208.50549	124.16845	216.78141	9.29140	0.0313411	0.17878901	3.1206292	20	3 12.5	21.1
505046 2011 <i>RD</i> ₁₆	17.0	X	208.17179	84.70802	286.87658	8.28195	0.0501084	0.18710178	3.0274996	20	4 16.4	21.6
505047 2011 <i>SG</i> ₁	16.6	X	234.90035	120.03112	190.38670	8.34485	0.0610376	0.17545684	3.1600153	20	3 5.0	21.3
505048 2011 <i>SU</i> ₆	16.8	X	139.59461	73.53954	341.07541	8.65291	0.0826832	0.17407785	3.1766818	20	3 28.5	21.6
505049 2011 <i>SV</i> ₇	16.3	X	186.81070	170.18189	190.76374	9.95104	0.1034754	0.17451626	3.1713594	20	3 15.0	21.2
505050 2011 <i>SO</i> ₃₄	16.7	X	211.70480	182.79820	167.54466	5.80030	0.1958011	0.17502849	3.1651689	20	3 25.2	21.9
505051 2011 <i>SV</i> ₃₄	15.9	X	268.88752	281.58029	17.09730	26.76524	0.0616397	0.17600989	3.1533923	20	4 1.9	20.3
505052 2011 <i>SN</i> ₃₈	16.1	X	203.78215	154.81453	194.06839	10.09645	0.1291589	0.17497205	3.1658495	20	3 16.5	21.2
505053 2011 <i>SO</i> ₄₁	16.8	X	162.01906	54.29852	334.18076	8.65692	0.0966163	0.17323535	3.1869729	20	3 21.7	21.9
505054 2011 <i>SW</i> ₄₄	15.9	X	99.72858	271.81615	224.48795	7.95347	0.0307348	0.19047179	2.9916832	20	5 18.1	20.1
505055 2011 <i>SX</i> ₄₅	18.3	X	129.75724	61.71163	182.98751	22.35514	0.0112451	0.34654922	2.0073639	20	12 14.8	21.1
505056 2011 <i>SS</i> ₆₀	17.3	X	245.86770	97.40948	185.59198	7.60657	0.2719368	0.17776550	3.1325961	20	1 29.2	22.9
505057 2011 <i>SG</i> ₆₃	16.6	X	89.61067	287.92596	198.56390	9.88515	0.1499849	0.18128696	3.0918969	20	5 11.1	21.0
505058 2011 <i>SD</i> ₉₅	16.6	X	196.08286	6.81754	3.41938	10.71194	0.1126494	0.17748118	3.1359407	20	4 3.4	21.5
505059 2011 <i>SN</i> ₉₈	16.6	X	166.08286	241.47266	182.83709	9.74335	0.1531901	0.17907684	3.1172844	20	5 13.7	21.7
505060 2011 <i>SN</i> ₁₀₇	16.3	X	158.36153	92.54998	327.90188	14.64445	0.2361609	0.17645558	3.1480802	20	4 27.4	22.0
505061 2011 <i>SG</i> ₁₂₁	16.2	X	177.52323	26.52005	13.78116	10.36725	0.0942808	0.17619929	3.1511321	20	4 20.7	21.2
505062 2011 <i>SS</i> ₁₃₃	16.5	X	137.65055	238.49486	201.09033	15.52957	0.1300434	0.17017515	3.2250661	20	5 3.7	21.5
505063 2011 <i>SQ</i> ₁₅₇	16.6	X	160.04432	236.57460	173.64661	7.88583	0.2251659	0.17265331	3.1941314	20	4 24.6	22.0
505064 2011 <i>SQ</i> ₁₆₃	16.3	X	161.80630	154.73950	251.93257	7.20731	0.0638275	0.17182781	3.2043534	20	4 10.7	21.3
505065 2011 <i>SS</i> ₁₆₃	16.5	X	256.72923	331.39979	341.60977	8.37229	0.0517153	0.17466821	3.1695198	20	4 1.4	21.1
505066 2011 <i>SS</i> ₁₇₃	15.8	X	186.57355	2.91305	13.54623	28.09718	0.1766247	0.17334388	3.1856426	20	4 3.5	21.0
505067 2011 <i>SN</i> ₁₇₅	16.7	X	207.90091	339.16320	22.37378	9.86892	0.0939170	0.17676577	3.1443962	20	4 6.9	21.5
505068 2011 <i>SQ</i> ₁₇₆	15.8	X	201.65772	82.84155	329.85242	25.30311	0.2329308	0.18566832	3.0430623	20	5 21.1	21.5
505069 2011 <i>SE</i> ₁₈₅	16.6	X	137.24252	35.29335	51.29781	13.09232	0.1207002	0.17129189	3.2110336	20	5 9.9	21.6
505070 2011 <i>SA</i> ₁₉₈	16.4	X	193.09607	217.11966	166.69400	9.93924	0.0810492	0.18171919	3.0869921	20	4 20.7	21.2
505071 2011 <i>SO</i> ₂₁₀	16.0	X	206.78386	340.94131	343.87942	11.89089	0.1576791	0.17400601	3.1775560	20	2 22.6	21.1
505072 2011 <i>SV</i> ₂₂₅	16.4	X	203.90537	126.68479	229.30603	10.26378	0.1651899	0.17321385	3.1872366	20	3 22.4	21.7
505073 2011 <i>SV</i> ₂₃₄	16.1	X	154.13927	23.09947	36.30264	9.89717	0.0903075	0.17489277	3.1668061	20	4 22.1	20.8
505074 2011 <i>SS</i> ₂₅₄	16.3	X	271.94378	296.32437	344.85122	15.41481	0.0871898	0.18068806	3.0987254	20	3 8.4	20.8
505075 2011 <i>SW</i> ₂₇₁	16.4	X	217.40117	109.81940	220.71761	9.25190	0.1387513	0.17649915	3.1475621	20	3 5.1	21.6
505076 2011 <i>TX</i> ₂	16.1	X	191.04767	54.62670	342.15909	12.72544	0.3117102	0.17577102	3.1562486	20	4 24.9	22.1
505077 2011 <i>TJ</i> ₁₅	16.4	X	119.56955	99.31030	9.92483	8.25018	0.0978362	0.17853519	3.1235871	20	5 14.0	21.1
505078 2011 <i>UJ</i> ₃₉	16.2	X	40.41923	59.68403	112.08234	12.83312	0.0148937	0.17216132	3.2020130	20	4 21.1	20.9
505079 2011 <i>UY</i> ₄₅	16.0	X	258.56140	231.98281	56.96560	24.75915	0.2661667	0.17481459	3.1677503	20	2 28.9	21.7
505080 2011 <i>UY</i> ₉₀	16.9	X	197.07391	175.52161	191.87112	12.28461	0.1502291	0.17763508	3.1341291	20	4 1.9	21.8
505081 2011 <i>UY</i> ₁₃₀	17.5	X	27.16977	138.10635	250.65056	18.93590	0.0821494	0.35381611	1.9797833	20	—	—
505082 2011 <i>UD</i> ₁₅₈	16.9	X	161.11288	240.84629	182.85792	20.19892	0.1990029	0.17212784	3.2006288	20	5 11.1	22.5
505083 2011 <i>UF</i> ₁₆₇	16.3	X	183.83997	101.65457	289.69537	8.05085	0.0969587	0.17725782	3.1385745	20	4 14.4	21.3
505084 2011 <i>UO</i> ₁₆₈	17.1	X	243.01094	113.34744	195.29139	12.03040	0.0739307	0.17652579	3.1472454	20	3 9.9	21.9
505085 2011 <i>UK</i> ₁₆₉	17.4	X	322.06783	47.60116	45.48960	21.82343	0.0914853	0.34846506	1.9999995	20	—	—
505086 2011 <i>UM</i> ₂₄₈	18.6	X	288.85661	167.63884	220.85842	2.63329	0.0649936	0.31519044	2.1383515	20	9 3.8	20.6
505087 2011 <i>UA</i> ₃₂₃	16.1	X	202.07634	320.76249	39.16680	16.54466	0.2111129	0.17603257	3.1535124	20	4 2.0	21.6
505088 2011 <i>UK</i> ₃₂₆	16.1	X	162.41118	353.92718	52.49938	19.84928	0.1347888	0.17204848	3.2016129	20	4 21.9	21.3
505089 2011 <i>UH</i> ₃₄₁	16.3	X	115.23215	1.63075	46.15356	4.73014	0.1148613	0.15252203	3.4693463	20	3 4.3	21.4
505090 2011 <i>UC</i> ₃₉₇	15.8	X	185.23402	342.46754	41.96883	15.65039	0.1162521	0.17379377	3.1801425	20	4 14.7	20.8
505091 2011 <i>UT</i> ₃₉₇	16.3	X	149.60088	351.74393	71.76810	9.73774	0.1198675	0.17189582	3.2035082	20	4 27.0	21.3
505092 2011 <i>UO</i> ₄₀₇	15.6	X	234.16381	32.92738	271.29440	12.98732	0.1779350	0.17510337	3.1642664	20	2 14.7	21.0
505093 2011 <i>VQ</i> ₅	20.1	X	282.39813	89.59314	30.31072	7.19492	0.4374890	0.33311608	2.0609731	20	—	—
505094 2011 <i>WB</i> ₁₅	16.1	X	189.74574	31.92980	25.45068	17.71204	0.2279286	0.17616483	3.1515430	20	5 19.4	21.8
505095 2011 <i>WH</i> ₃₃	15.7	X	255.27548	279.00414	75.58327	10.87556	0.1306979	0.18247143	3.0785021	20	5 15.6	20.3
505096 2011 <i>WV</i> ₃₉	15.9	X	249.82255	237.20398	65.44965	27.21270	0.1749401	0.17163539	3.2067480	20	3 19.3	21.5
505097 2011 <i>WU</i> ₄₈	16.1	X	169.67522	25.36659	79.58522	18.22710	0.1667212	0.17911139	3.1168836	20	7 3.1	21.3
505098 2011 <i>YB</i> ₇₇	18.1	X	228.73244	72.41488	37.13086	5.47983	0.0623481	0.30726483	2.1750078	20	10 4.2	20.5
505099 2012 <i>BN</i> ₁₀	15.7	X	12.08954	358.16601	159.06360	10.71409	0.1541548	0.12393640	3.9841603	20	2 27.2	20.5
505100 2012 <i>BY</i> ₆₃	15.8	X	351.31767	261.00678	256.25339	1.82034	0.0885567	0.12534165	3.9543258	20	1 28.9	21.0
505101 2012 <i>BJ</i> ₁₀₅	15.4	X	64.79732	291.42887	116.19380	12.39281	0.1323917	0.17338600	3.1851266	20	9 3.6	20.0
505102 2012 <i>BY</i> ₁₃₈	18.2	X	181.19884	3.23310	346.35468	4.32189	0.0814709	0.29974461	2.2112362	20	9 24.5	21.1
505103 2012 <i>CD</i> ₁₂	18.5	X	248.12220	321.83264	123.06802	3.51150	0.0931327	0.30245889	2.1979872	20	9 20.3	20.8
505104 2012 <i>CP</i> ₁₂	18.5	X	125.03519	187.78692	352.48093	3.41604	0.1095677	0.28790647	2.2714426	20	8 30.6	21.5
505105 2012 <i>CW</i> ₁₅	18.6	X	273.19100	101.64096	322.16331	8.27587	0.1029629	0.30580448	2.1819267	20	9 22.1	20.8
505106 2012 <i>CE</i> ₄₄	18.1	X	169.75078	13.75488	121.22846	5.26559	0.1273468	0.28885085	2.2664890	20	8 18.3	21.5
505107 2012 <i>CR</i> ₅₀	17.7	X	114.68012	297.96497	276.49830	2.98652	0.1160733	0.29328913	2.2435654	20	10 3.3	20.9
505108 2012 <i>DV</i> ₁₀	17.9	X	17.01436	165.01576	118.41023	5.22327	0.1157018	0.28090454	2.3090334	20	8 30.5	20.1
505109 2012 <i>DV</i> ₁₂	17.7	X	123.09686	186.67407	346.15860	4.07417	0.1387834	0.27900561	2.3194985	20	8 19.6	20.9
505110 2012 <i>DU</i> ₃₃	18.0	X	109.86382	73.76426	112.45893	2.85520	0.1394957	0.27937484	2.3174544	20	8 23.6	21.2
505111 2012 <i>DR</i> ₃₈	17.9	X	90.49628	61.39063	140.38523	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>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
505121 2012 <i>EH</i> ₂	17.7	X	349.55059	49.39208	222.93709	1.68096	0.1949810	0.26284563	2.4136199	20	6 12.3	19.2
505122 2012 <i>EY</i> ₁₀	18.1	X	166.52520	351.33138	153.18885	1.95529	0.0936515	0.28682912	2.2771268	20	8 27.6	21.3
505123 2012 <i>FY</i> ₂₆	18.0	X	206.50172	86.36043	18.00822	8.70622	0.0774334	0.28549276	2.2842273	20	8 24.7	21.1
505124 2012 <i>FZ</i> ₃₁	17.7	X	195.27601	3.88972	94.62123	4.22879	0.1569027	0.28143473	2.3061325	20	7 24.4	21.1
505125 2012 <i>FU</i> ₄₉	18.2	X	259.66832	251.59778	177.51940	5.10474	0.2011653	0.29693701	2.2251528	20	8 22.6	20.7
505126 2012 <i>FH</i> ₅₇	17.3	X	89.13826	210.24786	11.55705	23.65331	0.1739538	0.27806194	2.3247433	20	9 24.7	20.7
505127 2012 <i>FO</i> ₆₇	17.4	X	112.91599	76.73958	105.23143	7.21461	0.0321780	0.26922804	2.3753222	20	8 10.2	20.4
505128 2012 <i>FO</i> ₇₃	18.1	X	127.81102	343.93611	198.04734	4.43485	0.1276135	0.28256748	2.2999652	20	9 3.6	21.5
505129 2012 <i>HB</i> ₁₆	17.9	X	196.09365	3.72428	128.33885	7.38420	0.1890934	0.28856754	2.2679722	20	9 8.1	21.3
505130 2012 <i>HU</i> ₁₉	16.6	X	27.45491	50.26214	220.38238	21.14666	0.1011124	0.26624551	2.3930284	20	8 13.9	19.9
505131 2012 <i>HZ</i> ₁₉	17.9	X	107.11954	136.08516	37.78091	10.57975	0.1906847	0.26834394	2.3805366	20	8 11.8	21.7
505132 2012 <i>HC</i> ₂₈	16.8	X	71.16323	26.79306	212.66702	23.88165	0.1750150	0.27185956	2.3599690	20	9 18.6	20.4
505133 2012 <i>HA</i> ₄₇	17.5	X	164.99308	266.77903	224.28848	10.50974	0.1316551	0.27324103	2.3520079	20	8 1.9	21.3
505134 2012 <i>HH</i> ₄₈	17.1	X	48.79262	140.58673	84.86140	15.30075	0.0419087	0.25897728	2.4375953	20	7 11.5	20.1
505135 2012 <i>HQ</i> ₅₇	17.7	X	30.38367	50.82112	215.20372	6.53128	0.1186052	0.26545283	2.3977900	20	8 20.6	20.4
505136 2012 <i>HJ</i> ₅₈	17.5	X	68.71760	147.62041	67.51165	3.53028	0.1271114	0.26837174	2.3803722	20	8 11.3	20.4
505137 2012 <i>HO</i> ₃₂	17.4	X	323.59921	86.24387	184.79928	12.49045	0.2314424	0.23894228	2.5720182	20	4 8.8	20.1
505138 2012 <i>JO</i> ₄₈	17.6	X	279.11256	111.77219	174.61057	2.05496	0.2818128	0.22903407	2.6456719	20	2 24.6	21.7
505139 2012 <i>JI</i> ₅₃	18.0	X	289.93418	212.74800	93.78961	7.46687	0.1523675	0.24210977	2.5495361	20	4 22.2	21.4
505140 2012 <i>KL</i> ₂	17.3	X	100.31136	330.30671	211.69870	23.47532	0.1872973	0.26399993	2.4065793	20	8 2.8	21.5
505141 2012 <i>KR</i> ₁₆	17.1	X	250.06276	243.59353	93.95566	8.23753	0.3044611	0.22874921	2.6478679	20	4 4.1	21.7
505142 2012 <i>LA</i> ₈	16.4	X	325.19382	159.42854	80.15415	17.08650	0.1127370	0.23234971	2.6204424	20	3 27.4	20.0
505143 2012 <i>LX</i> ₁₁	17.4	X	304.75373	159.88829	143.15659	9.81725	0.2191207	0.24041753	2.5614858	20	4 28.3	20.6
505144 2012 <i>LA</i> ₁₉	17.3	X	269.77116	229.49928	75.44620	14.34687	0.2697541	0.22779169	2.6552829	20	3 19.0	21.8
505145 2012 <i>MF</i> ₁₃	16.8	X	2.31824	156.56534	103.65724	12.90911	0.1418333	0.24222839	2.5487037	20	6 22.0	19.2
505146 2012 <i>OU</i> ₂	16.9	X	220.99987	17.54869	6.05546	8.93696	0.1727862	0.21317879	2.7752795	20	5 8.1	21.5
505147 2012 <i>PG</i> ₁	16.9	X	167.48164	297.68906	166.79030	22.08068	0.0482973	0.23142082	2.6274498	20	7 1.4	21.1
505148 2012 <i>PR</i> ₇	16.5	X	158.76133	170.09931	195.28631	13.06327	0.1485912	0.19312210	2.9642494	20	2 21.5	21.3
505149 2012 <i>PU</i> ₈	17.0	X	284.52278	149.41347	171.77753	19.27263	0.2045456	0.22582980	2.6706392	20	4 27.9	20.9
505150 2012 <i>PW</i> ₉	17.2	X	221.34961	102.12652	263.75875	6.60640	0.1766777	0.21330132	2.7742165	20	4 16.7	21.8
505151 2012 <i>PZ</i> ₁₁	17.0	X	181.16357	122.48028	264.62448	4.90533	0.0882472	0.20312943	2.8660746	20	4 6.6	21.5
505152 2012 <i>PT</i> ₂₀	17.3	X	206.64377	134.23902	223.42589	1.18740	0.0804043	0.20411821	2.8568113	20	3 29.8	21.7
505153 2012 <i>PZ</i> ₂₁	17.1	X	203.20404	221.65541	168.06495	9.59950	0.1768822	0.21507288	2.7589613	20	5 4.8	21.7
505154 2012 <i>PK</i> ₂₂	16.9	X	233.59496	49.32292	309.76212	13.53044	0.0978349	0.21868200	2.7285213	20	4 21.5	21.2
505155 2012 <i>QL</i> ₁	16.1	X	299.39235	317.11844	328.89446	13.43810	0.1933905	0.22277677	2.6949835	20	3 24.0	19.8
505156 2012 <i>QE</i> ₂₂	17.2	X	186.80840	197.45679	181.68502	8.95444	0.1588998	0.20169254	2.8796707	20	4 6.4	21.9
505157 2012 <i>QZ</i> ₂₅	16.1	X	261.18515	149.19999	174.83825	21.16780	0.1483870	0.21230262	2.7829099	20	4 11.6	20.4
505158 2012 <i>QM</i> ₄₉	16.4	X	214.67451	127.94031	213.36384	10.66673	0.2273015	0.20506096	2.8479652	20	3 10.9	21.5
505159 2012 <i>QN</i> ₄₉	16.6	X	346.87758	15.82342	258.54917	10.89280	0.1486482	0.23322382	2.6138908	20	6 10.6	18.9
505160 2012 <i>RE</i> ₁₂	16.3	X	300.39954	7.09028	284.57632	8.22390	0.1585348	0.22093099	2.7099730	20	4 8.9	20.1
505161 2012 <i>RV</i> ₁₈	16.5	X	218.62571	15.74306	7.61149	9.29038	0.1632875	0.21031357	2.8004287	20	5 6.1	21.1
505162 2012 <i>RL</i> ₃₉	17.2	X	249.72295	330.61782	356.38923	16.30181	0.3059601	0.21462596	2.7627901	20	3 18.5	22.0
505163 2012 <i>SP</i> ₁₂	17.3	X	213.75791	330.96747	36.20154	2.50006	0.0847684	0.20364681	2.8612182	20	4 18.5	21.6
505164 2012 <i>SY</i> ₁₆	16.6	X	121.20822	191.98566	211.08146	14.58891	0.1942476	0.17749916	3.1357290	20	3 5.8	21.6
505165 2012 <i>ST</i> ₂₆	16.7	X	217.64392	311.43373	7.38660	13.82839	0.1641702	0.19271392	2.9684335	20	2 26.3	21.7
505166 2012 <i>SW</i> ₃₃	16.5	X	255.88907	328.39367	342.15576	12.01764	0.0739695	0.20598366	2.8395370	20	3 23.1	20.6
505167 2012 <i>SZ</i> ₃₈	17.3	X	205.54985	58.29442	340.90338	2.80864	0.0980748	0.21220224	2.7837874	20	5 18.2	21.6
505168 2012 <i>SJ</i> ₅₃	17.2	X	319.72745	333.30261	296.20066	2.37513	0.1571913	0.21691251	2.7433401	20	4 11.5	20.2
505169 2012 <i>SQ</i> ₅₆	17.7	X	166.25101	30.03634	36.32405	29.49743	0.5675489	0.19031896	2.9932846	20	5 15.6	24.3
505170 2012 <i>TS</i> ₂₂	16.9	X	191.52436	328.43895	22.48428	15.02776	0.1523052	0.18921821	3.0048820	20	3 13.4	21.9
505171 2012 <i>TE</i> ₃₁	17.0	X	264.12834	298.79740	3.42408	9.00915	0.1229735	0.20652313	2.8345900	20	3 19.8	21.2
505172 2012 <i>TH</i> ₃₁	18.1	X	270.14420	119.41090	342.02126	20.53293	0.0354325	0.38381142	1.8752426	20	12 22.7	20.3
505173 2012 <i>TK</i> ₃₁	16.7	X	244.40059	123.58812	222.50789	12.31536	0.2183838	0.21275734	2.7789433	20	4 11.2	21.2
505174 2012 <i>TC</i> ₃₂	16.3	X	186.75574	107.32995	208.87588	10.52748	0.1094133	0.17652328	3.1472752	20	1 21.6	21.5
505175 2012 <i>TW</i> ₃₈	15.9	X	35.08920	247.52814	217.62585	11.74831	0.0538414	0.17147323	3.2087693	20	1 16.9	20.4
505176 2012 <i>TG</i> ₄₈	16.4	X	104.72020	209.36445	203.04444	15.77376	0.0757224	0.17792988	3.1306663	20	2 12.4	21.1
505177 2012 <i>TG</i> ₅₁	17.3	X	213.94609	185.26311	214.28035	4.67815	0.0258453	0.21360025	2.7716276	20	6 3.2	21.1
505178 2012 <i>TV</i> ₇₈	19.4	X	344.47298	244.55414	252.02866	7.47938	0.5496095	0.40287835	1.8155997	20	—	—
505179 2012 <i>TO</i> ₈₀	17.5	X	262.19404	351.83535	349.09221	3.12640	0.1017099	0.21552404	2.7551097	20	5 6.4	21.4
505180 2012 <i>TQ</i> ₈₇	16.9	X	272.95789	101.24131	200.38126	7.17787	0.1317969	0.20260392	2.8710284	20	3 26.9	21.1
505181 2012 <i>TU</i> ₁₀₁	16.9	X	287.36417	268.21877	9.78538	4.77624	0.0940043	0.19939520	2.9017472	20	3 21.3	21.0
505182 2012 <i>TO</i> ₁₀₈	16.6	X	202.33116	58.21777	220.72413	16.26497	0.2012488	0.17409081	3.1765241	20	—	—
505183 2012 <i>TQ</i> ₁₀₈	16.6	X	127.23227	180.51205	244.15341	8.04791	0.0691865	0.18884675	3.0088211	20	3 23.7	21.0
505184 2012 <i>TW</i> ₁₁₀	16.9	X	189.95801	135.39143	351.40396	11.44590	0.1006071	0.23053451	2.6341798	20	8 26.7	20.9
505185 2012 <i>TW</i> ₁₁₃	16.9	X	295.30254	67.25490	240.05860	8.65639	0.1598852	0.21505176	2.7591420	20	4 25.9	20.6
505186 2012 <i>TW</i> ₁₁₄	16.8	X	160.56375	221.43826	218.70740	11.99199	0.0865853	0.20526605	2.8461512	20	5 23.9	21.1
505187 2012 <i>TC</i> ₁₂₀	16.4	X	136.92260	151.28665	223.95312	10.33303	0.1333068	0.17657839	3.1466204	20	2 11.5	21.4
505188 2012 <i>TJ</i> ₁₂₆	17.3	X	234.33112	207.32813	157.01832	2.47012	0.1964231	0.21124432	2.7921968	20	4 28.6	21.9
505189 2012 <i>TL</i> ₁₂₆	16.6	X	66.16696	109.89061	19.19842	10.39585	0.0717186	0.18941817	3.0027669	20	4 1.3	20.4
505190 2012 <i>TH</i> ₁₃₃	17.0	X	221.52269	242.90611	136.74872	5.16147	0.0850047	0.21101928	2.7941815	20	5 14.0	21.2
505191 2012 <i>TJ</i> ₁₃₃	16.6	X	172.91057	185.10010	174.55341	14.05361</						

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>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
505201 2012 TY ₁₆₆	16.8	X	169.73971	223.09993	153.92264	5.38070	0.2062669	0.18729335	3.0254349	20	3 22.7	21.8
505202 2012 TQ ₁₇₄	17.1	X	188.18288	90.55871	272.79724	3.63054	0.1670199	0.19341075	2.9612994	20	3 17.7	22.1
505203 2012 TF ₁₈₇	16.4	X	158.60140	172.82177	231.80353	8.28759	0.0430770	0.18444678	3.0564831	20	4 2.8	20.9
505204 2012 TP ₁₈₇	16.5	X	111.17875	227.26265	225.56002	11.79346	0.2465961	0.17835367	3.1257052	20	5 3.5	21.3
505205 2012 TP ₁₉₅	16.2	X	111.61978	177.12808	219.18629	16.17928	0.1244887	0.17320668	3.1873245	20	2 7.2	21.1
505206 2012 TV ₂₃₇	16.6	X	281.34337	198.13102	129.31802	4.90827	0.1043570	0.21421406	2.7663305	20	5 15.4	20.3
505207 2012 TA ₂₃₈	18.6	X	179.77167	185.05851	24.20620	21.78238	0.0236942	0.39166614	1.8500865	20	—	—
505208 2012 TJ ₂₃₈	16.8	X	224.81301	282.48221	107.23939	4.54010	0.1034825	0.21277893	2.7787553	20	5 28.1	21.0
505209 2012 TK ₂₄₄	16.7	X	284.22075	100.68280	194.81886	14.44227	0.1511308	0.20188404	2.8778494	20	3 30.3	20.9
505210 2012 TO ₂₅₄	16.4	X	58.31255	199.82660	301.34677	9.31233	0.0425347	0.18818419	3.0158794	20	3 27.4	20.7
505211 2012 TG ₂₅₉	17.4	X	172.69659	350.04403	37.93130	6.23333	0.0952166	0.19745262	2.9207482	20	4 3.2	21.8
505212 2012 TZ ₂₆₀	17.0	X	193.07770	232.51532	179.29286	11.02933	0.1594637	0.20504920	2.8481575	20	5 22.6	21.8
505213 2012 TC ₂₆₁	17.3	X	217.34601	339.10832	62.20379	5.69668	0.0734057	0.21246730	2.7814718	20	6 5.2	21.3
505214 2012 TE ₂₇₅	16.3	X	165.16961	111.51296	230.91703	11.86628	0.1828742	0.17829824	3.1263530	20	2 2.9	21.6
505215 2012 TO ₂₈₀	16.5	X	47.78176	289.52162	224.84121	9.95680	0.0660533	0.19126710	2.9833843	20	4 4.1	20.4
505216 2012 TE ₂₈₇	16.8	X	280.17147	324.10155	353.10469	8.70785	0.0850360	0.21323656	2.7747782	20	4 28.2	20.8
505217 2012 TC ₂₉₇	16.6	X	289.66055	56.22890	232.10379	6.96064	0.1965070	0.20985661	2.8044925	20	3 18.5	20.7
505218 2012 TY ₃₀₁	16.9	X	275.86842	271.86870	38.79982	14.61009	0.1943723	0.21045259	2.7991953	20	4 6.8	21.1
505219 2012 TF ₃₀₄	16.7	X	139.06899	246.36700	175.79526	9.16788	0.1750766	0.18770604	3.0209988	20	4 17.5	21.5
505220 2012 TY ₃₀₅	16.8	X	269.40497	311.70844	1.31812	12.49398	0.0682524	0.20562669	2.8428224	20	4 12.1	20.8
505221 2012 TL ₃₀₆	16.9	X	241.54836	81.23596	270.31590	3.75712	0.1322550	0.21012419	2.8021111	20	4 22.9	21.1
505222 2012 TT ₃₀₆	16.7	X	183.06542	153.13579	211.71314	11.10170	0.1020883	0.18950352	3.0018652	20	3 13.2	21.4
505223 2012 TQ ₃₁₁	18.9	X	324.86961	45.33574	13.79650	19.49136	0.1280628	0.38763582	1.8628882	20	—	—
505224 2012 TX ₃₁₉	17.9	X	334.62445	94.56781	1.21326	20.97219	0.1270614	0.39445181	1.8413658	20	—	—
505225 2012 US	19.0	X	292.74960	114.45408	16.88388	21.78812	0.0738902	0.39850628	1.8288550	20	—	—
505226 2012 UZ ₆	17.0	X	156.79593	343.81822	95.33182	6.19124	0.0696001	0.20324066	2.8650287	20	5 18.4	21.3
505227 2012 UM ₁₂	17.2	X	190.68228	171.84657	185.75250	9.95831	0.1174891	0.19050753	2.9913090	20	3 13.9	21.9
505228 2012 UU ₁₃	16.7	X	53.78659	74.02493	122.49351	5.97270	0.0932465	0.21063564	2.7975734	20	6 13.9	20.2
505229 2012 UD ₂₄	16.8	X	130.56970	144.23081	289.53226	7.29332	0.0931547	0.19036329	2.9928199	20	4 9.9	21.4
505230 2012 UE ₂₉	16.5	X	194.67095	86.29807	264.62565	8.52949	0.1217911	0.19144342	2.9815522	20	3 6.3	21.4
505231 2012 UR ₃₀	16.7	X	174.73450	201.63098	177.35620	5.70219	0.1617111	0.18844344	3.0131127	20	3 26.9	21.6
505232 2012 UK ₃₅	16.7	X	231.64247	105.04541	220.92228	9.96798	0.0730871	0.18858469	3.0116079	20	3 16.6	21.3
505233 2012 UO ₃₇	16.1	X	234.82110	51.81875	252.33687	10.40707	0.0121643	0.18103473	3.0947681	20	2 26.2	20.7
505234 2012 UO ₄₄	16.4	X	196.56046	85.31629	250.54832	11.50789	0.0752336	0.18022083	3.1040787	20	2 19.3	21.4
505235 2012 UQ ₅₅	16.4	X	139.16600	223.90976	236.64099	11.03906	0.1326768	0.19696155	2.9256009	20	5 29.6	21.0
505236 2012 UQ ₅₇	17.3	X	214.76276	117.87370	249.19729	0.91865	0.1081722	0.19702440	2.9249787	20	4 18.1	21.9
505237 2012 US ₅₈	16.5	X	148.87350	180.77534	234.68327	8.04976	0.0829853	0.18680612	3.0306933	20	4 8.3	21.2
505238 2012 UU ₆₀	16.5	X	205.09959	278.81212	54.92863	10.89909	0.2084026	0.18400679	3.0613535	20	3 4.9	21.9
505239 2012 UX ₆₀	16.7	X	164.47921	291.09364	93.88383	2.32434	0.1975860	0.18345645	3.0674728	20	3 27.6	21.8
505240 2012 UE ₆₆	16.7	X	75.17900	261.95574	220.87515	12.39659	0.2500480	0.17446299	3.1720048	20	5 2.1	20.8
505241 2012 UO ₇₀	17.2	X	239.02209	102.58662	243.71820	2.53175	0.1065852	0.21018122	2.8016042	20	4 16.8	21.4
505242 2012 UW ₇₃	17.2	X	40.00810	151.10440	26.23993	4.58960	0.0350082	0.19558573	2.9393046	20	4 21.6	20.9
505243 2012 UB ₈₈	16.9	X	157.57900	198.89600	231.35176	9.18257	0.0966264	0.19246859	2.9709555	20	5 8.2	21.5
505244 2012 UO ₉₆	16.4	X	80.04916	95.27562	31.54656	11.84556	0.1952256	0.18411038	3.0602051	20	5 3.4	20.5
505245 2012 UV ₁₀₅	16.9	X	124.69497	196.95188	250.06900	8.61524	0.0912306	0.19056586	2.9906986	20	4 21.3	21.3
505246 2012 UL ₁₁₂	16.3	X	225.70487	321.63438	51.65688	16.10382	0.1515764	0.20322294	2.8651953	20	5 5.2	20.8
505247 2012 UW ₁₁₂	16.6	X	243.82060	123.89235	211.05935	16.79028	0.1395820	0.20246287	2.8723617	20	4 4.3	21.1
505248 2012 UK ₁₁₈	16.1	X	149.95323	126.30563	214.00414	16.06802	0.1168022	0.17011075	3.2258801	20	1 14.6	21.3
505249 2012 UT ₁₂₂	17.2	X	136.98733	170.84129	278.55721	3.24420	0.1293110	0.19046080	2.9917983	20	5 12.5	21.7
505250 2012 UM ₁₂₃	16.4	X	187.43103	122.98777	246.59331	8.30925	0.0959599	0.18505180	3.0498174	20	3 22.6	21.2
505251 2012 UJ ₁₂₄	16.1	X	98.09845	225.53521	250.19856	12.22777	0.0908540	0.18516076	3.0486208	20	4 26.0	20.5
505252 2012 UT ₁₂₆	15.9	X	123.34554	39.59870	34.86055	23.75373	0.1535147	0.18085510	3.0968170	20	4 16.7	20.6
505253 2012 UW ₁₂₆	16.1	X	138.31096	141.94545	262.63819	8.49674	0.0694376	0.17801302	3.1296915	20	3 11.6	21.0
505254 2012 UU ₁₄₂	16.9	X	240.32657	152.24975	194.80102	17.55857	0.1351115	0.20245497	2.8724364	20	4 18.6	21.3
505255 2012 UY ₁₄₄	16.4	X	226.45966	39.52716	48.52966	22.62630	0.0444190	0.22839858	2.6505772	20	9 5.1	20.6
505256 2012 UD ₁₄₆	16.5	X	149.34142	116.13136	300.99327	9.64988	0.0673242	0.19112648	2.9848475	20	4 6.3	21.1
505257 2012 UF ₁₄₆	16.3	X	173.30277	53.85551	272.76123	11.67886	0.0379031	0.16973438	3.2306470	20	1 18.7	21.1
505258 2012 UK ₁₄₉	16.4	X	115.89088	45.20917	28.19696	12.20671	0.0436771	0.18246121	3.0786171	20	3 25.2	20.8
505259 2012 UY ₁₅₅	16.4	X	84.39556	231.35928	234.55068	11.77595	0.1462283	0.17633710	3.1494901	20	4 4.2	20.8
505260 2012 UR ₁₆₃	17.1	X	207.14253	84.01944	267.91259	5.06323	0.1924661	0.19079065	2.9883491	20	3 19.4	22.3
505261 2012 UF ₁₆₆	18.1	X	189.11307	284.90250	268.92051	18.98328	0.0313230	0.38394427	1.8748100	20	—	—
505262 2012 UH ₁₆₆	18.1	X	6.91171	56.99583	332.74552	22.25133	0.0567825	0.39016043	1.8548434	20	—	—
505263 2012 US ₁₆₇	18.6	X	311.55281	196.61420	235.67552	21.30055	0.0394165	0.38395828	1.8747644	20	—	—
505264 2012 UC ₁₇₄	18.2	X	357.58383	310.27058	76.26973	22.94090	0.0648479	0.38505786	1.8711936	20	—	—
505265 2012 VW	17.1	X	185.29210	224.04506	200.74283	12.36469	0.1432619	0.21256952	2.7805800	20	5 30.7	21.7
505266 2012 VL ₁	16.8	X	252.40496	188.46358	150.94628	13.07819	0.0869624	0.20385788	2.8592429	20	4 30.5	21.2
505267 2012 VA ₁₆	16.4	X	74.04530	202.31821	26.14804	9.75357	0.0279446	0.22179811	2.7029052	20	8 20.0	20.2
505268 2012 VW ₁₆	18.3	X	330.95378	33.76129	44.94653	21.61885	0.1360155	0.38661277	1.8661731	20	—	—
505269 2012 VH ₁₇	18.3	X	18.05118	110.56359	242.80623	20.20425	0.0768476	0.37353574	1.9094778	20	12 28.2	20.4
505270 2012 VZ ₁₇	16.6	X	102.42612	242.60309	210.02007	7.83108	0.1196274	0.17818137	3.1277199	20	4 8.3	21.1
505271 2012 VE ₂₀	19.2	X	343.94116	217.94592	195.22727	21.85075	0.1196728	0.38840629	1.8604238	20	—	—
505272 2012 VX ₂₅	17.8	X	248.68710	224.51339	281.84966	19.81538	0.0865509	0.38508183	1.8711159	20	—	—
505273 2012 VJ ₃₀	16.1	X	85.96162	31.96379	62.24934	11.57988	0.0675957	0.17359868	3.1825246	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>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
505281 2012 VE ₅₁	16.6	X	338.85511	207.80070	47.11711	15.84987	0.0934282	0.20442625	2.8539407	20	5 3.6	19.9
505282 2012 VQ ₇₀	16.6	X	100.12234	65.43230	60.62774	21.27599	0.2400670	0.18481517	3.0524201	20	5 31.1	21.3
505283 2012 VH ₇₂	16.4	X	142.81826	183.93031	233.75116	17.43993	0.0711040	0.18198105	3.0840300	20	4 1.7	21.2
505284 2012 VM ₇₄	16.0	X	4.26048	295.50056	261.26360	10.52173	0.0615394	0.18271070	3.0758139	20	3 23.8	20.2
505285 2012 VP ₇₉	19.4	X	71.90219	96.59363	224.67251	23.96447	0.0762332	0.38913055	1.8581146	20	—	—
505286 2012 VJ ₈₁	16.1	X	222.23731	316.47678	42.86451	10.70355	0.0501782	0.19175683	2.9783026	20	4 21.9	20.3
505287 2012 VF ₈₆	16.0	X	356.36734	301.02996	246.36396	20.52139	0.0443905	0.17894018	3.1188714	20	2 26.5	20.7
505288 2012 VU ₈₈	16.3	X	141.53331	11.88162	62.81952	12.44818	0.0564892	0.18745289	3.0237180	20	4 26.9	20.8
505289 2012 VA ₉₈	15.8	X	107.33136	221.55156	235.36389	18.95332	0.1104194	0.18211112	3.0825614	20	4 15.9	20.4
505290 2012 VO ₉₉	16.8	X	154.36713	291.58718	108.15985	2.73585	0.1701172	0.18461192	3.0546600	20	4 4.1	21.7
505291 2012 VU ₁₀₇	15.7	X	248.56045	51.10032	244.03912	11.97640	0.1335238	0.17927910	3.1149395	20	2 19.9	20.9
505292 2012 VQ ₁₀₈	16.1	X	130.94031	16.36986	45.89615	18.97141	0.0847728	0.17944129	3.1130622	20	4 6.9	20.9
505293 2012 WL ₆	17.1	X	119.65674	2.02459	89.42688	2.09735	0.1775016	0.18166100	3.0876513	20	5 3.6	21.8
505294 2012 WJ ₁₂	16.5	X	113.48257	206.42372	232.40814	8.58993	0.0980897	0.17709576	3.1404889	20	3 30.5	21.2
505295 2012 WG ₁₈	16.9	X	133.62282	23.73744	52.13453	18.04338	0.2032812	0.18313128	3.0711029	20	5 1.8	21.8
505296 2012 WL ₁₈	17.2	X	182.23530	76.87027	305.73711	1.89850	0.1256569	0.18657972	3.0331444	20	4 5.0	22.0
505297 2012 WF ₂₂	17.2	X	188.58309	75.97351	312.91291	0.85185	0.2851518	0.19272436	2.9683263	20	4 18.7	22.6
505298 2012 WJ ₂₄	16.2	X	162.59574	328.23509	59.20851	13.15944	0.1537999	0.18077250	3.0977603	20	4 1.1	21.4
505299 2012 WM ₂₆	16.7	X	142.80575	20.84180	52.09114	10.05792	0.0785761	0.18531787	3.0468975	20	4 26.4	21.2
505300 2012 WJ ₂₈	15.9	X	216.44931	53.65205	253.41464	15.35423	0.1952320	0.17474255	3.1686208	20	2 2.6	21.5
505301 2012 XB ₁₇	17.7	X	201.15374	104.84993	109.18003	24.10152	0.0199402	0.38611268	1.8677841	20	—	—
505302 2012 XU ₂₁	16.5	X	21.74476	94.20654	69.92332	11.03396	0.0376456	0.17450043	3.1715511	20	3 19.3	20.9
505303 2012 XZ ₂₃	17.0	X	193.18589	304.40073	58.85330	13.15425	0.1949798	0.18852807	3.0122108	20	3 30.2	22.3
505304 2012 XH ₃₄	16.7	X	117.95772	253.64249	246.67030	4.37831	0.2148794	0.19066031	2.9897109	20	7 3.5	21.5
505305 2012 XA ₄₀	16.9	X	177.25511	268.69450	103.14558	3.03851	0.2290577	0.18197396	3.0841102	20	3 23.8	22.2
505306 2012 XD ₄₀	16.0	X	310.84261	28.36384	240.46212	8.69956	0.1084196	0.18679002	3.0308675	20	4 5.3	20.1
505307 2012 XS ₄₂	15.8	X	26.71380	299.42796	125.22772	14.75190	0.1036360	0.18130805	3.0916571	20	4 28.4	19.8
505308 2012 XZ ₄₅	17.0	X	205.68422	225.05090	253.57752	2.29773	0.2135164	0.18938505	3.0031170	20	3 17.5	22.1
505309 2012 XO ₄₇	18.2	X	156.81749	301.12624	269.52277	17.38566	0.0248388	0.36230166	1.9487487	20	12 6.1	20.3
505310 2012 XW ₅₄	18.4	X	250.01605	272.93330	231.71545	19.00801	0.0626289	0.37902666	1.8909914	20	—	—
505311 2012 XH ₆₀	17.1	X	95.20759	320.12847	154.79029	0.80916	0.1592925	0.18178206	3.0862803	20	5 3.6	21.4
505312 2012 XW ₆₃	16.3	X	121.00256	225.12598	219.72688	14.16216	0.1046175	0.18038756	3.1021658	20	4 17.6	20.9
505313 2012 XZ ₇₇	17.3	X	166.04121	172.23403	198.26308	3.94505	0.1501187	0.17761732	3.1343380	20	3 8.4	22.4
505314 2012 XO ₈₄	17.0	X	119.13316	350.83045	100.28379	9.88308	0.1799541	0.17216160	3.2002104	20	5 6.1	22.1
505315 2012 XY ₉₁	16.9	X	80.47685	224.71748	296.35956	2.14847	0.0669926	0.19185114	2.9773265	20	5 30.0	21.1
505316 2012 XQ ₁₀₉	16.7	X	187.11414	303.90824	76.53898	11.32428	0.1164839	0.18291554	3.0735172	20	4 13.2	21.7
505317 2012 XG ₁₂₈	18.5	X	327.77395	95.13320	319.93279	19.90738	0.0860922	0.37114555	1.9176671	20	—	—
505318 2012 XH ₁₃₁	15.6	X	175.67848	146.43327	237.13020	21.05334	0.0879699	0.17959491	3.1112867	20	3 25.5	20.7
505319 2012 XB ₁₃₄	16.5	X	161.86743	128.54271	283.77632	14.29803	0.3327067	0.18461577	3.0546176	20	4 25.1	22.4
505320 2012 XF ₁₃₆	16.8	X	145.18506	166.89305	276.52041	17.34560	0.2786571	0.18107587	3.0942993	20	5 21.6	22.3
505321 2012 XR ₁₄₁	16.5	X	165.02664	164.78873	224.32397	4.50222	0.1567285	0.18061921	3.0995127	20	3 29.0	21.6
505322 2012 XC ₁₄₉	15.7	X	26.71532	324.50317	233.04538	21.01573	0.0804458	0.18326156	3.0696471	20	5 2.5	19.6
505323 2012 XX ₁₅₁	16.3	X	131.25461	202.91220	269.45947	11.10288	0.1960289	0.18249735	3.0782107	20	6 10.1	21.2
505324 2012 XZ ₁₅₂	16.5	X	188.86732	299.58453	86.47599	9.55642	0.1671327	0.18905708	3.0065892	20	4 20.3	21.6
505325 2012 YH ₆	18.2	X	336.37747	163.63318	254.53471	18.73556	0.1098942	0.37614772	1.9006279	20	—	—
505326 2012 YQ ₆	18.2	X	125.27004	259.17524	338.44728	17.74739	0.0872952	0.35741841	1.9664584	20	11 22.5	21.1
505327 2012 YY ₈	15.9	X	169.06858	319.45084	94.13536	30.41272	0.1875127	0.17856858	3.1231968	20	5 14.9	21.5
505328 2013 AY ₁	16.3	X	206.87275	247.28077	133.22631	11.38721	0.1397223	0.19173178	2.9785620	20	4 30.4	21.3
505329 2013 AC ₆	16.8	X	185.82159	135.93009	248.53988	7.46075	0.0961607	0.18364551	3.0653673	20	4 9.1	21.7
505330 2013 AH ₆	16.5	X	148.67310	339.79184	89.15209	7.70866	0.0575631	0.18369436	3.0648238	20	4 27.8	21.1
505331 2013 AQ ₁₄	16.5	X	144.68179	115.45244	110.01210	12.75283	0.2960427	0.17606718	3.1527082	20	4 27.0	22.3
505332 2013 AY ₁₅	16.6	X	151.96117	283.18725	345.88877	14.00345	0.2879102	0.17691195	3.1426639	20	5 15.1	22.4
505333 2013 AR ₂₀	18.3	X	190.48751	240.81167	306.48933	18.30798	0.0434405	0.36584433	1.9361478	20	12 20.3	20.5
505334 2013 AT ₂₀	16.4	X	71.90218	139.22013	16.72617	9.02329	0.2142939	0.17123723	3.2117169	20	6 1.8	20.9
505335 2013 AH ₂₇	19.0	X	285.17554	295.10868	209.52555	2.77202	0.2882245	0.37663799	1.8989781	20	—	—
505336 2013 AJ ₃₆	16.6	X	174.45547	294.37414	101.22675	11.07115	0.2241796	0.17771662	3.1331705	20	4 21.6	22.1
505337 2013 AM ₅₀	17.8	X	317.93941	123.79897	307.96747	17.35995	0.1008487	0.36828728	1.9275763	20	—	—
505338 2013 AJ ₇₄	16.1	X	160.83084	314.91328	114.28666	17.88768	0.2069017	0.17721638	3.1390638	20	5 20.5	21.7
505339 2013 AX ₈₈	18.1	X	145.98469	223.62898	335.74506	16.76197	0.0567657	0.34882620	1.9986189	20	10 19.7	20.8
505340 2013 AQ ₉₃	16.5	X	94.75103	149.45743	338.57352	4.81750	0.1460610	0.17161117	3.2070496	20	5 16.1	21.2
505341 2013 AX ₁₁₁	18.4	X	286.66672	154.11956	303.83069	18.87473	0.0490677	0.37175030	1.9155868	20	—	—
505342 2013 AO ₁₂₅	16.4	X	133.98588	61.24949	51.71810	14.62530	0.2429681	0.18215552	3.0820605	20	6 14.8	21.7
505343 2013 AG ₁₂₈	16.6	X	126.33915	118.46945	335.91696	9.31912	0.2017388	0.17645319	3.1481086	20	5 12.1	21.8
505344 2013 AD ₁₅₇	16.1	X	190.38572	205.51015	171.56203	10.96490	0.2326058	0.17679006	3.1441082	20	4 9.1	21.6
505345 2013 AV ₁₈₃	18.4	X	280.57651	119.92199	330.51310	19.76702	0.0762240	0.36342886	1.9447171	20	12 12.1	20.5
505346 2013 AD ₁₈₄	17.7	X	196.84468	72.68546	141.44861	23.42871	0.0748275	0.36452916	1.9408019	20	—	—
505347 2013 BM ₅₆	15.8	X	125.43031	156.82110	290.01586	10.85667	0.0588622	0.16920871	3.2373345	20	4 16.3	20.7
505348 2013 BL ₇₀	18.7	X	269.30938	201.87089	277.78373	8.80153	0.2197980	0.36607219	1.9353443	20	—	—
505349 2013 CT	18.0	X	65.38750	220.43381	98.65723	24.04313	0.1502460	0.37175664	1.9155650	20	—	—
505350 2013 CA ₂₀	16.4	X	126.69300	234.11301	235.74868	9.48797	0.2440770	0.17346568	3.1841511	20	6 6.6	21.7
505351 2013 CB ₃₅	18.0	X	164.60339	262.32571	311.53182	16.25315	0.0704636	0.35576624	1.9725418	20	12 14.9	20.6
505352 2013 CO ₃₆	17.9	X	70.44960	47.77301	312.19599	16.58896	0.0956144	0.38089444	1.8848044	20	—	—
505353 2013 CK ₄₇	18.7	X	230.40567	170.50095	331.01827	17.66028	0.0695503	0.35690785	1.9683333	20	11	

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>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
505361 2013 EV ₁₂₆	18.0	X	298.25458	286.52747	179.82304	21.89113	0.0995503	0.36321264	1.9454889	20	—	—
505362 2013 FA ₉	16.1	X	148.18322	102.19104	23.22531	25.83515	0.2989256	0.17691412	3.1426382	20	7 20.5	22.2
505363 2013 GA ₁	17.2	X	201.15356	197.90885	85.71922	7.10025	0.1656742	0.24143345	2.5542952	20	—	—
505364 2013 GO ₁₀	18.1	X	345.04127	54.65341	185.87500	21.74009	0.1609452	0.28278933	2.2987621	20	4 11.9	20.1
505365 2013 GQ ₁₀	18.1	X	310.51558	258.92418	177.32545	22.81975	0.1117986	0.35517295	1.9747379	20	—	—
505366 2013 GV ₆₇	16.7	X	301.14831	277.97738	168.25734	22.10296	0.0638916	0.22654122	2.6650451	20	12 1.5	20.5
505367 2013 GU ₁₂₂	18.5	X	353.74502	168.95471	159.65333	2.94253	0.1389510	0.31467605	2.1407219	20	10 7.2	20.1
505368 2013 HB ₁₁	17.1	X	27.91272	47.91860	197.13925	22.16228	0.1700733	0.29238064	2.2482105	20	7 23.2	19.9
505369 2013 HX ₂₃	17.8	X	37.59845	329.50858	290.36838	3.48966	0.1641915	0.30486412	2.1864112	20	9 7.6	20.1
505370 2013 HN ₃₇	17.7	X	290.46551	335.78681	16.45126	26.78654	0.2942110	0.29713697	2.2241543	20	5 17.3	21.0
505371 2013 HU ₄₀	18.4	X	329.42539	41.14646	283.07101	2.81615	0.2157668	0.30084417	2.2058449	20	7 24.3	19.3
505372 2013 HV ₄₀	18.8	X	319.48055	10.11837	325.07516	2.91377	0.2341624	0.30125420	2.2038430	20	7 14.3	19.8
505373 2013 HC ₄₉	18.4	X	16.72264	272.68846	3.12618	4.56075	0.0982991	0.30477620	2.1868317	20	8 18.9	20.4
505374 2013 HU ₇₆	18.3	X	349.78519	289.42433	8.80099	6.26440	0.1905928	0.29893012	2.2152510	20	8 7.8	19.6
505375 2013 HW ₇₆	17.3	X	319.79264	199.26383	259.72926	3.19463	0.0866261	0.22283033	2.6945517	20	—	—
505376 2013 HV ₁₀₄	15.8	X	350.56929	146.04802	24.47255	8.95016	0.1383508	0.12478009	3.9661810	20	2 12.9	20.8
505377 2013 HH ₁₃₁	18.3	X	358.53657	22.58923	302.44734	2.72162	0.1609664	0.31583740	2.1354710	20	10 12.0	19.9
505378 2013 HJ ₁₅₃	16.0	X	101.55567	299.17178	209.54157	10.63183	0.0923033	0.15720493	3.4001020	20	6 13.1	21.0
505379 2013 JM ₂	18.5	X	359.57085	156.94314	133.09334	2.69415	0.1752241	0.29732744	2.2232044	20	8 13.9	19.8
505380 2013 JH ₂₅	18.6	X	46.64108	78.39111	214.44748	2.67998	0.0826623	0.31927223	2.1201274	20	10 30.9	20.8
505381 2013 JX ₄₆	18.0	X	340.32889	184.53923	131.85675	6.53932	0.2250721	0.29145528	2.2529667	20	8 11.5	18.7
505382 2013 KR ₁₆	18.1	X	352.91557	222.95878	93.41522	7.57914	0.2152688	0.29828677	2.2184351	20	9 25.4	19.6
505383 2013 MM ₉	17.4	X	41.61772	178.48416	93.05344	7.30894	0.1980957	0.29767078	2.2214945	20	10 11.9	20.1
505384 2013 NA	18.1	X	292.52989	250.55385	116.17832	7.14183	0.2346756	0.29106017	2.2550051	20	7 5.5	20.2
505385 2013 OE ₆	17.7	X	261.39001	102.54274	247.97389	3.16881	0.1725726	0.25666623	2.4522057	20	5 8.3	21.2
505386 2013 PA ₁₁	17.6	X	284.45181	44.24670	283.18180	15.77549	0.2622647	0.26342419	2.4100846	20	4 15.0	21.4
505387 2013 PS ₁₈	17.6	X	50.27574	280.66320	218.60852	6.20216	0.0641776	0.28027793	2.3124736	20	8 8.6	20.3
505388 2013 PD ₂₇	17.5	X	30.58446	318.08274	398.65005	5.71824	0.0822780	0.27349155	2.3505714	20	8 4.5	20.0
505389 2013 PL ₃₄	17.8	X	80.06777	312.63594	279.89295	5.76249	0.0925776	0.28947658	2.2632217	20	9 12.5	20.8
505390 2013 PD ₃₅	18.3	X	286.80091	17.86662	323.21252	5.53664	0.2321711	0.26416547	2.4055738	20	5 16.8	21.4
505391 2013 PE ₃₈	18.2	X	355.12344	295.79256	329.61715	1.03051	0.1042027	0.26509635	2.3999391	20	6 15.3	20.5
505392 2013 PF ₃₈	17.9	X	0.38495	309.49709	328.15761	2.96097	0.2018676	0.27653545	2.3332906	20	7 24.1	19.3
505393 2013 PS ₄₉	18.0	X	223.93259	173.69712	162.10601	4.40667	0.2093053	0.23699989	2.5860522	20	3 13.6	22.2
505394 2013 PE ₅₇	17.5	X	251.37965	167.81424	164.75926	14.78412	0.1320372	0.25220650	2.4810291	20	4 11.9	21.2
505395 2013 QC ₄	18.1	X	330.34949	342.04493	296.63475	1.74607	0.1695943	0.26343940	2.4099918	20	5 10.2	20.4
505396 2013 QD ₁₇	17.8	X	292.70285	215.23535	137.88214	16.35635	0.2440182	0.26679611	2.3897349	20	6 14.6	20.8
505397 2013 QZ ₂₃	18.3	X	346.51449	169.05769	100.47598	2.33841	0.1675445	0.26716356	2.3875432	20	6 1.5	20.0
505398 2013 QO ₂₈	18.2	X	234.90509	233.99100	172.09252	1.17079	0.1771463	0.26197499	2.4189645	20	6 22.3	21.6
505399 2013 QR ₄₁	18.0	X	42.65229	305.12812	302.15496	4.46286	0.1350106	0.27915585	2.3186662	20	8 19.4	20.4
505400 2013 QE ₅₄	17.8	X	289.10820	182.62629	147.12991	16.07994	0.0767649	0.26154769	2.4215984	20	6 4.4	21.1
505401 2013 QC ₆₂	18.2	X	306.43797	304.16274	358.08311	0.40081	0.1972381	0.26222992	2.4173965	20	4 28.0	20.9
505402 2013 QS ₆₅	17.3	X	233.27085	15.90112	323.21246	13.84693	0.2739370	0.23733203	2.5836389	20	3 16.4	22.0
505403 2013 QL ₆₈	17.8	X	21.60822	72.26997	185.29169	1.01750	0.1576592	0.27455522	2.3444964	20	8 1.4	19.8
505404 2013 QY ₇₃	17.1	X	208.16243	125.83274	267.02985	10.25855	0.1012150	0.24680396	2.5171048	20	5 11.4	20.9
505405 2013 QO ₇₆	18.0	X	322.93961	155.21359	172.49832	6.89823	0.1261944	0.27420732	2.3464791	20	7 18.9	20.4
505406 2013 QY ₇₈	18.3	X	327.16071	345.47912	320.88121	2.96449	0.1910778	0.26994947	2.3710883	20	6 15.4	20.2
505407 2013 QA ₈₄	18.2	X	243.93442	57.88685	287.53576	10.10054	0.2566750	0.24689080	2.5165145	20	4 1.8	22.6
505408 2013 QM ₈₄	17.3	X	261.12594	56.42428	330.26974	13.43015	0.2100088	0.26187213	2.4195979	20	6 22.8	20.9
505409 2013 QK ₉₁	18.5	X	353.23364	306.95459	325.58864	2.09620	0.1827980	0.27347656	2.3506573	20	6 23.3	20.0
505410 2013 QC ₉₂	17.9	X	354.35832	340.68891	306.69261	4.69328	0.0837209	0.27522567	2.3406874	20	7 19.6	20.3
505411 2013 QX ₉₂	17.3	X	79.03181	63.56655	169.39421	6.41392	0.0739588	0.28595297	2.2817758	20	9 12.1	20.0
505412 2013 QO ₉₅	6.7	X	3.40309	311.64826	83.00044	20.63690	0.326872	0.00390120	39.9641597	20	11 7.5	22.6
505413 2013 RO ₄	17.6	X	287.78805	334.75875	12.00480	1.73503	0.1853750	0.26118138	2.4238621	20	6 4.9	20.4
505414 2013 RY ₆	17.9	X	264.94217	149.82858	221.46730	4.12747	0.2208033	0.26161711	2.4211700	20	6 3.7	21.2
505415 2013 RL ₈	17.5	X	159.40488	160.04983	321.58774	5.27512	0.0672786	0.26248546	2.4158273	20	7 17.5	20.9
505416 2013 RT ₁₆	17.2	X	260.51888	233.98347	188.62981	20.14795	0.3375765	0.26383123	2.4076050	20	7 19.1	21.3
505417 2013 RZ ₁₇	17.6	X	301.79957	305.01192	16.24709	3.13073	0.2378843	0.26184026	2.4197942	20	5 10.6	20.5
505418 2013 RH ₁₉	17.7	X	273.03781	97.95292	277.04402	3.69633	0.1750660	0.26447773	2.4036800	20	6 26.3	20.7
505419 2013 RE ₂₂	16.9	X	201.52376	16.52834	348.07141	13.19109	0.1855396	0.23095749	2.6309626	20	3 27.1	21.4
505420 2013 RT ₂₅	17.4	X	307.76356	72.24443	327.62497	6.24235	0.1134060	0.28487160	2.2875466	20	10 13.7	19.6
505421 2013 RE ₃₁	17.0	X	312.81198	346.50702	333.62111	6.35632	0.1456083	0.26196472	2.4190277	20	6 14.3	19.6
505422 2013 RA ₃₂	17.4	X	261.34187	241.52963	141.92370	6.92232	0.1426839	0.26016693	2.4301588	20	6 27.3	20.7
505423 2013 RS ₃₆	17.7	X	285.72397	354.45179	5.95145	2.32114	0.2038107	0.26362791	2.4088428	20	6 18.8	20.6
505424 2013 RJ ₄₀	17.7	X	247.23101	170.60037	218.96685	1.94679	0.2039010	0.25626628	2.4547564	20	6 10.5	21.1
505425 2013 RU ₄₁	18.1	X	238.46628	31.42976	24.20980	2.75793	0.2124420	0.25946242	2.4345558	20	7 5.4	21.7
505426 2013 RF ₄₆	17.7	X	264.38105	61.67062	308.54919	3.34835	0.2125791	0.25796379	2.4439757	20	6 2.1	21.0
505427 2013 RV ₄₇	17.8	X	242.56482	167.70337	180.47829	17.20421	0.1732594	0.24262685	2.5459125	20	4 18.4	21.8
505428 2013 RV ₆₁	17.9	X	252.94395	38.46125	345.19167	1.73521	0.1998807	0.25829663	2.4418757	20	6 9.0	21.5
505429 2013 RM ₆₄	18.3	X	290.07437	342.79835	353.83365	2.24259	0.2241850	0.26165933	2.4209096	20	5 17.6	21.3
505430 2013 RR ₇₀	17.0	X	250.36408	34.14964	279.59713	9.33479	0.1383105	0.23336199	2.6128590	20	3 10.3	21.2
505431 2013 RV ₇₅	18.4	X	200.52754	35.73729	346.20024	4.74800	0.2679457	0.23566418	2.5958146	20	4 16.4	23.1
505432 2013 RS ₈₃	17.9	X	321.81535	0.84752	310.28867	4.90934	0.1049940	0.25998552	2.4312891	20	6 23.3	20.4
505433 2013 RR ₉₅	17.5	X	332.77836	351.34736	314.49896	4.05775	0.1199554	0.26565656	2.3965639			

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>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
505441 2013 <i>SF</i> ₅₈	17.0	X	207.05628	168.48927	222.41013	31.75748	0.1333092	0.23697758	2.5862145	20	5 8.1	21.0
505442 2013 <i>SE</i> ₆₅	16.0	X	15.71558	85.69866	359.27511	24.77227	0.3305617	0.17454029	3.1710682	20	—	—
505443 2013 <i>ST</i> ₆₈	17.0	X	177.03571	113.30076	10.36577	12.13466	0.1839251	0.26201573	2.4187138	20	8 11.3	21.1
505444 2013 <i>SY</i> ₇₆	17.5	X	277.78169	189.54687	189.42119	6.27545	0.1101752	0.26545229	2.3977932	20	7 18.8	20.5
505445 2013 <i>SC</i> ₈₄	18.0	X	274.00562	6.34741	10.98306	5.44472	0.1259303	0.26403044	2.4063939	20	7 10.5	20.9
505446 2013 <i>SP</i> ₉₉	7.3	X	51.64387	251.58756	71.93889	0.79096	0.0633177	0.00339099	43.8785302	20	10 15.1	23.6
505447 2013 <i>SQ</i> ₉₉	6.4	X	142.10130	177.72193	51.98018	3.46811	0.0928118	0.00334851	44.2488592	20	10 12.2	23.2
505448 2013 <i>SA</i> ₁₀₀	6.1	X	251.63846	114.08303	27.80756	8.47482	0.1624711	0.00312409	46.3432659	20	10 11.4	23.0
505449 2013 <i>TT</i> ₁₄	17.7	X	293.54224	7.90553	335.73862	6.26260	0.1333860	0.26018725	2.4300322	20	6 18.7	20.6
505450 2013 <i>TC</i> ₂₁	17.9	X	224.77326	247.80666	179.28166	9.89039	0.1845860	0.25599468	2.4564924	20	7 7.6	21.9
505451 2013 <i>TR</i> ₂₄	16.7	X	139.88246	71.26426	22.51351	22.04429	0.0684567	0.22974918	2.6401792	20	5 9.2	20.8
505452 2013 <i>TD</i> ₂₉	17.3	X	356.72710	96.19382	202.94612	4.82311	0.1532168	0.26525929	2.3989562	20	8 12.6	19.4
505453 2013 <i>TE</i> ₃₂	18.2	X	289.04219	151.65139	169.43327	2.69523	0.2249161	0.26061864	2.4273500	20	4 25.9	21.3
505454 2013 <i>TE</i> ₃₃	17.7	X	316.68482	332.73170	344.16824	5.33922	0.0279306	0.26111790	2.4242549	20	7 2.3	20.6
505455 2013 <i>TE</i> ₄₉	17.2	X	228.59540	188.04167	197.49424	11.47899	0.0179192	0.24280002	2.5447019	20	6 4.8	20.7
505456 2013 <i>TU</i> ₄₉	17.8	X	258.33547	14.99945	21.30164	1.13270	0.1843631	0.25826929	2.4420480	20	7 5.3	21.0
505457 2013 <i>TU</i> ₅₉	17.5	X	182.42404	215.10211	261.60046	5.80748	0.0796213	0.25817574	2.4426379	20	8 3.9	21.0
505458 2013 <i>TO</i> ₆₆	18.2	X	264.99884	209.55450	168.60146	13.13106	0.2174679	0.25808161	2.4432318	20	6 14.5	21.9
505459 2013 <i>TB</i> ₇₁	17.7	X	246.08002	118.14355	191.90033	12.14006	0.2336102	0.23259659	2.6185879	20	2 26.3	22.2
505460 2013 <i>TY</i> ₇₈	17.0	X	202.88453	169.53043	234.84833	12.03963	0.1696706	0.23257159	2.6187755	20	5 20.0	21.3
505461 2013 <i>TZ</i> ₈₀	17.7	X	200.14892	15.59530	99.84376	3.72701	0.3591269	0.25368631	2.4713714	20	8 7.8	22.4
505462 2013 <i>TV</i> ₉₀	18.2	X	273.97895	328.69047	354.34957	2.44629	0.1420884	0.24506707	2.5289840	20	4 20.8	21.8
505463 2013 <i>TV</i> ₉₂	18.4	X	234.68898	47.15016	31.10523	4.54247	0.3950729	0.25328807	2.4739613	20	7 14.6	22.8
505464 2013 <i>TA</i> ₉₃	16.5	X	147.09372	196.20866	208.20044	11.72820	0.1413091	0.21216944	2.7840743	20	3 27.4	20.9
505465 2013 <i>TE</i> ₉₄	17.5	X	215.55896	231.77070	164.51769	4.29856	0.1351381	0.23591470	2.5939765	20	5 24.5	21.5
505466 2013 <i>TU</i> ₉₄	17.4	X	174.41545	29.07956	40.00260	8.90119	0.1784211	0.23006459	2.6377656	20	5 23.9	21.7
505467 2013 <i>TP</i> ₉₅	17.3	X	129.72949	87.35740	40.85807	22.65042	0.0533744	0.23760189	2.5816822	20	6 12.8	21.2
505468 2013 <i>TH</i> ₁₀₇	18.1	X	244.74079	233.77011	146.37551	2.15035	0.1323788	0.24674097	2.5175332	20	6 3.6	21.6
505469 2013 <i>TS</i> ₁₁₁	17.6	X	236.58355	155.31505	222.55066	11.55935	0.1902237	0.24142153	2.5543793	20	5 17.1	21.6
505470 2013 <i>TM</i> ₁₁₂	18.2	X	303.04802	157.32946	161.98291	2.50449	0.1950312	0.25424242	2.4677663	20	5 19.2	21.0
505471 2013 <i>TP</i> ₁₂₉	16.6	X	186.89916	253.76709	204.62341	28.19582	0.3292981	0.23521417	2.5991244	20	7 4.3	22.0
505472 2013 <i>TQ</i> ₁₃₀	17.3	X	223.04495	109.97317	285.19962	11.82705	0.1833388	0.24464680	2.5318795	20	5 25.1	21.4
505473 2013 <i>TH</i> ₁₃₂	17.7	X	198.07484	306.19291	177.37121	11.15046	0.1931576	0.26498878	2.4005886	20	8 23.6	21.6
505474 2013 <i>TB</i> ₁₃₅	16.8	X	258.54313	249.25420	68.93654	30.08492	0.3460857	0.23501234	2.6006123	20	3 29.8	22.0
505475 2013 <i>UG</i> ₇	18.0	X	207.42056	282.34219	143.44958	4.92467	0.2414692	0.24193236	2.5507824	20	6 17.2	22.4
505476 2013 <i>UL</i> ₁₅	6.6	X	54.76879	235.42473	81.91071	2.02480	0.1010692	0.00316998	45.8949802	20	10 16.6	23.0
505477 2013 <i>UM</i> ₁₅	6.9	X	81.23776	183.24067	110.91592	1.84104	0.0781064	0.00325093	45.1298662	20	10 18.7	23.4
505478 2013 <i>UT</i> ₁₅	6.2	X	354.02794	251.87290	191.94480	10.65071	0.7784679	0.00035151	198.8436250	20	10 14.9	23.8
505479 2013 <i>VS</i> ₁	17.6	X	195.38182	257.09993	193.92169	10.52605	0.1632972	0.24697069	2.5159718	20	7 10.4	21.8
505480 2013 <i>VJ</i> ₁₄	17.9	X	227.91868	133.64220	264.61608	6.56347	0.2464030	0.24403803	2.5360883	20	5 29.9	22.2
505481 2013 <i>VJ</i> ₁₅	17.3	X	251.02065	126.27699	215.73916	13.01266	0.1902963	0.23677776	2.5876693	20	4 14.5	21.3
505482 2013 <i>VQ</i> ₁₈	16.6	X	181.89337	99.61663	4.83569	7.58714	0.1589626	0.24199528	2.5503402	20	7 18.5	20.8
505483 2013 <i>VA</i> ₂₀	17.5	X	242.63265	314.70113	90.82965	6.05449	0.2469448	0.25230514	2.4803824	20	6 22.0	21.2
505484 2013 <i>VL</i> ₂₃	17.2	X	227.46812	72.00886	309.80354	6.16237	0.1599403	0.23944262	2.5684340	20	5 13.2	21.2
505485 2013 <i>WM</i> ₂	16.3	X	126.46252	251.92478	237.11803	21.06267	0.0604874	0.22612985	2.6682762	20	6 13.5	20.2
505486 2013 <i>WG</i> ₃	17.5	X	235.46016	40.94924	3.11705	5.51449	0.2085738	0.24392299	2.5368856	20	6 16.4	21.5
505487 2013 <i>WV</i> ₈	17.7	X	246.80446	126.67369	249.30331	13.14922	0.1972613	0.24158032	2.5532598	20	5 23.6	21.5
505488 2013 <i>WH</i> ₁₄	17.3	X	270.02214	107.27133	238.20497	15.15605	0.2116745	0.23978029	2.5660222	20	5 6.6	21.0
505489 2013 <i>WO</i> ₁₇	16.7	X	248.35197	148.45044	221.53111	11.07601	0.0909361	0.23321187	2.6139801	20	5 30.6	20.5
505490 2013 <i>WD</i> ₃₇	17.5	X	239.54562	335.01217	30.01952	5.36588	0.1461200	0.22983444	2.6395262	20	5 6.7	21.5
505491 2013 <i>WH</i> ₃₇	17.2	X	158.06544	200.60204	270.08756	12.10942	0.1211181	0.23009769	2.6375126	20	6 30.1	21.1
505492 2013 <i>WT</i> ₄₈	17.5	X	163.65660	65.70144	329.92925	7.24833	0.2033285	0.21380834	2.6798290	20	4 3.2	22.2
505493 2013 <i>WA</i> ₄₉	17.2	X	243.76789	41.91815	329.27507	8.32418	0.1564093	0.23869744	2.5737768	20	5 15.9	21.2
505494 2013 <i>WC</i> ₅₆	16.9	X	279.55701	84.30742	257.26917	8.74361	0.1252388	0.24172767	2.5522222	20	5 26.6	20.2
505495 2013 <i>WH</i> ₆₃	16.6	X	229.26558	163.74663	273.70119	16.03694	0.1839693	0.23382144	2.6094351	20	7 22.6	20.7
505496 2013 <i>WM</i> ₆₄	17.3	X	207.24549	189.18799	225.45522	6.78354	0.3198938	0.23591137	2.5940010	20	5 31.2	22.0
505497 2013 <i>WV</i> ₆₄	15.9	X	197.22551	287.20809	87.77115	12.99719	0.1037694	0.21698110	2.7427619	20	4 16.2	20.3
505498 2013 <i>WY</i> ₆₅	16.1	X	84.76444	36.12084	80.59404	15.93279	0.0981592	0.20435022	2.8546485	20	4 20.3	20.2
505499 2013 <i>WS</i> ₆₉	17.6	X	234.40032	347.82391	37.15492	2.82264	0.2265736	0.23998209	2.5645834	20	5 20.3	21.9
505500 2013 <i>WE</i> ₇₄	17.1	X	167.62693	26.71252	81.33008	15.06541	0.2254439	0.23289692	2.6163362	20	7 7.6	21.7
505501 2013 <i>WV</i> ₇₄	17.8	X	189.09994	190.85553	220.80192	5.28567	0.1380537	0.22728889	2.6591974	20	5 17.2	22.0
505502 2013 <i>WV</i> ₇₆	16.9	X	220.49158	273.69042	80.44256	12.88847	0.2303001	0.22416943	2.6838101	20	4 7.8	21.7
505503 2013 <i>WC</i> ₈₅	17.2	X	245.13273	244.04363	87.95473	14.73650	0.3039712	0.22726462	2.6593867	20	3 28.6	22.1
505504 2013 <i>WA</i> ₈₇	16.5	X	169.50062	35.10766	54.63736	22.80487	0.0360680	0.23084882	2.6317883	20	6 10.2	20.3
505505 2013 <i>WV</i> ₈₈	17.3	X	302.90944	59.75563	251.99401	12.70054	0.1776670	0.24196745	2.5505357	20	5 9.3	20.5
505506 2013 <i>WC</i> ₈₉	17.4	X	296.62853	42.60621	258.79208	6.46706	0.1893341	0.23545143	2.5973780	20	4 12.7	20.8
505507 2013 <i>WL</i> ₉₈	17.5	X	185.24219	160.32488	278.35072	2.07153	0.1322787	0.23249611	2.6193423	20	6 16.7	21.6
505508 2013 <i>WX</i> ₁₀₃	17.8	X	223.10829	127.08822	271.67842	4.44092	0.3179835	0.23949066	2.5680905	20	5 22.2	22.3
505509 2013 <i>WT</i> ₁₀₄	18.1	X	197.55729	323.52820	121.38712	5.19537	0.2429247	0.24099169	2.5574157	20	7 2.7	22.4
505510 2013 <i>WP</i> ₁₀₅	16.6	X	233.68189	139.18340	286.65282	21.37145	0.0496635	0.22538701	2.6741358	20	7 27.0	20.4
505511 2013 <i>WS</i> ₁₀₈	15.8	X	166.66642	181.91814	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>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
505521 2013 YZ ₁₆	17.0	X	184.55228	291.68589	133.87424	5.64494	0.1510448	0.21575863	2.7531124	20	5 31.1	21.4
505522 2013 YK ₁₈	17.3	X	203.43684	323.94401	81.76255	13.94127	0.1544613	0.23183943	2.6242861	20	5 24.5	21.5
505523 2013 YW ₂₃	17.0	X	160.89850	220.38503	257.05320	12.09232	0.2107421	0.23342035	2.6124235	20	7 11.8	21.5
505524 2013 YU ₂₄	17.7	X	212.52355	326.86990	86.78417	1.91962	0.1792232	0.23616702	2.5921286	20	6 9.2	21.9
505525 2013 YW ₂₄	16.8	X	175.30336	8.51612	69.62593	8.81577	0.1438683	0.22771310	2.6558938	20	6 5.9	21.0
505526 2013 YL ₂₇	17.4	X	130.62756	170.23540	300.85644	1.66970	0.1319612	0.20976572	2.8053025	20	6 2.7	21.6
505527 2013 YO ₂₇	17.5	X	164.19089	4.90379	100.58280	4.84319	0.2890468	0.22255024	2.6968120	20	7 2.2	22.3
505528 2013 YJ ₃₂	16.0	X	21.88045	244.52159	303.28223	11.90066	0.0855850	0.18412213	3.0600749	20	4 6.3	20.1
505529 2013 YP ₃₉	17.3	X	166.94835	345.82631	118.40678	13.55632	0.1086689	0.22072213	2.7116823	20	7 1.1	21.4
505530 2013 YU ₄₁	17.3	X	235.79277	144.69871	229.92085	5.08969	0.2911930	0.23670380	2.5882083	20	5 4.1	21.7
505531 2013 YQ ₄₂	16.6	X	256.80343	337.08580	53.36681	5.96735	0.2751311	0.24255743	2.5463982	20	6 12.7	20.4
505532 2013 YE ₄₃	17.4	X	173.75625	114.67531	311.24306	6.60910	0.2193687	0.21451553	2.7637381	20	5 19.8	22.3
505533 2013 YS ₄₄	16.7	X	109.46148	210.74788	298.53221	12.10972	0.1810577	0.20959347	2.8068393	20	7 5.2	21.0
505534 2013 YP ₅₁	17.1	X	224.33156	78.05577	283.74857	5.12557	0.0925757	0.20857447	2.8159738	20	4 20.1	21.5
505535 2013 YQ ₅₄	16.9	X	243.33253	80.53057	269.08357	10.75724	0.1949202	0.22626964	2.6671771	20	4 13.2	21.3
505536 2013 YC ₅₇	17.5	X	166.25114	83.31273	49.97185	7.12129	0.2606282	0.23275586	2.6173932	20	8 9.6	22.2
505537 2013 YZ ₅₈	17.1	X	189.76305	150.13786	276.59891	8.48463	0.1225561	0.22995735	2.6385856	20	6 5.9	21.2
505538 2013 YY ₇₆	17.3	X	205.45309	356.18702	74.88497	4.07551	0.2128180	0.23120096	2.6291153	20	6 23.0	21.6
505539 2013 YL ₈₁	16.8	X	61.75571	35.96129	106.13589	10.49138	0.0639070	0.19116383	2.9844586	20	4 15.3	20.9
505540 2013 YW ₈₂	16.7	X	152.96247	148.06874	301.84671	8.63063	0.1136424	0.21184909	2.7868803	20	5 27.8	21.1
505541 2013 YJ ₉₇	16.3	X	348.86574	86.44856	106.72340	8.56378	0.1300776	0.17642933	3.1483924	20	2 29.9	20.2
505542 2013 YN ₁₀₀	17.2	X	194.34431	285.18228	167.20158	5.52081	0.2034035	0.23125293	3.2827214	20	7 9.9	21.7
505543 2013 YF ₁₁₄	16.2	X	247.20880	332.00896	304.34506	14.84498	0.0430847	0.17136365	3.2101371	20	2 8.5	21.0
505544 2013 YY ₁₁₅	17.0	X	127.08569	189.55863	298.59796	6.92352	0.1675159	0.21044260	2.7992839	20	6 24.3	21.4
505545 2013 YH ₁₁₆	16.0	X	159.14226	252.44796	119.06458	10.62391	0.0939510	0.17517410	3.1634147	20	3 3.9	20.9
505546 2013 YH ₁₂₀	17.1	X	161.59290	310.28007	127.35544	4.25546	0.0424402	0.21112694	2.7932316	20	5 20.4	21.2
505547 2013 YW ₁₂₆	16.1	X	11.95359	228.94854	299.26272	26.04607	0.1923884	0.17759477	3.1346034	20	2 19.2	19.9
505548 2013 YF ₁₃₁	16.6	X	164.84894	8.96956	77.31049	12.44055	0.0432319	0.21557860	2.7546449	20	6 3.7	20.4
505549 2013 YF ₁₃₃	17.0	X	197.87754	67.82077	327.01693	10.96373	0.2100349	0.21713280	2.7414843	20	4 28.2	21.9
505550 2013 YS ₁₃₉	16.2	X	78.66414	163.38861	308.72835	9.04379	0.0519976	0.18032455	3.1028884	20	3 20.3	20.7
505551 2013 YD ₁₄₀	17.2	X	225.49787	122.95773	273.63725	4.18193	0.1926075	0.23829592	2.5766671	20	5 29.5	21.4
505552 2013 YW ₁₄₄	17.2	X	118.06911	51.32188	46.82756	6.65125	0.0284897	0.20086227	2.8876007	20	4 22.1	21.1
505553 2013 YS ₁₄₉	16.7	X	148.61706	234.50327	253.97956	12.27905	0.2256942	0.22700463	2.6614169	20	7 14.9	21.4
505554 2014 AW ₂	17.5	X	159.73633	169.08240	3.42776	3.35143	0.1324730	0.24125055	2.5555861	20	9 20.8	21.4
505555 2014 AS ₇	16.8	X	102.83520	222.43052	305.22293	12.34425	0.1742601	0.21421867	2.7662908	20	7 21.1	20.9
505556 2014 AC ₈	17.0	X	194.62208	335.07598	93.42361	6.24811	0.0995918	0.22040592	2.7142752	20	6 14.1	21.0
505557 2014 AC ₁₃	16.9	X	194.21594	181.90855	240.05974	14.09525	0.0783770	0.23185713	2.6241525	20	6 5.8	20.8
505558 2014 AY ₁₄	17.6	X	155.06328	244.96094	194.06896	8.98074	0.2138971	0.21039702	2.7996881	20	5 23.2	22.4
505559 2014 AD ₃₆	16.5	X	128.94569	151.08740	253.24440	9.36670	0.1361989	0.19444887	2.9507502	20	3 6.6	21.1
505560 2014 AV ₃₆	17.9	X	211.00606	231.93449	165.64910	2.46705	0.2125872	0.22961287	2.6412240	20	5 17.6	22.3
505561 2014 AC ₃₇	17.0	X	214.04586	239.81187	137.33459	3.19313	0.1820136	0.22296441	2.6934713	20	4 27.1	21.4
505562 2014 AW ₄₀	17.2	X	134.54976	195.33523	298.40009	6.82774	0.1603525	0.21522753	2.7576395	20	7 8.3	21.6
505563 2014 AX ₄₂	17.9	X	184.58696	346.26947	96.66156	2.05897	0.1755222	0.23174843	2.6249730	20	6 20.8	22.0
505564 2014 AA ₄₃	16.9	X	273.08467	223.77993	113.95596	6.54487	0.2679188	0.23910911	2.5708217	20	4 26.5	20.8
505565 2014 AT ₄₅	16.8	X	137.82878	24.18879	109.55467	16.22354	0.2464614	0.21400359	2.7681440	20	7 15.6	21.5
505566 2014 AX ₅₁	16.7	X	206.80844	81.88225	337.83937	21.51621	0.0964369	0.23026237	2.6362549	20	6 16.9	21.1
505567 2014 BC ₁	17.3	X	169.25478	189.28278	292.84319	6.51931	0.2439332	0.22982865	2.6395705	20	7 25.9	21.9
505568 2014 BY ₄	16.3	X	200.48392	115.90747	299.52332	12.18854	0.1053159	0.22059538	3.1127209	20	6 2.4	20.6
505569 2014 BS ₆	16.3	X	179.18622	34.95067	320.82663	8.38859	0.2924035	0.17505694	3.1648259	20	2 29.7	21.3
505570 2014 BY ₁₀	16.7	X	248.50929	276.15158	95.97537	14.72166	0.0964878	0.22234798	2.6984472	20	6 3.4	20.6
505571 2014 BK ₁₅	16.9	X	237.68932	344.53314	13.12223	3.04842	0.1916126	0.21428148	2.7657502	20	4 22.3	21.2
505572 2014 BQ ₁₅	16.7	X	262.90599	268.28840	71.46931	5.93624	0.0881887	0.21178987	2.7873997	20	5 9.8	20.7
505573 2014 BS ₁₆	17.4	X	196.13923	333.18308	99.32380	12.86663	0.0815184	0.22262500	2.6962082	20	6 21.9	21.3
505574 2014 AA ₂₂	16.3	X	194.19862	51.50214	312.34825	10.24979	0.0412017	0.18303905	3.0721344	20	3 21.5	21.1
505575 2014 BB ₂₄	17.1	X	126.14625	351.52828	157.20414	17.69894	0.1943293	0.21242057	2.7818796	20	7 19.9	21.9
505576 2014 BZ ₃₁	17.1	X	139.20050	349.46013	141.88170	10.18850	0.2491271	0.21405506	2.7677002	20	7 13.3	21.9
505577 2014 BX ₃₈	16.3	X	187.42332	235.81970	152.76218	16.01678	0.0803211	0.18616022	3.0376994	20	4 22.6	21.2
505578 2014 BA ₃₉	16.8	X	147.22716	316.70338	150.27566	15.96800	0.0994693	0.20303131	2.8669979	20	6 14.6	21.4
505579 2014 BM ₃₉	16.7	X	156.89622	145.01100	320.15624	10.18471	0.2547739	0.21268745	2.7795520	20	6 26.6	21.7
505580 2014 BL ₄₇	16.2	X	273.01270	329.03373	321.35382	8.88709	0.0271948	0.18187456	3.0852338	20	3 25.6	20.7
505581 2014 BR ₄₇	16.7	X	122.83507	9.23055	138.39709	17.96053	0.1700426	0.21090454	2.7951949	20	7 14.5	21.2
505582 2014 BN ₄₈	16.0	X	293.45270	309.80436	337.78359	8.73676	0.0457379	0.18090442	3.0962542	20	4 14.3	20.4
505583 2014 BV ₅₀	17.5	X	203.68131	89.67703	30.56386	5.93042	0.1434647	0.24482790	2.5306307	20	8 31.3	21.3
505584 2014 BP ₅₃	16.9	X	203.61290	272.63158	126.63475	9.27503	0.1566870	0.21192778	2.7861904	20	5 17.8	21.5
505585 2014 BC ₆₁	16.9	X	176.11115	315.96067	123.58712	14.90147	0.2204183	0.21657035	2.7462288	20	6 11.1	21.8
505586 2014 BT ₆₂	16.4	X	310.46646	255.66853	341.35705	9.87555	0.0977972	0.17549435	3.1595650	20	3 1.4	20.8
505587 2014 BV ₆₃	15.8	X	54.92667	191.26601	322.40830	21.64266	0.0542862	0.18179628	3.0861194	20	4 1.9	20.4
505588 2014 CX	16.1	X	25.67487	219.13356	321.59457	11.03664	0.0616461	0.18312485	3.0711747	20	4 2.9	20.3
505589 2014 CZ ₄	16.3	X	98.12261	299.64906	229.72398	24.34175	0.3781583	0.20299983	2.8672943	20	7 28.2	21.8
505590 2014 CA ₅	17.7	X	200.81178	95.92379	351.03603	27.27882	0.4258256	0.23661502	2.5888557	20	7 7.8	23.3
505591 2014 CL ₅	17.5	X	178.68184	27.05268	38.27502	3.03960	0.1784219	0.21123635	2.7922670	20	5 24.1	22.1
505592 2014 CE ₁₁	16.7	X	111.52627	131.15916	345.89779	12.10569	0.1150475	0.19795056	2.9158481	20	5 14.5	21.2
505593 2014 CR ₁₅	16.3	X	64.31128	208.24374	306.318							

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>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>		
505601	2014	DC ₅₀	16.5	X	92.53885	339.05280	154.55372	13.13943	0.1094917	0.18483164	3.0522388	20	5 20.1	21.1
505602	2014	DV ₅₀	16.7	X	98.99544	97.27284	21.73230	8.99746	0.0455560	0.17972190	3.1098209	20	4 25.9	21.1
505603	2014	DM ₉₁	16.1	X	336.48531	243.61197	346.33813	8.02966	0.1339924	0.17146452	3.2088780	20	3 23.7	20.0
505604	2014	DC ₉₂	16.8	X	100.93818	123.83610	339.52901	7.00339	0.1175584	0.18098004	3.0953916	20	4 17.1	21.3
505605	2014	DV ₉₅	16.6	X	138.61995	125.81208	327.91313	8.34326	0.1114390	0.18798494	3.0180100	20	5 16.3	21.4
505606	2014	DP ₁₀₆	17.0	X	125.80181	290.24069	169.63188	8.92231	0.1702907	0.19090255	2.9871811	20	5 20.4	21.8
505607	2014	DM ₁₁₃	17.2	X	101.09882	173.18194	292.90999	1.10318	0.2178998	0.18557491	3.0440833	20	5 5.9	21.7
505608	2014	DJ ₁₂₃	15.6	X	203.06623	349.04706	292.71011	1.32140	0.2217815	0.12681006	3.9237402	20	1 5.9	22.1
505609	2014	DH ₁₄₄	18.1	X	65.73051	73.10623	190.97742	21.51600	0.0590444	0.36969097	1.9226939	20	10 23.9	20.0
505610	2014	EZ ₄	16.1	X	323.95147	256.67404	349.46177	10.04940	0.0771955	0.17180064	3.2046912	20	3 31.3	20.5
505611	2014	EK ₅	16.3	X	276.06663	124.87496	165.08999	10.96614	0.0495427	0.17318371	3.1876064	20	4 1.1	20.8
505612	2014	EX ₇	16.0	X	129.46896	82.72640	8.34481	14.51611	0.1382784	0.18539283	3.0460762	20	5 3.8	20.8
505613	2014	EF ₂₁	16.1	X	218.39870	49.07654	304.30745	8.61985	0.0761818	0.18251340	3.0780302	20	4 3.4	20.9
505614	2014	EA ₄₅	16.6	X	125.07651	30.55974	57.47840	10.34325	0.0811908	0.18040133	3.1020079	20	4 26.4	21.2
505615	2014	EK ₄₆	16.1	X	201.86076	273.48445	128.94156	11.98257	0.1038387	0.19521986	2.9429760	20	5 22.7	20.8
505616	2014	EL ₄₆	16.1	X	33.53620	42.38157	144.59715	17.54657	0.0864491	0.17920038	3.1158517	20	5 6.5	20.4
505617	2014	EX ₄₇	16.2	X	22.06957	157.45816	30.30780	10.99228	0.0680275	0.17628504	3.1501102	20	4 13.6	20.1
505618	2014	FE ₁₈	16.7	X	86.20111	297.18058	186.38608	16.07008	0.1768821	0.18021863	3.1041040	20	5 8.2	21.2
505619	2014	FZ ₁₉	16.1	X	52.41204	215.46855	303.55225	8.46005	0.0289336	0.18244366	3.0788146	20	4 10.8	20.6
505620	2014	FJ ₃₉	18.2	X	74.64624	82.15290	176.02007	22.36222	0.0705949	0.377776076	1.8952135	20	11 1.9	20.6
505621	2014	FL ₃₉	15.9	X	181.51639	21.08209	69.80440	12.88489	0.0262927	0.19297939	2.9657105	20	6 28.9	20.3
505622	2014	FA ₅₁	16.2	X	317.77371	70.47966	165.41705	9.77675	0.1898167	0.16216423	3.3304226	20	2 26.9	20.6
505623	2014	GB ₃₉	16.3	X	190.79599	19.91890	67.28891	6.79322	0.0149320	0.19913041	2.9043191	20	7 7.1	20.4
505624	2014	HU ₅₃	5.6	X	323.96259	116.55009	178.59820	23.49906	0.1759523	0.00339964	43.8040158	20	5 27.9	21.5
505625	2014	HT ₁₁	16.1	X	71.49867	298.95375	176.65857	26.31303	0.1823038	0.17308052	3.1888732	20	5 5.9	20.5
505626	2014	HE ₈₃	16.4	X	78.70626	93.75320	47.98464	16.30094	0.2060592	0.17476835	3.1683089	20	5 22.1	20.8
505627	2014	HP ₁₁₃	16.8	X	116.66021	39.36137	79.29953	10.99598	0.2425007	0.18260392	3.0770129	20	6 8.5	21.8
505628	2014	HL ₁₄₃	16.5	X	125.35550	286.84363	193.27768	20.15035	0.1613363	0.18290945	3.0735854	20	6 11.3	21.7
505629	2014	HW ₁₄₅	16.6	X	72.14522	106.93548	38.75363	12.96158	0.1170891	0.17584996	3.1553039	20	5 6.1	20.8
505630	2014	HB ₁₈₇	15.4	X	265.41147	165.89323	79.42113	10.20677	0.1934880	0.12512499	3.9588891	20	1 16.9	21.5
505631	2014	HA ₁₈₈	16.3	X	53.56201	93.76183	69.69814	14.26348	0.2317109	0.17261477	3.1946069	20	5 21.7	20.1
505632	2014	HQ ₅	15.2	X	27.61929	108.32030	75.74929	25.67293	0.2218842	0.16021804	3.3573383	20	5 9.1	19.2
505633	2014	HJ ₅₆	18.9	X	87.86521	126.59351	196.99729	26.18393	0.0435755	0.40081811	1.8218159	20	—	—
505634	2014	KA	18.0	X	50.20487	88.83974	192.21534	21.10522	0.0475253	0.36922808	1.9243005	20	10 25.4	19.9
505635	2014	KG ₁₀₂	19.0	X	78.41483	64.55516	233.74453	20.51145	0.0646458	0.38357100	1.8760261	20	12 29.3	21.4
505636	2014	LA ₂₉	17.8	X	296.66444	241.06439	169.00563	23.38170	0.0758795	0.36868054	1.9262053	20	11 13.4	19.9
505637	2014	MH ₂₇	18.5	X	292.21633	237.10840	227.78169	21.34096	0.1279842	0.39137034	1.8510186	20	—	—
505638	2014	MM ₇₀	18.8	X	325.43935	90.68727	317.38334	16.83838	0.0947728	0.36188679	1.9502378	20	—	—
505639	2014	MO ₇₀	18.0	X	202.47434	190.02419	332.76077	17.73096	0.0600201	0.36119812	1.9527159	20	11 17.7	20.5
505640	2014	NB ₃₇	17.9	X	162.86879	267.65885	299.46776	17.08154	0.0530180	0.36523903	1.9382863	20	12 6.4	20.4
505641	2014	OS ₄₀	18.7	X	145.80401	272.83242	312.97290	17.87930	0.0720954	0.37107177	1.9179213	20	12 10.9	21.2
505642	2014	OX ₆₃	18.5	X	294.45359	87.92763	330.94621	16.24528	0.1118644	0.35042161	1.9925480	20	10 31.0	20.4
505643	2014	OQ ₉₈	17.8	X	165.71075	237.52056	317.92222	20.87812	0.0518436	0.35519296	1.9746637	20	11 12.9	20.7
505644	2014	OF ₁₅₂	16.1	X	93.51963	181.58196	347.85468	7.34995	0.1037551	0.15523885	3.4287496	20	7 1.7	21.1
505645	2014	OB ₃₀₀	18.2	X	199.36607	174.44323	0.09715	16.38797	0.0894256	0.37330905	1.9102507	20	12 1.6	20.5
505646	2014	QT ₃₂	17.9	X	147.10286	279.67555	309.68798	17.54697	0.0626675	0.36824942	1.927084	20	12 19.4	20.3
505647	2014	QH ₃₂₇	18.1	X	74.69151	133.96147	177.01773	21.94048	0.0737040	0.35784531	1.9648942	20	—	—
505648	2014	QO ₃₅₄	18.4	X	286.98468	300.68415	170.04458	23.66063	0.0927368	0.36029333	1.9559837	20	—	—
505649	2014	QL ₄₄₃	18.4	X	73.74418	97.28265	197.20300	21.25968	0.0761543	0.35699664	1.9680067	20	12 14.9	21.3
505650	2014	RW ₁₁	18.2	X	293.81786	292.16297	180.60239	23.32334	0.0943872	0.36992893	1.9218693	20	—	—
505651	2014	RK ₁₈	18.3	X	223.54655	339.21584	181.75678	24.04743	0.0843240	0.35911849	1.9602474	20	12 20.2	20.9
505652	2014	RL ₂₅	18.4	X	314.91621	56.49018	324.84383	17.29493	0.0445703	0.34261006	2.0227210	20	10 5.5	20.8
505653	2014	RY ₄₁	17.7	X	283.93039	89.92270	11.16499	18.92334	0.1012840	0.35215089	1.9860195	20	—	—
505654	2014	RU ₆₃	18.2	X	327.57179	247.36393	170.58961	24.52682	0.0812941	0.36025880	1.9561087	20	—	—
505655	2014	SZ ₃₀₇	18.7	X	314.75336	129.10115	205.42792	6.24609	0.2667723	0.31133518	2.1560091	20	6 22.8	20.0
505656	2014	SG ₃₃₇	18.5	X	312.31366	191.34375	138.00287	2.52490	0.2040541	0.30773634	2.1727855	20	6 20.4	19.9
505657	2014	SR ₃₃₉	18.5	X	232.64458	299.64324	138.75915	29.79435	0.3038826	0.66512928	1.2997665	20	9 3.3	17.7
505658	2014	SU ₃₅₀	18.5	X	346.48761	179.85568	203.98732	20.67637	0.0841677	0.34652619	2.0074528	20	12 19.6	20.9
505659	2014	TN ₃₂	18.4	X	316.67763	310.31375	56.58072	1.85195	0.1480531	0.31294454	2.1486110	20	9 18.4	19.6
505660	2014	TN ₃₃	18.3	X	222.59568	285.74646	222.55372	20.19353	0.0826742	0.34676551	2.0065291	20	11 25.8	20.4
505661	2014	TU ₃₅	18.2	X	233.65360	309.55290	217.58733	19.86420	0.0711917	0.35669032	1.9691335	20	—	—
505662	2014	TL ₄₄	16.3	X	322.02278	245.00546	204.90633	6.92348	0.1413826	0.17719564	3.1393087	20	12 18.6	20.0
505663	2014	UR ₅	16.9	X	151.43146	221.34427	107.67914	5.89924	0.0660812	0.21241540	2.7819248	20	—	—
505664	2014	UU ₇	16.2	X	90.81386	271.12740	158.21711	14.53791	0.0574304	0.23619903	2.5918945	20	2 8.3	19.6
505665	2014	UP ₁₀	18.4	X	214.50895	71.51181	28.93521	4.16312	0.1488880	0.29840363	2.2178558	20	8 20.3	21.4
505666	2014	UL ₃₂	18.7	X	320.42276	170.97063	167.00662	3.22367	0.1304324	0.30489302	2.1862730	20	8 3.9	20.3
505667	2014	UV ₃₃	17.8	X	313.35331	335.33590	115.69663	8.86257	0.4138271	0.34439873	2.0157114	20	—	—
505668	2014	UY ₄₁	16.8	X	118.52311	14.04741	52.69728	14.12783	0.1458000	0.23874194	2.5734569	20	4 1.1	20.7
505669	2014	UA ₄₇	18.4	X	317.56168	234.02891	113.03605	1.19381	0.1732310	0.31193085	2.1532634	20	8 11.5	19.4
505670	2014	UZ ₅₁	17.6</											

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
505681 2014 <i>WT</i> ₁₂₅	18.1	X	258.12275	121.59223	259.59386	7.34687	0.1363676	0.28918852	2.2647243	20	6 21.5	20.7
505682 2014 <i>WJ</i> ₁₃₈	17.7	X	354.31611	4.31642	253.69944	1.60742	0.1915970	0.27415368	2.3467851	20	5 30.5	19.3
505683 2014 <i>WL</i> ₂₃₉	18.3	X	38.03581	159.08596	113.64247	7.52867	0.0260196	0.30393505	2.1908645	20	9 8.9	20.8
505684 2014 <i>WP</i> ₂₇₉	18.7	X	262.87952	264.35949	152.49727	4.73687	0.1438497	0.30492666	2.1861122	20	8 21.2	20.8
505685 2014 <i>WC</i> ₂₉₉	17.7	X	251.07890	129.58094	312.54065	5.57460	0.1124006	0.29934816	2.2131881	20	9 12.6	20.2
505686 2014 <i>WF</i> ₃₆₀	18.7	X	180.20392	158.32087	338.47064	6.05811	0.0578781	0.30112041	2.2044957	20	9 5.4	21.5
505687 2014 <i>WP</i> ₄₂₇	17.7	X	135.90975	1.52973	159.02975	6.08979	0.1817300	0.26074491	2.4265662	20	8 15.7	21.6
505688 2014 <i>WR</i> ₄₂₈	16.5	X	4.75018	170.17328	90.44104	10.17873	0.0116834	0.24068888	2.5595603	20	6 22.2	19.6
505689 2014 <i>WH</i> ₄₆₉	16.7	X	92.31747	357.33886	144.24466	14.22284	0.0995873	0.23214933	2.6219502	20	5 28.5	20.5
505690 2014 <i>WG</i> ₄₇₈	16.5	X	158.84193	161.13271	260.65124	13.50812	0.0859353	0.23490178	2.6014282	20	4 23.7	20.5
505691 2014 <i>WV</i> ₄₇₉	18.0	X	214.10410	223.53864	235.28783	4.43260	0.1762595	0.27972532	2.3155182	20	8 9.3	21.4
505692 2014 <i>WK</i> ₄₈₄	19.0	X	256.21791	66.74345	354.44301	1.58543	0.1088462	0.30226990	2.1989032	20	8 23.8	21.3
505693 2014 <i>WA</i> ₄₈₅	18.1	X	183.41818	235.84998	263.24319	8.89170	0.1318024	0.29810575	2.2193331	20	9 2.3	21.5
505694 2014 <i>WB</i> ₄₉₂	17.1	X	241.49146	56.07050	358.63960	8.71351	0.1028539	0.28508671	2.2863957	20	7 25.8	20.1
505695 2014 <i>WS</i> ₄₉₈	16.6	X	126.78416	293.26354	119.41312	15.27821	0.1574609	0.23981195	2.5657963	20	3 24.1	20.6
505696 2014 <i>YD</i> ₅	17.9	X	236.97270	327.37639	99.32553	3.54166	0.1467455	0.28413707	2.2914873	20	7 28.4	21.0
505697 2014 <i>YE</i> ₅	15.7	X	25.92538	342.10493	108.30192	10.48916	0.1258603	0.18503338	3.0500199	20	—	—
505698 2014 <i>YO</i> ₁₉	17.9	X	125.16627	180.50672	32.02609	5.86844	0.0751769	0.30534712	2.1841049	20	10 14.9	20.7
505699 2014 <i>YS</i> ₃₂	18.0	X	264.29698	337.85455	85.01973	4.38519	0.1471636	0.29882241	2.2157832	20	9 3.1	20.3
505700 2014 <i>YU</i> ₄₁	16.3	X	36.74178	185.17058	121.93002	12.94758	0.1395234	0.21052447	2.7985581	20	2 27.1	19.5
505701 2014 <i>YF</i> ₄₁	16.9	X	193.62485	57.93557	2.97123	6.62702	0.0982525	0.25731578	2.4480772	20	6 1.9	20.5
505702 2014 <i>AX</i> ₁₁	17.1	X	62.87076	218.93102	343.33438	14.58511	0.0412125	0.25657164	2.4528083	20	6 30.9	20.4
505703 2015 <i>AU</i> ₂₈	19.0	X	254.80233	118.18609	305.50290	0.97641	0.1775773	0.29499160	2.2349250	20	8 12.3	21.5
505704 2015 <i>AK</i> ₅₄	16.4	X	267.38273	325.32728	285.41514	6.77438	0.1210871	0.20460218	2.8523045	20	1 20.5	20.8
505705 2015 <i>AF</i> ₇₆	16.7	X	20.47780	290.46713	284.12107	10.25714	0.1444492	0.23606768	2.5928558	20	5 17.0	19.5
505706 2015 <i>AA</i> ₈₉	17.9	X	152.95421	19.44081	137.04436	5.67727	0.0958146	0.28101584	2.3084237	20	8 28.7	21.2
505707 2015 <i>AU</i> ₁₁₁	18.2	X	180.22345	328.21412	178.61838	1.45767	0.0699666	0.28818663	2.2699702	20	9 17.3	21.3
505708 2015 <i>AU</i> ₁₁₄	17.8	X	112.64333	92.01476	117.72899	7.35424	0.0639962	0.28353116	2.2947508	20	9 24.9	20.9
505709 2015 <i>AB</i> ₁₂₀	16.7	X	350.14315	319.51414	289.06957	13.35804	0.0729352	0.24026202	2.5625910	20	5 8.9	20.0
505710 2015 <i>AJ</i> ₁₂₁	18.0	X	297.65069	60.04988	289.36486	5.66042	0.1349531	0.27472777	2.3435147	20	7 5.0	20.3
505711 2015 <i>AM</i> ₁₂₉	18.0	X	65.86507	140.48081	114.29828	2.13544	0.1002381	0.28134048	2.3066475	20	9 29.7	20.7
505712 2015 <i>AO</i> ₁₃₂	17.9	X	232.90935	160.47047	309.07266	5.21145	0.0805232	0.29781411	2.2207817	20	9 30.8	20.5
505713 2015 <i>AI</i> ₁₃₇	17.9	X	291.56044	81.92375	307.30711	5.88096	0.1449839	0.29509737	2.2343909	20	8 25.2	19.9
505714 2015 <i>AB</i> ₁₄₉	18.7	X	218.03492	75.65701	41.42223	2.45090	0.1506757	0.29364132	2.2417711	20	9 15.1	21.7
505715 2015 <i>AA</i> ₁₅₀	17.3	X	39.15772	270.69181	330.90804	6.16316	0.0853042	0.26009464	2.4306091	20	7 27.9	20.1
505716 2015 <i>AU</i> ₁₅₃	19.2	X	247.29711	89.87363	14.70495	1.70085	0.1781539	0.30413725	2.1898934	20	10 2.3	21.5
505717 2015 <i>AP</i> ₁₆₈	17.9	X	101.72489	200.01253	356.21288	1.10562	0.1360889	0.26519975	2.3993152	20	8 25.8	21.3
505718 2015 <i>AC</i> ₁₇₈	17.1	X	6.88105	322.81557	322.12776	7.63697	0.1002312	0.26645019	2.3918027	20	8 8.7	19.6
505719 2015 <i>AP</i> ₁₈₇	18.2	X	252.70569	291.77000	138.82964	3.00004	0.1331614	0.29246507	2.2477778	20	8 27.2	20.8
505720 2015 <i>AF</i> ₂₃₂	16.4	X	190.58267	15.58171	296.09610	10.34380	0.1222432	0.18434398	3.0576192	20	1 21.7	21.4
505721 2015 <i>AP</i> ₂₃₄	16.7	X	327.59709	339.01138	273.08707	8.18064	0.1620632	0.21453598	2.7635625	20	3 27.5	20.2
505722 2015 <i>AZ</i> ₂₃₇	17.2	X	46.94781	255.67184	285.35226	11.21632	0.1778774	0.22589346	2.6701374	20	5 22.9	20.3
505723 2015 <i>AO</i> ₂₄₄	17.0	X	137.86532	42.42912	58.38186	14.62264	0.0014297	0.22917313	2.6446016	20	5 16.4	20.5
505724 2015 <i>AQ</i> ₂₄₄	17.6	X	125.76821	87.43591	52.77048	13.76582	0.1252040	0.24514245	2.5284655	20	7 6.3	21.5
505725 2015 <i>AQ</i> ₂₅₄	18.4	X	300.71348	273.59739	105.30680	7.19948	0.1162053	0.28933728	2.2639480	20	9 4.0	20.5
505726 2015 <i>AN</i> ₂₅₆	17.7	X	39.36655	127.41455	75.67517	3.72901	0.0592511	0.24469355	2.5315570	20	5 27.3	20.7
505727 2015 <i>AY</i> ₂₅₇	18.5	X	255.65053	66.12872	22.17061	2.92788	0.1554450	0.30298294	2.1954519	20	9 25.3	20.8
505728 2015 <i>AN</i> ₂₆₆	17.9	X	291.43970	246.52025	113.17416	9.31172	0.2891055	0.29303142	2.2448806	20	6 13.1	20.3
505729 2015 <i>BV</i> ₂	18.2	X	241.06709	124.59207	272.97815	5.30820	0.1286380	0.27110032	2.3643732	20	6 23.6	21.3
505730 2015 <i>BX</i> ₂	17.1	X	278.90352	186.46274	144.71332	7.26838	0.1109385	0.25244902	2.4794399	20	5 16.1	20.4
505731 2015 <i>BZ</i> ₄	16.7	X	35.06697	296.55118	267.88988	10.92704	0.1326330	0.23704032	2.5857582	20	5 30.4	19.6
505732 2015 <i>BD</i> ₅	17.4	X	98.41200	13.92425	156.64687	7.79136	0.1168255	0.25487072	2.4637329	20	7 13.7	20.8
505733 2015 <i>BX</i> ₈	17.8	X	189.59640	335.38474	137.48551	7.91259	0.0833455	0.27031010	2.3689789	20	8 9.9	20.8
505734 2015 <i>BP</i> ₁₆	17.5	X	132.55319	219.33422	304.47545	5.92335	0.1618620	0.26785474	2.3834342	20	8 10.6	20.6
505735 2015 <i>BX</i> ₁₉	17.4	X	199.16521	354.47161	112.52680	5.30354	0.1892218	0.27418816	2.3465884	20	8 6.3	21.1
505736 2015 <i>BB</i> ₂₈	17.6	X	140.03208	275.00092	260.59726	2.73199	0.1963509	0.26612009	2.3937803	20	9 7.7	21.6
505737 2015 <i>BX</i> ₃₁	16.5	X	242.62077	193.55867	129.05315	15.79339	0.0814007	0.22773537	2.6557206	20	3 29.6	20.6
505738 2015 <i>BM</i> ₃₃	17.5	X	6.42131	165.38797	81.69051	2.85358	0.1155818	0.24248281	2.5469206	20	6 8.5	20.1
505739 2015 <i>BQ</i> ₃₈	16.2	X	121.99782	300.24798	84.50144	13.35533	0.0607718	0.20285250	2.8686825	20	1 31.8	20.4
505740 2015 <i>BK</i> ₄₀	16.5	X	262.83163	311.64906	323.47238	11.90721	0.0512057	0.21557701	2.7546584	20	2 19.9	20.5
505741 2015 <i>BU</i> ₅₅	17.0	X	30.78332	230.95679	330.69817	11.76021	0.2314930	0.22947926	2.6422491	20	5 28.8	19.7
505742 2015 <i>BW</i> ₅₈	17.6	X	51.13106	255.50920	325.08694	4.81879	0.0937784	0.25145615	2.4859623	20	7 16.3	20.5
505743 2015 <i>BO</i> ₆₀	18.0	X	135.07341	74.62476	83.02897	2.34730	0.1221658	0.26374751	2.4081145	20	8 9.9	21.4
505744 2015 <i>BX</i> ₆₂	17.3	X	51.58241	246.46645	354.59179	6.13871	0.0503996	0.26444073	2.4039042	20	8 11.1	20.1
505745 2015 <i>BJ</i> ₇₁	17.1	X	190.56325	209.49132	269.36334	6.04144	0.0789029	0.27358238	2.3500511	20	8 17.2	20.5
505746 2015 <i>BD</i> ₇₂	17.9	X	248.24947	253.53451	158.09374	6.25902	0.0955093	0.27256134	2.3559164	20	7 26.9	21.0
505747 2015 <i>BU</i> ₈₆	16.7	X	170.19342	205.52673	146.42835	6.41218	0.0848083	0.19950664	2.9006665	20	2 15.1	21.0
505748 2015 <i>BG</i> ₈₈	17.9	X	173.19427	300.93914	161.81622	3.89372	0.1443036	0.26033671	2.4291021	20	7 6.4	21.7
505749 2015 <i>BD</i> ₈₉	17.2	X	12.62613	111.84445	126.56658	10.24614	0.2359821	0.22794768	2.6540714	20	6 17.2	19.5
505750 2015 <i>BM</i> ₉₀	16.7	X	263.76814	28.26174	289.87743	3.28135	0.0609024	0.22410352	2.6843363	20	4 13.1	20.4
505751 2015 <i>BX</i> ₉₈	17.6	X	197.57852	336.31709	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>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
505761 2015 BR ₁₄₁	17.5	X	304.37422	284.71562	64.42500	6.97376	0.1436338	0.27056764	2.3674754	20	7 16.3	19.9
505762 2015 BF ₁₆₇	17.2	X	29.60525	109.90628	99.61206	4.87139	0.1797285	0.23023835	2.6364383	20	6 3.5	19.7
505763 2015 BH ₁₇₂	17.4	X	346.00883	284.76127	21.23408	2.23672	0.1191446	0.26554938	2.3972088	20	8 2.3	19.5
505764 2015 BZ ₁₈₆	18.1	X	295.30479	311.13350	59.94212	5.09039	0.1773480	0.28094412	2.3088165	20	7 29.9	20.4
505765 2015 BV ₁₈₉	16.4	X	318.99991	313.78231	317.56619	13.48603	0.1097130	0.22884805	2.6471055	20	4 12.6	19.9
505766 2015 BK ₂₀₆	18.0	X	260.47561	94.47464	313.88437	7.10668	0.2025307	0.29406646	2.2396099	20	7 25.1	20.6
505767 2015 BC ₂₂₇	16.7	X	100.16580	234.37156	202.59910	5.74124	0.0024943	0.21390315	2.7690105	20	2 24.8	20.5
505768 2015 BL ₂₂₉	17.4	X	349.19400	248.72506	31.85077	2.92299	0.1667792	0.25990789	2.4317732	20	6 26.5	19.4
505769 2015 BR ₂₃₈	18.1	X	233.15561	200.78952	254.83990	6.92937	0.0432533	0.29138682	2.2533195	20	9 14.8	21.0
505770 2015 BN ₂₅₂	16.4	X	339.83096	314.48394	280.29324	3.28563	0.1745553	0.21331766	2.7740749	20	3 26.0	19.4
505771 2015 BH ₂₅₄	18.8	X	272.57630	270.36212	157.88791	5.73129	0.1738165	0.29953694	2.2122581	20	9 19.6	20.6
505772 2015 BP ₂₅₄	16.8	X	22.74764	274.59525	304.22658	14.35183	0.0972854	0.23328922	2.6134023	20	5 23.6	20.1
505773 2015 BN ₂₆₀	15.9	X	315.20541	241.83459	302.19040	7.76860	0.0331321	0.18485641	3.0519661	20	1 10.9	20.2
505774 2015 BL ₂₆₄	16.9	X	205.29020	155.85735	256.27609	14.36734	0.1256265	0.24550327	2.5259875	20	6 3.0	20.6
505775 2015 BJ ₂₆₆	17.5	X	101.59628	11.49273	171.82333	1.31700	0.1286000	0.25732941	2.4479907	20	8 6.1	21.0
505776 2015 BF ₂₆₇	18.1	X	171.32976	176.46574	316.43256	3.21442	0.1297082	0.27160507	2.3614430	20	8 14.7	21.6
505777 2015 BE ₂₆₈	16.0	X	359.37725	302.13462	147.81612	16.95310	0.1169710	0.18955201	3.0013532	20	—	—
505778 2015 BZ ₂₆₈	17.3	X	143.01738	21.78606	138.70231	7.31811	0.0506164	0.27307970	2.3529342	20	8 20.3	20.2
505779 2015 BM ₂₇₀	17.8	X	143.67460	105.51762	26.10648	2.85420	0.1550573	0.25568319	2.4584871	20	7 16.2	21.6
505780 2015 BR ₂₇₁	16.2	X	248.21280	282.71465	319.99494	9.74577	0.0890937	0.17546100	3.1599654	20	—	—
505781 2015 BW ₂₇₈	17.7	X	119.99537	180.04681	324.48010	3.19512	0.0838829	0.24638921	2.5199287	20	7 1.2	21.1
505782 2015 BP ₂₈₅	17.0	X	352.73989	39.43261	211.45965	7.21442	0.1549255	0.23526741	2.5987322	20	5 17.9	19.5
505783 2015 BZ ₂₈₆	16.2	X	291.02004	43.91469	234.69405	12.05664	0.1470660	0.22302506	2.6929830	20	3 11.3	20.3
505784 2015 BO ₂₉₂	17.9	X	219.81880	276.33615	148.07557	4.86907	0.1733493	0.26595502	2.3947706	20	7 1.2	21.5
505785 2015 BH ₂₉₄	17.1	X	331.61834	65.25184	202.42263	13.16189	0.1456301	0.23395114	2.6084706	20	5 11.4	19.9
505786 2015 BB ₂₉₅	17.4	X	194.66796	217.41058	175.89084	16.87760	0.1244023	0.23767325	2.5811654	20	5 2.2	21.6
505787 2015 BS ₂₉₆	16.6	X	335.78388	351.11596	156.63469	12.84343	0.1408699	0.22080560	2.7109988	20	4 6.2	20.0
505788 2015 BD ₂₉₇	16.6	X	274.73809	202.17651	246.81735	14.79997	0.0579339	0.24170117	2.5524087	20	6 12.5	20.2
505789 2015 BE ₂₉₉	17.4	X	80.15219	44.88047	148.82015	6.12368	0.1500537	0.23841186	2.5758317	20	7 26.3	20.9
505790 2015 BP ₃₀₁	17.7	X	238.59575	311.65776	124.38121	5.38361	0.2035290	0.27192752	2.3595758	20	8 3.7	21.0
505791 2015 BC ₃₀₂	17.3	X	92.30445	119.01475	62.23229	8.22505	0.1297044	0.23768937	2.5810487	20	7 24.1	21.0
505792 2015 BJ ₃₀₃	16.4	X	23.13374	164.54771	24.77261	10.63327	0.0401121	0.20414231	2.8565864	20	4 13.8	20.0
505793 2015 BZ ₃₀₃	17.5	X	130.93935	15.27895	124.62859	4.98253	0.1811518	0.24125763	2.5555361	20	7 14.6	21.5
505794 2015 BK ₃₀₅	17.3	X	142.72301	27.06344	102.45563	4.68676	0.0857675	0.23944156	2.5684416	20	7 7.4	21.0
505795 2015 BP ₃₀₅	18.0	X	171.08117	120.42822	24.66246	4.02802	0.1452560	0.26724957	2.3870309	20	8 31.6	21.6
505796 2015 BX ₃₁₅	17.5	X	95.76875	342.58741	191.29496	8.04081	0.0481113	0.28319364	2.2965737	20	7 6.2	20.5
505797 2015 BQ ₃₃₁	17.6	X	267.05953	317.82415	357.04219	3.25343	0.0761624	0.23247369	2.6195107	20	4 11.3	21.0
505798 2015 BH ₃₃₂	17.6	X	66.51579	281.01575	139.28267	6.24518	0.0794609	0.27116224	2.3640132	20	9 2.8	20.5
505799 2015 BO ₃₄₂	18.0	X	143.14805	79.17985	45.02869	3.77305	0.1444195	0.25333065	2.4736840	20	7 4.9	21.8
505800 2015 BH ₃₅₃	16.8	X	224.11984	60.90471	304.79844	10.09615	0.0525221	0.23304593	2.6152208	20	4 26.8	20.6
505801 2015 BT ₃₅₅	18.4	X	267.79581	313.02336	113.38957	4.53522	0.1940763	0.29528325	2.2334531	20	9 4.6	20.7
505802 2015 BQ ₃₅₇	17.7	X	284.33719	357.39937	2.42792	6.62059	0.1107609	0.26686454	2.3893263	20	7 3.1	20.5
505803 2015 BG ₃₆₇	17.7	X	246.16776	11.72218	16.13195	6.98334	0.1160006	0.27192329	2.3596003	20	6 17.6	21.0
505804 2015 BJ ₃₇₈	17.4	X	232.83173	34.59900	49.25198	7.15772	0.0473382	0.28005243	2.3137148	20	9 3.4	20.3
505805 2015 BT ₃₉₇	17.2	X	335.66969	249.43707	1.84256	2.13151	0.1139612	0.22756778	2.6570244	20	4 18.5	20.3
505806 2015 BF ₄₀₀	17.5	X	22.19711	197.22249	86.32056	7.14359	0.0924282	0.26880901	2.3779900	20	9 5.7	20.2
505807 2015 BM ₄₀₂	17.8	X	276.28030	82.33029	282.70218	0.54383	0.1807186	0.26501319	2.4004411	20	6 15.6	20.7
505808 2015 BP ₄₀₅	17.8	X	280.24486	173.80138	143.22844	7.89574	0.0294252	0.23389776	2.6088674	20	5 12.1	21.3
505809 2015 BS ₄₀₅	16.9	X	265.17841	23.54516	311.22905	5.43746	0.1954157	0.23774940	2.5806143	20	4 17.4	20.9
505810 2015 BJ ₄₁₁	17.2	X	332.29113	280.38607	345.78418	2.81342	0.0791212	0.23145224	2.6272120	20	5 7.1	20.3
505811 2015 BV ₄₁₆	16.5	X	263.60204	2.55132	331.98621	14.28259	0.2641318	0.23734719	2.5835289	20	4 4.0	20.8
505812 2015 BG ₄₂₅	16.0	X	176.69649	356.98467	326.18602	17.49714	0.0747036	0.18110904	3.0939215	20	1 23.9	20.8
505813 2015 BT ₄₂₆	17.7	X	272.59408	271.51044	70.23027	0.59384	0.1143880	0.24237635	2.5476664	20	5 19.4	21.1
505814 2015 BR ₄₂₇	17.0	X	202.64037	13.49648	11.06752	1.67650	0.0892677	0.23202139	2.6229139	20	4 26.7	20.9
505815 2015 BX ₄₂₉	16.7	X	202.28000	61.07276	331.42501	13.60734	0.0843362	0.23562489	2.5961031	20	4 30.7	20.9
505816 2015 BP ₄₃₂	17.8	X	200.52959	32.15072	344.00456	11.26364	0.2017053	0.23187938	2.6239847	20	4 8.0	22.4
505817 2015 BU ₄₃₆	18.5	X	208.00235	34.52062	27.11310	1.53150	0.1643448	0.25805666	2.4433893	20	6 16.2	22.3
505818 2015 BL ₄₄₂	17.2	X	336.35200	284.72105	339.56858	6.46973	0.0797842	0.22736513	2.6586029	20	5 9.6	20.6
505819 2015 BL ₄₄₃	17.8	X	102.06807	79.92817	87.24924	2.43934	0.0252555	0.24701099	2.5156982	20	7 1.4	20.9
505820 2015 BZ ₄₄₇	16.8	X	157.42675	57.47289	359.73701	9.69988	0.0802540	0.22417048	2.6838018	20	4 16.9	20.8
505821 2015 BQ ₄₄₉	17.7	X	249.04301	265.31156	114.32690	6.33991	0.1133173	0.25098931	2.4890440	20	6 10.8	21.1
505822 2015 BG ₄₅₁	17.9	X	276.53991	92.08944	349.88295	5.92049	0.0723667	0.29739811	2.2228522	20	10 29.6	20.1
505823 2015 BK ₄₅₄	16.4	X	167.70901	33.90106	324.56974	8.97507	0.0397787	0.19944743	2.9012406	20	2 17.1	20.6
505824 2015 BK ₄₅₅	16.2	X	175.52120	176.31432	126.03833	7.09327	0.1177999	0.16838315	3.2479073	20	—	—
505825 2015 BF ₄₅₇	16.9	X	280.63014	191.98931	145.29964	18.98213	0.2328070	0.24694241	2.5161639	20	5 12.2	20.8
505826 2015 BN ₄₆₃	16.9	X	158.72689	109.57585	343.81075	14.57110	0.0518417	0.24129993	2.5552374	20	6 3.5	20.8
505827 2015 BE ₄₆₄	16.0	X	133.99648	163.48436	288.77405	21.18869	0.0256181	0.22543363	2.6737671	20	4 24.4	20.2
505828 2015 BP ₄₈₃	17.8	X	295.63411	218.75122	144.31179	7.13024	0.2097923	0.27929087	2.3179188	20	7 9.0	20.2
505829 2015 BJ ₄₉₀	17.0	X	203.83905	188.75865	161.62962	2.99722	0.1858236	0.22077932	2.7112139	20	3 16.0	21.5
505830 2015 BL ₄₉₆	17.4	X	251.13005	347.54377	349.82163	2.02363	0.2065912	0.23488715	2.6015362	20	4 7.7	21.5
505831 2015 CA	17.8	X	235.86637	235.60361	185.87489	24.48943	0.3460788	0.28123265	2.3072371	20	6 26.8	22.3
505832 2015 CT ₂	17.6	X	155.20637	176.43447	342.58464	8.73689	0.1736969	0.27236262	2.3570622	20	9 2.1	21.3
505833 2015 CD ₄	17.1	X	74.64056	209.09978	334.59759							

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>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
505841 2015 CO ₂₅	17.4	X	128.97471	127.99627	358.18415	1.80851	0.0204543	0.23230458	2.6207818	20	6 9.7	21.0
505842 2015 CQ ₃₁	17.7	X	305.30629	285.91304	70.33020	6.55136	0.0796412	0.27136511	2.3628349	20	8 8.8	20.3
505843 2015 CA ₃₃	17.2	X	122.88661	36.93264	100.59804	3.72203	0.0582192	0.23719871	2.5846069	20	6 21.9	20.6
505844 2015 CS ₃₉	17.1	X	102.79775	323.47677	180.23521	14.22958	0.1442677	0.23014464	2.6371539	20	6 16.5	21.2
505845 2015 CN ₄₀	17.3	X	109.23493	135.07000	57.77432	5.72042	0.1442130	0.25773590	2.4454161	20	9 1.4	20.9
505846 2015 CA ₄₂	16.4	X	50.11440	359.23773	147.70550	10.22839	0.0963063	0.20813128	2.8199700	20	4 5.2	19.9
505847 2015 CR ₄₃	17.0	X	322.04329	332.93869	282.63141	2.14264	0.1194999	0.21338518	2.7734897	20	4 2.1	20.3
505848 2015 CS ₄₅	16.2	X	63.35940	74.80576	348.73786	10.21404	0.1046019	0.17479893	3.1679395	20	1 14.1	20.4
505849 2015 CR ₄₆	17.5	X	183.27592	161.84462	330.79363	6.16432	0.0676439	0.26895947	2.3769032	20	8 29.9	20.5
505850 2015 CS ₅₀	18.0	X	218.14260	316.61669	136.56375	3.04149	0.1582928	0.27310686	2.3527782	20	8 9.3	21.1
505851 2015 CD ₅₁	16.5	X	314.12581	300.83453	338.06667	10.27602	0.1074634	0.21264706	2.7799040	20	4 19.7	20.3
505852 2015 CP ₅₁	16.7	X	32.93796	234.63904	328.83974	8.85305	0.1326394	0.21684350	2.7439221	20	5 23.0	20.0
505853 2015 CM ₅₃	16.3	X	112.71040	318.45672	133.13810	2.91695	0.0511746	0.20453629	2.8529170	20	4 10.3	20.3
505854 2015 CK ₅₇	16.7	X	297.33866	192.38594	66.55693	3.01346	0.0433073	0.19442669	2.9509746	20	3 18.8	20.8
505855 2015 CL ₅₉	17.0	X	79.94727	243.59993	273.96636	1.24828	0.0708189	0.22171627	2.7035703	20	5 25.2	20.5
505856 2015 CH ₆₁	16.3	X	60.53970	240.46999	294.43155	11.49074	0.1097755	0.22382967	2.6865254	20	5 25.9	19.8
505857 2015 DC ₄	17.9	X	208.98147	57.20609	6.46897	1.27278	0.1560378	0.26729589	2.3867551	20	6 20.7	21.3
505858 2015 DV ₈	17.1	X	313.16281	139.37006	131.19037	12.55674	0.1733335	0.22622286	2.6675448	20	4 6.1	20.6
505859 2015 DQ ₃₃	17.3	X	7.54069	137.37212	122.18299	2.88944	0.1578511	0.23295286	2.6159173	20	7 1.9	19.6
505860 2015 DB ₃₄	17.3	X	43.28988	168.55798	4.30956	4.38423	0.0261527	0.21543461	2.7558721	20	4 17.6	20.9
505861 2015 DE ₃₈	16.9	X	227.51294	223.66865	141.55744	13.26041	0.1811084	0.22636651	2.6664162	20	4 28.0	21.4
505862 2015 DT ₄₁	17.3	X	33.45934	115.20255	123.77305	11.51562	0.1010797	0.23782284	2.5800830	20	7 13.7	20.2
505863 2015 DU ₆₄	16.9	X	319.43238	159.89334	128.56837	3.51425	0.1050452	0.23210526	2.6222820	20	5 17.1	20.0
505864 2015 DJ ₇₀	17.5	X	339.04957	205.77030	69.36674	1.14488	0.0250098	0.23834625	2.5763044	20	6 4.8	20.7
505865 2015 DM ₇₈	17.2	X	227.03860	30.63286	353.20821	11.26938	0.0807150	0.24132295	2.5550749	20	5 20.4	21.1
505866 2015 DH ₇₉	17.3	X	312.27620	240.73379	41.41369	4.29963	0.0488830	0.22604322	2.6689579	20	5 3.8	20.6
505867 2015 DK ₈₅	17.1	X	330.74439	134.36457	133.42306	3.66967	0.0352120	0.22821006	2.6520367	20	5 13.9	20.4
505868 2015 DN ₉₂	16.2	X	196.40378	180.94657	137.35714	14.38162	0.0987468	0.18251435	3.0780196	20	2 3.7	20.9
505869 2015 DL ₉₄	16.1	X	274.19441	274.11044	347.40039	25.68214	0.1884201	0.18478887	3.0527097	20	2 13.3	21.0
505870 2015 DO ₉₅	17.4	X	85.41148	22.52851	162.62276	12.48358	0.0174096	0.23977555	2.5660560	20	7 1.5	21.0
505871 2015 DZ ₉₅	18.0	X	132.83425	7.37513	128.66814	1.53061	0.0910310	0.24205802	2.5498995	20	7 5.1	21.6
505872 2015 DD ₉₇	16.7	X	204.54578	220.66576	143.61722	9.98288	0.1726134	0.21055175	2.7983164	20	4 5.9	21.4
505873 2015 DC ₉₉	17.0	X	289.06023	60.64485	352.75821	22.51080	0.1931810	0.28574402	2.2828881	20	9 18.9	18.7
505874 2015 DU ₁₀₁	18.2	X	189.02399	120.23565	12.57780	7.17635	0.0716885	0.28194060	2.3033732	20	9 9.9	21.2
505875 2015 DV ₁₀₁	17.6	X	294.36098	310.68122	45.12888	7.43667	0.1294547	0.27072430	2.3665620	20	7 10.9	20.2
505876 2015 DO ₁₀₂	17.4	X	141.90315	197.53708	35.83030	6.24756	0.0725407	0.30440025	2.1886319	20	11 30.0	20.2
505877 2015 DT ₁₀₆	16.8	X	313.61179	237.35444	55.54816	9.01588	0.1329386	0.23743627	2.5828826	20	5 8.9	19.8
505878 2015 DR ₁₁₉	17.5	X	197.25223	343.71267	52.68322	6.95100	0.0150324	0.22119328	2.7078302	20	5 9.0	21.2
505879 2015 DW ₁₁₉	17.1	X	160.44539	80.72886	14.08473	14.78836	0.0545399	0.23576215	2.5950954	20	6 7.2	21.1
505880 2015 DR ₁₂₀	16.6	X	142.60386	28.13680	69.67485	7.25605	0.0436552	0.22612823	2.6682890	20	5 22.8	20.2
505881 2015 DY ₁₃₂	17.2	X	193.02942	329.00018	98.55988	13.60310	0.0657153	0.23302252	2.6153960	20	6 13.2	20.9
505882 2015 DC ₁₃₃	16.1	X	42.46331	130.98633	74.15447	14.38050	0.0348232	0.22217612	2.6998386	20	6 1.2	19.4
505883 2015 DR ₁₃₄	16.2	X	250.49669	292.75437	67.92824	14.22173	0.1107395	0.22364865	2.6879748	20	5 19.1	20.1
505884 2015 DU ₁₃₄	17.1	X	147.40506	39.86787	64.57016	14.07949	0.1237771	0.23199006	2.6231500	20	6 10.5	21.1
505885 2015 DQ ₁₄₂	16.7	X	339.13762	346.14498	245.31566	8.50427	0.1776461	0.21865621	2.7287359	20	3 16.6	19.9
505886 2015 DY ₁₄₂	17.6	X	187.69667	247.64502	225.61840	4.40874	0.0923946	0.27598829	2.3363736	20	8 6.2	21.0
505887 2015 DL ₁₄₅	18.5	X	245.72435	182.67024	261.89595	5.94306	0.1075023	0.29293843	2.2453557	20	9 6.9	21.4
505888 2015 DH ₁₄₇	17.6	X	70.84621	20.62010	200.60913	6.49242	0.0850102	0.26350657	2.4095822	20	8 11.8	20.7
505889 2015 DW ₁₄₉	16.5	X	335.75414	357.42091	268.78660	9.81609	0.0581626	0.24040495	2.5615752	20	5 14.1	19.6
505890 2015 DB ₁₅₂	18.1	X	201.28402	136.89822	40.43053	3.42611	0.1550615	0.29622803	2.2287017	20	11 14.7	21.1
505891 2015 DE ₁₅₂	16.5	X	195.88762	246.93099	132.69600	8.63079	0.0926234	0.21337712	2.7735595	20	4 18.1	20.8
505892 2015 DM ₁₆₅	17.6	X	74.32674	257.01064	6.17571	6.69583	0.0677008	0.26850096	2.3796084	20	10 13.2	20.7
505893 2015 DO ₁₆₅	16.4	X	184.70933	300.52689	71.33481	3.08839	0.0842723	0.19929427	2.9027269	20	3 26.5	20.8
505894 2015 DZ ₁₇₀	16.6	X	180.51986	183.96108	199.70797	13.58845	0.1554140	0.22821134	2.6520268	20	4 3.5	20.8
505895 2015 DE ₁₇₂	16.0	X	231.22015	351.08176	262.73430	17.67547	0.1036340	0.17428381	3.1741786	20	—	—
505896 2015 DO ₁₉₇	15.7	X	35.71460	167.47141	299.97817	11.09592	0.0427403	0.17314392	3.1880947	20	1 22.7	19.8
505897 2015 DD ₂₀₄	16.1	X	282.92758	289.31699	332.44422	15.93429	0.1410004	0.18519183	3.0482798	20	2 20.2	20.6
505898 2015 DH ₂₁₃	16.5	X	302.19078	145.07987	118.22002	11.43914	0.1194701	0.18215560	3.0820596	20	3 24.0	20.8
505899 2015 DK ₂₁₃	16.5	X	13.57340	83.38111	141.27113	9.92550	0.0729446	0.20441767	2.8540206	20	5 21.2	20.2
505900 2015 DT ₂₁₃	16.2	X	273.35887	203.57966	90.31014	12.48912	0.1678338	0.18102429	3.0948872	20	3 22.4	21.0
505901 2015 DP ₂₁₉	16.6	X	86.97271	205.91561	344.48349	14.38842	0.0821844	0.23750091	2.5824140	20	7 25.8	20.3
505902 2015 DW ₂₂₀	16.8	X	228.16918	62.91652	311.62683	5.26718	0.0335707	0.21991663	2.7182997	20	5 16.4	20.7
505903 2015 DO ₂₂₂	17.6	X	165.94055	157.43057	356.91665	4.68735	0.1831300	0.26559322	2.3969450	20	9 5.6	21.5
505904 2015 DZ ₂₂₂	17.0	X	64.09941	96.76977	109.18226	3.53567	0.0918634	0.24538333	2.5268105	20	7 13.3	20.0
505905 2015 DV ₂₂₃	16.6	X	233.92777	82.17440	294.26007	4.53027	0.0575787	0.22188826	2.7021731	20	5 24.3	20.4
505906 2015 DV ₂₂₃	16.9	X	40.79364	186.96772	6.42808	12.57998	0.1022981	0.22820000	2.6521146	20	5 16.3	20.2
505907 2015 DC ₂₂₄	17.4	X	255.48780	354.61808	45.85769	7.92516	0.1220591	0.27315831	2.3524827	20	7 19.5	20.5
505908 2015 EH ₄	17.7	X	174.69954	326.81646	182.15846	2.87130	0.1246311	0.27089952	2.3655414	20	9 8.4	21.0
505909 2015 EZ ₉	15.6	X	19.73666	137.64789	14.47889	21.84617	0.0374079	0.18349374	3.0670573	20	3 4.2	20.0
505910 2015 EC ₁₀	17.2	X	135.94878	112.52293	15.67675	9.66820	0.1530744	0.23784390	2.5799307	20	7 3.6	21.4
505911 2015 ET ₁₁	18.0	X	178.37148	77.98392	46.75502	5.08186	0.1565445	0.27208941	2.3586398	20	8 12.6	21.6
505912 2015 EJ ₂₀	16.9	X	320.12681	358.42869	294.75530	2.68985	0.1641889	0.23212266	2.6221509	20	5 14.5	19.7
505913 2015 EU ₂₂	17.1	X	9.20422	285.05124	335.59741	4.22251	0.0287					

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>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>		
505921	2015	EL ₅₈	15.6	X	249.74326	246.05535	102.13043	21.41108	0.1584651	0.21101682	2.7942033	20	5 5.7	20.3
505922	2015	EZ ₅₈	17.2	X	105.12556	71.44677	102.74064	18.18827	0.1129316	0.23859348	2.5745244	20	7 26.9	20.9
505923	2015	EL ₆₀	15.8	X	219.44254	233.22608	94.69006	16.14003	0.2394541	0.18116106	3.0933293	20	3 9.7	21.4
505924	2015	EX ₆₁	15.9	X	275.61602	125.64899	134.52914	10.52524	0.0585075	0.19334621	2.9619583	20	2 20.2	20.2
505925	2015	EP ₆₃	16.6	X	31.57066	95.65779	153.78951	13.51272	0.1440186	0.23253177	2.6190745	20	7 30.6	19.6
505926	2015	EH ₆₅	15.8	X	297.18724	232.79632	36.86491	16.83202	0.2040004	0.18429071	3.0582085	20	3 16.5	20.3
505927	2015	ER ₇₂	17.6	X	225.75429	107.15016	310.39929	5.93792	0.0999890	0.25884497	2.4384259	20	7 6.2	21.0
505928	2015	FF	15.8	X	277.33855	230.46125	17.13181	27.32243	0.2052993	0.17187517	3.2037647	20	2 3.6	21.2
505929	2015	FV ₂	16.2	X	281.63994	257.31564	54.86365	12.27823	0.1439733	0.22980060	2.6397853	20	4 20.7	19.9
505930	2015	FT ₈	16.0	X	316.11528	201.35555	23.21423	15.70108	0.1905925	0.17560202	3.1582733	20	2 16.7	20.4
505931	2015	FK ₁₉	16.6	X	258.55587	168.02061	121.06963	12.52741	0.0582934	0.18318127	3.0705441	20	3 10.5	21.2
505932	2015	FB ₂₁	16.5	X	220.60138	288.48084	115.78488	13.37728	0.1527329	0.23116290	2.6294039	20	6 8.7	20.8
505933	2015	FZ ₂₁	16.8	X	37.53137	87.69126	128.10867	12.88879	0.1029976	0.22199257	2.7013266	20	6 17.9	20.2
505934	2015	FN ₂₃	16.2	X	264.83883	309.48978	53.29899	18.81479	0.0819477	0.22861819	2.6488794	20	6 9.1	20.0
505935	2015	FT ₃₉	16.2	X	260.31953	274.30391	34.59192	10.76063	0.0572756	0.18908527	3.0062904	20	4 4.1	20.5
505936	2015	FT ₄₇	17.5	X	117.05321	21.96716	185.30293	6.62890	0.0555558	0.27503659	2.3417601	20	9 21.1	20.5
505937	2015	ER ₅₆	16.1	X	13.39513	43.11160	213.67030	14.19659	0.1163773	0.24235443	2.5478200	20	7 4.1	19.1
505938	2015	FV ₅₉	16.6	X	167.24858	142.97770	265.57974	11.36901	0.0153229	0.21954207	2.7213906	20	4 11.9	20.5
505939	2015	FC ₆₁	16.9	X	263.11556	54.24526	287.14423	10.71142	0.0948618	0.23452343	2.6042254	20	5 6.5	20.7
505940	2015	FW ₆₅	16.6	X	311.35569	55.45541	242.17733	13.53496	0.0531040	0.22224447	2.6992850	20	5 23.4	19.9
505941	2015	FA ₆₈	15.9	X	261.33446	171.67651	104.13691	18.59534	0.1725281	0.17047895	3.2212336	20	2 15.5	21.1
505942	2015	FC ₇₂	16.8	X	84.21840	148.86120	24.26267	13.94299	0.0231517	0.22092940	2.7099860	20	6 11.8	20.7
505943	2015	FY ₇₅	16.4	X	316.22488	35.56557	208.30864	16.31016	0.1506691	0.18033356	3.1027851	20	3 5.4	20.7
505944	2015	HH ₇₇	17.1	X	151.51311	94.47566	46.55450	15.33365	0.1280899	0.24176940	2.5519284	20	8 9.3	21.4
505945	2015	FA ₇₈	16.1	X	216.03371	330.75034	172.66104	10.20289	0.1409838	0.18962819	3.0005494	20	4 9.5	20.9
505946	2015	FV ₁₁₁	17.1	X	14.10874	77.04052	198.48888	14.11714	0.0687867	0.23827464	2.5768205	20	7 27.3	20.5
505947	2015	FG ₁₂₃	16.0	X	116.95132	280.16243	149.13144	9.88493	0.0117351	0.18988157	2.9978795	20	3 14.7	20.1
505948	2015	FK ₁₄₂	18.0	X	208.39638	94.33055	9.97750	2.02100	0.1760107	0.26454537	2.4032702	20	8 12.3	21.5
505949	2015	FM ₁₄₈	16.6	X	60.60383	179.57261	32.66352	11.09215	0.0334001	0.23214852	2.6219562	20	7 8.4	20.2
505950	2015	FY ₁₅₆	17.1	X	191.30325	246.59338	172.66104	14.59495	0.0730563	0.22213896	2.7001397	20	6 1.2	21.4
505951	2015	FK ₁₇₄	17.4	X	108.65733	123.88352	50.08862	13.71270	0.1303459	0.23730504	2.5838348	20	8 5.7	21.5
505952	2015	FF ₁₇₅	16.5	X	234.90473	152.38283	156.87568	13.57821	0.0586918	0.17490092	3.1667078	20	3 6.0	21.1
505953	2015	FL ₁₇₈	15.7	X	253.13929	264.87162	20.22881	24.88616	0.1359566	0.17593696	3.1542637	20	3 1.6	20.9
505954	2015	FB ₂₀₇	17.2	X	231.59182	52.55595	7.94686	1.48841	0.1612027	0.25784428	2.4447308	20	7 9.9	20.9
505955	2015	FN ₂₁₃	16.8	X	34.23046	29.97598	160.39245	15.57414	0.0752299	0.20343199	2.8632321	20	5 8.3	20.7
505956	2015	FW ₂₁₃	16.7	X	151.62246	293.08380	132.06713	12.89236	0.0216422	0.19807057	2.9146702	20	4 25.4	21.1
505957	2015	FB ₂₁₄	16.2	X	298.61936	166.27895	77.21246	11.61306	0.1547210	0.17628368	3.1501264	20	2 19.7	20.8
505958	2015	FH ₂₃₅	17.3	X	55.51506	193.33966	37.32200	4.94857	0.1743914	0.23633473	2.5909022	20	8 19.9	20.6
505959	2015	FB ₂₃₈	16.6	X	260.00288	218.45940	132.12869	7.00699	0.0722035	0.22535032	2.6744261	20	5 23.4	20.3
505960	2015	FO ₂₈₅	17.5	X	64.54455	109.53583	56.89007	4.15505	0.1283579	0.21690858	2.7433732	20	5 24.4	20.8
505961	2015	FO ₂₈₆	16.5	X	25.54746	171.76630	108.44710	12.89718	0.1576891	0.23255514	2.6188991	20	9 12.2	19.7
505962	2015	FA ₂₈₇	16.5	X	51.59119	107.31252	99.44393	14.12406	0.1804494	0.21554222	2.7549548	20	7 8.4	19.9
505963	2015	FM ₂₈₇	17.5	X	184.63725	300.36169	187.04630	6.31256	0.1153221	0.26461258	2.4028633	20	8 19.9	21.0
505964	2015	FO ₂₈₉	15.6	X	225.13973	228.84040	100.20244	16.43176	0.0788700	0.17301838	3.1896367	20	3 25.1	20.7
505965	2015	FF ₂₉₁	16.4	X	301.52328	187.62950	80.29860	9.77764	0.1581630	0.20023281	2.8936492	20	3 22.2	20.4
505966	2015	FE ₂₉₂	17.3	X	146.11552	24.22223	89.62201	9.64996	0.1043222	0.24132928	2.5550302	20	6 21.5	20.9
505967	2015	FD ₂₉₉	16.5	X	300.92497	148.65603	127.52633	9.78955	0.0541130	0.18621235	3.0371324	20	4 16.2	20.8
505968	2015	FA ₃₀₁	16.3	X	160.10740	22.06446	90.98019	13.70654	0.0963303	0.22647602	2.6655565	20	7 4.9	20.3
505969	2015	FL ₃₀₄	16.4	X	319.28635	96.69250	161.10772	11.22257	0.0953649	0.18162209	3.0880922	20	4 10.9	20.5
505970	2015	FS ₃₁₁	17.5	X	75.12168	137.14179	52.72920	9.71073	0.1428951	0.23023049	2.6364983	20	7 15.0	21.1
505971	2015	FK ₃₂₀	16.8	X	47.61971	119.43199	84.13055	9.76564	0.0272997	0.22030253	2.7151244	20	6 5.6	20.3
505972	2015	FA ₃₂₁	16.4	X	306.82796	174.25623	113.25439	10.52084	0.1068980	0.20598421	2.8395320	20	4 30.7	20.3
505973	2015	FG ₃₂₆	17.0	X	141.17784	43.80088	60.62141	11.47163	0.0879054	0.22142743	2.7059209	20	6 1.5	20.9
505974	2015	FM ₃₂₈	17.0	X	95.72308	136.38716	29.40605	15.68362	0.1312854	0.23011339	2.6373926	20	7 7.0	21.1
505975	2015	FO ₃₂₉	16.0	X	231.93619	236.87347	58.18512	16.88326	0.0737603	0.17129366	3.2110114	20	2 21.5	21.2
505976	2015	FG ₃₃₅	17.2	X	144.15405	79.05868	59.65617	27.98045	0.1843783	0.23300637	2.6155168	20	7 30.5	22.1
505977	2015	FY ₃₄₄	17.0	X	263.89270	67.43747	22.89593	23.92649	0.3537330	0.28199988	2.3030504	20	9 15.1	20.1
505978	2015	FF ₃₆₈	16.3	X	218.62933	49.74418	256.20685	8.81836	0.0249661	0.19084931	2.9877367	20	2 9.1	20.8
505979	2015	GK ₂	16.9	X	59.72899	92.35654	98.83408	10.24579	0.0742678	0.22738412	2.6584549	20	6 13.0	20.2
505980	2015	GB ₂₃	16.2	X	151.76682	314.87753	94.66035	16.84473	0.0391446	0.18441592	3.0568240	20	4 11.9	21.0
505981	2015	GE ₂₄	16.6	X	255.54343	211.84505	126.52301	11.36608	0.0953634	0.20278533	2.8693159	20	5 2.3	21.0
505982	2015	GX ₂₇	16.5	X	302.91331	232.15344	20.55195	9.39561	0.0566893	0.18681982	3.0305451	20	3 17.9	20.7
505983	2015	GA ₂₈	17.0	X	155.63621	77.76501	17.39274	21.79692	0.0558898	0.22192662	2.7018617	20	5 29.1	21.3
505984	2015	GX ₂₈	16.3	X	101.97236	70.94731	13.37131	5.94317	0.0628885	0.19499242	2.9452640	20	3 20.7	20.4
505985	2015	GJ ₂₉	17.1	X	158.92686	66.18602	19.47644	5.41128	0.0635735	0.22199250	2.7013272	20	5 26.3	21.1
505986	2015	GT ₃₀	17.1	X	39.29823	188.92948	8.48872	3.73051	0.0346735	0.21264857	2.7798908	20	5 15.9	20.7
505987	2015	GM ₃₂	15.8	X	274.06954	211.05578	91.92940	13.34681	0.0546949	0.19636126	2.9315604	20	4 17.6	20.1
505988	2015	GO ₃₃	16.1	X	122.99905	269.02518	147.81107	10.15396	0.0385343	0.17861192	3.1226916	20	3 11.2	20.6
505989	2015	GN ₃₄	16.3	X	355.28522	48.69820	99.62496	28.83738	0.1500785	0.21028720	2.8006628	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>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>		
506001	2015	GL ₅₀	16.3	X	218.56654	221.62244	115.36545	12.35530	0.1015884	0.17599299	3.1535942	20	3 23.6	21.4
506002	2015	HN ₂	16.9	X	91.45728	290.23670	219.47941	13.74011	0.0851102	0.23275666	2.6173872	20	6 1.9	20.5
506003	2015	HT ₃	16.4	X	59.24948	225.22743	309.45419	12.85419	0.0783436	0.21801868	2.7340529	20	5 16.9	20.2
506004	2015	HU ₄	17.4	X	316.69305	39.90004	244.01155	9.05569	0.0996584	0.21448120	2.7640331	20	5 5.5	20.8
506005	2015	HQ ₁₂	17.1	X	92.37482	90.87014	65.39733	1.32856	0.0115357	0.21353668	2.7721777	20	5 31.3	20.6
506006	2015	HP ₁₄	16.3	X	265.07638	198.56606	106.21274	13.25676	0.1153235	0.18318103	3.0705468	20	4 1.8	21.1
506007	2015	HB ₂₂	16.4	X	291.14690	59.83590	191.15773	16.17668	0.0861022	0.17681212	3.1438467	20	2 21.6	21.0
506008	2015	HC ₂₄	16.4	X	224.02438	143.89215	183.55247	10.09912	0.0924273	0.17934000	3.1142342	20	3 12.1	21.1
506009	2015	HT ₃₂	16.5	X	29.58005	114.50241	46.68438	16.11170	0.0945244	0.18624467	3.0367811	20	3 29.3	20.5
506010	2015	HK ₃₉	16.1	X	236.95037	221.74200	99.83640	10.79125	0.0920583	0.17728228	3.1382859	20	3 24.6	21.0
506011	2015	HM ₅₁	16.7	X	272.73901	180.69996	115.52750	9.94144	0.0907043	0.18813151	3.0164423	20	3 31.9	21.2
506012	2015	HG ₅₉	16.1	X	87.26768	116.47788	31.79517	12.45985	0.0222219	0.19432449	2.9520091	20	5 10.7	20.3
506013	2015	HH ₆₁	17.1	X	38.90006	355.20197	247.38026	12.46073	0.1317450	0.23267381	2.6180084	20	7 27.6	20.5
506014	2015	HB ₆₃	17.4	X	131.66604	109.44979	30.70757	11.96112	0.1233115	0.23206431	2.6225905	20	7 13.6	21.6
506015	2015	HO ₆₇	17.0	X	249.05254	285.80382	31.72162	0.93009	0.1476101	0.18050697	3.1007975	20	3 21.9	21.9
506016	2015	HV ₇₃	16.6	X	244.20477	216.33584	97.04312	2.80125	0.1029225	0.17764087	3.1340611	20	3 17.5	21.3
506017	2015	HG ₈₀	16.2	X	250.85722	273.08163	35.44669	11.22788	0.1193415	0.17655667	3.1468784	20	3 20.1	21.1
506018	2015	HE ₈₄	16.5	X	262.84766	270.60615	48.98045	8.59103	0.1182893	0.18921297	3.0049376	20	4 12.5	20.9
506019	2015	HN ₈₄	16.9	X	109.37798	297.69290	208.92584	12.61471	0.2037842	0.22511670	2.6762761	20	7 1.9	21.3
506020	2015	HV ₈₉	16.5	X	248.33482	269.75678	47.56035	15.16160	0.0777123	0.18125618	3.0922469	20	4 2.6	21.2
506021	2015	HO ₉₈	16.2	X	246.21650	240.80757	27.49418	7.66751	0.1112347	0.15467470	3.4370818	20	1 30.0	21.6
506022	2015	HV ₁₀₀	16.7	X	296.72866	104.32802	186.71681	8.59496	0.3103273	0.18095989	3.0956214	20	3 19.0	21.2
506023	2015	HG ₁₀₂	17.1	X	23.93693	350.45184	238.65615	3.10010	0.0447445	0.21175055	2.7877448	20	6 7.7	20.7
506024	2015	HL ₁₀₃	16.1	X	220.89752	256.14699	65.81044	19.72844	0.0891676	0.17545827	3.1599981	20	3 14.8	21.3
506025	2015	HE ₁₅₂	16.4	X	14.35822	162.84485	33.69044	10.81129	0.0264827	0.18945683	3.0023584	20	4 12.9	20.3
506026	2015	HA ₁₅₅	15.5	X	217.58368	53.00269	264.56963	10.57205	0.0575608	0.18024873	3.1037584	20	2 20.3	20.4
506027	2015	HB ₁₅₆	16.3	X	294.63868	45.50721	237.37914	18.20532	0.0422828	0.18916858	3.0054076	20	4 10.0	20.8
506028	2015	HO ₁₇₁	11.8	X	60.31180	63.19536	278.48618	33.25979	0.2339485	0.03861778	8.6685110	20	12 10.5	21.0
506029	2015	JY ₂	15.9	X	316.50242	159.45386	107.65363	11.40300	0.0410231	0.19004325	2.9961789	20	4 27.8	20.1
506030	2015	JC ₇	16.4	X	278.65317	347.62576	283.91633	7.84691	0.0606961	0.17335714	3.1854801	20	3 5.6	21.1
506031	2015	JL ₈	16.8	X	84.33345	3.50477	185.19100	13.86995	0.1781117	0.22769128	2.6560635	20	7 25.7	20.9
506032	2015	JT ₈	16.3	X	205.81956	283.38616	88.59210	11.25926	0.1101548	0.19337588	2.9616553	20	4 20.7	21.1
506033	2015	KO ₁₂	16.5	X	140.10403	301.85890	146.59697	11.03199	0.0133077	0.18819413	3.0157731	20	5 8.8	20.9
506034	2015	KS ₁₉	17.0	X	136.07414	88.17028	51.82500	8.16200	0.2105619	0.22731204	2.6590169	20	7 22.4	21.5
506035	2015	KA ₂₈	16.9	X	124.57668	211.74282	258.00044	6.48743	0.0246284	0.20192832	2.8774286	20	5 13.1	20.9
506036	2015	KP ₂₉	16.1	X	288.50171	22.29084	238.06375	12.20723	0.1116236	0.17211124	3.0008345	20	2 24.4	20.9
506037	2015	KD ₃₃	16.5	X	256.73010	277.57119	32.76299	9.77113	0.0946628	0.17802567	3.1295433	20	3 29.2	21.2
506038	2015	KW ₆₂	15.9	X	269.02165	213.38957	94.97270	11.35637	0.1020647	0.18342614	3.0678107	20	4 11.6	20.5
506039	2015	KV ₆₅	16.8	X	166.01694	35.28480	80.09052	12.73259	0.1460979	0.23203501	2.6228113	20	7 15.7	21.0
506040	2015	KL ₇₂	16.3	X	304.82220	165.10829	120.84936	10.40630	0.0960320	0.19004251	2.9961868	20	4 28.1	20.5
506041	2015	KG ₇₃	16.6	X	359.26269	17.43959	189.82654	9.25053	0.1348414	0.18467188	3.0539989	20	4 1.4	19.9
506042	2015	KA ₇₄	16.3	X	244.92207	230.25003	88.44664	14.31342	0.0627189	0.17669174	3.1452744	20	4 3.9	21.2
506043	2015	KG ₇₆	17.0	X	256.88316	152.62919	176.31616	10.71965	0.0264626	0.18882236	3.0090803	20	4 28.9	21.3
506044	2015	KL ₇₈	15.9	X	211.35651	269.08838	99.60806	11.20018	0.0969905	0.18242591	3.0790143	20	4 23.2	20.8
506045	2015	KW ₇₉	15.9	X	309.07541	160.20413	86.87047	17.44639	0.0609466	0.17352519	3.1834231	20	3 26.8	20.6
506046	2015	KW ₈₀	16.4	X	233.82824	224.71683	102.87754	14.25398	0.0931641	0.17189232	3.2035517	20	3 30.5	21.5
506047	2015	KD ₈₆	16.9	X	80.36941	312.16465	190.93774	13.23972	0.1217342	0.19834316	2.9119990	20	5 16.7	21.0
506048	2015	KF ₉₂	16.3	X	264.99363	209.01456	86.96900	14.18506	0.0840930	0.17068809	3.2186018	20	3 27.9	21.2
506049	2015	KS ₁₀₅	16.6	X	51.70285	75.01217	100.25210	14.34347	0.1140581	0.19290806	2.9664416	20	5 19.7	20.5
506050	2015	KF ₁₀₅	16.2	X	75.28000	32.32335	108.01676	12.00581	0.0780813	0.18455514	3.0552866	20	5 3.5	20.5
506051	2015	KK ₁₀₅	17.1	X	80.26949	23.66548	148.93154	8.26117	0.1816315	0.21011757	2.8021700	20	7 1.6	21.1
506052	2015	KL ₁₁₇	16.0	X	191.38431	291.15191	97.09797	12.79576	0.1200303	0.18102788	3.0948462	20	4 27.1	21.1
506053	2015	KL ₁₂₉	16.6	X	237.40506	160.92460	150.94584	5.66987	0.0889843	0.16868773	3.2439966	20	3 10.0	20.8
506054	2015	KS ₁₃₀	15.0	X	189.25190	131.36803	166.11299	9.22524	0.1996332	0.12377466	3.9876302	20	1 12.2	21.5
506055	2015	KT ₁₅₂	16.9	X	37.61578	290.22087	357.55353	8.41557	0.0649934	0.24027931	2.5624681	20	9 22.6	20.0
506056	2015	LG ₆	16.2	X	340.98538	315.50909	291.55754	8.58858	0.1489731	0.19103684	2.9857811	20	4 16.9	19.9
506057	2015	LC ₇	16.0	X	247.73604	132.47683	192.11798	13.26752	0.0616199	0.17612008	3.1520769	20	4 7.0	20.6
506058	2015	LQ ₈	16.9	X	129.32975	259.55605	251.76279	11.91671	0.1134325	0.22763168	2.6565270	20	7 19.5	21.1
506059	2015	LG ₁₉	15.9	X	12.91877	302.63918	251.52625	12.20400	0.1290935	0.17786749	3.1313984	20	4 3.8	19.8
506060	2015	LF ₃₉	15.7	X	351.28689	116.60006	102.21663	22.75913	0.0333593	0.17418589	3.1753681	20	4 21.7	20.5
506061	2015	MT ₇	18.1	X	216.52530	21.22266	161.46845	1.56106	0.1290433	0.26592129	2.3949731	20	12 7.5	21.0
506062	2015	MR ₁₀	16.4	X	308.63136	157.93442	125.86195	9.70625	0.0657715	0.18895188	3.0077050	20	5 4.2	20.6
506063	2015	MW ₁₀	16.0	X	88.24408	337.08772	158.47662	17.10396	0.0604500	0.18054978	3.1003073	20	5 11.3	20.7
506064	2015	MG ₂₀	16.1	X	239.14892	272.03693	43.52416	16.60960	0.0699792	0.17282953	3.1919599	20	3 24.4	21.0
506065	2015	MU ₂₇	16.0	X	183.30840	96.50453	278.55917	8.95430	0.0589516	0.17442962	3.1724094	20	3 23.9	20.9
506066	2015	MO ₃₅	16.1	X	163.17663	307.04799	114.32417	11.15441	0.0790792	0.19069371	2.9893617	20	5 6.9	20.8
506067	2015	MJ ₉₉	15.4	X	20.61674	18.42925	128.68999	10.97104	0.0797379	0.12590345	3.9425539	20	2 28.8	20.6
506068	2015	PJ ₁₀₂	16.6	X	78.21033	240.57901	329.23252	9.96925	0.0148848	0.19137111	2.9823032	20	7 24.3	20.7
506069	2015	PE ₂₁₀	15.5	X	53.53554	179.07096	58.49719	16.44676	0.0633921	0.18259155				

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>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
506081 2015 VY ₁₄₈	16.7	X	288.55854	300.48621	112.45820	10.52837	0.0672848	0.17438567	3.1729424	20	9 21.4	21.1
506082 2015 VX ₁₅₂	17.8	X	77.18841	341.73192	306.13319	17.88437	0.0510555	0.37285499	1.9118012	20	12 13.5	20.2
506083 2015 VZ ₁₅₂	17.7	X	128.57978	281.57248	298.95936	17.68965	0.0633383	0.35750030	1.9661581	20	10 31.5	20.5
506084 2015 XE ₁₁₁	17.8	X	326.53961	31.70634	161.59818	4.77980	0.1141592	0.26530084	2.3987057	20	1 9.9	20.8
506085 2015 XH ₃₇₈	18.0	X	119.52754	326.75110	285.75585	19.53520	0.0580102	0.39338631	1.8446893	20	12 23.7	19.9
506086 2015 XD ₃₈₅	18.2	X	213.48888	239.79124	289.28002	18.90793	0.1160451	0.38641317	1.8668157	20	12 21.3	19.7
506087 2015 XG ₃₈₅	17.7	X	39.71849	17.53469	282.87535	17.47299	0.0615990	0.36781936	1.9292107	20	11 2.9	20.1
506088 2015 XU ₃₈₅	19.1	X	255.35742	199.62879	299.67292	17.76827	0.0722972	0.39560103	1.8377980	20	—	—
506089 2015 YH ₂₁	18.4	X	194.38971	252.18031	296.25144	18.54308	0.0339666	0.39094317	1.8523667	20	—	—
506090 2016 AB ₄	16.2	X	335.85371	305.05850	117.89800	12.55241	0.0959871	0.18179623	3.0861200	20	12 9.5	20.1
506091 2016 AB ₈	15.8	X	246.98879	271.67443	296.21639	13.49613	0.0974021	0.20417132	2.8563158	20	—	—
506092 2016 AX ₁₀	18.4	X	188.26134	276.28184	277.05136	15.76619	0.0629649	0.38037523	1.8865192	20	12 25.5	20.1
506093 2016 AL ₄₂	16.9	X	273.48185	301.80165	259.56753	2.75499	0.0163875	0.22727781	2.6592838	20	—	—
506094 2016 AF ₉₄	17.4	X	49.33975	216.11915	246.07725	9.80035	0.1576918	0.24524264	2.5277769	20	1 25.9	20.0
506095 2016 AY ₉₉	17.0	X	253.93953	151.13006	91.65938	3.63569	0.1770980	0.21845701	2.7303945	20	—	—
506096 2016 AP ₁₀₄	18.1	X	98.35209	324.38181	312.30749	17.61656	0.0480732	0.37985589	1.8882383	20	12 29.2	20.3
506097 2016 AR ₁₀₄	17.8	X	41.96316	167.44331	335.43743	5.14417	0.0992280	0.25937859	2.4350804	20	3 7.1	20.3
506098 2016 AS ₁₀₉	16.7	X	51.29116	175.08176	322.24094	12.23675	0.0775073	0.26135099	2.4228133	20	3 8.9	19.6
506099 2016 AF ₁₂₈	18.0	X	76.63642	301.20581	11.16401	20.41676	0.0621575	0.37104424	1.9180161	20	—	—
506100 2016 AQ ₁₄₃	17.2	X	318.07297	17.30731	168.31815	13.86879	0.0636538	0.23320659	2.6140196	20	1 2.4	20.9
506101 2016 AT ₁₄₇	18.0	X	196.50162	31.37053	180.20625	21.48953	0.0521549	0.38484658	1.8718784	20	—	—
506102 2016 AT ₁₇₁	17.3	X	66.24157	334.31757	118.78851	3.35636	0.1317683	0.25593481	2.4568755	20	2 12.2	19.7
506103 2016 AO ₁₇₂	15.8	X	326.30024	119.87806	322.26195	10.67346	0.0915310	0.18341753	3.0679067	20	12 17.9	19.7
506104 2016 AF ₁₈₁	16.0	X	278.46849	267.62438	259.89896	8.07803	0.1026959	0.18445806	3.0563585	20	—	—
506105 2016 AM ₁₉₄	18.5	X	309.08306	92.30160	327.56145	17.48625	0.1004898	0.37882270	1.8916701	20	12 29.6	20.1
506106 2016 AN ₁₉₄	18.0	X	352.86496	36.02891	300.77561	15.65276	0.0874459	0.35590548	1.9720273	20	10 9.8	20.1
506107 2016 AR ₁₉₄	17.9	X	199.35644	237.71667	310.55811	18.70461	0.1081206	0.38407924	1.8743707	20	12 31.2	19.8
506108 2016 AZ ₁₉₄	17.4	X	288.34207	236.90658	166.58230	24.03373	0.0879010	0.34904676	1.9977768	20	10 7.5	19.1
506109 2016 AD ₁₉₅	18.1	X	127.26342	348.47604	184.35904	21.53754	0.0584966	0.37390855	1.9082083	20	—	—
506110 2016 AL ₁₉₅	18.1	X	125.95466	269.35683	324.42777	17.99542	0.0800381	0.36924404	1.9242451	20	11 20.9	20.9
506111 2016 AM ₁₉₅	18.3	X	310.57253	77.05096	345.53130	19.77578	0.0878793	0.37336215	1.9100696	20	—	—
506112 2016 AQ ₁₉₅	18.0	X	242.39971	326.64631	172.50537	19.19468	0.0652813	0.38424281	1.8738387	20	12 29.9	20.0
506113 2016 AG ₁₉₆	18.1	X	63.31861	289.66702	24.13591	20.78510	0.0796386	0.36005671	1.9568406	20	—	—
506114 2016 AH ₁₉₆	18.8	X	236.63764	159.34934	356.01692	20.25336	0.1391800	0.37444397	1.9063889	20	—	—
506115 2016 AB ₂₀₀	18.3	X	68.48206	116.04693	172.29556	22.42293	0.0589922	0.36186551	1.9503142	20	12 2.7	21.1
506116 2016 BY ₁	15.9	X	301.49053	156.78475	291.83269	9.09990	0.1521842	0.17548233	3.1597092	20	11 7.9	19.8
506117 2016 BV ₁₃	18.0	X	22.61056	184.36255	159.32949	24.26400	0.0585688	0.37749522	1.8961022	20	12 24.1	20.6
506118 2016 BW ₃₁	17.4	X	17.56510	110.93503	352.75692	12.49513	0.2189885	0.22763859	2.6564733	20	—	—
506119 2016 BQ ₆₁	18.6	X	333.50103	169.94081	309.32826	19.63958	0.1363421	0.42939891	1.7400514	20	—	—
506120 2016 BM ₆₇	15.8	X	251.56114	69.06691	92.16107	19.62665	0.1471552	0.17134921	3.2103174	20	12 2.7	20.4
506121 2016 BP ₈₁	6.2	X	71.93714	274.15963	28.99786	4.18023	0.0795114	0.00340375	43.7688035	20	10 17.8	22.5
506122 2016 BT ₈₁	17.9	X	291.38450	273.04334	155.43664	23.53427	0.1253384	0.35930699	1.9595617	20	12 1.2	20.0
506123 2016 BV ₈₁	18.1	X	263.51882	112.56347	28.58799	21.16695	0.1033169	0.37652598	1.8993547	20	—	—
506124 2016 BX ₈₁	18.3	X	168.30508	222.63476	342.99576	19.61714	0.0576125	0.37295033	1.9114754	20	12 11.9	20.9
506125 2016 BF ₈₂	17.8	X	110.09259	208.46001	76.93116	20.77566	0.0614193	0.38685566	1.8653919	20	—	—
506126 2016 CV	17.8	X	329.13458	354.71520	286.51300	5.32367	0.1771123	0.29426137	2.2386209	20	5 7.9	19.8
506127 2016 CN ₂₃	16.2	X	311.92671	21.92275	97.05252	11.12555	0.0710325	0.19168537	2.9790427	20	—	—
506128 2016 CK ₂₈	15.7	X	331.47362	316.43276	145.02230	28.08798	0.1471185	0.17977245	3.1092380	20	—	—
506129 2016 CK ₁₉₃	18.4	X	98.26192	308.62376	346.02832	20.35406	0.0580632	0.38606666	1.8679325	20	—	—
506130 2016 CN ₁₉₃	17.9	X	76.13841	278.23755	2.13155	19.56804	0.0651086	0.36146744	1.9517458	20	11 20.5	20.6
506131 2016 CL ₂₄₇	17.9	X	263.22736	119.12698	317.97817	17.66833	0.0950097	0.35916400	1.9600817	20	9 30.1	20.0
506132 2016 CJ ₂₅₅	18.3	X	311.67018	55.46855	326.24220	18.10677	0.1306878	0.36257788	1.9477592	20	10 3.4	19.9
506133 2016 CJ ₂₆₅	18.4	X	114.92327	268.04755	9.39451	21.40601	0.0222429	0.37948751	1.8894601	20	—	—
506134 2016 CL ₂₆₅	18.6	X	251.77547	141.20957	336.19690	18.89213	0.0793480	0.36809979	1.9282307	20	11 28.2	20.8
506135 2016 CQ ₂₆₅	18.9	X	327.52082	47.69656	354.33831	19.16396	0.1023588	0.36196837	1.9499447	20	12 27.9	21.1
506136 2016 CA ₂₆₆	18.5	X	277.32910	312.61930	188.81944	22.00095	0.1054955	0.38174572	1.8820013	20	—	—
506137 2016 CK ₂₆₆	19.3	X	235.43976	180.51756	322.18781	18.02067	0.0714175	0.37307036	1.9110654	20	12 20.5	21.3
506138 2016 DX ₁	18.3	X	303.54096	162.66681	284.12686	18.23853	0.0869901	0.38622627	1.8674179	20	—	—
506139 2016 DB ₂	18.6	X	31.17749	106.12125	265.98935	19.63921	0.0641257	0.39401434	1.8427285	20	—	—
506140 2016 DG ₃₁	17.9	X	273.18029	72.77496	48.67597	22.73455	0.0692148	0.37963468	1.8889717	20	—	—
506141 2016 DL ₃₁	19.1	X	276.73219	124.23900	9.90732	20.41087	0.0892503	0.39068885	1.8531705	20	—	—
506142 2016 EM ₁	18.0	X	39.19573	356.71514	17.00702	20.75713	0.0583266	0.39262459	1.8470744	20	—	—
506143 2016 EU ₄	15.8	X	255.43358	228.53864	343.30354	12.39348	0.1335429	0.18003842	3.1061750	20	—	—
506144 2016 EF ₂₃	18.2	X	211.46952	341.94113	195.74485	21.92214	0.0290303	0.36972432	1.9225783	20	—	—
506145 2016 EL ₂₆	16.3	X	187.56350	335.18250	317.01549	14.48105	0.1964221	0.17426751	3.1743765	20	1 2.3	21.7
506146 2016 ET ₂₇	18.6	X	330.90948	97.13269	309.23646	17.73560	0.1235565	0.37096330	1.9182951	20	—	—
506147 2016 EK ₅₂	17.4	X	338.81490	38.76705	243.66873	7.61329	0.1325131	0.27266277	2.3553321	20	6 8.4	19.5
506148 2016 EX ₅₄	18.4	X	250.23586	348.77816	189.46758	21.46178	0.0520941	0.40101948	1.8212060	20	—	—
506149 2016 EW ₆₅	17.4	X	3.17637	290.27931	347.77630	6.22119	0.1198883	0.28101939	2.3084042	20	7 25.6	19.5
506150 2016 EL ₇₉	17.1	X	62.50141	175.76377	29.16613	25.24174	0.1737398	0.27739854	2.3284483	20	8 7.9	20.7
506151 2016 EE ₈₄	18.4	X	352.03004	76.56567	313.98310	18.22440	0.0794091	0.37819936	1.8937480	20	—	—
506152 2016 ES ₈₈	18.3	X	21.50865	59.49587	200.25112	3.28635	0.1589779	0.30082677	2.2059300	20	8 7.5	20.2
506153 2016 EV ₁₁₀	17.9	X	323.43155	271.76350	44.45941	7.45558	0.1053425	0.28158592	2.3053069	20	7 6.1	20.2
506154 2016 ED ₁₃₁	17.9	X	75.18801	224.59560	350.59384	7.00000	0.0788					

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>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
506161 2016 <i>ET</i> ₂₀₃	18.0	X	357.73823	349.27279	27.40311	21.27663	0.0748866	0.35312828	1.9823533	20	12 29.2	20.5
506162 2016 <i>EX</i> ₂₀₃	19.2	X	327.46289	52.82481	26.32083	21.49571	0.0841212	0.38968135	1.8563633	20	—	—
506163 2016 <i>EZ</i> ₂₀₄	18.5	X	148.09088	192.22432	38.67754	21.17296	0.0535344	0.36185513	1.9503515	20	12 16.6	21.1
506164 2016 <i>EA</i> ₂₀₅	19.1	X	298.64143	102.26960	19.98738	21.74553	0.0410605	0.40001581	1.8242511	20	—	—
506165 2016 <i>EF</i> ₂₀₆	18.3	X	276.79889	303.66275	171.11343	23.56092	0.1217217	0.37309260	1.9109895	20	—	—
506166 2016 <i>FL</i>	18.2	X	259.71216	260.74756	227.23323	20.81623	0.0589180	0.37351621	1.9095443	20	—	—
506167 2016 <i>FS</i> ₁₁	18.0	X	33.24776	181.02469	90.17446	3.95419	0.1482724	0.30060977	2.2069915	20	9 18.8	20.2
506168 2016 <i>FC</i> ₃₀	17.5	X	334.59543	201.28045	65.01970	3.38258	0.1618143	0.25580152	2.4577289	20	5 2.3	19.6
506169 2016 <i>FR</i> ₃₇	17.8	X	30.03396	146.71212	71.48444	5.92000	0.1895518	0.26466321	2.4025568	20	6 19.8	19.9
506170 2016 <i>FF</i> ₄₂	18.4	X	257.31219	97.47377	21.45538	20.05400	0.0907812	0.36959303	1.9230336	20	12 10.7	20.4
506171 2016 <i>FD</i> ₅₆	17.9	X	84.56956	91.42231	191.66536	21.26392	0.0588992	0.35556541	1.9732845	20	12 11.7	20.7
506172 2016 <i>FX</i> ₆₀	18.9	X	301.69588	81.43525	35.12546	19.04558	0.0794651	0.39023341	1.8546121	20	—	—
506173 2016 <i>FE</i> ₆₁	18.7	X	254.89042	102.06951	18.77955	20.84208	0.0929083	0.36652261	1.9337584	20	12 6.4	20.8
506174 2016 <i>FH</i> ₆₁	18.2	X	165.45729	345.93097	219.81737	20.22888	0.0447063	0.36520242	1.9384159	20	12 8.5	20.5
506175 2016 <i>GX</i> ₁	18.0	X	316.59106	47.68760	30.47763	23.94392	0.1507831	0.37627226	1.9002085	20	—	—
506176 2016 <i>GM</i> ₆	17.3	X	244.58852	349.27703	334.14557	4.74837	0.2729900	0.23653229	2.5894593	20	3 10.9	21.9
506177 2016 <i>GK</i> ₇	16.7	X	282.57259	51.94016	200.86014	11.51195	0.0227177	0.22975839	2.6401087	20	2 15.4	20.5
506178 2016 <i>GB</i> ₁₂	17.6	X	294.98747	144.95951	160.20182	5.29232	0.1506871	0.25437443	2.4669125	20	4 25.2	20.6
506179 2016 <i>GN</i> ₂₀	16.2	X	95.80342	214.77285	189.16739	14.16615	0.0999249	0.21057400	2.7981192	20	1 22.1	20.2
506180 2016 <i>GU</i> ₂₄	16.7	X	336.09221	205.68294	350.29087	9.08913	0.1019560	0.22499595	2.6772335	20	2 8.8	20.0
506181 2016 <i>GV</i> ₃₇	16.7	X	140.50306	19.31740	309.12117	1.15554	0.1560179	0.17387070	3.1792044	20	—	—
506182 2016 <i>GT</i> ₅₇	18.2	X	307.22694	345.49354	306.87807	2.87330	0.1634718	0.25963510	2.4334762	20	4 19.5	21.1
506183 2016 <i>GE</i> ₆₁	18.3	X	321.37152	89.37288	220.50298	3.31890	0.1913411	0.27559408	2.3386009	20	6 8.5	20.3
506184 2016 <i>GV</i> ₆₃	18.4	X	322.22465	347.66606	309.93240	0.93105	0.1705126	0.26805637	2.3822388	20	5 24.1	20.5
506185 2016 <i>GR</i> ₈₂	17.0	X	240.28905	140.56486	103.95614	13.61831	0.2788291	0.22978192	2.6399284	20	3 19.4	21.7
506186 2016 <i>GJ</i> ₉₅	18.0	X	338.04191	224.69151	63.22406	5.60806	0.0993884	0.27231074	2.3573616	20	6 17.9	20.3
506187 2016 <i>GC</i> ₉₉	17.4	X	247.52160	157.94232	157.93122	6.01633	0.1649222	0.22670105	2.6637923	20	3 14.1	21.4
506188 2016 <i>GZ</i> ₁₀₂	16.9	X	226.56005	117.05923	196.18512	9.66091	0.0463474	0.22105591	2.7089519	20	2 23.5	20.9
506189 2016 <i>GC</i> ₁₀₆	18.0	X	306.91798	183.27687	147.51322	3.15221	0.1521599	0.27864843	2.3214802	20	6 19.9	20.4
506190 2016 <i>GB</i> ₁₀₇	18.7	X	236.66263	337.38564	194.66643	22.26463	0.0593632	0.37697698	1.8978396	20	—	—
506191 2016 <i>GN</i> ₁₀₈	16.8	X	232.53089	139.29377	190.38932	11.73821	0.2147353	0.22282312	2.6946098	20	3 12.3	21.3
506192 2016 <i>GX</i> ₁₂₀	18.1	X	289.46234	160.68604	133.18380	2.61732	0.1814805	0.23961898	2.5671736	20	3 28.9	21.6
506193 2016 <i>GF</i> ₁₂₆	17.1	X	313.23852	271.55565	21.29930	6.66227	0.1114778	0.25604851	2.4561481	20	5 8.8	20.0
506194 2016 <i>GG</i> ₁₂₇	16.2	X	206.60123	96.52453	211.86268	13.39377	0.3454265	0.18316585	3.0707165	20	1 27.9	22.2
506195 2016 <i>GK</i> ₁₅₆	17.2	X	325.87458	154.31021	125.56584	11.13889	0.1550106	0.26013603	2.4303512	20	5 11.3	19.9
506196 2016 <i>GE</i> ₁₆₅	17.0	X	274.33459	276.53566	28.65456	15.16759	0.1306697	0.23789640	2.5795511	20	4 3.6	20.6
506197 2016 <i>GG</i> ₁₉₀	17.2	X	342.17137	41.68517	195.96544	9.95012	0.1219319	0.23197169	2.6232885	20	4 9.9	20.1
506198 2016 <i>GP</i> ₁₉₀	17.5	X	349.11295	87.21784	199.25465	11.01863	0.1159192	0.26299508	2.4127054	20	7 4.9	20.1
506199 2016 <i>GD</i> ₁₉₃	17.2	X	315.89470	104.93552	186.36559	10.27299	0.1826377	0.23675893	2.5878065	20	5 3.9	20.1
506200 2016 <i>GT</i> ₂₀₆	17.0	X	286.76680	257.91607	25.31896	28.63420	0.3580757	0.23397918	2.6082622	20	3 6.9	21.7
506201 2016 <i>GA</i> ₂₀₈	17.0	X	292.42468	165.11864	123.33226	9.42324	0.2341702	0.24354267	2.5395261	20	3 20.3	20.6
506202 2016 <i>GH</i> ₂₁₀	18.0	X	311.86649	88.58627	200.90360	0.89724	0.1800054	0.25376787	2.4708419	20	4 22.0	20.5
506203 2016 <i>GR</i> ₂₁₁	17.3	X	237.71235	138.06481	184.94950	13.11394	0.1827461	0.22907032	2.6453928	20	3 10.3	21.7
506204 2016 <i>GR</i> ₂₂₂	18.3	X	297.94271	273.67275	205.88929	21.15017	0.0896975	0.37200628	1.9147079	20	—	—
506205 2016 <i>GW</i> ₂₃₁	15.5	X	195.80969	225.27067	97.57783	11.32224	0.0771442	0.18523978	3.0477538	20	2 10.3	20.3
506206 2016 <i>GO</i> ₂₄₆	16.7	X	276.27060	53.63353	224.86628	7.73057	0.2289412	0.21194070	2.7860772	20	2 11.3	21.3
506207 2016 <i>GN</i> ₂₅₂	18.6	X	245.88396	4.15284	176.00180	22.48434	0.0458430	0.37840453	1.8930634	20	—	—
506208 2016 <i>GT</i> ₂₅₂	18.2	X	170.31932	151.14004	72.18799	23.73879	0.0319132	0.35869633	1.9617851	20	—	—
506209 2016 <i>GM</i> ₂₅₃	18.2	X	289.58670	236.81183	233.67566	19.35259	0.0710836	0.36597769	1.9356774	20	—	—
506210 2016 <i>HT</i>	16.5	X	268.85792	229.84983	70.05311	11.38020	0.2097382	0.22087917	2.7103968	20	3 16.9	20.9
506211 2016 <i>HJ</i> ₃	17.8	X	121.40124	264.36692	61.49110	23.42243	0.0560820	0.38901671	1.8584771	20	—	—
506212 2016 <i>HE</i> ₆	17.0	X	334.14258	64.43844	184.90533	8.90686	0.2212230	0.23585690	2.5944003	20	3 28.9	19.6
506213 2016 <i>JS</i> ₁₁	15.9	X	217.21036	230.42014	81.74623	29.87737	0.3098636	0.17610960	3.1522019	20	2 19.3	22.1
506214 2016 <i>JE</i> ₁₃	16.3	X	217.52268	79.78805	217.04131	25.28964	0.1924746	0.17747406	3.1360246	20	1 21.6	22.1
506215 2016 <i>JC</i> ₁₅	17.0	X	270.89917	197.55887	138.26987	17.16178	0.2177677	0.23397882	2.6082648	20	5 1.7	21.2
506216 2016 <i>JY</i> ₁₆	17.2	X	305.32951	240.15147	35.54849	31.05783	0.3128185	0.23449488	2.6044367	20	3 23.8	21.2
506217 2016 <i>JY</i> ₂₄	16.0	X	238.45059	146.33820	127.68488	19.64720	0.1925439	0.18067227	3.0989058	20	1 18.9	21.2
506218 2016 <i>JN</i> ₂₈	16.8	X	215.47991	190.92040	158.00364	16.84384	0.2472081	0.21698223	2.7427524	20	3 24.4	21.7
506219 2016 <i>JE</i> ₃₀	16.6	X	305.19196	60.13583	224.15743	30.50156	0.2538321	0.23112390	2.6296997	20	3 19.2	20.7
506220 2016 <i>JO</i> ₃₀	17.2	X	348.11696	184.62907	90.35631	10.11268	0.2285718	0.25583451	2.4575176	20	6 11.4	18.6
506221 2016 <i>JK</i> ₃₁	17.0	X	285.88588	182.07610	88.65534	10.05135	0.2150105	0.21136579	2.7911269	20	2 25.8	21.3
506222 2016 <i>JW</i> ₃₁	17.2	X	298.45785	134.73315	122.25361	8.57584	0.1924635	0.21361885	2.7714667	20	2 23.4	21.0
506223 2016 <i>JN</i> ₃₃	17.4	X	307.86651	106.77115	170.26211	11.46863	0.1196810	0.23372500	2.6101528	20	4 11.9	20.7
506224 2016 <i>JS</i> ₃₅	16.7	X	338.38936	9.96345	234.35418	13.29716	0.2137833	0.23308515	2.6149275	20	3 26.2	19.6
506225 2016 <i>JC</i> ₃₆	17.5	X	337.21383	98.14156	148.93811	4.76002	0.2386089	0.23412254	2.6071973	20	3 30.6	20.0
506226 2016 <i>JH</i> ₃₆	16.8	X	299.45254	257.46635	1.69631	6.21626	0.2622926	0.21816464	2.7328333	20	2 17.3	20.7
506227 2016 <i>LR</i> ₁₇	17.5	X	333.05898	66.40433	188.79898	11.56548	0.1491030	0.23066470	2.6331885	20	4 16.9	20.3
506228 2016 <i>LZ</i> ₁₈	16.4	X	184.43961	281.55784	118.01076	16.72345	0.1527403	0.22061251	2.7125804	20	5 4.5	21.1
506229 2016 <i>LK</i> ₂₁	17.2	X	271.47125	167.22521	151.27166	4.01720	0.1271031	0.22664942	2.6641968	20	4 17.1	20.9
506230 2016 <i>LR</i> ₃₂	17.5	X	355.11306	208.07242	113.62734	6.48141	0.0579222	0.28641362	2.2793286	20	9 15.6	19.9
506231 2016 <i>LO</i> ₄₉	16.7	X	96.61030	295.32555	257.69799	19.42929	0.2171514	0.28540812	2.2846789	20	8 15.5	

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>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
506241 2016 NJ ₂₈	17.1	X	48.80662	15.45806	193.32831	12.33269	0.1464130	0.23118557	2.6292320	20	6 30.7	20.5
506242 2016 NU ₃₁	16.2	X	214.31015	87.56529	278.38264	9.03108	0.1376700	0.18874104	3.0099445	20	4 11.6	21.1
506243 2016 NQ ₄₀	16.9	X	10.23316	333.76183	283.89523	2.68802	0.1527086	0.23616988	2.5921077	20	7 4.6	19.3
506244 2016 NE ₄₅	16.1	X	149.58297	315.56143	127.62462	11.07796	0.0617903	0.19171365	2.9787497	20	5 17.4	20.7
506245 2016 NK ₄₆	17.2	X	316.35395	142.63140	147.90207	4.08875	0.0667418	0.21092944	2.7949750	20	5 20.6	20.9
506246 2016 NX ₄₇	16.8	X	132.92840	255.06307	220.35608	3.36417	0.0544999	0.21235309	2.7824690	20	6 4.1	20.7
506247 2016 NK ₄₈	16.7	X	253.92492	161.11219	159.72319	8.68111	0.0600770	0.18948491	3.0020618	20	4 10.9	21.1
506248 2016 OJ ₂	16.4	X	254.42907	62.66866	235.27900	12.25128	0.1177186	0.17268575	3.1937314	20	3 2.3	21.4
506249 2016 OE ₅	16.2	X	282.11009	316.56578	337.91828	8.91445	0.0946301	0.19794065	2.9159454	20	3 31.9	20.5
506250 2016 PR ₅	16.4	X	303.68472	144.88743	120.14721	9.90082	0.0606468	0.18152311	3.0892147	20	4 5.4	20.8
506251 2016 PB ₁₃	16.5	X	231.28215	236.67622	98.89798	14.16877	0.1690942	0.17380842	3.1799638	20	4 1.2	21.9
506252 2016 PE ₂₄	16.1	X	265.72726	158.33331	122.51055	15.91779	0.2394003	0.17303116	3.1894796	20	2 17.4	21.3
506253 2016 PB ₂₅	16.5	X	177.55201	42.51939	355.34289	9.56448	0.0726423	0.17636059	3.1492105	20	4 16.3	21.4
506254 2016 PA ₃₅	16.3	X	117.71776	8.56597	84.87795	9.95611	0.0577913	0.17600778	3.1534175	20	4 23.9	20.9
506255 2016 PQ ₃₆	16.4	X	242.34216	304.78734	25.88543	13.37834	0.0318404	0.17572987	3.1567413	20	4 11.7	20.8
506256 2016 PZ ₅₈	15.9	X	255.53255	276.40947	44.55574	11.20656	0.0098993	0.17211039	3.2008450	20	4 19.7	20.5
506257 2016 PP ₆₂	16.8	X	41.56882	163.82433	73.77819	14.96489	0.0786796	0.24161280	3.5530310	20	7 24.3	20.1
506258 2016 PW ₆₅	16.1	X	149.38448	41.71572	27.05487	11.08537	0.1091489	0.17429564	3.1740349	20	4 28.2	21.1
506259 2016 PY ₇₀	16.3	X	273.38524	207.01178	83.92921	13.23681	0.2033077	0.17981386	3.1087605	20	3 15.2	21.3
506260 2016 QH ₅	16.2	X	174.20589	82.71880	317.24281	8.58090	0.1051810	0.17226846	3.1988868	20	4 15.2	21.3
506261 2016 QP ₂₃	15.7	X	26.11717	255.91575	301.36700	8.22685	0.0208731	0.17692700	3.1424856	20	4 25.0	20.2
506262 2016 QR ₂₄	17.0	X	328.84777	25.53409	306.40283	11.12852	0.0723398	0.23354454	2.6114972	20	8 5.6	20.0
506263 2016 QU ₄₇	15.5	X	309.75425	262.13537	2.53490	15.55850	0.1220838	0.17780540	3.1321274	20	3 29.6	19.7
506264 2016 QB ₅₄	15.9	X	295.23431	95.28172	185.30543	17.22945	0.1173456	0.17962102	3.1109852	20	4 1.9	20.0
506265 2016 QO ₅₅	15.9	X	141.87168	184.04440	259.39148	8.83001	0.0660435	0.17917387	3.1161590	20	5 4.5	20.6
506266 2016 QE ₅₇	16.4	X	135.49905	192.16936	269.58257	8.96019	0.1373365	0.18348032	3.0672068	20	5 27.2	21.2
506267 2016 QR ₅₉	16.5	X	251.39984	45.48528	263.18374	6.18303	0.0610392	0.16794985	3.2534912	20	3 20.0	21.4
506268 2016 QH ₆₅	16.3	X	311.31242	300.72392	313.30628	11.04350	0.1384281	0.18094336	3.0958098	20	3 12.4	20.5
506269 2016 QS ₇₅	15.2	X	269.55601	32.33433	269.13914	14.90481	0.0598148	0.17032139	3.2232198	20	3 28.2	20.2
506270 2016 RF ₅	16.2	X	334.37940	50.21561	188.40185	15.45598	0.0401002	0.17953830	3.1119406	20	4 12.2	20.3
506271 2016 RK ₅	15.6	X	144.75775	202.53937	239.14825	8.68890	0.0458116	0.18145368	3.0900027	20	5 4.7	20.1
506272 2016 RV ₇	16.4	X	297.23262	79.36139	179.53733	11.37902	0.1169201	0.17053997	3.2204650	20	3 8.1	20.9
506273 2016 RV ₁₀	16.5	X	226.40948	78.31043	300.78303	8.89463	0.1772435	0.18756002	3.0225665	20	5 7.6	21.6
506274 2016 RQ ₁₃	16.6	X	53.46991	290.14993	282.50168	10.12619	0.1907603	0.22804500	2.6533162	20	7 20.9	19.8
506275 2016 RY ₁₄	16.1	X	268.64749	23.61299	283.54971	8.07583	0.0180428	0.16958685	3.2325204	20	4 12.2	20.8
506276 2016 RY ₂₆	15.7	X	251.20445	41.61107	296.51345	10.40568	0.1055632	0.17445920	3.1720508	20	4 17.4	20.7
506277 2016 RO ₂₇	16.1	X	225.13688	110.49155	249.33337	9.31786	0.0248421	0.18278771	3.0749500	20	4 25.3	20.6
506278 2016 RC ₃₂	15.4	X	94.14746	279.49991	163.31738	5.40510	0.0865516	0.12541239	3.9528387	20	3 18.6	21.0
506279 2016 SC ₆	15.5	X	347.98943	349.42050	236.43931	15.98761	0.1463203	0.17182296	3.2044137	20	4 2.6	19.5
506280 2016 TN ₄₉	15.6	X	80.46037	307.54697	242.39397	12.84924	0.0317985	0.17134895	3.2103207	20	6 29.5	20.3
506281 2016 TH ₈₁	16.3	X	8.63196	280.10609	358.31624	12.05377	0.0122747	0.19686810	2.9265266	20	7 23.7	20.5
506282 2016 TP ₈₁	16.2	X	290.37096	333.73816	355.04756	8.79651	0.0782964	0.18175681	3.0865661	20	5 30.0	20.6
506283 2016 UR ₉₁	17.2	X	128.27378	169.17049	49.68718	4.03877	0.1232049	0.24052868	2.5606967	20	10 18.7	21.0
506284 2016 UC ₁₄₅	16.8	X	9.66063	284.40458	354.20801	4.04397	0.0657777	0.21296437	2.7771420	20	7 27.2	20.2
506285 2016 VM ₅	16.2	X	299.87111	26.46731	339.26631	32.73460	0.1958340	0.23249964	2.6193157	20	8 4.8	19.6
506286 2017 AP ₁₆	17.3	X	238.21477	0.64020	164.39253	2.02284	0.1526483	0.22075398	2.7114214	20	11 28.1	20.8
506287 2017 BQ ₁₈	16.3	X	218.04080	12.84935	118.86081	14.19189	0.1815453	0.17986616	3.1081579	20	9 21.7	21.4
506288 2017 BP ₃₅	15.8	X	230.89820	342.50351	137.54245	28.64851	0.1448131	0.17578682	3.1560595	20	9 23.8	20.9
506289 2017 BS ₄₃	16.2	X	239.10154	318.94476	128.76107	9.36512	0.0639900	0.16852689	3.2460602	20	8 29.7	20.8
506290 2017 DG ₃	17.2	X	351.91169	124.64614	328.88415	8.41958	0.1002548	0.25638659	2.4539884	20	—	—
506291 2017 DQ ₁₃	16.4	X	222.52794	358.57762	136.55693	16.70789	0.0095148	0.17755145	3.1351132	20	10 20.2	21.1
506292 2017 DU ₇₉	16.0	X	218.67169	182.21912	333.45697	9.38285	0.0602565	0.18499276	3.0504663	20	10 25.4	20.6
506293 2017 DX ₁₀₂	16.4	X	246.03246	289.57709	185.19526	16.01374	0.1717039	0.17252999	3.1956532	20	9 24.5	21.1
506294 2017 FT ₉₈	17.3	X	230.62801	13.29967	230.27217	3.09988	0.1953134	0.23251037	2.6192352	20	—	—
506295 2017 HY ₃₆	16.6	X	188.83486	190.77492	101.97054	9.35972	0.1957946	0.21311167	2.7758622	20	—	—
506296 2017 KG ₁₁	16.9	X	197.46174	155.98390	120.70860	16.12116	0.2076739	0.21582467	2.7525507	20	—	—
506297 2017 MS ₆	17.6	X	240.68585	217.37563	102.42162	7.62891	0.4199896	0.23052934	2.6342192	20	2 29.8	22.8
506298 2017 ME ₈	18.1	X	274.45521	247.49813	98.51910	3.34861	0.3034007	0.27799283	2.3251287	20	5 1.3	21.3
506299 2017 NR ₁	16.9	X	279.74385	154.54821	117.72914	7.06006	0.1553577	0.24276839	2.5449229	20	2 22.7	20.5
506300 2017 NN ₂	15.7	X	230.67625	53.06710	257.70166	12.70068	0.3025619	0.22048511	2.7136253	20	2 10.8	21.0
506301 2017 NR ₂	16.8	X	225.66099	30.66492	305.53368	13.48369	0.2608825	0.22866338	2.6485305	20	3 7.8	21.7
506302 2017 NG ₄	18.2	X	300.75633	10.82125	301.37330	2.28600	0.1825580	0.28438714	2.2901438	20	5 4.3	20.6
506303 2017 NM ₄	16.9	X	307.17847	332.66525	316.60616	6.35897	0.1389753	0.27138764	2.3627041	20	4 16.3	19.7
506304 2017 OF	16.0	X	259.94960	336.84112	280.48883	11.40710	0.1683201	0.21495568	2.7599641	20	1 15.1	20.3
506305 2017 OK	16.2	X	208.30557	49.60879	279.54808	13.84607	0.2131366	0.21301567	2.7766961	20	2 17.9	21.2
506306 2017 OO	16.2	X	158.83342	84.50358	266.57741	11.02351	0.2360137	0.17867963	3.1219026	20	2 10.4	21.7
506307 2017 OR	16.6	X	208.73794	69.96855	254.13465	11.96062	0.2166956	0.21156424	2.7893813	20	2 13.1	21.6
506308 2017 OT	16.5	X	194.14598	58.34717	245.81723	9.92587	0.2665485	0.18476492	3.0529735	20	1 16.7	22.1
506309 2017 OU	17.1	X	233.73014	60.46205	251.86601	10.74606	0.3015509	0.22870892	2.6481789	20	2 14.6	22.1
506310 2017 OV	16.7	X	248.51639	52.78988	228.23460	10.45502	0.1464157	0.22192460	2.7018781	20	1 30.6	21.2
506311 2017 OT ₁	17.4	X	306.61919	114.04181	165.89501	12.49582	0.2462235	0.27602903	2.3361437	20	3 19.4	20.2
506312 2017 OW ₁	16.3	X	230.72908	69.22167	233.01272	5.64845	0.0611803	0.20849195	2.8167168	20	2 15.3	20.5
506313 2017 OD ₂	16.9	X	231.98058	4.97396	307.90646	16.01562	0.2279512	0.22240335	2.6979993	20	2 18.1	21.7
506314 2017												

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>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
506321 2017 OA ₉	16.9	X	257.05205	332.65814	296.51240	14.17630	0.1758271	0.21972422	2.7198864	20	1 25.2	21.2
506322 2017 OH ₉	17.3	X	288.74488	25.87777	300.16469	6.10880	0.1394300	0.29027320	2.2590790	20	5 12.7	19.9
506323 2017 OO ₉	16.6	X	222.29222	347.22806	303.10311	10.46759	0.1913297	0.19903280	2.9052685	20	1 22.8	21.3
506324 2017 OU ₉	17.9	X	313.33024	49.43600	256.25016	6.88999	0.1323054	0.29986099	2.2106640	20	5 25.7	19.9
506325 2017 OZ ₉	16.1	X	32.81327	190.82961	279.22971	15.51417	0.0332711	0.18350942	3.0668825	20	1 18.1	20.3
506326 2017 OX ₁₀	15.3	X	264.02148	280.87042	291.48935	14.68844	0.1984880	0.17943230	3.1131661	20	—	—
506327 2017 OC ₁₂	17.6	X	315.39168	295.11194	323.76586	6.36839	0.0939156	0.26792146	2.3830384	20	3 24.6	20.4
506328 2017 OT ₁₂	16.9	X	244.15607	81.05076	214.45483	10.81012	0.1841566	0.22440257	2.6819510	20	2 9.9	21.5
506329 2017 OS ₁₃	17.9	X	300.87752	183.50394	101.42439	3.00900	0.2021729	0.27979960	2.3151084	20	3 25.8	20.6
506330 2017 OR ₁₅	18.0	X	324.12256	159.93046	113.19998	4.53424	0.1672588	0.29242182	2.2479994	20	4 20.9	20.2
506331 2017 OG ₂₀	17.0	X	257.36659	358.62920	329.75353	7.62588	0.2850368	0.25463485	2.4652303	20	3 23.2	21.1
506332 2017 OM ₂₀	17.8	X	247.56047	332.73748	42.89978	2.24235	0.2030317	0.28090762	2.3090165	20	5 22.9	21.0
506333 2017 OR ₂₁	16.5	X	288.20910	119.83741	163.15365	14.75711	0.1187330	0.23935141	2.5690864	20	3 23.0	19.9
506334 2017 OT ₂₅	16.5	X	266.93376	351.90394	280.22211	13.31148	0.2290386	0.22518370	2.6757452	20	1 30.4	21.0
506335 2017 OC ₂₉	16.3	X	221.41569	68.63000	269.97683	12.15018	0.1806902	0.22145489	2.7056973	20	3 10.2	21.1
506336 2017 OX ₂₉	16.2	X	177.49976	62.33889	283.93409	11.53589	0.2031504	0.18151230	3.0893374	20	2 18.3	21.7
506337 2017 OJ ₃₃	17.0	X	315.35875	15.43516	252.30584	7.16568	0.0931088	0.25593985	2.4568432	20	4 7.2	20.1
506338 2017 OV ₃₆	17.7	X	279.15557	180.49364	172.25711	6.64731	0.1352303	0.29640367	2.2278212	20	6 10.8	20.3
506339 2017 OX ₃₈	17.4	X	256.55160	156.07736	154.92383	6.00845	0.2944569	0.23655150	2.5893192	20	3 5.2	21.7
506340 2017 OW ₃₉	17.3	X	280.48270	9.70347	278.41181	9.36781	0.2224554	0.25828306	2.4419612	20	2 27.5	21.1
506341 2017 OQ ₄₈	17.4	X	276.56885	7.66133	315.36490	10.46463	0.2879144	0.27115819	2.3640368	20	3 29.8	21.3
506342 2017 OS ₄₈	17.1	X	198.80842	198.90744	152.91032	10.71701	0.2374478	0.21933964	2.7230647	20	3 14.6	21.8
506343 2017 OT ₄₈	16.9	X	221.74212	163.69527	147.35917	13.45672	0.1289639	0.21756880	2.7378205	20	2 15.1	21.2
506344 2017 OV ₄₈	16.0	X	184.93390	33.19891	281.61623	9.92551	0.0601231	0.18209642	3.0827274	20	1 17.6	20.6
506345 2017 OW ₄₈	16.2	X	210.45871	109.04853	177.57922	6.52118	0.2173384	0.18929172	3.0041040	20	1 9.5	21.5
506346 2017 OY ₄₈	16.6	X	192.28892	131.53530	156.57989	10.23076	0.3123661	0.17486818	3.1671030	20	1 1.4	22.6
506347 2017 OD ₄₉	16.9	X	229.38637	183.20715	123.14710	4.48472	0.1791729	0.21701245	2.7424978	20	2 15.3	21.4
506348 2017 OK ₅₂	17.2	X	280.48833	356.95293	337.39778	4.91304	0.2935643	0.28431633	2.2905240	20	4 19.7	20.6
506349 2017 OF ₅₆	16.8	X	143.00200	104.04005	323.62423	4.45654	0.0996752	0.21926234	2.7237047	20	4 16.8	20.9
506350 2017 OS ₅₆	16.9	X	160.73288	262.21901	146.33364	6.20768	0.1167819	0.21621869	2.7492057	20	4 17.3	21.2
506351 2017 OD ₆₄	16.9	X	234.62031	204.79833	111.55122	6.00243	0.1495622	0.21234576	2.7825329	20	3 6.2	21.3
506352 2017 OG ₆₅	17.0	X	226.44972	223.79721	141.50742	8.75821	0.2574127	0.23796201	2.5790770	20	4 20.9	21.6
506353 2017 OT ₆₇	18.2	X	221.24751	184.09140	304.68067	18.34697	0.0821165	0.38527889	1.8704779	20	10 22.3	20.6
506354 2017 PT ₅	17.4	X	249.22652	7.81096	340.39042	0.81118	0.1964383	0.25429081	2.4674533	20	4 19.8	21.3
506355 2017 PB ₂₅	17.3	X	247.28083	67.12541	289.47456	10.80168	0.3517516	0.24006732	2.5639764	20	4 11.9	22.1
506356 2017 QX	16.8	X	273.71619	251.67014	65.17853	3.25647	0.2140531	0.25358246	2.4720462	20	4 4.6	20.3
506357 2017 QF ₄	17.7	X	210.59887	102.15942	272.48484	4.15509	0.1754573	0.24686006	2.5167235	20	4 17.3	21.9
506358 2017 QK ₄	17.2	X	250.88506	14.41227	274.19190	4.13382	0.0854201	0.22199525	2.7013048	20	2 18.0	21.2
506359 2017 QF ₆	16.9	X	139.11727	135.35112	270.56026	4.85401	0.0392648	0.21731205	2.7399765	20	3 9.1	20.9
506360 2017 QB ₁₀	18.1	X	282.36959	18.63858	293.51218	0.51197	0.1951709	0.26842643	2.3800488	20	4 8.1	21.3
506361 2017 QJ ₁₀	15.4	X	118.26758	6.94365	336.91762	9.56032	0.3236244	0.12534960	3.9541585	20	1 20.0	21.7
506362 2017 QT ₁₃	15.8	X	259.68386	312.78437	301.19013	9.55814	0.0729019	0.19945566	2.9011609	20	1 22.2	19.8
506363 2017 QG ₁₆	15.1	X	127.70092	278.19281	62.88572	5.33114	0.2411852	0.12576767	3.9453909	20	1 16.1	21.2
506364 2017 QC ₁₉	18.0	X	43.38655	278.13982	277.71965	3.76357	0.0878739	0.28346871	2.2950878	20	5 25.8	20.3
506365 2017 QX ₁₉	16.8	X	113.16435	237.34764	170.37172	8.25050	0.1579267	0.18039830	3.1020426	20	3 1.9	21.5
506366 2017 QX ₂₀	17.9	X	223.20936	104.78523	281.50379	4.27771	0.1222664	0.26928038	2.3750144	20	5 18.2	21.4
506367 2017 QQ ₂₂	16.3	X	187.61590	116.79034	193.46329	0.35161	0.0657071	0.17723031	3.1388993	20	1 16.8	21.0
506368 2017 QS ₂₄	16.0	X	107.62928	287.22480	152.20423	9.74794	0.0495407	0.17991519	3.1075931	20	3 22.2	20.4
506369 2017 QT ₂₄	16.9	X	150.73959	41.42726	47.34857	5.33533	0.1431169	0.22446239	2.6814744	20	5 26.3	21.1
506370 2017 QZ ₂₄	16.7	X	258.09060	124.91995	164.08494	13.65428	0.1878431	0.22964952	2.6409430	20	2 16.5	20.9
506371 2017 QA ₂₅	15.7	X	249.35828	314.26483	314.19831	12.72610	0.1973563	0.20412752	2.8567244	20	1 20.1	20.5
506372 2017 QB ₂₅	16.5	X	178.46307	263.18950	91.26579	4.62125	0.2345441	0.18527730	3.0473423	20	3 5.4	21.8
506373 2017 QT ₂₅	18.0	X	278.25953	150.41695	202.02011	6.52655	0.2358565	0.28490374	2.2873745	20	5 23.4	20.8
506374 2017 QH ₂₆	16.1	X	262.12829	332.39022	265.79284	9.29350	0.1379487	0.19074496	2.9888263	20	1 1.0	20.8
506375 2017 QD ₂₇	16.6	X	145.15258	210.13698	175.59141	10.06379	0.2752338	0.17919831	3.1158756	20	3 16.7	21.9
506376 2017 QY ₃₀	17.4	X	141.61744	209.17529	220.06024	5.76563	0.1055258	0.21650225	2.7468046	20	4 19.6	21.6
506377 2017 QF ₃₁	17.2	X	237.22340	65.54017	263.61725	6.42885	0.2683803	0.23297644	2.6157408	20	3 10.1	21.9
506378 2017 QE ₃₃	17.3	X	246.29309	290.67137	79.37429	8.20528	0.2958240	0.25357581	2.4720894	20	5 8.3	21.5
506379 2017 QE ₃₄	16.2	X	233.42264	105.49843	240.76035	20.71607	0.0782090	0.22508269	2.6765456	20	4 8.5	20.5
506380 2017 QK ₃₄	17.2	X	241.82624	107.82164	184.85694	12.72910	0.2223665	0.21317878	2.7752796	20	2 4.7	22.1
506381 2017 RH	18.0	X	104.71915	344.53463	240.20323	18.01827	0.0562426	0.34359355	2.0188593	20	10 5.7	20.8
506382 2017 RH ₃	17.9	X	215.64220	215.48714	178.87763	7.86004	0.1611273	0.25316064	2.4747913	20	5 20.9	21.9
506383 2017 RV ₃	16.8	X	265.71291	290.97146	350.51031	0.89576	0.0599566	0.19530070	2.9421638	20	3 4.3	20.9
506384 2017 RA ₇	16.3	X	158.57655	213.68197	163.16524	17.18263	0.2181229	0.17799924	3.1298530	20	3 14.6	21.5
506385 2017 RB ₇	16.4	X	258.19805	94.11279	164.45249	21.03699	0.1393601	0.18548267	3.0450925	20	1 20.5	21.5
506386 2017 RW ₇	16.1	X	39.89429	166.11868	336.51862	8.47715	0.0421849	0.19235442	2.9721309	20	3 7.9	20.0
506387 2017 RN ₁₀	17.4	X	317.33983	116.36977	172.63575	5.98390	0.1099457	0.26502127	2.4003923	20	5 13.3	20.0
506388 2017 RL ₁₂	17.9	X	280.10721	343.73179	349.92218	12.15749	0.2485013	0.27590703	2.3368323	20	4 21.7	21.2
506389 2017 RP ₁₂	17.9	X	340.25047	241.50592	46.79276	6.62557	0.1662975	0.29135603	2.2534783	20	6 19.2	19.6
506390 2017 RQ ₁₂	17.0	X	246.50943	319.79196	45.49691	7.09880	0.1470502	0.25486506	2.4637455	20	5 14.2	20.5
506391 2017 RS ₁₂	16.7	X	175.50431	298.74533	119.33866	7.09491	0.1208802	0.22579406	2.6709210	20	5 13.9	20.9
506392 2017 RU ₁₂	17.3	X	254.15783	175.21547	149.35805	8.64931	0.2083420	0.23468806	2.6030073	20	3 28.4	21.4
506393 2017 RV ₁₃	15.9	X	181.65330	160.21022	181.62175	14.91560	0.1948					

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>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
506401 2017 <i>SP</i> ₄	17.0	X	168.21221	353.43109	78.17588	10.26345	0.1627727	0.22079018	2.7111250	20	5 23.6	21.3
506402 2017 <i>SV</i> ₄	16.8	X	234.74436	226.43100	121.97732	7.12618	0.0396927	0.21834359	2.7313399	20	4 24.6	20.7
506403 2017 <i>SA</i> ₅	16.4	X	296.49659	231.65404	42.69805	12.42427	0.1169271	0.21795413	2.7345927	20	3 28.1	20.2
506404 2017 <i>SM</i> ₅	18.0	X	260.51421	301.18586	111.92679	6.69619	0.1279440	0.30031104	2.2084548	20	8 15.7	20.4
506405 2017 <i>SK</i> ₆	16.0	X	177.98955	276.80505	91.28031	10.64656	0.1000549	0.18058586	3.0998943	20	3 20.8	21.0
506406 2017 <i>SN</i> ₆	16.5	X	251.10200	245.50615	49.03015	14.92005	0.2105357	0.20360852	2.8615769	20	2 25.9	21.4
506407 2017 <i>SQ</i> ₈	15.5	X	130.78504	256.43062	146.85040	9.74969	0.0484306	0.17383502	3.1796393	20	3 5.2	20.0
506408 2017 <i>SX</i> ₉	16.9	X	248.70748	129.03444	169.97142	12.99018	0.1677429	0.21452268	2.7636767	20	2 22.8	21.3
506409 2017 <i>SF</i> ₁₃	18.3	X	344.75228	139.87606	150.05488	6.11284	0.2727285	0.29510076	2.2343738	20	6 29.5	19.1
506410 1131 <i>T</i> ₋₃	17.3	X	227.64426	141.94886	236.11283	8.74095	0.3266942	0.22285064	2.6943880	20	4 30.0	22.3
506411 1995 <i>TP</i> ₅	17.0	X	128.18448	76.52132	23.55838	17.73353	0.1723528	0.22095053	2.7098132	20	5 16.1	21.4
506412 1995 <i>WY</i> ₃₉	17.8	X	235.43535	295.95877	80.52772	8.13117	0.1358522	0.26389804	2.4071987	20	5 19.5	21.4
506413 1996 <i>VZ</i> ₁₀	16.5	X	253.61667	13.89872	10.44430	14.91823	0.0579985	0.23756558	2.5819453	20	7 1.9	20.3
506414 1996 <i>VG</i> ₂₆	16.7	X	182.59515	266.61293	79.49670	15.36018	0.2576050	0.18441166	3.0568712	20	3 4.2	22.4
506415 1997 <i>EH</i> ₁	17.2	X	212.19855	279.78955	204.82996	6.62025	0.0554768	0.23353232	2.6115884	20	9 19.2	20.7
506416 1998 <i>QD</i> ₆₀	18.5	X	282.32378	11.46961	319.14101	3.00377	0.1919550	0.26381101	2.4077281	20	7 1.1	21.2
506417 1999 <i>TO</i> ₇₆	18.6	X	266.45783	192.10702	213.13058	4.59183	0.2166225	0.27506132	2.3441619	20	7 23.3	21.5
506418 1999 <i>TZ</i> ₂₂₆	18.0	X	282.06024	106.37625	29.01176	22.33346	0.0377970	0.38482289	1.8719552	20	—	—
506419 1999 <i>TC</i> ₂₆₉	16.3	X	248.78927	146.80254	253.56704	7.51750	0.3227510	0.22541372	2.6739246	20	6 13.1	20.6
506420 1999 <i>VW</i> ₂₉	18.2	X	275.31689	152.68132	236.12545	7.11353	0.2923687	0.27450843	2.3447629	20	6 29.8	21.3
506421 1999 <i>VY</i> ₁₀₆	17.4	X	207.91545	177.64271	22.31724	7.25201	0.2640063	0.21890156	2.7266965	20	5 21.9	22.1
506422 1999 <i>VE</i> ₁₂₂	17.2	X	271.14288	256.80938	72.33775	6.11123	0.1681272	0.21931456	2.7232724	20	4 25.7	21.1
506423 1999 <i>WJ</i> ₅	18.6	X	231.91018	29.27766	59.24957	6.43491	0.2028119	0.27414690	2.3468238	20	8 16.2	22.0
506424 1999 <i>XV</i> ₁₄₁	16.8	X	208.83187	152.47986	284.09662	23.15774	0.2335240	0.26667497	2.3904586	20	7 3.2	20.6
506425 2000 <i>DQ</i> ₁₁₀	16.6	X	125.55230	95.49482	387.80690	58.27108	0.6294112	0.16004597	3.3597443	20	4 3.8	24.1
506426 2000 <i>QH</i> ₃₄	16.9	X	278.01122	25.78349	343.28024	13.32999	0.2653396	0.24101149	2.5572757	20	6 8.3	20.7
506427 2000 <i>RE</i> ₃₄	17.5	X	244.38461	72.79564	268.37348	4.34927	0.3757432	0.23363633	2.6108132	20	3 24.4	22.3
506428 2000 <i>SJ</i> ₁₀₀	17.6	X	305.08586	77.73314	288.57515	6.80766	0.2680587	0.29210018	2.2496494	20	7 24.4	19.0
506429 2000 <i>SS</i> ₂₈₄	17.2	X	256.26330	141.14343	218.35791	12.70350	0.2808961	0.23535187	2.5981105	20	5 3.8	21.3
506430 2000 <i>SW</i> ₂₉₁	17.2	X	271.03198	121.03730	225.73237	2.31685	0.2738092	0.23639771	2.5904420	20	5 2.3	20.9
506431 2000 <i>TV</i> ₄₄	17.3	X	277.32600	300.89967	31.65313	13.54672	0.2925522	0.23706400	2.5855859	20	4 18.8	21.2
506432 2000 <i>UN</i> ₃	17.5	X	261.39305	298.98674	48.15727	5.58223	0.3446414	0.23515410	2.5995670	20	4 17.8	21.9
506433 2000 <i>UT</i> ₃₃	17.0	X	256.36510	340.54740	56.73790	12.66320	0.2451738	0.23646647	2.5899398	20	6 24.5	21.0
506434 2000 <i>UR</i> ₅₉	16.2	X	186.79875	27.24416	356.29157	14.55768	0.2827468	0.17681787	3.1437786	20	4 8.4	22.0
506435 2000 <i>UR</i> ₆₇	15.9	X	189.58165	144.13464	243.34601	15.53940	0.2886144	0.17724514	3.1387242	20	4 15.7	21.7
506436 2000 <i>UE</i> ₇₃	17.6	X	232.35787	357.04082	22.60711	8.08687	0.3500086	0.23259082	2.6186312	20	5 3.1	22.3
506437 2000 <i>WL</i> ₁₀	18.0	X	184.44446	115.16628	252.07817	10.25361	0.1717235	0.17714418	3.1399167	20	3 22.0	25.1
506438 2000 <i>XJ</i> ₁₄	17.0	X	242.74690	95.45688	292.17503	15.72324	0.3524040	0.23424738	2.6062709	20	5 19.0	21.9
506439 2000 <i>YB</i> ₂	6.7	X	109.56758	197.11434	135.49624	3.82694	0.0328814	0.00411569	38.5633372	20	12 18.4	22.6
506440 2000 <i>YZ</i> ₁₁₉	17.0	X	288.46634	342.77005	88.95573	24.04581	0.2107348	0.29266442	2.2467570	20	11 4.1	19.3
506441 2001 <i>AV</i> ₁₉	15.9	X	162.67071	80.10500	93.01711	28.22445	0.3744007	0.23272351	2.6176358	20	10 4.8	21.5
506442 2001 <i>AW</i> ₁₉	17.6	X	275.68283	112.63280	291.29784	22.48260	0.3191157	0.28696924	2.2763855	20	7 18.2	20.4
506443 2001 <i>CM</i> ₃₅	17.7	X	137.18112	93.70822	85.60095	8.48938	0.4130293	0.22544733	2.6736588	20	9 17.3	23.1
506444 2001 <i>EE</i> ₃	18.4	X	112.30502	57.52704	128.12379	2.81364	0.1547773	0.27397349	2.3478140	20	8 25.9	21.9
506445 2001 <i>EQ</i> ₁₀₅	16.0	X	197.83125	170.46359	204.78664	3.29201	0.2798203	0.19190399	2.9767798	20	4 9.5	21.4
506446 2001 <i>RD</i> ₁₄₂	16.5	X	204.38651	282.24985	102.13697	14.61040	0.4609982	0.18903960	3.0067745	20	4 27.4	22.7
506447 2001 <i>SW</i> ₂₀₉	17.2	X	229.51174	314.32182	34.72917	2.96288	0.2406098	0.19145581	2.9814235	20	4 3.9	22.2
506448 2001 <i>SN</i> ₃₅₅	18.4	X	342.91938	198.13662	131.17461	4.90803	0.2417172	0.31050089	2.1598693	20	9 26.2	19.2
506449 2001 <i>TV</i> ₅₅	16.7	X	244.61091	209.18455	121.36378	2.80809	0.3069235	0.19197191	2.9760777	20	3 21.6	22.0
506450 2001 <i>TU</i> ₁₅₈	18.6	X	331.85702	314.00858	36.33533	1.78615	0.1868195	0.31068222	2.1590288	20	9 26.6	19.7
506451 2001 <i>UG</i> ₁₃₃	17.3	X	169.45557	110.59941	302.01169	0.93378	0.2515577	0.18624008	3.0368309	20	5 2.8	22.5
506452 2001 <i>UH</i> ₁₅₅	16.2	X	222.14547	326.63395	65.32776	18.86710	0.2757108	0.18961362	3.0007031	20	5 17.9	21.5
506453 2001 <i>VW</i> ₇₇	16.2	X	88.09011	52.71550	35.98857	3.02757	0.1734028	0.12339974	3.9957031	20	3 30.2	21.8
506454 2001 <i>WL</i> ₁₅	17.6	X	296.16731	217.28122	257.70772	18.87488	0.0702476	0.37000170	1.9216173	20	—	—
506455 2001 <i>XZ</i> ₅₃	17.5	X	228.64470	262.80641	155.46312	6.63968	0.1977824	0.24535741	2.5269885	20	6 29.3	21.6
506456 2001 <i>XA</i> ₂₂₄	15.8	X	95.99431	37.72614	66.83763	17.08309	0.2047756	0.17756993	3.1348957	20	5 2.1	20.5
506457 2001 <i>YG</i> ₄	17.8	X	164.06333	190.47146	282.95387	14.61542	0.1883898	0.23812964	2.5778665	20	7 10.8	21.9
506458 2001 <i>YW</i> ₁₅₅	16.6	X	225.56040	116.15463	303.04732	16.26209	0.1706260	0.24381031	2.5376672	20	7 1.8	20.5
506459 2002 <i>AL</i> ₁₄	17.8	X	279.61952	226.16454	128.52492	22.99730	0.1261417	0.93249027	1.0376236	20	—	—
506460 2002 <i>CR</i> ₁₆₁	17.2	X	157.25033	168.87140	333.66559	11.81764	0.2108411	0.23938141	2.5688719	20	8 13.0	21.5
506461 2002 <i>FS</i>	16.8	X	134.75654	301.66249	232.84491	4.74292	0.2185532	0.23612948	2.5924034	20	8 30.3	21.2
506462 2002 <i>GY</i> ₅₉	16.7	X	126.58228	183.92688	344.12310	12.51527	0.2184491	0.23357039	2.6113046	20	8 19.7	21.0
506463 2002 <i>HZ</i> ₈	16.5	X	105.63039	123.79081	63.98254	32.44222	0.2938308	0.23186119	2.6241219	20	9 18.5	21.8
506464 2002 <i>JM</i> ₉₁	18.1	X	126.68910	357.25120	212.69492	2.48224	0.1594747	0.29015813	2.2596763	20	10 12.3	21.5
506465 2002 <i>LC</i> ₃₅	17.7	X	4.21027	57.10069	227.80310	9.42362	0.2673109	0.27765190	2.3270316	20	8 20.6	19.4
506466 2002 <i>LG</i> ₄₇	16.8	X	125.30529	91.75045	152.65216	17.24198	0.3770328	0.18397369	3.0617207	20	11 18.9	22.9
506467 2002 <i>NJ</i> ₆₈	18.2	X	279.56768	271.72160	95.73029	3.46550	0.2058493	0.26925680	2.3751530	20	6 19.8	21.2
506468 2002 <i>PA</i> ₁₄₇	18.7	X	293.81769	78.93289	270.99715	0.75334	0.2039527	0.26951016	2.3736643	20	6 16.4	21.3
506469 2002 <i>QZ</i> ₁₁₇	17.3	X	252.61506	357.71415	337.81079	1.43671	0.1003504	0.20718887	2.8285146	20	4 19.2	21.5
506470 2002 <i>QP</i> ₁₃₁	18.5	X	305.84910	280.85409	59.19392	2.06514	0.1946516	0.27004559	2.3705256	20	6 24.6	20.7
506471 2002 <i>RE</i> ₂₅₉	18.6	X	314.25148	344.23124	349.35210	1.10521						

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>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
506481 2003 <i>SJ</i> ₆₉	17.0	X	149.07419	103.73828	346.32723	3.46869	0.0703522	0.21410146	2.7673003	20	5 21.3	21.0
506482 2003 <i>SQ</i> ₁₃₀	17.1	X	259.51647	162.94301	193.36185	14.35875	0.2166851	0.21956292	2.7212183	20	5 11.6	21.3
506483 2003 <i>SX</i> ₂₁₇	17.0	X	323.57686	331.91173	31.03885	27.88952	0.2122675	0.28898051	2.2658110	20	10 4.5	18.8
506484 2003 <i>SL</i> ₂₇₆	18.0	X	224.30151	359.08271	2.58625	4.33064	0.2135045	0.21259536	2.7803547	20	4 13.8	22.6
506485 2003 <i>SX</i> ₃₃₈	17.5	X	222.02629	319.74864	50.87564	5.82058	0.1775365	0.21411849	2.7671536	20	4 26.2	22.0
506486 2003 <i>SV</i> ₃₅₉	19.0	X	269.83867	232.23808	175.05845	4.27436	0.2515181	0.28443083	2.2899093	20	7 26.2	21.8
506487 2003 <i>SZ</i> ₄₁₁	17.4	X	220.77848	71.68608	357.73142	12.77127	0.1713598	0.22164827	2.7041233	20	7 10.3	21.9
506488 2003 <i>SU</i> ₄₂₉	17.3	X	296.21046	276.28811	36.72744	5.64729	0.0459781	0.21623123	2.7490994	20	5 22.9	20.8
506489 2003 <i>SN</i> ₄₃₂	17.4	X	197.94622	217.11443	194.04841	3.98127	0.0695621	0.21528576	2.7571423	20	5 27.9	21.5
506490 2003 <i>UO</i> ₂₇	16.8	X	229.95848	332.95325	61.43102	14.85650	0.4508193	0.21740416	2.7392026	20	5 16.2	22.1
506491 2003 <i>UW</i> ₂₉	20.6	X	89.20662	55.18970	196.55385	3.75920	0.8385062	0.77927483	1.1695235	20	12 14.5	22.7
506492 2003 <i>US</i> ₈₂	16.7	X	210.92170	277.94216	124.00809	8.50678	0.2467039	0.21302266	2.77766354	20	5 23.1	21.6
506493 2003 <i>UZ</i> ₁₀₃	17.0	X	243.95004	103.92202	279.12822	8.91719	0.3320226	0.21839965	2.7308725	20	5 16.9	21.9
506494 2003 <i>UK</i> ₃₃₆	17.8	X	240.85332	183.38323	186.22928	3.22422	0.1027347	0.21765239	2.7371195	20	5 20.1	21.9
506495 2003 <i>UJ</i> ₃₇₁	17.4	X	222.25851	144.99056	233.34872	12.42747	0.1902883	0.21865931	2.7287101	20	5 3.7	21.8
506496 2003 <i>UZ</i> ₃₇₇	18.8	X	270.15635	223.56795	193.19374	3.69306	0.1703391	0.28681474	2.2772030	20	8 24.5	21.2
506497 2003 <i>VP</i> ₁₂	18.4	X	265.43973	231.39786	226.86114	3.17441	0.2127500	0.28776570	2.2721833	20	10 11.7	20.5
506498 2003 <i>WA</i> ₃₆	16.8	X	215.58526	142.74535	251.79627	12.57891	0.1995117	0.21257065	2.7805701	20	5 17.4	21.5
506499 2003 <i>WS</i> ₁₈₁	17.4	X	192.96716	340.46707	62.49659	4.43062	0.1748089	0.21007489	2.8025495	20	5 9.8	22.1
506500 2003 <i>WZ</i> ₁₈₁	17.4	X	233.28365	129.64383	250.76656	3.88319	0.1703068	0.21579926	2.7527667	20	5 18.4	21.8
506501 2003 <i>YC</i> ₂₇	17.6	X	351.70704	152.86997	282.17070	17.43930	0.0951378	0.35473921	1.9763472	20	—	—
506502 2003 <i>YZ</i> ₄₁	17.8	X	258.84156	317.80893	102.28094	6.63302	0.2136289	0.27761473	2.3272393	20	8 6.4	20.7
506503 2003 <i>YP</i> ₁₂₄	16.7	X	120.73119	229.01333	130.02014	21.09953	0.2480362	0.26649333	2.3915446	20	8 23.8	20.9
506504 2004 <i>BT</i> ₆₈	18.0	X	211.06735	252.24545	289.87407	22.25540	0.3439456	0.28090055	2.3090552	20	11 1.0	22.3
506505 2004 <i>BE</i> ₁₂₀	17.7	X	235.97569	138.16762	11.09519	7.08248	0.2344815	0.28296503	2.2978104	20	11 2.2	20.6
506506 2004 <i>BZ</i> ₁₆₃	14.8	X	260.57880	307.35464	310.40201	8.91818	0.1936034	0.12530273	3.9551445	20	1 25.7	20.8
506507 2004 <i>CB</i> ₁₀₅	17.0	X	119.56033	158.13776	337.35515	13.81149	0.1915400	0.19999626	2.8959305	20	6 29.5	21.8
506508 2004 <i>EZ</i> ₇₆	17.7	X	79.07465	170.89421	32.27805	3.95001	0.1704921	0.25959293	2.4339504	20	8 14.1	21.0
506509 2004 <i>EN</i> ₁₀₄	17.0	X	32.88132	190.25242	359.26771	10.98058	0.0189196	0.19041338	2.9922951	20	4 23.2	21.2
506510 2004 <i>FJ</i> ₉₀	17.9	X	184.60860	11.20450	146.32895	6.24015	0.2770518	0.27170301	2.3608755	20	9 23.2	21.9
506511 2004 <i>PX</i> ₆₈	17.6	X	317.09204	111.30789	186.07495	4.47729	0.2877636	0.23948381	2.5681395	20	4 25.2	20.2
506512 2004 <i>PV</i> ₇₇	16.9	X	242.12080	42.90410	297.98080	11.96027	0.1996424	0.23135609	2.6279399	20	3 29.4	21.5
506513 2004 <i>RV</i> ₁₃₃	17.7	X	225.30945	297.95245	121.00134	2.48010	0.2120938	0.23728993	2.5839445	20	7 3.9	21.4
506514 2004 <i>RQ</i> ₁₅₈	16.8	X	197.37543	54.29188	340.92537	14.05641	0.1465670	0.22824605	2.6517579	20	4 27.6	21.3
506515 2004 <i>RG</i> ₁₇₄	18.9	X	329.27764	135.22362	200.39455	3.98807	0.2483714	0.30735553	2.1745799	20	8 14.1	19.6
506516 2004 <i>RL</i> ₂₀₈	16.9	X	226.72910	145.62523	260.28563	13.12298	0.2504941	0.23314803	2.6144573	20	6 7.5	21.3
506517 2004 <i>RC</i> ₂₁₅	16.7	X	254.75322	61.32645	305.38522	10.64620	0.1920267	0.23333935	2.6130280	20	5 18.3	20.9
506518 2004 <i>RB</i> ₃₃₆	17.4	X	214.21153	185.25061	206.50468	11.60691	0.1941139	0.22781292	2.6551180	20	5 14.4	21.8
506519 2004 <i>SA</i> ₅	16.6	X	259.29402	254.45193	134.93802	29.68819	0.3590538	0.23395961	2.6084076	20	6 11.8	21.4
506520 2004 <i>TW</i> ₆	17.1	X	237.90019	305.90356	67.88059	6.62156	0.3418714	0.23095882	2.6309526	20	5 3.0	21.7
506521 2004 <i>TX</i> ₈	17.8	X	333.52615	1.74067	21.91567	22.11912	0.0884267	0.37467570	1.9056027	20	11 30.3	19.8
506522 2004 <i>TX</i> ₃₁	17.5	X	212.86975	174.07449	238.01465	4.53499	0.2138608	0.22959388	2.6413696	20	6 5.7	21.9
506523 2004 <i>TM</i> ₅₇	17.5	X	311.29905	103.22220	198.61783	11.01815	0.2207671	0.23494239	2.6011284	20	5 4.3	20.4
506524 2004 <i>TK</i> ₆₉	16.9	X	204.60121	24.50472	22.70066	14.26040	0.2648962	0.22824709	2.6517498	20	5 18.2	21.8
506525 2004 <i>TR</i> ₆₉	17.4	X	240.81677	329.82037	40.27050	5.97627	0.2688982	0.23090174	2.6313861	20	5 4.3	21.7
506526 2004 <i>TX</i> ₈₈	17.8	X	220.96245	289.48104	131.54756	1.66881	0.1299175	0.23369201	2.6103985	20	6 30.8	21.5
506527 2004 <i>TQ</i> ₉₆	17.3	X	207.07178	73.93094	26.12932	12.86995	0.2877338	0.23328585	2.6134275	20	7 31.2	22.1
506528 2004 <i>TR</i> ₉₇	17.3	X	297.00855	157.14682	166.54964	2.45387	0.1614286	0.23317334	2.6142681	20	5 21.9	20.4
506529 2004 <i>TG</i> ₁₄₇	18.8	X	333.18644	29.31424	313.23629	2.32002	0.1922679	0.30522603	2.1846825	20	9 10.2	20.2
506530 2004 <i>TU</i> ₁₄₉	17.8	X	220.35010	172.83846	219.63616	3.67066	0.1122095	0.22927380	2.6438274	20	5 25.6	21.7
506531 2004 <i>TY</i> ₁₆₁	17.4	X	260.34734	166.34734	203.96710	1.45045	0.1261862	0.23153303	2.6266008	20	6 9.8	21.1
506532 2004 <i>TB</i> ₁₉₄	16.3	X	86.98558	298.67206	222.44675	12.74985	0.0747423	0.22627997	2.6670959	20	6 9.4	20.0
506533 2004 <i>TR</i> ₂₀₈	17.8	X	239.31891	62.76739	272.29057	2.10537	0.2662625	0.22725071	2.6594953	20	3 21.2	22.5
506534 2004 <i>TH</i> ₂₃₃	18.4	X	340.48484	319.48707	193.43339	4.54894	0.1650011	0.30545014	2.1836138	20	9 25.4	19.7
506535 2004 <i>TJ</i> ₂₄₁	17.0	X	259.40910	355.96312	344.11994	5.76974	0.3337600	0.23069565	2.6329530	20	4 6.1	21.5
506536 2004 <i>TW</i> ₂₄₂	16.5	X	221.79596	322.73815	62.74974	14.27738	0.1924082	0.22959689	2.6413465	20	5 13.6	20.7
506537 2004 <i>TX</i> ₂₇₄	17.3	X	260.92369	12.93795	36.67216	16.67973	0.1616375	0.23584819	2.5944642	20	8 4.9	21.2
506538 2004 <i>VS</i> ₈₂	18.6	X	294.94617	356.50700	44.80092	3.51395	0.1299562	0.30433068	2.1889654	20	9 28.8	20.2
506539 2004 <i>XY</i> ₁₃	17.0	X	257.25209	325.13402	67.08089	6.36563	0.3267826	0.23059356	2.6337301	20	6 9.7	21.3
506540 2004 <i>XT</i> ₂₉	16.7	X	214.23969	40.72616	71.54320	30.25502	0.2095490	0.23400343	2.6080819	20	9 7.1	21.5
506541 2004 <i>XB</i> ₁₈₁	17.0	X	122.97372	212.42757	287.45566	12.17098	0.1373025	0.21701608	2.7424672	20	7 2.7	21.1
506542 2005 <i>AH</i> ₂	16.3	X	236.33375	323.69313	118.36896	33.80693	0.2172354	0.22967743	2.6407290	20	8 4.4	20.4
506543 2005 <i>AE</i> ₆₈	18.0	X	351.77506	156.64394	296.37926	16.99861	0.1142823	0.37889568	1.8914271	20	—	—
506544 2005 <i>EN</i> ₄₇	18.2	X	66.56494	281.75819	317.04137	0.98084	0.1836677	0.27971913	2.3155524	20	9 18.7	21.0
506545 2005 <i>EX</i> ₄₇	16.9	X	160.88972	167.09005	347.59117	13.46425	0.1782300					

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>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>		
506561	2005	<i>TS</i> ₁₁₅	16.9	X	146.04799	219.96534	206.90857	4.47192	0.1148695	0.16969950	3.2310897	20	4 24.5	21.8
506562	2005	<i>TA</i> ₁₃₆	18.0	X	210.30718	306.00658	145.07127	2.12806	0.1539946	0.25233997	2.4801542	20	7 27.8	21.8
506563	2005	<i>TY</i> ₁₄₆	16.1	X	224.76026	161.00121	195.64917	32.17165	0.1031012	0.17257325	3.1951192	20	4 17.9	21.1
506564	2005	<i>TV</i> ₁₉₁	16.1	X	168.05725	196.65301	220.11041	8.62728	0.0214671	0.17103990	3.2141866	20	4 30.5	20.8
506565	2005	<i>UU</i> ₃₄	17.8	X	203.52664	191.18578	222.89801	7.05494	0.1413847	0.24186077	2.5512857	20	6 3.3	21.7
506566	2005	<i>UD</i> ₄₇	18.4	X	234.67428	324.85814	70.92849	3.61379	0.2118819	0.24557439	2.5254998	20	6 4.9	22.3
506567	2005	<i>UC</i> ₅₁	17.9	X	228.40571	101.35463	261.13063	3.40775	0.2666356	0.24181670	2.5515957	20	4 13.8	22.3
506568	2005	<i>UQ</i> ₉₁	17.3	X	261.00971	17.26256	304.88657	4.41862	0.1722612	0.24017597	2.5632030	20	3 30.8	21.3
506569	2005	<i>UW</i> ₁₂₅	17.6	X	232.32096	260.56191	230.86673	5.91567	0.0702483	0.26080723	2.4261797	20	10 27.4	20.8
506570	2005	<i>UV</i> ₁₅₁	18.5	X	219.56995	48.72403	11.11347	1.79705	0.2091818	0.24523375	2.5278379	20	6 21.9	22.5
506571	2005	<i>UH</i> ₁₆₉	16.1	X	239.45887	110.40272	232.23929	12.45281	0.0350351	0.16892164	3.2410012	20	4 21.0	20.8
506572	2005	<i>UB</i> ₁₇₄	17.8	X	266.99278	111.00962	263.12019	5.10548	0.1310806	0.24750570	2.5123448	20	6 23.1	21.0
506573	2005	<i>UC</i> ₁₈₁	17.2	X	110.96216	144.18524	202.48592	3.08932	0.1051566	0.21293760	2.7773747	20	—	—
506574	2005	<i>UT</i> ₂₃₁	18.9	X	221.45071	184.96440	222.35976	12.82718	0.1753710	0.24456083	2.5324728	20	6 9.9	23.0
506575	2005	<i>UV</i> ₂₅₉	17.3	X	175.40073	24.58403	42.69844	22.81704	0.0452802	0.24053018	2.5606860	20	5 18.1	21.0
506576	2005	<i>UK</i> ₂₆₄	16.4	X	216.16969	159.91051	205.47817	8.72674	0.0361160	0.17013024	3.2256336	20	4 23.5	21.0
506577	2005	<i>UB</i> ₃₄₅	18.1	X	229.93814	344.55446	74.44426	5.19938	0.1775683	0.24604334	2.5222830	20	7 3.9	21.9
506578	2005	<i>UX</i> ₄₁₁	17.2	X	342.18783	225.87461	69.59774	11.20422	0.0925557	0.24579413	2.5239944	20	7 7.1	20.0
506579	2005	<i>UQ</i> ₄₆₁	16.6	X	11.32864	8.74479	190.14085	5.67528	0.0458988	0.16716361	3.2636849	20	4 12.6	20.8
506580	2005	<i>VR</i> ₈	18.0	X	239.33579	335.85167	55.24091	7.76641	0.1697325	0.24658331	2.5186062	20	6 6.9	21.8
506581	2005	<i>VQ</i> ₅₈	17.8	X	284.53228	26.60061	310.32699	3.46892	0.1467997	0.24722695	2.5142329	20	5 22.9	20.9
506582	2005	<i>VA</i> ₁₂₇	18.5	X	268.19543	186.45809	186.83085	5.70781	0.1459625	0.25203901	2.4821282	20	6 21.4	21.8
506583	2005	<i>WX</i> ₁₀	18.3	X	264.49805	185.68497	226.83510	1.34777	0.1786972	0.25255061	2.4787750	20	8 4.9	21.4
506584	2005	<i>WO</i> ₁₇	17.7	X	275.98938	128.74670	227.19080	2.33980	0.2080832	0.24655084	2.5188273	20	5 29.1	21.1
506585	2005	<i>WJ</i> ₂₀	17.9	X	197.96507	198.38146	257.11257	9.38680	0.1987989	0.24461294	2.5321131	20	7 16.7	22.2
506586	2005	<i>WT</i> ₇₆	17.7	X	228.92973	357.36020	64.95188	15.85648	0.0908507	0.24522951	2.5278670	20	7 18.1	21.5
506587	2005	<i>WE</i> ₈₈	17.5	X	208.95850	344.05838	94.58948	14.07166	0.1137606	0.24119889	2.5559510	20	7 12.9	21.2
506588	2005	<i>WU</i> ₈₉	17.9	X	253.21413	256.90804	167.82595	4.04240	0.2443168	0.25193252	2.4828276	20	7 28.2	21.5
506589	2005	<i>WP</i> ₁₅₈	16.4	X	225.33790	109.00536	272.12012	26.46824	0.3127737	0.23982528	2.5657012	20	4 28.4	21.5
506590	2005	<i>XB</i> ₁	22.0	X	93.51850	232.91124	73.33631	8.71029	0.4187658	0.81911839	1.1312839	20	—	—
506591	2005	<i>XE</i> ₁₅	17.7	X	203.23907	249.30510	187.41537	4.17276	0.1970885	0.24154484	2.5535099	20	6 28.9	22.0
506592	2005	<i>XK</i> ₂₆	18.9	X	211.08841	8.70156	77.23152	5.78476	0.2419280	0.24562817	2.5251311	20	7 16.0	23.1
506593	2005	<i>XM</i> ₅₃	18.1	X	280.30025	63.24672	286.43418	2.90328	0.1933087	0.24791654	2.5095684	20	5 27.9	21.4
506594	2005	<i>YV</i> ₃₂	17.4	X	205.39688	231.21930	215.67085	1.33662	0.1880510	0.24052224	2.5607424	20	7 14.4	21.5
506595	2005	<i>YF</i> ₈₃	18.9	X	197.56832	180.91595	279.45468	8.35759	0.2755478	0.24146267	2.5540891	20	7 19.9	23.5
506596	2005	<i>YQ</i> ₁₅₄	17.8	X	182.48350	101.48880	14.29533	2.62404	0.1294255	0.23990088	2.5651621	20	8 2.4	21.7
506597	2005	<i>YY</i> ₁₅₉	17.5	X	243.07398	228.66633	163.67491	3.44131	0.1701210	0.24097036	2.5575667	20	6 13.5	21.2
506598	2005	<i>YQ</i> ₂₆₄	16.1	X	212.12086	17.20114	320.85852	8.88870	0.0668058	0.15169423	3.4819564	20	3 13.7	21.4
506599	2006	<i>AL</i> ₃₅	17.3	X	130.53719	354.52042	118.03352	14.09664	0.0938385	0.22953210	2.6418436	20	6 4.0	21.3
506600	2006	<i>AJ</i> ₄₁	16.7	X	217.46837	24.11618	44.20138	10.31566	0.1718822	0.23862734	2.5742808	20	7 3.9	20.9
506601	2006	<i>AD</i> ₁₀₄	18.0	X	236.95929	88.55106	332.40506	5.47988	0.4199350	0.24240218	2.5474854	20	6 22.2	22.7
506602	2006	<i>BE</i> ₁₈	16.9	X	195.24631	146.71930	300.33362	12.88875	0.1483287	0.23775493	2.5805743	20	7 8.1	21.0
506603	2006	<i>BS</i> ₁₉	17.7	X	126.19103	275.07133	244.36297	1.12548	0.1370653	0.23536448	2.5980177	20	7 31.7	21.5
506604	2006	<i>BP</i> ₂₀	17.3	X	169.38025	172.44022	294.76581	10.81691	0.0210848	0.23521408	2.5991516	20	7 7.9	20.8
506605	2006	<i>BW</i> ₃₄	18.7	X	105.53651	244.98599	353.43491	1.47840	0.0527143	0.31521028	2.1383025	20	10 26.2	21.4
506606	2006	<i>BJ</i> ₁₃₈	18.0	X	194.95865	153.39745	312.45337	3.88026	0.2512110	0.238400553	2.5758773	20	7 28.1	22.4
506607	2006	<i>BX</i> ₁₄₃	17.6	X	212.27790	166.51581	296.92282	12.46726	0.2506916	0.24316695	2.5421413	20	8 5.1	21.9
506608	2006	<i>BA</i> ₁₈₅	17.7	X	199.70620	341.71366	110.74768	4.91397	0.1072665	0.23782774	2.5800476	20	7 21.2	21.3
506609	2006	<i>BS</i> ₁₉₆	18.1	X	221.99778	296.44234	165.94390	4.23101	0.1622419	0.24262892	2.5458980	20	8 22.2	21.8
506610	2006	<i>CV</i> ₂₂	17.3	X	70.02259	209.91930	350.65345	4.45347	0.1519098	0.22596652	2.6695618	20	7 23.7	20.8
506611	2006	<i>CP</i> ₂₆	17.5	X	171.50741	338.40008	121.90330	1.98582	0.1009220	0.23352452	2.6116465	20	6 30.8	21.2
506612	2006	<i>DU</i> ₆	17.3	X	196.46141	1.21781	87.18225	3.29529	0.1482389	0.23528680	2.5985895	20	7 10.2	21.2
506613	2006	<i>DW</i> ₄₈	17.7	X	133.80276	345.25457	150.26621	4.59855	0.1622353	0.22872692	2.6480399	20	7 9.8	22.0
506614	2006	<i>DU</i> ₆₈	16.6	X	138.50576	140.17706	358.90922	32.80145	0.1873367	0.23080137	2.6321490	20	8 6.9	21.5
506615	2006	<i>DX</i> ₇₄	17.7	X	196.27107	82.51350	11.10668	2.56415	0.1611135	0.23633487	2.5909012	20	7 16.6	21.8
506616	2006	<i>DH</i> ₉₀	17.8	X	149.07563	347.84647	162.44849	3.99184	0.1403324	0.23249415	2.6193570	20	8 11.6	21.8
506617	2006	<i>DH</i> ₁₁₈	16.9	X	120.74840	14.31973	164.45295	5.73484	0.1747216	0.23057994	2.6338338	20	8 22.1	21.0
506618	2006	<i>DC</i> ₁₄₀	17.3	X	92.35602	73.13422	124.55722	6.23719	0.1639437	0.22916147	2.6446913	20	8 17.7	21.2
506619	2006	<i>EB</i> ₁₁	17.7	X	214.20105	43.48754	24.39504	3.70544	0.2010384	0.23235151	2.6204289	20	6 27.6	22.0
506620	2006	<i>ES</i> ₅₁	16.9	X	88.41687	63.60222	124.29044	3.04006	0.0946823	0.22758563	2.6568854	20	7 20.8	20.3
506621	2006	<i>FF</i> ₁	18.1	X	140.07582	265.67186	2.13636	21.46109	0.0595885	0.38975490	1.8561297	20	—	—
506622	2006	<i>FV</i> ₅₅	15.4	X	226.28233	254.85764	17.18030	7.74247	0.1781520	0.12603717	3.9397647	20	1 15.2	21.7
506623	2006	<i>GA</i> ₁₃	18.3	X	66.37140	195.58168	72.07884	4.09768	0.1438829	0.30172780	2.2015362	20	10 27.7	21.2
506624	2006	<i>GX</i> ₄₅	19.4	X	256.70807	141.68320	25.53874	18.36472	0.0795637	0.39256300	1.8472676	20	—	—
506625	2006	<i>GX</i> ₅₂	17.4	X	128.62524	213.43561	326.03576	7.07626	0.3107252	0.23202648	2.6228755	20	9 4.7	22.2
506626	2006	<i>HG</i> ₇₄	17.3	X	326.80266	86.47654	168.16840	4.55175	0.0597456	0.20860240	2.8157225	20	4 18.6	20.9
506627	2006	<i>JR</i> ₁₁	17.9	X	159.50054	77.16164	107.32016	6.48716	0.0517625	0.30325388	2.1941441	20	10 20.9	20.7
506628	2006	<i>JS</i> ₁₆	18.0	X	86.13408	171								

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>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
506641 2006 RH ₅₀	17.0	X	190.52898	193.42083	181.47507	0.61886	0.2039638	0.18229799	3.0804544	20	4 4.7	22.2
506642 2006 RE ₅₄	17.2	X	223.57744	218.47034	134.24900	1.83561	0.1931343	0.18581006	3.0415146	20	4 6.3	22.2
506643 2006 RG ₅₈	18.3	X	349.86628	238.19263	177.85355	25.97381	0.0798318	0.36734949	1.9308554	20	—	—
506644 2006 RN ₆₇	16.3	X	197.18548	223.36313	162.45843	23.18976	0.2245455	0.18994051	2.9972593	20	4 26.8	21.8
506645 2006 RE ₇₅	18.4	X	302.21637	188.69524	173.18106	3.68603	0.2036489	0.27603016	2.3361372	20	7 20.8	20.4
506646 2006 RK ₇₈	18.4	X	294.80376	226.13135	131.74948	2.06029	0.2007728	0.27407911	2.3472108	20	7 1.0	20.6
506647 2006 RT ₉₅	18.4	X	307.40889	23.98623	299.25159	0.42340	0.2003420	0.27045797	2.3681154	20	5 30.8	20.9
506648 2006 RP ₁₂₂	18.3	X	270.47069	4.77628	21.96273	1.92424	0.1866116	0.27370020	2.3493766	20	7 8.5	21.2
506649 2006 SE ₃₇	17.0	X	187.19561	164.51330	239.26306	2.77108	0.2194488	0.18509694	3.0493216	20	5 5.5	22.2
506650 2006 SZ ₄₉	17.7	X	302.97742	16.46879	13.56951	7.77989	0.1832518	0.27829194	2.3234623	20	9 14.9	19.5
506651 2006 SR ₅₀	18.0	X	307.61019	32.69195	341.33473	10.13827	0.2434804	0.27764049	2.3270954	20	8 19.5	19.4
506652 2006 SO ₁₀₃	17.1	X	178.66713	212.51031	179.27468	4.71205	0.1643800	0.18339956	3.0681071	20	4 15.2	22.1
506653 2006 SL ₁₁₆	17.2	X	166.71232	208.04862	184.88267	0.63375	0.1910282	0.17900782	3.1180857	20	4 6.6	22.4
506654 2006 SE ₁₃₃	17.7	X	50.42046	73.44131	308.34758	18.58770	0.1012813	0.37301738	1.9112464	20	—	—
506655 2006 SZ ₁₄₂	16.7	X	185.38203	217.73071	205.35139	9.85662	0.0878063	0.18975286	2.9992350	20	5 29.2	21.4
506656 2006 SJ ₁₄₈	18.5	X	270.16484	245.02997	155.95692	2.80374	0.1925593	0.27469083	2.3437248	20	7 27.3	21.3
506657 2006 SK ₁₅₄	16.3	X	141.37624	199.41138	179.69546	19.81785	0.2098784	0.17792298	3.1307473	20	2 28.9	21.5
506658 2006 SL ₁₆₁	18.7	X	255.12269	274.56288	138.64670	1.67049	0.1821309	0.27211628	2.3584845	20	7 25.7	21.7
506659 2006 SS ₂₀₀	16.8	X	249.92315	282.91754	19.34325	13.75468	0.2047277	0.18289573	3.0737392	20	3 4.8	21.9
506660 2006 SF ₂₀₄	17.9	X	256.40383	37.32336	27.81058	7.51972	0.0869479	0.27666851	2.3325425	20	9 2.8	20.7
506661 2006 SV ₂₁₁	18.7	X	235.86978	277.20353	147.24775	1.32191	0.1555407	0.26968464	2.3726403	20	7 21.1	21.8
506662 2006 SK ₂₂₅	17.4	X	243.97871	201.66488	242.23020	5.07256	0.1175592	0.27807261	2.3246839	20	8 31.5	20.3
506663 2006 SL ₂₄₁	17.0	X	167.30372	359.63837	31.28390	5.25656	0.1384813	0.18097784	3.0954167	20	4 3.5	21.8
506664 2006 SH ₂₅₅	18.9	X	281.51835	177.97463	198.59745	2.18082	0.2011990	0.27422971	2.3463514	20	7 6.9	21.6
506665 2006 SO ₂₆₅	18.5	X	246.74589	153.79933	261.57353	4.05840	0.1749656	0.27007326	2.3703637	20	7 18.5	21.8
506666 2006 SU ₂₆₈	18.2	X	216.55416	186.06257	266.31006	4.17270	0.1658548	0.27025719	2.3692882	20	8 4.2	21.7
506667 2006 SL ₂₇₉	16.2	X	172.66010	34.40685	43.59473	18.31113	0.3029467	0.18248733	3.0783233	20	6 1.8	21.9
506668 2006 SD ₂₈₅	18.7	X	331.96488	308.90451	0.26596	4.88675	0.2268086	0.27579131	2.3374859	20	6 29.0	20.3
506669 2006 SE ₂₈₆	18.0	X	279.56396	317.87148	51.24653	7.32029	0.1720499	0.27256817	2.3558771	20	6 28.2	20.9
506670 2006 SS ₂₉₈	18.6	X	333.15001	61.50586	243.61912	1.67988	0.2344254	0.27285637	2.3542179	20	6 22.9	19.8
506671 2006 SN ₃₂₄	16.4	X	167.23440	198.29095	180.87419	10.74251	0.0858214	0.17846365	3.1244210	20	3 17.2	21.2
506672 2006 SL ₃₃₃	17.4	X	193.61080	329.73103	57.35465	3.62896	0.2308753	0.18484310	3.0521126	20	4 21.7	22.6
506673 2006 SN ₃₄₈	17.1	X	169.47510	197.42025	200.58629	11.84262	0.1150290	0.18095217	3.0957094	20	4 12.4	21.8
506674 2006 SO ₃₅₀	16.7	X	230.08036	338.98756	8.95441	8.29616	0.2095997	0.18970352	2.9997550	20	4 3.8	21.6
506675 2006 SA ₃₆₁	16.6	X	180.29196	347.37108	46.84079	10.11756	0.1230171	0.18031763	3.1029677	20	4 19.9	21.6
506676 2006 SH ₃₉₇	17.5	X	178.96992	171.41819	236.24465	0.14106	0.1819304	0.18432211	3.0578611	20	5 3.6	22.5
506677 2006 SH ₃₉₉	17.4	X	164.59116	280.80175	130.04823	1.83657	0.1768575	0.18208029	3.0829094	20	4 25.9	22.5
506678 2006 SH ₄₀₂	17.5	X	164.03461	314.92529	107.08116	1.75884	0.2192210	0.18271081	3.0758128	20	5 9.8	22.8
506679 2006 SS ₄₀₃	17.0	X	126.42201	70.42925	18.85762	8.80672	0.1833039	0.17792016	3.1307804	20	5 5.7	22.0
506680 2006 SE ₄₀₇	17.0	X	127.24475	12.11588	94.20588	2.72281	0.0393563	0.18504763	3.0498632	20	5 15.4	21.3
506681 2006 SE ₄₀₈	17.1	X	133.00616	231.97811	217.02671	9.61092	0.2138524	0.17768495	3.1335427	20	5 16.3	22.2
506682 2006 SF ₄₁₁	16.9	X	213.35973	215.86636	138.07967	1.53746	0.1831184	0.18239924	3.0793144	20	3 30.6	22.1
506683 2006 TN ₁₇	17.9	X	256.10020	235.92144	159.65126	2.28341	0.1684802	0.26926188	2.3751232	20	7 3.8	21.0
506684 2006 TZ ₁₉	18.5	X	288.40937	115.92060	231.54266	3.76888	0.1979161	0.26909302	2.3761166	20	6 5.2	21.2
506685 2006 TG ₂₈	18.7	X	240.38224	0.42410	56.28328	1.92002	0.1902339	0.26833126	2.3806115	20	7 11.8	21.9
506686 2006 TJ ₂₈	18.5	X	234.47428	3.53112	43.95778	5.25133	0.1863216	0.26601054	2.3944374	20	6 22.8	22.0
506687 2006 TV ₂₉	18.1	X	285.37030	172.25870	179.64154	0.97348	0.2044606	0.26906997	2.3762524	20	6 5.9	22.0
506688 2006 TW ₃₃	15.8	X	56.91337	147.16726	34.35057	17.76980	0.1379885	0.18369581	3.0648076	20	5 31.2	20.0
506689 2006 TV ₄₃	16.1	X	160.52070	344.44309	42.46531	11.30703	0.2268559	0.17674347	3.1446608	20	3 30.9	21.5
506690 2006 TZ ₅₀	17.0	X	215.51010	112.95575	220.24723	9.26316	0.2375217	0.17868658	3.1218217	20	3 3.4	22.5
506691 2006 TN ₈₂	17.2	X	148.04701	85.95212	9.12465	6.71664	0.2193246	0.18192887	3.0846198	20	6 3.8	22.5
506692 2006 TO ₈₈	17.3	X	151.75262	204.45745	227.13231	12.42851	0.2437393	0.17912764	3.1166951	20	5 12.2	22.5
506693 2006 TU ₉₀	17.4	X	201.06212	128.86532	236.63343	8.25056	0.3248662	0.18162041	3.0881113	20	3 28.9	23.2
506694 2006 TA ₉₂	18.6	X	281.05980	20.57084	350.30932	1.03941	0.1991488	0.26977331	2.3721204	20	6 28.3	21.4
506695 2006 TB ₉₃	18.3	X	286.39055	61.73445	307.78902	2.71627	0.1362291	0.27123892	2.3635677	20	7 16.2	20.9
506696 2006 TV ₁₀₀	18.7	X	279.93526	106.12970	268.97894	1.65421	0.1962629	0.27089056	2.3655936	20	7 3.3	21.3
506697 2006 UZ	16.6	X	156.52489	40.12265	24.64283	9.36990	0.1098554	0.18159756	3.0883703	20	4 30.2	21.5
506698 2006 US ₅₁	16.3	X	186.67728	156.05676	247.67700	7.21647	0.0662499	0.18429203	3.0581939	20	5 5.0	20.9
506699 2006 UD ₅₈	18.5	X	241.55706	258.41660	159.92238	2.50664	0.1964391	0.26737399	2.3862903	20	7 13.9	21.8
506700 2006 UM ₅₉	16.1	X	207.60147	340.89047	350.42334	9.08210	0.1992434	0.17856113	3.1232837	20	2 29.3	21.4
506701 2006 UF ₇₆	15.8	X	170.88381	356.28354	30.83209	28.55893	0.1186828	0.17910214	3.1169909	20	4 7.7	20.8
506702 2006 UP ₇₆	16.9	X	149.79215	203.30824	249.23543	6.75133	0.1748602	0.18371815	3.0645592	20	6 1.3	21.8
506703 2006 UD ₇₇	17.0	X	191.37084	58.48725	317.53009	3.82388	0.1892792	0.18126499	3.0921468	20	4 5.0	22.2
506704 2006 UR ₈₁	17.6	X	283.19130	255.61016	74.22370	3.74896	0.1871931	0.26373731	2.4081766	20	5 5.9	20.6
506705 2006 UD ₈₆	18.1	X	280.14430	48.99954	352.56341	9.27029	0.2130579	0.27585778	2.3371104	20	8 13.3	20.6
506706 2006 UA ₈₉	16.7	X	175.43514	174.65424	227.34350	17.21499	0.1945056	0.17994645	3.1072333	20	4 23.3	21.9
506707 2006 UE ₉₃	17.1	X	199.31272	167.69281	190.15483	4.17471	0.2065074	0.18026640	3.1035556	20	3 22.7	22.2
506708 2006 UB ₉₇	17.1	X	179.79855	310.18434	95.33895	3.29777	0.2081490	0.18250779	3.0780933	20	5 3.1	22.3
506709 2006 UU ₁₁₂	17.1	X	238.70442	334.26976	359.60048	2.25935	0.0983912	0.18422671	3.0589167	20	4 3.6	21.6
506710 2006 UE ₁₁₇	16.7	X	244.91881	290.78324	32.08063	3.71290	0.2085019	0.18530287	3.0470620	20	3 19.9	21.7
506711 2006 UN ₁₅₄	18.2	X	313.67404	85.70414	261.77205	4.08096	0.1835909	0.27614830	2.3354709	20	7 25.0	20.1
506712 2006 UC ₁₅₇	17.2	X	175.21532	2.94968	51.12493	5.32540	0.2518037	0.18325510	3.0697193	20	5 9.2	22.7
506713 2006 UY ₁₆₆	16.5	X	52.39741	133.83828	46.64115	13.36666	0.0418848	0.18493				

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>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>		
506721	2006	UE ₂₃₇	17.3	X	220.90026	144.36402	200.15797	10.22953	0.1153707	0.18173945	3.0867627	20	3 27.8	22.2
506722	2006	UM ₂₄₇	17.0	X	120.56001	254.82230	219.76542	11.56836	0.0576508	0.18398908	3.0615500	20	5 20.0	21.5
506723	2006	UQ ₂₅₀	17.0	X	113.95180	57.42653	59.23656	1.42297	0.1240743	0.18103598	3.0947539	20	5 22.3	21.4
506724	2006	UK ₂₅₄	18.4	X	200.12354	336.57079	220.48742	19.81593	0.0304767	0.36140070	1.9519861	20	—	—
506725	2006	UF ₂₆₀	17.7	X	274.40106	76.30578	213.61046	9.37430	0.2919421	0.25860890	2.4399096	20	2 18.2	21.9
506726	2006	UQ ₂₆₃	16.9	X	217.93361	98.74009	225.90952	5.93307	0.2810119	0.18245181	3.0787228	20	2 23.9	22.5
506727	2006	UH ₂₆₈	17.8	X	293.14008	346.48520	23.43868	8.61098	0.2170544	0.27181599	2.3602212	20	7 16.2	20.4
506728	2006	UR ₂₇₂	16.4	X	146.90392	15.29870	38.94668	16.32654	0.0762551	0.17500596	3.1654405	20	4 10.6	21.2
506729	2006	UN ₂₇₄	17.4	X	179.39612	182.41606	195.74962	9.99821	0.1360005	0.18011035	3.1053479	20	3 29.1	22.4
506730	2006	UM ₂₈₇	16.3	X	83.70333	97.78830	52.18995	14.96723	0.1971028	0.17728597	3.1382423	20	6 6.3	20.9
506731	2006	UX ₂₈₈	17.1	X	239.64234	106.53944	223.48910	2.24367	0.2376815	0.18769120	3.0211581	20	3 19.9	22.3
506732	2006	VW ₂	21.2	X	222.27341	299.62099	229.80518	10.04836	0.2945012	0.171750957	1.2357129	20	—	—
506733	2006	VW ₁₀	16.2	X	137.34188	205.83667	230.52382	19.29250	0.1825004	0.17621667	3.1509249	20	5 1.6	21.2
506734	2006	VY ₁₈	18.6	X	250.84693	15.44269	351.13301	2.08450	0.2272234	0.26347872	2.4097520	20	5 11.5	22.1
506735	2006	VA ₃₀	16.1	X	128.18029	63.47071	60.16135	26.94880	0.2138227	0.17909076	3.1171229	20	6 18.6	21.5
506736	2006	VU ₃₂	17.9	X	266.41149	346.66169	55.73495	4.08177	0.1942582	0.27116156	2.3640172	20	7 24.9	20.8
506737	2006	VW ₃₈	17.2	X	156.62013	61.45093	22.30248	0.88207	0.1548056	0.18173308	3.0868348	20	5 26.7	22.2
506738	2006	VY ₃₈	17.1	X	126.23449	203.93682	233.35574	8.04316	0.2062932	0.17436671	3.1731724	20	4 24.3	22.1
506739	2006	VT ₄₀	17.4	X	168.99635	265.76858	154.20541	0.61523	0.1747198	0.18049919	3.1008865	20	5 10.0	22.6
506740	2006	VU ₅₃	16.4	X	213.83753	306.08135	34.17161	9.65826	0.0885744	0.17530128	3.1618844	20	3 21.7	21.3
506741	2006	VG ₅₉	16.9	X	271.36781	253.66151	68.01686	16.61420	0.0545753	0.18215464	3.0820704	20	5 5.7	21.3
506742	2006	VG ₆₀	18.4	X	297.70185	278.37059	76.32753	3.51627	0.2070875	0.26986836	2.3715634	20	6 30.1	20.5
506743	2006	VJ ₆₀	16.1	X	254.28256	242.92059	63.84613	17.50367	0.2100710	0.17937527	3.1138260	20	3 18.9	21.4
506744	2006	VL ₆₁	16.6	X	185.89378	346.36264	52.50347	2.00833	0.1637301	0.17988231	3.1079719	20	4 29.3	21.8
506745	2006	VG ₆₂	17.2	X	160.15828	4.44592	44.03415	1.57237	0.1864054	0.17600492	3.1534517	20	4 19.4	22.5
506746	2006	VC ₇₇	17.0	X	114.89189	30.45973	85.42616	5.68026	0.1835532	0.17712004	3.1402020	20	5 29.2	21.9
506747	2006	VC ₇₉	16.8	X	170.90515	328.27002	79.01532	6.43710	0.2266004	0.17904138	3.1176960	20	4 29.5	22.2
506748	2006	VN ₇₉	18.1	X	215.15872	1.28627	67.60813	5.35765	0.1192260	0.26672175	2.3901790	20	8 4.9	21.5
506749	2006	VV ₇₉	18.9	X	259.43842	280.13682	116.69816	3.09284	0.2189614	0.26797581	2.3827162	20	7 2.5	22.0
506750	2006	VM ₈₀	16.4	X	109.38545	40.18412	84.16268	9.67914	0.0250394	0.18008486	3.1056409	20	5 15.9	20.8
506751	2006	VK ₈₅	17.3	X	249.70167	23.36572	76.12040	12.98200	0.1624626	0.27411304	2.3470171	20	10 3.9	20.4
506752	2006	VU ₈₅	16.8	X	232.43549	314.55617	31.34158	6.11981	0.0512017	0.18077992	3.0976756	20	4 16.4	21.3
506753	2006	VJ ₁₀₄	18.9	X	271.36870	146.09270	235.25218	1.19834	0.2190910	0.27056443	2.3674941	20	6 26.1	21.9
506754	2006	VP ₁₃₇	16.9	X	133.29323	28.07346	65.56834	15.79594	0.2534488	0.17567629	3.1573832	20	5 24.5	22.2
506755	2006	VP ₁₃₈	16.8	X	104.11558	70.21950	72.97715	3.40628	0.1558910	0.17888044	3.1195657	20	6 17.3	21.5
506756	2006	VS ₁₄₀	18.1	X	179.06614	43.95020	77.54858	6.05312	0.1259345	0.26373737	2.4081762	20	8 9.2	21.7
506757	2006	WB ₁₈	19.0	X	232.58032	61.98428	1.37229	2.63902	0.1785569	0.26728903	2.3867959	20	7 13.7	22.4
506758	2006	WP ₄₁	17.4	X	204.20581	45.54543	73.33671	23.60307	0.2538341	0.26690082	2.3891098	20	8 31.9	21.9
506759	2006	WC ₄₉	18.8	X	222.81688	278.09527	173.72788	2.44850	0.1499828	0.26759293	2.3849885	20	8 12.6	22.1
506760	2006	WN ₆₅	16.5	X	259.61759	275.12437	45.42484	18.63826	0.0727685	0.17925268	3.1152456	20	4 18.1	21.1
506761	2006	WH ₆₈	17.4	X	239.00955	343.29067	88.22554	10.11447	0.2000668	0.26700838	2.3884682	20	7 30.5	20.8
506762	2006	WH ₉₄	18.8	X	260.68810	315.68193	90.19773	3.41547	0.1650967	0.26896822	2.3768516	20	7 25.9	21.7
506763	2006	WH ₁₀₂	16.9	X	172.79056	347.64300	68.11888	2.81374	0.0854860	0.17879101	3.1206060	20	5 6.7	21.7
506764	2006	WZ ₁₀₅	16.2	X	67.25146	70.37449	84.46328	2.45841	0.1001036	0.17452231	3.1712860	20	5 10.2	20.5
506765	2006	WK ₁₀₆	16.5	X	108.75922	243.66885	240.81862	9.45263	0.0686352	0.17777802	3.1324490	20	5 19.2	21.1
506766	2006	WR ₁₁₁	18.0	X	313.01048	167.16824	169.57969	1.23133	0.1999943	0.26773376	2.3841521	20	7 2.9	19.9
506767	2006	WU ₁₅₀	17.7	X	200.56662	27.92118	81.63566	6.46131	0.1811203	0.26428793	2.4048306	20	8 12.4	21.5
506768	2006	WG ₁₅₁	16.3	X	181.61605	132.57927	261.04971	13.90102	0.3220116	0.18055402	3.1002587	20	4 16.6	22.2
506769	2006	WX ₁₅₅	16.7	X	209.99900	311.76067	59.35541	11.17599	0.0963043	0.18019714	3.1043508	20	4 27.7	21.5
506770	2006	WH ₁₇₁	19.1	X	260.24177	196.52714	206.23426	1.74127	0.1973077	0.26792238	2.3830330	20	7 14.8	22.2
506771	2006	WZ ₁₇₈	18.7	X	253.76673	100.14286	302.52371	0.66053	0.1849279	0.26791304	2.3830883	20	7 8.7	22.0
506772	2006	WV ₂₀₀	16.9	X	163.58528	257.12234	151.30451	0.95955	0.1765571	0.17617361	3.1514384	20	4 22.0	21.9
506773	2006	WV ₂₀₄	16.8	X	178.64092	339.80673	65.42843	12.39025	0.1917537	0.18070492	3.0985371	20	5 3.2	22.0
506774	2006	WV ₂₀₄	16.6	X	130.75341	190.55992	250.81523	15.60582	0.1502758	0.17526056	3.1623694	20	4 27.0	21.7
506775	2006	XP ₂₂	18.3	X	193.78622	19.89117	96.67841	4.39368	0.1518238	0.26445619	2.4038105	20	8 16.0	22.0
506776	2006	XO ₄₅	16.8	X	137.57875	27.25850	79.34807	2.68914	0.1827083	0.17697358	3.1419343	20	6 7.8	21.9
506777	2006	XH ₅₅	18.4	X	79.26496	259.52473	73.19497	23.58481	0.0891965	0.36360962	1.9440726	20	—	—
506778	2006	XE ₆₁	17.4	X	149.37175	227.36315	208.07735	2.73713	0.2252155	0.17671040	3.1450531	20	5 14.2	22.6
506779	2006	YY ₂	17.8	X	242.31378	68.50287	105.14554	31.44017	0.4060041	0.35054742	1.9920712	20	12 15.2	19.6
506780	2006	YE ₂₈	18.3	X	237.68275	4.71426	65.80288	2.55082	0.1695750	0.26423930	2.4051257	20	7 30.4	21.5
506781	2007	AF ₁	16.1	X	207.13365	120.27122	297.83075	21.95938	0.2524372	0.18147002	3.0898172	20	6 7.0	21.7
506782	2007	AN ₁₀	17.4	X	302.48092	274.04835	104.91359	22.36520	0.3314201	0.27016671	2.3698171	20	7 24.8	19.3
506783	2007	AL ₁₅	15.8	X	173.34909	292.04265	116.49924	26.15730	0.3324387	0.17580524	3.1558390	20	5 12.8	22.1
506784	2007	AC ₁₆	15.6	X	153.34849	132.24236	314.17979	26.45078	0.2447000	0.17371759	3.1810721	20	5 28.9	21.5
506785	2007	AR ₂₇	16.7	X	60.75136	92.35752	88.16398	9.91780	0.1360141	0.24315248	2.5422421	20	6 9.4	19.8
506786	2007	BG ₁	16.2	X	190.12364	100.84690	308.90406	18.65326	0.3333101	0.17826750	3.1267124	20	5 8.8	22.4
506787	2007	BM ₂	15.4	X	336.74023	271.83054	303.53989	13.26961	0.0916705	0.16116456	3.3441803	20	3 6.9	20.0
506788	2007	BL ₁₆	15.8	X	126.99405	178.47326	333.82600	16.80022	0.1429571	0.17737617	3.1371783	20	7 25.1	20.9
506789	2007	BY ₄₂	18.2	X	186.68503	353.75993	116.50958	2.57204	0.1436752	0.25716342	2.4490440	20	7 30.2	21.7

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
506801 2007 <i>GT</i> ₁₆	17.6	X	353.10171	358.44367	248.86646	2.55086	0.1191444	0.22918424	2.6445161	20	5 13.9	20.3
506802 2007 <i>GG</i> ₃₅	17.3	X	351.70171	225.48332	44.06969	10.03814	0.1509540	0.23333430	2.6130657	20	6 11.9	19.9
506803 2007 <i>HE</i> ₃₄	17.3	X	41.64273	204.69447	38.16737	17.37676	0.0714102	0.23833550	2.5763818	20	8 4.9	20.9
506804 2007 <i>HH</i> ₈₇	17.5	X	350.12495	63.53274	203.83962	7.65830	0.1012651	0.23025347	2.6363228	20	6 8.6	20.5
506805 2007 <i>JL</i> ₄₆	15.4	X	211.36795	135.87891	140.12216	8.12150	0.2107541	0.12531080	3.9549747	20	1 5.6	21.9
506806 2007 <i>LE</i> ₂₂	16.7	X	328.45419	162.87850	101.99145	16.06950	0.1959233	0.22454107	2.6808480	20	4 23.9	20.0
506807 2007 <i>MZ</i> ₂	17.4	X	344.45155	85.07742	178.41344	2.34210	0.1549865	0.22105178	2.7089857	20	5 20.1	20.2
506808 2007 <i>MG</i> ₆	17.2	X	271.04805	73.98195	229.22448	15.10074	0.4706238	0.21267158	2.7796903	20	2 18.1	22.7
506809 2007 <i>PG</i> ₃₇	18.1	X	349.51167	25.59364	304.81647	5.64087	0.2156280	0.30654615	2.1784059	20	10 4.6	19.5
506810 2007 <i>RH</i> ₃₂	17.9	X	354.85303	259.32148	72.33065	5.22720	0.2374632	0.30673289	2.1775216	20	10 30.1	19.3
506811 2007 <i>RP</i> ₄₀	18.5	X	288.64268	311.98351	57.25663	2.60423	0.1435882	0.29652019	2.2272375	20	7 21.0	20.5
506812 2007 <i>RJ</i> ₄₇	18.7	X	238.97058	324.70145	0.28280	2.04670	0.1983832	0.27850314	2.3222875	20	3 10.7	22.4
506813 2007 <i>RQ</i> ₅₆	18.3	X	10.07958	87.18249	216.10359	4.44503	0.2570822	0.30479164	2.1867578	20	10 16.0	20.1
506814 2007 <i>RT</i> ₅₉	16.2	X	45.82008	268.87963	358.36347	14.12517	0.1242761	0.22924757	2.6440291	20	9 17.6	19.6
506815 2007 <i>RA</i> ₁₃₆	18.1	X	301.80532	193.72942	191.87564	4.40723	0.1811959	0.30089090	2.2056166	20	9 6.4	19.7
506816 2007 <i>RX</i> ₂₂₅	17.3	X	293.03032	111.84878	186.15442	4.98059	0.0909030	0.20851767	2.8164852	20	4 23.6	20.9
506817 2007 <i>RJ</i> ₂₈₈	17.4	X	228.84035	312.20043	43.53114	2.59735	0.0833129	0.20298520	2.8674320	20	4 20.8	21.8
506818 2007 <i>RS</i> ₂₉₂	17.3	X	251.22050	297.28298	38.88927	2.54542	0.0736887	0.20297715	2.8675079	20	4 22.4	21.2
506819 2007 <i>RZ</i> ₂₉₄	17.0	X	156.89576	184.27003	188.53605	9.83003	0.1156185	0.19003450	2.9962709	20	2 27.6	21.7
506820 2007 <i>SD</i> ₉	18.4	X	325.02856	328.21117	31.70881	5.92778	0.1778130	0.30180543	2.2011587	20	9 24.6	19.7
506821 2007 <i>SH</i> ₂₄	16.2	X	181.47848	318.35754	88.30522	18.65771	0.1527282	0.18762754	3.0218413	20	5 10.5	21.4
506822 2007 <i>SQ</i> ₂₄	15.8	X	352.12463	248.76456	110.53008	1.45097	0.0964759	0.12462486	3.9694738	20	3 18.6	20.9
506823 2007 <i>SR</i> ₂₄	15.7	X	136.19848	141.24448	277.43274	14.61401	0.1617089	0.17966049	3.1105295	20	4 1.1	20.9
506824 2007 <i>TX</i> ₃₇	18.0	X	314.93740	190.91831	182.25916	6.58483	0.1320949	0.30193256	2.2005408	20	9 21.8	19.5
506825 2007 <i>TZ</i> ₃₈	18.3	X	241.47703	22.10686	307.56379	6.61005	0.0933670	0.29072500	2.2567379	20	8 3.7	21.1
506826 2007 <i>TQ</i> ₅₁	17.2	X	253.96721	353.91312	351.95483	1.50921	0.1024089	0.20337499	2.8637670	20	5 3.8	21.3
506827 2007 <i>TK</i> ₅₆	19.1	X	271.55010	34.52023	21.62441	4.04983	0.2003475	0.29640466	2.2278162	20	8 25.0	21.3
506828 2007 <i>TE</i> ₈₂	18.6	X	312.72881	341.16336	27.24266	4.07835	0.1727919	0.29910638	2.2143806	20	9 6.9	20.1
506829 2007 <i>TT</i> ₁₃₂	18.2	X	12.48793	103.42629	207.57684	7.14779	0.1005691	0.29917586	2.2140377	20	10 2.5	20.3
506830 2007 <i>TP</i> ₁₃₇	16.3	X	142.44846	119.04434	292.36963	8.33620	0.2173378	0.18984290	2.9982866	20	4 4.8	21.4
506831 2007 <i>TT</i> ₁₄₁	17.3	X	231.83316	312.87923	57.64700	5.39066	0.1134009	0.20205397	2.8762356	20	5 10.2	21.7
506832 2007 <i>TN</i> ₁₅₁	18.2	X	308.15299	44.22530	326.86267	5.08550	0.2049982	0.30087380	2.2057001	20	8 24.5	19.5
506833 2007 <i>TL</i> ₁₈₉	17.7	X	239.33226	348.83027	353.17835	9.60999	0.1507981	0.20583014	2.8409488	20	4 6.3	22.2
506834 2007 <i>TN</i> ₂₃₈	17.5	X	193.08635	17.03681	43.63964	2.63323	0.0548945	0.20248643	2.8721388	20	6 3.2	21.6
506835 2007 <i>TV</i> ₂₅₄	18.5	X	71.18766	228.93098	25.75408	21.65637	0.0214620	0.37789922	1.8947506	20	10 13.9	20.1
506836 2007 <i>TH</i> ₂₆₇	18.7	X	283.31118	23.16534	27.88989	4.81844	0.1680540	0.29942312	2.2128187	20	9 14.6	20.6
506837 2007 <i>TO</i> ₂₆₈	18.9	X	356.16705	123.15179	194.89046	5.53944	0.2055652	0.30135604	2.2033464	20	9 29.5	20.1
506838 2007 <i>TA</i> ₂₇₂	18.0	X	281.50020	1.35111	45.26865	7.83021	0.1541933	0.29754217	2.2212346	20	9 8.8	20.1
506839 2007 <i>TM</i> ₃₁₅	19.0	X	278.53946	213.76242	199.77788	1.10826	0.1378027	0.29767459	2.2214756	20	9 11.8	21.0
506840 2007 <i>TH</i> ₃₁₆	17.8	X	8.22260	251.87378	53.94898	6.62142	0.1659523	0.29819307	2.2188998	20	10 1.9	19.7
506841 2007 <i>TS</i> ₃₃₀	17.9	X	290.76367	344.94190	10.00672	4.71127	0.1470306	0.29063109	2.2572240	20	6 30.7	20.2
506842 2007 <i>TD</i> ₃₃₉	17.0	X	205.29007	347.43822	38.54017	0.93446	0.2114384	0.19821149	2.9132885	20	4 28.7	22.0
506843 2007 <i>TD</i> ₃₈₅	16.4	X	199.93681	253.70868	92.91265	10.84990	0.0922176	0.18755178	3.0226551	20	3 16.3	21.2
506844 2007 <i>TF</i> ₄₀₈	17.0	X	133.85117	190.61584	227.16985	15.78391	0.1284132	0.18604863	3.0389139	20	3 28.9	21.9
506845 2007 <i>TJ</i> ₄₃₀	16.1	X	136.03597	338.50619	92.35227	17.21536	0.2329692	0.18222159	3.0813154	20	5 4.6	21.5
506846 2007 <i>TC</i> ₄₄₆	17.9	X	220.06945	68.99325	340.70235	5.87121	0.1607823	0.28537843	2.2848373	20	6 12.9	21.3
506847 2007 <i>US</i> ₉	18.6	X	308.57858	309.34608	59.34857	6.49104	0.2502988	0.29939568	2.2129539	20	8 17.8	19.9
506848 2007 <i>UB</i> ₈₀	17.4	X	221.04421	135.96089	253.85340	1.04476	0.0781555	0.20302224	2.8670833	20	5 25.4	21.6
506849 2007 <i>UJ</i> ₉₀	17.4	X	213.15268	348.20888	40.74707	2.57069	0.1161294	0.20073979	2.8887752	20	5 13.1	21.8
506850 2007 <i>UF</i> ₉₉	16.5	X	188.69805	348.35296	55.86822	6.77735	0.0925141	0.19578161	2.9373439	20	5 8.6	21.0
506851 2007 <i>UX</i> ₁₀₀	16.4	X	157.36539	294.96094	239.36522	7.41456	0.1015017	0.21357555	2.7718413	20	9 14.3	20.8
506852 2007 <i>UD</i> ₁₁₉	16.6	X	252.20531	168.01090	197.90966	20.78468	0.1166510	0.20927254	2.8097082	20	5 27.2	21.0
506853 2007 <i>UT</i> ₁₂₈	18.2	X	323.20225	315.58747	11.92744	6.19009	0.2144711	0.29240006	2.2481109	20	7 13.7	19.7
506854 2007 <i>VG</i> ₃₀	18.3	X	340.70384	314.27163	12.50193	4.61752	0.2047367	0.29967489	2.2115791	20	9 5.5	19.4
506855 2007 <i>VH</i> ₄₉	17.0	X	189.05150	23.10832	29.45541	9.67492	0.1138969	0.19805766	2.9147968	20	5 16.8	21.6
506856 2007 <i>VR</i> ₆₃	17.2	X	178.41625	333.24523	70.93378	8.44761	0.0726649	0.19247462	2.9708934	20	4 29.5	21.7
506857 2007 <i>VY</i> ₁₁₁	17.0	X	195.32933	326.23872	64.34301	2.93948	0.1090198	0.19486041	2.9465941	20	4 28.4	21.6
506858 2007 <i>VP</i> ₁₃₆	19.1	X	217.15245	261.17214	198.72098	4.28221	0.1029283	0.29266667	2.2467454	20	8 24.0	22.0
506859 2007 <i>VW</i> ₁₃₇	18.2	X	239.41623	245.06530	299.66742	5.94616	0.7391314	0.29652953	2.2271908	20	10 23.1	22.5
506860 2007 <i>VP</i> ₁₃₉	16.9	X	274.66396	214.60847	100.08993	4.56962	0.1761977	0.20094661	2.8867926	20	4 11.7	21.1
506861 2007 <i>VT</i> ₁₃₉	19.5	X	299.69227	254.17639	230.65645	19.49544	0.1011795	0.39286235	1.8463291	20	—	—
506862 2007 <i>VU</i> ₁₇₅	17.1	X	249.28280	226.47816	129.05627	2.87426	0.0757564	0.20187698	2.8779164	20	5 15.4	21.2
506863 2007 <i>VT</i> ₂₀₁	18.4	X	357.88238	84.26387	233.69421	5.01291	0.1208257	0.29745229	2.2225822	20	9 17.4	20.5
506864 2007 <i>UV</i> ₂₃₅	19.0	X	302.03570	57.01403	298.57437	2.70537	0.1614998	0.29330112	2.2435043	20	7 20.2	20.6
506865 2007 <i>VV</i> ₂₈₀	17.9	X	131.22248	331.19775	236.38909	3.43207	0.1028890	0.29611862	2.2292507	20	10 12.7	21.0
506866 2007 <i>VX</i> ₃₃₁	16.5	X	113.29634	205.23813	287.29702	9.74274	0.1088708	0.18760078	3.0221287	20	6 8.7	21.1
506867 2007 <i>WF</i> ₆₃	18.2	X	183.40196	201.61009	297.86992	1.80428	0.1781692	0.28114933	2.3076929	20	9 2.8	21.7
506868 2007 <i>XP</i> ₁₂	17.6	X	43.23054	245.39774	38.55551	9.95733	0.0947629	0.29694966	2.2250896	20	10 13.0	20.1
506869 2007 <i>XX</i> ₅₁	16.8	X	118.48015	172.33437	310.38336	6.65760	0.0864064	0.18777152	3.0202965	20	5 29.7	21.4
506870 2007 <i>YK</i> ₁₆	16.6	X	119.51731	124.97710	264.44908	7.11493	0.1049055	0.17504098	3.1650183	20	2 8.2	21.3
506871 2007 <i>YR</i> ₂₆	16.8	X	76.36323	141.63056	22							

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>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
506881 2008 AU ₆₉	18.8	X	199.21795	179.26486	319.38713	2.64503	0.1901409	0.28597091	2.2816804	20	9 16.5	22.3
506882 2008 AV ₇₀	16.5	X	140.29148	132.28996	298.70945	9.59254	0.0885428	0.17884131	3.1200208	20	4 16.4	21.4
506883 2008 AG ₇₅	16.9	X	136.56555	140.14874	304.46975	5.89464	0.1227256	0.18187626	3.0852145	20	5 4.4	21.7
506884 2008 AT ₇₅	16.4	X	149.44627	318.48117	141.79216	6.13950	0.1095065	0.18749179	3.0232998	20	6 7.9	21.2
506885 2008 AM ₇₆	17.0	X	115.31280	58.16616	67.60002	2.96192	0.1582873	0.18532009	3.0468732	20	6 7.8	21.7
506886 2008 AT ₇₉	17.1	X	93.49360	349.93873	146.76049	2.90515	0.1916369	0.18041852	3.1018109	20	6 2.5	21.6
506887 2008 AA ₁₁₆	16.8	X	142.07006	338.29550	115.36886	10.83863	0.1144358	0.18467490	3.0539656	20	5 25.2	21.6
506888 2008 AH ₁₂₈	16.5	X	167.26158	317.34403	102.98578	4.01024	0.1052125	0.18708479	3.0276830	20	5 7.8	21.2
506889 2008 AJ ₁₂₈	16.6	X	178.27752	108.09255	314.85655	6.96411	0.0262429	0.18622194	3.0370282	20	5 18.4	21.1
506890 2008 AK ₁₂₈	16.6	X	151.81454	117.91574	312.43807	8.37378	0.1169968	0.18367536	3.0650350	20	4 30.6	21.6
506891 2008 AR ₁₃₆	16.1	X	122.33264	2.22301	129.23806	16.38661	0.0795931	0.18896360	3.0075806	20	6 16.5	20.7
506892 2008 BQ ₅	17.9	X	114.05109	262.47466	301.62723	6.37729	0.0570493	0.28065408	2.3104069	20	9 11.2	21.0
506893 2008 BD ₃₆	18.0	X	173.58380	349.13308	154.51998	1.83868	0.1234664	0.27691597	2.3311527	20	9 1.3	21.3
506894 2008 BA ₅₃	16.0	X	20.05125	233.94507	331.86004	11.45118	0.0795467	0.17889808	3.1193607	20	4 28.6	20.2
506895 2008 BQ ₅₄	16.5	X	148.07313	322.54404	133.13829	17.23441	0.0473975	0.18570952	3.0426122	20	5 31.2	21.3
506896 2008 CM ₂₂	15.8	X	68.51762	208.43551	291.95109	16.70674	0.1412487	0.17655549	3.1468924	20	4 21.8	20.3
506897 2008 CY ₄₆	16.6	X	123.10965	308.39830	175.13574	12.08272	0.1183542	0.18072688	3.0982816	20	6 15.7	21.7
506898 2008 CS ₆₇	16.4	X	30.08369	183.77722	359.37335	13.86244	0.0592193	0.17313553	3.1881978	20	4 14.4	20.7
506899 2008 CM ₁₀₂	16.2	X	56.83452	44.36257	145.06540	19.53558	0.0565051	0.18375464	3.0641534	20	6 6.8	20.7
506900 2008 CX ₁₀₈	18.3	X	165.03030	34.08636	140.82886	5.22898	0.2073805	0.27772279	2.3266356	20	10 2.7	22.1
506901 2008 CU ₁₂₇	18.4	X	195.67318	177.66249	308.55371	2.02706	0.1338198	0.28031638	2.3122621	20	8 31.7	21.6
506902 2008 CT ₁₄₂	17.9	X	178.76222	0.58060	163.86316	6.82717	0.1741388	0.27808165	3.3246335	20	10 2.7	21.4
506903 2008 CS ₁₄₅	16.9	X	154.35430	264.12621	168.60577	3.65261	0.0990721	0.17898903	3.1183039	20	5 9.6	21.7
506904 2008 CV ₁₆₂	17.1	X	143.56225	283.80973	154.76121	6.00055	0.1269833	0.17982873	3.1085892	20	5 8.5	22.0
506905 2008 CQ ₁₆₉	17.3	X	31.62871	179.92831	87.32458	6.95209	0.1946371	0.27115668	2.3640455	20	9 15.0	19.9
506906 2008 CK ₁₉₄	18.1	X	260.51266	161.95686	345.01696	19.14486	0.0610616	0.37770158	1.8954115	20	—	—
506907 2008 CL ₂₁₄	18.2	X	158.08940	178.20006	352.31678	4.35784	0.1392460	0.27633903	2.3343962	20	9 20.0	21.6
506908 2008 DM ₂	18.4	X	164.05152	230.09653	297.97973	1.83147	0.1612204	0.28180196	2.3041286	20	9 22.1	21.9
506909 2008 DW ₃	17.6	X	281.34236	261.39728	132.41007	5.39626	0.1083103	0.27965846	2.3158872	20	8 20.0	19.8
506910 2008 DE ₁₂	17.2	X	90.50209	71.35725	68.35464	2.40050	0.1079666	0.18010217	3.1054420	20	5 21.8	21.4
506911 2008 DZ ₁₄	16.7	X	84.64165	332.97644	172.18133	21.72970	0.1442585	0.17492702	3.1663927	20	5 29.6	21.6
506912 2008 DE ₄₉	17.6	X	180.78195	39.52006	109.00024	7.67511	0.1855576	0.27941621	2.3172256	20	9 15.7	21.3
506913 2008 DG ₇₄	18.4	X	165.44103	112.14526	32.85098	1.67814	0.1243269	0.27551494	2.3390488	20	8 26.0	21.9
506914 2008 DN ₈₁	16.4	X	130.61859	305.68978	174.14444	16.32582	0.1599591	0.18084555	3.0969260	20	6 16.6	21.6
506915 2008 DW ₈₄	18.0	X	70.41213	337.68982	260.91561	0.48770	0.1448895	0.27195729	2.3594036	20	9 16.7	21.2
506916 2008 DS ₈₆	17.4	X	128.78538	355.66240	106.60899	2.60300	0.1376881	0.17878138	3.1207180	20	5 22.1	22.1
506917 2008 EK ₁₁	16.2	X	327.86466	221.65902	25.75167	11.75723	0.0593900	0.16974227	3.2305469	20	4 12.4	20.4
506918 2008 EE ₃₉	17.6	X	33.28308	143.93473	107.87110	4.55233	0.1399308	0.26338389	2.4103304	20	8 11.4	20.0
506919 2008 EB ₇₃	17.9	X	146.61471	108.67774	60.67071	2.22582	0.1249377	0.27408548	2.3471744	20	9 8.1	21.3
506920 2008 EQ ₈₆	16.3	X	132.51956	94.24963	12.47825	15.62725	0.1996263	0.17830096	3.1263212	20	6 1.1	21.6
506921 2008 ED ₈₉	16.7	X	178.33912	76.41828	12.26383	22.92905	0.2360431	0.26830298	2.3807788	20	6 21.7	21.3
506922 2008 EZ ₁₁₈	16.7	X	75.17873	283.17376	256.19531	1.20283	0.1734700	0.18202630	3.0835190	20	7 1.9	20.9
506923 2008 EF ₁₂₃	17.7	X	159.43763	148.34126	14.61741	2.58675	0.1549592	0.27338361	2.3511901	20	9 11.8	21.2
506924 2008 EK ₁₃₁	18.0	X	86.46894	159.43982	63.59319	3.63803	0.1380429	0.26876692	2.3780383	20	9 15.9	21.3
506925 2008 EF ₁₆₀	18.4	X	282.76311	136.88245	254.03828	3.32256	0.1160888	0.27718805	2.3296269	20	8 14.1	20.9
506926 2008 FF ₁₀	18.3	X	108.05461	82.45388	126.01596	1.90702	0.1373045	0.27388353	2.3483281	20	9 20.9	21.6
506927 2008 FE ₁₈	18.1	X	155.46982	6.31231	176.50954	5.51404	0.1721075	0.27859889	2.3217554	20	10 3.9	21.7
506928 2008 FZ ₂₀	17.8	X	215.77447	31.07436	67.80399	7.35904	0.1366572	0.27288693	2.3540421	20	8 20.1	21.2
506929 2008 FV ₂₂	18.1	X	113.92126	117.17321	81.86541	6.74882	0.0814964	0.26884367	2.3775857	20	9 11.5	21.4
506930 2008 FY ₅₈	16.5	X	114.07046	302.05387	192.38982	10.00181	0.1775847	0.17596490	3.1539297	20	6 19.1	21.6
506931 2008 FC ₆₄	16.8	X	108.72198	147.51721	136.90240	9.56642	0.0925605	0.17901150	3.1180430	20	5 19.4	21.6
506932 2008 FA ₈₉	18.3	X	142.05020	51.68187	332.63847	1.81970	0.1261218	0.27395884	2.3478977	20	9 22.6	21.7
506933 2008 FZ ₁₀₅	16.2	X	165.69582	57.77532	45.85046	10.32827	0.0469657	0.17886504	3.1197449	20	6 26.1	20.9
506934 2008 FD ₁₁₆	16.8	X	91.96912	328.75949	166.55195	8.33547	0.0453171	0.17132987	3.2105591	20	5 11.4	21.4
506935 2008 GU ₈	16.2	X	65.92900	143.66771	23.78525	27.93840	0.1434858	0.17257800	3.1950605	20	5 20.4	20.9
506936 2008 GL ₃₃	17.0	X	98.19786	77.60955	44.94173	0.84095	0.1337897	0.17159934	3.2071970	20	5 13.1	21.5
506937 2008 GG ₈₉	18.0	X	93.75795	33.18419	188.00276	4.80170	0.1912730	0.26720661	2.3872868	20	9 24.3	21.6
506938 2008 GQ ₈₉	16.6	X	85.83744	125.56923	15.47082	15.38350	0.1481075	0.17205150	3.2015755	20	5 18.9	21.4
506939 2008 GC ₉₂	17.8	X	123.31977	351.51596	188.17828	4.72971	0.1466042	0.26720944	2.3872699	20	8 26.5	21.5
506940 2008 GH ₁₀₀	17.9	X	95.17540	131.04555	77.23617	2.23727	0.1138078	0.26480069	2.4017251	20	9 2.0	21.1
506941 2008 GH ₁₁₄	17.8	X	60.13193	326.42929	29.36517	21.90011	0.0660219	0.37323298	1.9105103	20	—	—
506942 2008 GF ₁₃₀	18.2	X	92.09953	160.95935	51.77990	10.96955	0.1878809	0.26576489	2.3959126	20	9 17.5	21.9
506943 2008 HL ₆	18.0	X	353.40570	275.42559	19.03834	1.34979	0.1749535	0.25817171	2.4426634	20	7 31.1	19.7
506944 2008 HG ₂₆	17.8	X	109.42710	74.65474	130.52967	5.47585	0.1818149	0.26572319	2.3961633	20	9 20.3	21.5
506945 2008 HC ₄₃	18.4	X	169.26685	7.22319	212.62223	21.21083	0.0366109	0.36288569	1.9466572	20	12 31.9	21.0
506946 2008 HS ₆₃	18.0	X	121.30642	67.28110	125.89907	6.79067	0.0693556	0.26582053	2.3955783	20	9 9.5	21.3
506947 2008 KW ₉	18.3	X	139.51438	169.89400	66.09435	23.33744	0.0393716	0.35908395	1.9603731	20	12 14.1	20.5
506948 2008 KE ₁₀	18.2	X	302.77115	44.96640	66.60890	23.70730	0.0809980	0.37010065	1.9212748	20	—	—
506949 2008 KK ₁₁	18.1	X	323.42653	338.89221	97.59713	24.17773	0.0751563	0.36471350	1.9401478	20	—	—
506950 2008 KL ₁₈	18.0	X	260.84085	70.45807	82.39869	24.04408	0.0713446	0.37020614	1.9209098	20	—	—
506951 2008 KV ₂₈	20.8	X	89.36741	116.68896	226.95881	21.05274	0.3886869	0.44315806	1.7038458	20	—	—
506952 2008 KV ₃₂	16.3	X	79.66161	74.82455	90.38063	16.98506	0.1752841	0.17002981	3.2269036	20	6 19.5	20.9
506953 2008 KC ₃₄	17.4	X	305.51965	12.40920	293.85130	3.84452	0.1546496	0.23698231	2.5861801	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>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
506961 2008 <i>RM</i> ₈₂	17.6	X	209.69215	249.96282	180.28699	9.55207	0.1135368	0.23417479	2.6068095	20	7 1.4	21.7
506962 2008 <i>RQ</i> ₈₇	17.2	X	202.12329	169.21966	227.18003	7.13731	0.2374848	0.22000292	2.7175888	20	5 7.6	21.9
506963 2008 <i>RB</i> ₈₈	17.0	X	256.40910	66.66102	265.80585	4.79618	0.1835232	0.22285065	2.6943879	20	4 7.9	21.3
506964 2008 <i>RB</i> ₉₂	17.7	X	176.39784	261.59960	182.44617	2.19255	0.1734456	0.22412641	2.6841536	20	6 14.9	22.1
506965 2008 <i>RM</i> ₉₂	17.7	X	260.78589	244.96166	118.14210	0.60258	0.1370836	0.22954417	2.6417509	20	5 30.1	21.5
506966 2008 <i>RC</i> ₁₀₇	15.5	X	130.67696	61.88217	14.71107	15.01459	0.2309988	0.12353648	3.9927540	20	4 28.1	22.0
506967 2008 <i>RT</i> ₁₁₉	16.8	X	153.59386	145.60006	19.17383	15.95594	0.0733625	0.24088035	2.5582037	20	9 10.9	20.7
506968 2008 <i>RQ</i> ₁₂₉	17.1	X	221.24925	32.69671	15.70227	7.23510	0.2220127	0.22798396	2.6537898	20	6 6.1	21.6
506969 2008 <i>RC</i> ₁₃₀	16.5	X	222.36783	106.85580	289.74836	11.63835	0.1855819	0.22401106	2.6850749	20	5 26.2	21.0
506970 2008 <i>RB</i> ₁₄₁	17.3	X	256.19563	5.90321	322.85757	5.64492	0.1771010	0.22585472	2.6704427	20	4 3.2	21.4
506971 2008 <i>SD</i> ₃₁	17.1	X	215.70783	181.11348	239.37909	7.03150	0.2304077	0.22648137	2.6655146	20	6 17.4	21.6
506972 2008 <i>SP</i> ₃₉	17.2	X	278.37496	296.49740	34.08335	6.23004	0.1327663	0.22619632	2.6677535	20	5 8.6	20.9
506973 2008 <i>SE</i> ₈₆	17.7	X	252.65984	59.95179	344.70375	12.75955	0.1629894	0.23348470	2.6119434	20	7 14.6	21.6
506974 2008 <i>SU</i> ₉₄	16.9	X	313.54791	59.35589	243.82363	3.66514	0.2277585	0.23038074	2.6353518	20	5 7.2	19.8
506975 2008 <i>SP</i> ₁₀₃	16.7	X	259.61763	10.65744	10.36823	14.53500	0.1385743	0.23087671	2.6315763	20	6 20.9	20.7
506976 2008 <i>SU</i> ₁₂₃	17.2	X	281.61021	306.16477	24.35847	3.43451	0.1119942	0.22461708	2.6802431	20	5 16.1	20.7
506977 2008 <i>SR</i> ₁₂₇	17.5	X	232.69023	29.16447	357.49917	5.61576	0.1332263	0.22364685	2.6879892	20	5 27.9	21.7
506978 2008 <i>SG</i> ₁₃₆	17.2	X	268.85707	359.59747	332.53454	4.48829	0.2701598	0.22645578	2.6657154	20	4 10.7	21.5
506979 2008 <i>SQ</i> ₁₅₄	17.2	X	251.52349	327.55166	29.65711	4.33430	0.2676235	0.22721927	2.6597405	20	4 27.7	21.6
506980 2008 <i>SE</i> ₁₆₂	17.3	X	235.91167	28.67384	23.00170	5.26341	0.2777726	0.22954228	2.6417655	20	6 20.2	21.7
506981 2008 <i>SR</i> ₁₇₁	17.4	X	231.92940	117.27340	257.10156	3.44843	0.1491256	0.22582499	2.6706771	20	5 10.8	21.6
506982 2008 <i>SA</i> ₁₈₄	16.9	X	212.72799	52.03424	29.60160	15.86964	0.1861559	0.22814116	2.6525706	20	7 18.0	21.5
506983 2008 <i>SK</i> ₁₈₄	16.9	X	242.57975	347.29731	41.41163	14.78644	0.2505790	0.22353894	2.6888543	20	5 28.3	21.4
506984 2008 <i>SU</i> ₁₉₇	17.2	X	177.43479	51.42680	53.81399	5.29255	0.1319354	0.22395156	2.6855505	20	7 13.7	21.4
506985 2008 <i>SG</i> ₂₀₀	17.5	X	247.86669	5.10424	356.30849	4.75874	0.1317976	0.22271408	2.6954892	20	5 11.9	21.4
506986 2008 <i>SE</i> ₂₀₅	16.8	X	240.16295	301.08513	48.60556	13.27572	0.2318579	0.21942177	2.7223852	20	4 15.6	21.3
506987 2008 <i>SC</i> ₂₀₆	16.9	X	225.81968	259.50150	147.62396	4.71069	0.1507375	0.22450021	2.6811733	20	6 16.2	21.1
506988 2008 <i>SK</i> ₂₁₈	16.9	X	284.20891	340.41861	5.92821	14.87283	0.3575897	0.23069747	2.6329392	20	4 29.9	21.1
506989 2008 <i>SM</i> ₂₁₈	16.6	X	262.72900	126.88144	260.96156	13.17098	0.1162344	0.23076545	2.6324221	20	7 6.5	20.2
506990 2008 <i>SF</i> ₂₂₆	17.1	X	300.17099	253.87448	43.66388	13.28385	0.1633937	0.22178325	2.7030260	20	4 21.9	20.4
506991 2008 <i>SY</i> ₂₃₄	17.4	X	191.55773	333.06554	47.07256	4.13781	0.1769258	0.21605132	2.7506253	20	4 11.2	21.8
506992 2008 <i>SZ</i> ₂₃₉	17.2	X	211.56898	341.57107	45.70024	11.88374	0.0830633	0.21957632	2.7211076	20	5 10.5	21.3
506993 2008 <i>SY</i> ₂₆₄	17.5	X	147.55127	113.43989	0.78999	1.31779	0.0838028	0.22221450	2.6995277	20	6 21.9	21.4
506994 2008 <i>SQ</i> ₂₆₈	16.1	X	172.70355	64.43127	12.11711	24.50936	0.1133029	0.21930594	2.7233437	20	5 23.6	20.8
506995 2008 <i>SA</i> ₂₈₉	17.7	X	237.32638	20.60907	353.79980	2.55323	0.1166722	0.22434676	2.6823957	20	5 19.4	21.8
506996 2008 <i>SJ</i> ₂₈₉	17.0	X	207.01604	13.74674	46.68917	13.72909	0.1550894	0.21898024	2.7260434	20	6 12.1	21.4
506997 2008 <i>SD</i> ₂₉₇	17.2	X	244.18560	129.56444	239.67476	12.54994	0.2866370	0.22681576	2.6628941	20	5 4.1	21.7
506998 2008 <i>SQ</i> ₃₀₈	17.1	X	258.07101	263.40890	92.77990	14.80857	0.2380639	0.22530826	2.6747589	20	5 10.7	21.5
506999 2008 <i>TJ</i> ₂₃	17.4	X	210.20437	241.66374	184.87873	2.56546	0.1943821	0.23019007	2.6368069	20	6 22.4	21.6
507000 2008 <i>TM</i> ₂₉	17.9	X	243.37840	3.85103	12.44507	7.08931	0.1842817	0.22739127	2.6583992	20	5 20.3	22.2
507001 2008 <i>TF</i> ₄₆	17.4	X	239.56178	299.40985	86.82638	3.85511	0.1391472	0.22439715	2.6819941	20	6 4.8	21.3
507002 2008 <i>TA</i> ₆₃	17.2	X	260.00259	151.90966	206.98828	5.95578	0.1873395	0.22651425	2.6652566	20	5 17.7	21.1
507003 2008 <i>TV</i> ₇₇	17.7	X	294.05376	143.70729	169.17693	2.60060	0.2078198	0.22876709	2.6477300	20	4 25.6	21.1
507004 2008 <i>TC</i> ₈₂	17.6	X	310.00050	113.79687	182.83294	1.89680	0.1880178	0.22877360	2.6476797	20	4 29.7	20.8
507005 2008 <i>TR</i> ₉₃	17.2	X	221.61153	216.25826	178.45261	7.42439	0.1803573	0.22435690	2.6823149	20	5 25.9	21.6
507006 2008 <i>TC</i> ₁₀₁	17.6	X	156.57209	110.48150	341.62439	1.26782	0.0429643	0.22158633	2.7046272	20	5 31.8	21.3
507007 2008 <i>TP</i> ₁₀₁	17.5	X	276.14076	148.38608	200.76232	5.13353	0.0904943	0.22761045	2.6566923	20	6 7.5	21.1
507008 2008 <i>TT</i> ₁₄₂	17.5	X	269.29284	306.27973	36.20095	2.92848	0.0972703	0.22646216	2.6656653	20	5 18.5	21.1
507009 2008 <i>TO</i> ₁₅₇	16.3	X	254.21367	356.06131	35.11551	34.00117	0.1807085	0.23152662	2.6266493	20	6 13.7	20.8
507010 2008 <i>TT</i> ₁₆₂	17.5	X	193.62732	257.01160	189.17267	14.80005	0.2575024	0.22578995	2.6709534	20	6 29.3	22.5
507011 2008 <i>TH</i> ₁₆₃	16.7	X	176.99718	323.55131	73.24821	9.87904	0.2479992	0.21385379	2.7694365	20	4 22.7	21.6
507012 2008 <i>TY</i> ₁₆₄	17.2	X	325.44925	226.47822	66.51071	3.49574	0.1185910	0.22659149	2.6646509	20	5 30.9	20.3
507013 2008 <i>TP</i> ₁₆₅	15.6	X	133.43810	22.37108	45.88579	14.30910	0.2993007	0.12033019	4.0633694	20	4 29.7	22.3
507014 2008 <i>TB</i> ₁₆₈	17.4	X	176.47293	148.33221	289.43129	1.25851	0.2324824	0.22155379	2.7048920	20	6 6.2	21.2
507015 2008 <i>TW</i> ₁₇₂	16.5	X	173.98144	238.22475	225.61549	20.97912	0.0645882	0.22554171	2.6729128	20	7 3.6	20.8
507016 2008 <i>TU</i> ₁₈₀	16.7	X	247.39846	230.02726	141.54730	14.20392	0.2739506	0.22637191	2.6663737	20	5 16.0	21.4
507017 2008 <i>UY</i> ₁₃	17.0	X	169.64843	98.73968	282.29943	2.84053	0.1141590	0.21017805	2.8016324	20	3 19.7	21.4
507018 2008 <i>UL</i> ₃₈	17.1	X	263.91261	105.75868	245.09328	5.98676	0.1600983	0.22239535	2.6980640	20	5 14.2	20.9
507019 2008 <i>UQ</i> ₅₁	17.2	X	148.30067	88.23767	51.90902	9.87992	0.1787998	0.22005404	2.7171679	20	8 2.1	21.8
507020 2008 <i>UU</i> ₅₈	17.5	X	158.54102	231.13964	206.81135	7.60475	0.2371095	0.21545695	2.7556817	20	5 25.1	22.3
507021 2008 <i>UU</i> ₇₂	16.9	X	213.71031	16.47835	25.91555	8.91635	0.2319847	0.21887648	2.7269049	20	5 22.6	21.6
507022 2008 <i>UM</i> ₇₃	16.6	X	215.73483	16.99929	26.59873	11.68494	0.1595799	0.21955533	2.7212810	20	5 29.2	21.1
507023 2008 <i>UD</i> ₇₄	17.3	X	185.77529	82.42837	298.74801	3.94416	0.1853280	0.20897007	2.8124187	20	4 4.9	22.0
507024 2008 <i>UD</i> ₇₇	16.7	X	316.72934	322.69362	57.42457	23.09894	0.0342946	0.23633975	2.5908655	20	10 10.3	20.4
507025 2008 <i>UK</i> ₈₅	17.1	X	296.77462	94.02604	211.51849	12.45594	0.2562312	0.22822016	2.6519584	20	4 10.2	20.8
507026 2008 <i>UO</i> ₈₅	17.8	X	218.22148	172.77469	238.15220	3.16315	0.0816909	0.22669617	2.6638306	20	6 18.6	21.7
507027 2008 <i>UM</i> ₉₇	16.5	X	145.33501	60.20071	52.53382	24.69936	0.3643966	0.21227365	2.7831631	20	6 27.8	22.1
507028 2008 <i>UU</i> ₁₀₁	17.7	X	285.49583	288.45346	7.84969	5.82286	0.2708550	0.22237622	2.6982188	20	3 16.6	21.7
507029 2008 <i>UL</i> ₁₀₂	17.6	X	220.33816	40.70986	17.34090	4.84589	0.0409517	0.22761506	2.6566564	20	7 5.4	21.3
507030 2008 <i>UU</i> ₁₁₆	17.5	X	251.09335	80.13802	284.12120	5.25117	0.0649256	0.22127822	2.7071372	20	5 28.8	21.3
507031 2008 <i>UD</i> ₁₂₈	17.4	X	239.83515									

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>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
507041 2008 UV ₂₂₄	17.2	X	248.82058	37.98158	313.12437	5.43550	0.0816084	0.21571221	2.7535073	20	5 5.0	21.2
507042 2008 US ₂₂₆	16.8	X	276.11925	64.75711	246.27123	13.20674	0.1464300	0.21447827	2.7640582	20	4 5.3	21.0
507043 2008 UR ₂₄₅	17.3	X	228.55872	109.15438	284.37078	4.47022	0.1412415	0.21998971	2.7176976	20	6 1.7	21.4
507044 2008 UU ₂₅₅	17.6	X	191.19683	291.19576	115.71687	0.83307	0.0709033	0.21564822	2.7540520	20	5 14.3	21.6
507045 2008 UU ₂₅₆	16.9	X	352.94978	197.89551	57.31140	10.29384	0.0871018	0.21823973	2.7322064	20	5 26.2	20.0
507046 2008 UA ₂₉₂	17.8	X	201.72225	154.20755	231.65985	8.71170	0.1845330	0.21552728	2.7550821	20	4 25.0	22.4
507047 2008 UP ₂₉₂	17.8	X	174.66608	182.63202	256.45784	1.55017	0.1707231	0.21784576	2.7354995	20	6 6.9	22.3
507048 2008 UA ₃₀₀	17.1	X	260.45429	348.86143	359.90648	3.67094	0.2069485	0.22224900	2.6992483	20	5 1.1	21.1
507049 2008 UK ₃₀₇	17.1	X	218.39696	305.36103	120.72107	8.82686	0.3245002	0.22458867	2.6804692	20	6 21.5	21.9
507050 2008 UU ₃₁₄	17.6	X	261.99977	43.08817	309.12429	3.97648	0.1273563	0.22159753	2.7045360	20	5 17.3	21.5
507051 2008 UJ ₃₃₆	17.7	X	177.72758	37.78670	32.62986	7.19455	0.1278101	0.21445200	2.7642839	20	5 28.5	22.1
507052 2008 UM ₃₅₈	17.7	X	198.23294	258.45230	153.21348	3.78644	0.1897581	0.21678713	2.7443977	20	5 25.2	22.3
507053 2008 UM ₃₅₉	16.3	X	278.32373	285.01256	69.71993	29.32586	0.3613541	0.23156978	2.6263230	20	5 15.4	20.8
507054 2008 VV ₃₂	17.2	X	292.69740	229.80197	97.61989	5.47891	0.0986464	0.22264695	2.6960310	20	5 30.9	20.8
507055 2008 VE ₃₄	17.0	X	246.14441	286.67076	83.80047	7.22071	0.0515976	0.21971226	2.7199851	20	6 2.5	20.6
507056 2008 VR ₄₁	16.9	X	206.71229	141.07155	280.48474	8.21767	0.2241049	0.22284500	2.6944334	20	6 11.6	21.4
507057 2008 UN ₄₃	17.2	X	228.75835	92.85171	288.48723	7.70650	0.2159878	0.21969212	2.7201513	20	5 6.6	21.8
507058 2008 VY ₆₁	17.3	X	266.25713	302.43457	48.89754	5.26230	0.1261092	0.22263006	2.6961674	20	5 22.2	20.9
507059 2008 VD ₇₀	17.2	X	252.32705	47.77620	298.48745	3.48826	0.0915873	0.21539995	2.7561678	20	5 2.5	21.1
507060 2008 WN ₇₆	17.3	X	212.81802	26.55746	23.91278	6.60669	0.0875050	0.22258761	2.6965101	20	6 10.4	21.3
507061 2008 WJ ₁₇	17.6	X	226.81151	216.30019	182.91677	2.14019	0.1283047	0.22389831	2.6859763	20	6 8.9	21.7
507062 2008 WY ₃₄	17.5	X	233.50761	151.67357	197.90928	4.50496	0.1346749	0.21608220	2.7503632	20	4 13.3	21.6
507063 2008 WW ₃₉	17.2	X	228.31672	300.19133	83.82326	3.22244	0.1484158	0.21880489	2.7274996	20	5 20.4	21.5
507064 2008 WD ₇₈	17.6	X	199.49781	286.66793	124.46810	4.08474	0.0915690	0.21535517	2.7565498	20	5 28.9	21.8
507065 2008 WM ₉₂	17.4	X	235.38468	329.22190	48.86475	5.28460	0.1209853	0.21881109	2.7274481	20	5 21.9	21.3
507066 2008 WN ₁₀₁	16.8	X	236.89677	158.85890	270.50814	11.83135	0.2640620	0.22861516	2.6489029	20	7 13.4	21.1
507067 2008 WL ₁₀₇	17.4	X	245.61702	122.44683	224.08066	4.13397	0.1717345	0.21793163	2.7347809	20	4 17.7	21.7
507068 2008 WB ₁₁₅	17.3	X	193.80715	7.80959	65.66383	4.37265	0.1790559	0.21795394	2.7345942	20	6 16.8	21.8
507069 2008 WD ₁₂₂	17.3	X	211.25308	173.33272	234.24645	9.55280	0.1176095	0.21921417	2.7241037	20	6 3.9	21.4
507070 2008 XH ₁₈	17.4	X	211.51327	217.23661	193.33977	2.95224	0.0674234	0.21604452	2.7506831	20	6 11.4	21.3
507071 2008 XC ₂₆	17.1	X	233.26044	317.52137	47.42862	14.56144	0.1938292	0.21682648	2.7440657	20	4 28.9	21.6
507072 2008 XW ₃₇	17.8	X	185.82793	89.18549	326.65951	3.10640	0.1026822	0.21202824	2.7853103	20	5 18.5	22.2
507073 2008 XZ ₅₂	17.4	X	206.35549	184.31125	276.98414	9.64129	0.2454258	0.22153915	2.7050111	20	7 27.6	22.1
507074 2008 YU ₄₃	17.3	X	195.04693	336.23041	89.55448	9.89772	0.1917486	0.21657677	2.7461745	20	6 8.5	21.9
507075 2008 YH ₁₀₁	17.4	X	170.83726	313.87377	141.91233	3.30317	0.1540856	0.21066699	2.7972957	20	6 24.1	21.9
507076 2008 YO ₁₀₉	17.5	X	163.97506	161.13335	296.93124	4.12824	0.0875813	0.21538070	2.7563320	20	6 19.2	21.7
507077 2008 YX ₁₇₄	17.3	X	172.60756	195.90184	210.59489	1.33205	0.0682015	0.19941305	2.9015741	20	4 23.5	21.5
507078 2008 AB ₁₅	18.1	X	185.89734	181.41438	296.54257	7.05545	0.0537473	0.30353423	2.1927928	20	8 15.6	20.9
507079 2009 AQ ₃₉	17.5	X	178.77384	172.90424	277.34570	3.19045	0.1740941	0.21095981	2.7947067	20	6 24.4	22.1
507080 2009 BE ₁₃	16.6	X	164.94032	223.44711	284.17798	14.74384	0.1826313	0.21639062	2.7477493	20	8 16.9	21.4
507081 2009 BY ₁₉	17.5	X	182.58339	320.75589	101.47434	3.20836	0.0467154	0.20475956	2.8508427	20	5 24.9	21.6
507082 2009 BS ₁₄₂	18.7	X	124.99296	92.16440	115.60907	4.95180	0.0783356	0.30611944	2.1804298	20	10 10.5	21.6
507083 2009 BZ ₁₆₁	16.4	X	175.36051	18.09270	306.01855	8.48868	0.0671247	0.17403592	3.1771920	20	1 21.1	21.3
507084 2009 BN ₁₇₃	17.7	X	176.56574	69.99262	33.81831	8.50533	0.3452679	0.21286219	2.7780306	20	7 9.3	23.1
507085 2009 CZ ₂₅	16.9	X	167.67612	313.09497	136.60725	16.00554	0.1077651	0.20287688	2.8684526	20	6 14.7	21.6
507086 2009 DV ₈₄	16.4	X	159.66274	33.75042	24.20783	11.19394	0.0294812	0.18643250	3.0347410	20	4 20.9	20.9
507087 2009 DY ₁₀₄	18.3	X	67.08483	242.69533	5.95151	7.54543	0.1008780	0.29388791	2.2405170	20	9 24.0	21.0
507088 2009 DA ₁₀₆	18.2	X	44.08003	94.83850	180.77459	3.28220	0.0902049	0.29481333	2.2358258	20	9 28.7	20.4
507089 2009 DV ₁₄₂	16.6	X	208.85642	117.07405	343.72477	11.23015	0.1090697	0.21361222	2.7715240	20	8 11.9	20.8
507090 2009 EK ₂	16.5	X	145.58294	309.65388	244.89210	10.50265	0.2309556	0.21650650	2.7467687	20	9 28.9	21.4
507091 2009 ES ₁₃	16.7	X	344.44375	55.31970	185.40662	5.08332	0.0867300	0.18747179	3.0235148	20	4 25.0	20.4
507092 2009 FT ₈	17.8	X	25.59811	243.43519	32.38403	6.81722	0.1696522	0.28809608	2.2704458	20	9 15.2	20.0
507093 2009 FM ₁₀	17.5	X	133.35258	148.13803	334.82754	0.87247	0.0686282	0.19694110	2.9258034	20	6 15.3	21.8
507094 2009 FP ₁₇	16.2	X	357.61650	215.08394	13.66971	12.64841	0.0965552	0.18602550	3.0391690	20	4 25.5	20.0
507095 2009 FV ₃₅	17.8	X	58.64282	234.05493	32.95434	6.53552	0.1004139	0.29705151	2.2245809	20	10 10.0	20.3
507096 2009 FT ₅₇	18.0	X	152.05443	0.13461	193.89547	4.02652	0.0518773	0.30107421	2.2047212	20	10 21.3	20.6
507097 2009 FW ₇₂	16.7	X	134.91158	54.60375	49.34713	2.23872	0.0314113	0.18734927	3.0248329	20	5 20.1	21.1
507098 2009 FF ₇₇	18.1	X	111.36832	40.70933	179.03955	5.51773	0.1058633	0.29687405	2.2254673	20	10 9.1	21.0
507099 2009 HQ ₂₆	16.8	X	96.16280	60.94476	77.86152	2.40330	0.0890694	0.18576816	3.0419719	20	5 25.0	21.0
507100 2009 HM ₄₄	16.0	X	10.91950	139.34100	93.90781	15.65686	0.1865598	0.18296473	3.0729663	20	6 1.9	19.3
507101 2009 HO ₆₀	17.9	X	96.91841	168.08453	48.89854	6.22751	0.1151726	0.29332989	2.2433576	20	9 21.5	20.9
507102 2009 HN ₉₃	16.7	X	145.79057	12.33209	150.31252	9.13666	0.2356313	0.20303725	2.8669419	20	8 25.1	21.7
507103 2009 HG ₁₀₀	16.9	X	66.26457	75.35955	111.91161	8.03021	0.2066357	0.18672796	3.0315389	20	7 5.8	21.0
507104 2009 JX ₅	17.7	X	93.08189	175.62441	63.44029	6.71207	0.1300856	0.29172246	2.2515908	20	10 17.6	20.9
507105 2009 JU ₁₆	16.1	X	30.75464	145.77166	66.26914	16.24093	0.1554134	0.18256303	3.0774723	20	6 4.6	19.7
507106 2009 KK ₅	16.4	X	19.35127	72.58561	143.96216	9.75626	0.0902349	0.18026242	3.1036012	20	5 20.5	20.5
507107 2009 KC ₈	17.7	X	55.95869	211.44968	46.79808	7.30917	0.2022447	0.28550771	2.2841475	20	10 8.8	20.6
507108 2009 LG ₁	17.9	X	33.59882	151.58482	129.10890	7.49849	0.0927974	0.28474273	2.2882368	20	9 21.8	20.4
507109 2009 OO ₁₃	17.5	X	286.73007	213.47396	139.08612	16.87075	0.1737238	0.26044031	2.4284579	20	6 16.5	20.8
507110 2009 PD ₄	18.2	X	307.66664	149.81483	176.34894	5.46427	0.2384037	0.26055490	2.4277459	20	5 29.9	20.8
507111 2009 PE ₈	17.6	X	341.12542	355.42365	318.40045	5.73040	0.1396719	0.26505521	2.4001874	20	8 4.1	19.6
507112 2009 SN ₅	17.5	X	257.53949	133.85622	240.50910	4.42411	0.2838002	0.25323452	2.4743100	20	5 23.0	21.2
507113 2009 SR ₄₁	17.7	X	195.09339	288.40138	207.26744	2.74658						

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>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
507121 2009 SR ₃₀₇	17.8	X	179.18270	232.48429	253.27948	6.36186	0.0660282	0.25604347	2.4561803	20	8 11.9	21.3
507122 2009 SF ₃₁₃	16.0	X	151.37256	263.26307	62.16320	5.14247	0.2554793	0.12222778	4.0212039	20	1 18.8	22.6
507123 2009 SQ ₃₄₉	18.4	X	209.97725	180.27046	213.02939	14.98980	0.1992670	0.24143917	2.5542548	20	5 11.9	22.6
507124 2009 SG ₃₇₀	17.3	X	188.66262	24.33290	43.76842	15.70306	0.1008060	0.24384260	2.5374432	20	6 4.6	21.2
507125 2009 UQ ₈	18.2	X	295.74674	233.81944	105.75493	2.82280	0.1824687	0.25480051	2.4641616	20	6 7.8	21.0
507126 2009 UM ₁₅	18.2	X	266.57668	105.08419	233.67216	11.80238	0.3063232	0.24387137	2.5372436	20	4 11.9	22.3
507127 2009 US ₂₆	17.4	X	221.89355	156.76957	187.71382	3.25795	0.3176557	0.23556634	2.5965333	20	3 18.2	22.2
507128 2009 UF ₂₇	17.9	X	71.31637	235.34635	47.83807	21.76253	0.0418867	0.36081543	1.9540964	20	11 20.7	19.9
507129 2009 UT ₇₂	16.5	X	182.15087	348.01724	57.20488	14.57370	0.1265072	0.23334776	2.6129652	20	5 3.9	20.5
507130 2009 UH ₁₀₉	18.1	X	206.80324	353.73314	58.45847	6.08105	0.1379438	0.24067071	2.5596891	20	6 3.7	22.0
507131 2009 UH ₁₅₃	17.1	X	149.11207	239.88137	272.79451	11.16853	0.2236861	0.24462264	2.5320462	20	8 13.5	21.6
507132 2009 UG ₁₅₉	18.1	X	198.28068	226.48442	215.57258	2.02330	0.0466184	0.24548858	2.5260883	20	7 9.4	21.7
507133 2009 VY ₁₀	15.9	X	76.76035	283.23568	188.68953	2.69405	0.2166042	0.12566369	3.9475670	20	4 18.4	21.3
507134 2009 VS ₂₃	16.6	X	322.23133	255.18787	54.96033	13.44221	0.1965885	0.24569705	2.5246592	20	6 7.5	19.1
507135 2009 VB ₆₇	18.7	X	235.16543	127.35201	261.09112	4.29320	0.2608078	0.24338629	2.5406138	20	5 22.7	22.8
507136 2009 VW ₇₁	16.6	X	262.37723	8.70043	259.39020	6.44046	0.1600487	0.21963259	2.7206428	20	1 29.3	20.9
507137 2009 UG ₈₉	17.9	X	225.25245	141.72772	271.35296	8.41438	0.0759333	0.24427822	2.5344256	20	6 30.8	21.2
507138 2009 VB ₉₇	17.8	X	215.07623	357.39399	67.19886	2.58497	0.1843622	0.24203948	2.5500297	20	6 25.5	21.8
507139 2009 WS ₃	18.2	X	248.50310	236.21361	98.61944	2.52041	0.1891052	0.23701135	2.5859689	20	4 5.3	22.2
507140 2009 WB ₆	17.7	X	86.44110	116.27516	260.01782	19.60680	0.0823741	0.38688552	1.8652959	20	—	—
507141 2009 WV ₂₆	17.6	X	238.07903	302.65426	48.59572	9.41384	0.1199474	0.23502509	2.6005182	20	4 22.0	21.4
507142 2009 WC ₇₃	17.9	X	205.36689	311.74539	114.20823	3.06459	0.1673599	0.24138741	2.5546200	20	6 18.9	22.0
507143 2009 WX ₁₀₂	17.1	X	113.34963	10.71428	161.28834	2.60835	0.1848750	0.23716361	2.5848619	20	8 7.8	21.2
507144 2009 WC ₁₁₉	17.4	X	328.17588	67.79530	236.35659	5.57959	0.0717896	0.24454154	2.5326059	20	6 26.0	20.3
507145 2009 WQ ₁₆₅	17.6	X	227.46602	358.26615	64.10069	6.46299	0.1775714	0.24406857	2.5358767	20	7 5.8	21.5
507146 2009 WV ₁₇₉	17.6	X	316.82668	214.97975	105.12756	3.42378	0.1330467	0.24782670	2.5101750	20	6 23.5	20.1
507147 2009 WL ₂₀₅	16.0	X	86.39158	201.45959	272.91343	4.49656	0.2311936	0.12543171	3.9524327	20	5 2.8	21.6
507148 2009 WY ₂₂₄	17.4	X	312.82353	188.87906	268.68877	18.89931	0.1169487	0.36333748	1.9450432	20	—	—
507149 2009 WL ₂₄₂	17.9	X	228.16807	343.78029	48.23267	13.64973	0.0787209	0.23914905	2.5705355	20	6 3.7	21.6
507150 2009 WB ₂₄₈	17.7	X	241.53205	81.23040	351.88769	2.01259	0.2159756	0.25157965	2.4851487	20	7 31.3	21.2
507151 2009 WL ₂₆₃	17.8	X	180.02855	356.04114	134.40841	3.54957	0.2058413	0.24389478	2.5370813	20	8 16.0	22.0
507152 2009 XY ₁	16.1	X	170.67997	206.20890	260.74597	33.02740	0.2351892	0.23404351	2.6077842	20	7 2.8	20.9
507153 2009 XX ₈	17.9	X	187.01883	41.75882	61.04946	4.79797	0.1889276	0.24206473	2.5498524	20	7 19.2	22.2
507154 2009 XO ₁₁	16.5	X	186.52706	156.03162	283.03774	14.25726	0.0861169	0.23154859	2.6264832	20	6 20.1	20.3
507155 2009 XY ₁₇	17.1	X	216.25990	110.42006	296.31549	9.58708	0.0630543	0.23058057	2.6338290	20	6 12.4	20.9
507156 2009 YE	15.8	X	126.41864	110.47047	82.43917	29.56383	0.3811055	0.22861631	2.6488939	20	10 9.3	21.5
507157 2009 YD ₅	17.8	X	199.33242	11.14079	81.72109	4.40924	0.2133095	0.23801894	2.5786657	20	7 15.8	22.1
507158 2009 YX ₁₃	16.2	X	349.48665	306.68828	296.64734	22.43801	0.1526387	0.21780810	2.7358148	20	4 17.9	19.9
507159 2010 AQ ₈	17.6	X	346.97050	347.44371	113.28567	24.99702	0.0270030	0.37271981	1.9122635	20	—	—
507160 2010 AT ₃₂	17.8	X	183.20739	31.68858	71.98821	3.86693	0.1264816	0.23442526	2.6049523	20	7 17.8	21.9
507161 2010 AK ₃₈	18.0	X	29.05259	71.30849	315.96244	19.84302	0.0977529	0.36369296	1.9437756	20	—	—
507162 2010 AF ₄₁	17.6	X	89.55095	253.67079	288.86159	2.27078	0.1851283	0.22551240	2.6731445	20	7 26.9	21.5
507163 2010 AE ₅₆	17.2	X	200.60765	338.10462	98.50833	4.31204	0.2033745	0.23166564	2.6255984	20	6 26.2	21.6
507164 2010 BE ₃₃	16.7	X	164.28613	241.78330	286.50924	28.85896	0.3135798	0.23322250	2.6139007	20	8 30.3	22.1
507165 2010 BO ₅₅	16.1	X	292.71294	255.22684	116.87286	18.27309	0.2317230	0.21967766	2.7202706	20	7 10.0	19.2
507166 2010 CZ ₂	17.4	X	170.97775	18.74664	127.12346	4.63875	0.1536056	0.23643424	2.5901752	20	8 28.9	21.6
507167 2010 CN ₇₀	16.4	X	264.13118	206.93353	119.91987	9.86625	0.1369632	0.22085947	2.7105580	20	4 21.4	20.5
507168 2010 CQ ₁₇₀	17.5	X	105.53809	162.93866	3.63524	1.60138	0.0286964	0.22251276	2.6971148	20	7 4.8	21.1
507169 2010 CR ₁₇₃	16.5	X	240.65791	238.74923	148.30878	15.63811	0.1746510	0.22698506	2.6615698	20	6 5.9	20.9
507170 2010 CV ₁₈₄	16.8	X	125.24652	244.52272	286.85640	8.13630	0.2173342	0.22778305	2.6553500	20	8 17.3	21.4
507171 2010 DP ₈₀	16.5	X	243.68674	254.91421	63.70676	9.85157	0.1379988	0.18372304	3.0645048	20	3 23.3	21.4
507172 2010 EM ₃₀	17.7	X	158.93194	295.24397	185.78909	12.18725	0.2143857	0.22631328	2.6668343	20	7 14.5	22.5
507173 2010 EK ₁₃₂	17.9	X	194.78160	146.71729	351.25595	6.79582	0.2967470	0.23881122	2.5729592	20	9 2.6	22.4
507174 2010 ED ₁₇₃	16.2	X	175.16768	238.47623	185.39296	4.07421	0.0378460	0.21395102	2.7685974	20	5 18.3	20.2
507175 2010 GB ₁₄₉	16.9	X	138.05257	194.90861	314.62419	9.83149	0.0627394	0.23277017	2.6172859	20	7 27.7	20.6
507176 2010 GJ ₁₆₁	16.9	X	171.04510	77.78940	71.12878	29.08420	0.3462938	0.23276383	2.6173334	20	9 12.6	22.5
507177 2010 GF ₁₇₂	16.8	X	135.51007	160.76998	36.70443	15.07003	0.2005183	0.23207945	2.6224764	20	10 4.2	21.3
507178 2010 HO ₂₂	13.2	X	240.84522	266.99863	97.37199	29.66275	0.0310605	0.08241669	5.2294892	20	5 29.7	20.4
507179 2010 JB ₇	16.9	X	187.47893	50.86218	46.26835	12.11903	0.1614574	0.23296128	2.6158543	20	7 13.5	21.3
507180 2010 JT ₇₇	16.5	X	217.99913	99.75384	229.52250	12.06500	0.2845981	0.17590575	3.1546368	20	2 27.2	22.4
507181 2010 JK ₈₆	15.8	X	285.03474	177.10810	122.98518	22.37412	0.1519185	0.17635503	3.1492767	20	4 17.7	20.7
507182 2010 JN ₁₃₇	16.9	X	163.45867	348.58330	133.22073	12.66094	0.1297568	0.22891563	2.6465844	20	7 20.1	21.0
507183 2010 MA ₂	17.5	X	298.43176	138.49387	238.39374	24.14155	0.1976029	0.28893322	2.2660582	20	7 28.7	20.4
507184 2010 NC ₄	18.2	X	339.80239	8.16586	318.35395	7.50471	0.1205924	0.29806969	2.2195120	20	8 26.0	20.0
507185 2010 PT ₄₃	15.7	X	110.28101	45.16859	47.27258	18.61423	0.0358873	0.14885729	3.5260568	20	4 14.1	20.8
507186 2010 PC ₅₃	17.3	X	290.18406	0.25941	43.97919	25.65390	0.1709141	0.28868483	2.2673579	20	9 30.9	19.9
507187 2010 RA ₄₈	18.8	X	274.04688	211.35109	190.11306	3.23983	0.2095202	0.28727819	2.2747532	20	7 31.6	21.2
507188 2010 RM ₅₀	17.5	X	30.09116	262.82480	8.94197	9.89237	0.2161044	0.29273488	2.2463965	20	9 23.9	19.7
507189 2010 RC ₇₈	17.9	X	346.91500	292.66377	29.15124	4.88900	0.1453652	0.29175625	2.2514170	20	9 7.2	19.6
507190 2010 RN ₁₁₂	18.7	X	300.12949	257.02942	62.69231	2.07588	0.1892604	0.27921026	2.3183649	20	5 14.8	21.1
507191 2010 RG ₁₃₉	18.4	X	305.93316	176.06804	197.16577	4.10928	0.1657359	0.29381263	2.2408996	20	8 25.6	20.2
507192 2010 RN ₁₄₆	18.9	X	290.11502	169.23593	199.31810	0.42803	0.2029698	0.28522539	2.2856545	20	7 9.7	21.3
507193 2010 RF ₁₅₄	18.1	X	295.30559	349.56621	329.47156	5.02815	0.1941461	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>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
507201 2010 TH ₉₀	18.3	X	222.00810	50.14313	40.02692	5.56177	0.0595313	0.28711930	2.2755923	20	8 26.3	21.2
507202 2010 TB ₁₂₂	17.9	X	308.93837	319.20767	50.99826	6.28791	0.1360546	0.29086947	2.2559906	20	9 5.3	19.9
507203 2010 TB ₁₂₄	18.3	X	212.75286	75.04001	42.66613	5.60572	0.1027939	0.28916176	2.2648641	20	9 16.6	21.3
507204 2010 TH ₁₃₀	18.1	X	310.32339	23.07429	327.86529	6.73350	0.1439890	0.28633795	2.2797301	20	8 1.9	19.9
507205 2010 UE ₃₁	18.4	X	294.14106	49.20876	310.56006	2.11582	0.1406638	0.28081179	2.3095418	20	7 14.5	20.6
507206 2010 UP ₃₄	18.2	X	301.26869	58.19079	309.55673	3.70995	0.1703427	0.28541816	2.2846253	20	8 5.4	20.1
507207 2010 UQ ₄₅	18.1	X	321.52935	65.76704	258.47350	6.20067	0.1432064	0.28029569	2.3123759	20	7 9.4	20.2
507208 2010 UR ₄₇	18.0	X	302.57237	36.26061	296.95663	1.88719	0.1843465	0.27913040	2.3188071	20	6 9.6	20.4
507209 2010 UJ ₄₉	15.6	X	269.02763	241.05979	54.21801	10.50944	0.0470737	0.15222657	3.4738341	20	4 3.4	20.6
507210 2010 UA ₅₀	17.7	X	81.01273	143.49882	73.85907	5.72517	0.0927642	0.27975907	2.3153320	20	8 28.6	20.7
507211 2010 UL ₅₈	18.6	X	260.14692	59.42023	333.43310	1.57076	0.2230251	0.27582487	2.3372963	20	6 27.7	21.8
507212 2010 VP ₃₁	18.1	X	269.80344	258.59224	125.55323	3.21081	0.1047315	0.27796744	2.3252703	20	7 17.5	20.8
507213 2010 VH ₃₂	18.0	X	130.44190	52.23377	136.69893	3.63307	0.0627922	0.28262790	2.2996374	20	9 15.5	21.0
507214 2010 VC ₃₈	17.9	X	289.59978	314.76642	71.04261	7.93299	0.1104532	0.28419061	2.2911995	20	8 26.2	20.4
507215 2010 VS ₃₈	17.6	X	253.95247	280.75728	80.06348	7.46912	0.1537579	0.26886683	2.3774491	20	5 17.4	20.9
507216 2010 VF ₈₁	17.2	X	36.76743	203.38913	54.02285	8.35374	0.0871639	0.27832569	2.3232745	20	8 22.7	19.9
507217 2010 VJ ₁₇₀	18.1	X	175.71928	250.92263	242.32245	5.19663	0.1228573	0.27419492	2.3465498	20	8 17.8	21.7
507218 2010 VT ₁₈₀	18.0	X	276.75280	311.05581	66.63867	6.55203	0.1269018	0.27644637	2.3337919	20	7 15.7	20.7
507219 2010 VS ₂₀₆	17.9	X	348.05460	83.81340	245.98991	5.32227	0.1461201	0.28835460	2.2690886	20	9 16.4	19.9
507220 2010 WJ ₁₉	14.0	X	129.04052	305.94476	282.35428	5.79589	0.0352451	0.08292443	5.2081208	20	9 30.5	21.1
507221 2010 WP ₂₆	18.9	X	291.71652	349.78365	0.35074	1.29991	0.2145281	0.27579821	2.3374469	20	6 11.2	21.2
507222 2010 WU ₂₆	18.2	X	333.95603	79.86876	258.33998	7.03875	0.1469295	0.28263622	2.2995923	20	8 26.9	20.3
507223 2010 WJ ₇₂	18.4	X	265.15643	83.51971	315.55656	2.39617	0.1825153	0.27732427	2.3288640	20	7 19.8	21.3
507224 2010 XD ₅	18.3	X	280.86265	197.07426	186.23044	0.80063	0.2638480	0.28028424	2.3124389	20	7 5.4	20.9
507225 2010 XP ₄₅	17.2	X	246.74784	336.54442	106.67923	24.86026	0.2211673	0.27455677	2.3444876	20	8 26.1	20.7
507226 2010 XR ₈₄	18.5	X	278.62385	173.07091	257.21093	5.74592	0.2120389	0.28760576	2.2730256	20	9 19.8	20.6
507227 2010 XD ₈₆	16.6	X	196.29190	60.63283	88.94102	23.31389	0.1610916	0.27988182	2.3146549	20	10 14.8	20.6
507228 2010 YF ₁	18.3	X	166.32890	330.10592	201.47408	1.59571	0.2205173	0.27104174	2.3647138	20	9 26.4	22.3
507229 2011 AE ₂₁	18.4	X	188.10137	26.48170	84.89173	4.21178	0.1445970	0.26311922	2.4119465	20	8 3.3	22.0
507230 2011 AX ₃₃	17.8	X	116.61903	122.43255	54.58552	4.83242	0.0990991	0.25920998	2.4361363	20	8 14.7	21.3
507231 2011 AP ₃₆	18.2	X	188.65999	10.84263	126.79775	7.75586	0.1821943	0.26922611	2.3753335	20	9 6.9	22.0
507232 2011 AQ ₃₈	16.3	X	77.30903	229.35811	232.82495	1.89934	0.1923080	0.12532908	3.9545902	20	4 3.4	21.6
507233 2011 AM ₄₀	17.7	X	233.60272	306.66485	141.69672	11.53727	0.1828984	0.27204271	2.3589097	20	8 17.4	21.0
507234 2011 AM ₄₂	17.9	X	233.00148	85.84968	340.40814	4.20687	0.0662570	0.26479197	2.4017779	20	8 1.7	20.9
507235 2011 AZ ₄₅	18.5	X	220.61308	178.63411	255.80398	1.69156	0.1713290	0.26260071	2.4151204	20	7 15.5	22.1
507236 2011 AX ₅₁	18.7	X	167.30511	196.94374	313.21968	1.31264	0.1628325	0.26369145	2.4084558	20	8 31.8	22.4
507237 2011 AB ₅₈	18.1	X	157.75406	353.41797	149.37163	2.90862	0.1661930	0.26176756	2.4202422	20	8 13.2	21.9
507238 2011 AZ ₆₈	18.4	X	175.41421	188.06254	285.16688	1.84840	0.1511557	0.25726697	2.4483868	20	7 22.4	22.1
507239 2011 BA ₁₅	18.0	X	177.75310	2.58591	141.26468	5.65635	0.1413817	0.26353615	2.4094019	20	9 4.7	21.7
507240 2011 BP ₁₇	17.7	X	181.02848	8.66055	112.41206	2.49835	0.0921472	0.26238723	2.4164302	20	8 10.4	21.0
507241 2011 BS ₂₆	17.8	X	227.11201	321.91656	115.80256	2.93660	0.1680871	0.26750338	2.3855208	20	7 27.9	21.3
507242 2011 BA ₃₅	17.9	X	162.02946	194.58765	310.40109	3.82837	0.1721853	0.26107746	2.4245052	20	8 19.6	21.6
507243 2011 BZ ₄₇	17.4	X	170.88276	171.28747	303.55692	13.92712	0.0368317	0.25492044	2.4633887	20	7 21.6	20.5
507244 2011 BD ₈₀	18.1	X	148.86760	69.02911	95.39146	3.61703	0.1667428	0.26284357	2.4136325	20	9 3.7	21.9
507245 2011 BC ₈₁	17.8	X	105.58068	48.63350	153.70426	8.15895	0.1707197	0.25797823	2.4438845	20	9 10.1	21.4
507246 2011 BF ₈₈	16.0	X	95.61380	355.63402	92.57676	4.48267	0.1933670	0.12635032	3.9332525	20	4 10.7	21.7
507247 2011 BV ₈₈	17.6	X	246.44166	94.35523	329.69805	2.99086	0.1010102	0.26474400	2.4020680	20	8 10.9	20.5
507248 2011 BP ₉₄	18.0	X	255.31710	76.60036	314.71279	8.24964	0.2423025	0.26762125	2.3848202	20	6 17.2	21.6
507249 2011 BZ ₁₀₀	18.1	X	213.10245	156.15784	311.13297	3.32869	0.1393062	0.26555999	2.3971449	20	8 23.4	21.5
507250 2011 BQ ₁₀₃	15.9	X	52.95953	65.18635	72.03787	2.12351	0.1267541	0.12355060	3.9924499	20	4 5.3	21.0
507251 2011 BP ₁₁₀	17.6	X	318.99732	31.21661	261.28109	6.12535	0.1961088	0.23724371	2.5842801	20	5 5.5	20.4
507252 2011 BQ ₁₁₂	16.9	X	297.27532	21.47500	302.00671	10.84543	0.1223176	0.24251414	2.5467013	20	5 26.1	20.2
507253 2011 BP ₁₁₈	18.6	X	202.62042	70.41592	97.35538	4.78519	0.1936725	0.27121718	2.3636940	20	9 7.3	22.3
507254 2011 BL ₁₂₄	17.7	X	149.42424	158.55318	359.02598	7.60119	0.0719761	0.26026936	2.4295212	20	8 25.1	21.1
507255 2011 BD ₁₄₆	17.5	X	322.42619	335.44991	314.33294	13.78117	0.0965207	0.24625511	2.5208435	20	5 19.9	20.8
507256 2011 BE ₁₆₄	17.6	X	111.55101	23.73041	178.38011	6.56739	0.0790745	0.26015420	2.4302381	20	9 7.1	21.1
507257 2011 CQ ₂	18.6	X	198.17091	336.08483	136.26383	2.86306	0.1664663	0.26568863	2.3963711	20	8 12.8	22.2
507258 2011 CV ₃₆	18.5	X	165.01088	156.33109	336.94947	0.77683	0.1335607	0.25931094	2.4355039	20	8 7.9	22.3
507259 2011 CS ₄₀	17.8	X	129.93490	66.33685	117.34740	2.25510	0.1411244	0.26094005	2.4253564	20	9 8.7	21.3
507260 2011 CT ₄₅	17.6	X	245.91728	52.47114	4.39232	6.20270	0.1169140	0.26292671	2.4131236	20	7 30.3	20.8
507261 2011 CO ₄₆	18.2	X	322.10776	216.60613	321.46821	12.60064	0.2530053	0.41573018	1.7779860	20	—	—
507262 2011 CV ₅₂	18.7	X	241.33276	215.81391	325.33844	16.45507	0.0851287	0.39855045	1.8287199	20	—	—
507263 2011 CU ₅₈	18.7	X	227.60646	303.63164	147.37187	1.64415	0.1454838	0.26714080	2.3876788	20	8 18.1	22.1
507264 2011 CE ₆₂	18.0	X	144.17811	321.63279	183.19373	1.77343	0.1199530	0.25445754	2.4663753	20	7 31.5	21.6
507265 2011 CL ₁₁₂	18.3	X	202.23360	180.03148	288.43384	3.94693	0.1268967	0.26270649	2.4144721	20	8 13.4	21.8
507266 2011 CP ₁₁₄	16.8	X	262.24705	29.30991	298.73607	7.03447	0.1869274	0.23697555	2.5862293	20	4 5.6	20.8
507267 2011 DZ ₁₁	18.2	X	77.26594	282.10717	346.34132	18.86479	0.0506510	0.36989748	1.9219782	20	11 2.5	20.8
507268 2011 DO ₄₂	18.2	X	208.27637	0.79906	154.39857	21.81032	0.0557258	0.37793212	1.8946406	20	12 2.8	20.7
507269 2011 DK ₄₈	18.4	X	206.57957	338.07814	130.79254	2.18592	0.1406535	0.26215243	2.4178728	20	8 18.8	22.0
507270 2011 EL ₁	17.6	X	161.06418	333.90511	167.17046	2.35989	0.1295041	0.25894925	2.4377712	20	8 13.6	21.3
507271 2011 EB ₁₄	17.1	X	337.70071	228.84087	32.17596	7.20531	0.2241322	0.22242188	2.6978494	20	4 23.3	19.5
507272 2011 EK ₃₆	17.5	X	82.33187	260.68852	5.44074	14.51940	0.1122858	0.26056391	2.4276899	20	10 27.2	21.1
507273 2011 ET ₄₄	18.3	X	160.70888	38.25077	116.57551	5.95231	0.1813472	0.25857853	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>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
507281 2011 FE ₁₀₂	17.0	X	30.95501	193.79592	317.72209	12.11323	0.0871575	0.22065746	2.7122120	20	3 2.5	20.2
507282 2011 FG ₁₅₀	16.8	X	76.74506	177.09361	44.24024	14.72908	0.1408061	0.24285968	2.5442851	20	9 5.9	20.6
507283 2011 GU ₄₀	17.4	X	187.63890	49.69638	81.23818	9.40891	0.1564777	0.25823007	2.4422953	20	8 31.0	21.3
507284 2011 GO ₄₆	17.6	X	38.22742	201.73670	28.17568	9.42560	0.0827416	0.23783013	2.5800303	20	7 7.3	20.9
507285 2011 HW ₂₀	17.3	X	181.63580	181.84488	240.80886	10.06243	0.0290283	0.22613554	2.6682314	20	5 23.6	20.9
507286 2011 HW ₃₁	16.9	X	19.28457	145.91425	99.88078	12.22866	0.0843225	0.22739716	2.6583533	20	6 27.5	20.0
507287 2011 HL ₄₃	17.8	X	48.20151	279.15886	74.46462	22.66490	0.0968683	0.37559514	1.9024916	20	—	—
507288 2011 HX ₅₁	17.6	X	124.18683	52.24922	116.99577	12.51750	0.1182417	0.24033422	2.5620778	20	8 12.0	21.4
507289 2011 HG ₆₁	17.8	X	333.06612	349.23445	88.97826	24.44109	0.0164207	0.37926608	1.8901955	20	—	—
507290 2011 HZ ₆₁	18.7	X	167.39337	53.53439	195.27546	22.61418	0.0035155	0.38093648	1.8846658	20	—	—
507291 2011 HK ₇₅	17.6	X	115.39438	65.87765	106.47287	12.16043	0.1009344	0.24327444	2.5413924	20	8 5.1	21.3
507292 2011 HZ ₈₃	17.1	X	342.48358	165.28395	79.95796	10.46193	0.1499799	0.21654415	2.7464503	20	4 24.2	20.2
507293 2011 JG ₉	18.4	X	233.12042	298.16546	201.84558	20.85330	0.0766771	0.37143211	1.9166806	20	12 8.4	20.5
507294 2011 JJ ₉	16.5	X	227.55033	247.50351	84.20698	16.28013	0.1627829	0.20433700	2.8547717	20	3 24.4	21.4
507295 2011 KJ ₁₁	17.0	X	84.68432	146.02943	54.02556	12.89023	0.1871298	0.23562322	2.5961154	20	8 21.1	21.1
507296 2011 KM ₁₉	17.7	X	193.64257	331.66948	253.83357	18.75798	0.0934374	0.38104660	1.8843026	20	—	—
507297 2011 KB ₃₁	17.6	X	84.59504	109.37721	92.28186	3.54973	0.1565839	0.23459752	2.6036770	20	8 13.9	21.2
507298 2011 KV ₃₃	16.9	X	309.89314	64.78724	225.12478	7.58890	0.1859796	0.21362090	2.7714490	20	4 20.1	20.4
507299 2011 KS ₃₇	16.0	X	215.16555	113.93130	233.56019	13.71299	0.1705504	0.20486717	2.8498443	20	3 18.6	21.0
507300 2011 KS ₄₀	17.4	X	80.02602	194.51398	7.88738	1.63584	0.0973573	0.23112398	2.6296990	20	7 30.9	20.8
507301 2011 LY ₇	16.9	X	266.20904	313.58824	79.85291	12.54892	0.1210347	0.23469676	2.6029429	20	7 21.3	20.4
507302 2011 LL ₁₂	17.4	X	314.60600	89.30964	202.20702	4.44602	0.1441640	0.21593261	2.7516334	20	5 7.8	20.7
507303 2011 LO ₁₂	17.0	X	318.17148	53.90958	222.16734	11.94708	0.149165	0.21307614	2.7761707	20	4 15.6	20.3
507304 2011 LM ₁₈	18.1	X	269.85169	245.76116	230.67738	18.52990	0.1170106	0.37039792	1.9202467	20	12 31.9	19.7
507305 2011 LO ₁₁	17.1	X	243.03918	85.10331	241.87328	2.15958	0.1770410	0.19201756	2.9756060	20	3 23.0	21.8
507306 2011 OH ₁₇	16.1	X	130.36768	277.88012	299.59702	13.82714	0.0705864	0.23263044	2.6183339	20	10 7.4	20.3
507307 2011 OO ₆₀	14.0	X	231.94129	101.69930	266.47920	9.70017	0.0705192	0.08597152	5.0843214	20	5 12.1	21.0
507308 2011 OQ ₆₀	16.6	X	197.51426	43.00013	325.47739	12.48598	0.1875993	0.18455202	3.0553210	20	3 28.4	21.9
507309 2011 PJ ₁₁	17.0	X	250.46618	131.81324	184.63117	9.55582	0.0807736	0.18953298	3.0015542	20	3 27.9	21.4
507310 2011 QF ₉	15.9	X	222.91620	168.87943	168.40696	26.36795	0.2635000	0.18170461	3.0871573	20	3 16.1	21.3
507311 2011 QP ₂₁	15.5	X	203.17664	332.15057	319.57245	18.95869	0.1207658	0.16300659	3.3189390	20	1 16.4	20.9
507312 2011 QS ₂₂	16.2	X	203.71572	6.95546	315.62523	15.06011	0.2824047	0.17490073	3.1667101	20	2 13.8	21.9
507313 2011 QW ₂₈	17.3	X	238.49516	75.68961	237.42954	2.78522	0.360122	0.18365463	3.0652657	20	2 24.3	22.8
507314 2011 QH ₃₇	16.9	X	279.03076	213.30198	91.62078	2.30820	0.1925943	0.19202973	2.9754802	20	4 1.8	21.1
507315 2011 QF ₄₀	16.0	X	179.74339	119.73119	188.58913	6.17722	0.1388191	0.16354669	3.3116280	20	1 10.6	21.4
507316 2011 QS ₆₅	16.2	X	209.98591	71.30322	287.72208	15.31112	0.1471791	0.18355538	3.0663705	20	3 26.0	21.5
507317 2011 QY ₆₇	15.9	X	180.88260	28.92957	20.69797	19.07277	0.2903782	0.18042605	3.1017245	20	5 3.6	21.6
507318 2011 QY ₇₃	17.0	X	191.94760	116.14749	280.22179	5.28451	0.1768173	0.18412875	3.0600016	20	4 29.5	22.2
507319 2011 QH ₇₉	16.0	X	167.90430	232.48609	155.77883	22.45260	0.1210898	0.17624705	3.1505628	20	4 3.5	21.2
507320 2011 RR ₁₅	17.0	X	260.63597	35.30539	280.03255	7.22372	0.0472495	0.18788048	3.0191286	20	4 7.8	21.5
507321 2011 RM ₁₈	17.0	X	142.86150	247.97878	187.16535	8.66535	0.1764419	0.17482093	3.1676736	20	5 6.8	22.1
507322 2011 RG ₁₉	16.5	X	198.58107	333.99002	29.34639	9.65334	0.0956876	0.17542858	3.1603546	20	4 1.2	21.3
507323 2011 SD ₁₄	16.2	X	143.15398	170.94060	298.13827	9.04208	0.0300318	0.19562924	2.9388688	20	6 5.4	20.5
507324 2011 SE ₅₀	17.7	X	182.47149	226.37075	186.04793	6.35954	0.1500389	0.18485814	3.0519471	20	5 13.4	22.6
507325 2011 SS ₉₀	16.9	X	222.84589	117.64193	209.14280	12.70660	0.3024624	0.17442299	3.1724898	20	2 28.3	22.8
507326 2011 SC ₁₀₅	16.1	X	219.54163	129.79983	220.35104	18.94337	0.2129074	0.17548571	3.1596687	20	3 26.6	21.6
507327 2011 SB ₁₂₄	16.3	X	167.89054	231.74394	193.88955	16.63284	0.2059155	0.17708487	3.1406177	20	5 18.1	21.8
507328 2011 SL ₁₃₁	15.9	X	137.25952	75.45836	26.93718	26.41486	0.2671359	0.17376260	3.1805228	20	5 31.2	21.7
507329 2011 SN ₁₉₈	16.4	X	182.09806	264.61657	165.22751	13.54127	0.1163075	0.18994738	2.9971871	20	6 4.2	21.4
507330 2011 SO ₂₀₃	16.9	X	145.97185	88.86753	346.71900	24.73765	0.2978781	0.17291145	3.1909516	20	5 3.9	22.9
507331 2011 SP ₂₁₅	16.9	X	168.24463	225.49850	202.03692	27.28108	0.2188520	0.17412200	3.1761448	20	5 19.8	22.6
507332 2011 SP ₂₃₅	16.3	X	293.86330	66.93940	225.81962	9.56602	0.0832836	0.18060974	3.0996211	20	4 18.6	20.6
507333 2011 SB ₂₇₈	17.0	X	194.37793	267.49336	138.38457	2.60227	0.0314523	0.18548652	3.0450503	20	5 18.6	21.4
507334 2011 UX ₁	16.7	X	144.54891	177.04130	265.01340	3.52994	0.1792615	0.17182696	3.2043640	20	5 14.8	21.9
507335 2011 UJ ₁₃	16.1	X	188.57488	321.89627	61.50923	17.73211	0.2185198	0.17605045	3.1529079	20	4 19.5	21.7
507336 2011 UO ₂₂	16.8	X	158.97196	176.30330	260.03974	6.41856	0.1139627	0.17668235	3.1453859	20	5 17.9	21.8
507337 2011 UB ₅₉	16.6	X	222.64484	203.65404	134.54338	3.01464	0.2322792	0.17739426	3.1369650	20	3 18.7	22.0
507338 2011 UK ₆₂	16.5	X	107.48562	258.37746	231.52378	8.49164	0.0553502	0.17971490	3.1099017	20	5 23.1	20.8
507339 2011 UR ₇₁	16.9	X	206.48289	102.16262	250.38650	5.31511	0.1415514	0.17493713	3.1662708	20	3 21.8	22.2
507340 2011 UF ₉₃	16.5	X	287.20315	92.73751	208.59349	14.50896	0.1218302	0.18317664	3.0705958	20	4 15.9	20.7
507341 2011 UX ₁₁₁	17.0	X	176.13068	172.28233	232.89728	11.71855	0.0697787	0.17495619	3.1660408	20	4 25.6	21.8
507342 2011 UQ ₁₃₀	15.9	X	216.82610	87.31348	244.67394	24.46475	0.2849905	0.17322577	3.1870903	20	2 23.9	22.0
507343 2011 UR ₁₄₈	16.8	X	188.22634	214.85907	225.33113	7.39237	0.2611297	0.18118095	3.0931028	20	6 18.1	22.4
507344 2011 UC ₁₉₅	16.4	X	197.32447	345.02703	30.78608	12.61800	0.2038118	0.17615247	3.1516904	20	4 12.5	21.6
507345 2011 UQ ₂₅₉	18.0	X	154.28050	209.16042	39.70296	20.82231	0.0394046	0.34308482	2.0208545	20	—	—
507346 2011 UJ ₂₇₀	16.4	X	220.74754	238.84304	90.73467	6.91553	0.1540875	0.17059025	3.2198323	20	3 13.3	21.7
507347 2011 UG ₃₂₅	16.8	X	179.92093	187.91826	215.35569	10.08340	0.0881915	0.17536074	3.1611696	20	4 28.7	21.7
507348 2011 UK ₃₂₉	16.7	X	188.06779	137.94246	248.16751	25.65744	0.1812460	0.17439278	3.1728561	20	4 11.3	22.3
507349 2011 US ₃₃₀	16.1	X	142.82815	54.46663	86.31350	21.42755	0.1785361	0.18183271	3.0857072	20	7 25.1	21.4
507350 2011 UO ₃₃₇	17.0	X	174.97241	185.83286	200.61391	7.02461	0.1849027	0.17468692	3.1692935	20	4 16.1	22.3
507351 2011 UU ₃₃₇	16.4	X	197.71339	351.65550	31.15291	10.86138	0.1031319	0.17672907	3.1448315	20	4 21.5	21.1
507352 2011 UW ₃₆₁	16.1	X	167.69621	222.75049	242.44167	14.82605	0.1664628	0.17879471	3.1205629	20	6 30.3	21.3
507353 2011 US ₃₈₅	16.4	X	149.99662	204.56554	288.09819	6.071						

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>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
507361 2011 WH ₁₂₄	17.6	X	124.21492	326.59116	136.24427	2.53865	0.3476348	0.16298609	3.3192174	20	6 3.7	23.4
507362 2011 WN ₁₄₆	15.9	X	158.65638	10.91192	79.88672	28.33096	0.1440392	0.17081699	3.2169823	20	6 6.8	21.1
507363 2011 WM ₁₅₀	16.1	X	220.04987	305.17806	128.38425	9.66181	0.0851150	0.18843461	3.0132067	20	7 18.0	20.7
507364 2011 WE ₁₅₃	16.4	X	177.31517	355.17193	119.43522	13.77666	0.1141106	0.18487364	3.0517765	20	7 22.9	21.1
507365 2011 WY ₁₅₇	15.6	X	291.48157	248.94394	83.25472	19.46113	0.2064123	0.18212646	3.0823883	20	5 22.3	19.9
507366 2011 XO ₃	16.8	X	139.61535	209.85234	321.30470	23.89607	0.6607767	0.16920691	3.2373574	20	9 1.1	23.9
507367 2011 YW ₂₁	15.7	X	188.90187	186.22395	271.73915	24.18334	0.1910694	0.17649498	3.1476117	20	7 8.6	21.1
507368 2011 YQ ₄₂	15.8	X	115.14529	284.27261	285.27531	24.30800	0.1665930	0.17891841	3.1191244	20	9 11.5	21.6
507369 2011 YM ₆₆	18.8	X	248.57572	108.09069	354.73230	4.73738	0.0908143	0.31279082	2.1493149	20	10 17.0	21.1
507370 2011 YF ₇₅	14.2	X	257.34103	22.72476	93.70900	8.44354	0.0672579	0.08253124	5.2246494	20	10 14.0	21.2
507371 2012 AL ₂₁	15.5	X	154.31837	172.95713	300.85643	27.57814	0.1486160	0.16984225	3.2292790	20	7 3.8	20.8
507372 2012 BO ₃₄	15.2	X	134.30402	233.18147	308.03021	21.87803	0.1157973	0.17555418	3.1588471	20	8 23.7	20.3
507373 2012 BG ₉₉	18.9	X	219.54761	155.05209	326.43249	2.04535	0.1308883	0.30620605	2.1800186	20	9 25.6	21.7
507374 2012 CA ₁₇	18.7	X	174.35231	47.01340	125.54665	3.41960	0.1413779	0.30197063	2.2003558	20	10 14.4	21.8
507375 2012 CR ₃₄	18.9	X	161.02418	211.53208	323.09015	3.57836	0.1019577	0.29988270	2.2100660	20	10 1.2	21.9
507376 2012 CB ₅₈	18.2	X	175.38176	38.92145	125.37800	6.45963	0.0346505	0.29966692	2.2116183	20	10 13.7	20.9
507377 2012 DW ₂₀	17.9	X	31.30285	281.08572	320.85389	4.48853	0.1950833	0.27226020	2.3576533	20	8 2.5	20.0
507378 2012 DW ₂₂	17.9	X	96.54294	297.38814	280.22402	2.69281	0.1137194	0.28590059	2.2820545	20	9 16.1	21.1
507379 2012 DK ₇₁	18.5	X	143.92212	238.04699	297.89299	6.50766	0.0755270	0.29173138	2.2515449	20	9 10.9	21.6
507380 2012 DA ₁₀₀	18.2	X	180.63213	332.09009	160.30399	5.98878	0.0818241	0.28977283	2.2616789	20	8 27.9	21.3
507381 2012 EH	18.9	X	195.32711	266.01129	217.69514	5.64459	0.1020685	0.29392682	2.2403192	20	8 30.0	21.9
507382 2012 EZ ₁₈	17.4	X	286.81747	64.88654	204.81878	15.11597	0.1650822	0.23414122	2.6070587	20	2 21.1	21.3
507383 2012 FV ₃₉	17.8	X	64.73513	331.79230	276.26708	4.81753	0.1366767	0.27883975	2.3204182	20	9 19.8	20.8
507384 2012 FU ₅₀	18.3	X	34.57446	221.85926	43.86985	6.50247	0.1109235	0.27625109	2.3348916	20	9 3.4	20.9
507385 2012 FS ₅₉	17.8	X	9.58156	160.75111	95.85720	2.97192	0.1694747	0.26344056	2.4099847	20	7 5.1	19.7
507386 2012 FZ ₆₇	17.4	X	286.42193	328.92381	41.95950	7.40512	0.1130430	0.27946477	2.3169572	20	7 25.4	20.0
507387 2012 FW ₈₂	17.5	X	83.18082	333.60249	274.08834	4.55545	0.2016109	0.28614029	2.2807799	20	10 19.7	20.9
507388 2012 FB ₈₅	17.1	X	269.40282	244.28327	71.41303	9.88384	0.1718886	0.23905395	2.5712172	20	4 7.9	20.9
507389 2012 GA ₁₄	17.9	X	18.95158	18.69318	234.24338	2.18450	0.1371590	0.26281356	2.4138162	20	7 15.1	20.2
507390 2012 GT ₂₆	17.8	X	24.87509	60.50289	217.70775	1.20206	0.1353949	0.26933448	2.3746963	20	9 4.3	20.2
507391 2012 GP ₃₃	17.6	X	345.60894	247.70082	61.67213	2.91667	0.1733146	0.26669360	2.3903472	20	8 8.6	19.5
507392 2012 GF ₃₉	17.8	X	147.16535	131.02465	64.45704	7.47435	0.1205645	0.28943146	2.2634569	20	10 16.8	21.2
507393 2012 HB ₃₅	18.0	X	64.91506	66.92984	149.71833	6.68295	0.0736721	0.26715460	2.3875966	20	7 27.8	21.0
507394 2012 HA ₄₀	17.1	X	76.24074	162.30621	73.99689	25.35610	0.2354234	0.27288487	2.3540540	20	10 16.9	21.2
507395 2012 HF ₄₉	18.4	X	123.20838	292.80992	266.97979	0.50105	0.1669680	0.28388680	2.2928338	20	9 25.4	21.9
507396 2012 HM ₅₆	17.1	X	296.79866	242.44422	18.31026	12.41745	0.2457102	0.23317637	2.6142455	20	2 20.4	21.0
507397 2012 HN ₆₈	18.4	X	138.14118	93.33491	107.06006	6.22198	0.1702156	0.28524445	2.2855527	20	10 13.9	22.0
507398 2012 HO ₇₁	18.1	X	98.25997	359.52785	228.80798	3.62359	0.1989936	0.27854679	2.3220449	20	10 9.1	21.6
507399 2012 JN ₇	17.6	X	321.36284	78.96497	241.28724	5.65531	0.1213330	0.25749583	2.4469358	20	7 3.6	20.1
507400 2012 JT ₉	18.0	X	13.87958	220.74590	52.11947	1.63263	0.1319627	0.25997187	2.4313743	20	8 6.0	20.3
507401 2012 JY ₁₉	17.4	X	117.08662	148.52784	64.32029	24.28160	0.1367694	0.27992545	2.3144144	20	10 17.9	21.3
507402 2012 JW ₃₆	18.3	X	142.82404	126.14007	69.20580	3.23006	0.1648703	0.28327091	2.2961560	20	10 9.7	21.8
507403 2012 JT ₃₇	18.2	X	165.77990	97.80126	64.53022	10.26242	0.1527092	0.28398949	2.2922811	20	9 23.6	21.8
507404 2012 KN ₉	17.7	X	12.68552	150.79026	109.52881	3.35350	0.1908586	0.25804369	2.4434712	20	7 20.7	19.4
507405 2012 KP ₁₅	17.9	X	28.72515	65.34716	191.75708	6.04601	0.0861717	0.26014843	2.4302740	20	7 30.9	20.6
507406 2012 KL ₂₂	18.1	X	319.28967	179.12095	139.12352	3.20657	0.1920078	0.25500175	2.4628650	20	6 17.1	20.4
507407 2012 KJ ₂₄	17.7	X	45.38024	146.29899	86.51618	3.43421	0.1408577	0.26330784	2.4107945	20	8 3.3	20.3
507408 2012 KY ₅₁	17.0	X	236.19318	273.47008	97.31450	13.90973	0.1481342	0.24245963	2.5470829	20	5 15.2	21.0
507409 2012 LM ₁₆	17.2	X	289.56914	223.29682	99.18933	4.00940	0.2164480	0.24240111	2.5474929	20	5 1.4	20.4
507410 2012 LD ₂₃	18.0	X	92.25537	112.64503	105.95636	7.52191	0.0610771	0.26893627	2.3770399	20	9 8.8	21.2
507411 2012 MQ ₆	16.7	X	293.02177	264.84026	85.41976	28.72500	0.3623897	0.23407614	2.6075418	20	5 26.1	20.4
507412 2012 OK	17.1	X	259.17735	172.35285	152.59897	21.62469	0.3088805	0.21734217	2.7397234	20	3 26.8	21.9
507413 2012 OC ₄	16.6	X	275.63774	153.61045	141.37989	18.92150	0.3032674	0.22305523	2.6927401	20	3 3.4	21.0
507414 2012 PE	18.3	X	341.10062	228.14784	287.49569	20.63100	0.0390909	0.44286397	1.7046000	20	—	—
507415 2012 PY ₆	16.7	X	337.96141	17.15040	267.36102	15.36330	0.1409955	0.23539215	2.5978141	20	6 8.7	19.4
507416 2012 PL ₁₀	17.4	X	354.82089	111.49099	171.89438	13.30211	0.1903574	0.24011293	2.5636517	20	7 11.7	19.9
507417 2012 PH ₁₇	17.5	X	323.88050	272.31833	14.00126	6.01405	0.0839216	0.22985962	2.6393334	20	5 21.2	20.6
507418 2012 PR ₂₀	17.6	X	247.94559	43.64115	301.04916	2.40987	0.1046624	0.21499203	2.7596530	20	4 24.1	21.6
507419 2012 PW ₂₉	17.5	X	275.39026	298.80352	41.76433	4.78111	0.0742514	0.22897855	2.6460996	20	5 27.3	21.0
507420 2012 PG ₃₀	17.0	X	310.65751	162.35557	144.21730	6.66719	0.2461130	0.23253045	2.6190844	20	5 6.9	20.0
507421 2012 PS ₃₀	16.3	X	279.65555	305.41541	11.63110	13.53778	0.2868077	0.22226419	2.6991253	20	4 2.4	20.2
507422 2012 QB ₁₇	20.1	X	1.15260	147.46183	232.54280	5.74905	0.3685942	0.38875797	1.8593016	20	—	—
507423 2012 QS ₂₂	17.3	X	256.95492	59.96578	308.76576	4.67531	0.0550945	0.22436615	2.6822412	20	6 13.3	20.9
507424 2012 QT ₂₈	17.7	X	284.89163	83.01508	227.80649	6.81053	0.2106722	0.21991075	2.7183481	20	4 9.1	21.7
507425 2012 QQ ₃₃	17.3	X	204.01207	210.36008	196.06658	9.83803	0.1271588	0.21417743	2.7666460	20	5 26.5	21.7
507426 2012 QA ₃₆	16.9	X	168.41542	234.39791	201.82489	7.36766	0.1304441	0.21074143	2.7966370	20	5 28.6	21.4
507427 2012 QD ₃₇	16.7	X	266.54514	138.00243	208.95576	12.06246	0.1390199	0.22054616	2.7131245	20	5 16.5	20.6
507428 2012 QL ₃₇	17.1	X	241.83488	52.46022	283.98378	7.95253	0.1635682	0.20871786	2.8146840	20	3 30.1	21.8
507429 2012 QQ ₅₂	17.0	X	288.37677	56.74816	237.30803	7.30123	0.0735862	0.21227470	2.7831539	20	4 11.9	20.7
507430 2012 RR ₄	17.1	X	272.04580	193.31557	138.28592	6.67029	0.1380559	0.21767011	2.7369710	20	5 4.9	21.0
507431 2012 RR ₇	16.8	X	229.29942	17.68593	354.42648	7.80250	0.2343099	0.21411005	2.7672263	20	4 27.5	21.6
507432 2012 RY ₈	16.9	X	249.74326	144.36530	209.93151	12.53964	0.1649320	0.21962259	2.7207254	20	5 3.5	20.9
507433 2012 RA ₂₀	16.0	X	186.16890	132.39816	254.53447	13.98802	0.1517897	0.20278180	2.8693492	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>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
507441 2012 SE ₄₀	17.4	X	261.62101	356.80768	339.49010	4.11493	0.0820423	0.21359853	2.7716424	20	5 1.8	21.3
507442 2012 SR ₄₀	16.9	X	210.01202	208.77625	188.42109	13.53233	0.1799777	0.21174090	2.7878295	20	5 19.1	21.6
507443 2012 SL ₄₅	16.9	X	275.18588	173.87031	147.38515	6.62494	0.1641406	0.21661805	2.7458256	20	4 21.6	20.8
507444 2012 ST ₄₉	16.9	X	251.50179	278.03354	42.24141	2.60981	0.0576394	0.20328207	2.8646397	20	4 5.0	20.9
507445 2012 SF ₆₈	16.9	X	308.43299	66.75865	234.91788	4.14935	0.0286098	0.21134142	2.7913415	20	5 28.1	20.6
507446 2012 TR ₁₆	17.4	X	262.66034	145.75812	189.08338	4.96075	0.0826867	0.20997237	2.8034616	20	5 3.9	21.3
507447 2012 TG ₃₁	17.1	X	277.62415	91.48058	223.55455	26.03564	0.2099551	0.21504121	2.7592322	20	4 4.9	21.4
507448 2012 TC ₃₈	16.9	X	244.65930	87.33402	267.70365	3.24535	0.0861459	0.20976823	2.8052801	20	5 6.2	21.0
507449 2012 TU ₃₉	17.1	X	303.74454	75.16862	213.01261	14.72370	0.1901664	0.21372804	2.7705227	20	4 7.5	20.8
507450 2012 TD ₅₄	16.5	X	149.12258	140.46878	257.45841	9.35985	0.1383449	0.18272124	3.0756957	20	3 20.4	21.6
507451 2012 TS ₆₆	16.6	X	173.90751	102.10206	24.72662	11.83139	0.0454370	0.22308509	2.6924999	20	8 13.1	20.6
507452 2012 TH ₈₄	17.2	X	227.09083	1.17056	357.78945	1.65739	0.0833177	0.20319677	2.8654413	20	4 22.2	21.3
507453 2012 TW ₈₆	17.5	X	156.88889	175.78125	271.97894	1.03629	0.0292915	0.20714413	2.8289219	20	5 25.9	21.4
507454 2012 TC ₁₃₁	17.1	X	267.77592	341.54593	35.27815	14.99062	0.2568004	0.22422819	2.6833413	20	6 6.4	21.3
507455 2012 TJ ₁₃₉	16.2	X	153.65226	153.84782	243.43965	14.16315	0.0538374	0.18034979	3.1025988	20	3 16.8	21.1
507456 2012 TY ₁₄₁	17.7	X	190.99756	41.49443	32.05297	2.83657	0.1631499	0.21020116	2.8014270	20	6 14.6	22.2
507457 2012 TD ₁₄₂	17.5	X	302.63852	320.14036	340.61276	2.57713	0.1648204	0.22148905	2.7054191	20	4 26.7	20.9
507458 2012 TV ₁₄₂	16.7	X	269.85313	192.72635	143.79460	9.22535	0.1875008	0.21413121	2.7670441	20	5 2.9	20.9
507459 2012 TW ₁₄₆	17.2	X	173.02438	173.04282	217.16444	8.08744	0.1578228	0.19792448	2.9161042	20	4 5.6	22.0
507460 2012 TO ₁₄₇	16.4	X	231.11353	204.95660	222.70975	12.96172	0.2329549	0.22338018	2.6901281	20	7 7.5	21.0
507461 2012 TD ₁₅₇	17.4	X	215.96279	191.25179	179.77178	1.89920	0.0805893	0.20430414	2.8550777	20	4 26.2	21.6
507462 2012 TS ₁₆₁	17.2	X	354.25197	58.74313	206.53267	5.94874	0.0076718	0.21472939	2.7619028	20	6 13.3	20.9
507463 2012 TY ₁₆₈	16.9	X	252.80493	260.85917	79.28180	6.77984	0.0858794	0.20435123	2.8546391	20	4 29.8	21.1
507464 2012 TR ₁₇₅	17.1	X	179.43847	52.06395	14.71726	4.32942	0.0529780	0.21154146	2.7895815	20	5 25.6	21.2
507465 2012 TE ₁₇₆	17.3	X	241.29573	332.29571	3.22629	1.68356	0.0705066	0.20380437	2.8597434	20	4 9.9	21.6
507466 2012 TN ₁₈₇	17.1	X	226.79019	1.91318	53.79839	6.34262	0.2256328	0.21202177	2.7853670	20	6 21.1	21.6
507467 2012 TF ₁₉₉	16.7	X	306.55398	289.00419	6.15558	8.87714	0.1432081	0.21345765	2.7728618	20	4 27.1	20.3
507468 2012 TM ₂₀₈	17.1	X	282.87822	349.36645	16.06093	15.09438	0.1146454	0.22311832	2.6922325	20	7 7.6	20.9
507469 2012 TN ₂₁₅	18.8	X	281.12277	71.78844	33.64049	21.46271	0.1161744	0.38090679	1.8847637	20	—	—
507470 2012 TL ₂₃₉	17.1	X	164.31826	133.09920	334.63796	7.49063	0.1849279	0.21202681	2.7853228	20	7 4.5	21.8
507471 2012 TO ₂₄₀	17.2	X	212.57901	46.11382	38.67875	10.18176	0.2424162	0.21915428	2.7246000	20	7 16.1	22.0
507472 2012 TQ ₂₄₀	17.0	X	243.75653	298.79086	47.87226	6.65957	0.0882978	0.20608777	2.8385807	20	4 25.9	21.4
507473 2012 TR ₂₄₆	17.4	X	225.65030	47.15861	333.44778	3.32374	0.2164893	0.21349570	2.7725324	20	5 7.4	22.1
507474 2012 TQ ₂₅₅	17.3	X	189.19412	84.28460	14.14202	13.24205	0.1752045	0.21368287	2.7709131	20	7 17.3	22.1
507475 2012 TZ ₂₅₈	16.9	X	199.44922	325.15045	2.88397	3.55593	0.2633955	0.18565598	3.0431971	20	2 18.6	22.4
507476 2012 TS ₂₆₀	17.3	X	266.78070	276.23208	70.92891	7.29218	0.0876998	0.21581573	2.7526267	20	5 23.8	21.0
507477 2012 TV ₂₆₁	17.3	X	254.89591	256.63200	69.67421	3.11963	0.0804453	0.20393661	2.8585070	20	4 14.4	21.3
507478 2012 TT ₂₆₂	17.6	X	137.36215	60.20157	34.54236	6.46177	0.2156385	0.19609957	2.9341678	20	5 25.4	22.5
507479 2012 TP ₂₈₈	16.5	X	152.93071	121.04517	267.25589	7.84707	0.1520234	0.18551695	3.0447174	20	3 13.8	21.5
507480 2012 TE ₂₈₉	17.3	X	187.08564	80.85059	317.34088	8.54079	0.1013700	0.20018027	2.8941555	20	4 24.9	21.9
507481 2012 TN ₂₉₃	16.1	X	168.82366	31.44082	14.82656	6.99036	0.0773527	0.19195412	2.9762615	20	4 18.3	20.7
507482 2012 TP ₃₀₆	17.2	X	249.55998	62.96077	287.60307	5.06344	0.0810334	0.21253503	2.7808807	20	5 5.9	21.2
507483 2012 TP ₃₂₅	17.2	X	211.72803	48.29492	351.56588	5.99884	0.0237915	0.21294590	2.7773026	20	5 30.3	21.2
507484 2012 TS ₃₂₅	16.8	X	230.85647	333.62244	126.66203	12.07893	0.0429829	0.23697592	2.5862266	20	9 18.5	20.4
507485 2012 UE ₃	17.0	X	234.53062	269.51487	118.33920	4.42794	0.1035541	0.21472209	2.7619654	20	6 5.4	21.1
507486 2012 UZ ₁₀	17.4	X	223.21351	342.24013	50.21474	5.05519	0.0775359	0.21239789	2.7820777	20	5 30.9	21.6
507487 2012 UC ₁₉	17.4	X	191.29719	350.34929	82.36214	1.62691	0.0505064	0.21411794	2.7671584	20	6 17.3	21.4
507488 2012 UX ₁₉	17.0	X	158.28256	332.62518	137.09206	4.80324	0.0536724	0.21464134	2.7626580	20	6 26.8	21.0
507489 2012 UF ₂₈	16.2	X	80.05985	267.96433	202.87497	16.58786	0.0501646	0.18356162	3.0663010	20	3 22.4	20.4
507490 2012 UZ ₂₈	16.6	X	230.15943	289.65244	84.49988	14.13254	0.2164423	0.21170301	2.7881621	20	5 8.8	21.4
507491 2012 UE ₄₄	16.3	X	181.18234	153.87960	282.42599	12.46015	0.0613193	0.21027159	2.8008014	20	6 10.0	20.4
507492 2012 UY ₅₉	17.0	X	186.49548	93.48618	24.61362	13.00491	0.1575116	0.21869605	2.7284045	20	8 11.8	21.6
507493 2012 UG ₆₂	17.2	X	234.06930	246.22498	115.21484	3.24930	0.0748844	0.19981344	2.8976967	20	5 5.6	21.4
507494 2012 UG ₆₇	16.9	X	230.13860	11.28537	65.30459	15.11959	0.0925087	0.22253774	2.6969130	20	8 9.5	21.0
507495 2012 UB ₇₁	16.8	X	345.70409	222.59339	32.88546	9.35430	0.1059862	0.20958371	2.8069265	20	5 12.4	20.0
507496 2012 UD ₈₉	18.7	X	307.55878	232.52075	223.99627	21.10604	0.0739585	0.38627840	1.8672499	20	—	—
507497 2012 UJ ₉₀	16.9	X	186.09413	66.02880	55.12958	9.70302	0.1573387	0.21550752	2.7552506	20	8 13.3	21.5
507498 2012 UM ₉₁	17.4	X	154.29892	67.50567	25.02173	4.66101	0.0328358	0.20876344	2.8142743	20	5 28.4	21.4
507499 2012 UP ₉₁	17.2	X	250.72968	129.43999	200.52033	1.40270	0.0606568	0.20266623	2.8704399	20	4 15.4	21.2
507500 2012 UB ₁₄₁	16.4	X	351.91427	224.47668	41.67878	13.34060	0.0512290	0.21233452	2.7826311	20	6 8.2	20.1
507501 2012 UG ₁₄₅	16.9	X	313.65342	255.72060	54.22452	7.51265	0.0268653	0.21351132	2.7723971	20	6 15.2	20.6
507502 2012 UR ₁₅₅	16.4	X	109.23668	27.27372	42.35931	17.13419	0.0690093	0.17568000	3.1573387	20	3 21.6	21.1
507503 2012 UZ ₁₅₇	18.3	X	350.04565	168.89000	183.78174	21.25170	0.0899470	0.37409286	1.9075815	20	11 20.8	20.3
507504 2012 UD ₁₆₃	17.3	X	197.35816	239.86228	167.39019	15.31015	0.1464425	0.20445481	2.8536749	20	5 22.4	22.2
507505 2012 UL ₁₆₅	17.3	X	210.25826	109.00530	0.28638	13.91174	0.1987795	0.22228761	2.6989358	20	8 19.8	21.8
507506 2012 UA ₁₇₉	16.6	X	193.79988	307.39336	64.88488	11.29406	0.1198514	0.19123671	2.9837003	20	4 9.1	21.4
507507 2012 VN ₁₂	17.2	X	279.30331	247.77387	65.58795	3.02255	0.0538371	0.20316885	2.8657038	20	5 1.0	21.0
507508 2012 VY ₁₂	17.5	X	279.86172	260.70830	55.95948	4.85308	0.2041902	0.21057866	2.7980780	20	4 14.9	21.5
507509 2012 VP ₁₃	17.4	X	233.87003	303.73747	52.24597	2.85262	0.0839565	0.20215901	2.8752392	20	4 26.7	21.6
507510 2012 VS ₂₀	17.1	X	203.57191	357.39425	22.59752	2.76043	0.0517370	0.19945019	2.9012139	20	4 24.5	21.3
507511 2012 VX ₂₂	17.1	X	136.57486	46.14631	37.70459	6.11978	0.0177746	0.19392217	2.9560906	20	4 25.2	21.2
507512 2012 VA ₂₇	16.8	X	263.72368	286.71681	28.64310	7.87588	0.1730456	0.20435973	2.8545599	20	3 31.2	21.2
507513 2012 VD ₃₁	16.5	X	140.44906	347.72858	63.69910	16.99108	0.1					

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>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
507521 2012 <i>VD</i> ₇₆	16.2	X	98.31073	244.66817	232.87642	13.36037	0.1688905	0.17934907	3.1141292	20	5 11.4	20.6
507522 2012 <i>VS</i> ₇₈	16.0	X	225.10166	233.10902	76.60814	14.91863	0.1140149	0.18309167	3.0715458	20	2 27.1	21.1
507523 2012 <i>VE</i> ₈₆	17.6	X	197.87175	109.17570	77.88085	24.42946	0.0484096	0.37786676	1.8948591	20	12 30.3	19.4
507524 2012 <i>VT</i> ₉₀	16.2	X	155.69287	190.31260	229.71889	9.76690	0.1191468	0.18675627	3.0312325	20	4 24.5	20.9
507525 2012 <i>VV</i> ₉₁	16.3	X	90.18197	75.28845	72.98134	12.37254	0.1088901	0.19067864	2.9895193	20	6 1.5	20.3
507526 2012 <i>VA</i> ₉₄	16.6	X	281.08734	188.45531	113.02758	10.52421	0.0906820	0.19077809	2.9884802	20	4 17.9	21.0
507527 2012 <i>VK</i> ₁₀₈	16.9	X	144.57030	247.51678	234.28323	17.11848	0.1798765	0.19998322	2.8960564	20	6 30.3	21.9
507528 2012 <i>VM</i> ₁₁₄	16.0	X	147.31814	178.47797	250.41548	12.10637	0.1336485	0.18522090	3.0479609	20	4 26.8	20.9
507529 2012 <i>WW</i>	16.8	X	63.42470	283.47285	231.43717	9.50365	0.0355609	0.18826561	3.0150097	20	4 24.1	20.9
507530 2012 <i>WZ</i> ₇	17.5	X	222.25134	12.38278	45.73333	9.69248	0.1634779	0.20956073	2.8071316	20	6 24.6	22.0
507531 2012 <i>WM</i> ₁₀	16.8	X	130.83944	7.09229	95.56743	0.31928	0.1834657	0.18846167	3.0129183	20	5 27.9	21.6
507532 2012 <i>WS</i> ₁₂	17.3	X	166.28491	286.96497	122.43197	2.14842	0.2156322	0.18827575	3.0149015	20	4 26.8	22.4
507533 2012 <i>WY</i> ₂₆	16.6	X	169.24500	290.31117	93.03028	14.06022	0.3175016	0.18507169	3.0495989	20	4 7.8	22.4
507534 2012 <i>WL</i> ₂₈	18.5	X	56.11538	126.32407	230.72889	20.44563	0.0690760	0.38731836	1.8639060	20	—	—
507535 2012 <i>WB</i> ₃₀	17.1	X	262.79434	240.12424	102.14314	3.14829	0.0810411	0.20315008	2.8658803	20	5 13.9	21.1
507536 2012 <i>XU</i> ₃₃	16.2	X	350.76371	355.32330	250.89982	7.73207	0.0498610	0.19015842	2.9949690	20	5 12.1	20.0
507537 2012 <i>XW</i> ₃₉	17.0	X	149.00210	230.04566	208.56704	1.84296	0.2156855	0.18775483	3.0204754	20	5 13.6	21.7
507538 2012 <i>XK</i> ₄₁	17.2	X	136.82889	201.41697	257.39409	3.89768	0.1271065	0.18782771	3.0196940	20	5 24.3	21.8
507539 2012 <i>XL</i> ₄₆	16.1	X	71.80588	39.60164	87.96297	15.71159	0.1640290	0.17163692	3.2067288	20	4 27.7	20.6
507540 2012 <i>XV</i> ₅₅	18.2	X	138.33852	158.32043	91.00870	25.15582	0.0745781	0.37740254	1.8964126	20	—	—
507541 2012 <i>XP</i> ₅₇	17.2	X	163.83933	8.38755	48.07975	2.71976	0.1865172	0.18962353	3.0005986	20	5 1.5	22.0
507542 2012 <i>XM</i> ₇₀	16.4	X	124.46360	226.69766	211.28694	11.96880	0.1544701	0.17875112	3.1210702	20	4 19.1	21.2
507543 2012 <i>XW</i> ₈₀	16.9	X	48.32678	327.80665	223.39901	14.55625	0.0396888	0.19254694	2.9701494	20	5 22.7	20.8
507544 2012 <i>XS</i> ₉₁	17.2	X	138.86061	134.77066	116.26974	1.49810	0.1469536	0.18813409	3.0164148	20	5 18.1	22.0
507545 2012 <i>XJ</i> ₉₉	16.7	X	161.84455	90.80103	349.49257	4.19144	0.1341457	0.19275731	2.9679881	20	5 25.7	21.5
507546 2012 <i>XZ</i> ₁₀₀	15.9	X	341.44724	304.14914	291.71779	9.26181	0.0967040	0.18281338	3.0746621	20	4 7.4	20.0
507547 2012 <i>XD</i> ₁₀₈	16.9	X	185.06835	140.53176	262.39203	12.32345	0.1745751	0.19018170	2.9947246	20	4 30.6	22.1
507548 2012 <i>XY</i> ₁₁₅	16.6	X	229.46189	213.83956	213.78887	13.18308	0.1767059	0.21308363	2.7761057	20	7 10.5	21.2
507549 2012 <i>XY</i> ₁₁₆	18.0	X	355.64840	172.40882	259.97108	18.73857	0.0806123	0.39218327	1.8484598	20	—	—
507550 2012 <i>XB</i> ₁₃₁	16.2	X	67.22732	69.74703	108.55419	11.07292	0.08485910	0.19092548	2.9869420	20	6 3.2	20.3
507551 2012 <i>XK</i> ₁₄₈	16.2	X	1.08914	134.84535	98.27316	11.21105	0.0346400	0.18995973	2.9970571	20	5 14.2	20.3
507552 2012 <i>XV</i> ₁₅₀	16.3	X	190.50808	117.84110	288.33128	10.59405	0.3038271	0.19137930	2.9822182	20	5 7.7	21.9
507553 2012 <i>XV</i> ₁₅₅	18.0	X	40.32983	243.77302	109.69199	24.45271	0.0955196	0.37257247	1.9127676	20	—	—
507554 2012 <i>YY</i> ₁	16.4	X	188.23926	305.88728	103.60639	13.97520	0.2690416	0.19012047	2.9953676	20	5 17.0	21.9
507555 2012 <i>YR</i> ₅	17.4	X	70.01726	287.58066	116.82071	15.47562	0.0603282	0.34534921	2.0120113	20	9 15.1	19.9
507556 2012 <i>YV</i> ₉	16.8	X	143.22364	129.61030	296.63070	14.22488	0.1171405	0.17259667	3.1948302	20	4 14.0	22.0
507557 2013 <i>AF</i> ₂₀	16.8	X	169.19066	317.10522	117.58210	28.87770	0.4434951	0.18793378	3.0185577	20	6 7.2	23.1
507558 2013 <i>AW</i> ₂₂	15.6	X	166.01133	303.61289	129.09544	27.96513	0.0860071	0.17626474	3.1503520	20	5 28.8	20.9
507559 2013 <i>AM</i> ₂₇	18.4	X	355.08876	342.66680	79.13823	24.96812	0.0901455	0.38193115	1.8813921	20	—	—
507560 2013 <i>AH</i> ₃₇	16.2	X	186.65587	98.35466	295.67354	7.92141	0.0987342	0.17517191	3.1634410	20	4 20.8	21.3
507561 2013 <i>AL</i> ₃₉	18.4	X	356.39972	172.14490	276.88725	18.83940	0.1047638	0.39236413	1.8478917	20	—	—
507562 2013 <i>AE</i> ₄₃	16.2	X	67.32415	51.31107	114.89605	19.91553	0.0881521	0.16985425	3.2291268	20	5 28.3	20.9
507563 2013 <i>AV</i> ₄₅	16.2	X	115.13605	126.38567	325.40702	7.36339	0.0589159	0.16167489	3.3371392	20	4 12.3	21.1
507564 2013 <i>AV</i> ₆₁	16.5	X	181.87798	59.42908	333.62249	9.33576	0.0337045	0.17444974	3.1721654	20	4 13.4	21.2
507565 2013 <i>AY</i> ₆₃	18.2	X	331.32541	130.79879	292.66946	19.03073	0.1242778	0.37458998	1.9058934	20	—	—
507566 2013 <i>AL</i> ₆₉	18.1	X	115.97094	317.73682	307.83038	17.50442	0.0397314	0.36135582	1.9521477	20	12 31.3	20.4
507567 2013 <i>AX</i> ₇₄	16.4	X	96.47841	40.97908	81.29912	21.01581	0.1477188	0.17150190	3.2084117	20	5 17.6	21.2
507568 2013 <i>AB</i> ₇₇	16.3	X	156.30553	312.94197	138.38845	16.34086	0.1644562	0.18552295	3.0446517	20	6 8.1	21.5
507569 2013 <i>AC</i> ₉₉	16.5	X	117.36496	76.04117	64.38779	9.62272	0.1791249	0.18487727	3.0517365	20	6 30.1	21.3
507570 2013 <i>AP</i> ₉₉	16.1	X	163.59369	303.00251	127.99053	19.26586	0.1806151	0.18240810	3.0792147	20	5 24.2	21.5
507571 2013 <i>AL</i> ₁₀₀	16.6	X	189.20209	294.82053	98.28181	11.34187	0.2227535	0.18399984	3.0614306	20	4 29.3	22.0
507572 2013 <i>AC</i> ₁₀₈	16.1	X	79.49283	32.96648	130.03932	17.51446	0.1402757	0.17452777	3.1712199	20	6 13.9	20.8
507573 2013 <i>AT</i> ₁₀₉	16.4	X	90.37827	224.02722	285.44659	7.87324	0.1241503	0.17464346	3.1698193	20	6 5.0	21.0
507574 2013 <i>AM</i> ₁₁₇	16.6	X	127.26971	34.23190	63.49237	5.99241	0.1397352	0.17386456	3.1792792	20	5 15.1	21.4
507575 2013 <i>AM</i> ₁₂₆	16.4	X	165.54295	138.50888	287.47127	8.00140	0.1270600	0.18193617	3.0845372	20	5 10.7	21.5
507576 2013 <i>AK</i> ₁₂₇	16.8	X	114.17466	43.77490	71.95265	2.68625	0.1327160	0.17600759	3.1534198	20	5 22.5	21.4
507577 2013 <i>AE</i> ₁₅₂	16.5	X	214.15833	126.73918	231.41716	10.50049	0.0424455	0.17036503	3.2226694	20	4 9.5	21.4
507578 2013 <i>AP</i> ₁₅₅	17.0	X	191.47029	148.45591	231.44687	10.63374	0.1177820	0.17294483	3.1905410	20	4 9.9	22.2
507579 2013 <i>AB</i> ₁₅₆	18.1	X	348.19691	132.37605	275.48658	19.82498	0.0999972	0.37475828	1.9053228	20	—	—
507580 2013 <i>AB</i> ₁₅₈	18.2	X	179.17548	182.24536	214.52168	7.57518	0.2478187	0.18031550	3.1029921	20	4 21.7	23.5
507581 2013 <i>AJ</i> ₁₅₈	17.1	X	140.09824	262.53932	178.65050	10.94742	0.1613114	0.17615384	3.1516741	20	5 11.1	22.2
507582 2013 <i>AY</i> ₁₇₁	16.8	X	107.27821	296.38725	185.28432	10.79329	0.0733757	0.17412069	3.1761607	20	5 16.5	21.5
507583 2013 <i>AY</i> ₁₇₃	16.8	X	149.23687	205.76827	225.31675	10.18171	0.1295351	0.17503510	3.1650892	20	5 3.2	21.7
507584 2013 <i>AS</i> ₁₇₅	17.1	X	118.69718	280.67097	190.71356	15.01605	0.1559442	0.17561221	3.1581511	20	5 25.8	22.1
507585 2013 <i>BP</i> ₈	17.2	X	114.26722	161.67803	331.47659	6.25559	0.1948479	0.18013347	3.1050822	20	6 19.6	22.2
507586 2013 <i>BM</i> ₉	16.3	X	158.90713	312.90695	105.35212	12.76831	0.1452378	0.17579627	3.1559464	20	5 3.1	21.5
507587 2013 <i>BN</i> ₂₂	16.6	X	149.83917	86.82482	332.21682	2.00588	0.1572119	0.17236635	3.1976755	20	4 20.5	21.8
507588 2013 <i>BW</i> ₃₁	18.0	X	131.00291	296.38834	313.00164	17.43114	0.0698975	0.36163107	1.9511570	20	12 25.9	20.6
507589 2013 <i>BF</i> ₃₅	17.7	X	350.75977	236.24943	121.30705	24.91306	0.0628910	0.35556070	1.9733020	20	11 27.2	20.3
507590 2013 <i>BP</i> ₃₇	16.6	X	96.65309	316.62956	158.95823	1.21717	0.0672166	0.16797031	3.2532271	20	4 24.1	21.1
507591 2013 <i>BY</i> ₃₉	16.1	X	181.95446	271.27757	135.14159	10.37316	0.0902921					

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>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
507601 2013 CH ₁₆	16.1	X	55.89017	244.14038	338.53997	13.11024	0.2406656	0.17438448	3.1729568	20	8 13.8	20.4
507602 2013 CQ ₂₀	16.4	X	75.62931	86.76235	16.70853	5.17134	0.0533804	0.15374193	3.4509699	20	3 14.2	21.1
507603 2013 CW ₂₅	16.6	X	114.18224	313.86212	165.18603	5.80783	0.0835168	0.17153773	3.2079649	20	5 22.2	21.3
507604 2013 CM ₂₈	15.9	X	178.22345	270.13820	127.75106	32.71673	0.0746231	0.16999034	3.2274032	20	5 3.2	21.5
507605 2013 CE ₃₅	15.9	X	144.82011	161.45950	292.80756	9.48522	0.1852395	0.17610690	3.1522341	20	5 29.7	21.2
507606 2013 CS ₅₅	16.5	X	105.16678	85.85300	43.22772	16.11011	0.1973179	0.17416602	3.1756095	20	6 3.1	21.5
507607 2013 CQ ₅₆	17.2	X	142.33270	231.01390	223.25829	3.70977	0.2527686	0.17597946	3.1537558	20	6 1.3	22.5
507608 2013 CV ₇₈	16.9	X	181.36250	275.71267	126.25564	11.79804	0.1292546	0.17570656	3.1570205	20	5 3.4	22.1
507609 2013 CL ₈₁	16.7	X	164.08088	260.45499	165.85812	19.22306	0.2180667	0.17504189	3.1650073	20	5 18.2	22.4
507610 2013 CV ₉₀	18.8	X	12.95833	38.80598	324.12266	17.77562	0.0806727	0.36116550	1.9528335	20	—	—
507611 2013 CA ₁₁₈	17.0	X	157.29374	296.49213	148.70137	21.11699	0.3550654	0.17952190	3.1121302	20	6 7.9	23.1
507612 2013 CX ₁₂₇	17.7	X	344.57105	236.74047	139.69840	24.74678	0.0930024	0.35610216	1.9713012	20	12 16.6	20.2
507613 2013 CQ ₁₅₃	16.0	X	198.60469	52.38849	343.44920	15.22237	0.2297945	0.17485508	3.1672611	20	4 28.9	21.8
507614 2013 CZ ₁₈₃	16.1	X	97.55513	80.71730	72.66202	15.23882	0.2351891	0.17125198	3.2115325	20	7 1.7	21.1
507615 2013 CV ₁₉₀	16.6	X	137.32646	307.25357	157.88128	12.98686	0.1510531	0.17447145	3.1719023	20	6 5.6	21.8
507616 2013 CZ ₂₀₅	16.9	X	114.49020	335.27187	143.21357	9.70534	0.1151682	0.17490149	3.1667009	20	5 26.5	21.8
507617 2013 CL ₂₁₀	16.8	X	128.48323	228.14440	235.17285	4.29788	0.1063847	0.17208366	3.2011766	20	5 19.8	21.7
507618 2013 DM ₄	14.8	X	232.98185	306.70876	324.92229	4.82660	0.1818051	0.12551703	3.9506414	20	1 19.0	21.1
507619 2013 ED ₂₁	16.1	X	99.98316	266.33187	204.39148	9.53117	0.0522824	0.15858554	3.3803396	20	4 20.4	21.0
507620 2013 FP ₁	16.2	X	111.95275	99.66203	60.55457	17.86076	0.0841436	0.17540529	3.1606343	20	7 9.4	21.1
507621 2013 FM ₂	18.2	X	293.70607	297.01268	161.25080	23.78243	0.0608685	0.35685240	1.9685372	20	—	—
507622 2013 FK ₁₅	16.6	X	113.41745	145.30510	35.71144	1.80246	0.1098472	0.17898254	3.1183793	20	8 9.4	21.2
507623 2013 GE ₁₇	16.9	X	137.82038	92.08181	33.47734	10.11226	0.1822701	0.17255924	3.1952921	20	7 1.3	22.2
507624 2013 GX ₁₉	17.9	X	325.14109	29.33538	94.43258	24.91216	0.0720283	0.37550299	1.9028028	20	—	—
507625 2013 GS ₂₉	18.1	X	22.40790	273.26443	1.49803	3.63695	0.2189547	0.30655219	2.1783773	20	9 17.5	20.0
507626 2013 GC ₆₉	17.8	X	29.14633	322.27603	50.67194	23.15079	0.0589514	0.35222935	1.9857246	20	—	—
507627 2013 GJ ₉₇	15.9	X	81.40911	289.41365	276.48917	3.64140	0.1194147	0.17261547	3.1945982	20	8 3.4	20.5
507628 2013 GG ₁₁₃	16.4	X	127.89692	309.31285	217.44470	13.28908	0.2295044	0.17444275	3.1722502	20	8 9.2	21.9
507629 2013 GM ₁₁₅	18.2	X	339.79822	274.56388	350.22849	7.30181	0.1352658	0.28878822	2.2668167	20	5 8.2	20.4
507630 2013 HY ₈₄	16.5	X	217.74886	141.08267	287.85269	3.03014	0.1048675	0.17394617	3.1782847	20	7 7.5	21.4
507631 2013 HK ₁₀₁	19.2	X	351.07804	313.52903	32.41166	2.34327	0.1021865	0.32456529	2.0970140	20	10 26.7	21.0
507632 2013 JA ₇	17.9	X	267.64446	113.22870	93.64292	22.25881	0.0870223	0.37598852	1.9011643	20	—	—
507633 2013 JZ ₇	18.0	X	345.55986	232.43860	70.46784	9.74575	0.1779411	0.29380214	2.2409530	20	8 3.9	19.6
507634 2013 JR ₄₁	16.1	X	111.81278	113.38143	80.96647	16.29711	0.2041363	0.17705181	3.1410086	20	9 8.1	21.5
507635 2013 JS ₅₂	17.9	X	267.91022	85.59522	75.16704	23.41684	0.0759556	0.35712119	1.9675494	20	—	—
507636 2013 KZ ₄	18.3	X	348.22404	73.40899	232.60543	7.49789	0.2301252	0.29525203	2.2336105	20	8 12.1	19.6
507637 2013 KG ₇	17.3	X	301.15220	230.22868	84.06496	23.10919	0.2325842	0.27568818	2.3380688	20	5 10.3	20.4
507638 2013 KD ₁₃	18.5	X	22.88280	239.52136	67.96558	4.54842	0.1717052	0.30926114	2.1656377	20	10 31.6	20.6
507639 2013 LU ₃₄	18.2	X	333.22376	66.79645	240.22978	21.43196	0.3091900	0.28410559	2.2916565	20	6 12.9	19.3
507640 2013 MP ₁	15.5	X	3.67141	64.78511	116.68659	9.08089	0.1478111	0.12426858	3.9770571	20	3 17.2	20.4
507641 2013 NP ₂	18.3	X	348.48733	17.92418	268.92481	2.80311	0.2065152	0.27963856	2.3159971	20	7 6.7	19.6
507642 2013 NE ₇	18.2	X	46.04671	36.20250	237.77524	3.03118	0.1514433	0.29932720	2.2132914	20	10 8.8	20.6
507643 2013 NF ₁₂	17.8	X	37.99129	148.19784	135.98035	5.48542	0.1690814	0.29692835	2.2251960	20	10 18.4	20.4
507644 2013 NN ₁₂	17.9	X	307.02666	118.89174	256.27070	6.95031	0.0584121	0.29362356	2.2418615	20	9 8.4	20.3
507645 2013 NH ₁₇	18.2	X	324.84504	33.83038	277.69160	4.24899	0.2236250	0.27440897	2.3453294	20	6 13.8	19.8
507646 2013 OY	18.2	X	32.23342	21.66404	246.97765	5.90321	0.0961423	0.28339786	2.2954703	20	8 26.2	20.8
507647 2013 OV ₁₁	17.2	X	211.07972	284.20009	73.72961	3.34960	0.2206586	0.22587151	2.6703104	20	3 31.2	21.8
507648 2013 PQ ₄	18.3	X	54.85347	327.09667	302.58382	4.49502	0.1011707	0.29874525	2.2161647	20	10 5.2	21.0
507649 2013 PY ₅	18.2	X	341.54476	336.87795	334.90979	6.21737	0.1897065	0.28340933	2.2954083	20	8 5.4	19.6
507650 2013 PB ₁₈	18.5	X	343.07270	144.38387	166.18633	1.90104	0.1846214	0.28040721	2.3117628	20	8 4.7	20.0
507651 2013 PH ₂₇	17.9	X	100.21188	286.99043	297.15181	5.08122	0.1204088	0.29004328	2.2602727	20	9 29.0	21.1
507652 2013 PA ₃₇	18.1	X	96.22950	329.71379	271.22345	4.53722	0.0984521	0.29954254	2.2122305	20	10 17.5	21.2
507653 2013 PK ₄₂	18.0	X	332.58339	323.97495	335.43684	7.72762	0.1916100	0.27013604	2.3699965	20	6 16.4	20.0
507654 2013 PL ₄₄	18.1	X	357.02714	90.93967	199.12720	4.95382	0.1626674	0.28044703	2.3115439	20	8 1.2	19.9
507655 2013 PG ₆₁	17.7	X	290.24089	174.59745	203.72936	6.34027	0.1450520	0.28002733	2.3138530	20	8 2.2	20.1
507656 2013 PN ₇₁	17.9	X	8.50220	0.67320	300.35348	5.59288	0.1892231	0.28809626	2.2704449	20	9 18.9	19.8
507657 2013 QV ₉	18.4	X	274.12067	71.01597	297.30832	1.30463	0.2231247	0.26314424	2.4117936	20	6 10.5	21.3
507658 2013 QX ₁₆	17.6	X	234.74004	23.91333	33.19118	7.80935	0.1853976	0.26582416	2.3955565	20	7 7.1	21.3
507659 2013 QZ ₃₅	18.2	X	284.77377	357.62424	338.15762	5.68540	0.1281764	0.25845164	2.4408993	20	5 23.9	21.3
507660 2013 QH ₈₃	17.9	X	280.55773	133.94860	223.57109	10.88999	0.2550724	0.26348723	2.4097001	20	5 30.3	21.1
507661 2013 QF ₉₂	18.1	X	329.86152	90.79495	250.35640	4.82557	0.1288188	0.28285104	2.2984278	20	8 24.5	20.1
507662 2013 RZ ₁₂	17.8	X	286.56740	351.71204	11.66589	4.98997	0.1977740	0.26488578	2.4012108	20	6 25.9	20.6
507663 2013 RM ₁₈	18.5	X	310.83273	110.79158	217.58324	2.44719	0.2053003	0.26760474	2.3849184	20	6 13.9	20.6
507664 2013 RM ₂₂	17.8	X	355.47929	276.96948	347.27474	8.35549	0.2027095	0.26316133	2.4116892	20	6 12.9	19.7
507665 2013 RA ₂₇	17.9	X	318.45955	276.50337	48.03064	5.63446	0.1297965	0.26582496	2.3955517	20	7 5.5	20.3
507666 2013 RF ₄₁	18.1	X	250.32504	231.47307	164.18852	6.78377	0.1753395	0.25839227	2.4412731	20	6 25.6	21.6
507667 2013 RZ ₄₁	16.6	X	125.20239	76.01842	13.04795	22.31763	0.0545092	0.23162323	2.6259189	20	4 14.6	20.3
507668 2013 RD ₆₈	17.4	X	30.83266	301.42367	323.73740	7.50308	0.1951303	0.27918263	2.3185179	20	9 5.7	19.8
507669 2013 RF ₉₁	18.5	X	266.57389	80.33484	293.59887	1.51286	0.2104545	0.25832466	2.4416991	20	6 10.5	21.6
507670 2013 RW ₉₁	18.0	X	313.58971	4.27246	333.84920	2.88124	0.1451723	0.26591367	2.3950189	20	7 15.6	20.2
507671 2013 RC ₉₃	17.6	X	271.26928	192.33581	199.50012	7.60531	0.1266750	0.26420103	2.4053579	20	7 24.1	20.6
507672 2013 RK ₉₉	17.9	X	257.48708	318.06371	342.22341	1.37976	0.1849138	0.23529760	2.5985099	20	3 1.5	22.1
507673 2013 RL ₁₀₀	16.6	X	311.05515	261.08211	27.05678	7.88156	0.1187973	0.23932840	2.5692511	20	4 28.6	19.7
50												

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>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
507681 2013 SE ₅₃	18.1	X	302.25399	229.27951	124.39364	2.21455	0.1896188	0.26893098	2.3770711	20	7 10.2	20.1
507682 2013 SF ₅₄	18.1	X	309.17241	97.14917	218.81318	1.84802	0.2312543	0.26059549	2.4274937	20	5 17.4	20.6
507683 2013 SA ₆₂	18.1	X	240.77376	229.97562	171.51238	2.07919	0.1670919	0.25800269	2.4437300	20	6 23.6	21.6
507684 2013 SD ₆₂	18.2	X	301.18040	191.18700	149.71072	3.09429	0.1933029	0.26510664	2.3998770	20	6 17.4	20.7
507685 2013 SS ₇₉	18.2	X	63.51917	59.98997	200.02124	2.65255	0.1721248	0.28425638	2.2908460	20	10 13.3	21.2
507686 2013 SL ₈₀	16.6	X	90.89625	105.04002	8.40886	21.96931	0.0517905	0.22436517	2.6822490	20	4 5.2	20.2
507687 2013 SK ₈₄	17.8	X	263.19608	320.83607	121.49109	7.49780	0.2014918	0.27328927	2.3517311	20	9 17.6	20.6
507688 2013 SQ ₈₄	17.5	X	272.91223	81.28216	308.52789	5.66761	0.1107751	0.26882924	2.3776707	20	7 29.2	20.4
507689 2013 SG ₁₀₀	17.7	X	229.35574	192.85991	204.44174	12.63571	0.1670672	0.24257235	2.5462939	20	6 6.0	21.8
507690 2013 TM ₉	17.2	X	294.45178	230.62226	109.68507	6.64033	0.1413155	0.25685782	2.4509861	20	6 14.2	20.0
507691 2013 TV ₁₀	17.4	X	189.66684	205.30509	214.60472	13.94123	0.2338091	0.23514884	2.5996057	20	5 27.1	22.0
507692 2013 TC ₁₂	18.0	X	305.94638	169.40827	183.36437	6.63949	0.1237381	0.26638308	2.3922044	20	7 24.7	20.5
507693 2013 TE ₁₃	18.0	X	308.14804	164.82119	156.96537	2.81756	0.2204373	0.26027737	2.4294713	20	5 27.1	20.5
507694 2013 TZ ₁₈	17.9	X	293.88864	26.73529	301.33093	4.49357	0.2137215	0.25761408	2.4461870	20	5 11.9	20.8
507695 2013 TM ₂₈	17.6	X	271.76473	354.36160	28.25065	4.07860	0.3076326	0.25910961	2.4367653	20	6 14.5	21.0
507696 2013 TO ₄₄	18.2	X	341.51085	44.96500	254.32750	0.69833	0.1777695	0.26326241	2.4110718	20	7 9.6	20.1
507697 2013 TA ₄₆	17.6	X	276.23328	169.57318	121.02708	5.59232	0.1494931	0.26345885	2.4098732	20	7 20.6	20.5
507698 2013 TE ₅₀	18.4	X	278.87235	147.48794	208.91454	0.47718	0.1973872	0.25551496	2.4595661	20	6 4.2	21.4
507699 2013 TD ₆₇	17.7	X	76.31065	352.27861	250.10282	6.98660	0.1923921	0.29242030	2.2480072	20	10 4.7	21.0
507700 2013 TJ ₇₂	18.0	X	304.78491	34.81320	303.38392	1.79768	0.2147175	0.26238318	2.4164551	20	6 15.6	20.4
507701 2013 TH ₈₀	18.3	X	261.75320	264.92163	102.48176	2.26762	0.1975732	0.25328365	2.4739900	20	5 28.9	21.8
507702 2013 TY ₈₂	18.1	X	275.22126	43.25076	322.30189	4.98038	0.1258989	0.25570136	2.4583706	20	6 23.9	21.1
507703 2013 TB ₉₁	18.0	X	324.01266	5.46257	4.69228	7.39055	0.0932010	0.28017080	2.3130631	20	10 1.1	20.1
507704 2013 TB ₉₄	16.8	X	139.49626	38.27638	42.05844	13.51975	0.1416684	0.22062710	2.7124608	20	5 4.4	20.9
507705 2013 TD ₉₄	17.9	X	196.26009	23.10617	48.11323	6.07623	0.2227521	0.23919528	2.5702043	20	6 14.8	22.3
507706 2013 TH ₁₀₈	18.1	X	258.56958	273.10061	122.96269	2.32720	0.1882098	0.25741388	2.4474552	20	7 4.4	21.3
507707 2013 TK ₁₀₈	16.6	X	183.27410	351.74523	38.58434	13.89552	0.0880883	0.22476498	2.6790673	20	4 16.1	20.6
507708 2013 TP ₁₂₈	17.0	X	265.43111	279.11018	345.35153	11.82507	0.2326706	0.22631958	2.6667847	20	1 25.8	21.4
507709 2013 TV ₁₂₈	17.6	X	233.79633	222.44375	224.83851	5.80167	0.1883891	0.26863408	2.3788222	20	8 12.4	21.1
507710 2013 TU ₁₃₆	17.0	X	262.53578	273.27037	18.38021	28.83027	0.3065469	0.23342298	2.6124038	20	3 1.5	21.9
507711 2013 TR ₁₃₉	18.3	X	262.56979	185.58849	175.89278	1.12773	0.1996314	0.25462961	2.4652641	20	5 21.6	21.6
507712 2013 TX ₁₄₀	18.1	X	219.74461	60.66649	35.39705	3.31819	0.1777507	0.26343737	2.4100042	20	8 13.6	21.6
507713 2013 TU ₁₆₁	16.4	X	14.47281	13.14891	207.13141	13.31347	0.1065057	0.23568714	2.5956460	20	5 15.2	19.2
507714 2013 UN	17.1	X	221.83534	122.78784	237.65389	30.16489	0.3092926	0.23460886	2.6035931	20	3 31.9	22.4
507715 2013 UE ₈	18.4	X	234.02200	267.45624	163.58348	3.96463	0.2233097	0.25641899	2.4537817	20	7 18.9	22.3
507716 2013 UP ₈	16.4	X	288.35874	187.35147	55.17801	47.76226	0.6175426	0.24356147	2.5393954	20	—	—
507717 2013 UL ₁₁	18.2	X	229.01449	346.00458	92.09098	4.43299	0.2016659	0.25597896	2.4565929	20	7 26.6	21.9
507718 2013 US ₁₆	16.4	X	304.19833	270.93153	29.68459	12.31397	0.1790805	0.23779316	2.5802977	20	4 25.8	19.5
507719 2013 UT ₁₆	17.2	X	226.65658	151.41029	244.72313	8.03592	0.0904015	0.23734870	2.5835179	20	6 8.2	21.0
507720 2013 UV ₁₆	16.2	X	208.35039	306.38627	64.62219	15.79496	0.1403205	0.22070436	2.7118278	20	4 20.5	20.7
507721 2013 VK ₄	16.4	X	205.36886	45.67353	9.21466	32.01038	0.2344385	0.23490641	2.6013940	20	5 19.2	21.5
507722 2013 VE ₁₄	17.5	X	200.79675	210.37649	243.85894	9.68803	0.1087354	0.25175685	2.4839824	20	7 22.5	21.3
507723 2013 VX ₁₇	17.2	X	219.14234	24.96518	18.30442	5.91935	0.2358001	0.23858439	2.5745897	20	5 28.5	21.6
507724 2013 VW ₂₄	17.5	X	187.55699	200.00537	251.30753	3.12905	0.1336183	0.23664720	2.5886210	20	7 5.2	21.5
507725 2013 WD ₂₅	16.4	X	264.54617	243.74071	67.99111	12.93504	0.1568041	0.21761285	2.7374510	20	4 2.7	20.7
507726 2013 VJ ₁₂	17.8	X	224.96226	226.65090	156.06723	1.65450	0.1564014	0.23219308	2.6216207	20	5 14.7	21.8
507727 2013 WF ₂₂	16.6	X	96.38548	49.88473	88.51340	14.73927	0.1560558	0.21691193	2.7433450	20	6 4.2	20.5
507728 2013 WZ ₄₇	16.4	X	173.76001	6.01448	22.88022	17.97083	0.1378774	0.21541502	2.7560392	20	4 6.0	20.7
507729 2013 WJ ₅₃	16.8	X	283.05975	43.81106	287.01894	9.77055	0.0878980	0.23573710	2.5952793	20	5 21.4	20.2
507730 2013 WA ₅₈	16.9	X	81.02189	300.21600	230.64963	10.91967	0.0185513	0.23088481	2.6315148	20	6 6.0	20.4
507731 2013 WG ₆₁	17.0	X	237.84494	275.62718	69.90171	29.83179	0.2922163	0.23422835	2.6064120	20	4 17.4	22.1
507732 2013 WC ₆₆	17.5	X	210.31813	217.18774	214.33919	5.77459	0.2369928	0.24002652	2.5642670	20	6 26.3	21.9
507733 2013 WH ₆₉	17.4	X	253.35580	1.68916	49.99999	6.98278	0.1131455	0.25739491	2.4475754	20	8 2.5	20.6
507734 2013 WB ₇₀	18.1	X	231.15834	132.57977	255.28905	6.05426	0.2823842	0.24074709	2.5591477	20	5 16.9	22.5
507735 2013 WM ₉₇	16.9	X	241.34168	129.38417	255.92086	16.78005	0.1963493	0.24025526	2.5626391	20	5 30.4	21.0
507736 2013 WO ₁₁₀	15.9	X	168.09891	166.23703	268.69557	21.24284	0.0537572	0.22672339	2.6636173	20	5 23.3	19.9
507737 2013 WQ ₁₁₀	16.3	X	127.12171	184.11666	271.66658	11.96236	0.1549455	0.21287358	2.7779315	20	5 11.0	20.6
507738 2013 XP	16.5	X	261.04726	31.42449	335.23011	10.26053	0.2467024	0.24050192	2.5608866	20	5 17.5	20.6
507739 2013 XR ₁₀	16.4	X	216.43766	134.20430	252.44996	13.59446	0.1221975	0.23073969	2.6326180	20	5 11.9	20.4
507740 2013 XO ₁₁	17.4	X	204.65886	48.44924	37.95339	4.39425	0.1782470	0.23622596	2.5916975	20	7 14.6	21.6
507741 2013 XN ₁₃	17.5	X	141.60861	99.78296	70.76916	6.03844	0.1827113	0.24268918	2.5454766	20	9 4.9	21.7
507742 2013 XD ₁₅	17.4	X	256.84018	298.31319	67.04604	3.74839	0.0607290	0.23335092	2.6129416	20	6 7.8	21.0
507743 2013 XU ₁₇	16.6	X	175.11801	136.32434	253.59737	14.04580	0.1477289	0.20358964	2.8617538	20	4 2.7	21.4
507744 2013 XL ₂₄	16.7	X	183.03568	51.84415	53.49532	14.38530	0.1320256	0.23036906	2.6354409	20	7 21.5	21.1
507745 2013 YW ₉	16.7	X	189.94800	337.40837	112.00730	22.74192	0.0320159	0.22622347	2.6675400	20	7 9.3	20.5
507746 2013 YP ₁₁	17.3	X	199.86142	27.67997	67.99681	5.73406	0.2499804	0.23361240	2.6109915	20	7 18.3	21.9
507747 2013 YG ₁₃	17.1	X	223.89834	330.90078	76.88466	10.09218	0.1552171	0.23800157	2.5787911	20	6 14.3	21.0
507748 2013 YB ₁₅	17.1	X	126.71678	279.11272	256.26173	11.40710	0.2052326	0.23864018	2.5741885	20	8 20.8	21.6
507749 2013 YF ₁₇	17.0	X	218.43982	289.74126	128.00578	6.05266	0.2191983	0.23033682	2.6356868	20	6 17.6	21.4
507750 2013 YT ₁₇	16.3	X	134.63063	122.16360	293.57989	21.59648	0.1201791	0.18874576	3.0098943	20	3 17.0	21.3
507751 2013 YP ₂₀	15.4	X	191.51949	203.10569	104.73283	11.12338	0.0312239	0.16018003	3.3578694	20	1 20.0	20.4
507752 2013 YY ₂₆	17.0	X	144.23759	49.85854	90.17663	3.34534	0.1425936	0.22558700	2.6725551	20	7 25.5	21.2
507753 2013 YH ₃₀	17.3	X	131.80879	194.87837	289.59072	8.93564	0.2159579	0.209847				

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>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>		
507761	2013	YX ₇₄	17.5	X	199.00568	145.50045	295.80477	4.58660	0.1521575	0.22883382	2.6472152	20	7 3.1	21.6
507762	2013	YK ₈₈	16.7	X	187.97668	330.85362	98.44701	5.67231	0.0476231	0.21262513	2.7800951	20	6 9.3	20.8
507763	2013	YN ₈₉	17.1	X	185.06908	352.51521	116.03343	13.24076	0.1951137	0.22947289	2.6422979	20	7 23.2	21.4
507764	2013	YD ₉₃	16.2	X	261.24764	232.88242	85.35834	12.18429	0.1429422	0.20331935	2.8642895	20	4 9.4	20.7
507765	2013	YR ₁₀₁	17.2	X	216.33099	355.51596	43.40009	7.79048	0.1098717	0.22323891	2.6912629	20	5 28.5	21.3
507766	2013	YK ₁₀₂	17.1	X	137.97567	266.49689	201.49461	3.22128	0.0516600	0.20896345	2.8124782	20	5 31.4	21.0
507767	2013	YG ₁₀₃	16.2	X	100.53682	110.90568	311.53038	2.27805	0.1033719	0.19080724	2.9881758	20	2 25.7	20.3
507768	2013	YW ₁₀₅	17.0	X	202.51310	307.51399	102.72194	6.60333	0.0257656	0.21792505	2.7348359	20	6 3.3	20.8
507769	2013	YJ ₁₀₆	17.3	X	208.21522	284.10458	110.29769	14.17581	0.2082797	0.22083441	2.7107630	20	5 15.7	22.1
507770	2013	YT ₁₀₇	17.4	X	251.97589	73.37245	293.12076	3.67972	0.0932788	0.23406087	2.6076553	20	5 29.1	21.1
507771	2013	YK ₁₀₉	16.9	X	147.51301	8.17757	118.25956	12.16558	0.0200150	0.22283143	2.6945428	20	7 4.4	20.6
507772	2013	YH ₁₁₃	17.2	X	240.38304	262.82938	100.20312	6.78927	0.0063694	0.20898243	2.8123079	20	5 23.2	21.0
507773	2013	YR ₁₁₆	16.3	X	30.29107	217.29370	319.96166	18.11024	0.0593438	0.18521854	3.0479868	20	3 31.1	20.7
507774	2013	YC ₁₂₃	16.8	X	177.94244	341.51983	112.89103	22.66904	0.0160982	0.22363400	2.6880922	20	7 1.6	20.5
507775	2013	YN ₁₃₀	16.7	X	3.50884	172.00562	70.89125	10.80445	0.0825862	0.20990328	2.8040767	20	5 27.6	20.0
507776	2013	YQ ₁₃₂	17.2	X	103.55158	119.94345	16.21198	7.08357	0.0624649	0.20963894	2.8064335	20	5 25.1	21.2
507777	2013	YX ₁₅₁	17.1	X	173.07881	226.99156	184.97174	1.85418	0.0632904	0.20311864	2.8661760	20	4 30.9	21.4
507778	2013	YY ₁₅₁	17.6	X	220.06540	216.32508	189.61546	3.69148	0.1460415	0.22469139	2.6796522	20	6 9.1	21.8
507779	2013	YZ ₁₅₁	17.6	X	142.70574	203.57144	281.72572	2.95985	0.0416137	0.21919628	2.7242519	20	6 28.0	21.5
507780	2014	AE ₈	17.3	X	151.76389	33.08860	89.37542	12.43082	0.1829272	0.22049607	2.7135354	20	7 11.3	21.7
507781	2014	AF ₁₂	16.8	X	177.80302	320.53373	97.33909	12.80093	0.1689501	0.22352604	2.6889577	20	5 17.7	21.3
507782	2014	AF ₁₄	17.0	X	118.23785	197.62742	289.69190	14.17089	0.0941836	0.20115011	2.8848453	20	6 6.1	21.4
507783	2014	AK ₃₈	17.3	X	114.64971	7.00654	115.91125	5.93794	0.0592209	0.20832691	2.8182043	20	5 24.3	21.3
507784	2014	AJ ₄₄	17.1	X	132.48700	195.31378	286.73430	9.16178	0.2206547	0.21410055	2.7673082	20	6 25.5	21.7
507785	2014	AR ₅₁	16.6	X	195.97681	36.10737	112.71924	35.11405	0.2442431	0.23902417	2.5714308	20	10 1.8	21.6
507786	2014	AF ₅₆	16.4	X	10.42479	254.87906	303.13834	20.42061	0.1337333	0.17952123	3.1121379	20	3 27.0	20.6
507787	2014	AT ₅₆	16.9	X	212.69343	208.67853	180.93085	4.30877	0.1142114	0.20897336	2.8123893	20	5 14.6	21.2
507788	2014	AU ₅₆	16.0	X	10.19759	274.42521	320.43253	13.17139	0.1093659	0.19292424	2.9662758	20	5 25.2	19.8
507789	2014	BF ₄	17.6	X	181.48893	274.70890	156.81144	2.35793	0.2167019	0.21943953	2.7222383	20	6 3.8	22.2
507790	2014	BD ₆	17.5	X	181.22557	333.52896	120.29602	3.86653	0.1646931	0.22131781	2.7068144	20	7 1.4	21.8
507791	2014	BP ₇	17.4	X	111.73901	34.15539	125.16401	5.94523	0.0908798	0.21170617	2.7881344	20	7 9.9	21.5
507792	2014	BX ₉	16.8	X	157.81271	63.06193	77.90764	13.60519	0.2078037	0.22905134	2.6455389	20	8 13.4	21.5
507793	2014	BO ₁₃	17.0	X	212.14047	92.87240	314.04243	13.26676	0.1981937	0.21921078	2.7241318	20	5 28.4	21.8
507794	2014	BJ ₁₅	17.2	X	156.18947	95.82797	38.77794	13.35138	0.2107277	0.22573994	2.6713478	20	8 4.9	22.0
507795	2014	BG ₁₉	17.2	X	111.22672	4.61537	137.89185	9.64971	0.0561005	0.20679368	2.8321171	20	6 13.9	21.3
507796	2014	BZ ₂₁	16.5	X	0.92475	260.29668	309.16037	8.41246	0.1118681	0.18059391	3.0998022	20	4 3.6	20.4
507797	2014	BH ₂₉	16.6	X	349.53828	90.85569	136.70641	16.59168	0.1103265	0.18720948	3.0263385	20	4 19.8	20.6
507798	2014	BU ₃₇	16.5	X	239.68898	281.37485	156.86048	14.56691	0.0910666	0.23184532	2.6242417	20	8 18.6	20.2
507799	2014	BV ₅₇	17.1	X	218.45425	73.54705	348.19731	28.31348	0.3781637	0.23463774	2.6033795	20	6 11.5	22.5
507800	2014	BR ₆₀	16.9	X	123.94293	34.10803	119.60612	6.11002	0.0954873	0.21398585	2.7682970	20	7 17.4	21.0
507801	2014	BZ ₆₃	17.5	X	212.92686	328.99201	82.83366	6.16766	0.1574464	0.22064503	2.7123139	20	6 8.5	21.9
507802	2014	BL ₆₅	17.4	X	182.96956	276.01308	166.25474	4.78983	0.0383102	0.21312860	2.7757152	20	6 20.2	21.3
507803	2014	BR ₆₅	16.5	X	250.59838	21.10375	312.82801	8.22869	0.0839844	0.19507505	2.9444322	20	4 13.7	20.9
507804	2014	CS ₂₂	16.0	X	25.68295	234.11936	322.84086	15.32962	0.1515200	0.18281281	3.0746685	20	4 28.2	20.0
507805	2014	CY ₂₂	16.1	X	200.46654	138.27513	340.77548	33.02936	0.2209454	0.23350785	2.6117708	20	8 24.4	20.5
507806	2014	DF ₄	16.3	X	149.14645	135.39800	304.01832	13.56219	0.0505520	0.19323799	2.9630640	20	5 2.6	20.9
507807	2014	DF ₅	16.3	X	332.57884	329.01338	293.98123	9.47419	0.0636199	0.19042785	2.9921434	20	5 4.0	20.3
507808	2014	DH ₉	17.5	X	207.63282	137.51404	329.04610	3.60267	0.1655055	0.23399627	2.6081352	20	8 12.6	21.5
507809	2014	DB ₁₄	15.8	X	44.21432	170.54372	8.99753	17.24419	0.1136308	0.18301556	3.0723973	20	5 3.5	19.9
507810	2014	DJ ₂₁	16.7	X	183.33296	44.74240	114.08522	15.36644	0.0862004	0.23816558	2.5776071	20	10 6.6	20.8
507811	2014	DG ₃₀	16.3	X	287.76621	340.70037	310.71520	8.83452	0.0238145	0.18544136	3.0455447	20	4 13.9	20.7
507812	2014	DF ₃₅	16.8	X	191.71922	319.62611	74.80894	3.36698	0.1293587	0.18950126	3.0018892	20	4 29.8	21.6
507813	2014	DB ₃₈	17.4	X	232.29647	281.59959	165.06563	5.12162	0.2362227	0.23368454	2.6104541	20	8 3.7	21.5
507814	2014	DY ₄₀	17.3	X	229.31298	320.55021	121.22756	6.51368	0.1945287	0.23250918	2.6192441	20	7 30.7	21.1
507815	2014	DM ₅₄	16.8	X	123.50811	110.23688	14.55338	3.21089	0.0783595	0.19296712	2.9658362	20	6 6.8	21.2
507816	2014	DK ₅₉	16.2	X	97.07281	338.73125	154.52039	16.38363	0.0235219	0.18314108	3.0709933	20	5 14.1	20.8
507817	2014	DF ₇₃	16.5	X	131.02721	50.85693	34.22030	11.81392	0.0690618	0.17718264	3.1394623	20	4 25.9	21.1
507818	2014	DJ ₇₈	17.3	X	217.73380	99.73185	17.12034	13.22477	0.2276239	0.23681052	2.5874307	20	9 4.5	21.5
507819	2014	DQ ₁₀₃	16.6	X	332.26645	262.79603	328.81227	4.33656	0.0735069	0.17832183	3.1260772	20	3 25.5	20.7
507820	2014	DL ₁₁₇	16.1	X	328.91604	140.99454	97.47372	6.70504	0.1109457	0.16973880	3.2305909	20	3 31.1	20.4
507821	2014	DJ ₁₂₁	16.3	X	46.06499	207.33383	339.74973	9.50227	0.0455289	0.18728885	3.0254834	20	5 10.8	20.6
507822	2014	DF ₁₂₃	16.8	X	74.28840	100.54304	67.13478	0.75973	0.0930291	0.18987341	2.9979654	20	6 3.6	20.8
507823	2014	DD ₁₂₆	16.2	X	190.62119	54.20588	334.84240	9.48345	0.0740015	0.18557699	3.0440607	20	4 17.7	21.0
507824	2014	DP ₁₃₄	16.5	X	109.70127	306.05467	149.76443	10.52053	0.0739812	0.17624354	3.1506046	20	4 18.9	21.1
507825	2014	DO ₁₄₂	17.4	X	200.11775	35.93964	75.30891	7.94533	0.3062964	0.23385678	2.6091722	20	8 5.5	22.2
507826	2014	DT ₁₄₅	16.7	X	181.50314	98.95216	343.00902	11.12978	0.1837096	0.21359754	2.7716511	20	6 16.3	21.5
507827	2014	DV ₁₄₅	17.4	X	182.76256	296.15594	182.35377	3.22524	0.0419458	0.21408686	2.7674261	20	8 5.8	21.4
507828	2014	DE ₁₄₆	16.1	X	252.45885	6.66081	308.30725	8.93343	0.0243227	0.18057694	3.0999964	20	3 30.7	20.7
507829	2014	EC ₃	16.1	X	355.35908	95.81979	152.00685	11.04398	0.0789408	0.18576111	3.0420489</			

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>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>		
507841	2014	FA ₂₂	16.8	X	219.35421	194.51363	199.11535	11.60233	0.0505561	0.19556348	2.9395276	20	5 31.6	21.2
507842	2014	FT ₂₃	15.9	X	117.75928	175.80654	307.63298	8.67486	0.0706164	0.19137033	2.9823113	20	5 27.5	20.4
507843	2014	FA ₂₇	16.1	X	17.77661	251.52544	315.39511	4.20186	0.0696744	0.17812360	3.1283961	20	4 29.7	20.3
507844	2014	FQ ₅₃	16.1	X	118.38623	76.52774	59.23838	7.08746	0.1263279	0.18779959	3.0199954	20	6 20.1	20.6
507845	2014	FM ₇₃	15.8	X	10.11451	236.90134	28.02110	10.82191	0.0725978	0.18616063	3.0376949	20	7 7.7	19.9
507846	2014	FN ₇₃	16.0	X	273.31217	307.59644	38.28113	14.41111	0.0948752	0.18052729	3.1005647	20	5 26.6	20.5
507847	2014	GM ₁	17.3	X	231.24858	75.70369	48.23150	7.45680	0.5284063	0.24593525	2.5230287	20	8 29.3	22.1
507848	2014	GV ₆	16.0	X	54.81103	159.47656	14.54673	28.86962	0.1586279	0.17879048	3.1206121	20	5 12.5	20.4
507849	2014	HX ₆	16.4	X	74.42066	137.51035	10.37667	11.92204	0.1224242	0.17759100	3.1346478	20	5 9.9	20.9
507850	2014	GY ₁₅	16.8	X	25.55975	74.45816	142.77758	4.21046	0.1398592	0.17998629	3.1067748	20	6 2.5	20.4
507851	2014	GX ₃₅	16.3	X	70.05425	14.99814	174.08137	15.63931	0.0517486	0.18851386	3.0123622	20	6 20.2	20.7
507852	2014	GD ₄₄	16.7	X	55.64496	327.40759	232.46180	15.31075	0.2028263	0.18192345	3.0846810	20	7 4.0	20.9
507853	2014	GB ₄₆	15.5	X	335.68191	165.15783	88.49639	16.92294	0.0459378	0.17527765	3.1621685	20	5 7.9	20.0
507854	2014	HL ₁₀	16.5	X	147.70065	248.91722	205.60377	20.75746	0.1461029	0.18133313	3.0913721	20	5 31.5	21.7
507855	2014	HE ₁₁	15.7	X	312.00135	110.33733	173.66960	11.26142	0.0449352	0.17684121	3.1435202	20	5 10.8	20.1
507856	2014	HQ ₁₃₇	16.8	X	94.45051	299.55790	191.26679	11.83912	0.1684802	0.17530646	3.1618221	20	5 25.1	21.5
507857	2014	HC ₁₃₉	15.8	X	210.47916	280.78068	64.52144	8.94037	0.0588663	0.15071636	3.4970012	20	3 28.1	21.1
507858	2014	HM ₁₄₇	16.5	X	11.52395	347.33927	219.68965	1.95705	0.0168658	0.17222234	3.1994578	20	4 21.8	20.7
507859	2014	HP ₁₅₀	16.9	X	119.56935	106.58090	18.48004	9.58078	0.1540230	0.19112015	2.9849134	20	6 9.7	21.7
507860	2014	HX ₁₅₀	16.0	X	66.27669	122.14565	40.89495	21.15879	0.1814534	0.17219220	3.1998312	20	5 26.7	20.4
507861	2014	HM ₁₅₄	15.9	X	142.17201	47.69728	34.67567	26.44257	0.1750767	0.17322879	3.1870534	20	5 8.5	21.2
507862	2014	HN ₁₆₈	15.7	X	69.78529	313.15855	227.50198	17.29349	0.1853183	0.17790501	3.1309582	20	6 26.0	20.2
507863	2014	HU ₁₈₂	16.0	X	50.60101	23.95355	165.87912	19.24682	0.0560465	0.16760925	3.2578974	20	5 29.0	20.8
507864	2014	HS ₁₈₃	16.5	X	78.41874	103.14064	61.65521	16.32127	0.2247008	0.17890630	3.1192652	20	6 23.4	21.1
507865	2014	HU ₁₈₄	15.6	X	224.87194	303.65199	108.93792	25.54427	0.1175573	0.18860214	3.0114221	20	6 25.6	20.3
507866	2014	JF ₉	16.5	X	109.28638	274.19455	214.89303	17.73158	0.1090086	0.17264472	3.1942373	20	5 31.1	21.4
507867	2014	JJ ₁₅	18.5	X	136.83114	194.75814	72.60328	23.71243	0.0467774	0.40306011	1.8150538	20	—	—
507868	2014	JA ₃₈	16.1	X	27.13925	179.27435	68.57992	18.78761	0.0534336	0.18124919	3.0923265	20	7 7.3	20.4
507869	2014	JP ₅₃	15.6	X	90.95508	275.32968	227.26991	24.00514	0.1968575	0.17314744	3.1880515	20	6 6.0	20.5
507870	2014	JM ₅₅	18.6	X	244.82221	295.84218	180.37724	22.96423	0.0495878	0.38648667	1.8665790	20	12 2.1	20.8
507871	2014	JQ ₇₆	15.9	X	81.87553	347.80439	177.01961	21.44821	0.1110660	0.16769972	3.2567255	20	6 13.4	20.9
507872	2014	KF ₇	16.8	X	118.53695	344.24256	229.24299	9.46197	0.1084099	0.21378984	2.7699888	20	9 23.8	21.2
507873	2014	KU ₁₉	16.8	X	86.90368	85.70342	81.44958	6.95061	0.1776533	0.18165554	3.0877132	20	7 1.1	21.2
507874	2014	KN ₂₅	16.3	X	197.73782	355.49340	82.40287	11.66974	0.0302209	0.18035150	3.1025792	20	7 1.6	20.7
507875	2014	KR ₃₈	18.1	X	0.67719	275.47423	104.09959	23.68724	0.1254980	0.38853798	1.8600034	20	—	—
507876	2014	KK ₄₃	16.0	X	226.35917	259.09145	158.05343	12.21282	0.0783838	0.18041091	3.1018981	20	7 4.5	20.8
507877	2014	MG ₂₆	15.5	X	49.03132	292.47538	313.30517	20.85688	0.1687756	0.17275957	3.1928215	20	8 17.1	19.8
507878	2014	MX ₃₃	16.4	X	88.33914	263.80951	301.78739	16.43571	0.1593431	0.17046033	3.2214681	20	8 13.4	20.3
507879	2014	MD ₃₈	17.4	X	119.59113	122.23002	117.50722	24.30531	0.0807896	0.35909484	1.9603334	20	12 2.5	20.3
507880	2014	MX ₄₁	16.5	X	187.20048	11.40932	125.43567	26.81031	0.1587746	0.22498965	2.6772835	20	9 3.5	21.0
507881	2014	MK ₅₇	18.4	X	129.70667	302.73105	305.21114	18.52464	0.0456024	0.37124017	1.9173412	20	12 26.4	20.7
507882	2014	NQ ₄₇	18.0	X	274.40498	244.23408	261.92297	19.80247	0.0819710	0.39017260	1.8548048	20	—	—
507883	2014	OO ₁₉₃	18.0	X	119.22015	141.98465	152.43271	22.64286	0.0596832	0.37389307	1.9082610	20	—	—
507884	2014	OJ ₂₄₄	18.3	X	168.70942	4.81694	32.19867	3.69504	0.1313239	0.28601011	2.2814719	20	4 6.0	21.6
507885	2014	OO ₃₄₄	18.3	X	276.95843	94.65414	328.21874	17.35270	0.0989077	0.34987830	1.9946102	20	10 1.1	20.3
507886	2014	PH ₅₃	18.5	X	50.82558	334.13606	338.68061	17.92060	0.0435504	0.35347331	1.9810631	20	12 3.8	21.2
507887	2014	PW ₆₆	18.8	X	21.58147	32.44905	315.14889	17.26711	0.0698433	0.36140259	1.9519793	20	12 25.8	21.1
507888	2014	QD ₁₆₉	18.0	X	157.67024	299.87112	273.43549	17.09931	0.0424263	0.36724836	1.9312099	20	12 10.8	20.0
507889	2014	QA ₃₂₈	18.4	X	323.70177	257.73229	173.84175	21.56507	0.0760808	0.35485562	1.9759150	20	—	—
507890	2014	QB ₄₀₉	18.6	X	265.94513	183.23534	184.94890	3.03298	0.2481258	0.29636348	2.2280226	20	5 28.3	21.6
507891	2014	QM ₄₄₂	18.2	X	77.44765	287.56715	0.28799	18.98929	0.0736538	0.35970775	1.9581059	20	12 7.3	21.0
507892	2014	RG ₁₂	17.3	X	49.19937	91.86255	250.40466	17.96978	0.0898355	0.36402065	1.9426089	20	—	—
507893	2014	SG ₂₁₇	18.1	X	83.57559	280.28378	59.90797	22.42638	0.1091501	0.36331421	1.9451262	20	—	—
507894	2014	ST ₂₆₁	17.3	X	209.84685	310.87224	248.08203	19.42553	0.0639381	0.36656563	1.9336039	20	—	—
507895	2014	SH ₂₆₂	18.4	X	145.69555	335.71214	328.12834	19.07516	0.0747780	0.39018761	1.8547572	20	—	—
507896	2014	SV ₃₅₀	18.4	X	326.49768	241.96662	175.87457	23.93269	0.1273372	0.35085036	1.9909244	20	—	—
507897	2014	SL ₃₅₁	18.7	X	320.20613	228.85602	221.55326	20.23015	0.0558229	0.37132201	1.9170595	20	—	—
507898	2014	TS ₁₇	18.3	X	252.40767	251.50580	259.36017	17.13335	0.0499106	0.36839553	1.9271986	20	—	—
507899	2014	TU ₃₄	17.8	X	82.67129	251.21545	50.64248	22.13710	0.0672617	0.35541964	1.9738240	20	—	—
507900	2014	TO ₈₆	18.0	X	356.46477	162.23541	213.88935	20.73174	0.0782176	0.34975384	1.9950834	20	12 23.1	20.4
507901	2014	UZ ₁₁	18.5	X	266.61510	32.67894	349.59261	4.02294	0.2145790	0.30283380	2.1961727	20	6 22.9	21.1
507902	2014	UX ₅₀	18.4	X	292.24275	344.61049	41.66515	4.64052	0.1761112	0.31026520	2.1609630	20	8 23.7	20.0
507903	2014	UE ₁₁₉	17.8	X	288.23535	55.46318	261.09248	1.23874	0.2328455	0.28936436	2.2638068	20	4 14.4	20.6
507904	2014	UB ₁₄₈	17.8	X	318.60662	258.99289	41.82941	6.19587	0.1797724	0.29202672	2.2500266	20	5 19.3	19.8
507905	2014	US ₂₂₇	17.7	X	259.42332	201.71357	173.13907	5.81439	0.1184841	0.27387407	2.3483822	20	6 16.9	20.8
507906	2014	VY ₁	17.6	X	221.82118	132.68628	106.63134	22.70114	0.0421569	0.38260415	1.8791852	20	—	—
507907	2014	VX ₂₂	17.8	X	191.42907	257.70785	242.43067	4.39922	0.0670283	0.30789914	2.1720196	20	9 22.9	20.6
507908	2014	VS ₃₀	18.7	X	302.39979	329.33043	63.17688	5.38666	0.1885023	0.31865574	2.1228609	20	9 29.9	19.8
507909	2014	WQ ₃	18.7	X	353.44513	3.19917	64.61190	24.04565	0.0974221	0.35807613	1.9640497	20	—	—
507910	2014	WU ₆₉	17.1	X	239.85948	302.7614								

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>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>		
507921	2014	WH ₅₁₆	16.9	X	191.35416	107.02980	255.48364	5.27270	0.0754593	0.22242152	2.6978523	20	3 15.9	21.0
507922	2014	XA ₈	17.6	X	285.69336	259.69292	276.71083	22.21016	0.1216787	0.36619212	1.9349217	20	—	—
507923	2014	XX ₃₇	17.1	X	140.45707	73.89085	98.33154	7.98536	0.0432644	0.27985084	2.3148257	20	9 6.4	20.2
507924	2014	XH ₃₈	17.1	X	87.16780	291.50466	296.65557	10.39286	0.1861113	0.26546562	2.3977129	20	9 20.4	20.8
507925	2014	YK ₅	17.1	X	50.55236	273.72495	308.32565	5.51570	0.0762786	0.25818816	2.4425596	20	7 14.9	19.9
507926	2014	YY ₃₃	17.5	X	290.27732	118.68806	284.98146	7.22524	0.0803632	0.30085269	2.2058033	20	9 22.2	19.8
507927	2014	YC ₅₄	18.0	X	82.48406	187.08300	26.01365	7.87263	0.0574598	0.27039582	2.3684782	20	8 19.0	21.1
507928	2014	YD ₅₄	18.1	X	136.40369	102.33382	63.90969	9.03887	0.0213158	0.27573906	2.3377812	20	8 22.8	21.2
507929	2015	AK ₁₄	16.4	X	86.81867	96.96650	59.70675	15.77549	0.0807532	0.24456444	2.5324478	20	6 2.8	19.6
507930	2015	AF ₁₅	16.9	X	209.15182	351.68554	31.51742	12.88662	0.1226393	0.24595305	2.5229070	20	4 29.4	20.8
507931	2015	AM ₃₉	17.5	X	52.61807	147.58575	103.74243	8.57581	0.0799786	0.27522843	2.3406718	20	9 4.7	20.4
507932	2015	AS ₄₁	18.6	X	292.78388	280.27622	87.14911	3.24097	0.2370924	0.29083699	2.2561586	20	7 6.8	20.7
507933	2015	AQ ₁₀₈	17.5	X	6.29473	35.42323	272.16993	4.52269	0.2058636	0.28574889	2.2828621	20	9 27.8	19.5
507934	2015	AM ₁₂₃	18.3	X	242.96609	181.43781	273.41087	3.52127	0.0215523	0.29484332	2.2356742	20	10 4.2	20.9
507935	2015	AL ₁₂₅	18.0	X	154.63610	208.93051	298.59131	6.19990	0.0436369	0.27479981	2.3431050	20	8 15.1	21.1
507936	2015	AZ ₁₅₆	18.1	X	228.85837	153.00038	301.44603	6.59684	0.0563011	0.28775359	2.2722471	20	9 5.5	21.0
507937	2015	AI ₁₅₉	18.2	X	220.09464	159.94724	301.85925	5.54109	0.1126557	0.28752349	2.2734592	20	8 28.3	21.3
507938	2015	AR ₁₇₈	18.3	X	250.80584	71.37481	350.80959	2.01510	0.1728000	0.28818992	2.2699530	20	8 5.3	21.1
507939	2015	AQ ₁₉₂	17.2	X	302.75769	316.01704	344.44000	3.24973	0.1836578	0.24436255	2.5338425	20	4 21.9	20.1
507940	2015	AS ₁₉₆	17.8	X	68.01169	236.50338	351.88399	2.48500	0.1319423	0.26305915	2.4123136	20	8 28.2	20.9
507941	2015	AA ₂₁₀	18.9	X	291.18557	8.34008	38.02887	4.16305	0.1837931	0.30602119	2.1808965	20	9 22.3	20.3
507942	2015	AY ₂₂₃	17.7	X	131.55699	287.66372	257.59965	8.66857	0.1534222	0.27296538	2.3535910	20	9 8.4	21.5
507943	2015	AM ₂₂₄	16.7	X	340.98168	31.03856	250.98593	11.98574	0.2559111	0.24134905	2.5548906	20	5 30.6	18.6
507944	2015	AF ₂₃₃	16.8	X	25.21848	1.44194	265.79664	5.67239	0.0903451	0.25790486	2.4443480	20	8 9.1	19.5
507945	2015	AM ₂₃₉	17.0	X	318.51960	56.06281	263.29422	5.06720	0.1280815	0.25482396	2.4640104	20	6 26.4	19.5
507946	2015	AE ₂₄₅	17.7	X	158.76021	42.54395	94.63722	11.70385	0.1033161	0.26023281	2.4297486	20	8 8.9	21.4
507947	2015	AE ₂₅₃	18.4	X	224.77251	133.61239	317.70824	5.79478	0.1090982	0.28470615	2.2884327	20	8 20.8	21.2
507948	2015	AF ₂₆₃	18.0	X	259.91108	105.27780	327.55140	2.90489	0.1532284	0.29080802	2.2563084	20	9 5.8	20.5
507949	2015	AT ₂₆₄	17.7	X	88.37641	149.13273	82.92529	10.35072	0.1683731	0.27008244	2.3703100	20	10 7.2	21.4
507950	2015	BE ₃	17.7	X	18.60152	204.46724	70.25895	4.22615	0.1097337	0.26515982	2.3995561	20	8 16.9	20.2
507951	2015	BO ₆	16.8	X	178.23283	93.48995	317.05019	13.35106	0.0860265	0.23563824	2.5960051	20	4 27.7	21.0
507952	2015	BE ₁₅	17.9	X	222.66576	1.00691	121.77364	7.87664	0.0405457	0.29533819	2.2331761	20	10 18.6	20.7
507953	2015	BT ₁₇	18.2	X	213.79884	167.86974	324.54500	2.82346	0.1055870	0.29209691	2.2496662	20	10 4.4	21.1
507954	2015	BQ ₁₉	18.1	X	292.53022	70.65186	312.63559	7.52660	0.1328316	0.29637770	2.2279513	20	8 19.9	20.0
507955	2015	BZ ₁₉	17.7	X	137.56020	94.80412	84.18438	3.66060	0.1629893	0.26778785	2.3838310	20	9 12.6	21.4
507956	2015	BY ₂₅	17.5	X	107.54508	287.82115	273.38333	1.14973	0.1263020	0.26276836	2.4140930	20	9 5.9	21.0
507957	2015	BB ₂₆	17.7	X	224.28961	278.00698	150.84241	5.23726	0.0861957	0.26492399	2.4009799	20	7 20.8	20.8
507958	2015	BY ₃₂	17.2	X	341.16307	246.27182	21.19422	3.91036	0.1584308	0.24051781	2.5607738	20	5 17.0	19.7
507959	2015	BE ₃₃	17.9	X	244.35733	310.81475	50.77361	2.90949	0.1980097	0.25584301	2.4574631	20	5 2.5	21.5
507960	2015	BZ ₃₇	18.4	X	248.51911	5.58973	40.81356	6.40393	0.1582835	0.28294842	2.2979004	20	7 13.0	21.4
507961	2015	BY ₅₉	18.5	X	190.24198	140.84509	357.17987	1.49861	0.1363202	0.28489766	2.2874071	20	9 11.7	21.2
507962	2015	BJ ₆₂	18.1	X	149.07539	198.51806	344.16740	5.77936	0.0478266	0.28575963	2.2828049	20	9 27.6	21.2
507963	2015	BA ₆₄	18.1	X	177.52350	137.81336	349.31990	6.75687	0.0493353	0.27269006	2.3551750	20	8 18.5	21.3
507964	2015	BU ₆₄	17.4	X	196.87541	5.14006	44.59876	6.95245	0.1634115	0.25122932	2.4874584	20	5 20.5	21.5
507965	2015	BJ ₆₅	17.3	X	153.76433	352.42053	104.25751	9.38051	0.0560115	0.24540547	2.5266585	20	6 5.7	20.9
507966	2015	BO ₆₅	16.6	X	2.16900	150.77006	99.00731	5.75603	0.1650859	0.23573844	2.5952694	20	6 5.6	18.9
507967	2015	BR ₆₉	17.9	X	29.68073	48.93313	216.08488	5.44713	0.0688085	0.26527485	2.3988623	20	8 10.9	20.7
507968	2015	BM ₇₁	17.6	X	84.70937	328.37698	269.71899	5.37400	0.1003524	0.27421693	2.3464242	20	9 25.2	20.9
507969	2015	BX ₇₁	17.6	X	76.95722	325.87803	266.03609	2.90986	0.1661600	0.26214135	2.4179410	20	9 15.7	21.0
507970	2015	BA ₇₅	17.9	X	246.33770	332.10903	88.50826	5.54586	0.1077802	0.28081019	2.3095506	20	8 7.5	20.8
507971	2015	BS ₇₆	18.1	X	123.60006	111.21614	94.57516	7.06911	0.0576262	0.28152419	2.3056439	20	10 2.9	21.2
507972	2015	BZ ₇₆	17.2	X	341.31066	304.04082	9.08202	4.28881	0.1265121	0.26693213	2.3889230	20	8 5.2	19.3
507973	2015	BD ₇₉	18.2	X	144.71347	343.97566	186.30609	3.92237	0.0674020	0.28243221	2.3006995	20	9 5.2	21.3
507974	2015	BU ₉₀	17.4	X	138.21601	41.29378	161.72509	7.79106	0.1000380	0.27088035	2.3656530	20	9 17.2	20.9
507975	2015	BY ₉₀	17.9	X	309.50520	286.64532	125.32715	4.23122	0.1201178	0.30181617	2.2011064	20	11 15.9	19.7
507976	2015	BU ₉₅	18.6	X	239.32019	132.51535	311.24355	6.78949	0.1082181	0.29338875	2.2430575	20	8 29.2	21.2
507977	2015	BH ₉₈	16.0	X	75.73806	165.49150	312.02614	20.97546	0.0311782	0.21687893	2.7436232	20	3 10.5	20.1
507978	2015	BP ₁₀₀	17.2	X	190.20273	345.15238	137.45382	3.69725	0.0859887	0.27542719	2.3395456	20	8 24.7	20.4
507979	2015	BA ₁₀₄	17.0	X	185.95764	200.02630	161.36800	4.01610	0.1073914	0.20887681	2.8132559	20	3 13.7	21.2
507980	2015	BC ₁₀₇	16.6	X	155.08835	177.03486	297.77509	10.63754	0.1562333	0.24510019	2.5287561	20	7 5.1	20.6
507981	2015	BM ₁₁₄	18.3	X	261.94151	284.71866	168.12466	4.03964	0.1006797	0.30754453	2.1736889	20	10 23.9	20.4
507982	2015	BS ₁₁₉	18.2	X	157.98693	97.70677	82.55188	3.85677	0.1145410	0.28126457	2.3070625	20	10 6.2	21.6
507983	2015	BN ₁₂₀	18.5	X	166.74906	140.40120	12.20380	4.17586	0.0821643	0.28068809	2.3102203	20	9 8.8	21.5
507984	2015	BG ₁₃₀	17.5	X	2.38650	187.13963	55.95108	1.23443	0.1509410	0.23427624	2.6060568	20	5 25.7	19.9
507985	2015	BM ₁₄₀	17.7	X	294.17116	287.83464	76.69543	6.60466	0.1663491	0.27712298	2.3299916	20	7 17.9	20.1
507986	2015	BC ₁₄₉	17.6	X	208.23847	18.90460	113.82967	7.44243	0.0577885	0.29019070	2.2595071	20	10 9.3	20.5
507987	2015	BA ₁₅₇	17.5	X	192.24250	30.48887	88.72429	5.21742	0.0875951	0.27152530	2.3619055	20	8 23.7	20.8
507988	2015	BF ₁₆₁	17.1	X	321.76089	323.48556	330.64803	6.97886	0.1819995	0.23724498	2.5842709	20	5 14.0	19.9
507989	2015	BK ₁₆₉	18.4	X	100.80032	210.72537	6.13367	2.43476	0.0356283	0.27799992	2.3250891	20	9 12.7	21.2