

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>
432001 2008 UA ₃₂₃	16.3	X	295.85669	89.57059	228.99148	8.73109	0.0697655	0.22486903	2.6782408	20	5 27.5	19.7
432002 2008 UE ₃₂₃	16.8	X	325.93554	296.85998	40.03697	11.95628	0.1899683	0.23550970	2.5969496	20	8 5.6	19.5
432003 2008 UC ₃₂₆	17.8	X	216.83741	73.87904	235.00931	19.54421	0.0735231	0.37237625	1.9134395	20	1 12.6	20.5
432004 2008 UO ₃₃₇	15.8	X	4.82941	78.72187	52.82063	11.17693	0.0565273	0.18538297	3.0461842	20	1 9.1	20.0
432005 2008 UW ₃₄₁	17.3	X	293.25894	141.41732	196.45935	3.29404	0.1572129	0.22559410	2.6724990	20	6 5.6	20.6
432006 2008 UV ₃₄₂	17.2	X	181.66954	296.64538	110.04140	1.73949	0.0700322	0.21025399	2.8009577	20	5 3.9	21.3
432007 2008 UZ ₃₄₂	16.6	X	249.40800	327.12799	5.67607	10.02524	0.2291016	0.21906220	2.7253634	20	3 30.4	21.1
432008 2008 UM ₃₄₈	16.9	X	307.80135	238.46649	67.03626	5.56584	0.0970607	0.21848967	2.7301223	20	5 22.9	20.1
432009 2008 UR ₃₅₂	16.3	X	69.33525	106.81464	273.73377	14.10596	0.3238659	0.17743914	3.1364361	20	—	—
432010 2008 UQ ₃₅₆	17.2	X	305.44199	291.56188	53.33994	3.06200	0.1509426	0.23016344	2.6370103	20	7 6.8	20.2
432011 2008 UC ₃₅₇	16.9	X	200.36807	152.00494	232.35027	14.62297	0.1962909	0.21737741	2.7394272	20	4 21.1	21.5
432012 2008 UY ₃₆₀	16.3	X	179.22197	6.22434	58.21144	14.62382	0.1660725	0.21821882	2.7323810	20	5 23.2	20.7
432013 2008 UL ₃₆₆	17.0	X	290.32484	228.76385	89.89726	3.11851	0.0756779	0.22040650	2.7142704	20	5 19.1	20.6
432014 2008 VE ₂	16.1	X	262.51366	119.19221	251.36885	12.15736	0.1545520	0.22513577	2.6761249	20	6 8.6	19.9
432015 2008 VH ₅	16.6	X	312.70985	261.20431	40.05669	9.09971	0.0417623	0.22175396	2.7032640	20	5 30.3	20.2
432016 2008 VK ₇	16.2	X	287.11447	292.94713	358.62964	14.21757	0.1189752	0.22640243	2.6661341	20	3 29.9	19.9
432017 2008 UY ₉	17.1	X	25.80911	153.37873	65.73074	4.88260	0.1808570	0.21824142	2.7321923	20	5 28.4	20.2
432018 2008 VT ₁₈	16.5	X	115.00073	308.91397	57.44830	9.76680	0.1573122	0.19122764	2.9837947	20	1 15.0	20.9
432019 2008 VN ₃₃	16.6	X	193.14144	305.13962	86.22975	5.72410	0.1223942	0.21270757	2.7793767	20	4 27.9	21.0
432020 2008 VH ₃₄	16.8	X	15.76048	100.03149	117.55885	4.47912	0.1324472	0.21294808	2.7772836	20	5 11.8	20.4
432021 2008 VT ₄₈	16.4	X	108.03795	275.49024	67.92595	4.83635	0.1932899	0.18190546	3.0848844	20	—	—
432022 2008 VV ₄₉	17.0	X	188.64742	82.36830	301.89337	3.79373	0.0613406	0.21303867	2.7764962	20	4 10.6	21.2
432023 2008 VB ₅₂	17.1	X	282.37487	119.03718	181.90587	4.63773	0.0965337	0.21688447	2.7435765	20	4 11.9	20.7
432024 2008 VU ₇₂	17.1	X	240.07574	255.29027	78.47373	6.61838	0.0937354	0.21098284	2.7945033	20	4 7.3	21.3
432025 2008 WA ₅	16.7	X	21.02056	196.26570	48.27519	12.46684	0.1394756	0.22460579	2.6803330	20	7 4.4	19.8
432026 2008 WE ₂₁	16.6	X	266.76322	306.84414	63.82319	6.81237	0.0797251	0.22409306	2.6844198	20	6 25.3	20.2
432027 2008 WB ₃₅	17.0	X	234.97598	230.71209	122.89130	2.74749	0.0765673	0.21609445	2.7502593	20	4 25.9	21.0
432028 2008 WY ₃₇	16.8	X	92.01769	202.99000	236.33040	6.45490	0.0540220	0.19643995	2.9307775	20	2 25.6	20.9
432029 2008 WC ₄₁	17.3	X	119.19045	320.51062	112.16775	2.14843	0.1079151	0.20142024	2.8822655	20	4 1.6	21.4
432030 2008 WJ ₄₁	16.9	X	189.83957	182.58250	181.59880	1.79728	0.0791591	0.20416041	2.8564175	20	3 20.5	21.3
432031 2008 WJ ₄₂	16.9	X	176.19326	16.87473	353.79085	1.58608	0.0848908	0.20190748	2.8776267	20	3 14.6	21.1
432032 2008 WS ₄₆	16.3	X	343.21039	155.72522	66.33867	18.59173	0.0718596	0.20200911	2.8766614	20	4 8.0	20.3
432033 2008 WW ₄₈	16.7	X	180.88597	193.00115	215.17023	6.01543	0.0323671	0.21261235	2.7802065	20	5 4.2	20.5
432034 2008 WN ₅₉	16.1	X	283.22811	311.21926	65.20167	24.28102	0.1130409	0.22999520	2.6382961	20	7 24.9	19.9
432035 2008 WX ₅₉	15.7	X	25.87840	16.33142	81.41582	20.59966	0.2629835	0.18091680	3.0961129	20	—	—
432036 2008 WR ₆₁	16.1	X	325.34690	78.51354	252.71891	16.14091	0.3754452	0.23631899	2.5910173	20	6 17.4	17.9
432037 2008 WS ₆₃	16.1	X	244.37444	248.95734	75.31035	13.60134	0.3885652	0.21977744	2.7194473	20	3 14.1	21.4
432038 2008 WK ₇₁	17.4	X	174.61285	177.67707	196.16415	1.71472	0.0823410	0.20635425	2.8361364	20	3 16.0	21.6
432039 2008 WN ₇₄	16.7	X	68.61762	213.15404	235.06413	10.21107	0.1054240	0.19590996	2.9360608	20	2 11.0	20.6
432040 2008 WW ₈₄	16.2	X	280.97901	16.63681	264.68177	14.29625	0.1141043	0.20265325	2.8705624	20	3 6.4	20.7
432041 2008 WE ₉₉	17.8	X	216.82303	254.16914	75.38396	22.95397	0.1467169	0.37431456	1.9068282	20	2 29.3	21.0
432042 2008 WD ₁₀₃	15.9	X	119.15024	49.12148	98.43312	13.87680	0.0526173	0.22083213	2.7107817	20	6 29.5	19.8
432043 2008 WS ₁₁₃	17.1	X	344.12384	178.56608	76.20112	5.46341	0.0215170	0.21091623	2.7950916	20	5 16.2	20.7
432044 2008 WT ₁₁₄	17.1	X	50.93559	39.78632	62.24910	4.94176	0.1748039	0.18836049	3.0139971	20	2 17.5	20.5
432045 2008 WY ₁₁₅	16.7	X	111.62190	350.47381	171.08527	3.57545	0.1167096	0.19544493	2.9407162	20	3 12.6	20.9
432046 2008 WZ ₁₁₉	16.8	X	110.29559	9.10919	72.07336	13.18520	0.0993513	0.19940757	2.9016272	20	4 6.7	21.1
432047 2008 WY ₁₃₈	15.9	X	33.08364	181.61996	257.52496	17.33898	0.2099533	0.17925454	3.1152239	20	—	—
432048 2008 XN ₂₁	15.9	X	75.57236	318.40977	97.34105	18.03659	0.1671722	0.18275677	3.0752970	20	1 27.6	19.9
432049 2008 XS ₃₆	16.5	X	72.44296	7.68428	61.31626	11.64484	0.0516477	0.18798561	3.0180029	20	1 25.0	20.7
432050 2008 XA ₃₇	17.1	X	209.06354	331.86195	15.06414	2.01164	0.0783733	0.20316401	2.8657493	20	3 19.9	21.5
432051 2008 XG ₄₉	16.4	X	63.48615	209.84985	279.08122	12.35559	0.1252524	0.19170230	2.9788674	20	3 27.5	20.5
432052 2008 XF ₅₀	16.0	X	54.08325	340.92957	91.63337	9.24029	0.1848878	0.17786451	3.1314334	20	1 17.2	19.5
432053 2008 YY	16.3	X	72.87003	143.38748	260.61450	14.95175	0.2903535	0.18572226	3.0424730	20	1 21.3	20.1
432054 2008 YL ₁₇	15.8	X	13.07738	176.55136	299.59676	8.70362	0.0679917	0.17530812	3.1618022	20	1 2.8	19.8
432055 2008 YU ₁₇	17.0	X	32.81624	278.24382	179.18666	0.79544	0.1615064	0.17715083	3.1398380	20	1 8.9	20.5
432056 2008 YM ₂₁	16.4	X	0.04500	45.12593	113.37023	16.83475	0.0370432	0.18218451	3.0817335	20	2 7.0	20.6
432057 2008 YQ ₂₁	15.8	X	357.50325	210.07663	297.59882	11.44329	0.1022137	0.17678742	3.1441395	20	1 16.4	19.7
432058 2008 YT ₂₂	15.5	X	172.72979	209.61433	126.23983	28.11055	0.0844182	0.17972453	3.1097906	20	2 1.1	20.1
432059 2008 YA ₂₃	16.4	X	124.01298	288.82036	107.80067	4.31034	0.1762131	0.18707482	3.0277905	20	3 3.7	21.0
432060 2008 YE ₃₂	18.2	X	123.97304	282.70509	96.24867	25.88884	0.1154079	0.36065503	1.9546757	20	1 3.0	19.7
432061 2008 YP ₄₃	16.6	X	118.10591	317.49200	88.11289	5.64672	0.0870043	0.19415780	2.9536984	20	2 26.3	20.8
432062 2008 YA ₅₂	16.5	X	253.76347	209.70319	106.15024	11.24696	0.0452761	0.19461392	2.9490815	20	4 9.3	20.9
432063 2008 YA ₆₈	16.5	X	51.77507	26.38767	112.88935	7.91886	0.0315850	0.18763917	3.0217165	20	3 24.1	20.7
432064 2008 YK ₇₀	16.3	X	328.78260	213.51951	308.45325	11.74071	0.1336491	0.17401163	3.1774876	20	—	—
432065 2008 YB ₇₁	16.3	X	134.85096	85.61248	311.26692	12.58104	0.0762801	0.18821099	3.0155931	20	2 27.9	20.9
432066 2008 YB ₈₈	16.2	X	38.19009	186.96408	279.92569	7.59068	0.0330380	0.18268502	3.0761022	20	1 22.4	20.3
432067 2008 YU ₉₄	16.9	X	63.15741	5.68407	107.85777	2.67053	0.1054365	0.18860896	3.0113495	20	3 13.0	20.6
432068 2008 YP ₉₅	17.0	X	3.61677	247.09076	243.37642	0.14407	0.1408727	0.17688496	3.1429836	20	1 1.1	20.8
432069 2008 YU ₉₆	15.8	X	353.66082	67.73211	114.25515	16.57852	0.1619357	0.18229734	3.0804618	20	2 19.4	19.5
432070 2008 YA ₁₀₀	16.3	X	180.83118	184.05092	117.71586	10.26187	0.0539042	0.17423219	3.1748555	20	—	—
432071 2008 YG ₁₀₃	16.8	X	28.94779	336.57256	155.39138	2.08652	0.1160400	0.18266782	3.0762952	20	2 13.1	20.3
432072 2008 YJ ₁₀₅	16.2	X	30.65990	156.13324	296.52450	17.64030	0.2129087	0.17620104	3.1511113	20	1 1.6	19.5
432073 2008 YS ₁₀₈	16.3	X	51.71222	329.25642	116.75763	10.93193	0.0757700	0.17727486	3.1383733	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>
432081 2008 YD ₁₄₁	16.6 ^m	X	116.94343	286.60721	134.85069	11.12893	0.1031110	0.18869600	3.0104235	20	3 18.7	21.0
432082 2008 YW ₁₄₁	16.0	X	55.29226	292.70743	97.83002	7.50517	0.1040237	0.16876824	3.2429648	20	—	—
432083 2008 YL ₁₄₂	16.9	X	146.39271	304.96564	87.44371	2.43175	0.1143007	0.19174113	2.9784652	20	3 14.3	21.3
432084 2008 YU ₁₄₂	16.7	X	56.73517	356.37731	106.31828	5.30453	0.1385143	0.18451524	3.0557271	20	2 23.7	20.4
432085 2008 YK ₁₄₄	16.9	X	35.59274	310.89689	136.88422	2.40555	0.1711954	0.17566330	3.1575387	20	1 2.2	20.2
432086 2008 YP ₁₅₁	15.9	X	139.23488	251.05274	122.07956	23.04483	0.1053196	0.18319195	3.0704247	20	2 13.2	20.6
432087 2008 YV ₁₅₁	16.1	X	345.23510	241.78312	285.98567	8.50635	0.1667510	0.17712604	3.1401311	20	1 15.3	19.8
432088 2008 YU ₁₅₂	16.5	X	16.74018	336.16774	121.91666	8.50827	0.1512817	0.17481417	3.1677553	20	—	—
432089 2008 YK ₁₅₄	16.4	X	11.74291	179.11359	285.39779	15.28353	0.0844666	0.17303003	3.1894936	20	—	—
432090 2008 YN ₁₅₄	16.5	X	46.69590	141.82494	299.40454	8.18017	0.0802188	0.17767428	3.1336682	20	1 7.4	20.5
432091 2008 YV ₁₅₅	16.6	X	76.71135	301.97611	131.33338	10.21923	0.0824136	0.18067271	3.0989008	20	2 7.7	20.7
432092 2008 YY ₁₅₇	15.8	X	15.48279	146.38430	335.88471	14.76536	0.2375493	0.17764997	3.1339541	20	1 9.6	19.1
432093 2008 YP ₁₅₈	16.3	X	33.26312	313.85531	140.32845	9.62318	0.0725800	0.17517946	3.1633501	20	1 3.7	20.4
432094 2008 YV ₁₆₅	15.8	X	38.55741	152.68162	320.91136	11.53566	0.0915986	0.18010325	3.1054296	20	2 4.9	19.6
432095 2008 YU ₁₆₇	15.9	X	161.48763	221.81310	99.59931	11.80118	0.0693248	0.17519238	3.1631946	20	1 3.3	20.5
432096 2008 YL ₁₆₈	16.3	X	60.28996	105.08211	3.67050	8.71090	0.2405109	0.18720211	3.0264178	20	3 20.9	19.8
432097 2008 YV ₁₇₀	16.9	X	38.80635	118.25510	111.15128	5.90709	0.1686499	0.17459085	3.1704559	20	—	—
432098 2009 AM ₁₁	17.0	X	13.97869	189.47081	329.72522	3.03201	0.2091567	0.18297228	3.0728817	20	2 22.2	19.8
432099 2009 AT ₂₀	16.5	X	42.81631	268.37153	139.05893	5.78448	0.1709927	0.17175436	3.2052669	20	—	—
432100 2009 AM ₂₂	17.2	X	51.81896	15.97159	116.25403	12.90195	0.0713683	0.18847463	3.0127802	20	4 4.9	21.0
432101 Ngari	16.1	X	348.79025	69.52553	124.77022	27.89790	0.1617928	0.18435455	3.0575025	20	2 27.1	19.9
432102 2009 AN ₃₂	16.6	X	347.69188	57.35350	124.03721	3.75648	0.1398243	0.17991054	3.1076467	20	2 8.7	20.4
432103 2009 AB ₃₄	16.1	X	354.62610	60.18754	130.82906	10.82068	0.1186185	0.18295852	3.0730358	20	3 10.9	19.9
432104 2009 AL ₃₆	15.8	X	67.15703	127.58039	312.64721	8.38168	0.0713161	0.17750819	3.1356226	20	2 2.2	19.8
432105 2009 AG ₄₀	16.3	X	320.51582	111.83183	128.08303	14.91991	0.0713683	0.19061445	2.9901903	20	3 25.7	20.5
432106 2009 AP ₄₀	16.2	X	35.96084	154.71983	294.79000	8.26890	0.0767718	0.17519702	3.1631388	20	1 2.5	20.1
432107 2009 AY ₄₀	16.2	X	111.24114	271.66912	130.86663	6.96728	0.1874806	0.18594141	3.0400820	20	2 27.5	20.7
432108 2009 AS ₄₇	16.7	X	289.19242	239.99685	123.26485	11.60604	0.1196459	0.21872854	2.7281343	20	7 10.4	20.0
432109 2009 AJ ₄₈	16.5	X	33.71880	95.53007	12.38495	15.64728	0.2481554	0.17966505	3.1104685	20	2 4.5	19.8
432110 2009 BL ₃	15.8	X	62.09347	241.05972	249.29756	10.32114	0.0493912	0.19139208	2.9820857	20	3 19.6	20.1
432111 2009 BL ₄	16.2	X	163.20399	237.25293	162.48618	10.01027	0.2825785	0.20023340	2.8936436	20	4 16.6	21.4
432112 2009 BH ₅	16.5	X	88.93453	313.24184	111.11242	11.25397	0.1024132	0.18554076	3.0444569	20	2 16.7	20.7
432113 2009 BY ₁₀	15.9	X	29.66520	9.20158	107.69546	11.88578	0.1897478	0.17787233	3.1313417	20	1 30.4	19.3
432114 2009 BT ₁₁	16.2	X	5.50897	323.65953	156.59168	10.45358	0.1848877	0.17393670	3.1784000	20	—	—
432115 2009 BO ₁₅	16.5	X	52.00805	139.52680	314.62197	6.27393	0.1422559	0.18005077	3.1060330	20	2 4.7	20.1
432116 2009 BG ₁₈	17.0	X	315.43978	58.58035	156.88262	0.61176	0.1008949	0.18453186	3.0555435	20	2 8.7	21.2
432117 2009 BZ ₁₉	17.0	X	99.06072	324.79087	116.13466	10.63331	0.0763962	0.18936158	3.0033651	20	3 18.8	21.3
432118 2009 BF ₂₃	16.7	X	76.97349	106.04095	347.50136	8.30974	0.0829121	0.18309336	3.0715269	20	3 3.8	20.7
432119 2009 BC ₂₄	16.2	X	336.39064	94.21517	118.13594	12.08656	0.0237881	0.18483673	3.0521827	20	3 17.4	20.5
432120 2009 BS ₂₉	16.6	X	51.22939	355.46038	115.35736	10.42361	0.0791060	0.18263792	3.0766311	20	2 20.2	20.6
432121 2009 BX ₃₀	16.0	X	315.69902	63.30323	117.63958	11.86541	0.0252288	0.17449739	3.1715879	20	1 10.2	20.5
432122 2009 BF ₃₂	16.8	X	31.97949	170.82136	311.34174	3.12581	0.1080136	0.18017263	3.1046323	20	2 5.7	20.5
432123 2009 BV ₃₄	16.5	X	89.51004	305.76508	99.08419	4.91158	0.1182459	0.17715194	3.1398250	20	1 26.5	20.7
432124 2009 BX ₃₄	16.2	X	69.35095	106.37831	330.01782	9.19461	0.0924595	0.17879881	3.1205151	20	2 4.0	20.2
432125 2009 BG ₃₇	16.4	X	243.51229	292.20346	322.62029	12.15576	0.1754305	0.16983385	3.2293854	20	1 5.4	21.7
432126 2009 BY ₄₂	15.8	X	72.22098	107.82437	323.21710	9.08816	0.1242719	0.17779192	3.1322857	20	2 5.0	19.8
432127 2009 BY ₄₅	15.7	X	260.29220	302.56553	130.97699	11.25154	0.1799053	0.17074370	3.2179028	20	1 17.4	20.8
432128 2009 BZ ₄₆	16.6	X	43.32309	296.02436	150.45843	10.06213	0.1658530	0.17358122	3.1827380	20	1 14.1	20.3
432129 2009 BS ₄₇	16.8	X	0.75279	50.48059	129.20673	2.43337	0.1715126	0.18258589	3.0772155	20	2 25.9	20.1
432130 2009 BZ ₄₈	16.9	X	52.12256	333.62118	126.80762	2.70943	0.1424672	0.18090216	3.0962800	20	2 13.1	20.5
432131 2009 BX ₅₂	16.0	X	91.83588	284.78299	123.42482	10.25478	0.1131598	0.17819604	3.1275482	20	2 1.4	20.1
432132 2009 BO ₅₃	16.7	X	5.02511	104.44739	82.06026	2.59705	0.1217141	0.18475513	3.0530813	20	3 16.6	20.2
432133 2009 BX ₅₅	17.2	X	61.89838	304.09216	143.36047	1.74790	0.1632018	0.18298074	3.0727871	20	2 13.9	20.8
432134 2009 BH ₆₁	16.7	X	108.41226	258.12527	145.38837	6.13278	0.1850785	0.18242986	3.0789698	20	2 24.8	21.1
432135 2009 BZ ₆₃	16.3	X	67.30432	60.24672	46.16780	5.38438	0.1666113	0.18786141	3.0193329	20	3 19.7	20.1
432136 2009 BH ₆₉	16.2	X	62.48844	134.35084	325.83806	5.35172	0.1406173	0.18500555	3.0503257	20	2 27.1	20.0
432137 2009 BY ₇₇	15.9	X	70.20724	358.83426	90.41878	7.72567	0.1455961	0.18182840	3.0857559	20	2 29.9	19.9
432138 2009 BT ₈₂	16.0	X	28.46796	71.52139	68.95397	7.16702	0.1723004	0.18280899	3.0747113	20	2 29.7	19.5
432139 2009 BL ₈₄	16.2	X	29.85806	171.82950	297.99818	5.71278	0.1642881	0.17754427	3.1351978	20	1 19.7	19.7
432140 2009 BP ₈₄	16.7	X	71.48520	301.61219	136.35883	2.36939	0.1127012	0.18091028	3.0961872	20	2 9.9	20.8
432141 2009 BF ₈₅	17.4	X	25.92006	278.29275	188.66666	2.23523	0.2183569	0.17633700	3.1494913	20	1 8.9	20.6
432142 2009 BW ₈₇	16.5	X	34.83147	73.53343	56.06564	1.49814	0.1306170	0.18093971	3.0958515	20	2 21.6	20.0
432143 2009 BP ₉₀	16.7	X	38.48762	162.02030	306.20182	2.42870	0.1784464	0.17854055	3.1235236	20	2 2.9	20.0
432144 2009 BJ ₉₄	16.0	X	285.61145	80.70164	144.18422	16.32382	0.0338890	0.17497470	3.1658176	20	1 24.6	20.5
432145 2009 BX ₉₇	16.5	X	60.12848	73.30390	322.89642	11.13495	0.2665507	0.17511247	3.1641568	20	—	—
432146 2009 BY ₁₀₀	16.5	X	207.97794	41.63393	303.66883	9.11152	0.1037319	0.19119997	2.9840825	20	3 12.7	21.2
432147 2009 BF ₁₀₄	16.0	X	266.80270	284.44450	323.21199	7.99332	0.0901166	0.17339950	3.1849613	20	1 25.1	20.7

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>
432161 2009 BQ ₁₅₆	16.4	X	77.32235	292.13928	154.58202	9.96090	0.0532594	0.17771792	3.1331552	20	2 21.0	20.5
432162 2009 BM ₁₅₉	16.0	X	139.71551	28.90227	340.60508	10.81926	0.0537409	0.17242200	3.1969875	20	2 6.1	20.7
432163 2009 BQ ₁₆₂	16.1	X	83.31962	306.83903	121.72714	13.95655	0.2054209	0.18349660	3.0670254	20	3 1.7	20.3
432164 2009 BM ₁₇₀	15.5	X	45.60717	328.65078	126.45724	18.95868	0.1762828	0.17765655	3.1338767	20	1 30.1	19.1
432165 2009 BK ₁₇₁	17.0	X	23.16915	68.17635	64.31174	1.87850	0.1316068	0.17678878	3.1441234	20	2 6.5	20.7
432166 2009 BA ₁₇₂	16.0	X	8.65578	10.06454	143.09971	16.61199	0.0599795	0.18064203	3.0992517	20	2 9.7	20.1
432167 2009 BS ₁₇₄	16.4	X	351.52102	30.97072	161.18041	10.43289	0.0340476	0.18009613	3.1055114	20	3 7.6	20.6
432168 2009 BT ₁₇₉	16.6	X	202.60313	83.88037	374.63850	9.20830	0.0973979	0.19488646	2.9463314	20	3 22.4	21.3
432169 2009 BV ₁₈₀	16.6	X	172.00621	207.69105	154.07997	2.99238	0.1505734	0.18541492	3.0458342	20	3 4.1	21.4
432170 2009 BJ ₁₈₅	16.1	X	260.95944	116.91895	147.44863	12.64018	0.0962713	0.17684558	3.1434502	20	2 4.9	20.8
432171 2009 BG ₁₈₉	16.6	X	318.13332	228.33155	342.20286	3.19159	0.1359391	0.17484839	3.1673420	20	2 3.5	20.7
432172 2009 CF ₉	16.0	X	197.13816	25.09082	298.74708	9.24752	0.0964404	0.18217661	3.0818226	20	2 9.3	20.9
432173 2009 CO ₁₄	15.9	X	303.62301	99.86639	149.70675	11.25778	0.1134198	0.18456875	3.0551364	20	3 5.8	20.0
432174 2009 CS ₁₅	16.0	X	230.59085	356.87431	304.76690	17.13469	0.1815665	0.1792768	3.1097542	20	2 10.5	21.3
432175 2009 CF ₂₁	16.0	X	305.64113	252.74317	306.18266	10.43352	0.1498939	0.17224151	3.1992204	20	1 3.8	20.5
432176 2009 CJ ₃₄	16.5	X	349.03062	194.53546	334.14192	9.82276	0.1550143	0.17761227	3.1343975	20	1 26.2	20.3
432177 2009 CK ₃₅	18.7	X	249.24548	22.69907	33.82764	3.58271	0.0577684	0.30465861	2.1873943	20	8 16.8	21.2
432178 2009 CC ₃₆	16.2	X	12.87206	160.20163	336.61943	12.22500	0.0273230	0.17806171	3.1291210	20	1 30.5	20.6
432179 2009 CO ₃₈	16.6	X	68.79842	100.39235	315.01077	5.30504	0.1564351	0.17566116	3.1575644	20	1 16.3	20.5
432180 2009 CV ₄₄	16.2	X	195.96930	21.95555	326.26128	10.57502	0.0890289	0.18392517	3.0622592	20	3 6.8	21.0
432181 2009 CY ₅₂	16.3	X	29.19878	323.26798	146.84040	14.94749	0.0723468	0.17280896	3.1922131	20	1 17.3	20.6
432182 2009 CZ ₅₃	16.7	X	344.73332	222.83871	330.05787	12.99645	0.1779197	0.17736627	3.1372950	20	2 15.1	20.3
432183 2009 CR ₅₇	15.9	X	116.28224	78.46450	334.12037	10.25761	0.0978274	0.18219371	3.0816298	20	3 2.9	20.2
432184 2009 DR	16.3	X	172.67996	300.17367	101.39745	11.52406	0.0021585	0.19044843	2.9919279	20	4 21.1	20.7
432185 2009 DT	16.2	X	302.96789	265.51207	337.74185	14.96102	0.2041513	0.17683556	3.1435689	20	2 15.2	20.6
432186 2009 DH ₄	16.1	X	116.12683	67.30621	326.85163	9.34047	0.0677649	0.17970611	3.1100030	20	2 7.8	20.5
432187 2009 DJ ₆	17.0	X	53.14906	322.20359	128.85187	6.33074	0.1829466	0.17970273	3.1100420	20	2 7.6	20.6
432188 2009 DJ ₆	16.4	X	310.22224	249.90244	326.35559	8.72172	0.1654042	0.17728300	3.1382773	20	1 27.3	20.7
432189 2009 DB ₇	16.4	X	79.39207	359.78969	95.18429	7.28670	0.1872636	0.19335359	2.9618829	20	3 26.5	20.4
432190 2009 DA ₂₁	16.6	X	87.81585	291.66216	143.93969	9.23097	0.0638749	0.18274802	3.0753952	20	2 22.3	20.7
432191 2009 DL ₃₅	16.2	X	33.24941	305.90966	177.17067	16.48991	0.3040363	0.17535261	3.1612674	20	2 21.2	19.0
432192 2009 DW ₄₄	16.0	X	337.54416	44.77913	141.96956	15.05165	0.2119703	0.17396963	3.1779990	20	1 21.2	20.0
432193 2009 DN ₆₅	15.6	X	331.38403	129.25698	86.21658	16.85263	0.1299039	0.18022931	3.1039814	20	3 6.5	19.9
432194 2009 DX ₆₇	16.7	X	105.20251	265.63196	152.56719	4.19058	0.1343021	0.18622677	3.0369756	20	3 2.7	20.8
432195 2009 DF ₆₈	16.9	X	38.62866	189.95479	292.78159	4.26140	0.1097196	0.18246894	3.0785302	20	2 15.5	20.7
432196 2009 DO ₆₈	16.1	X	18.12747	18.10309	138.08277	19.26199	0.0251516	0.18449028	3.0560026	20	2 28.2	20.3
432197 2009 DL ₇₀	16.2	X	188.36730	10.27667	332.93753	10.13770	0.1151852	0.17859680	3.1228678	20	2 25.4	21.1
432198 2009 DS ₇₅	16.5	X	38.76046	116.37663	325.39714	15.67541	0.2384489	0.17464898	3.1697525	20	1 7.8	19.8
432199 2009 DF ₇₆	15.9	X	4.62192	173.91984	326.41954	8.07326	0.0417492	0.17551983	3.1592592	20	1 22.6	20.1
432200 2009 DQ ₇₈	16.3	X	88.51402	356.61068	106.58707	6.69916	0.1181725	0.18659619	3.0329660	20	4 7.7	20.5
432201 2009 DE ₈₅	16.3	X	290.18508	98.83436	152.81019	14.10050	0.0645142	0.17889405	3.1194076	20	2 27.5	20.7
432202 2009 DX ₈₈	16.3	X	68.70682	269.74110	161.81671	16.64236	0.2398380	0.17804361	3.1293331	20	2 15.1	20.1
432203 2009 DT ₉₄	16.4	X	324.34321	110.86025	95.99405	5.02780	0.1236453	0.17182776	3.2043540	20	2 10.2	20.7
432204 2009 DB ₉₆	15.9	X	274.19440	112.44892	135.15739	11.25348	0.0411055	0.17592516	3.1544047	20	2 6.9	20.4
432205 2009 DQ ₁₀₄	16.2	X	230.50618	110.53682	175.32967	8.20291	0.0630616	0.16750481	3.2592513	20	2 1.3	21.1
432206 2009 DR ₁₀₇	16.4	X	350.57981	79.59706	99.69302	10.82510	0.1289781	0.17705510	3.1409697	20	2 8.5	20.1
432207 2009 DX ₁₂₉	16.5	X	298.43617	62.90124	193.53604	3.17168	0.1564907	0.17513892	3.1638382	20	2 29.6	21.0
432208 2009 DS ₁₃₅	15.4	X	272.30878	82.25883	201.62727	26.51939	0.0488064	0.17636082	3.1492078	20	3 15.3	20.1
432209 2009 EW ₉	15.8	X	15.13936	175.49413	324.22862	8.36914	0.0513234	0.17466888	3.1695117	20	2 4.1	19.9
432210 2009 EK ₁₂	16.0	X	275.31559	122.94099	135.54851	6.07006	0.1041468	0.17134933	3.2103159	20	2 14.1	20.6
432211 2009 EF ₁₅	16.4	X	293.27427	228.78705	355.45223	6.73154	0.1191887	0.17074831	3.2178449	20	1 24.5	21.0
432212 2009 DF ₁₇	16.1	X	58.85596	305.90199	155.29843	8.98153	0.1294567	0.17423307	3.1747947	20	2 23.7	20.0
432213 2009 FR ₈	16.1	X	39.53087	90.59088	25.27211	10.76524	0.1044500	0.17156097	3.2076752	20	2 15.7	20.3
432214 2009 FR ₁₅	16.4	X	60.55825	297.02573	159.43995	8.55100	0.1506307	0.17710788	3.1403457	20	2 22.2	20.1
432215 2009 FE ₂₈	16.0	X	27.16722	80.12343	74.77218	11.72877	0.0642799	0.17783036	3.1318343	20	3 16.1	20.3
432216 2009 FF ₃₈	16.0	X	355.46852	30.33291	145.69346	10.92275	0.0678340	0.17666471	3.1455953	20	2 20.2	20.2
432217 2009 FJ ₄₀	16.0	X	52.08813	70.17186	34.67369	17.76505	0.1815666	0.17394553	3.1782926	20	3 4.9	20.1
432218 2009 FN ₄₁	15.9	X	309.17974	58.92324	169.54312	27.28624	0.1471956	0.17250835	3.1959205	20	2 9.9	20.6
432219 2009 FV ₄₅	16.8	X	317.38048	76.12026	154.57063	4.65056	0.1338164	0.17483186	3.1675416	20	2 26.9	21.0
432220 2009 FS ₅₃	16.5	X	15.47073	359.62960	176.07549	17.62473	0.0925621	0.17671201	3.1450340	20	3 19.6	20.4
432221 2009 FB ₅₄	16.2	X	36.71001	352.68343	152.03089	8.28346	0.0233399	0.17404995	3.1770212	20	3 9.3	20.6
432222 2009 FW ₇₆	15.9	X	196.73185	147.61784	200.82519	15.76609	0.0153566	0.17283126	3.1919385	20	3 8.7	20.7
432223 2009 FG ₇₈	16.1	X	351.97281	108.49665	58.32611	16.88097	0.1942643	0.17678799	3.1441328	20	1 26.3	20.0
432224 2009 FJ ₇₈	16.0	X	18.87186	132.43190	13.09715	16.57846	0.1098293	0.17484206	3.1674184	20	2 22.9	20.1
432225 2009 FQ ₇₈	15.1	X	316.50835	113.94122	103.98348	27.02382	0.1928436	0.17147025	3.2088065	20	2 3.5	19.6
432226 2009 HU ₂	18.5	X	46.20167	166.50130	185.28526	16.70369	0.3218662	0.48669673	1.6006527	20	—	—
432227 2009 HT ₁₆	16.1	X	17.60291	330.53464	176.02388	10.98986	0.0389721	0.17024096	3.2243249	20	2 13.9	20.5
432228 2009 HQ ₂₀	16.5	X	303.35534	55.35723	195.78182	14.03222	0.2195098	0.17130108	3.2109188	20	2 18.3	21.2
432229 2009 HL ₃₆	16.6	X	24.77452	78.80847	47.94110	10.65644	0.2276314	0.17316982	3.1877769	20	2 8.4	20.0
432230 2009 HD ₅₂	15.5	X	348.14589	15.85198	198.50515	27.67243	0.0969934	0.17656674	3.1467588	20	3 24.9	19.6
432231 2009 HV ₅₇	16.0	X	278.05508	104.49549	163.34184	20.75906	0.2820358	0.17319647	3.1874498	20	2 5.9	21.3
432232 2009 HQ ₅₈	15.4	X	301.70477	85.10082	187.92302	25.48379	0.2628420	0.17375546	3.1806100	20	3 8.7	20.1
432233 2009 HZ ₈₉	15.9	X	321.81060	44.03395	184.98552	16.67528	0.1545617	0.17176664	3.2051			

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>
432241 2009 PH ₈	16.6	X	194.00148	342.35336	325.65510	12.77223	0.1681671	0.22718905	2.6599764	20	1 19.1	21.0
432242 2009 PJ ₂₀	17.2	X	108.73152	261.78218	164.85978	13.02731	0.2521782	0.22415927	2.6838913	20	3 30.9	21.2
432243 2009 QT ₅	17.8	X	71.74137	153.87091	188.15465	5.87890	0.1398903	0.29206783	2.2498155	20	—	—
432244 2009 QK ₇	17.4	X	275.52938	146.93612	248.11883	6.27447	0.1730467	0.26296032	2.4129180	20	7 27.4	20.4
432245 2009 QL ₃₉	17.4	X	117.44371	54.17196	348.02911	7.23078	0.3162480	0.22042921	2.7140840	20	3 14.1	21.6
432246 2009 QZ ₄₁	17.8	X	59.42105	315.47887	356.76535	7.09895	0.1881424	0.28553471	2.2840035	20	12 17.7	21.2
432247 2009 QY ₅₆	17.5	X	141.20411	70.57812	2.37253	13.22413	0.1710034	0.23508685	2.6000627	20	4 24.6	21.7
432248 2009 QC ₆₅	17.3	X	105.96879	184.14453	76.97261	7.76494	0.0716316	0.28117252	2.3075660	20	11 22.4	20.4
432249 2009 RK	17.7	X	50.13034	189.37396	172.68248	6.55790	0.1853773	0.29205627	2.2498749	20	—	—
432250 2009 RE ₁₀	17.8	X	35.78513	309.80742	359.02024	4.71792	0.2411735	0.27665919	2.3325949	20	11 21.3	20.8
432251 2009 RT ₁₀	18.6	X	82.27372	128.73674	188.21993	2.80050	0.0891977	0.28682501	2.2771486	20	—	—
432252 2009 RL ₂₀	17.0	X	353.29165	44.45693	298.52712	5.34992	0.1503742	0.27192645	2.3595820	20	10 14.9	19.3
432253 2009 RF ₃₁	17.3	X	339.47897	346.26667	351.36875	6.02308	0.1532528	0.26502605	2.4003634	20	9 8.9	19.0
432254 2009 RO ₄₂	16.9	X	142.73943	210.98983	207.28950	12.49566	0.1584857	0.23043481	2.6349396	20	4 10.8	21.1
432255 2009 RJ ₄₇	17.9	X	3.52878	149.05818	197.29634	4.12233	0.1045064	0.27234847	2.3571439	20	11 5.3	20.4
432256 2009 RE ₄₈	17.6	X	338.32363	166.15024	190.07068	1.63853	0.2319349	0.26882232	2.3777116	20	10 13.6	18.9
432257 2009 RZ ₅₄	17.7	X	96.93730	99.79825	182.76897	6.82139	0.1095059	0.27995867	2.3142313	20	12 11.6	21.1
432258 2009 RM ₅₈	17.8	X	189.08828	58.91843	348.03405	4.25038	0.2818449	0.23793249	2.5792903	20	5 8.4	22.6
432259 2009 RS ₆₂	16.8	X	160.15406	183.57011	43.24879	7.02436	0.0584680	0.27844343	2.3226195	20	12 8.0	19.8
432260 2009 RD ₆₃	13.8	X	287.08971	235.96364	185.45533	12.62434	0.1439463	0.08180729	5.2554276	20	8 31.7	20.6
432261 2009 RL ₆₄	14.1	X	53.86086	258.03634	34.54326	4.56922	0.0257965	0.08393275	5.1663251	20	9 22.9	20.9
432262 2009 SL ₁₈	17.5	X	47.33293	335.01586	327.70428	4.89730	0.2480522	0.27850981	2.3222504	20	11 27.8	20.8
432263 2009 SX ₂₁	17.9	X	79.99388	157.19413	138.22111	3.35343	0.2509991	0.28390999	2.2927090	20	12 20.5	21.6
432264 2009 SZ ₂₇	13.8	X	351.77311	335.36404	20.57484	7.62261	0.0295918	0.08545385	5.1048339	20	9 21.8	20.4
432265 2009 SY ₃₀	15.6	X	177.70581	255.14768	43.71207	4.97766	0.2830438	0.12540581	3.9259768	20	1 8.6	22.4
432266 2009 SD ₃₇	17.5	X	57.10813	100.95942	209.65285	6.29928	0.1347815	0.27823808	2.3237621	20	12 6.3	20.7
432267 2009 SC ₃₈	13.4	X	199.48530	310.43656	209.77669	15.98832	0.0558171	0.08430660	5.1510408	20	9 27.9	20.6
432268 2009 SC ₄₆	17.2	X	54.37333	333.29140	345.53977	5.48963	0.1096742	0.27790279	2.3256308	20	12 9.5	20.3
432269 2009 SA ₄₇	17.8	X	48.45370	7.16494	287.54877	2.40893	0.1717807	0.27219770	2.3580142	20	11 7.7	20.8
432270 2009 SV ₅₃	17.8	X	42.40583	319.33838	25.36925	7.28417	0.1429988	0.28256438	2.2999820	20	—	—
432271 2009 SH ₇₆	13.9	X	333.80777	282.01088	98.07297	6.71736	0.0318705	0.08313751	5.1992181	20	9 28.7	20.7
432272 2009 SP ₇₇	16.8	X	237.65745	97.23998	278.55184	3.48696	0.3540748	0.23789280	2.5795772	20	5 2.0	21.4
432273 2009 SD ₈₉	17.7	X	248.77869	199.35354	224.68817	6.46816	0.1081397	0.26075286	2.4265169	20	8 9.4	20.9
432274 2009 ST ₉₅	14.1	X	262.33648	62.60477	10.29315	13.55611	0.0328570	0.08247515	5.2270177	20	9 5.5	21.1
432275 2009 SV ₁₂₅	17.6	X	40.58908	71.66986	224.73886	6.01143	0.1078783	0.27002439	2.3706497	20	10 20.5	20.4
432276 2009 SO ₁₃₂	17.8	X	159.26194	294.04095	161.50310	4.22772	0.1406068	0.24132717	2.5550451	20	6 13.3	21.8
432277 2009 SV ₁₃₂	17.4	X	112.25154	8.88881	44.94805	5.67464	0.1088448	0.22109623	2.7086226	20	2 29.9	21.2
432278 2009 SW ₁₄₅	15.2	X	168.30520	173.67762	127.54164	3.80283	0.2030489	0.12435385	3.9752388	20	1 1.6	21.7
432279 2009 SS ₁₅₃	17.7	X	17.19302	158.50458	195.10677	6.23121	0.1538061	0.27833822	2.3232047	20	12 15.6	20.5
432280 2009 SG ₁₆₇	18.2	X	47.00490	151.50639	179.15701	3.34361	0.1429071	0.28436127	2.2902827	20	12 22.7	21.2
432281 2009 SD ₁₆₈	17.3	X	222.14891	315.97537	49.10783	4.84489	0.2331314	0.23880135	2.5730301	20	4 16.1	21.6
432282 2009 SZ ₁₇₃	17.5	X	165.36281	178.91005	338.22976	7.01122	0.0599703	0.26565681	2.3965625	20	9 10.2	20.7
432283 2009 SL ₁₉₁	17.5	X	9.24907	26.57100	320.53057	3.03618	0.1511379	0.27544817	2.3394267	20	11 22.1	20.0
432284 2009 SW ₂₀₇	17.8	X	180.10655	68.40336	358.05920	4.69517	0.1589224	0.24081599	2.5586596	20	5 25.8	21.9
432285 2009 SM ₂₀₉	14.4	X	240.78567	123.39429	343.81578	2.85227	0.0239525	0.08414118	5.1577901	20	9 17.1	21.3
432286 2009 SV ₂₁₀	17.9	X	75.58608	290.61116	17.65223	4.50030	0.1846595	0.28418749	2.2912162	20	12 28.2	21.4
432287 2009 SF ₂₁₁	18.0	X	25.16951	319.85183	9.45732	2.19194	0.2219209	0.27606752	2.3359265	20	12 3.1	20.8
432288 2009 SS ₂₃₅	13.6	X	300.54937	164.55738	229.87408	9.23781	0.0752764	0.08019630	5.3255749	20	8 24.3	20.5
432289 2009 SP ₂₅₀	17.8	X	206.01336	224.27895	189.84043	13.75084	0.0605706	0.24485347	2.5304545	20	6 10.8	21.6
432290 2009 SN ₂₅₃	17.7	X	144.46651	255.24028	196.06201	6.99177	0.1836844	0.23498706	2.6007987	20	5 27.2	21.9
432291 2009 SJ ₂₆₃	17.6	X	282.58396	359.43789	19.80136	10.57929	0.2287199	0.25860768	2.4399173	20	7 9.0	20.8
432292 2009 SZ ₂₆₇	17.9	X	95.64409	231.40474	106.67677	1.11363	0.2381507	0.29701762	2.2247501	20	—	—
432293 2009 SQ ₂₆₈	17.6	X	2.30874	348.79955	3.74687	1.37917	0.2047579	0.27470820	2.3436260	20	11 27.8	19.7
432294 2009 SD ₂₇₂	14.0	X	330.23315	153.76138	229.20782	7.12559	0.0872735	0.08359353	5.1802922	20	9 19.2	20.5
432295 2009 SF ₂₇₃	17.5	X	271.78536	177.92893	213.26952	7.90385	0.1618619	0.25959640	2.4337181	20	7 17.7	20.7
432296 2009 SW ₂₇₄	18.1	X	216.00421	21.40657	25.19539	4.97386	0.1453433	0.24680054	2.5171281	20	6 5.0	22.0
432297 2009 SO ₂₈₀	17.0	X	341.70451	331.76721	34.35568	6.95117	0.1454970	0.27140989	2.3625750	20	10 29.9	18.9
432298 2009 SJ ₂₉₄	17.7	X	103.96419	129.89317	196.87216	5.32120	0.2051882	0.29783503	2.2206777	20	—	—
432299 2009 SK ₂₉₅	17.5	X	144.37807	241.89161	174.01017	11.80197	0.0486572	0.23048393	2.6345652	20	4 1.2	21.1
432300 2009 SN ₃₀₈	13.8	X	300.54821	357.11935	56.46273	12.69822	0.1147633	0.08198772	5.2477141	20	9 20.7	20.5
432301 2009 SH ₃₂₁	13.6	X	304.38658	179.79145	226.09298	12.43676	0.0638184	0.08348568	5.1847530	20	9 12.3	20.4
432302 2009 SL ₃₄₃	17.7	X	152.58861	61.45372	49.25112	5.29859	0.1905861	0.24297510	2.5434793	20	6 27.9	21.9
432303 2009 SP ₃₄₅	17.7	X	98.76969	69.93247	231.53094	1.30625	0.2043156	0.28905327	2.2654307	20	—	—
432304 2009 SJ ₃₅₀	17.9	X	65.35397	252.29831	36.40898	2.00151	0.1751646	0.27508914	2.3414618	20	11 20.5	21.1
432305 2009 SY ₃₅₅	14.1	X	295.86181	244.38616	186.64808	9.45213	0.0391761	0.08557695	5.0999373	20	10 7.9	20.8
432306 2009 SQ ₃₅₇	14.2	X	272.03918	39.78767	30.83112	13.74018	0.0531598	0.08223849	5.2370411	20	9 12.9	21.2
432307 2009 TX	17.7	X	357.15332	69.88149	257.88114	6.00823	0.1828758	0.26874269	2.3781812	20	9 24.9	20.2
432308 2009 TQ ₃	17.2	X	27.47663	335.74869	2.09396	8.02858	0.2927082	0.27698857	2.3307453	20	12 28.4	20.5
432309 2009 TB ₁₁	17.1	X	154.20196	6.09828	67.36972	4.15828	0.2350207	0.23242706	2.6198610	20	5 15.4	21.5
432310 2009 TD ₁₂	16.7	X	208.99948	165.36138	171.37936	14.31938	0.2695804	0.23151003	2.6267748	20	3 1.2	21.5
432311 2009 TC ₁₆	17.7	X	325.08299	338.63062	24.12381	2.60625	0.2244278	0.26512003	2.3997962	20	9 15.8	19.2
432312 2009 TJ ₁₈	17.5	X	22.08919	294.46310	43.63590	9.60381	0.2418545	0.27768716	2.3268346	20	12 13.7	20.4
432313 2009 TJ ₂₀	17.0	X	341.36469	308.85727	42.59024	7.21773	0.1269438	0.26811469	2.3818933	20	10 6.9	19.2

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
432321 2009 UV ₃₃	17.4	X	227.73001	165.03825	219.61030	6.63867	0.2057409	0.24111904	2.5565152	20	5 16.1	21.5
432322 2009 US ₃₈	17.1	X	225.17399	332.98585	49.08945	14.77677	0.1862676	0.24004565	2.5641307	20	5 11.2	21.0
432323 2009 UT ₃₉	17.0	X	209.28619	341.38504	53.18409	5.11744	0.2125171	0.23768231	2.5810999	20	5 11.7	21.1
432324 2009 UM ₇₈	14.1	X	342.00032	349.98541	29.44965	16.15962	0.0287969	0.08459259	5.1394247	20	10 7.8	20.8
432325 2009 UL ₈₀	13.8	X	309.95688	25.33788	27.67886	35.40334	0.0570704	0.08484140	5.1293717	20	10 10.4	20.5
432326 2009 UL ₈₃	17.5	X	191.02911	215.84660	192.56652	2.04772	0.1285944	0.23518447	2.5993432	20	5 15.1	21.5
432327 2009 UR ₈₅	17.9	X	24.61366	165.52664	190.10016	2.06865	0.2262914	0.27657916	2.3330448	20	—	—
432328 2009 UR ₈₉	17.6	X	335.82173	318.59702	25.68489	9.12439	0.2233768	0.26322742	2.4112855	20	9 16.7	19.2
432329 2009 UD ₁₀₃	17.2	X	136.00168	222.45398	197.45233	6.28043	0.2952382	0.22302696	2.6929677	20	4 18.4	21.8
432330 2009 UK ₁₀₃	17.6	X	201.27298	350.21807	44.84134	4.29367	0.1772791	0.23576379	2.5950833	20	5 6.4	21.8
432331 2009 UH ₁₁₁	17.4	X	184.27839	24.43967	57.06477	7.57094	0.1604827	0.23901534	2.5714941	20	6 18.7	21.6
432332 2009 UU ₁₂₆	17.1	X	195.75737	200.50534	184.21702	4.03134	0.2742333	0.23386005	2.6091478	20	4 18.6	21.8
432333 2009 UC ₁₂₈	17.5	X	32.22748	262.24839	64.82359	5.00060	0.1053827	0.26864479	2.3787589	20	11 20.2	20.2
432334 2009 UP ₁₃₀	17.1	X	155.57028	7.85578	72.16576	5.83246	0.2407267	0.23067316	2.6331242	20	5 24.8	21.6
432335 2009 UO ₁₄₅	17.1	X	127.42397	75.45955	341.90822	16.42256	0.2237097	0.22419346	2.6836184	20	3 27.1	21.5
432336 2009 UL ₁₄₇	16.9	X	137.68689	32.12470	83.30743	7.45900	0.1015361	0.22726449	2.6593878	20	6 13.8	20.8
432337 2009 UT ₁₄₇	16.9	X	154.52744	182.75690	246.02630	13.76836	0.0580822	0.22859147	2.6490859	20	4 27.8	20.8
432338 2009 VH ₄	17.1	X	156.58243	347.03958	37.61863	13.01932	0.1602664	0.22334599	2.6904026	20	3 20.3	21.5
432339 2009 VQ ₁₆	16.2	X	166.16770	189.80297	250.18669	21.22507	0.0487736	0.23316384	2.6143391	20	5 27.9	19.9
432340 2009 VH ₂₃	13.0	X	354.52113	313.86311	69.57096	22.48583	0.0632004	0.08298472	5.2055978	20	10 31.8	19.7
432341 2009 VM ₂₃	16.5	X	188.36801	324.05697	67.97177	14.69833	0.2606504	0.23163030	2.6258654	20	4 26.2	21.3
432342 2009 VT ₂₇	16.4	X	170.51751	183.48153	241.16395	11.64449	0.1763255	0.23335780	2.6128903	20	5 15.9	20.6
432343 2009 VJ ₃₁	17.5	X	114.84306	290.26014	15.25432	5.35039	0.2618962	0.28923856	2.2644631	20	—	—
432344 2009 VG ₃₂	17.6	X	83.07192	278.88521	205.45423	14.19590	0.0959653	0.22625744	2.6672730	20	4 18.8	21.1
432345 2009 VY ₄₀	17.0	X	334.75339	83.21762	275.37696	5.41546	0.1824578	0.26577460	2.3958543	20	9 29.7	18.9
432346 2009 VB ₄₂	17.7	X	145.40635	45.71667	14.31921	4.69699	0.2330843	0.22602806	2.6690772	20	4 20.7	22.3
432347 2009 VO ₄₅	17.2	X	268.08079	150.07260	216.43661	9.05854	0.1015714	0.24464837	2.5318686	20	6 18.3	20.7
432348 2009 VZ ₆₃	17.5	X	122.34789	193.41318	240.66403	10.16326	0.2839585	0.22011242	2.7166875	20	4 21.6	22.0
432349 2009 VH ₆₅	18.0	X	219.65436	39.89177	6.54263	3.31808	0.1340838	0.24155566	2.5534336	20	6 9.7	22.0
432350 2009 VX ₆₈	16.6	X	290.47411	283.47744	43.30863	5.05319	0.2164857	0.24317915	2.5420563	20	5 6.7	19.8
432351 2009 VD ₆₉	17.1	X	18.08691	57.54211	248.40267	13.35447	0.1979179	0.25978203	2.4325586	20	10 7.9	20.0
432352 2009 VX ₇₆	16.4	X	249.16485	81.32955	294.32236	7.55974	0.0993641	0.24507487	2.5289303	20	6 6.4	20.0
432353 2009 VB ₈₉	17.3	X	295.89480	298.50096	81.00236	13.41708	0.2237293	0.26074335	2.4265760	20	8 4.3	19.9
432354 2009 VN ₉₁	17.2	X	277.96251	302.85155	98.38641	5.53529	0.1756533	0.25903832	2.4372123	20	8 12.2	19.9
432355 2009 VG ₉₂	17.2	X	200.80018	177.57275	236.08883	2.92514	0.1347840	0.23754975	2.5820600	20	5 31.1	21.0
432356 2009 VV ₁₁₀	13.2	X	24.99262	293.73071	37.43678	24.93564	0.0568918	0.08262450	5.2207171	20	10 10.9	20.0
432357 2009 VJ ₁₁₄	16.5	X	318.18366	205.66171	80.85772	15.95952	0.0579121	0.23267311	2.6180137	20	5 20.4	19.9
432358 2009 VP ₁₁₄	16.8	X	94.16742	220.12575	277.07342	8.21727	0.1893067	0.21896560	2.7261649	20	6 2.9	20.7
432359 2009 WK ₁₄	17.1	X	152.79584	349.21400	77.67092	14.34626	0.1324236	0.22685917	2.6625544	20	5 4.8	21.3
432360 2009 WZ ₂₃	17.7	X	158.71845	108.51687	315.65953	9.39885	0.2358149	0.23063671	2.6334016	20	5 3.8	22.4
432361 2009 Rakovski	17.9	X	206.56118	5.75837	63.95037	4.72057	0.1288877	0.24249447	2.5468390	20	6 27.3	21.8
432362 2009 WF ₂₉	14.1	X	300.75083	9.83365	44.24618	12.50516	0.0851473	0.08395773	5.1653006	20	9 24.2	20.8
432363 2009 WH ₃₂	17.3	X	94.02471	42.90187	73.12374	14.93469	0.1466716	0.22093345	2.7099528	20	5 4.5	21.1
432364 2009 WB ₃₄	16.8	X	183.95033	156.01934	243.94063	11.57957	0.1723761	0.22961372	2.6412175	20	4 25.6	21.2
432365 2009 WB ₃₅	16.8	X	160.72899	337.70137	89.43581	6.53135	0.1567638	0.22212325	2.7002669	20	5 11.5	21.1
432366 2009 WH ₅₇	16.9	X	121.89734	40.90438	260.24260	15.04644	0.0717629	0.22931649	2.6434993	20	5 6.6	20.6
432367 2009 WM ₆₉	17.3	X	135.00953	342.29667	96.61447	14.60820	0.2079931	0.22003123	2.7173557	20	5 9.2	21.9
432368 2009 WT ₇₁	17.6	X	219.60317	183.69344	213.18550	2.72156	0.1819724	0.23976662	2.5661197	20	5 25.6	21.6
432369 2009 WC ₇₈	18.0	X	204.77149	32.00253	29.66999	3.79451	0.1525296	0.24359315	2.5391752	20	6 13.3	21.9
432370 2009 WQ ₈₀	17.4	X	331.62375	10.13816	323.54150	3.35822	0.1707035	0.25221490	2.4809741	20	8 12.1	19.3
432371 2009 WH ₈₇	17.6	X	117.80750	144.08029	323.80048	3.02594	0.1656128	0.22619470	2.6677662	20	5 18.6	21.7
432372 2009 WR ₉₇	17.5	X	118.76414	300.29312	160.44003	2.85264	0.1775966	0.22326275	2.6910713	20	5 13.5	21.5
432373 2009 WK ₁₀₀	16.9	X	168.20732	31.03977	30.91982	13.88948	0.2387349	0.22835746	2.6508953	20	5 9.4	21.6
432374 2009 WY ₁₁₄	17.7	X	92.95762	331.11549	339.95830	4.13153	0.2515914	0.28425109	2.9088745	20	—	—
432375 2009 WY ₁₂₄	17.1	X	110.89707	11.94853	69.02312	13.03872	0.1049357	0.21884127	2.7271973	20	4 6.4	21.1
432376 2009 WM ₁₃₆	17.5	X	166.58716	29.92345	42.92159	5.70726	0.1692793	0.23380878	2.6095293	20	5 22.1	21.6
432377 2009 WB ₁₄₆	12.7	X	188.14219	281.04387	250.91669	25.65409	0.0149609	0.08096005	5.2920291	20	9 24.1	20.1
432378 2009 WX ₁₆₀	17.9	X	199.21064	135.22824	294.90859	2.28958	0.0714169	0.24057562	2.5603636	20	6 23.0	21.4
432379 2009 WQ ₁₆₈	17.4	X	217.65442	246.72480	149.86080	1.80452	0.0890206	0.23745579	2.5827411	20	5 29.8	21.2
432380 2009 WS ₁₇₅	17.0	X	173.09235	173.28363	264.60092	11.40929	0.1615695	0.23535982	2.5980520	20	6 3.9	21.1
432381 2009 WK ₁₉₀	17.5	X	186.82803	301.39432	105.01991	1.05470	0.1081823	0.23139294	2.6276609	20	5 8.4	21.5
432382 2009 WG ₁₉₂	18.1	X	168.75066	41.67171	51.13606	6.17434	0.2207154	0.23696997	2.5862699	20	6 19.3	22.6
432383 2009 WJ ₁₉₅	16.6	X	201.50116	322.36304	84.94052	15.61775	0.0826385	0.23559348	2.5963339	20	5 27.7	20.5
432384 2009 WE ₁₉₆	17.4	X	186.10939	36.09114	338.95195	2.25545	0.1451793	0.22583526	2.6705962	20	3 28.9	21.7
432385 2009 WQ ₂₀₉	17.2	X	177.29850	304.22856	90.33768	3.73269	0.1472455	0.22429863	2.6827794	20	4 16.1	21.5
432386 2009 WA ₂₃₈	17.5	X	264.05143	353.57751	40.13616	3.69547	0.0952539	0.24783472	2.5101208	20	7 23.6	20.7
432387 2009 WS ₂₃₈	17.2	X	271.58344	238.37246	94.55826	5.85244	0.1283973	0.24028666	2.5624159	20	5 6.0	20.7
432388 2009 WQ ₂₄₂	17.2	X	193.63028	342.26754	38.70816	6.90956	0.0994554	0.22824288	2.6517825	20	4 13.9	21.1
432389 2009 WU ₂₄₄	16.5	X	227.57173	339.39667	78.97489	6.19873	0.2463046	0.23911290	2.5707946	20	6 24.2	20.7
432390 2009 WVV ₂₅₃	17.3	X	14.06066	292.54860	59.44301	6.84476	0.1363401	0.26894464	2.3769906	20	12 2.7	20.0
432391 2009 WL ₂₆₂	16.8	X	243.41587	101.87406	288.66318	14.27661	0.1597818	0.24655915	2.5187707	20	6 12.9	20.5
432392 2009 XW ₂	13.7	X	294.78482	32.96862	24.33954	26.32699	0.0369509	0.08631105	5.0709787	20	9 29.1	20.5
432393 2009 XW ₄	17.3	X	220.08430	129.81595	246.84895	5.17566	0.1974353					

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>
432401 2009 YY ₁₄	17.0	X	61.20193	99.33325	61.55981	5.61065	0.0711842	0.21739418	2.7392864	20	5 4.2	20.4
432402 2009 YF ₂₁	16.5	X	225.73319	297.44664	95.46102	14.77962	0.1726725	0.23300511	2.6155262	20	5 29.3	20.8
432403 2009 YH ₂₂	16.8	X	141.87046	349.42722	109.87546	14.30444	0.1317975	0.22508295	2.6765436	20	6 2.3	21.0
432404 2009 YK ₂₃	16.8	X	148.64068	339.25461	71.98065	4.95741	0.2276392	0.21744392	2.7388686	20	4 15.3	21.4
432405 2010 AT	16.6	X	100.60038	52.36882	105.69248	16.11301	0.0868409	0.23029030	2.6360417	20	6 25.5	20.3
432406 2010 AA ₁	16.8	X	22.56387	190.44123	96.71048	14.83020	0.0327711	0.24651561	2.5190673	20	9 2.5	20.2
432407 2010 AW ₂	17.0	X	118.78279	102.95456	351.92841	4.72586	0.0809835	0.21882107	2.7273652	20	4 22.3	20.8
432408 2010 AZ ₄	16.9	X	151.96507	15.35334	98.13374	12.97888	0.1405021	0.23302248	2.6153963	20	6 28.7	21.1
432409 2010 AA ₈	16.9	X	160.19747	58.19067	39.15479	5.44138	0.1313832	0.22993063	2.6387900	20	6 15.3	21.0
432410 2010 AD ₈	16.0	X	197.61467	358.61933	82.67124	14.10265	0.0087850	0.23450458	2.6043649	20	7 10.0	19.5
432411 2010 AF ₉	16.5	X	149.81233	329.47708	115.74994	14.60720	0.2247056	0.22424002	2.6832469	20	5 29.1	21.2
432412 2010 AR ₂₃	16.7	X	108.49389	335.11518	132.95492	8.19905	0.2184074	0.21589174	2.7519805	20	5 18.5	21.0
432413 2010 AU ₂₆	16.0	X	80.71340	221.59150	305.25143	12.92564	0.2013282	0.22038479	2.7144487	20	6 29.3	19.9
432414 2010 AR ₃₁	16.2	X	32.65326	80.26626	133.16627	12.10956	0.1322827	0.21461415	2.7628914	20	6 10.4	19.5
432415 2010 AZ ₃₃	16.5	X	226.41571	278.47492	95.86785	5.44339	0.2157764	0.22747560	2.6577421	20	5 3.1	20.9
432416 2010 AE ₃₅	16.9	X	138.87930	347.80530	135.41423	14.16288	0.1204053	0.22554009	2.6729256	20	6 27.2	21.2
432417 2010 AC ₄₂	16.8	X	109.81389	245.32597	238.78796	3.84924	0.1887231	0.22043285	2.7140542	20	6 3.6	20.8
432418 2010 AK ₅₀	16.8	X	32.35549	300.37293	272.95993	8.02093	0.1784319	0.21502044	2.7594099	20	6 13.8	19.6
432419 2010 AQ ₅₉	16.5	X	120.82251	62.57260	94.16580	13.60841	0.1158458	0.22907202	2.6453797	20	7 21.3	20.4
432420 2010 AT ₅₉	16.8	X	185.68579	40.37228	28.76509	7.39700	0.2834383	0.23075476	2.6325034	20	6 2.2	21.6
432421 2010 AC ₆₄	16.5	X	26.04768	302.99173	312.13432	11.42151	0.1011987	0.23155568	2.6264296	20	7 25.5	19.5
432422 2010 AV ₆₄	17.0	X	28.56722	72.56704	85.28158	11.19997	0.0413525	0.21291678	2.7775558	20	3 16.7	20.8
432423 2010 AO ₇₉	16.3	X	171.95893	350.32933	117.34993	15.45150	0.0276684	0.23056669	2.6339347	20	7 11.2	19.8
432424 2010 AS ₈₂	16.9	X	116.82677	66.16605	287.11871	11.03167	0.2038335	0.21163279	2.7887789	20	1 3.1	20.7
432425 2010 AP ₉₃	15.8	X	68.44136	70.94074	239.21841	26.43634	0.0935164	0.17603110	3.1531390	20	1 8.3	20.4
432426 2010 AR ₉₇	16.8	X	353.72968	28.75151	274.88738	11.63669	0.1667217	0.26113600	2.4241429	20	8 10.2	19.0
432427 2010 AK ₁₀₄	15.5	X	266.94264	338.07004	179.55393	14.03981	0.0486802	0.18443435	3.0566204	20	2 4.2	20.0
432428 2010 AH ₁₀₈	13.4	X	294.06780	213.27353	299.00645	22.08550	0.0545375	0.08065917	5.3051809	20	9 8.7	20.4
432429 2010 BQ ₄₃	16.3	X	324.38026	57.45603	128.77775	15.98419	0.1688024	0.18066159	3.0990280	20	1 7.0	20.5
432430 2010 BH ₅₁	15.6	X	176.40341	249.33624	109.54960	22.82572	0.0858511	0.18570998	3.0426072	20	3 8.9	20.6
432431 2010 BW ₅₆	16.4	X	304.59660	115.44818	144.97538	12.52625	0.0803277	0.19230522	2.9726378	20	3 26.9	20.5
432432 2010 BY ₆₃	16.3	X	12.39244	295.93856	187.13575	26.48183	0.2041232	0.18113400	3.0936373	20	—	—
432433 2010 BV ₇₅	15.6	X	189.65822	9.97181	306.77420	16.60638	0.1372939	0.17375340	3.1806350	20	1 28.3	20.7
432434 2010 BH ₇₈	15.8	X	5.33117	126.25808	345.70005	26.89081	0.1833982	0.17447598	3.1718474	20	—	—
432435 2010 BC ₇₉	16.1	X	237.94111	298.37607	327.59138	15.70180	0.0840222	0.17421073	3.1750662	20	1 19.3	21.1
432436 2010 BF ₈₁	15.8	X	223.85482	60.14837	210.36514	18.59446	0.1079741	0.17107820	3.2137069	20	1 4.2	21.2
432437 2010 BN ₉₁	15.9	X	277.19819	281.42078	32.12613	12.22237	0.1570342	0.19534070	2.9417622	20	4 14.7	20.0
432438 2010 BX ₁₀₆	16.3	X	263.62263	288.30934	319.88638	12.04700	0.0506729	0.17671150	3.1450401	20	1 26.6	20.8
432439 2010 BY ₁₂₃	16.1	X	245.61910	204.36490	104.40809	12.36892	0.1693131	0.18427114	3.0584250	20	3 10.9	21.1
432440 2010 CV ₈	16.0	X	35.74973	64.12668	87.89300	12.04374	0.1044270	0.18867962	3.0105976	20	3 26.6	19.9
432441 2010 CC ₁₀	15.8	X	356.74124	263.33933	212.41281	24.59258	0.2726606	0.17370465	3.1812301	20	—	—
432442 2010 CH ₂₃	16.6	X	163.05696	81.65183	315.71036	4.48224	0.0618113	0.21086166	2.7955738	20	3 29.4	20.8
432443 2010 CE ₃₃	17.1	X	87.23448	63.16484	90.81686	4.47503	0.1322211	0.21678207	2.7444405	20	6 8.9	20.9
432444 2010 CA ₄₀	16.4	X	225.19657	287.28569	338.95489	7.57496	0.1736670	0.17893560	3.1189246	20	1 1.3	21.7
432445 2010 CD ₄₃	16.9	X	63.78866	208.13460	319.60881	9.39308	0.0741308	0.21460828	2.7629420	20	5 13.8	20.6
432446 2010 CC ₄₅	16.1	X	340.21253	155.75479	353.11885	18.31418	0.1001943	0.17124575	3.2116103	20	—	—
432447 2010 CX ₄₇	16.0	X	287.99003	19.38615	212.09454	9.91438	0.1569945	0.17607123	3.1526598	20	1 17.4	20.8
432448 2010 CS ₆₂	16.7	X	143.37486	302.27704	143.10776	5.01981	0.2012746	0.21598256	2.7512091	20	5 20.5	21.3
432449 2010 CV ₆₆	17.1	X	113.33060	99.39842	29.11513	3.06117	0.1287983	0.21829137	2.7317755	20	6 5.8	21.1
432450 2010 CY ₆₇	17.0	X	186.53503	77.66251	307.90672	5.41028	0.1126894	0.21105969	2.7938249	20	4 9.6	21.5
432451 2010 CY ₇₆	17.0	X	4.16363	227.19164	352.34914	1.19639	0.0390298	0.20887472	2.8132747	20	4 25.8	20.6
432452 2010 CM ₉₃	16.6	X	305.43897	182.91750	153.13928	14.43929	0.0648120	0.22187605	2.7022723	20	7 5.2	20.3
432453 2010 CN ₉₃	16.4	X	288.84443	95.49222	135.78786	6.63755	0.0702644	0.18803399	3.0174852	20	1 29.8	20.7
432454 2010 CL ₁₀₇	16.9	X	56.10601	27.66378	150.14833	1.35276	0.0519526	0.20851047	2.8165500	20	5 16.9	20.5
432455 2010 CG ₁₂₀	16.5	X	87.05274	56.37216	132.43186	9.68490	0.0739029	0.22431953	2.6826128	20	7 16.7	20.2
432456 2010 CA ₁₂₇	16.9	X	62.57479	19.77952	111.62760	3.09933	0.0263327	0.20405695	2.8573830	20	3 24.2	20.6
432457 2010 CU ₁₂₇	17.3	X	217.78291	216.76486	167.34388	5.97688	0.0255867	0.21764504	2.7371811	20	5 19.8	21.2
432458 2010 CX ₁₂₇	15.5	X	296.49561	21.83895	310.70459	27.51702	0.1012449	0.22766182	2.6562926	20	6 15.3	19.4
432459 2010 CZ ₁₃₆	15.8	X	253.51163	212.04118	80.41018	13.91660	0.1563987	0.17990255	3.1077387	20	3 1.9	20.9
432460 2010 CZ ₁₃₈	16.9	X	72.76364	36.87913	136.75903	3.00834	0.1665704	0.21929709	2.7234170	20	6 21.5	20.4
432461 2010 CL ₁₄₀	16.7	X	303.12727	67.17205	138.07266	13.56205	0.0908273	0.17394955	3.1782436	20	1 14.7	21.2
432462 2010 CX ₁₄₁	16.5	X	97.77968	78.80408	64.85148	8.84407	0.1198990	0.21973251	2.7198180	20	6 6.1	20.3
432463 2010 CK ₁₄₃	17.2	X	81.92325	138.59075	353.77655	8.14815	0.1458723	0.21090542	2.7951871	20	5 3.1	21.0
432464 2010 CO ₁₄₃	16.0	X	43.07456	334.57673	131.21435	9.94131	0.0597877	0.19259773	2.9696272	20	1 28.1	19.8
432465 2010 CT ₁₅₂	16.3	X	228.14605	320.27456	327.22950	9.77016	0.0902071	0.19225335	2.9731725	20	1 30.2	20.9
432466 2010 CM ₁₅₈	17.4	X	86.13225	319.57030	170.10364	7.81631	0.2192356	0.21203024	2.7852928	20	5 20.8	21.4
432467 2010 CX ₁₉₂	15.7	X	247.11338	189.88952	87.15292	23.61954	0.0534726	0.17781937	3.1319633	20	2 15.1	20.7
432468 2010 CT ₂₂₈	15.9	X	96.70583	257.35218	135.99781	10.16033	0.0967387	0.16916165	3.2379349	20	1 19.1	20.4
432469 2010 DK ₆	15.6	X	97.01729	176.97059	170.02966	17.48096	0.0889660	0.17010537	3.2259480	20	—	—
432470 2010 DU ₁₁	16.5	X	103.12778	242.79589	186.81889	8.43885	0.1096443	0.19516960	2.9434812	20	3 8.5	20.7
432471 2010 DX ₂₇	15.9	X	251.21984	136.14928	183.07209	15.51472	0.1808833	0.18379759	3.0636760	20	3 22.4	20.5
432472 2010 DP ₃₃	16.0	X	292.63151	169.94810	84.74169	17.47985	0.1068230	0.18199090	3.0839189	20	3 6.5	20.7
432473 2010 DU ₃₃	15.3	X	229.81984	210.24893	81.33932	16.30089	0.1542019	0.17246076	3.1965084	20	2 6.8</	

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>
432481 2010 DE ₇₀	15.2	X	198.48212	227.02172	105.17066	26.64763	0.1465251	0.17292317	3.1908074	20	2 28.7	20.7
432482 2010 DU ₇₁	16.2	X	264.72101	135.97789	148.74210	16.03116	0.2050997	0.17815374	3.1280433	20	2 22.2	21.0
432483 2010 DC ₇₄	17.0	X	45.65767	217.38991	334.70408	2.02080	0.0941978	0.21000887	2.8031368	20	5 25.5	20.4
432484 2010 EK ₃₃	16.6	X	145.28807	319.47363	175.13215	16.93817	0.0309916	0.22157551	2.7047152	20	7 11.5	20.7
432485 2010 EO ₃₃	16.5	X	291.02023	206.90419	358.58262	6.63680	0.2025821	0.17843896	3.1247092	20	—	—
432486 2010 EY ₃₇	16.5	X	333.05051	0.69216	180.14449	4.27424	0.1002025	0.18203630	3.0834060	20	1 20.5	20.7
432487 2010 EA ₄₂	16.9	X	325.51925	137.94759	75.46532	2.09561	0.1990054	0.18672530	3.0315677	20	2 6.3	20.7
432488 2010 EX ₄₂	16.5	X	348.91552	154.34708	95.10025	8.37041	0.2933514	0.20093288	2.8669241	20	4 29.8	19.0
432489 2010 EY ₆₅	16.5	X	66.88125	76.47091	140.28200	12.34404	0.1275833	0.22038687	2.7144316	20	8 4.7	20.1
432490 2010 EK ₇₇	17.0	X	51.97919	282.80111	202.29230	3.90724	0.1002675	0.19168501	2.9790465	20	3 7.9	20.8
432491 2010 EB ₇₉	17.2	X	359.40442	211.73892	6.14509	15.01365	0.0848641	0.20261118	2.8709598	20	4 12.7	20.7
432492 2010 EM ₈₁	15.8	X	179.83054	311.08063	0.36938	22.32664	0.0653808	0.17997143	3.1069458	20	1 16.2	20.9
432493 2010 ED ₈₇	16.2	X	90.21649	54.48378	26.72625	13.91566	0.1717432	0.19099901	2.9861753	20	3 21.8	20.4
432494 2010 EG ₈₈	16.6	X	26.66415	272.34831	331.58267	13.04836	0.0932663	0.22356041	2.6886821	20	7 10.7	19.9
432495 2010 ES ₉₁	16.8	X	301.30812	156.04587	88.04697	4.33995	0.1319670	0.18978649	2.9988807	20	2 22.5	20.9
432496 2010 EA ₁₀₃	17.0	X	359.53960	28.07643	191.83123	5.40475	0.1084383	0.20203870	2.8763805	20	4 19.2	20.4
432497 2010 EK ₁₀₃	16.7	X	151.18551	108.56032	354.30462	8.82041	0.1341402	0.21679452	2.7443354	20	6 12.9	21.1
432498 2010 ET ₁₁₂	16.5	X	306.53733	38.09556	189.08635	13.32591	0.1214047	0.18517514	3.0484630	20	2 5.7	20.9
432499 2010 EH ₁₃₈	16.5	X	68.89200	146.25040	23.01290	10.48926	0.1846425	0.20474581	2.8509703	20	6 11.3	20.4
432500 2010 ED ₁₄₀	16.5	X	17.76767	118.76889	21.91060	11.41547	0.0888752	0.18601512	3.0392789	20	2 10.9	20.5
432501 2010 EE ₁₄₁	16.3	X	284.46837	230.65936	349.55382	4.65549	0.0830491	0.18041430	3.1018592	20	1 12.1	20.7
432502 2010 EG ₁₄₂	15.9	X	290.19429	174.29828	19.92572	27.46798	0.1065352	0.17220901	3.1996229	20	—	—
432503 2010 EW ₁₅₂	16.1	X	277.55931	33.39968	211.28362	20.33802	0.0788906	0.17170143	3.2059256	20	1 28.4	21.2
432504 2010 ER ₁₇₁	16.5	X	152.49003	328.48603	142.07361	14.38254	0.1328974	0.21892597	2.7264939	20	6 25.5	21.0
432505 2010 EZ ₁₇₁	16.4	X	272.77920	255.47961	57.46352	14.57458	0.0537504	0.20597353	2.8396301	20	4 25.2	20.4
432506 2010 FW ₁	16.6	X	319.14754	85.57938	132.21207	6.61944	0.1137131	0.19162127	2.9797071	20	2 14.2	20.4
432507 2010 FN ₂	15.7	X	18.76586	83.00199	14.73572	15.96235	0.0583714	0.17905730	3.1175112	20	—	—
432508 2010 FA ₄	16.3	X	210.06689	180.68188	141.49481	8.20870	0.0765663	0.19041890	2.9922372	20	2 21.7	20.7
432509 2010 FF ₇	19.5	X	83.95969	342.51393	61.05107	16.17628	0.8279248	0.59182207	1.4049966	20	4 10.7	20.3
432510 2010 FG ₁₃	15.5	X	259.63783	203.67027	10.80045	27.24282	0.0817546	0.17548156	3.1597185	20	—	—
432511 2010 FZ ₁₆	16.4	X	78.38338	168.43373	10.77739	14.23844	0.0884646	0.21116659	2.7928820	20	6 24.3	20.5
432512 2010 FH ₁₇	16.6	X	224.04747	3.07042	7.93479	10.33753	0.1174272	0.21222865	2.7835565	20	4 28.7	21.0
432513 2010 FJ ₂₅	16.0	X	239.04526	241.06519	15.10367	16.34607	0.1741090	0.17598774	3.1536569	20	1 2.2	21.4
432514 2010 FT ₃₀	16.3	X	334.41719	353.05252	193.11734	10.10158	0.0348950	0.18145201	3.0900217	20	2 3.8	20.7
432515 2010 FN ₅₅	16.4	X	317.18506	9.73093	163.27067	0.29259	0.1596482	0.17808384	3.1288618	20	—	—
432516 2010 FW ₅₆	16.3	X	281.54324	71.86739	260.24388	5.01681	0.1025376	0.18308567	3.0716129	20	1 18.5	20.8
432517 2010 FH ₉₀	16.9	X	11.27921	29.17150	188.36209	11.96068	0.0671850	0.20376433	2.8601180	20	5 6.7	20.5
432518 2010 FK ₉₃	16.3	X	164.70792	118.87959	191.05197	13.61168	0.0248998	0.17123137	3.2117902	20	—	—
432519 2010 FV ₉₉	16.2	X	236.38877	123.61715	189.60166	9.37156	0.0714580	0.19019279	2.9946082	20	3 7.9	20.7
432520 2010 FA ₁₀₀	16.3	X	216.07913	87.23105	193.32661	17.86963	0.0611611	0.17749638	3.1357617	20	1 9.0	21.4
432521 2010 FA ₁₀₁	16.3	X	315.33345	338.86640	216.05534	5.45700	0.1371052	0.17842491	3.1248731	20	1 9.7	20.7
432522 2010 GY ₃₄	18.2	X	3.47845	355.74212	201.70239	20.96573	0.0595320	0.38894957	1.8586910	20	2 25.5	20.1
432523 2010 GB ₇₅	15.6	X	298.14528	148.28040	24.66404	28.25215	0.1667345	0.17332032	3.1859312	20	—	—
432524 2010 EG ₉₇	16.3	X	247.91442	109.11732	197.01351	15.91164	0.2173954	0.18114988	3.0934565	20	2 27.5	21.6
432525 2010 GW ₉₇	16.4	X	248.05126	235.24821	41.65164	17.65982	0.0400326	0.18272922	3.0756061	20	2 19.8	21.2
432526 2010 GA ₉₈	16.0	X	358.83154	118.05885	31.04732	16.10517	0.1680004	0.18111869	3.0938116	20	1 16.9	19.9
432527 2010 GJ ₁₀₁	17.2	X	318.77370	151.44248	94.78999	6.20712	0.2114636	0.18944366	3.0024976	20	3 9.0	21.0
432528 2010 GZ ₁₁₆	16.3	X	253.74897	38.42379	211.18345	15.87518	0.0333341	0.17552900	3.1591491	20	1 14.4	21.2
432529 2010 GU ₁₁₈	17.0	X	331.77035	224.63553	17.54455	5.57896	0.0826995	0.19827231	2.9126927	20	4 19.1	20.7
432530 2010 GV ₁₁₈	16.4	X	254.87700	214.56164	26.56821	6.81103	0.1114921	0.17398836	3.1777709	20	1 2.9	21.3
432531 2010 GO ₁₂₀	15.7	X	243.14897	248.96751	48.92990	22.05630	0.1029892	0.18205823	3.0831584	20	3 8.9	20.8
432532 2010 GP ₁₂₃	16.3	X	210.50464	289.68565	27.88936	10.70477	0.0921610	0.18135709	3.0910997	20	2 21.4	21.2
432533 2010 GV ₁₂₃	16.8	X	265.54884	75.08282	151.07708	1.69352	0.1213727	0.17616248	3.1515711	20	—	—
432534 2010 GT ₁₂₅	17.2	X	302.48383	86.55914	180.11594	9.56114	0.1383656	0.19194518	2.9763540	20	3 20.1	21.3
432535 2010 GH ₁₂₇	16.2	X	32.51943	330.10578	169.70399	9.17218	0.0405768	0.18244903	3.0787542	20	2 24.8	20.3
432536 2010 GB ₁₂₉	17.0	X	308.41742	355.33554	222.31776	8.42945	0.0795787	0.18427924	3.0583354	20	2 2.5	21.3
432537 2010 GK ₁₃₀	16.5	X	36.01541	116.14970	48.74428	12.24312	0.0890970	0.19164645	2.9794461	20	4 8.9	20.3
432538 2010 GT ₁₃₁	16.2	X	335.73023	109.29109	37.30554	9.67100	0.0609652	0.17084105	3.2166803	20	—	—
432539 2010 GK ₁₃₂	16.6	X	5.51673	323.11399	197.34479	4.28880	0.0971186	0.18459199	3.0548799	20	2 10.9	20.5
432540 2010 GT ₁₅₆	16.3	X	230.65476	117.25368	169.84626	10.03718	0.1980367	0.17434894	3.1733880	20	1 26.4	21.7
432541 2010 HE	15.8	X	34.17124	44.56773	56.32417	28.81609	0.1871554	0.18190054	3.0849401	20	1 18.1	19.7
432542 2010 HV ₆₀	16.7	X	136.46660	295.23962	128.45725	8.59390	0.2180411	0.21484573	2.7609057	20	4 21.2	21.3
432543 2010 HT ₇₈	16.8	X	294.85291	194.00072	66.00500	5.03369	0.1469970	0.18492383	3.0512243	20	3 4.3	21.1
432544 2010 HJ ₇₉	16.7	X	352.37514	126.31464	45.56084	5.32415	0.1219667	0.18440315	3.0569652	20	2 6.8	20.5
432545 2010 HT ₇₉	16.1	X	278.65174	172.56567	48.61863	7.13318	0.0968542	0.17341656	3.1847524	20	1 5.9	20.8
432546 2010 HW ₈₀	16.6	X	278.83285	311.81004	295.24663	1.77018	0.1458667	0.17941491	3.1133673	20	1 29.0	21.3
432547 2010 JP ₂	16.9	X	25.86510	102.94170	29.53555	5.76444	0.1048722	0.18416664	3.0595819	20	2 10.9	20.7
432548 2010 JH ₃₁	16.4	X	232.06174	61.16215	215.20504	3.59037	0.1619234	0.17177963	3.2049526	20	1 18.0	21.7
432549 2010 JE ₄₃	16.0	X	254.40966	105.41067	177.58574	15.68862	0.2219402	0.17653521	3.1471335	20	2 7.4	21.4
432550 2010 JC ₄₅	16.0	X	192.68266	166.28213	180.22166	15.55362	0.1202628	0.17764219	3.1340455	20	3 3.2	21.0
432551 2010 JL ₄₅	15.9	X	170.79493	282.59470	66.91875	15.38271	0.0793108	0.17420915	3.1750854	20	2 21.8	21.0
432552 2010 JR ₄₅	16.2	X	230.56395	243.95030	68.16361	17.36354	0.2308052	0.17611552	3.1521313	20	3 2.4	21.9
432553 2010 JB ₄₇	16.7	X	270.27755	236.09767	10.63699	9.99544	0.0582311	0.17910095	3.1170047	20	2 2.3	21.3
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>
432561 2010 JO ₈₀	17.8	X	257.79903	242.48733	52.87624	21.83532	0.0565530	0.38050627	1.8860861	20	3 7.4	20.5
432562 2010 JE ₈₄	16.2	X	291.06120	163.98444	127.68608	16.98911	0.1181441	0.19004329	2.9961785	20	4 16.3	20.7
432563 2010 JJ ₈₉	15.6	X	334.71960	89.04765	149.54863	26.72341	0.1124950	0.17687053	3.1431545	20	4 10.8	20.0
432564 2010 JO ₁₁₀	16.2	X	352.11257	55.75728	153.07445	12.03022	0.1062349	0.18890716	3.0081797	20	3 26.3	19.9
432565 2010 JK ₁₁₅	16.0	X	290.53921	89.35614	125.94597	16.46606	0.1818999	0.17587744	3.1549753	20	1 1.1	20.9
432566 2010 JL ₁₂₀	16.0	X	267.11124	202.50579	122.17861	10.18430	0.1616573	0.19010845	2.9954939	20	4 20.4	20.6
432567 2010 JV ₁₆₀	16.0	X	100.85818	301.11384	103.04954	10.31094	0.0953821	0.17459877	3.1703601	20	2 7.0	20.5
432568 2010 LD ₆₂	15.7	X	274.32274	182.18659	75.70092	21.53562	0.0996157	0.17738336	3.1370935	20	2 19.2	20.7
432569 2010 LY ₁₀₃	18.4	X	202.57881	158.42350	149.58342	25.39715	0.0557703	0.36500655	1.9391092	20	1 1.4	21.2
432570 2010 NK ₃₇	16.0	X	191.27766	187.55891	159.49964	10.81610	0.1605172	0.18369586	3.0648071	20	3 4.1	20.9
432571 2010 NY ₃₈	18.1	X	327.38532	217.09902	164.81032	3.59687	0.1488200	0.29764792	2.2216083	20	11 4.4	19.7
432572 2010 OR ₄₇	16.0	X	337.66127	352.68567	166.28886	26.18423	0.1119658	0.17532585	3.1615890	20	1 1.3	20.7
432573 2010 OJ ₄₈	15.6	X	75.63512	120.19085	287.10461	11.97088	0.0871153	0.17003861	3.2267924	20	1 7.9	19.9
432574 2010 OA ₅₃	16.8	X	337.62999	116.75211	95.01848	17.22126	0.0585555	0.18831583	3.0144737	20	3 18.7	21.1
432575 2010 OV ₅₇	15.7	X	37.03702	225.16634	241.50539	20.66307	0.1194092	0.17858665	3.1229861	20	1 19.1	19.9
432576 2010 OB ₆₂	16.6	X	338.30257	301.93483	229.51271	15.49576	0.0891798	0.17853821	3.1235510	20	1 14.9	21.0
432577 2010 OZ ₆₇	16.0	X	307.26074	167.22379	99.91321	14.36463	0.0454488	0.19347900	2.9606029	20	4 16.9	20.3
432578 2010 OR ₇₅	15.9	X	307.03597	344.50306	245.21929	11.98982	0.0686178	0.18354412	3.0664960	20	2 14.7	20.4
432579 2010 OX ₈₃	16.2	X	292.89575	330.01134	270.67372	14.22462	0.0808666	0.18216892	3.0819094	20	2 8.8	20.8
432580 2010 OF ₈₄	16.3	X	215.02334	100.84355	191.59240	25.81424	0.2596181	0.16800943	3.2527220	20	1 17.8	22.5
432581 2010 OF ₉₉	16.4	X	238.22466	299.62310	329.91158	25.40755	0.2089411	0.17104650	3.2141040	20	1 20.7	22.0
432582 2010 OV ₁₀₄	16.2	X	296.62677	189.73727	39.23477	13.40170	0.1375457	0.17968093	3.1102936	20	2 2.2	20.9
432583 2010 PZ ₅₆	17.8	X	26.35263	9.39276	342.38041	5.08166	0.2303503	0.30565456	2.1826401	20	—	—
432584 2010 PU ₆₀	18.8	X	233.51938	286.39146	330.86656	20.17420	0.0589057	0.34716169	2.0050022	20	—	—
432585 2010 QH ₇	18.1	X	277.74600	79.54754	306.10050	6.70920	0.1076156	0.28916416	2.2648516	20	8 1.8	20.4
432586 2010 RM ₆₁	17.1	X	342.50204	234.24753	5.12218	7.35163	0.0785170	0.26458577	2.4030256	20	4 12.8	19.6
432587 2010 RY ₈₈	17.4	X	297.15199	309.72149	37.90809	3.52206	0.2503629	0.27906029	2.3191955	20	6 9.7	19.9
432588 2010 RZ ₉₉	18.2	X	303.28821	160.02193	242.08498	2.13532	0.1440215	0.29664477	2.2266139	20	10 11.9	19.8
432589 2010 RC ₁₀₃	18.8	X	190.01918	103.66827	324.70292	1.29588	0.3331186	0.26580852	2.3956504	20	6 4.7	23.2
432590 2010 RC ₁₀₄	18.3	X	308.47244	43.27767	1.95349	5.93293	0.1384666	0.29777828	2.2209598	20	10 28.0	19.9
432591 2010 RP ₁₀₇	18.1	X	302.53128	19.07197	17.10610	2.77478	0.1718568	0.29369343	2.2415060	20	9 27.9	19.8
432592 2010 RO ₁₂₃	18.4	X	320.28238	132.33577	289.66071	2.51905	0.1407390	0.30569315	2.1824564	20	12 25.4	20.1
432593 2010 RF ₁₂₈	18.0	X	281.99773	175.23110	228.05117	5.61848	0.1691154	0.29089849	2.2558406	20	8 23.2	20.3
432594 2010 RC ₁₄₄	18.4	X	282.34906	120.15617	301.07149	2.43341	0.1740485	0.29392029	2.2403524	20	9 23.2	20.3
432595 2010 RL ₁₆₆	17.8	X	271.56585	175.50047	141.95359	3.21706	0.2095222	0.27100957	2.3649010	20	4 2.3	21.1
432596 2010 RO ₁₆₆	17.6	X	20.23589	142.53905	206.61385	8.44803	0.1316833	0.30685525	2.1769428	20	12 17.8	20.2
432597 2010 RN ₁₇₇	18.2	X	331.18956	294.66443	54.70062	3.21069	0.1547508	0.29257912	2.2471937	20	9 18.0	19.7
432598 2010 SJ ₃	18.5	X	304.93722	85.73869	336.26892	4.25735	0.1355572	0.29845414	2.2176056	20	11 17.7	20.2
432599 2010 SC ₁₅	17.7	X	208.30095	61.43168	12.09878	12.23082	0.2550910	0.27445107	2.3450896	20	6 27.9	21.9
432600 2010 SQ ₂₉	18.0	X	318.76653	291.34576	91.21122	1.82448	0.2117592	0.29471056	2.2363456	20	10 15.2	19.3
432601 2010 TE ₂	18.2	X	270.19498	341.08013	58.46134	5.74428	0.2147164	0.28420285	2.2911337	20	7 24.1	20.7
432602 2010 TH ₇₈	18.2	X	349.89586	202.86625	191.11320	5.35049	0.0961317	0.30706115	2.1759695	20	12 30.2	20.4
432603 2010 TX ₁₀₃	18.8	X	288.13440	3.19139	46.44842	4.03427	0.2159325	0.29251145	2.2475402	20	9 12.4	20.5
432604 2010 TL ₁₂₆	18.7	X	264.89974	80.13991	350.05700	5.56703	0.1285909	0.29046755	2.2580712	20	9 14.5	21.1
432605 2010 TS ₁₇₁	18.0	X	4.40052	101.98210	263.22034	6.46322	0.1669249	0.30258547	2.1973741	20	12 22.1	20.2
432606 2010 TT ₁₇₉	18.4	X	296.81873	234.43051	166.57788	3.80559	0.1005341	0.29502036	2.2347797	20	10 2.3	20.3
432607 2010 TX ₁₈₇	18.3	X	290.81406	139.85165	285.99521	4.35925	0.1780106	0.29631754	2.2282529	20	10 17.9	20.2
432608 2010 UU ₁₀	17.2	X	301.97092	15.30350	46.15205	7.29119	0.0112081	0.29848905	2.2174327	20	11 15.4	19.7
432609 2010 UP ₁₁	18.3	X	288.69121	348.26924	69.57505	2.81462	0.1962466	0.29261338	2.2470182	20	9 30.4	19.9
432610 2010 UV ₁₁	17.6	X	301.40545	206.32648	206.06116	4.40843	0.1577779	0.29530728	2.2333320	20	10 24.6	19.2
432611 2010 UV ₁₆	13.0	X	60.79704	222.30545	66.51760	23.46665	0.0425385	0.08142867	5.2717059	20	10 9.2	20.2
432612 2010 UP ₂₁	18.1	X	13.10418	255.13836	121.12537	3.23089	0.1821345	0.30823042	2.1704630	20	—	—
432613 2010 US ₄₁	18.0	X	257.75119	128.09261	279.56033	5.41184	0.1791661	0.27917791	2.3185440	20	7 21.7	20.8
432614 2010 UP ₆₆	18.3	X	259.67281	6.34748	35.11107	2.54185	0.1894011	0.27928438	2.3179547	20	7 15.0	21.2
432615 2010 UF ₇₈	14.5	X	271.09159	93.90119	333.85825	10.12260	0.0576608	0.08424731	5.1534575	20	9 1.9	21.3
432616 2010 UQ ₉₂	17.4	X	270.97244	3.56668	68.84423	10.78117	0.2858869	0.28720747	2.2751266	20	9 5.7	20.0
432617 2010 UL ₉₇	13.6	X	274.69703	336.00521	96.55127	6.15357	0.0988237	0.08253684	5.2244128	20	9 9.1	20.4
432618 2010 UH ₁₀₁	17.9	X	352.57344	117.23233	284.41460	4.95386	0.1204525	0.30408564	2.1901411	20	—	—
432619 2010 VV ₁₃	18.0	X	195.53710	3.72325	51.28921	4.89756	0.1632299	0.26452186	2.4034126	20	5 26.2	21.8
432620 2010 VV ₁₈	17.6	X	302.76152	4.29580	75.80807	6.16421	0.1105966	0.30096084	2.2052748	20	12 14.7	19.4
432621 2010 VK ₂₅	18.5	X	290.87134	31.13282	61.83042	3.48504	0.1837195	0.29648187	2.2274294	20	12 5.3	20.0
432622 2010 VG ₂₇	17.5	X	260.96711	185.26574	226.08929	5.00982	0.2427137	0.27917335	2.3185693	20	7 20.6	20.5
432623 2010 VU ₃₇	17.7	X	261.73309	348.46042	95.15760	6.10645	0.1985146	0.28777585	2.2721299	20	9 20.6	20.2
432624 2010 VQ ₆₂	18.2	X	234.98308	99.54492	325.84033	2.52761	0.1620127	0.27340214	2.3510838	20	7 21.3	21.3
432625 2010 VP ₆₆	14.1	X	274.88299	26.56084	40.03249	9.43706	0.0897942	0.08236689	5.2315967	20	9 5.4	21.0
432626 2010 VP ₈₂	17.6	X	223.44418	328.14674	43.04884	1.88087	0.1942560	0.26336104	2.4104698	20	4 24.9	21.4
432627 2010 VP ₈₅	18.0	X	349.95383	152.99736	236.98966	5.56622	0.1632465	0.30060236	2.2070278	20	—	—
432628 2010 VR ₉₁	17.8	X	284.09069	27.42099	53.67703	6.81625	0.1182964	0.29200896	2.2501178	20	11 7.0	19.6
432629 2010 VC ₉₄	14.2	X	338.18100	298.26107	61.38707	8.28914	0.0418687	0.08328831	5.1929405	20	9 11.5	20.9
432630 2010 VJ ₁₁₈	17.6	X	271.88775	16.22151	20.23554	5.67510	0.1571309	0.27976284	2.3153111	20	8 1.7	20.2
432631 2010 VV ₁₂₃	18.3	X	246.15972	79.46640	355.22952	2.28413	0.1766844	0.28165802	2.3049135	20	8 16.0	21.3
432632 2010 VN ₁₂₇	18.4	X	237.75780	298.06657	137.05112	2.92213	0.1904879	0.27701809	2.3305797	20	8 3.2	21.5
432633 2010 VB ₁₃₁	18.4	X	311.96108	197.02377	215.73149	4.95349	0.1344104	0.30162				

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>
432641 2010 VM ₂₀₇	18.1	X	315.68297	23.05301	4.27601	1.33836	0.1365826	0.29256502	2.2472658	20	10 14.5	19.8
432642 2010 VY ₂₁₃	19.0	X	231.63864	244.00160	207.83087	0.09432	0.1525727	0.28246094	2.3005435	20	8 24.7	22.0
432643 2010 WT ₂₆	18.5	X	194.70542	45.98432	36.51088	3.11370	0.1450212	0.26643544	2.3918910	20	7 1.9	22.1
432644 2010 WN ₃₁	18.2	X	64.74134	231.05178	94.46407	1.36923	0.1829611	0.30646316	2.1787992	20	—	—
432645 2010 WZ ₃₁	18.9	X	219.18735	42.51983	76.30507	2.06544	0.1469414	0.28212670	2.3023601	20	9 17.9	22.1
432646 2010 WT ₃₉	17.9	X	93.86722	20.86835	242.53336	4.12543	0.1055944	0.29222654	2.2490008	20	11 14.9	21.0
432647 2010 WH ₄₀	18.2	X	207.18459	243.44500	315.35682	2.95408	0.0866005	0.30309430	2.1949141	20	—	—
432648 2010 WQ ₅₄	18.5	X	192.60452	103.87337	15.41459	2.99881	0.1183324	0.27472771	2.3435150	20	8 21.3	21.7
432649 2010 WR ₆₅	18.0	X	270.30362	1.24286	71.76136	5.61018	0.1897258	0.28276482	2.2988950	20	9 19.4	20.4
432650 2010 XQ ₂₅	13.4	X	314.49018	310.45644	81.40677	12.01192	0.1051381	0.08362718	5.1789027	20	9 15.1	20.0
432651 2010 XQ ₃₄	18.2	X	340.93640	296.35726	105.53364	3.45147	0.1508348	0.29975611	2.2111796	20	—	—
432652 2010 XG ₄₇	14.1	X	216.68144	79.64389	50.12521	12.27469	0.1055260	0.08316795	5.1979496	20	9 15.5	21.4
432653 2010 XR ₅₄	18.4	X	260.18244	104.93099	328.93462	0.97840	0.1414136	0.28496278	2.2870586	20	9 9.2	20.7
432654 2010 XE ₆₁	18.2	X	194.44990	222.45808	249.36492	3.53260	0.1481751	0.27423257	2.3463350	20	8 8.6	21.9
432655 2010 XL ₆₉	19.7	X	260.47991	108.62181	94.63074	12.67016	0.2101668	0.52065434	1.5302758	20	—	—
432656 2010 XR ₇₄	18.3	X	307.00453	15.70540	31.32636	6.66557	0.1348005	0.29150853	2.2526923	20	10 27.8	20.2
432657 2011 AE ₉	18.5	X	261.18774	300.25658	125.12246	1.90313	0.1748963	0.27664987	2.3326472	20	8 22.9	21.1
432658 2011 AN ₉	17.6	X	288.84859	321.25756	105.70473	6.95894	0.0871471	0.28305832	2.2973056	20	10 29.0	20.0
432659 2011 AF ₁₂	18.0	X	221.76400	347.69487	121.58514	2.85889	0.1535899	0.27243820	2.3566263	20	9 5.7	21.3
432660 2011 AR ₁₂	17.4	X	267.84237	163.97085	274.47203	6.57666	0.0652980	0.27963919	2.3159936	20	10 5.9	20.3
432661 2011 AE ₁₃	17.6	X	180.27967	74.56862	42.45355	4.10908	0.1391197	0.26167111	2.4208369	20	8 3.5	21.3
432662 2011 AJ ₁₃	17.8	X	243.54169	53.90138	40.41379	4.78800	0.2106990	0.27871345	2.3211192	20	9 5.8	20.9
432663 2011 AF ₃₀	17.9	X	140.09271	84.45913	115.59259	3.39935	0.1644630	0.27075912	2.3663591	20	10 11.9	21.6
432664 2011 AR ₃₀	18.0	X	161.56123	247.31821	298.78245	3.11756	0.0836366	0.27450714	2.3447702	20	10 14.1	21.3
432665 2011 AM ₃₂	17.5	X	228.34542	13.15503	11.23528	2.93525	0.1822336	0.25648848	2.4533385	20	5 16.7	21.3
432666 2011 AV ₃₇	17.8	X	107.84144	207.02612	354.94867	3.51715	0.1185187	0.26232107	2.4168365	20	9 7.5	21.3
432667 2011 AA ₄₄	17.8	X	98.45987	210.93509	344.34740	2.37753	0.1938499	0.25366267	2.4715250	20	8 25.8	21.5
432668 2011 AJ ₄₇	17.5	X	246.74451	329.21775	140.67734	3.34708	0.1169029	0.28139508	2.3063492	20	10 16.7	20.2
432669 2011 AS ₅₀	17.9	X	137.69211	209.11478	327.92744	5.92120	0.0846481	0.26595777	2.3947541	20	9 4.6	21.3
432670 2011 AT ₅₁	18.5	X	204.88134	98.37595	2.30947	1.27986	0.1365462	0.26368304	2.4085070	20	8 6.6	22.1
432671 2011 AO ₅₇	18.0	X	150.30560	314.86304	222.01309	1.39110	0.1568698	0.26762187	2.3848166	20	9 19.3	21.6
432672 2011 BH	18.3	X	177.59998	227.28384	275.56897	1.43739	0.1579267	0.26805393	2.3822533	20	9 1.3	21.9
432673 2011 BO	18.0	X	202.14481	157.13500	281.60612	1.73978	0.1622270	0.26119829	2.4237575	20	7 3.2	21.6
432674 2011 BE ₈	18.0	X	117.23016	105.22087	111.72622	2.76110	0.1704579	0.26753096	2.3853568	20	10 11.6	21.7
432675 2011 BE ₉	17.7	X	241.79204	110.46832	325.73590	4.19100	0.1299423	0.27117608	2.3639328	20	8 17.8	20.8
432676 2011 BH ₁₂	18.1	X	198.74385	271.72888	230.75221	2.82722	0.1669712	0.27337832	2.3512204	20	9 21.4	21.6
432677 2011 BF ₁₃	17.5	X	85.05274	182.13083	50.11077	5.81178	0.1572856	0.26248449	2.4158332	20	9 28.5	21.0
432678 2011 BC ₁₄	16.9	X	156.71026	93.98123	331.76877	11.45533	0.0639009	0.23612073	2.5924674	20	4 22.8	20.8
432679 2011 BR ₁₆	17.9	X	117.60337	97.55334	76.55119	2.43468	0.1351504	0.25667162	2.4521714	20	8 13.6	21.5
432680 2011 BY ₃₁	18.4	X	217.13974	114.87963	335.43628	4.72441	0.2359546	0.26827893	2.3809211	20	7 28.8	22.3
432681 2011 BF ₃₆	18.1	X	235.21080	253.75274	164.08511	2.50911	0.1882498	0.26357365	2.4091734	20	7 7.0	21.7
432682 2011 BD ₃₈	17.0	X	91.04790	303.36899	157.79099	13.44490	0.2241871	0.22739638	2.6583593	20	4 21.9	20.8
432683 2011 BW ₃₈	18.1	X	82.06713	20.47423	160.72049	13.31195	0.1763485	0.24058988	2.5602624	20	7 15.1	21.8
432684 2011 BT ₃₉	17.4	X	234.86132	21.48153	0.57620	3.03226	0.2372234	0.25598322	2.4565657	20	5 15.5	21.4
432685 2011 BS ₅₁	17.7	X	165.62219	80.27930	83.62999	1.99304	0.1515041	0.26696867	2.3887050	20	9 18.9	21.3
432686 2011 BF ₅₅	17.7	X	94.11917	170.03523	347.57847	4.99850	0.1524463	0.24396585	2.5365885	20	6 26.1	21.3
432687 2011 BT ₅₅	17.2	X	251.38408	81.80547	285.71413	11.63519	0.2174073	0.25776029	2.4452619	20	5 12.6	21.1
432688 2011 BK ₆₃	17.9	X	196.13414	337.01891	94.74096	2.54810	0.1694838	0.25561038	2.4589539	20	6 17.8	21.8
432689 2011 BH ₇₃	17.6	X	34.04893	162.09167	170.46182	6.13840	0.1512597	0.27616355	2.3353850	20	12 9.4	20.6
432690 2011 BK ₇₄	16.9	X	303.87914	142.07117	179.14869	7.57863	0.1111010	0.24402955	2.5361471	20	6 6.8	20.0
432691 2011 BQ ₇₅	16.0	X	186.32051	282.07777	314.33592	13.74366	0.1933197	0.17892780	3.1190153	20	12 18.6	21.3
432692 2011 BG ₈₀	17.7	X	190.25983	348.26781	139.98934	2.96824	0.1371360	0.26498640	2.4006029	20	8 27.8	21.3
432693 2011 BR ₈₆	17.6	X	108.58228	279.75362	288.45274	4.47120	0.1702532	0.25697317	2.4502526	20	9 17.2	21.5
432694 2011 BB ₉₂	17.3	X	216.60690	260.15787	143.83514	16.16574	0.0774311	0.25112878	2.4881223	20	6 10.8	21.1
432695 2011 BX ₉₄	17.8	X	127.86543	137.45308	63.61805	3.20312	0.1547057	0.26724800	2.3870402	20	9 30.9	21.4
432696 2011 BR ₉₇	17.7	X	266.32804	54.49711	327.02085	4.64186	0.1836329	0.26537037	2.3982867	20	6 25.4	20.8
432697 2011 BN ₉₈	18.4	X	225.05678	343.14616	85.01507	4.21740	0.2207333	0.26540463	2.3980803	20	7 7.7	22.2
432698 2011 BK ₁₁₈	17.9	X	159.57725	129.45461	16.75463	1.65418	0.1169912	0.26259354	2.4151643	20	8 20.3	21.3
432699 2011 BV ₁₂₆	17.5	X	74.94500	147.49248	139.08324	7.54289	0.0986876	0.27526471	2.3404661	20	11 22.5	20.8
432700 2011 BK ₁₄₆	17.5	X	30.94314	328.96807	320.08473	10.52872	0.1568175	0.26512264	2.3997804	20	9 28.2	20.4
432701 2011 BA ₁₅₅	17.2	X	112.78067	330.66211	309.98840	5.54577	0.1660376	0.28286434	2.2983558	20	12 26.8	20.9
432702 2011 CG ₆	17.6	X	168.41557	334.03181	172.38369	7.94518	0.0973535	0.26379986	2.4077959	20	8 28.9	21.2
432703 2011 CC ₇	17.2	X	207.68371	166.58061	327.35125	4.78074	0.0890562	0.27118426	2.3638853	20	9 27.1	20.5
432704 2011 CH ₇	17.5	X	154.11674	32.32715	160.65020	7.70036	0.2222157	0.26612307	2.3937624	20	10 14.7	21.6
432705 2011 CL ₈	17.6	X	121.73858	95.35191	125.62487	3.25170	0.1626604	0.26633190	2.3925109	20	10 20.5	21.3
432706 2011 CW ₈	18.2	X	163.76533	264.21853	257.00793	0.78937	0.1358722	0.26568138	2.3964147	20	9 12.3	21.8
432707 2011 CE ₁₇	17.3	X	60.15676	1.75682	302.72173	5.06699	0.0532057	0.27740258	2.3284257	20	11 19.3	20.2
432708 2011 CU ₂₂	17.6	X	159.18571	177.24394	352.25180	4.43803	0.1982930	0.26564274	2.3966471	20	9 17.8	21.6
432709 2011 CY ₂₄	17.5	X	114.16699	56.33147	166.59210	6.43975	0.0671538	0.26938474	2.3744010	20	10 10.8	20.7
432710 2011 CX ₂₇	17.5	X	160.25771	277.81778	304.49267	3.03353	0.1718656	0.27670870	2.3323166	20	11 25.4	21.2
432711 2011 CO ₂₉	18.0	X	199.99199	142.32144	337.21062	1.93398	0.1615324	0.26807627	2.3821209	20	8 24.6	21.6
432712 2011 CA ₃₀	18.0	X	134.56615	43.97165	180.86164	5.19787	0.1901436	0.26939288	2.3743531	20	11 6.3	21.9
432713 2011 CA ₃₂	17.8	X	151.63972	352.56349	190.13272	4.07147	0.2010826	0.26463784	2.4027104	20	9 27.8	

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>
432721 2011 CK ₉₁	18.3 ^m	X	169.39771	154.13554	297.13217	1.66262	0.1329263	0.24757343	2.5118866	20	6 17.4	22.2
432722 2011 CX ₉₁	17.5	X	179.53375	232.34072	292.44242	6.24675	0.0635544	0.27271878	2.3550096	20	10 5.7	20.9
432723 2011 CP ₁₀₃	17.2	X	28.49662	183.37274	263.77322	1.01509	0.0347270	0.20282657	2.8689269	20	—	—
432724 2011 CN ₁₀₅	17.7	X	10.66191	10.48230	229.26853	2.29429	0.0825297	0.23799771	2.5788190	20	6 4.0	20.5
432725 2011 CN ₁₁₀	16.8	X	74.97577	317.37680	169.23517	8.52932	0.0379051	0.22711905	2.6605229	20	4 3.1	20.2
432726 2011 CY ₁₁₀	16.9	X	107.62607	149.13651	161.97285	23.78795	0.2306563	0.28663079	2.2781771	20	—	—
432727 2011 CA ₁₁₆	17.8	X	150.69670	220.42617	306.10204	4.36749	0.0521083	0.26095337	2.4252738	20	9 3.9	21.1
432728 2011 DF ₄	16.7	X	126.41825	320.80173	165.61034	10.03295	0.0731410	0.23590440	2.5940521	20	6 13.6	20.5
432729 2011 DL ₁₁	17.1	X	251.13054	56.97378	37.22135	8.25828	0.1570609	0.27215660	2.3582516	20	9 24.3	20.0
432730 2011 DC ₁₂	18.5	X	139.61399	27.78913	175.75178	2.20774	0.1777103	0.26651510	2.3914144	20	10 14.2	22.3
432731 2011 DE ₁₄	18.0	X	153.98512	40.66755	153.51158	4.99496	0.1328536	0.26899422	2.3766985	20	10 17.7	21.7
432732 2011 DK ₁₄	17.6	X	113.37900	322.44212	302.20765	1.40604	0.1723677	0.27524376	2.3405849	20	12 6.0	21.4
432733 2011 DM ₁₈	17.0	X	338.13513	302.84418	355.08659	13.88950	0.1927570	0.23722042	2.5844492	20	6 27.4	19.7
432734 2011 DQ ₂₂	17.7	X	117.99178	171.65238	48.15238	2.52031	0.0736502	0.25988607	2.4319093	20	10 9.3	20.9
432735 2011 DU ₂₂	17.1	X	2.05932	279.00028	33.80317	3.77614	0.1295313	0.25083486	2.4900656	20	9 13.3	19.5
432736 2011 DT ₂₃	16.6	X	50.88569	168.54769	19.05905	14.71374	0.0742251	0.23047843	2.6346071	20	5 20.5	20.1
432737 2011 DG ₂₅	17.9	X	263.35064	271.01950	148.41182	2.92421	0.2520832	0.27433078	2.3457750	20	8 8.0	20.9
432738 2011 DV ₃₃	17.4	X	23.11581	306.97975	348.07720	2.16042	0.1736346	0.25510810	2.4621805	20	9 30.2	19.9
432739 2011 DY ₃₇	18.1	X	89.25813	96.36008	188.71545	2.23058	0.1739580	0.27113411	2.3641768	20	12 9.1	21.6
432740 2011 DH ₄₀	17.5	X	78.36889	273.81412	350.27469	6.40029	0.1024002	0.26094695	2.4253136	20	10 21.3	20.8
432741 2011 EU ₃	17.6	X	100.07024	140.27000	0.23357	4.26559	0.1312321	0.23507272	2.6001669	20	6 6.2	21.3
432742 2011 EN ₅	18.2	X	199.38587	326.82209	153.54741	1.82786	0.1390752	0.26485579	2.4013920	20	8 26.5	21.8
432743 2011 EP ₁₀	17.9	X	131.28227	102.82271	153.84188	5.51067	0.2046112	0.27608419	2.3358325	20	12 12.5	21.8
432744 2011 EF ₁₃	18.0	X	173.12371	213.74491	269.45164	1.51636	0.1472222	0.25451181	2.4660247	20	8 1.9	21.7
432745 2011 EU ₁₆	17.8	X	89.32981	157.11277	80.84217	2.77909	0.2000209	0.25333695	2.4736430	20	10 12.1	21.5
432746 2011 EY ₂₂	17.9	X	173.38090	122.35081	37.59254	1.80133	0.1212897	0.26376187	2.4080271	20	9 21.8	21.4
432747 2011 EY ₂₃	17.1	X	137.89482	124.61277	348.55962	14.98533	0.0624416	0.24139250	2.5545841	20	6 5.5	21.0
432748 2011 EA ₂₄	18.0	X	198.62610	96.97177	358.70705	2.30505	0.1636978	0.25724735	2.4485113	20	7 22.4	21.7
432749 2011 EC ₃₀	17.1	X	99.10816	182.39143	25.67281	7.12132	0.0687327	0.25401303	2.4692518	20	9 2.0	20.5
432750 2011 ED ₃₁	16.1	X	50.05740	52.77525	107.45732	14.14067	0.0584446	0.22713503	2.6603982	20	4 21.4	19.8
432751 2011 EW ₅₂	16.0	X	241.67778	225.54204	169.38235	14.61675	0.1198295	0.24166175	2.5526862	20	6 21.5	19.9
432752 2011 EH ₅₆	16.8	X	103.00319	28.01471	144.18617	15.64382	0.0525949	0.24479302	2.5308711	20	7 12.9	20.3
432753 2011 EG ₆₅	17.7	X	229.70951	289.69728	174.21623	2.10473	0.1422519	0.26591385	2.3950178	20	9 7.4	21.0
432754 2011 EP ₆₈	17.7	X	150.66681	284.00173	173.06184	6.65852	0.1328138	0.23836730	2.5761527	20	6 6.9	21.8
432755 2011 EM ₆₉	16.8	X	359.52836	73.97381	170.30424	21.84357	0.0435026	0.23023697	2.6364488	20	5 26.3	20.6
432756 2011 EU ₈₀	17.1	X	131.79932	119.07353	0.36468	28.88360	0.1004392	0.23744269	2.5828361	20	6 6.2	21.6
432757 2011 EG ₈₄	18.0	X	166.45190	127.89579	6.31885	5.35643	0.1479257	0.25471110	2.4647382	20	8 11.9	21.8
432758 2011 FD ₈	17.6	X	68.92891	81.16597	157.51875	6.3082	0.0883340	0.25397552	2.4694950	20	9 4.7	20.8
432759 2011 FP ₅	17.1	X	224.13354	22.78948	80.99279	7.55583	0.1275955	0.26223940	2.4173382	20	9 6.2	20.6
432760 2011 FQ ₇	17.1	X	93.97169	178.29124	24.23020	11.75059	0.1256855	0.24328247	2.5413365	20	8 27.6	20.9
432761 2011 FX ₈	17.4	X	22.84279	96.44805	160.23842	4.78717	0.1039434	0.23333589	2.6130538	20	7 21.0	20.3
432762 2011 FY ₈	17.1	X	13.91954	200.27930	48.32196	7.27635	0.1131702	0.22853106	2.6495527	20	6 24.3	20.0
432763 2011 FQ ₁₀	17.0	X	159.11296	199.67989	358.58203	7.97355	0.0499391	0.26622448	2.3931544	20	10 26.4	20.4
432764 2011 FF ₁₃	17.6	X	18.19817	227.62868	30.94489	7.14571	0.1937002	0.23431154	2.6057951	20	7 30.7	20.2
432765 2011 FK ₁₅	18.1	X	58.51083	275.26387	14.58818	3.93454	0.2025491	0.25649125	2.4533209	20	11 13.9	21.6
432766 2011 FQ ₂₂	17.4	X	114.38126	79.06503	160.07434	6.34606	0.0761159	0.26164157	2.4210191	20	11 1.2	20.8
432767 2011 FC ₂₃	17.5	X	111.01211	164.48067	53.57687	2.82629	0.1696645	0.25634593	2.4542479	20	10 5.4	21.3
432768 2011 FH ₂₃	16.9	X	358.85697	350.70739	196.23140	6.93143	0.1393504	0.21293864	2.7773657	20	2 26.8	20.1
432769 2011 FM ₂₃	17.1	X	324.41630	204.15380	46.46170	9.69719	0.0797981	0.21611387	2.7500945	20	4 8.5	20.6
432770 2011 FR ₂₅	17.0	X	311.22614	117.78983	156.08690	14.39159	0.0682866	0.22101288	2.7093035	20	4 23.2	20.7
432771 2011 FA ₂₆	16.4	X	23.40103	176.77288	41.42415	22.80733	0.0234574	0.22833249	2.6510886	20	5 17.1	19.9
432772 2011 FW ₂₉	16.9	X	345.00747	227.80691	348.87629	12.12864	0.1888039	0.21601446	2.7509382	20	3 9.9	19.8
432773 2011 FD ₃₀	18.3	X	101.15440	57.56325	79.41104	2.84322	0.2460441	0.23563741	2.5960111	20	6 17.7	22.3
432774 2011 FM ₃₁	16.7	X	147.31144	74.37757	34.62579	10.82258	0.0572241	0.23248455	2.6194291	20	6 11.9	20.5
432775 2011 FC ₃₂	16.8	X	19.31661	284.89772	20.22759	16.56555	0.1930924	0.24345490	2.5401364	20	10 10.3	19.4
432776 2011 FW ₃₂	17.5	X	31.47705	157.07547	75.69593	4.57336	0.1201737	0.23258225	2.6186955	20	7 3.8	20.3
432777 2011 FK ₃₄	18.0	X	104.49326	349.43577	147.18393	4.77269	0.1922311	0.23590350	2.5940587	20	6 14.9	21.9
432778 2011 FB ₃₆	16.6	X	354.33711	267.88074	28.99735	26.90436	0.3118758	0.23065700	2.6332472	20	9 4.9	19.2
432779 2011 FY ₄₄	18.0	X	117.20416	202.69306	49.46825	2.83329	0.2442523	0.26238686	2.4164324	20	11 23.8	22.2
432780 2011 FE ₄₇	16.9	X	51.75028	177.05715	35.00724	9.76488	0.0529905	0.23082386	2.6319779	20	6 26.7	20.4
432781 2011 FK ₅₄	16.6	X	301.68107	222.48518	122.30084	3.28355	0.1745583	0.24453018	2.5326844	20	6 26.5	19.4
432782 2011 FY ₅₉	17.9	X	45.59265	65.41039	197.29685	0.56737	0.0808264	0.24654416	2.5188728	20	9 2.8	20.9
432783 2011 FU ₆₂	17.9	X	145.93910	145.68235	21.46261	3.56793	0.1587160	0.25312123	2.4750483	20	9 3.2	21.8
432784 2011 FA ₆₆	17.5	X	34.73533	24.62674	215.94893	4.67548	0.1626914	0.23779225	2.5803042	20	7 26.2	20.4
432785 2011 FW ₆₆	16.4	X	226.43077	238.31087	104.55202	7.11855	0.0441667	0.22296988	2.6934273	20	4 7.1	20.3
432786 2011 FM ₈₃	17.9	X	112.83220	19.71267	123.78943	2.94581	0.1572634	0.23811348	2.5779831	20	6 28.8	21.8
432787 2011 FU ₈₉	16.8	X	282.39181	146.88555	144.58285	11.88693	0.0649129	0.22249943	2.6972225	20	4 7.3	20.6
432788 2011 FN ₁₀₄	17.4	X	10.20620	217.05428	72.47333	6.38854	0.2232987	0.24311914	2.5424746	20	9 7.4	19.8
432789 2011 FO ₁₁₅	17.7	X	81.12576	288.42543	226.51139	10.50562	0.1299086	0.23086625	2.6316558	20	6 2.0	21.1
432790 2011 FB ₁₂₉	17.9	X	68.57413	72.93858	207.30797	0.92710	0.1695589	0.25974982	2.4327597	20	11 10.2	21.3
432791 2011 FC ₁₃₁	17.8	X	83.05154	47.12060	205.35617	2.06338	0.1562545	0.25678650	2.4514400	20	10 19.1	21.2
432792 2011 FY ₁₃₁	16.5	X	32.04641	329.79681	188.94965	13.45619	0.1000794	0.21926472	2.7236850	20	3 17.6	19.7
432793 2011 FJ ₁₄₂	16.5	X	36.77095	275.60499	32.08563	13.63428	0.2814115	0.24478033	2.5309586			

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>
432801 2011 <i>GM</i> ₂₀	17.3	X	138.66573	314.68191	264.73542	4.00894	0.1369954	0.26265369	2.4147956	20	10 30.8	21.0
432802 2011 <i>GK</i> ₂₉	17.0	X	134.17762	239.73090	176.90384	14.91977	0.1670262	0.22141726	2.7060038	20	4 3.4	21.1
432803 2011 <i>GQ</i> ₃₀	17.2	X	135.82668	291.32857	194.11120	11.27210	0.1494497	0.23696192	2.5863284	20	6 27.7	21.4
432804 2011 <i>GO</i> ₃₄	17.1	X	79.32755	266.58328	267.47856	1.70210	0.1730037	0.23364065	2.6107810	20	7 2.2	20.5
432805 2011 <i>GV</i> ₃₆	16.7	X	57.84915	182.75199	6.88696	17.01920	0.1386428	0.22976033	2.6400937	20	6 16.1	20.3
432806 2011 <i>GF</i> ₃₇	16.7	X	297.44525	241.50288	78.45345	15.52030	0.0914390	0.23082539	2.6319664	20	5 29.3	20.1
432807 2011 <i>GE</i> ₄₂	16.4	X	183.77008	77.29961	1.20229	27.43370	0.1860253	0.23920817	2.5701119	20	6 10.2	21.3
432808 2011 <i>GB</i> ₄₈	16.4	X	305.22823	339.20085	19.42369	35.23962	0.2109677	0.24346032	2.5400987	20	8 11.9	20.0
432809 2011 <i>GU</i> ₅₆	16.9	X	5.61498	221.57816	97.60450	9.21630	0.2314459	0.24266698	2.5456318	20	10 16.4	19.5
432810 2011 <i>GF</i> ₆₀	16.1	X	224.24620	241.15475	87.67345	7.36513	0.0385428	0.21389531	2.7690781	20	3 19.1	20.1
432811 2011 <i>GT</i> ₆₁	16.7	X	86.11272	341.58053	195.68078	30.77531	0.1888584	0.23026273	2.6362522	20	7 12.1	21.2
432812 2011 <i>GC</i> ₆₇	16.6	X	80.07012	129.28825	121.47532	14.29726	0.2125240	0.25229723	2.4804343	20	10 25.4	20.7
432813 2011 <i>GT</i> ₆₇	16.6	X	284.79273	19.28970	145.84708	5.47062	0.2852742	0.18708290	3.0277033	20	—	—
432814 2011 <i>GV</i> ₇₀	16.6	X	35.72319	21.06734	225.08553	16.40904	0.3529251	0.23077325	2.6323627	20	9 1.5	20.0
432815 2011 <i>GX</i> ₇₂	17.4	X	333.96151	69.96289	192.30846	5.41679	0.0190195	0.22467462	2.6797856	20	5 12.2	20.8
432816 2011 <i>GH</i> ₇₈	17.6	X	91.59381	314.90637	218.95586	4.49515	0.2412686	0.23676767	2.5877429	20	7 24.1	21.5
432817 2011 <i>GJ</i> ₈₁	16.6	X	314.39858	199.70648	53.99110	9.86407	0.0961166	0.21247437	2.7814100	20	3 28.8	20.3
432818 2011 <i>GJ</i> ₈₂	16.6	X	294.50027	264.47800	46.83124	12.44412	0.1401241	0.22432360	2.6825804	20	5 4.5	19.9
432819 2011 <i>GW</i> ₈₂	17.3	X	18.66790	183.35234	96.95403	5.22507	0.2337749	0.23685933	2.5870752	20	9 10.2	19.8
432820 2011 <i>GX</i> ₈₂	17.7	X	42.49560	92.91491	146.69972	5.94553	0.1838207	0.23569840	2.5955633	20	8 11.7	20.6
432821 2011 <i>GU</i> ₈₃	16.9	X	319.20030	120.63235	141.51141	9.71210	0.1302600	0.21691749	2.7432981	20	4 9.9	20.4
432822 2011 <i>GG</i> ₈₈	17.7	X	165.86863	67.10071	86.24105	6.52569	0.0714898	0.25621439	2.4550879	20	9 8.6	21.2
432823 2011 <i>HY</i> ₁	16.8	X	315.50509	229.43218	114.02250	5.47940	0.1178144	0.25441937	2.4666220	20	9 15.3	19.2
432824 2011 <i>HM</i> ₅	16.8	X	27.39267	107.53126	133.39858	14.92322	0.2689820	0.22849227	2.6498525	20	7 31.4	19.2
432825 2011 <i>HP</i> ₆	17.0	X	10.66584	125.99752	142.71842	6.05998	0.2739032	0.22914042	2.6448532	20	8 6.2	19.0
432826 2011 <i>HU</i> ₈	17.0	X	13.02195	359.39079	176.55679	8.84713	0.1353822	0.21250661	2.7811287	20	3 10.2	20.1
432827 2011 <i>HP</i> ₉	15.9	X	190.34856	125.33129	179.60384	11.15740	0.1044333	0.18949625	3.0019420	20	1 11.5	20.8
432828 2011 <i>HQ</i> ₁₃	17.0	X	51.55080	355.68269	193.89654	13.22644	0.0980568	0.22631497	2.6668210	20	6 2.4	20.5
432829 2011 <i>HR</i> ₁₃	16.9	X	29.67535	22.08931	198.57943	13.83817	0.0863030	0.22739061	2.6584043	20	6 9.1	20.3
432830 2011 <i>HT</i> ₁₅	16.7	X	1.38993	294.96194	4.67813	7.25702	0.1926189	0.23637415	2.5906141	20	8 27.4	19.0
432831 2011 <i>HH</i> ₁₇	16.9	X	331.78941	246.84072	89.89889	15.12693	0.1317434	0.24546622	2.5262417	20	8 24.1	19.7
432832 2011 <i>HK</i> ₁₉	17.1	X	24.86246	23.53584	211.33743	13.39687	0.1096623	0.22576612	2.6711413	20	6 22.3	20.4
432833 2011 <i>HW</i> ₂₇	16.3	X	32.72007	92.98891	132.09844	14.01239	0.1268424	0.22814890	2.6525106	20	6 25.9	19.5
432834 2011 <i>HA</i> ₃₁	16.7	X	53.26460	149.44971	86.78089	8.01072	0.1347533	0.23440259	2.6051203	20	8 18.3	20.1
432835 2011 <i>HW</i> ₃₃	15.6	X	180.78899	281.27442	75.14763	15.67021	0.1504330	0.19866908	2.9088134	20	3 12.5	20.6
432836 2011 <i>HM</i> ₃₄	16.9	X	107.00051	137.19240	4.96061	15.71393	0.1160071	0.23311618	2.6146954	20	6 13.8	21.0
432837 2011 <i>HT</i> ₃₆	16.9	X	32.12623	210.73324	97.04391	6.97196	0.1813791	0.24763349	2.5114804	20	11 3.9	20.0
432838 2011 <i>HG</i> ₃₇	17.6	X	21.84898	88.27977	172.03049	8.27294	0.0632751	0.23439208	2.6051982	20	7 19.5	20.9
432839 2011 <i>HU</i> ₃₈	16.8	X	357.08094	133.73725	187.05058	14.36965	0.1906363	0.23935078	2.5690910	20	9 16.4	19.2
432840 2011 <i>HA</i> ₃₉	17.1	X	18.57633	23.17352	179.09555	12.30859	0.1202586	0.21690654	2.7433905	20	4 29.3	20.2
432841 2011 <i>HB</i> ₃₉	17.1	X	30.95845	209.82619	92.08350	13.04830	0.1301978	0.24524405	2.5277671	20	10 20.8	20.4
432842 2011 <i>HO</i> ₄₁	16.6	X	40.29315	116.37974	185.66951	14.68059	0.2301771	0.24293695	2.5437456	20	11 13.1	20.1
432843 2011 <i>HB</i> ₄₂	16.9	X	357.28623	174.67779	98.42551	14.77055	0.2197065	0.22552200	2.6730686	20	7 1.9	18.8
432844 2011 <i>HL</i> ₄₅	16.8	X	274.92291	205.06461	113.40598	10.60350	0.1196341	0.21586838	2.7521791	20	4 26.3	20.8
432845 2011 <i>HR</i> ₄₇	16.9	X	175.44224	293.50515	172.59761	3.50492	0.1148254	0.23918946	2.5702460	20	7 12.3	20.8
432846 2011 <i>HJ</i> ₄₉	17.2	X	50.76305	138.21582	157.37709	10.56362	0.1982395	0.24784538	2.5100488	20	11 14.4	20.8
432847 2011 <i>HQ</i> ₅₂	16.9	X	330.35736	202.89104	103.29394	13.45546	0.1561013	0.22665599	2.6641453	20	6 24.9	19.6
432848 2011 <i>HQ</i> ₅₄	16.6	X	305.89094	157.47824	163.45226	14.08733	0.1651081	0.22095786	2.7097533	20	6 2.5	20.1
432849 2011 <i>HL</i> ₅₅	17.0	X	26.31460	190.19481	80.20834	12.07713	0.1102278	0.23880588	2.5729975	20	8 23.8	20.2
432850 2011 <i>HW</i> ₅₆	16.9	X	53.19304	76.93987	102.59721	13.54806	0.1221081	0.22224559	2.6992759	20	5 27.4	20.3
432851 2011 <i>HZ</i> ₅₇	16.7	X	298.92836	174.10141	159.05505	9.84946	0.0831705	0.23077186	2.6323734	20	6 19.7	20.2
432852 2011 <i>HG</i> ₆₄	17.1	X	325.07354	191.83260	77.74375	5.92951	0.1234583	0.21594674	2.7515133	20	4 28.6	20.4
432853 2011 <i>HJ</i> ₆₈	17.1	X	340.01243	183.65467	88.79711	4.69772	0.0987152	0.22601446	2.6691843	20	5 29.1	20.2
432854 2011 <i>HL</i> ₇₃	15.4	X	92.01039	255.99642	124.38932	16.65224	0.0575085	0.18144027	3.0901549	20	—	—
432855 2011 <i>HJ</i> ₇₅	16.2	X	201.50717	191.44581	126.78262	12.09941	0.1318737	0.19301981	2.9652965	20	2 8.1	21.0
432856 2011 <i>HF</i> ₇₆	17.1	X	61.78099	148.82080	122.89369	6.65317	0.2268070	0.24399412	2.5363926	20	10 30.1	20.9
432857 2011 <i>HH</i> ₇₆	17.3	X	14.47056	101.25163	129.08843	7.21893	0.1529796	0.22095634	2.7097657	20	6 2.2	20.1
432858 2011 <i>HB</i> ₇₇	16.8	X	355.08708	136.75446	176.12245	11.26116	0.1744489	0.23199087	2.6231440	20	8 27.0	19.4
432859 2011 <i>HP</i> ₇₈	17.3	X	11.25441	207.94523	51.65224	13.91911	0.2078890	0.22888005	2.6468587	20	7 17.3	20.0
432860 2011 <i>HN</i> ₈₀	16.7	X	22.83116	129.17182	153.37172	13.87990	0.2649362	0.23244273	2.6197433	20	9 26.2	19.5
432861 2011 <i>HX</i> ₈₀	16.1	X	164.41501	303.23563	132.36283	12.06403	0.0449818	0.22407464	2.6845670	20	5 23.4	20.1
432862 2011 <i>HV</i> ₈₁	16.2	X	39.94920	210.82447	72.52012	13.60265	0.1704217	0.24020534	2.5629942	20	10 14.1	19.6
432863 2011 <i>HO</i> ₈₇	16.7	X	295.63223	258.94381	75.63081	14.20326	0.1825566	0.22847682	2.6499720	20	5 31.5	19.7
432864 2011 <i>HD</i> ₈₈	16.8	X	7.27516	351.01259	167.82083	12.51817	0.0679681	0.20090355	2.8872051	20	2 9.9	20.6
432865 2011 <i>HX</i> ₉₅	17.1	X	173.83839	63.94469	22.25817	13.05349	0.1529403	0.23867792	2.5739171	20	6 13.6	21.4
432866 2011 <i>HS</i> ₉₆	17.3	X	354.07066	167.24193	128.36437	8.82384	0.1355781	0.23087637	2.6315789	20	7 28.5	20.0
432867 2011 <i>HB</i> ₉₇	16.8	X	271.79283	9.74986	9.83444	8.30700	0.1383667	0.24345669	2.5401239	20	7 7.6	20.2
432868 2011 <i>HE</i> ₁₀₂	17.6	X	329.58067	167.41186	165.23240	10.82395	0.0693322	0.24078529	2.5588770	20	8 7.9	20.7
432869 2011 <i>JS</i> ₆	16.7	X	288.25865	133.63550	185.03025	7.80923	0.1256575	0.22358168	2.6885115	20	5 9.4	20.3
432870 2011 <i>JB</i> ₁₄	16.5	X	265.83119	292.60881	88.87840	14.69117	0.0928941	0.23198386	2.6231968	20	7 7.2	20.0
432871 2011 <i>JA</i> ₁₉	16.3	X	250.04444	277.09271	104.20074	15.69438	0.0977842	0.229				

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>
432881 2011 KW ₃₃	17.5	X	71.64063	121.45234	134.51276	3.75949	0.1914634	0.24292317	2.5438417	20	10 14.9	21.2
432882 2011 KP ₃₅	17.0	X	357.67732	69.07555	164.84799	9.28017	0.1520141	0.21459656	2.7630423	20	5 5.7	20.0
432883 2011 LG ₃	15.3	X	164.26450	230.89762	79.64374	18.87189	0.1494444	0.17431786	3.1737652	20	—	—
432884 2011 LR ₄	16.7	X	315.51661	215.85857	110.85278	6.07235	0.2329743	0.22195104	2.7016635	20	6 14.8	19.4
432885 2011 LA ₇	17.2	X	316.20092	180.03845	98.92060	5.03387	0.0649370	0.21391319	2.7689238	20	5 5.4	20.7
432886 2011 LS ₈	15.9	X	100.12267	173.33530	187.04743	19.31361	0.1173606	0.16997780	3.2275619	20	—	—
432887 2011 LJ ₁₁	16.0	X	57.34620	24.54129	163.84310	25.78718	0.0685484	0.21940252	2.7225444	20	6 7.8	20.2
432888 2011 LU ₁₁	16.8	X	321.91270	13.28109	249.68944	2.33392	0.0444859	0.21257557	2.7805272	20	4 22.3	20.3
432889 2011 LR ₁₃	16.1	X	336.06496	180.42376	81.82943	14.65493	0.1527679	0.21477569	2.7615059	20	5 7.1	19.3
432890 2011 LM ₁₅	16.8	X	109.64812	224.50544	300.05772	3.96272	0.1260654	0.23269546	2.6178461	20	7 19.7	20.7
432891 2011 MY ₃	17.2	X	26.58618	120.80669	144.17057	12.18702	0.1825572	0.23038597	2.6353119	20	8 20.9	19.8
432892 2011 MH ₄	16.0	X	203.22757	69.93474	259.08754	9.81808	0.1121955	0.17880905	3.1203960	20	2 18.7	21.2
432893 2011 ML ₁₀	16.8	X	54.16752	101.45592	162.88253	10.12064	0.2054160	0.23779640	2.5802742	20	10 7.4	20.3
432894 2011 OW ₁	16.2	X	223.96964	3.89129	286.05199	12.53638	0.1466150	0.17331940	3.1859425	20	1 25.9	21.4
432895 2011 OY ₂	16.7	X	332.95676	172.01356	143.46460	9.15769	0.2182853	0.21485482	2.7608278	20	7 7.2	19.4
432896 2011 OH ₃	15.4	X	205.53335	1.62353	302.36297	19.52744	0.0974588	0.17416246	3.1756528	20	1 27.2	20.3
432897 2011 OE ₅	17.0	X	27.91757	101.77930	170.84204	12.07020	0.3006091	0.22394029	2.6856406	20	9 23.4	19.9
432898 2011 OJ ₁₆	16.8	X	57.29208	284.54385	318.14993	10.63521	0.2656307	0.22919170	2.6444587	20	9 13.9	20.6
432899 2011 OV ₂₀	16.5	X	324.73271	227.89272	65.03979	6.13353	0.1461841	0.21043314	2.7993678	20	5 26.2	19.6
432900 2011 OX ₃₄	16.4	X	259.27670	150.28686	110.08815	12.66146	0.2156274	0.18344595	3.0675899	20	1 19.1	21.4
432901 2011 OX ₃₉	16.7	X	236.57149	312.18238	307.22302	20.83511	0.2181467	0.17065851	3.2189736	20	1 3.9	22.2
432902 2011 OZ ₄₀	16.0	X	213.14134	22.10373	290.59298	14.56384	0.1030083	0.18044061	3.1015577	20	2 9.5	21.0
432903 2011 OZ ₄₅	16.4	X	238.50957	161.83395	133.44011	17.92151	0.1637118	0.18064729	3.0991915	20	2 14.6	21.4
432904 2011 PB ₄	16.7	X	246.92356	163.05266	131.37993	3.49161	0.2615251	0.18660404	3.0328809	20	2 13.5	21.8
432905 2011 PZ ₁₄	16.7	X	246.99265	149.08638	170.53082	9.68125	0.1952579	0.18514624	3.0487802	20	3 18.3	21.6
432906 2011 QA ₃	16.6	X	214.50168	132.59358	185.33291	9.84005	0.2224203	0.17520276	3.1630696	20	2 16.3	22.1
432907 2011 QH ₈	17.2	X	18.19527	101.33156	179.86907	7.24742	0.2500024	0.22383094	2.6865152	20	9 6.8	19.9
432908 2011 QJ ₁₇	16.7	X	351.57727	144.04472	150.88903	8.45188	0.2075482	0.21428030	2.7657604	20	7 20.6	19.1
432909 2011 QL ₂₈	16.1	X	201.11710	207.74476	142.39582	11.65947	0.2318676	0.17800156	3.1298259	20	3 17.8	21.6
432910 2011 QA ₃₅	15.7	X	228.69178	36.18489	293.98991	15.92883	0.2350902	0.18026387	3.1035846	20	3 5.2	21.3
432911 2011 QL ₄₂	16.0	X	213.18216	359.54403	321.18431	12.22886	0.1485284	0.17660285	3.1463298	20	2 20.7	21.2
432912 2011 QG ₄₉	15.9	X	268.80599	94.09895	166.32670	25.89843	0.2513225	0.17847096	3.1243356	20	1 23.3	21.3
432913 2011 QO ₆₁	15.8	X	246.68372	90.88485	195.99688	15.54500	0.2022601	0.17609129	3.1524204	20	2 5.6	21.2
432914 2011 QP ₉₂	15.4	X	344.52963	142.96470	276.92319	9.25603	0.1704068	0.12431576	3.9760509	20	12 2.4	20.1
432915 2011 QO ₉₈	15.6	X	192.11085	82.57982	289.97919	14.57186	0.1151330	0.17895828	3.1186612	20	3 26.8	20.8
432916 2011 RR ₇	16.0	X	331.04126	92.25726	325.15751	5.21627	0.0222903	0.12511165	3.9591707	20	11 8.9	21.5
432917 2011 RX ₁₅	16.2	X	290.58056	312.84458	291.68484	9.91493	0.1612681	0.18013563	3.1050574	20	2 3.9	20.7
432918 2011 SG ₁₈	15.9	X	233.10237	114.14993	201.87124	13.66364	0.0696481	0.17720477	3.1331252	20	3 7.6	20.7
432919 2011 SZ ₅₁	15.6	X	247.79027	275.07118	47.30198	21.08455	0.3163709	0.17720409	3.1392090	20	3 24.2	21.3
432920 2011 ST ₆₃	16.3	X	245.94917	190.85201	165.86252	14.74979	0.2276345	0.18602653	3.0391546	20	4 30.6	21.4
432921 2011 SB ₁₁₀	14.8	X	13.30954	350.91939	44.72953	10.61634	0.2832885	0.12504469	3.9605838	20	—	—
432922 2011 SP ₁₁₂	16.7	X	226.25784	257.64208	74.58034	2.79015	0.2850915	0.17827362	3.1266408	20	3 12.7	22.2
432923 2011 SC ₁₂₉	16.0	X	249.88962	257.70462	40.22585	9.10683	0.1122739	0.17017276	3.2250963	20	3 7.6	21.0
432924 2011 SK ₁₉₁	18.2	X	194.58783	353.58490	350.47161	21.21863	0.0719228	0.39170552	1.8499625	20	2 15.8	20.4
432925 2011 SN ₂₀₃	15.8	X	138.26128	225.84322	195.50383	25.23484	0.0434626	0.17514587	3.1637546	20	4 2.5	20.3
432926 2011 SP ₂₃₁	16.4	X	302.89973	115.72469	181.94179	26.26833	0.1282215	0.19754913	2.9197969	20	5 3.8	20.6
432927 2011 SW ₂₅₃	16.0	X	271.01559	73.78231	207.39389	6.88573	0.0712854	0.17638862	3.1488769	20	3 8.1	20.7
432928 2011 SK ₂₆₆	16.2	X	246.57986	17.91160	273.44732	3.28866	0.0895389	0.17641886	3.1485170	20	2 21.5	20.9
432929 2011 SD ₂₇₄	16.6	X	252.64820	63.03407	228.21633	0.64549	0.1545052	0.17808339	3.1288670	20	2 22.6	21.4
432930 2011 UP ₁₀	15.9	X	270.84553	262.34314	39.14000	19.87541	0.2133050	0.18003821	3.1061774	20	3 26.1	20.9
432931 2011 US ₂₃	15.2	X	53.25619	136.80097	229.68993	9.97001	0.2035223	0.12500385	3.9614465	20	—	—
432932 2011 UX ₆₂	17.2	X	94.10605	45.13088	286.15077	17.68798	0.0635519	0.35675036	1.9689126	20	—	—
432933 2011 UK ₁₁₆	15.9	X	234.39372	277.56414	27.62490	15.91061	0.2114024	0.17483784	3.1674694	20	2 26.8	21.4
432934 2011 UT ₂₂₈	15.9	X	256.00380	267.14829	33.68559	17.29154	0.1163732	0.17311929	3.1883971	20	3 19.8	20.9
432935 2011 UB ₂₅₄	15.9	X	251.53912	314.67633	10.42249	19.41117	0.2682396	0.18240692	3.0792280	20	3 24.4	21.0
432936 2011 UO ₃₂₀	16.1	X	238.19357	274.31261	57.15541	17.58587	0.3020315	0.17871555	3.1214843	20	3 26.8	21.8
432937 2011 UQ ₄₀₆	15.4	X	195.94844	239.29928	78.77994	16.58959	0.1375687	0.15950540	3.3673309	20	2 9.9	21.0
432938 2011 WV ₁₅₃	17.8	X	54.20344	124.99162	331.54987	19.06670	0.0752258	0.36851405	1.9267854	20	—	—
432939 2011 XG ₁	17.9	X	274.72104	154.00201	160.49605	19.58278	0.0808641	0.40153653	1.8196422	20	4 15.4	19.9
432940 2012 AY ₁₂	17.7	X	170.85598	116.44956	202.20557	20.97263	0.0809653	0.36152336	1.9515446	20	—	—
432941 2012 CB ₅₃	17.1	X	32.48082	338.62506	122.80425	24.84372	0.0686231	0.35262387	1.9842432	20	—	—
432942 2012 DE ₁₆	18.5	X	192.68794	117.92620	51.56219	5.80192	0.0787444	0.30159917	2.2021621	20	11 4.9	21.3
432943 2012 DG ₃₃	17.6	X	207.08497	160.12772	154.80757	22.86184	0.0600494	0.35902895	1.9605732	20	1 16.2	20.3
432944 2012 DA ₄₄	17.3	X	69.04108	98.28237	25.05868	22.57036	0.0629691	0.37179450	1.9154350	20	3 18.2	19.2
432945 2012 EB ₁₇	16.7	X	329.70630	199.54162	82.56322	11.77958	0.1522532	0.25989655	2.4318440	20	5 20.1	19.2
432946 2012 FJ ₂₈	18.0	X	69.80771	131.37890	144.54129	6.39663	0.1263638	0.28865106	2.2675347	20	11 8.4	21.1
432947 2012 GD ₄	18.4	X	114.20579	282.15265	359.80821	1.25684	0.1056213	0.30442271	2.1885242	20	—	—
432948 2012 GM ₁₀	18.6	X	231.41678	312.38454	207.68912	4.28330	0.0612741	0.30869107	2.1683032	20	12 18.9	20.9
432949 2012 HH ₂	6.2	X	37.93183	101.21638	56.49612	28.55362	0.1628355	0.00477729	34.9152211	20	4 26.5	21.1
432950 2012 HB ₇	18.3	X	231.51044	74.35040	93.58232	3.48136	0.0606456	0.30957325	2.1641819	20	12 30.8	20.4
432951 2012 HV ₁₇	17.8	X	148.65743	125.06801	86.97122	7.45811	0.0949065	0.29102532	2.2551852	20	11 9.2	20.9
432952 2012 HZ ₆₀	17.6	X	24.22539	296.64842	42.09761	7.39441	0.1294223	0.28877376	2.2668924	20	12 2.7	20.2
432953 2012 HN ₆₄	18.5	X	47.79576	116.56242	151.99641	1.74307	0.1534878	0.27231935	2.3573119	20	9 30.9	

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>		
432961	2012	<i>JH</i> ₂₅	17.3	X	75.22094	238.96107	61.08669	12.38083	0.2245176	0.28530133	2.2852489	20	12 19.8	20.9
432962	2012	<i>JQ</i> ₂₆	17.4	X	40.13195	209.40880	101.43501	6.02851	0.2374368	0.27558807	2.3386350	20	11 30.4	20.5
432963	2012	<i>JO</i> ₂₈	17.8	X	117.48556	150.48777	45.15737	7.17477	0.0460791	0.27412626	2.3469416	20	9 9.1	20.9
432964	2012	<i>JK</i> ₃₇	17.6	X	90.32731	163.50210	68.62929	7.99694	0.0605605	0.27425799	2.3461901	20	9 27.0	20.8
432965	2012	<i>JO</i> ₅₀	17.1	X	78.73579	225.59484	214.16198	21.41186	0.0469646	0.22570526	2.6716215	20	1 30.9	21.2
432966	2012	<i>JX</i> ₆₄	17.7	X	73.21209	106.66211	218.20474	5.40605	0.2171458	0.29154924	2.2524826	20	—	—
432967	2012	<i>KQ</i> ₂	18.0	X	155.20627	144.53327	84.84184	7.18065	0.1687063	0.29926830	2.2135818	20	12 4.5	21.4
432968	2012	<i>KU</i> ₁₄	18.3	X	48.05398	203.47103	89.23553	6.92175	0.1628248	0.27965164	2.3159249	20	11 7.8	21.3
432969	2012	<i>KO</i> ₁₇	17.7	X	116.54252	182.47371	94.29629	6.27241	0.1882694	0.29339813	2.2430097	20	12 27.1	21.0
432970	2012	<i>LL</i> ₃	18.0	X	68.04641	184.47658	81.55458	2.29559	0.1055863	0.27501163	2.3419018	20	10 17.6	21.1
432971	Loving		16.9	X	295.75339	164.52395	137.65276	12.60574	0.1161554	0.23644400	2.5901039	20	5 2.1	20.5
432972	2012	<i>LS</i> ₁₀	16.5	X	273.43906	164.00389	181.99462	16.03372	0.1944312	0.24187733	2.5511693	20	5 17.0	20.3
432973	2012	<i>LQ</i> ₁₇	17.8	X	175.06696	58.82330	141.49987	5.88580	0.1140859	0.29354071	2.2422833	20	11 21.5	20.9
432974	2012	<i>LP</i> ₁₈	17.5	X	16.65790	72.45622	205.12647	14.01576	0.1344667	0.25826766	2.4420583	20	8 12.8	20.4
432975	2012	<i>MJ</i> ₁₀	17.8	X	132.24004	201.64429	99.58684	8.55043	0.1743858	0.29751485	2.2222707	20	—	—
432976	2012	<i>MM</i> ₁₅	17.8	X	121.12781	119.87802	154.76391	5.44448	0.1565140	0.28669040	2.2778613	20	12 27.2	21.3
432977	2012	<i>OH</i>	16.5	X	346.47489	27.47324	308.97404	11.99583	0.2075330	0.25221481	2.4809746	20	9 15.7	18.7
432978	2012	<i>OX</i>	16.4	X	335.56662	96.22444	218.15854	6.59447	0.2454210	0.24641561	2.5197487	20	7 11.7	18.2
432979	2012	<i>PT</i> ₃	17.2	X	236.86966	58.11778	292.93027	3.15841	0.0850351	0.21313848	2.7756294	20	4 21.5	21.2
432980	2012	<i>PB</i> ₄	17.4	X	83.91424	336.57373	176.71566	4.64723	0.0224894	0.21618260	2.7495116	20	5 18.7	21.1
432981	2012	<i>PT</i> ₇	16.6	X	142.77706	244.90999	232.63036	12.63336	0.0510672	0.22783653	2.6549345	20	6 18.0	20.5
432982	2012	<i>PT</i> ₁₁	15.9	X	233.89636	3.33105	301.31839	7.39642	0.0480066	0.19629313	2.9322386	20	2 24.1	20.2
432983	2012	<i>PL</i> ₁₂	16.6	X	313.52572	353.59484	305.26206	6.42752	0.0947617	0.22308271	2.6925190	20	5 21.1	19.9
432984	2012	<i>PX</i> ₁₂	16.9	X	261.62775	54.53063	258.46689	3.89510	0.1570038	0.21151962	2.7897735	20	3 23.9	21.1
432985	2012	<i>PL</i> ₁₃	17.2	X	293.02100	114.10112	212.22909	4.23215	0.0482905	0.22412635	2.6841541	20	6 6.4	20.7
432986	2012	<i>PU</i> ₁₃	16.0	X	218.13922	19.37696	296.12316	5.21344	0.0819900	0.19464606	2.9487569	20	2 19.4	20.6
432987	2012	<i>PA</i> ₁₅	17.9	X	18.36895	59.58016	270.51854	2.62012	0.1821458	0.25795071	2.4440583	20	11 13.3	20.6
432988	2012	<i>PW</i> ₁₆	17.3	X	248.13618	136.17363	210.52303	1.36500	0.0824755	0.21559424	2.7545116	20	4 30.6	21.3
432989	2012	<i>PH</i> ₂₄	16.0	X	108.80948	220.37146	281.42028	21.28909	0.0224103	0.22744129	2.6580093	20	6 5.1	19.8
432990	2012	<i>PC</i> ₂₉	16.5	X	326.29071	26.17065	292.02089	13.17901	0.1658933	0.23499807	2.6007175	20	7 5.0	19.0
432991	2012	<i>PA</i> ₃₃	15.8	X	217.26226	327.57921	352.80200	15.18615	0.1465480	0.19958310	2.8999258	20	2 26.2	20.5
432992	2012	<i>PO</i> ₃₄	17.2	X	43.37450	153.73470	121.35754	4.29622	0.1788651	0.25754349	2.4466340	20	10 7.0	20.2
432993	2012	<i>PQ</i> ₃₄	16.1	X	122.83367	66.07347	303.03554	8.34756	0.1379835	0.18123894	3.0924431	20	1 24.6	20.5
432994	2012	<i>PJ</i> ₃₈	16.8	X	175.17063	102.06907	282.79613	5.45301	0.0758944	0.20692785	2.8308928	20	3 27.3	21.1
432995	2012	<i>PN</i> ₄₁	16.8	X	228.01240	72.35658	290.27692	5.24013	0.0397891	0.21820417	2.7325033	20	4 29.4	20.8
432996	2012	<i>QW</i> ₁₂	16.9	X	301.56867	65.90275	265.58679	6.69272	0.1043535	0.23361104	2.6110016	20	6 17.8	20.1
432997	2012	<i>QR</i> ₂₂	17.0	X	208.82520	139.27326	201.16588	5.32353	0.0934251	0.19897154	2.9058648	20	3 10.3	21.6
432998	2012	<i>QO</i> ₂₃	16.7	X	303.75948	173.86298	154.78563	14.14267	0.1895837	0.23305846	2.6151271	20	6 6.0	20.1
432999	2012	<i>QN</i> ₂₄	16.7	X	214.07972	56.52112	257.47320	2.32168	0.1037547	0.19246085	2.9710351	20	2 13.7	21.3
433000	2012	<i>QA</i> ₂₈	16.9	X	142.51417	56.71415	338.16374	5.64391	0.1195599	0.18984750	2.9982382	20	3 11.9	21.6
433001	2012	<i>QM</i> ₂₉	16.0	X	134.11626	357.46065	328.97347	9.35142	0.0538054	0.16945193	3.2342359	20	—	—
433002	2012	<i>QU</i> ₃₁	16.8	X	190.46301	176.33701	241.42006	5.56489	0.0509616	0.21714462	2.7413848	20	5 27.8	20.8
433003	2012	<i>QE</i> ₃₉	15.7	X	102.80522	208.96332	181.93544	27.52028	0.1551721	0.17578064	3.1561334	20	1 27.9	20.6
433004	2012	<i>QO</i> ₄₁	16.7	X	315.89370	308.73271	327.04731	12.78573	0.2377946	0.22603226	2.6690442	20	3 26.2	20.1
433005	2012	<i>QH</i> ₄₅	16.6	X	217.55191	124.89188	210.45263	13.93348	0.1631775	0.20408977	2.8570767	20	3 7.7	21.5
433006	2012	<i>QF</i> ₅₁	17.2	X	64.91980	228.80039	46.27364	1.84161	0.1622558	0.25831730	2.4417454	20	10 29.4	20.4
433007	2012	<i>RS</i> ₆	15.5	X	127.74438	129.19826	228.37261	13.00132	0.2971423	0.17356955	3.1828807	20	1 29.4	21.0
433008	2012	<i>RC</i> ₁₀	16.1	X	276.12984	278.38324	352.45706	14.31618	0.1268122	0.20313914	2.8659832	20	2 25.9	20.3
433009	2012	<i>RY</i> ₁₅	16.2	X	163.12106	77.68760	296.69781	10.43078	0.1724543	0.18690200	3.0296567	20	3 6.9	21.3
433010	2012	<i>RT</i> ₁₈	17.4	X	38.07968	299.50325	21.35602	1.85528	0.1989388	0.25946211	2.4345578	20	12 1.1	20.5
433011	2012	<i>RC</i> ₁₉	15.7	X	141.30780	183.33885	182.04602	15.59726	0.1600415	0.17758296	3.1347424	20	2 7.9	20.8
433012	2012	<i>RO</i> ₁₉	17.2	X	28.46528	251.15984	53.29359	4.05114	0.2505058	0.25556434	2.4592493	20	11 4.6	20.1
433013	2012	<i>RT</i> ₁₉	16.4	X	212.24220	324.46094	2.78418	10.58761	0.0945624	0.19076825	2.9885829	20	3 2.3	21.0
433014	2012	<i>RO</i> ₂₁	16.6	X	272.81366	19.12083	292.11054	3.17222	0.1968054	0.21315073	2.7755230	20	3 29.0	20.8
433015	2012	<i>RE</i> ₂₆	17.4	X	104.40629	287.00874	351.35261	5.81754	0.2103114	0.27618794	2.3352474	20	12 16.1	21.4
433016	2012	<i>RR</i> ₂₈	16.8	X	286.22938	162.22932	172.88626	10.62960	0.1626170	0.22556575	2.6727230	20	5 23.6	20.5
433017	2012	<i>RO</i> ₂₉	17.4	X	80.77802	176.18267	113.92565	2.68414	0.1662292	0.26902263	2.3765311	20	12 6.4	21.0
433018	2012	<i>RM</i> ₃₂	17.9	X	50.37529	251.47811	41.35827	5.68144	0.3476895	0.26192777	2.4192552	20	11 26.9	21.8
433019	2012	<i>RW</i> ₃₄	16.0	X	140.12222	149.21249	205.35195	8.61229	0.0875114	0.17335421	3.1855160	20	1 19.3	20.9
433020	2012	<i>RP</i> ₃₈	16.2	X	141.05794	177.89931	184.66522	9.78249	0.1039120	0.18289450	3.0737529	20	1 30.1	21.0
433021	2012	<i>RB</i> ₃₉	15.9	X	78.01151	99.70306	277.32798	4.61482	0.1261428	0.15659473	3.4089289	20	—	—
433022	2012	<i>RZ</i> ₄₀	17.2	X	327.60955	207.90346	122.16923	4.07384	0.2455886	0.23794047	2.5792326	20	7 17.3	19.2
433023	2012	<i>RJ</i> ₄₁	16.8	X	227.60554	274.28664	103.59602	7.68724	0.2668935	0.21274858	2.7790195	20	5 6.6	21.7
433024	2012	<i>SY</i>	17.3	X	348.60266	147.62640	166.19972	6.13043	0.1642817	0.23837794	2.5760761	20	8 15.4	19.7
433025	2012	<i>SJ</i> ₄	15.8	X	165.32529	284.76962	20.35893	20.45561	0.1608316	0.16936329	3.2353643	20	—	—
433026	2012	<i>SW</i> ₄	15.7	X	212.53094	239.72384	33.84863	12.00694	0.1405165	0.17353019	3.1833620	20	—	—
433027	2012	<i>SM</i> ₅	16.4	X	313.67318	297.97757	3.05248	12.37572	0.1881010	0.22294429	2.6936333	20	5 6.9	19.8
433028	2012	<i>SU</i> ₇	17.4	X	67.81867	99.31523	185.42700	1.21587	0.1605493	0.26031472	2.4292389	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>		
433041	2012	SL ₃₂	17.0	X	234.55530	90.61704	210.09823	11.47642	0.1273609	0.19950424	2.9006898	20	2 13.1	21.7
433042	2012	SX ₃₂	17.5	X	316.35342	145.40104	179.34630	3.26690	0.1599853	0.23113986	2.6295785	20	6 24.9	20.3
433043	2012	SK ₃₆	17.2	X	247.42216	174.54362	182.51989	4.15805	0.0857985	0.21529628	2.7570524	20	5 13.7	21.1
433044	2012	SF ₃₇	16.7	X	247.14606	327.77708	351.42395	4.65398	0.0940002	0.20421455	2.8559127	20	3 24.5	20.8
433045	2012	SR ₃₉	16.7	X	300.82296	109.20871	188.14021	10.42029	0.1571055	0.21841428	2.7307505	20	4 23.5	20.1
433046	2012	SP ₄₃	16.4	X	175.79537	26.75482	342.20215	9.90001	0.1229483	0.19277338	2.9678231	20	3 13.0	21.0
433047	2012	SG ₄₆	16.9	X	337.20828	127.43441	186.07608	12.52429	0.1772907	0.23588009	2.5942303	20	7 17.4	19.7
433048	2012	SV ₄₉	16.4	X	345.15774	273.89214	14.31575	13.28164	0.0483794	0.22524421	2.6752659	20	7 2.7	20.0
433049	2012	SJ ₅₁	15.8	X	280.70756	268.20573	333.40997	9.42119	0.0759009	0.18978501	2.9988962	20	2 2.5	20.0
433050	2012	SS ₅₄	16.3	X	170.61844	322.54842	40.99367	10.20252	0.1077860	0.18032735	3.1028562	20	3 8.1	21.2
433051	2012	SY ₅₇	15.9	X	121.11269	14.46769	24.88072	16.49295	0.1022530	0.17549332	3.1595773	20	3 2.4	20.8
433052	2012	ST ₆₀	17.0	X	241.45630	214.65779	175.49681	6.75071	0.0275781	0.22364001	2.6880440	20	6 25.7	20.8
433053	2012	SD ₆₂	16.7	X	185.02508	157.09035	199.28282	12.62782	0.1147639	0.18945922	3.0023331	20	3 5.5	21.5
433054	2012	SC ₆₃	16.8	X	267.61996	18.27418	314.33948	4.43184	0.0323195	0.21297000	2.7770931	20	5 11.9	20.6
433055	2012	SZ ₆₃	15.9	X	139.77005	190.30525	157.75166	11.36656	0.2168107	0.17514639	3.1637483	20	1 24.6	21.0
433056	2012	TC ₁	16.3	X	172.84564	152.25345	188.10908	9.57890	0.1102194	0.18305054	3.0720059	20	2 5.1	21.2
433057	2012	TK ₆	17.5	X	102.88266	214.16232	96.05292	3.94729	0.1823826	0.27805571	2.3247781	20	—	—
433058	2012	TN ₁₁	16.2	X	154.85994	145.08500	209.35908	12.44351	0.0712329	0.17220877	3.1996260	20	1 31.7	21.3
433059	2012	TS ₁₆	16.3	X	176.74782	331.06563	19.49262	12.07761	0.1302803	0.18489844	3.0515036	20	2 28.2	21.3
433060	2012	TM ₁₇	16.4	X	132.11715	199.85348	183.20161	5.45064	0.0457776	0.17829991	3.1263335	20	2 8.3	21.0
433061	2012	TL ₁₈	17.0	X	301.78206	312.81134	21.59669	9.73650	0.0827643	0.22280101	2.6947881	20	6 25.2	20.5
433062	2012	TP ₂₁	16.8	X	5.47117	84.13894	204.73959	11.75412	0.1703192	0.23373043	2.6101124	20	8 9.3	19.6
433063	2012	TS ₂₁	16.4	X	90.07215	63.52660	10.44442	7.18189	0.0614212	0.17809732	3.1287039	20	2 25.2	20.7
433064	2012	TF ₂₃	16.2	X	341.71479	318.93102	216.97217	9.85528	0.0262461	0.17874761	3.1211111	20	2 1.2	20.6
433065	2012	TS ₂₄	16.6	X	224.05913	94.38453	261.28731	6.27432	0.0133665	0.20454243	2.8528598	20	4 11.5	21.0
433066	2012	TA ₂₆	16.3	X	129.30774	348.47971	18.23454	9.21404	0.0499749	0.17255087	3.1953955	20	1 22.0	21.0
433067	2012	TY ₂₇	16.4	X	141.50926	329.53754	23.40368	4.54976	0.1734308	0.17542813	3.1603600	20	1 30.4	21.4
433068	2012	TV ₂₈	16.7	X	236.96243	122.45151	190.00605	9.40229	0.0702053	0.19274761	2.9680876	20	3 7.4	21.2
433069	2012	TX ₃₁	16.4	X	169.65203	163.95080	207.29524	11.18719	0.1579812	0.18711674	3.0273382	20	3 10.4	21.5
433070	2012	TN ₃₉	16.1	X	119.57070	141.02253	227.81555	9.58591	0.0251455	0.17001843	3.2270477	20	1 6.4	20.8
433071	2012	TW ₄₁	17.1	X	20.89347	21.08306	247.24127	6.45047	0.1664014	0.23319635	2.6140961	20	8 9.8	19.9
433072	2012	TZ ₄₂	16.9	X	281.29069	320.30150	339.67896	5.84928	0.0351282	0.20347288	2.8628485	20	4 16.1	20.9
433073	2012	TV ₄₈	16.7	X	211.68444	349.91778	302.05526	1.33437	0.0601382	0.17704235	3.1411206	20	1 20.3	21.5
433074	2012	TA ₄₉	16.2	X	216.79422	90.22031	202.00541	16.15938	0.1929537	0.18430104	3.0580942	20	1 18.6	21.7
433075	2012	TV ₅₇	16.3	X	342.32122	197.42167	26.81518	12.85785	0.0277380	0.19148055	2.9811667	20	4 5.4	20.3
433076	2012	TG ₅₈	16.3	X	216.98118	287.31594	53.74786	9.58503	0.0319152	0.18741781	3.0240953	20	3 28.7	20.8
433077	2012	TV ₅₉	16.2	X	151.39280	346.88569	27.26564	10.01431	0.1192918	0.18154732	3.0889401	20	3 1.9	21.1
433078	2012	TB ₆₀	16.5	X	265.39669	257.70328	57.11769	2.82838	0.0528621	0.20354630	2.8621600	20	4 15.6	20.4
433079	2012	TU ₆₆	15.9	X	142.99637	161.38551	220.40926	13.63651	0.0416370	0.17686582	3.1432104	20	2 15.3	20.7
433080	2012	TW ₆₆	15.9	X	211.82005	111.55261	223.51702	8.79709	0.0793226	0.19094265	2.9867629	20	3 5.9	20.6
433081	2012	TP ₇₃	16.3	X	218.65105	7.51766	307.37183	5.41943	0.0457430	0.18799586	3.0178932	20	2 21.6	20.6
433082	2012	TY ₇₃	16.3	X	41.79504	246.19167	212.14320	7.53538	0.0316583	0.17340070	3.1849465	20	1 17.4	20.8
433083	2012	TR ₇₅	17.0	X	32.01444	16.41703	229.56261	12.08492	0.3057704	0.23296044	2.6158606	20	8 18.8	20.1
433084	2012	TV ₇₅	15.6	X	5.87085	289.34302	213.07289	16.04303	0.1092122	0.17180349	3.2046558	20	1 18.7	20.0
433085	2012	TL ₇₆	16.7	X	348.79754	95.24475	203.54841	12.93355	0.0774150	0.22847275	2.6500035	20	7 18.8	20.2
433086	2012	TD ₇₈	16.4	X	273.01119	146.47636	105.57351	12.24692	0.0808144	0.18112801	3.0937055	20	2 6.9	21.0
433087	2012	TW ₈₁	16.5	X	120.91338	11.57463	352.78082	2.82155	0.1015464	0.17252640	3.1956976	20	1 14.3	21.0
433088	2012	TR ₈₅	16.2	X	332.05770	324.25061	211.08509	8.50835	0.0405848	0.17317434	3.1877214	20	1 19.9	20.8
433089	2012	TB ₈₆	16.1	X	214.86811	51.23633	268.65085	7.89873	0.1325772	0.18308724	3.0715954	20	2 19.0	21.2
433090	2012	TO ₈₆	16.2	X	160.50404	338.59847	18.23321	7.94198	0.0730030	0.17809334	3.1287505	20	2 15.5	20.9
433091	2012	TD ₈₇	17.4	X	47.30483	24.52353	233.78322	2.49810	0.1781343	0.23654303	2.5893809	20	9 12.4	20.6
433092	2012	TR ₈₇	16.7	X	245.04592	92.61955	193.16200	1.45243	0.1131394	0.18606257	3.0387621	20	2 11.4	21.2
433093	2012	TS ₈₇	16.5	X	253.97431	155.04265	200.91704	3.22739	0.1117577	0.21185581	2.7868214	20	5 16.5	20.5
433094	2012	TL ₉₀	16.3	X	36.81000	119.66883	33.59971	10.45229	0.0533550	0.19112151	2.9848992	20	3 22.9	20.2
433095	2012	TA ₉₂	17.3	X	348.79032	160.18577	176.98937	10.91868	0.1457248	0.24372844	2.5382355	20	9 22.8	19.6
433096	2012	TV ₉₃	16.7	X	220.06478	224.73495	168.00183	6.31116	0.0898880	0.21252236	2.7809913	20	5 28.3	20.9
433097	2012	TD ₉₅	16.2	X	72.81093	73.28783	14.73341	11.63641	0.0611911	0.17491698	3.1665139	20	2 22.9	20.6
433098	2012	TC ₉₇	15.6	X	206.66894	292.58802	20.30000	11.72369	0.0509743	0.17883167	3.1201329	20	2 13.2	20.4
433099	2012	TM ₉₇	16.5	X	218.98433	95.78342	212.02170	10.49717	0.1145860	0.18399814	3.0614495	20	2 9.2	21.6
433100	2012	TS ₉₉	16.3	X	333.60610	314.60427	10.57600	12.44402	0.1975615	0.23373521	2.6100768	20	8 4.3	18.8
433101	2012	TY ₁₀₃	16.3	X	333.02040	329.45353	223.29298	7.80722	0.1135605	0.18080014	3.0974445	20	1 31.8	20.6
433102	2012	TG ₁₀₅	16.5	X	277.40639	338.52114	260.78215	2.08157	0.0599937	0.17932507	3.1144071	20	1 28.4	21.0
433103	2012	TU ₁₀₆	16.6	X	187.25035	14.47799	333.04950	8.88801	0.1141467	0.18734915	3.0248342	20	2 28.4	21.4
433104	2012	TP ₁₀₈	16.1	X	195.79017	330.88487	333.54698	8.21792	0.0538919	0.17428697	3.1741402	20	1 20.2	20.9
433105	2012	TK ₁₁₀	16.3	X	163.87105	4.62803	331.65843	8.06256	0.0993175	0.17439761	3.1727976	20	1 26.6	21.2
433106	2012	TV ₁₁₄	15.9	X	293.02442	214.84815	3.46072	17.26935	0.1601740	0.17796962	3.1302003	20	1 13.2	20.8
433107	2012	TP ₁₂₂	16.9	X	342.49408	261.83440	29.83665	11.25975	0.1176370	0.22743689	2.6580437	20	6 29.9	20.0
433108	2012	TN ₁₂₃	15.7	X	163.85336	92.91065	234.31465	9.19460	0.1248089	0.17350442	3.1836771	20	1 14.7	20.8
433109	2012	TP ₁₂₃	16.7	X	268.10370	277.08429	36.34881	4.23479	0.0886780	0.20937903	2.8087554	20	4 11.8	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>
433121 2012 TD ₁₇₀	16.0	X	191.19297	97.69539	209.40879	14.29291	0.1011660	0.18328077	3.0694327	20	1 13.9	21.0
433122 2012 TO ₁₇₀	16.8	X	335.05982	91.92089	201.74237	6.56493	0.0579658	0.21981341	2.7191506	20	6 22.2	20.2
433123 2012 TQ ₁₇₁	16.6	X	335.67977	59.33769	219.43545	7.41355	0.2497533	0.22394312	2.6856180	20	5 13.0	18.8
433124 2012 TR ₁₇₃	16.6	X	264.77737	48.14526	208.97255	16.70947	0.1774951	0.18755252	3.0226471	20	1 18.8	21.7
433125 2012 TS ₁₇₄	16.3	X	53.75521	247.35713	219.82710	9.90483	0.0619699	0.17845207	3.1245560	20	2 12.3	20.6
433126 2012 TV ₁₇₅	17.6	X	348.00891	307.57919	353.00334	1.41247	0.1283498	0.23289993	2.6163137	20	7 24.5	20.2
433127 2012 TB ₁₇₆	17.7	X	9.30813	74.65641	198.21330	11.20293	0.1863856	0.23304430	2.6152331	20	7 26.1	20.5
433128 2012 TE ₁₈₁	16.5	X	95.66295	71.82468	345.20812	8.43978	0.0928569	0.17475577	3.1684610	20	2 15.6	20.9
433129 2012 TM ₁₈₄	16.6	X	122.47001	244.39317	203.14732	3.22297	0.0852857	0.19733201	2.9219381	20	4 20.6	20.9
433130 2012 TZ ₁₈₅	16.0	X	4.09545	245.39476	52.92121	18.36070	0.2849400	0.23037681	2.6353818	20	9 23.5	18.7
433131 2012 TK ₁₈₈	17.4	X	308.51323	169.67556	171.81646	5.42235	0.1122795	0.22885621	2.6470425	20	7 11.5	20.5
433132 2012 TG ₁₉₁	15.6	X	309.09397	144.29107	300.13517	7.21406	0.2223558	0.12619046	3.9365736	20	10 25.3	20.4
433133 2012 TN ₁₉₄	17.5	X	346.44527	121.88066	189.18308	5.04795	0.2723862	0.23418159	2.6067590	20	8 6.2	19.2
433134 2012 TR ₁₉₉	15.8	X	143.27711	147.45593	226.02500	11.94254	0.1749887	0.17665966	3.1456552	20	2 18.6	21.0
433135 2012 TF ₂₀₄	16.8	X	67.63802	102.35139	36.71979	8.35815	0.0309507	0.19672447	2.9279510	20	4 10.7	20.8
433136 2012 TR ₂₁₂	16.0	X	134.61979	175.33111	183.16640	10.81588	0.0461496	0.17310610	3.1885590	20	1 13.7	20.7
433137 2012 TS ₂₁₇	17.6	X	4.88427	139.57201	139.20878	5.82931	0.2563987	0.23636805	2.5906587	20	8 6.4	19.5
433138 2012 TN ₂₂₁	16.6	X	170.16945	334.48005	15.85083	9.40308	0.0574612	0.18287971	3.0739186	20	2 17.1	21.2
433139 2012 TM ₂₂₃	16.2	X	187.08651	130.09243	185.31637	7.27813	0.0386298	0.17585850	3.1552018	20	1 20.2	21.0
433140 2012 TF ₂₂₇	16.3	X	131.78440	205.12142	172.19889	9.22188	0.1763664	0.17566845	3.1574771	20	2 15.9	21.2
433141 2012 TM ₂₂₈	17.3	X	45.17542	212.92013	33.67616	2.44470	0.1520530	0.23045740	2.6347674	20	8 21.3	20.4
433142 2012 TQ ₂₂₈	16.5	X	293.75156	81.03860	199.72671	9.38348	0.0644031	0.20071276	2.8890345	20	4 5.5	20.4
433143 2012 TC ₂₃₀	16.0	X	223.17506	42.25040	227.25576	12.10900	0.0193473	0.17015916	3.2252681	20	1 6.6	20.8
433144 2012 TH ₂₃₁	15.5	X	101.68921	13.95705	40.33058	19.38878	0.1294530	0.17162339	3.2068974	20	3 5.1	20.4
433145 2012 TD ₂₃₅	16.1	X	57.22594	322.63148	165.83124	9.79511	0.1095419	0.18519618	3.0482321	20	3 24.4	19.9
433146 2012 TA ₂₃₆	16.2	X	325.63531	158.66339	134.04461	6.68671	0.0337162	0.21615229	2.7497687	20	6 9.6	19.9
433147 2012 TH ₂₄₀	16.0	X	65.68766	61.03932	28.34910	16.94748	0.1345538	0.17175276	3.2052869	20	2 28.7	20.4
433148 2012 TJ ₂₄₀	16.1	X	174.19973	142.84113	192.23314	11.77757	0.0711549	0.17688253	3.1430124	20	1 29.5	21.1
433149 2012 TU ₂₄₀	15.8	X	313.20687	150.72027	36.42867	13.05270	0.0305018	0.17159906	3.2072005	20	1 16.9	20.5
433150 2012 TD ₂₄₁	16.1	X	104.39028	359.74346	58.49055	8.26432	0.0977743	0.17380577	3.1799661	20	3 2.0	20.7
433151 2012 TV ₂₄₁	15.9	X	178.14045	161.20481	192.09004	14.48887	0.0318859	0.18358876	3.0659989	20	2 21.3	20.5
433152 2012 TY ₂₄₁	17.3	X	304.98997	109.14650	192.67814	1.76215	0.1497787	0.21607342	2.7504378	20	5 5.7	20.6
433153 2012 TQ ₂₄₂	17.2	X	277.05782	303.39802	51.39122	5.77058	0.1258486	0.21989074	2.7185131	20	6 9.9	21.0
433154 2012 TZ ₂₄₂	16.7	X	277.44626	244.69702	47.64421	7.20312	0.0760491	0.19875773	2.9079484	20	3 31.9	20.9
433155 2012 TN ₂₄₃	16.8	X	281.35620	269.19762	61.74171	4.93304	0.0786057	0.21380343	2.7698714	20	5 22.4	20.3
433156 2012 TV ₂₄₄	17.3	X	276.33640	192.42313	148.90277	5.51043	0.1183896	0.22087457	2.7104345	20	5 24.8	21.0
433157 2012 TZ ₂₄₇	16.9	X	39.14230	258.56667	358.25723	11.72576	0.0825464	0.22855191	2.6493915	20	8 18.3	20.3
433158 2012 TN ₂₄₉	16.1	X	85.88396	72.56711	340.82884	10.01204	0.0473761	0.16811343	3.2513804	20	1 25.9	20.6
433159 2012 TN ₂₅₅	16.5	X	294.80979	84.99977	247.99621	10.23678	0.2107829	0.22214317	2.7001055	20	5 22.7	19.7
433160 2012 TJ ₂₅₅	16.6	X	207.95275	261.31512	115.74813	3.06862	0.0747795	0.20681078	2.8319610	20	4 26.1	20.8
433161 2012 TB ₂₅₈	17.1	X	2.67663	156.58223	167.29985	6.28907	0.2305241	0.24498113	2.5295754	20	10 14.0	19.3
433162 2012 TL ₂₅₈	16.0	X	329.41549	261.70091	151.89546	1.63224	0.1811410	0.12494398	3.9627118	20	10 30.5	20.5
433163 2012 TF ₂₅₉	16.9	X	201.93959	332.99889	39.59824	9.09782	0.0901385	0.19906885	2.9049178	20	4 14.2	21.3
433164 2012 TL ₂₅₉	17.2	X	317.55208	121.09774	177.62956	2.03625	0.0551586	0.21635490	2.7480516	20	6 3.2	20.6
433165 2012 TW ₂₆₀	16.5	X	247.07593	291.50060	77.07416	6.70206	0.0528904	0.21272174	2.7925333	20	5 31.8	20.2
433166 2012 TV ₂₆₃	16.6	X	192.45550	314.74648	28.49669	8.99480	0.0985153	0.18695584	3.0290750	20	3 3.4	21.4
433167 2012 TE ₂₇₈	15.8	X	80.58735	205.22151	213.73318	13.48621	0.0681275	0.16949607	3.2336744	20	1 22.3	20.5
433168 2012 TH ₂₈₆	16.5	X	21.46293	274.95405	24.14999	12.16531	0.1855980	0.23958624	2.5674075	20	10 4.7	19.3
433169 2012 TK ₂₈₉	16.2	X	161.32253	8.67070	341.74161	10.76615	0.0864594	0.17682892	3.1436675	20	2 9.0	21.0
433170 2012 TW ₂₈₉	16.4	X	170.54001	334.75537	22.79608	9.47844	0.0937971	0.18083553	3.0970404	20	2 28.2	21.2
433171 2012 TH ₂₉₁	16.1	X	191.94126	197.48568	127.77168	5.59657	0.1227714	0.17897040	3.1185203	20	2 8.7	21.1
433172 2012 TM ₂₉₅	16.0	X	131.38105	135.78565	260.99638	12.88838	0.1003904	0.18458922	3.0549105	20	2 24.4	20.8
433173 2012 TR ₂₉₅	16.4	X	286.64349	321.71025	17.58755	14.59323	0.1351929	0.21696456	2.7429013	20	5 28.2	20.3
433174 2012 TJ ₂₉₆	15.9	X	221.24245	95.15200	226.40633	8.58651	0.0789384	0.18475781	3.0530518	20	2 28.9	20.7
433175 2012 TF ₂₉₈	16.3	X	201.61951	108.58112	179.92853	10.51101	0.1104473	0.17544611	3.1601441	20	1 5.5	21.4
433176 2012 TL ₃₀₄	17.1	X	331.40397	242.74677	64.48664	5.50427	0.2584961	0.22947624	2.6422722	20	6 15.7	19.2
433177 2012 TR ₃₀₅	17.0	X	333.28046	284.64326	356.42529	12.82177	0.3131231	0.22938035	2.6430086	20	4 22.9	19.4
433178 2012 TW ₃₀₇	15.5	X	218.19515	298.05107	359.70254	16.37674	0.1022637	0.18026938	3.1035213	20	2 6.9	20.5
433179 2012 TQ ₃₀₈	16.1	X	151.65412	154.52876	225.34842	9.52835	0.0809128	0.18277653	3.0750754	20	2 26.7	20.9
433180 2012 TM ₃₁₄	16.6	X	6.34262	283.43008	19.11271	12.50617	0.1415340	0.23767140	2.5811789	20	9 8.7	19.4
433181 2012 TT ₃₁₄	16.8	X	359.30254	289.42082	34.86977	12.41110	0.3205343	0.24173700	2.5521565	20	10 21.4	18.5
433182 2012 TT ₃₁₄	16.3	X	291.82273	187.34766	180.55323	32.89587	0.1647729	0.23601650	2.5932306	20	7 12.9	20.3
433183 2012 TH ₃₁₅	16.6	X	268.78761	244.74593	142.15665	13.30016	0.2079670	0.22573784	2.6713645	20	6 30.8	20.4
433184 2012 TN ₃₁₇	15.8	X	323.54065	268.24325	157.53964	4.68145	0.2703083	0.12587931	3.9430578	20	10 29.5	19.9
433185 2012 TE ₃₁₈	16.1	X	170.32244	244.50950	137.65509	10.66903	0.1157960	0.19044254	2.9919896	20	3 28.0	20.9
433186 2012 TV ₃₂₂	17.6	X	356.94320	315.36859	326.51394	7.95555	0.1482224	0.23936970	2.5689556	20	7 16.1	20.1
433187 2012 UA ₄	16.8	X	17.83060	118.25311	143.84812	3.61465	0.0848582	0.22455896	2.6807056	20	7 18.0	20.0
433188 2012 US ₈	16.4	X	270.98681	94.30588	179.72719	9.07859	0.0194346	0.18734274	3.0249031	20	3 6.6	20.7
433189 2012 UF ₁₃	16.4	X	214.49016	110.52146	196.60102	21.42519	0.0501474	0.18072904	3.0982569	20	2 5.2	21.4
433190 2012 UZ ₁₇	16.1	X	160.53121	198.02925	193.20530	13.30170	0.0353500	0.18827801	3.0148773	20	3 19.8	20.6
433191 2012 UF ₁₉	17.0	X	7.16700	258.02200	31.19149	11.68062	0.1942853	0.23559216	2.5963436	20	8 28.4	19.7
433192 2012 UM ₂₃	16.2	X	204.52263	19.70709	333.51543	9.47659	0.0924314	0.19273467	2.9682204	20	3 20.3	20.9
433193 2012 UZ ₂₄	16.1	X</										

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>		
433201	2012	UT ₅₇	16.1	X	55.51395	25.49247	220.71568	28.070561	0.1522433	0.22584820	2.6704941	20	8 24.3	20.3
433202	2012	UX ₆₂	15.5	X	348.60672	60.42606	74.31529	10.75162	0.0106697	0.15437446	3.4415368	20	—	—
433203	2012	UT ₆₃	15.9	X	228.67465	247.09455	75.18471	12.91855	0.1453035	0.18714687	3.0270134	20	3 14.5	21.0
433204	2012	UZ ₆₃	17.2	X	68.16604	213.79125	123.49774	4.85808	0.2505364	0.26853548	2.3794045	20	—	—
433205	2012	UT ₇₅	17.2	X	305.54338	156.68639	167.85995	2.72740	0.1102973	0.21758740	2.7376645	20	6 13.2	20.5
433206	2012	UG ₇₇	15.8	X	217.77077	84.73013	244.58238	10.33466	0.1727607	0.18448865	3.0560207	20	2 29.7	21.1
433207	2012	UJ ₉₁	16.6	X	267.93137	299.59065	28.66197	6.30180	0.0268304	0.21348253	2.7726464	20	5 7.9	20.4
433208	2012	UH ₉₅	16.9	X	358.41907	282.61012	32.97804	5.76344	0.1803151	0.23820974	2.5772885	20	9 14.2	19.3
433209	2012	UR ₁₀₀	16.0	X	172.56964	286.83098	61.13501	10.50554	0.1651144	0.17748017	3.1359526	20	2 23.4	21.3
433210	2012	UZ ₁₀₅	16.3	X	181.88794	22.98605	335.08822	5.26639	0.1399608	0.18507584	3.0495533	20	3 7.4	21.2
433211	2012	UW ₁₀₇	16.1	X	17.93276	141.91727	33.23440	10.53195	0.0480525	0.18326177	3.0696449	20	3 24.6	20.2
433212	2012	UH ₁₀₈	16.7	X	231.15113	316.89927	34.69321	6.65851	0.0776970	0.19782081	2.9171229	20	4 18.9	21.1
433213	2012	UP ₁₁₀	16.2	X	299.47059	319.87570	17.40963	13.16456	0.2274677	0.22051632	2.7133692	20	5 29.8	19.8
433214	2012	UU ₁₁₅	16.5	X	208.25317	323.22116	12.90938	10.53978	0.0353070	0.18669448	3.0319013	20	3 11.0	21.0
433215	2012	UW ₁₁₅	16.4	X	163.61677	104.83415	249.72652	4.04522	0.1408490	0.17911799	3.1168070	20	2 15.5	21.4
433216	2012	UM ₁₁₇	16.7	X	309.01173	89.31868	218.39858	11.97706	0.1922606	0.21882706	2.7273154	20	5 13.5	19.8
433217	2012	UD ₁₂₈	16.3	X	204.41434	49.01176	290.87292	8.53372	0.0636642	0.18589698	3.0405665	20	3 4.2	21.0
433218	2012	UX ₁₃₂	16.8	X	339.67415	246.00313	91.97311	6.72563	0.2226106	0.23621585	2.5917714	20	9 8.6	18.9
433219	2012	UN ₁₃₉	16.3	X	170.41261	17.18390	338.41169	12.88767	0.0560606	0.18069384	3.0986592	20	2 21.1	20.8
433220	2012	UZ ₁₃₉	16.2	X	50.84242	125.47070	346.54610	13.61955	0.0196248	0.17707704	3.1407103	20	2 17.6	20.6
433221	2012	UJ ₁₄₀	16.5	X	256.47453	339.93704	296.69612	9.06772	0.0304979	0.18410974	3.0602122	20	2 18.6	21.0
433222	2012	UY ₁₄₀	16.6	X	342.50215	275.02728	41.96179	10.61051	0.1696836	0.23224150	2.6212563	20	8 12.6	19.3
433223	2012	UP ₁₄₈	16.0	X	152.41587	153.94649	207.52498	11.56005	0.0883113	0.17530223	3.1618730	20	2 7.5	21.0
433224	2012	UR ₁₄₈	16.5	X	297.51192	275.12674	43.87156	4.95954	0.0632987	0.21277514	2.7787883	20	5 30.6	20.2
433225	2012	UX ₁₄₈	16.2	X	235.53064	87.73746	205.19769	20.55900	0.0981241	0.18305683	3.0719354	20	2 6.9	21.3
433226	2012	UY ₁₅₀	15.7	X	136.52812	348.75653	57.93979	11.93761	0.0402586	0.17709352	3.1405154	20	3 19.8	20.4
433227	2012	UU ₁₅₉	16.8	X	305.01799	180.62799	169.10941	10.45623	0.2049706	0.22850429	2.6497596	20	7 3.2	19.9
433228	2012	VA ₁	16.1	X	24.17775	227.91112	278.94955	9.02429	0.0695965	0.17650422	3.1475018	20	2 20.6	20.4
433229	2012	VX ₁₁	16.8	X	250.16096	201.29236	124.17817	3.04897	0.1050615	0.19889446	2.9066155	20	4 5.8	21.1
433230	2012	VE ₁₃	16.7	X	307.05750	244.73308	59.60332	4.80213	0.1971800	0.21599216	2.7511275	20	5 4.9	19.9
433231	2012	VT ₁₄	16.4	X	166.63961	191.16265	172.62261	16.01580	0.1000518	0.18049367	3.1009497	20	2 27.1	21.3
433232	2012	VN ₃₃	16.3	X	183.34021	210.29272	143.52315	3.63853	0.1299648	0.18052466	3.1005949	20	3 5.1	21.2
433233	2012	VK ₄₃	15.9	X	339.78402	246.28755	69.43905	15.08699	0.1927678	0.22102534	2.7092017	20	7 31.1	18.7
433234	2012	VS ₄₈	16.8	X	250.31217	238.43633	79.59929	3.32306	0.1290200	0.19741958	2.9210740	20	3 25.8	21.2
433235	2012	VU ₄₉	17.3	X	24.62502	215.95828	56.02330	6.30740	0.0379505	0.22544185	2.6737021	20	8 9.9	20.8
433236	2012	VY ₅₂	16.7	X	151.62223	353.25603	27.11583	0.38420	0.2265264	0.17898460	3.1183553	20	3 12.7	21.8
433237	2012	VB ₅₇	16.8	X	320.78914	265.67208	61.99333	4.69201	0.1480178	0.22295806	2.6935225	20	7 9.5	19.8
433238	2012	VR ₆₃	16.0	X	203.87468	90.78021	230.79549	10.40469	0.1757931	0.17869763	3.1216930	20	2 10.6	21.5
433239	2012	VK ₆₅	16.4	X	21.93234	201.61884	32.13422	8.28862	0.1212952	0.21261887	2.7801496	20	6 16.6	19.7
433240	2012	VO ₆₅	16.3	X	10.24792	316.11338	212.73223	10.66225	0.1162457	0.17978505	3.1090927	20	2 26.9	20.3
433241	2012	VB ₆₈	16.0	X	123.21531	307.45638	45.12492	10.31485	0.0618068	0.15810957	3.3871201	20	—	—
433242	2012	VP ₇₁	15.8	X	177.06218	294.28251	62.10872	12.32306	0.0970688	0.17670053	3.1451702	20	3 7.4	20.9
433243	2012	VS ₈₃	15.2	X	162.57461	300.75379	59.78077	32.90482	0.0834497	0.17178109	3.2049344	20	3 10.9	20.7
433244	2012	VR ₉₃	15.9	X	254.74970	91.10742	200.74274	5.07004	0.1120135	0.17851852	3.1237806	20	2 28.1	20.7
433245	2012	VA ₉₆	16.6	X	40.31011	60.23809	221.84466	12.53009	0.1670345	0.23248972	2.6193903	20	9 30.6	20.0
433246	2012	VG ₉₆	16.5	X	251.89967	283.89819	34.12730	3.62137	0.1025833	0.18954265	3.0014521	20	3 29.8	21.0
433247	2012	VS ₉₆	15.9	X	153.77762	312.45046	83.50246	10.57495	0.1108347	0.17839979	3.1251665	20	3 30.9	20.9
433248	2012	VB ₉₇	16.6	X	7.54025	230.45444	107.90043	4.02694	0.1169741	0.24163420	2.5528803	20	10 26.8	19.5
433249	2012	VJ ₁₀₁	16.7	X	223.88303	120.10471	195.55699	4.15458	0.2413611	0.18824698	3.0152086	20	2 19.9	22.1
433250	2012	VP ₁₀₂	16.2	X	204.90304	142.27607	190.96172	8.77002	0.0586733	0.17353398	3.1833156	20	2 29.2	21.1
433251	2012	VT ₁₀₉	15.5	X	108.21867	332.66277	82.30137	19.76326	0.1753073	0.17211527	3.2007846	20	3 19.1	20.6
433252	2012	WR ₆	16.2	X	237.66246	64.10211	240.82959	8.03515	0.0518656	0.17882311	3.1202325	20	2 28.7	21.0
433253	2012	WO ₁₁	16.2	X	302.47493	248.51575	68.60837	10.57361	0.2123574	0.21258705	2.7804271	20	5 13.9	19.6
433254	2012	WJ ₁₇	16.2	X	111.67530	18.14171	78.42822	12.10691	0.0736630	0.17371417	3.1811139	20	3 17.8	20.9
433255	2012	WP ₂₈	16.2	X	272.66966	232.44296	65.04014	9.85021	0.0501325	0.18914297	3.0056788	20	4 7.6	20.5
433256	2012	WB ₂₉	15.7	X	211.53342	286.66637	29.63569	6.89718	0.1994127	0.17307501	3.1889409	20	2 17.6	21.1
433257	2012	XT ₂₉	17.0	X	347.45876	276.00558	57.37551	6.27700	0.2676511	0.23461699	2.6035329	20	9 25.2	18.8
433258	2012	XP ₃₃	16.1	X	225.56260	251.19138	77.94445	10.68299	0.0663307	0.17792049	3.1307765	20	3 23.9	20.9
433259	2012	XN ₃₇	15.9	X	161.57799	286.05912	78.43655	14.41706	0.3013963	0.17581317	3.1557441	20	3 12.7	21.8
433260	2012	XP ₆₃	16.5	X	45.34051	222.54129	66.50079	14.32999	0.1513547	0.23794966	2.5791662	20	10 24.1	20.0
433261	2012	XD ₆₆	16.5	X	238.82293	161.11723	170.18243	7.69341	0.1360388	0.18711216	3.0273877	20	3 29.7	21.2
433262	2012	XQ ₇₈	15.6	X	190.73909	265.99409	80.71589	11.14281	0.0771217	0.17673710	3.1447363	20	3 8.2	20.6
433263	2012	XX ₈₄	16.3	X	237.67672	207.45926	151.26086	10.03393	0.1973366	0.19835142	2.9119182	20	4 27.6	21.1
433264	2012	XU ₉₄	15.8	X	216.54479	257.17479	88.65173	14.67624	0.0748210	0.18081890	3.0972303	20	4 4.8	20.7
433265	2012	XZ ₁₁₄	16.2	X	278.60230	269.66675	74.91631	13.42919	0.1515305	0.21508844	2.7588283	20	5 26.6	19.9
433266	2012	XM ₁₂₉	15.4	X	198.25520	269.74148	91.48508	16.94788	0.0939987	0.18197112	3.0841423	20	4 5.1	20.5
433267	2012	XW ₁₃₄	15.6	X	247.00866	222.29016	76.35389	11.85726	0.0768571	0.17676008	3.1444637	20	3 10.1	20.5
433268	2012	XU ₁₅₀	16.4	X	270.61806	111.25116	211.90994	6.91396	0.2943543	0.20261001	2.8709709	20	3 31.8	21.2
433269	2013	AH ₃₈	14.1	X	252.41656	332.81318	121.41301	9.98881	0.0731155	0.08365349	5.1778167	20	9	

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
433281 2013 AW ₁₃₀	14.5	X	244.97871	324.19943	141.72882	8.03457	0.1078496	0.08402159	5.1626830	20	9 12.2	21.5
433282 2013 AR ₁₃₇	14.3	X	227.10459	179.63273	298.52457	8.30069	0.0498381	0.08199711	5.2473138	20	9 8.5	21.4
433283 2013 BK	14.3	X	249.89007	4.58045	89.41268	7.34859	0.0473820	0.08461085	5.1386854	20	9 13.1	21.2
433284 2013 BV	14.4	X	239.92750	64.23341	36.89691	3.32267	0.0481913	0.08213973	5.2412379	20	9 7.9	21.5
433285 2013 BP ₁₀	14.4	X	227.47824	1.14992	117.29307	9.92684	0.0469327	0.08329477	5.1926720	20	9 16.3	21.5
433286 2013 BV ₁₇	14.0	X	138.63264	338.69602	234.87085	6.38932	0.0721993	0.08330703	5.1921626	20	9 27.2	21.3
433287 2013 BU ₄₄	14.1	X	340.34230	100.83299	265.51120	6.22097	0.0548778	0.08544936	5.1050127	20	9 14.5	20.7
433288 2013 BL ₅₁	14.2	X	251.00531	14.93075	78.20062	7.13770	0.0912083	0.08336772	5.1896424	20	9 7.9	21.3
433289 2013 BF ₅₄	14.3	X	255.94526	0.43378	86.54490	8.45562	0.0652450	0.08215526	5.2405771	20	9 9.8	21.3
433290 2013 BW ₆₀	13.2	X	211.74609	44.54076	109.86008	31.25987	0.0220546	0.08527928	5.1117981	20	10 22.7	20.5
433291 2013 CB ₅₃	14.2	X	293.45538	283.78350	132.91235	8.08950	0.0963344	0.08179297	5.2560407	20	9 13.2	20.9
433292 2013 CL ₁₄₁	13.9	X	237.88730	10.52685	111.07813	7.13228	0.1109155	0.08183913	5.2540642	20	9 23.4	21.1
433293 2013 CW ₁₈₂	13.8	X	86.91061	190.32871	90.66046	8.03903	0.0637311	0.08369154	5.1762471	20	10 20.2	20.7
433294 2013 CO ₁₉₇	14.3	X	165.94909	357.18518	203.87060	6.53559	0.0637765	0.08232600	5.2333290	20	10 11.3	21.5
433295 2013 CV ₂₀₉	14.0	X	320.38743	107.87329	283.05575	6.51413	0.0691677	0.08472889	5.1339114	20	9 16.0	20.7
433296 2013 DT ₇	14.0	X	241.63069	72.14323	47.07706	9.56691	0.0489187	0.08407868	5.1603457	20	10 2.2	20.9
433297 2013 DE ₁₃	14.1	X	272.77521	341.22940	99.18240	8.67582	0.0904269	0.08101076	5.2898201	20	9 17.9	21.1
433298 2013 ES ₂	13.5	X	294.73429	359.48480	58.35123	12.09023	0.1210435	0.08363109	5.1787411	20	9 17.3	20.2
433299 2013 ES ₁₁₁	17.8	X	131.22432	319.77878	18.31593	21.17650	0.0958800	0.37880274	1.8917365	20	—	—
433300 2013 JC ₅₁	17.8	X	291.43043	177.95272	135.79779	3.47964	0.1908108	0.27620505	2.3351510	20	4 24.3	20.6
433301 2013 LD ₂₉	17.5	X	116.02058	294.55903	102.71618	24.86243	0.0520274	0.37946091	1.8895484	20	1 3.5	18.7
433302 2013 LG ₃₁	17.7	X	148.17016	62.56964	275.01048	16.68138	0.1306341	0.34934489	1.9966401	20	—	—
433303 2013 NX	22.1	X	84.39680	312.65602	112.62749	6.32163	0.1698056	0.93946572	1.0324811	20	—	—
433304 2013 NF ₈	16.5	X	88.52017	179.17394	284.69958	12.19476	0.1283071	0.23069672	2.6329449	20	3 27.1	20.2
433305 2013 ND ₂₂	16.9	X	169.62847	87.80303	332.70214	10.23043	0.0623982	0.22241191	2.6979300	20	5 7.1	21.7
433306 2013 OQ	15.8	X	69.44401	179.51462	157.38830	23.98316	0.1778993	0.17578303	3.1561049	20	—	—
433307 2013 PG ₆	18.2	X	200.34333	174.84121	160.67054	25.56568	0.1641555	0.37277997	1.9120577	20	2 8.2	21.1
433308 2013 PR ₆	18.5	X	354.02096	13.45586	153.56939	22.86654	0.0473240	0.37378281	1.9086362	20	1 2.1	20.8
433309 2013 PM ₂₀	15.9	X	220.53893	37.32416	330.78693	31.55219	0.1521273	0.23480017	2.6021787	20	4 1.2	20.7
433310 2013 PQ ₃₁	16.1	X	57.70622	121.15582	253.60970	12.30628	0.2937167	0.17344324	3.1844258	20	—	—
433311 2013 PJ ₃₃	17.1	X	218.68343	174.11992	283.82582	3.98463	0.1410696	0.27369074	2.3494307	20	8 16.9	20.5
433312 2013 PJ ₃₈	17.6	X	288.23582	50.00066	332.67328	23.86462	0.2564727	0.27221327	2.3579243	20	7 26.1	20.4
433313 2013 PL ₃₈	17.7	X	263.44822	57.22049	330.12999	11.78698	0.1102775	0.26668202	2.3904164	20	7 13.9	20.8
433314 2013 PB ₄₀	17.8	X	180.97685	159.29794	311.78963	3.92678	0.1981132	0.26256989	2.4153094	20	7 24.5	21.7
433315 2013 PG ₆₄	16.2	X	22.41023	244.37524	158.11425	22.01370	0.1924621	0.18185604	3.0854433	20	—	—
433316 2013 PU ₇₃	17.1	X	298.00945	57.40876	316.26878	22.18388	0.2516262	0.26871452	2.3783474	20	7 26.3	19.4
433317 2013 PX ₇₃	17.4	X	261.05497	225.24390	161.66173	7.55769	0.1313786	0.26417742	2.4055013	20	7 3.3	20.6
433318 2013 QC ₃	17.7	X	244.78662	183.21920	201.75340	2.61880	0.1961798	0.26012645	2.4304109	20	6 2.9	21.2
433319 2013 QG ₂₆	17.5	X	259.74147	56.93911	336.69003	9.62145	0.1249278	0.27139254	2.3626757	20	7 15.3	20.6
433320 2013 QS ₂₉	18.5	X	123.73360	338.33789	9.09817	19.08789	0.0534103	0.34527472	2.0123006	20	—	—
433321 2013 QD ₃₆	18.1	X	107.28621	277.61323	201.20699	21.39323	0.0471260	0.39073536	1.8530234	20	4 30.8	19.7
433322 2013 QE ₃₆	18.1	X	229.04023	111.03681	192.62583	21.77028	0.0675257	0.37237012	1.9134605	20	1 21.8	21.0
433323 2013 QW ₅₇	17.2	X	264.38179	349.12981	353.61299	7.52604	0.2350215	0.25394417	2.4696982	20	4 21.7	20.9
433324 2013 QL ₆₅	17.5	X	8.52035	250.79253	32.44732	6.98851	0.1065245	0.27443642	2.3451730	20	8 14.1	19.9
433325 2013 QM ₆₆	16.9	X	201.29708	357.86033	296.39096	5.95415	0.0471651	0.21195586	2.7859443	20	1 6.9	20.9
433326 2013 QP ₇₁	17.0	X	71.09647	258.76279	126.91017	7.11551	0.3594474	0.18499497	3.0504420	20	1 10.5	20.4
433327 2013 QM ₇₃	18.1	X	284.34261	60.89686	338.01699	4.82901	0.2238569	0.27874997	2.3209164	20	8 12.7	20.2
433328 2013 QY ₇₉	17.5	X	264.13112	179.79806	245.31616	5.21748	0.1350593	0.27885440	2.3203369	20	8 30.7	20.2
433329 2013 QG ₈₀	17.8	X	225.87426	128.40118	181.86260	21.86591	0.0873596	0.37079707	1.9188684	20	1 28.6	20.0
433330 2013 QU ₈₅	18.0	X	60.64911	146.20818	337.23251	19.80649	0.0789661	0.37550076	1.9028103	20	2 21.3	19.0
433331 2013 RZ	18.1	X	315.53139	41.18535	342.24179	4.67627	0.1874427	0.28357903	2.2944925	20	10 1.4	19.5
433332 2013 RE ₃	18.0	X	184.79693	284.34479	176.10562	2.21342	0.1515865	0.25789849	2.4443882	20	7 14.6	21.8
433333 2013 RO ₂₅	17.2	X	273.90572	178.25776	194.44747	6.76590	0.1379002	0.26059541	2.4274942	20	6 29.6	20.4
433334 2013 RT ₂₇	17.8	X	32.30000	252.09376	46.15448	3.73153	0.1221156	0.28309736	2.2970944	20	10 17.7	20.4
433335 2013 RP ₃₀	17.6	X	274.56163	284.42744	77.10916	3.40736	0.1866468	0.26217424	2.4177387	20	6 7.3	20.7
433336 2013 RL ₃₅	16.1	X	110.52718	205.90294	168.89663	19.44376	0.2443821	0.19129464	2.9830980	20	1 28.1	20.7
433337 2013 RN ₄₀	17.9	X	209.06207	28.32553	52.15809	1.87134	0.1584234	0.25708229	2.4495592	20	7 12.9	21.5
433338 2013 RM ₄₁	17.5	X	266.92506	288.60936	91.94013	2.43546	0.1989504	0.26096521	2.4252004	20	6 21.9	20.5
433339 2013 RB ₄₃	18.1	X	60.50619	273.83976	196.58009	22.21552	0.1104504	0.36700268	1.9320716	20	1 24.9	20.2
433340 2013 RW ₄₃	17.9	X	327.86026	3.49594	14.72270	3.28371	0.1299758	0.28993739	2.2608230	20	10 24.6	19.7
433341 2013 RO ₄₄	17.6	X	308.01850	255.81477	93.02573	2.40594	0.1949547	0.26691960	2.3889977	20	7 13.3	19.6
433342 2013 RP ₄₅	16.8	X	230.22268	353.70974	353.94159	18.41905	0.1445863	0.23380688	2.6095434	20	4 1.1	20.9
433343 2013 RS ₄₇	18.0	X	263.74764	119.53091	327.65654	1.94334	0.0418800	0.28796762	2.2711210	20	10 20.5	20.4
433344 2013 RL ₅₂	17.0	X	155.63940	272.26115	160.36743	12.85698	0.2429898	0.22814430	2.6525463	20	5 18.7	21.8
433345 2013 RW ₆₂	18.1	X	337.93719	21.14847	354.44277	4.79372	0.1433038	0.29179327	2.2512266	20	11 10.8	20.0
433346 2013 RZ ₆₅	18.1	X	5.61825	29.57598	234.50391	1.51059	0.0235458	0.26079190	2.4262748	20	6 29.6	21.1
433347 2013 RU ₆₆	17.8	X	171.49211	82.48196	344.85358	12.47527	0.1417530	0.24143339	2.5542956	20	5 15.2	22.1
433348 2013 RA ₆₈	16.9	X	189.60779	172.19433	212.37694	5.55255	0.1517935	0.22259966	2.6991620	20	4 13.3	21.1
433349 2013 RO ₈₁	17.6	X	189.36457	100.56562	340.70485	1.87632	0.1380247	0.25236777	2.4799721	20	6 24.6	21.4
433350 2013 RY ₈₂	17.3	X	184.09572	128.19855	291.19297	4.79933	0.1450615	0.23852294	2.5750319	20	5 20.8	21.5
433351 2013 RD ₈₃	17.2	X	120.07829	184.63392	229.24438	7.27338	0.2156162	0.20954333	2.8072870	20	3 18.7	21.6
433352 2013 RU ₈₄	18.0	X	26.48093	2.68031	324.44280	6.54251	0.0760794	0.29094665	2.2555916	20	11 9.8	20.7
433353 2013 RZ ₈₄	17.8	X	308.88190	49.81516	331.85419	6.28400	0.1564416	0.27745918	2.3281090	20	9 13.2	19.7
433354 2013 RL ₉												

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
433361 2013 SD ₁₄	17.6	X	131.21958	232.74171	183.46631	8.92795	0.1794000	0.21864627	2.7288186	20	3 31.3	21.9
433362 2013 ST ₂₂	17.7	X	187.90649	222.05185	190.92190	11.47027	0.1837038	0.23373189	2.6101015	20	5 18.6	21.1
433363 2013 SN ₂₅	17.1	X	155.54781	106.41675	330.89096	8.24063	0.0638491	0.23473246	2.6026790	20	5 9.1	21.0
433364 2013 SW ₂₆	17.9	X	320.39245	358.13329	38.70183	6.65182	0.1122279	0.28738314	2.2741993	20	11 6.8	20.0
433365 2013 SJ ₃₅	18.1	X	188.33902	210.59752	249.08500	0.60774	0.1426650	0.25862620	2.4398008	20	7 17.8	21.9
433366 2013 SE ₃₆	16.6	X	119.97987	296.47854	350.17869	2.90545	0.1899437	0.17522770	3.1627695	20	12 21.5	21.9
433367 2013 SS ₃₇	17.9	X	276.93484	264.91772	108.22637	3.27766	0.2190919	0.26375710	2.4080562	20	6 21.9	20.7
433368 2013 SU ₃₉	16.3	X	83.28879	201.83218	157.65172	0.92115	0.1408523	0.17636446	3.1491645	20	—	—
433369 2013 SR ₄₂	16.4	X	52.40296	345.13931	58.69166	9.64322	0.1935114	0.17941398	3.1133781	20	—	—
433370 2013 SL ₄₄	17.3	X	172.37685	79.06104	332.23746	10.56503	0.2998424	0.22918173	2.6445354	20	4 29.3	22.4
433371 2013 SC ₄₉	16.5	X	175.86080	211.92767	186.85143	9.05931	0.2491812	0.22367303	2.6877795	20	4 21.8	21.2
433372 2013 SZ ₄₉	16.8	X	227.14544	163.26314	223.60019	4.79792	0.3097826	0.23897719	2.5717678	20	5 11.7	21.2
433373 2013 SD ₅₀	17.6	X	226.80410	104.03459	275.62327	7.15504	0.2118360	0.24096789	2.5575842	20	5 6.4	21.9
433374 2013 SV ₅₀	18.2	X	17.15828	332.65323	41.16801	3.86413	0.1637025	0.30244779	2.1980409	20	—	—
433375 2013 SH ₅₁	16.5	X	153.10295	306.90675	43.88917	12.39944	0.1904201	0.20310582	2.8662966	20	2 9.2	21.3
433376 2013 SM ₅₁	17.1	X	210.07526	301.78493	70.66336	4.45469	0.2583929	0.23224866	2.6212025	20	4 15.6	21.7
433377 2013 SS ₅₅	16.5	X	246.23190	314.35063	46.62387	14.70065	0.0307504	0.23325624	2.6136486	20	5 21.5	20.0
433378 2013 SZ ₅₆	17.7	X	215.26512	283.78109	17.58043	21.20268	0.0452191	0.35862258	1.9620540	20	1 12.4	20.6
433379 2013 SV ₅₈	17.0	X	153.35150	41.40362	8.34145	13.13103	0.1779590	0.22248586	2.6973322	20	4 10.5	21.5
433380 2013 SR ₆₃	18.2	X	255.74807	269.14965	163.31675	3.76479	0.1718889	0.27348255	2.3506229	20	8 24.7	21.1
433381 2013 SB ₆₉	18.9	X	353.89383	30.73588	16.06856	3.41600	0.0854445	0.30858699	2.1687907	20	—	—
433382 2013 ST ₇₁	17.8	X	7.58069	258.86249	97.94226	5.98536	0.2076089	0.29506735	2.2345425	20	12 19.7	20.0
433383 2013 SA ₇₃	17.4	X	289.73253	246.36938	98.57731	7.03285	0.1456591	0.25949951	2.4343238	20	6 12.7	20.1
433384 2013 SJ ₇₃	17.6	X	325.79961	282.50876	93.39889	7.15887	0.2408260	0.28426387	2.2908058	20	10 24.0	18.8
433385 2013 SZ ₇₆	17.6	X	239.67316	323.17074	91.25737	2.40831	0.1805706	0.25746277	2.4471453	20	7 7.7	21.2
433386 2013 SQ ₈₀	17.9	X	318.03253	3.58537	359.78110	4.98439	0.1596770	0.27602452	2.3361691	20	9 5.5	19.7
433387 2013 SU ₈₀	17.8	X	7.58675	339.67403	335.48184	3.06165	0.1814660	0.28298610	2.2976964	20	10 9.3	19.7
433388 2013 SK ₈₁	16.6	X	117.73831	18.43130	42.67779	15.94357	0.1295524	0.20314352	2.8659420	20	3 25.4	21.0
433389 2013 SL ₈₁	18.1	X	336.52543	210.36297	171.89229	1.82757	0.1068173	0.29153556	2.2525530	20	11 17.0	20.0
433390 2013 TV ₂	16.9	X	151.00759	321.21443	0.65524	13.29186	0.1609688	0.19816822	2.9137125	20	—	—
433391 2013 TF ₅	18.5	X	295.28439	65.98128	226.98267	19.42565	0.1149492	0.38991759	1.8556134	20	3 26.8	20.6
433392 2013 TP ₇	16.6	X	175.29505	131.50251	225.82375	12.01588	0.1975741	0.21678015	2.1454566	20	2 25.3	21.4
433393 2013 TF ₉	16.4	X	66.92184	20.40279	13.45838	10.55849	0.2226074	0.17663559	3.1459410	20	—	—
433394 2013 TU ₉	17.2	X	177.12926	32.30071	344.80016	10.83836	0.2667916	0.22292964	2.6937513	20	3 24.7	22.0
433395 2013 TK ₁₁	16.4	X	239.86381	250.32108	153.27584	14.96162	0.1218588	0.24578783	2.5240375	20	6 30.6	20.2
433396 2013 TP ₁₄	17.2	X	207.73405	291.40527	65.19985	5.18877	0.1541534	0.22718383	2.6600172	20	3 29.1	21.5
433397 2013 TM ₁₇	16.0	X	12.35459	87.14886	11.14861	15.47080	0.2353267	0.17277988	3.1925713	20	—	—
433398 2013 TL ₁₈	18.0	X	0.95012	69.41063	299.90808	2.02805	0.1316496	0.29232311	2.2485055	20	12 13.4	20.3
433399 2013 TQ ₁₉	17.9	X	205.45425	222.71433	189.02454	14.91038	0.1738825	0.24398858	2.5364310	20	6 1.7	22.2
433400 2013 TW ₂₂	17.2	X	109.16146	230.88148	162.42204	2.27733	0.0993924	0.20079638	2.8882324	20	1 29.7	21.2
433401 2013 TU ₂₃	17.4	X	263.12452	108.51410	252.28668	3.62930	0.0271840	0.24572221	2.5244868	20	6 15.6	20.6
433402 2013 TV ₂₆	18.2	X	141.25421	56.65686	45.93184	0.79692	0.1427700	0.23508016	2.6001121	20	6 3.9	22.1
433403 2013 TP ₂₈	17.5	X	178.18389	216.32477	205.52569	4.34814	0.0879645	0.23184208	2.6242661	20	5 19.3	21.4
433404 2013 TT ₂₉	18.3	X	327.39898	37.00240	15.68173	2.25565	0.1140951	0.29516694	2.2340398	20	12 17.7	20.1
433405 2013 TB ₃₃	18.2	X	60.58658	205.45265	120.51153	0.61632	0.1489758	0.30265350	2.1970448	20	—	—
433406 2013 TV ₃₃	17.1	X	124.12495	37.40585	52.04501	5.75411	0.1401825	0.21874132	2.7280280	20	4 30.6	21.2
433407 2013 TZ ₃₆	17.7	X	224.90640	327.07108	107.64721	4.06299	0.1616827	0.25865033	2.4396491	20	7 21.6	21.1
433408 2013 TZ ₃₉	16.9	X	290.75264	77.32584	206.12942	9.67446	0.0136903	0.22617684	2.6679067	20	4 10.7	20.6
433409 2013 TS ₄₁	16.1	X	24.72496	236.50014	201.96365	9.13826	0.0242929	0.17942427	3.1132591	20	—	—
433410 2013 TB ₄₂	15.7	X	62.59868	14.84520	29.03570	12.03134	0.0831866	0.18078718	3.0975925	20	—	—
433411 2013 TF ₄₃	17.7	X	224.78363	108.13893	350.38609	3.15383	0.1512453	0.26583371	2.3954991	20	8 24.8	21.0
433412 2013 TJ ₄₅	18.0	X	66.00428	124.42124	217.82163	2.25308	0.0875165	0.31050785	2.1598371	20	—	—
433413 2013 TV ₄₆	18.4	X	153.13061	188.28859	15.37854	5.88804	0.0879756	0.28667286	2.2779543	20	10 30.2	21.5
433414 2013 TW ₄₈	17.8	X	241.23935	64.66516	17.62467	6.76474	0.0487605	0.27099640	2.3649776	20	9 9.8	20.6
433415 2013 TJ ₅₀	17.1	X	118.66099	61.89320	28.70894	10.96891	0.1151182	0.21851252	2.7299320	20	4 22.1	20.9
433416 2013 TC ₅₁	17.3	X	125.20744	352.47786	198.75014	7.29007	0.0525537	0.26811879	2.3818691	20	9 6.5	20.6
433417 2013 TM ₅₃	17.2	X	98.59551	332.37316	262.82599	4.66276	0.0581518	0.27579935	2.3374404	20	10 4.6	20.4
433418 2013 TW ₅₄	17.7	X	279.74899	58.44385	331.15463	4.78329	0.1172814	0.26571754	2.3961973	20	8 7.8	20.5
433419 2013 TO ₆₃	17.9	X	70.57709	300.77119	9.57966	3.82973	0.1720119	0.30442927	2.1884927	20	12 29.3	21.0
433420 2013 TS ₆₆	17.1	X	219.58602	5.05363	12.65454	15.89174	0.1468475	0.23993384	2.5649272	20	4 28.4	21.3
433421 2013 TM ₆₈	17.1	X	47.45033	63.27761	356.73005	0.51946	0.2112949	0.17634911	3.1493471	20	—	—
433422 2013 TG ₇₀	17.9	X	1.01674	300.68745	25.74427	6.03208	0.1435636	0.28214881	2.3022399	20	10 10.1	19.8
433423 2013 TH ₇₁	17.6	X	257.19318	77.98134	347.35994	6.12967	0.1067617	0.26968207	2.3726554	20	8 28.1	20.5
433424 2013 TK ₇₅	17.3	X	119.41929	244.06132	236.13706	3.90540	0.1020496	0.22586996	2.6703226	20	5 30.4	21.2
433425 2013 TO ₈₁	17.8	X	322.01964	2.65728	358.46961	2.47247	0.2201738	0.27738906	2.3285014	20	9 7.1	19.2
433426 2013 TG ₈₄	17.4	X	127.68053	123.38396	329.21295	7.38936	0.1514942	0.22709223	2.6607324	20	5 5.9	21.5
433427 2013 TD ₈₆	18.6	X	175.84788	57.61530	159.39423	2.96227	0.0890712	0.30609937	2.1805251	20	12 18.2	21.3
433428 2013 TK ₉₀	17.7	X	342.48862	41.47264	339.37469	5.70396	0.1594480	0.29232221	2.2485101	20	12 1.0	19.7
433429 2013 TN ₉₁	18.6	X	355.65345	37.57841	9.30421	4.81502	0.0758198	0.30647533	2.1787415	20	—	—
433430 2013 TZ ₉₂	16.2	X	66.05367	18.29559	41.86032	11.45114	0.0442194	0.18470427	3.0536418	20	1 3.8	20.5
433431 2013 TX ₉₅	16.9	X	180.19677	207.97654	187.09933	6.87127	0.2893682	0.22317656	2.6917641	20	4 20.8	21.9
433432 2013 TJ ₉₇	17.4	X	128.27857	234.52490	204.99500	7.34265	0.2046458	0.21550518	2.7552705	20	4 28.9	21.8
433433 2013 TG ₉₉	16.1	X	76.78978	93.28516	310.62927	6.07862	0.2001341	0.18247943	3.0784121	20	1 18.6	19.9
433434 2013 TO ₁₀₄	17.7	X	228.45744	133.58874	293.9							

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
433441 2013 TQ ₁₂₉	16.8	X	195.26419	319.77954	99.41433	13.98497	0.2658080	0.23152836	2.6266361	20	5 31.6	21.5
433442 2013 TC ₁₃₂	16.6	X	163.36191	291.81737	96.26002	7.48442	0.0639961	0.21470193	2.7621383	20	3 24.1	20.7
433443 2013 TY ₁₃₂	18.4	X	304.54509	24.88014	4.16081	1.44942	0.1992913	0.27766269	2.3269713	20	9 12.4	20.0
433444 2013 TF ₁₃₃	17.3	X	336.10600	206.29916	148.85885	6.55467	0.1249622	0.27252924	2.3561014	20	10 2.9	19.4
433445 2013 TQ ₁₃₃	17.7	X	224.41618	22.16952	64.32755	2.28147	0.1455344	0.26252488	2.4155855	20	8 8.7	21.2
433446 2013 TW ₁₃₆	16.0	X	42.37551	69.00341	28.96430	26.79276	0.2038971	0.18663842	3.0325085	20	2 12.1	20.0
433447 2013 TY ₁₃₆	17.2	X	157.47949	285.49154	175.54704	15.14449	0.1121363	0.24003154	2.5642312	20	6 17.8	21.4
433448 2013 TU ₁₄₂	16.2	X	36.26141	61.22126	34.80484	15.81576	0.1979114	0.18071645	3.0984008	20	1 17.9	19.8
433449 2013 TK ₁₄₅	16.7	X	205.01926	315.86039	67.30709	14.40585	0.2738894	0.23300877	2.6154989	20	4 27.1	21.5
433450 2013 TN ₁₅₆	16.1	X	5.96149	73.51604	44.40348	10.29706	0.0968660	0.17604700	3.1529491	20	—	—
433451 2013 TT ₁₅₆	17.7	X	226.86108	77.18898	42.53692	2.14217	0.0903168	0.26999318	2.3708324	20	10 4.2	20.7
433452 2013 UX ₅	17.0	X	186.90445	73.89387	336.11434	5.90038	0.1408801	0.23191587	2.6237094	20	5 10.5	21.3
433453 2013 UG ₆	16.9	X	201.25225	41.83723	347.52462	6.53652	0.0839607	0.23338756	2.6126681	20	4 29.3	20.9
433454 2013 UK ₆	16.1	X	73.07411	147.83207	243.63917	10.38212	0.1386851	0.17780797	3.1320973	20	—	—
433455 2013 UP ₇	16.2	X	49.79131	56.44104	13.51669	20.47152	0.2182952	0.17719788	3.1392823	20	1 14.5	20.1
433456 2013 UX ₁₀	16.1	X	164.73975	285.57678	23.28887	10.43724	0.1025472	0.18749493	3.0232660	20	—	—
433457 2013 UX ₁₁	16.5	X	226.74344	279.36113	52.36331	10.45008	0.1336451	0.22396861	2.6854142	20	3 20.3	20.8
433458 2013 UC ₁₂	16.9	X	192.97456	350.16141	38.30041	14.75629	0.2435517	0.22789356	2.6544916	20	4 21.9	21.4
433459 2013 UE ₁₂	16.4	X	206.35729	355.28243	35.40759	15.18924	0.2627571	0.23284518	2.6167238	20	5 1.9	20.9
433460 2013 VG ₁	16.6	X	211.27464	73.28093	336.86362	14.43134	0.1320814	0.24312363	2.5424433	20	6 4.4	20.8
433461 2013 VR ₂	17.4	X	249.87791	167.01987	256.30143	6.03426	0.1666005	0.26312162	2.4119318	20	8 1.8	20.6
433462 2013 VE ₃	16.5	X	53.49199	143.66407	297.41369	10.70836	0.2201548	0.18269643	3.0759741	20	1 28.7	19.8
433463 2013 VA ₅	18.3	X	253.60127	104.27258	207.37396	20.45071	0.0979947	0.36989498	1.9219869	20	3 1.9	21.1
433464 2013 VL ₆	16.7	X	64.14115	228.11193	250.51870	11.38493	0.2023012	0.19682874	2.9269168	20	3 27.9	20.5
433465 2013 VH ₈	17.5	X	28.30734	120.46806	193.03120	2.83918	0.1389939	0.30973231	2.1634409	20	—	—
433466 2013 VO ₈	16.0	X	168.91919	92.35964	227.75937	12.99658	0.0690090	0.18461742	3.0545994	20	1 5.9	20.8
433467 2013 VP ₈	16.8	X	107.33985	326.19308	67.97709	4.53928	0.3208934	0.19137454	2.9822676	20	2 29.9	21.5
433468 2013 VR ₉	16.2	X	184.78021	253.87900	193.18709	29.10182	0.2928392	0.23468927	2.6029983	20	6 22.3	21.5
433469 2013 VE ₁₀	17.0	X	206.34342	242.24913	159.10332	4.76333	0.2385603	0.23499871	2.6007128	20	5 18.0	21.5
433470 2013 VD ₁₁	16.2	X	45.19341	274.99508	180.45558	8.36929	0.1790813	0.18408148	3.0605254	20	1 26.6	19.7
433471 2013 VD ₁₅	17.1	X	170.08602	1.62588	61.52396	3.95262	0.1675770	0.22693428	2.6619669	20	5 13.9	21.3
433472 2013 VV ₁₅	17.0	X	225.17320	186.82937	209.88902	9.45214	0.2001968	0.23800839	2.5787418	20	5 29.7	21.3
433473 2013 VJ ₁₉	17.7	X	346.04053	219.84901	179.75642	6.91597	0.1850636	0.29354457	2.2422637	20	—	—
433474 2013 VN ₁₉	17.5	X	256.86581	352.89788	70.32061	2.28421	0.1677874	0.26279875	2.4139069	20	8 13.9	20.5
433475 2013 VY ₂₀	15.7	X	35.86672	218.51195	247.18322	11.21418	0.1619069	0.17693339	3.1424100	20	1 21.9	19.5
433476 2013 VR ₂₃	17.0	X	166.35076	60.47039	25.54190	8.09908	0.1637775	0.23224746	2.6212115	20	6 6.8	21.4
433477 2013 WK ₃	17.8	X	38.98085	343.86997	37.06729	5.78005	0.1509905	0.30875412	2.1680080	20	—	—
433478 2013 WK ₄	16.8	X	146.59436	17.39520	52.48056	5.63495	0.0940278	0.21644835	2.7472606	20	4 26.1	20.8
433479 2013 WN ₄	17.0	X	189.02467	17.48878	57.89235	4.91100	0.1424332	0.23557055	2.5965024	20	6 15.9	21.1
433480 2013 WO ₄	16.9	X	170.87903	341.93426	57.23724	6.85213	0.0887293	0.21624031	2.7490224	20	4 14.5	21.0
433481 2013 WA ₅	16.8	X	227.60501	267.86011	60.98331	6.66199	0.0512930	0.21293024	2.7774387	20	3 21.6	20.9
433482 2013 WF ₅	17.0	X	199.62756	217.32252	166.68787	10.14879	0.1669099	0.22508714	2.6765103	20	4 24.4	21.4
433483 2013 WV ₇	17.0	X	157.20872	197.00857	260.82856	3.27158	0.0994605	0.23051262	2.6343465	20	6 12.1	20.8
433484 2013 WW ₇	16.7	X	70.17023	161.99726	262.20461	3.21740	0.0796058	0.18258480	3.0772277	20	1 17.3	20.7
433485 2013 WJ ₈	15.9	X	355.34458	250.74654	250.12981	10.00556	0.1295090	0.17603276	3.1531191	20	1 1.3	19.9
433486 2013 WZ ₁₀	17.5	X	314.53958	232.60087	160.70706	6.16189	0.0901064	0.27314535	2.3525571	20	10 20.0	19.8
433487 2013 WF ₁₂	16.7	X	239.61181	234.96294	148.08051	6.36408	0.1439442	0.23849345	2.5752442	20	6 1.2	20.5
433488 2013 WN ₁₂	16.4	X	148.39413	358.79386	72.58880	14.57605	0.1386623	0.21527756	2.7572123	20	5 6.1	20.8
433489 2013 WR ₁₅	16.6	X	175.07670	9.10989	73.98885	5.70261	0.0522468	0.22974048	2.6402458	20	6 11.8	20.2
433490 2013 WZ ₁₆	17.7	X	83.72605	234.74751	56.74736	3.15302	0.1192227	0.28300504	2.2975939	20	12 9.7	20.8
433491 2013 WL ₁₉	18.0	X	46.22927	265.42735	96.46081	2.92261	0.1965063	0.30307605	2.1950023	20	—	—
433492 2013 WT ₂₅	15.9	X	94.09392	313.65468	240.45668	11.17694	0.2399289	0.23563355	2.5960395	20	8 17.6	20.3
433493 2013 WT ₂₆	16.0	X	38.14555	37.85434	38.15859	8.21038	0.0992079	0.17449624	3.1716019	20	—	—
433494 2013 WO ₂₇	15.7	X	16.02435	68.79743	39.83600	13.61498	0.1446433	0.17427697	3.1742616	20	—	—
433495 2013 WA ₃₁	16.0	X	171.01383	236.61408	62.14618	9.95542	0.0564624	0.17387817	3.1791133	20	—	—
433496 2013 WK ₃₃	17.9	X	310.42837	295.52521	69.36250	4.20699	0.0895210	0.26017656	2.4300988	20	8 28.3	20.5
433497 2013 WA ₃₆	17.3	X	76.14858	19.69847	119.02895	12.41294	0.0419255	0.22124233	2.7074300	20	4 26.3	21.1
433498 2013 WG ₃₇	16.5	X	164.02944	1.00619	22.52885	5.86780	0.0868486	0.20222116	2.8746501	20	3 19.1	20.8
433499 2013 WF ₄₀	16.0	X	111.74087	195.86577	253.78916	14.28779	0.1070158	0.20563517	2.8427442	20	4 8.1	20.4
433500 2013 WF ₄₁	16.8	X	126.48537	33.09623	62.89784	5.79168	0.0789679	0.21369497	2.7708085	20	5 5.3	20.7
433501 2013 WN ₄₁	16.7	X	162.95856	66.10777	65.25903	14.48875	0.1047320	0.24127336	2.5554250	20	8 6.4	20.8
433502 2013 WX ₄₅	16.8	X	166.85149	228.11690	212.90713	7.02008	0.1790983	0.23040414	2.6351734	20	6 2.9	21.1
433503 2013 WP ₄₆	17.0	X	315.60912	289.54504	69.48468	15.25174	0.1262568	0.26628000	2.3928218	20	9 2.8	19.7
433504 2013 WH ₄₇	16.7	X	189.15218	246.25879	125.59024	4.64480	0.2404630	0.21800473	2.7341695	20	3 31.5	21.6
433505 2013 WK ₄₇	16.7	X	159.32695	35.88049	68.41665	14.41167	0.2088079	0.23008524	2.6376077	20	6 25.2	21.2
433506 2013 WS ₄₇	18.0	X	52.08277	244.32371	98.45892	4.00016	0.2228571	0.30622559	2.1799259	20	—	—
433507 2013 WQ ₅₀	17.4	X	206.01212	78.54050	351.78310	7.87596	0.0679833	0.24064140	2.5598970	20	7 2.6	21.1
433508 2013 WN ₅₁	15.6	X	118.96763	50.77622	315.81089	9.34429	0.1034468	0.18141699	3.0904193	20	1 14.1	20.0
433509 2013 WE ₅₄	16.3	X	82.54229	106.20011	321.48134	8.34088	0.1229005	0.18669383	3.0319084	20	2 12.7	20.1
433510 2013 WV ₅₄	15.7	X	77.53088	296.31456	103.68292	16.81095	0.1124799	0.17423491	3.1747725	20	1 3.9	19.7
433511 2013 WD ₅₅	16.7	X	142.28688	314.35288	144.00222	6.06976	0.1159683	0.22335391	2.6903390	20	5 29.9	20.9
433512 2013 WE ₅₅	17.0	X	221.08149	269.12436	148.10324	5.51433	0.1433674	0.24271305	2.5453097	20	6 25.1	20.9
433513 2013 WY ₅₅	16.2	X	291.37110	46.65915	250.12796	13.37571	0.0987320	0.22586229	2.6703830	20	4 12.7	19.9
433514 2013 WS ₅₈	16.8	X	243.16479	354.								

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>		
433521	2013	WM ₇₂	17.4	X	243.76368	130.53952	253.97929	12.57679	0.2053653	0.24268604	2.5454986	20	5 30.8	21.4
433522	2013	WY ₇₅	16.9	X	177.01057	263.89852	96.91502	3.20640	0.1260701	0.20386651	2.8591622	20	3 6.4	21.4
433523	2013	WE ₇₆	17.4	X	123.51888	152.93745	79.27165	7.80705	0.0893612	0.27223653	2.3577900	20	11 4.9	20.8
433524	2013	WP ₇₆	17.0	X	101.31397	341.34978	75.91604	6.03928	0.1422189	0.19098381	2.9863338	20	2 29.1	21.2
433525	2013	WH ₇₈	17.3	X	297.74216	2.49107	31.94164	6.85244	0.1734296	0.26703985	2.3882805	20	9 10.9	19.5
433526	2013	WX ₇₉	16.5	X	55.85589	63.76681	27.64041	9.09738	0.0565654	0.18438677	3.0571462	20	2 1.5	20.7
433527	2013	WX ₈₀	15.9	X	91.70932	133.34714	248.35842	11.51084	0.1863361	0.17829492	3.1263918	20	1 8.5	20.2
433528	2013	WS ₈₁	16.5	X	129.25236	262.56542	237.95129	10.38109	0.0164947	0.23360375	2.6110560	20	6 28.4	20.1
433529	2013	WV ₈₂	17.1	X	143.86763	155.45718	280.87190	8.37259	0.1273517	0.21624898	2.7489489	20	4 30.5	21.5
433530	2013	WG ₈₃	17.0	X	189.77758	150.99137	223.32926	8.34876	0.1471428	0.21278657	2.7786888	20	3 30.8	21.6
433531	2013	WA ₈₄	16.5	X	166.08478	292.98257	76.70486	15.92985	0.1661966	0.20192783	2.8774332	20	3 15.8	21.5
433532	2013	WZ ₈₅	17.1	X	204.73057	153.36002	248.05754	5.65359	0.0814157	0.22684925	2.6626320	20	5 21.5	20.8
433533	2013	WD ₈₆	16.4	X	72.47106	95.24884	85.23358	15.62241	0.0602547	0.22432402	2.6825770	20	6 13.8	19.8
433534	2013	WQ ₈₇	16.4	X	250.53272	329.86473	35.86812	9.54845	0.1901077	0.23773552	2.5807148	20	5 13.8	20.3
433535	2013	WL ₉₁	16.8	X	238.13789	96.59959	257.64803	13.29084	0.2678765	0.23231084	2.6207348	20	4 8.5	21.6
433536	2013	WX ₉₂	16.5	X	229.42041	311.24596	50.33539	6.62962	0.0513951	0.22220796	2.6995807	20	5 1.2	20.1
433537	2013	WY ₉₅	17.1	X	211.91332	341.81368	49.74607	4.36879	0.1989096	0.23064966	2.6330300	20	5 10.8	21.6
433538	2013	WS ₉₇	15.9	X	286.76224	349.81228	342.74258	15.07733	0.1492252	0.24216933	2.5491181	20	5 14.5	19.6
433539	2013	WE ₉₈	15.9	X	95.58871	78.96530	316.40847	24.66001	0.02415603	0.17781691	3.1319923	20	2 7.8	20.3
433540	2013	WV ₉₈	16.0	X	125.33083	313.74295	132.54969	9.87902	0.2047454	0.20964295	2.8063977	20	4 18.4	20.0
433541	2013	WJ ₁₀₅	15.6	X	73.62250	135.98037	299.65506	16.10397	0.1022166	0.17648062	3.1477825	20	2 6.4	19.8
433542	2013	WT ₁₀₅	15.0	X	67.44332	327.11895	59.57167	20.11337	0.2694614	0.16278735	3.3219183	20	—	—
433543	2013	WU ₁₀₅	17.5	X	280.50659	160.68709	248.56729	6.41269	0.1044195	0.27051769	2.3677668	20	9 5.7	20.3
433544	2013	WO ₁₀₆	16.7	X	189.41419	355.65095	69.02153	15.11680	0.2369937	0.23339062	2.6126453	20	5 31.9	21.1
433545	2013	WV ₁₀₆	16.8	X	195.32120	328.63354	88.67557	11.88191	0.1832645	0.23401284	2.6080120	20	5 30.3	21.2
433546	2013	WJ ₁₀₉	16.7	X	232.10723	205.96997	186.65610	14.02047	0.1377545	0.23748331	2.5825416	20	6 6.1	20.8
433547	2013	WR ₁₀₉	16.2	X	122.28837	290.63445	75.21618	14.08512	0.1045337	0.18729789	3.0253864	20	1 16.1	20.7
433548	2013	XJ	17.8	X	302.93390	348.38921	30.86745	3.01548	0.2190923	0.26754005	2.3853025	20	8 18.9	19.9
433549	2013	XU ₄	15.9	X	79.04910	300.00555	119.24935	17.52328	0.2319883	0.18011011	3.1053507	20	2 13.8	19.9
433550	2013	XX ₄	16.8	X	152.33704	269.37698	159.54877	3.49038	0.2081384	0.21493875	2.7601090	20	5 8.1	21.4
433551	2013	XA ₅	16.4	X	157.26723	108.34823	288.52809	11.07040	0.2385698	0.21591586	2.7517756	20	3 29.1	21.4
433552	2013	XB ₈	16.2	X	279.94305	59.82524	276.83527	13.50381	0.1313293	0.22592454	2.6698925	20	5 18.3	20.0
433553	2013	XT ₉	16.7	X	263.73451	22.73406	325.46086	3.42549	0.2889984	0.24068692	2.5595742	20	4 23.7	20.7
433554	2013	XB ₁₁	17.1	X	116.88769	162.74710	56.24329	14.77618	0.0568222	0.26486661	2.4013266	20	10 12.5	20.6
433555	2013	XF ₁₁	15.9	X	67.94086	12.23539	73.80612	29.01631	0.1169611	0.18618241	3.0374580	20	2 27.4	20.5
433556	2013	XJ ₁₁	17.2	X	5.17125	309.36181	67.15661	4.89854	0.1688602	0.28247025	2.3004930	20	—	—
433557	2013	XX ₁₁	17.0	X	147.72693	292.86896	129.24562	5.66325	0.1114036	0.21150080	2.7899390	20	4 20.8	21.3
433558	2013	XE ₁₉	16.3	X	235.97312	332.84961	61.11594	13.64026	0.1385115	0.23093637	2.6311230	20	6 9.7	20.4
433559	2013	XN ₁₉	16.7	X	188.07392	231.81517	208.62527	11.01733	0.1577772	0.23048950	2.6345228	20	6 20.7	21.1
433560	2013	XM ₂₀	16.9	X	230.74209	8.79897	36.70445	4.52659	0.1264803	0.23893244	2.5720888	20	6 21.6	20.6
433561	2013	XH ₂₅	17.4	X	293.71420	3.09968	46.37606	3.43906	0.1739210	0.26800916	2.3825186	20	9 24.7	19.5
433562	2013	YJ	16.0	X	201.60981	173.64097	237.67232	14.13595	0.0126265	0.23104097	2.6303288	20	6 3.7	19.5
433563	2013	YM ₃	15.8	X	96.41843	312.78850	94.63078	18.30985	0.1946304	0.18363398	3.0654955	20	2 21.8	20.4
433564	2013	YM ₅	16.1	X	68.04100	300.58010	105.10448	4.71507	0.1827093	0.16299056	3.3191566	20	1 8.8	20.2
433565	2013	YP ₈	16.8	X	183.62171	311.66811	113.14049	5.95048	0.1534821	0.21712952	2.7415119	20	5 29.3	21.3
433566	2013	YZ ₈	15.7	X	85.51259	300.72870	112.52354	16.65120	0.1034713	0.17005896	3.2265350	20	1 30.8	20.1
433567	2013	YH ₁₅	15.6	X	336.02545	286.04403	259.28813	16.85321	0.0627298	0.18492653	3.0511946	20	1 28.9	20.0
433568	2013	YK ₁₇	15.9	X	30.87159	229.15716	295.37395	14.27479	0.1255171	0.18106789	3.0943903	20	3 21.9	20.0
433569	2013	YI ₁₉	15.8	X	69.85453	10.86578	78.44719	11.93954	0.0377298	0.18631947	3.0359682	20	2 15.9	20.1
433570	2013	YR ₂₂	17.4	X	201.05887	101.70764	288.96684	1.03794	0.2014569	0.22600066	2.6692930	20	4 30.1	22.0
433571	2013	YC ₂₃	16.3	X	135.02939	289.39173	70.79461	6.11257	0.1516580	0.18668167	3.0320400	20	1 29.1	21.0
433572	2013	YD ₂₃	16.9	X	80.60381	267.58120	157.21206	0.04490	0.1512428	0.18468155	3.0538922	20	2 11.0	20.6
433573	2013	YM ₂₇	16.9	X	16.34604	206.50031	297.57530	0.38781	0.1364494	0.17139751	3.2097143	20	2 10.1	20.8
433574	2013	YC ₂₈	15.5	X	58.36109	166.13389	287.85588	15.67892	0.1631308	0.17393331	3.1784414	20	2 12.4	19.6
433575	2013	YY ₂₈	16.2	X	86.70815	322.75323	111.73743	16.59656	0.0368163	0.17537339	3.1610176	20	2 19.3	20.7
433576	2013	YC ₂₉	17.3	X	336.19886	271.02252	108.49644	8.19897	0.1511045	0.26563429	2.3966979	20	11 10.9	19.6
433577	2013	YG ₂₉	15.8	X	146.36458	267.10383	97.34362	19.77903	0.0439711	0.17472962	3.1687771	20	2 6.5	20.6
433578	2013	YQ ₂₉	16.7	X	272.25619	289.93889	79.93470	12.38889	0.1014371	0.24467483	2.5316861	20	6 28.9	20.0
433579	2013	YD ₃₁	16.2	X	317.71926	171.03309	75.57726	14.31319	0.0287974	0.20606847	2.8387579	20	4 6.1	20.3
433580	2013	YP ₃₁	15.9	X	291.86844	125.04950	129.93418	10.11765	0.0171229	0.18410078	3.0603115	20	3 13.2	20.2
433581	2013	YW ₃₂	16.2	X	51.41222	52.77187	63.92266	7.58646	0.0717541	0.18946582	3.0022634	20	2 27.9	20.2
433582	2013	YV ₃₄	17.2	X	0.65955	265.48292	94.19976	6.68263	0.1576194	0.27221304	2.3579256	20	11 28.1	19.5
433583	2013	YU ₃₅	15.9	X	69.17114	22.34306	79.09096	15.85820	0.2212315	0.18077744	3.0977038	20	3 31.9	20.1
433584	2013	YZ ₃₅	16.5	X	253.15379	16.80556	36.16223	8.33758	0.0631698	0.24103331	2.5571214	20	8 11.8	20.0
433585	2013	YH ₃₉	17.5	X	341.48422	279.87365	101.17474	3.71535	0.1232110	0.27765739	2.3270009	20	11 21.9	19.6
433586	2013	YW ₄₀	16.4	X	109.16995	188.88660	78.67020	25.63808	0.1645811	0.27984056	2.3148824	20	12 7.2	19.8
433587	2013	YL ₄₁	17.3	X	173.19770	357.07782	108.89753	4.54493	0.1352977	0.23420361	2.6065956	20	7 10.0	21.1
433588	2013	YQ ₄₁	16.9	X	292.99107	171.62437	234.22181	5.98874	0.0475786	0.26401684	2.4064765	20	9 28.6	19.7
433589	2013	YP ₄₄	16.1	X	57.26106	13.96033	115.43943	10.46889	0.0193198	0.18233416	3.0800471	20	3 18.8	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>
433601 2013 YK ₆₃	17.3	X	346.41555	182.89664	175.40885	1.16908	0.1855487	0.25771884	2.4455240	20	10 28.3	19.1
433602 2013 YE ₆₆	16.2	X	143.94750	0.18127	68.46746	11.57498	0.1130441	0.20169747	2.8796238	20	4 26.5	20.7
433603 2013 YG ₇₀	15.5	X	279.28628	327.32959	314.79893	12.57521	0.1257257	0.18158939	3.0884629	20	3 8.8	20.2
433604 2013 YX ₇₁	16.5	X	167.98378	83.62543	278.07073	8.74402	0.0879380	0.19624003	2.9327675	20	2 21.3	21.0
433605 2013 YX ₇₂	16.4	X	45.80367	87.39243	124.46619	12.66007	0.1292214	0.20970194	2.8058714	20	6 28.2	20.0
433606 2013 YO ₇₈	16.0	X	92.14240	84.25320	350.92982	10.51814	0.0875930	0.18036421	3.1024334	20	3 2.4	20.1
433607 2013 YW ₇₈	16.6	X	227.95224	276.37490	77.44053	5.17030	0.1254482	0.20921769	2.8101993	20	4 15.9	20.9
433608 2013 YG ₈₁	16.7	X	233.87990	295.43152	93.15213	5.90589	0.0712891	0.22160664	2.7044619	20	6 8.9	20.6
433609 2013 YN ₈₆	16.8	X	251.90921	297.23939	97.70919	12.10267	0.1658018	0.23423630	2.6063531	20	6 27.1	20.6
433610 2013 YQ ₈₉	17.1	X	331.84525	255.52448	115.43115	3.80077	0.1976269	0.25767959	2.4457724	20	10 17.5	19.0
433611 2013 YV ₉₂	16.0	X	293.01698	349.32041	99.17766	4.00135	0.2075253	0.12716914	3.9163505	20	10 12.1	21.0
433612 2013 YU ₉₄	17.1	X	27.95642	215.80654	103.44124	7.30841	0.1305887	0.25563754	2.4587797	20	11 7.2	20.1
433613 2013 YV ₉₄	16.7	X	27.42674	93.28613	70.26806	2.11506	0.0941901	0.18256292	3.0774736	20	3 22.8	20.4
433614 2013 YG ₉₈	16.7	X	63.37665	106.45723	55.08090	2.82696	0.0108621	0.20265309	2.8705640	20	4 30.1	20.7
433615 2013 YA ₁₀₁	15.8	X	303.28863	68.30122	28.37072	9.32573	0.1345206	0.12599186	3.9407092	20	11 11.2	20.8
433616 2013 YZ ₁₀₃	16.9	X	140.76588	335.68678	79.45285	7.70131	0.0999932	0.20962412	2.8065657	20	4 5.2	21.1
433617 2013 YQ ₁₀₇	17.6	X	139.75593	277.74715	33.37403	2.93695	0.1596846	0.31789227	2.1262586	20	—	—
433618 2013 YK ₁₀₈	17.3	X	252.21280	270.97807	76.90254	6.34620	0.0666310	0.22512003	2.6762496	20	5 10.0	21.1
433619 2013 YW ₁₀₈	16.9	X	227.99370	243.22225	151.39708	3.10228	0.1556291	0.22154331	2.7049773	20	6 2.1	21.0
433620 2013 YY ₁₀₉	16.1	X	25.72287	112.68707	115.80570	14.73803	0.1030340	0.20933590	2.8091413	20	6 16.1	19.6
433621 2013 YY ₁₁₀	16.3	X	208.45787	306.59174	93.53016	5.62268	0.0835968	0.20997268	2.8034589	20	5 24.9	20.4
433622 2013 YZ ₁₁₁	16.7	X	190.32683	272.84193	124.76879	4.91891	0.1059236	0.21009131	2.8024034	20	5 3.1	21.0
433623 2013 YG ₁₁₅	16.5	X	343.72300	101.31459	122.69471	7.79154	0.1276174	0.18542557	3.0457176	20	4 1.2	20.2
433624 2013 YG ₁₁₆	16.4	X	29.24015	45.68539	121.54543	16.73684	0.0446630	0.18134004	3.0912936	20	4 2.9	20.8
433625 2013 YB ₁₁₉	16.4	X	236.63475	17.34173	271.31707	10.76624	0.0424134	0.17847295	3.1243123	20	2 8.8	21.2
433626 2013 YR ₁₁₉	16.7	X	205.89260	305.38842	114.76369	14.86312	0.0698789	0.22397199	2.6853872	20	6 18.5	20.8
433627 2013 YS ₁₂₀	16.5	X	12.99245	6.14229	145.74574	1.36965	0.1007301	0.17464242	3.1698318	20	2 14.5	20.3
433628 2013 YH ₁₂₇	16.5	X	292.62103	239.70361	122.39973	14.22331	0.1911935	0.23639742	2.5904441	20	7 3.6	19.6
433629 2013 YJ ₁₃₀	17.2	X	143.83191	227.90512	40.33219	6.81948	0.1639239	0.28323422	2.2963543	20	—	—
433630 2013 YW ₁₃₂	16.4	X	73.78035	34.57714	59.60342	10.72010	0.0815653	0.18029294	3.1032510	20	3 5.9	20.7
433631 2013 YP ₁₃₃	16.3	X	284.35316	186.78726	62.18830	12.06545	0.0708367	0.18034323	3.1026741	20	2 21.3	20.9
433632 2013 YZ ₁₃₃	16.0	X	90.36587	17.24004	56.86064	10.60822	0.0494103	0.18032706	3.1028596	20	2 26.8	20.5
433633 2013 YE ₁₃₈	15.6	X	341.78555	106.56637	78.29211	18.56558	0.0559179	0.17764180	3.1340502	20	2 19.5	20.1
433634 2014 AA ₂	16.6	X	67.45737	12.77348	98.12882	10.94958	0.0757953	0.18186855	3.0853017	20	3 16.8	20.9
433635 2014 AD ₂	15.6	X	213.87337	211.14270	103.08841	17.33181	0.0895925	0.17716273	3.1396975	20	2 20.5	20.6
433636 2014 AE ₉	15.8	X	185.37832	225.27855	103.80645	6.42120	0.1548476	0.17519483	3.1631651	20	2 9.2	21.0
433637 2014 AA ₁₁	16.5	X	238.08362	260.75143	141.01514	13.85951	0.1681149	0.22984297	2.6394609	20	6 21.3	20.7
433638 2014 AG ₁₈	16.6	X	302.76795	206.42319	81.47918	3.16081	0.0245958	0.20350907	2.8625090	20	5 3.5	20.3
433639 2014 AG ₁₉	17.1	X	332.46250	205.81405	93.16981	4.46212	0.0441832	0.22105678	2.7089448	20	6 26.9	20.5
433640 2014 AO ₂₂	16.7	X	195.01724	314.05741	104.11137	6.87491	0.0477435	0.21396966	2.7684366	20	6 3.6	20.6
433641 2014 AZ ₂₂	15.9	X	79.27495	316.17111	121.20637	11.01023	0.0702884	0.17691828	3.1425890	20	2 16.2	20.2
433642 2014 AE ₃₅	16.6	X	227.42716	283.40058	97.29151	7.07532	0.1301826	0.22823307	2.6518584	20	5 17.9	20.7
433643 2014 AR ₃₆	18.0	X	116.79088	107.53547	223.17749	2.47487	0.1619835	0.31469098	2.1406542	20	—	—
433644 2014 AZ ₃₆	17.2	X	217.06970	285.50508	117.04239	2.89697	0.0890987	0.23039702	2.6352277	20	6 5.9	21.0
433645 2014 AD ₃₇	17.0	X	232.19423	235.59149	104.97251	6.41579	0.0737578	0.21126295	2.7920326	20	4 8.9	21.2
433646 2014 AJ ₃₇	16.2	X	240.90321	294.17224	86.50872	14.33843	0.1865730	0.22752827	2.6573320	20	5 27.0	20.4
433647 2014 AL ₃₇	15.4	X	101.11313	267.97591	95.91841	26.14318	0.1933539	0.17044226	3.2216958	20	1 2.7	19.8
433648 2014 AO ₄₁	16.3	X	121.70235	293.83164	135.77973	9.67455	0.0816030	0.18378954	3.0637655	20	4 1.2	20.9
433649 2014 AZ ₄₂	16.0	X	46.89272	25.07086	131.61241	12.61972	0.0779118	0.18543774	3.0455843	20	4 15.1	20.2
433650 2014 AX ₄₄	15.9	X	23.39838	63.81720	93.27951	12.25543	0.0808493	0.17906347	3.1174396	20	3 13.3	20.1
433651 2014 AG ₄₇	16.4	X	273.39976	229.00599	104.23160	5.81026	0.1437556	0.21483269	2.7610174	20	5 7.4	20.3
433652 2014 BX	16.9	X	181.44006	69.93620	61.82124	7.13590	0.0676930	0.25612954	2.4556300	20	8 29.4	20.4
433653 2014 BH ₄	16.5	X	209.07538	289.42444	79.93650	3.14129	0.0890506	0.20465162	2.8518451	20	4 17.1	20.8
433654 2014 BN ₁₁	16.0	X	110.42220	288.32514	132.98051	10.08650	0.0992727	0.18203611	3.0834082	20	3 10.5	20.5
433655 2014 BW ₁₄	16.8	X	97.72443	33.77688	20.10978	5.61056	0.1267866	0.17750527	3.1356570	20	2 19.4	21.2
433656 2014 BL ₁₇	17.2	X	127.11602	38.02897	170.79187	2.62290	0.0410481	0.24578852	2.5240328	20	10 1.3	20.5
433657 2014 BA ₂₃	16.3	X	232.94906	191.17324	158.32386	9.79355	0.0216953	0.19185703	2.9772655	20	4 26.6	20.6
433658 2014 BO ₂₆	15.7	X	333.10739	126.61585	294.51546	6.82573	0.1534100	0.12582588	3.9441741	20	11 13.8	20.6
433659 2014 BG ₂₇	16.0	X	357.83210	50.56124	132.77016	11.39241	0.1521806	0.17676625	3.1443906	20	2 29.2	19.7
433660 2014 BL ₂₈	16.8	X	97.53954	259.01612	272.51541	6.87813	0.0853954	0.21667652	2.7453317	20	7 8.1	20.7
433661 2014 BO ₂₈	17.0	X	33.24235	133.95943	126.19929	4.37099	0.1178799	0.22781794	2.6550789	20	8 15.2	20.1
433662 2014 BP ₄₆	15.5	X	263.63319	332.97926	326.26340	9.29537	0.0615949	0.17855157	3.1233952	20	3 21.4	20.2
433663 2014 CW ₁₀	15.4	X	196.72757	253.80142	86.36634	10.33876	0.0828194	0.17530283	3.1618657	20	3 5.9	20.4
433664 2014 CK ₁₆	16.1	X	212.57521	192.26078	158.48872	10.72469	0.0163459	0.18138016	3.0908376	20	4 3.9	20.5
433665 2014 CB ₂₂	15.5	X	346.81627	71.51599	139.98060	26.15653	0.0955647	0.17414462	3.1758697	20	3 26.9	19.9
433666 2014 DC ₈	16.1	X	26.54732	44.09152	141.68863	13.09644	0.0599773	0.19044210	2.9919942	20	4 20.9	20.2
433667 2014 DN ₁₈	16.0	X	133.86166	260.75631	149.52788	15.94016	0.1241986	0.17758203	3.1347533	20	3 26.9	20.9
433668 2014 DV ₂₃	16.3	X	330.20415	180.68583	146.24250	14.61446	0.0738339	0.22102693	2.7091887	20	7 30.1	19.5
433669 2014 DX ₂₉	16.1	X	131.31539	245.71867	165.80459	10.40337	0.1347120	0.17707786	3.1407006	20	3 24.8	20.8
433670 2014 DD ₃₂	13.3	X	34.59542	176.45193	139.84997	15.55848	0.0436454	0.08225590	5.2363018	20	10 1.4	20.2
433671 2014 DF ₃₂	14.1	X	172.52228	62.66443	120.01473	8.64256	0.0133462	0.08494358	5.1252573	20	10 1.8	21.0
433672 2014 DK ₃₂	14.1	X	315.94228	314.89556	80.81602	6.08697	0.0488433	0.08575049	5.0930543	20	9 23.8	20.7
433673 2014 DX ₈₂	15.6	X	235.01190	83.34111	227.67495	10.63371	0.1219371	0				

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>		
433681	2014	EH ₃₃	13.8 ^m	X	13.29696	278.43113	83.67010	8.60634	0.0547277	0.08585540	5.0889044	20	10 27.2	20.4
433682	2014	OU ₁₅₇	18.0	X	286.42090	267.74738	17.56254	4.87331	0.1548646	0.29742599	2.2227132	20	3 12.6	20.6
433683	2014	UF ₁₁₂	17.7	X	158.88753	267.99980	129.39255	5.34241	0.2161307	0.25693739	2.4504801	20	4 5.1	21.7
433684	2014	VP ₇	17.1	X	118.04963	118.69290	241.82682	4.45340	0.0756236	0.21091188	2.7951301	20	—	—
433685	2014	VF ₂₁	16.8	X	136.52319	277.99092	67.73519	7.07608	0.0677398	0.21225059	2.7833647	20	—	—
433686	2014	VL ₂₄	17.3	X	46.85644	322.99661	192.16326	3.39995	0.0203924	0.24466922	2.5317248	20	3 27.9	20.5
433687	2014	WN ₁₈	16.9	X	154.59094	326.26264	41.82172	5.29939	0.0845387	0.23044661	2.6348496	20	2 17.0	20.7
433688	2014	WB ₁₉	15.7	X	11.32364	350.26951	100.56049	18.96234	0.2050430	0.18156968	3.0886865	20	—	—
433689	2014	WH ₄₆	16.7	X	93.17458	86.75819	253.42454	7.59954	0.0940742	0.18959481	3.0009016	20	—	—
433690	2014	WS ₄₆	15.9	X	260.42656	297.26274	246.31794	15.91063	0.1563756	0.18031194	3.1030330	20	—	—
433691	2014	WJ ₅₂	16.9	X	34.32952	50.34517	339.45436	2.45266	0.1629730	0.18303850	3.0721406	20	—	—
433692	2014	WO ₅₅	16.1	X	41.86853	326.77403	66.05138	10.97659	0.1799624	0.18799223	3.0179320	20	—	—
433693	2014	WB ₁₄₀	17.5	X	0.45285	4.03072	227.74291	1.73602	0.1441617	0.25823484	2.4422652	20	5 2.7	19.4
433694	2014	WV ₁₇₉	16.4	X	92.20529	275.19128	111.33717	6.74320	0.0581589	0.21948924	2.7218273	20	—	—
433695	2014	WO ₂₅₂	16.8	X	142.50803	208.45783	150.70248	5.92093	0.2620156	0.23673256	2.5879987	20	2 7.1	21.0
433696	2014	WA ₃₁₁	18.0	X	296.34007	45.29354	308.08851	2.49691	0.1882308	0.29927706	2.2135386	20	6 30.8	19.8
433697	2014	WT ₃₉₉	15.8	X	303.34408	48.23884	145.72950	28.25919	0.1973316	0.17298711	3.1900211	20	—	—
433698	2014	WZ ₄₂₃	15.6	X	306.02748	49.79020	97.06631	17.91104	0.1937621	0.17788183	3.1312301	20	—	—
433699	2014	WM ₄₂₈	16.8	X	223.37672	359.83340	58.01443	7.06929	0.1083670	0.25594800	2.4567910	20	7 2.5	20.3
433700	2014	WG ₄₆₇	15.5	X	53.42561	334.44247	123.42328	12.94348	0.0839074	0.19066372	2.9896752	20	2 4.7	19.2
433701	2014	WX ₄₆₇	16.5	X	35.70505	176.85700	348.52397	8.60578	0.1574888	0.21098822	2.7944558	20	4 5.9	19.6
433702	2014	WE ₄₆₈	16.6	X	28.11439	61.69422	37.75384	0.81303	0.2118738	0.18016254	3.1047483	20	1 2.6	19.5
433703	2014	WE ₄₆₉	16.1	X	50.25863	316.52899	132.88408	9.87134	0.1111776	0.18770303	3.0210310	20	1 22.3	19.7
433704	2014	WP ₄₆₉	16.2	X	270.06733	132.63202	155.16629	6.76687	0.0212740	0.21136970	2.7910925	20	3 22.4	19.9
433705	2014	WE ₄₉₁	16.4	X	76.24052	231.27084	134.26303	14.20963	0.1772015	0.19259349	2.9696708	20	—	—
433706	2014	WF ₄₉₅	15.7	X	252.99755	322.91393	162.37100	6.11139	0.2165738	0.12527062	3.9558205	20	10 4.3	21.5
433707	2014	WO ₄₉₆	16.4	X	14.40023	269.92586	206.75823	5.98056	0.2173959	0.18482895	3.0522684	20	—	—
433708	2014	XV ₂₀	16.0	X	9.38062	106.51404	3.54870	6.54455	0.1974093	0.19528286	2.9423430	20	—	—
433709	2014	XF ₃₇	15.8	X	317.75891	64.00980	102.09266	17.36073	0.1681059	0.17868828	3.1218019	20	—	—
433710	2014	XG ₃₇	15.4	X	243.89669	288.58691	312.74096	9.54676	0.0682016	0.18243632	3.0788971	20	—	—
433711	2014	XH ₃₇	17.1	X	149.51446	41.23159	88.74460	7.53730	0.0769409	0.26391899	2.4070713	20	7 17.3	20.5
433712	2014	XL ₃₇	17.1	X	122.70126	108.05704	39.79064	3.04406	0.1395783	0.25637006	2.4540939	20	7 15.0	20.7
433713	2014	XW ₃₇	17.3	X	197.87585	128.07470	306.73113	6.02173	0.1065591	0.26566452	2.3965161	20	6 26.9	20.8
433714	2014	XV ₃₈	15.5	X	12.21551	11.90661	94.99839	12.68043	0.1334719	0.18468750	3.0538266	20	—	—
433715	2014	YQ ₄	17.2	X	23.96852	34.95927	82.11445	1.32024	0.2324859	0.19050189	2.9913681	20	1 14.5	19.8
433716	2014	YQ ₇	16.3	X	46.65665	121.20613	310.91305	9.79012	0.0252545	0.18299916	3.0725808	20	—	—
433717	2014	YN ₈	17.7	X	111.27666	50.13579	288.76296	17.67736	0.0714994	0.36546634	1.9374825	20	—	—
433718	2014	YN ₁₁	16.4	X	28.53217	122.04700	328.18396	6.73648	0.1329172	0.18579489	3.0416801	20	—	—
433719	2014	YF ₂₀	15.8	X	193.59156	183.90514	102.64219	12.36043	0.0566506	0.18043894	3.1015768	20	—	—
433720	2014	YS ₂₁	16.2	X	223.82278	45.26430	301.78554	14.05403	0.0744695	0.23043360	2.6349488	20	3 25.9	20.4
433721	2014	YD ₂₃	15.4	X	183.45034	191.06707	103.35262	16.84165	0.0391645	0.17960079	3.1112188	20	—	—
433722	2014	YO ₃₂	16.0	X	174.55367	289.06522	82.31873	10.06936	0.0239610	0.22437716	2.6821534	20	3 14.3	19.9
433723	2015	AV ₃	16.8	X	57.73678	83.95725	84.96418	17.77942	0.1533530	0.23265395	2.6181574	20	5 24.7	20.0
433724	2015	AF ₁₃	15.7	X	166.76896	231.96739	56.34937	16.51017	0.0475007	0.16937135	3.2352617	20	—	—
433725	2015	AG ₃₂	17.4	X	292.27162	225.11509	126.15569	4.85155	0.0962373	0.27425458	2.3462095	20	7 4.9	19.9
433726	2015	AL ₃₂	16.0	X	23.62212	299.95085	117.26214	11.07362	0.2297267	0.17640934	3.1486303	20	—	—
433727	2015	AD ₄₃	16.1	X	84.93408	52.58888	315.57833	10.46998	0.1405124	0.17916651	3.1162443	20	—	—
433728	2015	AB ₇₇	16.3	X	31.62637	176.26176	280.84504	8.13281	0.0869143	0.19141769	2.9818194	20	1 1.8	20.1
433729	2015	AY ₁₁₈	16.1	X	333.62869	1.93701	145.02220	6.07929	0.1055562	0.18111110	3.0938981	20	—	—
433730	2015	AP ₁₃₂	16.0	X	201.95958	224.73516	104.68444	6.84769	0.0858522	0.21151669	2.7897993	20	2 21.3	20.2
433731	2015	AM ₁₄₈	16.4	X	16.02414	157.84427	316.23177	9.34856	0.0581167	0.18816756	3.0160570	20	1 2.5	20.3
433732	2015	AZ ₁₄₉	17.1	X	134.25160	61.01593	331.83666	6.79307	0.2456643	0.22095602	2.7097683	20	3 10.1	21.5
433733	2015	AB ₁₅₀	16.4	X	270.32931	311.38232	28.24636	2.80224	0.1604243	0.25496451	2.4631048	20	5 6.0	19.7
433734	2015	AM ₁₅₀	16.6	X	207.17263	27.01364	324.24187	9.15851	0.0495176	0.22478184	2.6789333	20	3 18.6	20.6
433735	2015	AO ₁₅₅	18.1	X	169.32757	97.13002	31.99926	1.97623	0.1288721	0.27262786	2.3555332	20	8 8.6	21.7
433736	2015	AS ₁₆₈	18.0	X	264.83847	111.77684	328.56352	3.26690	0.1211846	0.30167169	2.2018092	20	10 1.9	20.1
433737	2015	AX ₁₆₉	16.5	X	346.45811	47.59695	85.17800	2.11899	0.1331550	0.17953536	3.1119747	20	—	—
433738	2015	AN ₁₇₄	16.4	X	48.14600	311.96949	115.38481	16.09246	0.0495594	0.18089160	3.0964004	20	—	—
433739	2015	AR ₁₇₄	17.3	X	85.62817	119.93146	342.03474	4.35645	0.0417211	0.21689937	2.7434509	20	3 15.5	20.9
433740	2015	AS ₁₉₀	17.4	X	47.85748	166.15903	66.37250	2.35576	0.1480121	0.25720900	2.4487547	20	8 7.5	20.2
433741	2015	AA ₂₃₄	17.5	X	67.38055	322.53620	217.11693	4.92409	0.1578084	0.23409912	2.6073712	20	6 21.1	20.7
433742	2015	AX ₂₃₈	17.7	X	167.22478	63.46329	345.52807	6.04894	0.3172979	0.24194390	2.5507013	20	4 25.4	22.5
433743	2015	AA ₂₄₀	16.0	X	303.99890	315.01851	0.80423	5.94785	0.1979808	0.24272160	2.5452499	20	5 12.6	19.0
433744	2015	AE ₂₅₆	15.7	X	69.87219	155.91531	327.78198	12.80437	0.0474087	0.21366513	2.7710665	20	3 19.2	19.5
433745	2015	AH ₂₅₆	15.9	X	23.76914	320.77004	122.32135	11.67908	0.2197572	0.17757880	3.1347913	20	—	—
433746	2015	AB ₂₅₇	17.3	X	87.05859	285.95227	175.77966	6.08921	0.2514294	0.22292870	2.6937589	20	4 19.4	21.0
433747	2015	AX ₂₅₇	17.1	X	54.37402	150.02860	329.78752	6.56732	0.2094687	0.21183902	2.7869686	20	3 15.2	20.0
433748	2015	AJ ₂₆₃	17.9	X	149.44611	120.11576	130.84323	5.70969	0.1250870	0.30977184	2.1632569	20	12 30.7	20.9
433749	2015	AM ₂₆₃	17.5	X	86.83600	73.83497	136.69888	2.00369	0.1319604	0.25734445	2.4478953	20	8 26.6	20.9
433750	2015	AZ ₂₆₄	17.1	X	120.91790	92.43297	3.33932	12.76534	0.2225647	0.23460397	2.6036292	20	5 8.4	21.4
433751	2015													

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>
433761 2015 <i>BD</i> ₁₈	17.5	X	53.20448	263.47688	310.96750	4.80932	0.0715671	0.24578516	2.5240558	20	7 6.3	20.6
433762 2015 <i>BV</i> ₂₄	16.9	X	6.38959	118.34248	167.39410	5.70845	0.1117463	0.25386195	2.4702314	20	8 6.7	19.5
433763 2015 <i>BX</i> ₂₅	17.3	X	45.97854	133.10470	150.51324	3.78042	0.1049221	0.27443557	2.3451779	20	10 12.9	20.1
433764 2015 <i>BK</i> ₂₆	16.4	X	35.67679	321.68549	174.11749	2.53367	0.0306243	0.19689579	2.9262522	20	2 22.2	20.1
433765 2015 <i>BP</i> ₂₆	17.8	X	208.29592	320.21611	149.05526	6.65409	0.0907126	0.27606895	2.3359184	20	8 27.6	21.0
433766 2015 <i>BA</i> ₂₇	17.9	X	247.59717	290.60145	144.93830	6.72754	0.1179033	0.28202345	2.3029220	20	8 28.4	20.8
433767 2015 <i>BP</i> ₂₇	16.6	X	41.49151	283.02610	317.66894	10.86847	0.2277906	0.23965703	2.5669019	20	8 18.9	19.6
433768 2015 <i>BB</i> ₃₂	16.6	X	21.36936	342.80993	125.50708	9.15701	0.1759237	0.18890416	3.0082115	20	—	—
433769 2015 <i>BH</i> ₃₃	17.7	X	124.58066	319.90188	104.21174	6.17894	0.1701987	0.22417171	2.6837919	20	4 4.8	21.8
433770 2015 <i>BU</i> ₄₄	17.6	X	131.34344	161.38800	341.46192	6.38680	0.1040480	0.26253230	2.4155399	20	7 16.1	21.1
433771 2015 <i>BE</i> ₅₈	16.7	X	340.48651	31.39595	102.57715	5.07785	0.2236432	0.17583051	3.1555366	20	—	—
433772 2015 <i>BK</i> ₅₉	16.1	X	44.05708	321.15028	110.26076	7.01845	0.1738548	0.18411605	3.0601423	20	—	—
433773 2015 <i>BM</i> ₆₀	17.0	X	83.96787	153.57091	349.70833	3.17670	0.1475259	0.23154808	2.6264871	20	5 22.5	20.4
433774 2015 <i>BE</i> ₆₂	17.9	X	175.26556	56.24333	23.29143	3.81009	0.1705230	0.25553384	2.4594449	20	6 7.8	21.9
433775 2015 <i>BQ</i> ₆₃	16.9	X	78.62291	16.78203	107.04350	12.32224	0.1039820	0.22084120	2.7107074	20	4 19.7	20.6
433776 2015 <i>BS</i> ₆₃	16.2	X	331.96418	159.99461	343.92021	8.98491	0.0525638	0.17439914	3.1727790	20	—	—
433777 2015 <i>BT</i> ₆₃	16.2	X	357.45391	79.42469	29.85144	5.99489	0.1282452	0.17328671	3.1863432	20	—	—
433778 2015 <i>BJ</i> ₆₄	18.2	X	87.85332	219.85743	24.13226	5.21402	0.1681053	0.27637402	2.3341992	20	10 17.2	21.7
433779 2015 <i>BX</i> ₆₆	17.1	X	57.29865	81.18242	55.05572	4.47946	0.0397622	0.21296578	2.7771297	20	3 24.5	20.7
433780 2015 <i>BX</i> ₆₇	15.5	X	23.67815	140.88070	328.01213	9.59788	0.0068009	0.18301369	3.0724183	20	1 8.7	19.9
433781 2015 <i>BW</i> ₇₀	17.0	X	30.80463	347.79352	241.28444	10.07523	0.1267822	0.24162394	2.5529525	20	6 27.3	19.9
433782 2015 <i>BT</i> ₇₁	16.8	X	4.30401	100.12337	147.58694	14.52506	0.1107032	0.23631617	2.5910378	20	6 7.9	19.9
433783 2015 <i>BS</i> ₇₅	16.5	X	28.81294	55.94701	58.80452	6.71550	0.0490298	0.19120458	2.9840346	20	1 20.9	20.5
433784 2015 <i>BG</i> ₇₆	17.7	X	148.53873	57.95029	18.17135	4.46709	0.2133171	0.24090324	2.5580417	20	5 11.5	21.8
433785 2015 <i>BN</i> ₈₀	16.8	X	197.07454	357.51697	116.70603	26.48328	0.2536114	0.28541083	2.2846644	20	8 11.4	20.7
433786 2015 <i>BM</i> ₈₅	18.5	X	208.09170	290.00649	189.26246	5.00546	0.1038261	0.28928532	2.2642191	20	9 9.1	21.4
433787 2015 <i>BG</i> ₈₆	16.5	X	13.57003	288.60021	164.04915	1.40011	0.1658141	0.17618654	3.1512841	20	—	—
433788 2015 <i>BL</i> ₈₆	16.0	X	40.54964	106.86174	313.04917	6.25874	0.1674512	0.17503190	3.1651277	20	—	—
433789 2015 <i>BN</i> ₈₆	16.0	X	21.38298	319.23650	131.65816	10.12568	0.0668750	0.17438300	3.1729748	20	—	—
433790 2015 <i>BM</i> ₈₇	17.7	X	105.72962	213.51703	337.00441	3.66112	0.1420211	0.25992922	2.4316402	20	8 22.5	21.1
433791 2015 <i>BP</i> ₈₇	16.9	X	166.88030	300.84251	81.93140	1.93418	0.0838339	0.21487072	2.7606916	20	3 19.6	21.0
433792 2015 <i>BA</i> ₈₈	16.6	X	243.20215	44.95646	247.10669	1.08790	0.0352323	0.20157058	2.8808321	20	2 21.6	20.5
433793 2015 <i>BP</i> ₈₈	17.5	X	70.32538	291.37183	305.79901	4.68427	0.0742718	0.26791609	2.3830703	20	9 2.2	20.5
433794 2015 <i>BR</i> ₈₉	16.0	X	359.42596	208.71896	314.68410	11.10146	0.0280882	0.19437493	2.9514984	20	2 8.9	20.0
433795 2015 <i>BP</i> ₈₉	16.4	X	192.45340	241.66724	112.33451	4.75393	0.1046142	0.21196433	2.7858701	20	3 12.5	20.7
433796 2015 <i>BJ</i> ₉₀	18.2	X	258.50406	141.79737	293.84690	3.90913	0.1259192	0.29040792	2.2583803	20	9 10.9	20.7
433797 2015 <i>BW</i> ₉₈	16.7	X	241.27824	324.14572	318.44300	1.53090	0.0824246	0.19999703	2.8959230	20	2 4.9	21.0
433798 2015 <i>BA</i> ₉₉	17.1	X	292.97215	162.39979	115.71182	3.11643	0.0319455	0.22423113	2.6833178	20	4 6.0	20.6
433799 2015 <i>BE</i> ₉₉	16.1	X	248.76715	286.80934	312.38873	8.81464	0.1247119	0.17514426	3.1637739	20	—	—
433800 2015 <i>BT</i> ₉₉	18.3	X	190.49852	319.36797	132.22562	2.75447	0.1731380	0.26808859	2.3820479	20	7 8.4	22.1
433801 2015 <i>BF</i> ₁₀₀	18.0	X	238.26904	157.11223	322.20279	4.38221	0.0909464	0.29812512	2.2192369	20	10 21.6	20.5
433802 2015 <i>BU</i> ₁₀₀	16.2	X	38.81134	138.66496	309.85547	5.35286	0.1091081	0.18305119	3.0719986	20	1 4.9	19.8
433803 2015 <i>BY</i> ₁₀₁	16.7	X	142.95825	292.53983	131.11134	7.83271	0.1014937	0.22079659	2.7110726	20	4 17.3	20.8
433804 2015 <i>BU</i> ₁₀₄	18.1	X	153.08099	18.24777	136.72521	2.81678	0.1506203	0.27387811	2.3483591	20	8 25.9	21.7
433805 2015 <i>BY</i> ₁₀₄	15.8	X	155.19511	227.56750	119.97072	8.88914	0.0689099	0.19608402	2.9343230	20	1 24.3	20.0
433806 2015 <i>BO</i> ₁₀₅	15.6	X	265.75294	120.49863	95.85168	10.57104	0.0759764	0.17746357	3.1361482	20	—	—
433807 2015 <i>BJ</i> ₁₁₆	17.4	X	226.64013	258.89617	148.43274	5.61403	0.1859043	0.27290048	2.3539642	20	6 15.1	21.0
433808 2015 <i>BZ</i> ₁₁₈	17.0	X	41.17591	260.39224	345.08018	5.53797	0.1152259	0.25205003	2.4820558	20	8 10.1	19.8
433809 2015 <i>BD</i> ₁₁₉	17.8	X	192.23785	103.63261	356.15952	3.64455	0.0999270	0.26545282	2.3977901	20	7 25.7	21.2
433810 2015 <i>BF</i> ₁₁₉	15.9	X	224.08810	289.69656	345.54745	8.88269	0.0571381	0.17903065	3.1178206	20	1 15.4	20.6
433811 2015 <i>BG</i> ₁₂₉	17.9	X	4.94929	104.55813	130.72696	3.96621	0.0223731	0.23905651	2.5711988	20	5 19.2	21.2
433812 2015 <i>BT</i> ₁₃₈	15.8	X	4.23489	67.39304	33.46275	5.67929	0.1742363	0.17521202	3.1629582	20	—	—
433813 2015 <i>BZ</i> ₁₄₃	16.0	X	276.45094	95.25084	115.36704	12.16696	0.0683678	0.17675063	3.1445759	20	—	—
433814 2015 <i>BL</i> ₁₄₇	18.0	X	103.77179	241.91514	4.90810	2.23778	0.1995372	0.28408901	2.2917457	20	11 7.5	21.5
433815 2015 <i>BX</i> ₁₄₇	17.5	X	278.13328	334.89477	70.30077	3.41125	0.1627134	0.29101327	2.2552474	20	8 25.6	19.7
433816 2015 <i>BZ</i> ₁₅₉	15.9	X	268.99333	307.68833	298.82294	6.99447	0.0309411	0.19039767	2.9924596	20	1 29.3	20.2
433817 2015 <i>BT</i> ₁₆₂	16.4	X	280.91043	186.90325	93.59454	7.31213	0.0337190	0.22043545	2.7140328	20	3 26.9	20.2
433818 2015 <i>BH</i> ₁₆₄	16.7	X	103.22978	88.26006	336.23922	3.99264	0.1693811	0.21264720	2.7799027	20	3 9.4	20.6
433819 2015 <i>BN</i> ₁₇₃	16.6	X	54.72081	148.93471	323.12431	9.40904	0.1226295	0.20443425	2.8538662	20	2 24.7	20.0
433820 2015 <i>BD</i> ₁₇₇	15.5	X	173.05009	202.89014	105.80523	7.21550	0.0796214	0.17751195	3.1355784	20	—	—
433821 2015 <i>BH</i> ₁₈₀	17.4	X	107.27599	87.39621	86.49910	7.41810	0.1105926	0.25745998	2.4471630	20	7 30.7	20.8
433822 2015 <i>BH</i> ₁₈₂	17.1	X	96.30894	157.24143	341.84592	8.57313	0.0416738	0.23675540	2.5878322	20	5 14.6	20.7
433823 2015 <i>BW</i> ₁₈₅	16.6	X	259.51229	199.19019	59.49873	5.80063	0.2223718	0.18359263	3.0659558	20	1 17.6	21.7
433824 2015 <i>BF</i> ₁₉₅	16.4	X	268.06933	115.29902	120.56728	14.62816	0.1326543	0.17913515	3.1166079	20	1 6.7	21.2
433825 2015 <i>BK</i> ₁₉₅	17.6	X	10.58790	198.53853	104.02680	6.59542	0.2033252	0.27044649	2.3681824	20	10 1.8	19.8
433826 2015 <i>BU</i> ₁₉₈	17.5	X	190.37006	106.86								

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>
433841 2015 BS ₂₅₁	17.0	X	335.43890	147.90317	146.93865	5.35658	0.1549646	0.24687203	2.5166421	20	6 18.9	19.5
433842 2015 BO ₂₅₂	16.7	X	166.62491	195.52277	176.99440	4.00502	0.1137665	0.21061223	2.7977806	20	3 7.5	21.0
433843 2015 BA ₂₅₃	16.0	X	220.88360	354.13367	297.92314	10.89879	0.0928498	0.18922452	3.0048153	20	1 26.6	20.6
433844 2015 BP ₂₆₁	16.8	X	107.20289	354.85141	50.14440	2.46405	0.1195959	0.19793235	2.9160269	20	2 15.4	20.8
433845 2015 BZ ₂₆₁	16.4	X	105.31329	90.79219	293.67166	4.76740	0.1374970	0.18554539	3.0444062	20	1 22.2	20.5
433846 2015 BM ₂₆₂	17.0	X	124.94871	337.98032	146.53116	7.85896	0.1533320	0.23854350	2.5748839	20	6 17.1	21.0
433847 2015 BQ ₂₆₉	17.5	X	150.98321	129.21188	329.88776	11.06271	0.0494555	0.24356160	2.5393945	20	6 2.4	21.2
433848 2015 BH ₂₇₂	16.2	X	208.68509	169.22089	121.62793	3.86703	0.0868564	0.18190700	3.0848669	20	1 14.9	20.9
433849 2015 BJ ₂₇₂	16.7	X	97.94271	19.77437	75.90591	0.60084	0.0303731	0.21404369	2.7677983	20	3 23.0	20.2
433850 2015 BJ ₂₇₄	16.7	X	155.77239	266.57059	129.33891	12.15727	0.2120442	0.22316900	2.6918249	20	4 4.6	21.3
433851 2015 BK ₂₇₄	16.6	X	45.95602	313.43611	128.09597	7.91830	0.2267525	0.18806378	3.0171664	20	1 14.4	19.5
433852 2015 BO ₂₇₄	15.8	X	181.72299	184.33114	133.19709	12.50759	0.1030019	0.18176455	3.0864785	20	1 19.8	20.7
433853 2015 BF ₂₇₆	16.7	X	119.23646	1.16263	48.77441	2.74475	0.1046499	0.19777186	2.9176043	20	3 4.7	20.8
433854 2015 BO ₂₇₆	15.5	X	209.99118	300.31410	342.27918	18.43847	0.0638159	0.16928132	3.2364086	20	1 13.3	20.6
433855 2015 BD ₂₇₇	16.5	X	156.53451	270.26993	131.38471	4.44515	0.1013898	0.21317361	2.7753244	20	4 3.1	20.6
433856 2015 BS ₂₇₇	17.3	X	148.62078	108.56628	339.35044	5.33750	0.2247115	0.23987575	2.5653413	20	5 26.7	21.7
433857 2015 BL ₂₇₈	15.4	X	42.62701	313.43384	140.60185	10.87088	0.10135335	0.18105965	3.0944842	20	1 14.8	19.7
433858 2015 BY ₂₇₈	17.9	X	196.70204	157.75757	293.50926	1.05782	0.1103601	0.26328793	2.4109160	20	7 17.4	21.4
433859 2015 BD ₂₉₀	16.1	X	6.06979	221.14819	245.36960	7.59940	0.0666166	0.17587304	3.1550279	20	—	—
433860 2015 BP ₂₉₁	17.0	X	200.74133	262.39475	137.99493	7.09249	0.1033787	0.23872008	2.5736140	20	5 17.1	21.0
433861 2015 BT ₂₉₁	16.8	X	332.96333	74.82116	100.11016	2.10494	0.1044849	0.18177033	3.0864131	20	1 13.6	20.7
433862 2015 BV ₂₉₁	16.0	X	180.18018	198.14835	141.96487	12.45572	0.0566122	0.19060593	2.9902795	20	2 11.0	20.2
433863 2015 BQ ₂₉₂	18.1	X	176.90016	328.24823	152.43593	2.75971	0.1212195	0.26599097	2.3945548	20	8 3.8	21.6
433864 2015 BS ₂₉₃	16.1	X	128.62006	212.25046	196.40057	12.85012	0.0509835	0.21052238	2.7985766	20	3 1.9	20.3
433865 2015 BT ₂₉₄	15.4	X	346.46804	316.23521	254.45182	11.02949	0.0795178	0.21108513	2.7936005	20	3 10.8	19.2
433866 2015 BV ₂₉₆	16.4	X	172.87407	181.17979	348.97619	24.49579	0.2206225	0.27634027	2.3343892	20	9 24.9	20.5
433867 2015 BP ₂₉₈	16.6	X	16.96607	112.24583	150.84505	26.55142	0.2848313	0.22870799	2.6481861	20	8 14.6	18.9
433868 2015 BL ₃₀₁	16.6	X	132.73814	96.16873	10.17436	9.20538	0.0847838	0.22496981	2.6774409	20	5 23.3	20.6
433869 2015 BO ₃₀₇	15.6	X	267.93266	240.64231	334.07382	20.59312	0.0491764	0.17697711	3.1418925	20	—	—
433870 2015 BU ₃₀₇	17.3	X	143.77282	69.75243	343.00411	12.35342	0.1747425	0.22787416	2.6546422	20	4 2.5	21.6
433871 2015 BE ₃₀₈	17.7	X	159.90146	28.82382	105.32571	3.43085	0.1422017	0.26649521	2.3915334	20	8 4.9	21.3
433872 2015 BP ₃₀₉	17.6	X	265.02159	45.01996	54.57852	6.74426	0.0285429	0.30539232	2.1838894	20	11 16.2	20.0
433873 2015 BQ ₃₁₁	12.0	X	240.93219	221.37131	117.04697	24.48539	0.2921976	0.05198925	7.1098489	20	4 12.1	21.4
433874 2015 BL ₃₁₉	16.6	X	192.92642	200.47157	112.56840	6.84968	0.0660984	0.19143303	2.9816601	20	1 23.9	20.9
433875 2015 BA ₃₂₄	16.8	X	208.70546	283.10236	71.14941	7.06992	0.0746236	0.22166438	2.7039923	20	3 30.8	20.9
433876 2015 BQ ₃₂₄	17.2	X	118.50331	170.65401	9.12652	6.40688	0.0530037	0.26616044	2.3935383	20	8 17.5	20.4
433877 2015 BL ₃₂₅	15.9	X	57.42618	74.85526	337.32299	9.79970	0.1309109	0.17869175	3.1217615	20	—	—
433878 2015 BY ₃₂₉	16.7	X	215.58941	347.15822	22.40976	6.34080	0.0658459	0.22586650	2.6703499	20	4 22.8	20.4
433879 2015 BT ₃₃₈	16.8	X	244.38124	291.90512	13.87579	5.62495	0.0439314	0.21179004	2.7873983	20	3 10.9	20.8
433880 2015 BG ₃₄₁	16.6	X	24.38834	88.34354	83.76946	4.85197	0.1337804	0.21137002	2.7910897	20	3 29.4	19.7
433881 2015 BD ₃₄₂	18.1	X	140.95556	213.55655	30.35138	3.44357	0.1348645	0.30405252	2.1903002	20	12 10.9	21.2
433882 2015 BY ₃₅₃	17.0	X	40.27346	298.05121	216.91311	2.83690	0.2000839	0.21179622	2.7873440	20	4 7.1	19.8
433883 2015 BC ₃₅₆	16.6	X	73.63947	309.94651	143.74611	6.76978	0.0644944	0.19858417	2.9096425	20	2 24.3	20.3
433884 2015 BQ ₃₅₆	15.9	X	229.31720	160.98484	135.83536	7.06453	0.0854521	0.19046771	2.9917260	20	2 10.6	20.5
433885 2015 BM ₃₅₉	17.3	X	64.20099	189.31389	8.11018	5.61197	0.1086396	0.24393276	2.5368179	20	7 4.8	20.5
433886 2015 BG ₃₉₁	17.9	X	169.14093	16.92114	92.90110	2.35219	0.1465286	0.26163190	2.4210788	20	7 12.2	21.5
433887 2015 BC ₃₉₅	16.7	X	332.93280	200.76021	51.92533	6.36877	0.0498707	0.22882993	2.6472452	20	4 24.6	19.9
433888 2015 BC ₃₉₆	16.0	X	332.86083	55.24657	98.55208	11.61190	0.0838696	0.17755600	3.1350597	20	—	—
433889 2015 BC ₄₀₁	18.5	X	249.26379	41.03205	74.96060	3.60204	0.1001044	0.30428811	2.1891695	20	11 5.7	20.8
433890 2015 BO ₄₀₄	17.2	X	11.98127	288.79368	307.20561	2.55141	0.1621676	0.23032825	2.6357522	20	6 4.4	19.7
433891 2015 BY ₄₀₄	16.5	X	217.17353	339.30440	316.98096	8.58259	0.0576727	0.18888805	3.0083825	20	1 30.1	21.0
433892 2015 BX ₄₀₇	16.9	X	222.71747	208.03330	138.91945	6.73098	0.0603240	0.22142540	2.7059374	20	4 5.9	20.8
433893 2015 BZ ₄₀₉	16.8	X	293.53368	268.53427	11.69767	1.61946	0.0599562	0.21906030	2.7253791	20	4 4.0	20.3
433894 2015 BD ₄₁₅	16.9	X	29.60096	120.66039	358.03952	3.38255	0.0938644	0.18997276	2.9969201	20	1 27.4	20.5
433895 2015 BY ₄₂₁	17.7	X	64.04727	23.65301	216.54271	1.58231	0.1739066	0.25774377	2.4453664	20	9 12.9	20.9
433896 2015 BN ₄₂₂	16.9	X	184.75148	228.61030	171.34401	2.31601	0.0861528	0.23162325	2.6259187	20	4 28.2	20.8
433897 2015 BC ₄₂₄	16.5	X	337.17589	2.26600	171.12604	2.99388	0.0421970	0.18635926	3.0355361	20	1 23.3	20.5
433898 2015 BG ₄₂₉	16.4	X	136.03465	297.89645	109.66849	4.67888	0.0959803	0.21016631	2.8017367	20	3 19.5	20.5
433899 2015 BW ₄₃₈	17.0	X	325.51845	1.39503	197.94189	0.68459	0.0664646	0.19082815	2.9879575	20	2 5.6	21.0
433900 2015 BJ ₄₃₉	16.7	X	8.84165	97.92437	30.15216	0.76411	0.1335208	0.18196990	3.0841560	20	1 6.1	20.3
433901 2015 BN ₄₄₀	17.2	X	77.06298	202.07227	337.07583	4.55667	0.0592295	0.23920849	2.5701096	20	6 18.4	20.6
433902 2015 BN ₄₄₄	16.3	X	86.99039	110.26855	334.07347	12.91133	0.2693712	0.21034149	2.8001809	20	3 24.9	20.2
433903 2015 BA ₄₅₀	16.0	X	50.46035	312.64760	129.51499	12.64241	0.0627413	0.17820388	3.1274565	20	1 11.8	20.3
433904 2015 BB ₄₅₄	16.8	X	83.87256	153.02726	294.67619	1.48473	0.0552286	0.20205337	2.8762413	20	2 27.6	20.7
433905 2015 BC ₄₅₅	16.7	X	276.05073	323.55889	339.67167	11.56892	0.1676076	0.22130063	2.7069544	20	3 23.9	20.7
433906 2015 BT ₄₆₀	16.7	X	359.70619	83.15376	131.33535	5.03026	0.1403175	0.21251540	2.7810520	20	4 11.6	19.7
433907 2015 BB ₄₆₂	16.4	X	190.11932	290.84427	89.10014	6.60076	0.0857800	0.22025489	2.7155158	20	4 11.7	20.5
433908 2015 BW ₄₆₇	18.0	X	300.72156	259.84664	326.22849	18.17018	0.0904060	0.37677917	1.8985037	20	1 7.4	20.3
433909 2015 BP ₄₆₈	15.9	X	274.37201	14.80149	238.03558	11.75592	0.1527289	0.18481922	3.0523755	20	1 26.1	20.7
433910 2015 BE ₄₆₉	16.6	X	126.18463	283.60270	124.15826	6.75955	0.0671927	0.20113320	2.8850070	20	3 7.1	20.7
433911 2015 BE ₄₈₂	17.5	X	85.30722	314.35550	177.00044	1.92410	0.1478228	0.22792418	2.6542538	20	5 9.7	21.0
433912 2015 BO ₄₉₃	17.6	X	133.56919	287.66671	307.26192	7.46824	0.0878313	0.29834722	2.2181354	20	11 20.0	20.7
433913 2015 BL ₄₉₇	17.1	X	248.37408	196.70298	134.16							

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>
433921 2015 <i>CM</i> ₁	16.4	X	138.21008	232.34080	147.54898	3.00376	0.0850663	0.19616897	2.9334758	20	2 15.0	20.6
433922 2015 <i>CP</i> ₁	17.8	X	184.34515	197.28691	333.41575	7.75289	0.0612059	0.29272342	2.2464551	20	10 23.2	20.8
433923 2015 <i>CU</i> ₁	16.9	X	50.54591	170.09402	355.50186	2.29087	0.1224953	0.21835601	2.7312364	20	4 29.7	20.2
433924 2015 <i>CX</i> ₁	17.6	X	59.99130	96.54668	65.78891	3.44270	0.2078425	0.22162997	2.7042721	20	5 24.9	20.7
433925 2015 <i>CX</i> ₂	17.6	X	118.58425	213.52647	309.08344	1.82494	0.1277904	0.26020123	2.4299452	20	7 28.9	21.2
433926 2015 <i>CZ</i> ₃	16.6	X	63.18897	112.27269	353.73617	15.89027	0.2312925	0.21080013	2.7961178	20	3 16.8	19.6
433927 2015 <i>CL</i> ₄	16.5	X	324.92830	191.37821	337.36460	12.78374	0.1839547	0.17716657	3.1396521	20	—	—
433928 2015 <i>CO</i> ₄	17.7	X	103.29367	207.77840	1.61437	5.42158	0.1417310	0.26698731	2.3885938	20	9 15.1	21.2
433929 2015 <i>CZ</i> ₈	17.2	X	299.77684	36.43319	221.47564	0.96493	0.0432834	0.21042844	2.7994094	20	3 17.2	21.0
433930 2015 <i>CC</i> ₁₈	17.4	X	189.83811	274.47404	173.10453	5.80714	0.1688104	0.26334782	2.4105505	20	7 2.2	21.2
433931 2015 <i>CS</i> ₂₀	16.1	X	42.63069	266.47172	200.71674	1.84354	0.0544662	0.18708615	3.0276683	20	1 29.4	20.1
433932 2015 <i>CQ</i> ₂₂	15.7	X	40.20224	108.81027	336.34686	10.75259	0.1041225	0.17716073	3.1397212	20	1 5.3	19.7
433933 2015 <i>CB</i> ₂₃	16.0	X	277.77925	100.23640	154.78361	11.82951	0.1311011	0.18594249	3.0400703	20	2 6.4	20.5
433934 2015 <i>CP</i> ₃₂	17.0	X	41.88471	225.93186	341.47797	13.11944	0.1439979	0.22656169	2.6648846	20	6 17.9	20.4
433935 2015 <i>CJ</i> ₅₆	16.8	X	335.15784	142.39294	146.19638	2.19784	0.1170687	0.22848236	2.6499292	20	6 11.4	19.5
433936 2015 <i>DX</i> ₇₅	16.7	X	310.85151	116.88822	81.05273	2.71991	0.1200220	0.17960647	3.1111532	20	1 11.0	21.1
433937 4216 <i>PL</i> ₄	16.1	X	166.74397	20.66212	357.03543	16.69763	0.1860424	0.19010253	2.9955561	20	3 18.7	21.1
433938 1994 <i>UN</i> ₁₀	17.8	X	227.96078	115.63680	219.58005	21.29674	0.0829564	0.36622620	1.9348016	20	3 3.9	20.6
433939 1995 <i>DW</i> ₁	21.2	X	172.44581	327.03928	348.80976	15.06272	0.4369791	0.92908297	1.0401590	20	—	—
433940 1995 <i>QX</i> ₉	17.0	X	356.64857	229.24415	107.14695	8.32402	0.4396180	0.23892501	2.5721422	20	11 27.7	19.1
433941 1995 <i>SK</i> ₁₀	16.8	X	233.57392	306.34213	15.29257	2.09859	0.1249509	0.18319675	3.0703711	20	3 13.6	21.4
433942 1995 <i>SY</i> ₁₁	17.6	X	272.90716	69.26955	312.48331	0.86066	0.0965802	0.23222191	2.6214038	20	7 17.0	21.0
433943 1995 <i>SR</i> ₃₉	16.9	X	3.53276	318.74428	354.46122	9.58353	0.1037026	0.23686803	2.5870118	20	9 10.4	19.6
433944 1995 <i>SR</i> ₅₂	17.8	X	262.78051	91.28713	15.38279	6.97071	0.0524258	0.27826838	2.3235934	20	11 11.1	20.5
433945 1995 <i>SU</i> ₇₆	17.6	X	40.36615	191.96420	60.96796	3.19020	0.0126477	0.23116462	2.6293908	20	8 1.9	20.9
433946 1995 <i>UP</i> ₉	16.9	X	270.46433	346.84328	7.59382	14.46228	0.0712626	0.22847467	2.6499887	20	6 6.9	20.8
433947 1995 <i>UZ</i> ₁₂	16.8	X	241.87991	117.03395	203.60085	10.76362	0.2265324	0.18322979	3.0700020	20	3 10.3	22.1
433948 1996 <i>AF</i> ₇	17.8	X	230.31786	180.00593	314.10731	6.99710	0.1324450	0.26997829	2.3709195	20	10 17.7	21.1
433949 1996 <i>MG</i>	18.1	X	207.26707	124.41903	234.35230	19.89556	0.1468564	0.36280868	1.9469327	20	3 12.2	21.2
433950 1997 <i>HK</i> ₂	17.2	X	5.26665	229.52459	66.77684	10.64860	0.2845237	0.21927313	2.7236153	20	9 14.1	19.7
433951 1997 <i>HM</i> ₁₂	16.2	X	333.16804	94.16607	209.07842	12.77261	0.2218076	0.21735248	2.7396367	20	6 17.8	19.0
433952 1997 <i>WV</i> ₆	20.5	X	180.88508	173.10503	224.86590	9.34008	0.0260415	0.19533724	2.9417969	20	4 20.6	20.8
433953 1997 <i>XR</i> ₂	16.7	X	119.00490	84.58980	250.68725	7.19205	0.2008662	0.88281178	1.0761942	20	—	—
433954 1998 <i>HD</i> ₁₃₆	16.3	X	101.10059	143.81987	59.35161	9.12843	0.1497255	0.23598569	2.5934563	20	9 6.6	20.3
433955 1998 <i>RM</i> ₉	17.8	X	14.63844	358.30684	37.20377	5.90237	0.1513945	0.27439511	2.3454084	20	11 27.4	20.5
433956 1998 <i>SH</i> ₁₅₅	16.7	X	294.58778	202.05758	176.14277	7.12892	0.2567841	0.21942585	2.7223514	20	7 16.0	20.0
433957 1998 <i>VF</i> ₁₉	17.1	X	266.00562	3.62092	54.36727	7.89289	0.2259019	0.26323421	2.4112440	20	8 12.3	20.2
433958 1998 <i>VN</i> ₄₁	16.0	X	346.64171	211.50611	230.65504	11.25625	0.0537452	0.18460551	3.0547308	20	—	—
433959 1999 <i>FQ</i> ₁₉	17.0	X	20.62635	251.39922	296.15544	8.36036	0.4594931	0.18796290	3.0182459	20	5 17.3	18.6
433960 1999 <i>JU</i> ₆	19.7	X	256.77024	69.08479	220.16743	22.45624	0.2007778	0.55346460	1.4691839	20	1 2.9	21.8
433961 1999 <i>RL</i> ₄₁	17.0	X	297.91449	308.79987	11.96262	18.01643	0.5522258	0.18153117	3.0891233	20	3 27.6	22.0
433962 1999 <i>RE</i> ₂₀₆	15.4	X	265.73959	9.81953	339.42005	17.20687	0.2190290	0.17651275	3.1474005	20	4 30.4	20.6
433963 1999 <i>RC</i> ₂₅₃	17.0	X	23.31343	13.23861	319.22034	6.06294	0.3416894	0.23906945	2.5711061	20	12 14.1	20.4
433964 1999 <i>RG</i> ₂₅₉	16.5	X	330.09738	344.95530	6.17868	12.38864	0.2061813	0.23332373	2.6131446	20	9 5.1	18.7
433965 1999 <i>SD</i> ₁₀	17.2	X	315.63111	228.37502	90.99108	6.00602	0.5449520	0.18442793	3.0566914	20	4 13.4	21.2
433966 1999 <i>TV</i> ₂₉	17.0	X	332.75627	162.90447	194.80533	5.65071	0.2749349	0.23393643	2.6085799	20	9 16.0	18.6
433967 1999 <i>TK</i> ₄₉	17.0	X	159.13197	298.78737	152.78714	3.23555	0.0691025	0.22131846	2.7068091	20	6 5.2	20.9
433968 1999 <i>TY</i> ₅₇	17.4	X	9.81367	141.10147	199.26489	5.81789	0.2994160	0.23685768	2.5870872	20	11 29.2	20.1
433969 1999 <i>TD</i> ₇₃	15.9	X	254.67214	312.12900	345.02209	9.63576	0.1360871	0.17128602	3.2111069	20	3 5.0	20.7
433970 1999 <i>TS</i> ₁₁₅	17.4	X	288.72977	344.44526	0.10465	10.56631	0.2448441	0.27480203	2.3430925	20	5 20.5	20.6
433971 1999 <i>TT</i> ₁₂₉	17.4	X	88.54171	349.99501	357.55003	7.19591	0.1564879	0.29628782	2.2284019	20	—	—
433972 1999 <i>TT</i> ₁₅₃	16.5	X	325.50754	170.83500	189.84407	19.04598	0.2253792	0.23239064	2.6201347	20	8 29.9	18.9
433973 1999 <i>TQ</i> ₂₁₈	16.7	X	232.77811	314.67897	15.01321	5.66335	0.3185781	0.21856921	2.7294599	20	3 10.7	21.7
433974 1999 <i>TX</i> ₂₆₁	17.6	X	304.86782	104.41487	244.54004	3.62126	0.1661920	0.22794342	2.6541045	20	7 8.3	20.6
433975 1999 <i>TZ</i> ₃₁₇	17.0	X	219.69793	323.06696	23.70565	12.39744	0.0771708	0.21703405	2.7423158	20	3 31.9	21.1
433976 1999 <i>UV</i> ₁₄	16.9	X	255.52432	205.78588	207.03466	13.83120	0.2525097	0.22652480	2.6651739	20	7 10.5	21.1
433977 1999 <i>UU</i> ₄₉	16.6	X	283.90537	310.67575	51.93989	16.12469	0.2665630	0.22657055	2.6648151	20	6 6.1	20.3
433978 1999 <i>VS</i> ₄₁	16.5	X	319.30368	308.68915	36.02017	13.57332	0.1883911	0.23027216	2.6361802	20	8 2.9	19.4
433979 1999 <i>VM</i> ₆₄	16.8	X	350.41959	284.59562	60.35395	5.88020	0.2774548	0.23354685	2.6114801	20	10 22.1	18.6
433980 1999 <i>VN</i> ₈₈	16.9	X	338.51627	290.61237	51.51553	5.43586	0.2414310	0.23174637	2.6249886	20	9 10.8	18.8
433981 1999 <i>VP</i> ₁₄₁	16.9	X	272.27890	314.54854	38.93075	6.38784	0.0289914	0.22127230	2.7071855	20	6 16.8	20.6
433982 1999 <i>VN</i> ₁₅₅	16.8	X	351.30979	281.13819	51.82726	6.57522	0.2649861	0.23196367	2.6233490	20	10 3.7	18.7
433983 1999 <i>VB</i> ₁₆₁	16.9	X	28.80319	299.75879	50.33436	6.06900	0.2812992	0.23851162	2.5751133	20	—	—
433984 1999 <i>VK</i> ₂₀₆	16.5	X	229.87636	329.33059	48.30511	14.42712	0.0953923	0.21923497	2.7239314	20	5 17.0	20.5
433985 1999 <i>XT</i> ₁₃₉	17.1	X	10.61271	272.03495	68.41989	5.48946	0.2924936	0.23508152	2.6001020	20	11 28.2	19.7
433986 1999 <i>XB</i> ₂₃₆	18.5	X	249.47459	338.77774	58.07852	12.33590	0.2000661	0.41626427	1.7764649	20	6 27.8	20.3
433987 1999 <i>XR</i> ₂₅₂	16.6	X	338.02983	272.23981	74.91081	12.21078	0.1460784	0.22937082	2.6430818	20	9 20.7	19.6
433988 1999 <i>YK</i> ₂₃	18.4	X	338.87453	210.86776	193.17608	2.19315	0.1703234	0.28388930	2.2928204	20	12 29.1	20.3
433989 2000 <i>AZ</i> ₂₁₃	13.8	X	292.42124	128.52279	303.89035	13.57428	0.0758261	0.08175447	5.2576909	20	9 23.4	20.8
433990 2000 <i>EX</i> ₁₈₈	17.7	X	96.67168	83.34061	151.81566	5.52994	0.1824042	0.26363697	2.4087876	20	10 16.1	21.4
433991 2000 <i>GR</i> ₉₇	16.9	X	79.61648	169.72618	27.13493	11.76071	0.1921881	0.25555139	2.4593323			

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>		
434001	2000	<i>SQ</i> ₂₉₆	15.5	X	194.64857	148.78927	218.55002	11.02617	0.1546295	0.17783932	3.1317291	20	3 28.5	20.7
434002	2000	<i>SM</i> ₃₂₀	16.8	X	205.34387	49.33900	34.52270	17.52820	0.1552053	0.23482704	2.6019802	20	7 15.6	21.2
434003	2000	<i>SP</i> ₃₇₂	18.4	X	59.03020	254.75095	126.43616	5.79246	0.1138665	0.31115626	2.1568355	20	—	—
434004	2000	<i>SM</i> ₃₇₄	16.3	X	268.48010	260.43096	51.00399	11.50527	0.0687340	0.18138511	3.0907815	20	4 16.5	20.7
434005	2000	<i>TD</i> ₃₃	15.1	X	316.83996	94.79292	260.80155	19.78456	0.3086350	0.19171819	2.9787028	20	7 11.2	18.2
434006	2000	<i>UJ</i> ₅₁	16.6	X	265.89328	346.95544	63.95603	8.34880	0.2025354	0.23886145	2.5725985	20	8 2.8	20.1
434007	2000	<i>VH</i> ₆₁	18.4	X	68.74587	252.94395	207.50822	9.32637	0.5411768	0.21559966	2.7544655	20	5 8.2	22.3
434008	2000	<i>WY</i> ₂	17.0	X	57.87099	192.40303	267.82735	20.56288	0.0578330	0.36628155	1.9346607	20	1 3.9	18.5
434009	2000	<i>WB</i> ₁₃₂	15.0	X	185.79764	178.73719	216.58023	10.04654	0.2324853	0.12554891	3.9499726	20	4 26.3	21.5
434010	2000	<i>XB</i> ₁₄	17.5	X	344.31057	283.39184	83.71173	2.94389	0.2047293	0.24372893	2.5382321	20	11 4.4	19.6
434011	2000	<i>YU</i> ₁₄₀	16.4	X	6.23236	300.68116	358.51059	12.56089	0.2549945	0.22912876	2.6449430	20	9 12.9	18.6
434012	2001	<i>FE</i> ₁₂₀	17.9	X	93.20122	240.45699	23.86872	3.87273	0.1994745	0.27773081	2.3265908	20	11 18.8	21.5
434013	2001	<i>PF</i> ₂₀	18.1	X	56.89031	298.08993	43.59952	3.18340	0.3024805	0.27212868	2.3584129	20	—	—
434014	2001	<i>QV</i> ₁₀₅	16.9	X	203.24973	97.11895	259.40688	15.23336	0.2505033	0.24202461	2.5501342	20	3 13.2	21.7
434015	2001	<i>QK</i> ₁₆₇	17.2	X	65.13647	242.43243	83.88163	7.79160	0.1369204	0.27174059	2.3606578	20	—	—
434016	2001	<i>QC</i> ₂₆₂	17.6	X	50.27639	141.96443	175.78547	12.20359	0.2625000	0.26833726	2.3805760	20	12 31.5	21.5
434017	2001	<i>QJ</i> ₃₂₉	17.7	X	34.28990	71.05997	283.34413	1.77862	0.2036398	0.26889540	2.3772807	20	12 30.1	20.8
434018	2001	<i>QP</i> ₃₃₀	18.1	X	27.82686	71.46451	277.95868	1.36562	0.2454007	0.26821308	2.3813108	20	—	—
434019	2001	<i>RG</i> ₉	17.8	X	215.94457	106.25032	231.31412	13.75804	0.2792528	0.34616238	2.0088591	20	2 23.6	21.5
434020	2001	<i>RG</i> ₁₄₂	18.0	X	199.26301	329.96250	356.19109	21.01121	0.0882870	0.39277240	1.8466110	20	1 28.9	20.5
434021	2001	<i>SY</i> ₃	16.8	X	150.43251	318.89693	17.87813	14.47225	0.2767782	0.22986222	2.6393136	20	1 25.2	21.5
434022	2001	<i>SK</i> ₈	17.7	X	14.61851	136.77304	191.53816	6.72608	0.1145009	0.26084818	2.4259258	20	10 27.4	20.4
434023	2001	<i>ST</i> ₅₃	16.0	X	160.53630	354.20098	26.67233	18.26181	0.2092568	0.18241742	3.0791098	20	3 24.6	21.3
434024	2001	<i>SL</i> ₇₆	17.6	X	331.65783	195.67115	193.87880	6.74624	0.2006426	0.26368869	2.4084727	20	11 18.0	19.4
434025	2001	<i>SQ</i> ₁₄₂	17.1	X	16.43637	18.06524	310.18736	4.25555	0.1157639	0.26249821	2.4157490	20	10 27.5	20.0
434026	2001	<i>SJ</i> ₁₄₃	17.6	X	61.04237	6.30511	310.96586	2.75850	0.2076858	0.26860132	2.3790156	20	12 24.4	21.2
434027	2001	<i>SB</i> ₁₄₄	16.3	X	207.14124	198.12705	187.25778	11.79438	0.1757539	0.19149342	2.9810331	20	5 2.7	21.3
434028	2001	<i>SG</i> ₁₈₂	17.3	X	186.68878	308.66250	16.67417	1.42840	0.1707024	0.23647178	2.5899010	20	1 30.5	21.6
434029	2001	<i>SH</i> ₁₈₂	17.8	X	70.98266	283.55682	24.40715	2.68495	0.2453683	0.27091360	2.3654595	20	12 25.6	21.7
434030	2001	<i>SF</i> ₁₈₃	18.0	X	106.32996	146.16356	153.97792	5.01500	0.2432585	0.27511137	2.3413357	20	—	—
434031	2001	<i>SW</i> ₁₉₇	18.2	X	78.40587	130.40411	165.00784	4.87657	0.2259510	0.26928459	2.3749896	20	12 15.3	22.1
434032	2001	<i>SS</i> ₂₀₈	15.7	X	345.25318	226.99938	11.94276	11.67052	0.0264921	0.19137811	2.9822305	20	4 23.7	19.7
434033	2001	<i>SD</i> ₂₂₂	16.2	X	209.08694	237.87366	132.73894	3.46605	0.1129112	0.18965967	3.0002173	20	4 18.7	20.9
434034	2001	<i>SS</i> ₂₂₂	16.4	X	248.93924	140.23650	181.66422	14.52870	0.1685309	0.19034536	2.9930078	20	3 24.4	21.0
434035	2001	<i>SE</i> ₂₂₈	17.3	X	320.16767	184.05907	183.47786	7.01672	0.1026531	0.25727197	2.4483551	20	9 14.3	19.8
434036	2001	<i>SM</i> ₂₃₆	17.9	X	163.67981	208.48016	179.45356	3.95669	0.1582993	0.23759733	2.5817153	20	3 24.4	21.8
434037	2001	<i>SL</i> ₂₄₈	16.2	X	168.26650	176.76232	193.74315	20.04343	0.2110639	0.18235142	3.0798527	20	3 11.3	21.6
434038	2001	<i>SG</i> ₂₄₉	16.4	X	220.39010	169.46184	188.34128	5.35680	0.1915585	0.18860766	3.0113634	20	4 9.2	21.5
434039	2001	<i>SO</i> ₂₈₄	16.5	X	149.80616	343.21673	354.63570	13.33473	0.1187859	0.17783639	3.1317636	20	1 17.8	21.5
434040	2001	<i>SL</i> ₃₀₉	18.0	X	65.18968	306.78014	348.85311	1.15744	0.1810288	0.26641809	2.3919948	20	11 28.2	21.3
434041	2001	<i>SB</i> ₃₂₉	17.7	X	27.25950	343.00112	347.52034	2.20489	0.2047437	0.26617216	2.3934680	20	12 2.4	20.6
434042	2001	<i>TL</i> ₂₅	15.9	X	108.11474	166.42051	241.35477	8.79971	0.2141606	0.17712084	3.1401926	20	2 29.3	20.8
434043	2001	<i>TC</i> ₂₅	17.3	X	299.41586	142.07019	233.62018	1.72415	0.1963652	0.25521113	2.4615178	20	8 5.2	19.7
434044	2001	<i>TC</i> ₉₃	17.1	X	254.39100	81.49379	352.00167	7.85618	0.2100012	0.25379273	2.4706806	20	8 18.6	20.5
434045	2001	<i>TJ</i> ₁₅₈	17.3	X	23.81365	132.31629	198.46220	9.20268	0.2321602	0.26392747	2.4070198	20	12 3.2	20.3
434046	2001	<i>TJ</i> ₁₈₃	17.1	X	201.42721	83.48985	351.30160	4.23944	0.2519002	0.24457092	2.5324031	20	6 23.0	21.5
434047	2001	<i>TT</i> ₂₁₂	17.5	X	39.84571	81.54895	263.32937	7.37383	0.1971101	0.26728220	2.3868366	20	—	—
434048	2001	<i>TV</i> ₂₃₄	16.3	X	147.53059	20.82251	27.49270	5.56178	0.1445144	0.18269052	3.0760404	20	4 5.7	21.1
434049	2001	<i>TK</i> ₂₄₁	16.2	X	96.17858	28.55610	42.84559	23.02627	0.1242745	0.176377742	3.1490101	20	3 20.2	21.0
434050	2001	<i>TU</i> ₂₅₇	17.6	X	73.06220	216.35236	83.98938	5.51698	0.1950306	0.26717061	2.3875012	20	12 13.5	21.2
434051	2001	<i>UV</i> ₁₆	19.6	X	150.44755	106.70759	37.03809	37.59644	0.1782726	0.61855441	1.3642191	20	10 9.9	21.2
434052	2001	<i>UP</i> ₁₇	17.3	X	66.76682	83.57590	223.31987	12.08762	0.4401092	0.26761946	2.3848309	20	12 31.7	22.0
434053	2001	<i>UP</i> ₂₇	20.5	X	101.08912	343.47060	47.82780	25.82006	0.1277630	0.54460064	1.4850826	20	—	—
434054	2001	<i>UR</i> ₄₃	17.5	X	286.31239	24.29366	33.17820	3.97029	0.1496235	0.25746670	2.4471204	20	9 23.9	20.0
434055	2001	<i>UY</i> ₅₂	15.8	X	141.11029	326.22629	62.05873	18.30446	0.2489018	0.17879134	3.1206020	20	3 24.6	21.3
434056	2001	<i>UK</i> ₆₇	16.9	X	254.10369	153.83758	195.08449	9.23299	0.1293363	0.19207166	2.9750472	20	5 6.8	21.3
434057	2001	<i>UN</i> ₁₄₄	16.9	X	322.84408	290.55889	51.44489	14.99885	0.1555555	0.25284677	2.4768390	20	8 15.2	19.6
434058	2001	<i>UE</i> ₁₅₆	16.2	X	89.72127	32.26836	49.36556	27.3081	0.2050151	0.17538816	3.1608402	20	4 6.6	21.1
434059	2001	<i>UA</i> ₂₂₁	16.2	X	208.85072	153.27640	237.59390	10.42857	0.1276224	0.18764542	3.0216494	20	5 10.8	21.1
434060	2001	<i>UB</i> ₂₂₄	18.0	X	43.63786	258.99212	74.98041	2.23487	0.1941579	0.26512820	2.3997469	20	12 25.2	21.4
434061	2001	<i>UY</i> ₂₂₄	17.1	X	34.55801	258.20267	56.42700	5.34807	0.0820984	0.25977382	2.4326099	20	11 1.5	20.0
434062	2001	<i>VR</i> ₂	18.3	X	357.38691	24.12188	227.77039	21.02910	0.0054277	0.40168511	1.8191935	20	5 29.9	19.8
434063	2001	<i>VC</i> ₆₅	17.1	X	327.80239	2.54292	21.89342	5.57561	0.1868491	0.25777917	2.4451424	20	10 26.1	19.0
434064	2001	<i>VX</i> ₇₁	16.3	X	313.72924	268.84641	69.75426	13.14694	0.1479605	0.19679364	2.9272648	20	7 10.6	19.9
434065	2001	<i>WJ</i> ₃₀	15.9	X	110.78071	1.26301	60.79862	11.39928	0.0774386	0.17687510	3.1431004	20	3 13.0	20.6
434066	2001	<i>WO</i> ₅₁	17.5	X	357.86831	315.20783	34.82394	1.87917	0.2044160	0.26017195	2.4301275	20	11 11.3	19.6
434067	2001	<i>WV</i> ₅₂	16.3	X	216.66744	131.48068	230.47511	10.43078	0.1320357	0.18678182	3.0309562	20	4 11.5	21.1
434068	2001	<i>WF</i> ₆₉	15.6	X	104.59325	212.46174</								

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>
434081 2002 AQ ₁₅₈	17.0	X	115.64601	33.42838	158.55320	5.80293	0.2061732	0.23829404	2.5766806	20	9 6.6	21.2
434082 2002 BP ₂₀	17.7	X	37.92411	134.22583	330.37501	19.82345	0.0802605	0.37903023	1.8909795	20	—	—
434083 2002 CK	16.5	X	139.49124	131.49608	8.27556	12.10082	0.1171134	0.23576843	2.5950493	20	7 22.9	20.6
434084 2002 CA ₁₉	17.1	X	123.95518	297.28406	211.99476	28.97928	0.3585436	0.23745579	2.5827411	20	7 23.1	22.5
434085 2002 CD ₂₉	16.7	X	182.24633	92.75810	41.35670	4.81725	0.0654063	0.24273244	2.5451741	20	8 30.8	20.3
434086 2002 CC ₅₉	15.7	X	68.63687	337.66648	166.10735	35.81778	0.2701662	0.22628473	2.6670586	20	5 27.9	20.0
434087 2002 CV ₆₉	17.1	X	238.81043	316.81644	130.58680	4.86802	0.2073643	0.24609893	2.5219099	20	8 16.9	20.8
434088 2002 CV ₇₂	16.4	X	169.91951	5.58979	138.66617	12.40437	0.0888945	0.24129250	2.5552898	20	8 27.8	20.2
434089 2002 CO ₁₆₂	16.7	X	196.74673	340.45508	132.17787	29.39932	0.1128656	0.24144589	2.5542075	20	8 13.8	20.5
434090 2002 CF ₂₁₇	16.5	X	82.77766	61.88208	145.23909	13.14818	0.1798082	0.23298744	2.6156585	20	8 20.9	20.1
434091 2002 CJ ₂₅₈	17.8	X	137.05392	349.95679	166.43115	0.91171	0.0995170	0.23818363	2.5774769	20	8 6.2	21.6
434092 2002 EE ₉	16.5	X	91.05791	222.25165	331.87034	12.85336	0.1923847	0.23269764	2.6178298	20	8 15.7	20.4
434093 2002 EP ₃₇	17.5	X	138.90156	39.63809	117.64487	3.43526	0.1270053	0.23539766	2.5977736	20	8 11.2	21.3
434094 2002 EP ₅₇	16.9	X	84.47408	24.63024	180.58956	6.16306	0.2026073	0.23371987	2.6101911	20	8 21.7	20.7
434095 2002 FB ₂₅	16.7	X	133.71668	87.66518	83.48940	13.11937	0.1302678	0.23732352	2.5837007	20	8 29.3	20.9
434096 2002 GO ₅	18.1	X	0.46722	65.33115	22.64949	13.77190	0.7679121	0.37769786	1.8954240	20	—	—
434097 2002 GQ ₃₃	16.2	X	111.97575	162.43307	6.88299	34.13236	0.1771201	0.23303755	2.6152835	20	8 23.1	20.9
434098 2002 GC ₇₁	17.0	X	60.57789	160.04585	19.10861	5.48465	0.1364333	0.22437678	2.6821564	20	6 5.7	20.3
434099 2002 GK ₈₉	18.5	X	88.00768	280.05079	201.65287	21.38800	0.0612892	0.38270075	1.8788690	20	4 3.1	19.8
434100 2002 GQ ₁₁₉	17.4	X	78.31556	70.06261	146.82508	7.93584	0.1902859	0.23073118	2.6326827	20	8 30.2	21.0
434101 2002 JB ₁₄	17.6	X	138.06191	72.52892	225.83336	7.05843	0.1873340	0.30242281	2.1981619	20	—	—
434102 2002 JY ₁₀₀	17.7	X	301.69661	146.52239	80.90192	27.42838	0.0719645	0.37340972	1.9099074	20	1 7.9	19.9
434103 2002 JY ₁₁₇	17.2	X	40.14583	107.29393	105.87411	13.90752	0.2933268	0.22268822	2.6956979	20	7 18.9	20.1
434104 2002 LM ₅	16.5	X	19.25459	252.97251	61.66416	12.87233	0.2859600	0.22864269	2.6486902	20	11 6.4	19.5
434105 2002 NZ ₁	17.7	X	259.20800	206.89460	124.43710	24.55003	0.4089911	0.38406321	1.8744229	20	5 3.5	20.4
434106 2002 NU ₅₇	17.4	X	341.53593	56.98462	257.45706	7.12656	0.2064234	0.21820587	2.7324890	20	7 26.1	19.9
434107 2002 NK ₆₃	17.1	X	325.69624	235.40627	78.80684	2.90245	0.2452749	0.21713139	2.7414962	20	6 14.8	19.6
434108 2002 NN ₆₅	18.0	X	83.57135	316.15385	160.80199	4.66046	0.1600075	0.29211364	2.2495803	20	—	—
434109 2002 OW ₁₃	17.1	X	9.23123	150.94124	158.75528	13.87435	0.2634915	0.22261619	2.6962794	20	10 7.5	19.7
434110 2002 OX ₂₂	15.9	X	328.26591	113.93707	230.22421	29.48780	0.4048330	0.21846809	2.7303021	20	7 2.5	18.5
434111 2002 OJ ₃₃	18.9	X	159.26994	220.51143	49.77038	1.16715	0.2110019	0.29692532	2.2252112	20	—	—
434112 2002 PQ ₅	16.7	X	303.58909	98.08620	241.77120	6.58332	0.2397195	0.21426452	2.7658961	20	6 10.4	19.8
434113 2002 PV ₆₈	17.6	X	204.54027	339.07781	265.89730	8.39557	0.3238497	0.30014722	2.2092583	20	—	—
434114 2002 PA ₁₀₃	16.7	X	357.05311	0.75691	287.56756	16.37869	0.2517839	0.21846279	2.7303463	20	7 24.9	18.8
434115 2002 PW ₁₀₄	16.8	X	305.50081	151.66329	193.76641	9.13650	0.2199288	0.21489783	2.7604594	20	6 24.6	20.1
434116 2002 PZ ₁₃₈	16.9	X	328.22198	221.27716	136.83017	4.84027	0.3260876	0.21811563	2.7332427	20	8 24.8	18.4
434117 2002 PL ₁₄₀	16.6	X	346.04603	305.21154	10.64899	12.55529	0.3848268	0.21811717	2.7322298	20	8 23.9	17.7
434118 2002 PD ₁₆₆	18.9	X	137.91765	290.33001	19.49927	1.41097	0.2187756	0.29654551	2.2721108	20	—	—
434119 2002 PA ₁₇₃	15.4	X	56.98695	346.18197	21.48710	3.96443	0.1929026	0.12442721	3.9736762	20	—	—
434120 2002 PS ₁₈₁	17.3	X	339.54816	71.62870	230.69914	8.90583	0.1561293	0.21508471	2.7588602	20	7 5.4	20.3
434121 2002 PK ₁₉₀	17.6	X	3.81909	170.12599	98.87392	3.98497	0.1429221	0.21514134	2.7583760	20	7 6.7	20.5
434122 2002 QT ₆	16.7	X	50.64937	5.09444	335.06594	24.21372	0.1586588	0.28473832	2.2882603	20	—	—
434123 2002 QB ₃₉	18.2	X	17.47351	200.34693	155.36069	2.68164	0.2112380	0.28104311	2.3082743	20	12 28.4	20.8
434124 2002 QD ₅₂	17.2	X	304.96705	348.01935	0.26278	4.93749	0.2827715	0.21471978	2.7619852	20	6 16.9	20.4
434125 2002 QA ₅₃	17.9	X	102.68667	316.94185	349.31436	4.75873	0.1591219	0.29016371	2.2596473	20	—	—
434126 2002 QP ₅₆	18.0	X	184.30677	115.83910	156.27068	23.58793	0.0563209	0.35287965	1.9832843	20	—	—
434127 2002 QF ₅₇	17.4	X	89.73863	303.63910	3.41782	6.25880	0.1304052	0.28801452	2.2708745	20	—	—
434128 2002 QR ₆₀	17.7	X	143.09728	12.41632	268.31282	7.46801	0.1388955	0.29322729	2.2438808	20	—	—
434129 2002 QX ₆₂	16.8	X	322.56095	343.63561	315.41367	2.29902	0.2155873	0.21329407	2.7742794	20	5 20.2	19.9
434130 2002 QS ₈₁	17.3	X	304.12674	223.08246	111.29743	5.33216	0.1940810	0.21299647	2.7768629	20	6 11.6	20.5
434131 2002 QK ₉₀	16.8	X	294.95233	317.78531	9.70554	9.57592	0.2259311	0.21124215	2.7922159	20	5 10.4	20.7
434132 2002 PK ₉₅	17.2	X	308.61486	234.72358	85.23961	3.22032	0.2311069	0.21331423	2.7741046	20	5 23.5	20.3
434133 2002 QV ₁₀₂	17.0	X	300.76110	138.86623	181.14668	13.39347	0.2044007	0.21057145	2.7981418	20	5 17.7	20.7
434134 2002 QJ ₁₁₁	16.9	X	279.77702	220.78577	155.65268	8.55558	0.2341625	0.21468441	2.7622885	20	6 26.3	20.8
434135 2002 QN ₁₂₄	17.5	X	266.36411	177.40700	182.54902	4.46987	0.1763657	0.21182781	2.7870669	20	5 27.9	21.6
434136 2002 QO ₁₃₁	18.1	X	141.73569	291.58205	351.69643	5.70107	0.1813780	0.29410538	2.2394123	20	—	—
434137 2002 QL ₁₃₂	18.1	X	48.53482	196.53051	176.89220	5.96143	0.1830139	0.28965805	2.2622763	20	—	—
434138 2002 RW ₁	17.2	X	315.94181	203.64228	159.63940	11.88048	0.3303096	0.21643660	2.7473600	20	7 22.7	19.6
434139 2002 RK ₇	18.0	X	33.51934	25.13328	351.25172	9.27424	0.1857333	0.28656586	2.2785213	20	—	—
434140 2002 RJ ₃₇	17.7	X	80.31290	327.32333	3.79561	3.35043	0.2484923	0.28993860	2.2608167	20	—	—
434141 2002 RX ₅₄	17.5	X	9.65370	97.74361	224.01908	4.58475	0.3630342	0.22206933	2.7007040	20	11 9.5	20.0
434142 2002 RA ₇₆	18.3	X	72.90006	22.02199	324.41318	0.42727	0.1515816	0.28928531	2.2642192	20	—	—
434143 2002 RO ₈₃	17.9	X	52.54053	193.05716	160.61364	3.41534	0.2115028	0.28606456	2.2811824	20	—	—
434144 2002 RL ₉₈	16.2	X	250.61975	198.46006	178.27352	13.33708	0.2551781	0.20665271	2.8334050	20	5 24.9	20.9
434145 2002 RG ₁₅₁	17.3	X	13.83109	102.66057	273.73565	5.79887	0.1523318	0.28371926	2.2937364	20	—	—
434146 2002 RH ₁₅₃	15.9	X	156.56608	170.56337	221.71314	10.52593	0.1242690	0.19542979	2.9408680	20	3 20.6	20.7
434147 2002 RH ₁₅₆	18.2	X	103.22350	23.87825	264.76503	1.85580	0.2873329	0.28843775	2.2686526	20	12 31.5	22.2
434148 2002 RK ₁₇₆	16.7	X	278.29413	191.18780	187.38818	10.12558	0.2246284	0.21244365	2.7816782	20	6 27.9	20.7
434149 2002 RA ₁₈₀	17.4	X	299.91048	142.73303	178.90539	5.91355	0.1823121	0.20905698	2.8116392	20	5 21.1	20.9
434150 2002 RU ₁₉₈	18.0	X	60.70113	168.40469	161.77445	5.47628	0.1739373	0.28524699	2.2855392	20	—	—
434151 2002 RA ₂₀₃	17.3	X	26.55674	35.76019	314.97338	6.41159	0.1439795	0.28170627	2.3046503	20	12 23.9	20.2
434152 2002 RF ₂₈₀	17.3	X	340.81918	207.54310	202.06935	5.39817	0.1747785	0.28254973	2.3000615	20	—	—
434153 2002 RN ₂₈₁	17.2	X	359.45659	42.26606	252.40346	2.41911	0.1774516	0.21768467	2.7368489	20	8 6.9	19.9
434154 2002 SL	19.8	X	174.75130	152.54445	138.99968	6.54125	0.5007958	0.				

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
434161 2002 TU ₉	16.5	X	234.49883	265.71723	107.33193	3.32462	0.1957319	0.20393286	2.8585419	20	5 9.8	21.2
434162 2002 TW ₃₇	16.3	X	229.22872	191.04188	182.78265	5.68043	0.2333999	0.20233840	2.8735395	20	5 3.7	21.1
434163 2002 TZ ₃₈	17.6	X	122.02916	325.94390	26.56164	4.57773	0.2154483	0.29435561	2.2381431	20	—	—
434164 2002 TS ₄₂	17.4	X	2.01137	173.41665	197.07769	5.95446	0.2232914	0.27810951	2.3244783	20	12 27.2	19.9
434165 2002 TP ₅₁	17.6	X	63.14395	308.45790	41.84905	7.14782	0.3482994	0.28582552	2.2824541	20	—	—
434166 2002 TT ₆₃	17.8	X	37.44338	338.08423	16.72778	4.50962	0.1420894	0.28185635	2.3038321	20	—	—
434167 2002 TQ ₆₅	15.9	X	63.15261	42.88259	46.70368	26.53720	0.4961085	0.17819550	3.1275545	20	4 19.9	20.1
434168 2002 TM ₈₀	17.0	X	45.47351	324.19916	0.52420	7.78761	0.1153337	0.27998501	2.3140862	20	12 7.1	20.1
434169 2002 TQ ₉₃	18.0	X	81.59642	216.33757	145.43884	2.62663	0.2504126	0.29124786	2.2540362	20	—	—
434170 2002 TN ₉₉	16.4	X	87.84760	151.16243	269.02377	7.31391	0.2833610	0.18643557	3.0347077	20	3 1.3	20.8
434171 2002 TN ₁₂₈	16.9	X	22.99273	142.65829	227.97456	7.93776	0.1357887	0.28287505	2.2982777	20	—	—
434172 2002 TR ₁₅₅	17.0	X	358.26671	160.12740	227.74410	8.50445	0.1267451	0.28239043	2.3009264	20	12 30.6	19.6
434173 2002 TP ₁₇₀	16.5	X	333.81058	22.70595	306.93855	9.56432	0.2349699	0.21506389	2.7590382	20	7 31.1	18.5
434174 2002 TQ ₃₃₉	16.7	X	239.43327	303.58581	60.84431	6.93945	0.0680570	0.20334889	2.8640121	20	5 15.4	20.8
434175 2002 TF ₃₆₃	18.1	X	56.90442	285.22413	40.87887	6.94932	0.1506629	0.28259600	2.2998104	20	12 28.5	21.3
434176 2002 UA	17.7	X	120.74531	292.74983	53.42085	22.51281	0.3373193	0.29529857	2.2333759	20	1 1.2	20.9
434177 2002 UP ₂₁	17.1	X	142.58371	266.95023	67.81487	3.68364	0.2535473	0.29634059	2.2281374	20	—	—
434178 2002 US ₂₇	18.1	X	25.20461	167.50090	199.96929	2.30272	0.2248376	0.28126973	2.3070343	20	—	—
434179 2002 UB ₇₄	17.8	X	54.24570	138.85276	223.04134	1.98600	0.1590710	0.28475958	2.2881465	20	—	—
434180 2002 UB ₇₇	17.6	X	92.41526	147.35943	178.12275	3.79302	0.2050148	0.28594083	2.2818404	20	—	—
434181 2002 VY ₁₀₄	17.6	X	83.66041	193.98142	247.46981	18.55943	0.0946922	0.35345020	1.9811494	20	1 22.4	19.7
434182 2002 WU ₂₆	15.2	X	106.72865	139.83549	217.21485	2.02788	0.2504986	0.12406072	3.9814980	20	1 15.1	21.0
434183 2002 XL ₉	17.0	X	291.68310	4.79078	66.95565	11.38017	0.1102262	0.27170093	2.3608875	20	11 4.3	19.4
434184 2002 XX ₉	16.5	X	6.59997	311.76730	85.39493	11.06835	0.2245565	0.27772503	2.3266231	20	—	—
434185 2002 XE ₆₁	16.1	X	114.23506	271.70449	76.52831	20.41515	0.1534600	0.18679854	3.0307752	20	4 17.4	21.0
434186 2002 XH ₈₃	16.3	X	31.01315	253.21284	242.72407	19.33038	0.3791280	0.17791804	3.1308053	20	3 5.7	19.1
434187 2003 AN ₂	17.7	X	282.80876	224.18487	124.38831	26.65429	0.0935979	0.42191280	1.7605739	20	6 25.8	19.3
434188 2003 AD ₂₃	18.8	X	125.12808	241.60310	101.53135	23.34639	0.7627374	0.46694942	1.6454682	20	2 7.0	21.3
434189 2003 AT ₂₅	15.7	X	140.48041	139.05811	289.56576	8.88430	0.2500126	0.18901867	3.0069965	20	4 26.7	21.0
434190 2003 AN ₈₇	15.7	X	58.32071	188.89918	276.52712	16.41534	0.1847446	0.17779191	3.1324353	20	2 25.9	19.8
434191 2003 BT ₄₆	16.1	X	55.58244	3.49362	123.71397	17.39449	0.2197329	0.17852104	3.1237512	20	4 11.8	20.2
434192 2003 CQ ₁	15.5	X	58.11737	316.52780	130.18954	28.75082	0.2143756	0.17413232	3.1760192	20	2 16.4	19.3
434193 2003 DY ₈	16.0	X	87.53068	337.95588	132.40250	20.45982	0.1448279	0.18030281	3.1031378	20	4 24.4	20.8
434194 2003 FK ₁₂₇	7.0	X	349.52350	119.11893	84.37996	2.27144	0.0485079	0.00354979	42.5599201	20	4 2.2	23.0
434195 2003 GV ₂₄	17.6	X	95.91667	91.00594	106.07378	5.05661	0.1212085	0.24475145	2.5311577	20	8 17.7	21.2
434196 2003 HG ₂	21.3	X	345.10978	225.39525	214.25489	19.77802	0.1346095	0.90031684	1.0621988	20	—	—
434197 2003 HH ₄₉	18.2	X	157.23507	148.73804	173.11627	3.47872	0.2442745	0.32550432	2.0929790	20	—	—
434198 2003 NN ₅	18.3	X	171.52558	45.29555	270.57055	2.20587	0.2013865	0.32073698	2.1136676	20	—	—
434199 2003 OW	16.2	X	354.37251	55.65616	264.98536	23.31917	0.2483070	0.23332190	2.6131583	20	8 29.6	19.1
434200 2003 PR	17.1	X	24.72391	2.60620	319.56253	5.62854	0.3107317	0.23809850	2.5780912	20	11 26.9	20.5
434201 2003 QH ₁₀	17.0	X	40.44441	146.19680	148.56582	14.20708	0.2900915	0.23863323	2.5742384	20	11 13.7	20.8
434202 2003 QO ₅₆	17.8	X	19.93316	309.01672	14.31293	5.39796	0.2896446	0.23692460	2.5866000	20	11 18.1	20.8
434203 2003 QA ₅₉	16.8	X	322.59057	215.70842	137.86183	8.43338	0.2606577	0.22978956	2.6398698	20	8 16.6	19.1
434204 2003 QO ₉₉	16.3	X	357.62716	43.73887	273.03349	10.12878	0.2937544	0.23306383	2.6150869	20	9 17.6	18.5
434205 2003 QK ₁₀₄	17.0	X	305.62955	291.80685	76.97356	7.92588	0.3655049	0.22867729	2.6484230	20	7 3.7	19.6
434206 2003 QZ ₁₁₄	17.0	X	347.38118	139.42898	200.05304	9.25272	0.1679713	0.23183412	2.6243262	20	9 19.9	19.5
434207 2003 SP ₁	16.7	X	253.42456	200.97292	178.52921	5.98068	0.0456748	0.22239388	2.6980759	20	6 24.5	20.4
434208 2003 SW ₁₃	18.3	X	162.21539	222.23665	107.43677	1.61162	0.2024796	0.31836447	2.1241556	20	—	—
434209 2003 SH ₁₇	17.1	X	1.16285	168.39406	170.15182	18.85745	0.2843901	0.23433923	2.6055898	20	11 10.6	19.9
434210 2003 SD ₁₈	18.3	X	98.87402	113.74799	222.75579	3.50088	0.1654916	0.31025588	2.1610063	20	—	—
434211 2003 SN ₃₇	16.3	X	241.35307	180.32893	215.90988	10.70641	0.2152307	0.22090595	2.7101777	20	6 11.5	20.6
434212 2003 SK ₄₁	17.6	X	71.19903	164.68508	194.82303	6.56124	0.2168493	0.30587792	2.1815774	20	—	—
434213 2003 SR ₅₀	17.3	X	16.04072	13.08438	285.32964	4.30380	0.2818105	0.23391151	2.6087652	20	10 4.4	20.0
434214 2003 SQ ₅₅	16.4	X	334.27923	1.93683	346.70849	13.28913	0.1850107	0.23077169	2.6323746	20	9 7.2	18.8
434215 2003 SO ₅₆	16.7	X	7.19038	256.92480	78.29917	14.11548	0.3175933	0.23545624	2.5973427	20	11 21.8	19.3
434216 2003 SJ ₆₃	17.1	X	25.07713	41.24123	263.27051	3.53686	0.2355378	0.23535525	2.5980856	20	10 21.9	20.1
434217 2003 SV ₇₀	16.6	X	38.68519	40.99699	286.22286	7.33533	0.1364127	0.23893670	2.5720583	20	11 25.6	20.1
434218 2003 SA ₇₅	17.1	X	22.02769	42.30357	254.34697	1.66590	0.1188323	0.23071808	2.6327824	20	9 16.8	20.2
434219 2003 SG ₉₃	17.1	X	346.79481	132.96691	209.97054	5.19900	0.2740822	0.23100302	2.6306169	20	10 3.8	18.9
434220 2003 SP ₉₅	16.5	X	246.95526	161.57482	233.13639	5.98118	0.1666007	0.22041150	2.7142294	20	6 20.5	20.5
434221 2003 SZ ₁₄₇	16.5	X	18.54394	239.46910	88.40977	8.82392	0.2022914	0.23737796	2.5833056	20	11 11.8	19.5
434222 2003 SB ₁₆₇	17.0	X	329.00723	56.76399	298.42121	3.69885	0.2743471	0.22921800	2.6442564	20	8 28.3	18.9
434223 2003 ST ₁₇₁	17.2	X	35.02501	336.95328	317.18635	4.11378	0.2684833	0.23608575	2.5927235	20	10 27.2	20.6
434224 2003 SA ₁₉₁	16.7	X	293.41055	185.80466	188.22676	13.02045	0.1723743	0.22594393	2.6697397	20	7 21.5	20.1
434225 2003 SQ ₂₀₁	16.9	X	313.35854	166.26109	200.32661	7.89722	0.2740448	0.22717380	2.6600955	20	8 1.5	19.4
434226 2003 SB ₂₂₆	16.9	X	298.42142	336.38673	31.72447	6.04394	0.2497216	0.22485626	2.6783422	20	7 12.2	19.9
434227 2003 SM ₂₃₅	16.8	X	10.63783	300.80741	10.33023	15.51847	0.1648778	0.23194864	2.6234623	20	9 27.3	19.6
434228 2003 SO ₂₇₂	16.8	X	356.68168	323.20463	356.00373	13.90740	0.2414288	0.23057865	2.6338436	20	9 18.4	18.6
434229 2003 SG ₂₇₃	16.9	X	2.66647	4.36694	326.58751	5.16102	0.3164854	0.23240456	2.6200301	20	10 31.6	19.2
434230 2003 SD ₂₇₈	16.5	X	266.56924	157.12921	236.85331	8.44874	0.1757682	0.22323943	2.6912587	20	7 10.4	20.2
434231 2003 SR ₂₈₀	18.1	X	56.45866	88.72626	198.78655	6.05438	0.3594233	0.23973225	2.5663649	20	11 24.9	22.3
434232 2003 SO ₂₉₅	17.5	X	344.86877	106.52591	221.58880	5.60743	0.2155393	0.22958524	2.6414359	20	8 27.6	19.8
434233 2003 ST ₂₉₆	17.7	X	200.68660	291.37498	34.67509	21.05986	0.0906997	0.37951079	1.8893828	20	2 1.4	20.6
434234 2003 SA ₃₀₄	18.5	X	114.62018	136.03565	212.17							

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>
434241 2003 UN ₆	17.9	X	206.97231	167.80219	227.10707	26.94274	0.0619958	0.39047539	1.8538458	20	5 13.4	19.5
434242 2003 UA ₂₀	18.4	X	53.54669	250.34522	221.29449	31.42409	0.1101597	0.55262776	1.4706667	20	—	—
434243 2003 UH ₂₀	17.3	X	228.05626	40.54295	26.17863	25.15636	0.2487681	0.27791736	2.3255496	20	7 9.5	21.6
434244 2003 UK ₂₂	16.7	X	286.11183	169.85417	196.00314	13.67342	0.2496932	0.22267556	2.6958000	20	6 18.0	20.5
434245 2003 UB ₃₈	16.9	X	210.93474	158.06842	244.68490	3.84475	0.1326903	0.21526767	2.7572967	20	5 27.4	21.2
434246 2003 UK ₃₈	16.1	X	272.14473	84.63586	260.75883	11.37969	0.1792648	0.21651196	2.7467225	20	5 13.4	20.0
434247 2003 UR ₄₄	16.5	X	157.32703	57.77737	26.11475	15.19078	0.1210561	0.21267429	2.7796667	20	5 22.4	21.0
434248 2003 UP ₄₇	17.7	X	33.46054	337.31350	49.00966	5.11257	0.2053504	0.30188452	2.2007742	20	—	—
434249 2003 UT ₅₃	16.3	X	310.09687	89.16066	246.46371	12.67679	0.2641848	0.22323845	2.6912666	20	6 11.4	19.0
434250 2003 US ₅₆	16.3	X	336.39090	301.60905	45.48144	13.78095	0.2214996	0.22756935	2.6570121	20	9 17.8	18.8
434251 2003 UW ₆₉	18.5	X	149.29138	127.59131	172.22790	3.69274	0.1068813	0.31052583	2.1597537	20	—	—
434252 2003 UT ₇₃	17.8	X	174.74728	144.06861	229.20927	19.90953	0.1240916	0.38194731	1.8813391	20	2 22.0	20.6
434253 2003 UZ ₇₆	16.3	X	347.14878	96.11449	239.25211	12.43365	0.2553231	0.22987085	2.6392475	20	9 13.3	18.6
434254 2003 UJ ₁₄₃	16.0	X	258.89445	145.11693	231.21466	12.19968	0.2244413	0.21841807	2.7307190	20	6 2.9	20.1
434255 2003 UZ ₁₅₄	18.3	X	344.58998	245.73215	155.81598	3.92155	0.1317647	0.29630767	2.2283023	20	—	—
434256 2003 UH ₁₅₆	16.9	X	266.22499	168.80870	183.66541	8.32800	0.2345573	0.21898514	2.7260027	20	5 11.5	21.0
434257 2003 UC ₁₆₆	16.9	X	218.51597	357.42307	37.86624	3.85740	0.1138197	0.21401727	2.6802620	20	5 26.4	21.1
434258 2003 UV ₁₇₅	16.9	X	219.13286	162.27812	210.02415	9.12635	0.2193277	0.21264941	2.7798835	20	4 23.0	21.5
434259 2003 UX ₁₉₈	16.6	X	223.90389	167.54799	226.19458	5.82561	0.1642880	0.21567161	2.7538528	20	5 27.0	21.0
434260 2003 UZ ₂₀₁	16.2	X	316.07801	144.21833	216.11895	9.88688	0.3068167	0.22607006	2.6687467	20	7 22.2	18.7
434261 2003 UD ₂₁₂	16.7	X	337.63104	133.97226	211.89508	11.28659	0.3114640	0.22870864	2.6481810	20	9 5.1	18.4
434262 2003 UV ₂₃₀	18.0	X	45.59182	126.90034	238.34222	6.40911	0.2210216	0.30004431	2.2097635	20	—	—
434263 2003 UL ₂₅₀	16.4	X	163.87175	193.77747	247.28468	8.05115	0.1378912	0.20964163	2.8064094	20	5 29.7	20.9
434264 2003 UA ₃₀₁	16.4	X	184.53364	191.38369	220.96025	12.53931	0.0832630	0.21276779	2.7788522	20	5 14.2	20.5
434265 2003 UJ ₃₅₀	17.1	X	289.57940	281.58119	52.51704	5.73834	0.1298344	0.22008139	2.7169429	20	5 29.6	20.7
434266 2003 UF ₄₀₀	16.9	X	218.25981	194.02060	209.21969	8.29688	0.1548400	0.21471908	2.7619912	20	6 3.4	21.3
434267 2003 WM ₅	16.3	X	273.23100	314.74181	41.19998	25.25121	0.1101337	0.21752713	2.7381701	20	6 2.9	20.3
434268 2003 WZ ₁₃	17.0	X	193.74507	195.73602	230.06429	10.82341	0.0647405	0.21333671	2.7739097	20	6 10.6	21.1
434269 2003 WU ₂₃	16.1	X	189.37893	14.14322	70.24052	15.21496	0.0743651	0.21400151	2.7681619	20	6 28.9	20.3
434270 2003 WQ ₂₄	17.7	X	317.37068	22.06497	250.64992	23.50937	0.0696859	0.38617584	1.8675804	20	4 5.8	20.0
434271 2003 WT ₂₆	17.9	X	291.19631	3.43581	75.50129	7.11843	0.1249789	0.28975415	2.2617761	20	11 16.7	19.9
434272 2003 WA ₃₃	16.6	X	23.91912	277.79950	39.44051	13.12453	0.2942740	0.23296323	2.6158397	20	11 15.2	19.8
434273 2003 WA ₃₆	17.9	X	221.84061	79.86950	45.01469	21.63023	0.2776983	0.28335838	2.2956835	20	9 25.3	21.8
434274 2003 WY ₇₈	17.4	X	347.40709	91.78110	261.11828	5.08544	0.2854223	0.23028080	2.6361142	20	10 22.2	19.3
434275 2003 WR ₈₀	17.9	X	130.15344	245.94849	213.58067	21.33071	0.0556608	0.38498281	1.8714368	20	5 6.3	19.5
434276 2003 WA ₉₂	17.6	X	28.27261	262.66900	136.09746	3.97119	0.1794801	0.30084507	2.2058406	20	—	—
434277 2003 WK ₁₁₅	16.1	X	101.96861	49.75635	50.65655	11.01715	0.1032552	0.20057676	2.8903403	20	4 17.3	20.2
434278 2003 WN ₁₄₄	18.2	X	349.85304	350.98058	63.78301	6.39458	0.1779672	0.29646103	2.2275338	20	—	—
434279 2003 XO ₁₅	15.7	X	43.27312	104.58211	281.77824	25.81155	0.3293680	0.23873835	2.5734827	20	—	—
434280 2003 XB ₃₂	17.1	X	332.50354	250.68331	79.34449	3.69109	0.2418054	0.22308730	2.6924820	20	7 30.2	19.1
434281 2003 XE ₃₅	16.1	X	334.20939	48.19099	292.18017	9.87293	0.2810610	0.22573253	2.6714063	20	8 14.8	18.0
434282 2003 YJ ₈	17.0	X	274.61669	310.33988	87.74199	23.59599	0.2625853	0.28051820	2.3111530	20	7 18.5	20.0
434283 2003 YD ₃₅	17.2	X	29.89906	236.03143	269.73121	17.44127	0.0700739	0.37066206	1.9193343	20	1 22.1	18.8
434284 2003 YB ₄₉	16.3	X	212.68441	330.24302	83.85081	12.81391	0.2449037	0.21169214	2.9828576	20	6 6.7	21.1
434285 2003 YV ₁₂₆	16.9	X	347.40233	346.49636	46.36501	7.59857	0.3173905	0.23195343	2.6234262	20	—	—
434286 2003 YR ₁₅₉	16.3	X	307.43248	134.02566	277.14397	24.43322	0.2088640	0.22727215	2.6593280	20	9 22.9	19.7
434287 2003 YX ₁₇₁	16.4	X	173.25330	327.84420	88.17168	17.67773	0.2205214	0.20383881	2.8594212	20	5 14.2	21.5
434288 2004 BP ₆	16.5	X	354.82648	157.56590	333.37784	15.08126	0.2012966	0.18106414	3.0944330	20	—	—
434289 2004 BQ ₁₂	18.1	X	261.48576	165.16322	294.87391	2.28959	0.1682523	0.28214127	2.3022809	20	10 13.6	20.5
434290 2004 BO ₆₈	17.4	X	187.46456	245.21388	143.50466	26.72757	0.0592003	0.37628937	1.9001509	20	4 16.2	20.2
434291 2004 BN ₇₈	17.7	X	177.30643	220.08334	330.04415	5.09008	0.1047694	0.27951564	2.3166760	20	11 5.0	21.1
434292 2004 BK ₈₅	17.6	X	278.17193	145.38770	127.57922	24.34260	0.0151194	0.37167087	1.9158597	20	2 25.9	19.6
434293 2004 BM ₁₅₄	17.0	X	40.45159	63.45808	94.36589	3.48590	0.0775519	0.19223239	2.9733886	20	4 2.9	20.7
434294 2004 CT ₂₁	18.0	X	206.59212	297.94685	200.90293	2.04716	0.1296019	0.27617773	2.3353050	20	9 30.1	21.7
434295 2004 CK ₈₃	18.1	X	245.27605	341.24853	138.24316	3.58504	0.2078916	0.28040935	2.3117510	20	10 13.1	20.8
434296 2004 DD ₃₀	17.7	X	197.27516	31.27673	143.02254	8.36566	0.1740701	0.27812533	2.3243901	20	11 4.5	21.2
434297 2004 DK ₄₆	16.5	X	332.54665	297.23906	274.25457	6.72775	0.2694486	0.18215954	3.0820152	20	2 2.0	20.1
434298 2004 EW ₁₇	17.1	X	145.15643	112.98782	125.69066	10.73968	0.2092271	0.27366171	2.3495969	20	12 3.2	21.1
434299 2004 EP ₂₉	17.2	X	358.58532	47.25415	155.33339	2.15392	0.1213681	0.18575095	3.0421598	20	3 25.9	20.7
434300 2004 EV ₄₃	17.2	X	320.85427	47.25496	15.81628	6.00783	0.1264097	0.28156474	2.3054226	20	12 16.6	19.4
434301 2004 EP ₅₃	16.9	X	24.84368	103.80423	38.04411	8.33521	0.2562148	0.18298833	3.0727021	20	2 28.2	19.8
434302 2004 EQ ₉₃	17.7	X	95.51875	304.50873	336.67081	4.56217	0.1137050	0.27473926	2.3434493	20	12 6.4	21.2
434303 2004 EU ₁₀₀	16.6	X	227.36460	148.34615	174.97218	10.78560	0.0691418	0.18468143	3.0538936	20	3 12.2	21.0
434304 2004 FC ₂₁	15.6	X	316.76548	253.70536	2.59517	26.93428	0.1588515	0.18520203	3.0481679	20	3 23.9	19.3
434305 2004 FM ₂₅	16.5	X	10.83250	332.33903	182.02209	16.76980	0.2998460	0.18133334	3.0913697	20	1 31.5	19.5
434306 2004 FO ₂₉	17.8	X	83.43963	208.77684	28.69632	5.33625	0.1788953	0.26407363	2.4061315	20	10 4.5	21.3
434307 2004 FT ₄₁	16.9	X	206.23467	109.41008	19.51308	23.86442	0.2896052	0.27312091	2.3526975	20	9 13.3	21.1
434308 2004 FW ₈₀	17.2	X	165.45513	104.35455	106.61053	6.00327	0.1979333	0.27386625	2.3484269	20	11 16.6	21.1
434309 2004 FO ₁₁₁	17.4	X	138.99179	58.23850	199.75057	9.16911	0.1921998	0.27622601	2.3350329	20	12 20.0	21.0
434310 2004 FP ₁₂₇	17.9	X	195.93570	160.39342	17.03284	1.76953	0.1315826	0.27551629	2.3390412	20	11 7.6	21.3
434311 2004 FV ₁₄₁	16.2	X	342.50288	354.32169	208.84857	13.71676	0.2246100	0.18049824	3.1008974	20	2 12.5	20.0
434312 2004 FR ₁₅₉	17.9	X	144.03865	114.08409	141.93907	5.93873	0.1316794	0.27858814	2.3218151	20	12 24.8	21.5
434313 2004 GP	19.4	X	66.90607	278.65810	115.64376	14.55180	0.4883995	1.69530066	0.696580			

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>
434321 2004 GO ₇₇	16.0	X	342.82076	46.34194	158.01858	24.06310	0.2073602	0.18008042	3.1056921	20	2 21.2	19.4
434322 2004 GT ₈₀	18.0	X	172.65358	7.46145	179.62011	6.12509	0.1408376	0.27400743	2.3476201	20	10 27.2	21.6
434323 2004 HD ₁₀	15.5	X	287.46403	27.67013	217.67092	27.56545	0.1338524	0.17357486	3.1828158	20	1 30.4	20.8
434324 2004 HN ₅₉	18.3	X	140.74244	186.77877	37.08153	1.89120	0.1360643	0.26921039	2.3754260	20	11 9.4	21.8
434325 2004 JD ₂	16.4	X	299.30091	150.48056	99.19171	32.99649	0.3699274	0.17571705	3.1568948	20	1 26.7	21.5
434326 2004 JG ₆	18.4	X	102.26702	352.99754	37.02778	18.94313	0.5311029	1.94670461	0.6352373	20	—	—
434327 2004 JA ₁₀	15.6	X	268.25312	56.35020	220.06632	26.79159	0.1922114	0.17360488	3.1824489	20	2 9.0	21.1
434328 2004 JD ₁₁	15.3	X	330.27595	137.90049	95.78247	20.77762	0.2191914	0.17882535	3.1202065	20	3 18.4	19.5
434329 2004 JM ₁₃	15.7	X	312.90695	81.33504	90.76223	29.05062	0.3325483	0.23100747	2.6305831	20	—	—
434330 2004 JM ₂₃	15.3	X	274.66600	56.47912	234.33175	26.39043	0.1485742	0.17828990	3.1264505	20	3 7.5	20.5
434331 2004 JY ₃₉	15.6	X	199.65549	244.43926	89.43644	16.33265	0.0651062	0.17366704	3.1816894	20	3 3.7	20.7
434332 2004 JJ ₅₆	16.1	X	263.05350	166.85017	136.21766	28.71045	0.1212091	0.17994973	3.1071955	20	3 27.9	21.1
434333 2004 KS ₅	15.8	X	351.19075	351.96840	216.92548	30.47079	0.2483041	0.18123505	3.0924872	20	3 2.0	19.6
434334 2004 KU ₁₈	15.7	X	329.15216	155.71461	102.46633	23.93102	0.1450955	0.18135723	3.0910981	20	4 29.9	20.0
434335 2004 LF ₉	16.2	X	279.65019	122.97511	131.38703	14.37412	0.2327970	0.17240636	3.1971807	20	1 29.1	21.2
434336 2004 LU ₂₁	15.7	X	261.13125	158.16860	222.25718	12.66315	0.1772131	0.24168677	2.5525101	20	6 16.7	19.4
434337 2004 LN ₂₆	16.0	X	252.88167	125.88345	195.23006	12.33688	0.0466910	0.17836333	3.1255923	20	4 10.3	20.6
434338 2004 LJ ₃₀	15.1	X	347.92555	4.48439	266.48331	25.76975	0.3271781	0.18157988	3.0885709	20	5 25.4	17.7
434339 2004 MQ ₈	17.4	X	74.89427	340.16705	306.88701	5.97187	0.2285157	0.26021228	2.4298764	20	11 29.6	21.3
434340 2004 PE ₂₃	17.5	X	12.37544	201.12610	141.27566	3.38254	0.1934582	0.25448098	2.4662329	20	11 23.5	20.2
434341 2004 PU ₈₀	17.2	X	75.09531	4.34273	287.17645	6.40025	0.0927187	0.25800715	2.4437019	20	11 21.6	20.6
434342 2004 QH ₁₇	15.1	X	355.12059	32.71589	268.32961	23.38003	0.2571106	0.18221658	3.0813719	20	7 27.3	18.3
434343 2004 RG	17.0	X	309.73656	49.11048	288.98414	12.77742	0.2602041	0.24129483	2.5552734	20	6 26.4	19.6
434344 2004 RV ₁₀	19.8	X	197.76965	272.44028	161.53608	36.86561	0.2856021	0.60992591	1.3770551	20	6 29.4	22.5
434345 2004 RD ₁₇	18.1	X	38.87163	35.30724	290.50916	1.59463	0.2587839	0.25534815	2.4606371	20	12 8.8	21.2
434346 2004 RU ₇₀	17.5	X	265.41676	299.03406	74.56918	2.02271	0.2025870	0.23655415	2.5892998	20	6 9.6	21.2
434347 2004 RV ₈₆	18.1	X	30.46959	148.34462	169.37493	2.98736	0.1988748	0.25305959	2.4754502	20	11 16.9	21.2
434348 2004 RE ₁₀₂	18.0	X	27.65433	38.37939	294.38365	4.18205	0.2270400	0.25415888	2.4683071	20	12 6.5	21.2
434349 2004 RG ₁₃₈	17.0	X	33.36965	112.11111	243.87533	9.87346	0.2831268	0.25765151	2.4459501	20	—	—
434350 2004 RD ₁₄₄	16.5	X	233.00030	1.19128	292.82246	14.57249	0.2585628	0.23087249	2.6316083	20	5 21.4	21.0
434351 2004 RC ₁₄₇	18.3	X	26.93394	333.33621	352.84540	2.36261	0.2479629	0.25284673	2.4768392	20	11 29.6	21.3
434352 2004 RD ₁₉₃	16.5	X	292.18729	133.98392	202.48290	31.20729	0.1854192	0.23511538	2.5998524	20	5 27.2	20.3
434353 2004 RY ₂₀₄	16.7	X	11.47078	76.92933	266.93572	13.35530	0.1382828	0.25100876	2.4889153	20	11 11.2	19.7
434354 2004 RR ₂₁₄	16.9	X	49.31206	63.14808	261.49425	8.40733	0.1878486	0.25563169	2.4588172	20	12 16.7	20.4
434355 2004 RN ₂₁₆	17.2	X	41.17178	83.76533	241.85537	9.22661	0.2356017	0.25416670	2.4682565	20	12 14.7	20.7
434356 2004 RK ₂₄₅	17.4	X	343.08477	172.52797	161.50062	9.06025	0.0464865	0.24491398	2.5300377	20	9 3.4	20.3
434357 2004 RC ₃₅₀	18.0	X	189.16290	81.08811	349.56258	1.63946	0.1185270	0.23242960	2.6198420	20	6 10.4	21.9
434358 2004 RS ₃₅₆	17.0	X	281.62158	354.39615	12.69178	8.23998	0.1575571	0.23611014	2.5925449	20	6 29.9	20.5
434359 2004 SU ₄₂	17.4	X	330.23061	85.60268	255.38946	2.59497	0.2450420	0.24397257	2.5365420	20	8 12.9	19.1
434360 2004 SK ₅₉	15.9	X	271.39052	169.02625	196.69456	31.94982	0.1550378	0.23280833	2.6169999	20	6 11.3	20.2
434361 2004 TL ₃	17.5	X	259.65437	213.74964	195.51680	11.51967	0.1808455	0.23792877	2.5793171	20	7 21.2	21.2
434362 2004 TG ₂₅	16.9	X	292.85474	166.21162	194.45229	26.71898	0.1193895	0.23850270	2.5751776	20	7 9.5	20.8
434363 2004 TL ₃₉	16.3	X	192.67839	73.44882	14.06098	22.37746	0.0442055	0.23418118	2.6067620	20	7 15.8	20.5
434364 2004 TD ₅₇	17.4	X	294.29260	169.55779	200.08229	8.09828	0.1723888	0.23980301	2.5658600	20	7 18.6	20.6
434365 2004 TG ₇₇	17.5	X	292.21609	337.93651	37.49042	0.82301	0.1215827	0.23905294	2.5712244	20	8 3.4	20.4
434366 2004 TJ ₉₂	16.9	X	259.17067	202.38634	210.26697	5.93406	0.0676604	0.23854988	2.5748380	20	8 12.4	20.3
434367 2004 TT ₉₃	16.8	X	149.19678	249.29238	205.22659	12.80120	0.0702120	0.22617291	2.6679376	20	5 29.0	20.8
434368 2004 TK ₁₁₁	16.5	X	265.53953	209.69445	207.61180	21.47217	0.0432765	0.24050898	2.5608365	20	8 28.3	20.3
434369 2004 TE ₁₄₁	17.0	X	287.17183	200.23656	191.36926	16.75382	0.1295034	0.24167907	2.5525643	20	8 12.9	20.3
434370 2004 TA ₂₁₄	16.8	X	209.51081	197.01355	220.74886	6.82311	0.2852471	0.22889685	2.6467292	20	6 6.8	21.6
434371 2004 TY ₂₃₇	17.0	X	195.04291	248.89447	197.05883	3.69768	0.0958521	0.23214295	2.6219982	20	7 7.2	21.0
434372 2004 TO ₂₅₉	16.8	X	298.19699	297.38432	26.69811	14.77257	0.1292184	0.23272962	2.6175899	20	5 25.1	20.2
434373 2004 TU ₃₁₅	17.3	X	330.24095	137.31722	201.36968	11.66483	0.0681525	0.24050501	2.5605417	20	8 15.5	20.6
434374 2004 TW ₃₂₁	17.2	X	237.04488	189.92472	235.37479	12.36305	0.1319318	0.23301774	2.6154317	20	7 20.7	21.2
434375 2004 TM ₃₂₄	16.6	X	332.65303	341.74372	352.43791	15.23651	0.1464818	0.24176047	2.5519913	20	8 20.0	19.2
434376 2004 TN ₃₂₆	16.9	X	325.16247	38.15233	286.06044	13.81031	0.1459654	0.23792680	2.5793314	20	7 13.2	19.4
434377 2004 TD ₃₄₂	16.2	X	205.08851	39.67838	36.79359	27.78280	0.1227636	0.23093754	2.6311142	20	7 4.3	20.8
434378 2004 TE ₃₅₁	16.8	X	252.48241	309.40325	48.96463	12.67962	0.0828925	0.22693054	2.6619961	20	5 19.8	20.6
434379 2004 TP ₃₆₉	16.4	X	179.26340	242.00341	224.69788	21.18868	0.0755168	0.23021107	2.6366465	20	7 12.2	20.7
434380 2004 UX ₅	17.5	X	314.07224	73.96494	34.93153	23.61037	0.2687998	0.31540512	2.1374218	20	—	—
434381 2004 VN ₁₉	16.3	X	148.26659	25.41572	48.56055	10.73760	0.2287560	0.21856636	2.7294837	20	5 10.6	21.0
434382 2004 VJ ₃₇	17.0	X	153.40877	241.72558	230.17445	5.39452	0.0227102	0.22725547	2.6594581	20	6 22.4	20.6
434383 2004 VF ₇₇	16.5	X	167.42423	66.82454	52.31223	14.76150	0.0859997	0.22965148	2.6409279	20	7 24.1	20.7
434384 2004 VE ₈₂	16.5	X	82.31048	123.44152	62.80283	14.11157	0.1959695	0.22241360	2.6979164	20	7 28.1	20.6
434385 2004 XK ₈₃	16.8	X	187.44391	25.07496	64.04000	15.33325	0.2268532	0.22486703	2.6782567	20	6 29.3	21.6
434386 2004 XX ₁₅₆	17.3	X	132.87432	59.18714	51.78539	4.13111	0.1541559	0.21753384	2.7381138	20	6 6.7	21.6
434387 2005 AY ₇₅	18.0	X	217.32420	279.52507	306.58242	2.32593	0.1117729	0.31143715	2.1555384	20	—	—
434388 2005 BH ₄₉	16.8	X	85.52939	38.58341	144.97892	6.00016	0.0791381	0.21523463	2.7575790	20	7 7.9	20.7
434389 2005 CN ₄₃	17.2	X	71.29369	69.20986	81.42076	0.55281	0.2865204	0.20675635	2.8324580	20	6 7.0	21.0
434390 2005 CH ₈₁	8.2	X	13.08421	15.42553	122.86945	5.14506	0.3145614	0.00242316	54.8968671	20	3 5.6	24.0
434391 2005 EY ₉₁	16.6	X	28.09756	204.04224	19.38515	7.46355	0.2305625	0.20405512	2.8574000	20	6 27.8	19.6
434392 2005 EM ₁₈₅	16.9	X	132.97088	326.30046	127.01508	4.87318	0.1671114	0.21155133	2.7894947	20	5 18.3	21.3
434393 2005 EB ₂₀₀	16.9	X	3.52957	173.60496	45.02980	6.80185	0.0241692	0.20494376				

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>
434401 2005 <i>GM</i> ₉₃	18.0	X	162.10232	270.90387	331.01710	3.19409	0.1360454	0.29511807	2.2342864	20	12 28.5	21.1
434402 2005 <i>GH</i> ₁₂₉	16.7	X	304.79156	205.82597	54.98916	13.13074	0.0895093	0.19304547	2.9650337	20	3 29.4	20.9
434403 2005 <i>GG</i> ₁₃₁	18.1	X	193.68549	64.20669	159.03914	2.51621	0.1079951	0.29843330	2.2177088	20	—	—
434404 2005 <i>GX</i> ₁₇₉	17.9	X	289.43483	223.87218	75.26864	22.96493	0.0786859	0.39197993	1.8490990	20	4 23.8	20.1
434405 2005 <i>JT</i> ₂₇	16.4	X	333.54493	121.26427	137.33108	16.31265	0.2538536	0.19543438	2.9408220	20	4 16.1	19.8
434406 2005 <i>JM</i> ₃₄	18.2	X	207.61233	36.42081	161.16426	5.83973	0.1509835	0.29431385	2.2383548	20	12 19.9	21.0
434407 2005 <i>JF</i> ₃₉	18.1	X	175.25975	178.98003	57.06119	2.96865	0.1853431	0.29447449	2.2375406	20	12 29.8	21.2
434408 2005 <i>JH</i> ₅₄	18.3	X	153.15550	124.58055	164.05336	5.35955	0.1328147	0.29826179	2.2185589	20	—	—
434409 2005 <i>JS</i> ₆₉	18.5	X	190.20793	221.98966	61.88410	4.20283	0.1925537	0.30569318	2.1824563	20	—	—
434410 2005 <i>JJ</i> ₈₀	16.4	X	345.20840	146.29130	122.40807	19.39337	0.2755927	0.19967022	2.8990821	20	5 25.9	19.3
434411 2005 <i>JK</i> ₁₀₃	16.6	X	296.57813	158.16789	136.40622	13.58528	0.1272460	0.19303307	2.9651607	20	4 23.9	20.8
434412 2005 <i>JT</i> ₁₃₂	18.6	X	178.84984	130.04296	117.04065	5.51733	0.1518565	0.29598428	2.2299251	20	—	—
434413 2005 <i>JB</i> ₁₄₈	15.8	X	291.76034	158.02672	86.48560	23.82231	0.1008697	0.18573581	3.0423251	20	2 21.7	20.5
434414 2005 <i>JT</i> ₁₆₁	16.8	X	274.42418	196.41405	71.54547	3.63041	0.2263392	0.18509109	3.0493858	20	2 9.9	21.7
434415 2005 <i>JM</i> ₁₇₀	16.7	X	103.50315	63.27580	33.54985	6.54164	0.1942667	0.19819048	2.9134944	20	4 24.1	20.9
434416 2005 <i>LS</i> ₆	18.3	X	161.26706	170.23959	81.41280	3.70972	0.1372697	0.29353113	2.2423321	20	—	—
434417 2005 <i>LJ</i> ₁₄	15.8	X	297.21967	173.45457	132.49368	10.69927	0.0622419	0.18965720	3.0002435	20	5 17.4	20.0
434418 2005 <i>LE</i> ₅₂	18.0	X	85.88451	207.75283	121.72396	6.22576	0.2144993	0.28404967	2.2919573	20	—	—
434419 2005 <i>MH</i> ₄	18.1	X	114.46830	214.27139	84.19988	6.81188	0.2954878	0.28852527	2.2681937	20	—	—
434420 2005 <i>MC</i> ₁₃	18.0	X	142.66801	179.86665	171.73635	5.15066	0.2536627	0.28997777	2.2660131	20	—	—
434421 2005 <i>MO</i> ₁₈	18.0	X	50.36874	94.63269	258.24017	1.12237	0.2572516	0.28009430	2.3134842	20	—	—
434422 2005 <i>MG</i> ₂₅	17.0	X	284.68280	94.81447	126.65425	1.01022	0.2438745	0.18685743	3.0301384	20	4 8.4	21.5
434423 2005 <i>MM</i> ₂₅	17.8	X	71.73193	9.51654	289.56451	1.88956	0.2024984	0.27843003	2.3226940	20	12 13.3	21.3
434424 2005 <i>MZ</i> ₂₆	17.9	X	133.82480	117.75073	154.35217	3.25615	0.1484223	0.28589654	2.2820761	20	—	—
434425 2005 <i>ML</i> ₂₉	16.3	X	241.12093	101.13156	261.81262	7.64381	0.1891412	0.18393962	3.0620987	20	5 2.0	21.2
434426 2005 <i>MA</i> ₃₉	17.7	X	127.46170	169.58989	124.46405	7.44154	0.1165951	0.28650382	2.2788502	20	—	—
434427 2005 <i>MC</i> ₄₅	17.5	X	109.37080	19.34832	254.38186	8.87713	0.1612458	0.28198463	2.3031334	20	12 14.6	21.1
434428 2005 <i>NQ</i> ₃	15.8	X	308.80172	157.00696	130.30154	16.65250	0.1314687	0.18685860	3.0330807	20	5 2.7	20.1
434429 2005 <i>NF</i> ₄	17.8	X	57.93694	113.21786	256.25214	1.53743	0.2325873	0.28359688	2.2943962	20	—	—
434430 2005 <i>NQ</i> ₆	16.3	X	254.38824	201.29118	127.99849	10.68621	0.1651158	0.18354408	3.0664964	20	4 12.6	21.2
434431 2005 <i>NC</i> ₇	16.1	X	266.66671	201.55626	164.31485	13.96020	0.5119552	0.18949943	3.0019084	20	5 3.2	21.7
434432 2005 <i>NG</i> ₇	18.9	X	226.89550	3.60017	127.77482	19.95788	0.1335750	0.47531602	1.6261019	20	12 16.3	19.8
434433 2005 <i>NO</i> ₈	16.0	X	280.43300	276.93263	304.67059	30.34640	0.1684685	0.17088720	3.2161011	20	1 5.1	21.1
434434 2005 <i>NK</i> ₁₅	18.6	X	89.03626	232.02889	100.59128	3.53400	0.2544280	0.28527561	2.2853863	20	—	—
434435 2005 <i>NF</i> ₁₇	18.2	X	68.96659	150.25484	132.14741	2.07336	0.1741640	0.27523768	2.3406194	20	11 17.1	21.4
434436 2005 <i>NX</i> ₂₃	16.4	X	220.98004	255.82499	141.71356	15.87815	0.3201998	0.18312581	3.0711640	20	5 24.1	22.2
434437 2005 <i>NV</i> ₃₃	15.4	X	73.85179	8.47051	112.77258	19.01411	0.0931550	0.18037130	3.1023522	20	4 25.8	20.0
434438 2005 <i>NJ</i> ₃₅	16.2	X	338.13895	124.47261	126.19747	13.54920	0.0579175	0.18424453	3.0587195	20	4 23.5	20.5
434439 2005 <i>NX</i> ₃₇	16.2	X	298.06520	139.21241	132.70262	17.07295	0.1197233	0.18228153	3.0806399	20	3 30.3	20.7
434440 2005 <i>NB</i> ₃₉	17.8	X	161.01476	132.99531	117.22922	10.64169	0.1639240	0.28833105	2.2692122	20	—	—
434441 2005 <i>NS</i> ₄₇	16.0	X	287.41360	355.89785	308.35376	11.52768	0.2300673	0.18635295	3.0356045	20	3 29.5	20.7
434442 2005 <i>NE</i> ₄₉	17.5	X	136.97544	213.05192	80.65052	9.02395	0.2158983	0.28978094	2.2616367	20	—	—
434443 2005 <i>NQ</i> ₆₉	15.9	X	250.99185	356.11651	296.73636	15.04391	0.1143051	0.17763198	3.1341656	20	2 21.3	20.8
434444 2005 <i>NM</i> ₇₁	16.2	X	224.91339	50.77045	290.29858	9.71100	0.0819606	0.17970389	3.1100286	20	3 25.5	21.1
434445 2005 <i>NN</i> ₇₇	18.5	X	75.48068	268.74552	65.91601	0.49212	0.2543488	0.28299303	2.2976589	20	—	—
434446 2005 <i>NC</i> ₈₄	16.4	X	223.33301	220.39005	132.28382	11.60029	0.3145157	0.17828079	3.1265570	20	4 4.5	22.2
434447 2005 <i>NA</i> ₁₂₃	16.4	X	251.01342	220.62590	119.72949	6.01419	0.1940049	0.17867489	3.1219578	20	4 18.2	21.4
434448 2005 <i>ON</i> ₂₄	17.6	X	63.92483	192.78100	156.45688	7.96091	0.1794676	0.28214667	2.3022515	20	—	—
434449 2005 <i>OD</i> ₂₉	16.5	X	261.38331	233.57322	118.74311	8.73014	0.3104697	0.18317733	3.0705881	20	5 1.3	21.6
434450 2005 <i>OM</i> ₃₁	15.9	X	243.62791	305.40985	6.02552	16.09852	0.2240854	0.17653553	3.1471296	20	3 7.8	21.2
434451 2005 <i>PV</i> ₆	18.0	X	100.11594	269.27910	61.44741	7.10777	0.2736034	0.28547307	2.2843323	20	—	—
434452 2005 <i>PQ</i> ₈	18.1	X	43.95879	261.23398	109.71674	6.55082	0.1732182	0.28083353	2.3094226	20	—	—
434453 Ayerdhal	15.9	X	252.86372	199.64201	143.21621	11.71119	0.0770085	0.18334783	3.0686842	20	5 7.1	20.6
434454 2005 <i>QU</i>	17.7	X	63.76776	184.59743	163.75523	4.94421	0.2381805	0.28124948	2.3071450	20	—	—
434455 2005 <i>QY</i> ₄	17.9	X	204.83406	252.00060	143.95774	24.24649	0.1153787	0.38258869	1.8792359	20	5 18.6	20.9
434456 2005 <i>QW</i> ₁₃	16.8	X	274.69034	84.50022	228.02301	0.36431	0.3029500	0.18226060	3.0808758	20	3 24.0	21.6
434457 2005 <i>QQ</i> ₁₇	17.8	X	73.48820	312.42966	3.81597	5.27620	0.2568853	0.27770145	2.3267548	20	—	—
434458 2005 <i>QP</i> ₂₅	15.6	X	207.10710	208.11961	169.13584	18.27140	0.2016087	0.17454177	3.1710503	20	4 24.3	21.1
434459 2005 <i>QC</i> ₂₆	17.0	X	304.11837	224.67169	102.55039	2.60055	0.1256596	0.18549143	3.0449967	20	6 11.7	20.7
434460 2005 <i>QT</i> ₃₃	17.3	X	315.41339	258.82437	154.32745	7.32326	0.1153399	0.27101117	2.3648917	20	11 19.8	19.6
434461 2005 <i>QF</i> ₃₄	18.0	X	19.27234	192.09187	173.70411	1.89737	0.1646642	0.27433680	2.3457407	20	—	—
434462 2005 <i>QN</i> ₄₀	16.2	X	251.44545	144.47215	173.37636	16.63248	0.2274755	0.17862138	3.1225814	20	3 17.9	21.3
434463 2005 <i>QO</i> ₄₀	17.4	X	22.78504	105.78293	255.02537	3.69452	0.2413823	0.27411310	2.3470168	20	—	—
434464 2005 <i>QR</i> ₄₅	18.0	X	96.64820	184.17207	149.59168	9.58052	0.2329980	0.28453663	2.2893415	20	—	—
434465 2005 <i>QW</i> ₅₅	16.4	X	243.45870	194.47140	168.07466	15.60728	0.2302076	0.18007848	3.1057143	20	5 5.3	21.7
434466 2005 <i>QO</i> ₅₇	16.7	X	273.89027	45.57690	278.33296	3.28356	0.2174505	0.18291098	3.0735683	20	4 14.2	21.3
434467 2005 <i>QO</i> ₆₇	18.7	X	113.89434	122.36116	163.40609	1.14273	0.2097274	0.28038645	2.3118769	20	—	—
434468 2005 <i>QV</i> ₇₇	17.9	X	53.88385	159.34537	170.86105	3.03438	0.2010788	0.27502920	2.3418020	20	—	—
434469 2005 <i>QY</i> ₇₇	16.3	X	253.59037	305.06358	351.20282	13.38399	0.2666785	0.17514042	3.1638202	20	2 23.4	21.6
434470 2005 <i>QF</i> ₉₂	16.2	X	220.29190	188.30585	175.05977	14.57486	0.2347958	0.17628849	3.1500691	20	4 12.6	21.6
434471 2005 <i>QW</i> ₉₂	16.1	X	261.17903	214.68246	131.12387	6.67209	0.3104457	0.18261272	3.0769140	20	4 22.7	21.2
434472 2005 <i>QA</i> ₁₀₀	17.9	X	139.51786	353.52131	254.85928	3.29761	0.2089240	0.280				

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>
434481 2005 QL ₁₈₁	17.7	X	54.09103	177.85961	175.69063	9.60983	0.1343577	0.27741314	2.3283666	20	—	—
434482 2005 RT ₁	15.4	X	272.76039	52.97547	289.03051	17.25955	0.1128189	0.18069431	3.0986538	20	5 18.8	20.1
434483 2005 RS ₆	15.9	X	247.82755	311.09164	32.99864	9.80223	0.2752257	0.17864379	3.1223201	20	4 11.4	21.0
434484 2005 RA ₁₁	17.1	X	346.14663	172.16688	203.25251	8.14836	0.2272689	0.26737199	2.3863022	20	12 3.3	19.1
434485 2005 RK ₁₉	18.1	X	109.57215	229.94273	42.84714	1.94924	0.1595839	0.27610816	2.3356973	20	12 12.4	21.7
434486 2005 RA ₃₂	16.1	X	261.23071	238.51636	132.35276	15.96307	0.3573147	0.18236542	3.0796951	20	5 20.1	21.5
434487 2005 RK ₃₈	16.3	X	322.52044	51.40368	189.96004	17.09016	0.1589394	0.17836893	3.1255269	20	3 12.7	20.3
434488 2005 SX ₁₄	18.0	X	120.55742	304.13395	341.57167	3.40690	0.1654997	0.27936270	2.3175215	20	—	—
434489 2005 SW ₁₆	17.8	X	118.85390	298.63202	341.31075	3.18486	0.2481420	0.27946951	2.3169309	20	12 30.8	21.8
434490 2005 SP ₂₃	16.0	X	260.21217	151.29736	179.92697	14.25544	0.1805432	0.18000588	3.1065493	20	4 16.8	20.8
434491 2005 SZ ₂₅	16.0	X	225.53271	121.94961	232.01262	25.78722	0.2282706	0.17301414	3.1896888	20	4 3.4	21.7
434492 2005 SD ₂₉	17.8	X	74.76332	0.50411	322.31739	3.48204	0.1380297	0.27557298	2.3387203	20	—	—
434493 2005 SO ₃₄	17.1	X	322.50238	3.64938	53.37412	6.95319	0.1024577	0.26784868	2.3834701	20	12 4.1	19.5
434494 2005 ST ₃₅	18.3	X	79.17182	190.33110	112.57164	3.07063	0.2014328	0.27385340	2.3485003	20	12 23.9	22.0
434495 2005 SV ₃₅	17.2	X	100.94240	201.89284	75.87913	3.83946	0.1370532	0.27204781	2.3588803	20	12 8.9	20.6
434496 2005 SU ₄₀	17.7	X	38.69613	337.19352	19.75860	2.82369	0.2293271	0.27453013	2.3446393	20	—	—
434497 2005 ST ₄₅	17.3	X	24.27721	313.35325	7.87530	6.99129	0.1309423	0.26518836	2.3993839	20	11 1.8	20.1
434498 2005 SE ₅₆	17.4	X	347.92905	291.87555	73.98450	2.31600	0.2005424	0.26502886	2.4003465	20	11 16.8	19.5
434499 2005 SZ ₆₈	17.9	X	353.27077	196.03268	194.43592	5.98577	0.1111988	0.27009587	2.3702314	20	12 20.9	20.5
434500 2005 SB ₇₁	21.2	X	160.82829	100.42504	200.60466	13.20886	0.2571822	0.69401217	1.2634498	20	—	—
434501 2005 SG ₇₅	17.6	X	44.37930	311.62820	7.77286	6.36673	0.1458736	0.27047131	2.3680375	20	11 30.7	20.7
434502 2005 SR ₇₇	16.1	X	241.26539	292.53033	19.50109	8.44990	0.2167038	0.17274301	3.1930255	20	3 6.3	21.4
434503 2005 SF ₇₈	18.2	X	92.11730	131.36736	169.54209	3.57867	0.2051406	0.27734377	2.3287548	20	—	—
434504 2005 SX ₈₂	17.9	X	97.19506	307.95770	357.76124	2.06619	0.2020238	0.27857647	2.3218800	20	—	—
434505 2005 SM ₈₄	17.6	X	95.09055	293.27503	80.67676	6.73921	0.1545719	0.27650990	2.3334344	20	—	—
434506 2005 SL ₈₇	17.7	X	38.20526	196.67625	161.00543	2.07950	0.1919435	0.27421633	2.3464277	20	—	—
434507 2005 SF ₉₃	17.9	X	9.60084	148.33554	212.41414	1.72840	0.2103958	0.26866915	2.3786151	20	12 20.6	20.4
434508 2005 SS ₁₀₂	18.0	X	65.28929	107.12228	223.69958	6.55891	0.1692617	0.27503252	2.3417832	20	—	—
434509 2005 SK ₁₁₆	18.0	X	107.31608	33.99619	279.04349	1.71948	0.1940715	0.28128972	2.3069250	20	—	—
434510 2005 SQ ₁₂₀	16.7	X	249.94412	116.70479	209.74562	11.90701	0.2108690	0.17605417	3.1528635	20	3 25.9	21.8
434511 2005 SW ₁₂₆	16.4	X	251.34273	284.26147	20.31239	1.17327	0.1390584	0.17163408	3.2067642	20	3 10.4	21.4
434512 2005 SM ₁₃₂	18.0	X	91.27337	301.70129	11.49966	1.30321	0.1921056	0.27626307	2.3348241	20	—	—
434513 2005 SX ₁₃₄	17.2	X	298.36129	112.18145	172.68679	16.58068	0.3443659	0.18478469	3.0527557	20	3 8.7	21.7
434514 2005 SM ₁₅₁	17.6	X	93.27539	112.58192	186.04184	6.66628	0.1016680	0.27335353	2.3513625	20	12 25.5	21.1
434515 2005 SY ₁₅₂	17.1	X	326.75652	356.85790	28.92611	15.05877	0.0969358	0.26295203	2.4129688	20	10 25.3	19.6
434516 2005 SA ₁₅₄	16.2	X	220.64440	39.22678	288.73738	2.43798	0.1651588	0.17050762	3.2208724	20	3 6.5	21.5
434517 2005 SM ₁₆₃	17.7	X	129.62795	287.98643	35.23546	4.03571	0.2158910	0.28656529	2.2785242	20	—	—
434518 2005 SD ₁₆₄	17.2	X	54.15056	206.90366	169.83613	7.59147	0.2792710	0.27864979	2.3214726	20	—	—
434519 2005 SF ₁₆₇	17.0	X	13.13148	289.52969	86.16381	9.30859	0.1882737	0.27161936	2.3613602	20	—	—
434520 2005 SJ ₁₇₄	16.4	X	286.37420	89.13892	205.85857	21.01498	0.2576533	0.17913326	3.1166299	20	3 17.2	21.3
434521 2005 SY ₁₉₉	15.9	X	253.16557	77.44195	248.30640	15.26803	0.2432738	0.17882800	3.1201756	20	3 20.9	21.4
434522 2005 SM ₂₀₀	17.6	X	33.35168	321.18666	42.17133	2.06543	0.2126836	0.27406359	2.3472994	20	—	—
434523 2005 SU ₂₁₂	16.6	X	290.90269	117.69868	206.17082	8.77275	0.3457087	0.18337400	3.0683923	20	4 17.3	21.1
434524 2005 SZ ₂₁₅	17.4	X	20.36137	87.12442	243.82153	5.42629	0.1432589	0.26686091	2.3893480	20	11 13.6	20.1
434525 2005 SJ ₂₁₉	15.2	X	253.32952	277.83952	61.04211	25.68732	0.3245554	0.17608914	3.1524461	20	4 16.4	20.9
434526 2005 SZ ₂₁₉	16.0	X	228.86399	146.62567	232.42489	27.98319	0.1827630	0.17876121	3.1209528	20	5 12.4	20.9
434527 2005 SB ₂₃₅	16.1	X	269.29435	284.56739	31.12482	16.38726	0.2352669	0.17744098	3.1364143	20	4 3.2	21.0
434528 2005 SK ₂₄₆	17.7	X	88.98788	71.70357	215.49198	5.41489	0.1910641	0.27223571	2.3577947	20	12 12.6	21.4
434529 2005 SA ₂₅₀	17.9	X	24.24793	305.41785	53.24909	2.35240	0.1957978	0.27304906	2.3531101	20	—	—
434530 2005 SM ₂₅₀	16.1	X	223.91895	210.87337	163.33541	17.87587	0.2263304	0.17828281	3.1265334	20	5 3.7	21.6
434531 2005 SA ₂₅₂	17.2	X	110.16294	287.46026	25.56219	9.13412	0.1754836	0.28329795	2.2960099	20	—	—
434532 2005 SB ₂₅₅	17.7	X	42.79950	198.19939	161.33209	6.74275	0.2075274	0.27692605	2.3310961	20	—	—
434533 2005 SH ₂₆₄	18.0	X	83.85926	273.00164	59.34692	4.35893	0.2627843	0.28035032	2.3120755	20	—	—
434534 2005 SS ₂₆₈	17.7	X	35.57213	240.52675	112.22604	3.14944	0.2286548	0.27311554	2.3527283	20	—	—
434535 2005 SV ₂₆₈	17.4	X	36.65118	297.21561	79.14238	3.88733	0.1707629	0.27833341	2.3232315	20	—	—
434536 2005 SJ ₂₇₀	17.5	X	241.15746	256.02883	219.91858	5.81840	0.0843866	0.26207297	2.4183615	20	10 16.3	20.6
434537 2005 ST ₂₈₀	17.8	X	112.95929	129.90978	230.89728	18.94626	0.0934005	0.35481976	1.9760481	20	—	—
434538 2005 SG ₂₉₁	17.9	X	167.49731	150.10616	183.79194	22.49045	0.0798752	0.36049680	1.9552476	20	—	—
434539 2005 TM ₂	18.2	X	162.73432	184.91644	190.51198	21.96764	0.0881253	0.36766886	1.9297371	20	2 12.6	20.8
434540 2005 TB ₇	15.2	X	251.06512	49.97581	260.22849	11.22036	0.0575726	0.16918012	3.2376992	20	3 19.4	20.2
434541 2005 TA ₉	16.3	X	265.27252	272.36320	30.16999	18.21820	0.2066203	0.17364676	3.1819372	20	3 21.3	21.4
434542 2005 TG ₁₈	17.7	X	97.24017	255.80512	64.40758	3.03857	0.2250284	0.28023834	2.3126914	20	—	—
434543 2005 TM ₁₉	17.9	X	207.27886	155.52598	340.37528	2.56254	0.0428534	0.26362708	2.4088479	20	10 4.9	21.1
434544 2005 TF ₂₂	17.7	X	101.48696	76.54293	182.35674	6.50786	0.0993403	0.26862500	2.3788758	20	11 14.4	21.1
434545 2005 TH ₅₉	18.2	X	106.45297	235.55789	63.49669	2.23860	0.1952998	0.27674058	2.3321375	20	—	—
434546 2005 TF ₆₃	18.0	X	107.49646	248.64103	55.40196	3.05954	0.2011715	0.27813823	2.3243182	20	—	—
434547 2005 TL ₆₅	18.6	X	83.51473	336.33666	339.75215	1.17764	0.1256548	0.27573318	2.3378144	20	—	—
434548 2005 TA ₈₅	17.8	X	92.92742	346.28821	345.38200	2.68249	0.2177511	0.28053963	2.3110352	20	—	—
434549 2005 TS ₈₉	18.0	X	107.17880	271.75258	40.20197	3.44655	0.2101722	0.28185390	2.3038455	20	—	—
434550 2005 TY ₉₄	17.0	X	208.16020	185.62939	301.29404	4.06193	0.1305741	0.25852647	2.4404282	20	9 12.0	20.5
434551 2005 TC ₉₇	18.2	X	77.28620	64.29389	245.53814	2.62907	0.1522889	0.27221973	2.3578870	20	12 26.7	21.8
434552 2005 TU ₉₈	17.0	X	14.01167	139.91982	215.26132	4.00226	0.2806934	0.27061421	2.3672038	20	12 30.7	19.8
434553 2005 TC ₁₀₀	18.2	X	121.05822	281.64988	355.79675	2.46472	0.2535992	0.27832898	2.3232562	20	12 29.2	22.2
434554 2005 TH ₁₁₆	17.5	X	108.32513	264.39194	0.96313	7.57451	0.0995771	0.27138527	2.3627129	20	11 27.2	

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>		
434561	2005	TH ₁₄₇	17.7	X	225.67564	265.28304	178.14285	9.96667	0.0850026	0.25395548	2.4696249	20	8 9.6	21.1
434562	2005	TL ₁₅₄	16.3	X	241.68136	102.92836	220.33264	12.66130	0.0787258	0.17178857	3.2048414	20	3 25.0	21.2
434563	2005	TN ₁₅₄	17.7	X	73.29940	298.06881	342.94788	7.42383	0.0150881	0.26583252	2.3955062	20	10 26.2	20.9
434564	2005	TJ ₁₅₇	18.0	X	265.96301	180.02921	221.19764	5.59009	0.0809690	0.25479616	2.4641896	20	8 5.5	21.2
434565	2005	TZ ₁₇₇	16.0	X	273.59420	144.89338	183.68330	16.10192	0.1837021	0.18233413	3.0800474	20	4 27.7	20.6
434566	2005	TU ₁₈₈	16.5	X	249.55392	234.36217	104.44572	2.26900	0.1872512	0.17508631	3.1644720	20	4 14.1	21.4
434567	2005	TZ ₁₉₁	18.1	X	175.79275	154.37838	213.27750	20.51467	0.0953787	0.36856116	1.9266212	20	2 15.9	21.0
434568	2005	TC ₁₉₅	17.7	X	206.06836	38.88972	112.62255	2.56501	0.0854975	0.26518843	2.3993835	20	10 21.4	20.8
434569	2005	UU ₂	15.7	X	215.60105	312.04491	63.81401	29.97160	0.2509812	0.17561634	3.1581017	20	5 3.2	21.4
434570	2005	UC ₅	18.3	X	340.26162	321.52581	215.82611	19.99769	0.0716308	0.35960508	1.9584786	20	—	—
434571	2005	UM ₁₉	15.7	X	212.90127	161.35550	216.34189	27.54918	0.1819985	0.17266907	3.1939370	20	4 26.9	21.0
434572	2005	UF ₂₀	17.8	X	33.05694	197.76842	180.38302	4.31428	0.2376079	0.27413821	2.3468734	20	—	—
434573	2005	UK ₃₃	17.5	X	122.71876	256.87243	63.90444	6.83490	0.1389610	0.28289276	2.2982018	20	—	—
434574	2005	UE ₃₆	17.9	X	71.91034	276.01553	50.81407	2.98619	0.2129894	0.27330133	2.3516619	20	—	—
434575	2005	UJ ₃₆	17.6	X	30.88275	302.03128	40.27371	3.18077	0.1888598	0.26798761	2.3826463	20	12 20.9	20.6
434576	2005	UX ₄₉	17.3	X	36.78101	325.42414	15.89006	6.70320	0.1101122	0.26856097	2.3792539	20	12 15.2	20.5
434577	2005	UB ₆₂	17.3	X	185.26855	220.90059	226.17587	14.41825	0.0884497	0.24323067	2.5416973	20	6 27.2	21.3
434578	2005	UR ₇₅	15.2	X	236.97125	81.78114	237.78133	24.19844	0.3735714	0.17353138	3.1833474	20	2 20.4	21.6
434579	2005	UM ₈₄	18.4	X	79.08198	265.89325	53.54803	2.11618	0.1993673	0.27460139	2.3442336	20	—	—
434580	2005	UT ₉₃	17.6	X	36.01806	351.88083	6.67550	4.80629	0.1630122	0.27119233	2.3638384	20	—	—
434581	2005	UO ₁₀₆	17.4	X	151.15726	329.74815	83.48566	4.13695	0.1611975	0.23215525	2.6219056	20	4 15.1	21.5
434582	2005	UW ₁₂₀	18.2	X	68.25741	93.50738	226.89869	5.84479	0.1286755	0.27100102	2.3649507	20	12 27.9	21.5
434583	2005	UQ ₁₃₀	17.6	X	201.30731	71.12474	20.80691	3.57187	0.1576406	0.24583794	2.5236945	20	7 20.3	21.5
434584	2005	UH ₁₄₆	17.2	X	35.74010	54.64645	240.90552	5.41061	0.0989744	0.25898105	2.4375717	20	10 7.5	20.3
434585	2005	UE ₁₅₉	17.7	X	297.26893	2.20823	231.08230	19.31034	0.0537787	0.36167880	1.9509854	20	1 11.2	20.3
434586	2005	UA ₁₆₃	17.7	X	110.29651	194.10666	20.75448	6.44361	0.0749929	0.25676598	2.4515706	20	9 24.1	21.1
434587	2005	UL ₁₇₄	18.0	X	63.83472	349.35094	350.08621	3.24257	0.2639522	0.27410707	2.3470512	20	—	—
434588	2005	UK ₁₈₃	18.0	X	38.64447	273.49267	55.79633	4.08424	0.1433846	0.26598970	2.3945625	20	12 6.3	21.1
434589	2005	UJ ₁₉₉	16.4	X	259.32854	130.52460	195.04812	7.80019	0.2438068	0.17717628	3.1393574	20	3 31.8	21.6
434590	2005	UO ₂₁₅	17.1	X	151.13828	38.02100	41.31778	13.66072	0.2913411	0.23640906	2.5903591	20	5 18.7	21.6
434591	2005	UH ₂₂₁	17.3	X	60.17635	37.44370	237.46611	9.46208	0.0874180	0.25962145	2.4335616	20	10 10.4	20.5
434592	2005	UU ₂₂₂	17.3	X	156.35503	299.26917	244.82313	4.45710	0.1071230	0.25794922	2.4440677	20	10 2.6	21.0
434593	2005	UJ ₂₂₄	17.2	X	100.39065	54.41978	242.69015	5.15734	0.1951296	0.27430292	2.3459339	20	—	—
434594	2005	UT ₂₂₅	17.9	X	3.20609	0.29005	358.76034	3.36406	0.1438458	0.26551334	2.3974257	20	11 25.3	20.5
434595	2005	UJ ₂₂₈	17.9	X	89.94088	229.85503	73.60507	3.90654	0.2317135	0.27310915	2.3527650	20	—	—
434596	2005	UN ₂₄₂	17.6	X	179.08318	168.13832	300.36587	3.47933	0.1061459	0.24430709	2.5342260	20	7 20.3	21.1
434597	2005	UR ₂₄₉	17.3	X	96.78047	206.34703	55.48143	7.56917	0.0754185	0.26221076	2.4175143	20	11 9.0	20.5
434598	2005	US ₂₇₂	17.2	X	318.23207	282.70685	70.67679	7.61452	0.1226142	0.25363729	2.4716899	20	8 22.7	19.8
434599	2005	UG ₂₇₇	17.9	X	50.22897	293.30431	36.92941	2.05163	0.2006493	0.27031416	2.3689552	20	12 29.5	21.2
434600	2005	UJ ₂₈₂	17.7	X	73.85218	224.92276	96.24916	2.51625	0.1998465	0.27405372	2.3473557	20	—	—
434601	2005	UL ₂₈₅	18.1	X	173.68366	43.14717	49.88981	12.88958	0.2266699	0.24200471	2.5502740	20	6 23.3	22.6
434602	2005	UT ₂₉₃	17.9	X	83.96272	0.55473	290.71118	2.08046	0.2035268	0.26862741	2.3788616	20	12 13.1	21.7
434603	2005	UR ₃₀₅	17.6	X	70.53034	88.95752	225.19315	6.39730	0.1401979	0.27053909	2.3676420	20	12 23.6	21.1
434604	2005	UM ₃₁₃	17.9	X	134.52267	201.70264	212.43257	20.60431	0.0860788	0.36870028	1.9261365	20	2 29.2	20.5
434605	2005	UJ ₃₁₄	17.3	X	92.55248	183.40899	150.73716	4.37854	0.2336703	0.28053506	2.3110603	20	—	—
434606	2005	UK ₃₂₈	17.8	X	103.44689	255.94494	31.49125	5.26044	0.1656525	0.27548930	2.3391939	20	12 25.1	21.6
434607	2005	UU ₃₆₂	16.3	X	249.72716	97.49357	208.58997	12.24969	0.1599436	0.17023855	3.2242654	20	3 5.4	21.5
434608	2005	UJ ₃₆₃	17.8	X	96.94896	152.14607	149.12129	2.90181	0.1582450	0.27277649	2.3546775	20	—	—
434609	2005	UV ₃₆₃	17.7	X	91.30252	96.86995	195.57604	5.03601	0.2226140	0.27116784	2.3639807	20	12 22.2	21.6
434610	2005	UL ₃₈₃	17.7	X	114.00622	218.57733	101.49148	4.07251	0.1388572	0.27895952	2.3197539	20	—	—
434611	2005	UF ₃₉₁	15.8	X	122.78577	215.82434	188.51357	5.97398	0.0450472	0.15941385	3.3686200	20	2 24.9	20.7
434612	2005	UU ₃₉₈	15.9	X	270.16987	254.31902	76.36903	17.03094	0.2510044	0.17872272	3.1214008	20	4 23.5	20.9
434613	2005	UJ ₃₉₉	17.4	X	67.68481	82.26997	228.67528	11.04695	0.2125846	0.26796596	2.3827746	20	12 22.4	21.2
434614	2005	UV ₄₁₆	18.0	X	74.53860	192.22108	118.04974	2.33719	0.1915536	0.27143475	2.3624308	20	12 27.5	21.4
434615	2005	UC ₄₆₂	16.1	X	289.36390	269.00484	50.49851	11.09428	0.3006374	0.18122695	3.0925794	20	4 18.9	20.7
434616	2005	UM ₄₇₂	17.2	X	337.29299	166.79305	230.02298	8.78905	0.0882635	0.26408330	2.4060728	20	11 29.4	19.6
434617	2005	UG ₄₈₄	17.0	X	357.31830	307.09391	50.50103	11.60984	0.1155298	0.26477233	2.4018967	20	11 10.2	19.4
434618	2005	UB ₅₁₉	17.0	X	147.46248	107.83460	113.43994	10.11061	0.0976721	0.26550687	2.3974646	20	11 16.4	20.7
434619	2005	UT ₅₂₈	17.3	X	33.90254	242.66993	106.59188	6.97780	0.1608598	0.26971564	2.3724586	20	12 30.2	20.3
434620	2005	VD	14.3	X	297.85952	177.95768	173.34251	172.87314	0.2510558	0.05717032	6.6735306	20	12 4.7	21.9
434621	2005	VB ₅	17.6	X	198.03542	224.74895	272.73854	7.71241	0.1291835	0.25324190	2.4742619	20	9 11.8	21.4
434622	2005	VM ₅	16.5	X	87.64994	93.23286	241.67009	12.91531	0.2352970	0.27675238	2.3320712	20	—	—
434623	2005	VU ₁₃	16.0	X	246.28179	127.23940	211.21613	26.05497	0.2233653	0.17324545	3.1868490	20	4 5.3	21.3
434624	2005	VA ₁₈	17.9	X	84.30203	279.42325	111.00943	2.88961	0.1750444	0.26939601	2.3743347	20	12 10.3	21.5
434625	2005	VA ₃₁	18.1	X	44.33485	117.02410	227.38831	4.03441	0.1090448	0.26735672	2.3863931	20	12 28.5	21.2
434626	2005	VT ₃₁	17.4	X	218.04513	37.73044	78.65266	3.46814	0.1289339	0.25277749	2.4772915	20	9 12.6	20.9
434627	2005	VF ₃₃	17.6	X	141.81163	156.28277	239.23237	24.09800	0.1230969	0.36215778	1.9492648	20	2 11.9	20.6
434628	2005	VF ₆₈	17.7	X	188.86473	16.70009	86.20847	4.11618	0.1861559	0.24500525	2.5294093	20	7 20.8	21.7
434629	2005	VX ₁₀₇	15.7	X	237.62663	252.54293	64.59008	28.53740	0.3135876	0.16675497	3.2690146	20	3 17.7	21.9
434630	2005	VE ₁₁₁	18.4											

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>		
434641	2005	WG ₁₅₁	17.5	X	353.71650	239.14438	269.25885	17.57074	0.0714396	0.35053146	1.9921317	20	—	—
434642	2005	WJ ₁₈₆	17.2	X	115.08628	37.08636	117.62512	10.78546	0.1465250	0.23158264	2.6262257	20	7 14.6	21.1
434643	2005	XC ₃	17.1	X	1.39143	305.23352	75.58926	6.92934	0.1243145	0.26515380	2.3995924	20	12 20.5	19.6
434644	2005	XZ ₁₇	17.0	X	144.68432	43.67858	97.56905	13.73940	0.1082918	0.23867270	2.5739546	20	7 27.4	20.9
434645	2005	XZ ₄₀	17.3	X	336.30524	222.38872	91.47541	7.08226	0.0360762	0.24181738	2.5515909	20	7 26.6	20.4
434646	2005	XM ₆₁	17.0	X	179.79721	43.86496	82.37424	15.89453	0.0668344	0.24433791	2.5340128	20	8 20.7	20.9
434647	2005	XW ₉₇	16.2	X	68.99358	234.26954	202.80170	8.00718	0.0991676	0.15539202	3.4264961	20	2 5.2	20.9
434648	2005	YL ₇	16.8	X	81.65118	124.89248	100.80085	7.59706	0.2015398	0.23816231	2.5776307	20	9 19.7	20.7
434649	2005	YE ₁₄	17.2	X	264.81670	283.52833	100.66429	3.29516	0.1211975	0.24068347	2.5595987	20	7 5.6	20.5
434650	2005	YA ₂₇	17.4	X	333.14494	339.48218	45.29375	1.99084	0.1134198	0.25477988	2.4642946	20	11 3.5	19.8
434651	2005	YJ ₂₇	16.2	X	292.48485	129.88975	63.79096	7.93098	0.2256929	0.14021957	3.6694161	20	—	—
434652	2005	YO ₃₀	17.1	X	0.81234	293.30185	82.80986	7.41642	0.1244684	0.26359158	2.4090641	20	12 12.8	19.7
434653	2005	YZ ₅₇	17.1	X	249.23709	92.40083	289.08705	10.48554	0.2221240	0.24170055	2.5524130	20	5 30.0	21.2
434654	2005	YM ₆₅	17.6	X	142.53098	54.11261	91.23267	4.04007	0.0566409	0.23883597	2.5727814	20	7 27.4	21.2
434655	2005	YT ₆₆	17.3	X	129.74907	55.56717	115.59142	6.20477	0.1253395	0.23743148	2.5829174	20	8 20.7	21.2
434656	2005	YR ₉₀	16.8	X	265.69501	252.15064	126.59336	10.22111	0.2163520	0.24159862	2.5531309	20	6 15.9	20.5
434657	2005	YU ₉₁	17.2	X	253.08063	293.55294	112.36617	3.68627	0.1299400	0.24346722	2.5400507	20	7 18.9	20.7
434658	2005	YF ₉₈	17.7	X	173.67963	16.77861	82.94126	8.29218	0.1987457	0.24050449	2.5608684	20	7 2.5	21.9
434659	2005	YB ₁₀₈	17.5	X	25.86304	223.56133	125.01041	3.18608	0.2349888	0.26085930	2.4258568	20	12 27.8	20.5
434660	2005	YU ₁₁₅	17.5	X	185.99695	28.04133	68.16604	3.85197	0.1649288	0.23772670	2.5807785	20	7 9.8	21.7
434661	2005	YW ₁₁₅	17.8	X	72.44745	137.88549	56.02643	3.02810	0.1319825	0.23064852	2.6333117	20	7 14.4	21.2
434662	2005	YO ₁₁₈	17.9	X	166.42342	115.64431	330.55029	2.21510	0.1685172	0.23302636	2.6153672	20	6 8.2	22.2
434663	2005	YJ ₁₂₅	17.8	X	157.51692	119.71594	322.65876	3.85863	0.2259433	0.23247039	2.6195355	20	5 27.7	22.3
434664	2005	YM ₁₂₅	17.6	X	127.73058	54.34020	85.93502	8.43040	0.2076611	0.23340223	2.6125587	20	7 14.1	21.8
434665	2005	YC ₁₃₄	17.3	X	208.31395	37.20738	46.11833	4.85675	0.1777060	0.24157343	2.5533084	20	7 14.4	21.3
434666	2005	YN ₁₇₃	16.0	X	82.66931	257.42717	303.60896	27.04326	0.3553334	0.23080906	2.6320905	20	8 21.6	20.6
434667	2005	YU ₂₄₈	17.5	X	113.76554	83.25668	264.12426	17.51087	0.1280349	0.34774776	2.0027488	20	—	—
434668	2005	YL ₂₇₅	16.3	X	112.41690	118.10025	45.61666	17.80438	0.2494019	0.23161968	2.6259457	20	8 8.5	21.0
434669	2005	YG ₂₉₁	17.1	X	148.12102	321.68883	136.08023	14.48751	0.2148792	0.22842586	2.6503661	20	6 10.6	21.8
434670	2006	AN ₁	17.4	X	324.02679	52.09227	124.40338	25.06494	0.0612498	0.34694641	2.0058315	20	—	—
434671	2006	AP ₈	17.2	X	204.07146	235.45511	209.90283	7.45187	0.2379123	0.24291927	2.5438690	20	7 7.7	21.7
434672	2006	AD ₃₇	17.4	X	234.58553	324.84174	103.10004	5.11542	0.1424599	0.24184604	2.5513893	20	7 24.8	21.0
434673	2006	AD ₄₆	17.6	X	187.45084	304.94810	147.16938	3.43649	0.1368918	0.23783158	2.5800198	20	7 6.1	21.6
434674	2006	AR ₅₂	17.4	X	161.84154	224.72654	249.94353	2.27595	0.0698956	0.23570501	2.5955148	20	7 8.6	21.2
434675	2006	AP ₇₅	17.9	X	140.80604	233.34694	289.43211	2.88096	0.1737739	0.23834506	2.5763129	20	8 20.8	22.0
434676	2006	AV ₉₀	16.7	X	79.80260	75.06419	118.22431	15.45876	0.0533139	0.23515094	2.5995903	20	7 10.9	20.0
434677	2006	BZ ₇	17.5	X	314.05020	188.79642	262.95474	68.42162	0.3665087	0.54191434	1.4899863	20	—	—
434678	2006	BE ₈	17.5	X	190.29503	302.86022	145.23539	5.41843	0.1466450	0.23420715	2.6065693	20	7 3.3	21.6
434679	2006	BF ₂₀	17.8	X	236.53897	330.41129	88.78333	1.37502	0.2012339	0.24224462	2.5485899	20	7 8.3	21.7
434680	2006	BR ₂₀	17.8	X	157.95369	137.32020	310.14604	8.03082	0.1894958	0.23066302	2.6332014	20	6 2.8	22.0
434681	2006	BO ₂₁	16.7	X	112.59889	196.80316	310.91179	8.91418	0.1175031	0.22999356	2.6383086	20	6 30.4	20.5
434682	2006	BN ₂₂	17.6	X	122.80282	68.39210	127.14821	1.88609	0.0772980	0.24009856	2.5637540	20	9 10.4	21.1
434683	2006	BY ₂₅	16.7	X	99.41406	233.91246	289.36818	11.94942	0.1789571	0.22937172	2.6430749	20	7 12.3	20.5
434684	2006	BP ₂₉	17.2	X	230.91080	297.93881	103.01016	4.51233	0.0252276	0.23321729	2.6139396	20	6 27.3	20.7
434685	2006	BP ₃₉	16.9	X	122.46650	184.53841	320.97161	7.40138	0.2399411	0.23142376	2.6274276	20	7 18.8	21.3
434686	2006	BE ₄₀	17.1	X	190.33547	308.97643	138.83923	4.58534	0.2946996	0.23627444	2.5913429	20	6 29.2	21.9
434687	2006	BY ₅₃	17.0	X	58.99501	41.74394	148.32878	12.01816	0.1945259	0.22204950	2.7008648	20	6 29.2	20.6
434688	2006	BH ₅₄	17.2	X	153.10829	337.32813	145.72877	4.23937	0.1025608	0.23079363	2.6322078	20	7 10.5	21.1
434689	2006	BC ₇₀	16.9	X	353.44050	311.83523	357.71051	7.13972	0.1011676	0.23770891	2.5809073	20	8 19.4	19.6
434690	2006	BA ₇₁	17.1	X	138.86844	167.95630	346.93629	8.10307	0.1211376	0.23536306	2.5980281	20	8 9.4	21.0
434691	2006	BK ₉₀	16.2	X	345.98541	342.22827	333.89951	11.91133	0.1909607	0.23461881	2.6035194	20	8 15.9	18.4
434692	2006	BR ₉₇	16.8	X	137.46568	79.45433	55.75494	8.13150	0.1445369	0.23227977	2.6209684	20	7 13.5	20.9
434693	2006	BT ₁₁₆	17.5	X	81.95973	280.68786	287.31598	1.77424	0.0726513	0.23198339	2.6232003	20	8 5.6	21.0
434694	2006	BR ₁₃₆	17.4	X	170.15428	354.74578	88.83840	2.94265	0.0945370	0.23037297	2.6354111	20	6 7.5	21.4
434695	2006	BN ₁₉₀	16.6	X	161.09738	129.93830	345.16248	12.17359	0.1341133	0.23151641	2.6267265	20	7 12.4	20.9
434696	2006	BY ₁₉₆	16.5	X	159.60704	319.71129	153.13037	13.96096	0.2097467	0.23235687	2.6203886	20	7 6.5	21.1
434697	2006	BS ₂₀₇	16.9	X	135.67767	36.93799	115.43035	6.26417	0.1620125	0.23256175	2.6188494	20	8 3.2	21.0
434698	2006	BS ₂₁₁	16.7	X	171.16795	279.54540	149.56571	14.58525	0.1745651	0.22634941	2.6665504	20	5 25.9	21.4
434699	2006	BT ₂₄₃	17.0	X	95.92321	148.93552	53.90933	3.37467	0.1231165	0.23393829	2.6085660	20	8 24.9	20.7
434700	2006	BR ₂₅₈	16.6	X	123.40875	38.03788	150.46690	27.71038	0.0729726	0.23689313	2.5868291	20	9 1.3	20.2
434701	2006	BD ₂₆₈	16.7	X	97.91073	180.70017	349.66746	13.04275	0.1763411	0.22810192	2.6528748	20	7 23.6	20.8
434702	2006	BN ₂₈₀	17.3	X	139.92827	178.52121	313.38800	4.03476	0.1688175	0.22997370	2.6384605	20	7 12.3	21.4
434703	2006	BG ₂₈₃	17.3	X	124.87936	103.21506	63.18312	3.72170	0.1377007	0.23398197	2.6082414	20	8 10.1	21.2
434704	2006	CD ₂₈	16.8	X	16.09299	309.62101	314.62981	11.75708	0.0708170	0.23277874	2.6172217	20	7 19.6	20.0
434705	2006	CU ₃₄	17.5	X	244.03074	221.63613	175.57808	3.86633	0.0849246	0.23614924	2.5922587	20	7 1.1	21.0
434706	2006	CG ₄₁	17.2	X	93.75437	336.82834	169.44835	12.12855	0.1258255	0.22290856	2.6939212	20	6 7.4	21.2
434707	2006	CH ₄₉	14.7	X	198.68954	270.89769	283.39251	7.66542	0.2795952	0.11156524	4.2734974	20	10 26.1	21.8
434708	2006	CQ ₅₂	17.5	X	197.67729	285.59240	139.44977	8.18838	0.1701398	0.23394319	2.6085297	20	6 11.2	21.8
434709	2006	CJ ₆₉	7.6	X	342.63928	60.08154	130.50314	17.95082	0.2267885	0.00361455	42.0500834	20	3 5.3	22.8
43														

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>
434721 2006 DU ₁₃₇	17.3	X	173.25755	58.08903	57.87959	3.44191	0.0677212	0.23199357	2.6231235	20	7 24.5	21.1
434722 2006 DB ₁₄₅	17.3	X	205.59827	29.39169	20.33855	2.20068	0.0990975	0.22666736	2.6640563	20	6 1.2	21.2
434723 2006 DZ ₁₆₅	17.2	X	94.53862	105.86447	65.99247	3.15607	0.0458546	0.22568696	2.6717659	20	6 29.9	20.9
434724 2006 DK ₁₇₉	17.4	X	161.17852	286.30999	161.01352	13.42740	0.2769627	0.22858592	2.6491288	20	6 9.5	22.4
434725 2006 DO ₁₈₂	17.4	X	137.92387	277.36814	182.42296	3.82007	0.2306991	0.22474967	2.6791890	20	6 3.5	21.8
434726 2006 DX ₁₈₆	16.9	X	138.38303	103.88188	7.22572	12.98275	0.2301256	0.22547916	2.6734072	20	6 16.6	21.6
434727 2006 DA ₁₉₀	17.7	X	99.16600	6.99798	154.96458	3.81502	0.2063162	0.22426111	2.6830787	20	7 12.8	21.7
434728 2006 DP ₂₀₁	16.9	X	43.25097	181.39814	2.51844	16.42905	0.2220498	0.21742235	2.7390498	20	5 23.2	20.2
434729 2006 ED ₁₃	17.4	X	40.60456	243.51368	356.79176	3.02496	0.0833957	0.22644989	2.6657616	20	7 24.8	20.6
434730 2006 EA ₃₄	17.4	X	192.96077	36.27484	21.38890	5.68691	0.1401924	0.22462798	2.6801565	20	5 27.1	21.7
434731 2006 EX ₃₆	17.2	X	140.86468	110.23587	9.07877	8.56376	0.0778834	0.22651969	2.6652139	20	6 20.5	21.2
434732 2006 EP ₄₈	17.5	X	274.10982	325.06679	72.01336	3.52898	0.0719284	0.23714559	2.5849928	20	8 15.1	20.7
434733 2006 EP ₇₃	16.9	X	251.13237	345.07396	359.59399	11.76329	0.0880411	0.21973561	2.7197924	20	4 26.4	21.0
434734 2006 FX	20.0	X	300.41488	299.47012	181.18126	24.63391	0.4384153	0.53931754	1.4947653	20	—	—
434735 2006 FT ₁₁	17.2	X	144.39885	106.09683	15.55435	13.40708	0.1230942	0.22583537	2.6705953	20	7 1.6	21.6
434736 2006 FP ₁₆	17.5	X	88.03719	330.40301	206.49968	2.76181	0.2403844	0.22414648	2.6839933	20	7 24.1	21.5
434737 2006 GP ₂₁	17.2	X	203.99710	301.29170	173.00608	10.20232	0.1259874	0.23852018	2.5750518	20	8 20.5	21.1
434738 2006 FZ ₃₃	15.6	X	18.15676	295.90208	10.75357	30.18827	0.3042648	0.22915633	2.6447308	20	10 16.8	18.7
434739 2006 FW ₃₇	17.5	X	357.43454	236.88468	57.22935	3.81545	0.0330141	0.22752575	2.6573516	20	7 29.7	20.9
434740 2006 GZ	19.5	X	95.42005	292.45859	25.60880	12.48498	0.3797756	0.52212353	1.5274038	20	—	—
434741 2006 GQ ₂₃	16.9	X	58.74374	243.56673	35.63337	13.76789	0.1490967	0.23146041	2.6271502	20	10 22.2	20.4
434742 2006 GB ₄₂	17.2	X	53.06925	71.14281	166.72647	15.81704	0.3078999	0.22249735	2.6972393	20	9 12.2	20.8
434743 2006 GV ₄₃	17.7	X	101.92623	296.59276	199.66170	3.78437	0.2451144	0.22216437	2.6999338	20	6 16.9	21.9
434744 2006 GW ₅₂	16.3	X	95.11216	32.77351	168.02719	18.63005	0.1625520	0.22673940	2.6634919	20	8 21.9	20.3
434745 2006 GF ₅₄	16.9	X	13.25401	183.73924	46.87280	7.60864	0.0473117	0.21435879	2.7650852	20	5 23.8	20.3
434746 2006 GN ₅₄	16.9	X	135.84213	288.46121	208.29001	10.98006	0.1366448	0.22226966	2.6990810	20	7 9.8	21.4
434747 2006 GG ₅₅	16.2	X	302.54253	346.65322	29.17972	16.28676	0.1508740	0.23114944	2.6295059	20	8 25.9	19.5
434748 2006 HU ₁₁	16.1	X	272.53540	220.87529	147.92949	6.74860	0.0555463	0.22182884	2.7026557	20	7 4.1	19.7
434749 2006 HD ₂₂	17.0	X	351.79152	230.99912	58.30358	6.22308	0.1183977	0.22034803	2.7147506	20	7 14.1	20.0
434750 2006 HQ ₄₂	16.6	X	356.84406	237.39168	90.02300	14.17015	0.2754854	0.22267383	2.6958141	20	10 13.9	19.2
434751 2006 HV ₅₇	18.5	X	22.89669	18.05523	264.57212	6.01992	0.5865950	0.21997815	2.7177929	20	11 12.2	22.3
434752 2006 HH ₇₁	17.4	X	329.02849	101.76480	187.36235	8.08392	0.1867719	0.21292814	2.7774570	20	5 24.8	20.4
434753 2006 HI ₇₅	16.9	X	153.08787	301.66334	179.82586	13.10795	0.2198165	0.22293414	2.6937151	20	7 10.6	21.7
434754 2006 HF ₇₇	16.8	X	336.13020	177.35091	160.18074	11.58225	0.0898350	0.22317313	2.6917917	20	8 24.2	19.9
434755 2006 HA ₈₀	16.4	X	262.93875	139.74373	220.15500	5.35568	0.0541336	0.21582323	2.7525629	20	6 9.6	20.3
434756 2006 HA ₈₄	16.4	X	149.27595	43.04831	72.80161	13.01497	0.0615393	0.21714961	2.7413428	20	6 24.1	20.4
434757 2006 HN ₉₁	16.9	X	30.66981	137.04789	80.16349	9.08128	0.1595461	0.21440258	2.7647087	20	6 13.6	19.8
434758 2006 HP ₉₅	17.5	X	323.12757	291.56039	36.18288	3.07348	0.1825101	0.21886551	2.7269959	20	7 9.8	20.4
434759 2006 HG ₁₀₄	17.0	X	30.09174	85.17247	170.43120	13.19085	0.1175092	0.21931607	2.7232598	20	7 30.8	20.4
434760 2006 HO ₁₁₅	17.3	X	93.73220	149.35197	43.78746	10.51490	0.1141789	0.22402597	2.6849558	20	8 10.4	21.3
434761 2006 HL ₁₁₆	17.7	X	50.95079	147.89139	30.73687	4.83986	0.2339035	0.21397406	2.7683987	20	6 5.8	20.9
434762 2006 HA ₁₅₃	14.3	X	149.08071	187.11317	61.58041	17.29346	0.0719340	0.10196349	4.5377399	20	11 19.8	20.8
434763 2006 HV ₁₅₃	16.0	X	114.21941	83.71155	61.49326	26.01261	0.1597239	0.21953528	2.7214467	20	6 29.7	20.5
434764 2006 JF ₆	17.0	X	315.72662	92.15327	206.01853	7.13154	0.2054528	0.21132813	2.7914585	20	5 9.7	20.3
434765 2006 JZ ₈	16.8	X	6.72637	237.45979	41.08906	9.82181	0.2094329	0.21818722	2.7326448	20	8 6.9	19.5
434766 2006 JV ₁₃	17.1	X	35.28517	67.57553	201.37825	10.73371	0.1722219	0.22341691	2.6898333	20	9 4.3	20.5
434767 2006 JR ₃₃	17.1	X	17.55008	7.73387	212.65701	3.55963	0.0405278	0.21375287	2.7703082	20	5 17.3	20.6
434768 2006 JJ ₃₆	17.0	X	329.45684	96.83638	212.34386	7.54018	0.1364587	0.21648568	2.7469448	20	6 28.1	20.2
434769 2006 KC ₂₆	16.5	X	94.80728	353.03490	171.73853	13.63396	0.1130054	0.21913537	2.7247567	20	6 29.6	20.7
434770 2006 KU ₂₆	17.7	X	21.58077	96.61326	136.52676	8.98177	0.1460060	0.21564719	2.7540608	20	6 19.0	20.8
434771 2006 KN ₄₁	16.8	X	11.20985	223.47481	67.79284	14.39206	0.2690105	0.21904382	2.7255159	20	9 20.5	19.8
434772 2006 KT ₄₄	17.2	X	19.36547	98.17873	174.51090	12.61804	0.2085330	0.22067454	2.7120721	20	8 18.8	20.2
434773 2006 KC ₅₈	16.3	X	255.29669	252.17473	86.86061	10.43001	0.1522770	0.20686074	2.8315050	20	4 25.6	20.0
434774 2006 KU ₆₂	17.1	X	315.99394	204.35474	125.91024	5.95030	0.1664291	0.21583024	2.7525033	20	6 30.8	20.0
434775 2006 KU ₆₈	16.1	X	310.00147	255.76836	62.17707	13.81405	0.2104720	0.21210909	2.7846024	20	5 25.8	19.3
434776 2006 KD ₆₉	16.1	X	73.82141	106.85147	90.87746	16.64561	0.2216259	0.22074965	2.7114569	20	8 5.2	20.1
434777 2006 KQ ₇₂	16.4	X	317.49601	175.89917	185.35945	21.54083	0.0576351	0.22772295	2.6558172	20	8 26.8	20.0
434778 2006 KK ₈₇	16.8	X	284.25631	307.12280	53.22252	6.98341	0.0629915	0.21948909	2.7218285	20	7 8.8	20.5
434779 2006 KR ₁₀₀	16.6	X	306.11021	161.08623	178.97434	17.04965	0.2664165	0.21724899	2.7405068	20	6 11.5	20.1
434780 2006 KK ₁₀₈	16.8	X	96.68010	112.33249	43.35311	13.89829	0.1572392	0.21888647	2.7268219	20	6 25.5	20.9
434781 2006 KP ₁₁₆	17.0	X	349.23836	100.84171	200.61037	16.02006	0.3506402	0.21451260	2.7637633	20	7 21.9	18.9
434782 2006 MR ₁₁	17.1	X	8.55783	188.01416	90.64250	13.77189	0.0516274	0.22031449	2.7150261	20	7 25.3	20.6
434783 2006 MT ₁₄	17.7	X	5.91970	84.55323	214.35947	7.52337	0.4653898	0.21424632	2.7660528	20	10 17.4	19.9
434784 2006 OL ₁	18.4	X	122.56533	149.49772	129.41106	3.54949	0.1637962	0.30525922	2.1845242	20	—	—
434785 2006 OJ ₂₁	16.6	X	205.59388	209.93539	158.50789	5.19336	0.1560458	0.18698389	3.0287720	20	4 11.6	21.5
434786 2006 PW	18.1	X	109.85264	325.12491	132.94006	35.90175	0.6517139	0.60715404	1.3812431	20	6 18.4	21.3
434787 2006 QW ₁₉	16.2	X	63.00119	94.98712	154.85032	29.23263	0.3585567	0.21928846	2.7234884	20	10 18.5	21.0
434788 2006 QS ₃₈	17.8	X	96.58009	332.34254	351.37579	4.26781	0.1794045	0.30434069	2.1889174	20	—	—
434789 2006 QT ₆₈	17.0	X	274.21491	197.70034	139.46405	2.80751	0.1160578	0.19768952	2.9184144	20	5 16.7	21.1
434790 2006 QR ₇₃	16.3	X	168.70263	20.98382	349.52073	13.67166	0.0545421	0.18240189	3.0792846	20	3 7.2	20.8
434791 2006 QO ₁₀₉	18.5	X	130.22108	74.74865	241.87816	1.53759	0.1928433	0.30913289	2.1662367	20	—	—
434792 2006 QA ₁₂₂	18.5	X	119.20824	98.40025	252.46156	3.27032	0.1595291	0.31169643	2.1543429	20	—	—
434793 2006 QG ₁₆₆	15.9	X	178.31091	181.01082	187.33620	28.01302	0.1366713	0.18068455	3.0987654	20	3 15.9	20.9

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
434801 2006 <i>RJ</i> ₅₂	16.5	X	204.16918	339.98930	20.71960	4.99597	0.1629507	0.18268759	3.0760733	20	3 31.2	21.6
434802 2006 <i>RL</i> ₅₃	16.6	X	225.29302	173.37403	187.55490	11.07911	0.1434333	0.18687855	3.0299101	20	4 21.1	21.4
434803 2006 <i>RY</i> ₅₈	16.2	X	260.30337	296.73886	13.87796	10.48070	0.0953132	0.18638997	3.0352027	20	3 30.7	20.7
434804 2006 <i>RX</i> ₅₉	15.8	X	265.27571	276.96282	14.45520	9.88336	0.0546434	0.18155827	3.0888159	20	3 19.6	20.3
434805 2006 <i>RO</i> ₇₅	18.2	X	170.98080	92.07135	177.49527	5.48267	0.0717498	0.30473032	2.1870511	20	—	—
434806 2006 <i>RP</i> ₇₈	16.4	X	242.27582	307.91343	18.93037	9.82905	0.0596914	0.18566906	3.0430542	20	4 3.4	20.7
434807 2006 <i>RX</i> ₇₈	18.5	X	309.64472	28.36593	40.74120	1.73248	0.1563836	0.28816812	2.2700674	20	12 7.1	19.9
434808 2006 <i>RP</i> ₈₁	16.1	X	7.21415	156.96261	7.33852	14.00994	0.0287292	0.17736506	3.1373093	20	2 27.7	20.5
434809 2006 <i>RO</i> ₈₂	16.6	X	187.14203	148.82554	192.27795	9.48023	0.0522430	0.17668087	3.1454035	20	2 18.8	21.4
434810 2006 <i>RX</i> ₈₄	16.4	X	228.50398	123.99128	193.38054	7.11096	0.1406194	0.18202445	3.0835399	20	3 1.0	21.5
434811 2006 <i>RF</i> ₈₆	16.5	X	228.16537	290.96702	5.59536	10.59178	0.1302493	0.17827932	3.1265742	20	2 11.7	21.5
434812 2006 <i>RV</i> ₈₈	16.1	X	153.58645	170.34309	201.50300	10.58882	0.0992730	0.17490075	3.1667099	20	2 22.4	21.0
434813 2006 <i>RT</i> ₈₉	16.3	X	190.13075	164.47722	206.16902	4.37496	0.1527288	0.18195065	3.0843736	20	3 29.8	21.4
434814 2006 <i>RV</i> ₉₁	16.0	X	192.70256	12.53883	11.46610	16.09460	0.1009094	0.18434309	3.0576291	20	4 14.9	20.8
434815 2006 <i>RZ</i> ₉₁	16.8	X	222.79907	169.24568	193.40717	9.86375	0.0730223	0.18709574	3.0275648	20	4 25.1	21.3
434816 2006 <i>RH</i> ₉₂	16.5	X	209.09287	150.01339	197.33876	5.18142	0.1486895	0.18249552	3.0782313	20	3 18.9	21.5
434817 2006 <i>RM</i> ₉₄	18.0	X	344.40986	77.02448	1.10284	6.50723	0.0174566	0.29714463	2.2241161	20	—	—
434818 2006 <i>RO</i> ₉₄	16.8	X	254.37799	29.66121	298.13392	1.80298	0.1615431	0.18785017	3.0194533	20	4 5.5	21.4
434819 2006 <i>RT</i> ₉₆	16.7	X	258.92767	42.37117	296.53446	0.84472	0.1516473	0.19034691	2.9929916	20	4 25.3	21.1
434820 2006 <i>RV</i> ₉₇	18.5	X	256.81985	112.03601	233.84122	1.74402	0.1730808	0.27659092	2.3329787	20	8 31.4	21.1
434821 2006 <i>RB</i> ₉₉	16.6	X	193.56148	200.13264	181.68122	3.10225	0.2591293	0.18373932	3.0643238	20	4 15.2	22.0
434822 2006 <i>RK</i> ₁₀₁	15.9	X	178.83772	35.91117	309.61538	15.14744	0.2238775	0.17897495	3.1184675	20	2 19.4	21.4
434823 2006 <i>RR</i> ₁₀₅	18.4	X	183.79719	347.52817	213.08609	1.74582	0.1276756	0.29139660	2.2532691	20	11 28.3	21.3
434824 2006 <i>RA</i> ₁₂₂	18.1	X	161.15170	51.68366	239.99774	1.40683	0.1901697	0.30793817	2.1718360	20	—	—
434825 2006 <i>SG</i> ₁₆	16.4	X	161.23651	205.75240	186.93624	5.35567	0.2107614	0.18044117	3.1015478	20	4 1.9	21.5
434826 2006 <i>SX</i> ₂₂	15.7	X	164.81618	243.15272	125.53656	10.95833	0.1133511	0.17861909	3.1226080	20	3 6.9	20.6
434827 2006 <i>SP</i> ₂₅	16.0	X	223.10325	31.47793	328.03270	9.83211	0.1078866	0.18954686	3.0014077	20	4 13.4	20.8
434828 2006 <i>SX</i> ₃₀	18.9	X	155.71878	100.98827	199.70204	5.14558	0.2294918	0.31330965	2.1469415	20	—	—
434829 2006 <i>SH</i> ₃₅	16.7	X	241.31686	89.87262	247.66020	2.95402	0.0864952	0.18681331	3.0306155	20	4 11.1	21.1
434830 2006 <i>SR</i> ₃₅	16.6	X	198.24602	181.36229	195.75779	9.63479	0.0892358	0.18496256	3.0507984	20	4 15.7	21.2
434831 2006 <i>SF</i> ₃₉	15.9	X	139.41872	31.25453	343.72950	16.00077	0.2049027	0.17382198	3.1797984	20	2 25.6	21.0
434832 2006 <i>SL</i> ₄₈	16.1	X	188.64716	332.75170	37.07678	8.76816	0.1866005	0.18062529	3.0994432	20	3 30.8	21.4
434833 2006 <i>SW</i> ₅₆	17.3	X	6.31007	297.58345	90.98941	6.50755	0.2063944	0.29220653	2.2491035	20	—	—
434834 2006 <i>SX</i> ₅₆	18.1	X	95.99101	274.16214	61.59800	7.08362	0.2434620	0.30356020	2.1926678	20	—	—
434835 2006 <i>SG</i> ₇₀	16.4	X	176.51388	329.64880	26.90880	11.03015	0.0761542	0.17533571	3.1614705	20	3 4.6	21.3
434836 2006 <i>SR</i> ₇₂	16.4	X	188.89404	148.89057	191.75592	8.76094	0.0827898	0.17455200	3.1709264	20	2 21.1	21.3
434837 2006 <i>SE</i> ₈₃	16.6	X	139.53187	273.17626	128.53710	2.36426	0.1872652	0.17615643	3.1516433	20	3 25.5	21.6
434838 2006 <i>SE</i> ₉₃	18.2	X	110.20573	120.10134	200.33844	4.25141	0.2165957	0.30246003	2.1979816	20	—	—
434839 2006 <i>SS</i> ₉₅	16.2	X	202.21825	316.96214	26.59614	11.38377	0.1915116	0.17954606	3.1118511	20	3 13.1	21.5
434840 2006 <i>ST</i> ₉₇	16.6	X	263.88090	315.53443	32.26180	3.70632	0.1520261	0.19201872	2.9755940	20	5 11.7	20.8
434841 2006 <i>SN</i> ₁₀₄	16.8	X	90.04779	266.12884	185.65685	9.02603	0.0547393	0.17732686	3.1377598	20	3 13.9	21.1
434842 2006 <i>SO</i> ₁₂₁	16.4	X	298.02349	317.18705	352.36033	11.67784	0.2240348	0.19579565	2.9372034	20	4 20.2	20.6
434843 2006 <i>SW</i> ₁₂₃	15.9	X	184.50927	206.46292	166.29323	23.66596	0.1600113	0.18201723	3.0836214	20	3 30.3	21.1
434844 2006 <i>SZ</i> ₁₂₄	18.1	X	44.77269	226.84269	147.71386	2.71565	0.1802714	0.29938291	2.2130168	20	—	—
434845 2006 <i>SN</i> ₁₂₆	17.3	X	30.31060	329.25324	55.68164	7.85185	0.0861903	0.29629006	2.2283907	20	—	—
434846 2006 <i>SE</i> ₁₄₁	17.6	X	54.50319	290.32001	76.87961	4.76336	0.1338250	0.29814467	2.2191399	20	—	—
434847 2006 <i>SJ</i> ₁₄₃	17.4	X	201.43565	217.02989	356.86879	6.39174	0.0960892	0.29791241	2.2202931	20	—	—
434848 2006 <i>SX</i> ₁₅₀	16.6	X	170.32761	97.02808	278.77408	1.11840	0.0791559	0.17783501	3.1317797	20	3 15.8	21.3
434849 2006 <i>SG</i> ₁₅₂	17.2	X	242.64849	131.59585	226.59124	2.95762	0.1227155	0.19007627	2.9958320	20	5 5.3	21.7
434850 2006 <i>SV</i> ₁₅₇	16.6	X	259.60916	120.26731	177.35978	13.00861	0.1232399	0.18514950	3.0487444	20	3 10.1	21.3
434851 2006 <i>SX</i> ₁₅₈	16.1	X	115.58160	220.57698	177.50566	8.21005	0.1427430	0.17249561	3.1960779	20	2 20.2	20.9
434852 2006 <i>SN</i> ₁₆₄	16.5	X	201.25784	103.04287	277.80107	10.66714	0.0352736	0.19138183	2.9821919	20	4 20.0	21.1
434853 2006 <i>SO</i> ₁₆₅	16.6	X	181.32796	174.13491	206.14926	9.25908	0.1033140	0.18337062	3.0684300	20	4 1.2	21.3
434854 2006 <i>SQ</i> ₁₉₁	16.2	X	144.38418	18.30933	11.04209	10.29943	0.1252109	0.17678876	3.1441237	20	3 11.8	21.1
434855 2006 <i>SM</i> ₂₀₃	16.3	X	201.60369	8.43500	3.63000	10.36624	0.1106357	0.18608807	3.0384845	20	4 9.9	21.2
434856 2006 <i>ST</i> ₂₀₄	16.5	X	223.96918	346.69868	11.54306	5.19618	0.1374828	0.18777484	3.0202608	20	4 14.8	21.2
434857 2006 <i>SC</i> ₂₁₄	16.9	X	295.94540	114.46027	189.11431	13.35595	0.2539704	0.19659571	2.9292292	20	4 10.8	21.0
434858 2006 <i>ST</i> ₂₁₄	15.5	X	182.72617	292.14732	78.97011	17.82137	0.2200198	0.17913696	3.1165870	20	4 3.9	21.2
434859 2006 <i>SF</i> ₂₂₁	16.6	X	233.77900	356.48743	345.12983	0.57579	0.0826446	0.18823007	3.0153892	20	4 9.0	21.2
434860 2006 <i>SH</i> ₂₃₁	15.9	X	208.96778	358.68143	356.37060	9.32798	0.0824167	0.18385628	3.0630240	20	3 29.3	20.6
434861 2006 <i>SD</i> ₂₆₀	16.8	X	231.30519	306.71546	0.75367	2.94211	0.1107466	0.17906562	3.1174147	20	2 25.2	21.6
434862 2006 <i>SL</i> ₂₆₃	16.2	X	319.00285	40.07607	244.70423	9.38956	0.1063846	0.19068765	2.9894251	20	5 10.4	20.1
434863 2006 <i>SX</i> ₂₆₅	17.4	X	154.32931	273.86066	0.68144	7.31768	0.0927017	0.29928255	2.2135115	20	—	—
434864 2006 <i>SH</i> ₂₆₆	16.3	X	189.45352	140.45502	224.38293	8.83344	0.1020555	0.17854957	3.1234185	20	3 20.3	21.3
434865 2006 <i>SO</i> ₂₆₉	15.5	X	190.88662	176.25122	206.28092	14.91653	0.1961026	0.18122023	3.0926559	20	4 13.7	20.6
434866 2006 <i>SW</i> ₂₇₁	15.9	X	35.29886	297.07331	217.34411	25.87761	0.1862617	0.17326778	3.1865752	20	3 27.2	19.8
434867 2006 <i>SA</i> ₂₈₅	17.7	X	73.68005	274.67682	84.62499	5.65769	0.2068809	0.30017895	2.2091026	20	—	—
434868 2006 <i>SR</i> ₂₈₇	15.8	X	198.33459	124.54908	254.07903	9.16436	0.1037576	0.18764846	3.0216167	20	4 13.8	20.6
434869 2006 <i>SH</i> ₂₉₇	16.3	X	46.71602	324.65626	176.34334	9.61016	0.0178948	0.17871606	3.1214783	20	3 15.5	20.5
434870 2006 <i>SJ</i> ₃₁₂	16.3	X	228.90749	122.50798	221.24869	10.03783	0.1602670	0.18253125	3.0778296	20	3 30.6	21.4
434871 2006 <i>SK</i> ₃₁₆	16.9	X	266.22884	260.08207	66.09048	2.97053	0.1962819	0.19078987	2.9883572	20	4 13.6	21.3

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>		
434881	2006	SR ₃₅₀	17.7	X	24.28649	357.75765	24.58545	4.49973	0.1557363	0.29669307	2.2263723	20	—	—
434882	2006	SM ₃₅₆	18.3	X	137.94927	204.09378	132.91881	2.69486	0.2398370	0.31064510	2.1592009	20	—	—
434883	2006	SZ ₃₅₇	15.9	X	314.22413	51.27977	228.55622	9.59916	0.0995000	0.18577651	3.0418808	20	4 27.9	19.9
434884	2006	SG ₃₆₀	16.0	X	161.52467	188.53474	203.20796	8.87007	0.0910161	0.17604755	3.1529426	20	3 25.9	20.8
434885	2006	SY ₃₆₀	15.9	X	333.62408	191.72948	42.07068	28.55144	0.1008108	0.17889067	3.1194468	20	4 9.6	20.2
434886	2006	SS ₃₇₈	16.5	X	247.84872	222.65625	120.98720	11.70534	0.0336628	0.18537686	3.0462511	20	5 7.9	21.0
434887	2006	SU ₃₇₈	16.3	X	358.00061	111.26936	108.31583	12.15271	0.0359983	0.18192357	3.0846797	20	4 24.9	20.6
434888	2006	SF ₃₇₉	16.5	X	50.42860	317.99859	179.16195	10.63120	0.0359559	0.18054095	3.1004084	20	3 16.8	20.7
434889	2006	SZ ₃₉₆	18.3	X	160.83002	101.72560	185.62581	3.49953	0.1591830	0.30542947	2.1837123	20	—	—
434890	2006	SQ ₃₉₇	16.4	X	212.16269	116.26660	207.55215	8.66165	0.0719790	0.17493873	3.1662514	20	2 24.2	21.3
434891	2006	SN ₃₉₈	17.7	X	282.46855	58.82134	349.07483	20.29326	0.2603641	0.27695896	2.3309114	20	8 22.1	20.1
434892	2006	SR ₄₀₀	16.2	X	238.79427	289.83761	19.62015	9.08293	0.1127857	0.18215069	3.0821150	20	3 7.8	20.1
434893	2006	SG ₄₀₂	16.2	X	210.65078	318.51516	43.78109	9.80872	0.0301940	0.18246814	3.0785392	20	4 14.6	20.6
434894	2006	SV ₄₀₄	16.2	X	210.16490	154.01475	209.14091	14.04325	0.0520244	0.17938020	3.1137689	20	4 11.7	20.7
434895	2006	SJ ₄₀₇	18.0	X	299.57240	240.81336	209.23970	6.76299	0.0739083	0.28888306	2.2663205	20	12 16.7	20.4
434896	2006	SC ₄₀₉	15.7	X	232.21080	339.57870	349.04817	11.79089	0.1956036	0.18183035	3.0857339	20	3 15.0	20.7
434897	2006	SU ₄₁₀	16.4	X	28.68877	305.58403	201.19331	11.18072	0.0437012	0.17536739	3.1610897	20	2 27.1	20.8
434898	2006	SG ₄₁₁	17.8	X	337.68890	168.13980	218.18284	6.54762	0.1174496	0.28552207	2.2840710	20	11 24.5	19.9
434899	2006	SZ ₄₁₁	17.8	X	329.13790	21.40353	5.21485	13.51004	0.2122850	0.28235896	2.3010974	20	11 7.9	19.5
434900	2006	TU	16.5	X	229.71811	141.00832	204.26546	15.77602	0.1546792	0.18690449	3.0296297	20	4 3.4	21.3
434901	2006	TK ₂	16.2	X	327.12491	225.56936	40.54691	10.96300	0.0636817	0.18966815	3.0001280	20	5 3.2	20.0
434902	2006	TF ₈	15.8	X	204.71829	155.31219	207.08422	13.42303	0.1048137	0.18152238	3.0892231	20	4 2.5	20.6
434903	2006	TP ₂₅	17.4	X	348.65515	194.11874	215.88527	6.73838	0.0840926	0.29034235	2.2587203	20	—	—
434904	2006	TA ₂₇	16.6	X	152.09305	2.85712	33.29486	9.74192	0.0936570	0.17546235	3.1599491	20	3 25.9	21.4
434905	2006	TR ₃₇	16.3	X	269.13292	282.25637	40.04463	6.40428	0.1688152	0.18686990	3.0300036	20	4 15.3	20.7
434906	2006	TF ₄₂	17.8	X	77.81060	316.16360	32.32186	3.65544	0.2131144	0.29859592	2.2169036	20	—	—
434907	2006	TS ₄₅	16.3	X	209.98056	315.80856	46.72399	10.38897	0.1341288	0.18084086	3.0969795	20	4 10.8	21.3
434908	2006	TK ₅₁	15.7	X	120.02810	214.24501	223.70361	26.69336	0.1955630	0.17269408	3.1936286	20	4 17.9	20.8
434909	2006	TT ₅₁	16.1	X	177.05528	294.39907	64.42157	10.27609	0.2323717	0.17422453	3.1748986	20	3 13.0	21.7
434910	2006	TE ₅₄	17.9	X	277.83686	205.17046	211.86044	7.53649	0.1669445	0.27505140	2.3416760	20	9 3.9	20.5
434911	2006	TD ₆₃	17.7	X	249.76611	85.14024	5.31164	8.46748	0.3234796	0.27489142	2.3425844	20	8 23.1	21.0
434912	2006	TW ₆₅	16.1	X	198.55328	327.77792	19.02353	12.40868	0.1239317	0.17869188	3.1217599	20	3 13.9	21.1
434913	2006	TE ₈₄	15.6	X	247.73622	61.18852	225.97841	19.16406	0.1281105	0.17603786	3.1530583	20	2 9.0	20.9
434914	2006	TX ₈₅	17.9	X	276.32179	96.91183	351.01424	4.10011	0.1058855	0.28114837	2.3076982	20	10 30.5	20.2
434915	2006	TE ₈₆	15.9	X	242.59071	75.11591	233.18949	15.27260	0.2328829	0.18070862	3.0984903	20	2 21.8	21.4
434916	2006	TS ₈₆	17.7	X	6.83272	150.49191	251.89895	4.00989	0.1481913	0.29169924	2.2517103	20	—	—
434917	2006	TE ₈₇	15.6	X	215.20024	146.56761	228.29068	12.77411	0.1527292	0.18414372	3.0598357	20	4 25.8	20.5
434918	2006	TE ₈₈	16.6	X	245.97209	75.73770	258.73818	4.37841	0.1546835	0.18446330	3.0563006	20	4 4.9	21.4
434919	2006	TT ₈₈	16.3	X	173.25535	346.29367	29.04703	13.73757	0.0686407	0.17519276	3.1631900	20	3 23.0	21.1
434920	2006	TS ₈₉	17.8	X	79.26493	22.41949	328.84950	2.60481	0.1551818	0.29837632	2.2179912	20	—	—
434921	2006	TS ₉₄	15.8	X	244.08243	95.59304	216.42312	24.94405	0.1973114	0.17996917	3.1069717	20	2 29.5	21.3
434922	2006	TE ₉₈	15.9	X	251.60789	92.49958	209.72285	14.44104	0.0543995	0.17940420	3.1134913	20	3 12.1	20.5
434923	2006	TN ₉₉	15.7	X	24.71532	132.36455	31.74092	27.27120	0.0089666	0.17665605	3.1456981	20	3 27.8	20.4
434924	2006	TP ₁₀₀	16.1	X	111.20652	229.14780	227.46807	10.03842	0.1234266	0.17700291	3.1415871	20	4 23.6	20.7
434925	2006	TG ₁₀₂	18.8	X	85.48687	251.78149	213.52850	18.39351	0.1184842	0.39148289	1.8506638	20	3 4.5	20.6
434926	2006	TJ ₁₀₄	16.8	X	208.77516	171.25047	180.49511	2.72751	0.1001071	0.17888357	3.1195293	20	3 26.4	21.5
434927	2006	TB ₁₀₇	15.8	X	263.58906	257.32489	43.14891	16.54236	0.0588895	0.17925509	3.1152175	20	4 1.9	20.4
434928	2006	TE ₁₁₁	16.8	X	150.83854	247.34249	171.45760	14.48894	0.0367120	0.18147707	3.0897372	20	4 15.9	21.1
434929	2006	TO ₁₁₆	16.7	X	67.40259	329.61690	134.29328	11.81750	0.0463707	0.17078992	3.2173223	20	3 2.4	21.4
434930	2006	TV ₁₁₇	16.4	X	195.95394	230.34302	114.14879	11.50273	0.0835154	0.17531822	3.1616808	20	3 9.4	21.4
434931	2006	TL ₁₁₉	16.3	X	203.91964	165.39894	163.94527	11.47372	0.0810948	0.17557584	3.1585872	20	2 24.2	21.1
434932	2006	TS ₁₁₉	16.5	X	126.48732	297.54961	123.73162	12.31344	0.0457608	0.17396135	3.1780998	20	3 25.1	21.2
434933	2006	TB ₁₂₁	15.9	X	230.14380	213.91280	140.68975	12.36381	0.1246376	0.18388477	3.0627076	20	4 22.7	20.8
434934	2006	TF ₁₂₁	16.3	X	245.77327	170.86576	124.82045	14.00916	0.1317995	0.17562316	3.1580198	20	2 25.9	21.3
434935	2006	TO ₁₂₄	18.2	X	229.14222	107.97300	19.77882	5.06677	0.1608969	0.27773305	2.3265783	20	10 8.7	21.0
434936	2006	TW ₁₂₄	17.5	X	114.50112	67.80279	241.23767	6.63030	0.1965928	0.29941942	2.2128369	20	—	—
434937	2006	TA ₁₂₅	15.9	X	317.50376	336.60732	236.36510	16.16385	0.0912927	0.17027870	3.2237585	20	2 5.3	20.6
434938	2006	TV ₁₂₆	16.2	X	292.97835	70.80149	233.58365	10.96940	0.2164208	0.19004491	2.9961615	20	4 10.8	20.6
434939	2006	TF ₁₂₉	16.4	X	198.39910	20.17401	351.47196	4.95050	0.1589255	0.18034091	3.1027007	20	4 6.6	21.5
434940	2006	TA ₁₃₀	16.2	X	246.96457	301.56993	38.09243	18.53094	0.1776110	0.18389435	3.0626013	20	4 15.3	21.0
434941	2006	UU ₈	17.9	X	84.35925	281.25222	69.00989	3.23431	0.1960392	0.29971678	2.2113730	20	—	—
434942	2006	UN ₉	16.2	X	202.89874	202.98968	143.82621	1.59202	0.1798725	0.17772763	3.1330410	20	3 13.9	21.3
434943	2006	UD ₁₁	16.2	X	220.08870	307.85716	40.08246	10.87187	0.0569144	0.18082685	3.0971396	20	4 7.1	20.8
434944	2006	UT ₁₁	18.0	X	108.53438	290.19021	46.28976	4.69730	0.1559997	0.30287235	2.1959863	20	—	—
434945	2006	UN ₁₅	15.7	X	215.16841	96.01615	212.25913	12.54779	0.0646538	0.16917636	3.2377472	20	2 8.7	20.9
434946	2006	UA ₂₀	16.0	X	292.52004	245.18833	18.58803	13.53451	0.0449851	0.17915376	3.1163921	20	3 21.5	20.4
434947	2006	UB ₂₁	18.5	X	100.65956	82.37822	244.69514	2.20942	0.1949969	0.30133864	2.2034312	20	—	—
434948	2006	UK ₂₄	17.9	X	244.70052	138.34860	16.71396	6.47635	0.1004363	0.28967750	2.2621750	20	12 19.8	20.4
434949	2006	UN ₂₅	17.7	X	133.48357	269.23787	2.88133	3.13999	0.1788364	0.29629632	2.2283593	20	—	—
434950	2006	UU ₂₇	18.0	X										

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
434961 2006 UO ₈₆	15.8	X	190.41784	136.08597	233.07120	8.43716	0.0873224	0.17651849	3.1473322	20	3 26.4	20.7
434962 2006 UO ₉₁	16.1	X	8.57186	347.27485	236.85490	10.12407	0.0400658	0.19201852	2.9755960	20	5 9.0	20.1
434963 2006 UP ₉₂	18.3	X	269.26675	270.14556	193.86857	4.11750	0.1326241	0.28304705	2.2973665	20	11 10.4	20.4
434964 2006 UP ₉₃	18.1	X	121.04742	243.54123	79.74169	1.99540	0.1848837	0.30359178	2.1925157	20	—	—
434965 2006 UN ₉₅	18.2	X	351.74037	227.22225	188.08475	6.03611	0.1204507	0.29156385	2.2524073	20	—	—
434966 2006 UJ ₁₀₀	18.2	X	85.89241	157.96029	179.17142	6.23753	0.1515988	0.29769111	2.2213934	20	—	—
434967 2006 UL ₁₀₁	18.4	X	54.17655	209.12346	174.32764	5.64393	0.0951130	0.29847305	2.2175119	20	—	—
434968 2006 UW ₁₀₄	18.3	X	96.99266	133.82670	188.10573	4.22195	0.1745894	0.29678462	2.2259144	20	—	—
434969 2006 UE ₁₀₉	17.9	X	118.06282	134.90127	195.48727	7.15060	0.1872413	0.30271787	2.1967333	20	—	—
434970 2006 UZ ₁₀₉	16.3	X	240.46983	124.64445	228.38035	8.69196	0.0689696	0.19105471	2.9855949	20	5 1.7	20.5
434971 2006 UQ ₁₁₆	15.7	X	154.57723	165.57236	208.56385	21.05017	0.0343765	0.17311452	3.1884557	20	2 18.4	20.7
434972 2006 UW ₁₁₈	16.9	X	280.10521	162.75204	160.10745	1.26667	0.1287736	0.19034572	2.9930041	20	5 3.6	21.0
434973 2006 UZ ₁₂₀	16.7	X	239.52794	251.96903	76.53486	2.95900	0.1908416	0.18426475	3.0584957	20	3 23.5	21.6
434974 2006 UH ₁₂₂	16.8	X	290.48003	224.14208	93.64893	1.93570	0.1295531	0.19141928	2.9818028	20	5 10.5	20.9
434975 2006 UO ₁₂₂	16.1	X	270.76736	257.50753	37.01231	16.36980	0.0191495	0.18025165	3.1037248	20	4 6.5	20.5
434976 2006 UP ₁₂₂	18.6	X	283.93745	265.46743	185.42829	3.60740	0.1001651	0.28469866	2.2884729	20	11 21.5	20.7
434977 2006 UT ₁₂₃	16.8	X	277.97119	86.65532	197.88134	4.73935	0.1334558	0.18314991	3.0708946	20	3 12.9	21.2
434978 2006 UA ₁₂₆	18.2	X	17.94260	34.21389	355.01965	3.92636	0.1060930	0.29270851	2.2465314	20	—	—
434979 2006 UN ₁₃₁	15.6	X	316.02610	359.55012	221.17267	14.49455	0.0672738	0.17323059	3.1870313	20	2 16.7	20.3
434980 2006 UD ₁₃₅	17.7	X	142.84835	245.01310	47.91799	7.84541	0.1622861	0.30130849	2.2035782	20	—	—
434981 2006 UZ ₁₃₅	15.9	X	171.51236	307.56307	43.09061	13.73350	0.1164699	0.17182974	3.2043295	20	2 25.9	21.1
434982 2006 UT ₁₃₆	16.2	X	152.26758	102.97249	286.94058	3.95748	0.2152336	0.17395089	3.1782273	20	3 21.7	21.6
434983 2006 UL ₁₃₉	18.1	X	234.33961	255.99098	208.64044	6.92644	0.1604033	0.27302430	2.3535254	20	9 10.3	21.2
434984 2006 UN ₁₄₀	16.1	X	249.03407	74.79563	245.99677	9.58211	0.0306585	0.17818827	3.1276392	20	4 3.6	20.7
434985 2006 UM ₁₄₃	15.9	X	247.31492	99.28064	233.23756	12.87019	0.0861968	0.17927508	3.1149860	20	4 10.6	20.7
434986 2006 UY ₁₄₃	17.5	X	47.82551	344.63382	21.88575	4.14147	0.1591442	0.29317505	2.2441474	20	—	—
434987 2006 UM ₁₄₅	16.1	X	198.23396	128.70403	225.78574	10.93171	0.1153137	0.18394333	3.0620576	20	3 15.2	21.1
434988 2006 UV ₁₅₅	16.4	X	212.75891	171.99573	181.12642	15.40896	0.1543281	0.18372853	3.0644437	20	3 30.2	21.4
434989 2006 UO ₁₈₅	16.0	X	216.03446	297.65377	47.98445	16.44438	0.1778419	0.18361634	3.0656918	20	3 29.9	21.2
434990 2006 UW ₁₉₈	17.8	X	336.52756	213.81758	220.54918	2.16178	0.1316344	0.29008741	2.2600435	20	—	—
434991 2006 UM ₂₀₈	16.6	X	225.06646	310.51562	47.29234	4.14529	0.1283693	0.18398742	3.0615684	20	4 17.5	21.4
434992 2006 UB ₂₀₉	16.7	X	201.26581	219.40072	125.00451	2.86809	0.0920438	0.17606915	3.1526847	20	3 11.6	21.6
434993 2006 UZ ₂₁₀	16.0	X	191.47779	115.46170	249.21060	9.98138	0.1077555	0.17647726	3.1478224	20	3 20.6	21.2
434994 2006 UD ₂₁₆	16.5	X	153.70958	337.66400	20.96538	5.18354	0.1829859	0.17159000	3.2073134	20	2 18.2	21.7
434995 2006 US ₂₂₅	18.0	X	49.25959	218.37754	156.42899	4.09228	0.2000944	0.29919715	2.2139327	20	—	—
434996 2006 UC ₂₄₂	15.7	X	350.90657	354.87217	207.24649	26.84600	0.0674259	0.17844509	3.1246376	20	3 12.8	20.1
434997 2006 UG ₂₄₇	16.6	X	184.84701	148.42279	221.03193	8.85574	0.1060831	0.17838637	3.1253232	20	3 21.6	21.7
434998 2006 UJ ₂₅₂	16.1	X	148.65867	359.04076	38.82615	9.35806	0.0957423	0.17506595	3.1647174	20	3 24.9	20.9
434999 2006 UD ₂₅₆	16.2	X	213.81222	298.80580	46.31193	10.28467	0.1146734	0.17654053	3.1470702	20	3 27.1	21.2
435000 2006 UP ₂₅₆	17.1	X	173.39210	201.06507	197.71693	10.90790	0.1515213	0.18201953	3.0835954	20	4 18.5	22.1
435001 2006 UQ ₂₅₆	18.8	X	126.93888	182.71665	146.59853	1.28383	0.1826424	0.30724872	2.1750838	20	—	—
435002 2006 UD ₂₈₃	18.2	X	235.36574	99.62999	22.79000	2.70428	0.1677049	0.27813389	2.3243424	20	10 8.3	20.8
435003 2006 UG ₂₈₉	17.2	X	213.33244	226.50698	304.33447	4.60159	0.0752664	0.28627606	2.2800587	20	11 29.4	20.0
435004 2006 UC ₃₂₂	18.4	X	254.18508	19.13068	47.66269	2.50721	0.1139691	0.27505020	2.3416828	20	8 25.8	21.2
435005 2006 UX ₃₃₀	16.2	X	163.31127	282.67344	140.50466	10.73664	0.0731938	0.18218581	3.0817188	20	5 8.6	21.0
435006 2006 UF ₃₃₁	16.5	X	106.66683	272.03779	166.79943	15.47715	0.0913305	0.17195958	3.2021762	20	3 26.4	21.1
435007 2006 UE ₃₄₆	18.0	X	61.26034	152.97316	206.08489	2.49074	0.1742469	0.29679698	2.2258526	20	—	—
435008 2006 VU ₃₁₅	16.1	X	234.46026	280.45370	28.95662	5.69925	0.1657694	0.17599053	3.1536236	20	2 28.9	21.2
435009 2006 VM ₃₁₇	16.2	X	245.44279	77.86017	240.08291	8.91977	0.0709711	0.17774430	3.1328451	20	3 22.4	20.9
435010 2006 VO ₃₁₉	16.3	X	215.95323	316.57293	46.74427	13.39862	0.1097944	0.18064829	3.0991801	20	4 18.4	21.2
435011 2006 VW ₃₀	15.9	X	238.68837	89.88328	254.92851	8.95440	0.1319730	0.18145231	3.0900183	20	4 11.4	20.8
435012 2006 VA ₃₃	18.0	X	298.26307	9.34569	38.42592	4.18119	0.1868870	0.27845418	2.3225597	20	10 2.5	19.7
435013 2006 VD ₃₇	16.8	X	175.13458	241.30178	236.27862	21.17852	0.2087455	0.26310063	2.4120601	20	7 20.2	21.3
435014 2006 VA ₄₆	16.3	X	248.97993	260.39534	35.52737	9.40536	0.0570713	0.17369438	3.1813555	20	3 9.3	21.0
435015 2006 VA ₅₃	15.5	X	228.84553	275.01438	33.00328	13.54537	0.1175779	0.17221391	3.1995623	20	2 29.5	20.7
435016 2006 VT ₅₆	18.4	X	205.96573	48.95940	76.15121	3.13225	0.1905342	0.26980569	2.3719306	20	9 6.4	22.1
435017 2006 VE ₅₉	16.2	X	220.33208	292.55693	67.97225	14.55036	0.2278007	0.18271428	3.0757738	20	4 16.5	21.6
435018 2006 VK ₆₅	17.8	X	346.52749	330.33946	77.93229	4.12344	0.1680877	0.28911093	2.2651296	20	—	—
435019 2006 VT ₆₉	15.4	X	212.83171	91.43293	241.19176	11.57034	0.1232792	0.17209085	3.2010874	20	3 2.4	20.7
435020 2006 VH ₇₀	15.6	X	219.19519	272.41111	72.28080	16.48936	0.1141806	0.17579677	3.1559404	20	4 5.3	20.8
435021 2006 VH ₇₂	17.9	X	89.44758	243.72663	62.03817	2.92536	0.0444855	0.28693290	2.2765777	20	12 30.5	20.7
435022 2006 VR ₇₄	18.6	X	88.64106	123.01091	222.59109	5.80408	0.1981242	0.29859859	2.2168904	20	—	—
435023 2006 VV ₇₄	15.8	X	339.30596	4.18593	225.68977	10.40945	0.0221076	0.17540816	3.1605999	20	4 6.3	20.2
435024 2006 VF ₈₃	15.7	X	264.03271	244.71767	47.95728	12.76327	0.0213453	0.17512307	3.1640291	20	3 28.3	20.3
435025 2006 VH ₉₀	17.7	X	106.79600	62.06383	262.97550	6.22063	0.1462720	0.29852977	2.2172310	20	—	—
435026 2006 VB ₉₈	16.2	X	262.30131	264.40480	62.09344	12.79401	0.1297807	0.18298520	3.0727371	20	4 21.1	20.8
435027 2006 VZ ₁₀₂	17.7	X	78.98903	275.36445	52.69818	10.59074	0.2170879	0.29212836	2.2495047	20	—	—
435028 2006 VK ₁₀₇	17.7	X	260.84964	58.53177	27.84038	4.28471	0.1741858	0.27513534	2.3411997	20	9 22.9	20.3
435029 2006 VN ₁₀₇	16.2	X	152.57640	353.33038	42.93366	8.65193	0.0726815	0.17200897	3.2021032	20	3 25.5	21.0
435030 2006 VD ₁₂₀	15.8	X	275.77918	54.02779	235.96003	8.34838	0.1010280	0.17694677	3.1422516	20	3 19.5	20.5
435031 2006 VQ ₁₂₄	16.4	X	239.49563	287.22825	55.63428	5.86569	0.1572043	0.18124878	3.0923311	20	4 12.5	21.2
435032 2006 VJ ₁₂₅	15.7	X	131.19089	188.88016	248.41997	13.69285	0.0808156	0.17654093	3.1470655	20	4 14.7	20.5
435033 2006 VG ₁₂₇	16.0	X	278.49942	244.52689	36.06662	16.95192	0.1541416	0.17699357	3.1416977	20	3 15.7	20.8

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>
435041 2006 WQ ₄₅	16.4	X	239.98166	119.43664	197.42618	9.19230	0.0402935	0.17764008	3.1340704	20	3 20.3	21.1
435042 2006 WD ₅₃	15.3	X	135.38721	335.06822	96.04640	24.58683	0.1189201	0.17523888	3.1626350	20	4 30.7	20.6
435043 2006 WY ₅₄	18.1	X	228.92359	102.79019	30.73368	1.65946	0.1326744	0.27528317	2.3403615	20	10 19.8	20.9
435044 2006 WK ₅₅	15.7	X	234.61224	286.92264	68.01181	22.09592	0.2279849	0.18268981	3.0760484	20	4 24.2	21.1
435045 2006 WR ₆₁	17.5	X	226.61311	236.75068	233.07678	4.48225	0.1926919	0.27268068	2.3552290	20	9 3.9	20.9
435046 2006 WX ₆₄	15.4	X	126.47599	187.49790	251.41333	24.68413	0.1364862	0.17406918	3.1767873	20	4 16.3	20.6
435047 2006 WT ₆₇	18.3	X	290.37019	18.03844	71.83031	5.93999	0.1217256	0.28035930	2.3120261	20	11 27.9	20.1
435048 2006 WS ₇₈	17.8	X	237.33204	72.77982	43.79734	7.94951	0.1487599	0.27511453	2.3413178	20	10 7.7	20.8
435049 2006 WU ₇₉	18.0	X	124.50741	293.04076	46.18468	4.65000	0.2144889	0.30432072	2.1890131	20	—	—
435050 2006 WA ₈₁	17.8	X	351.90998	349.20802	48.23112	6.46624	0.1216705	0.28612226	2.2808757	20	—	—
435051 2006 WV ₈₉	16.4	X	231.67032	279.02901	86.05083	15.39471	0.3313974	0.18389079	3.0626408	20	4 25.4	22.1
435052 2006 WW ₉₇	17.9	X	216.05394	281.63953	243.29276	3.73387	0.1583590	0.27918471	2.3185064	20	11 11.8	20.9
435053 2006 WH ₉₉	15.9	X	230.28130	100.66270	239.26846	9.07642	0.0898004	0.17729402	3.1381472	20	3 31.6	20.9
435054 2006 WZ ₁₃₇	16.9	X	251.19195	175.35412	179.40293	1.09473	0.1656082	0.18608314	3.0385381	20	5 5.9	21.5
435055 2006 WX ₁₃₉	16.4	X	246.21780	265.18076	71.82005	10.90250	0.0760621	0.17904729	3.1176274	20	4 22.4	21.1
435056 2006 WC ₁₄₈	17.7	X	130.78080	270.70076	57.88492	5.53181	0.2331993	0.30367382	2.1921208	20	—	—
435057 2006 WX ₁₈₄	18.0	X	256.43339	148.79990	296.70401	4.99525	0.0788050	0.27439174	2.3454276	20	9 26.5	20.9
435058 2006 XG ₂	20.2	X	46.57856	189.89053	81.34220	20.11739	0.1402546	0.63434491	1.3414848	20	12 18.2	20.1
435059 2006 XE ₂₈	17.3	X	333.39332	305.92492	86.92699	5.16082	0.1936693	0.27913832	2.3187633	20	12 2.2	18.9
435060 2006 XB ₃₃	17.3	X	285.53880	7.62428	59.82475	8.19885	0.1607838	0.27558597	2.3386468	20	10 12.7	19.5
435061 2006 XU ₅₈	17.9	X	185.30395	74.10541	56.48542	2.21417	0.1361455	0.26254736	2.4154475	20	8 26.4	21.5
435062 2006 XK ₇₀	17.6	X	154.95065	220.69403	310.00024	6.20368	0.1657017	0.26239532	2.4163805	20	9 13.2	21.5
435063 2006 XD ₇₁	17.4	X	255.02419	137.09779	297.37113	6.29123	0.1040514	0.26624254	2.3930462	20	9 3.2	20.4
435064 2006 YJ	18.1	X	85.81244	225.33888	265.68589	16.40651	0.0828527	0.39188619	1.8493938	20	4 11.4	20.0
435065 2006 YO ₈	17.2	X	215.91059	355.60642	108.18952	5.85837	0.0631232	0.26232869	2.4167897	20	9 2.4	20.4
435066 2006 YQ ₁₂	17.9	X	172.04061	42.76665	106.75072	6.75652	0.1815742	0.26136662	2.4227167	20	9 6.7	21.9
435067 2006 YN ₃₄	17.9	X	253.01034	47.88782	17.74377	4.39380	0.1741447	0.26524079	2.3990678	20	8 12.2	21.0
435068 2006 YF ₄₃	17.6	X	176.81405	115.03870	88.78647	7.36433	0.0517324	0.27411775	2.3469902	20	11 29.1	20.6
435069 2006 YR ₅₄	17.4	X	117.76977	158.09821	119.93540	8.36959	0.1111106	0.27776936	2.3263755	20	12 26.5	20.9
435070 2007 AW ₁₃	17.8	X	189.36993	14.85816	119.28902	7.22836	0.1706158	0.26296945	2.4128622	20	9 3.2	21.6
435071 2007 AG ₂₈	17.7	X	143.26484	63.92953	143.55354	2.12176	0.1636436	0.26552852	2.3973343	20	10 22.7	21.4
435072 2007 AK ₂₈	17.7	X	140.66095	244.73249	318.53529	2.81285	0.1752939	0.26307952	2.4121891	20	10 12.6	21.6
435073 2007 AG ₃₀	18.3	X	229.31495	192.13661	279.49015	2.70024	0.1250431	0.26531558	2.3986168	20	9 18.3	21.4
435074 2007 BK ₃	17.9	X	233.70358	21.78559	109.39417	6.57184	0.1870986	0.27084291	2.3658711	20	10 17.4	21.1
435075 2007 BT ₁₂	17.3	X	188.41638	27.05468	113.70782	7.51182	0.0292826	0.26244464	2.4160778	20	9 22.9	20.5
435076 2007 BD ₁₃	17.3	X	309.86351	308.24966	108.54918	7.78197	0.0945593	0.27240419	2.3568224	20	11 15.9	19.8
435077 2007 BO ₁₃	17.8	X	81.60622	155.06336	96.11895	3.93682	0.1488708	0.25990588	2.4317858	20	10 17.5	21.4
435078 2007 BU ₁₅	17.2	X	36.15754	235.61424	110.15407	6.05566	0.2633139	0.27817135	2.3241338	20	—	—
435079 2007 BV ₂₁	17.2	X	280.41316	138.77034	319.45818	7.39997	0.0032018	0.27356022	2.3501780	20	11 29.4	20.2
435080 2007 BW ₄₂	18.4	X	140.66072	84.29091	120.02271	2.14392	0.1247203	0.26361599	2.4089154	20	10 16.0	22.1
435081 2007 BV ₄₈	18.2	X	147.43118	132.17189	46.60049	3.25420	0.1390715	0.25754886	2.4465999	20	9 19.8	21.9
435082 2007 BO ₆₁	17.2	X	178.14365	72.83029	107.99557	8.37385	0.1604433	0.26851142	2.3795466	20	10 25.3	21.0
435083 2007 BP ₈₀	17.3	X	275.57716	141.52056	308.86848	6.23633	0.0961334	0.27001741	2.3706906	20	10 29.7	19.9
435084 2007 BU ₉₉	17.6	X	133.30527	181.23492	44.09639	2.54538	0.1215642	0.26837927	2.3803276	20	11 4.0	21.2
435085 2007 BU ₁₀₀	17.6	X	241.71007	157.30820	310.51323	6.39937	0.0604815	0.26670008	2.3903085	20	10 7.7	20.8
435086 2007 CC ₁₂	17.5	X	118.31067	191.04610	57.95000	2.55996	0.1110650	0.26503801	2.4002913	20	11 17.9	20.8
435087 2007 CR ₁₆	17.8	X	203.87619	189.68245	305.38626	4.86805	0.0579176	0.26226515	2.4171800	20	9 25.6	21.2
435088 2007 CU ₁₇	17.5	X	148.44809	176.09852	31.80783	2.76552	0.1548163	0.26293377	2.4130805	20	10 26.7	21.1
435089 2007 CJ ₂₈	18.4	X	144.95582	220.20142	311.66028	2.69545	0.1362263	0.25680201	2.4513412	20	9 6.1	22.2
435090 2007 CQ ₂₈	18.3	X	207.15520	268.35372	198.27524	0.42478	0.1455135	0.26162756	2.4211056	20	8 15.5	21.9
435091 2007 CT ₃₆	17.8	X	172.76455	51.77441	134.92796	8.92638	0.0481526	0.26707283	2.3880839	20	11 3.3	21.1
435092 2007 CF ₃₈	18.0	X	168.56625	1.78306	169.95825	1.07982	0.1520323	0.26232415	2.4168176	20	9 30.3	21.6
435093 2007 CK ₄₂	17.4	X	21.53820	317.75861	321.91687	8.14708	0.0931249	0.25288559	2.4765855	20	8 22.7	20.1
435094 2007 CZ ₄₂	18.0	X	174.61270	242.50012	283.82115	1.58402	0.1411677	0.26184919	2.4197392	20	9 28.7	21.5
435095 2007 CB ₄₄	17.3	X	293.39773	304.99476	138.81848	7.34342	0.0809345	0.27448961	2.3448700	20	11 27.1	19.8
435096 2007 CQ ₅₁	17.7	X	190.69226	259.31258	238.16908	1.38639	0.1751295	0.26070263	2.4268286	20	9 5.4	21.6
435097 2007 CV ₅₁	16.9	X	137.87301	81.95810	80.24510	8.10020	0.1253539	0.25488081	2.4636440	20	8 20.8	20.7
435098 2007 CU ₅₈	17.0	X	147.37759	108.18342	75.36160	7.30018	0.1611073	0.25788675	2.4444624	20	9 28.5	21.0
435099 2007 CL ₆₄	17.6	X	95.88029	239.91230	13.94530	3.66043	0.1174339	0.26161513	2.4211822	20	10 30.9	21.0
435100 2007 DZ ₄	17.5	X	109.44542	107.97540	165.33939	3.75660	0.0433348	0.27491617	2.3424439	20	12 9.3	20.5
435101 2007 DQ ₁₇	17.5	X	153.00608	24.02585	156.14732	7.81786	0.0368501	0.25901648	2.4373493	20	9 28.4	20.7
435102 2007 DK ₂₄	18.1	X	181.08580	347.77901	176.99623	1.94715	0.1240674	0.26165446	2.4209396	20	10 5.4	21.7
435103 2007 DH ₂₆	17.9	X	169.72112	41.66486	116.66302	3.23050	0.1606430	0.25770847	2.4455897	20	9 14.7	21.8
435104 2007 DR ₂₆	18.1	X	100.43427	186.67321	42.46621	2.04357	0.1538385	0.25436262	2.4669889	20	10 7.2	21.9
435105 2007 DP ₂₈	17.1	X	273.31315	279.55919	147.72596	7.48881	0.0957881	0.26176248	2.4202735	20	9 26.4	19.9
435106 2007 DQ ₃₅	17.9	X	155.64627	28.38088	158.73569	0.41040	0.1740320	0.25848889	2.4406648	20	10 6.7	21.9
435107 2007 DY ₃₅	17.7	X	120.65210	63.13787	154.76738	2.90167	0.1520082	0.25617669	2.4553287	20	10 13.4	21.5
435108 2007 DS ₄₀	18.3	X	182.93395	21.19029	143.95662	1.98398	0.1307884	0.26012633	2.4304117	20	10 7.7	22.0
435109 2007 DA ₄₉	17.9	X	120.52186	45.73618	190.43896	0.87000	0.1389603	0.25973758	2.4328361	20	11 4.3	21.7
435110 2007 DR ₆₇	18.1	X	131.51233	140.95393	137.50186	3.05293	0.1769965	0.26990570	2.3713446	20	—	—
435111 2007 DQ ₆₈	17.5	X	340.94566	310.76296	348.54128	9.75466	0.1035825	0.24530705	2.5273343	20	7 12.4	20.3
435112 2007 DH ₇₀	16.1	X	281.19396	121.56074	353.18330	6.33146	0.2281397	0.12510221	3.9593697	20	10 19.7	21.3
435113 2007 DX ₇₁	18.4	X	195.97969	0.97060	123.95020	2.28278	0.1383009	0.25692043	2.45			

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>
435121 2007 EQ ₁₀	16.9	X	48.34527	329.77873	326.82549	7.96612	0.0991860	0.26064586	2.4271810	20	10 24.9	20.2
435122 2007 EP ₁₃	17.3	X	227.68547	335.96915	154.43785	7.26937	0.0534391	0.26643580	2.3918889	20	10 26.9	20.4
435123 2007 EN ₂₉	17.6	X	329.67304	277.42923	130.75114	2.74934	0.1906014	0.27423204	2.3463380	20	12 15.5	19.4
435124 2007 EC ₅₂	17.4	X	96.27427	199.58112	340.63388	10.65508	0.1474966	0.24465170	2.5318456	20	7 31.2	21.1
435125 2007 EG ₆₆	18.1	X	163.29761	147.12201	10.80683	8.75438	0.1954154	0.25483335	2.4639499	20	9 8.5	22.1
435126 2007 EX ₆₈	18.6	X	151.07368	43.64104	136.22535	2.67034	0.1463209	0.25504081	2.4626136	20	9 24.0	22.4
435127 2007 EE ₈₈	18.1	X	76.16762	336.68829	160.40521	20.47422	0.0782051	0.38183883	1.8816954	20	4 18.9	19.9
435128 2007 EY ₁₀₄	17.5	X	88.14724	131.37914	156.65522	2.31548	0.1848702	0.26108776	2.4244415	20	12 10.7	21.2
435129 2007 ED ₁₂₃	17.7	X	43.19423	82.11539	127.21940	4.56703	0.1951829	0.23767570	2.5811477	20	7 1.7	20.4
435130 2007 EU ₁₃₀	17.2	X	231.85331	317.80291	175.68722	7.19561	0.0502016	0.26358819	2.4090848	20	11 4.9	20.3
435131 2007 EH ₁₄₆	17.7	X	123.91233	120.14676	88.76160	2.28607	0.1383391	0.25478009	2.4642933	20	10 4.6	21.5
435132 2007 EF ₁₅₀	17.0	X	336.15137	209.34398	148.52859	7.56743	0.1187837	0.25663538	2.4524022	20	10 3.4	19.4
435133 2007 FD ₆	18.1	X	101.96334	216.72914	38.43369	3.11237	0.1726917	0.25766694	2.4458524	20	11 11.3	21.9
435134 2007 FT ₃₅	18.5	X	319.77677	76.24830	179.71088	22.87777	0.0713380	0.37791345	1.8947030	20	3 22.2	19.6
435135 2007 GB ₁₆	16.5	X	34.61908	12.83200	263.06051	7.33582	0.1446124	0.24508746	2.5288437	20	9 10.6	19.6
435136 2007 GY ₁₉	17.6	X	87.71436	330.30292	337.59921	2.00343	0.2057290	0.25780609	2.4449723	20	—	—
435137 2007 GH ₂₃	17.2	X	49.78779	189.96147	39.25738	9.51114	0.1097186	0.23701917	2.5859119	20	7 30.9	20.6
435138 2007 GD ₄₉	16.8	X	26.02452	296.34646	44.95091	30.86061	0.4964045	0.24342072	2.5403742	20	—	—
435139 2007 GR ₅₉	17.3	X	24.62520	322.85307	20.61569	3.76041	0.1029812	0.25526295	2.4611847	20	11 27.2	20.2
435140 2007 GC ₆₂	15.3	X	170.20296	66.35466	244.43500	6.45793	0.2796575	0.12396013	3.9836518	20	1 14.9	22.0
435141 2007 GH ₇₇	17.6	X	87.84221	170.62250	38.01058	5.56402	0.1143286	0.24236873	2.5477198	20	8 23.9	21.2
435142 2007 HC ₂₄	17.7	X	117.11678	319.71721	211.69766	5.73623	0.1224694	0.24170848	2.5523572	20	8 4.2	21.6
435143 2007 HF ₃₈	17.5	X	81.42580	179.90732	36.71632	11.49694	0.0796986	0.24491502	2.5300306	20	8 25.5	21.1
435144 2007 HA ₄₈	17.8	X	110.01554	46.60109	44.44396	20.81900	0.1322474	0.37526640	1.9036025	20	4 12.8	19.8
435145 2007 HQ ₅₁	16.5	X	352.25738	219.77845	55.33374	11.67542	0.1705277	0.23222151	2.6214068	20	6 22.1	19.0
435146 2007 HJ ₅₅	17.6	X	231.40388	305.72096	46.90687	23.04614	0.0897028	0.37661613	1.8990516	20	4 17.5	19.9
435147 2007 HD ₆₂	18.3	X	355.07553	331.82370	211.33387	20.10012	0.0538569	0.36924457	1.9242432	20	1 21.4	20.8
435148 2007 HQ ₇₅	17.0	X	166.22029	152.76028	54.84506	8.69269	0.0856321	0.25752081	2.4467776	20	11 14.9	20.5
435149 2007 HX ₇₅	17.6	X	95.71883	14.74222	205.55748	4.58988	0.1762508	0.24483207	2.5306020	20	9 20.4	21.4
435150 2007 JK ₂₆	17.7	X	61.26370	176.23790	74.19958	17.79401	0.0863755	0.24171534	2.5523089	20	9 19.5	21.5
435151 2007 JM ₂₉	17.4	X	56.72845	184.12023	77.87579	5.56760	0.2031363	0.24185721	2.5513107	20	10 8.4	20.9
435152 2007 JP ₃₇	16.8	X	96.12079	99.81922	95.15767	18.32235	0.0766880	0.23995234	2.5647954	20	8 11.1	20.6
435153 2007 JH ₄₀	17.2	X	76.65164	346.17271	223.89206	11.14669	0.0571724	0.23699681	2.5860746	20	7 26.7	20.9
435154 2007 JC ₄₂	15.7	X	315.16666	211.74859	95.00888	33.98098	0.1957807	0.22889480	2.6467450	20	5 31.8	19.0
435155 2007 LN	16.8	X	34.57161	0.70547	222.94281	18.54560	0.2483655	0.23095436	2.6309864	20	7 10.8	20.0
435156 2007 LJ ₄	16.4	X	39.62813	174.91334	84.99435	15.09408	0.1404490	0.23769023	2.5810425	20	9 6.3	19.8
435157 2007 LT ₆	17.0	X	329.22689	136.00684	201.05248	13.93505	0.2856732	0.23784456	2.5799259	20	8 28.2	19.1
435158 2007 LM ₁₄	16.9	X	70.98472	321.80337	236.21851	16.04681	0.1503520	0.23416157	2.6069076	20	7 15.9	20.7
435159 2007 LQ ₁₉	17.1	X	25.24271	207.58833	110.87755	17.07504	0.6303570	0.23467501	2.6031038	20	—	—
435160 2007 MX ₇	16.9	X	36.16341	118.36690	194.56506	15.99085	0.2150036	0.24402016	2.5362122	20	11 19.4	20.4
435161 2007 NV ₂	16.4	X	6.40640	331.26499	284.11347	13.04595	0.1218272	0.21838990	2.7309538	20	6 21.1	19.3
435162 2007 NM ₃	16.8	X	20.80213	335.76924	285.50578	12.56538	0.1477045	0.22709852	2.6606833	20	7 27.5	19.7
435163 2007 OJ	17.6	X	36.41719	160.78566	153.50678	14.19326	0.2962301	0.23884663	2.5727049	20	12 2.9	21.5
435164 2007 OQ ₁	16.9	X	344.46859	162.13907	162.24426	13.64066	0.2944864	0.22875516	2.6478220	20	8 24.5	18.4
435165 2007 PE ₁₂	16.6	X	8.38244	315.97926	343.98035	17.48584	0.2119232	0.22901266	2.6458368	20	9 9.7	18.9
435166 2007 PO ₁₅	16.4	X	346.61902	345.40139	340.54613	13.78983	0.2572007	0.22789303	2.6544957	20	9 2.5	18.1
435167 2007 PS ₂₀	17.1	X	290.71043	182.77118	162.06569	10.40977	0.2165681	0.21780909	2.7358066	20	6 3.1	20.8
435168 2007 PD ₃₀	17.1	X	4.96867	168.57660	139.99212	7.91297	0.2733714	0.22953086	2.6418531	20	9 29.6	19.4
435169 2007 PQ ₃₄	17.1	X	349.94409	172.37808	150.59122	7.46062	0.2926984	0.22919990	2.6443956	20	9 12.6	18.6
435170 2007 PZ ₃₅	16.8	X	350.64723	334.15923	350.29042	8.25603	0.2680784	0.22696018	2.6617644	20	9 12.6	18.5
435171 2007 PU ₃₇	16.9	X	317.57875	205.90630	162.89615	9.39373	0.2877047	0.22596100	2.6696053	20	8 15.3	19.0
435172 2007 PL ₄₆	17.4	X	342.42283	167.02580	168.07842	3.46668	0.1574688	0.22771387	2.6558878	20	9 2.8	19.9
435173 2007 QN ₁	16.6	X	350.68591	159.77093	176.24919	16.85624	0.1926630	0.22851995	2.6496386	20	9 25.5	19.0
435174 2007 QH ₇	16.8	X	25.99339	339.82455	321.69944	8.83893	0.2325459	0.23224756	2.6212108	20	10 14.7	20.0
435175 2007 QM ₁₄	15.9	X	43.91550	262.81793	160.99430	25.84666	0.2399270	0.17639094	3.1488492	20	—	—
435176 2007 RE ₇	16.4	X	275.82285	190.30129	175.77122	9.04953	0.2175255	0.21522512	2.7576601	20	6 10.7	20.3
435177 2007 RV ₇	16.9	X	355.91479	324.28293	344.56190	6.13221	0.1685297	0.22634817	2.6665602	20	8 23.9	19.4
435178 2007 RM ₈	17.1	X	21.32351	103.32987	181.14222	12.12780	0.1487400	0.22704021	2.6611388	20	9 1.1	20.1
435179 2007 RA ₁₀	16.9	X	333.53060	171.95135	182.65827	8.05054	0.2683927	0.22671674	2.6636694	20	9 10.8	18.6
435180 2007 RS ₁₀	16.5	X	274.61886	70.58211	297.21872	5.79889	0.2226814	0.21621261	2.7492572	20	6 9.7	20.5
435181 2007 RO ₁₁	17.2	X	306.01037	144.28418	203.54872	4.48977	0.1756658	0.22046133	2.7138204	20	7 6.5	20.3
435182 2007 RF ₁₃	16.0	X	329.90979	329.35932	5.96553	14.75788	0.1823050	0.22306175	2.6926876	20	8 12.7	18.8
435183 2007 RR ₂₀	17.1	X	337.57512	172.60843	150.49020	7.34969	0.2434195	0.22546564	2.6735140	20	7 30.9	19.0
435184 2007 RP ₂₇	17.0	X	333.71544	147.46789	180.49573	6.34408	0.1585160	0.22414086	2.6840382	20	8 2.0	19.7
435185 2007 RU ₃₀	17.4	X	353.77709	122.77666	239.62068	3.70701	0.3740403	0.23241729	2.6199345	20	12 12.1	19.5
435186 2007 RJ ₃₅	17.1	X	308.90639	199.66608	165.92631	6.48191	0.2305435	0.22332087	2.6906043	20	7 29.4	20.0
435187 2007 RG ₄₆	17.0	X	274.19875	31.08231	326.72828	5.73477	0.0918205	0.21383320	2.7696143	20	6 15.7	20.8
435188 2007 RT ₆₀	17.0	X	330.36703	131.46103	223.65727	3.46165	0.2647230	0.22646419	2.6656494	20	8 31.9	18.8
435189 2007 RN ₆₈	17.1	X	313.86445	194.00139	148.11651	5.24075	0.1490931	0.22105222	2.7089821	20	7 16.6	20.1
435190 2007 RY ₇₀	16.1	X	74.54169	225.51789	155.09560	11.03790	0.1183964	0.17635192	3.1493137	20	—	—
435191 2007 RO ₇₃	16.6	X	339.42034	328.69812	347.37077	13.26970	0.1822346	0.22369536	2.6876006	20	8 1.7	19.3
435192 2007 RQ ₇₉	18.0	X	44.16845	37.62163	247.24077	0.67141	0.2439683	0.23387282	2.6090528	20	10 24.4	21.5
435193 2007 RW ₈₃	16.6	X	298.73107	171.07823	163.84413	8.53602	0.2295459	0.21574042	2.7532672	20	5 3	

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V		
435201	2007	<i>RM</i> ₁₅₁	17.2	X	336.55761	68.77311	217.87431	6.55234	0.1255341	0.21936974	2.7228156	20	6 10.2	20.2
435202	2007	<i>RC</i> ₁₆₈	17.3	X	277.78649	188.10297	123.01895	3.03905	0.0604212	0.20694220	2.8307619	20	4 25.8	21.1
435203	2007	<i>RC</i> ₁₇₅	16.9	X	339.65065	222.70996	71.87064	5.15094	0.0592628	0.21330038	2.7742247	20	6 30.7	20.2
435204	2007	<i>RG</i> ₁₈₁	17.0	X	307.86076	306.29949	16.46519	3.61956	0.0962716	0.21437266	2.7649659	20	6 15.8	20.4
435205	2007	<i>RE</i> ₁₈₈	17.0	X	220.70124	173.70847	213.44013	5.03052	0.0464516	0.20844079	2.8171777	20	5 24.7	21.0
435206	2007	<i>RV</i> ₂₀₃	16.8	X	345.81941	171.06959	182.64853	12.09374	0.2009254	0.22884803	2.6471056	20	10 13.5	19.1
435207	2007	<i>RJ</i> ₂₀₅	16.6	X	0.69674	51.75567	202.29459	11.88375	0.0968617	0.21006260	2.8026587	20	6 7.9	20.1
435208	2007	<i>RD</i> ₂₁₃	16.0	X	109.24636	161.70515	196.36473	9.16352	0.2096601	0.18035045	3.1025913	20	1 4.9	20.6
435209	2007	<i>RP</i> ₂₂₀	16.6	X	112.55787	259.24107	195.93585	13.27568	0.1253128	0.19449284	2.9503054	20	4 24.9	20.9
435210	2007	<i>RC</i> ₂₂₃	16.6	X	318.23104	163.40099	185.91467	9.52961	0.2019834	0.22053093	2.7132494	20	7 27.0	19.5
435211	2007	<i>RN</i> ₂₂₄	16.4	X	346.56785	329.08281	305.57879	2.43714	0.1616692	0.21711125	2.7416657	20	6 9.2	19.2
435212	2007	<i>RS</i> ₂₂₆	16.9	X	318.99292	207.98193	150.62356	4.23905	0.1902178	0.22343632	2.6896774	20	8 16.3	19.5
435213	2007	<i>RG</i> ₂₃₉	16.7	X	281.72325	259.77470	103.10637	6.64278	0.2114210	0.21668149	2.7452896	20	6 14.5	20.3
435214	2007	<i>RV</i> ₂₃₉	16.5	X	343.06992	266.03558	56.22459	8.07848	0.3102561	0.22502922	2.6769696	20	8 21.3	18.1
435215	2007	<i>RW</i> ₂₄₂	16.9	X	301.88207	245.99769	107.08917	3.46672	0.2643056	0.21972889	2.7198478	20	6 22.3	19.8
435216	2007	<i>RK</i> ₂₄₅	16.9	X	13.86913	145.06082	172.24081	13.17633	0.2388219	0.22894628	2.6463482	20	10 24.6	19.8
435217	2007	<i>RJ</i> ₂₄₇	17.4	X	181.74487	190.93383	203.04150	1.40875	0.0750486	0.20376221	2.8601378	20	4 17.8	21.7
435218	2007	<i>RM</i> ₂₄₈	17.2	X	249.14631	356.48865	31.10769	3.62431	0.1001577	0.21365823	2.7711262	20	6 22.1	21.1
435219	2007	<i>RJ</i> ₂₅₇	16.6	X	334.13265	249.86563	89.56047	6.59698	0.2879750	0.22574356	2.6713193	20	8 19.6	18.3
435220	2007	<i>RM</i> ₂₇₂	16.8	X	348.93557	319.37151	354.01735	11.30242	0.2018610	0.22253825	2.6969089	20	8 19.1	19.2
435221	2007	<i>RT</i> ₂₇₈	16.5	X	358.26334	214.23637	110.21558	15.59919	0.2707321	0.23053624	2.6341666	20	10 14.9	19.1
435222	2007	<i>RR</i> ₂₈₄	17.0	X	31.02350	277.77909	349.83141	10.87597	0.2830502	0.22942901	2.6426349	20	9 17.7	20.0
435223	2007	<i>RC</i> ₂₈₉	16.6	X	157.45905	199.24941	214.22251	9.05454	0.0807615	0.19215070	2.9742313	20	4 16.2	21.1
435224	2007	<i>RM</i> ₂₈₉	16.9	X	91.94042	281.30637	140.42204	1.58722	0.1743803	0.18211653	3.0825004	20	2 25.9	21.1
435225	2007	<i>RJ</i> ₂₉₁	16.4	X	359.26825	292.48899	150.51533	12.26761	0.1596988	0.22420904	2.6834941	20	9 2.5	19.2
435226	2007	<i>RT</i> ₂₉₄	16.7	X	315.52758	120.81306	114.42648	3.17886	0.0417047	0.19864540	2.9090446	20	3 12.1	20.5
435227	2007	<i>RR</i> ₂₉₆	15.9	X	178.58673	323.17525	16.10232	14.17445	0.1030813	0.19019390	2.9946056	20	2 16.4	20.7
435228	2007	<i>RR</i> ₃₀₀	17.0	X	5.73641	84.04724	184.03564	7.75949	0.1866591	0.21735910	2.7395811	20	7 10.8	19.7
435229	2007	<i>RB</i> ₃₀₈	14.1	X	23.66319	169.20301	188.52570	7.67224	0.0385856	0.08062280	5.3067767	20	10 30.7	20.9
435230	2007	<i>RO</i> ₃₀₉	17.0	X	342.89572	238.98347	83.25706	3.25373	0.2048121	0.22503297	2.6769399	20	8 16.3	19.3
435231	2007	<i>RC</i> ₃₁₄	16.0	X	67.47059	260.42019	184.26694	14.26091	0.2006664	0.17953328	3.1119987	20	2 22.4	19.9
435232	2007	<i>RW</i> ₃₁₄	17.5	X	15.27514	99.21587	220.61480	3.96771	0.2715506	0.23252219	2.6191464	20	11 3.1	20.2
435233	2007	<i>RC</i> ₃₁₇	16.9	X	336.66218	273.11126	17.76915	11.36069	0.2151571	0.21682512	2.7440772	20	6 5.3	19.7
435234	2007	<i>RS</i> ₃₁₇	16.2	X	46.96051	260.25203	217.28072	17.33140	0.1755041	0.17741777	3.1366878	20	2 24.4	20.2
435235	2007	<i>RR</i> ₃₁₉	16.9	X	237.98325	198.66348	180.42101	6.55128	0.0954556	0.20722685	2.8281691	20	5 30.3	21.2
435236	2007	<i>RU</i> ₃₂₀	16.8	X	158.39155	187.62719	204.60497	10.16425	0.1170489	0.19161794	2.9797416	20	3 23.5	21.4
435237	2007	<i>RC</i> ₃₂₃	16.5	X	222.21707	303.69866	46.49009	10.20243	0.0820228	0.19202135	2.9755668	20	4 10.0	21.1
435238	2007	<i>RE</i> ₃₂₃	16.5	X	290.93118	292.44546	28.20785	13.16748	0.1746010	0.21134606	2.7913006	20	5 4.6	20.2
435239	2007	<i>RE</i> ₃₂₄	17.2	X	336.86280	131.46738	199.28092	9.33633	0.3160460	0.22062701	2.7124616	20	8 2.3	19.0
435240	2007	<i>SV</i> ₁₅	16.9	X	274.70864	211.06516	170.55168	12.36447	0.1917611	0.21849564	2.7300727	20	7 2.6	20.8
435241	2007	<i>SD</i> ₂₀	16.9	X	79.02187	284.17879	205.64585	12.99462	0.1135993	0.19560742	2.9390874	20	4 25.2	20.8
435242	2007	<i>SY</i> ₂₂	15.9	X	85.02539	239.18829	169.99815	10.58522	0.1065300	0.18113316	3.0936469	20	1 21.6	20.2
435243	2007	<i>TD</i> ₁₁	16.9	X	324.83048	152.59773	197.12170	11.14421	0.2168289	0.22159032	2.7045947	20	8 8.8	19.7
435244	2007	<i>TA</i> ₂₀	16.3	X	286.43732	324.59676	27.05967	12.51645	0.2164860	0.21267617	2.7796503	20	6 1.9	20.1
435245	2007	<i>TM</i> ₂₂	16.9	X	278.36370	161.89338	206.98623	7.50535	0.0959371	0.21539647	2.7561974	20	7 4.9	20.7
435246	2007	<i>TV</i> ₂₄	17.9	X	231.02303	97.61954	215.72562	26.80206	0.3304566	0.35183606	1.9872041	20	2 1.1	22.1
435247	2007	<i>TX</i> ₃₄	16.5	X	79.34709	45.25431	39.92858	11.56308	0.1460564	0.18119568	3.0929352	20	3 11.0	20.7
435248	2007	<i>TQ</i> ₃₆	16.0	X	289.89890	302.25047	5.75507	13.85934	0.1853101	0.21184309	2.7869321	20	4 13.9	19.9
435249	2007	<i>TX</i> ₃₉	16.1	X	90.40131	247.67402	204.87099	15.73432	0.3171605	0.18236342	3.0797177	20	4 21.5	20.6
435250	2007	<i>TX</i> ₅₅	16.4	X	186.90840	347.54818	26.41202	10.55314	0.1169201	0.19330624	2.9623665	20	4 1.3	21.0
435251	2007	<i>TM</i> ₅₇	16.3	X	74.12141	231.60129	215.49262	4.71226	0.1708464	0.18006738	3.1058420	20	3 2.4	20.3
435252	2007	<i>TB</i> ₆₈	17.1	X	280.01877	237.85185	111.97319	2.73252	0.1540975	0.21078167	2.7962811	20	6 3.5	20.8
435253	2007	<i>TT</i> ₈₁	17.3	X	27.14837	281.40390	68.84200	4.75089	0.3030059	0.23528973	2.5985679	20	—	—
435254	2007	<i>TV</i> ₈₇	16.5	X	131.12914	354.27276	54.04251	11.25956	0.20124736	0.18671347	3.0316957	20	3 10.9	20.9
435255	2007	<i>TC</i> ₉₉	16.8	X	225.28594	196.76856	144.40446	1.48415	0.0997307	0.19759248	2.9193698	20	3 29.4	21.3
435256	2007	<i>TM</i> ₁₃₃	15.9	X	73.28505	251.23368	214.24116	10.37084	0.0690463	0.18438551	3.0571601	20	3 8.1	20.2
435257	2007	<i>TN</i> ₁₄₁	16.1	X	99.46284	356.70613	43.17914	17.53749	0.1842653	0.17832393	3.1260527	20	2 18.9	20.8
435258	2007	<i>TL</i> ₁₄₆	16.3	X	176.39351	197.30298	199.56552	9.18104	0.1919728	0.19613300	2.9338344	20	4 18.9	21.3
435259	2007	<i>TR</i> ₁₆₄	15.9	X	50.55733	58.77696	23.03817	15.36894	0.2116281	0.17533804	3.1614425	20	2 1.2	19.7
435260	2007	<i>TX</i> ₁₆₄	16.6	X	252.57159	156.91996	209.07694	13.98729	0.1412779	0.20957927	2.8069661	20	5 24.6	20.8
435261	2007	<i>TH</i> ₁₈₅	17.0	X	315.40116	353.02744	349.65294	3.15440	0.2049248	0.21813687	2.7330652	20	7 13.5	19.7
435262	2007	<i>TQ</i> ₁₈₉	17.1	X	59.28953	30.02111	175.61612	5.36585	0.0212025	0.21449499	2.7639146	20	6 23.4	20.8
435263	2007	<i>TN</i> ₁₉₉	17.1	X	187.16212	170.27765	248.30124	1.03881	0.0584746	0.20281269	2.8690578	20	5 24.8	21.2
435264	2007	<i>TV</i> ₂₁₄	16.7	X	128.12808	35.14310	25.11009	13.32889	0.1091406	0.18743508	3.0239095	20	3 29.9	21.2
435265	2007	<i>TN</i> ₂₁₈	16.6	X	125.02935	209.51998	227.14233	9.06362	0.0931838	0.18878141	3.0095154	20	4 9.5	21.1
435266	2007	<i>TV</i> ₂₂₇	17.1	X	148.61582	88.45696	300.35396	1.08525	0.0926929	0.18693844	3.0292629	20	3 9.1	21.7
435267	2007	<i>TH</i> ₂₂₈	16.6	X	173.16829	165.61949	116.46706	12.19149	0.0600301	0.19133300	2.9826992	20	3 22.4	21.1
435268	2007													

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>
435281 2007 TU ₃₂₈	16.4	X	258.65903	97.12881	246.16709	6.78691	0.0741541	0.20192634	2.8774474	20	5 9.7	20.6
435282 2007 TV ₃₃₃	17.2	X	15.06772	281.91774	26.17793	3.78755	0.3673621	0.22657087	2.6648125	20	11 1.5	19.9
435283 2007 TC ₃₄₇	15.7	X	23.15956	280.60258	205.27371	26.40877	0.1047427	0.17646718	3.1479422	20	1 21.9	20.3
435284 2007 TE ₃₆₁	16.7	X	83.34464	218.79026	220.60066	4.89954	0.1409096	0.17878956	3.1206228	20	3 1.0	21.0
435285 2007 TU ₃₇₂	17.3	X	354.69183	185.24982	140.17367	4.94176	0.1845970	0.23032940	2.6357434	20	9 18.8	19.7
435286 2007 TM ₃₇₇	16.3	X	314.19360	218.53906	116.64384	16.33676	0.2822943	0.21635478	2.7480527	20	6 17.4	19.3
435287 2007 TO ₃₈₂	15.8	X	117.66693	267.32645	99.00110	10.52675	0.0475686	0.17215736	3.2002628	20	1 5.4	20.3
435288 2007 TS ₃₈₄	16.2	X	66.32316	2.59714	91.52879	10.58180	0.0721730	0.17848425	3.1241805	20	2 21.8	20.5
435289 2007 TA ₃₈₈	17.0	X	78.32127	42.36038	55.84237	3.60368	0.2327725	0.18567982	3.0429367	20	4 3.2	20.9
435290 2007 TF ₄₀₀	16.5	X	352.09980	263.43795	76.10942	13.52166	0.2891278	0.22637596	2.6663420	20	10 22.5	18.8
435291 2007 TT ₄₁₂	16.8	X	265.79735	254.60935	99.54655	6.32040	0.1833194	0.21095695	2.7947319	20	5 19.6	21.0
435292 2007 TQ ₄₁₃	16.8	X	326.07309	229.00064	124.30060	9.67415	0.2709457	0.22370727	2.6875052	20	8 18.1	18.8
435293 2007 TV ₄₁₃	16.5	X	279.77869	254.76115	89.23365	8.71128	0.2438862	0.21178668	2.7874278	20	5 15.0	20.5
435294 2007 TM ₄₂₃	17.2	X	343.80204	34.18700	267.29228	1.71896	0.1645416	0.21406733	2.7675945	20	7 14.1	19.9
435295 2007 TS ₄₂₆	16.5	X	193.60441	341.31017	20.29241	11.41967	0.1147932	0.19118516	2.9842367	20	3 24.5	21.2
435296 2007 TQ ₄₂₉	16.4	X	128.78540	213.83089	216.58646	9.78895	0.0492476	0.18915601	3.0055408	20	3 31.9	20.9
435297 2007 TZ ₄₃₀	16.8	X	275.93507	279.03446	44.50738	6.52268	0.0895342	0.20165660	2.8800128	20	5 3.9	20.7
435298 2007 TS ₄₃₃	16.4	X	275.77364	258.53009	63.70130	10.47185	0.1888716	0.20609502	2.8385141	20	4 21.5	20.5
435299 2007 TX ₄₄₂	16.2	X	154.44161	288.57878	102.17882	10.18495	0.1548869	0.18884531	3.0088365	20	3 27.0	21.1
435300 2007 TB ₄₅₀	16.9	X	189.51647	220.34808	165.62966	2.46313	0.0858093	0.19313322	2.9641356	20	4 17.3	21.4
435301 2007 TD ₄₅₂	16.1	X	100.16449	30.91737	64.52894	16.93630	0.0579203	0.18505359	3.0497978	20	4 9.1	20.6
435302 2007 US ₆	18.2	X	267.02096	225.44046	125.46194	12.38748	0.4477296	0.29761991	2.2217477	20	8 18.9	21.5
435303 2007 UV ₁₄	16.5	X	286.57116	240.08091	104.11130	15.06407	0.2469820	0.21325451	2.7746225	20	5 24.9	20.4
435304 2007 UV ₄₁	16.8	X	58.96105	116.06183	15.34765	10.54154	0.0531644	0.18735234	3.0247997	20	3 23.9	20.7
435305 2007 UN ₄₄	16.2	X	327.09840	301.40962	19.78340	14.44102	0.1108764	0.21562126	2.7542815	20	7 18.6	19.7
435306 2007 UD ₅₁	16.0	X	194.80958	171.54705	196.88607	11.39685	0.1367232	0.19069643	2.9893333	20	3 31.0	20.9
435307 2007 UH ₅₄	16.2	X	81.44485	224.59164	231.17494	12.19264	0.0859058	0.18353381	3.0666109	20	3 7.5	20.6
435308 2007 UJ ₅₅	16.8	X	316.58793	271.69097	54.97122	5.36037	0.1584199	0.21200204	2.7855397	20	6 27.7	20.0
435309 2007 UZ ₅₇	16.6	X	103.04013	214.44958	221.32916	7.28838	0.2059407	0.18359554	3.0659234	20	3 29.2	21.2
435310 2007 UY ₆₀	16.7	X	295.48903	301.73967	57.67254	5.11472	0.2162839	0.21332566	2.7740055	20	6 28.8	20.2
435311 2007 UT ₆₃	17.3	X	198.14969	171.24455	217.78503	1.48151	0.0469173	0.19890651	2.9064982	20	4 30.2	21.6
435312 2007 UC ₇₉	16.8	X	153.38995	8.98810	47.96956	9.47755	0.0531360	0.19197811	2.9760136	20	4 16.7	21.1
435313 2007 UO ₈₆	16.4	X	95.12513	211.58706	238.29886	8.81383	0.0417151	0.18491542	3.0513168	20	3 12.3	20.8
435314 2007 UW ₉₉	15.8	X	132.88662	144.78332	237.64534	15.45407	0.1959351	0.18089214	3.0963943	20	2 18.9	21.0
435315 2007 UH ₁₀₂	16.2	X	162.88495	154.35789	234.83324	6.29161	0.0890137	0.18672816	3.0315368	20	3 22.2	20.8
435316 2007 UK ₁₁₁	17.0	X	78.27373	107.54535	35.44996	11.54756	0.0868701	0.19464115	2.9488065	20	5 5.6	21.0
435317 2007 UE ₁₂₂	16.9	X	104.89692	216.24006	224.57572	7.18817	0.1595955	0.18457391	3.0550794	20	3 31.4	21.5
435318 2007 UJ ₁₂₂	17.1	X	257.32837	264.49261	58.53933	6.37779	0.0796555	0.19634502	2.9317220	20	4 14.5	21.3
435319 2007 UQ ₁₂₆	16.4	X	109.45450	203.43801	243.64231	9.74140	0.0821493	0.18489879	3.0514997	20	4 1.5	20.9
435320 2007 UZ ₁₃₀	16.5	X	200.70896	309.66525	87.60805	13.11307	0.0609803	0.19674452	2.9277520	20	5 16.3	20.9
435321 2007 UJ ₁₃₉	16.2	X	140.60885	327.76700	61.49639	11.68585	0.0579014	0.18231690	3.0802415	20	3 4.6	20.9
435322 2007 UV ₁₄₀	15.9	X	15.84434	79.79488	60.69389	10.74354	0.0731253	0.17674845	3.1446017	20	2 8.6	20.1
435323 2007 VB ₅	17.4	X	23.87679	104.70906	120.70021	27.38807	0.3924366	0.23420505	2.6065849	20	11 29.2	21.2
435324 2007 VZ ₈	17.1	X	12.49612	277.52923	65.32355	24.75935	0.4092147	0.23164734	2.6257367	20	12 19.7	20.5
435325 2007 VN ₁₁	16.0	X	294.78456	265.99611	89.45688	13.77977	0.2558808	0.21323825	2.7747636	20	6 15.6	19.4
435326 2007 UV ₁₁	16.0	X	266.28293	286.37998	63.48215	15.49497	0.1674597	0.20391915	2.8586701	20	5 16.5	20.1
435327 2007 VF ₁₈	16.9	X	101.80057	224.67878	204.38829	5.19889	0.1127759	0.18416247	3.0596280	20	3 7.4	21.2
435328 2007 VW ₂₃	17.0	X	352.35553	89.47235	197.98334	9.24503	0.1852769	0.21300245	2.7768109	20	7 9.4	19.9
435329 2007 VO ₂₆	15.8	X	40.29537	249.14442	230.45295	15.26044	0.2151771	0.17682109	3.1437404	20	2 18.3	19.6
435330 2007 VK ₃₁	16.9	X	91.92200	80.08123	19.04277	10.53170	0.1601476	0.18598399	3.0396180	20	4 9.4	21.2
435331 2007 VY ₄₂	16.2	X	140.14706	233.24132	181.70256	9.56005	0.1128901	0.18800950	3.0177472	20	4 3.7	20.7
435332 2007 VX ₄₅	15.9	X	75.17618	178.33649	252.45943	9.62706	0.1368858	0.17735341	3.1374466	20	2 6.2	20.2
435333 2007 VR ₄₆	15.8	X	330.02274	277.57411	239.08744	22.46120	0.0838437	0.17191580	3.2032600	20	—	—
435334 2007 VR ₄₉	15.5	X	71.21851	209.99057	253.89576	12.13456	0.1220512	0.18124174	3.0924112	20	3 7.8	19.8
435335 2007 VG ₅₀	16.6	X	251.52154	56.12909	255.48657	8.59244	0.0528243	0.19162248	2.9796945	20	3 21.8	21.2
435336 2007 VS ₅₀	16.7	X	145.72531	18.62124	27.94298	9.54708	0.0926452	0.18793815	3.0185110	20	3 29.8	21.3
435337 2007 VE ₅₉	16.6	X	191.06862	90.26885	262.90215	7.53161	0.1445093	0.18759317	3.0222105	20	3 6.6	21.6
435338 2007 VE ₆₈	16.6	X	42.57851	114.01181	49.24618	10.96518	0.0416832	0.19011083	2.9954688	20	4 11.5	20.6
435339 2007 VU ₁₀₅	16.6	X	299.20242	28.01835	244.53142	8.50270	0.0237899	0.19112595	2.9848530	20	4 6.0	20.8
435340 2007 VO ₁₀₆	16.1	X	14.39731	99.79898	52.43687	22.68723	0.1108509	0.17868255	3.1218686	20	2 29.5	20.4
435341 2007 VP ₁₁₁	16.6	X	79.29620	8.63525	70.04909	1.60967	0.1963110	0.17734896	3.1374991	20	3 5.8	20.6
435342 2007 VY ₁₁₃	17.1	X	335.14040	174.99578	138.86276	2.37534	0.2335799	0.21218031	2.7839793	20	7 8.5	19.6
435343 2007 VB ₁₂₁	16.3	X	174.44282	299.43209	25.15571	10.53308	0.0775174	0.17786162	3.1314673	20	1 23.5	21.2
435344 2007 VM ₁₂₄	16.3	X	55.27046	47.58321	59.72127	12.40387	0.0286261	0.17807502	3.1289650	20	2 21.0	20.8
435345 2007 VS ₁₄₇	16.1	X	243.01481	249.72504	83.59259	10.93797	0.1091005	0.19167005	2.9792015	20	4 11.8	20.8
435346 2007 VB ₁₅₃	17.5	X	334.62673	142.17659	167.04451	3.23111	0.2187918	0.21779628	2.7359138	20	7 1.6	19.8
435347 2007 VB ₁₆₀	16.6	X	303.02351	119.66220	215.86787	14.08935	0.1240455	0.20856702	2.8160409	20	6 20.9	20.3
435348 2007 VM ₁₆₈	16.3	X	87.80745	6.99735	64.30267	11.62677	0.2127313	0.17647001	3.1479085	20	3 15.8	20.8
435349 2007 VY ₁₇₀	16.4	X	94.80757	86.68273	18.72125	8.56695	0.0607309	0.18834737	3.0141371	20	4 6.7	20.6
435350 2007 VP ₁₇₂	16.8	X	60.72463	29.16696	66.31109	2.26604	0.1686471	0.17829081	3.1264398	20	2 24.9	20.5
435351 2007 VS ₁₈₂	16.6	X	38.98190	280.96404	201.59381	10.49138	0.0786489	0.18006479	3.1058717	20	2 12.2	20.7
435352 2007 VC ₁₉₄	16.2	X	351.65831	111.92570	55.18115	12.18077	0.1342287	0.17699756	3.1416505	20	2 1.6	20.2
435353 2007 VO ₂₀₉	16.8	X	168.78271	4.37888	31.97967	10.68530						

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>		
435361	2007	VN ₂₅₀	16.5	X	150.05176	34.54075	7.83258	10.57170	0.0917217	0.18831085	3.0145268	20	3 27.3	21.0
435362	2007	VF ₂₆₂	17.1	X	212.09202	267.44315	101.86706	3.51425	0.0535276	0.19812497	2.9141366	20	4 22.6	21.3
435363	2007	VT ₂₈₆	15.6	X	60.50014	215.68213	256.06364	13.83428	0.2565033	0.17528102	3.1621280	20	3 22.0	19.7
435364	2007	VA ₂₈₇	16.6	X	296.01897	278.14367	72.55111	8.59864	0.2433702	0.21285380	2.7781037	20	6 12.5	19.9
435365	2007	VD ₂₈₇	16.1	X	150.37983	200.65668	201.37699	8.94218	0.1370788	0.18801107	3.0177304	20	3 29.7	20.9
435366	2007	VV ₂₉₀	17.1	X	306.94056	103.68742	223.40477	1.99809	0.2467834	0.20780668	2.8229058	20	5 27.8	20.4
435367	2007	VK ₂₉₁	16.6	X	218.32345	278.91587	76.85670	9.10203	0.1765139	0.19328819	2.9625510	20	4 9.4	21.6
435368	2007	VJ ₂₉₂	15.8	X	109.04319	225.77171	245.45137	16.11060	0.0416273	0.18909292	3.0062092	20	4 26.9	20.2
435369	2007	VB ₃₀₇	16.2	X	121.99893	148.70762	275.31656	10.20557	0.1794753	0.17952683	3.1120733	20	3 27.2	21.2
435370	2007	VS ₃₀₈	15.9	X	51.64363	177.19936	270.51552	10.81801	0.0578740	0.17078052	3.2174402	20	1 19.5	20.3
435371	2007	VX ₃₁₆	16.1	X	156.73616	320.36361	80.31446	10.46976	0.0319820	0.17950109	3.1123707	20	4 3.1	20.8
435372	2007	VU ₃₂₀	16.6	X	92.25964	245.86554	194.60750	10.95066	0.1246830	0.18175070	3.0866353	20	3 11.4	21.0
435373	2007	VV ₃₂₇	15.8	X	107.98482	159.90473	287.00058	8.40295	0.1267444	0.18612121	3.0381238	20	4 4.4	20.4
435374	2007	VR ₃₂₉	16.7	X	88.31918	26.60858	67.48299	18.26755	0.1792374	0.17959229	3.1113170	20	4 11.2	21.4
435375	2007	VS ₃₃₀	15.7	X	100.87636	304.39714	80.45315	19.83414	0.1088645	0.17329349	3.1862600	20	1 16.0	20.3
435376	2007	VU ₃₃₀	16.3	X	101.25743	3.87643	82.14583	7.00236	0.1515712	0.18349996	3.0669879	20	4 6.9	20.8
435377	2007	WL ₁₄	16.6	X	68.32606	238.21172	272.20339	9.12198	0.1812799	0.17899607	3.1182222	20	3 22.6	20.6
435378	2007	WC ₂₀	16.0	X	110.39328	8.51516	82.30742	18.59324	0.1710435	0.18114509	3.0935110	20	4 29.7	20.9
435379	2007	WJ ₂₅	16.7	X	283.73866	283.19286	86.55712	5.22910	0.2167639	0.21243985	2.7817113	20	6 25.3	20.3
435380	2007	XU ₄₂	16.9	X	82.31147	9.50292	94.66629	2.67376	0.0785797	0.18298451	3.0727448	20	3 24.5	21.0
435381	2007	XA ₁₆	15.3	X	11.47850	245.88476	278.44920	13.41705	0.1859930	0.17338151	3.1851816	20	2 19.8	19.1
435382	2007	XG ₁₆	16.5	X	302.32513	285.49717	54.27498	9.91462	0.2317347	0.21044775	2.7992382	20	6 8.5	20.0
435383	2007	XN ₃₄	15.8	X	324.10470	64.17683	262.28413	12.84284	0.1660060	0.21174904	2.7877581	20	7 8.8	18.9
435384	2007	XF ₄₄	16.6	X	324.16407	119.80801	89.20184	10.41299	0.0676429	0.17681998	3.1437536	20	2 21.6	21.0
435385	2007	XU ₄₉	18.3	X	299.80215	161.29458	279.50351	6.28687	0.1410474	0.30026096	2.2087004	20	12 7.6	19.8
435386	2007	XQ ₅₅	15.7	X	34.65306	192.70783	258.25279	11.26710	0.1357763	0.17077709	3.2174833	20	1 3.6	19.5
435387	2007	XT ₅₆	15.9	X	134.62030	301.30041	104.11459	10.60764	0.1056668	0.17718384	3.1394481	20	3 21.7	20.8
435388	2007	XP ₅₇	16.4	X	60.65551	210.75176	275.32309	8.97415	0.0452466	0.17654930	3.1469660	20	3 13.2	20.8
435389	2007	YY ₁₀	15.9	X	86.19971	351.85194	88.05248	16.08936	0.0239467	0.17318252	3.1876210	20	2 26.8	20.6
435390	2007	YO ₁₃	16.4	X	254.57968	294.27470	79.47242	10.76634	0.1790233	0.19817564	2.9136399	20	5 31.8	20.7
435391	2007	YO ₁₆	16.6	X	112.39085	142.59827	305.76579	1.22739	0.0473992	0.18413367	3.0599471	20	4 4.7	20.9
435392	2007	YP ₂₃	15.8	X	72.52725	145.74880	280.33047	8.13942	0.0784692	0.17449476	3.1701699	20	1 23.4	20.0
435393	2007	YU ₂₅	16.0	X	98.49904	28.95308	56.78846	10.13662	0.0707674	0.17545452	3.1600431	20	3 25.0	20.6
435394	2007	YO ₂₈	16.5	X	204.77827	268.97367	73.43737	11.61135	0.0643476	0.18320023	3.0703322	20	3 17.9	21.3
435395	2007	YA ₃₀	15.3	X	341.22498	92.39230	74.56739	33.10090	0.1553200	0.17046624	3.2213936	20	1 8.7	19.7
435396	2007	YE ₄₂	16.4	X	154.59941	287.57786	119.98249	9.84796	0.1062226	0.18025837	3.1036478	20	4 13.1	21.3
435397	2007	YN ₅₃	16.6	X	113.62878	301.64551	137.67168	3.65000	0.0581709	0.17632489	3.1496357	20	3 30.1	21.1
435398	2007	YH ₆₅	16.1	X	138.87808	292.75726	135.27769	11.56227	0.0843303	0.17947168	3.1127107	20	4 20.0	20.9
435399	2007	YL ₇₄	15.8	X	78.96705	336.17715	137.60162	18.86808	0.1917219	0.17667452	3.1454788	20	4 23.8	20.5
435400	2007	YS ₇₄	15.5	X	176.84566	243.70617	134.71323	11.42698	0.0614444	0.17338482	3.1851410	20	3 29.9	20.4
435401	2008	AZ ₈	16.4	X	67.06059	358.89140	125.06254	10.43639	0.0323922	0.17310790	3.1885370	20	3 26.7	20.9
435402	2008	AU ₁₀	18.1	X	195.65807	329.02178	145.72867	2.84394	0.1076368	0.28118927	2.3074744	20	8 18.8	21.4
435403	2008	AW ₁₂	16.2	X	210.04430	244.60634	134.98308	9.28143	0.1795343	0.18822393	3.0154548	20	4 29.9	21.3
435404	2008	AT ₂₈	18.4	X	322.39165	263.86259	130.29344	8.86438	0.4421687	0.29987679	2.2105864	20	—	—
435405	2008	AL ₃₀	16.2	X	183.13162	281.52439	89.39696	10.66034	0.0321900	0.17675778	3.1444910	20	3 28.5	20.9
435406	2008	AU ₄₇	15.9	X	342.22919	118.55979	104.04096	19.27635	0.0409606	0.18007183	3.1057908	20	4 11.5	20.5
435407	2008	AM ₅₉	16.1	X	194.90121	273.46233	125.57968	16.21118	0.0589671	0.18531600	3.0469180	20	5 14.9	20.9
435408	2008	AP ₅₉	16.2	X	256.95522	171.30219	130.64048	10.40975	0.0404554	0.17600377	3.1534654	20	3 26.9	20.8
435409	2008	AM ₆₂	18.5	X	254.89461	246.29756	254.91952	2.82295	0.2000239	0.29902662	2.2147744	20	12 3.6	20.4
435410	2008	AD ₈₃	16.0	X	142.24990	320.62186	100.37303	10.93790	0.0750216	0.18026268	3.1035983	20	4 14.9	20.8
435411	2008	AW ₈₃	16.0	X	97.02321	348.66084	101.45473	17.11824	0.0934364	0.17619302	3.1512068	20	4 4.7	20.8
435412	2008	AR ₈₅	16.5	X	88.45119	351.05881	114.01353	6.54484	0.1486627	0.17527473	3.1622037	20	4 14.9	21.0
435413	2008	AA ₉₃	15.8	X	332.34916	144.48764	100.53020	11.01848	0.0804720	0.17977277	3.1092342	20	4 18.1	20.0
435414	2008	AU ₉₉	17.9	X	315.53063	266.13977	210.16845	3.88671	0.0372120	0.30633091	2.1794262	20	—	—
435415	2008	AB ₁₃₃	15.8	X	258.29209	0.92083	310.80166	8.66479	0.0815521	0.17800810	3.1297492	20	3 27.2	20.5
435416	2008	AS ₁₃₇	17.9	X	0.71322	264.90429	135.76724	3.47673	0.1514372	0.30185791	2.2009035	20	—	—
435417	2008	AZ ₁₃₇	17.4	X	163.36484	240.25886	291.03602	8.41297	0.1272023	0.28077659	2.3097348	20	9 22.6	21.0
435418	2008	BX ₁₄	15.7	X	179.77554	270.19763	88.87768	14.94466	0.0413420	0.17033055	3.2231043	20	3 12.8	20.7
435419	2008	BO ₃₅	17.8	X	246.78476	23.43447	135.29933	5.44446	0.1307940	0.29575053	2.2311000	20	12 26.0	20.1
435420	2008	BW ₄₄	15.7	X	84.15070	32.75818	94.78750	11.49222	0.0192865	0.17743116	3.1365300	20	4 21.1	20.3
435421	2008	BH ₄₈	15.9	X	71.74695	2.49681	108.03289	11.82511	0.0252778	0.17173065	3.2055620	20	3 16.4	20.5
435422	2008	BW ₄₈	18.1	X	193.24835	107.98027	140.20606	4.97040	0.1140555	0.30590531	2.1814472	20	—	—
435423	2008	CR ₅	15.7	X	125.17714	327.47870	99.23956	11.76400	0.2173018	0.17734356	3.1375628	20	4 18.1	20.9
435424	2008	CQ ₈	16.1	X	172.38513	249.42283	139.92075	10.02772	0.0965767	0.17588715	3.1548592	20	4 7.9	21.1
435425	2008	CC ₉	16.2	X	133.92292	301.90562	138.72307	9.57273	0.1478292	0.17927272	3.1150133	20	5 4.7	21.2
435426	2008	CE ₂₉	16.6	X	283.27139	306.50075	340.89210	4.85499	0.0336737	0.17604771	3.1529407	20	4 5.3	21.0
435427	2008	CN ₃₇	18.5	X	242.29245	326.33835	167.65164	3.44972	0.1188095	0.29140986	2.2532007	20	11 14.9	21.0
435428	2008	CW ₃₉	18.4	X	285.09940	305.38872	145.95862	5.33678	0.1800015	0.29585825	2.2305584	20	11 21.1	20.0
435429	2008	CO ₅₀	17.6	X	228.45784	36.35656	118.91295	6.44244	0.1153894	0.29324321	2.2437996	20	11 26.4	20

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
435441 2008 DJ ₅	20.0	X	146.06091	326.75882	358.89652	8.06920	0.4179094	0.70189183	1.2539761	20	—	—
435442 2008 DW ₆	17.7	X	49.15785	75.54732	327.97054	3.55537	0.0255774	0.31108366	2.1571711	20	—	—
435443 2008 DF ₁₉	18.0	X	199.67023	119.09101	127.09940	3.90448	0.0223267	0.30725057	2.1750751	20	—	—
435444 2008 DP ₂₀	18.1	X	146.32153	279.56016	349.38995	5.33153	0.1450019	0.29430910	2.2383788	20	—	—
435445 2008 DJ ₅₅	17.3	X	180.04321	62.35806	182.11082	5.26252	0.2004480	0.29391925	2.2403577	20	—	—
435446 2008 DR ₆₆	18.0	X	177.23976	86.83723	160.95645	5.94649	0.1340031	0.29628815	2.2284002	20	—	—
435447 2008 DU ₆₈	18.3	X	187.13917	13.04190	165.49212	6.04927	0.1728502	0.28289030	2.2982151	20	10 30.2	21.7
435448 2008 DH ₇₈	18.2	X	182.14501	121.33319	47.84483	2.20933	0.1700293	0.28153782	2.3055695	20	10 12.0	21.6
435449 2008 DS ₈₁	18.2	X	257.98626	188.83630	352.33479	5.03194	0.1446778	0.29879677	2.2159100	20	—	—
435450 2008 ET ₂₅	15.7	X	165.78319	258.24768	152.36393	10.57871	0.0842034	0.17913179	3.1166469	20	4 26.1	20.6
435451 2008 EW ₇₃	18.3	X	231.21736	50.74548	108.71401	3.66237	0.0969012	0.29018620	2.2595305	20	12 7.1	20.7
435452 2008 EB ₁₀₃	17.6	X	87.70672	178.51265	120.20443	8.01999	0.2089939	0.28649514	2.2788962	20	12 28.9	21.2
435453 2008 EO ₁₁₆	18.5	X	108.99686	238.49764	28.31086	4.38237	0.2465877	0.27848591	2.3223833	20	12 6.9	22.6
435454 2008 ER ₁₁₇	18.0	X	135.75040	325.98051	330.99461	5.57221	0.1307928	0.30051305	2.2074650	20	—	—
435455 2008 EM ₁₃₉	18.2	X	226.71545	221.43575	183.95715	1.76724	0.2048250	0.28932795	2.2639967	20	10 24.3	21.2
435456 2008 EN ₁₄₂	18.2	X	154.90375	141.59956	75.33768	1.47935	0.1683311	0.28152143	2.3056590	20	11 15.5	21.8
435457 2008 EY ₁₄₇	17.9	X	124.69580	215.48870	6.96601	5.86850	0.1090662	0.27723293	2.3293755	20	10 22.3	21.3
435458 2008 ES ₁₄₉	17.9	X	171.49912	57.67891	184.28749	6.10565	0.1320634	0.29092626	2.2556970	20	—	—
435459 2008 ES ₁₅₀	17.6	X	118.34778	198.66664	101.16631	4.60538	0.1725675	0.28894969	2.2659721	20	—	—
435460 2008 ES ₁₆₁	18.2	X	218.51241	157.78210	13.20171	2.71135	0.1246534	0.28925069	2.2643998	20	11 29.9	20.9
435461 2008 FL ₃	17.9	X	136.56826	163.10737	140.93940	5.99819	0.1545811	0.29935011	2.2131784	20	—	—
435462 2008 FW ₄	17.3	X	123.14811	278.53265	8.22757	6.84264	0.1226420	0.28940925	2.2635727	20	—	—
435463 2008 FY ₉	18.3	X	256.09801	317.98779	192.65178	1.41748	0.0729381	0.29662809	2.2266974	20	—	—
435464 2008 FZ ₁₆	17.2	X	152.93686	257.49141	347.80486	8.38256	0.0782113	0.29052181	2.2577900	20	12 26.6	20.5
435465 2008 FA ₂₃	18.3	X	161.30495	138.36021	60.54858	5.61033	0.0887641	0.27985663	2.3147938	20	11 2.9	21.5
435466 2008 FA ₃₈	17.7	X	294.18202	299.50757	165.47567	6.88876	0.0525298	0.28988726	2.2610836	20	—	—
435467 2008 FB ₄₁	18.0	X	106.76219	230.48323	92.25700	3.29782	0.2574968	0.28847156	2.2684753	20	—	—
435468 2008 FD ₅₁	18.6	X	133.17507	214.96330	70.19633	1.54886	0.2481259	0.28762427	2.2729281	20	—	—
435469 2008 FQ ₆₆	18.2	X	212.70632	3.51144	144.26287	1.96539	0.1036282	0.27913109	2.3188033	20	10 24.3	21.2
435470 2008 FM ₆₈	18.0	X	169.71092	60.58582	173.27932	4.26985	0.0989891	0.28673237	2.2776390	20	12 27.3	21.0
435471 2008 FT ₆₈	17.8	X	82.36190	216.88333	93.88967	2.76529	0.2096775	0.27984485	2.3148588	20	—	—
435472 2008 FS ₇₅	18.0	X	192.73072	218.40110	350.59336	2.88486	0.1466458	0.28698236	2.2763161	20	12 15.8	21.2
435473 2008 FD ₈₄	18.6	X	171.21166	87.62549	111.92045	2.75739	0.1209822	0.28173806	2.3044770	20	11 12.8	21.9
435474 2008 FD ₉₈	18.2	X	270.70819	289.05041	173.74237	10.88836	0.1723378	0.28709302	2.2757312	20	11 8.3	20.4
435475 2008 FN ₁₀₂	17.9	X	165.83630	75.18764	148.60201	5.69868	0.2185944	0.28275156	2.2989669	20	12 2.3	21.7
435476 2008 FC ₁₀₃	18.3	X	225.44921	15.43588	151.22385	5.48231	0.0893566	0.28589829	2.2820667	20	12 9.4	21.0
435477 2008 FC ₁₀₆	18.3	X	148.73338	202.61563	68.44255	2.87316	0.0147982	0.29273297	2.2464062	20	—	—
435478 2008 FC ₁₁₆	17.6	X	60.48152	273.19812	54.94536	4.38246	0.2250944	0.28294492	2.2979193	20	—	—
435479 2008 FG ₁₁₉	17.9	X	204.81156	154.14178	46.00394	6.29991	0.0812187	0.29061967	2.2572832	20	12 29.1	20.6
435480 2008 FR ₁₂₂	17.7	X	169.90098	66.65399	161.95943	7.77403	0.1770164	0.28537154	2.2848741	20	12 19.3	21.0
435481 2008 FS ₁₂₄	18.1	X	236.80371	8.10533	115.70240	6.77107	0.0783854	0.28004767	2.3137410	20	10 29.8	20.9
435482 2008 FB ₁₃₀	18.0	X	149.87717	297.77521	7.50760	5.78960	0.2455617	0.29903761	2.2147200	20	—	—
435483 2008 FU ₁₃₆	18.0	X	231.34306	97.09756	53.35907	6.21126	0.1000566	0.28518343	2.2858787	20	11 22.3	20.6
435484 2008 GY ₂	17.4	X	273.66731	80.27132	86.55447	23.48660	0.2326265	0.30006709	2.2096516	20	—	—
435485 2008 GV ₄	16.2	X	319.75992	11.98870	176.29455	12.28084	0.0262346	0.15620831	3.4145486	20	1 24.7	21.1
435486 2008 GD ₆	18.0	X	237.02232	42.77992	89.08446	5.52176	0.1512565	0.28514948	2.2860602	20	10 29.7	20.7
435487 2008 GJ ₉	18.2	X	85.92757	53.67505	189.76120	4.93167	0.0709731	0.26918629	2.3755678	20	10 2.7	21.3
435488 2008 GH ₁₁	17.2	X	130.82073	215.49000	42.95011	7.11698	0.0953540	0.28085297	2.3093160	20	12 15.2	20.6
435489 2008 GL ₃₅	18.2	X	128.74217	116.94140	167.97083	7.42800	0.1133573	0.28640336	2.2793830	20	—	—
435490 2008 GW ₃₆	17.6	X	204.31352	358.53848	164.09286	6.58133	0.1632899	0.28137963	2.3064335	20	10 28.4	20.8
435491 2008 GF ₄₃	17.9	X	175.95642	178.45624	26.25291	6.28942	0.0604231	0.28382000	2.2931936	20	11 28.5	20.9
435492 2008 GP ₄₉	18.1	X	198.61461	141.29134	45.87679	5.25971	0.1547343	0.28491216	2.2873295	20	11 22.3	21.2
435493 2008 GK ₇₅	18.4	X	117.82925	173.99126	86.06846	5.68893	0.1590715	0.27897931	2.3196442	20	12 5.1	22.1
435494 2008 GT ₇₉	18.2	X	94.82139	168.52341	67.21710	2.66143	0.1335644	0.26828300	2.3808970	20	10 10.6	21.5
435495 2008 GB ₈₀	18.0	X	148.32121	171.92271	67.09085	4.17818	0.1566537	0.28052582	2.3111111	20	12 6.9	21.7
435496 2008 GR ₈₁	18.0	X	197.66680	124.25688	73.82508	3.50767	0.1250123	0.28445316	2.2897894	20	12 9.4	20.9
435497 2008 GP ₈₅	18.3	X	139.29603	84.81325	152.32514	5.99628	0.1152675	0.27922418	2.3182879	20	11 28.2	21.7
435498 2008 GF ₉₀	18.3	X	230.22272	347.61618	173.26296	3.42859	0.1550483	0.28853340	2.2681511	20	11 28.2	20.8
435499 2008 GN ₉₄	17.8	X	59.31409	170.86907	161.78740	4.91150	0.1775155	0.28309758	2.2970932	20	—	—
435500 2008 GK ₁₀₀	18.5	X	123.92479	118.46465	151.14756	1.81972	0.1588605	0.28175355	2.3043925	20	12 22.7	22.1
435501 2008 GB ₁₁₁	17.5	X	148.14100	94.10252	90.05394	22.35220	0.2249480	0.27430935	2.3458972	20	10 10.5	22.0
435502 2008 GD ₁₂₁	18.0	X	186.60419	148.45160	47.17937	6.60806	0.1010961	0.28435829	2.2902987	20	11 25.5	21.2
435503 2008 GK ₁₂₂	18.5	X	144.97142	120.53619	111.70292	2.06141	0.1355142	0.28098767	2.3085780	20	11 26.5	22.1
435504 2008 GS ₁₃₂	18.1	X	105.07729	186.73717	48.22054	4.62049	0.1456718	0.26996680	2.3709869	20	10 21.2	21.5
435505 2008 HG ₁₀	17.9	X	57.79762	288.72553	29.21859	7.43274	0.1421111	0.27912564	2.3188335	20	12 16.6	21.3
435506 2008 HK ₁₁	17.6	X	289.86323	253.91016	179.75350	11.39909	0.0531496	0.27668810	2.3324324	20	11 9.9	20.3
435507 2008 HP ₁₆	18.1	X	138.96271	101.07267	153.62769	6.48340	0.1148246	0.28124057	2.3071938	20	12 19.4	21.5
435508 2008 HE ₂₃	18.2	X	198.11024	144.6192								

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>		
435521	2008	<i>JL</i> ₃₄	17.8 ^m	X	188.64113	22.10103	176.12211	9.23828	0.1286982	0.28130956	2.3068165	20	11 29.8	21.1
435522	2008	<i>JF</i> ₃₉	18.4	X	169.13632	129.22555	84.89132	6.55461	0.1863262	0.28059276	2.3107435	20	11 24.6	22.0
435523	2008	<i>KW</i> ₄	17.2	X	326.97201	256.20854	155.68301	7.76023	0.0940489	0.27662273	2.3327998	20	12 8.8	19.7
435524	2008	<i>KR</i> ₈	18.6	X	151.23117	77.22529	170.27534	3.04855	0.1552491	0.28168632	2.3047592	20	12 20.6	22.1
435525	2008	<i>KM</i> ₉	18.1	X	108.53577	60.74143	216.64611	5.17238	0.0850864	0.27823504	2.3237791	20	12 15.5	21.4
435526	2008	<i>KF</i> ₁₅	17.6	X	298.11186	237.58096	206.88762	6.13850	0.0694618	0.28013799	2.3132437	20	12 6.7	20.1
435527	2008	<i>KU</i> ₁₇	18.3	X	123.45656	123.88189	150.56087	3.11820	0.2052884	0.27971844	2.3155561	20	12 27.5	22.0
435528	2008	<i>KG</i> ₂₅	17.5	X	40.40926	210.42881	104.71404	5.79091	0.1135377	0.27134299	2.3629633	20	11 18.4	20.4
435529	2008	<i>KK</i> ₂₅	18.0	X	101.19691	200.75655	94.16882	6.30407	0.1817127	0.27936800	2.3174922	20	—	—
435530	2008	<i>KC</i> ₃₃	17.9	X	61.32810	119.87690	174.24566	6.03491	0.0967980	0.27051012	2.3678110	20	11 14.4	21.1
435531	2008	<i>KC</i> ₃₅	17.6	X	88.78770	221.77190	77.41258	8.63487	0.2195372	0.27566120	2.3382213	20	12 28.9	21.3
435532	2008	<i>KK</i> ₃₅	18.2	X	145.89727	55.02841	165.94722	3.26460	0.1178749	0.27591739	2.3367738	20	11 13.3	21.6
435533	2008	<i>LA</i> ₁	18.2	X	149.96925	88.89802	130.42683	7.54482	0.0610870	0.27760732	2.3272807	20	11 19.1	21.4
435534	2008	<i>LA</i> ₁₇	17.9	X	94.42710	142.46974	120.68338	8.07382	0.0980698	0.27100576	2.3649232	20	11 13.9	21.3
435535	2008	<i>LG</i> ₁₇	17.3	X	44.63816	201.14357	112.53534	8.24362	0.1363364	0.26917563	2.3756305	20	11 25.3	20.5
435536	2008	<i>LN</i> ₁₇	17.6	X	86.30518	0.55432	280.37133	4.57918	0.2097581	0.26684612	2.3894363	20	12 2.4	21.4
435537	2008	<i>ME</i> ₅	18.2	X	93.94638	6.83135	301.43763	5.26021	0.2657080	0.27129722	2.3632291	20	—	—
435538	2008	<i>NW</i> ₂	17.0	X	307.90125	170.37357	123.34774	12.60824	0.1752821	0.23523567	2.5989660	20	4 29.6	20.4
435539	2008	<i>OV</i>	17.7	X	55.16041	190.47653	140.37181	3.98022	0.2129911	0.26645143	2.3917953	20	—	—
435540	2008	<i>OS</i> ₁	14.8	X	170.24240	197.93049	121.37003	14.65088	0.2425660	0.12431801	3.9760028	20	1 23.9	21.3
435541	2008	<i>OF</i> ₃	17.7	X	109.02841	156.39736	140.98948	7.15294	0.3015049	0.27327700	2.3518015	20	—	—
435542	2008	<i>OH</i> ₂₀	18.0	X	13.73524	312.55346	350.58417	3.18166	0.1263783	0.24795508	2.5093084	20	9 17.3	20.8
435543	2008	<i>OJ</i> ₂₃	17.3	X	54.61357	41.19383	303.00064	8.07356	0.2444174	0.26798226	2.3826780	20	—	—
435544	2008	<i>OV</i> ₂₃	17.2	X	337.97750	156.26973	151.26371	13.78883	0.1880454	0.24115405	2.5562677	20	7 11.3	19.6
435545	2008	<i>OC</i> ₂₄	17.7	X	20.10128	128.21196	192.21947	1.70257	0.2226194	0.25566999	2.4585717	20	11 9.6	20.3
435546	2008	<i>OK</i> ₂₅	16.2	X	56.81458	22.80025	51.02608	8.83534	0.3271421	0.18355969	3.0663226	20	2 15.8	19.4
435547	2008	<i>PX</i> ₄	17.1	X	103.65481	174.70377	106.50533	10.77246	0.1588591	0.26859208	2.3790702	20	12 16.7	20.9
435548	2008	<i>QT</i> ₃	18.8	X	3.43333	160.97893	271.93085	7.24916	0.5282860	0.34539608	2.0118292	20	—	—
435549	2008	<i>QZ</i> ₃	17.6	X	102.96338	34.94734	291.92409	1.44845	0.2258997	0.27245248	2.3565439	20	—	—
435550	2008	<i>QY</i> ₉	18.3	X	47.81392	354.08588	343.67911	1.45183	0.2358298	0.26208032	2.4183164	20	—	—
435551	2008	<i>QY</i> ₁₂	18.0	X	79.07117	136.27638	167.86224	2.27700	0.2187390	0.26492959	2.4009461	20	12 24.8	21.9
435552		Morin	17.0	X	169.92877	31.96453	334.85291	5.66642	0.0525463	0.21282902	2.7783193	20	2 29.2	21.1
435553	2008	<i>QB</i> ₂₁	17.5	X	102.07031	69.41751	127.49007	6.43177	0.2135460	0.26787782	2.3832972	20	12 23.2	21.5
435554	2008	<i>QO</i> ₃₆	18.4	X	89.80684	17.23552	246.03558	1.73643	0.1681115	0.25996237	2.4314335	20	11 9.9	22.0
435555	2008	<i>QF</i> ₃₈	17.4	X	63.87304	281.15030	7.50390	6.48747	0.1008674	0.25389571	2.4700125	20	11 4.1	20.8
435556	2008	<i>QB</i> ₄₀	17.7	X	56.79982	170.72770	168.75913	1.58857	0.2026930	0.26409584	2.4059966	20	—	—
435557	2008	<i>QG</i> ₄₈	17.7	X	18.97287	63.09746	269.08178	0.51008	0.1892958	0.25328522	2.4739798	20	11 17.5	20.3
435558	2008	<i>RT</i> ₃	18.0	X	57.61126	94.68880	201.16097	2.51083	0.1853243	0.25590405	2.4570723	20	11 19.6	21.3
435559	2008	<i>RW</i> ₃	17.6	X	324.41753	116.52353	243.85604	1.23544	0.0699568	0.24475211	2.5311531	20	9 10.3	20.3
435560	2008	<i>RS</i> ₉	14.2	X	321.60580	64.65149	322.58431	7.92969	0.0111184	0.08284563	5.2114231	20	10 10.1	21.1
435561	2008	<i>RN</i> ₂₅	18.2	X	49.97467	44.60416	286.64772	0.32405	0.1950618	0.26266630	2.4147183	20	12 28.1	21.5
435562	2008	<i>RX</i> ₂₇	17.1	X	12.78073	261.16948	92.55172	16.33243	0.2285040	0.25861287	2.4398847	20	12 16.2	20.0
435563	2008	<i>RA</i> ₂₉	17.1	X	199.44224	207.86187	176.45950	6.52904	0.0428569	0.22121287	2.7076703	20	4 26.5	20.9
435564	2008	<i>RQ</i> ₃₀	17.8	X	66.40305	149.01734	166.11132	1.30087	0.1881451	0.26128774	2.4232043	20	12 23.5	21.5
435565	2008	<i>RM</i> ₃₉	16.9	X	109.10177	194.29842	355.88354	8.72525	0.0981781	0.23833632	2.5763759	20	8 21.9	20.6
435566	2008	<i>RN</i> ₄₂	18.1	X	73.40754	111.60440	172.13367	2.12900	0.1876822	0.25609028	2.4558810	20	11 21.2	21.7
435567	2008	<i>RS</i> ₄₉	13.7	X	262.13847	148.21839	307.77239	12.23096	0.1691876	0.08251007	5.2255429	20	9 5.7	20.9
435568	2008	<i>RU</i> ₄₉	13.9	X	305.51752	205.62372	201.67210	11.75573	0.0627326	0.08468513	5.1356799	20	9 17.8	20.6
435569	2008	<i>RK</i> ₆₈	16.7	X	236.59001	11.09915	13.34962	12.46996	0.3039929	0.22631482	2.6668222	20	5 12.7	21.4
435570	2008	<i>RT</i> ₆₈	16.7	X	263.28252	4.79903	13.29714	14.92223	0.2479856	0.23204563	2.6227312	20	6 3.7	20.9
435571	2008	<i>RY</i> ₇₁	17.2	X	50.74621	167.69955	172.31092	3.99316	0.2082412	0.26417115	2.4055393	20	—	—
435572	2008	<i>RH</i> ₇₃	17.6	X	34.89323	336.70228	337.85362	8.75880	0.0999912	0.25410760	2.4686391	20	10 29.6	20.8
435573	2008	<i>RA</i> ₈₂	14.4	X	326.59917	176.83458	195.96738	7.33006	0.0226805	0.08361364	5.1794616	20	9 7.8	21.3
435574	2008	<i>RD</i> ₈₅	17.7	X	68.50598	310.06559	2.64711	16.20663	0.2906174	0.26258279	2.4152303	20	—	—
435575	2008	<i>RX</i> ₉₉	17.0	X	182.58193	249.73072	152.10536	3.92968	0.1991516	0.21752824	2.7381609	20	4 30.4	21.7
435576	2008	<i>RO</i> ₁₀₅	17.0	X	183.52704	64.87949	9.60261	5.02443	0.1188278	0.22202376	2.7010735	20	6 9.0	21.3
435577	2008	<i>RV</i> ₁₀₉	17.1	X	176.44533	238.36180	196.02539	10.10560	0.1094051	0.22548915	2.6733282	20	6 3.2	21.3
435578	2008	<i>RB</i> ₁₁₃	17.7	X	68.83838	0.26590	309.04305	3.83254	0.1982779	0.25992973	2.4316370	20	12 19.4	21.3
435579	2008	<i>RJ</i> ₁₁₃	17.0	X	156.47708	262.18324	200.56410	11.05973	0.2060207	0.22204286	2.7009187	20	6 20.8	21.7
435580	2008	<i>RW</i> ₁₁₄	16.4	X	99.92880	254.87767	202.42303	14.57592	0.1205032	0.20573394	2.8418343	20	4 9.9	20.4
435581	2008	<i>RE</i> ₁₁₉	18.6	X	45.21881	227.42718	103.24344	2.49109	0.2047653	0.25793620	2.4441500	20	12 22.4	22.0
435582	2008	<i>RZ</i> ₁₂₁	13.8	X	279.72909	244.33766	185.79657	21.42363	0.0465748	0.08156256	5.2659347	20	9 15.0	20.8
435583	2008	<i>RH</i> ₁₂₂	14.0	X	146.39024	3.16788	203.76563	10.00976	0.0555775	0.08164673	5.2623149	20	9 27.3	21.3
435584	2008	<i>RR</i> ₁₂₂	16.8	X	48.02519	227.72908	12.67175	14.85613	0.0511985	0.23613460	2.5923659	20	8 7.2	20.4
435585	2008	<i>RP</i> ₁₂₉	16.9	X	252.80630	148.23145	219.49019	11.35048	0.1111415	0.22108095	2.7087474	20	5 30.4	20.9
435586	2008	<i>RF</i> ₁₃₀	16.4	X	48.39890	75.71727	217.14399	13.83867	0.1341845	0.24163083	2.5529040	20	10 25.2	19.8
435587	2008	<i>RP</i> ₁₃₆	17.4	X	15.80244	285.06290	21.90130	10.05465	0.1032259	0.24495890	2.5297284	20	9 25.4	20.3
435588	2008	<i>RR</i> ₁₃₉	17.9	X	34.02167	288.43149	34.49561	2.89660	0.2006668	0.25697313	2.4502529	20	11 28.3	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>
435601 2008 <i>SL</i> ₄₅	17.9	X	16.17444	273.77293	23.56169	4.60998	0.1484901	0.24197769	2.5504638	20	9 16.8	20.6
435602 2008 <i>SN</i> ₅₄	17.3	X	243.64896	23.55355	12.47755	5.79408	0.2347871	0.22920225	2.6443775	20	6 10.9	21.5
435603 2008 <i>SF</i> ₅₅	16.6	X	37.71292	243.08741	13.04154	14.67392	0.0259958	0.23477356	2.6023753	20	8 10.6	20.2
435604 2008 <i>SC</i> ₅₉	17.1	X	161.21273	280.65969	152.57492	3.46402	0.1841727	0.21493859	2.7601104	20	5 19.9	21.7
435605 2008 <i>SG</i> ₆₁	16.6	X	275.96739	326.02756	27.37076	14.75347	0.1374448	0.22797337	2.6538720	20	6 1.9	20.4
435606 2008 <i>SE</i> ₆₂	17.5	X	359.16544	71.15372	298.32686	2.87719	0.1478614	0.25676835	2.4515554	20	12 1.8	20.1
435607 2008 <i>SN</i> ₆₃	18.0	X	346.93228	108.27713	211.01328	1.72620	0.0997741	0.24344106	2.5402327	20	8 19.6	20.5
435608 2008 <i>SL</i> ₆₆	17.7	X	104.80475	64.67116	230.41439	1.32977	0.3634877	0.26908527	2.3761623	20	—	—
435609 2008 <i>SX</i> ₆₈	18.0	X	26.59425	35.08562	323.63358	1.39103	0.2017670	0.26170075	2.4206541	20	—	—
435610 2008 <i>SA</i> ₇₀	16.6	X	262.36980	346.61576	354.42266	14.07245	0.2629246	0.22919909	2.6444019	20	4 13.4	20.9
435611 2008 <i>SK</i> ₇₁	16.9	X	299.32367	356.70188	21.57166	14.58744	0.0973741	0.23899041	2.5716729	20	8 30.3	20.1
435612 2008 <i>SN</i> ₇₇	18.0	X	67.72494	94.95726	212.96651	2.63706	0.1851518	0.25964283	2.4334279	20	12 15.5	21.7
435613 2008 <i>SP</i> ₈₃	13.8	X	10.00280	324.78732	21.01652	12.98955	0.1298821	0.08137969	5.2738209	20	10 6.5	20.2
435614 2008 <i>SR</i> ₈₆	16.9	X	196.28368	212.45662	211.34379	14.18805	0.0678578	0.22536390	2.6743187	20	6 10.9	21.0
435615 2008 <i>SO</i> ₉₅	16.9	X	240.15197	154.71898	222.61263	5.58331	0.0793735	0.22444055	2.6816484	20	5 31.7	20.6
435616 2008 <i>SJ</i> ₁₀₀	17.5	X	55.10124	133.92898	166.70942	7.17074	0.1560728	0.25156630	2.4852366	20	11 19.7	21.0
435617 2008 <i>SL</i> ₁₀₁	17.7	X	292.84111	311.06000	66.29013	5.19535	0.1712068	0.23676320	2.5877754	20	7 31.2	20.6
435618 2008 <i>SW</i> ₁₀₄	17.4	X	327.03986	134.34833	204.84311	7.36241	0.1245487	0.23642130	2.5902696	20	8 8.3	20.4
435619 2008 <i>SF</i> ₁₀₅	16.4	X	87.07999	333.13844	206.73128	12.55838	0.0989093	0.22235203	2.6984145	20	7 6.4	20.4
435620 2008 <i>SP</i> ₁₀₇	13.9	X	308.92908	196.50184	217.32979	16.11978	0.0823167	0.08054007	5.3104098	20	9 25.7	20.8
435621 2008 <i>SJ</i> ₁₁₄	17.5	X	333.82206	160.64348	148.42026	4.84515	0.2800042	0.23824401	2.5770414	20	6 23.4	19.2
435622 2008 <i>SX</i> ₁₁₉	17.0	X	150.49793	319.24601	204.14968	9.03757	0.0330345	0.23596907	2.5935781	20	8 25.7	20.8
435623 2008 <i>SA</i> ₁₂₁	18.0	X	42.17748	57.45495	241.59176	1.39162	0.0951280	0.24627763	2.5206898	20	10 19.9	21.0
435624 2008 <i>SG</i> ₁₂₁	17.3	X	270.82767	348.04526	6.72296	4.12733	0.1548627	0.22784072	2.6549020	20	5 27.9	21.0
435625 2008 <i>SA</i> ₁₂₃	17.0	X	282.14184	205.77666	203.31285	14.64978	0.1154108	0.23983062	2.5656631	20	9 1.0	20.3
435626 2008 <i>SB</i> ₁₂₃	16.7	X	172.28289	228.56938	205.85849	9.03549	0.1806808	0.21762892	2.7373163	20	5 30.8	21.4
435627 2008 <i>SU</i> ₁₂₅	16.6	X	196.79568	189.55602	207.46377	8.53187	0.1779924	0.21731980	2.7399114	20	5 6.0	21.1
435628 2008 <i>SJ</i> ₁₂₈	16.6	X	146.70641	238.84022	225.16966	8.46256	0.0750454	0.21910360	2.7250201	20	6 7.2	20.6
435629 2008 <i>SS</i> ₁₂₈	17.9	X	35.67420	56.80141	281.61876	2.15717	0.1971584	0.25435384	2.4670457	20	12 19.6	21.1
435630 2008 <i>SR</i> ₁₂₉	18.3	X	103.63886	261.45782	207.18711	21.71767	0.0486497	0.38080938	1.8850851	20	4 5.4	19.9
435631 2008 <i>SE</i> ₁₃₃	17.0	X	55.84255	68.16394	212.46240	14.53593	0.1181986	0.24380860	2.5376791	20	10 16.2	20.4
435632 2008 <i>SM</i> ₁₃₇	14.0	X	340.15836	344.62668	44.85804	8.20290	0.0828739	0.08176430	5.2572695	20	10 14.0	20.5
435633 2008 <i>SW</i> ₁₄₁	16.8	X	229.09561	338.86989	71.88929	3.16015	0.0806219	0.22658242	2.6647220	20	7 1.5	20.4
435634 2008 <i>SX</i> ₁₄₁	17.0	X	251.81401	273.91360	66.79592	3.16766	0.2471270	0.22163927	2.7041965	20	4 11.2	21.3
435635 2008 <i>SJ</i> ₁₅₅	17.2	X	108.83319	281.99868	28.80931	11.61544	0.2602814	0.27025094	2.3693246	20	—	—
435636 2008 <i>SM</i> ₁₅₈	17.3	X	20.17936	173.47763	192.71926	14.42306	0.1297023	0.25807971	2.4432438	20	12 25.9	20.7
435637 2008 <i>SB</i> ₁₆₄	16.8	X	199.84649	184.63399	183.03606	4.15470	0.1807902	0.21554785	2.7549097	20	4 2.6	21.2
435638 2008 <i>SA</i> ₁₇₂	17.7	X	84.34639	96.25672	331.94378	19.04744	0.1379441	0.37134750	1.9169717	20	1 18.1	19.2
435639 2008 <i>SX</i> ₁₈₇	17.5	X	308.93305	323.71173	7.00179	9.60373	0.1257615	0.23213171	2.6220828	20	6 26.0	20.7
435640 2008 <i>ST</i> ₁₉₃	18.0	X	349.35844	208.18040	103.94873	4.52494	0.1488777	0.23795758	2.5791089	20	8 16.3	20.4
435641 2008 <i>SX</i> ₁₉₃	17.0	X	173.17055	313.50281	147.94975	5.73210	0.1242546	0.22414990	2.6839660	20	7 3.5	21.2
435642 2008 <i>SH</i> ₂₀₄	16.7	X	344.15039	310.64531	46.55674	13.40765	0.1422336	0.24376871	2.5379559	20	10 17.5	19.3
435643 2008 <i>SF</i> ₂₁₀	16.5	X	276.05539	156.93515	179.14807	16.24807	0.2207586	0.22889872	2.6467147	20	5 4.0	20.5
435644 2008 <i>SM</i> ₂₁₉	17.0	X	256.19399	205.33537	197.58681	12.68537	0.1647829	0.23461869	2.6035204	20	7 10.8	20.9
435645 2008 <i>SY</i> ₂₂₄	14.3	X	16.59402	143.42062	210.85598	5.59041	0.1493744	0.08238642	5.2307699	20	10 26.2	20.6
435646 2008 <i>SR</i> ₂₂₅	17.6	X	358.54435	75.86929	200.25669	4.35950	0.0861996	0.22964430	2.6409830	20	7 5.5	20.6
435647 2008 <i>SB</i> ₂₃₂	14.3	X	253.26057	248.64162	225.20173	7.85179	0.0575699	0.08307549	5.2018053	20	10 2.3	21.3
435648 2008 <i>SL</i> ₂₃₇	16.0	X	173.60491	82.07264	0.61751	22.02598	0.0697318	0.22647463	2.6655674	20	6 5.0	20.4
435649 2008 <i>SX</i> ₂₃₉	16.6	X	275.46662	331.91040	33.11562	14.48026	0.2474262	0.23149187	2.6269121	20	5 31.8	20.4
435650 2008 <i>SA</i> ₂₄₅	17.4	X	244.51000	222.19766	178.18803	6.15713	0.2210610	0.23037409	2.6354025	20	6 19.6	21.6
435651 2008 <i>SR</i> ₂₅₈	16.4	X	231.42554	196.82219	228.90658	12.86464	0.2338138	0.23049545	2.6344774	20	7 5.7	20.9
435652 2008 <i>SF</i> ₂₆₃	14.1	X	334.62443	9.21590	34.70887	11.61835	0.0706660	0.08190830	5.2511060	20	10 22.1	20.6
435653 2008 <i>SA</i> ₂₆₆	17.4	X	152.18063	258.04581	200.91368	4.94399	0.0894794	0.21799043	2.7342891	20	6 7.8	21.5
435654 2008 <i>SP</i> ₂₆₉	16.8	X	118.00987	244.07084	279.17393	3.52518	0.1010141	0.22573933	2.6713526	20	7 23.9	20.6
435655 2008 <i>SY</i> ₂₆₉	16.4	X	144.11704	309.58648	208.74228	13.76236	0.0450017	0.23508724	2.6000599	20	8 9.5	20.3
435656 2008 <i>SC</i> ₂₇₀	16.7	X	321.83115	66.78956	265.11029	9.91781	0.2532671	0.237771146	2.5804547	20	7 3.3	18.8
435657 2008 <i>SV</i> ₂₇₁	16.7	X	149.94131	49.43639	38.29504	14.86226	0.0811983	0.21794032	2.7347082	20	5 18.5	20.9
435658 2008 <i>SG</i> ₂₇₄	14.3	X	319.26061	356.46672	48.94911	3.22214	0.0652786	0.08145014	5.2707793	20	10 4.9	21.0
435659 2008 <i>SN</i> ₂₇₄	14.3	X	338.39567	195.12679	189.34415	10.86260	0.0439992	0.08295526	5.2068303	20	10 5.7	21.0
435660 2008 <i>SW</i> ₂₇₈	13.9	X	276.17245	255.03619	211.48653	19.01114	0.0441619	0.08233857	5.2327965	20	10 22.9	20.7
435661 2008 <i>SY</i> ₂₇₉	17.2	X	46.09653	3.88369	79.12046	1.64174	0.1431659	0.19217930	2.9739362	20	1 9.1	20.6
435662 2008 <i>SN</i> ₂₈₂	17.2	X	231.13697	148.87312	229.57005	5.32571	0.0352593	0.22050630	2.7134514	20	5 26.9	20.9
435663 2008 <i>SJ</i> ₂₈₈	16.9	X	80.36336	69.78095	88.01797	4.97403	0.0198385	0.21680376	2.7442574	20	5 19.3	20.6
435664 2008 <i>ST</i> ₂₈₈	17.0	X	265.49125	233.46532	174.14493	13.32489	0.1828747	0.23470917	2.6028512	20	7 26.6	20.7
435665 2008 <i>SN</i> ₂₉₀	17.2	X	237.28311	177.83374	200.13322	5.53777	0.0485950	0.222350				

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>	<i>ω</i>	<i>Ω</i>	<i>i</i>	<i>e</i>	<i>μ</i>	<i>a</i>	TE	Oppos.	<i>V</i>		
435681	2008	<i>TK</i> ₆₃	17.3	X	165.07901	295.42568	206.04501	11.20883	0.0214836	0.23465842	2.6032265	20	8 13.6	21.1
435682	2008	<i>TU</i> ₆₆	16.9	X	242.45511	212.96851	174.19872	4.51554	0.1083645	0.22593802	2.6697863	20	6 13.0	20.7
435683	2008	<i>TW</i> ₆₈	17.2	X	357.19986	261.53205	61.14563	5.15695	0.0455200	0.23902309	2.5714385	20	9 11.4	20.3
435684	2008	<i>TS</i> ₇₅	17.0	X	194.74539	216.45717	211.55722	11.86898	0.1295965	0.22081602	2.7109136	20	6 12.4	21.4
435685	2008	<i>TV</i> ₇₈	18.1	X	52.37825	174.69763	145.54140	1.61135	0.1862712	0.25724845	2.4485043	20	12 14.8	21.6
435686	2008	<i>TV</i> ₉₀	17.6	X	81.30331	353.17235	31.81351	22.48226	0.1099134	0.35695273	1.9681684	20	—	—
435687	2008	<i>TO</i> ₉₅	16.9	X	53.87023	112.29693	235.20461	6.98677	0.2745999	0.26313220	2.4118671	20	—	—
435688	2008	<i>TH</i> ₉₆	16.7	X	115.02366	313.46544	225.48738	10.67863	0.1437293	0.23338502	2.6126871	20	8 10.7	20.9
435689	2008	<i>TM</i> ₁₀₃	16.7	X	84.04450	193.61205	29.55988	14.32768	0.0952239	0.23698057	2.5861928	20	9 9.1	20.5
435690	2008	<i>TN</i> ₁₀₄	18.7	X	221.72380	128.16712	206.04242	20.25132	0.0185530	0.37977405	1.8885096	20	2 24.4	21.0
435691	2008	<i>TX</i> ₁₁₀	16.9	X	281.44060	177.11192	211.49485	13.60954	0.1672947	0.23597175	2.5935585	20	7 23.6	20.4
435692	2008	<i>TJ</i> ₁₁₄	17.2	X	307.05284	170.99459	182.86044	7.55347	0.1253925	0.23485107	2.6018027	20	7 24.8	20.2
435693	2008	<i>TQ</i> ₁₂₂	17.1	X	44.66292	78.74782	202.63722	12.95347	0.0689697	0.24095164	2.5576992	20	9 22.7	20.4
435694	2008	<i>TN</i> ₁₂₈	17.1	X	257.59880	306.00994	63.27215	3.37279	0.1549124	0.22890034	2.6467023	20	5 31.9	20.7
435695	2008	<i>TX</i> ₁₃₂	16.9	X	61.70699	222.16345	8.10882	12.43406	0.0341737	0.23173043	2.6251090	20	8 8.1	20.5
435696	2008	<i>TT</i> ₁₃₅	17.9	X	2.33640	359.94615	333.54797	2.41045	0.1792711	0.24510950	2.5286921	20	10 17.0	20.5
435697	2008	<i>TU</i> ₁₃₉	17.1	X	310.20907	86.72164	266.54922	2.37961	0.1536954	0.23613716	2.5923472	20	7 27.3	19.9
435698	2008	<i>TE</i> ₁₄₂	16.8	X	57.20855	332.34211	184.41669	9.22986	0.0998708	0.21435743	2.7650969	20	4 27.8	20.2
435699	2008	<i>TQ</i> ₁₄₂	17.6	X	274.73268	227.79574	176.41177	2.96292	0.0584357	0.24001154	2.5643737	20	8 26.3	20.9
435700	2008	<i>TW</i> ₁₄₆	17.1	X	169.80369	36.23026	46.08025	3.38713	0.0591662	0.22370841	2.6874961	20	6 4.3	20.9
435701	2008	<i>TF</i> ₁₄₈	17.1	X	134.92218	76.09236	28.76696	7.94595	0.2015641	0.21664631	2.7455869	20	6 3.5	21.6
435702	2008	<i>TY</i> ₁₄₉	17.0	X	225.01102	344.18556	29.31188	6.68047	0.0581448	0.22240441	2.6979907	20	5 9.3	20.9
435703	2008	<i>TV</i> ₁₅₁	16.8	X	7.76182	210.75334	49.13579	4.93423	0.0787949	0.23092504	2.6312091	20	6 28.2	19.9
435704	2008	<i>TQ</i> ₁₆₅	17.8	X	68.56805	196.49480	144.81534	11.83712	0.2706890	0.26540317	2.3980891	20	—	—
435705	2008	<i>TX</i> ₁₇₀	17.8	X	49.81504	254.18441	75.49105	1.90167	0.2358962	0.25405948	2.4689509	20	12 28.7	21.3
435706	2008	<i>TT</i> ₁₇₂	17.0	X	263.23693	107.34702	273.28425	4.96646	0.0239236	0.22265642	2.6959546	20	7 12.5	20.5
435707	2008	<i>TG</i> ₁₇₃	17.7	X	199.61277	57.37503	16.59763	1.56235	0.0653152	0.22685426	2.6625901	20	6 28.6	21.6
435708	2008	<i>TB</i> ₁₇₆	17.6	X	243.93284	0.35959	42.80476	2.61343	0.0347182	0.23119276	2.6291774	20	7 16.9	21.1
435709	2008	<i>UF</i> ₂	17.0	X	95.77983	21.18005	304.74982	7.14165	0.1941575	0.27015186	2.3699039	20	—	—
435710	2008	<i>UL</i> ₈	17.1	X	156.00111	238.00668	194.69909	7.77155	0.1518285	0.21734035	2.7397387	20	5 13.4	21.4
435711	2008	<i>UP</i> ₁₇	17.2	X	100.07100	107.99677	32.22605	3.73021	0.1352672	0.21720848	2.7408474	20	6 6.4	21.1
435712	2008	<i>UO</i> ₂₁	17.0	X	111.49387	321.81913	212.84089	11.45156	0.0786510	0.22857657	2.6492010	20	7 26.1	21.0
435713	2008	<i>UV</i> ₂₆	16.0	X	93.42433	138.59089	25.48655	12.57966	0.0717616	0.22358515	2.6884837	20	6 20.8	19.9
435714	2008	<i>UZ</i> ₂₆	17.3	X	93.37431	151.63557	45.68995	8.81399	0.0569366	0.22806310	2.6531759	20	8 7.3	21.1
435715	2008	<i>UQ</i> ₃₂	16.8	X	73.81514	103.45270	59.80082	8.60641	0.1146830	0.21291671	2.7775564	20	5 31.0	20.3
435716	2008	<i>UC</i> ₃₃	17.7	X	8.25131	218.94752	90.92122	3.59230	0.2337276	0.24153254	2.5535965	20	10 4.4	20.0
435717	2008	<i>UU</i> ₃₉	17.3	X	221.89759	171.03319	195.28096	2.08605	0.1053299	0.21803742	2.7338962	20	4 24.4	21.3
435718	2008	<i>UV</i> ₄₆	17.2	X	290.16291	323.91371	28.52808	5.79048	0.0742063	0.22619147	2.6677916	20	7 5.0	20.6
435719	2008	<i>UF</i> ₄₇	17.2	X	281.23119	324.68011	22.74807	5.21628	0.0826509	0.22302388	2.6929924	20	6 12.5	20.7
435720	2008	<i>UO</i> ₄₇	16.3	X	224.18748	186.14097	237.37959	12.23999	0.1505410	0.22472519	2.6793835	20	7 3.5	20.5
435721	2008	<i>UY</i> ₅₂	17.7	X	19.33831	296.04778	41.73140	2.68597	0.1733768	0.24591783	2.5231479	20	11 21.0	20.6
435722	2008	<i>UJ</i> ₅₃	17.2	X	148.65404	33.38017	56.07398	5.72304	0.1404495	0.21141565	2.7906881	20	5 25.2	21.5
435723	2008	<i>UP</i> ₆₁	17.1	X	140.28956	204.09994	244.42032	7.65402	0.1787997	0.21055423	2.7982944	20	5 18.6	21.6
435724	2008	<i>UR</i> ₇₃	16.7	X	315.51806	322.54617	30.12050	13.03510	0.1945111	0.23460400	2.6036291	20	8 7.6	19.5
435725	2008	<i>UC</i> ₇₇	16.3	X	206.50735	34.65111	58.35384	22.78132	0.0340475	0.22612581	2.6683080	20	8 12.7	20.5
435726	2008	<i>UY</i> ₇₇	17.2	X	340.32380	298.55955	47.88481	8.99962	0.1434158	0.23727634	2.5840432	20	9 22.9	19.8
435727	2008	<i>UU</i> ₇₈	16.6	X	124.84577	262.66260	191.44621	8.85980	0.1981341	0.21284394	2.7781894	20	5 14.1	21.0
435728	2008	Yunlin	16.8	X	281.77049	311.96426	53.19558	13.83893	0.2699890	0.23184867	2.6242164	20	6 6.8	20.5
435729	2008	<i>UE</i> ₈₅	18.5	X	255.62934	138.63047	216.64953	25.10833	0.0946960	0.39191724	1.8492962	20	5 16.4	20.3
435730	2008	<i>UK</i> ₉₀	18.9	X	332.65514	91.34329	48.82392	34.65324	0.3712440	0.34748082	2.0037744	20	—	—
435731	2008	<i>UL</i> ₉₅	17.4	X	313.51059	216.08725	166.56930	3.96010	0.1396128	0.24134916	2.5548899	20	9 19.9	19.7
435732	2008	<i>UY</i> ₁₀₈	16.6	X	120.42967	77.17477	38.57492	5.13020	0.0860661	0.20964207	2.8064059	20	5 23.2	20.6
435733	2008	<i>UO</i> ₁₀₉	13.9	X	226.76470	297.82473	210.05794	18.54568	0.0476771	0.08286159	5.2107538	20	10 13.9	21.0
435734	2008	<i>UV</i> ₁₁₅	17.2	X	342.01805	286.82817	19.33684	11.46436	0.1813054	0.23215960	2.6218728	20	7 23.4	19.8
435735	2008	<i>UN</i> ₁₂₁	16.8	X	41.98328	307.94484	315.25467	6.36661	0.0747736	0.23116047	2.6294223	20	8 25.2	20.1
435736	2008	<i>UU</i> ₁₂₅	16.3	X	249.90724	131.95790	249.28081	20.55680	0.0855853	0.22170424	2.7036682	20	6 15.7	20.1
435737	2008	<i>UA</i> ₁₂₈	17.8	X	28.69250	278.34743	70.46457	5.08491	0.2687026	0.25204003	2.4821215	20	—	—
435738	2008	<i>UH</i> ₁₃₀	16.5	X	237.92345	205.69924	220.05611	11.08373	0.0508281	0.23198062	2.6232212	20	8 1.9	20.3
435739	2008	<i>UB</i> ₁₃₁	17.3	X	293.72529	115.65574	248.17787	2.50117	0.0916164	0.23165107	2.6257085	20	7 22.9	20.4
435740	2008	<i>UB</i> ₁₃₂	17.4	X	306.52152	321.56213	36.17790	6.06832	0.1431342	0.23424666	2.6062762	20	7 31.4	20.3
435741	2008	<i>UF</i> ₁₃₄	17.5	X	193.83650	50.65732	32.15124	3.72662	0.0438204	0.22469157	2.6796508	20	7 4.8	21.3
435742	2008	<i>UY</i> ₁₃₄	17.0	X	60.86844	124.93261	42.44213	11.52331	0.1338912	0.21082067	2.7959362	20	5 19.8	20.6
435743	2008	<i>UT</i> ₁₃₇	18.1	X	14.44805	287.10040	44.70744	6.04289	0.1910715	0.24640249	2.5198382	20	11 8.4	20.6
435744	2008	<i>UB</i> ₁₄₄	16.5	X	330.02916	310.56325	52.58465	5.32169	0.1800078	0.24105861	2.5569424	20	9 25.6	18.7
435745	2008	<i>UX</i> ₁₄₄	16.8	X	224.32531	170.11854	219.84671	10.21497	0.0539572	0.21928907	2.7234834	20	6 1.0	20.7
435746	2008	<i>UO</i> ₁₄₆	16.7	X	118.69773	239.42526	250.63660	3.92985	0.0936627	0.21426634	2.7658805	20	6 10.4	20.5
435747	2008	<i>UA</i> ₁₅₄	16.9	X	322.17835	274.85483	50.58517	14.74191	0.1767796	0.23037877	2.6353669	20	7 5.8	19.8
435748	2008	<i>UP</i> ₁₅₄	17.0	X	327.85921	315.54098	36.58242	15.3916						

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
435761 2008 UA ₂₀₉	16.6	X	70.48263	217.15778	37.70462	19.27175	0.1469783	0.23939958	2.5687418	20	10 10.4	20.3
435762 2008 UG ₂₁₀	16.7	X	108.54663	213.24208	30.36702	7.42719	0.1661313	0.24620239	2.5212033	20	10 31.8	20.6
435763 2008 US ₂₁₅	16.8	X	259.24851	1.17155	359.72516	7.83073	0.2533664	0.22557595	2.6726424	20	5 8.6	21.1
435764 2008 UC ₂₄₄	16.7	X	41.77661	271.24571	307.74593	7.56655	0.1585825	0.21628230	2.7486666	20	7 6.9	19.9
435765 2008 UD ₂₅₇	16.6	X	216.40688	248.80881	140.73588	12.30072	0.1797086	0.21971789	2.7199386	20	5 17.2	21.2
435766 2008 UG ₂₅₇	16.5	X	62.50142	228.89311	42.66362	7.99474	0.1811435	0.24061156	2.5601086	20	10 22.6	20.0
435767 2008 UM ₂₆₁	17.7	X	314.96440	156.08114	188.42715	3.78808	0.1277115	0.23167771	2.6255072	20	7 25.3	20.6
435768 2008 UU ₂₆₁	17.4	X	135.03077	105.07955	250.54713	18.66055	0.0929907	0.36067096	1.9546182	20	—	—
435769 2008 UA ₂₆₈	16.7	X	264.12075	311.47938	46.90095	10.79150	0.0488261	0.22307669	2.6925674	20	6 8.5	20.5
435770 2008 UJ ₂₇₇	17.0	X	127.40228	87.96486	43.97015	5.55623	0.0569601	0.22052598	2.7132900	20	6 19.1	20.9
435771 2008 UX ₂₈₃	16.7	X	146.20483	5.12276	62.05587	10.17265	0.1170740	0.20662441	2.8336636	20	4 26.2	21.0
435772 2008 UF ₂₈₅	17.4	X	246.82750	191.72715	206.62750	6.43725	0.1245400	0.22793134	2.6541982	20	6 30.1	21.2
435773 2008 UP ₂₈₅	17.6	X	318.07923	270.08592	53.51224	2.71139	0.0852307	0.22931573	2.6435051	20	7 6.1	20.7
435774 2008 US ₂₈₇	17.7	X	36.96575	159.16975	117.46894	3.20399	0.0309976	0.23535788	2.5980662	20	9 1.9	20.9
435775 2008 UC ₂₉₂	17.1	X	136.23264	270.08299	248.16723	2.68712	0.0644572	0.22886274	2.6469922	20	8 4.2	20.9
435776 2008 UM ₂₉₅	16.9	X	66.04330	243.71201	37.62011	13.10899	0.2038416	0.24688424	2.5165591	20	11 9.2	20.5
435777 2008 UV ₂₉₇	17.5	X	247.52383	69.75990	318.78675	4.20620	0.0706405	0.22444924	2.6815792	20	6 25.9	21.2
435778 2008 UK ₃₀₀	13.8	X	264.84519	154.75404	314.52669	9.68871	0.0663639	0.08320778	5.1962906	20	10 6.3	20.8
435779 2008 UX ₃₀₈	16.6	X	114.11175	242.54842	273.11376	7.94338	0.0759298	0.21947824	2.7219182	20	7 6.4	20.5
435780 2008 UC ₃₁₀	16.2	X	144.24717	226.30419	254.85243	12.04681	0.1127705	0.22036521	2.7146095	20	6 28.1	20.4
435781 2008 UD ₃₁₀	16.2	X	326.50882	333.59962	11.07436	15.61797	0.1502602	0.23716335	2.5848638	20	8 25.2	19.0
435782 2008 UU ₃₁₃	17.1	X	298.70623	82.36614	288.98237	4.74279	0.1750556	0.23675333	2.5878473	20	7 29.7	20.0
435783 2008 UX ₃₁₄	17.3	X	259.20911	2.96543	2.73042	6.03137	0.0275059	0.22192873	2.7018446	20	6 16.1	21.0
435784 2008 UR ₃₂₈	17.4	X	149.02331	154.44320	289.39855	3.76330	0.0912605	0.21471478	2.7620280	20	5 14.7	21.5
435785 2008 UW ₃₃₇	17.3	X	185.81259	177.06620	236.21352	5.44882	0.0483039	0.21473557	2.7618498	20	5 16.4	21.2
435786 2008 UX ₃₃₉	17.4	X	350.60369	235.77743	58.60910	9.90252	0.0563551	0.22722868	2.6596671	20	7 20.7	20.8
435787 2008 UB ₃₄₄	16.6	X	301.17942	272.10144	114.55191	13.69038	0.1809934	0.23692604	2.5865895	20	8 30.3	19.4
435788 2008 UB ₃₄₆	16.4	X	350.90493	246.10948	85.74859	12.58639	0.0572924	0.23415346	2.6069678	20	9 18.9	19.8
435789 2008 UO ₃₄₉	17.4	X	319.04621	297.56191	41.48543	11.77044	0.0724563	0.23299797	2.6155797	20	8 5.5	20.8
435790 2008 UW ₃₅₂	16.5	X	307.12997	252.16720	79.99923	7.12136	0.0480577	0.22249260	2.6972777	20	7 4.9	19.9
435791 2008 UL ₃₅₅	16.5	X	130.66085	185.72922	247.27413	14.14990	0.1135987	0.20452551	2.8530172	20	4 10.3	21.0
435792 2008 UO ₃₅₈	16.7	X	264.02877	193.09374	189.72820	5.84986	0.0714293	0.22579720	2.6708962	20	7 8.7	20.4
435793 2008 UZ ₃₅₈	17.3	X	316.73661	324.93577	19.29512	2.12444	0.0567441	0.23012754	2.6372845	20	8 6.0	20.5
435794 2008 UA ₃₆₀	17.0	X	345.87711	74.30508	278.27920	3.04231	0.1198148	0.23975026	2.5662364	20	10 5.3	19.8
435795 2008 UB ₃₆₅	16.8	X	233.87037	316.20430	92.12568	14.75906	0.1573821	0.22672521	2.6636031	20	6 25.3	20.8
435796 2008 VE ₄	16.5	X	252.27978	151.28240	242.18464	11.75968	0.1923190	0.22735089	2.6587139	20	6 21.3	20.4
435797 2008 VM ₄	17.3	X	304.03085	142.94827	226.38741	11.22443	0.2453602	0.23729416	2.5839138	20	7 21.5	20.1
435798 2008 VL ₆	17.4	X	34.67890	232.86012	90.54077	14.08240	0.0498892	0.22965878	2.6408720	20	8 18.1	21.0
435799 2008 VU ₁₁	16.8	X	241.55408	290.10047	90.77459	7.32694	0.0637851	0.22076010	2.7113713	20	6 8.9	20.7
435800 2008 VA ₁₈	17.5	X	202.76247	247.62085	201.18137	5.52703	0.1125192	0.22666320	2.6640889	20	7 17.4	21.7
435801 2008 VB ₂₂	17.3	X	12.43933	171.28026	105.07156	4.15540	0.0383091	0.22726878	2.6593542	20	7 26.8	20.6
435802 2008 VJ ₄₈	17.1	X	357.87841	271.26082	61.77021	5.97499	0.1982211	0.23993327	2.5649313	20	10 12.5	19.4
435803 2008 VE ₅₀	16.5	X	230.43629	183.44206	222.06701	14.16293	0.0855411	0.22681691	2.6628851	20	6 23.9	20.5
435804 2008 VH ₅₂	16.8	X	210.67752	238.43296	207.96241	10.20125	0.1700996	0.23018358	2.6368564	20	7 17.4	21.2
435805 2008 VH ₅₆	17.5	X	59.61790	240.69938	248.08659	19.19890	0.0594258	0.37278518	1.9120399	20	2 12.7	19.7
435806 2008 VE ₆₀	16.4	X	133.80808	232.42247	236.26540	12.89288	0.0563269	0.21678093	2.7444501	20	5 27.5	20.3
435807 2008 VV ₆₀	17.3	X	318.57022	279.23530	82.80925	4.38313	0.2263860	0.23922596	2.5699846	20	8 22.0	19.3
435808 2008 VL ₆₅	17.4	X	267.98721	120.13073	218.56745	5.49457	0.0523301	0.22027278	2.7153688	20	5 19.3	21.1
435809 2008 UV ₇₀	17.2	X	353.20356	267.30282	5.62727	5.60496	0.0046048	0.21943399	2.7222842	20	6 22.3	20.9
435810 2008 VH ₇₈	16.9	X	295.45453	236.49425	138.04450	4.00211	0.2008870	0.23192190	2.6236640	20	7 24.1	19.7
435811 2008 WN ₁	17.7	X	73.45522	19.00437	65.31511	24.10157	0.0744756	0.36468955	1.9402328	20	1 10.7	19.7
435812 2008 WS ₁	17.2	X	182.12010	1.57515	68.13414	9.35802	0.2066328	0.21766689	2.7369979	20	6 1.6	21.7
435813 2008 WG ₁₀	16.9	X	306.61376	151.55237	200.97019	2.62522	0.1572588	0.23420781	2.6065645	20	7 18.5	19.8
435814 2008 WW ₁₆	17.4	X	211.47081	91.88271	314.41022	0.80363	0.0839596	0.22146016	2.7056543	20	6 4.4	21.3
435815 2008 WW ₁₇	17.0	X	353.04596	305.20033	23.14789	7.76215	0.1698658	0.24073837	2.5592095	20	9 21.7	19.3
435816 2008 WF ₂₃	16.9	X	309.36017	324.12104	55.90428	7.57928	0.1346704	0.23812913	2.5778701	20	9 12.1	19.7
435817 2008 WN ₃₁	17.0	X	179.80006	26.34594	39.86160	3.32747	0.0681519	0.21235260	2.7824732	20	5 25.8	21.1
435818 2008 WL ₃₂	18.1	X	281.29330	283.77296	46.02067	22.12052	0.1407270	0.39150504	1.8505940	20	5 5.7	19.5
435819 2008 WJ ₃₇	16.5	X	225.40268	348.23447	62.11552	15.05438	0.2394579	0.22271483	2.6954832	20	6 11.3	21.0
435820 2008 WL ₃₇	16.9	X	82.73793	107.33020	64.59724	8.59944	0.1569775	0.21222247	2.7836106	20	6 30.5	20.8
435821 2008 WC ₄₀	16.4	X	55.52640	174.67938	67.11003	10.54051	0.0732278	0.22699292	2.6615084	20	8 20.5	20.1
435822 2008 WE ₄₁	17.4	X	350.07453	216.99287	105.87921	2.32012	0.1542695	0.23473671	2.6026477	20	9 2.9	19.8
435823 2008 WC ₆₁	16.1	X	168.09723	55.57650	72.45820	22.64673	0.0275211	0.22488701	2.6780980	20	8 7.9	20.3
435824 2008 WQ ₆₁	15.8	X	309.84233	122.54659	242.18984	16.67057	0.1449166	0.23293245	2.6160702	20	8 5.9	19.2
435825 2008 WL ₆₅	17.1	X	169.21719	95.74905	350.73276	2.88909	0.0674793	0.21904908	2.7254722	20	6 9.2	21.2
435826 2008 WL ₆₆	16.8	X	313.06794	132.92910	239.92351	15.93671	0.2159312	0.23732562	2.5836854	20	8 15.8	19.7
435827 2008 WG ₆₇	16.4	X	1.35887	63.34306	239.33631	13.79530	0.0998164	0.23002327	2.6380815	20	8 12.9	19.8
435828 2008 WC ₇₀	16.7	X	14.49202	11.05525	84.96066	2.55573	0.1431489	0.17864078	3.1223552	20	—	—
435829 2008 WF ₇₀	17.1	X	67.32057	273.21343	242.90728	3.83703	0.2088773	0.20116025	2.8847484	20	5 27.7	20.8
435830 2008 WB ₇₅	16.5	X	81.37452	266.06931	254.57957	6.18695	0.0812281	0.21548504	2.7554422	20	6 2.1	20.0
435831 2008 WL ₇₅	16.4	X	198.45802	303.38708	87.46101	7.82399	0.0336624	0.21104635	2.7939427	20	5 5.3	20.4
435832 2008 WP ₇₅	17.7	X	335.34460	150.19537	70.51172	3.54199	0.1835254	0.23807435	2.5782655	20	9 13.2	19.9
435833 2008 WT ₇₆	16.6	X	40.44920	214.02392	22.82705	16.30016	0.1300610	0.23627248	2.59			

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>
435841 2008 <i>WD</i> ₁₀₂	16.5	X	301.06621	144.84085	237.59408	8.66217	0.1814199	0.23768453	2.5810838	20	8 15.0	19.5
435842 2008 <i>WA</i> ₁₀₅	17.3	X	2.67690	227.64599	90.29567	2.65048	0.1387314	0.23455657	2.6039800	20	9 19.8	19.9
435843 2008 <i>WC</i> ₁₀₆	16.4	X	74.07459	152.97032	42.42532	14.21220	0.0902851	0.21826718	2.7319773	20	7 12.7	20.3
435844 2008 <i>WW</i> ₁₁₂	16.3	X	155.67897	29.01719	71.05304	6.56358	0.0586432	0.21451250	2.7637642	20	6 11.1	20.1
435845 2008 <i>WQ</i> ₁₁₄	17.1	X	304.55397	101.43161	255.98769	8.61212	0.1564469	0.23058582	2.6337891	20	7 20.3	20.1
435846 2008 <i>WT</i> ₁₁₇	16.5	X	328.26898	293.30061	72.50503	14.44689	0.1911681	0.23827975	2.5767837	20	10 2.1	19.1
435847 2008 <i>WL</i> ₁₁₈	17.1	X	187.28111	332.16248	58.77280	5.26993	0.1147331	0.20846138	2.8169922	20	4 21.1	21.4
435848 2008 <i>WJ</i> ₁₂₃	16.9	X	195.97358	348.48435	70.56054	14.05250	0.1108039	0.21507069	2.7589801	20	6 2.7	21.0
435849 2008 <i>WF</i> ₁₂₈	17.1	X	54.30020	19.61211	236.99901	12.12050	0.1004547	0.23233061	2.6205861	20	9 2.1	20.8
435850 2008 <i>WC</i> ₁₂₉	16.4	X	307.16854	76.56111	284.12799	11.48586	0.2896707	0.22507005	2.6766458	20	7 8.9	19.2
435851 2008 <i>WS</i> ₁₃₂	17.1	X	345.54095	231.04480	153.59185	13.30946	0.3064621	0.24895825	2.5025631	20	12 22.3	19.4
435852 2008 <i>WF</i> ₁₃₅	16.4	X	336.79754	262.43368	72.82147	15.63148	0.1142363	0.23367141	2.6105519	20	9 2.1	19.6
435853 2008 <i>WL</i> ₁₃₅	16.6	X	265.17594	338.73301	69.38912	6.57738	0.1376110	0.22905719	2.6454939	20	8 7.1	20.2
435854 2008 <i>WQ</i> ₁₃₆	16.8	X	103.34860	205.53934	275.80259	5.22803	0.1512038	0.20385777	2.8592439	20	5 18.5	21.0
435855 2008 <i>WK</i> ₁₃₈	16.4	X	235.78369	339.03562	78.63031	14.49810	0.1789125	0.22324764	2.6911927	20	7 7.1	20.6
435856 2008 <i>WV</i> ₁₃₈	16.6	X	56.04405	10.42121	100.74153	11.77782	0.2164394	0.18617842	3.0375015	20	3 19.1	20.3
435857 2008 <i>WP</i> ₁₄₀	16.5	X	204.07981	163.46749	264.78410	12.82385	0.1747114	0.22117904	2.7079465	20	6 21.1	20.6
435858 2008 <i>XR</i> ₁₂	16.5	X	357.43697	233.73079	92.68144	15.71523	0.1354570	0.23656066	2.5892523	20	9 30.9	19.7
435859 2008 <i>XZ</i> ₂₉	16.7	X	208.96731	262.32270	125.13265	12.51990	0.2229959	0.21704080	2.7422590	20	5 7.4	21.6
435860 2008 <i>XV</i> ₃₀	17.5	X	209.67834	66.39004	349.48426	3.28468	0.0841864	0.21851145	2.7299410	20	6 14.7	21.5
435861 2008 <i>XE</i> ₃₉	16.8	X	357.53903	49.46775	274.98806	4.31047	0.1815079	0.23491164	2.6013554	20	9 19.6	19.3
435862 2008 <i>XW</i> ₄₃	15.9	X	1.31049	27.80791	137.27233	29.31764	0.1724328	0.17595050	3.1541018	20	2 8.4	19.5
435863 2008 <i>YC</i> ₂	17.4	X	135.47007	303.78279	93.40145	24.68482	0.1776084	0.36545378	1.9375269	20	3 9.3	20.4
435864 2008 <i>YZ</i> ₈	16.9	X	165.59137	5.80136	88.88695	5.94535	0.0318740	0.21384136	2.7695438	20	6 15.2	20.8
435865 2008 <i>YP</i> ₁₂	16.3	X	238.71979	135.64037	260.49204	13.07026	0.1290631	0.22123826	2.7074632	20	6 17.5	20.3
435866 2008 <i>YX</i> ₂₆	16.2	X	119.14820	207.89219	250.27203	13.31164	0.2043443	0.20361577	2.8615090	20	5 12.1	20.7
435867 2008 <i>YH</i> ₄₆	17.2	X	162.60845	20.31776	44.26938	2.40429	0.1054096	0.20277675	2.8693968	20	5 6.7	21.6
435868 2008 <i>YO</i> ₄₈	17.0	X	101.35483	36.25185	65.51190	1.85085	0.0511979	0.19337351	2.9616795	20	4 9.2	21.2
435869 2008 <i>YS</i> ₄₉	16.6	X	225.45291	220.53002	108.75187	10.90260	0.0785807	0.19088663	2.9873473	20	3 21.4	21.3
435870 2008 <i>YM</i> ₅₅	16.7	X	100.35598	342.04908	110.77823	12.06027	0.0857085	0.19160354	2.9798909	20	4 7.1	21.1
435871 2008 <i>YH</i> ₅₈	17.0	X	13.15191	198.62194	97.46950	14.67130	0.1655107	0.22258431	2.6965368	20	9 14.4	20.2
435872 2008 <i>YB</i> ₇₈	16.7	X	29.21845	76.69722	126.60605	13.75752	0.0893365	0.19898096	2.9057731	20	5 19.7	20.6
435873 2008 <i>YX</i> ₉₉	17.1	X	27.06572	45.12787	102.57420	0.32022	0.1106013	0.18552846	3.0445914	20	2 29.9	20.8
435874 2008 <i>YJ</i> ₁₀₁	16.7	X	304.15268	67.57198	277.08074	6.65354	0.1698269	0.21891152	2.7266138	20	6 30.1	19.5
435875 2008 <i>YW</i> ₁₁₅	16.8	X	224.38229	286.89855	112.36222	5.23300	0.1070298	0.21264894	2.7798876	20	6 8.4	21.0
435876 2008 <i>YG</i> ₁₂₂	16.7	X	14.35280	349.57415	269.00911	7.05120	0.1763751	0.20914440	2.8108557	20	7 13.8	19.5
435877 2008 <i>YE</i> ₁₂₈	16.9	X	52.96916	208.13692	316.48940	3.56531	0.1273997	0.19297829	2.9657218	20	5 3.4	20.6
435878 2008 <i>YD</i> ₁₃₀	16.3	X	96.28423	9.33887	97.81713	6.70934	0.1031327	0.19608702	2.9342930	20	4 19.5	20.5
435879 2008 <i>YC</i> ₁₃₅	16.9	X	237.91006	326.42170	98.13688	7.44122	0.0952627	0.22629923	2.6669446	20	7 29.7	20.7
435880 2008 <i>YZ</i> ₁₃₇	16.7	X	88.49182	193.79746	246.97189	1.83359	0.1148337	0.18838047	3.0137841	20	3 5.6	20.7
435881 2008 <i>YV</i> ₁₃₈	16.8	X	243.20364	266.10939	132.10610	9.91615	0.1763481	0.21626423	2.7488197	20	6 20.5	21.0
435882 2008 <i>YT</i> ₁₄₄	16.7	X	153.69201	272.36308	148.70177	6.73428	0.0748645	0.19748349	2.9204438	20	4 23.8	21.1
435883 2008 <i>YE</i> ₁₅₇	16.6	X	74.09648	311.72878	136.82723	5.05772	0.1167660	0.18381462	3.0634868	20	2 27.6	20.6
435884 2008 <i>YK</i> ₁₅₉	16.1	X	342.20750	75.73228	157.35111	26.56690	0.2066455	0.18130767	3.0916615	20	4 3.4	19.8
435885 2008 <i>YA</i> ₁₆₀	18.1	X	38.26769	113.37842	324.87180	14.67502	0.1222327	0.34792822	2.0020563	20	—	—
435886 2008 <i>YL</i> ₁₆₀	16.1	X	69.52402	288.09803	157.46216	17.39166	0.0825347	0.17410446	3.1763580	20	2 12.8	20.3
435887 2008 <i>YX</i> ₁₆₂	16.4	X	18.83777	189.12495	287.90724	12.11009	0.1534303	0.17714512	3.1399055	20	1 9.2	20.0
435888 2008 <i>YJ</i> ₁₆₅	16.1	X	49.05064	44.48769	82.42531	13.69493	0.3004730	0.18558991	3.0439194	20	4 11.7	19.6
435889 2008 <i>YU</i> ₁₆₈	16.8	X	86.94958	15.63254	76.32584	1.91149	0.0982411	0.18994538	2.9972080	20	3 16.9	20.8
435890 2008 <i>YT</i> ₁₆₉	16.6	X	160.67424	359.82437	91.81380	6.53868	0.0939267	0.20539576	2.8449528	20	6 7.7	21.0
435891 2008 <i>YD</i> ₁₇₂	16.3	X	347.86376	233.01774	126.03895	14.04740	0.2099775	0.23410273	2.6073444	20	11 3.4	19.0
435892 2008 <i>AE</i> ₈	16.3	X	220.54497	303.74169	88.65231	10.08680	0.2034983	0.21844215	2.7305183	20	5 21.1	20.8
435893 2009 <i>AL</i> ₁₂	17.0	X	178.62304	202.73868	206.66104	1.45441	0.0662232	0.20312686	2.8660987	20	5 3.7	21.1
435894 2009 <i>AV</i> ₂₆	17.0	X	93.23686	351.89979	104.15918	2.01092	0.1410805	0.19152134	2.9807435	20	4 5.3	21.1
435895 2009 <i>AN</i> ₃₀	17.5	X	44.88904	31.07082	104.75571	5.39853	0.3025893	0.18741043	3.0241748	20	4 10.9	20.6
435896 2009 <i>AA</i> ₃₄	16.6	X	150.94316	300.05449	104.51522	10.23971	0.0649824	0.19234755	2.9722017	20	4 2.6	21.2
435897 2009 <i>AP</i> ₃₇	17.1	X	56.96913	72.70651	120.29962	18.59746	0.0800605	0.20270012	2.8701200	20	6 14.1	21.1
435898 2009 <i>AT</i> ₄₄	16.2	X	142.51194	277.02504	143.73427	12.60248	0.0921304	0.19209177	2.9748395	20	4 14.8	20.8
435899 2009 <i>AG</i> ₄₅	16.6	X	6.56462	61.76993	135.26215	10.77617	0.0442424	0.18895176	3.0077062	20	4 5.8	20.7
435900 2009 <i>AM</i> ₄₆	16.7	X	66.43107	261.52054	207.15594	4.55591	0.1243789	0.18629677	3.0362149	20	3 11.8	20.7
435901 2009 <i>BU</i>	16.6	X	89.20277	333.62837	115.63638	3.68006	0.3282250	0.18983531	2.9983665	20	4 18.6	21.0
435902 2009 <i>BZ</i> ₁	15.7	X	62.57980	311.90049	152.19119	20.67426	0.2289158	0.18392670	3.0622422	20	3 19.8	19.5
435903 2009 <i>BC</i> ₇	15.9	X	143.16656	328.93499	139.30105	15.19363	0.1771068	0.20466169	2.8517515	20	6 16.6	20.8
435904 2009 <i>BK</i> ₉	17.5	X	55.03028	351.66951	125.97414	24.25972	0.0575444	0.35944602	1.9590564	20	1 31.7	19.0
435905 2009 <i>BN</i> ₁₀	17.8	X	68.31167	297.37018	135.02928	24.27330	0.0715153	0.35234534	1.9852888	20	—	—
435906 2009 <i>BD</i> ₁₄	17.0	X	66.24604	302.08279	128.80107	24.82845	0.0950015	0.35062219	1.9917880	20	—	—
435907 2009 <i>BV</i> ₂₄	16.2	X	10.28086	13.20970	131.79779	11.66352	0.1724642	0.17652053	3.1473079	20	1 29.4	19.7
435908 2009 <i>BL</i> ₂₉	16.5	X	73.28621	327.36349	110.89673	6.68709	0.1288993	0.18227701	3.0806908	20	2 16.3	20.5
435909 2009 <i>BB</i> ₅₀	17.0	X	81.46413	334.37033	123.09352	9.88019	0.1873636	0.18773874	3.0206480	20	4 2.5	21.2
435910 2009 <i>BU</i> ₅₂	16.1	X	64.78047	349.87769	121.26498	8.14315	0.0238886	0.18411667	3.0601354	20	3 4.2	20.3
435911 2009 <i>BE</i> ₅₇	16.4	X	345.35644	279.96828	284.51833	8.14845						

