

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>		
508001	2015	BL ₂₅₄	18.4	X	196.06251	295.38820	191.09258	2.97959	0.1613044	0.28245055	2.3005999	20	8 30.2	21.7
508002	2015	BM ₂₅₈	17.6	X	112.92497	278.97175	263.49730	5.94547	0.0515828	0.26638700	2.3921810	20	8 9.0	20.7
508003	2015	BC ₂₅₉	18.1	X	289.05961	237.74491	138.87306	8.55000	0.2340038	0.28625111	2.2801912	20	7 14.3	20.4
508004	2015	BP ₂₆₀	16.9	X	125.60904	236.03547	182.26374	4.68149	0.0580841	0.21388249	2.7691888	20	3 13.3	20.6
508005	2015	BK ₂₇₆	16.6	X	299.52251	216.26303	105.36088	2.28880	0.0767990	0.23834356	2.5763238	20	6 5.1	19.7
508006	2015	BQ ₂₉₇	17.9	X	160.41686	97.14823	64.27497	3.24914	0.1125128	0.26852502	2.3794662	20	9 12.1	21.3
508007	2015	BU ₂₉₉	17.8	X	110.04583	118.73913	86.41643	3.59614	0.1296215	0.25811761	2.4430046	20	9 16.2	21.4
508008	2015	BE ₃₀₁	17.1	X	44.35430	107.53800	136.24243	5.77229	0.1087619	0.24088545	2.5581676	20	8 9.0	19.8
508009	2015	BX ₃₀₃	16.9	X	332.97509	160.56342	116.68669	5.95826	0.1421303	0.21578382	2.7528980	20	5 20.8	20.1
508010	2015	BM ₃₀₄	16.3	X	10.67157	236.50010	7.75500	16.49115	0.1048088	0.22209977	2.7004573	20	6 8.1	19.8
508011	2015	BB ₃₁₃	18.1	X	220.23526	12.96666	87.58439	1.37017	0.1887690	0.28702001	2.2761171	20	8 20.1	21.1
508012	2015	BS ₃₁₃	17.8	X	353.38288	234.98507	59.27924	4.13289	0.1419171	0.27578383	2.3375281	20	8 1.7	19.7
508013	2015	BC ₃₁₆	18.4	X	215.34572	39.96955	73.19169	3.47903	0.1453106	0.28404687	2.2919724	20	9 6.8	21.6
508014	2015	BB ₃₁₇	17.9	X	33.90962	209.00322	38.51160	2.17936	0.1605528	0.25388362	2.4700909	20	8 8.3	20.6
508015	2015	BC ₃₃₉	16.5	X	244.08143	197.16410	110.95100	7.78027	0.0234322	0.21386976	2.7692986	20	3 17.5	20.4
508016	2015	BH ₃₅₂	18.3	X	293.82004	125.86613	280.25368	6.16652	0.1717522	0.30150713	2.2026103	20	9 21.8	20.1
508017	2015	BY ₃₅₄	16.3	X	334.73863	9.53885	263.03214	13.96494	0.1077194	0.22779829	2.6552316	20	5 17.6	19.5
508018	2015	BF ₃₅₅	17.2	X	19.19202	7.53917	224.79050	11.17586	0.1251713	0.22979758	2.6398084	20	6 10.9	20.1
508019	2015	BP ₃₅₆	17.1	X	284.62991	251.25802	141.40568	22.26851	0.1830312	0.28283418	2.2985191	20	8 10.4	19.2
508020	2015	BL ₃₈₉	17.2	X	54.14863	211.83433	15.84215	4.83472	0.1290332	0.25303789	2.4755917	20	8 7.5	20.2
508021	2015	BA ₃₉₄	17.8	X	181.15765	36.65119	90.21932	7.76727	0.0502842	0.27343863	2.3508746	20	8 24.4	21.0
508022	2015	BG ₄₀₁	18.3	X	266.65993	108.94590	305.56960	6.51531	0.1199294	0.28550474	2.2841634	20	8 23.6	20.8
508023	2015	BD ₄₀₇	17.5	X	334.54506	177.23482	113.40763	2.10639	0.1047884	0.24542737	2.5265082	20	6 14.7	20.1
508024	2015	BX ₄₂₁	17.3	X	22.60795	286.98231	308.00365	3.62406	0.1424680	0.23552308	2.5968512	20	6 23.7	19.9
508025	2015	BJ ₄₂₇	16.7	X	355.99789	123.46911	129.87792	8.13631	0.0138330	0.23816786	2.5775906	20	6 1.1	20.1
508026	2015	BO ₄₂₉	18.2	X	340.06552	220.28329	103.31522	3.79624	0.0759623	0.26633630	2.3924845	20	8 18.8	20.8
508027	2015	BQ ₄₂₉	18.4	X	175.06957	73.74239	54.10843	2.04094	0.1223646	0.26871446	2.3783478	20	8 12.9	21.8
508028	2015	BD ₄₃₅	17.2	X	22.60179	114.56718	130.72944	6.89713	0.1109545	0.24264243	2.5458036	20	7 5.8	20.0
508029	2015	BQ ₄₃₅	16.9	X	178.98113	293.93035	90.38478	1.61535	0.1206732	0.22039375	2.7143751	20	4 3.8	21.0
508030	2015	BR ₄₃₇	18.1	X	8.26603	195.59105	87.70020	2.53402	0.0833816	0.25569709	2.4583980	20	8 6.0	20.7
508031	2015	BF ₄₃₈	17.8	X	178.59624	183.16927	313.16443	4.49939	0.1358738	0.27381619	2.3487131	20	8 26.0	21.4
508032	2015	BM ₄₅₅	17.2	X	346.71318	147.60043	92.40373	3.00372	0.1219798	0.22115758	2.7081216	20	4 23.4	20.1
508033	2015	BE ₄₅₈	16.3	X	217.16415	356.71929	330.26211	14.74853	0.1390572	0.20452597	2.8530129	20	2 28.9	21.0
508034	2015	BC ₄₆₁	17.7	X	50.53662	179.17006	69.21231	3.09562	0.1590009	0.25382350	2.4704809	20	9 5.6	20.7
508035	2015	BQ ₄₇₁	17.2	X	140.75284	279.57574	284.65069	4.33338	0.0812228	0.29035934	2.2586322	20	10 16.6	20.4
508036	2015	BV ₄₈₁	17.5	X	36.59723	91.56967	147.53497	6.73376	0.0760847	0.25353620	2.4723469	20	7 16.3	20.4
508037	2015	BO ₄₈₄	18.5	X	289.05409	273.23693	130.19571	5.92604	0.1418717	0.29513139	2.2342192	20	9 17.4	20.5
508038	2015	BG ₄₉₇	16.8	X	281.54357	155.59781	133.85109	12.13944	0.0533601	0.21947470	2.7219475	20	4 6.3	20.7
508039	2015	BN ₅₀₀	19.1	X	227.51630	166.71123	288.00292	1.89705	0.1646367	0.28531988	2.2851499	20	8 21.8	22.1
508040	2015	BF ₅₃₂	16.7	X	236.79074	33.53602	356.73310	12.23944	0.0953763	0.23259965	2.6185649	20	6 10.2	20.7
508041	2015	BL ₅₃₂	16.7	X	181.10758	65.09257	20.63760	13.16415	0.1138044	0.23245430	2.6196564	20	6 21.3	21.0
508042	2015	BK ₅₃₃	16.5	X	239.95217	223.02156	105.62630	12.63810	0.1144749	0.18546728	3.0452609	20	4 3.7	21.4
508043	2015	BW ₅₃₃	15.7	X	242.21603	286.64773	334.02701	13.95335	0.0418992	0.15393690	3.4480553	20	1 23.4	20.8
508044	2015	BY ₅₃₃	16.8	X	230.66951	174.64340	153.07147	9.29167	0.1289608	0.21404467	2.7677898	20	3 16.5	21.1
508045	2015	BT ₅₃₄	17.2	X	206.79074	196.51675	284.30194	6.18133	0.0882202	0.27469717	2.3436887	20	9 7.2	20.6
508046	2015	BG ₅₃₅	17.4	X	176.77947	250.33953	162.49581	13.55534	0.1744445	0.23741001	2.5830731	20	5 10.4	21.9
508047	2015	BT ₅₃₅	16.9	X	27.02052	151.15812	100.93884	4.61344	0.1881410	0.24279384	2.5447451	20	8 5.7	19.4
508048	2015	BA ₅₃₆	17.2	X	342.07349	175.22116	88.83177	8.93379	0.1629026	0.23884317	2.5727297	20	5 16.6	19.7
508049	2015	BD ₅₃₆	16.3	X	334.42279	65.54104	219.60774	12.17932	0.1273493	0.23902469	2.5714271	20	6 4.2	19.1
508050	2015	BG ₅₃₆	17.1	X	251.57971	308.67758	53.18771	7.61623	0.1528802	0.23409232	2.6074217	20	5 15.4	20.9
508051	2015	BK ₅₃₆	17.1	X	181.26217	342.12436	111.87659	7.68916	0.0984668	0.24991531	2.4961699	20	7 3.7	20.7
508052	2015	BL ₅₃₆	17.1	X	70.41704	183.08627	53.13928	3.53121	0.1430885	0.25455213	2.4657643	20	9 13.1	20.4
508053	2015	BT ₅₃₆	17.4	X	253.76666	225.86590	116.78560	3.62990	0.1021822	0.22979306	2.6398430	20	4 30.6	21.2
508054	2015	BW ₅₃₆	17.1	X	129.52731	181.75863	301.36389	9.5604	0.0240144	0.22965832	2.6408755	20	6 6.4	20.8
508055	2015	BC ₅₃₇	16.9	X	340.30456	123.13063	153.70330	3.76368	0.0343406	0.22462157	2.6802075	20	6 8.9	20.4
508056	2015	BF ₅₃₇	17.3	X	27.12666	5.23187	197.79571	4.72416	0.0942673	0.21214164	2.7843176	20	5 12.0	20.5
508057	2015	BH ₅₃₇	17.0	X	240.09533	336.04234	21.29368	5.85508	0.0562100	0.21172506	2.7879686	20	5 6.7	21.0
508058	2015	BK ₅₃₇	18.0	X	32.22633	106.21261	177.80410	7.90819	0.0278421	0.28175224	2.3043996	20	9 9.8	20.5
508059	2015	BO ₅₃₇	16.6	X	282.60748	190.13730	139.20256	15.81589	0.1476586	0.22842270	2.6503906	20	5 16.4	20.5
508060	2015	BP ₅₃₇	17.0	X	105.85641	96.63018	53.52116	9.84429	0.0657681	0.22128277	2.7071001	20	6 17.2	20.8
508061	2015	CL ₁	18.5	X	178.56023	186.06210	329.57774	1.97279	0.1654497	0.28229893	2.3014236	20	9 20.2	21.9
508062	2015	CS ₁	16.3	X	233.42678	306.76567	327.34615	11.37235	0.0352325	0.18295571	3.0730673	20	1 24.7	20.8
508063	2015	CC ₅	17.5	X	70.69393	291.36589	302.30310	2.71536	0.0871928	0.27337212	2.3512559	20	9 1.2	20.4
508064	2015	CA ₉	17.9	X	275.71444	191.65722	167.87666	3.49569	0.0811756	0.25650648	2.4532237	20	6 23.2	20.9
508065	2015	CZ ₁₁	17.7	X	122.61362	199.45289	350.05812	1.81326	0.1511630	0.26106163	2.4246033	20	9 8.6	21.2
508066	2015	CJ ₃₁	18.2	X	148.25530	115.92541	65.57690	4.64715	0.1529191	0.27809974	2.3245327	20	9 27.4	21.8
508067	2015	CK ₃₁	17.6	X	115.23103	91.42911	99.64587	7.66794	0.0613186	0.26842379	2.3800644	20	8 30.7	20.8
508068	2015	CT ₃₁	18.1	X	285.09091	237.90527	144.40623	2.90154	0.1957972	0.28100144	2.3085025	20	7 23.2	20.3
508069	2015	CX ₃₉	17.4	X	172.68130	52.57008	165.56771	6.38273	0.1148903	0.29568584				

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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>
508081 2015 <i>DA</i> ₅₆	17.6	X	310.79036	160.53753	150.91609	12.93143	0.0326686	0.24504418	2.5291415	20	6 15.2	21.0
508082 2015 <i>DB</i> ₆₄	17.6	X	50.10846	143.84201	109.03650	3.24262	0.1648040	0.25597396	2.4566250	20	9 12.4	20.5
508083 2015 <i>DC</i> ₆₄	18.7	X	253.99018	327.72548	95.59509	2.39770	0.2021735	0.28488897	2.2874536	20	8 6.4	21.6
508084 2015 <i>DT</i> ₈₆	17.5	X	216.84399	109.56710	343.36146	7.37505	0.0541243	0.26971192	2.3724803	20	8 20.4	20.4
508085 2015 <i>DU</i> ₉₁	18.5	X	171.87929	82.95360	57.67657	2.22970	0.1256844	0.27092269	2.3654065	20	8 26.9	22.0
508086 2015 <i>DY</i> ₉₆	16.9	X	289.26667	204.68528	105.68698	4.52663	0.1770614	0.21672935	2.7448854	20	4 22.6	20.6
508087 2015 <i>DT</i> ₉₉	16.6	X	129.98703	4.66508	116.15077	14.78962	0.1479293	0.22127583	2.7071567	20	6 17.5	20.9
508088 2015 <i>DF</i> ₁₀₂	18.3	X	236.25909	5.64615	59.83052	7.10034	0.0820919	0.27537606	2.3398352	20	8 5.3	21.4
508089 2015 <i>DI</i> ₁₁₄	17.8	X	130.61950	111.25729	53.53254	7.84259	0.0914678	0.26338965	2.4102953	20	8 15.6	21.3
508090 2015 <i>DP</i> ₁₁₆	16.6	X	338.31450	271.80336	7.75516	14.56900	0.1547197	0.23899134	2.5716663	20	5 26.4	19.5
508091 2015 <i>DY</i> ₁₁₆	16.5	X	243.59801	240.68620	109.44498	16.13223	0.1563601	0.23751521	2.5823103	20	4 28.9	20.8
508092 2015 <i>DX</i> ₁₁₇	16.8	X	311.64394	248.20472	29.99014	12.20316	0.0825647	0.21525385	2.7574147	20	4 22.9	20.2
508093 2015 <i>DA</i> ₁₁₈	16.5	X	343.96878	242.58781	17.51269	13.04046	0.1804605	0.21698059	2.7427662	20	5 7.2	19.4
508094 2015 <i>DL</i> ₁₂₄	16.9	X	57.90562	184.01302	19.81484	14.12140	0.1767054	0.22958548	2.6414340	20	7 18.1	20.5
508095 2015 <i>DX</i> ₁₂₇	17.1	X	133.20387	64.01049	43.77656	13.38191	0.1419277	0.23099789	2.6306559	20	5 31.3	21.1
508096 2015 <i>DU</i> ₁₃₁	17.2	X	177.28056	59.78017	24.26093	17.83660	0.1621275	0.24123165	2.5557195	20	6 13.0	21.6
508097 2015 <i>DN</i> ₁₃₃	16.2	X	244.55204	205.33070	84.50576	16.25410	0.1310303	0.17527799	3.1621645	20	2 21.2	21.4
508098 2015 <i>DL</i> ₁₄₂	17.9	X	193.14872	257.89778	206.48414	6.36746	0.1085373	0.27557868	2.3386881	20	7 29.9	21.5
508099 2015 <i>DD</i> ₁₄₆	18.3	X	164.84228	317.79888	217.46771	3.24340	0.0911295	0.28976755	2.2617063	20	10 6.3	21.5
508100 2015 <i>DY</i> ₁₅₁	17.6	X	57.92575	108.72829	115.24411	4.81988	0.0831704	0.24259857	2.5461104	20	7 28.5	20.8
508101 2015 <i>DN</i> ₁₅₃	17.8	X	236.13574	29.86715	61.93932	3.66828	0.1940638	0.27899041	2.3195827	20	8 26.1	21.0
508102 2015 <i>DO</i> ₁₅₆	19.0	X	219.47303	55.94706	46.13352	4.53954	0.1844315	0.28128021	2.3069770	20	8 23.0	22.3
508103 2015 <i>DC</i> ₁₅₇	18.1	X	264.26111	215.66135	210.10498	6.88441	0.1537779	0.29892818	2.2152605	20	9 4.1	20.6
508104 2015 <i>DM</i> ₁₆₄	17.9	X	78.03776	176.83400	32.75822	2.90919	0.0638625	0.24608109	2.5220318	20	8 3.9	21.1
508105 2015 <i>DS</i> ₁₆₆	18.1	X	232.61536	118.87630	22.15079	7.55269	0.0571678	0.29296273	2.2452315	20	11 18.2	20.7
508106 2015 <i>DR</i> ₁₆₇	17.2	X	336.12424	125.83884	132.59631	3.00435	0.0387215	0.21803047	2.7339543	20	5 8.8	20.7
508107 2015 <i>DT</i> ₁₇₅	16.6	X	347.14811	354.43456	274.07683	11.70739	0.1597748	0.21935491	2.7229383	20	6 1.0	19.3
508108 2015 <i>DP</i> ₁₇₅	17.3	X	263.26943	280.55167	130.19451	4.58237	0.0766618	0.26540949	2.3980510	20	8 20.2	20.0
508109 2015 <i>DL</i> ₁₇₉	16.6	X	274.26847	71.34801	264.40593	8.48485	0.0637625	0.23704957	2.5856909	20	5 20.6	20.1
508110 2015 <i>DD</i> ₁₇₉	16.4	X	348.31675	306.45517	287.36468	16.11083	0.120907	0.21584589	2.7523703	20	4 9.1	20.2
508111 2015 <i>DJ</i> ₁₉₇	15.6	X	232.62019	353.94249	282.37596	11.56894	0.0470450	0.17206371	3.2014240	20	1 23.7	20.3
508112 2015 <i>DU</i> ₂₀₅	16.8	X	240.08882	221.49280	178.66942	21.69513	0.1147787	0.23383942	2.6093013	20	6 26.2	21.1
508113 2015 <i>DM</i> ₂₀₈	16.9	X	127.27670	334.13480	157.68364	14.23759	0.0882476	0.22377190	2.6869877	20	6 22.9	21.1
508114 2015 <i>DJ</i> ₂₁₀	16.3	X	293.11899	182.68520	95.90491	13.14794	0.0660010	0.18883195	3.0089783	20	4 9.9	20.7
508115 2015 <i>DC</i> ₂₁₁	16.7	X	43.10833	68.49582	159.09805	12.64683	0.1335353	0.22159945	2.7045204	20	7 15.9	20.1
508116 2015 <i>DM</i> ₂₁₂	15.9	X	268.56454	204.98522	104.56125	9.91389	0.1796530	0.18272411	3.0756635	20	4 2.2	20.7
508117 2015 <i>DS</i> ₂₁₈	17.3	X	198.11207	236.16329	289.95308	6.20419	0.0458370	0.28586366	2.2822510	20	11 5.6	20.3
508118 2015 <i>DC</i> ₂₂₂	17.0	X	344.76636	240.31253	8.01542	4.81385	0.1202543	0.21126137	2.7920466	20	4 29.7	20.3
508119 2015 <i>DX</i> ₂₂₈	16.3	X	7.46100	127.80697	128.70823	17.63256	0.2389134	0.21107577	2.7936831	20	7 2.4	18.9
508120 2015 <i>DA</i> ₂₂₉	16.4	X	305.88700	249.39989	43.65857	12.03356	0.0682233	0.22457780	2.6805556	20	5 6.6	19.8
508121 2015 <i>DL</i> ₂₂₉	17.6	X	317.82955	169.59693	162.36189	2.77307	0.0220556	0.24647814	2.5193226	20	7 24.3	20.7
508122 2015 <i>DN</i> ₂₂₉	16.4	X	147.33391	224.00056	235.57270	21.49533	0.0266296	0.23681815	2.5873751	20	5 29.2	20.0
508123 2015 <i>DR</i> ₂₂₉	16.1	X	203.65592	295.97387	80.52439	16.01918	0.1624533	0.20318955	2.8655091	20	4 24.0	21.0
508124 2015 <i>DS</i> ₂₂₉	17.5	X	189.19292	12.79405	75.70747	15.12413	0.0876065	0.23703889	2.5857685	20	7 4.9	21.4
508125 2015 <i>DY</i> ₂₂₉	17.1	X	196.28456	286.35833	155.08338	12.78123	0.0654189	0.23083014	2.6319302	20	7 4.3	21.1
508126 2015 <i>EC</i> ₂₂	17.8	X	109.66463	255.23603	302.07735	1.72551	0.1161206	0.26161870	2.4211602	20	9 2.0	21.2
508127 2015 <i>EH</i> ₂₈	18.2	X	166.34332	163.30681	354.95025	2.74113	0.1352552	0.27395598	2.3479141	20	9 12.5	21.7
508128 2015 <i>EU</i> ₃₆	16.3	X	179.17256	170.64222	156.21020	9.93165	0.0691743	0.17850146	3.1239797	20	1 26.4	21.1
508129 2015 <i>ER</i> ₄₀	18.2	X	201.77236	100.14413	20.26868	5.02889	0.0960733	0.27567719	2.3381309	20	9 5.2	21.4
508130 2015 <i>EW</i> ₆₃	16.7	X	74.64364	268.55022	0.84481	15.65464	0.1687354	0.26249583	2.4157637	20	10 28.2	20.4
508131 2015 <i>EU</i> ₆₈	17.1	X	345.04269	157.84136	119.75392	4.60439	0.0964651	0.23817534	2.5775367	20	6 14.8	19.9
508132 2015 <i>FD</i> ₇	17.9	X	258.16090	96.62850	1.64297	5.72400	0.1012054	0.30393514	2.1908641	20	10 21.7	20.1
508133 2015 <i>FH</i> ₂₀	16.9	X	166.75373	340.44279	125.95726	14.60791	0.1329909	0.23938651	2.5688353	20	7 4.5	21.0
508134 2015 <i>FV</i> ₂₁	16.6	X	19.68160	168.04219	39.11112	17.01211	0.1052598	0.20980046	2.8049929	20	5 4.1	19.7
508135 2015 <i>FN</i> ₃₂	16.8	X	101.88868	137.70989	42.71187	14.45235	0.1028984	0.23298823	2.6156526	20	8 3.4	20.8
508136 2015 <i>FW</i> ₃₇	17.6	X	127.29801	134.96738	42.26239	13.55858	0.1182299	0.24419054	2.5350323	20	9 1.3	21.7
508137 2015 <i>FN</i> ₄₃	17.2	X	136.05390	160.18078	36.80125	15.15335	0.0372249	0.25702277	2.4499374	20	10 3.3	20.6
508138 2015 <i>FL</i> ₄₅	15.9	X	241.69655	277.59905	49.59269	14.10013	0.2060308	0.17643006	3.1483838	20	3 28.0	21.2
508139 2015 <i>FV</i> ₆₄	16.2	X	3.20768	302.02840	281.10297	13.17118	0.0370727	0.21326125	2.7745640	20	4 24.6	20.1
508140 2015 <i>FT</i> ₇₄	16.6	X	275.69799	241.59864	44.73558	11.00926	0.1771384	0.17817612	3.1277814	20	3 13.8	21.4
508141 2015 <i>FX</i> ₇₄	17.6	X	156.74477	160.65713	50.82914	5.37031	0.1135654	0.27693813	2.3310283	20	11 11.8	20.9
508142 2015 <i>FF</i> ₇₅	17.3	X	45.36384	45.25615	158.25834	4.08240	0.189758	0.21267328	2.7796755	20	6 14.3	20.7
508143 2015 <i>FN</i> ₇₅	16.9	X	232.44298	277.84388	105.34202	2.84375	0.0933098	0.21357368	2.7718574	20	5 28.8	21.0
508144 2015 <i>FR</i> ₇₅	17.2	X	126.27296	128.59499	27.90109	5.97391	0.1391802	0.23676190	2.5877849	20	7 30.6	21.2
508145 2015 <i>FO</i> ₇₆	17.2	X	15.84743	200.62534	43.04448	12.68050	0.0586009	0.214914				

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Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V		
508161	2015	FS ₁₆₈	16.8	X	206.20610	46.77126	17.98403	22.38812	0.0554191	0.23626568	2.5914070	20	6 24.2	21.0
508162	2015	FY ₁₇₁	17.1	X	281.24408	220.91479	103.78832	7.09395	0.0352023	0.21326221	2.7745557	20	5 22.2	20.8
508163	2015	FM ₁₈₃	16.8	X	246.48447	198.85984	154.70252	7.06224	0.0389083	0.21897204	2.7261114	20	5 14.9	20.6
508164	2015	FG ₁₉₈	17.7	X	167.12372	231.60671	284.61355	4.29245	0.1591124	0.26935810	2.3745575	20	9 7.2	21.6
508165	2015	FT ₂₀₃	16.0	X	245.35999	38.68608	318.43982	5.29962	0.0536632	0.22313752	2.6920781	20	5 12.2	19.8
508166	2015	FR ₂₀₅	17.7	X	179.69947	270.15435	207.76140	6.33026	0.0740136	0.25475209	2.4644738	20	8 2.0	21.3
508167	2015	FW ₂₁₁	17.0	X	142.51473	13.11292	83.47095	11.22121	0.1614608	0.22248687	2.6973240	20	5 30.6	21.4
508168	2015	FY ₂₁₁	16.3	X	278.12682	126.68609	158.34267	15.07152	0.2307280	0.17896763	3.1185525	20	3 3.6	20.9
508169	2015	FZ ₂₁₁	15.6	X	275.61042	165.77924	88.63263	11.48844	0.0238565	0.17426834	3.1743664	20	2 23.3	20.3
508170	2015	FF ₂₁₂	16.5	X	291.75396	182.82978	75.15522	11.57285	0.1796933	0.17712941	3.1400913	20	2 26.2	21.2
508171	2015	FJ ₂₁₇	18.4	X	187.04651	103.74504	23.49506	2.52746	0.1545101	0.26755453	2.3852167	20	8 23.1	22.0
508172	2015	FK ₂₂₂	16.6	X	82.03382	13.27084	124.64804	6.04823	0.1058918	0.21487021	2.7606959	20	5 9.7	20.3
508173	2015	FJ ₂₂₅	16.7	X	241.72839	2.02862	26.51738	9.50679	0.0772572	0.23879869	2.5730492	20	6 17.0	20.4
508174	2015	FV ₂₇₄	16.8	X	28.29120	150.32814	62.63479	6.09143	0.0493214	0.22284792	2.6944099	20	5 23.1	20.0
508175	2015	FB ₂₇₉	17.8	X	76.88417	154.80827	52.79492	5.38452	0.1131593	0.24237454	2.5476790	20	8 7.9	21.3
508176	2015	FN ₂₈₅	18.2	X	241.54520	97.59058	11.74178	3.46160	0.1294976	0.29537947	2.2329681	20	10 7.2	20.9
508177	2015	FA ₂₈₆	17.0	X	165.39090	6.24239	82.37559	18.45542	0.0582836	0.21663633	2.7456712	20	6 8.2	21.0
508178	2015	FL ₂₈₇	16.8	X	57.39616	321.85420	239.81587	4.79835	0.2196525	0.23036488	2.6354728	20	7 16.5	20.1
508179	2015	FX ₂₉₂	18.0	X	200.05318	280.60062	195.21225	1.77052	0.1648157	0.26311383	2.4119794	20	8 18.4	21.8
508180	2015	FA ₂₉₄	16.2	X	306.02999	182.65050	62.25824	18.37473	0.1455741	0.17645696	3.1480637	20	3 8.6	20.9
508181	2015	FF ₂₉₆	16.1	X	278.43309	193.97809	121.69033	9.98823	0.1634692	0.19086619	2.9875605	20	4 21.7	20.5
508182	2015	FZ ₂₉₈	16.3	X	294.95209	176.33975	113.52074	9.78449	0.0890080	0.18852666	3.0122259	20	4 20.9	20.6
508183	2015	FN ₃₀₂	16.7	X	350.48562	112.64845	166.92798	12.62205	0.0936665	0.21079980	2.7961207	20	6 26.1	20.3
508184	2015	FO ₃₁₀	16.8	X	58.21048	183.26089	29.72073	15.09464	0.1550487	0.22989745	2.6390439	20	7 29.7	20.5
508185	2015	FT ₃₁₇	17.4	X	329.38564	179.28096	113.71624	5.98418	0.0871222	0.22049197	2.7135690	20	6 10.6	20.5
508186	2015	FG ₃₁₈	16.6	X	199.32889	260.76092	150.43679	11.39528	0.0518551	0.22149855	2.7053417	20	5 31.9	20.7
508187	2015	FC ₃₁₉	16.7	X	181.83498	284.37393	85.06685	8.89745	0.0165725	0.18784070	3.0195548	20	3 23.1	21.1
508188	2015	FB ₃₂₁	17.0	X	157.30675	32.62971	58.45717	13.76742	0.1365974	0.22832489	2.6511474	20	6 3.8	21.1
508189	2015	FN ₃₂₁	15.4	X	200.39115	272.24752	65.13222	15.52734	0.2259656	0.17301360	3.1896954	20	3 8.6	21.1
508190	2015	FV ₃₂₉	16.9	X	274.74245	288.34549	74.94686	12.66542	0.0311653	0.23324586	2.6137262	20	7 4.3	20.3
508191	2015	FR ₃₃₀	17.7	X	102.29877	280.99028	263.16386	3.24792	0.1074832	0.23868494	2.5738667	20	8 3.5	21.3
508192	2015	FW ₃₃₀	17.3	X	66.28020	3.54540	194.10453	2.42414	0.0466899	0.22918254	2.6445292	20	6 26.5	20.7
508193	2015	FN ₃₄₄	16.8	X	69.80431	201.29965	9.59993	13.59063	0.1182636	0.23350805	2.6117693	20	8 6.7	20.5
508194	2015	FR ₃₄₈	16.7	X	187.59937	318.46208	83.04799	15.49830	0.1864895	0.21890769	2.7266457	20	5 7.6	21.4
508195	2015	FU ₃₅₂	16.8	X	356.18455	269.08465	353.68502	4.17283	0.0797636	0.21653974	2.7464876	20	6 11.8	20.0
508196	2015	FN ₃₅₅	16.9	X	219.01179	344.25669	44.02508	5.82386	0.0894693	0.21386466	2.7693427	20	5 19.7	21.1
508197	2015	FS ₃₆₅	16.2	X	332.27484	25.64193	248.45471	12.16634	0.1269831	0.22796709	2.6539207	20	5 8.9	19.1
508198	2015	FB ₃₇₇	17.0	X	4.21334	343.68662	241.35580	8.25393	0.1311483	0.21759803	2.7375753	20	5 1.7	19.8
508199	2015	FM ₃₈₁	16.9	X	156.97590	235.06769	208.42980	14.23166	0.0753626	0.23169146	2.6254033	20	5 23.9	20.8
508200	2015	FX ₃₉₄	16.7	X	247.46679	104.18556	197.47551	1.01709	0.1499984	0.17978625	3.1090788	20	3 1.1	21.7
508201	2015	FA ₃₉₆	17.5	X	47.38015	190.20287	21.10174	4.74433	0.1022058	0.22138616	2.7062572	20	6 26.1	20.9
508202	2015	FJ ₃₉₆	16.6	X	8.00123	9.61131	186.04780	12.93705	0.1281384	0.17825876	3.1268146	20	4 2.5	20.1
508203	2015	FP ₃₉₆	17.2	X	118.65546	281.70423	183.64655	1.82634	0.0186974	0.20268759	2.8702383	20	4 30.2	21.2
508204	2015	FR ₃₉₆	16.5	X	206.37491	26.44055	41.16104	15.48162	0.1112179	0.23315806	2.6143823	20	6 24.1	20.7
508205	2015	FS ₃₉₆	16.6	X	78.32931	128.74129	72.87699	13.84245	0.2005662	0.22589134	2.6701541	20	8 15.5	20.7
508206	2015	FU ₃₉₆	16.9	X	199.35836	276.78604	169.61585	14.65443	0.2010464	0.23213128	2.6220861	20	7 6.7	21.5
508207	2015	FV ₃₉₆	16.8	X	245.29583	38.83080	319.89148	4.49303	0.0681213	0.21376840	2.7701740	20	5 12.9	20.7
508208	2015	FX ₃₉₆	16.4	X	303.29595	239.79592	124.80681	7.15956	0.0779388	0.22555113	2.6728384	20	8 10.7	19.5
508209	2015	FF ₃₉₇	17.7	X	128.49341	154.09004	353.28455	5.87239	0.1712023	0.22938275	2.6429901	20	7 22.3	21.9
508210	2015	GV ₁₆	16.1	X	262.32924	143.03187	162.39284	16.27840	0.2245159	0.17505765	3.1648173	20	3 14.1	21.1
508211	2015	GU ₂₀	17.7	X	212.78952	36.55164	64.39662	2.32536	0.1435360	0.26341727	2.4101268	20	8 15.6	21.2
508212	2015	GA ₂₁	16.6	X	67.72357	270.24303	186.64967	10.68208	0.0570739	0.17905450	3.1175431	20	2 19.3	21.0
508213	2015	GF ₂₂	17.8	X	158.89744	65.07374	41.12498	12.01487	0.1532978	0.23257456	2.6187532	20	6 26.2	22.2
508214	2015	GS ₂₂	17.0	X	215.69383	306.68855	97.25085	14.85741	0.0663262	0.21705604	2.7421306	20	6 8.9	21.1
508215	2015	GY ₂₃	16.1	X	237.06637	207.24141	110.97288	16.17490	0.0767648	0.17411846	3.1761878	20	3 23.7	21.1
508216	2015	GN ₂₄	16.4	X	57.31100	124.41366	75.24690	13.64623	0.0948142	0.21990156	2.7184239	20	6 23.1	19.8
508217	2015	GO ₂₉	18.1	X	168.82129	347.52855	163.98361	1.30615	0.1206231	0.26297146	2.4128499	20	9 5.3	21.7
508218	2015	GN ₃₁	18.1	X	178.44987	24.56941	110.47787	2.25698	0.1330488	0.26069281	2.4268896	20	8 24.7	21.7
508219	2015	GY ₃₁	17.9	X	125.09011	320.09830	198.59827	7.54398	0.1127232	0.24167715	2.5525778	20	7 26.3	21.8
508220	2015	GW ₃₄	16.0	X	5.99805	321.39082	200.88067	18.71380	0.0242787	0.17710149	3.1404212	20	2 14.5	20.6
508221	2015	GJ ₃₇	18.1	X	278.40320	10.50090	87.80929	5.82999	0.1211427	0.29526542	2.2335430	20	11 23.9	20.1
508222	2015	GB ₄₀	17.5	X	167.44565	78.56338	43.96899	15.65917	0.0677764	0.24383307	2.5375093	20	7 31.7	21.5
508223	2015	GD ₄₂	16.4	X	214.47919	220.09111	101.47844	10.58020	0.0625624	0.17438527	3.1729473	20	3 1.8	21.3
508224	2015	GR ₄₂	17.9	X	111.79063	131.03084	50.10186	14.45327	0.1519304	0.24314844	2.5422703	20	8 23.5	22.1
508225	2015	FR ₄₅	16.9	X	219.78171	272.70460	122.39978	6.92302	0.0578736	0.21929107	2.7234668	20	6 2.7	20.8
508226	2015	GL ₅₁	16.7	X	289.26030	25.85656	292.59130	11.59594	0.1086651	0.22129724	2.7069821	20	5 8.1	20.6
508227	2015	GN ₅₁	16.0	X	167.79804	322.21652	82.85547	7.70847	0.1892845	0.19747844	2.9204936	20	4 23.9	20.9
508228	2015	HP	16.0	X	203.16218	261.63884	86.44604	11.03101	0.1077723	0.17745997	3.1361906	20	3 22.1	21.1
508229	2015	HM ₄	16.5	X	293.99264	266.27087	344.16562	17.95370	0.1879607	0.18090123	3.0962906	20	2	

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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>
508241 2015 <i>HG</i> ₃₆	17.0	X	16.37915	156.70369	90.84646	9.79467	0.1102380	0.21718779	2.7410215	20	6 26.5	20.1
508242 2015 <i>HE</i> ₃₇	16.5	X	260.22991	166.98714	125.54051	5.15409	0.1543235	0.17226005	3.1989909	20	3 4.6	21.3
508243 2015 <i>HK</i> ₃₇	16.8	X	70.17962	1.35234	153.21567	6.54757	0.0253684	0.19926012	2.9030586	20	5 4.1	20.8
508244 2015 <i>HT</i> ₃₈	16.6	X	218.89243	234.51391	188.70060	21.68935	0.0569156	0.22930183	2.6436119	20	7 5.8	20.9
508245 2015 <i>HW</i> ₃₉	15.7	X	244.27066	248.44817	73.81395	15.96359	0.2190074	0.17352837	3.1833842	20	3 26.1	21.2
508246 2015 <i>HY</i> ₄₅	16.5	X	261.72997	235.81438	44.79846	19.47730	0.2024456	0.17327750	3.1864561	20	2 24.9	21.9
508247 2015 <i>HG</i> ₅₆	15.9	X	253.04955	68.29553	255.98149	14.43912	0.0739752	0.18422173	3.0589718	20	4 5.2	20.6
508248 2015 <i>HM</i> ₆₀	16.3	X	255.82430	147.97716	185.52953	16.36231	0.0991841	0.17804659	3.1292981	20	4 24.4	21.0
508249 2015 <i>HO</i> ₆₄	17.1	X	260.22554	260.41984	37.83868	7.01369	0.1686831	0.17565099	3.1576863	20	3 11.1	22.1
508250 2015 <i>HN</i> ₆₅	17.0	X	345.99626	164.73220	60.57071	1.12846	0.0737524	0.19130364	2.9830044	20	4 7.2	20.8
508251 2015 <i>HA</i> ₇₂	17.1	X	82.63640	115.00705	59.06923	3.86471	0.0168473	0.21664839	2.7455692	20	6 11.8	20.7
508252 2015 <i>HT</i> ₇₄	17.3	X	352.32352	188.78300	53.96093	8.06041	0.0649498	0.20203081	2.8764554	20	5 9.8	21.0
508253 2015 <i>HV</i> ₇₆	16.7	X	194.53181	325.33548	49.74863	1.88910	0.0950642	0.18705878	3.0279636	20	4 9.2	21.4
508254 2015 <i>HF</i> ₇₇	17.3	X	43.48195	12.03614	210.34288	8.85923	0.1013982	0.21890422	2.7266745	20	7 3.8	20.8
508255 2015 <i>HB</i> ₈₀	16.6	X	277.87878	239.96457	31.19242	13.93690	0.1667209	0.17059531	3.2197685	20	3 1.4	21.6
508256 2015 <i>HR</i> ₈₄	17.1	X	169.13879	294.96749	159.40653	3.71069	0.1442141	0.22587534	2.6702802	20	6 20.9	21.3
508257 2015 <i>HS</i> ₈₄	16.7	X	330.82610	30.83288	201.66377	7.85686	0.0725186	0.18453778	3.0554782	20	3 24.6	20.6
508258 2015 <i>HG</i> ₈₇	16.3	X	343.89277	157.58449	59.07705	10.53420	0.1583919	0.18454401	3.0554095	20	3 21.9	20.0
508259 2015 <i>HH</i> ₉₀	16.4	X	256.79711	269.99897	48.29851	11.18705	0.0876145	0.18536300	3.0464030	20	4 9.2	20.9
508260 2015 <i>HM</i> ₁₀₀	16.8	X	149.67502	35.68804	60.47955	4.31621	0.0603315	0.20908425	2.8113948	20	5 30.0	21.0
508261 2015 <i>HP</i> ₁₁₄	16.1	X	201.83859	203.32002	169.10323	11.32483	0.1287799	0.19211200	2.9746306	20	4 14.1	20.9
508262 2015 <i>HF</i> ₁₃₃	17.0	X	322.81124	201.67084	49.95339	9.21010	0.1034977	0.18751245	3.0230777	20	4 6.9	20.9
508263 2015 <i>HK</i> ₁₃₄	16.9	X	128.97576	95.26580	48.18283	12.17569	0.1335415	0.22835884	2.6508847	20	7 15.2	21.1
508264 2015 <i>HP</i> ₁₄₁	16.8	X	337.88526	205.22201	57.49588	12.59244	0.0733506	0.20328585	2.8646041	20	5 14.2	20.2
508265 2015 <i>HQ</i> ₁₅₇	17.0	X	96.40043	298.58897	222.88819	7.57230	0.1199666	0.22196750	2.7015300	20	6 27.9	20.9
508266 2015 <i>HO</i> ₁₆₄	16.8	X	170.53670	348.20963	72.03107	3.09173	0.0012128	0.19976295	2.8981849	20	5 6.8	20.8
508267 2015 <i>HS</i> ₁₆₆	16.6	X	291.15296	68.14635	206.28433	15.70739	0.1877790	0.17640652	3.1486638	20	3 6.5	21.3
508268 2015 <i>HD</i> ₁₆₉	16.8	X	328.07767	194.74233	61.03654	3.16795	0.1113190	0.19264047	2.9691880	20	4 16.7	20.5
508269 2015 <i>HF</i> ₁₆₉	16.8	X	126.70456	139.89883	38.02069	13.58223	0.1302306	0.24402468	2.5361808	20	9 2.2	20.9
508270 2015 <i>HY</i> ₁₇₁	16.4	X	28.14812	11.53369	234.25940	14.11903	0.0673225	0.23095502	2.6309814	20	7 7.3	19.9
508271 2015 <i>HW</i> ₁₇₂	17.1	X	42.98571	216.38366	15.21860	3.52087	0.1697509	0.22579611	2.6709048	20	7 30.1	20.2
508272 2015 <i>HY</i> ₁₇₂	17.5	X	132.44420	121.96857	65.95855	3.42138	0.1312120	0.25762252	2.4461336	20	9 16.9	21.3
508273 2015 <i>HC</i> ₁₇₄	16.6	X	130.32212	173.32898	73.64541	10.85984	0.1190073	0.27460645	2.3442049	20	11 29.7	20.0
508274 2015 <i>HD</i> ₁₇₄	17.3	X	113.14745	118.60083	57.66668	13.02695	0.1962883	0.23739749	2.5831640	20	8 20.4	21.7
508275 2015 <i>HM</i> ₁₇₉	16.8	X	20.25196	14.75477	210.55127	7.57058	0.1566251	0.21140428	2.7907881	20	6 5.5	19.8
508276 2015 <i>HH</i> ₁₈₁	16.8	X	139.00506	113.00880	47.49227	12.40325	0.1230349	0.24092717	2.5578723	20	8 21.5	21.0
508277 2015 <i>HZ</i> ₁₈₄	16.4	X	225.02987	111.04825	215.29420	10.95886	0.0390288	0.17406540	3.1768332	20	3 13.3	21.1
508278 2015 <i>HM</i> ₁₈₅	16.5	X	287.24426	126.42826	142.34588	2.95398	0.1280353	0.17501041	3.1653868	20	3 7.5	21.0
508279 2015 <i>HP</i> ₁₈₅	16.5	X	241.85745	285.67243	31.94858	10.52253	0.0913826	0.17452758	3.1712222	20	3 23.4	21.3
508280 2015 <i>HQ</i> ₁₈₅	16.2	X	160.08673	280.54539	138.84000	4.22641	0.0357590	0.18443771	3.0565833	20	4 26.3	20.6
508281 2015 <i>HR</i> ₁₈₅	16.7	X	96.61962	293.58618	177.24352	9.85817	0.0787669	0.18078581	3.0976083	20	4 20.6	21.1
508282 2015 <i>HT</i> ₁₈₅	16.0	X	197.36827	138.32757	247.62040	14.87360	0.0742350	0.18647623	3.0342665	20	4 22.7	20.7
508283 2015 <i>HU</i> ₁₈₅	16.7	X	229.69316	210.59933	133.03344	9.80995	0.1021705	0.18777171	3.0202943	20	4 9.8	21.4
508284 2015 <i>JU</i> ₁₂	16.4	X	146.19990	68.69876	52.73549	13.35361	0.2208731	0.22337935	2.6901347	20	7 6.9	21.1
508285 2015 <i>JZ</i> ₁₂	16.5	X	349.57019	45.87032	169.63183	9.85192	0.0441477	0.17266947	3.1939320	20	4 4.4	20.7
508286 2015 <i>KF</i> ₄	16.5	X	224.16167	165.81232	240.89252	13.58315	0.0595477	0.23228479	2.6209307	20	6 21.4	20.2
508287 2015 <i>KY</i> ₆	16.8	X	189.51991	193.07206	266.58311	9.80351	0.0881814	0.23331463	2.6132126	20	7 18.3	20.8
508288 2015 <i>KP</i> ₁₂	16.4	X	294.69957	177.24390	113.87726	14.41263	0.1030085	0.18240368	3.0792645	20	4 22.6	20.9
508289 2015 <i>KC</i> ₁₅	16.4	X	290.69627	143.66680	139.26495	11.08253	0.0475281	0.17649293	3.1476360	20	4 12.9	20.9
508290 2015 <i>KU</i> ₁₆	16.5	X	252.71503	180.56448	142.80124	13.42671	0.1228215	0.17646408	3.1479791	20	4 8.4	21.4
508291 2015 <i>KY</i> ₁₆	16.5	X	257.47127	177.01665	153.10441	12.74092	0.0919229	0.18353251	3.0666253	20	4 24.7	21.1
508292 2015 <i>KA</i> ₁₇	15.8	X	133.35286	316.69329	112.94244	16.85648	0.0735245	0.17635850	3.1492353	20	4 18.4	20.8
508293 2015 <i>KT</i> ₂₃	17.7	X	154.61402	230.58679	281.11225	2.09833	0.1626786	0.24101595	2.5572441	20	8 19.6	21.7
508294 2015 <i>KW</i> ₂₄	17.1	X	130.62203	21.12815	119.33506	12.16309	0.1526982	0.22291503	2.6938691	20	7 12.4	21.2
508295 2015 <i>KM</i> ₃₁	17.0	X	32.69497	229.50757	51.27742	18.09985	0.2020705	0.23214893	2.6219531	20	10 5.8	20.4
508296 2015 <i>KB</i> ₃₄	17.1	X	53.03934	294.56762	282.11517	3.39685	0.0463129	0.21652603	2.7466036	20	7 3.5	20.6
508297 2015 <i>KE</i> ₃₄	16.7	X	346.35735	230.37044	342.90192	4.28708	0.0900354	0.18069998	3.0985890	20	3 21.6	20.7
508298 2015 <i>KF</i> ₃₅	16.8	X	196.47822	162.30988	260.73342	3.25424	0.0481537	0.21225237	2.7833491	20	6 10.9	20.6
508299 2015 <i>KN</i> ₃₇	16.3	X	211.75550	172.54888	202.85577	9.87492	0.0608585	0.18249877	3.0781947	20	4 29.3	20.9
508300 2015 <i>KQ</i> ₃₇	15.9	X	234.66251	289.31171	77.37013	26.40807	0.2635353	0.17923761	3.1154202	20	5 6.6	21.5
508301 2015 <i>KA</i> ₄₀	16.4	X	302.46129	222.74733	60.21964	10.80517	0.0864486	0.18372782	3.0644516	20	4 21.2	20.5
508302 2015 <i>KJ</i> ₄₆	16.3	X	297.66705	154.39007	102.92137	5.70758	0.1050336	0.16860267	3.2450876	20	3 12.1	20.8
508303 2015 <i>KD</i> ₅₃	16.5	X	314.96611	134.33863	135.12330	3.40796	0.0687597	0.18094031	3.0958447	20	4 21.9	20.6
508304 2015 <i>KT</i> ₅₃	16.0	X	300.94152	220.70309	58.92582	11.17586	0.1890129	0.17720166	3.1392376	20	4 2.4	20.4
508305 2015 <i>KF</i> ₆₂	17.1	X	65.47305	118.86936	90.65457	12.28170	0.0659389	0.22199495	2.7013073	20	7 15.1	20.6
508306 2015 <i>KK</i> ₈₃	16.1	X	114.79195	232.13421	205.16568	25.18691	0.1597644	0.17450517	3.1714937	20	4 8.7	20.9
508307 2015 <i>KD</i> ₈₇	16.4	X	99.87359	13.12805	96.90101	9.79309	0.0123101	0.18478331	3.0527710	20	4 16.9	20.8
508308 2015 <i>KC</i> ₉₄	16.3	X	271.55323	201.71870	99.10380	11.92562	0.0933729	0.17668508	3.1453536	20	4 7.2	21.0
508309 2015 <i>KO</i> ₉₄	16.8	X	98.27459	332.79101	153.52722	8.32746	0.0431441	0.19001653	2.9964599	20	5 7.6	21.1
508310 2015 <i>KK</i> ₉₆	16.0	X	179.92946	302.02749	85.98186	19.83153	0.1616798	0.17151320	3.2082708	20	4 21.1	21.6
508311 2015 <i>KD</i> ₁₁₈	16.4	X	326.04614	220.24001	14							

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>
508321 2015 <i>LT</i> ₇	16.2	X	304.21526	158.00840	122.80016	14.18375	0.1255786	0.17895726	3.1186729	20	4 18.8	20.6
508322 2015 <i>LT</i> ₂₂	16.4	X	308.30093	174.59547	92.92662	11.91463	0.1031491	0.17678836	3.1441283	20	4 10.8	20.8
508323 2015 <i>LR</i> ₂₄	15.4	X	81.40250	304.00918	271.35636	32.02623	0.1436650	0.20518884	2.8468651	20	8 5.8	20.1
508324 2015 <i>LF</i> ₃₄	16.6	X	199.65587	354.65390	101.50810	3.26640	0.0193520	0.20316807	2.8657112	20	7 30.2	20.4
508325 2015 <i>LW</i> ₄₁	16.8	X	314.79975	215.23101	49.94788	0.14871	0.1017060	0.17771630	3.1331742	20	4 10.6	21.0
508326 2015 <i>LY</i> ₄₁	15.5	X	169.80058	150.15977	245.22928	18.05184	0.0392221	0.16869147	3.2439486	20	4 1.9	20.5
508327 2015 <i>MG</i> ₇	16.8	X	68.47738	357.94077	279.79481	14.05477	0.0749343	0.23060431	2.6336483	20	10 13.9	20.8
508328 2015 <i>MX</i> ₇	16.8	X	40.46822	342.96533	224.76756	4.35054	0.1543832	0.18253139	3.0778280	20	6 16.1	20.5
508329 2015 <i>MP</i> ₁₃	16.0	X	228.42952	306.66947	81.38182	14.01560	0.1309471	0.17422503	3.1748924	20	5 28.2	21.0
508330 2015 <i>MY</i> ₂₃	16.3	X	25.26696	102.94659	59.73082	14.84605	0.1374868	0.17913176	3.1166473	20	3 27.9	20.2
508331 2015 <i>MV</i> ₃₃	16.8	X	260.27038	172.75427	132.79158	11.39513	0.0692398	0.17642108	3.1484906	20	4 1.1	21.5
508332 2015 <i>MA</i> ₄₄	16.4	X	201.02493	345.62610	133.82019	22.55918	0.0612806	0.23387935	2.6090043	20	9 2.4	20.2
508333 2015 <i>ML</i> ₅₂	16.2	X	230.72537	227.54347	172.03105	19.87163	0.1671480	0.19805952	2.9147785	20	6 11.1	21.2
508334 2015 <i>ML</i> ₅₂	16.0	X	35.75698	91.55005	110.73106	27.73482	0.1581189	0.18060924	3.0996268	20	6 7.9	20.1
508335 2015 <i>NC</i> ₁₃	16.0	X	224.21134	271.70420	107.28180	25.93297	0.2412497	0.17562228	3.1580305	20	5 14.9	21.8
508336 2015 <i>PK</i> ₄₁	16.3	X	3.62952	275.75785	353.99746	14.32057	0.0499348	0.17793911	3.1305581	20	7 4.0	20.7
508337 2015 <i>PH</i> ₈₀	15.9	X	272.44207	294.55047	312.27973	1.63592	0.1375890	0.12705084	3.1818712	20	1 29.9	21.7
508338 2015 <i>SO</i> ₂₀	6.5	X	0.47819	354.59137	33.61971	23.41628	0.8000686	0.00046140	165.8641038	20	10 29.0	21.7
508339 2015 <i>UQ</i> ₆₅	16.0	X	29.45704	161.73802	173.34711	12.33014	0.0751878	0.19219906	2.9737323	20	11 7.7	20.1
508340 2015 <i>VA</i> ₄₁	17.2	X	43.38727	226.56062	181.45126	8.16491	0.1593531	0.24244954	2.5471536	20	—	—
508341 2015 <i>XB</i> ₁	18.6	X	121.02438	83.48883	237.69675	28.61062	0.1615860	0.45320005	1.6785827	20	—	—
508342 2015 <i>AQ</i> ₂₃	17.9	X	32.41759	337.90978	86.95440	3.62647	0.1968616	0.22423676	2.6832729	20	—	—
508343 2016 <i>AC</i> ₁₉₅	18.2	X	143.70500	33.01710	205.61530	21.30777	0.0730940	0.36712236	1.9316517	20	12 23.0	21.0
508344 2016 <i>BN</i> ₃₉	18.5	X	31.56910	282.82702	84.08061	22.97782	0.0736467	0.40325975	1.8144547	20	—	—
508345 2016 <i>BG</i> ₈₂	18.2	X	302.72695	30.26755	70.51438	24.44123	0.0315172	0.38667440	1.8659748	20	—	—
508346 2016 <i>BL</i> ₈₂	18.1	X	125.90514	220.95177	73.64999	23.14061	0.0549398	0.39120292	1.8515466	20	—	—
508347 2016 <i>CY</i> ₂₉	18.1	X	357.88277	250.74439	126.97245	22.43163	0.1261062	0.37898497	1.8911300	20	—	—
508348 2016 <i>CB</i> ₁₂₃	17.0	X	344.57278	332.88383	293.35438	7.17828	0.1649856	0.28622775	2.2803152	20	5 19.9	19.0
508349 2016 <i>CX</i> ₂₆₅	18.9	X	359.95504	238.29255	184.19103	22.17730	0.0328823	0.40219839	1.8176454	20	—	—
508350 2016 <i>CG</i> ₂₆₇	18.7	X	31.08252	357.05044	11.12370	21.75805	0.0445949	0.38995510	1.8554944	20	—	—
508351 2016 <i>CD</i> ₂₇₉	17.5	X	218.17156	354.78513	50.43109	7.75336	0.0878978	0.27303066	2.3532159	20	6 10.3	20.7
508352 2016 <i>EV</i> ₁₉	16.9	X	244.60879	347.98270	309.75044	16.60861	0.1249998	0.22492052	2.6778320	20	2 17.1	21.1
508353 2016 <i>ET</i> ₃₇	17.0	X	4.00294	186.53448	98.18910	14.16510	0.1966375	0.27293739	2.3537520	20	8 18.1	19.0
508354 2016 <i>EE</i> ₅₅	18.0	X	309.02602	126.87606	80.70777	19.63528	0.0980287	0.38162410	1.8824012	20	—	—
508355 2016 <i>EF</i> ₆₆	16.8	X	31.97434	128.41234	36.93735	7.36607	0.0787706	0.26052947	2.4279038	20	6 4.7	19.4
508356 2016 <i>EF</i> ₆₄	18.4	X	334.39113	190.29316	198.03040	21.48411	0.0817439	0.36204615	1.9496654	20	12 12.0	20.6
508357 2016 <i>EG</i> ₈₅	17.7	X	219.80960	141.78032	24.01706	23.06806	0.0840856	0.37395507	1.9080501	20	12 25.3	20.1
508358 2016 <i>EW</i> ₁₁₀	18.0	X	164.20523	199.48322	20.55570	19.77789	0.0552218	0.35642168	1.9701229	20	12 23.7	20.7
508359 2016 <i>EH</i> ₁₂₇	17.8	X	316.70928	291.34520	357.67135	5.38458	0.1271177	0.26826930	2.3809781	20	5 5.5	20.4
508360 2016 <i>EV</i> ₁₃₃	17.0	X	267.98002	270.38996	355.14373	8.48337	0.1379209	0.21667327	2.7453591	20	2 7.6	21.2
508361 2016 <i>EQ</i> ₁₄₉	16.5	X	292.05887	250.00888	35.14395	12.29245	0.2673930	0.22947297	2.6422973	20	3 14.4	20.4
508362 2016 <i>EP</i> ₁₅₀	17.6	X	335.19580	168.34319	136.82599	2.60169	0.1534648	0.27892980	2.3199187	20	7 7.2	19.4
508363 2016 <i>EU</i> ₁₇₀	16.6	X	245.38625	102.92170	175.53705	19.88395	0.1670357	0.20906585	2.8115598	20	1 25.9	21.4
508364 2016 <i>EV</i> ₁₉₂	18.2	X	43.03748	244.61534	20.56754	5.77256	0.1259646	0.30737066	2.1745085	20	9 21.4	20.4
508365 2016 <i>EL</i> ₁₉₃	18.1	X	66.25308	102.63721	133.24568	5.86642	0.1186758	0.29459684	2.2369211	20	9 8.7	20.7
508366 2016 <i>EL</i> ₂₀₀	16.8	X	299.73352	242.83978	34.28740	15.43757	0.1825267	0.22658503	2.6647015	20	3 26.0	20.4
508367 2016 <i>EO</i> ₂₀₀	17.0	X	279.10747	108.81834	205.83025	13.92654	0.1625316	0.23099345	2.6306896	20	4 14.5	20.6
508368 2016 <i>EV</i> ₂₀₄	18.4	X	93.62908	75.39405	209.57400	19.45709	0.0754813	0.36242133	1.9483197	20	12 25.5	21.2
508369 2016 <i>ET</i> ₂₁₄	16.6	X	200.03945	280.11217	37.17281	14.07118	0.2520673	0.18462250	3.0545434	20	2 11.9	22.2
508370 2016 <i>ES</i> ₂₁₅	17.1	X	120.19525	50.01579	114.50424	7.04344	0.0430108	0.27969318	2.3156956	20	7 26.9	20.0
508371 2016 <i>EV</i> ₂₁₅	15.7	X	208.51258	268.28622	43.10827	9.29442	0.0620141	0.18949974	3.0019052	20	2 10.9	20.4
508372 2016 <i>EZ</i> ₂₁₅	17.8	X	9.25947	230.76783	43.46815	8.15171	0.0343346	0.27488287	2.3426331	20	7 24.6	20.6
508373 2016 <i>EB</i> ₂₁₆	16.5	X	244.57080	247.69273	69.66000	6.70701	0.1109048	0.21296804	2.7771101	20	3 21.4	20.8
508374 2016 <i>EG</i> ₂₁₇	17.3	X	291.22220	42.82283	261.63744	5.58229	0.1596310	0.23736531	2.5833974	20	4 14.4	20.7
508375 2016 <i>ER</i> ₂₁₇	17.1	X	320.16528	211.37312	72.56109	5.92187	0.1451353	0.24404545	2.5360370	20	5 5.7	19.8
508376 2016 <i>FK</i>	17.7	X	57.15256	58.58073	279.01082	18.67358	0.0782834	0.37849709	1.8927548	20	—	—
508377 2016 <i>FQ</i> ₂	16.6	X	322.98588	249.53411	357.68553	29.53265	0.3121226	0.23495135	2.6010623	20	3 1.4	20.0
508378 2016 <i>FK</i> ₇	17.6	X	30.29865	206.94282	58.15980	6.41601	0.1665797	0.29639296	2.2278749	20	9 8.5	19.9
508379 2016 <i>FV</i> ₃₇	17.8	X	331.02971	214.68365	104.66545	6.09417	0.1315008	0.28594528	2.2818167	20	7 25.2	19.6
508380 2016 <i>FR</i> ₄₆	18.3	X	20.40521	49.86320	223.66611	3.62633	0.1481528	0.29246670	2.2477694	20	8 24.4	20.4
508381 2016 <i>FO</i> ₅₃	17.9	X	308.56339	228.69061	77.08846	1.83113	0.2006418	0.25838687	2.4413071	20	5 6.9	20.5
508382 2016 <i>FT</i> ₆₁	18.2	X	212.20004	103.51754	69.04023	23.38607	0.0572287	0.36097945	1.9535044	20	12 22.6	20.2
508383 2016 <i>FH</i> ₆₂	16.3	X	218.04060	211.71665	113.19782	15.60285	0.2969442	0.18322432	3.0700631	20	2 29.9	22.0
508384 2016 <i>FR</i> ₆₂	17.5	X	253.86995	317.97337	36.32764	6.30362	0.0990890	0.26858797	2.3790944	20	5 13.3	20.6
508385 2016 <i>FA</i> ₆₃	16.6	X	208.32625	185.82930	120.62244	12.52781	0.1215210	0.18482943	3.0522631	20	2 1.5	21.4
508386 2016 <i>FE</i> ₆₃	17.2	X	284.77903	231.61588	70.59389	8.44976	0.1923469	0.23314964	2.6144453	20	4 5.2	20.9
508387 2016 <i>FK</i> ₆₃	17.1	X	285.64656	146.78634	126.28738	14.42227	0.1642752	0.21678961	2.7443768	20	3 4.5	21.1
508388 2016 <i>GK</i> ₁	17.1	X	20.96285	220.85300	67.99889	7.22190	0.1825389	0.29884678	2.2156628	20	10 2.9	19.3
508389 2016 <i>GM</i> ₃	17.7	X	34.39218	165.39888	93.28237	5.84693	0.1539731	0.29634763	2.2281020	20	9 2.2	19.9
508390 2016 <i>GJ</i> ₂₉	17.9	X	358.48773	277.00907	22.73961	1.88835	0.2054384	0.29384472	2.2407365	20	9 1.9	19.1
508391 2016 <i>GC</i> ₈₆	17.9	X	322.58019	177.69539	130.48670	3.51689	0.2007102	0.27231622	2.3573300	20	6 7.1	19.9</

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Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V		
508401	2016	GY ₂₂₅	16.6 ^m	X	314.54311	16.32061	268.80762	12.72764	0.1933716	0.24160161	2.5531098	20	4 12.9	19.8
508402	2016	GX ₂₃₇	17.5	X	343.22655	67.58634	187.95308	8.39772	0.1250593	0.23948041	2.5681638	20	5 8.8	20.3
508403	2016	GN ₂₄₁	17.8	X	40.71165	240.02074	36.69957	6.52257	0.1766142	0.30133014	2.2034727	20	10 12.3	20.2
508404	2016	GF ₂₄₈	18.1	X	355.43499	62.50836	218.09775	1.97793	0.2112937	0.27043193	2.3682674	20	7 14.1	19.5
508405	2016	GB ₂₅₃	17.9	X	225.33090	129.33484	43.14544	22.31739	0.0579331	0.35680186	1.9687231	20	—	—
508406	2016	GM ₂₅₆	17.2	X	259.81830	146.96574	173.79832	14.35323	0.2170137	0.21363508	2.7713263	20	3 28.4	21.6
508407	2016	GL ₂₅₇	16.6	X	2.48350	175.30153	58.23550	6.00376	0.1484799	0.24035968	2.5618968	20	5 11.2	18.8
508408	2016	GM ₂₅₇	16.8	X	258.02460	267.37058	84.74888	15.76951	0.1689106	0.24162367	2.5529544	20	5 12.5	20.6
508409	2016	HQ ₁₀	17.9	X	339.25138	165.43821	130.65351	6.00522	0.1663552	0.26853902	2.3793835	20	6 29.5	19.9
508410	2016	HJ ₂₄	16.5	X	196.56573	236.68387	93.34344	9.21702	0.2822780	0.17675074	3.1445744	20	2 21.5	22.2
508411	2016	JL	18.5	X	305.68631	292.46087	195.34139	18.69230	0.0791626	0.39076390	1.8529332	20	—	—
508412	2016	JR ₄	17.0	X	323.73372	219.44495	100.40299	10.20472	0.0563840	0.27035690	2.3687055	20	7 15.6	19.5
508413	2016	JD ₈	17.9	X	19.22301	122.83052	122.20653	6.55650	0.2166242	0.26751525	2.3854502	20	7 14.9	19.6
508414	2016	JW ₉	18.3	X	30.10044	156.27855	93.16180	6.93304	0.0649101	0.27582616	2.3372890	20	7 22.8	20.8
508415	2016	JU ₁₁	16.8	X	277.59527	210.77895	86.08105	13.19803	0.2383908	0.21516006	2.7582160	20	3 19.9	21.2
508416	2016	JG ₁₄	16.8	X	305.11354	154.48538	157.84313	15.79421	0.1524312	0.24601374	2.5224921	20	5 23.3	20.1
508417	2016	JB ₁₅	16.4	X	212.31843	139.57576	191.75371	22.95746	0.2077712	0.18859198	3.0115303	20	2 26.7	22.0
508418	2016	JT ₂₃	16.4	X	277.35460	242.38700	47.28383	14.18927	0.1776267	0.21766637	2.7370023	20	3 18.2	20.6
508419	2016	JA ₂₆	17.4	X	356.42558	192.29831	66.65028	11.70769	0.1740689	0.25532421	2.4607910	20	6 6.2	19.4
508420	2016	JL ₂₇	17.7	X	339.59118	145.23761	180.28212	6.50413	0.1503413	0.28287169	2.2983159	20	8 21.2	19.4
508421	2016	JY ₂₉	17.4	X	36.31334	188.21461	51.14951	6.58909	0.1258617	0.27670498	2.3323375	20	7 29.0	19.9
508422	2016	JM ₃₀	17.0	X	307.57459	68.31012	209.39617	10.92945	0.1752984	0.23172910	2.6251190	20	3 30.7	20.4
508423	2016	JJ ₃₁	16.7	X	297.41055	203.57285	80.13276	15.06434	0.2351315	0.22419934	2.6835714	20	3 26.8	20.7
508424	2016	JF ₃₂	16.7	X	299.45023	208.58950	79.76288	17.01886	0.2527827	0.22457316	2.6805926	20	4 2.9	20.7
508425	2016	JJ ₃₂	16.8	X	305.91785	222.47783	79.65987	8.25628	0.3202018	0.22970761	2.6404977	20	4 12.7	20.2
508426	2016	JR ₃₂	16.9	X	338.43837	133.84642	126.21041	12.56842	0.2139516	0.23426824	2.6061162	20	4 30.7	19.7
508427	2016	JU ₃₅	16.6	X	315.63715	197.23346	82.37451	15.68316	0.2362551	0.23396648	2.6083565	20	4 14.9	19.9
508428	2016	JJ ₃₆	18.2	X	58.80391	115.10186	142.59720	5.17481	0.2742847	0.29164323	2.2519986	20	10 21.1	21.4
508429	2016	JE ₃₉	18.3	X	263.65206	285.13679	224.38841	20.29749	0.0841352	0.36589786	1.9359589	20	—	—
508430	2016	JJ ₄₀	16.9	X	225.17256	110.00711	192.17886	16.64798	0.2285618	0.17658549	3.1465360	20	2 4.8	22.5
508431	2016	JL ₄₀	16.5	X	312.47193	77.05685	197.04103	25.71668	0.1208886	0.22600609	2.6692502	20	4 13.3	19.7
508432	2016	KV ₁	16.5	X	281.92969	221.77392	106.74695	15.11954	0.2818729	0.23056903	2.6339169	20	4 26.9	20.6
508433	2016	KU ₂	16.8	X	320.01151	191.76977	91.29243	11.27950	0.1944759	0.23539280	2.5978093	20	4 30.5	19.8
508434	2016	KZ ₂	16.5	X	307.40468	199.08879	114.82476	15.51237	0.1825076	0.24218949	2.5489767	20	5 25.2	19.7
508435	2016	KG ₄	18.5	X	302.14480	17.84043	94.27559	23.94745	0.0329047	0.37981337	1.8883792	20	—	—
508436	2016	KA ₅	16.8	X	290.30284	333.89325	311.47246	12.80347	0.1814415	0.22005810	2.7171345	20	3 13.5	20.8
508437	2016	LZ	16.6	X	274.04105	214.24570	108.83654	10.32337	0.3423304	0.22753393	2.6572879	20	4 3.7	21.1
508438	2016	LY ₂	17.2	X	276.16998	198.29197	122.85957	13.79924	0.1983909	0.23428874	2.6059642	20	4 21.0	21.2
508439	2016	LF ₆	16.4	X	178.28106	205.94338	140.62795	17.91180	0.1357919	0.18355979	3.0663215	20	2 21.3	21.3
508440	2016	LH ₇	17.6	X	263.38051	146.12624	208.24890	12.46291	0.1737047	0.23855427	2.5748064	20	5 17.5	21.3
508441	2016	LF ₂₁	18.1	X	7.51802	64.64256	215.35238	6.14475	0.1232920	0.26973652	2.3723361	20	8 1.6	20.4
508442	2016	LM ₂₇	17.0	X	270.17545	194.16594	113.97054	9.11329	0.1925789	0.21369279	2.7708274	20	3 28.9	21.3
508443	2016	LE ₂₉	17.2	X	260.68587	123.21695	215.30717	14.23606	0.1822063	0.22474647	2.6792144	20	4 21.9	21.0
508444	2016	LK ₂₉	16.8	X	137.34879	142.98012	182.87983	8.88885	0.3147546	0.12372172	3.9887678	20	1 11.1	23.5
508445	2016	LT ₃₃	18.0	X	338.17214	152.13821	146.69695	4.45574	0.1771543	0.25387179	2.4701676	20	6 29.7	20.2
508446	2016	LW ₃₄	17.9	X	50.89744	86.96103	141.28432	5.59982	0.0693348	0.26716040	2.3875620	20	7 23.1	20.6
508447	2016	LZ ₅₁	16.8	X	37.79203	11.37425	222.09049	13.51396	0.1904684	0.23644879	2.5900689	20	7 22.5	20.0
508448	2016	LS ₅₃	16.6	X	259.78865	76.06252	219.02412	12.79386	0.2712129	0.17535710	3.1612134	20	2 19.7	22.2
508449	2016	LV ₅₃	17.2	X	251.50782	137.90986	170.92633	12.30359	0.1869025	0.19999730	2.8959205	20	3 8.7	21.9
508450	2016	LC ₅₄	16.8	X	213.29318	144.97761	178.00878	11.03871	0.2275886	0.17810002	3.1286722	20	2 21.1	22.2
508451	2016	LG ₅₆	16.5	X	290.36381	235.13377	104.96304	13.25757	0.1601572	0.24389412	2.5370858	20	6 5.7	19.7
508452	2016	MX ₁	17.1	X	278.71860	219.61700	101.57125	7.29922	0.1145842	0.23966965	2.5668117	20	5 2.5	20.6
508453	2016	NF ₁	17.0	X	316.09416	261.35341	126.80697	24.13044	0.2654841	0.28898806	2.2657716	20	10 29.0	19.1
508454	2016	NH ₂	16.5	X	275.47177	202.09104	113.50257	13.88583	0.1597090	0.22070285	2.7118402	20	4 19.4	20.6
508455	2016	NY ₁₂	15.7	X	226.67020	70.49338	277.59743	15.60280	0.1652706	0.18504307	3.0499134	20	3 27.5	21.0
508456	2016	NA ₁₇	17.4	X	348.58676	29.77902	230.84932	10.28541	0.2408233	0.22914338	2.6448305	20	5 17.3	19.4
508457	2016	NB ₁₇	16.5	X	6.79624	345.83278	268.45810	12.73952	0.1353055	0.23239332	2.6201146	20	6 20.8	18.9
508458	2016	NO ₁₇	15.9	X	330.91347	105.61170	196.40438	16.41850	0.2222378	0.24394677	2.5367208	20	6 11.9	18.5
508459	2016	NN ₂₁	15.9	X	329.80295	201.57925	110.41236	16.35505	0.1600194	0.24109916	2.5566557	20	7 3.3	18.3
508460	2016	NK ₂₃	16.6	X	326.65063	8.04087	311.30003	16.06717	0.2036622	0.22759193	2.6568364	20	7 4.5	19.3
508461	2016	NV ₂₃	17.6	X	108.16517	3.89918	197.56389	6.22056	0.1706287	0.27439175	2.3454275	20	9 10.9	21.1
508462	2016	NU ₃₇	16.1	X	276.78820	159.88664	158.82604	13.43840	0.1464990	0.18609153	3.0384468	20	4 25.4	20.6
508463	2016	NL ₄₆	17.0	X	44.33640	292.70264	274.93022	3.36540	0.0395782	0.21504025	2.7592405	20	6 7.5	20.6
508464	2016	NM ₅₂	17.2	X	269.38315	175.08148	171.64467	6.62127	0.0291808	0.21726962	2.7403332	20	6 5.0	21.0
508465	2016	NG ₆₃	16.5	X	273.15252	2.82003	357.35326	15.71676	0.1963425	0.20681280	2.8319426	20	5 28.7	20.9
508466	2016	NB ₆₅	16.7	X	159.26322	276.13815	136.28427	13.67390	0.1281538	0.18179828	3.0860967	20	4 25.4	21.8
508467	2016	ND ₆₅	17.1	X	272.23462	67.40508	318.25176	13.55968	0.1284174	0.22575718	2.6712118	20	7 18.1	20.7
508468	2016	NF ₆₅	16.6	X	266.34131	354.48887	55.87015	5.69705	0.1670250	0.24354654	2.5394992	20	8 8.5	20.0
508469	2016	NQ ₆₅	17.4	X	149.89811	313.42346	152.37379	4.96347	0.0285149	0.21253991	2.7808382	20	6 10.6	21.3
508470	2016													

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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>
508481 2016 PE ₄₁	16.1	X	234.59469	249.25030	85.89016	9.04827	0.0736103	0.18266488	3.0763283	20	4 7.9	20.8
508482 2016 PT ₅₇	15.9	X	43.72678	128.49059	66.43528	13.35369	0.0232495	0.18853925	3.0120918	20	5 19.8	20.1
508483 2016 PW ₆₁	16.8	X	138.60438	18.82599	114.63381	13.44901	0.1068783	0.22538442	2.6741563	20	7 8.7	20.9
508484 2016 PD ₆₆	16.4	X	265.19441	207.03030	109.56081	16.91697	0.0327004	0.18717100	3.0267532	20	4 28.5	21.0
508485 2016 PR ₆₇	16.3	X	235.15844	52.63203	289.03841	8.96676	0.0346931	0.17576210	3.1563554	20	4 11.5	21.0
508486 2016 PZ ₆₇	16.1	X	315.91009	69.18206	229.99051	15.02200	0.1349976	0.21593171	2.7516410	20	5 21.7	19.2
508487 2016 PN ₇₀	16.8	X	239.98613	299.49459	54.74480	10.37061	0.0953072	0.18884022	3.0088905	20	5 1.7	21.2
508488 2016 PM ₇₁	17.0	X	286.77376	289.18802	21.32135	12.29664	0.0153101	0.19625286	2.9326397	20	5 9.5	21.2
508489 2016 PC ₇₂	16.4	X	120.57836	3.48961	87.34074	10.59524	0.0339621	0.17775918	3.1326704	20	4 21.7	21.0
508490 2016 PO ₇₂	16.8	X	354.39295	173.99429	95.79667	6.98270	0.0235106	0.21187423	2.7866599	20	6 19.4	20.5
508491 2016 PG ₇₇	15.3	X	256.60394	6.64895	310.10583	9.17050	0.0704428	0.17050979	3.2208451	20	4 1.8	20.1
508492 2016 PA ₈₉	17.0	X	241.95380	28.99987	15.33438	9.11694	0.1805854	0.21514800	2.7583191	20	6 26.2	21.4
508493 2016 PH ₈₉	17.3	X	329.59199	72.46654	202.07749	5.61272	0.0522179	0.20058986	2.8902144	20	5 19.9	21.1
508494 2016 PN ₈₉	16.8	X	296.21207	54.32220	263.61945	2.65669	0.0946745	0.20975705	2.8053799	20	5 22.9	20.3
508495 2016 PA ₉₀	16.6	X	259.50607	317.10224	28.15590	10.38275	0.1310572	0.17821816	3.1272894	20	5 5.5	21.2
508496 2016 QJ	15.7	X	280.40615	354.39498	287.30214	8.86726	0.0204028	0.17210984	3.2008519	20	3 24.7	20.4
508497 2016 QY	16.2	X	157.88820	196.77216	230.00204	8.40452	0.0618536	0.17632292	3.1496590	20	5 2.7	20.8
508498 2016 QU ₂	17.6	X	88.09419	37.91764	187.38114	1.88029	0.1571777	0.26271536	2.4144177	20	9 19.9	20.9
508499 2016 QS ₄	16.2	X	182.17905	250.62455	153.21979	17.29267	0.1813444	0.17298287	3.1900732	20	5 6.9	21.8
508500 2016 QB ₅	16.5	X	223.10721	42.32298	385.63280	8.65665	0.0876943	0.18214298	3.0822020	20	4 13.5	21.3
508501 2016 QP ₁₅	16.3	X	271.15664	95.81165	224.33355	11.19574	0.0381925	0.18852707	3.0122215	20	5 1.5	20.3
508502 2016 QA ₁₆	16.1	X	312.81399	333.25596	282.16208	10.97350	0.0932500	0.17810249	3.1286433	20	3 21.4	20.6
508503 2016 QF ₁₉	16.8	X	6.49458	14.74185	239.98762	8.63462	0.0795358	0.21288674	2.7778171	20	6 17.7	20.2
508504 2016 QH ₁₉	15.6	X	330.85523	326.12926	283.32455	9.84257	0.0695867	0.18205156	3.0832337	20	4 12.2	19.8
508505 2016 QY ₂₀	15.8	X	294.64607	353.42321	285.78752	9.47866	0.0949377	0.17766375	3.1337920	20	3 28.0	20.4
508506 2016 QT ₂₄	16.1	X	107.96458	270.97959	288.22549	11.74525	0.1044110	0.24474533	2.5311999	20	8 26.0	20.0
508507 2016 QO ₂₈	15.4	X	293.13443	328.28506	310.44939	12.22962	0.1605003	0.17393096	3.1784700	20	3 15.9	20.1
508508 2016 QJ ₃₀	16.6	X	278.22896	183.08096	126.60559	10.87733	0.0489950	0.18169044	3.0873178	20	4 30.6	21.1
508509 2016 QE ₃₅	16.7	X	254.63726	60.90216	262.15417	1.16890	0.0497301	0.17771588	3.1331791	20	4 13.5	21.1
508510 2016 QK ₃₇	16.0	X	269.05390	168.03109	151.09930	18.85942	0.1147480	0.18863148	3.0111099	20	4 22.7	20.7
508511 2016 QE ₄₃	16.2	X	259.08712	44.73693	265.83047	9.86905	0.0549866	0.17169378	3.2060209	20	3 30.0	21.1
508512 2016 QO ₅₂	16.7	X	182.73251	244.57540	164.16405	3.55627	0.1079267	0.17908996	3.1171322	20	5 9.1	21.6
508513 2016 QK ₅₅	16.3	X	284.30484	37.99800	246.65412	9.74124	0.1244875	0.18253077	3.0778349	20	3 18.2	20.9
508514 2016 QN ₅₆	16.1	X	209.50792	273.43575	169.46696	21.95559	0.0616754	0.22842518	2.6503714	20	7 20.8	20.3
508515 2016 QK ₆₀	16.0	X	215.13627	159.64949	199.43477	8.76235	0.0976801	0.17486544	3.1671361	20	4 10.7	21.0
508516 2016 QY ₆₂	16.7	X	282.51553	55.88645	232.37289	6.92167	0.1260987	0.17726052	3.1385427	20	3 22.6	21.2
508517 2016 QW ₆₃	16.3	X	279.10430	322.85522	332.30243	10.07003	0.0687329	0.17845571	3.1245135	20	4 2.1	20.8
508518 2016 QS ₇₁	16.1	X	235.71528	98.37690	259.57139	10.17569	0.0455984	0.18438259	3.0571924	20	5 3.6	20.6
508519 2016 QG ₇₉	16.0	X	17.23314	274.93226	288.82458	15.54233	0.0786008	0.18038869	3.1021528	20	4 20.1	20.4
508520 2016 QZ ₈₁	16.4	X	184.05122	180.39512	242.39605	9.24666	0.1120811	0.19466681	2.9485474	20	5 26.5	21.0
508521 2016 QK ₈₂	15.7	X	290.38508	21.62450	269.55969	8.22475	0.0487638	0.17751063	3.1355939	20	4 15.1	20.2
508522 2016 QB ₈₅	15.4	X	254.45351	155.47373	158.31131	28.81855	0.2028368	0.17352812	3.1833872	20	3 19.9	20.6
508523 2016 QF ₈₅	16.0	X	353.52472	284.79984	316.95834	8.60069	0.1036005	0.18362162	3.0656331	20	5 5.7	19.9
508524 2016 QO ₈₇	16.1	X	282.91872	316.29129	22.87519	10.25184	0.1153517	0.18371443	3.0646005	20	5 27.7	20.5
508525 2016 RN ₃	16.7	X	274.09989	261.28025	165.69553	14.46659	0.0716164	0.25392284	2.4698365	20	9 29.2	19.6
508526 2016 RX ₆	15.8	X	215.55886	69.74579	288.55035	8.77707	0.0989038	0.17217627	3.2000285	20	4 5.8	20.9
508527 2016 RD ₁₁	17.3	X	23.68404	272.45926	330.44850	4.29289	0.1540320	0.22642356	2.6659683	20	7 9.2	20.2
508528 2016 RQ ₁₁	16.0	X	248.32635	197.54590	131.33612	18.71449	0.1865454	0.17767025	3.1337155	20	4 6.6	21.3
508529 2016 RR ₂₂	17.0	X	2.58123	281.90852	337.97191	3.26491	0.0151446	0.21354097	2.7721405	20	6 17.3	20.7
508530 2016 RR ₂₃	16.6	X	223.83370	352.47562	97.13678	7.21151	0.0882488	0.22539257	2.6740918	20	8 16.9	20.5
508531 2016 RG ₃₃	16.3	X	216.10189	27.13263	358.79809	15.36577	0.0699926	0.17885253	3.1198903	20	5 10.2	21.3
508532 2016 RH ₃₄	16.3	X	188.62340	57.55832	98.84743	36.78243	0.0688299	0.24037346	2.5617990	20	10 25.9	20.9
508533 2016 RD ₄₀	17.6	X	210.11225	300.73455	206.01480	6.01075	0.0406335	0.26699596	2.3885422	20	10 25.4	20.7
508534 2016 RF ₄₅	17.1	X	161.74604	95.67984	66.46829	13.80970	0.1895219	0.23152860	2.2666344	20	9 15.7	21.7
508535 2016 RF ₄₅	16.5	X	183.07409	46.69687	103.41015	16.04331	0.0452120	0.22853458	2.6495255	20	9 27.1	20.6
508536 2016 SM	16.2	X	264.63933	290.42342	126.23980	30.43023	0.2491872	0.23574329	2.5952338	20	7 30.0	19.5
508537 2016 SY ₅	16.3	X	327.22299	30.99760	247.99902	15.68300	0.1862290	0.19945415	2.9011755	20	5 4.1	19.7
508538 2016 SP ₁₂	15.9	X	203.76098	25.82922	46.78600	24.00038	0.0982255	0.18155946	3.0888024	20	6 25.6	21.0
508539 2016 ST ₃₂	16.6	X	79.01432	156.93768	84.48405	7.44390	0.0278914	0.22576047	2.6711859	20	9 12.9	20.3
508540 2016 SJ ₄₆	16.2	X	314.33760	32.90684	236.45341	17.12590	0.1869695	0.18175798	3.0865529	20	3 28.6	20.5
508541 2016 TM ₄	16.6	X	221.37693	236.75410	187.73457	14.70202	0.1342856	0.20225644	2.8743158	20	7 2.9	21.3
508542 2016 TN ₈	15.2	X	184.63513	255.08669	177.72934	16.60748	0.1805590	0.15914597	3.3723990	20	6 8.8	21.1
508543 2016 TD ₉	16.4	X	238.31787	176.44511	248.31162	5.90603	0.0310866	0.20992478	2.8038853	20	8 3.9	20.4
508544 2016 TH ₁₂	15.7	X	26.34203	5.20373	267.43563	8.97155	0.0630239	0.21507026	2.7589837	20	8 8.9	19.4
508545 2016 TR ₂₀	15.6	X	20.83149	335.93463	242.93778	15.27715	0.1451067	0.18486564	3.0518645	20	5 26.9	19.1
508546 2016 TJ ₃₃	16.5	X	166.12971	127.46631	350.14714	8.49197	0.1555928	0.18132672	3.0914449	20	7 17.8	21.6
508547 2016 TK ₉₀	16.3	X	206.24205	29.27194	52.83933	10.46205	0.0378612	0.18532685	3.0467992	20	7 18.9	20.9
508548 2016 UV ₁₅	16.1	X	314.25421	286.78779	24.05965	18.83465	0.1419503	0.18563128	3.0434671	20	5 28.7	20.2
508549 2016 UQ ₂₄	16.3	X	188.95959	76.37233	65.59479	15.01657	0.0674510	0.22274339	2.6952528	20	9 22.0	20.5
508550 2016 UZ ₃₀	16.1	X	298.50086	15.54110	299.52509	16.60870	0.1230675	0.17263037	3.1944143	20	5 15.3	20.7
508551 2016 UG ₃₅	16.2	X	302.99643	108.37331	223.01059	7.43168	0.0807285	0.17820537	3.1274391	20	6 21.3	20.4
508552 2016 US ₄₄	16.3	X	204.80174	167.96456	295.44836	13.88020	0.0701577	0.21439093	2.7648089	20	8 8.4	20.5
508553 2016 UX ₄₅	15.9	X	174.66041	179.91782	261.49837	11.12674	0.0470311	0				

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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>
508561 2016 UR ₁₄₅	15.9 ^m	X	146.54544	89.19284	28.36473	9.58832	0.0328135	0.17457654	3.1706293	20	6 20.2	20.6
508562 2016 VU	15.5	X	210.13546	102.67709	266.00624	20.92221	0.0516900	0.17851992	3.1237643	20	4 12.3	20.5
508563 2016 VE ₁₁	16.3	X	185.84228	303.37459	162.19471	13.01307	0.1521050	0.17813343	3.1282810	20	7 17.7	21.6
508564 2016 WP ₂₈	16.0	X	268.08574	218.84980	157.26771	9.55836	0.0953184	0.17788157	3.1312332	20	6 30.1	20.5
508565 2016 WM ₃₆	15.7	X	45.71695	349.21811	262.87093	9.46938	0.1365205	0.18306305	3.0718659	20	8 15.9	19.9
508566 2016 WD ₄₀	16.1	X	140.77560	266.13629	258.80119	7.42776	0.0315971	0.18720311	3.0264070	20	8 10.8	20.5
508567 2016 XH ₆	16.2	X	100.57379	343.66399	278.05449	12.99324	0.0861793	0.24467077	2.5317141	20	11 7.3	20.0
508568 2016 XR ₇	15.8	X	15.89938	205.45282	52.06675	16.13059	0.0259336	0.17367660	3.1815726	20	7 1.4	20.3
508569 2017 FP ₁₀₆	17.9	X	289.47245	33.55300	199.51614	6.44683	0.1874301	0.26139168	2.4225619	20	1 6.2	21.5
508570 2017 FN ₁₂₁	17.4	X	286.78384	5.96374	166.19619	14.19347	0.1908086	0.23646960	2.5899169	20	—	—
508571 2017 NB ₂	17.0	X	230.71186	321.23651	338.48071	8.26270	0.2217302	0.21651437	2.7467021	20	2 7.8	21.7
508572 2017 NE ₄	17.5	X	242.55624	191.22327	134.26497	6.79793	0.2041095	0.23677694	2.5876753	20	3 19.0	21.7
508573 2017 NL ₄	16.8	X	247.46313	175.17101	134.24594	13.84351	0.1866044	0.22924124	2.6440777	20	3 6.2	21.1
508574 2017 NO ₅	15.7	X	150.46562	34.22834	329.86534	26.38839	0.1554174	0.17180125	3.2046837	20	2 18.3	20.8
508575 2017 OF ₂	17.5	X	258.17650	170.49157	158.34274	2.94222	0.1908839	0.25741548	2.4474450	20	4 5.5	21.1
508576 2017 OO ₃	16.7	X	180.31223	202.70960	127.05380	1.80285	0.1625352	0.18071654	3.0983997	20	2 4.2	21.7
508577 2017 OT ₃	15.8	X	96.77719	105.14749	31.103623	8.03660	0.0890133	0.17508715	3.1644618	20	2 12.9	20.1
508578 2017 OW ₅	16.7	X	205.67600	215.71184	90.67739	3.88605	0.1278337	0.18246542	3.0785698	20	1 30.4	21.7
508579 2017 OP ₇	16.2	X	247.68182	278.73524	314.75865	24.87139	0.2328951	0.18466957	3.0540243	20	—	—
508580 2017 OY ₇	17.0	X	169.72821	185.45492	155.17553	1.42375	0.1566445	0.18208760	3.0828268	20	2 6.9	22.0
508581 2017 OY ₁₁	17.4	X	101.76274	203.25615	307.89112	7.84325	0.0174410	0.28373934	2.2936282	20	6 7.0	20.3
508582 2017 OT ₁₇	17.7	X	218.06040	133.64523	197.81842	8.33322	0.2768509	0.22154577	2.7049572	20	2 29.7	22.7
508583 2017 OK ₃₀	16.3	X	172.52203	101.14331	244.79320	9.92356	0.1238488	0.17685471	3.1433420	20	2 10.7	21.5
508584 2017 OO ₃₆	16.9	X	237.59043	249.90969	63.64706	14.81293	0.2795098	0.23326832	2.6135584	20	3 2.2	21.8
508585 2017 OA ₃₉	17.5	X	345.03072	307.53209	332.62126	7.02611	0.1087457	0.28831004	2.2693224	20	6 19.9	19.7
508586 2017 OF ₄₃	16.0	X	189.53177	78.71985	266.14497	9.24988	0.0288018	0.19213636	2.9743793	20	2 21.7	20.4
508587 2017 OX ₄₆	16.0	X	173.44983	38.49017	313.58482	9.22505	0.2309631	0.17558823	3.1584387	20	2 24.6	21.4
508588 2017 OT ₄₉	17.5	X	229.57690	32.91375	314.97765	4.11887	0.2630724	0.23112253	2.6297100	20	3 28.3	22.2
508589 2017 OD ₅₃	16.4	X	186.59330	354.16965	323.52239	10.01136	0.1030376	0.18593591	3.0401420	20	1 25.8	21.1
508590 2017 OW ₅₆	18.0	X	245.69199	177.77965	143.34825	5.93328	0.3088137	0.23494358	2.6011196	20	3 8.9	22.6
508591 2017 OF ₆₀	17.5	X	228.03729	213.76720	134.68736	6.72544	0.2431930	0.23088511	2.6315124	20	4 2.1	22.0
508592 2017 OQ ₆₀	17.7	X	314.41966	172.54151	130.64754	4.56766	0.2431887	0.28928326	2.2642299	20	5 5.9	19.8
508593 2017 OO ₆₀	17.4	X	237.72091	240.86268	130.43861	5.61852	0.1378201	0.25756877	2.4464738	20	5 15.7	21.0
508594 2017 OJ ₆₁	18.8	X	282.68549	23.46403	348.82064	1.90092	0.2553243	0.29755848	2.2220534	20	6 24.0	21.1
508595 2017 OQ ₆₁	17.1	X	259.14471	163.89416	147.86535	14.08300	0.2631609	0.23931063	2.5693783	20	3 11.9	21.4
508596 2017 QS ₃	17.1	X	236.64389	194.91597	164.83277	6.21937	0.1435769	0.25461436	2.4653625	20	4 28.9	20.8
508597 2017 QZ ₃	18.0	X	312.50131	143.92476	166.93299	5.95650	0.2140884	0.28727899	2.2747490	20	5 19.9	20.2
508598 2017 QO ₁₁	17.3	X	170.13250	154.60774	231.46196	1.68758	0.0858860	0.22085504	2.7105942	20	3 25.1	21.3
508599 2017 QQ ₂₀	17.5	X	235.48164	104.46740	214.35981	1.87613	0.1275992	0.22843269	2.6503133	20	3 7.2	21.6
508600 2017 RU ₃	17.5	X	318.13462	7.40480	301.69871	5.32193	0.2065160	0.29323752	2.2438287	20	5 27.1	19.4
508601 2017 RQ ₅	17.0	X	193.78093	188.25474	159.04288	5.63263	0.1262292	0.21230199	2.7829154	20	3 4.0	21.3
508602 2017 RY ₇	16.7	X	209.38038	150.16398	191.23637	5.79271	0.0713438	0.20396325	2.8582581	20	3 12.6	20.9
508603 2017 RW ₁₆	16.2	X	197.92400	73.65266	255.36464	14.75015	0.2621109	0.17776378	3.1326163	20	2 12.2	22.0
508604 2017 ST ₈	17.0	X	216.63483	180.85027	176.84088	7.13639	0.0934268	0.22556058	2.6727638	20	4 9.2	21.0
508605 2017 SZ ₉	17.7	X	261.89059	16.00906	3.96112	3.50023	0.1807590	0.28474588	2.2882199	20	6 17.9	20.7
508606 2017 SH ₁₃	16.9	X	225.70245	287.25516	108.38297	4.63504	0.3062504	0.23502309	2.6005329	20	5 22.4	21.4
508607 2017 SB ₁₉	17.7	X	225.34562	247.05748	243.87091	18.21557	0.0862270	0.35232711	1.9853573	20	11 1.9	19.8
508608 2017 SG ₂₂	17.9	X	326.01692	22.91884	288.70302	5.72831	0.1279914	0.28171953	2.3045780	20	6 30.7	19.7
508609 2017 SM ₂₂	17.3	X	224.89753	165.47842	214.82004	11.20066	0.1886875	0.23382040	2.6094428	20	5 9.5	21.6
508610 2017 SG ₂₃	17.7	X	209.96542	93.51979	299.43980	2.87513	0.1717623	0.24277700	2.5448627	20	5 10.9	21.9
508611 2017 SP ₂₆	17.0	X	224.23298	162.58180	184.23054	4.89910	0.1755345	0.22101815	2.7092605	20	3 29.3	21.4
508612 2017 SP ₃₃	17.3	X	181.04486	182.73237	225.80387	11.71310	0.1752264	0.23219106	2.6216360	20	5 5.3	21.5
508613 2017 SW ₃₄	17.4	X	246.70044	334.60188	92.61091	8.73319	0.1283262	0.29433520	2.2382465	20	8 17.1	20.2
508614 2017 SR ₃₅	16.9	X	249.23935	261.49022	79.20363	7.42424	0.0525961	0.21746252	2.7387125	20	4 30.0	20.8
508615 2017 SE ₃₆	16.5	X	213.69310	161.88113	186.01946	14.52599	0.0801020	0.18534536	3.0465963	20	3 26.9	21.1
508616 2017 SR ₃₇	17.4	X	250.09170	104.24639	253.77534	8.97393	0.1313292	0.24454353	2.5325922	20	5 10.1	21.2
508617 2017 SP ₃₈	16.4	X	297.57624	323.51380	315.96665	12.33379	0.1463895	0.23026035	2.6362704	20	3 19.3	20.2
508618 2017 SQ ₃₈	16.0	X	247.45552	44.35080	226.11234	16.32108	0.1802881	0.17555129	3.1588817	20	1 19.3	21.5
508619 2017 SA ₃₉	16.4	X	176.84571	49.54204	8.68173	9.05803	0.2173857	0.20960236	2.8067600	20	5 11.9	21.3
508620 2017 SG ₃₉	16.7	X	244.74063	80.74412	276.67711	9.60270	0.1312209	0.23470637	2.6028719	20	5 1.8	20.6
508621 2017 SD ₄₀	17.3	X	221.28275	108.61963	260.04747	3.93702	0.0897283	0.23354375	2.6115031	20	4 25.8	21.1
508622 2017 SG ₄₀	16.2	X	204.49038	331.56408	341.33442	10.61405	0.1331929	0.17117721	3.2124676	20	2 8.3	21.4
508623 2017 SR ₄₀	16.2	X	189.85532	216.37541	162.84048	10.54572	0.0618482	0.18347549	3.0672607	20	4 11.8	20.8
508624 2017 SU ₄₀	16.0	X	237.85649	200.24331	123.77392	8.65237	0.0359822	0.18058545	3.0998990	20	3 31.7	20.6
508625 2017 SA ₄₁	17.0	X	249.30713	233.06352	77.21101	3.14384	0.0482739	0.20316170	2.8657711	20	3 22.9	21.0
508626 2017 SH ₄₁	16.7	X	245.52976	199.59206	105.81242	5.94219	0.1322809	0.18384019	3.0632027	20	3 7.4	21.5
508627 2017 SN ₄₁	17.5	X	287.02311	291.03416	62.76599	6.48726	0.1230603	0.27411059				

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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>
508641 2017 TA ₁₀	16.6	X	191.25231	271.99506	98.93647	3.29224	0.0828802	0.20450988	2.8531626	20	4 1.0	20.9
508642 2017 TH ₁₀	16.1	X	200.55827	118.04642	214.31232	24.83751	0.2110578	0.17548692	3.1596541	20	2 17.6	22.0
508643 2017 TT ₁₀	17.4	X	210.13902	47.27760	10.58958	16.96937	0.1485405	0.24363883	2.5388578	20	6 11.8	21.7
508644 2017 TZ ₁₀	17.8	X	256.08979	71.91159	332.39800	3.87284	0.1292465	0.27995507	2.3142512	20	7 24.1	20.6
508645 2017 TF ₁₁	18.4	X	236.78446	50.87342	355.70100	3.56597	0.1621215	0.26117207	2.4239197	20	6 26.9	22.0
508646 2017 TJ ₁₁	16.8	X	247.94975	13.41975	342.92660	4.09066	0.1390947	0.23560834	2.5962247	20	5 4.2	20.6
508647 2017 TL ₁₁	17.0	X	198.08024	32.85607	359.12025	4.66772	0.1685464	0.21109768	2.7934897	20	4 29.2	21.7
508648 2017 TT ₁₁	17.3	X	289.90032	54.52867	252.61093	4.71141	0.1215295	0.23692964	2.5865633	20	4 23.1	20.6
508649 2017 TV ₁₁	16.5	X	228.58594	143.44798	218.36003	12.88287	0.1050927	0.22044354	2.7139664	20	4 25.3	20.5
508650 2017 TD ₁₂	15.8	X	202.95732	122.51650	206.49143	25.75851	0.2452907	0.17528732	3.1620523	20	2 16.4	21.8
508651 2017 TF ₁₂	15.9	X	206.65077	54.26363	269.58768	3.86782	0.2135109	0.17540710	3.1606126	20	2 17.7	21.4
508652 2017 TL ₁₂	15.8	X	147.96991	39.72123	7.71648	18.48130	0.1909981	0.17206627	3.2013922	20	4 5.8	21.1
508653 2017 TO ₁₂	17.8	X	146.90832	38.27215	125.41644	5.60850	0.0467654	0.30105572	2.2048115	20	9 3.1	20.5
508654 2017 TY ₁₂	17.4	X	314.15982	64.19615	229.52553	4.22621	0.2245185	0.26374845	2.4081088	20	4 22.9	19.7
508655 2017 TL ₁₃	17.8	X	200.85361	158.00822	289.12252	5.75491	0.0698224	0.27112798	2.3642124	20	7 19.5	21.1
508656 2017 UK	17.7	X	343.19877	186.30420	127.58171	7.24111	0.1564215	0.30229474	2.1987828	20	8 16.2	19.1
508657 2017 UY ₁	18.7	X	264.07844	310.91926	195.55027	20.23471	0.1261879	0.39277090	1.8466157	20	—	—
508658 2017 UC ₂	17.8	X	283.72620	110.58565	187.75827	28.65088	0.3470703	0.23693337	2.5865362	20	3 4.8	22.2
508659 2017 UD ₂	17.5	X	327.55971	340.34796	63.31311	25.32414	0.0524135	0.35709594	1.9676421	20	12 15.3	19.4
508660 2017 UV ₂	16.9	X	260.16667	358.06773	357.93643	13.41471	0.1956306	0.24025804	2.5626193	20	5 6.9	21.0
508661 2017 UF ₇	17.9	X	27.28238	118.34005	237.61531	20.56592	0.1024202	0.37617394	1.9005395	20	—	—
508662 2017 UM ₈	16.1	X	132.74031	118.99872	319.96487	8.82842	0.0547662	0.18511997	3.0490686	20	4 14.3	20.7
508663 2017 UQ ₉	17.1	X	192.47301	284.81352	133.77747	6.65117	0.2620003	0.23134236	2.6280438	20	5 28.1	21.8
508664 2017 US ₉	17.3	X	281.76972	260.92802	68.81091	6.51296	0.2125167	0.26567935	2.3964269	20	4 30.9	20.6
508665 2017 UZ ₉	16.5	X	215.83993	134.38534	250.47776	13.17008	0.1238452	0.22528607	2.6749345	20	5 8.9	20.8
508666 2017 UJ ₁₀	16.9	X	220.33022	5.96101	21.33502	12.08740	0.1891517	0.23279613	2.6170913	20	5 10.6	21.3
508667 2017 UL ₁₀	16.3	X	141.49675	65.90444	23.21244	24.71566	0.3413428	0.18180132	3.0860624	20	5 22.2	22.0
508668 2017 US ₁₀	16.0	X	161.72460	57.71350	28.50958	22.42716	0.0387510	0.22918757	2.6444905	20	5 23.7	20.2
508669 2017 UV ₁₀	17.3	X	265.93722	267.59492	31.63724	2.30206	0.1908198	0.22527814	2.6749973	20	3 9.5	21.4
508670 2017 UM ₁₁	16.9	X	210.93295	353.78658	56.76555	7.25225	0.2191240	0.23003787	2.6379698	20	6 1.2	21.2
508671 2017 US ₁₁	17.4	X	271.14894	103.51212	276.79479	6.92234	0.1604761	0.26722940	2.3871510	20	7 3.7	20.2
508672 2017 UE ₁₁	15.4	X	314.41364	359.64883	262.23267	14.49464	0.0373419	0.18420954	3.0591068	20	4 8.2	19.9
508673 2017 UE ₁₂	17.6	X	254.00355	8.42607	10.59688	2.78323	0.2177009	0.25809108	2.4431721	20	6 1.5	21.1
508674 2017 UH ₁₂	17.2	X	228.02757	330.93592	61.39597	5.00482	0.1806153	0.23475454	2.6025158	20	5 27.5	21.3
508675 2017 UU ₁₂	16.6	X	341.85692	232.80537	354.16320	12.59590	0.1961695	0.23085307	2.6317560	20	3 15.3	19.1
508676 2017 UB ₁₃	16.5	X	231.67300	119.69541	215.97372	12.79947	0.1772693	0.22164513	2.7041488	20	3 19.2	21.1
508677 2017 UE ₁₃	16.4	X	147.16159	216.79530	129.18734	13.32272	0.0533104	0.22428632	2.6828776	20	4 30.1	20.3
508678 2017 UG ₁₃	16.0	X	101.19306	152.46040	289.43118	8.11065	0.0941921	0.17729927	3.1380853	20	3 17.5	20.6
508679 2017 UN ₁₃	17.3	X	248.60170	80.39666	294.56524	5.99157	0.1170152	0.26433368	2.4045532	20	6 2.3	20.5
508680 2017 UC ₁₄	17.5	X	289.12140	309.45134	345.97319	5.47667	0.1961760	0.24422522	2.5347923	20	3 25.8	20.9
508681 2017 US ₁₅	17.7	X	275.52426	260.25681	50.38940	3.06508	0.1474028	0.23991874	2.5650348	20	4 7.6	21.3
508682 2017 UV ₁₅	16.1	X	181.43682	316.68370	28.02223	5.88715	0.1911256	0.17218468	3.1999243	20	2 25.8	21.5
508683 2017 UT ₁₆	17.0	X	208.87676	186.09594	190.48889	7.78015	0.0962801	0.22448763	2.6812734	20	4 24.7	21.0
508684 2017 UY ₁₆	18.5	X	235.39066	231.86218	185.87226	4.18977	0.2137437	0.27724215	2.3293239	20	7 4.6	22.0
508685 2017 UZ ₁₆	16.9	X	128.80349	82.75155	16.84103	4.48261	0.0778289	0.22059177	2.7127505	20	5 10.6	20.9
508686 2017 UD ₁₇	18.3	X	269.62562	143.86004	214.62818	0.93290	0.2014718	0.27212129	2.3584504	20	5 25.4	21.3
508687 2017 UJ ₁₇	17.0	X	223.67184	115.96030	191.42474	3.43386	0.1263933	0.18267865	3.0761737	20	2 15.2	21.9
508688 2017 UL ₁₇	16.6	X	94.73535	270.88546	179.54072	6.61294	0.0914317	0.17504751	3.1649396	20	3 24.5	20.9
508689 2017 UP ₁₇	17.4	X	210.87426	170.96403	184.07791	3.56467	0.1146333	0.20848271	2.8168000	20	3 30.1	21.8
508690 2017 UT ₁₇	16.6	X	164.72425	236.23713	188.77022	21.73673	0.0422936	0.22527782	2.6749998	20	5 8.5	20.6
508691 2017 UC ₁₈	16.9	X	200.97807	19.80912	20.69472	12.39386	0.1598187	0.23180529	2.6245438	20	5 10.5	21.3
508692 2017 UE ₁₈	17.8	X	174.21065	256.71975	191.63810	7.36773	0.1275343	0.24716815	2.5146317	20	6 18.5	21.8
508693 2017 UK ₁₈	16.8	X	263.04639	279.91463	29.89801	5.98186	0.1247584	0.22332725	2.6905531	20	3 27.6	20.7
508694 2017 UG ₁₉	17.7	X	9.43924	121.82038	137.16502	2.98152	0.0487898	0.27308560	2.3529003	20	6 29.9	20.4
508695 2017 UK ₁₉	18.5	X	244.14446	307.93819	43.21391	4.26930	0.2635520	0.24154869	2.5534828	20	4 14.8	22.7
508696 2017 UL ₁₉	17.6	X	286.78650	278.44617	24.55561	14.37030	0.1583504	0.24457566	2.5323704	20	4 9.5	21.0
508697 2017 UQ ₁₉	16.4	X	123.25177	261.77971	177.57181	11.30531	0.1773329	0.18085066	3.0968677	20	4 24.0	21.3
508698 2017 US ₁₉	17.3	X	281.68199	158.29706	167.14164	6.47472	0.1117926	0.25562962	2.4588306	20	5 11.2	20.4
508699 2017 UY ₁₉	16.1	X	130.65704	245.26033	167.56620	9.48107	0.0897007	0.17496863	3.1658908	20	3 20.7	20.8
508700 2017 UA ₂₀	16.1	X	239.04111	236.57615	22.23153	22.17657	0.3220210	0.17515769	3.1636123	20	—	—
508701 2017 UP ₂₀	15.9	X	4.19708	21.49379	176.36677	15.21767	0.0784507	0.20609852	2.8384819	20	3 28.9	19.3
508702 2017 UR ₂₀	18.0	X	220.30409	351.17856	57.43531	3.44128	0.1899372	0.25735685	2.4478167	20	6 9.4	21.9
508703 2017 UW ₂₀	16.3	X	208.01529	159.38426	159.85803	9.09066	0.1364901	0.17794290	3.1305137	20	2 15.2	21.3
508704 2017 UY ₂₀	16.5	X	165.42964	221.35730	162.08085	10.24864	0.1059271	0.18435219	3.0575285	20	3 22.7	21.2
508705 2017 UB ₂₂	16.8	X	264.29159	114.76352	171.50619	8.03865	0.0100306	0.18812442	3.0165181	20	3 15.7	20.9
508706 2017 UH ₂₂	17.5	X	290.38367	126.61198	160.85730	6.91548	0.0941033	0.22562697	2.6722395	20	4 5.6	21.0
508707 2017 UN ₂₂	15.9	X	134.59493	30.64768	43.24909	6.32574	0.0251516	0.20233831	2.8735404	20	4 11.6	19.8
508708 2017 UR ₂₂	17.3	X	227.80064	271.59808	91.63299	4.26932	0.1014576	0.22958034	2.6414735	20	4 28.0	21.2
508709 2017 UY ₂₂	17.0	X	168.40093	283.81388	171.43250	6.97492	0.1796132	0.23948804	2.5681092	20	6 22.0	21.3
508710 2017 UC ₂₃	17.1	X	277.11527	193.69483	109.94545	3.37686	0.0387381	0.22101377	2.7092962	20	4 17.9	20.8
508711 2017 UD ₂₃	17.1	X	273.27635	163.11991	137.43898	4.42312	0.1199639	0.22274118	2.6952706	20	3 28.5	20.9
508712 2017 UP ₂₃	17.7	X	249.53181	297.51121	28.77746	4.41957	0.1849842	0.22639690	2.6661775	20	3 27.3	21.9
508713 2017 UB ₂₄	18.1	X	220.69729	285.14189	126.71251	2.24645	0.1480436	0.25978052	2.4325680</			

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>
508721 2017 UA ₂₇	17.2	X	201.38988	333.85383	53.93367	4.86543	0.1351729	0.21800690	2.7341514	20	4 29.6	21.6
508722 2017 UF ₂₇	15.6	X	55.77674	104.02353	30.65530	18.50828	0.0960004	0.17080701	3.2171076	20	4 2.5	19.9
508723 2017 UL ₂₇	17.3	X	166.98695	261.53817	160.96521	3.83207	0.0869492	0.21604141	2.7507094	20	5 8.9	21.5
508724 2017 US ₂₇	16.7	X	156.45520	286.85141	132.43354	2.89943	0.0649433	0.20384561	2.8593576	20	4 22.5	20.8
508725 2017 UV ₂₇	16.6	X	312.61048	90.61395	170.80929	5.88184	0.0259085	0.21010169	2.8023111	20	4 11.9	20.3
508726 2017 UA ₂₈	18.1	X	275.50162	248.78968	86.82533	2.37100	0.1927631	0.25801454	2.4436552	20	5 3.4	21.3
508727 2017 UF ₂₈	17.0	X	111.64306	95.28210	30.74292	11.79646	0.0590772	0.22474771	2.6792045	20	5 20.5	20.9
508728 2017 UG ₂₈	17.7	X	117.44217	133.64382	35.45314	8.45614	0.0485654	0.27879023	2.3206930	20	8 2.6	20.8
508729 2017 UH ₂₈	18.2	X	97.91186	47.17993	164.39891	4.42713	0.0253389	0.30581644	2.1818698	20	9 3.1	20.6
508730 2017 UO ₂₈	16.7	X	295.75681	208.42152	78.43405	2.02734	0.0869003	0.23282757	2.6168558	20	4 11.7	19.9
508731 2017 UQ ₂₈	16.8	X	62.12710	134.43038	30.44748	5.60882	0.1016370	0.22231097	2.6987467	20	5 13.6	20.1
508732 2017 UR ₂₈	18.6	X	231.99585	359.34608	49.56502	2.11423	0.1752193	0.26986367	2.3715909	20	6 23.4	22.0
508733 2017 UB ₂₉	16.6	X	136.71603	216.99791	189.10901	9.26995	0.0778104	0.17507136	3.1646521	20	3 16.3	21.3
508734 2017 UD ₂₉	18.4	X	291.05710	244.02419	108.84153	2.43991	0.1717715	0.28922191	2.2645500	20	6 22.8	20.5
508735 2017 UE ₂₉	17.1	X	202.27693	309.14346	71.22465	4.52414	0.1256686	0.21917901	2.7243950	20	4 22.3	21.3
508736 2017 UQ ₂₉	16.1	X	201.95455	306.13175	26.75519	11.83803	0.1690883	0.18110329	3.0939870	20	3 1.7	21.4
508737 2017 UD ₃₀	18.3	X	249.26012	327.13573	47.83185	3.31057	0.2022957	0.25966720	2.4332757	20	5 24.1	21.8
508738 2017 UJ ₃₀	17.7	X	209.97979	108.04917	357.71327	4.56699	0.1666604	0.28583879	2.2823834	20	8 18.9	21.1
508739 2017 UV ₃₀	17.7	X	247.28647	22.13485	342.32082	1.93956	0.1739676	0.25272302	2.4776475	20	5 10.8	21.5
508740 2017 UA ₃₂	17.8	X	322.35031	85.58317	203.60988	5.91107	0.1138367	0.26360873	2.4089596	20	5 20.9	20.4
508741 2017 UB ₃₂	17.2	X	174.62959	228.44045	199.22803	3.71198	0.1655943	0.22554902	2.6728551	20	5 24.1	21.5
508742 2017 UF ₃₃	16.1	X	255.77684	250.56626	30.03657	11.65446	0.1063450	0.17902988	3.1178296	20	2 23.2	20.9
508743 2017 UP ₃₃	16.5	X	267.09975	311.87657	3.75110	4.27870	0.0646535	0.21156323	2.7893901	20	4 15.0	20.3
508744 2017 UH ₃₄	17.8	X	254.88534	172.71665	197.38098	6.32060	0.1700536	0.25472409	2.4646545	20	5 28.7	21.4
508745 2017 UA ₃₄	17.1	X	189.84689	11.07212	47.21702	2.65553	0.0698427	0.22752217	2.6573794	20	5 27.0	21.0
508746 2017 UP ₃₄	17.4	X	255.17297	307.71975	32.53612	5.07054	0.2744241	0.23552734	2.5968199	20	4 9.9	21.7
508747 2017 UV ₃₄	17.7	X	284.21673	51.54017	314.19219	5.23555	0.1210516	0.27571342	2.3379261	20	7 10.3	20.1
508748 2017 UJ ₃₅	15.9	X	156.74331	65.39351	327.54038	9.90115	0.1215114	0.17537717	3.1609722	20	3 22.0	20.9
508749 2017 UA ₃₆	16.3	X	230.47072	282.08004	12.31930	13.34671	0.2706483	0.17710459	3.1403846	20	2 6.6	22.0
508750 2017 UL ₃₆	15.9	X	204.07315	296.74682	55.20303	16.49581	0.2543786	0.17715043	3.1398428	20	3 27.3	21.6
508751 2017 UM ₃₆	16.4	X	210.91842	194.75260	206.63814	33.55776	0.1982677	0.23547513	2.5972037	20	5 21.4	21.1
508752 2017 UO ₃₆	17.5	X	248.01946	134.31165	207.94416	12.37217	0.2022719	0.22833701	2.6510536	20	4 11.6	21.5
508753 2017 UQ ₃₆	16.2	X	216.28250	269.57786	48.73100	2.55726	0.1591732	0.17187816	3.2037276	20	2 23.1	21.3
508754 2017 UT ₃₆	16.7	X	263.63781	298.60019	14.88931	9.41655	0.1232453	0.21231666	2.7827872	20	4 1.7	20.5
508755 2017 UR ₃₇	16.3	X	217.66343	78.15988	244.09156	9.36605	0.1876628	0.17986085	3.1082191	20	2 21.9	21.6
508756 2017 UP ₃₇	18.3	X	333.14036	111.81692	240.24554	0.27128	0.1961360	0.31666259	2.1317595	20	10 5.3	19.2
508757 2017 UH ₃₈	15.7	X	254.72421	263.40147	38.74668	15.31488	0.0181912	0.17100409	3.2146353	20	3 28.7	20.4
508758 2017 UP ₃₈	16.5	X	129.03759	287.86350	152.04976	10.01962	0.0596106	0.17514491	3.1637661	20	4 20.8	21.2
508759 2017 UR ₃₈	16.0	X	182.74433	260.25550	133.98347	6.24500	0.3012477	0.18964785	3.0003420	20	4 23.9	21.5
508760 2017 UY ₃₈	16.5	X	107.80765	281.34599	218.37599	3.56986	0.0578540	0.21671097	2.7450406	20	6 5.5	20.3
508761 2017 UQ ₄₀	17.4	X	219.34054	121.49729	282.91921	4.28622	0.0955912	0.23973882	2.5663180	20	6 10.1	21.0
508762 2017 UW ₄₀	16.9	X	244.72611	7.76983	342.37850	5.70468	0.0222002	0.21084399	2.7957301	20	5 6.1	20.8
508763 2017 UO ₄₁	16.2	X	24.27729	140.20061	30.29998	9.34404	0.0270707	0.17387834	3.1791113	20	3 26.7	20.5
508764 2017 UQ ₄₂	18.1	X	289.94309	267.73142	117.19497	4.12643	0.1906378	0.29768113	2.2214430	20	8 9.5	19.8
508765 2108 P-L	18.8	X	289.74223	6.18252	344.05718	2.59529	0.3873521	0.27736521	2.3286348	20	5 9.9	22.1
508766 1991 VX ₁₀	18.0	X	304.51446	345.63734	64.44196	5.09597	0.2002277	0.27102512	2.3648105	20	10 18.3	19.6
508767 1993 BD ₂	18.1	X	274.99378	65.67451	96.80508	25.53001	0.3946570	0.31895158	2.1215481	20	—	—
508768 1995 UB ₇₃	18.6	X	303.55327	259.72338	133.02407	1.78858	0.1847599	0.27490494	2.3425077	20	9 18.2	20.2
508769 1995 VU ₁₇	18.8	X	250.92908	45.78420	49.16992	3.40601	0.2097651	0.27195512	2.3594162	20	9 14.8	21.7
508770 1995 WY ₂	7.1	X	289.63404	112.23328	78.72792	1.64579	0.1260426	0.00314247	46.1624405	20	1 7.1	23.6
508771 1997 JA ₁₀	17.0	X	34.98262	142.45675	71.50975	26.32698	0.1101196	0.21624871	2.7489512	20	6 8.9	20.3
508772 1998 WP ₇	19.8	X	15.61156	65.43041	230.74869	21.97146	0.4328738	0.72667246	1.2253032	20	—	—
508773 1998 WQ ₃₉	19.8	X	277.67161	358.88309	57.78444	7.18741	0.1031871	0.26436154	2.4043842	20	9 19.4	20.9
508774 1999 JE ₁	18.1	X	258.16800	302.69573	53.09351	20.90907	0.7017299	0.64748232	1.3232770	20	4 4.3	22.7
508775 1999 RW ₁₀₅	17.2	X	307.16897	48.94044	308.48345	12.09422	0.2867387	0.23094241	2.6310772	20	7 6.6	19.9
508776 1999 RF ₁₀₈	16.9	X	250.96952	107.95843	289.29794	6.96703	0.3806243	0.22584908	2.6704872	20	6 5.6	21.6
508777 1999 TZ ₁₅₆	18.1	X	5.05504	135.63503	209.09284	4.35886	0.2252759	0.28512297	2.2862019	20	11 28.8	20.2
508778 1999 VQ ₁₉	17.3	X	268.58129	304.13869	84.68563	4.19167	0.1108115	0.22451186	2.6810805	20	7 18.3	20.9
508779 1999 VB ₁₃₈	17.8	X	311.07873	340.37303	37.80408	10.30867	0.3491909	0.27903424	2.3193398	20	8 22.4	19.0
508780 1999 VU ₁₅₂	18.1	X	255.02142	320.94932	80.52968	4.60550	0.1108313	0.22400671	2.6851097	20	7 17.5	21.8
508781 1999 VZ ₁₅₂	18.2	X	172.21561	43.96592	70.91985	6.57832	0.2691312	0.21906575	2.7253339	20	7 20.1	23.1
508782 1999 VN ₂₁₁	18.3	X	288.81427	341.52235	62.30779	6.23334	0.2338977	0.27749347	2.3279172	20	8 30.3	20.4
508783 1999 XE ₄₉	16.6	X	168.98926	324.93085	63.89856	10.42372	0.2893009	0.21260048	2.7803100	20	4 9.4	21.7
508784 1999 XV ₈₁	18.1	X	204.36702	215.17648	252.84421	3.81387	0.4581729	0.22154349	2.7049758	20	7 25.7	23.5
508785 2000 AY ₂₂₆	16.9	X	149.44855	212.32135	305.14863	11.73796	0.1746463	0.21637328	2.7478960	20	8 18.7	21.6
508786 2000 BL ₁₉	19.9	X	165.94770	244.59219	311.53119	14.61700	0.6363330	0.21720578	2.7408702	20	10 6.7	26.3
508787 2000 BJ ₅₀	17.7	X	150.50034	236.00796	300.37534	3.01640	0.2673007	0.21833136	2.7314419	20	9 14.2	22.6
508788 2000 CQ ₁₁₄	6.9	X	97.68802	30.40203	38.35859	2.69427	0.1109179	0.00316280	45.9643829	20	3 19.7	23.6
508789 2000 DF ₁₁	18.1	X	54.51584	66.44950	331.30226	19.35753	0.0674706	0.38234949	1.8800196	20	—	—
508790 2000 EA ₂₃	18.5	X	167.42503	6.03401	202.07212	0.71060	0.1303080	0.27064252	2.3670387	20	11 16.5	22.1
508791 2000 EH ₁₀₄	18.0	X	150.77297	141.90865	49.13302	5.49703	0.4656915	0.21529048	2.7571020	20	10 4.9	23.7
508792 2000 FX ₅₃	7.8	X	359.34704	36.64214	175.13730	4.66386	0.1323120	0.00341797	43.6473232	20	4 21.6	23.6
508793 2000 FM ₇₁	17.8	X	254.95285	108.81681	20.39414	2.41575	0.1765319	0.27257202	2.355854			

ELEMENTS AND OPPOSITION DATES IN 2020

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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>
508801 2000 SD ₇₂	17.2	X	281.52604	293.46422	52.28545	5.17933	0.3501146	0.23826344	2.5769013	20	5 2.7	20.9
508802 2000 SZ ₉₃	17.6	X	251.22702	120.81488	274.96567	3.92331	0.2944841	0.23766971	2.5811911	20	6 12.4	21.6
508803 2000 SO ₁₂₅	16.8	X	266.70909	293.53519	81.27239	4.24887	0.3554896	0.23699857	2.5860618	20	5 24.8	20.8
508804 2000 TW ₁₇	16.1	X	201.17229	349.19601	20.62085	7.93810	0.2558196	0.17732914	3.1377329	20	4 6.8	21.6
508805 2000 TT ₂₈	17.8	X	229.72466	134.38310	302.55343	6.86482	0.4647369	0.23695528	2.5863768	20	7 4.3	22.7
508806 2000 TK ₅₀	17.4	X	255.91741	209.87422	144.84531	6.75293	0.3523050	0.23504704	2.6003563	20	4 23.6	21.9
508807 2000 UE ₁₇	17.0	X	270.08076	312.13221	64.20162	7.58143	0.3144659	0.23777041	2.5804622	20	6 3.2	20.7
508808 2000 UK ₁₉	17.3	X	288.54343	285.25978	58.71747	13.29209	0.3626987	0.23815413	2.5776897	20	5 7.3	21.0
508809 2000 UV ₂₄	17.0	X	286.52645	283.61160	67.23193	6.01318	0.3068326	0.23804072	2.5785084	20	5 20.8	20.6
508810 2000 WD ₁₃	16.3	X	207.47106	68.57091	92.55618	28.22004	0.4866485	0.23397821	2.6082694	20	10 11.9	21.9
508811 2000 WA ₅₄	16.6	X	248.56767	150.71482	249.50160	13.29838	0.2550357	0.23603447	2.5930990	20	6 19.2	20.8
508812 2000 WY ₆₆	16.8	X	178.29629	75.63314	73.01036	29.56722	0.3170125	0.23347498	2.6120159	20	9 18.8	22.3
508813 2000 WZ ₁₀₉	16.6	X	223.98675	21.53519	48.28528	14.22050	0.1852553	0.23341509	2.6124627	20	7 11.9	20.9
508814 2000 WF ₁₈₆	17.5	X	248.14909	347.58593	102.00021	6.67941	0.2815840	0.23927742	2.5696120	20	8 21.6	21.3
508815 2000 XE ₂	18.7	X	256.26182	16.67760	43.95521	7.37680	0.4259180	0.28686156	2.2769552	20	7 6.9	22.4
508816 2000 XT ₂₃	17.8	X	231.84777	69.19634	3.74602	4.33275	0.3200373	0.23435025	2.6055082	20	7 11.0	22.2
508817 2001 CY ₁₀	17.4	X	189.06964	149.08943	322.16283	15.74892	0.3232117	0.22910204	2.6451486	20	7 28.3	22.4
508818 2001 DC ₁	16.6	X	174.31983	78.75742	143.87763	28.83056	0.3628392	0.23427069	2.6060980	20	11 29.9	22.0
508819 2001 FD ₁	18.2	X	166.08415	158.39885	359.25066	7.94072	0.2387352	0.22798258	2.6538005	20	9 6.6	22.9
508820 2001 FB ₆₂	17.1	X	163.27609	15.02380	142.88237	5.00102	0.2397931	0.22717525	2.6600842	20	9 4.1	21.7
508821 2001 RF ₁₀	18.3	X	57.96074	88.68642	294.53995	17.77010	0.1344326	0.38064159	1.8856390	20	—	—
508822 2001 RX ₉₇	18.6	X	350.47482	154.00772	220.77044	1.80233	0.1581746	0.31590530	2.1351650	20	12 16.3	20.5
508823 2001 RX ₁₄₃	6.6	X	105.37334	240.39194	20.54571	19.23604	0.2984456	0.00398730	39.3867347	20	10 26.2	23.2
508824 2001 RW ₁₅₅	16.9	X	314.15660	241.41171	115.48317	9.72087	0.2078012	0.25509576	2.4622599	20	8 6.8	19.0
508825 2001 SK ₁₆₉	17.4	X	184.16081	264.52996	177.31693	20.09869	0.5648041	0.18804479	3.0173696	20	6 15.8	24.1
508826 2001 SK ₁₇₂	17.9	X	347.55391	329.62391	9.09127	2.69856	0.1925491	0.25933431	2.4353575	20	9 30.4	19.6
508827 2001 ST ₁₉₇	17.0	X	322.35572	178.64050	171.31748	12.48664	0.1268243	0.20450410	2.8532158	20	8 11.6	20.4
508828 2001 SH ₂₁₂	18.2	X	273.16369	215.84400	165.68839	3.24194	0.2769255	0.25233683	2.4801748	20	6 19.4	21.7
508829 2001 SZ ₂₆₂	18.0	X	63.73894	36.24255	356.04810	20.59399	0.0829097	0.38207763	1.8809113	20	—	—
508830 2001 TL ₁₂₄	16.6	X	207.94259	151.69477	229.93067	10.63957	0.2821167	0.18998119	2.9968314	20	4 22.9	21.9
508831 2001 UE	17.7	X	273.09138	313.92861	113.71941	3.47160	0.1746651	0.25572738	2.4582039	20	9 11.9	20.4
508832 2001 UO ₉₀	17.7	X	332.93672	290.51374	51.96851	6.19468	0.2257969	0.25565009	2.4586993	20	9 2.7	19.4
508833 2001 UM ₁₄₁	17.9	X	340.00331	198.68964	209.02803	2.91676	0.1758530	0.26343682	2.4100075	20	12 29.2	20.0
508834 2001 WX ₄	17.9	X	305.31945	117.25967	57.97019	22.37765	0.0634794	0.38135396	1.8832900	20	—	—
508835 2001 XZ ₂	18.0	X	349.19244	186.43630	268.12612	19.62867	0.0994914	0.37427719	1.9069551	20	—	—
508836 2001 XA ₁₂₄	15.4	X	98.21266	265.05028	239.43462	15.86510	0.0760584	0.18471839	3.0534862	20	6 1.8	19.7
508837 2001 XQ ₁₆₁	17.1	X	246.41135	167.41970	238.21888	3.96902	0.1903037	0.24608582	2.5219995	20	7 1.9	20.7
508838 2002 AB ₅₀	17.0	X	152.57827	239.95869	289.35499	11.12165	0.2117814	0.24229740	2.5482198	20	9 4.6	21.6
508839 2002 AR ₉₈	16.5	X	155.35693	130.35315	303.11053	23.16035	0.2620433	0.18001272	3.1064707	20	5 12.8	22.3
508840 2002 AN ₁₁₃	16.7	X	269.25049	264.98897	112.02285	12.75873	0.2651416	0.24466277	2.5317693	20	6 11.6	20.3
508841 2002 BO ₁₈	16.8	X	210.44513	303.96336	128.65628	25.88345	0.2428716	0.24056711	2.5604239	20	6 30.1	21.4
508842 2002 BT ₃₂	15.4	X	189.70726	77.43318	317.82518	8.73425	0.1982497	0.12385115	3.9859883	20	4 25.8	22.0
508843 2002 CK ₄₄	17.8	X	123.71109	351.94333	330.55222	18.90565	0.0693671	0.36775964	1.9294195	20	—	—
508844 2002 CS ₇₄	16.2	X	99.50851	23.97970	141.26621	18.56420	0.1644050	0.17848871	3.1241285	20	7 10.9	21.1
508845 2002 CG ₁₂₉	16.4	X	99.43011	31.84293	147.23404	22.80358	0.2951952	0.17973139	3.1097115	20	8 9.8	21.5
508846 2002 CC ₁₅₀	16.0	X	74.97902	247.30097	335.22049	15.02198	0.1874944	0.18215581	3.0820572	20	8 27.8	20.5
508847 2002 CU ₂₁₃	16.2	X	94.93408	179.38927	345.37760	16.20586	0.0981662	0.17715433	3.1397967	20	6 28.7	21.0
508848 2002 CC ₂₃₇	16.2	X	119.09856	245.72918	348.33077	18.62541	0.3341804	0.18533151	3.0467480	20	10 22.1	22.0
508849 2002 CY ₂₆₄	18.2	X	203.32473	324.73892	163.56474	4.77832	0.1163953	0.24279570	2.5447320	20	9 10.1	21.8
508850 2002 CB ₂₆₇	17.0	X	99.10765	51.84844	139.64744	8.16761	0.1878181	0.18218082	3.0817752	20	8 15.1	21.8
508851 2002 CR ₃₀₈	18.4	X	175.62767	203.53054	320.60274	4.89368	0.1923488	0.24401676	2.5362357	20	9 21.7	22.6
508852 2002 ET ₉	17.9	X	174.41739	295.19878	336.80769	18.07109	0.0481255	0.36654988	1.9336624	20	—	—
508853 2002 GB ₇₁	17.0	X	160.98720	124.88757	0.83249	27.18460	0.1576321	0.23500663	2.6006543	20	8 5.8	21.7
508854 2002 GC ₁₉₂	14.2	X	245.66311	179.63194	294.71860	6.65589	0.0678844	0.08468745	5.1355861	20	9 22.4	21.2
508855 2002 JS ₁₂₅	17.5	X	46.62997	57.97009	228.11714	5.11335	0.2756596	0.23148398	2.6269719	20	11 1.8	21.1
508856 2002 LW ₅₆	17.4	X	37.65134	223.56816	86.30938	13.60057	0.2199380	0.28596150	2.2817305	20	11 27.2	20.4
508857 2002 LK ₆₃	16.7	X	117.30631	125.44339	110.17527	22.51823	0.3332563	0.17890437	3.1192875	20	11 7.7	22.7
508858 2002 PQ ₈₈	18.2	X	291.11978	276.19387	116.30767	5.52353	0.3082681	0.27106805	2.3645609	20	7 28.0	20.5
508859 2002 QU	17.8	X	316.86872	173.55531	186.92077	1.66714	0.2694785	0.27312316	2.3526845	20	8 12.4	18.9
508860 2002 RR ₃₆	15.2	X	91.26291	36.53623	318.15155	8.98394	0.3396893	0.12585374	3.9435918	20	1 9.1	20.9
508861 2002 RN ₃₈	17.3	X	129.28580	118.62218	296.16859	4.16003	0.6725575	0.13211997	3.8178929	20	4 28.3	24.9
508862 2002 RY ₇₅	17.9	X	342.48266	38.77116	308.29344	0.14554	0.2674249	0.27546279	2.3393440	20	10 16.0	19.0
508863 2002 RZ ₂₇₄	17.7	X	249.87514	1.94373	15.49108	3.45840	0.1938288	0.20963462	2.8064720	20	5 28.7	22.1
508864 2002 SS ₃₄	17.7	X	329.00727	307.86623	54.30027	2.35975	0.1973735	0.27397581	2.3478007	20	9 29.4	19.0
508865 2002 TT ₃₀₃	17.5	X	321.53151	271.93135	64.33058	6.63762	0.0518309	0.21159584	2.7891035	20	8 2.1	21.1
508866 2002 UZ ₅₃	18.3	X	263.07128	352.27266	77.33915	6.01675	0.2162870	0.26901513	2.3765753	20	8 26.6	21.2
508867 2002 VY ₇₀	17.6	X	309.34273	304.10386	79.79667	6.28270	0.2322374	0.27079130	2.3661716	20	9 13.8	19.3
508868 2002 VV ₈₇	16.7	X	224.24045	165.12628	252.07694	9.95495	0.3024059	0.20298611	2.8674234	20	6 15.5	21.7
508869 2002 VT ₁₃₀	5.7	X	124.44585	340.23061	334.19879	1.16487	0.0364377	0.00358920	42.2478221	20	12 14.7	22.1
508870 2002 XL ₁₁₇	18.6	X	320.14720	49.49881	72.17788	23.62922	0.0594254	0.39600481	1.8365485	20	—	—
508871 2003 CN ₁₇	18.9	X	296.92024	265.61534	330.83116	32.06779	0.5183058	0.39291485	1.8461646	20	—	—
508872 2003 CO ₂₅	17.1	X	124.35441	54.27757	93.56586	9.74334	0.3516737	0.18997425	2.9969045	20	7 28.1	22.6
508873 2003 FW ₂₉	17.0	X	89.73235	40.31253	137.79569	10.81332	0.2633111	0.18571870	3.0425119	20		

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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>		
508881	2003	SZ ₁₂₁	17.9	X	281.37226	196.79392	201.20718	4.90184	0.3377458	0.28587798	2.2821749	20	7 14.3	20.5
508882	2003	SJ ₂₀₉	17.7	X	271.49834	192.60219	229.22869	3.89791	0.2077969	0.28708059	2.2757969	20	8 26.8	20.2
508883	2003	SA ₂₄₅	18.3	X	353.42572	342.74041	25.01593	2.05114	0.2073278	0.29508452	2.2344558	20	12 11.9	20.2
508884	2003	SK ₂₆₀	16.8	X	255.58019	100.83363	345.56599	12.48980	0.1015777	0.23206999	2.6225477	20	9 17.2	20.3
508885	2003	SX ₂₆₇	16.1	X	9.15688	209.37012	187.91423	16.30136	0.2666760	0.12256782	4.0137632	20	12 26.2	21.0
508886	2003	SS ₂₇₉	18.2	X	274.93689	169.73393	238.17974	1.99850	0.2229829	0.28572313	2.2829993	20	8 9.4	20.4
508887	2003	SX ₃₀₅	17.2	X	40.78128	45.07449	281.36667	4.04584	0.2933076	0.23882441	2.5728644	20	12 19.4	20.8
508888	2003	SR ₃₂₄	17.5	X	238.62360	51.94758	354.36419	8.77670	0.1867277	0.22169260	2.7037628	20	6 24.9	21.8
508889	2003	SZ ₃₃₁	18.7	X	312.54474	60.36275	331.34684	2.51530	0.2272030	0.28904667	2.2654652	20	10 8.0	19.6
508890	2003	SL ₄₂₀	18.7	X	299.54296	218.66947	227.50443	3.22939	0.1527420	0.29674921	2.2260915	20	12 16.1	20.4
508891	2003	SR ₄₂₈	17.3	X	34.42155	107.64296	204.47452	16.90379	0.1981648	0.23452894	2.6041845	20	11 11.0	20.7
508892	2003	TY ₃₅	18.5	X	339.79908	89.09452	304.93345	3.23150	0.1456843	0.29444607	2.2376846	20	12 16.3	20.5
508893	2003	UL	16.8	X	267.57930	139.68144	236.26465	15.80388	0.2748684	0.22033962	2.7148197	20	6 5.2	20.9
508894	2003	UR ₅₈	16.4	X	350.15844	52.49547	242.89408	4.43098	0.1405065	0.22421803	2.6834223	20	7 18.5	19.2
508895	2003	UB ₁₀₇	16.8	X	319.79578	43.71765	308.85783	10.86602	0.2103012	0.22873626	2.6479678	20	8 6.6	19.2
508896	2003	UZ ₁₇₂	17.0	X	305.36031	334.72763	16.73024	12.38147	0.2029898	0.22389449	2.6860069	20	7 9.5	20.3
508897	2003	TY ₂₃₁	18.4	X	322.21812	133.54506	253.77707	2.28692	0.2037862	0.29056843	2.2575486	20	10 29.9	19.5
508898	2003	UN ₂₇₈	17.4	X	254.75927	6.23876	13.23332	9.52522	0.2024837	0.21897587	2.7260797	20	6 3.3	21.6
508899	2003	UD ₃₁₆	16.4	X	275.98096	351.63492	42.54199	18.03994	0.2150125	0.22158156	2.7046660	20	7 22.9	20.3
508900	2003	UX ₃₁₇	17.4	X	255.35022	356.04157	25.24888	5.48456	0.1743912	0.21953399	2.7214574	20	6 10.9	21.4
508901	2003	WH ₁₀	16.8	X	261.65879	314.05813	41.19869	17.37489	0.3142759	0.21701465	2.7424792	20	4 30.5	21.4
508902	2003	WG ₃₅	17.4	X	73.55233	166.39768	234.13264	20.35440	0.0895968	0.36983999	1.9221774	20	—	—
508903	2003	WX ₄₁	16.9	X	328.43003	131.29319	250.42163	21.95435	0.2311780	0.28880586	2.2667244	20	11 6.1	18.6
508904	2003	WR ₅₈	17.1	X	286.95747	340.28226	57.27994	14.08588	0.1556930	0.22401481	2.6850450	20	8 26.9	20.6
508905	2003	WX ₈₇	18.2	X	275.57364	324.68262	98.48124	13.02933	0.4911779	0.28173306	2.3045042	20	7 19.7	21.5
508906	2003	WM ₁₀₈	17.4	X	154.37781	218.11690	258.68860	12.90078	0.2689868	0.20962611	2.8065480	20	7 6.7	22.5
508907	2003	XH ₁₄	16.8	X	327.03282	95.69681	293.78466	20.57732	0.3527492	0.28974920	2.2618018	20	12 10.6	17.9
508908	2003	YX ₁	20.9	X	86.17280	223.17248	89.65561	5.57523	0.2670056	1.19429891	0.8798204	20	—	—
508909	2003	YG ₃₂	16.7	X	243.73283	103.35413	289.61559	10.11360	0.3630666	0.21559651	2.7544924	20	5 26.7	21.7
508910	2003	YJ ₅₃	17.7	X	272.76016	206.48405	251.91829	7.78105	0.1837357	0.28771287	2.2724614	20	10 29.6	19.7
508911	2003	YB ₁₃₇	17.3	X	232.61599	344.41451	62.32216	9.11152	0.3811933	0.21495663	2.7599559	20	6 3.9	22.3
508912	2004	BB	19.5	X	283.55634	57.93306	129.50235	24.50251	0.5176365	0.35323232	1.9819640	20	—	—
508913	2004	BG ₈	18.2	X	227.05285	219.37546	285.16523	7.02400	0.1881420	0.28175091	2.3044069	20	10 22.1	21.4
508914	2004	BT ₁₆	16.8	X	204.52914	52.31846	81.62564	11.87139	0.2843452	0.21656252	2.7462950	20	9 9.0	21.8
508915	2004	BL ₃₉	16.9	X	246.03583	209.12043	302.22956	24.03305	0.1981667	0.28500446	2.2868356	20	11 27.6	19.9
508916	2004	BP ₆₉	17.9	X	136.66144	183.94070	125.32245	25.02762	0.0755260	0.35436821	1.9777264	20	—	—
508917	2004	BS ₇₁	17.6	X	306.05986	293.34552	133.04913	22.36923	0.2361426	0.28528482	2.2853371	20	11 30.9	19.7
508918	2004	BG ₈₆	19.2	X	95.83604	123.39699	146.66984	36.16795	0.6133850	0.62670216	1.3523691	20	—	—
508919	2004	CM ₁₇	17.4	X	153.07412	168.02060	136.64632	24.24503	0.0691122	0.35662221	1.9693842	20	—	—
508920	2004	CN ₁₀₈	16.4	X	167.06637	238.13260	307.97941	11.96116	0.1565883	0.21348124	2.7726575	20	10 4.3	21.2
508921	2004	EX ₄₃	17.8	X	195.39759	36.75822	157.74505	4.89482	0.1697794	0.27828412	2.3235058	20	11 26.9	21.3
508922	2004	EH ₁₁₆	16.0	X	50.83887	177.33814	311.90901	1.73339	0.1272313	0.12412557	3.9801112	20	3 22.3	21.0
508923	2004	FC ₁₉	18.1	X	323.86666	323.52016	181.24431	13.60812	0.1426232	0.35549041	1.9735621	20	—	—
508924	2004	FV ₂₃	17.9	X	71.84680	256.82945	337.35910	1.76667	0.1617163	0.26242972	2.4161693	20	9 13.6	21.1
508925	2004	FY ₄₃	17.5	X	212.86850	140.68980	8.25958	20.07892	0.1893082	0.27648900	2.3335520	20	10 10.9	20.8
508926	2004	FR ₈₀	17.1	X	163.18772	153.09284	30.13128	10.23679	0.1468394	0.20917583	2.8105741	20	10 5.4	21.7
508927	2004	FT ₉₅	17.1	X	162.81517	162.20392	358.42964	25.17210	0.1833863	0.27139688	2.3626505	20	9 14.1	20.9
508928	2004	FL ₁₃₀	17.2	X	224.60729	39.16947	129.25456	8.39748	0.1346526	0.27876432	2.3208367	20	12 2.7	20.2
508929	2004	GP ₂	17.5	X	229.69969	27.40164	140.72637	25.67930	0.2131330	0.27979474	2.3151352	20	12 2.6	21.1
508930	2004	GW ₉	16.3	X	151.82680	125.84431	107.89905	34.30535	0.2660245	0.21289978	2.7777036	20	12 1.9	21.7
508931	2004	HP ₆₃	17.8	X	241.27804	108.29570	95.43362	18.74794	0.1480088	0.34467839	2.0146209	20	—	—
508932	2004	JY ₁₁	17.6	X	210.50849	78.23219	117.46281	22.54856	0.3085980	0.27720794	2.3295155	20	12 2.9	21.5
508933	2004	OU	18.3	X	20.11941	254.10537	95.91553	27.38213	0.1824148	0.38207962	1.8809047	20	—	—
508934	2004	RN ₃₅	17.4	X	269.23724	251.47865	130.30986	4.51558	0.327431	0.23841068	2.5758402	20	6 21.1	20.9
508935	2004	RK ₅₃	17.0	X	226.26665	8.59270	17.99690	7.82703	0.1941367	0.23175115	2.6249525	20	5 15.8	21.3
508936	2004	RH ₆₃	17.6	X	264.23262	26.04181	346.66793	3.92255	0.2683543	0.23613515	2.5923618	20	5 28.6	21.6
508937	2004	RW ₉₈	17.1	X	269.73201	143.52211	218.74462	3.66987	0.2282370	0.23665604	2.5885565	20	5 27.3	20.8
508938	2004	RG ₁₀₂	17.3	X	245.03043	192.42693	182.81229	14.74308	0.2655383	0.23360862	2.6110197	20	5 17.0	21.8
508939	2004	RX ₁₄₈	17.5	X	242.87267	212.43671	175.90696	5.72054	0.2553971	0.23425388	2.6062227	20	5 31.1	21.7
508940	2004	RQ ₁₆₅	17.8	X	263.77982	42.84194	353.19904	4.17895	0.3633438	0.23568834	2.5956372	20	6 16.7	22.0
508941	2004	RV ₂₁₂	16.8	X	308.75243	49.13698	292.09633	11.38564	0.3048957	0.24060306	2.5601689	20	6 10.2	19.4
508942	2004	RU ₃₂₄	17.6	X	271.54837	16.96108	315.55671	5.30180	0.3179005	0.23286244	2.6165945	20	4 7.6	21.9
508943	2004	RK ₃₂₉	17.1	X	232.05497	66.11610	329.40580	13.24274	0.1645620	0.23292270	2.6161431	20	6 4.7	21.4
508944	2004	RQ ₃₃₁	18.2	X	26.36238	133.71826	242.36645	14.73299	0.1734339	0.38305517	1.8777099	20	—	—
508945	2004	RJ ₃₄₅	17.2	X	245.52991	167.29159	244.18053	7.97329	0.2444607	0.23644877	2.5900690	20	7 1.7	21.2
508946	2004	RD ₃₅₆	18.0	X	265.61146	28.47514	343.33617	2.87818	0.2657479	0.23490227	2.6014246	20	5 29.4	22.0
508947	2004	SF ₉	15.7	X	295.76975	66.05146	268.16237	25.18169	0.2739460	0.17389702	3.1788836	20	5 15.5	20.3
508948	2004	SF ₁₇	17.5	X	273.24380	316.24010	75.25037	6.75616	0.3055553	0.23857594	2.5746505	20	6 28.3	21.2
508949	2004	SU ₃₄	17.3	X	275.57083	311.36689	46.23161	4.34866	0.2760533	0.23544705	2.5974103	20	5 20.7	21.2
508950	2004	SK ₅₃												

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>
508961 2004 TV ₂₂₀	17.5	X	220.45928	83.84080	306.52147	11.79431	0.2944761	0.22921952	2.6442448	20	5 8.1	22.5
508962 2004 TW ₂₇₄	18.8	X	323.68511	18.24672	16.68693	3.10446	0.1757866	0.30877113	2.1679283	20	11 21.9	20.1
508963 2004 TD ₃₁₅	17.3	X	286.45879	117.01716	225.72842	3.38790	0.1691874	0.23464882	2.6032975	20	5 31.3	20.4
508964 2004 TW ₃₁₇	17.3	X	277.13969	32.34178	309.32480	2.24426	0.2742878	0.23325148	2.6136842	20	5 1.3	21.0
508965 2004 TJ ₃₃₃	17.8	X	281.15208	341.25348	34.38474	3.90920	0.1968384	0.23558580	2.5963903	20	7 4.5	21.0
508966 2004 UZ ₁	17.2	X	248.02677	49.51178	310.78874	10.90019	0.3354981	0.23083214	2.6319151	20	4 18.1	22.1
508967 2004 VC ₁₇	18.4	X	3.27237	65.11209	229.23892	20.40829	0.8109844	0.37771567	1.8953644	20	2 18.5*	20.6
508968 2004 VR ₅₄	18.0	X	319.84912	265.74670	243.06382	19.40497	0.0344248	0.38937868	1.8573251	20	—	—
508969 2004 VH ₆₉	17.6	X	237.34298	335.58747	77.99649	3.84767	0.1565821	0.23050694	2.6343899	20	7 6.4	21.5
508970 2004 VX ₈₇	18.1	X	249.65229	31.40911	14.51193	5.05455	0.2197729	0.23288467	2.6164280	20	7 2.8	22.0
508971 2004 VH ₁₀₅	18.8	X	160.21985	148.71093	41.10731	5.33099	0.0864143	0.30626559	2.1797361	20	10 24.8	21.7
508972 2004 WA ₇	17.1	X	206.62971	177.47281	260.78589	9.50045	0.1792420	0.22947261	2.6423001	20	7 4.2	21.4
508973 2004 XD ₁₀	17.1	X	238.11231	341.52715	102.94798	8.36495	0.3023406	0.23249764	2.6193308	20	8 1.4	21.3
508974 2004 XC ₆₁	17.4	X	210.60642	48.70213	70.77785	30.08466	0.3001024	0.23302391	2.6153856	20	9 5.3	22.6
508975 2004 XQ ₁₁₁	17.4	X	219.68740	105.02640	338.21209	4.55941	0.2565573	0.22799415	2.6537108	20	7 18.6	21.9
508976 2004 XS ₁₅₇	13.4	X	254.03352	210.56857	101.32206	10.60756	0.0512680	0.08383508	5.1703373	20	4 10.4	20.5
508977 2004 XR ₁₇₀	17.4	X	231.89108	266.14651	280.94240	20.06599	0.0089832	0.37546392	1.9029348	20	—	—
508978 2004 XX ₁₇₁	18.5	X	26.86355	314.64895	74.88794	24.04626	0.0116687	0.37840343	1.8930671	20	—	—
508979 2004 XV ₁₈₂	18.1	X	271.46967	63.43553	86.93607	23.77677	0.0127366	0.37820075	1.8937434	20	—	—
508980 2005 AH ₂₇	18.3	X	44.15158	312.12599	113.41473	21.54738	0.1075390	0.38489428	1.8717237	20	—	—
508981 2005 AV ₅₈	17.5	X	188.17406	358.34359	125.17070	9.64319	0.2666206	0.22615474	2.6680805	20	8 11.4	22.1
508982 2005 CB	18.2	X	3.29337	333.17099	131.22720	24.42346	0.0900907	0.38310163	1.8775581	20	—	—
508983 2005 CU ₁₅	16.9	X	144.90336	40.36728	139.72290	14.04114	0.1874558	0.22476974	2.6790294	20	9 18.1	21.5
508984 2005 EF ₆₉	16.9	X	135.73204	202.88799	8.03469	9.77019	0.2195814	0.22134829	2.7065659	20	10 13.6	21.6
508985 2005 EH ₇₀	17.2	X	172.23953	328.24401	189.31844	8.03228	0.4211841	0.22467640	2.6797714	20	9 5.1	22.6
508986 2005 EP ₉₇	16.6	X	183.35281	196.77274	324.28065	16.25492	0.1295235	0.22748396	2.6576770	20	9 20.9	20.9
508987 2005 ER ₁₃₃	17.7	X	273.90313	88.72356	357.15030	22.86675	0.3118383	0.30028888	2.2085635	20	9 21.6	19.4
508988 2005 ET ₁₃₅	16.8	X	251.43208	93.38406	327.53626	4.70039	0.0639526	0.22122572	2.7075655	20	8 14.6	20.4
508989 2005 EQ ₂₀₁	17.2	X	195.67957	65.95714	88.51404	13.29859	0.2577073	0.22872584	2.6480482	20	9 30.8	22.0
508990 2005 EY ₂₂₅	18.1	X	222.92679	249.01864	5.02616	16.50148	0.0643422	0.37916894	1.8905183	20	—	—
508991 2005 EZ ₂₃₇	17.0	X	89.84620	222.16893	6.85991	11.76707	0.1088695	0.21838037	2.7310332	20	9 17.8	21.0
508992 2005 EY ₂₄₅	17.2	X	330.26819	328.45941	357.20559	12.02078	0.0315171	0.21533923	2.7566859	20	8 4.5	20.9
508993 2005 EA ₂₅₀	18.3	X	263.36146	315.39897	171.89924	22.31463	0.0700575	0.36389184	1.9430673	20	—	—
508994 2005 ER ₂₅₀	18.2	X	266.51685	179.72175	358.04397	16.96007	0.1538943	0.37060360	1.9195361	20	—	—
508995 2005 EP ₂₇₁	16.6	X	244.35965	86.08690	131.25795	0.74418	0.2022694	0.17757347	3.1348541	20	—	—
508996 2005 EP ₂₈₄	18.7	X	206.31054	283.91284	219.25236	1.86552	0.1305790	0.29065725	2.2570886	20	10 7.4	21.8
508997 2005 FL ₄	17.0	X	167.37972	176.86819	66.78710	28.45342	0.7214452	0.22842457	2.6503761	20	12 1.9	23.2
508998 2005 GO ₇	17.0	X	118.94191	163.55090	63.92228	5.78234	0.2790901	0.21936384	2.7228644	20	10 24.9	21.9
508999 2005 GW ₁₉	17.4	X	160.42042	289.55830	201.39619	8.30120	0.2438085	0.21476374	2.7616083	20	7 27.4	22.4
509000 2005 GZ ₄₀	17.8	X	68.04635	63.72091	190.74137	4.80648	0.1403517	0.27930525	2.3178393	20	10 6.3	20.9
509001 2005 GF ₅₉	18.2	X	333.82008	114.87998	32.91503	21.64726	0.0816801	0.37793479	1.8946317	20	—	—
509002 2005 GF ₁₂₄	18.1	X	338.69051	118.24288	352.36111	19.88203	0.0424950	0.37592553	1.9013767	20	—	—
509003 2005 GW ₁₄₈	18.2	X	173.73165	152.98734	56.67927	8.43409	0.1087435	0.29142799	2.2531073	20	11 30.1	21.2
509004 2005 GR ₂₂₉	17.1	X	122.14230	214.19974	32.04657	3.80566	0.1027417	0.22346490	2.6894481	20	11 10.7	21.1
509005 2005 JR ₂₄	18.8	X	122.47312	46.96414	223.98763	19.23896	0.0773933	0.35619991	1.9709405	20	—	—
509006 2005 JU ₂₈	17.3	X	134.25688	114.98549	83.42286	13.73284	0.2761972	0.21695193	2.7430078	20	10 7.1	22.4
509007 2005 JV ₂₈	18.1	X	152.74189	130.30207	92.31967	9.73867	0.1460082	0.28803183	2.2707835	20	11 24.2	21.6
509008 2005 JM ₅₀	18.0	X	56.08661	201.57826	104.94577	3.03047	0.2099576	0.28234027	2.3011989	20	12 9.2	21.2
509009 2005 JF ₆₂	16.7	X	123.23859	11.73998	202.61689	8.06610	0.2142220	0.21898169	2.7260314	20	10 8.2	21.1
509010 2005 LD ₂	17.5	X	144.19558	122.66592	120.86012	6.43675	0.3625636	0.22398701	2.6852672	20	11 29.2	22.7
509011 2005 LU ₃₉	16.0	X	216.89032	227.56752	95.20054	28.76988	0.1305127	0.18219604	3.0816035	20	3 8.9	21.4
509012 2005 LE ₅₃	18.5	X	190.91307	29.78407	285.53539	5.51360	0.2076462	0.30161597	2.2020804	20	1 15.6	21.9
509013 2005 MX ₁₄	17.9	X	184.70836	108.68303	138.94373	7.33124	0.2291181	0.29205009	2.2499066	20	—	—
509014 2005 MO ₂₂	16.2	X	226.55266	68.08808	304.04297	8.12155	0.0890166	0.18458942	3.0549083	20	5 5.8	21.0
509015 2005 MH ₂₈	18.5	X	143.28468	63.62479	263.63182	7.40058	0.1880053	0.29437339	2.2380529	20	—	—
509016 2005 ME ₃₈	16.9	X	317.46671	21.37097	288.41728	4.47859	0.2498855	0.19157521	2.9801847	20	5 20.5	20.4
509017 2005 MP ₄₈	18.3	X	226.79627	108.53208	128.22322	23.94460	0.1112837	0.36259328	1.9477037	20	—	—
509018 2005 NE ₁	17.5	X	162.47636	234.65370	339.05277	3.18445	0.4243322	0.22229433	2.6988814	20	11 2.7	22.9
509019 2005 NZ ₇	16.7	X	23.02555	337.06894	296.22088	18.39043	0.1667995	0.19844865	2.9109670	20	8 13.3	20.2
509020 2005 NU ₁₈	16.4	X	262.48474	219.40616	135.18363	8.79098	0.1477741	0.18799644	3.0178869	20	5 22.3	20.9
509021 2005 NE ₄₂	17.9	X	329.97503	177.55381	188.14586	2.65497	0.1971340	0.26799741	2.3825882	20	10 4.9	19.5
509022 2005 NX ₇₆	16.5	X	299.33279	148.64693	193.17718	9.04082	0.1484225	0.17983884	3.1084726	20	3 31.5	21.5
509023 2005 NC ₈₈	16.1	X	91.62150	265.02869	268.75412	11.77789	0.1113001	0.19220446	2.9736767	20	7 5.8	20.4
509024 2005 PZ ₁	16.9	X	284.53001	22.07360	356.37387	18.28243	0.4076168	0.25555278	2.4593234	20	6 6.2	20.8
509025 2005 PR ₄	17.3	X	322.72528	310.13750	67.61891	10.48321	0.3372163	0.26556757	2.3970993	20	10 10.3	18.1
509026 2005 QJ ₁₇	17.6	X	329.94852	316.24452	34.02564	2.12852	0.2602015	0.26187679	2.4195691	20	9 5.3	18.8
509027 2005 QF ₁₈	17.7	X	301.39992	226.80847	148.45121	1.88638	0.1954492	0.25928042	2.4356950	20	8 9.9	19.7
509028 2005 QJ ₂₀	17.5	X	302.17742	23.14650	340.95940	7.75510	0.3031067	0.25874886	2.4390297	20	7 5.6	19.9
509029 2005 QL ₃₄	17.8	X	264.23204	134.57077	255.91917	1.59784	0.2163809	0.25532360	2.4607949	20	6 29.6	21.2
509030 2005 QG ₄₂	17.4	X	311.56098	24.85481	340.57450	4.75599	0.2400964	0.26030219	2.4293169	20	8 10.7	19.0
509031 2005 QY ₅₉	17.7	X	316.04738	163.73366	198.48479	1.38229	0.1987382	0.26017834	2.4300878	20	8 20.7	19.4
509032 2005 QW ₈₁	17.7	X	337.75980	347.75397	0.47224	2.91441	0.2186588	0.26428454	2.4048512	20	9 24.8	19.2
509033 2005 QK ₁₈₀	17.6	X	303.52889	330.63907	24.15540	9.45878	0.2705579	0.25749679	2.4469297	20	6 28.9	20.2
509034 2005 RZ ₄₂	18.0	X										

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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>		
509041	2005	SO ₁₂₇	16.7	X	205.24085	60.56499	16.54708	11.29202	0.0496489	0.18300084	3.0725620	20	7 10.5	21.4
509042	2005	SQ ₁₃₈	18.2	X	351.61254	295.14185	48.03953	2.03992	0.1903445	0.26389150	2.4072385	20	10 18.5	19.9
509043	2005	SF ₁₄₄	16.9	X	196.06028	25.32635	21.79222	15.15193	0.2841633	0.17440154	3.1727499	20	5 11.9	22.7
509044	2005	SD ₁₅₁	16.4	X	282.62547	162.00538	170.14622	2.76602	0.1786761	0.18083901	3.0970007	20	5 11.9	20.6
509045	2005	SQ ₁₇₇	16.8	X	217.58623	203.14692	212.97204	11.41697	0.0950084	0.18118406	3.0930674	20	6 21.7	21.6
509046	2005	SP ₁₈₁	16.9	X	308.71978	350.00730	338.56379	4.14336	0.0715963	0.18354391	3.0664983	20	6 27.8	21.0
509047	2005	ST ₁₈₆	17.7	X	48.80817	117.16297	188.08086	4.83130	0.1150865	0.26729783	2.3867436	20	11 14.8	20.8
509048	2005	SG ₁₉₇	16.8	X	199.79390	69.50709	14.08852	12.31308	0.1940317	0.18089919	3.0963138	20	7 4.6	22.2
509049	2005	SQ ₂₃₇	17.8	X	244.51405	219.34187	233.88843	2.62489	0.1928470	0.25646350	2.4534978	20	9 1.6	21.1
509050	2005	SY ₂₄₂	16.9	X	233.66652	157.94366	213.85849	0.37362	0.1939188	0.17643639	3.1483084	20	5 7.3	22.0
509051	2005	SH ₂₄₅	18.2	X	267.95393	174.09687	233.61593	0.82468	0.1772758	0.25547010	2.4598540	20	8 3.8	21.2
509052	2005	SS ₂₆₆	16.8	X	240.45553	131.27154	193.16640	13.27824	0.2878380	0.17551555	3.1593106	20	3 10.8	22.4
509053	2005	SJ ₂₈₅	16.6	X	174.81206	270.24223	135.84513	12.41424	0.0316541	0.16934059	3.2356535	20	4 30.4	21.5
509054	2005	ST ₂₈₉	18.4	X	299.74023	26.97609	355.16743	1.90617	0.2024685	0.25830445	2.4418264	20	8 16.9	20.7
509055	2005	SE ₂₉₀	16.4	X	219.86996	35.66229	47.43646	9.02156	0.0390066	0.18584488	3.0411347	20	8 7.3	20.9
509056	2005	TA ₁₅	18.4	X	284.12529	102.12341	280.28489	5.37636	0.2656871	0.25527890	2.4610821	20	7 7.3	21.3
509057	2005	ST ₃₁	18.3	X	303.70417	224.36924	158.41850	2.48039	0.2063307	0.25969077	2.4331285	20	8 25.4	20.4
509058	2005	TH ₄₆	17.6	X	336.60564	63.82504	269.98497	5.16703	0.2378696	0.26062236	2.4273269	20	8 21.9	19.1
509059	2005	TW ₇₀	18.0	X	278.05964	37.22477	27.86853	2.53960	0.1492021	0.25961852	2.4355799	20	9 20.6	20.5
509060	2005	TO ₈₆	17.9	X	332.41395	297.61423	53.82316	3.19054	0.2399924	0.26191580	2.4193289	20	9 17.0	19.3
509061	2005	TW ₉₁	18.0	X	342.45843	81.46155	260.23946	3.63325	0.2422639	0.26288681	2.4133678	20	9 25.4	19.6
509062	2005	TX ₉₆	16.6	X	270.10813	0.87199	19.93344	11.15134	0.0882919	0.18306949	3.0717939	20	7 12.4	21.1
509063	2005	TU ₁₀₂	18.1	X	306.18000	126.54796	250.89490	1.17877	0.1856106	0.25798828	2.4438210	20	8 24.4	20.2
509064	2005	TC ₁₁₄	18.4	X	253.22197	79.00949	10.74493	4.07509	0.1268253	0.26056292	2.4276960	20	9 29.2	21.2
509065	2005	TR ₁₁₄	16.6	X	156.50395	244.74317	199.52042	15.15567	0.1910905	0.17292791	3.1907491	20	5 21.8	22.1
509066	2005	TQ ₁₁₆	17.1	X	225.63151	154.61167	203.34207	8.58245	0.0837668	0.17443454	3.1723497	20	4 21.4	21.7
509067	2005	TG ₁₂₅	18.4	X	248.33241	220.01006	222.55418	1.95892	0.1642277	0.25652554	2.4531022	20	8 27.4	21.7
509068	2005	TN ₁₃₁	18.0	X	32.90936	123.87358	197.24260	5.40666	0.1534756	0.26619521	2.3933298	20	11 20.7	20.9
509069	2005	TN ₁₃₉	16.9	X	171.38523	358.79352	112.93907	2.44463	0.1307230	0.17963816	3.1107873	20	7 13.3	21.8
509070	2005	TD ₁₅₃	17.6	X	258.43909	258.60022	216.89234	9.23003	0.0894730	0.26638461	2.3921953	20	11 11.1	20.2
509071	2005	TU ₁₈₂	16.2	X	190.36784	96.56125	331.41303	11.15456	0.1911298	0.17739490	3.1369574	20	6 5.3	21.6
509072	2005	TJ ₁₉₆	17.0	X	201.61665	173.46653	210.71637	16.40946	0.1466587	0.17254978	3.1954089	20	4 26.3	22.1
509073	2005	UM ₅	20.6	X	70.78112	170.60347	84.88984	3.22398	0.5524004	0.73956923	1.2110168	20	12 22.3	21.9
509074	2005	UR ₁₁	18.0	X	221.39737	308.83210	111.61317	4.06338	0.0714371	0.24663895	2.5182274	20	7 6.9	21.5
509075	2005	UC ₁₅	16.1	X	200.37537	11.09228	41.34794	17.21920	0.2059106	0.17409955	3.1764178	20	5 24.0	21.5
509076	2005	UP ₁₉	16.1	X	299.22059	300.36399	44.60541	16.36915	0.2720815	0.18323258	3.0699709	20	6 1.9	20.1
509077	2005	UN ₂₁	18.5	X	336.98506	199.13574	230.38411	6.12746	0.0867708	0.27132077	2.3630923	20	—	—
509078	2005	US ₃₇	16.4	X	184.96108	42.27873	56.08816	17.09702	0.1754545	0.17475492	3.1684713	20	7 9.3	21.9
509079	2005	US ₄₄	18.6	X	268.01863	272.13862	122.28594	2.12390	0.2609003	0.25195472	2.4826818	20	7 2.9	21.8
509080	2005	UB ₆₂	17.9	X	279.72371	193.89890	209.44638	1.78933	0.2048826	0.25438968	2.4668139	20	8 10.2	20.5
509081	2005	UA ₆₃	17.3	X	156.79365	19.17668	81.92508	2.08940	0.1885852	0.17014792	3.2254102	20	6 18.1	22.7
509082	2005	UY ₉₉	17.9	X	327.88538	210.03028	145.06885	3.88959	0.1718633	0.25754307	2.4466366	20	9 9.7	19.7
509083	2005	UZ ₁₃₂	17.9	X	332.87766	281.67913	24.60384	2.19959	0.2088026	0.25403301	2.4691224	20	6 26.5	19.8
509084	2005	UF ₁₅₁	16.4	X	97.44275	141.05309	45.22498	10.91672	0.1424455	0.17678045	3.1442222	20	8 5.3	21.3
509085	2005	UF ₁₆₁	17.2	X	248.52812	314.44396	107.75547	6.79101	0.2426815	0.25196982	2.4825826	20	7 20.9	20.6
509086	2005	UM ₁₆₁	17.8	X	281.42673	110.09795	275.05691	6.71064	0.2981328	0.25534598	2.4606511	20	7 1.8	20.6
509087	2005	UQ ₁₈₅	16.7	X	183.77312	3.25690	62.91638	7.13768	0.0956649	0.17106129	3.2139187	20	5 30.3	21.8
509088	2005	UY ₁₉₇	18.5	X	266.04452	246.88733	185.01579	2.41865	0.1396941	0.25894952	2.4377695	20	9 11.4	21.3
509089	2005	UP ₁₉₈	16.6	X	196.29459	198.42750	228.36293	15.01165	0.1876979	0.17501571	3.1653229	20	6 9.8	22.0
509090	2005	UW ₂₃₉	16.3	X	206.47799	7.51847	76.72367	12.68154	0.0301513	0.17942428	3.1132589	20	7 21.7	20.9
509091	2005	UA ₂₅₈	16.5	X	193.12267	220.66008	74.62616	15.12907	0.1350183	0.17562260	3.1580266	20	6 18.3	21.8
509092	2005	UB ₃₂₆	16.9	X	295.69331	264.39934	63.56040	3.04412	0.1077698	0.18073272	3.0982148	20	6 2.8	20.9
509093	2005	UY ₃₅₁	15.6	X	213.08088	215.76078	250.73510	13.46245	0.0329797	0.18713618	3.0271287	20	8 19.6	20.2
509094	2005	UX ₃₇₁	16.3	X	181.23717	10.19019	53.67442	17.51969	0.1074553	0.16986414	3.2290014	20	5 23.8	21.3
509095	2005	UU ₄₀₆	16.6	X	166.38412	271.06118	192.95419	14.48859	0.1829137	0.17690462	3.1427508	20	6 28.6	22.1
509096	2005	US ₄₁₉	17.2	X	241.33828	307.18243	46.70694	14.40297	0.3118835	0.17615232	3.1516922	20	4 17.3	22.7
509097	2005	UN ₄₂₂	16.8	X	244.16934	341.86074	42.98315	9.66664	0.0865811	0.17704491	3.1410903	20	6 12.6	21.5
509098	2005	UE ₄₄₃	17.5	X	263.08876	114.20411	236.46798	11.76441	0.2326927	0.24685352	2.5167679	20	5 2.9	21.2
509099	2005	UF ₄₆₃	17.6	X	118.53036	124.76731	113.95320	3.24547	0.1609619	0.26403165	2.4063865	20	11 7.9	21.3
509100	2005	UR ₄₇₆	17.9	X	315.12704	332.06433	40.37924	7.83587	0.1230636	0.25604307	2.4561828	20	9 15.8	20.4
509101	2005	UZ ₅₂₀	17.1	X	0.74430	102.51497	187.39440	8.29117	0.0895697	0.18893184	3.0079177	20	7 24.4	20.9
509102	2005	VB ₇	19.6	X	340.38426	212.41351	241.45780	32.57231	0.3478922	0.40748435	1.8018920	20	—	—
509103	2005	VE ₉₇	16.4	X	295.18390	273.78847	47.37074	9.86711	0.0844455	0.17576048	3.1563748	20	5 26.7	20.7
509104	2005	VF ₁₀₃	17.2	X	158.87785	86.31820	19.66650	13.23944	0.2573864	0.17177403	3.2050223	20	6 27.7	23.0
509105	2005	VZ ₁₁₁	18.1	X	262.08142	105.90090	305.13878	2.39270	0.2275247	0.25087094	2.4898268	20	7 23.5	21.3
509106	2005	VP ₁₂₆	17.1	X	60.42892	80.36281	153.49245	2.13894	0.0869939	0.18911740	3.0059498	20	8 9.7	21.0
509107	2005	VY ₁₃₀	16.4	X	122.85030	350.48730	185.73027	18.80632	0.1920524	0.18430797	3.0580175	20	8 15.9	21.7
509108	2005	VO ₁₃₇	17.9	X	176.05400	71.71230	115.33698	2.69337	0.1182336	0.26211393	2.4181096	20	10 30.1	21.3
509109	2005	WZ ₂₀	16.4	X	229.88587	130.64777	265.89638	8.20514	0.0822051	0.17401672</				

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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>
509121 2005 XE ₄	17.5	X	274.28078	172.15347	244.64921	7.51554	0.1632900	0.25393663	2.4697471	20	8 24.9	20.6
509122 2005 XS ₉₀	16.1	X	143.52982	258.95364	281.10633	12.35938	0.1552018	0.17643128	3.1483692	20	9 2.5	21.4
509123 2005 YH ₇₁	17.6	X	2.95376	10.04168	305.32505	7.54805	0.0563664	0.24800695	2.5089585	20	9 5.9	20.7
509124 2005 YM ₁₁₀	18.3	X	237.75599	196.87266	241.45487	3.05630	0.1484910	0.24592945	2.5230684	20	8 9.3	21.8
509125 2005 YM ₁₅₉	17.4	X	222.91856	305.65965	107.69458	28.25627	0.2050375	0.24079154	2.5588328	20	6 19.9	21.8
509126 2005 YH ₁₆₀	16.9	X	162.91337	235.96364	236.18282	4.41662	0.0918179	0.16877590	3.2428667	20	7 4.1	21.9
509127 2005 YQ ₁₆₈	17.3	X	240.19670	104.25363	273.60309	10.46718	0.1718462	0.23744639	2.5828093	20	5 20.9	21.4
509128 2005 YB ₂₂₁	16.2	X	200.41865	306.13738	117.68404	17.59332	0.2157419	0.17339964	3.1849596	20	6 11.6	21.8
509129 2005 YA ₂₂₂	16.5	X	150.18998	186.04697	293.30605	4.89218	0.0992564	0.16935310	3.2354941	20	6 30.8	21.3
509130 2005 YM ₂₆₄	17.6	X	115.33247	195.50588	338.68405	3.53569	0.1168079	0.23604130	2.5930490	20	8 7.7	21.5
509131 2005 YB ₂₆₉	17.5	X	169.06506	36.87999	130.96004	14.34096	0.1177626	0.24269385	2.5454439	20	9 29.6	21.6
509132 2005 YF ₂₇₉	17.4	X	248.02831	123.12971	277.41228	10.63880	0.1534033	0.24186780	2.5512362	20	7 1.8	20.8
509133 2006 AK ₁₅	18.4	X	237.47481	315.21374	126.29560	7.44626	0.1973545	0.24546821	2.5262280	20	8 8.8	22.2
509134 2006 AN ₂₂	17.0	X	237.55269	340.49470	70.37586	8.82951	0.2694941	0.24250077	2.5467949	20	6 21.5	21.1
509135 2006 AB ₃₅	16.2	X	117.12268	60.01665	115.27387	16.03925	0.0613235	0.16882570	3.2422290	20	7 31.7	20.9
509136 2006 AH ₄₇	17.9	X	190.97987	88.86629	9.94040	3.72134	0.1610571	0.23970282	2.5665750	20	7 18.7	22.1
509137 2006 AQ ₇₃	17.1	X	241.56309	145.46643	267.14988	2.68685	0.1861361	0.24166631	2.5526542	20	7 6.5	20.9
509138 2006 AU ₇₅	17.3	X	83.84493	96.02954	113.32169	4.74968	0.1186702	0.23526319	2.5987633	20	8 18.1	20.9
509139 2006 AR ₇₆	17.7	X	162.59783	55.11951	128.48419	5.63318	0.1115436	0.24593345	2.5230410	20	10 11.2	21.5
509140 2006 AW ₇₇	13.7	X	338.24313	124.60141	129.08466	26.56116	0.2117288	0.08340862	5.1879458	20	5 5.9	20.0
509141 2006 BF ₃₅	18.5	X	230.49808	146.38350	308.54042	12.99155	0.2725233	0.24680668	2.5170863	20	8 9.5	22.4
509142 2006 BH ₇₁	17.8	X	208.76126	81.80923	23.53505	4.22583	0.2062268	0.24220710	2.5488531	20	8 11.0	21.8
509143 2006 BY ₁₀₁	17.9	X	237.17324	129.14279	297.34870	2.88196	0.2315925	0.24149814	2.5538390	20	7 15.3	21.8
509144 2006 BF ₁₀₂	13.8	X	304.24104	329.55298	322.46961	17.37965	0.1312411	0.08380980	5.1713769	20	4 21.9	20.6
509145 2006 BY ₁₀₇	17.9	X	232.68929	71.30433	330.20583	5.30583	0.1388562	0.23608793	2.5927075	20	6 17.2	21.8
509146 2006 BD ₁₁₀	17.4	X	264.40126	304.81330	89.90524	3.47731	0.1803588	0.24104651	2.5570280	20	7 10.6	20.6
509147 2006 BF ₁₁₆	18.3	X	203.28053	326.79386	150.91374	5.80212	0.1381286	0.24119871	2.5559522	20	8 25.1	22.2
509148 2006 BR ₁₁₇	18.4	X	213.91542	83.53312	346.26658	3.78558	0.2251329	0.23926929	2.5696742	20	6 28.6	22.7
509149 2006 BT ₁₂₆	17.7	X	81.61299	337.88927	279.97936	1.84652	0.1718570	0.23878784	2.5731271	20	10 22.5	21.5
509150 2006 BB ₂₀₈	17.2	X	221.52438	227.95026	224.75877	4.23149	0.2766977	0.24275945	2.5449853	20	7 28.9	21.6
509151 2006 BX ₂₄₇	17.7	X	197.82035	320.20185	134.92731	4.76503	0.0781817	0.23545803	2.5973295	20	7 23.9	21.4
509152 2006 BZ ₂₅₁	17.3	X	110.71373	257.81394	325.74435	8.93861	0.1219392	0.23985869	2.5654629	20	10 1.8	21.3
509153 2006 BJ ₂₇₄	18.0	X	206.74868	96.67959	350.59189	3.30135	0.1490124	0.23847283	2.5753926	20	7 19.7	22.1
509154 2006 CK ₁₈	18.3	X	227.58178	278.43408	147.27591	4.86235	0.2811994	0.24119432	2.5559832	20	6 30.7	22.5
509155 2006 CU ₄₆	17.8	X	262.42323	296.61888	112.42419	4.19806	0.1216903	0.24223018	2.5486911	20	8 6.6	21.1
509156 2006 DA ₁₄	17.1	X	113.26452	71.81605	89.08314	4.50512	0.1457718	0.22846225	2.6500847	20	7 21.1	21.0
509157 2006 DG ₃₉	17.1	X	92.89783	185.64825	357.78662	13.63609	0.1830129	0.22627027	2.6671722	20	8 5.9	21.2
509158 2006 DA ₄₃	17.3	X	23.51831	319.70560	342.21251	8.25445	0.0884263	0.23841497	2.5758093	20	9 22.7	20.4
509159 2006 DO ₅₃	17.9	X	226.53012	99.73074	316.63568	3.21187	0.1895318	0.23615049	2.5922496	20	6 25.5	22.0
509160 2006 DO ₉₃	17.8	X	139.43946	352.40326	168.27836	1.52971	0.1344409	0.23198689	2.6231739	20	8 15.5	21.9
509161 2006 DP ₉₉	17.6	X	239.68131	242.40213	171.67795	3.54417	0.2820762	0.23966329	2.5668572	20	6 26.4	21.8
509162 2006 DS ₉₉	17.5	X	221.59025	332.99147	93.04912	2.94790	0.1078841	0.23352140	2.6116697	20	7 10.4	21.1
509163 2006 DK ₁₁₉	18.1	X	154.85705	45.56741	158.52389	1.36972	0.1692512	0.24387416	2.5372243	20	10 25.6	22.2
509164 2006 DC ₁₅₅	17.6	X	197.01526	240.82938	274.72333	2.21837	0.1213762	0.24250001	2.5468002	20	10 6.5	21.5
509165 2006 EV ₆	17.9	X	187.41895	157.30778	337.68913	2.82667	0.1537496	0.23916618	2.5704128	20	8 30.1	21.7
509166 2006 EQ ₃₉	18.2	X	219.29829	122.24238	352.43052	5.16264	0.1840207	0.24153136	2.5536049	20	9 3.1	22.0
509167 2006 EB ₅₆	17.9	X	179.71682	277.37326	208.75815	3.84820	0.1884647	0.23661629	2.5888464	20	8 8.7	22.3
509168 2006 FJ ₁₈	17.1	X	113.71613	202.82621	24.96016	14.77177	0.2041960	0.23398711	2.6082032	20	10 18.1	21.2
509169 2006 FU ₂₃	18.0	X	160.44944	183.16657	9.30054	6.13006	0.2173411	0.24027447	2.5625025	20	10 13.7	22.4
509170 2006 GV ₃	17.4	X	192.56676	340.92722	156.64033	3.30309	0.1532341	0.24068973	2.5595543	20	9 7.8	21.5
509171 2006 GH ₅₅	17.7	X	113.89098	88.36550	138.63378	2.32046	0.1117248	0.23291222	2.6162216	20	10 12.8	21.6
509172 2006 HF ₂₈	17.6	X	172.68992	48.35163	127.33919	14.01539	0.1837748	0.23525732	2.5988066	20	10 10.3	22.1
509173 2006 HH ₄₅	17.7	X	176.14106	345.01420	197.00187	7.57619	0.1353299	0.24117189	2.5561417	20	10 18.9	21.5
509174 2006 HA ₇₀	17.4	X	205.48453	4.83453	137.09898	14.61586	0.1803765	0.23526723	2.5987336	20	9 27.4	21.6
509175 2006 HF ₇₁	17.5	X	195.07223	62.99685	96.78800	5.62819	0.2042063	0.23904592	2.5712748	20	10 7.1	21.7
509176 2006 HA ₇₂	17.6	X	184.95509	86.70931	93.53298	6.74472	0.2185396	0.24012722	2.5635500	20	10 22.6	21.9
509177 2006 HA ₇₈	17.0	X	358.29799	263.13172	51.92812	5.79597	0.1275263	0.22918650	2.6444987	20	9 6.9	19.9
509178 2006 HQ ₈₃	17.6	X	171.28932	146.43557	61.71632	13.42618	0.2004729	0.24069900	2.5594886	20	11 12.9	21.8
509179 2006 HL ₁₅₂	16.6	X	90.59195	130.89597	114.09073	32.39144	0.2492580	0.23059050	2.6337534	20	11 5.9	21.7
509180 2006 HK ₁₅₃	18.5	X	54.88128	111.02126	167.47866	3.27316	0.1503088	0.29809990	2.2193621	20	10 28.5	21.2
509181 2006 JN ₄₇	17.0	X	58.80389	170.37834	78.85811	10.46096	0.1110755	0.22444324	2.6816269	20	9 10.8	20.8
509182 2006 JS ₅₂	17.2	X	122.25291	333.99353	211.82218	15.49749	0.2002131	0.23070554	2.6328778	20	8 29.7	21.8
509183 2006 JV ₅₃	17.4	X	134.10104	342.47685	233.81495	3.37739	0.1930242	0.23408056	2.6075090	20	10 20.3	21.7
509184 2006 KD ₂₆	16.8	X	24.29355	195.64731	93.82427	14.83597	0.1701855	0.22507616	2.6765974	20	9 27.1	20.2
509185 2006 KO ₄₆	17.0	X	234.94874	2.21152	80.14940	7.52201	0.1225167	0.22730883	2.6590419	20	8 17.3	20.9
509186 2006 KO ₄₉	17.3	X	298.63516	124.27373	203.26250	3.34972	0.0956842	0.21463842	2.7626832	20	6 8.9	20.9
509187 2006 KL ₅₄	17.7	X	123.77558	74.91609	131.37567	2.71081	0.1599457	0.23013366	2.6372378	20	9 29.2	21.8
509188 2006 KS ₅₈	17.5	X	214.27332	58.87259	80.24565	12.51730	0.1372589	0.23643769	2.5901500	20	10 9.8	21.5
509189 2006 KQ ₇₀	17.2	X	89.69549	33.88592	216.87369	12.02220	0.1516868	0.23004778	2.6378941	20	10 18.6	21.1
509190 2006 KY ₁₁₂	17.1	X	25.71832	158.53695	175.33826	16.96779	0.1942826	0.22270169	2.6955892	20	10 4.0	20.5
509191 2006 OC ₅	19.2	X	241.72808	245.74442	149.15008	4.74486	0.6520743	0.26502350	2.4003788	20	5 13.4	24.4
509192 2006 OD ₇	19.3	X	335.22335	197.29346	127.67365	30.33291	0.1663673	0.63906960	1.3348648	20	12 25.1	20.4
509193 2006 OX ₁₉	17.4	X	337.80105	159.55364</								

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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>
509201 2006 RA ₉₉	16.3	X	174.99371	21.85295	16.27097	14.97114	0.2357350	0.18188598	3.0851046	20	4 18.0	21.7
509202 2006 RN ₁₀₁	17.5	X	359.44733	70.71665	273.40652	8.27704	0.1971354	0.28650717	2.2788324	20	11 10.6	19.6
509203 2006 RM ₁₀₄	17.0	X	161.98098	347.89467	97.35041	6.43268	0.1212947	0.18756458	3.0225176	20	6 2.2	21.7
509204 2006 SF ₁₃	15.7	X	204.01050	174.26455	248.86223	10.85754	0.0261191	0.19708144	2.9244143	20	6 20.7	19.8
509205 2006 SY ₂₀	17.8	X	300.16047	133.86794	243.76618	3.51250	0.1531748	0.27913513	2.3187809	20	8 19.3	19.8
509206 2006 SR ₃₂	18.2	X	337.15520	159.26222	196.42876	1.53987	0.2249865	0.28248975	2.3003871	20	10 13.8	19.4
509207 2006 SY ₄₇	16.3	X	171.23888	355.89192	13.90500	9.46704	0.1113845	0.17899744	3.1182063	20	3 13.6	21.1
509208 2006 SC ₅₀	17.7	X	305.71524	344.22734	10.71809	2.44449	0.2301440	0.27443655	2.3451722	20	7 13.1	19.6
509209 2006 SH ₈₀	18.2	X	358.15755	103.59799	216.43121	3.70591	0.1918592	0.28161141	2.3051678	20	9 29.0	19.8
509210 2006 ST ₁₂₆	16.5	X	194.31560	296.72626	72.10921	8.52345	0.2862848	0.18314503	3.0709491	20	4 4.1	22.1
509211 2006 SZ ₁₄₀	18.4	X	260.08584	130.66063	271.33888	3.43434	0.2888174	0.27147506	2.3621969	20	6 30.9	21.5
509212 2006 SA ₁₄₁	17.9	X	354.16627	306.08945	28.38204	2.57925	0.2221551	0.28420950	2.2910980	20	10 20.9	19.4
509213 2006 SK ₁₆₀	18.6	X	302.20537	358.66061	41.82796	5.65072	0.1820369	0.27980042	2.3151038	20	10 1.4	20.3
509214 2006 SK ₁₈₆	16.9	X	239.66052	12.25212	20.21726	14.96233	0.1510082	0.19305733	2.9649123	20	6 8.6	21.7
509215 2006 SK ₂₀₂	17.0	X	243.41100	61.09657	318.97737	1.10782	0.1097937	0.19461774	2.9490429	20	6 3.9	21.3
509216 2006 SR ₂₂₄	18.1	X	29.46547	171.40947	156.13537	8.40885	0.2119556	0.29306091	2.2447300	20	12 10.4	21.0
509217 2006 SY ₂₃₁	18.6	X	279.88629	202.20807	234.45598	3.12713	0.1945461	0.28238701	2.3009450	20	10 6.9	20.8
509218 2006 SW ₂₄₁	16.8	X	336.39553	295.98339	27.47492	2.73459	0.1098020	0.20540661	2.8448526	20	8 3.4	20.0
509219 2006 SZ ₂₅₀	17.7	X	213.19861	16.36201	28.30569	1.59012	0.2109355	0.19058380	2.9905110	20	5 27.6	22.7
509220 2006 SY ₂₆₂	18.2	X	352.86798	158.87565	185.38369	3.94721	0.2581159	0.28230675	2.3013811	20	11 10.0	19.7
509221 2006 SM ₂₇₂	17.7	X	338.10409	347.16511	29.60996	7.02345	0.1486536	0.28525652	2.2854883	20	11 11.9	19.6
509222 2006 SY ₂₉₆	18.8	X	301.85498	82.04131	309.52838	1.12847	0.2137330	0.27998971	2.3140603	20	9 7.8	20.6
509223 2006 SC ₃₁₅	18.6	X	293.06485	223.62407	174.14985	5.67890	0.1879647	0.27802520	2.3249482	20	9 1.9	20.6
509224 2006 SV ₃₂₉	17.6	X	190.80081	0.51618	63.66353	3.26888	0.2413802	0.18758231	3.0223271	20	6 1.4	22.7
509225 2006 SM ₃₃₁	18.4	X	95.46218	121.09173	189.33549	22.75765	0.0449198	0.36866135	1.9262721	20	—	—
509226 2006 SF ₃₄₄	18.7	X	291.66880	103.17682	260.57698	2.05891	0.1357152	0.27223399	2.3578046	20	7 16.0	21.2
509227 2006 SK ₃₇₄	16.9	X	215.18533	17.35293	56.10731	11.37936	0.1416365	0.19525764	2.9425964	20	7 9.2	21.7
509228 2006 ST ₃₉₈	18.5	X	294.48699	200.83066	211.64338	4.12209	0.1840901	0.28123087	2.3072468	20	9 30.3	20.2
509229 2006 SR ₄₀₄	18.2	X	281.42499	85.71469	307.90407	4.37889	0.2411780	0.27423101	2.3463440	20	7 25.8	20.7
509230 2006 SB ₄₀₆	17.4	X	311.94694	316.84261	42.13206	7.77557	0.1424829	0.27735190	2.3287094	20	8 21.3	19.6
509231 2006 ST ₄₁₂	17.6	X	150.75387	195.69065	52.15427	9.00137	0.0616801	0.29004898	2.2602431	20	12 27.7	20.6
509232 2006 TS ₂₉	17.3	X	197.64299	255.73352	172.56887	1.50216	0.1557912	0.18896087	3.0076096	20	6 14.4	22.1
509233 2006 TK ₃₈	17.0	X	227.30376	280.89144	48.25294	2.25266	0.2478381	0.18178094	3.0862930	20	3 10.9	22.4
509234 2006 TW ₄₁	19.2	X	295.73648	11.51107	40.16305	2.07014	0.1761046	0.27840312	2.3228437	20	10 3.9	21.0
509235 2006 TG ₄₄	18.6	X	316.00766	337.96842	42.62639	3.52333	0.2245905	0.27827320	2.3235666	20	9 27.0	19.9
509236 2006 TB ₄₅	18.7	X	263.12435	243.47972	155.43821	1.47035	0.1798285	0.26963228	2.3729475	20	7 16.2	21.7
509237 2006 TE ₅₄	18.5	X	28.41461	358.34906	41.57271	21.40558	0.0713864	0.36765816	1.9297746	20	—	—
509238 2006 TV ₅₈	18.6	X	330.02654	12.74810	2.43711	4.78876	0.2077065	0.28109065	2.3080140	20	10 25.1	20.1
509239 2006 TX ₇₈	17.8	X	327.93899	326.00032	38.58176	6.36229	0.2445337	0.27861927	2.3216422	20	10 4.5	18.8
509240 2006 TE ₇₉	18.3	X	118.55929	114.96312	215.28951	21.06378	0.0303362	0.37163549	1.9159813	20	—	—
509241 2006 TX ₈₁	18.2	X	284.07591	52.68679	1.93382	5.21767	0.1578902	0.27706003	2.3303445	20	9 17.2	20.5
509242 2006 TR ₁₀₀	18.6	X	287.13417	56.20966	348.46173	2.42603	0.1681239	0.27642182	2.3339300	20	9 5.2	20.8
509243 2006 TV ₁₀₄	18.4	X	264.81394	49.03646	45.61162	11.37509	0.1627492	0.27930827	2.3178226	20	10 16.4	20.9
509244 2006 TV ₁₀₅	18.3	X	302.67747	343.37044	36.30125	5.60972	0.2088531	0.27649913	2.3334950	20	8 24.3	20.2
509245 2006 TJ ₁₂₆	18.3	X	278.65647	260.91530	159.09801	4.45062	0.2023407	0.27549271	2.3391746	20	9 7.1	20.7
509246 2006 TX ₁₂₆	16.5	X	259.25208	68.17667	261.09488	4.89067	0.0199792	0.18271136	3.0758065	20	4 29.9	20.9
509247 2006 US ₅	17.2	X	183.98752	337.53184	69.77308	4.27511	0.3005301	0.18319174	3.0704271	20	5 8.1	22.8
509248 2006 US ₈	18.8	X	247.91313	217.48822	208.52928	0.80462	0.1701063	0.27108669	2.3644525	20	8 5.0	21.9
509249 2006 UX ₁₄	16.3	X	186.08541	180.00872	211.46676	11.42392	0.1129734	0.18011198	3.1053292	20	4 20.3	21.3
509250 2006 UJ ₃₀	17.2	X	186.21533	27.55704	14.48528	3.05687	0.2880462	0.18362440	3.0656021	20	5 2.3	22.7
509251 2006 UC ₃₃	18.0	X	65.02431	77.43586	198.27227	4.37430	0.1694641	0.28242923	2.3007157	20	11 4.9	21.2
509252 2006 UT ₃₄	18.7	X	282.94714	246.18027	169.45301	1.37030	0.1570667	0.27748649	2.3279563	20	9 16.4	21.0
509253 2006 UF ₄₀	17.3	X	213.79056	256.46470	89.46703	0.15155	0.2003347	0.18100325	3.0951269	20	3 20.7	22.6
509254 2006 UZ ₅₄	17.9	X	291.40761	37.87281	356.51151	6.29627	0.2415518	0.27649546	2.3335156	20	8 16.7	20.0
509255 2006 UW ₆₁	17.8	X	328.44883	45.97433	299.03309	5.26794	0.2565901	0.27825191	2.3236852	20	8 22.1	18.8
509256 2006 UF ₆₂	16.3	X	158.42215	151.07490	233.40000	9.01943	0.0944931	0.17209449	3.2010423	20	3 12.3	21.3
509257 2006 UE ₈₂	18.5	X	261.33275	85.98429	359.54030	4.95277	0.1977006	0.27677955	2.3319186	20	9 17.6	21.2
509258 2006 UP ₈₈	16.7	X	267.87378	334.69049	22.59637	4.79394	0.1653314	0.19154929	2.9804535	20	5 26.2	21.0
509259 2006 UC ₁₀₄	16.8	X	195.77403	219.17523	211.90222	9.22203	0.2366729	0.18698207	3.0287917	20	6 13.6	22.1
509260 2006 UF ₁₂₂	18.3	X	265.30857	255.51130	192.83327	5.40816	0.1039477	0.28042364	2.3116725	20	10 14.9	20.8
509261 2006 UZ ₁₄₀	17.4	X	194.41944	67.65803	354.88905	2.98701	0.2273464	0.18562692	3.0435148	20	6 2.1	22.6
509262 2006 UM ₁₄₂	17.0	X	219.59950	33.80190	14.66676	7.76090	0.0867838	0.18945605	3.0023667	20	6 15.2	21.6
509263 2006 UP ₁₅₆	16.9	X	340.42997	182.33941	125.18653	3.11806	0.0725452	0.19921242	2.9035219	20	7 18.4	20.5
509264 2006 UM ₁₅₉	18.5	X	300.77474	327.27165	55.42388	4.30376	0.2444507	0.27693076	2.3310696	20	8 17.7	20.4
509265 2006 US ₁₇₆	17.1	X	196.48761	303.11423	87.40580	5.91003	0.2575844	0.18509931	3.0492956	20	4 28.8	22.5
509266 2006 UO ₁₇₉	16.0	X	170.03481	179.49841	194.96511	17.16369	0.2042374	0.17609355	3.1523935	20	3 17.9	21.4
509267 2006 UD ₁₉₅	17.3	X	296.77791	142.31230	211.19160	1.39058	0.0895359	0.19748639	2.9204152	20	7 11.5	20.9
509268 2006 UE ₂₁₁	16.7	X	233.30915	46.53792	289.10710	4.43850	0.1475366	0.18086360	3.0967199	20	3 25.8	21.7
509269 2006 UL ₂₁₂	18.6	X	287.52045	89.14572	339.97887	2.73287	0.1626691	0.27853931	2.3220865	20	10 14.5	20.7
509270 2006 UP ₂₂₅	17.8	X	328.05211	102.20232	12.50308	20.99317	0.0540571	0.37584181	1.9016591	20	—	—
509271 2006 UD ₂₃₀	17.1	X	190.65559	336.48777	68.34928	2.69750	0.3500742	0.18536807	3.0463475	20	5 8.9	22.9
509272 2006 UD ₂₃₉	18.4	X	271.62736	58.29277	347.83621	2.23360	0.1658863	0.27341658	2.3510010	20	8 11.7	20.9
509273 2006 UX ₂₄₃	18.6	X	325.83557	154.21821	179.58737	1.25596	0.2087157					

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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>
509281 2006 VK ₁₀	16.7	X	229.13232	174.50346	227.92752	9.54173	0.1030397	0.18985271	2.9981833	20	6 16.9	21.3
509282 2006 VX ₁₃	17.1	X	104.35499	276.09395	74.64790	23.64392	0.1135108	0.37268311	1.9123890	20	—	—
509283 2006 VN ₁₈	18.3	X	248.85954	84.90689	28.91411	5.92926	0.1604228	0.27860340	2.3217303	20	10 16.4	21.0
509284 2006 VW ₂₁	18.4	X	53.74732	277.18758	45.13560	21.76641	0.1104061	0.36122321	1.9526255	20	—	—
509285 2006 VE ₃₂	18.6	X	294.16657	196.67744	204.91328	1.61086	0.2265843	0.27759233	2.3273645	20	9 3.7	20.4
509286 2006 VD ₃₃	18.4	X	261.92604	3.22720	72.88070	2.60548	0.1434726	0.27513387	2.3412081	20	9 15.1	21.1
509287 2006 VE ₄₈	16.3	X	111.66557	254.31764	222.46993	9.97382	0.1182004	0.17787535	3.1313062	20	5 19.7	21.0
509288 2006 VA ₅₀	17.1	X	214.23437	356.48975	21.25670	1.82667	0.2756955	0.18328818	3.0693500	20	4 23.9	22.5
509289 2006 VO ₅₄	18.9	X	262.21313	2.51689	75.58757	2.61731	0.1554874	0.27460707	2.3442013	20	9 16.4	21.6
509290 2006 VV ₅₈	18.6	X	262.49525	9.81262	87.53270	3.27448	0.1711497	0.27747416	2.3280253	20	10 13.1	21.0
509291 2006 VK ₅₉	16.4	X	271.48684	285.86526	69.25258	10.86986	0.1064482	0.18955628	3.0013082	20	6 5.8	20.6
509292 2006 VO ₅₉	18.5	X	326.97791	247.93020	231.88925	21.49716	0.1216523	0.36754655	1.9301652	20	—	—
509293 2006 VJ ₆₈	16.7	X	273.07382	107.37517	247.49104	8.38560	0.1039690	0.18808411	3.0169491	20	6 8.2	21.0
509294 2006 VO ₆₈	16.8	X	203.12782	196.59353	243.86905	8.73748	0.2600495	0.18703230	3.0282494	20	6 28.9	22.2
509295 2006 VL ₉₈	18.4	X	299.50038	313.22225	44.88365	2.02064	0.1877784	0.26937250	2.3744729	20	7 12.8	20.6
509296 2006 VQ ₁₀₅	16.5	X	223.82070	152.70222	243.56171	8.09400	0.0980531	0.18752319	3.0229623	20	6 4.1	21.0
509297 2006 VJ ₁₀₈	18.5	X	302.71797	232.20099	239.91914	21.51047	0.1031186	0.36188611	1.9502402	20	—	—
509298 2006 VQ ₁₁₆	18.4	X	292.37388	11.40140	27.86565	2.06851	0.1666157	0.27495588	2.3422183	20	9 7.6	20.6
509299 2006 VX ₁₁₇	17.0	X	202.10938	28.71198	34.04298	1.88652	0.1135018	0.18661640	3.0327470	20	6 13.3	21.7
509300 2006 VB ₁₁₉	17.1	X	202.16663	44.99258	31.83571	10.68485	0.0887802	0.19081528	2.9880919	20	7 3.2	21.8
509301 2006 VH ₁₂₇	16.4	X	230.79791	96.47308	257.04164	13.29659	0.3351430	0.18599706	3.0394756	20	3 30.9	22.2
509302 2006 VQ ₁₃₈	16.9	X	181.96800	336.11584	71.19535	6.68027	0.1430366	0.18012376	3.1051938	20	5 6.9	21.9
509303 2006 VR ₁₄₃	18.4	X	331.38101	349.83402	26.30863	3.13613	0.1977564	0.28452088	2.2894261	20	10 31.7	19.7
509304 2006 VY ₁₄₈	16.4	X	209.82422	344.37674	65.97585	17.82123	0.1509833	0.18529889	3.0471056	20	6 2.9	21.2
509305 2006 VE ₁₅₃	17.7	X	292.64259	300.11440	60.50501	6.39363	0.2071045	0.27147944	2.3621715	20	6 30.4	20.1
509306 2006 VK ₁₅₅	18.0	X	296.64633	64.92872	353.83752	5.68869	0.2246788	0.27947466	2.3169025	20	10 8.9	19.4
509307 2006 VX ₁₆₇	17.0	X	173.95209	235.35499	196.12981	8.47819	0.2601130	0.18636554	3.0354679	20	5 29.6	22.5
509308 2006 VU ₁₇₃	17.2	X	209.59315	6.78337	69.91480	10.08151	0.0606056	0.18946660	3.0022552	20	7 13.3	21.7
509309 2006 WJ ₁	16.1	X	166.71320	324.92797	137.06049	30.59031	0.3370842	0.17479464	3.1679912	20	7 2.2	22.3
509310 2006 WD ₇	17.3	X	178.38995	280.45456	128.42617	4.02139	0.1734651	0.18020241	3.1042903	20	5 6.1	22.4
509311 2006 WK ₁₄	18.4	X	278.84847	299.82604	107.89672	3.24080	0.2133393	0.27218061	2.3581129	20	8 17.7	20.9
509312 2006 WP ₁₈	17.0	X	141.92947	136.86118	347.73062	4.45902	0.1408961	0.18673491	3.0314637	20	7 2.0	21.8
509313 2006 WU ₂₂	17.6	X	291.38916	302.53093	76.84053	12.08476	0.2721366	0.27155703	2.3617215	20	7 15.8	20.1
509314 2006 WG ₂₉	16.5	X	127.54700	42.45638	62.51998	16.59463	0.1758280	0.17685211	3.1433727	20	5 26.6	21.5
509315 2006 WO ₃₄	17.1	X	221.16503	336.53547	76.76364	11.60253	0.2130895	0.18890781	3.0081728	20	6 13.7	22.0
509316 2006 WL ₄₄	18.6	X	282.09618	275.48917	139.98013	4.00103	0.1691023	0.27473615	2.3434670	20	9 13.1	20.8
509317 2006 WO ₅₈	17.6	X	218.95056	47.63792	5.33969	3.21251	0.2170690	0.18828977	3.0147519	20	6 11.1	22.6
509318 2006 WZ ₇₆	16.7	X	123.58236	249.41778	241.14973	7.85396	0.1519572	0.18092716	3.0959497	20	6 21.3	21.5
509319 2006 WG ₉₇	18.6	X	265.53362	156.94975	244.56501	3.84582	0.2338608	0.26952267	2.3735908	20	7 14.0	21.6
509320 2006 WM ₉₇	18.8	X	278.17429	144.52753	254.94189	0.67103	0.1855665	0.27150990	2.3619948	20	8 7.8	21.5
509321 2006 WV ₁₀₄	16.5	X	15.62948	317.78047	240.25284	8.37273	0.0228916	0.17430199	3.1739578	20	4 13.9	20.9
509322 2006 WM ₁₀₆	19.0	X	286.98885	222.50801	208.38635	1.22429	0.1583289	0.27765332	2.3270237	20	10 17.8	21.2
509323 2006 WA ₁₁₂	18.0	X	300.37818	270.43316	133.61278	2.92584	0.1941797	0.27532535	2.3401224	20	9 29.3	19.6
509324 2006 WL ₁₃₃	16.8	X	167.18445	201.13399	243.85353	10.52881	0.1302937	0.18565620	3.0431947	20	6 6.5	21.7
509325 2006 WR ₁₃₇	17.8	X	242.83122	63.88306	82.45140	3.46222	0.1458722	0.28142417	2.3061902	20	11 25.4	20.4
509326 2006 WL ₁₃₈	18.7	X	247.31563	22.23232	33.34902	3.21914	0.2627751	0.26770157	2.3843432	20	7 13.8	22.1
509327 2006 WO ₁₆₂	16.8	X	196.75807	351.27958	76.34785	7.08604	0.1771793	0.18588190	3.0407309	20	6 11.8	21.7
509328 2006 WX ₁₆₇	17.0	X	238.81692	299.88894	69.80047	7.17733	0.1687376	0.18592119	3.0403025	20	5 12.3	21.7
509329 2006 WP ₁₈₀	17.1	X	151.95187	268.28052	217.38723	2.39481	0.1064273	0.18553106	3.0445630	20	7 10.7	21.7
509330 2006 WR ₁₈₇	18.1	X	347.83391	222.81988	238.07074	18.19190	0.0951773	0.36810826	1.9282012	20	—	—
509331 2006 WC ₁₉₂	18.8	X	274.47616	183.81314	237.65525	1.75550	0.1961385	0.27354133	2.3502862	20	9 1.5	21.2
509332 2006 WJ ₁₉₉	18.8	X	206.43264	206.21339	255.38263	5.54090	0.1724232	0.26532853	2.3985388	20	8 4.3	22.5
509333 2006 XV	17.3	X	221.24706	302.28913	86.02083	14.07440	0.2011555	0.18419695	3.0592462	20	5 18.4	22.5
509334 2006 XJ ₁₂	17.1	X	200.34938	331.47321	73.38077	8.56504	0.1724851	0.18188812	3.0850804	20	5 19.5	22.2
509335 2006 XR ₁₉	16.4	X	171.68330	177.64585	270.05265	10.83133	0.1934072	0.17950532	3.1123218	20	6 14.8	21.6
509336 2006 XE ₂₉	18.4	X	232.35468	13.56019	104.33989	2.96920	0.0993519	0.27376926	2.3489815	20	10 9.3	21.2
509337 2006 XC ₃₆	17.6	X	299.54796	273.13785	135.64073	11.50299	0.2588056	0.27722951	2.3293947	20	9 30.0	19.3
509338 2006 XV ₄₁	16.4	X	165.03889	328.84090	103.14872	10.18070	0.0599979	0.17418597	3.1753671	20	5 19.9	21.3
509339 2006 XU ₇₁	15.9	X	282.13949	247.22047	98.06708	22.79912	0.1224503	0.18178016	3.0863018	20	6 7.9	20.3
509340 2006 YO ₁₂	18.0	X	233.37603	341.27223	106.43226	8.48992	0.1846694	0.26462424	2.4027927	20	8 17.2	21.5
509341 2006 YT ₁₆	16.0	X	223.05646	281.28031	124.89929	14.71672	0.2256186	0.18269021	3.0760439	20	6 8.4	21.3
509342 2006 YS ₁₈	16.9	X	164.16974	303.94183	111.31784	18.75261	0.2295542	0.17307988	3.1888810	20	5 9.3	22.7
509343 2006 YC ₂₂	18.2	X	317.37331	6.76355	43.17539	2.11238	0.1020295	0.27708899	2.3301821	20	11 17.8	20.1
509344 2006 YB ₃₀	16.9	X	201.21495	311.84301	82.19693	6.03728	0.2842920	0.17840047	3.1251585	20	5 5.4	22.5
509345 2006 YF ₃₂	16.1	X	77.39369	267.66593	298.67873	23.83259	0.2255719	0.17766071	3.1338277	20	8 9.1	20.9
509346 2006 YM ₃₂	17.8	X	224.86859	57.29944	67.12078	4.81230	0.1750964	0.26889762	2.3772676	20	9 28.2	21.1
509347 2006 YE ₃₅	17.9	X	265.37196	10.91263	65.56275	4.86880	0.1668691	0.26952223	2.3735934	20	9 17.5	20.7
509348 2006 YH ₄₅	16.9	X	278.41359	152.33080	191.22512	1.81154	0.1120699	0.18601792	3.0392484	20	5 30.5	21.2
509349 2006 YK ₄₅	16.6	X	315.74105	247.46838	89.65424	10.69175	0.0523640	0.19059472	2.9903967	20	7 22.7	20.5
509350 2006 YG ₅₁	16.6	X	179.53635	91.66732	297.13701	24.61050	0.3224754	0.17358250	3.1827224	20	3 31.8	23.0
509351 2006 YV ₅₄	17.0	X	156.47509	16.17436	123.86200	12.48131	0.2099729	0.18297739	3.0728246	20	8 4.9	22.2
509352 2007 AG	20.1	X	134.65193	5.69470	283.23194	11.94627	0.3741378	1.61122576	0.7206070	20	—	—
509353 2007 AT ₂	19.6	X	7.77448	215.60532	294.10596	13.63901	0.3755117	0.44725925</				

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>
509361 2007 AR ₃₁	16.7	X	196.25740	282.35103	120.01879	17.42817	0.2780802	0.17801215	3.1297017	20	5 16.1	22.6
509362 2007 BZ ₄	16.9	X	210.90791	109.35673	306.56511	15.65907	0.3537862	0.18361917	3.0656603	20	6 1.6	22.8
509363 2007 BJ ₇	17.4	X	184.30986	179.87849	7.93487	2.56792	0.1420474	0.26610167	2.3938907	20	11 5.6	21.0
509364 2007 BS ₁₁	18.2	X	185.42440	141.93411	351.30038	5.55080	0.1518334	0.26007933	2.4307045	20	8 28.7	22.0
509365 2007 BO ₁₂	18.2	X	224.67671	44.92833	76.42497	2.44465	0.1202290	0.26663138	2.3907190	20	9 29.5	21.2
509366 2007 BV ₁₈	17.9	X	256.83806	33.77088	92.62684	5.56363	0.1848102	0.27531471	2.3401828	20	11 12.2	20.4
509367 2007 BU ₂₀	18.0	X	60.97152	80.71573	318.75442	17.72521	0.1100879	0.36612431	1.9351606	20	—	—
509368 2007 BY ₂₂	18.0	X	326.86480	261.00928	119.65442	2.94480	0.2099239	0.27244242	2.3566020	20	10 26.4	19.5
509369 2007 BR ₃₇	16.2	X	89.71675	281.41263	303.39899	10.64707	0.1581913	0.18399185	3.0615192	20	9 7.7	21.0
509370 2007 BM ₄₂	16.9	X	173.41015	174.10855	302.08895	11.28611	0.2613672	0.18107958	3.0942571	20	7 20.6	22.2
509371 2007 BX ₄₅	17.9	X	202.34473	180.94788	2.13364	1.47894	0.1227848	0.27141270	2.3625587	20	11 22.4	21.1
509372 2007 BB ₆₇	18.3	X	222.48275	157.89104	311.55723	0.58899	0.1643247	0.26222512	2.4174260	20	9 3.2	21.7
509373 2007 BE ₆₉	17.2	X	192.10789	31.34356	141.52891	9.23606	0.1940813	0.26536582	2.3983141	20	10 25.4	21.0
509374 2007 BF ₆₉	15.9	X	98.10461	226.68962	331.52311	15.86051	0.1754933	0.17584702	3.1553391	20	8 21.0	20.6
509375 2007 BN ₇₁	16.9	X	147.40343	280.13433	274.05576	2.17630	0.2229979	0.18528029	3.0473095	20	9 29.7	22.1
509376 2007 BA ₇₃	18.1	X	257.76359	222.47406	313.73742	17.60472	0.0585006	0.35696095	1.9681381	20	—	—
509377 2007 BU ₇₅	18.3	X	222.72490	241.92379	234.74838	0.52999	0.1322097	0.26406794	2.4061661	20	9 17.2	21.7
509378 2007 BC ₇₈	17.9	X	176.48864	235.03130	336.02335	1.95123	0.1620412	0.26891244	2.3771803	20	11 26.1	21.6
509379 2007 BF ₇₉	18.2	X	209.88571	225.03824	297.14217	1.59680	0.1365610	0.26857973	2.3791431	20	11 1.3	21.4
509380 2007 BR ₈₅	16.8	X	56.66844	181.48662	48.71162	1.18979	0.1348369	0.17788640	3.1311765	20	8 6.7	21.0
509381 2007 BY ₉₉	16.6	X	156.16646	41.05116	114.13044	17.60193	0.0652588	0.18573853	3.0422954	20	8 23.4	21.3
509382 2007 CO ₁	16.7	X	117.28904	200.47758	323.13346	9.46406	0.1614870	0.17574656	3.1565414	20	7 27.9	21.7
509383 2007 CH ₉	17.7	X	165.58590	255.22077	320.06677	1.90658	0.1742814	0.26788381	2.3832617	20	11 20.1	21.4
509384 2007 CL ₉	17.3	X	146.99687	165.32132	299.63746	7.91597	0.2140638	0.17537089	3.1610477	20	6 15.7	22.7
509385 2007 CM ₁₁	15.9	X	97.84364	250.25345	317.38293	22.25530	0.2508186	0.17782138	3.1319397	20	9 1.0	21.2
509386 2007 CP ₁₆	16.9	X	138.68995	154.31806	306.58225	7.24792	0.1566982	0.17371873	3.1810582	20	5 30.3	22.1
509387 2007 CT ₂₃	17.6	X	19.17246	282.81660	152.53897	23.16594	0.1127808	0.36327019	1.9452834	20	—	—
509388 2007 CD ₂₅	15.7	X	141.65032	321.03710	137.14751	20.29430	0.1130440	0.17044694	3.2216368	20	6 1.6	21.0
509389 2007 CR ₃₅	15.8	X	87.85396	266.10349	178.37312	14.45146	0.1504392	0.18133160	3.0913894	20	9 4.4	20.5
509390 2007 CT ₃₈	18.2	X	233.98686	198.13519	279.01173	1.30374	0.1670347	0.26759554	2.3849730	20	9 26.8	21.5
509391 2007 CH ₃₉	18.3	X	175.73129	8.66723	187.48503	1.09011	0.1292407	0.26791574	2.3830724	20	11 9.6	21.7
509392 2007 CA ₄₃	16.2	X	158.29649	157.56120	320.41020	17.19506	0.1773745	0.17628986	3.1500528	20	7 12.6	21.5
509393 2007 CP ₅₃	16.0	X	188.75684	106.13164	341.78322	15.76618	0.2412369	0.17901153	3.1180426	20	6 30.3	21.6
509394 2007 CV ₆₅	18.1	X	217.15701	109.75475	45.03147	6.33919	0.2786681	0.26804608	2.3822998	20	10 16.3	21.8
509395 2007 DH ₁₆	17.7	X	137.74591	153.70301	81.21489	3.67464	0.1802862	0.26412701	2.4058073	20	11 19.9	21.5
509396 2007 DH ₁₇	16.4	X	76.48846	88.17063	129.50715	11.37186	0.1066393	0.17646825	3.1479295	20	8 12.2	20.8
509397 2007 DX ₁₇	16.2	X	29.67704	124.79198	154.73311	9.57575	0.0613294	0.17873509	3.1212568	20	8 21.9	20.3
509398 2007 DX ₂₀	18.5	X	173.17969	154.70347	28.18762	1.67475	0.1394085	0.26247843	2.4158704	20	10 19.5	22.0
509399 2007 DW ₂₅	16.0	X	177.07846	310.57711	155.56940	18.92414	0.1677192	0.17623261	3.1507349	20	7 11.0	21.4
509400 2007 DG ₃₄	17.8	X	172.60360	191.03593	4.44560	2.42253	0.1451508	0.26320978	2.4113932	20	11 2.9	21.5
509401 2007 DG ₃₈	17.9	X	211.41735	39.58423	113.62403	2.10285	0.1339688	0.26373966	2.4081623	20	10 23.5	21.2
509402 2007 DB ₅₁	16.4	X	90.37156	70.72772	150.87308	16.47255	0.1574362	0.17656009	3.1468378	20	9 9.5	21.1
509403 2007 DN ₅₅	17.8	X	237.40783	323.50619	124.19893	4.53472	0.1729738	0.26020531	2.4299198	20	8 21.8	21.0
509404 2007 DB ₅₉	16.0	X	91.51149	231.20273	329.95109	15.29316	0.1704006	0.17537967	3.1609421	20	8 17.5	20.8
509405 2007 DG ₇₄	17.7	X	266.89186	316.40139	159.16021	6.62959	0.0621535	0.26970595	2.3725153	20	11 29.6	20.5
509406 2007 DG ₇₉	18.1	X	247.54199	92.76235	348.45730	9.42556	0.1866408	0.26249329	2.4157793	20	8 24.7	21.3
509407 2007 DL ₈₁	17.7	X	255.98720	286.49606	169.84796	5.02774	0.0721434	0.26470169	2.4023240	20	10 14.8	20.6
509408 2007 DU ₈₂	15.9	X	130.81884	197.44735	0.87649	21.03746	0.2079020	0.17972311	3.1098070	20	9 22.2	21.1
509409 2007 DY ₉₄	13.0	X	159.91922	265.78247	157.11131	28.18346	0.0178539	0.08565554	5.0968176	20	5 7.0	20.2
509410 2007 DS ₁₀₄	16.5	X	150.20193	355.52617	124.75372	6.06268	0.1014063	0.17469898	3.1691476	20	7 1.9	21.3
509411 2007 DF ₁₁₅	16.6	X	55.01168	66.60009	171.38809	7.52419	0.1326877	0.17150216	3.2084084	20	8 11.8	20.9
509412 2007 CD ₁₁₆	17.8	X	215.08299	46.75700	106.58861	3.35796	0.1356449	0.26551098	2.3974399	20	10 28.6	21.0
509413 2007 EO ₂	17.6	X	154.82150	234.90994	336.16975	1.81116	0.1589760	0.26257817	2.4152586	20	11 4.8	21.5
509414 2007 EF ₁₃	18.1	X	172.06483	44.66602	151.25163	2.88730	0.1338185	0.26665257	2.3905924	20	11 5.8	21.7
509415 2007 EE ₂₈	17.8	X	175.88968	349.90178	204.74960	2.27752	0.1404134	0.26452679	2.4033828	20	11 6.5	21.5
509416 2007 ED ₃₁	16.3	X	99.32999	269.62004	330.28915	13.04629	0.2152532	0.18224547	3.0810463	20	10 8.9	21.5
509417 2007 EG ₃₅	17.5	X	161.24115	89.20538	120.16248	5.25167	0.1673869	0.26178055	2.4201621	20	11 10.6	21.3
509418 2007 EN ₄₄	16.7	X	110.76954	28.91867	130.76911	1.91286	0.1135225	0.17314367	3.1880978	20	7 10.1	21.3
509419 2007 EY ₄₆	18.2	X	187.95591	357.74287	168.60365	1.54426	0.1271914	0.26025452	2.4296135	20	10 14.3	21.8
509420 2007 EQ ₄₇	18.2	X	262.49764	102.74367	8.95501	3.88699	0.1555899	0.26721194	2.3872550	20	10 31.3	20.7
509421 2007 ES ₄₈	17.6	X	160.75864	191.38138	34.51697	6.28390	0.1770801	0.26201765	2.4187019	20	11 27.3	21.4
509422 2007 EM ₅₀	17.0	X	172.72985	262.67978	197.46894	2.93878	0.0619752	0.17098317	3.2148975	20	6 29.6	21.9
509423 2007 ED ₅₁	18.4	X	175.81723	4.11700	189.95837	0.83640	0.1343893	0.26147362	2.4220557	20	11 5.6	22.1
509424 2007 EV ₅₆	17.7	X	97.85874	180.40776	163.11783	23.23401	0.0592950	0.35705901	1.9677778	20	—	—
509425 2007 EQ ₆₇	18.2	X	158.78214	80.85620	140.74800	2.16787	0.1309844	0.26376739	2.4079936	20	11 24.0	21.9
509426 2007 EB ₇₀	17.9	X	151.22325	106.55409	123.68139	3.26953	0.1385808	0.26282947	2.4137188	20	11 27.1	21.5
509427 2007 EP ₉₁	18.3	X	197.22994	29.41456	122.31314	2.96114	0.1418601	0.26372625	2.4082439	20	10 5.6	21.8
509428 2007 ES ₉₃	18.8	X	235.49194	257.80513	209.56828	0.94918	0.1384483	0.26186791	2.4196239	20	9 19.2	21.8
509429 2007 EE ₉₉	17.7	X	189.03765	144.74076	37.84993	3.15722	0.1233789	0.26407466	2.4061252	20	11 5.7	21.2
509430 2007 EB ₁₀₄	18.1	X	135.19964	209.02332	26.50886	1.57862	0.1428949	0.26162967	2.4210925	20	11 17.3	21.7
509431 2007 EQ ₁₁₂	17.9	X	170.86705	166.79771	22.70329	2.67352	0.1304221	0.25856356	2.4401949	20	10 25.2	21.6
509432 2007 ET ₁₂₇	18.2	X	7.08593	252.44306	170.64860	2.50878	0.1896962	0.28191162	2.3035310	20	—	—
509433 2007 EV ₁₅₀	18.1	X	157.44935	152.62324	33.63180	4.70206	0.1398506	0.25825761	2			

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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>
509441 2007 EQ ₂₁₉	17.8	X	154.39817	57.02756	154.19131	2.63662	0.1594901	0.26070980	2.4267841	20	11 5.9	21.7
509442 2007 EW ₂₂₅	17.9	X	168.19046	1.09634	187.41513	2.10741	0.1450459	0.25941048	2.4348808	20	10 21.3	21.5
509443 2007 FO ₂₄	16.6	X	115.93442	166.85459	346.75988	6.40280	0.2252708	0.17190932	3.2033404	20	7 19.8	21.9
509444 2007 GJ ₁₇	16.5	X	133.83727	321.60003	224.23996	13.57272	0.2244140	0.17460376	3.1702997	20	9 4.9	22.1
509445 2007 GJ ₄₈	18.0	X	166.09601	104.47998	89.14349	3.21367	0.1609737	0.25573893	2.4581298	20	10 25.4	21.9
509446 2007 GC ₅₄	17.8	X	172.60350	110.91126	118.06064	4.68075	0.1691807	0.26433772	2.4045286	20	12 13.9	21.5
509447 2007 GE ₇₄	17.4	X	136.92080	139.61814	74.90150	11.09411	0.2243257	0.25678057	2.4514777	20	10 28.1	21.7
509448 2007 GH ₇₆	18.0	X	171.56183	158.06233	44.90134	5.54113	0.1412787	0.26057407	2.4276268	20	11 11.5	21.6
509449 2007 HE ₆	17.7	X	164.68018	155.14169	56.28853	2.91460	0.1741702	0.26071014	2.4267820	20	11 14.1	21.6
509450 2007 HB ₁₄	17.9	X	165.91107	128.16979	62.67287	2.58842	0.1355815	0.25773602	2.4454154	20	10 22.5	21.6
509451 2007 HT ₃₁	18.0	X	175.09733	220.50929	311.41175	1.68368	0.1438735	0.25523852	2.4613417	20	10 5.4	21.8
509452 2007 HF ₄₂	18.2	X	207.33209	12.38918	139.32448	2.24231	0.1341487	0.26026652	2.4295388	20	10 16.4	21.7
509453 2007 HD ₇₃	17.3	X	169.64590	133.82012	48.04847	12.78531	0.1228613	0.25476558	2.4643869	20	10 17.9	21.1
509454 2007 HF ₈₇	17.6	X	122.92048	119.54026	109.64897	3.21969	0.1491458	0.25183388	2.4834759	20	10 29.3	21.4
509455 2007 JC ₇	17.9	X	130.60131	193.82336	47.90606	3.61780	0.1763997	0.25580395	2.4577133	20	11 20.1	21.8
509456 2007 LF	20.5	X	357.03569	333.76239	239.45409	6.98629	0.4196717	0.45163630	1.6824551	20	—	—
509457 2007 LE ₅	16.4	X	241.91593	262.85364	96.38575	22.95338	0.0736492	0.22784063	2.6549027	20	5 18.3	20.5
509458 2007 LG ₂₃	16.8	X	67.36505	185.16960	145.22455	11.36243	0.1523963	0.25534856	2.4606345	20	—	—
509459 2007 LF ₃₃	15.0	X	244.84147	63.55857	279.06108	21.03157	0.0822319	0.13639996	3.7376035	20	4 17.7	20.9
509460 2007 RD ₄₃	17.3	X	101.50499	279.85668	321.89134	7.05597	0.1014085	0.23140195	2.6275927	20	10 12.7	21.3
509461 2007 RB ₁₀₃	17.0	X	293.05335	166.88962	191.41627	12.60131	0.2551034	0.21695390	2.7429912	20	6 16.9	20.7
509462 2007 RS ₁₀₈	17.3	X	225.93619	73.25042	349.53352	4.03480	0.2034057	0.21226466	2.7832417	20	7 1.6	21.7
509463 2007 RP ₁₁₃	18.4	X	292.69786	162.00366	210.74648	4.21174	0.2027582	0.29749926	2.2223483	20	7 21.2	20.3
509464 2007 RE ₁₂₈	17.0	X	330.03957	320.12058	18.26339	9.25269	0.0909845	0.22030454	2.7151078	20	8 16.7	20.3
509465 2007 RF ₁₄₉	18.1	X	302.96579	93.87896	260.65910	5.13998	0.1562770	0.30035416	2.2082434	20	8 22.7	19.9
509466 2007 RC ₁₆₅	17.6	X	323.18295	152.88171	206.05850	4.23265	0.0604478	0.22629874	2.6669485	20	9 2.8	20.8
509467 2007 RS ₁₆₇	17.2	X	290.84611	355.04446	10.17753	6.67179	0.0862468	0.21988658	2.7185474	20	7 23.1	20.7
509468 2007 RS ₁₇₆	17.0	X	275.04010	358.22420	350.16807	3.13477	0.1078523	0.21251436	2.7810611	20	6 1.2	20.7
509469 2007 RJ ₁₈₂	17.3	X	241.71128	59.43009	352.73453	8.67161	0.1985643	0.21704098	2.7422574	20	7 5.2	21.6
509470 2007 RE ₂₅₃	18.1	X	321.37279	359.99664	35.71198	3.26095	0.2040888	0.30361349	2.1924112	20	11 16.9	19.3
509471 2007 RC ₂₆₄	18.0	X	221.93214	121.38002	306.05331	2.98829	0.1910093	0.21429860	2.7656029	20	7 4.5	22.4
509472 2007 RP ₂₇₇	14.8	X	205.32188	276.47759	101.19121	13.51433	0.2087876	0.12517780	3.9577756	20	4 26.9	21.4
509473 2007 RM ₂₈₆	16.8	X	234.11285	20.84259	5.89015	8.12162	0.2321765	0.21048565	2.7989022	20	5 20.2	21.6
509474 2007 RS ₂₉₅	17.4	X	248.85158	23.88578	27.54028	7.05966	0.0858778	0.21677380	2.7445102	20	7 28.0	21.3
509475 2007 RT ₃₂₀	16.6	X	38.05246	246.75690	31.10431	12.42596	0.1865934	0.22323362	2.6913054	20	9 30.2	20.0
509476 2007 SY ₆	16.7	X	331.72257	0.65010	23.19055	13.39804	0.1947980	0.22848415	2.6499153	20	10 23.7	19.0
509477 2007 SN ₇	17.1	X	217.92362	1.66761	28.94921	6.68885	0.1235933	0.20550803	2.8439166	20	5 18.6	21.6
509478 2007 SM ₂₂	17.1	X	333.22110	40.56901	303.06607	6.29307	0.1768282	0.22277959	2.6949608	20	8 23.9	19.7
509479 2007 TJ ₆₆	16.5	X	285.14224	92.15530	288.04915	11.56314	0.1428805	0.22004098	2.7172755	20	7 23.2	19.8
509480 2007 TQ ₈₂	17.4	X	257.19445	28.49448	1.35676	7.95444	0.2192857	0.21397342	2.7684042	20	6 18.8	21.7
509481 2007 TA ₈₇	18.7	X	324.62586	232.03767	175.53194	3.80842	0.1440809	0.30695409	2.1764754	20	12 12.5	20.3
509482 2007 TB ₁₃₃	17.3	X	271.76450	348.06268	47.52837	5.24564	0.1229822	0.21447221	2.7641103	20	7 30.6	20.9
509483 2007 TE ₁₄₅	17.6	X	26.80326	113.32498	206.27704	12.07796	0.2760386	0.23186706	2.6240776	20	11 21.8	20.9
509484 2007 TM ₁₄₆	18.1	X	334.98329	135.67475	237.24818	1.27308	0.2191415	0.30430601	2.1890837	20	11 16.2	19.3
509485 2007 TW ₁₉₆	17.0	X	344.83721	337.66024	327.69416	5.45336	0.1291830	0.22131862	2.7068078	20	7 24.8	19.8
509486 2007 TS ₂₄₆	17.4	X	209.97450	5.44780	80.63119	3.29038	0.2497710	0.20841885	2.8173754	20	7 13.2	22.1
509487 2007 TV ₂₄₆	16.2	X	204.09042	97.15598	301.20594	11.63372	0.2017680	0.20099520	2.8863274	20	5 9.6	21.3
509488 2007 TD ₂₅₆	16.9	X	308.77487	321.10399	42.68152	7.35983	0.1417924	0.21852865	2.7297977	20	8 12.9	20.1
509489 2007 TP ₂₆₇	17.7	X	201.86537	61.09800	29.60032	12.99912	0.2091024	0.20863593	2.8154208	20	7 16.6	22.7
509490 2007 TU ₃₂₆	16.0	X	5.33603	274.29243	8.58118	8.89922	0.1380971	0.21425939	2.7659404	20	8 2.6	19.1
509491 2007 TR ₃₃₃	17.3	X	259.18942	347.89186	32.64185	5.72200	0.1815894	0.20905708	2.8116384	20	6 13.4	21.4
509492 2007 TS ₃₆₇	16.7	X	286.05707	313.46830	57.19967	5.24809	0.0822255	0.21064934	2.7974520	20	7 22.6	20.3
509493 2007 TJ ₃₈₉	16.7	X	25.96876	273.94636	45.44197	7.14891	0.1397073	0.22933898	2.6433265	20	10 28.8	19.7
509494 2007 TA ₃₉₇	16.5	X	199.85454	342.49401	75.77773	9.69170	0.2990080	0.20412476	2.8567502	20	5 31.1	21.5
509495 2007 TV ₄₂₂	19.1	X	299.76704	253.61119	169.01074	1.65102	0.1575091	0.30284141	2.1961359	20	11 10.3	20.4
509496 2007 TH ₄₂₆	17.1	X	306.62594	352.64779	27.85092	16.80023	0.0525938	0.22247299	2.6974362	20	9 16.8	20.7
509497 2007 TJ ₄₃₃	17.6	X	212.55240	315.82854	161.31268	2.59580	0.0542883	0.22028453	2.7152723	20	9 9.9	21.2
509498 2007 TV ₄₄₀	18.0	X	318.10892	43.97248	322.40665	6.40408	0.1771925	0.2998535	2.2100530	20	9 12.0	19.4
509499 2007 UT ₂₁	17.2	X	41.35882	64.23094	210.40419	9.07025	0.1235754	0.21883238	2.7272712	20	9 13.1	20.8
509500 2007 UH ₂₃	18.5	X	316.33688	345.01023	96.92447	2.12219	0.1462337	0.31059657	2.1594258	20	—	—
509501 2007 UB ₅₀	17.0	X	279.24750	162.76359	210.23660	9.56885	0.1368694	0.20992875	2.8038500	20	7 4.6	20.9
509502 2007 UK ₁₀₆	17.0	X	315.20007	300.60925	24.73032	4.26326	0.1039590	0.20950041	2.8076704	20	6 30.6	20.3
509503 2007 UO ₁₁₆	16.9	X	284.36821	319.07514	65.83702	5.12287	0.0752389	0.21487793	2.7606298	20	8 10.9	20.4
509504 2007 UX ₁₃₄	17.2	X	310.22761	305.56401	41.82619	4.72466	0.0805233	0.21269277	2.7795057	20	7 27.9	20.7
509505 2007 VL ₈	21.2	X	75.60635	194.70499	62.34715	9.34227	0.3593848	1.08866781	0.9358490	20	—	—
509506 2007 VY ₁₁	18.2	X	355.60503	234.06246	135.67740	6.83831	0.1944456	0.30678814	2.1772602	20	12 21.1	20.2
509507 2007 VQ ₃₂	17.2	X	296.68232	358.60616	346.50825	3.91206	0.0813689	0.21060594	2.7978363	20	7 2.5	20.7
509508 2007 VQ ₄₈	17.3	X	244.31531	118.33766	292.52841	5.11872	0.0397625	0.20958263	2.8069361	20	7 24.8	21.1
509509 2007 VL ₆₅	18.4	X	335.94368	138.16406	250.16734	5.17161	0.1634713	0.30294435	2.1956384	20	12 5.6	20.1
509510 2007 VP ₁₂₂	18.6	X	347.95289	124.07072	255.12183	3.87547	0.2110128	0.30675282	2.1774273	20	12 24.4	20.4
509511 2007 VA ₁₄₃	17.1	X	255.73863	271.46151	99.36258	2.90325	0.2366471	0.20607027	2.8387414	20	5 22.8	21.4
509512 2007 VK ₁₅₆	16.6	X	106.56113	316.71758	254.33891	8.28169	0.0928107	0.21353328	2.7722071	20	9 5.2	20.9
509513 2007 VV ₁₆₂	16.9	X	213.98584	74.61729	358.80207	1.6383						

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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>
509521 2007 WX ₁₅	17.3	X	50.55025	49.11839	205.41474	3.84890	0.0140503	0.20932695	2.8092213	20	8 13.7	21.1
509522 2007 WA ₄₁	17.3	X	278.63652	187.62435	183.22233	4.40210	0.0902743	0.20988586	2.8042319	20	7 9.0	21.1
509523 2007 XP ₃	19.3	X	275.49460	214.20471	94.78728	13.15692	0.8872021	0.29300059	2.2450381	20	2 9.4	24.9
509524 2007 XU ₆	16.2	X	285.50790	304.22657	85.76211	14.08339	0.2060218	0.21344468	2.7729742	20	7 29.6	19.8
509525 2007 XJ ₁₉	17.6	X	357.79875	55.45478	258.55846	21.42757	0.1166762	0.37239389	1.9133791	20	9 14.9	19.8
509526 2007 XW ₄₂	18.3	X	350.17003	82.00086	277.32600	5.17444	0.1963402	0.30087919	2.2056738	20	11 22.0	20.0
509527 2007 XW ₅₈	16.6	X	299.91861	203.58611	113.50226	12.64050	0.0927877	0.18970535	2.9997357	20	5 30.5	20.8
509528 2007 XJ ₆₀	16.3	X	312.65492	59.17919	294.43785	7.58710	0.1606325	0.20667800	2.8331738	20	7 28.1	19.5
509529 2007 YG ₁	18.2	X	99.72372	48.39501	301.97044	13.92432	0.2657036	0.39954742	1.8256765	20	—	—
509530 2007 YG ₁₃	16.3	X	91.13234	149.58225	321.50553	9.15501	0.1680209	0.17905151	3.1175785	20	4 20.6	21.0
509531 2007 YS ₃₉	18.9	X	289.12758	28.63908	54.22336	4.83969	0.0958750	0.29832919	2.2182248	20	11 22.4	20.8
509532 2007 YK ₅₉	18.1	X	230.34901	23.03260	111.55089	10.01803	0.2036254	0.29347967	2.2425942	20	10 21.2	21.1
509533 2007 YG ₇₀	16.9	X	86.53288	59.59209	106.92430	6.70415	0.0851225	0.18608934	3.0384707	20	6 17.2	21.2
509534 2007 YK ₇₂	18.1	X	239.31562	58.32033	78.47173	6.69023	0.1358586	0.29384376	2.2407414	20	11 12.6	20.6
509535 2007 YY ₇₂	16.6	X	116.30698	346.64265	110.26680	18.71044	0.1984586	0.17964431	3.1107163	20	5 15.2	21.8
509536 2007 YL ₇₅	17.1	X	252.70551	30.30464	10.85644	1.96969	0.0281694	0.20076617	2.8885220	20	7 24.9	21.0
509537 2008 AN ₇	18.2	X	253.00859	22.45641	89.59875	6.67324	0.1455939	0.29356060	2.2421820	20	10 28.8	20.6
509538 2008 AN ₇	16.4	X	121.11264	272.00451	298.96466	13.57106	0.1020457	0.20391215	2.8587355	20	9 17.5	21.1
509539 2008 AO ₁₀	18.8	X	298.61584	135.65858	281.96010	5.20208	0.1558256	0.29452679	2.2372757	20	10 23.8	20.6
509540 2008 AW ₁₁	17.1	X	214.35206	290.21535	127.74816	13.45469	0.2223135	0.19718727	2.9233678	20	6 14.9	22.2
509541 2008 AF ₃₅	16.8	X	90.41508	41.57430	123.48100	1.02566	0.0860899	0.18724061	3.0260030	20	6 20.1	20.9
509542 2008 AG ₆₁	16.9	X	165.20204	346.64687	130.59570	12.01945	0.0756654	0.19430140	2.9522430	20	7 13.8	21.4
509543 2008 AD ₆₅	17.0	X	112.38002	221.62251	314.38199	11.69626	0.0790747	0.19156429	2.9802979	20	7 30.6	21.2
509544 2008 AD ₈₉	16.8	X	201.08852	171.15282	293.75953	14.09855	0.0966388	0.20137889	2.8826600	20	8 3.7	21.2
509545 2008 AQ ₁₀₀	18.3	X	358.13703	133.21294	300.63371	19.33965	0.0882378	0.38753223	1.8632201	20	—	—
509546 2008 AT ₁₀₁	17.5	X	196.25439	327.22951	121.21580	7.13233	0.2001973	0.19750966	2.9201858	20	7 6.3	22.4
509547 2008 AA ₁₀₇	17.6	X	191.69003	136.76357	300.17613	5.37901	0.2164519	0.19495474	2.9456435	20	6 18.1	22.7
509548 2008 AT ₁₁₄	17.4	X	270.89910	215.16818	292.80582	18.89137	0.0709692	0.38193271	1.8813870	20	—	—
509549 2008 AO ₁₂₇	16.2	X	216.03811	89.78012	300.03221	14.10875	0.1376292	0.19181032	2.9777489	20	5 12.8	21.2
509550 2008 AG ₁₃₄	17.3	X	130.84305	88.36310	64.35442	2.14454	0.1320159	0.19421944	2.9530735	20	7 25.9	21.9
509551 2008 BW ₁₁	15.9	X	280.40508	175.55864	116.81587	11.57008	0.0551622	0.17925564	3.1152111	20	4 11.8	20.5
509552 2008 BA ₂₀	16.1	X	358.60898	338.85382	291.70799	8.92941	0.0564707	0.19285548	2.9669807	20	6 26.5	19.9
509553 2008 BG ₂₄	17.0	X	133.23336	249.38795	293.66094	22.42273	0.2376991	0.27655509	2.3331802	20	9 2.2	21.4
509554 2008 BS ₃₇	17.9	X	260.85337	332.48984	119.06289	6.32477	0.1218374	0.29192751	2.2505364	20	10 15.2	20.3
509555 2008 BK ₄₂	17.4	X	155.38020	70.39212	100.96083	8.08262	0.3245551	0.19830881	2.9123353	20	9 15.3	22.9
509556 2008 BS ₅₁	18.6	X	234.25803	108.53918	23.48993	5.85177	0.1773931	0.29202623	2.2500292	20	10 20.8	21.2
509557 2008 BK ₅₃	16.0	X	111.10564	311.96680	130.51635	23.10961	0.0627964	0.17663238	3.1459791	20	4 7.2	20.9
509558 2008 BT ₅₃	17.0	X	148.98501	160.04369	333.90438	6.17291	0.0991650	0.18889179	3.0083429	20	7 19.4	21.7
509559 2008 BY ₅₃	16.7	X	196.41535	141.72135	352.82142	14.14937	0.1031908	0.20309884	2.8663623	20	9 8.5	20.9
509560 2008 CG ₁₀	16.9	X	88.44793	20.87606	159.56982	17.88123	0.2616719	0.18163180	3.0879822	20	7 28.4	21.9
509561 2008 CU ₁₀	18.7	X	314.17291	143.02999	316.69401	20.14264	0.0657176	0.38403132	1.8745267	20	—	—
509562 2008 CW ₁₀	16.6	X	141.70610	302.76854	134.37585	15.93401	0.2559217	0.18186050	3.0853928	20	5 16.4	22.1
509563 2008 CG ₂₁	18.4	X	285.77500	106.56937	353.13673	7.67445	0.3656882	0.29964233	2.2117393	20	10 31.6	19.2
509564 2008 CT ₂₇	16.9	X	176.69828	109.29376	342.31250	9.51061	0.1000345	0.19013715	2.9951924	20	6 24.6	21.7
509565 2008 CZ ₂₇	17.1	X	112.54724	118.67304	2.88412	5.25814	0.1143860	0.18166621	3.0875923	20	5 24.4	21.7
509566 2008 CB ₃₃	17.4	X	183.84359	22.07879	73.61299	1.79576	0.1418530	0.19141214	2.9818870	20	7 5.8	22.2
509567 2008 CJ ₄₁	18.3	X	204.59184	344.06339	182.47458	4.72553	0.0919703	0.28840502	2.2688242	20	11 12.2	21.2
509568 2008 CM ₄₈	16.6	X	100.71540	11.05433	148.25590	16.97723	0.2264141	0.18196231	3.0842419	20	7 11.5	21.6
509569 2008 CJ ₇₀	21.1	X	78.49139	69.99686	145.66561	17.33662	0.1519210	0.59133717	1.4057646	20	10 20.5	22.4
509570 2008 CQ ₇₉	17.2	X	126.93205	164.71356	348.64706	8.98168	0.1290798	0.18934612	3.0035286	20	7 24.1	21.9
509571 2008 CF ₈₇	18.2	X	212.16561	25.66505	107.41841	5.40357	0.1033255	0.28393231	2.2925888	20	10 6.6	21.3
509572 2008 CR ₈₇	16.6	X	126.24376	3.00517	123.50101	8.59092	0.0926063	0.18242947	3.0789742	20	6 14.6	21.2
509573 2008 CN ₉₁	18.4	X	231.48652	317.32441	152.63019	2.81930	0.1171139	0.28490451	2.2873704	20	9 25.2	21.2
509574 2008 CE ₉₈	17.1	X	83.83025	188.14981	46.16101	2.38211	0.1212232	0.19512043	2.9439757	20	9 15.5	21.4
509575 2008 CS ₉₈	17.9	X	127.38757	262.20880	328.14930	9.71115	0.0588588	0.28588614	2.2821314	20	11 1.8	21.2
509576 2008 CR ₁₂₈	18.1	X	235.81667	353.89172	148.03517	3.83426	0.0650820	0.29159910	2.2522258	20	11 25.4	20.7
509577 2008 CZ ₁₃₁	18.1	X	192.45163	224.29354	340.57328	4.74423	0.1763417	0.29182880	2.2510438	20	12 7.2	21.2
509578 2008 CR ₁₉₁	17.4	X	156.33429	254.45294	233.90092	1.96248	0.1198348	0.19034284	2.9930343	20	7 19.1	22.2
509579 2008 CT ₁₉₁	18.3	X	144.51994	318.43599	271.10101	1.65027	0.0788955	0.28810567	2.2703955	20	11 25.1	21.5
509580 2008 CW ₁₉₁	17.2	X	201.32516	284.18267	164.49729	7.14732	0.0967072	0.19222042	2.9735121	20	7 15.3	21.8
509581 2008 CM ₁₉₄	18.0	X	220.98756	22.63955	134.82826	4.39739	0.1238214	0.28715844	2.2753855	20	11 16.4	20.9
509582 2008 CX ₁₉₇	16.7	X	78.41724	235.06037	336.07018	4.19552	0.1706295	0.18485883	3.0519394	20	8 15.8	21.1
509583 2008 CA ₁₉₉	16.9	X	96.73684	320.64525	248.02954	1.50451	0.0975515	0.19251489	2.9704791	20	8 23.9	21.2
509584 2008 CS ₂₀₀	17.2	X	138.58435	297.15446	176.06428	5.88024	0.1492761	0.18277221	3.0751239	20	6 14.9	22.1
509585 2008 CE ₂₀₈	17.2	X	130.23373	29.33232	138.20457	5.25870	0.1240542	0.19167617	2.9791381	20	8 11.6	21.7
509586 2008 CJ ₂₁₂	17.9	X	73.20064	326.24512	351.22707	20.25141	0.0597914	0.37027095	1.9206856	20	—	—
509587 2008 DY ₁₇	18.4	X	178.05899	13.97720	146.54293	5.51064	0.1159725	0.28130430	2.3068453	20	10 1.3	21.6
509588 2008 DF ₂₁	18.6	X	237.99089	95.99772	34.12130	4.11842	0.0901629	0.28912644	2.2650485	20	11 5.8	21.3
509589 2008 DL ₂₂	18.2	X	45.39424	6.80243	337.48909	18.12959	0.0731631	0.37172722	1.9156661	20	—	—
509590 2008 DL ₂₄	18.2	X	166.08654	199.26293	14.68970	4.68117	0.1057012	0.28853205	2.2681582	20	11 26.4	21.5
509591 2008 DY ₂₄	17.8	X	206.59869	281.54150	264.75147	7.43313	0.1414914	0.29124919	2.2540293	20	12 3.8	20.7
509592 2008 DF ₂₅	17.9	X	151.08790	137.50092	49.26823	4.78267	0.1102416	0.28024417	2.3126593	20	10 7.0	21.3
509593 2008 DL ₃₅	18.4	X	177.43339	333.84305	198.50172	5.41284	0.1462675	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>		
509601	2008	EH ₂₄	16.3	X	59.60597	183.37550	48.52355	9.69901	0.1980138	0.18441812	3.0567998	20	8 27.7	20.6
509602	2008	ES ₆₂	16.0	X	68.07778	199.40061	322.95636	15.73747	0.1493722	0.17606807	3.1526976	20	5 24.5	20.5
509603	2008	EU ₆₃	17.4	X	169.71676	224.16605	277.36890	5.76345	0.2799738	0.19675011	2.9276966	20	8 15.4	22.8
509604	2008	EP ₆₇	16.3	X	161.60739	87.51976	339.37070	11.11638	0.2690703	0.18000567	3.1065517	20	5 10.9	22.0
509605	2008	ED ₇₀	17.8	X	218.86428	334.93723	163.79489	23.40933	0.1371576	0.28852197	2.2682110	20	10 20.5	21.1
509606	2008	ED ₇₆	16.7	X	62.86306	18.75233	171.33737	16.49538	0.1114340	0.17678012	3.1442260	20	6 20.4	21.3
509607	2008	EG ₈₈	16.6	X	115.10929	18.82626	176.50710	8.87045	0.1707645	0.19159052	2.9800259	20	9 2.4	21.4
509608	2008	ES ₉₁	17.3	X	158.36897	89.00322	111.05623	22.21265	0.2888513	0.27887163	3.2020413	20	11 3.5	21.9
509609	2008	ES ₁₀₂	18.2	X	234.08798	63.23405	53.52495	4.96586	0.1107845	0.28524431	2.2855535	20	10 10.5	20.9
509610	2008	EA ₁₃₆	17.4	X	154.07263	262.54519	279.32773	6.26650	0.0464718	0.27934636	2.3176119	20	9 29.4	20.5
509611	2008	ET ₁₄₄	18.7	X	182.85077	235.66418	319.76081	0.37078	0.1412224	0.28803117	2.2707869	20	11 18.2	21.7
509612	2008	ED ₁₅₂	18.1	X	141.33532	27.35402	214.56111	1.70137	0.1643589	0.28349087	2.2949682	20	12 4.6	21.7
509613	2008	EL ₁₅₈	18.4	X	123.84750	287.35367	268.43508	1.47654	0.1594218	0.27166675	2.3610856	20	9 18.6	21.9
509614	2008	EL ₁₅₈	18.6	X	164.42387	208.17484	5.75263	4.18317	0.1201297	0.28402956	2.2920655	20	11 22.7	21.9
509615	2008	EU ₁₆₆	17.9	X	219.76438	29.73464	133.70866	7.61340	0.1831939	0.28836594	2.2690291	20	11 15.7	21.0
509616	2008	FP ₆	15.9	X	89.39935	102.53666	40.61815	10.11267	0.0233530	0.17710543	3.1403747	20	5 11.6	20.2
509617	2008	FP ₈	17.1	X	86.57506	123.32531	76.61435	3.07757	0.0985784	0.18618842	3.0373927	20	8 1.9	21.4
509618	2008	FA ₁₀	17.1	X	126.22050	196.73632	344.65085	11.73609	0.0916168	0.19320691	2.9633818	20	8 24.3	21.5
509619	2008	FG ₁₄	17.0	X	108.92540	326.45763	219.89938	1.13266	0.1257207	0.18735154	3.0248084	20	8 12.3	21.5
509620	2008	FK ₂₀	16.5	X	89.08147	197.40487	9.97311	19.70739	0.0143300	0.18442596	3.0567131	20	7 28.8	21.1
509621	2008	FK ₂₁	18.2	X	210.20194	165.78434	14.78152	4.43229	0.1436551	0.28884502	2.2665195	20	11 28.9	21.0
509622	2008	FJ ₃₂	16.6	X	100.88298	197.32318	348.86057	10.95679	0.1608656	0.18709723	3.0275487	20	8 10.7	21.3
509623	2008	FJ ₃₂	18.1	X	45.33633	289.44189	326.69654	1.77956	0.2013528	0.26629647	2.3927231	20	9 15.6	21.0
509624	2008	FS ₃₇	16.7	X	52.61906	175.60575	55.20741	6.47919	0.0836500	0.18029277	3.1032529	20	7 26.7	20.9
509625	2008	FS ₄₄	16.9	X	107.50044	65.29284	146.75901	2.69544	0.1418554	0.19287532	2.9667772	20	9 14.7	21.5
509626	2008	FL ₅₃	16.7	X	69.11658	152.09166	58.66275	2.20418	0.1192753	0.17980117	3.1089069	20	7 27.2	21.0
509627	2008	FC ₅₈	18.2	X	163.93042	110.09395	91.38839	1.83955	0.1472602	0.28164593	2.3049795	20	11 5.9	21.7
509628	2008	FJ ₇₂	16.6	X	348.59808	174.92964	107.80294	6.79304	0.1368837	0.17508372	3.1645032	20	6 24.8	20.2
509629	2008	FL ₇₃	18.7	X	217.59146	51.09153	92.16890	4.18383	0.2649930	0.28512666	2.2861821	20	10 6.4	22.2
509630	2008	FQ ₇₆	18.1	X	59.10526	223.97715	181.82876	22.29594	0.1108226	0.39084215	1.8526859	20	—	—
509631	2008	FN ₁₀₁	17.3	X	328.37705	249.59343	119.49392	6.65166	0.1321109	0.27086136	2.3657636	20	10 10.4	19.5
509632	2008	FR ₁₁₈	16.3	X	228.01602	33.59989	29.58147	14.94829	0.0990135	0.18585819	3.0409895	20	7 15.4	21.1
509633	2008	FG ₁₂₄	16.6	X	70.16929	69.24375	148.22138	5.14739	0.1348596	0.17797681	3.1301161	20	8 7.3	21.0
509634	2008	FY ₁₂₉	14.2	X	303.52103	259.94301	24.51153	15.41787	0.1441237	0.08404724	5.1616326	20	4 18.1	20.8
509635	2008	FZ ₁₃₁	18.0	X	122.30105	207.78091	41.19166	6.19509	0.1342052	0.27723294	2.3293754	20	11 23.8	21.6
509636	2008	FL ₁₃₃	16.6	X	140.57305	291.62570	186.03885	13.27513	0.1600429	0.18160621	3.0882723	20	6 22.4	21.8
509637	2008	FZ ₁₃₃	16.9	X	114.75221	19.54842	166.19456	5.30508	0.1652000	0.18463453	3.0544108	20	8 20.6	21.6
509638	2008	FW ₁₃₅	16.6	X	116.50560	167.59284	37.08679	7.28059	0.1734849	0.19263262	2.9692687	20	9 19.1	21.4
509639	2008	FQ ₁₃₇	15.6	X	113.58515	116.77400	33.34208	22.69930	0.0371566	0.17443579	3.1723346	20	6 19.6	20.5
509640	2008	GP ₁	17.9	X	144.03266	216.78438	6.71530	5.50503	0.1742974	0.27932037	2.3177556	20	11 11.7	21.6
509641	2008	GV ₁₀	17.8	X	26.40627	71.64747	202.72017	6.58154	0.1018058	0.26044304	2.4284409	20	8 23.5	20.6
509642	2008	GV ₁₁	18.5	X	162.06335	166.85257	53.91987	5.12535	0.2082180	0.28030461	2.3123269	20	11 24.2	22.3
509643	2008	GK ₂₄	18.4	X	223.72417	94.40188	47.96366	5.36629	0.0793047	0.28349682	2.2949361	20	11 4.1	21.2
509644	2008	GS ₃₅	16.4	X	64.88540	148.02295	79.55326	9.31213	0.1390460	0.17933091	3.1143395	20	8 18.0	20.8
509645	2008	GQ ₃₉	16.9	X	149.83752	333.95064	164.14188	3.39632	0.0963795	0.18673179	3.0314975	20	7 23.6	21.5
509646	2008	GZ ₄₂	16.9	X	130.65966	139.12432	10.26607	10.15150	0.0693102	0.18303129	3.0722213	20	7 18.3	21.6
509647	2008	GC ₄₆	18.8	X	145.78612	113.27394	127.17152	4.55095	0.1758477	0.28062306	2.3105772	20	12 6.5	22.6
509648	2008	GQ ₄₉	17.9	X	172.87500	112.80357	76.95490	3.36901	0.1464237	0.27964446	2.3159645	20	10 30.9	21.2
509649	2008	GT ₅₀	16.8	X	125.06667	41.90849	89.97605	2.13989	0.1742403	0.17941033	3.1134202	20	6 26.5	21.8
509650	2008	GW ₅₄	18.3	X	104.21692	127.51821	80.59984	2.42590	0.1474891	0.26851110	2.3795485	20	9 15.9	21.8
509651	2008	GH ₆₀	17.8	X	143.60677	133.84609	65.00701	6.12089	0.1774754	0.27536306	2.3399088	20	10 14.9	21.6
509652	2008	GN ₆₀	18.4	X	252.35393	155.55857	30.47942	21.77530	0.1081509	0.37853820	1.8926178	20	—	—
509653	2008	GL ₆₆	16.3	X	333.51730	285.81707	52.03678	15.93767	0.0257024	0.18334010	3.0687705	20	8 26.4	20.8
509654	2008	GJ ₈₆	17.4	X	11.50422	272.80679	15.68694	21.48462	0.0447523	0.26571662	2.3962028	20	8 28.6	20.6
509655	2008	GX ₈₆	18.4	X	203.70481	117.57710	50.49542	8.48014	0.1292085	0.28440402	2.2900531	20	11 6.9	21.6
509656	2008	GL ₁₁₁	16.2	X	67.16257	31.89956	206.29876	11.21592	0.2274849	0.18333863	3.0687869	20	9 9.9	20.7
509657	2008	GS ₁₂₁	16.5	X	114.09630	132.59119	42.74844	12.64274	0.1561638	0.18360721	3.0657935	20	8 12.3	21.5
509658	2008	GL ₁₂₇	16.0	X	43.83119	167.48515	93.62436	15.20086	0.1367189	0.17814981	3.1280892	20	9 4.0	20.4
509659	2008	GL ₁₃₃	16.8	X	56.56981	100.65917	133.51442	2.08668	0.1297300	0.17767255	3.1336885	20	8 10.6	20.9
509660	2008	GY ₁₃₆	16.6	X	46.63488	163.32492	59.27243	10.64278	0.0441408	0.17445477	3.1721045	20	6 30.2	21.0
509661	2008	GE ₁₃₈	16.6	X	128.69769	35.21007	114.88519	11.46762	0.0589127	0.17589263	3.1547936	20	7 12.9	21.1
509662	2008	GG ₁₄₄	16.3	X	260.79770	336.27109	21.93759	12.13345	0.0453679	0.17519560	3.1631559	20	6 2.9	20.9
509663	2008	HY ₇	16.0	X	62.38222	130.23531	101.20531	13.25965	0.1164564	0.17923101	3.1154966	20	8 15.7	20.4
509664	2008	HW ₁₅	18.7	X	282.94237	113.57545	56.73706	21.49051	0.0694876	0.37916804	1.8905212	20	—	—
509665	2008	HM ₁₉	18.0	X	178.28215	129.26371	102.82503	9.31400	0.1836441	0.28614733	2.2807425	20	12 26.2	21.5
509666	2008	HN ₄₆	18.6	X	127.24287	152.12238	99.92004	3.34807	0.1861164	0.27724665	2.3292987	20	12 3.6	22.4
509667	2008	HY ₅₅	16.2	X	332.71814	184.56215	124.65444	11.57631	0.0200517	0.17295637	3.1903991	20	7 9.9	20.7
509668	2008	HJ ₆₀	16.4	X	124.99753	26.35950	169.17363	12.25883	0.1043962	0.18652300	3.0337593	20	9 7.8	21.1
509669	2008	HL ₆₆	18.0	X	201.77775	38.30119	137.43347	6.60480	0.1439885	0.28205856	2.3027309	20	11 14.4	21

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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>
509681 2008 OW ₅	17.4	X	243.73130	88.27462	279.98021	9.98237	0.3218623	0.22959248	2.6413803	20	4 27.5	22.2
509682 2008 PO ₁₀	17.2	X	320.77408	112.10967	194.23208	8.19587	0.1704674	0.23960061	2.5673048	20	6 5.1	20.0
509683 2008 PE ₂₁	17.2	X	280.18316	254.10504	101.16666	9.10319	0.2091284	0.23614274	2.5923063	20	6 3.5	20.6
509684 2008 PH ₂₂	16.8	X	241.14208	96.63015	282.04651	11.64562	0.2632639	0.22848306	2.6499237	20	5 13.8	21.3
509685 2008 QH ₁₀	17.4	X	272.10527	220.34610	163.27473	5.74658	0.2525129	0.23613394	2.5923707	20	6 24.0	21.0
509686 2008 QT ₂₈	15.6	X	71.15735	278.76000	341.83822	25.25369	0.2731097	0.17363251	3.1821112	20	10 6.5	20.9
509687 2008 QD ₄₄	16.7	X	268.18016	51.63214	284.53648	11.03309	0.2834336	0.22760020	2.6567720	20	4 10.1	21.3
509688 2008 QV ₄₅	17.3	X	276.42782	287.65273	83.85646	3.57578	0.2137829	0.23580785	2.5947601	20	6 18.9	20.8
509689 2008 QW ₄₇	17.2	X	272.34775	188.06329	163.44662	16.37972	0.2041822	0.23114292	2.6295554	20	5 22.8	21.2
509690 2008 RV ₅	16.6	X	237.51045	13.52947	2.33264	15.03400	0.3126036	0.22584829	2.6704934	20	4 30.7	21.6
509691 2008 RU ₈	18.2	X	198.67645	342.83056	309.26667	2.92519	0.2351457	0.28916323	2.2648564	20	—	—
509692 2008 RT ₂₃	17.2	X	297.63965	29.45932	324.58639	13.30277	0.2326132	0.23687498	2.5869613	20	6 24.1	20.4
509693 2008 RA ₆₆	17.2	X	211.57057	19.50114	6.24581	13.28575	0.1642467	0.22285302	2.6943688	20	4 30.7	21.8
509694 2008 RE ₈₄	17.0	X	273.07589	1.40479	304.29490	3.39595	0.1300737	0.22530593	2.6747773	20	3 29.9	20.9
509695 2008 RF ₉₈	16.4	X	274.37707	328.83043	40.15800	34.57123	0.2464796	0.23316863	2.6143033	20	5 27.7	20.6
509696 2008 RQ ₉₈	16.3	X	297.36463	263.95081	90.08767	29.32932	0.3549180	0.23534936	2.5981290	20	6 5.2	19.7
509697 2008 RE ₉₉	14.4	X	23.65433	136.47849	197.80874	4.87879	0.0485171	0.08372108	5.1750297	20	10 4.7	21.1
509698 2008 RB ₁₃₂	17.4	X	273.14161	227.27381	139.18802	5.27942	0.3254862	0.23334621	2.6129768	20	5 24.9	21.3
509699 2008 RL ₁₃₈	17.5	X	287.46039	333.68263	23.09458	5.88176	0.2559639	0.23580268	2.5947981	20	6 5.9	20.9
509700 2008 RG ₁₄₂	17.9	X	239.58436	63.29836	355.26384	4.82619	0.1506563	0.23512175	2.5998054	20	7 17.4	21.7
509701 2008 SR ₄	17.4	X	281.41145	257.80516	87.70671	3.49223	0.2092101	0.23169166	2.6254018	20	5 22.2	20.8
509702 2008 SY ₂₂	17.3	X	238.47093	232.61521	171.39713	12.08689	0.1602898	0.23411821	2.6072295	20	6 24.5	21.4
509703 2008 SR ₃₀	17.4	X	248.98710	118.98733	265.81519	5.38414	0.1867369	0.22959540	2.6413580	20	6 7.7	21.4
509704 2008 SC ₅₅	17.5	X	302.91049	5.56729	13.17464	14.70423	0.1543896	0.24064571	2.5598664	20	8 29.4	20.4
509705 2008 SM ₅₆	16.7	X	129.62650	357.79541	192.64450	13.58891	0.1208943	0.23959475	2.5673467	20	9 10.9	20.7
509706 2008 SH ₅₈	17.8	X	235.79001	214.42382	165.66837	2.57187	0.2171976	0.22418813	2.6836609	20	5 17.4	22.2
509707 2008 SX ₆₆	17.0	X	269.27697	43.74545	327.72070	14.88554	0.2176030	0.23049688	2.6344665	20	6 8.3	21.1
509708 2008 SX ₆₇	17.4	X	254.90901	344.07415	30.63289	7.40235	0.2724435	0.22900865	2.6458677	20	5 21.1	21.5
509709 2008 SV ₇₂	16.9	X	258.40416	161.56421	212.09160	13.49069	0.1694642	0.22525250	2.6752003	20	6 6.0	20.9
509710 2008 SZ ₇₆	17.8	X	296.73108	46.02063	282.30623	1.44375	0.1169969	0.23162779	2.6258844	20	6 3.6	20.9
509711 2008 SX ₉₁	17.9	X	245.35235	59.02194	3.38395	4.38776	0.2612174	0.23264254	2.6182431	20	7 15.4	22.0
509712 2008 SM ₉₆	18.0	X	270.15319	77.06369	319.08582	1.92269	0.1574839	0.23520107	2.5992209	20	7 23.7	21.2
509713 2008 SZ ₁₀₅	18.0	X	253.60340	15.01834	31.87390	4.52866	0.2786647	0.23097419	2.6308359	20	6 30.9	22.0
509714 2008 SD ₁₀₈	17.7	X	313.80983	40.32344	259.69818	1.98097	0.1665648	0.23397095	2.6083233	20	5 13.4	20.5
509715 2008 SG ₁₁₉	18.0	X	45.68683	149.60084	200.45005	5.75565	0.1632630	0.25874675	2.4390429	20	—	—
509716 2008 SN ₁₃₀	17.8	X	243.55593	119.28623	331.09041	1.86427	0.0491036	0.23996391	2.5647129	20	9 16.8	21.2
509717 2008 SB ₁₃₂	17.9	X	269.53177	28.95543	7.50878	5.22070	0.2509498	0.23332395	2.6131430	20	7 9.3	21.6
509718 2008 SV ₁₄₁	17.6	X	73.98288	181.03082	92.83286	2.10796	0.0920095	0.24574979	2.5242979	20	10 28.1	20.9
509719 2008 SR ₁₅₅	17.3	X	280.14906	310.44528	49.61745	5.34011	0.2513119	0.23252611	2.6191170	20	6 1.8	20.7
509720 2008 SP ₁₅₇	16.9	X	254.74557	9.26733	359.40819	13.06656	0.2960661	0.22951419	2.6419810	20	5 7.6	21.5
509721 2008 SJ ₁₆₆	17.4	X	240.97601	7.41972	29.18399	2.58013	0.2134903	0.22823555	2.6518392	20	6 11.6	21.4
509722 2008 SU ₁₆₇	16.8	X	268.76175	307.66331	59.69769	4.74569	0.2728386	0.22984811	2.6394216	20	5 26.6	20.7
509723 2008 SJ ₁₈₀	17.9	X	215.68345	216.64703	194.39214	2.93666	0.1240451	0.22468007	2.6797422	20	6 12.6	21.9
509724 2008 SK ₁₈₇	18.4	X	93.02275	71.93657	260.87279	2.47762	0.1419763	0.26714232	2.3876697	20	—	—
509725 2008 ST ₂₀₃	18.0	X	282.70033	249.36842	130.67922	2.78542	0.1199318	0.23331870	2.6131821	20	7 25.2	21.2
509726 2008 SD ₂₀₇	16.9	X	299.67932	302.81605	44.20798	18.65113	0.2360601	0.23305620	2.6151440	20	6 11.8	20.2
509727 2008 SX ₂₀₇	17.1	X	143.56098	258.03560	60.23117	22.14522	0.0688966	0.35821736	1.9635334	20	—	—
509728 2008 SL ₂₁₁	17.3	X	291.70682	111.83287	225.76230	5.74181	0.1284386	0.22695524	2.6618029	20	6 7.5	20.7
509729 2008 SO ₂₃₃	18.1	X	221.25886	327.05580	71.52264	2.88186	0.2624211	0.22481718	2.6786526	20	5 24.2	22.6
509730 2008 SX ₂₄₄	17.5	X	224.12427	21.52965	12.84116	17.20820	0.1825819	0.22554133	2.6729158	20	5 21.0	22.0
509731 2008 SJ ₂₅₁	17.3	X	290.49970	340.63575	25.40075	8.54252	0.2022738	0.23445647	2.6047212	20	7 4.6	20.5
509732 2008 SX ₂₅₄	17.2	X	272.87523	33.91058	319.25747	6.49600	0.3112099	0.22995830	2.6385783	20	5 5.5	21.4
509733 2008 SD ₂₆₅	18.0	X	236.30756	282.62899	138.50415	2.95780	0.1241278	0.22975366	2.6401449	20	7 18.6	21.1
509734 2008 SW ₂₆₈	17.5	X	258.24939	63.14782	312.23513	12.56805	0.3063567	0.22949258	2.6421468	20	5 19.9	22.9
509735 2008 SV ₂₇₄	17.8	X	304.10519	215.79781	149.70973	2.90136	0.1175921	0.23838186	2.5760478	20	8 8.9	20.8
509736 2008 SB ₂₈₄	17.6	X	137.46247	356.73933	321.77370	7.57847	0.2714459	0.27661089	2.3328664	20	—	—
509737 2008 SU ₂₉₅	17.3	X	254.95057	78.96054	345.40239	26.96937	0.2848763	0.23714309	2.5850111	20	8 4.5	21.5
509738 2008 SR ₃₀₁	17.6	X	268.06106	44.45517	349.81825	7.14950	0.1976054	0.23447967	2.6045493	20	7 13.2	21.1
509739 2008 TC ₁₂	17.9	X	250.72175	72.55936	330.63210	1.07954	0.2147973	0.23272315	2.6176384	20	6 30.5	21.6
509740 2008 TA ₂₀	18.0	X	271.17919	9.18503	30.28435	3.18256	0.1530399	0.23367307	2.6105395	20	7 31.4	21.2
509741 2008 TU ₃₁	17.6	X	195.62566	253.72452	195.98419	12.38688	0.2382617	0.22446367	2.6814642	20	7 5.3	22.5
509742 2008 TJ ₄₆	17.8	X	249.01356	265.56974	160.16191	4.28990	0.1144517	0.23370344	2.6103134	20	8 10.7	21.2
509743 2008 TX ₅₃	17.8	X	270.63122	275.22699	124.61791	2.44013	0.1512183	0.23620674	2.5918380	20	7 30.5	20.8
509744 2008 TR ₅₇	17.0	X	295.87876	290.86203	23.99928	3.71373	0.0428665	0.22438822	2.6820653	20	5 25.5	20.5
509745 2008 TW ₆₀	16.7	X	223.69810	47.12057	25.06788	22.31368	0.0392161	0.23143891	2.6273129	20	8 8.9	20.8
509746 2008 TX ₇₀	17.4	X	297.68848	128.88462	190.98092	12.21538	0.2624734	0.22934222	2.6433015	20	5 2.3	20.8
509747 2008 TE ₇₈	16.3	X	136.51082	251.00675	176.76691	2.90321	0.2142278	0.12512011	3.9589922	20	4 25.8	22.6
509748 2008 TZ ₈₂	17.6	X	335.66371	158.88280	352.82768	20.33882	0.0865596	0.36970857	1.9226329	20	—	—
509749 2008 TC ₈₃	17.6	X	172.54469	152.66479	327.11557	3.71029	0.1284309	0.23038316	2.6353334	20	7 27.6	21.7
509750 2008 TL ₉₆	17.3	X	303.72427	25.54688	317.34742	4.21967	0.2551541	0.23619494	2.5919244	20	6 12.5	20.1
509751 2008 TA ₁₀₃	16.7	X	188.73854	203.12313	229.15949	13.16299	0.2297966	0.22326026	2.6910913	20	6 9.9	21.5
509752 2008 TH ₁₀₇	17.2	X	173.17199	84.74273	73.10641	3.93523	0.0761689	0.24228991	2.5482723	20	9 19.8	20.8
509753 2008 TO ₁₂₀	17.3	X	222.98502	243.84678	161.51048	7.26798	0.2041642	0.22605232	2.6688863	20</		

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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>
509761 2008 <i>UM</i>	17.0	X	229.30131	57.52876	339.81645	13.46903	0.2254168	0.22786883	2.6546836	20	5 28.9	21.7
509762 2008 <i>UK</i> ₁₃	17.8	X	243.79518	65.06650	9.69576	4.68340	0.1562408	0.23675961	2.5878016	20	8 13.0	21.4
509763 2008 <i>UW</i> ₃₁	17.1	X	219.03008	58.51118	47.34631	14.30207	0.1245946	0.23401602	2.6079884	20	9 4.5	21.2
509764 2008 <i>UP</i> ₃₂	17.5	X	4.82489	124.17502	195.12004	6.27292	0.1149762	0.23962511	2.5671298	20	9 21.4	20.2
509765 2008 <i>UZ</i> ₃₃	17.2	X	244.16342	31.51221	50.01024	15.70087	0.1167819	0.23500361	2.6006766	20	9 4.6	21.1
509766 2008 <i>UA</i> ₄₃	17.9	X	317.32256	282.83389	85.71506	3.27821	0.0771404	0.23772864	2.5807646	20	9 11.4	20.8
509767 2008 <i>UQ</i> ₄₆	17.5	X	223.99499	62.55393	19.39420	4.95102	0.1435232	0.22836562	2.6508322	20	7 31.8	21.4
509768 2008 <i>UY</i> ₄₇	18.4	X	94.61746	110.92084	223.17543	2.83761	0.2100152	0.26849262	2.3796576	20	—	—
509769 2008 <i>UW</i> ₆₉	17.8	X	263.62427	238.30142	147.62150	3.65558	0.2250822	0.23161388	2.6259895	20	6 20.8	21.5
509770 2008 <i>UF</i> ₇₇	17.1	X	263.00927	292.52461	61.58334	5.78572	0.1742835	0.22081087	2.7109557	20	5 16.1	21.0
509771 2008 <i>UV</i> ₉₀	17.6	X	230.29498	21.13336	29.80716	8.72665	0.1998678	0.22740226	2.6583135	20	6 20.6	21.9
509772 2008 <i>UZ</i> ₉₂	16.7	X	271.60107	343.10783	62.74849	15.35549	0.2544214	0.23519149	2.5992915	20	7 26.5	20.4
509773 2008 <i>UX</i> ₉₉	17.4	X	268.74548	355.62749	17.90767	2.46677	0.2479176	0.23015071	2.6371075	20	6 6.8	21.2
509774 2008 <i>UV</i> ₁₀₆	16.9	X	297.37222	358.28929	42.11064	13.21909	0.0650392	0.24097430	2.5575388	20	9 30.2	20.1
509775 2008 <i>UD</i> ₁₁₃	17.7	X	221.55880	37.19103	3.06425	4.86443	0.1758322	0.22240415	2.6979928	20	5 30.9	22.2
509776 2008 <i>UN</i> ₁₁₉	17.6	X	262.71099	89.90235	331.89192	3.69100	0.0813179	0.23525121	2.5988515	20	8 29.7	20.7
509777 2008 <i>UN</i> ₁₂₃	16.4	X	267.81206	102.20761	250.36682	12.71657	0.1486855	0.22303827	2.6928767	20	5 22.8	20.1
509778 2008 <i>UG</i> ₁₄₅	17.9	X	256.78860	195.50633	210.12807	5.32236	0.1625916	0.23022645	2.6365291	20	7 16.4	21.7
509779 2008 <i>UE</i> ₁₅₈	17.6	X	215.78057	247.25361	222.27423	11.77712	0.2202402	0.23051578	2.6343225	20	8 14.6	22.1
509780 2008 <i>UF</i> ₁₇₄	17.7	X	225.49364	89.18281	34.43573	3.54522	0.1858303	0.23677136	2.5877159	20	9 21.1	21.4
509781 2008 <i>US</i> ₁₇₆	17.7	X	199.88164	219.27762	240.16621	3.84987	0.1263886	0.22877522	2.6476672	20	7 27.5	21.8
509782 2008 <i>UF</i> ₁₇₈	16.9	X	143.22922	301.50171	227.17667	11.90757	0.1373395	0.23226568	2.6210744	20	8 24.8	21.3
509783 2008 <i>UX</i> ₁₈₂	17.2	X	292.25695	258.91486	63.11202	3.10471	0.2157261	0.22726114	2.6594139	20	5 3.9	20.5
509784 2008 <i>UR</i> ₁₈₅	17.6	X	267.42840	310.96957	67.83034	3.11303	0.2191995	0.227773812	2.6556992	20	6 16.4	21.4
509785 2008 <i>UR</i> ₁₉₃	16.1	X	259.38645	3.80758	53.25682	33.32014	0.2764270	0.23160022	2.6260928	20	7 24.9	20.7
509786 2008 <i>UR</i> ₂₀₅	17.5	X	257.15143	149.79657	250.35697	9.00821	0.2238357	0.22893097	2.6464662	20	7 1.4	21.3
509787 2008 <i>UU</i> ₂₂₉	17.7	X	254.77742	23.25635	10.48147	3.80320	0.1755249	0.22559059	2.6725267	20	6 27.5	21.6
509788 2008 <i>UU</i> ₂₃₀	17.5	X	261.63334	315.54865	80.95949	5.90227	0.1898153	0.23017002	2.6369600	20	7 7.7	21.2
509789 2008 <i>UX</i> ₂₃₁	17.6	X	229.83667	209.47012	205.18881	2.35297	0.1410634	0.22991796	2.6388869	20	6 30.8	21.4
509790 2008 <i>US</i> ₂₃₈	17.2	X	116.25427	273.13057	256.09763	10.55168	0.20216523	0.22641541	2.6660322	20	7 19.2	21.0
509791 2008 <i>UY</i> ₂₄₁	17.2	X	291.12660	192.46561	162.73692	14.94145	0.2806927	0.23415338	2.6069684	20	6 7.9	20.9
509792 2008 <i>UK</i> ₂₄₂	16.9	X	242.27662	252.27593	150.26217	13.65791	0.2669798	0.22732801	2.6588923	20	6 16.7	21.5
509793 2008 <i>UO</i> ₂₄₇	17.9	X	238.75796	220.55504	220.81815	1.40040	0.1919151	0.23008348	2.6376212	20	8 8.5	21.9
509794 2008 <i>UX</i> ₂₅₄	17.6	X	294.60916	318.20341	44.86700	5.18415	0.1984900	0.23262951	2.6183408	20	7 7.2	20.7
509795 2008 <i>UB</i> ₂₅₇	17.0	X	248.64042	287.91744	99.05504	14.26123	0.1926809	0.22662871	2.6643591	20	6 10.7	21.0
509796 2008 <i>UX</i> ₂₅₉	17.0	X	250.80483	268.39383	101.72054	10.51968	0.2331589	0.22598771	2.6693950	20	5 19.5	21.3
509797 2008 <i>UQ</i> ₂₉₁	18.0	X	274.90629	114.34279	295.66904	2.15267	0.1417614	0.23694208	2.5864728	20	8 21.0	21.0
509798 2008 <i>UQ</i> ₂₉₈	17.2	X	171.71457	105.78680	24.38213	7.88682	0.1538598	0.22545035	2.6736349	20	8 11.2	21.6
509799 2008 <i>UJ</i> ₃₀₃	17.2	X	275.87666	322.50309	46.86915	11.13118	0.2181252	0.22833900	2.6510382	20	6 13.3	20.9
509800 2008 <i>US</i> ₃₀₈	17.6	X	252.25852	150.67521	268.32231	6.91703	0.1036126	0.23151501	2.6267371	20	8 5.5	21.3
509801 2008 <i>UX</i> ₃₃₇	17.3	X	187.72154	85.21035	47.60112	12.71014	0.1980241	0.22878282	2.6476085	20	8 31.3	21.9
509802 2008 <i>UT</i> ₃₅₁	17.1	X	285.02351	319.87130	72.59633	15.14703	0.1865918	0.23509659	2.5999909	20	8 9.7	20.5
509803 2008 <i>UX</i> ₃₅₂	16.9	X	265.99695	299.00056	93.84972	7.11102	0.0847600	0.22670128	2.6637905	20	7 24.9	20.4
509804 2008 <i>UJ</i> ₃₅₉	17.2	X	274.88239	237.59156	120.39718	7.03191	0.3175032	0.23012553	2.6372999	20	5 17.6	21.2
509805 2008 <i>UM</i> ₃₆₀	16.8	X	319.75390	69.15946	224.25340	10.89187	0.2942135	0.22958317	2.6414518	20	4 21.8	19.4
509806 2008 <i>VA</i>	19.1	X	69.13229	160.28119	223.11576	28.29912	0.0725660	0.44066261	1.7102722	20	—	—
509807 2008 <i>VT</i> ₂	16.5	X	248.77480	136.99333	264.77132	7.70744	0.3352676	0.22652764	2.6651516	20	6 13.7	20.9
509808 2008 <i>VA</i> ₅	16.7	X	323.59525	73.80584	291.23362	5.95935	0.1948940	0.24049301	2.5609499	20	9 5.9	19.0
509809 2008 <i>VA</i> ₁₁	17.4	X	219.52459	337.71545	131.60737	4.01961	0.1380896	0.23299661	2.6155871	20	8 31.7	21.0
509810 2008 <i>VD</i> ₁₄	16.7	X	256.62173	295.02746	67.71754	17.51833	0.2689531	0.22448473	2.6812966	20	5 12.2	21.0
509811 2008 <i>VA</i> ₂₂	17.3	X	242.61290	18.34655	57.66292	14.17156	0.2129888	0.23158798	2.6261854	20	8 8.9	21.5
509812 2008 <i>VD</i> ₃₂	17.0	X	340.16323	267.74650	69.95588	9.55759	0.1831952	0.23836594	2.5761625	20	9 11.6	19.5
509813 2008 <i>VM</i> ₄₈	17.8	X	255.69938	164.50471	227.81934	0.58117	0.1634743	0.22607218	2.6687300	20	6 28.1	21.7
509814 2008 <i>UQ</i> ₆₆	17.2	X	185.93836	9.21473	98.28811	8.76260	0.2672005	0.22222859	2.6994136	20	7 20.8	21.9
509815 2008 <i>VP</i> ₇₁	17.7	X	208.52353	177.17643	269.52772	3.85369	0.2168652	0.22310618	2.6923301	20	7 14.5	22.1
509816 2008 <i>VT</i> ₈₁	17.2	X	188.85028	62.37062	100.04502	10.08033	0.1175341	0.23496931	2.6009297	20	10 12.4	21.3
509817 2008 <i>WF</i> ₁	17.2	X	253.81497	162.43808	258.17948	13.37238	0.2294533	0.23225469	2.6211571	20	7 21.4	21.2
509818 2008 <i>WG</i> ₃₆	17.6	X	233.96096	184.02819	238.45505	2.95555	0.2116982	0.22634698	2.6665695	20	7 7.8	21.8
509819 2008 <i>WY</i> ₃₉	17.9	X	213.89177	265.06372	195.56025	1.61886	0.1569321	0.22868284	2.6483802	20	8 10.8	21.9
509820 2008 <i>WD</i> ₄₇	17.6	X	213.23644	181.26576	243.50044	4.56716	0.1293395	0.22088482	2.7103505	20	6 26.9	21.8
509821 2008 <i>WQ</i> ₆₃	20.1	X	337.66793	228.74646	317.35719	0.92061	0.6070342	0.43172290	1.7338013	20	—	—
509822 2008 <i>WP</i> ₇₃	17.3	X	254.47192	127.10212	258.25845	10.61031	0.2175422	0.22407385	2.6845733	20	6 10.6	21.1
509823 2008 <i>WA</i> ₇₄	17.4	X	207.12736	359.09241	90.80397	13.01445	0.2053162	0.22000419	2.7175784	20	7 18.8	22.0
509824 2008 <i>WT</i> ₈₄	17.3	X	282.06855	330.18454	62.16074	8.16072	0.1116587	0.23012246	2.6373233	20	8 15.5	20.7
509825 2008 <i>WO</i> ₉₉	17.3	X	243.93805	327.00322	77.68864	4.40605	0.1976683	0.22479329	2.6788423	20	6 26.9	21.4
509826 2008 <i>WE</i> ₁₁₀	17.7	X	183.50494	244.83527	264.40103	1.37779	0.1398000	0.23113608	2.6296072	20	9 12.5	21.8
509827 2008 <i>WK</i> ₁₁₁	17.3	X	198.03972	8.84660	57.61243	6.34950	0.0384416	0.21745985	2.7387349	20	6 17.5	21.2
509828 2008 <i>WA</i> ₁₃₆	17.3	X	217.47251	16.15549	93.98160	7.94863	0.1768040	0.22819545	2.6521499	20	8 28.4	21.5
509829 2008 <i>WZ</i> ₁₃₈	16.8	X	264.09344	305.78941	87.51394	14.34555	0.1783990	0.22713608	2.6603899	20	7 7.7	20.5
509830 2008 <i>XQ</i> ₁	16.9	X	235.20231	161.79118	281.52506	6.79595	0.3487531	0.22839062	2.6506387	20	7 22.4	21.4
509831 2008 <i>XC</i> ₆	17.0	X	265.16522	134.89265	277.08189	12.						

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	<i>H</i>	<i>G</i>	<i>M</i>	ω	Ω	<i>i</i>	<i>e</i>	μ	<i>a</i>	TE	Oppos.	<i>V</i>
509841 2008 YO ₅₀	17.0	X	178.62440	8.36608	104.59956	10.29661	0.1105354	0.21319442	2.7751438	20	7 24.3	21.2
509842 2008 YX ₅₀	17.2	X	168.08750	51.38277	109.50044	12.92067	0.1266729	0.22163908	2.7041981	20	9 17.6	21.6
509843 2008 YK ₅₅	16.8	X	317.42221	236.32861	107.90397	6.90540	0.0497965	0.21769399	2.7367708	20	8 6.6	20.3
509844 2008 YX ₆₅	17.8	X	233.51063	104.99322	312.09264	5.47701	0.3474577	0.22247361	2.6974312	20	6 19.8	22.7
509845 2008 YV ₇₄	17.8	X	253.26807	293.38331	96.40476	10.07715	0.2204663	0.22050822	2.7134356	20	6 15.1	21.9
509846 2008 YF ₇₅	16.8	X	252.25638	125.86066	305.97550	14.98176	0.1161901	0.22548301	2.6733768	20	8 18.9	20.7
509847 2008 YX ₈₇	16.4	X	238.53564	293.13897	107.38632	14.07535	0.2027291	0.21927111	2.7236321	20	6 16.4	20.8
509848 2008 YQ ₉₆	17.8	X	229.42218	87.57348	303.67252	8.76542	0.3172268	0.21567991	2.7537822	20	5 16.3	22.9
509849 2008 YJ ₉₈	17.2	X	312.72058	235.48246	118.81649	7.18550	0.0407359	0.22032046	2.7149770	20	8 14.6	20.6
509850 2008 YM ₁₀₁	17.1	X	141.88834	23.69806	118.29385	10.19616	0.1021495	0.21240533	2.7820127	20	7 22.5	21.2
509851 2008 YE ₁₀₂	17.9	X	206.26334	223.20594	216.91295	1.53175	0.2068646	0.21658704	2.7460877	20	7 4.8	22.4
509852 2008 YR ₁₀₅	16.7	X	245.89509	83.72288	296.82590	6.15611	0.2467029	0.21495697	2.7599530	20	5 22.9	21.2
509853 2008 YE ₁₁₁	18.0	X	194.29714	18.55339	70.51821	5.68976	0.0941300	0.22033236	2.7148793	20	7 11.0	22.0
509854 2008 YF ₁₁₁	16.8	X	62.05221	210.85036	74.54265	15.50593	0.1317815	0.23855954	2.5747685	20	11 5.7	20.5
509855 2008 YB ₁₂₃	17.2	X	220.55757	305.32048	120.73899	9.67901	0.1202847	0.21709803	2.7417770	20	7 7.2	21.4
509856 2008 YM ₁₃₃	17.7	X	226.12503	345.61924	98.53538	7.30194	0.1437661	0.22267510	2.6958038	20	8 5.1	21.7
509857 2008 YL ₁₃₇	16.9	X	97.86216	328.38422	282.04790	13.55730	0.0517199	0.22938448	2.6429769	20	10 11.2	20.9
509858 2008 YU ₁₃₉	17.8	X	219.83596	205.12089	229.40098	3.02819	0.0932101	0.21829542	2.7317417	20	7 19.4	21.9
509859 2008 YT ₁₆₁	17.2	X	140.88668	220.93468	271.42239	7.95546	0.1060509	0.21148534	2.7900750	20	7 8.6	21.5
509860 2008 YA ₁₆₆	17.2	X	250.76813	301.54698	107.53758	14.18173	0.2594531	0.22708346	2.6608009	20	7 2.7	21.2
509861 2008 YG ₁₆₆	17.1	X	194.28962	190.10223	281.70466	9.70323	0.2623316	0.22210604	2.7004064	20	7 30.2	21.8
509862 2008 YL ₁₇₀	17.4	X	194.56545	11.54729	88.50834	4.59245	0.1587494	0.21664729	2.7455786	20	7 22.3	21.7
509863 2008 YO ₁₇₁	16.3	X	224.62380	81.04838	308.35552	12.17254	0.2241367	0.21304394	2.7764504	20	5 14.8	21.2
509864 2009 AO ₂	16.8	X	261.56852	280.03421	97.36493	12.00921	0.2870809	0.22312260	2.6921981	20	6 1.2	21.0
509865 2009 AO ₂₆	16.6	X	106.77703	62.65751	115.93897	14.41563	0.1287269	0.20995176	2.8036451	20	8 3.3	20.7
509866 2009 AZ ₂₇	16.9	X	176.15759	166.82540	308.15453	8.75261	0.1647973	0.21363535	2.7713241	20	7 23.5	21.3
509867 2009 AR ₃₁	17.3	X	141.12090	233.49110	261.44763	3.01986	0.1429927	0.20982325	2.8047897	20	7 14.3	21.7
509868 2009 AH ₄₀	18.2	X	234.79676	106.88383	294.84351	7.53978	0.2960788	0.21824731	2.7321431	20	6 5.1	22.9
509869 2009 AJ ₄₁	16.9	X	184.85014	204.94673	278.57159	13.57783	0.2062079	0.22290615	2.6939406	20	8 5.8	21.6
509870 2009 AF ₄₆	17.0	X	162.84618	17.88917	111.27564	9.20269	0.1698074	0.21567256	2.7538448	20	7 29.4	21.6
509871 2009 BX ₂	17.0	X	247.20584	269.30044	122.40623	14.13593	0.4123391	0.22649855	2.6653798	20	5 28.3	22.0
509872 2009 BD ₄	16.8	X	190.37688	222.44080	273.12205	10.52807	0.2484414	0.22178030	2.7030499	20	8 22.8	21.7
509873 2009 BW ₄	16.8	X	190.17971	296.79254	151.35589	10.29554	0.1519308	0.21169759	2.7882098	20	7 2.4	21.4
509874 2009 BT ₆	16.8	X	232.28145	163.63686	266.83679	6.90860	0.2194645	0.22025124	2.7155458	20	7 14.9	21.1
509875 2009 BO ₁₉	17.1	X	286.90838	49.15236	310.32861	8.01958	0.1858177	0.21839061	2.7309479	20	6 21.4	20.6
509876 2009 BB ₂₆	17.4	X	222.47467	342.46183	89.50562	5.32554	0.0521846	0.21552026	2.7551420	20	7 24.9	21.2
509877 2009 BJ ₃₆	17.7	X	165.92510	107.56569	36.43731	2.82777	0.1854185	0.21544693	2.7557671	20	8 20.2	22.2
509878 2009 BK ₄₂	17.9	X	164.90102	35.54970	112.34701	2.45640	0.1648340	0.21555232	2.7548688	20	8 23.7	22.4
509879 2009 BV ₄₄	17.3	X	213.99554	113.74685	319.86026	6.91822	0.2075377	0.21302509	2.7766143	20	7 4.3	21.9
509880 2009 BO ₆₀	16.7	X	218.36147	354.04673	79.18323	14.64346	0.1559305	0.22424849	2.6831793	20	7 11.8	20.9
509881 2009 BK ₆₂	16.9	X	219.64109	306.54403	104.95001	8.91842	0.05220074	0.21502211	2.7593956	20	6 10.8	21.4
509882 2009 BN ₆₄	17.1	X	227.52583	299.59310	121.14015	8.76916	0.2142551	0.21579174	2.7528307	20	6 29.3	21.7
509883 2009 BA ₆₅	17.1	X	172.16742	191.48578	323.47895	14.15471	0.1950366	0.21846358	2.7303397	20	9 3.7	21.8
509884 2009 BZ ₆₇	16.8	X	132.09782	234.02885	328.83196	14.45890	0.2183244	0.21508970	2.7588175	20	9 26.0	21.7
509885 2009 BY ₇₃	17.2	X	181.74001	139.62728	324.63927	8.27159	0.2410423	0.21057105	2.7981454	20	7 14.6	22.1
509886 2009 BC ₈₅	17.5	X	201.88456	180.53810	275.16071	2.31611	0.1618912	0.21612489	2.7500010	20	7 22.7	21.8
509887 2009 BQ ₈₈	17.6	X	230.23773	268.21026	140.24392	3.16364	0.2750379	0.21614913	2.7497955	20	6 11.9	22.2
509888 2009 BJ ₉₇	16.8	X	112.11549	74.16944	145.11139	12.12789	0.1090291	0.21572223	2.7534221	20	10 1.2	21.0
509889 2009 BV ₉₇	17.6	X	221.07640	16.56120	87.64348	13.91190	0.2464752	0.22915942	2.6447070	20	8 19.3	22.1
509890 2009 BA ₁₁₆	17.4	X	185.32533	345.64433	121.96745	2.19983	0.0990897	0.21539194	2.7562361	20	7 24.4	21.5
509891 2009 BC ₁₁₉	17.3	X	125.13312	73.98752	132.43575	8.86993	0.1530203	0.21929524	2.7234323	20	10 1.3	21.7
509892 2009 BK ₁₂₁	17.7	X	115.80520	318.14490	230.00231	1.05975	0.0826792	0.21126986	2.7919718	20	8 19.9	21.6
509893 2009 BZ ₁₂₆	17.7	X	134.51351	58.91415	148.04663	5.91667	0.1878385	0.21866883	2.7286310	20	10 10.2	22.2
509894 2009 BF ₁₆₈	17.1	X	232.55775	185.70519	237.21762	4.98001	0.0503937	0.21136753	2.7911116	20	7 23.3	21.0
509895 2009 BT ₁₇₈	16.9	X	172.32936	247.00947	334.16908	27.30531	0.4281049	0.22581331	2.6707692	20	11 5.6	22.8
509896 2009 CK ₁₅	17.3	X	83.58664	104.49286	115.45469	4.92541	0.0400684	0.21290396	2.7776673	20	8 18.5	21.2
509897 2009 CS ₂₅	17.1	X	213.87886	292.65713	127.25181	8.38685	0.2751917	0.21187268	2.7866734	20	6 13.5	22.0
509898 2009 CF ₂₈	17.5	X	214.48261	319.71591	118.87020	2.77865	0.1827949	0.21330366	2.7741962	20	7 11.9	21.8
509899 2009 CQ ₃₈	17.1	X	291.01508	73.35614	312.60278	6.24481	0.1023934	0.22079182	2.7111116	20	8 16.3	20.5
509900 2009 CV ₅₀	17.1	X	189.53593	153.26485	349.69715	9.30442	0.1814946	0.22040780	2.7142598	20	9 8.3	21.3
509901 2009 DK	17.4	X	109.29068	45.21075	199.61129	3.83045	0.1204439	0.22190342	2.7020501	20	10 28.5	21.3
509902 2009 DW ₂	17.2	X	259.74306	305.07153	84.59132	8.03726	0.1905903	0.22623381	2.6674587	20	6 25.7	21.0
509903 2009 DK ₁₉	17.3	X	195.72438	99.93002	5.94805	3.95103	0.1614632	0.21158520	2.7891970	20	7 30.9	21.7
509904 2009 DB ₃₀	17.4	X	262.28848	232.40318	153.95157	2.98389	0.0671271	0.20587641	2.8405231	20	7 11.4	21.2
509905 2009 DJ ₄₂	17.2	X	133.11180	44.90960	156.08398	11.01460	0.1933843	0.21598843	2.7511592	20	10 2.1	21.8
509906 2009 DO ₉₃	18.3	X	225.12829	34.52138	103.91216	3.60291	0.0685583	0.30992160	2.1625599	20	11 9.2	20.6
509907 2009 DH ₉₆	17.3	X	208.52583	142.55585	139.05175	8.73135	0.2156984	0.21869080	2.7284482	20	8 2.9	21.7
509908 2009 DN ₁₁₂	17.2	X	157.06915	8.52831	153.65207	8.67091	0.1578991	0.21391193	2.7689347	20	9 2.9	21.7
509909 2009 EB ₁₆	16.5	X	309.34254	140.72144	132.07160	2.92597	0.1801457	0.18496927	3.0507246	20	4 1.9	20.3
509910 2009 FY ₃	16.7	X	104.74314	248.43326	1.87832	14.94854	0.2184044	0.21376523	2.7702014	20	10 30.6	21.5
509911 2009 FW ₇	16.1	X	98.55792	65.81466	29.42640	11.00605	0.0857439	0.18114425	3.0935206	20	4 4.5	20.4
509912 2009 FD ₁₇	17.1	X	177.08960	138.52301	15.53267	24.96752	0.2885324	0.21684727	2.7438903	20	9 16.3	22.3
509913 2009 FC ₄₀	16.7	X	141.79914	153.53160	73.							

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>
509921 2009 <i>HK</i> ₄₂	18.8	X	142.57732	127.29090	84.11453	4.62831	0.2032746	0.30098333	2.2051650	20	10 31.9	22.3
509922 2009 <i>HN</i> ₆₂	18.4	X	90.57756	140.58458	152.58443	4.58628	0.1775416	0.30670710	2.1776437	20	12 26.8	21.8
509923 2009 <i>HS</i> ₆₇	16.4	X	153.97072	75.56716	127.93262	15.04208	0.2894022	0.21568024	2.7537794	20	10 25.2	21.7
509924 2009 <i>HS</i> ₈₇	15.9	X	311.03084	162.56582	110.24230	6.71874	0.1067257	0.17924238	3.1153648	20	4 17.5	20.1
509925 2009 <i>HW</i> ₁₀₈	13.1	X	285.72370	213.07880	84.67609	31.24455	0.0678868	0.08171300	5.2594694	20	5 6.2	20.3
509926 2009 <i>NY</i>	15.3	X	331.14301	213.63008	120.66399	17.85313	0.1769637	0.18036291	3.1024483	20	8 1.3	18.6
509927 2009 <i>OE</i>	17.9	X	139.71442	225.85562	82.24170	23.28614	0.1012214	0.39971913	1.8251536	20	—	—
509928 2009 <i>OX</i> ₂	17.6	X	337.47270	189.09304	124.41036	13.54261	0.2733638	0.26806992	2.3821585	20	7 18.7	18.7
509929 2009 <i>OV</i> ₈	17.4	X	291.60475	15.61362	321.13400	9.23197	0.2774205	0.25835963	2.4414788	20	5 8.1	20.8
509930 2009 <i>OV</i> ₂₀	17.2	X	296.02848	261.44126	118.02822	11.14311	0.2422301	0.26686004	2.3893532	20	7 29.7	19.5
509931 2009 <i>ON</i> ₂₂	15.8	X	353.31232	354.69706	291.46717	10.23872	0.1729743	0.17527654	3.1621819	20	7 8.4	19.3
509932 2009 <i>OH</i> ₂₄	17.7	X	311.67094	56.70434	310.86857	10.62219	0.2864407	0.26713268	2.3877272	20	8 6.0	19.2
509933 2009 <i>PJ</i> ₈	16.7	X	349.84345	6.53277	316.19809	6.28864	0.1294438	0.26941024	2.3742511	20	9 4.3	18.9
509934 2009 <i>PF</i> ₁₉	18.5	X	306.71877	34.99332	355.74443	2.34535	0.1734930	0.26917046	2.3756609	20	9 21.1	20.3
509935 2009 <i>QL</i> ₈	19.4	X	334.93815	339.65698	84.48707	4.24016	0.5405565	0.36730860	1.9309987	20	—	—
509936 2009 <i>QT</i> ₁₉	18.0	X	329.14775	19.75838	337.97267	1.93688	0.2167444	0.27127456	2.3633607	20	9 19.1	19.2
509937 2009 <i>QU</i> ₃₁	17.9	X	348.31881	339.52218	0.87215	2.60431	0.2365730	0.27274997	2.3548301	20	10 14.3	19.4
509938 2009 <i>QN</i> ₄₆	17.9	X	308.87771	16.31515	347.68681	2.77096	0.2095782	0.26390434	2.4071604	20	8 7.2	19.9
509939 2009 <i>QB</i> ₅₁	17.8	X	8.55590	190.21300	137.68475	4.75504	0.1896010	0.27450386	2.3447889	20	11 2.4	20.1
509940 2009 <i>QK</i> ₅₁	15.7	X	6.83325	287.59985	349.73191	25.51615	0.2438578	0.17244321	3.1967252	20	8 9.6	19.3
509941 2009 <i>QD</i> ₅₃	15.9	X	4.11551	335.84866	331.00867	16.05160	0.0962561	0.17809910	3.1286830	20	8 23.1	19.7
509942 2009 <i>QZ</i> ₅₄	17.3	X	287.48429	126.15632	234.32094	8.04175	0.2363368	0.25899456	2.4374869	20	6 15.7	20.2
509943 2009 <i>QH</i> ₅₅	18.5	X	250.60455	240.33064	163.91328	2.83887	0.1979381	0.25583607	2.4575076	20	7 4.4	22.0
509944 2009 <i>RQ</i> ₁₃	18.1	X	332.05416	26.89575	326.18617	0.71018	0.1981932	0.26676114	2.3899437	20	9 17.7	19.8
509945 2009 <i>RX</i> ₁₅	18.4	X	15.13519	151.95645	176.19024	1.36877	0.1909881	0.27216611	2.3581967	20	11 5.8	20.9
509946 2009 <i>RV</i> ₄₈	18.3	X	295.22804	27.47380	15.81242	3.55188	0.1234160	0.26607261	2.3940650	20	9 23.5	20.6
509947 2009 <i>RY</i> ₇₄	17.8	X	9.39737	312.01058	13.42492	10.25535	0.2528117	0.27435282	2.3456494	20	11 5.9	20.2
509948 2009 <i>SF</i> ₂₀	17.2	X	334.07926	5.86286	332.31111	10.99190	0.2686666	0.26595562	2.3947670	20	8 26.3	18.2
509949 2009 <i>SN</i> ₂₀	18.1	X	322.61151	267.71214	86.23772	1.72099	0.2431401	0.26663623	2.3906901	20	8 21.8	19.3
509950 2009 <i>SH</i> ₄₀	18.3	X	273.02161	150.26756	283.73736	0.58711	0.1553234	0.26514938	2.3996191	20	9 24.1	20.9
509951 2009 <i>SX</i> ₄₅	16.3	X	240.22250	264.77181	25.30922	12.88781	0.2634162	0.22800922	2.6535938	20	2 4.6	21.1
509952 2009 <i>SJ</i> ₅₀	18.1	X	245.21496	47.98830	19.07490	1.51751	0.1459822	0.26038710	2.4287887	20	8 6.6	21.4
509953 2009 <i>SA</i> ₅₁	18.1	X	327.22965	285.95215	34.32207	1.44428	0.1838277	0.26106599	2.4245762	20	7 10.2	19.9
509954 2009 <i>SN</i> ₆₇	15.7	X	239.16708	327.72726	41.64595	10.78356	0.0894728	0.15033989	3.5028368	20	5 18.3	21.0
509955 2009 <i>SA</i> ₈₂	17.8	X	326.22697	8.79321	356.95000	6.47329	0.1549269	0.26961972	2.3730212	20	9 25.4	19.7
509956 2009 <i>SF</i> ₁₃₃	18.0	X	329.79329	285.94057	60.00144	3.00013	0.2306099	0.26448268	2.4036500	20	8 30.5	19.3
509957 2009 <i>SV</i> ₁₄₆	17.9	X	309.72254	315.10210	63.37084	2.63247	0.1820946	0.26400036	2.4065767	20	9 7.3	19.9
509958 2009 <i>SN</i> ₁₅₂	18.0	X	309.01172	58.50985	329.21858	4.37154	0.2066169	0.26927437	2.3750497	20	9 16.3	19.8
509959 2009 <i>SZ</i> ₁₅₂	18.3	X	280.65292	43.84838	319.92906	2.45675	0.2153879	0.25795328	2.4440421	20	6 14.0	21.3
509960 2009 <i>SK</i> ₁₈₇	17.5	X	288.45905	333.68200	75.15568	3.82417	0.1652372	0.26368884	2.4084717	20	9 14.6	19.9
509961 2009 <i>SD</i> ₂₀₂	18.0	X	305.41560	317.75846	51.88934	3.06411	0.2368502	0.26219692	2.4175993	20	8 4.2	20.0
509962 2009 <i>SZ</i> ₂₀₂	18.0	X	352.57169	304.50943	39.48875	7.34713	0.1686129	0.26914904	2.3757869	20	10 21.1	19.9
509963 2009 <i>SM</i> ₂₅₂	17.8	X	275.47678	278.17575	111.14256	2.91142	0.2139829	0.25658451	2.4527263	20	7 13.6	20.7
509964 2009 <i>SF</i> ₂₅₅	15.9	X	20.16787	166.76618	125.78633	19.39784	0.3258019	0.18199740	3.0838454	20	10 10.5	19.7
509965 2009 <i>SJ</i> ₂₅₈	18.2	X	306.52404	270.34923	116.72832	2.38662	0.1972091	0.26638297	2.3922051	20	9 12.3	20.0
509966 2009 <i>SG</i> ₂₈₀	18.1	X	308.04272	316.28530	72.44573	3.75542	0.1889588	0.26608541	2.3939882	20	9 21.1	19.9
509967 2009 <i>SD</i> ₂₈₉	18.3	X	256.79341	322.01969	112.49349	2.59202	0.1676078	0.26085242	2.4258995	20	8 29.4	21.2
509968 2009 <i>SN</i> ₃₁₇	18.2	X	345.90943	194.02749	143.96227	1.69948	0.1952570	0.26625990	2.3929422	20	9 28.2	19.7
509969 2009 <i>SC</i> ₃₂₁	17.5	X	345.91510	86.54480	247.60435	6.39339	0.2348334	0.26747816	2.3856707	20	9 20.9	19.1
509970 2009 <i>SZ</i> ₃₂₃	18.4	X	269.20409	27.93900	21.25813	9.33520	0.1961774	0.25975028	2.4327568	20	8 9.7	21.5
509971 2009 <i>SS</i> ₃₃₃	18.3	X	262.01247	333.27358	89.97332	2.35921	0.1711319	0.26414851	2.4056767	20	8 20.8	21.1
509972 2009 <i>SO</i> ₃₄₁	18.3	X	81.40744	172.59939	132.17216	3.75284	0.1676026	0.28363061	2.2942143	20	12 27.8	21.6
509973 2009 <i>SJ</i> ₃₄₂	18.2	X	264.70689	195.10212	234.68969	0.64759	0.1760168	0.26184630	2.4197570	20	8 31.6	20.9
509974 2009 <i>SG</i> ₃₅₈	18.2	X	285.61086	90.24779	305.34811	1.60680	0.2012591	0.26080361	2.4262022	20	8 10.6	20.5
509975 2009 <i>TW</i> ₉	17.4	X	298.96493	319.68869	48.11894	10.05847	0.2647435	0.26039587	2.4287342	20	7 12.9	19.9
509976 2009 <i>TA</i> ₁₁	18.0	X	72.93544	323.26648	30.90298	20.06696	0.0959211	0.38277768	1.8786173	20	—	—
509977 2009 <i>TF</i> ₁₁	17.4	X	338.43776	340.20998	23.02219	7.34366	0.1321322	0.26722974	2.3871490	20	10 16.7	19.6
509978 2009 <i>TX</i> ₁₄	17.4	X	325.95849	259.40474	99.26081	7.84516	0.2815559	0.26534318	2.3984505	20	9 12.5	18.6
509979 2009 <i>TC</i> ₁₈	17.6	X	303.97915	277.48856	99.14282	3.33808	0.2381347	0.26096361	2.4252103	20	8 11.8	19.5
509980 2009 <i>TL</i> ₁₉	18.1	X	9.75117	120.96817	201.99412	1.59855	0.2025536	0.26859888	2.3790300	20	10 26.7	20.4
509981 2009 <i>TH</i> ₂₃	17.6	X	326.43709	131.01296	220.67359	6.43294	0.3324874	0.26394718	2.4068999	20	8 13.3	18.6
509982 2009 <i>TN</i> ₂₅	17.6	X	325.30562	352.67832	11.60608	2.70653	0.2042882	0.26582007	2.3955810	20	9 19.6	18.9
509983 2009 <i>UP</i> ₁₈	18.0	X	20.95552	29.36497	69.09547	23.27781	0.0960954	0.39199714	1.8490449	20	—	—
509984 2009 <i>UT</i> ₄₉	18.0	X	303.17458	299.01898	65.94783	1.63726	0.2218117	0.25979238	2.4324940	20	7 24.1	20.1
509985 2009 <i>UE</i> ₅₁	18.6	X	353.14576	227.14369	222.13277	11.91192	0.1665695	0.37990686	1.8880694	20	—	—
509986 2009 <i>US</i> ₆₁	18.3	X	92.08903	311.45445	27.61344	18.69079	0.0759209	0.38600862	1.8681198	20	—	—
509987 2009 <i>UM</i> ₉₅	18.1	X	270.74147	348.03260	77.50531	2.35482	0.1828605	0.26168813	2.4207319	20	9 4.3	20.8
509988 2009 <i>UF</i> ₉₉	18.1	X	242.89738	293.95535	153.33359	1.86859	0.1450494	0.25747883	2.4470435	20	8 30.9	21.2
509989 2009 <i>UV</i> ₁₁₀	18.1	X	282.92628	5.76699	53.69622	6.89003	0.1209618	0.26109974	2.4243673	20	9 28.2	20.7
509990 2009 <i>US</i> ₁₁₃	18.3	X	337.38659	283.65135	73.45549	1.45966	0.0677653	0.26735038	2.3864308	20	10 3.2	20.8
509991 2009 <i>UT</i> ₁₂₈	18.0	X	256.33968	107.16415	353.62956	3.74842	0.1803062	0.26467494	2.4024858	20		

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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>
510001 2009 VR ₅₉	17.5	X	263.65961	350.02563	72.51651	9.97939	0.1819347	0.25665435	2.4522814	20	8 23.3	20.7
510002 2009 VP ₉₂	17.2	X	312.00887	93.68283	269.82984	5.91786	0.1468452	0.25996646	2.4314080	20	8 17.5	19.7
510003 2009 VH ₁₁₂	18.1	X	308.19818	207.85058	250.42356	18.90153	0.0947899	0.37156341	1.9162291	20	—	—
510004 2009 WT ₁₇	17.6	X	114.18444	201.25040	72.47261	7.22046	0.0606746	0.27607354	2.3358926	20	12 15.6	20.8
510005 2009 WJ ₂₄	17.4	X	287.07088	31.27360	66.24727	9.61118	0.1326148	0.27138396	2.3627255	20	11 28.8	19.4
510006 2009 WF ₂₅	17.6	X	285.31191	357.39386	96.87166	24.60043	0.0784210	0.36044866	1.9554217	20	12 27.2	18.6
510007 2009 WU ₂₇	18.0	X	217.71979	66.61756	58.64009	3.26665	0.1470404	0.25758746	2.4463555	20	9 22.2	21.4
510008 2009 WQ ₂₉	17.9	X	296.44521	331.00732	61.95319	7.45431	0.1143661	0.26340416	2.4102068	20	9 14.9	20.5
510009 2009 WU ₃₆	18.3	X	275.74704	31.29263	29.44825	2.96268	0.1968714	0.25869296	2.4393810	20	9 2.5	20.9
510010 2009 WK ₇₀	18.1	X	237.56911	39.17677	76.29357	2.39327	0.1445307	0.26044892	2.4284044	20	10 3.3	21.2
510011 2009 WQ ₁₄₅	18.2	X	53.12435	124.89637	229.37547	20.66673	0.1039239	0.37729241	1.8967816	20	—	—
510012 2009 WN ₂₆₀	17.0	X	321.37933	63.08096	259.56295	14.07947	0.1482170	0.24576958	2.5241624	20	7 2.5	19.6
510013 2009 YZ ₁	17.3	X	225.09851	273.32642	104.23155	28.48454	0.4012832	0.23716520	2.5848503	20	5 7.9	22.8
510014 2009 YN ₇	15.9	X	124.03830	216.96461	236.91947	3.23901	0.1782244	0.12650922	3.9299583	20	5 11.3	21.8
510015 2009 YL ₁₁	17.4	X	262.88805	153.41081	289.87512	11.98331	0.0867327	0.25360150	2.4719224	20	9 23.3	20.8
510016 2009 YJ ₁₄	18.3	X	97.75012	245.87639	98.62498	24.97729	0.0657253	0.37353308	1.9094869	20	—	—
510017 2009 WU ₂₁	17.8	X	243.07728	78.22121	339.22065	3.49996	0.2229708	0.24407388	2.5358400	20	7 11.0	21.5
510018 2010 AA ₄	17.8	X	164.44321	162.64362	117.24473	26.30966	0.1098683	0.37190530	1.9150545	20	—	—
510019 2010 AF ₂₁	18.3	X	321.46316	115.88542	305.60378	16.37511	0.1218491	0.35551547	1.9734693	20	—	—
510020 2010 AX ₃₁	17.0	X	68.55210	88.36681	129.56496	13.41628	0.1048965	0.22572434	2.6714709	20	8 6.1	20.5
510021 2010 AV ₅₀	17.4	X	124.27450	28.61091	147.91355	13.60816	0.1918436	0.23202413	2.6228932	20	8 24.6	21.6
510022 2010 AN ₇₇	17.7	X	227.91607	332.89886	92.49718	13.32367	0.2012329	0.24231503	2.5480962	20	6 29.9	22.1
510023 2010 AT ₁₂₅	16.1	X	1.59260	183.97756	139.09081	38.13157	0.0995735	0.22425291	2.6817650	20	9 22.9	19.8
510024 2010 BW ₆₀	15.6	X	22.60128	337.03453	257.81878	28.20275	0.0820554	0.24360279	2.5391082	20	6 16.2	18.5
510025 2010 BX ₉₉	15.8	X	210.66326	231.48146	75.75610	29.00468	0.2131453	0.17481234	3.1677774	20	2 9.4	21.6
510026 2010 BH ₁₃₀	17.4	X	115.30404	84.31638	138.30485	11.83741	0.1319030	0.22666117	2.6641048	20	10 12.6	21.7
510027 2010 CK ₄	18.0	X	164.01530	273.99651	340.97205	18.97576	0.0409385	0.35338362	1.9813983	20	—	—
510028 2010 CL ₁₇	17.1	X	106.18170	330.84574	266.12829	6.76118	0.2576883	0.22542335	2.6738484	20	10 22.5	21.8
510029 2010 CF ₃₁	17.1	X	76.38633	251.46682	353.88635	7.56580	0.2284150	0.22715849	2.6602150	20	10 5.4	21.2
510030 2010 CF ₃₃	17.5	X	140.13603	96.60205	95.26704	4.71201	0.1009181	0.23956420	2.5675650	20	9 27.6	21.4
510031 2010 CN ₄₁	17.3	X	67.59204	77.81717	322.36425	18.81032	0.0974489	0.37781422	1.8950348	20	—	—
510032 2010 CX ₉₈	17.5	X	88.02995	94.33425	149.30116	7.00007	0.1173732	0.23267196	2.6180223	20	10 7.8	21.4
510033 2010 CB ₁₀₄	17.9	X	267.33761	176.76900	348.12540	18.73387	0.0333632	0.35876327	1.9615410	20	—	—
510034 2010 CX ₁₅₂	17.8	X	206.66283	317.38414	147.71469	5.17326	0.2478066	0.23672304	2.5880681	20	8 3.7	22.1
510035 2010 CS ₁₆₁	17.4	X	200.14092	144.52747	342.94374	9.33516	0.1475855	0.23713715	2.5850542	20	9 2.6	21.3
510036 2010 CW ₁₈₁	17.7	X	132.66782	352.29589	175.45685	2.75975	0.1224144	0.23026645	2.6362238	20	8 16.6	21.8
510037 2010 CS ₁₈₂	17.6	X	164.85546	251.36861	289.39945	6.24194	0.1334099	0.24184736	2.5513800	20	10 2.7	21.7
510038 2010 CM ₁₈₃	17.7	X	181.56113	3.71134	150.82982	6.48159	0.2303363	0.23738796	2.5832330	20	9 15.7	22.1
510039 2010 CH ₁₈₅	17.8	X	346.73859	144.80407	322.14146	18.34804	0.0847797	0.37363470	1.9091406	20	—	—
510040 2010 CP ₂₀₆	15.7	X	223.70981	219.26226	101.68935	17.62530	0.0922447	0.18281831	3.0746068	20	3 11.5	20.7
510041 2010 CY ₂₁₃	16.8	X	207.33542	11.21998	105.82988	28.77493	0.2171279	0.23107743	2.6305222	20	8 26.4	21.5
510042 2010 DB ₆₄	17.1	X	179.96301	48.86881	151.12353	12.52988	0.2219831	0.23721182	2.5845117	20	11 11.3	21.6
510043 2010 DC ₇₆	17.0	X	92.93823	39.56756	178.49383	13.65491	0.2005595	0.22436964	2.6822133	20	9 15.5	21.2
510044 2010 DB ₇₉	16.9	X	129.30338	4.15633	169.21190	13.86001	0.1833134	0.22523742	2.6753197	20	8 22.5	21.3
510045 2010 EP ₂	16.9	X	122.21042	336.96607	193.04540	6.80575	0.2142468	0.22564758	2.6720767	20	8 13.3	21.4
510046 2010 ED ₃₁	18.6	X	356.86079	286.34433	160.98807	22.38791	0.0866711	0.36793782	1.9287966	20	—	—
510047 2010 EM ₃₅	16.2	X	184.90396	308.11922	169.10999	13.32947	0.1392895	0.23186109	2.6241227	20	8 2.9	20.5
510048 2010 EK ₇₂	17.2	X	359.59271	333.34081	354.18814	22.15123	0.0136872	0.23382604	2.6094009	20	9 16.0	20.6
510049 2010 EM ₇₇	16.8	X	166.59430	278.76987	179.12651	27.94127	0.1887885	0.22198195	2.7014127	20	6 23.4	21.9
510050 2010 EH ₁₀₇	17.5	X	133.50016	205.18396	356.68783	3.43950	0.1373447	0.23161069	2.6260136	20	9 30.7	21.5
510051 2010 EJ ₁₀₇	17.4	X	145.63391	199.65473	3.76207	6.27422	0.2397889	0.23458060	2.6038022	20	10 14.2	22.0
510052 2010 EB ₁₃₈	17.8	X	118.70400	202.61222	2.10902	3.85024	0.1559577	0.22844278	2.6502353	20	9 21.1	21.9
510053 2010 FQ ₃₁	17.5	X	153.04308	242.98873	273.90034	4.36867	0.2321540	0.23001131	2.6381729	20	8 23.6	22.1
510054 2010 FK ₆₉	16.0	X	312.57834	14.68332	337.30995	17.31509	0.1304946	0.20203610	2.8764052	20	8 3.7	19.5
510055 2010 FH ₈₁	21.6	X	141.56034	158.27543	84.62411	16.79410	0.2104801	0.72644424	1.2255599	20	—	—
510056 2010 FN ₉₂	16.8	X	150.95580	155.28265	36.80146	13.35850	0.2167183	0.23214629	2.6219730	20	10 8.9	21.3
510057 2010 FM ₉₇	17.5	X	102.57946	183.64915	47.55478	5.27811	0.2047466	0.22705839	2.6609968	20	10 13.2	21.8
510058 2010 GW ₆₅	17.9	X	299.14576	116.38736	34.65218	21.81740	0.0693875	0.36125108	1.9525251	20	—	—
510059 2010 GS ₁₄₃	17.1	X	142.54774	333.58884	188.88514	13.45638	0.1855814	0.22188949	2.7021631	20	8 19.1	21.7
510060 2010 GL ₁₄₅	17.5	X	101.56555	56.58077	189.56415	12.83423	0.2179159	0.22689621	2.6622646	20	10 31.4	21.9
510061 2010 GB ₁₄₆	16.2	X	154.83594	145.34177	341.37637	11.71445	0.1381523	0.22052305	2.7133140	20	7 20.9	20.6
510062 2010 GE ₁₅₉	17.7	X	146.41958	339.88320	230.31722	4.21572	0.2578376	0.23434035	2.6055815	20	10 23.2	22.3
510063 2010 HU ₂₁	14.3	X	330.10710	79.14990	178.60571	18.80714	0.0886062	0.08228181	5.2352027	20	5 2.2	21.0
510064 2010 HO ₄₅	16.3	X	126.25815	20.54181	91.11924	11.61359	0.0459966	0.18236974	3.0796465	20	5 23.4	20.8
510065 2010 HG ₅₉	16.3	X	71.53405	326.97112	273.20426	41.41502	0.1560636	0.30578419	2.1820232	20	8 26.2	20.4
510066 2010 HG ₇₄	16.7	X	25.17803	154.77345	77.35962	4.70502	0.0908946	0.18950278	3.0018731	20	6 16.9	20.4
510067 2010 HZ ₁₀₇	17.2	X	108.66502	110.96938	97.71332	14.30398	0.1557679	0.22017661	2.7161595	20	9 22.3	21.7
510068 2010 HX ₁₀₈	16.8	X	101.31429	144.35540	80.04660	14.37421	0.2017923	0.22380907	2.6866902	20	10 9.5	21.4
510069 2010 JZ ₂₉	16.9	X	166.88328	101.01709	70.15589	12.46337	0.1234687	0.22806414	2.6531678	20	10 1.5	21.2
510070 2010 JO ₇₂	16.9	X	80.97942	155.87678	94.45216	12.96869	0.1458475	0.22241749	2.6978849	20	10 14.9	21.1
510071 2010 JJ ₇₆	16.6	X	54.45871	209.18541	73.35262	17.19912	0.1207929	0.22359997	2.6883649	20	10 22.7	20.5
510072 2010 JL ₈₃	16.2	X	60.21637	120.40131	112.73846	13.24910	0.1598096	0.21359414	2.7716805	20	8 25.6	20.0
510073 2010 JF ₈₈	18.5	X	336.98109	212.09445	115.66591	17.31119	0.6582485	0.29541330	2.2327976	20		

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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>
510081 2010 KP ₉₇	16.2	X	293.65511	23.22976	303.81725	10.67069	0.2068595	0.18109653	3.0940640	20	5 11.5	20.5
510082 2010 KL ₁₀₀	16.0	X	224.40005	78.32719	315.34607	14.63073	0.2516149	0.17327537	3.1864822	20	5 18.2	21.7
510083 2010 KC ₁₁₄	16.5	X	288.39092	46.51121	308.07775	13.02155	0.0291816	0.18594977	3.0399909	20	7 10.7	20.6
510084 2010 KB ₁₁₇	16.4	X	297.40467	163.43478	170.46882	9.70765	0.1650673	0.18305269	3.0719818	20	6 5.7	20.6
510085 2010 LM ₁	16.9	X	127.47200	173.32764	74.58870	14.73213	0.2230453	0.23244164	2.6197515	20	11 23.8	21.4
510086 2010 LF ₉₆	16.2	X	263.02793	251.75064	333.83632	12.33247	0.2638603	0.17406342	3.1768573	20	—	—
510087 2010 MS ₈	15.9	X	132.84667	247.86715	281.73689	8.45475	0.0927803	0.18890755	3.0081755	20	8 11.9	20.5
510088 2010 MY ₂₄	15.8	X	189.68410	259.86448	164.50319	8.87956	0.1372755	0.17019945	3.2247592	20	6 3.8	21.1
510089 2010 MD ₃₆	16.2	X	246.37544	36.33472	343.20448	26.96207	0.1868258	0.17471891	3.1689066	20	5 20.5	21.8
510090 2010 MY ₉₃	16.3	X	257.83324	65.20535	290.75995	15.57838	0.1494310	0.17227860	3.1987613	20	5 13.4	21.3
510091 2010 NH ₃₅	16.7	X	257.70856	192.15199	211.45143	9.86248	0.0435038	0.18286753	3.0740551	20	7 27.3	21.2
510092 2010 OX ₆	17.3	X	141.45543	237.35709	330.51803	7.21569	0.1116116	0.23288108	2.6164548	20	10 12.7	21.4
510093 2010 OK ₁₀	16.3	X	65.39020	280.64253	313.27876	7.83491	0.0960717	0.18327249	3.0695251	20	8 16.6	20.6
510094 2010 OS ₄₀	16.3	X	306.06801	50.46645	273.44898	14.20544	0.2190220	0.17739485	3.1369580	20	5 26.1	20.4
510095 2010 ON ₅₅	15.9	X	192.79344	253.72179	203.43645	25.11532	0.2122348	0.17055026	3.2203355	20	7 8.4	21.8
510096 2010 OD ₆₄	16.3	X	263.50739	200.60118	89.77424	18.73479	0.2074792	0.18400793	3.0613408	20	3 5.1	21.5
510097 2010 OX ₁₂₆	14.9	X	284.75252	203.81496	102.20054	34.61627	0.2110055	0.16770073	3.2567124	20	4 26.4	20.3
510098 2010 PZ ₄₀	16.0	X	6.83580	306.17534	323.08491	15.23761	0.0657170	0.17182276	3.2044162	20	7 8.9	20.4
510099 2010 PZ ₆₁	18.5	X	349.32142	220.85904	151.35820	5.26159	0.1717763	0.30615502	2.1802609	20	12 9.9	20.4
510100 2010 PY ₇₀	15.6	X	238.26737	333.64275	74.00719	29.22130	0.1932265	0.17174333	3.2054041	20	6 21.3	20.8
510101 2010 RE ₈	15.8	X	201.49147	76.33820	341.08552	21.75707	0.1122888	0.17394771	3.1782659	20	6 2.9	21.2
510102 2010 RK ₁₁	16.6	X	3.69999	98.12408	195.38962	9.76101	0.0635184	0.18560699	3.0437326	20	7 31.7	20.7
510103 2010 RO ₂₂	18.4	X	306.44876	180.52448	197.05576	4.55099	0.2014646	0.29335321	2.2432387	20	8 29.2	19.8
510104 2010 RE ₅₀	16.1	X	256.75448	3.14800	9.43139	9.71845	0.1051033	0.17394036	3.1783556	20	6 9.1	20.9
510105 2010 RA ₆₉	18.2	X	358.51927	20.59192	333.19907	4.52117	0.1644749	0.30200717	2.2001783	20	11 23.5	20.3
510106 2010 RF ₆₂	18.1	X	322.84929	62.59839	314.96225	4.94175	0.1958048	0.29716388	2.2240201	20	10 13.5	19.5
510107 2010 RW ₈₀	18.1	X	313.90017	87.02398	256.88255	4.47957	0.1745687	0.28911611	2.2651025	20	7 22.3	19.8
510108 2010 RR ₁₀₀	16.0	X	278.75378	351.72218	358.42519	15.81493	0.0821248	0.17504736	3.1649414	20	6 10.6	20.7
510109 2010 RR ₁₀₁	18.4	X	299.46420	112.38837	300.68828	1.65415	0.1654177	0.29707988	2.2244393	20	10 19.9	19.8
510110 2010 RF ₁₀₃	18.1	X	268.96108	236.72656	195.56403	6.39220	0.1688233	0.29269951	2.2465774	20	9 16.6	20.5
510111 2010 RG ₁₁₂	17.0	X	284.05290	259.79391	72.48334	2.01332	0.1722898	0.17477498	3.1682288	20	5 14.4	21.3
510112 2010 RN ₁₄₉	16.3	X	210.24897	104.82058	336.77275	8.65971	0.0613097	0.18230618	3.0803622	20	7 20.9	20.9
510113 2010 RV ₁₅₆	16.0	X	276.97774	357.98961	340.76049	7.83865	0.0917890	0.17525806	3.1624042	20	5 23.1	20.5
510114 2010 SC ₂₃	16.7	X	318.59120	160.37638	182.30807	9.25023	0.1309874	0.18721776	3.0262492	20	7 23.5	20.5
510115 2010 SG ₄₀	16.5	X	277.84120	342.47059	21.82642	16.49149	0.1141155	0.17988193	3.1079763	20	6 24.5	21.1
510116 2010 TP ₆	17.9	X	1.61941	335.37253	23.92163	6.18592	0.2091753	0.30235732	2.1984794	20	12 15.9	20.2
510117 2010 TU ₁₇	16.1	X	289.04970	101.99968	275.49431	10.35871	0.0672197	0.18981622	2.9985675	20	8 1.5	20.2
510118 2010 TD ₂₁	16.7	X	173.40278	103.12136	8.53820	4.58028	0.0942582	0.17420284	3.1751621	20	7 16.0	21.6
510119 2010 TZ ₂₅	16.8	X	326.51395	118.33654	206.37715	7.88114	0.1139406	0.18551845	3.0447010	20	7 13.9	20.6
510120 2010 TT ₆₁	15.7	X	239.92931	228.75208	152.37803	10.26035	0.0983300	0.17321405	3.1872342	20	6 4.4	20.6
510121 2010 TN ₇₅	18.0	X	298.63944	37.94366	22.77079	7.28735	0.1019340	0.29941917	2.2128381	20	11 4.6	20.0
510122 2010 TK ₈₄	18.6	X	281.86477	64.32227	23.19688	4.30096	0.1246838	0.30222065	2.1991421	20	11 13.6	20.5
510123 2010 TA ₉₁	18.7	X	19.75092	194.13849	162.77464	2.95000	0.0513695	0.30777384	2.1726090	20	12 15.6	21.2
510124 2010 TA ₁₀₁	16.1	X	237.02585	6.11989	29.18060	11.38052	0.0708237	0.17403464	3.1772076	20	6 19.5	21.0
510125 2010 TG ₁₂₄	18.6	X	316.27637	314.76675	88.45097	1.19691	0.1498562	0.29971032	2.2114048	20	11 14.5	20.1
510126 2010 TY ₁₃₇	17.9	X	342.73897	47.56038	285.12153	2.92865	0.1947455	0.29143149	2.2530892	20	9 15.1	19.3
510127 2010 TL ₁₇₆	15.8	X	299.55359	69.20118	293.91205	13.86222	0.1141916	0.18302792	3.0722590	20	7 23.5	19.7
510128 2010 TQ ₁₇₆	17.9	X	344.13860	92.81499	284.48085	5.82027	0.1899197	0.30117212	2.2042433	20	12 8.0	19.5
510129 2010 UX ₁	16.3	X	276.36827	118.84954	334.60024	8.70665	0.1023155	0.17263278	3.1943847	20	6 10.7	20.7
510130 2010 US ₉	18.0	X	328.26366	155.58904	229.55866	1.89705	0.1981402	0.29704846	2.2245962	20	11 14.5	19.3
510131 2010 UC ₄₅	18.3	X	309.83966	85.36739	289.47380	4.35771	0.1687550	0.28930444	2.2641193	20	9 4.3	20.1
510132 2010 UY ₅₇	18.2	X	295.53454	349.81836	36.48130	5.99954	0.1434219	0.28374064	2.2936211	20	9 1.0	20.3
510133 2010 UH ₅₉	18.1	X	309.52881	352.58454	41.70388	6.78186	0.1026725	0.28840177	2.2688412	20	10 15.1	20.1
510134 2010 UJ ₆₉	18.0	X	12.41806	348.22095	353.42706	6.99514	0.1922281	0.30244197	2.1980691	20	12 3.3	20.4
510135 2010 UY ₆₉	15.5	X	253.36495	349.67421	50.73571	27.59616	0.1258245	0.17343048	3.1845820	20	7 8.4	20.6
510136 2010 UH ₇₀	17.5	X	318.07171	340.44608	49.59011	7.53089	0.1321203	0.29284756	2.2458201	20	10 26.2	19.3
510137 2010 UK ₇₀	18.3	X	317.90603	297.53765	70.50765	2.64071	0.2682658	0.29006731	2.2601479	20	9 8.8	19.0
510138 2010 UJ ₈₀	18.1	X	263.50281	198.29867	306.36200	5.26934	0.0656904	0.30651878	2.1785356	20	—	—
510139 2010 UX ₈₂	16.5	X	262.87260	166.84395	196.57818	15.74297	0.0987127	0.17458309	3.1705499	20	6 7.5	21.3
510140 2010 UK ₁₀₈	14.0	X	317.07661	103.52660	300.58400	6.07187	0.0441997	0.08502288	5.1220699	20	9 29.0	20.7
510141 2010 VQ ₃₆	18.0	X	279.62803	255.50411	186.77936	4.86761	0.1315595	0.29490607	2.2353571	20	10 31.1	19.8
510142 2010 VC ₄₆	15.5	X	161.89241	268.50504	244.45447	20.65617	0.0924710	0.17347031	3.1840944	20	8 13.6	20.9
510143 2010 VQ ₆₇	16.7	X	331.00413	5.25615	314.25483	4.90735	0.0818696	0.17444657	3.1722039	20	7 18.1	20.8
510144 2010 VE ₇₈	18.4	X	354.57431	172.49056	194.17143	4.69795	0.1745608	0.29913732	2.2142279	20	12 8.7	20.4
510145 2010 VW ₉₁	18.6	X	268.01518	146.09630	273.11848	1.73877	0.2084653	0.28235990	2.3010923	20	8 17.8	21.3
510146 2010 VO ₁₀₈	18.9	X	296.46370	258.64842	163.69564	3.69333	0.1192340	0.29476312	2.2360797	20	11 3.3	20.8
510147 2010 VH ₁₅₂	18.2	X	273.68745	280.60043	126.50830	2.93020	0.2214857	0.28144180	2.3060939	20	8 7.1	20.8
510148 2010 VF ₁₆₀	18.7	X	330.28998	70.84496	349.85410	4.61881	0.1364919	0.30487860	2.1863420	20	—	—
510149 2010 VC ₁₆₈	18.5	X	327.77117	341.78098	48.74645	3.77368	0.1522781	0.29605847	2.2295526	20	11 17.5	19.9
510150 2010 VC ₁₇₃	18.3	X	274.30792	210.04877	238.92552	5.78787	0.1090760	0.29092724	2.2556920	20	10 31.5	20.4
510151 2010 VR ₂₁₄	15.9	X	6.87929	314.67666	315.00777	10.11786	0.0550895	0.17291525	3.1909048	20	7 7.6	20.2
510152 2010 WU ₂	18.0	X	342.03412	292.30104	75.30137	6.00022	0.1554066	0.29372514	2.2413446	20	11 11.9	19.7
510153 2010 WJ ₃₀	18.0	X	317.29082	134.55705	222.36664	1.60186</						

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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>
510161 2010 XR ₅₆	18.0	X	275.03334	38.31678	6.43819	6.40910	0.2607359	0.28212403	2.3023747	20	7 31.9	20.6
510162 2010 XT ₇₆	18.6	X	306.94908	257.45658	146.01419	2.78258	0.1513622	0.28988387	2.2611013	20	10 22.2	20.2
510163 2010 XJ ₇₇	15.6	X	325.47793	89.92911	250.50576	15.42131	0.0630583	0.17201315	3.2020512	20	7 31.8	20.1
510164 2011 AK ₈	17.9	X	134.99998	295.32859	292.58431	5.38711	0.0728003	0.28131546	2.3067843	20	11 9.4	21.1
510165 2011 AO ₁₅	18.4	X	247.23196	147.82989	288.07065	4.60509	0.2474351	0.27599854	2.3363157	20	8 6.8	21.7
510166 2011 AZ ₂₈	17.9	X	255.48401	316.91987	128.52195	6.81792	0.2182121	0.27855169	2.3220177	20	9 7.4	20.8
510167 2011 AX ₄₂	18.3	X	280.22478	80.30097	348.85985	5.69352	0.1300123	0.28119882	2.3074221	20	10 5.6	20.7
510168 2011 AY ₄₂	18.2	X	233.00864	134.42200	16.60586	3.77456	0.1885530	0.28545004	2.2844285	20	11 10.7	20.9
510169 2011 AH ₄₃	18.0	X	300.87838	257.72429	117.37108	6.31958	0.1687297	0.27190053	2.3597320	20	8 16.4	20.1
510170 2011 AX ₄₆	17.9	X	265.67738	169.08393	283.03966	4.93877	0.1773292	0.28044372	2.3115621	20	10 5.2	20.5
510171 2011 AU ₄₈	17.9	X	291.97924	88.27229	302.30774	8.90701	0.2326203	0.27532220	2.3401403	20	8 9.5	19.9
510172 2011 AY ₅₀	18.2	X	250.57045	234.83308	260.79584	5.17438	0.2132570	0.28683384	2.2771019	20	11 10.8	20.6
510173 2011 AM ₅₆	18.2	X	249.22839	333.95925	116.63079	5.0647	0.1509506	0.27574327	2.3377574	20	9 17.1	21.1
510174 2011 AN ₅₆	18.3	X	194.83028	157.89856	43.01904	0.44979	0.1980624	0.28314224	2.2968516	20	12 1.2	21.5
510175 2011 AO ₆₉	18.2	X	305.36906	19.89913	23.44808	2.39565	0.2506778	0.28583820	2.2823866	20	10 6.2	19.3
510176 2011 BN ₃₁	18.8	X	256.63076	19.33422	83.89104	2.95292	0.1990460	0.28131884	2.3067658	20	10 8.2	21.2
510177 2011 BX ₃₁	18.0	X	248.71128	141.47072	333.00541	7.15334	0.1233495	0.28238870	2.3009358	20	10 20.1	20.7
510178 2011 BC ₄₃	17.6	X	175.31676	186.36407	44.74799	7.94420	0.3481165	0.27895244	2.3197932	20	12 8.4	21.7
510179 2011 BT ₆₂	18.2	X	263.27401	75.47866	344.57147	6.26600	0.1991228	0.27268016	2.3552320	20	8 14.6	21.0
510180 2011 BS ₇₀	18.4	X	212.55796	234.83377	268.73418	4.34436	0.0888004	0.27442303	2.3452493	20	10 16.7	21.6
510181 2011 BN ₁₀₁	17.8	X	227.26132	60.29187	89.03074	4.44668	0.0676613	0.28259604	2.2998102	20	11 20.7	20.5
510182 2011 BB ₁₀₂	18.3	X	205.54739	143.24609	332.15564	2.38858	0.1292227	0.26714840	2.3876335	20	8 28.2	21.8
510183 2011 BG ₁₀₃	15.7	X	55.12587	102.53650	33.28338	3.97087	0.1543816	0.12315923	4.0009035	20	4 9.8	20.9
510184 2011 BM ₁₁₅	18.8	X	276.88128	289.14122	139.02403	1.81558	0.1555198	0.27996224	2.3142116	20	9 26.2	21.1
510185 2011 BZ ₁₁₈	18.3	X	295.97147	99.95100	328.96184	6.12383	0.1422050	0.28424002	2.2909340	20	11 2.8	20.4
510186 2011 BB ₁₁₉	18.0	X	148.31908	166.74175	61.98764	5.11333	0.1785597	0.27613139	2.3355663	20	11 22.9	21.7
510187 2011 BS ₁₂₁	18.5	X	231.17829	272.75090	214.23693	5.35429	0.1763034	0.27736684	2.3286257	20	10 6.7	21.7
510188 2011 BW ₁₂₃	18.5	X	203.07831	119.29410	34.89677	2.09264	0.1262165	0.27502674	2.3418160	20	10 17.2	21.8
510189 2011 CZ ₄	17.7	X	203.86224	269.76744	325.15929	21.09523	0.3849990	0.28855852	2.2680195	20	—	—
510190 2011 CX ₇	20.5	X	312.25247	194.44880	107.06093	10.52624	0.3227074	0.66582518	1.2988607	20	3 13.0*	21.0
510191 2011 CO ₉	18.4	X	169.52668	41.82887	120.80478	2.06239	0.1320527	0.26655425	2.3911802	20	9 21.6	21.9
510192 2011 CN ₁₆	17.9	X	192.94787	190.94230	324.40821	3.64491	0.0999816	0.27176686	2.3605057	20	10 7.5	21.3
510193 2011 CA ₂₈	18.3	X	249.93392	137.39420	305.11752	5.65817	0.1556788	0.27240826	2.3567989	20	8 31.7	21.2
510194 2011 CZ ₃₀	18.4	X	175.53510	16.89378	134.95429	2.77757	0.1445148	0.26723974	2.3870895	20	9 13.0	22.0
510195 2011 CH ₃₆	18.2	X	189.68517	55.62345	91.52252	2.19702	0.1281731	0.27018713	2.3696977	20	9 23.2	21.6
510196 2011 CS ₄₄	18.2	X	191.79839	285.09954	268.52338	5.87436	0.0746852	0.28218589	2.3020382	20	12 2.1	21.2
510197 2011 CT ₅₂	18.2	X	272.89177	317.49954	110.47762	2.20797	0.1596430	0.27523689	2.3406238	20	9 17.7	20.7
510198 2011 CY ₆₆	17.9	X	238.44495	311.60642	140.17169	6.95741	0.1034283	0.27197399	2.3593071	20	9 9.9	20.8
510199 2011 CN ₆₇	18.2	X	173.65415	78.10284	126.06776	11.76716	0.1635264	0.27839924	2.3228653	20	11 20.4	21.9
510200 2011 CC ₇₄	16.7	X	225.28557	204.74898	351.85769	25.34225	0.2101934	0.28800761	2.2709108	20	—	—
510201 2011 CW ₇₅	16.1	X	15.60115	239.23627	348.05357	29.55618	0.3292507	0.22932747	2.6434149	20	6 20.9	18.9
510202 2011 CC ₇₉	18.0	X	208.32132	285.12359	204.16998	3.20959	0.1418956	0.26984332	2.3717101	20	9 16.5	21.5
510203 2011 CR ₇₉	18.2	X	115.75290	346.78588	272.68176	5.64325	0.1038454	0.27569364	2.3380379	20	11 29.9	21.5
510204 2011 CB ₈₁	17.7	X	177.62058	255.55434	309.74589	12.38671	0.0997574	0.27739829	2.3284497	20	11 25.0	21.3
510205 2011 CM ₈₂	18.0	X	356.07492	359.01175	275.07146	1.81464	0.1394527	0.24254583	2.5464795	20	6 30.2	20.1
510206 2011 CU ₈₆	18.2	X	286.02098	273.35295	164.62121	6.80797	0.1865676	0.28188341	2.3036847	20	10 26.9	20.1
510207 2011 CP ₈₉	17.6	X	34.06498	62.19548	209.33337	4.93652	0.0736820	0.25680465	2.4513244	20	8 27.3	20.6
510208 2011 CC ₁₁₁	18.5	X	252.25671	269.39253	196.35938	6.29574	0.0624046	0.27419431	2.3465533	20	10 25.4	21.3
510209 2011 CP ₁₁₂	18.5	X	211.96932	176.77578	289.25202	1.70429	0.1135570	0.26449754	2.4035599	20	8 23.0	21.8
510210 2011 DY ₁	17.5	X	167.34973	7.85139	161.10398	6.93071	0.0670301	0.26926830	2.3750854	20	10 1.1	20.7
510211 2011 DP ₁₁	18.4	X	143.07965	56.86601	183.17457	2.77081	0.1984191	0.27596962	2.3364789	20	12 2.1	22.2
510212 2011 ED ₁₃	18.3	X	220.00182	180.68536	283.14178	2.38107	0.1567612	0.26854302	2.3793599	20	8 24.6	21.6
510213 2011 DM ₁₉	18.3	X	155.55701	226.58715	351.38272	2.06242	0.1174996	0.27399937	2.3476662	20	11 17.5	21.6
510214 2011 DQ ₂₈	17.9	X	116.04609	42.63706	163.32847	2.44931	0.1486486	0.25974255	2.4328051	20	9 23.3	21.6
510215 2011 DJ ₄₉	18.2	X	203.84317	355.02824	163.27826	3.63770	0.1567623	0.27409532	2.3471183	20	10 20.9	21.4
510216 2011 DK ₅₁	17.8	X	247.05580	117.20755	18.89793	2.23139	0.2284261	0.27968329	2.3157502	20	11 2.3	20.4
510217 2011 EK ₅	17.8	X	101.67268	98.14106	155.90233	1.94825	0.1591650	0.26811347	2.3819006	20	11 11.3	21.4
510218 2011 EW ₇	18.4	X	201.47504	168.56053	354.36712	1.97915	0.1335200	0.27131263	2.3631396	20	10 24.7	21.7
510219 2011 ES ₈	18.5	X	247.04094	348.43760	120.81364	2.85780	0.1643852	0.27800662	2.3250517	20	10 7.7	21.3
510220 2011 EY ₈	18.6	X	233.16699	21.27903	88.44313	2.12817	0.1913246	0.27430617	2.3459153	20	9 15.2	21.8
510221 2011 EM ₁₂	18.3	X	129.30666	284.24440	253.57654	0.40700	0.1277326	0.25417423	2.4682077	20	8 28.9	22.1
510222 2011 EZ ₁₈	18.3	X	232.49352	337.79972	165.16701	4.91748	0.1602541	0.27873248	2.3210135	20	11 4.5	21.2
510223 2011 ED ₂₇	17.2	X	87.01001	241.94054	18.49984	14.84948	0.0934453	0.25879734	2.4387251	20	10 25.0	20.7
510224 2011 EU ₂₇	18.5	X	251.64806	354.26834	147.00555	3.29727	0.1836760	0.28198895	2.3031099	20	11 26.4	21.0
510225 2011 EE ₂₉	18.1	X	204.58699	58.47760	128.91004	2.74465	0.1553489	0.28016735	2.3130820	20	11 29.3	21.1
510226 2011 EH ₃₅	18.1	X	128.98038	322.31410	266.82494	1.61197	0.1538150	0.26588054	2.3952178	20	11 4.2	21.9
510227 2011 EU ₄₄	18.0	X	184.28711	111.44823	94.97354	4.88397	0.1618752	0.27661778	2.3328276	20	11 30.4	21.3
510228 2011 EG ₄₅	17.8	X	225.86547	112.89150	82.99950	6.90384	0.1880506	0.28419206	2.2911917	20	—	—
510229 2011 EA ₅₅	18.4	X	213.85600	34.44451	117.99934	3.09232	0.1484240	0.27138368	2.3627271	20	10 25.3	21.7
510230 2011 ER ₆₇	18.5	X	184.23279	257.35036	289.47814	0.65901	0.1311786	0.27164368	2.3612193	20	11 6.5	22.0
510231 2011 EP ₇₀	17.8	X	244.57252	103.01765	23.37733	6.76645	0.0729803	0.27089961	2.3655409	20	11 7.6	20.5
510232 2011 ER ₇₆	18.1	X	209.05760	333.43555	211.40866	4.83195	0.1787724	0.27847197	2.3224608	20	11 27.7	21.1
510233 2011 EJ ₇₈	18.2	X	139.50462	294.02750	300.33373	2.25017	0.16067					

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>
510241 2011 FK ₄₁	17.7	X	192.84722	112.85553	72.70446	8.39058	0.1428528	0.27453122	2.3446331	20	11 14.9	21.1
510242 2011 FJ ₅₃	18.2	X	138.94111	93.27821	136.73923	1.99762	0.1402641	0.26737989	2.3862552	20	11 15.8	21.9
510243 2011 FT ₅₅	18.0	X	161.20536	45.13700	167.23065	3.13429	0.1551566	0.26794342	2.3829082	20	11 14.8	21.7
510244 2011 FR ₆₃	18.4	X	202.08289	324.86091	203.49893	2.03476	0.2282044	0.27310989	2.3527607	20	10 23.6	22.0
510245 2011 FZ ₁₁₇	17.9	X	100.21135	14.14827	245.75722	5.12092	0.1136793	0.26211386	2.4181100	20	11 12.3	21.4
510246 2011 FY ₁₃₃	18.5	X	178.32072	248.97004	244.61142	0.61937	0.1297493	0.25822674	2.4423163	20	8 21.6	22.1
510247 2011 FA ₁₄₁	18.2	X	189.21438	239.77559	308.22528	0.74893	0.1182398	0.27167651	2.3610290	20	11 14.6	21.6
510248 2011 FP ₁₄₆	18.0	X	199.56274	147.59356	4.91299	2.46645	0.1492618	0.26684523	2.3894416	20	10 7.1	21.6
510249 2011 FQ ₂₈	18.3	X	135.74845	32.06479	196.24237	6.05898	0.1523884	0.26354387	2.4093548	20	11 10.4	22.0
510250 2011 GC ₆₈	17.9	X	131.23776	232.07971	63.19765	22.35144	0.0716581	0.38968589	1.8563489	20	—	—
510251 2011 GN ₇₈	17.6	X	181.32633	86.02176	129.88489	21.93854	0.2754081	0.27301424	2.3533102	20	12 4.6	22.0
510252 2011 GP ₈₉	17.1	X	272.96797	358.98759	13.78217	6.95550	0.1568996	0.24092857	2.5578624	20	6 25.3	20.5
510253 2011 GQ ₈₉	18.1	X	196.51811	12.99001	135.63869	3.69108	0.1261614	0.26126331	2.4233553	20	10 1.9	21.5
510254 2011 HY	18.2	X	74.61495	202.70503	102.92946	23.54203	0.0579393	0.37480465	1.9051656	20	—	—
510255 2011 HZ ₂₂	16.7	X	15.44519	200.72228	111.33782	13.50196	0.2381447	0.24597499	2.5227569	20	10 28.3	19.8
510256 2011 HX ₃₀	16.9	X	41.20516	186.37896	98.45439	11.75879	0.2321545	0.24005384	2.5640723	20	10 26.0	20.4
510257 2011 HV ₃₁	18.1	X	176.66950	312.18787	205.29526	13.90201	0.1931705	0.26003907	2.4309554	20	9 14.9	22.2
510258 2011 HG ₃₄	17.3	X	27.98007	209.76633	29.75575	6.89266	0.1328809	0.23306159	2.6151037	20	7 10.4	20.2
510259 2011 HJ ₃₅	17.3	X	99.88320	33.35640	181.57919	12.39129	0.1012312	0.24306644	2.5428420	20	9 10.2	20.9
510260 2011 HJ ₄₈	17.0	X	75.29164	149.45267	138.18499	8.70312	0.2345881	0.25364054	2.4716687	20	12 2.7	21.1
510261 2011 HE ₅₉	17.9	X	160.80498	50.93397	180.87151	8.34108	0.1534963	0.26725084	2.3870233	20	12 8.4	21.7
510262 2011 HJ ₆₁	19.3	X	170.15928	191.01213	216.06096	21.08185	0.4176393	0.54546600	1.4835115	20	4 22.8	21.2
510263 2011 HY ₆₁	18.7	X	301.39890	73.01084	80.40537	23.90383	0.0425319	0.39643053	1.8352335	20	—	—
510264 2011 HA ₆₂	18.0	X	178.05186	171.57499	76.76351	24.08228	0.0869499	0.38425572	1.8737968	20	—	—
510265 2011 HZ ₆₄	18.0	X	238.08420	46.26001	96.44936	6.54506	0.1842376	0.27441635	2.3452874	20	11 7.7	20.9
510266 2011 HD ₆₇	16.9	X	281.56720	229.96718	86.60904	8.86548	0.2237948	0.21235701	2.7824347	20	4 16.9	21.0
510267 2011 HF ₆₇	16.7	X	354.22294	184.94531	99.14384	13.78869	0.1519863	0.22827914	2.6515016	20	7 11.3	19.1
510268 2011 HS ₈₁	17.6	X	140.55635	138.65329	105.53228	6.11114	0.1977621	0.26412018	2.4058488	20	12 3.5	21.6
510269 2011 HW ₈₃	18.1	X	176.94033	131.59628	47.91435	3.37669	0.1713534	0.26276815	2.4140943	20	10 17.8	22.0
510270 2011 HE ₈₅	17.8	X	100.35733	29.38211	174.09928	17.45677	0.0924464	0.24416391	2.3521662	20	8 24.9	21.5
510271 2011 HH ₉₄	17.6	X	244.44043	26.72893	102.79940	11.54395	0.0904555	0.26876525	2.3780481	20	11 14.1	20.6
510272 2011 JQ	16.1	X	1.11694	218.14110	91.05688	13.84566	0.2486735	0.23373763	2.6100588	20	9 24.6	18.7
510273 2011 JT ₁₇	17.7	X	130.00051	168.20286	51.43554	3.59629	0.1436850	0.25530720	2.4609002	20	10 23.7	21.5
510274 2011 KA ₈	17.4	X	35.07739	212.53084	79.68903	4.06945	0.1806783	0.24030427	2.5622906	20	10 15.5	20.5
510275 2011 KF ₈	17.0	X	54.79957	194.20239	72.52487	13.48900	0.1454455	0.24050615	2.5608566	20	10 8.3	20.7
510276 2011 KK ₈	16.9	X	28.79525	211.86566	90.61234	12.05819	0.1702294	0.24097470	2.5575360	20	10 23.1	20.2
510277 2011 KW ₈	18.5	X	290.64712	304.53816	238.09596	19.71186	0.0541582	0.40069669	1.8221839	20	—	—
510278 2011 KN ₁₀	17.1	X	322.41400	166.96825	117.58570	16.98389	0.0981826	0.21782961	2.7356347	20	5 22.4	20.8
510279 2011 KS ₁₁	17.4	X	142.94513	155.57774	92.29328	4.71979	0.1419124	0.26421010	2.4053029	20	12 10.6	21.0
510280 2011 KU ₁₇	17.3	X	52.15107	165.77418	71.28153	14.51599	0.1237621	0.23266826	2.6180501	20	8 19.0	21.0
510281 2011 KJ ₂₂	18.1	X	50.42634	1.34898	69.69504	21.27650	0.1651064	0.39926710	1.8265309	20	—	—
510282 2011 KJ ₃₇	18.0	X	162.35060	81.26290	125.86118	2.42848	0.1407757	0.26000664	2.4311575	20	11 8.8	21.6
510283 2011 KB ₄₉	18.8	X	60.52113	231.70880	116.33568	23.30731	0.0822009	0.37419519	1.9072337	20	—	—
510284 2011 KC ₄₉	17.2	X	324.85421	244.66540	82.41866	6.24469	0.1589433	0.22644321	2.6658140	20	7 15.8	19.9
510285 2011 LK ₁₁	18.4	X	134.62919	89.74840	208.99452	10.53600	0.2858069	0.26747734	2.3856756	20	—	—
510286 2011 LM ₂₈	16.0	X	220.87844	32.82032	301.54402	10.34434	0.2981175	0.17858650	3.1229879	20	3 5.6	21.7
510287 2011 LA ₂₉	16.1	X	213.73468	197.48973	204.65273	9.20275	0.0795543	0.19586893	2.9364708	20	6 2.5	20.5
510288 2011 ME ₃	18.1	X	199.98114	125.36982	121.45204	24.78016	0.0180636	0.37718858	1.8971297	20	—	—
510289 2011 OX ₁	14.0	X	330.97778	329.51990	286.44033	12.22880	0.1095438	0.08332436	5.1914425	20	4 22.3	20.6
510290 2011 OH ₄	16.7	X	66.57526	319.73517	302.91300	32.00518	0.2348954	0.23462125	2.6035014	20	9 28.8	21.4
510291 2011 OG ₅	18.4	X	25.95637	251.85161	143.11858	23.49183	0.0840403	0.36334771	1.9450067	20	—	—
510292 2011 OH ₅	17.3	X	186.42638	325.82723	292.15074	3.52910	0.1721976	0.27024017	2.3693876	20	—	—
510293 2011 OI ₁₂	16.7	X	167.78918	248.23750	297.67372	13.78000	0.0389699	0.23862139	2.5743236	20	10 11.3	20.6
510294 2011 OS ₁₆	17.0	X	109.82074	270.61870	330.85607	16.92519	0.1731580	0.23391817	2.6087157	20	10 21.1	21.5
510295 2011 OF ₁₇	16.9	X	28.00405	339.16771	327.42982	14.90224	0.1960565	0.22637554	2.6663453	20	10 13.8	20.4
510296 2011 OA ₁₈	18.3	X	305.80789	357.64326	168.51267	22.85757	0.0542636	0.38656159	1.8663378	20	—	—
510297 2011 OE ₂₈	16.5	X	33.73868	341.83813	327.73063	15.89606	0.1789277	0.22838107	2.6507126	20	10 23.6	20.2
510298 2011 PG ₅	16.4	X	247.16342	253.15991	186.08211	21.52941	0.0570690	0.22496256	2.6774984	20	8 31.9	20.2
510299 2011 PP ₁₃	17.6	X	66.53851	10.88975	321.13499	17.09124	0.0781187	0.36014144	1.9565336	20	—	—
510300 2011 PN ₁₄	17.7	X	246.37330	304.00960	278.49784	19.78753	0.0566220	0.38201353	1.8811217	20	—	—
510301 2011 QD ₁₇	16.8	X	341.74773	73.85273	249.72754	3.16231	0.0723104	0.21401375	2.7680564	20	8 12.1	20.1
510302 2011 QS ₁₉	17.4	X	73.12588	2.68370	266.37961	6.89014	0.1959994	0.23357166	2.6112951	20	10 28.3	21.3
510303 2011 QM ₂₁	17.8	X	54.99083	59.16225	309.33098	18.03312	0.0780317	0.36319895	1.9455377	20	—	—
510304 2011 QQ ₂₉	17.0	X	329.01498	119.05984	213.44650	12.40057	0.1272526	0.21410209	2.7672949	20	7 21.0	19.9
510305 2011 QA ₃₄	16.4	X	355.88957	47.41419	266.87915	12.45483	0.1942733	0.21650209	2.7468060	20	8 23.7	19.4
510306 2011 QA ₃₈	17.3	X	157.34903	155.76502	155.04761	23.68813	0.1134849	0.37814405	1.8939327	20	—	—
510307 2011 QC ₃₈	18.2	X	274.21154	31.97692	163.76367	22.95724	0.0378772	0.38032048	1.8867002	20	—	—
510308 2011 QX ₄₆	17.8	X	1.97342	146.82884	182.49531	12.29341	0.2151467	0.22417528	2.6837634	20	10 12.2	20.3
510309 2011 QT ₄₉	17.8	X	174.20924	303.96393	336.51951	19.75217	0.0034064	0.37425884	1.9070175	20	—	—
510310 2011 QJ ₅₉	16.8	X	300.71707	27.88698	330.03236	6.63114	0.1047379	0.21141034	2.7907348	20	7 23.9	20.2
510311 2011 QN ₆₃	16.5	X	61.10278	294.11480	353.20257	13.40910	0.2074255	0.22984233	2.6394658	20	11 4.9	20.6
510312 2011 QK ₆₈	16.3	X	297.55997	65.69681	278.70702	12.00456	0.1534457	0.20899434	2.8122011	20	6 21.5	19.6
510313 2011 QW ₇₇	16.7	X	225.42291	46.82546	324.16053	13.33320	0.0761534	0.19117032	2.9843911	20	5 1.0	21.4
510314 2011 QS ₇₉	18.3	X	227.446									

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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>		
510321	2011	RK ₁₉	16.4	X	96.43315	317.64205	321.96197	14.09724	0.1070981	0.23744167	2.5828435	20	11 25.6	20.6
510322	2011	SY ₆	17.4	X	249.31902	39.87783	286.79051	2.65116	0.2013614	0.18640394	3.0350510	20	3 26.3	22.3
510323	2011	SU ₈	17.0	X	242.72045	57.19627	284.81314	3.42863	0.1872931	0.18605467	3.0388482	20	4 8.4	22.0
510324	2011	SW ₁₉	16.4	X	194.33363	113.23566	283.21330	14.94639	0.3263300	0.17989326	3.1078458	20	4 27.1	22.4
510325	2011	SS ₂₂	17.0	X	284.10430	12.31284	353.97487	4.57239	0.1152102	0.20644188	2.8353337	20	7 7.9	20.8
510326	2011	SQ ₂₇	16.4	X	233.10400	118.01799	220.83541	14.63340	0.3014180	0.18371521	3.0645919	20	3 19.0	22.1
510327	2011	SD ₃₇	16.5	X	216.40906	163.75812	199.17284	15.10587	0.1258497	0.17651401	3.1473854	20	4 15.5	21.4
510328	2011	SQ ₃₇	17.3	X	80.85624	314.73396	21.37619	20.34712	0.0930215	0.35480748	1.9760937	20	—	—
510329	2011	SY ₄₇	16.8	X	305.39271	335.57754	358.75861	15.20583	0.1482675	0.20359174	2.8617341	20	6 20.2	20.6
510330	2011	SX ₄₈	17.5	X	269.10313	149.45467	230.89362	1.06658	0.0780705	0.20335298	2.8639737	20	7 10.8	21.2
510331	2011	SY ₆₃	16.3	X	323.43221	183.97438	111.00740	11.53528	0.0844323	0.19102713	2.9858823	20	6 5.1	20.2
510332	2011	SD ₆₉	17.2	X	215.01352	258.67985	128.57093	9.88035	0.3202805	0.18273880	3.0754986	20	5 7.6	22.9
510333	2011	SM ₇₀	17.1	X	35.04972	85.95575	221.40374	11.24293	0.2909465	0.22693387	2.6619701	20	11 17.2	20.6
510334	2011	SY ₇₂	17.6	X	57.92788	58.46530	197.61126	7.37011	0.0924777	0.21587942	2.7520853	20	9 6.9	21.4
510335	2011	SP ₇₃	16.9	X	212.93506	132.70478	203.87245	5.99592	0.2545054	0.17646790	3.1479336	20	3 6.7	22.5
510336	2011	SC ₇₅	17.0	X	272.03904	159.47563	223.55005	8.54005	0.1379896	0.20400134	2.8579022	20	7 7.7	21.1
510337	2011	SE ₈₂	16.9	X	0.54153	316.03709	341.20191	3.14161	0.0758216	0.20955149	2.8072142	20	8 7.4	20.3
510338	2011	SE ₈₈	16.6	X	94.89982	288.29173	5.64979	13.99351	0.1801168	0.23660918	2.5888983	20	12 18.1	21.0
510339	2011	SG ₁₀₈	16.5	X	205.48212	44.93586	336.45968	23.39520	0.3402653	0.18085571	3.0968100	20	4 9.3	22.7
510340	2011	SY ₁₀₈	15.9	X	197.50633	24.44591	351.47001	16.73896	0.2151746	0.18027156	3.1034963	20	4 6.1	21.4
510341	2011	SP ₁₁₁	16.7	X	250.44548	29.58137	322.03440	12.41921	0.2665045	0.19080479	2.9882014	20	4 15.5	21.9
510342	2011	SK ₁₁₅	16.6	X	7.75695	49.00395	256.20360	12.97004	0.1935769	0.21959024	2.7209926	20	9 4.6	19.8
510343	2011	SO ₁₁₅	16.7	X	282.73192	312.64646	57.80143	2.68704	0.0803787	0.20303287	2.8669832	20	7 16.5	20.5
510344	2011	SE ₁₂₁	16.4	X	164.61175	238.43861	191.72357	13.44642	0.2845386	0.17559885	3.1583114	20	5 22.5	22.2
510345	2011	SZ ₁₂₂	16.1	X	163.51160	237.33614	203.12020	16.17027	0.2051550	0.17609250	3.1524060	20	5 31.2	21.6
510346	2011	SE ₁₃₆	16.6	X	252.08593	137.46271	200.38996	11.37373	0.1461415	0.18637604	3.0353538	20	4 18.5	21.3
510347	2011	SN ₁₄₇	17.4	X	201.96061	238.94248	184.97577	1.45416	0.1330465	0.19133842	2.9826429	20	6 13.9	22.1
510348	2011	SF ₁₆₂	16.6	X	181.12790	78.77965	3.22286	13.12815	0.3293229	0.18127932	3.0919837	20	6 13.9	22.5
510349	2011	SJ ₁₆₃	17.2	X	245.69708	118.96072	265.43690	5.96596	0.1539560	0.19206721	2.9750931	20	6 7.0	21.7
510350	2011	SB ₁₆₆	16.3	X	247.48328	21.97112	354.64392	9.28669	0.0863180	0.19244197	2.9712294	20	6 5.8	20.8
510351	2011	SH ₁₆₇	16.7	X	266.84629	119.95341	253.64290	4.70270	0.0821467	0.20050771	2.8910038	20	6 28.0	20.7
510352	2011	SL ₁₉₇	17.2	X	285.78817	142.97148	216.09902	1.27834	0.0804608	0.20364231	2.8612603	20	7 4.9	20.9
510353	2011	SN ₁₉₇	17.5	X	63.00182	72.75208	202.46429	2.33918	0.0697581	0.22367150	2.6877918	20	10 8.3	20.9
510354	2011	SX ₂₀₁	16.9	X	267.44439	220.04900	167.84007	7.58700	0.0900767	0.20578469	2.8413671	20	7 15.9	20.9
510355	2011	SO ₂₁₇	17.1	X	317.34286	26.02925	347.30585	5.84823	0.0383352	0.21775635	2.7362482	20	9 14.8	20.6
510356	2011	SK ₂₂₀	16.8	X	200.62542	205.10421	175.27282	4.96898	0.1512052	0.18034365	3.1026693	20	4 21.3	21.8
510357	2011	SS ₂₃₃	16.4	X	178.30569	50.56765	9.17224	14.30970	0.3293610	0.17697012	3.1419752	20	5 13.7	22.0
510358	2011	SS ₂₃₅	16.4	X	170.79470	181.23092	271.60196	9.62132	0.0887220	0.18551797	3.0447063	20	6 19.2	21.1
510359	2011	SH ₂₄₄	17.1	X	248.70221	168.12701	216.67288	1.12585	0.1167739	0.19538119	2.9413557	20	6 15.4	21.4
510360	2011	SD ₂₄₈	17.5	X	248.94746	21.55338	352.76943	8.86739	0.2194547	0.19282625	2.9672805	20	5 19.3	22.4
510361	2011	ST ₂₄₈	16.7	X	229.70175	26.73705	354.70519	6.34485	0.1791970	0.18657790	3.0331642	20	5 14.3	21.6
510362	2011	SM ₂₅₄	16.1	X	239.40193	58.35026	267.49536	16.48726	0.2527705	0.18561400	3.0436560	20	3 6.4	21.7
510363	2011	SC ₂₅₉	16.5	X	4.72912	254.42247	58.72153	12.80263	0.2055074	0.21177902	2.7874950	20	9 26.2	19.6
510364	2011	SR ₂₆₃	17.2	X	280.58956	216.26274	164.01201	5.25376	0.0847217	0.20853786	2.8163035	20	7 25.1	20.9
510365	2011	ST ₂₆₆	17.0	X	327.82365	141.93965	176.65137	15.56447	0.1411760	0.20904096	2.8117829	20	7 7.2	20.5
510366	2011	SB ₂₇₅	16.4	X	249.99971	68.92064	288.14969	11.36668	0.1361206	0.19213272	2.9744168	20	5 7.4	21.1
510367	2011	TO ₄	17.2	X	8.81813	233.17293	103.85922	10.14772	0.1823473	0.22027559	2.7153457	20	11 2.7	20.4
510368	2011	TP ₄	16.6	X	7.47763	163.48797	147.08894	14.71557	0.1083858	0.21023485	2.8011277	20	9 10.4	19.9
510369	2011	TE ₈	16.7	X	337.20787	34.70000	316.11650	7.81671	0.1686229	0.21551298	2.7552040	20	9 10.2	19.4
510370	2011	UO	16.7	X	241.54633	236.77517	115.18636	11.03347	0.1126443	0.18166788	3.0875734	20	5 2.3	21.5
510371	2011	UH ₉	16.5	X	217.56650	348.37377	44.06264	15.46817	0.2764891	0.18165309	3.0877409	20	5 12.6	21.9
510372	2011	UZ ₁₁	16.8	X	193.96298	333.41517	107.66408	11.50199	0.0759431	0.18975472	2.9992154	20	6 29.7	21.4
510373	2011	UP ₁₂	16.5	X	205.41416	18.00805	33.49615	8.70334	0.1594594	0.18341242	3.0679638	20	5 30.3	21.6
510374	2011	UE ₂₃	17.0	X	195.89750	217.07159	168.76479	16.97236	0.2174505	0.17591738	3.1544977	20	4 25.1	22.6
510375	2011	UL ₂₃	16.8	X	229.70776	34.93573	1.43901	13.42000	0.1533619	0.18854508	3.0120297	20	6 2.9	21.8
510376	2011	UO ₃₀	16.4	X	175.92440	227.66784	227.71574	15.09856	0.1611556	0.18045608	3.1013804	20	6 25.8	21.7
510377	2011	UK ₃₉	16.0	X	316.97080	192.99533	74.77304	16.92747	0.2130088	0.18414724	3.0597967	20	4 9.8	20.1
510378	2011	UF ₄₁	16.8	X	232.50518	128.81674	207.98033	14.45576	0.1787807	0.17692598	3.1424977	20	3 24.9	22.0
510379	2011	UG ₄₁	16.7	X	196.14868	191.78146	211.47711	10.02831	0.0788070	0.18109863	3.0940401	20	5 16.1	21.4
510380	2011	UO ₄₅	17.1	X	324.89453	212.77661	113.53359	11.94312	0.0889502	0.19981016	2.8977284	20	7 18.6	20.7
510381	2011	UW ₄₉	16.6	X	225.97004	140.61728	220.36547	10.18622	0.1216588	0.17592683	3.1543848	20	4 21.8	21.4
510382	2011	UL ₅₂	17.0	X	149.68365	46.06498	62.22430	10.90807	0.1839245	0.17647414	3.1478594	20	6 20.0	22.2
510383	2011	UX ₅₂	16.8	X	211.77562	326.24974	78.34167	7.32106	0.0942668	0.18142198	3.0903627	20	6 2.0	21.4
510384	2011	UC ₅₅	15.5	X	314.84642	49.91306	233.41526	10.66008	0.0373082	0.17429644	3.1740252	20	5 12.1	19.7
510385	2011	US ₇₇	16.8	X	244.83443	18.96109	354.36060	3.91054	0.1474130	0.18563488	3.0434277	20	5 23.0	21.4
510386	2011	UH ₈₁	17.3	X	202.18753	279.02505	140.89755	0.71885	0.1891765	0.18212474	3.0824077	20	6 6.9	22.5
510387	2011	UE ₈₃	17.2	X	212.34965	22.42785	20.47481	5.99861	0.1384992	0.18076225	3.0978774	20	5 27.6	22.2
510388	2011	UL ₈₃	16.1	X	251.68481	123.39584	241.48698	10.56111	0.1030522	0.18291154	3.0735620	20	5 26.2	20.6
510389	2011	UR ₈₃	17.3	X	216.55308	59.01044	322.44246	2.46216	0.2224589	0.17785915	3.1314963	20		

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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>
510401 2011 UY ₁₃₄	16.7	X	152.82607	53.06725	45.27485	9.22499	0.0984729	0.17645626	3.1480721	20	6 6.5	21.6
510402 2011 UB ₁₄₀	16.8	X	177.35202	213.39092	236.92945	12.83605	0.1901327	0.18106003	3.0944799	20	6 21.7	22.1
510403 2011 UO ₁₄₀	16.5	X	180.39944	223.03191	236.53449	15.26072	0.2293067	0.18207814	3.0829337	20	7 3.5	22.0
510404 2011 UE ₁₅₁	16.5	X	161.40973	189.72691	280.77822	8.02548	0.0923176	0.18250803	3.0780906	20	7 1.5	21.1
510405 2011 UH ₁₅₄	16.4	X	183.84828	124.29692	291.35649	13.30428	0.2095191	0.17810946	3.1285616	20	5 14.9	21.9
510406 2011 UD ₁₆₀	16.2	X	250.36109	118.15669	254.62706	15.17684	0.1779933	0.18819318	3.0157833	20	5 25.6	20.8
510407 2011 UW ₁₆₁	16.7	X	189.00859	45.89014	43.03108	10.71689	0.1677333	0.18184280	3.0855930	20	7 1.5	21.9
510408 2011 UJ ₁₆₂	16.5	X	168.87653	10.48521	78.69126	10.90163	0.1975339	0.17624872	3.1505430	20	6 13.9	21.8
510409 2011 UU ₁₆₈	16.3	X	22.25332	354.26291	272.14873	8.15760	0.0935294	0.20462790	2.8520655	20	7 28.8	19.9
510410 2011 UT ₁₉₂	19.5	X	251.10885	57.82602	219.10015	25.79678	0.1140674	0.50763192	1.5563362	20	—	—
510411 2011 UL ₂₀₀	16.6	X	207.75322	163.85858	272.93479	6.77404	0.1510002	0.18450186	3.0558748	20	7 4.1	21.4
510412 2011 UF ₂₁₈	16.7	X	173.72338	0.77844	40.53190	10.44723	0.0917163	0.17312540	3.1883222	20	4 21.0	21.5
510413 2011 UH ₂₄₀	16.8	X	334.16237	269.46379	30.50359	4.95686	0.1194884	0.19241320	2.9715256	20	6 24.5	20.3
510414 2011 UD ₂₅₂	17.0	X	254.65377	204.53465	167.48406	3.16772	0.1691864	0.18477719	3.0528384	20	5 30.9	21.7
510415 2011 UY ₂₅₂	17.2	X	242.19783	333.93127	63.18003	2.58558	0.1358682	0.18739670	3.0243225	20	6 21.3	21.6
510416 2011 UJ ₂₅₇	16.5	X	230.27190	172.84319	229.22831	8.39370	0.1312590	0.18714142	3.0270721	20	6 15.1	21.2
510417 2011 UA ₂₆₄	15.8	X	219.78139	299.77785	81.86652	10.16628	0.1217420	0.17941172	3.1134042	20	5 13.2	20.7
510418 2011 UP ₂₆₅	16.3	X	233.11161	321.60397	54.71376	8.86087	0.1438651	0.17920811	3.1157620	20	5 16.1	21.1
510419 2011 UE ₂₆₉	16.0	X	271.92880	137.79096	190.32836	9.59383	0.0214543	0.18482814	3.0522773	20	5 16.9	20.3
510420 2011 UH ₂₇₅	16.3	X	128.83178	113.27566	28.12372	9.33375	0.2500350	0.17735726	3.1374013	20	7 18.6	21.8
510421 2011 UX ₂₈₀	17.1	X	348.67006	108.07162	209.18537	8.31800	0.4475290	0.21351193	2.7723919	20	9 3.3	17.7
510422 2011 UG ₂₉₄	17.0	X	223.34266	174.76183	225.68605	8.44923	0.1279672	0.18225813	3.0809036	20	6 6.5	21.8
510423 2011 UJ ₃₀₈	15.5	X	182.67665	122.97279	287.08923	12.01170	0.0382932	0.17426079	3.1744581	20	5 6.4	20.4
510424 2011 US ₃₁₀	17.1	X	238.73216	241.95264	142.60962	6.52084	0.2884557	0.19016011	2.9949513	20	5 21.2	22.2
510425 2011 UB ₃₂₀	15.9	X	265.32467	267.85251	68.64879	22.47487	0.1410418	0.17820840	3.1274037	20	5 7.3	20.7
510426 2011 UY ₃₃₂	16.1	X	197.14864	287.94361	130.05764	12.17861	0.1732448	0.18057926	3.0999699	20	6 3.0	21.4
510427 2011 UU ₃₃₃	16.0	X	232.69978	223.83935	135.16157	10.61310	0.1199519	0.17958162	3.1114402	20	4 30.7	21.0
510428 2011 UU ₃₃₄	17.9	X	68.24315	143.96522	169.67167	12.12463	0.3174757	0.23954895	2.5676739	20	12 29.8	22.5
510429 2011 UK ₃₃₆	16.3	X	22.14021	110.14800	295.52545	1.72696	0.2227534	0.12440870	3.9740703	20	—	—
510430 2011 UV ₃₄₀	17.3	X	317.21074	131.21322	210.04217	1.41605	0.0775237	0.20313279	2.8660429	20	7 27.7	20.9
510431 2011 UD ₃₄₃	17.4	X	200.27847	8.32589	45.02958	3.97717	0.2024150	0.17958843	3.1113615	20	5 27.6	22.7
510432 2011 UM ₃₄₉	16.5	X	151.33229	95.55281	34.28936	15.28282	0.2200096	0.18011573	3.1052861	20	7 23.1	22.1
510433 2011 UZ ₃₆₉	17.1	X	189.68796	115.13210	345.11026	3.85711	0.1407775	0.18896954	3.0075176	20	7 17.5	22.0
510434 2011 UG ₃₈₇	16.3	X	204.30484	261.24169	131.34465	9.74847	0.0919442	0.17582439	3.1556098	20	5 13.7	21.3
510435 2011 UM ₃₈₇	15.9	X	122.76193	24.35691	116.56902	10.29684	0.0959987	0.17894863	3.1187732	20	6 28.5	20.7
510436 2011 UM ₃₈₉	16.0	X	182.15334	337.31587	111.66098	10.03740	0.0694268	0.18737155	3.0245930	20	6 26.8	20.6
510437 2011 UL ₃₉₀	16.4	X	188.57219	230.96971	187.64670	9.97291	0.2219994	0.17663343	3.1459667	20	5 25.8	21.9
510438 2011 UJ ₃₉₁	16.3	X	233.82426	210.17844	184.75645	15.30338	0.0970732	0.18568423	3.0428884	20	6 13.9	21.1
510439 2011 UU ₄₀₀	15.9	X	201.98888	275.99287	88.58831	25.06882	0.3891397	0.17497256	3.1658433	20	4 12.5	22.4
510440 2011 UD ₄₁₄	16.5	X	135.55749	279.90182	213.85136	5.92676	0.0844334	0.17745631	3.1362337	20	7 1.7	21.2
510441 2011 VX ₇	15.6	X	269.85408	252.08416	77.00826	14.67957	0.1310570	0.18123400	3.0924992	20	5 3.4	20.2
510442 2011 VM ₈	17.6	X	227.12370	327.99100	280.66743	17.05358	0.0529084	0.36585704	1.9361029	20	—	—
510443 2011 VJ ₁₄	16.8	X	219.06439	137.01156	224.37820	8.00685	0.1167987	0.17258339	3.1949941	20	4 15.4	21.8
510444 2011 VG ₁₅	16.7	X	210.95947	142.51580	230.93803	8.53370	0.1044669	0.17502844	3.1651695	20	4 22.5	21.6
510445 2011 VF ₂₁	16.6	X	203.22997	208.53102	209.75599	11.03780	0.1719534	0.18108499	3.0941955	20	6 6.8	21.8
510446 2011 WG ₄	16.1	X	152.88937	275.62464	239.40783	18.76709	0.1852807	0.18796998	3.0181701	20	8 11.5	21.5
510447 2011 WE ₉	16.9	X	246.36482	315.05774	60.42256	10.09016	0.1134643	0.18323430	3.0699517	20	5 31.6	21.3
510448 2011 WQ ₉	16.4	X	67.45041	138.35010	58.92759	14.92575	0.1057893	0.17866996	3.1220152	20	7 4.8	20.8
510449 2011 WS ₁₀	16.8	X	176.41043	242.67582	213.91407	1.35294	0.1040220	0.18170040	3.0872049	20	6 29.5	21.7
510450 2011 WT ₁₁	17.2	X	127.68582	83.34789	95.78542	2.04732	0.0275418	0.19454424	2.9497856	20	8 17.1	21.4
510451 2011 WQ ₁₅	16.5	X	222.39710	333.16086	65.07384	14.09366	0.2290244	0.18465624	3.0541713	20	5 26.7	21.6
510452 2011 WC ₂₀	16.1	X	220.32100	162.18394	245.82770	11.40315	0.1547851	0.18175932	3.0865377	20	6 10.5	20.9
510453 2011 WS ₂₇	15.9	X	241.56959	285.14980	58.66373	8.74777	0.0337101	0.17243445	3.1968335	20	4 28.0	20.5
510454 2011 WG ₂₉	17.0	X	144.83832	123.22784	36.35792	15.78031	0.3030376	0.18138924	3.0907346	20	8 28.8	22.8
510455 2011 WW ₃₁	17.4	X	147.08927	117.22229	3.01472	8.34018	0.2456748	0.17299491	3.1899252	20	7 6.4	23.0
510456 2011 WZ ₃₅	16.7	X	216.56231	126.79230	206.02013	12.02471	0.2714837	0.17779616	3.1322359	20	3 2.9	22.4
510457 2011 WS ₃₈	16.9	X	255.36041	291.64235	75.76640	6.60109	0.1718746	0.18341034	3.0679870	20	5 25.5	21.5
510458 2011 WW ₃₉	16.8	X	186.91279	301.06299	119.48114	12.76497	0.0937314	0.18057531	3.1000150	20	5 29.6	21.8
510459 2011 WA ₅₀	16.7	X	127.76557	55.65674	85.25078	12.65559	0.2241650	0.17131844	3.2107019	20	7 11.1	22.0
510460 2011 WR ₅₀	16.0	X	267.35612	92.54852	257.59757	8.57453	0.1376285	0.18319111	3.0704342	20	5 20.8	20.6
510461 2011 WG ₅₅	17.0	X	170.36975	262.07872	208.67766	7.72583	0.2452611	0.18044602	3.1014957	20	7 10.2	22.5
510462 2011 WF ₅₉	16.3	X	111.80677	102.95831	82.78163	11.24045	0.0166999	0.18929225	3.0040985	20	8 6.1	20.6
510463 2011 WQ ₅₉	16.8	X	185.22365	335.23245	100.19883	3.91091	0.0690148	0.17736898	3.1372631	20	6 12.9	21.4
510464 2011 WU ₅₉	16.9	X	158.29731	36.15735	76.15179	14.44543	0.0984371	0.17825908	3.1268108	20	6 30.1	21.7
510465 2011 WT ₆₀	16.6	X	208.92382	15.65002	81.05935	10.52366	0.0388104	0.19135376	2.9824835	20	8 11.5	21.0
510466 2011 WK ₆₁	17.6	X	327.62658	68.59171	67.72914	22.37640	0.0841247	0.35624272	1.9707826	20	—	—
510467 2011 WR ₆₂	15.6	X	294.25311	32.88453	266.65408	10.82714	0.0271972	0.17491247	3.1665683	20	5 4.9	20.1
510468 2011 WF ₇₂	16.1	X	230.72947	329.96824	64.08882	18.55403	0.2024810	0.18127518	3.0920308	20	5 30.1	21.2
510469 2011 WT ₇₄	17.6	X	178.85510	227.71553	83.11763	22.38727	0.0585464	0.37143039	1.9166865	20	—	—
510470 2011 WC ₈₀	16.7	X	297.09348	267.60631	66.98603	10.65735	0.0862804	0.18636948	3.0354251	20	6 16.3	20.8
510471 2011 WZ ₈₄	16.7	X	177.69165	9.35774	106.33440	3.15775	0.0965939	0.18512073	3.0490603	20	7 25.2	21.4
510472 2011 WW ₈₉	16.1	X	223.47552	261.30839	140.55472	9.08940	0.2066229	0.18220854	3.0814626	20	6 4.0	21.3
510473 2011 WJ ₉₁	17.0	X	188.97651	147.20333	281.52661							

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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>
510481 2011 WL ₁₁₆	16.1	X	85.49804	288.34734	280.40278	9.19170	0.0166525	0.18761765	3.0219475	20	7 28.7	20.4
510482 2011 WU ₁₁₈	15.7	X	210.49937	144.41808	260.69760	21.63083	0.1721469	0.17723439	3.1388511	20	5 28.0	20.9
510483 2011 WT ₁₂₀	16.0	X	261.04121	54.76460	277.06173	14.95057	0.0769071	0.17446746	3.1719506	20	4 24.5	20.9
510484 2011 WD ₁₂₄	17.1	X	194.68010	44.52459	57.38234	15.47646	0.2307632	0.18857194	3.0117436	20	7 22.5	22.5
510485 2011 WU ₁₃₁	16.9	X	225.97787	341.15056	78.33434	13.75220	0.0860729	0.18658700	3.0330655	20	7 6.9	21.5
510486 2011 WO ₁₄₄	16.6	X	166.76194	45.46649	72.82782	27.84278	0.1874384	0.18021815	3.1041095	20	7 17.4	22.1
510487 2011 WX ₁₅₇	16.3	X	175.69949	55.68028	79.92976	18.12929	0.2254526	0.18552442	3.0446357	20	8 20.3	21.8
510488 2011 XX	15.7	X	338.00111	26.84379	234.03418	21.52207	0.0544688	0.17532018	3.1616571	20	5 13.6	19.8
510489 2011 XA ₄	16.2	X	46.35131	20.37840	265.79936	11.48909	0.0714163	0.19865207	2.9089795	20	9 20.7	20.4
510490 2011 YE	17.7	X	102.74372	237.60753	97.09076	25.67624	0.0699194	0.35223378	1.9857080	20	—	—
510491 2011 YU	16.6	X	236.37103	300.01845	100.31372	15.85464	0.1829387	0.19053173	2.9910557	20	6 15.4	21.3
510492 2011 YG ₄	16.5	X	181.53170	173.61843	285.05892	8.55826	0.2668949	0.17456759	3.1707376	20	7 5.2	22.1
510493 2011 YF ₁₅	16.2	X	180.39895	359.41528	104.62208	17.23166	0.1325100	0.17233554	3.1980566	20	7 12.1	21.2
510494 2011 YD ₂₃	16.0	X	175.93967	17.45192	100.42994	24.07733	0.0743840	0.17617845	3.1513807	20	7 26.1	20.9
510495 2011 YA ₂₆	16.3	X	198.63098	328.58430	121.69861	9.88551	0.0446848	0.17351585	3.1835373	20	7 17.2	21.0
510496 2011 YX ₂₇	16.0	X	207.34561	84.57650	325.85010	11.91043	0.0728872	0.16948162	3.2338583	20	6 4.3	21.1
510497 2011 YW ₄₀	15.9	X	285.81593	59.82042	272.90953	12.53018	0.0868238	0.17984943	3.1083506	20	5 29.3	20.3
510498 2011 YD ₄₄	15.7	X	15.35948	163.40464	125.29627	14.07346	0.1024013	0.17924337	3.1153533	20	8 18.8	19.7
510499 2011 YX ₄₅	15.7	X	114.81066	269.78105	306.64944	24.25929	0.2241774	0.17956826	3.1115946	20	9 16.9	21.4
510500 2011 YK ₄₉	13.8	X	304.18189	94.33775	302.75941	13.68471	0.1067769	0.08283400	5.2119105	20	8 27.8	20.5
510501 2011 YG ₇₂	16.1	X	147.05894	49.39813	120.99000	18.02686	0.1721867	0.17850315	3.1239600	20	9 4.7	21.4
510502 2011 YD ₇₈	16.7	X	210.31608	280.17332	126.38895	7.69599	0.2146176	0.17968138	3.1102885	20	5 29.1	22.1
510503 2012 AG ₃	13.1	X	335.39391	339.65421	286.37969	18.43921	0.0654671	0.08570763	5.0947520	20	5 15.1	19.8
510504 2012 BW ₃	16.7	X	168.93228	144.34909	324.81535	6.92845	0.1478856	0.16925645	3.2367258	20	7 8.5	22.0
510505 2012 BL ₁₅	14.5	X	284.98571	116.90022	329.56308	8.00967	0.1589620	0.08211203	5.2424167	20	9 23.9	21.3
510506 2012 BC ₂₂	16.2	X	125.50410	238.62684	289.93745	17.87894	0.1131379	0.17136640	3.2101028	20	8 2.2	21.2
510507 2012 BQ ₂₅	15.8	X	337.48029	223.29911	107.32993	19.47625	0.0923196	0.18070198	3.0985662	20	8 14.6	19.8
510508 2012 BY ₃₄	13.8	X	304.76330	79.87237	335.75258	10.07483	0.1274958	0.08109328	5.2862311	20	9 18.4	20.3
510509 2012 BJ ₃₅	16.6	X	212.20158	307.25856	85.48375	7.87299	0.1941794	0.17551539	3.1593125	20	5 15.1	21.8
510510 2012 BA ₄₄	16.1	X	161.69338	48.26008	114.02966	10.39542	0.0958402	0.18213307	3.0823138	20	9 7.4	21.0
510511 2012 BR ₅₃	16.5	X	181.85929	334.05576	137.32444	17.87100	0.1687851	0.17003544	3.2268324	20	7 21.3	21.8
510512 2012 BA ₅₈	15.6	X	355.47092	200.82910	119.85270	19.21704	0.0311150	0.18183554	3.0856751	20	8 29.2	19.9
510513 2012 BE ₇₉	15.9	X	203.86542	340.77148	119.25336	28.93225	0.1263945	0.17774396	3.1328491	20	7 30.4	20.8
510514 2012 BB ₉₅	16.4	X	208.53766	106.03798	327.93739	15.38604	0.2505667	0.17560528	3.1582343	20	6 28.2	22.1
510515 2012 BV ₉₆	14.0	X	347.34756	312.23406	67.06006	12.59997	0.0513399	0.08331472	5.1918429	20	10 15.7	20.7
510516 2012 BU ₉₈	16.2	X	38.17820	314.08781	316.46680	15.01506	0.0554102	0.17538014	3.9592965	20	8 19.4	20.4
510517 2012 BN ₁₀₂	15.8	X	175.61120	27.96752	111.00987	10.88359	0.0423253	0.17878288	3.1207006	20	8 23.9	20.4
510518 2012 BE ₁₃₃	16.2	X	155.81514	247.38928	269.75468	8.63513	0.1815305	0.17581759	3.1556912	20	8 19.9	21.5
510519 2012 BB ₁₅₅	14.1	X	18.47110	206.81866	154.84777	7.92082	0.0489643	0.08349090	5.1845369	20	10 31.4	20.8
510520 2012 BE ₁₅₅	14.3	X	284.92039	146.37457	301.70475	3.39238	0.0612303	0.08422734	5.1542719	20	10 9.3	21.0
510521 2012 BT ₁₅₅	15.8	X	344.61125	46.20353	152.06470	1.68386	0.1112558	0.12510553	3.9592997	20	3 6.3	20.8
510522 2012 CQ ₂	16.2	X	223.41862	320.17558	137.07828	9.15161	0.0331233	0.17842480	3.1248744	20	8 27.1	20.7
510523 2012 CW ₃₈	16.7	X	198.53379	302.06516	140.30896	20.64967	0.1324078	0.16922370	3.2371433	20	7 3.7	22.1
510524 2012 CE ₅₇	16.0	X	205.10719	309.39397	152.11823	19.68853	0.1940036	0.17805790	3.1291656	20	7 28.4	21.4
510525 2012 CC ₅₈	16.2	X	349.43172	359.04147	111.24376	13.54643	0.0358233	0.16995372	3.2278667	20	8 8.8	20.5
510526 2012 DH ₂₂	15.4	X	166.24393	43.27447	316.19243	14.81370	0.0878200	0.17253890	3.1955433	20	9 8.6	20.5
510527 2012 DJ ₇₇	17.9	X	109.46817	94.75317	145.03289	9.13596	0.0356639	0.29416394	2.2391152	20	11 1.3	20.8
510528 2012 DM ₈₇	17.7	X	152.28958	306.77265	258.68523	6.78125	0.1127949	0.30154566	2.2024227	20	11 1.8	20.9
510529 2012 EY ₁₁	21.7	X	343.52966	238.90398	167.59953	9.02061	0.1506856	0.80102606	1.1482548	20	—	—
510530 2012 FV ₁₉	18.6	X	234.54508	50.16985	95.39202	2.17933	0.0817586	0.30956048	2.1642414	20	11 29.9	20.7
510531 2012 FR ₃₄	18.1	X	88.68098	257.78050	38.27800	7.04879	0.1377579	0.30172980	2.2015265	20	12 25.8	21.4
510532 2012 FK ₆₈	18.4	X	123.36451	186.83672	82.75630	4.48110	0.0263326	0.30990122	2.1626548	20	12 30.1	20.8
510533 2012 FE ₈₃	17.9	X	122.93481	146.74460	68.76136	8.79160	0.2032073	0.28910743	2.2651473	20	10 20.7	21.6
510534 2012 GW ₃₉	17.3	X	156.66992	345.56341	216.46010	6.28188	0.0795305	0.29286552	2.2457283	20	11 3.8	20.3
510535 2012 HS ₃	17.5	X	259.92173	80.76450	193.83371	8.33741	0.2724704	0.22005367	2.7171710	20	1 25.9	22.3
510536 2012 HU ₄	17.8	X	114.19262	121.72254	139.75745	7.53797	0.1259828	0.29655785	2.2270490	20	12 6.9	21.2
510537 2012 HT ₇	18.4	X	95.36956	114.02528	179.92629	6.64284	0.0881679	0.30861303	2.1686687	20	12 28.9	21.4
510538 2012 HL ₃₄	18.1	X	127.91597	149.08038	125.04633	7.77443	0.1493317	0.30070516	2.2065247	20	—	—
510539 2012 HK ₅₈	17.9	X	170.61784	126.57726	52.98301	6.10720	0.0997259	0.29314975	2.2442765	20	10 20.9	20.9
510540 2012 HD ₅₉	18.2	X	81.32004	135.78917	152.47014	7.60098	0.1415173	0.28781807	2.2719077	20	12 7.1	21.6
510541 2012 HX ₇₃	18.4	X	160.20712	172.84313	74.39742	3.60529	0.1361082	0.30545102	2.1836096	20	—	—
510542 2012 JD ₁	18.3	X	96.24799	148.46796	132.15729	5.47283	0.1547564	0.29269507	2.2466001	20	12 13.2	21.7
510543 2012 JK ₁₀	17.5	X	350.25671	116.91034	225.40328	8.05671	0.2265107	0.26953797	2.3735010	20	10 19.1	19.1
510544 2012 JM ₄₆	18.4	X	20.70309	184.36686	96.23539	3.37316	0.1947785	0.26172717	2.4204912	20	9 11.7	20.7
510545 2012 JC ₅₂	18.6	X	195.15218	324.10053	234.25203	4.14991	0.0851362	0.30161783	2.2020713	20	12 16.3	21.4
510546 2012 JJ ₆₇	14.1	X	280.06915	122.81882	324.82840	5.34512	0.0601696	0.08393264	5.1663300	20	10 2.8	20.9
510547 2012 KB ₁₃	18.0	X	37.80695	188.28575	117.58070	2.89804	0.2139488					

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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>
510561 2012 PV ₉	18.1	X	39.12006	122.51487	204.53509	6.53193	0.1325011	0.26626766	2.3928957	20	12 3.3	21.2
510562 2012 PG ₁₂	16.8	X	323.63271	129.44901	171.51011	17.46011	0.2102106	0.23106024	2.6301826	20	5 29.7	19.9
510563 2012 PA ₂₃	17.2	X	253.99389	96.30377	267.54762	3.52237	0.1063339	0.22627054	2.6671700	20	5 26.6	21.0
510564 2012 PL ₂₄	14.0	X	190.14482	174.55507	204.53446	8.77133	0.0492010	0.08243037	5.2289107	20	4 14.6	21.1
510565 2012 PS ₃₁	16.4	X	264.82850	79.93970	267.53491	15.20212	0.2587084	0.22566307	2.6719545	20	4 25.2	20.8
510566 2012 PK ₃₇	17.4	X	16.58167	207.68950	145.43073	5.06107	0.1567606	0.26271397	2.4144262	20	12 10.6	20.2
510567 2012 PN ₄₄	13.5	X	251.74797	50.74516	292.39928	12.84121	0.1245615	0.08436797	5.1485425	20	4 25.4	20.8
510568 2012 QF ₁₀	13.8	X	208.51653	236.23329	122.22660	17.86637	0.0539328	0.08391785	5.1669368	20	4 17.1	21.1
510569 2012 QR ₁₅	17.5	X	68.81590	38.36483	252.04300	6.57953	0.1263071	0.26788771	2.3832386	20	11 19.5	20.7
510570 2012 QW ₂₉	17.2	X	128.98140	264.20642	342.68470	6.71167	0.0773375	0.26890775	2.3772079	20	11 24.9	20.7
510571 2012 QB ₃₂	17.5	X	301.91125	59.93140	238.81420	4.92237	0.2541361	0.22358845	2.6884573	20	4 7.9	21.1
510572 2012 QS ₃₃	17.1	X	288.71296	22.06397	333.64908	13.79707	0.2715794	0.23007527	2.6376840	20	6 2.4	20.8
510573 2012 QN ₅₂	13.9	X	259.18419	121.62619	194.18156	12.49983	0.0690573	0.08167875	5.2609400	20	4 14.0	20.9
510574 2012 RT	17.7	X	292.28554	134.17855	181.42255	13.18754	0.2702651	0.22660812	2.6645205	20	4 18.7	21.4
510575 2012 RU ₉	17.7	X	273.72975	153.43169	216.48970	12.11849	0.3016035	0.22894745	2.6463392	20	6 1.2	21.6
510576 2012 RW ₂₃	17.3	X	298.52517	226.06382	124.47122	4.51970	0.1607538	0.22680405	2.6629857	20	6 30.9	20.3
510577 2012 RX ₃₂	17.2	X	283.93944	11.10442	349.92659	12.58886	0.1672663	0.23041947	2.6350565	20	6 22.9	20.8
510578 2012 RD ₃₆	16.8	X	226.77681	235.01353	162.91794	9.16650	0.3074874	0.21351676	2.7723501	20	5 26.9	21.8
510579 2012 RF ₄₀	17.2	X	41.49396	166.03762	160.35117	4.82036	0.1966218	0.26400586	2.4065433	20	12 13.6	20.5
510580 2012 RE ₄₁	17.0	X	270.76062	11.96535	11.22603	13.16568	0.2921816	0.22902185	2.6457660	20	6 14.8	21.1
510581 2012 SP	16.8	X	330.91421	355.60349	318.49528	8.71474	0.2965072	0.23386301	2.6091258	20	6 21.1	18.7
510582 2012 ST	17.3	X	276.79894	116.01405	260.45933	10.14355	0.2034749	0.23273137	2.6175768	20	6 27.3	20.8
510583 2012 SQ ₅	17.7	X	232.95063	200.41052	228.89486	0.94263	0.2327761	0.22518614	2.6757258	20	7 14.6	21.9
510584 2012 SC ₁₀	17.3	X	330.52877	121.96750	183.61475	14.09883	0.1970390	0.23380954	2.6095236	20	6 19.8	20.2
510585 2012 SJ ₁₀	18.0	X	27.34366	324.00846	5.177248	1.12109	0.2204005	0.26165603	2.4202999	20	11 30.3	20.9
510586 2012 SH ₁₃	17.3	X	241.12744	232.16195	146.81233	2.73497	0.1665062	0.21671038	2.7450457	20	5 25.7	21.5
510587 2012 SI ₁₅	17.0	X	258.68173	57.02140	291.17323	3.86039	0.1716234	0.21271966	2.7792710	20	5 2.6	21.1
510588 2012 SG ₁₆	17.5	X	24.55855	352.27616	312.78828	4.46332	0.1646422	0.24633668	2.5202874	20	10 11.5	20.4
510589 2012 SG ₁₉	17.4	X	272.86113	114.66744	294.96892	11.53777	0.1729947	0.23702528	2.5858675	20	8 10.1	20.6
510590 2012 SH ₂₅	17.0	X	245.05477	1.37992	354.23832	3.39283	0.1102820	0.21202976	2.7852969	20	5 4.3	21.1
510591 2012 SA ₃₂	14.2	X	271.89529	144.42282	180.24492	9.49944	0.1296836	0.08496361	5.1244516	20	5 1.1	21.1
510592 2012 SE ₃₈	17.6	X	195.08530	270.60015	183.47295	1.76566	0.0348525	0.22926083	2.6439271	20	7 21.5	21.1
510593 2012 SU ₅₂	17.5	X	264.72198	117.33679	302.82243	3.63435	0.2305176	0.23629517	2.5911913	20	8 6.4	21.0
510594 2012 SJ ₅₇	17.2	X	302.76816	322.27383	24.42869	6.40547	0.2802725	0.22964148	2.6410046	20	6 11.1	20.2
510595 2012 SQ ₆₄	17.0	X	274.11806	91.45154	286.36668	11.44876	0.2755361	0.22670887	2.6637311	20	6 15.4	20.8
510596 2012 SB ₆₅	17.1	X	249.13409	29.42451	19.90765	13.82480	0.2487299	0.22359696	2.6883891	20	7 3.7	21.5
510597 2012 SC ₆₈	17.0	X	291.18876	25.50147	289.37030	3.30546	0.0541871	0.20999899	2.8032247	20	5 17.3	20.8
510598 2012 TK ₂	17.4	X	218.49798	228.70758	186.48705	11.71335	0.0933251	0.22330151	2.6907599	20	6 23.1	21.6
510599 2012 TL ₁₂	17.4	X	332.31950	275.53027	53.36637	2.95536	0.1421777	0.23059982	2.6336824	20	8 5.4	20.0
510600 2012 TK ₁₅	18.2	X	10.45515	334.51727	13.76424	22.60769	0.1489723	0.38247848	1.8795969	20	12 28.7	20.8
510601 2012 TJ ₁₈	17.0	X	122.15830	305.95132	201.13117	10.84599	0.0315504	0.21664221	2.7456215	20	6 29.0	21.1
510602 2012 TB ₁₉	17.3	X	225.42326	1.26069	73.54431	13.02665	0.1665957	0.22241006	2.6979450	20	7 21.1	21.6
510603 2012 TA ₂₇	17.4	X	291.86412	215.21223	148.95928	4.37995	0.2302162	0.23022039	2.6365753	20	6 27.9	20.6
510604 2012 TK ₃₃	16.8	X	262.92076	19.11539	340.17281	5.64873	0.0482789	0.21754115	2.7380525	20	6 8.8	20.7
510605 2012 TT ₃₄	16.5	X	234.73651	39.87334	2.35721	16.82814	0.1946602	0.22326125	2.6910833	20	6 11.2	21.1
510606 2012 TU ₃₇	17.1	X	226.85356	39.85201	358.51170	7.49789	0.3118247	0.21293546	2.7773933	20	5 23.5	22.1
510607 2012 TP ₅₁	17.7	X	144.51396	244.86367	22.22006	5.18591	0.2346769	0.27923586	2.3182232	20	—	—
510608 2012 TO ₅₂	13.7	X	96.41724	243.12766	264.90372	6.43704	0.0063419	0.08191200	5.2509477	20	5 25.5	20.6
510609 2012 TF ₅₉	17.3	X	196.51080	162.86703	280.93661	3.74867	0.1821148	0.21599898	2.7510696	20	7 1.7	21.7
510610 2012 TS ₇₀	17.5	X	212.30828	154.79098	258.42072	7.18174	0.2220487	0.21267500	2.7796605	20	6 5.9	22.2
510611 2012 TN ₈₅	17.4	X	195.42028	224.23460	205.98725	3.38323	0.0805230	0.21376987	2.7701612	20	6 17.7	21.6
510612 2012 TQ ₉₆	17.6	X	205.10481	80.08585	0.93938	3.26133	0.2009860	0.21586377	2.7522183	20	7 5.8	22.2
510613 2012 TT ₉₆	17.4	X	224.46283	141.55053	244.38445	2.23768	0.1954441	0.20980890	2.8049177	20	5 15.3	21.9
510614 2012 TD ₁₀₁	17.7	X	243.30547	203.26797	225.29883	1.63661	0.1191820	0.22991782	2.6388880	20	8 6.2	21.4
510615 2012 TD ₁₀₄	17.5	X	153.67137	262.23976	258.77094	3.39912	0.0593143	0.23319892	2.6140769	20	8 27.8	21.4
510616 2012 TO ₁₀₅	17.5	X	337.07125	341.10702	357.27107	5.11100	0.1276224	0.23806417	2.5783391	20	8 31.1	19.9
510617 2012 TH ₁₂₅	17.4	X	35.51326	28.70045	264.77309	3.62396	0.1409666	0.24748885	2.5124588	20	10 8.9	20.4
510618 2012 TX ₁₃₀	17.1	X	235.28214	170.71210	251.73659	7.69996	0.2512630	0.22465156	2.6799689	20	7 4.8	21.5
510619 2012 TA ₁₃₅	13.9	X	256.78994	269.88522	61.57290	10.58153	0.0804585	0.07983045	5.3418335	20	4 29.1	21.1
510620 2012 TJ ₁₃₈	17.3	X	285.65977	198.71297	193.22715	13.63999	0.2172541	0.23297499	2.6157517	20	7 26.9	20.8
510621 2012 TA ₁₄₂	17.8	X	260.51717	238.62942	173.00654	2.18469	0.1172183	0.23032154	2.6358034	20	8 6.0	21.3
510622 2012 TZ ₁₅₃	17.5	X	234.35666	191.83267	188.13715	5.02503	0.1760797	0.21414758	2.7669030	20	5 19.6	21.9
510623 2012 TU ₁₅₈	17.2	X	249.27010	253.75118	112.60008	1.64161	0.0882517	0.21425500	2.7659781	20	5 27.1	21.1
510624 2012 TV ₁₆₁	17.3	X	187.18559	40.59604	17.55748	5.92940	0.0454451	0.20817310	2.8195922	20	5 23.2	21.4
510625 2012 TX ₁₆₄	14.3	X	284.36460	288.83636	25.68946	10.28890	0.1159944	0.08418933	5.1558233	20	5 2.1	21.0
510626 2012 TP ₁₆₈	16.9	X	254.51623	249.92475	127.87073	5.78509	0.1253598	0.21636778	2.7479426	20	6 12.9	20.8
510627 2012 TX ₁₆₉	16.8	X	320.05869	335.24626	29.99546	12.91105	0.2095880	0.2367				

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>		
510641	2012	TA ₂₁₆	16.7	X	235.99296	122.20095	302.08387	13.09275	0.1901879	0.22282276	2.6946127	20	7 15.5	20.8
510642	2012	TQ ₂₁₆	17.0	X	287.58103	21.18731	351.84069	4.85021	0.1826330	0.22736226	2.6586253	20	7 13.0	20.2
510643	2012	TC ₂₁₉	16.5	X	248.00670	332.13666	46.96402	15.27294	0.1875929	0.21262581	2.7800892	20	5 28.1	20.9
510644	2012	TM ₂₁₉	18.6	X	81.27838	296.08648	41.96022	22.13142	0.1013732	0.40194253	1.8184167	20	—	—
510645	2012	TF ₂₂₁	18.1	X	234.00736	67.42702	20.07022	3.85779	0.1687423	0.23257903	2.6187197	20	8 16.4	22.0
510646	2012	TV ₂₂₂	17.8	X	312.84633	199.17606	143.41030	2.15783	0.2330772	0.23443243	2.6048992	20	7 3.8	20.2
510647	2012	TZ ₂₃₃	16.9	X	294.61823	296.61674	102.26994	9.15671	0.1113038	0.24112343	2.5564842	20	9 16.9	19.9
510648	2012	TG ₂₃₅	17.0	X	259.12362	189.36555	162.23120	9.38415	0.1475324	0.21518740	2.7579824	20	5 14.3	21.1
510649	2012	TJ ₂₃₅	17.2	X	267.17336	240.60752	129.19781	6.67890	0.0505152	0.22234431	2.6984769	20	6 29.2	20.9
510650	2012	TS ₂₃₈	16.2	X	143.20919	299.10374	55.77709	9.11080	0.0848892	0.17381374	3.1798989	20	1 26.9	21.0
510651	2012	TE ₂₄₁	17.1	X	215.74189	341.31791	66.44997	5.82077	0.1215019	0.21045781	2.7991490	20	6 8.1	21.5
510652	2012	TG ₂₄₄	17.5	X	261.22443	225.73944	172.43894	6.05179	0.1932799	0.22393815	2.6856577	20	7 7.7	21.4
510653	2012	TH ₂₅₆	17.3	X	239.56551	212.00425	152.47923	2.58828	0.0835607	0.20355295	2.8620976	20	5 14.5	21.4
510654	2012	TV ₂₆₀	17.2	X	164.38120	52.64531	51.73195	9.66638	0.1871179	0.20903748	2.8118142	20	6 29.3	22.0
510655	2012	TF ₂₆₆	16.3	X	233.55534	87.86087	195.79647	10.54339	0.0426269	0.17908057	3.1172411	20	1 31.6	21.1
510656	2012	TN ₂₆₈	17.4	X	191.82542	346.58828	155.55854	14.14983	0.0996307	0.23498282	2.6008300	20	9 17.4	21.3
510657	2012	TZ ₂₈₂	17.7	X	278.25156	54.35073	318.30473	10.47453	0.1901249	0.22540394	2.6740019	20	6 27.5	21.4
510658	2012	TK ₂₈₄	17.3	X	144.97371	181.29444	106.22477	5.57695	0.2267038	0.28252760	2.3001816	20	—	—
510659	2012	TX ₂₈₆	17.0	X	241.33175	270.41856	123.99129	5.20354	0.0834544	0.21611736	2.7500649	20	6 23.9	20.9
510660	2012	TC ₂₉₃	17.2	X	227.63571	85.05900	294.77803	4.91400	0.0756708	0.20549069	2.8440765	20	5 19.3	21.5
510661	2012	TD ₂₉₆	17.4	X	297.62797	335.31500	20.32050	5.23355	0.1876902	0.22631562	2.6668159	20	7 2.9	20.5
510662	2012	TW ₃₀₀	16.0	X	256.21825	65.84557	275.61591	19.44465	0.1344136	0.21065197	2.7974288	20	4 20.9	20.6
510663	2012	TU ₃₀₆	16.8	X	359.16074	30.96441	313.70160	14.33243	0.1491369	0.24484329	2.5305247	20	10 15.4	19.9
510664	2012	TL ₃₀₈	16.2	X	115.85621	347.59984	254.56627	13.51206	0.0624716	0.24554374	2.5257100	20	10 29.5	19.9
510665	2012	TS ₃₁₂	17.1	X	245.66612	60.64872	172.02232	13.40368	0.07392682	0.23222878	2.6213521	20	8 12.1	21.2
510666	2012	TM ₃₂₂	16.3	X	314.09954	56.44326	337.78092	14.53311	0.1427968	0.24172492	2.5522415	20	10 1.2	19.0
510667	2012	UB ₁	16.8	X	267.71574	71.36532	330.96238	28.65303	0.3564116	0.23353321	2.6115817	20	7 7.9	21.2
510668	2012	UO ₆	17.0	X	254.27604	192.56515	184.36150	12.30362	0.1123992	0.21830348	2.7316744	20	6 13.3	21.1
510669	2012	UR ₇	17.1	X	249.44266	261.58670	99.70213	5.49233	0.0832183	0.21179188	2.7873822	20	5 22.2	21.0
510670	2012	UO ₁₂	17.8	X	254.58011	264.81199	153.65357	3.93380	0.0846490	0.23114476	2.6295414	20	8 12.7	21.2
510671	2012	UM ₁₅	18.2	X	335.02740	179.66562	160.74826	4.43935	0.1484415	0.23759519	2.5817308	20	8 28.3	20.7
510672	2012	UP ₂₁	17.3	X	246.50472	220.03337	154.75189	6.43932	0.0630264	0.21473025	2.7618954	20	6 7.7	21.3
510673	2012	UL ₂₆	17.9	X	261.55504	31.75670	346.16411	8.43236	0.2051511	0.22022438	2.7157667	20	6 9.4	22.1
510674	2012	UL ₂₈	17.6	X	57.62701	176.73037	39.83561	6.78974	0.0063511	0.21964874	2.7205094	20	7 4.7	21.3
510675	2012	UK ₃₈	17.4	X	221.11339	101.55777	336.82069	4.45584	0.1448284	0.22005985	2.7171201	20	7 22.6	21.5
510676	2012	UM ₃₈	17.2	X	205.46616	206.08629	251.00336	6.80986	0.1929003	0.21850857	2.7299649	20	7 24.6	21.7
510677	2012	UO ₄₃	17.3	X	272.27125	339.03228	67.03075	7.24374	0.1861752	0.22786216	2.6547354	20	8 6.5	20.8
510678	2012	UJ ₄₇	17.1	X	185.66414	49.76582	59.09324	4.44528	0.1126105	0.21867833	2.7285519	20	7 27.3	21.3
510679	2012	UY ₄₈	17.5	X	326.91762	161.03804	187.97658	2.52168	0.0478397	0.23207708	2.6224943	20	8 27.9	20.8
510680	2012	UH ₄₉	17.2	X	236.63507	8.50036	47.65530	12.10510	0.0625250	0.22059737	2.7127046	20	7 22.7	21.2
510681	2012	UJ ₅₁	17.5	X	212.11984	77.61117	41.35990	4.50511	0.2127633	0.22601416	2.6691867	20	8 30.1	21.8
510682	2012	UW ₅₇	16.8	X	217.13742	220.25365	225.37109	13.62149	0.1625246	0.21917579	2.7244216	20	7 21.2	21.3
510683	2012	UY ₅₇	17.2	X	278.83261	88.35039	260.91098	2.12742	0.2076411	0.21739378	2.7392897	20	5 23.6	20.9
510684	2012	UM ₆₆	17.6	X	235.09651	7.76053	49.67953	12.18429	0.1550619	0.21690757	2.7433817	20	7 9.3	22.0
510685	2012	UB ₆₇	16.8	X	269.63304	288.24915	125.82557	10.94436	0.1085257	0.23321465	2.6139593	20	8 26.5	20.1
510686	2012	UH ₉₀	17.5	X	15.12174	274.27816	54.54507	2.48051	0.0145068	0.23508826	2.6005223	20	10 9.9	20.7
510687	2012	UG ₁₀₇	17.1	X	277.25862	54.00336	355.55683	9.85988	0.0952792	0.23351294	2.6117328	20	9 2.5	20.3
510688	2012	UL ₁₁₀	16.6	X	233.24906	339.20903	68.51582	5.31671	0.0629069	0.21268037	2.7796137	20	7 4.2	20.5
510689	2012	UA ₁₁₅	17.3	X	81.64038	240.39928	6.31445	5.55928	0.0979971	0.24033596	2.5620654	20	9 30.8	20.7
510690	2012	UQ ₁₂₃	17.8	X	256.54392	165.05340	280.22286	2.97543	0.1041395	0.23301782	2.6154311	20	9 16.7	21.3
510691	2012	UC ₁₂₆	17.4	X	223.35681	53.05249	34.54303	6.39788	0.0870397	0.22101189	2.7093116	20	8 14.2	21.3
510692	2012	UD ₁₂₆	16.9	X	183.57681	129.57630	24.06561	5.56313	0.1020571	0.22835058	2.6509486	20	9 22.1	20.8
510693	2012	UP ₁₂₆	17.9	X	290.64031	84.39563	285.64085	6.03378	0.1604818	0.22519108	2.6756867	20	7 15.8	21.1
510694	2012	UJ ₁₃₁	17.3	X	217.94014	168.87823	244.42648	13.73631	0.3463283	0.21397226	2.7684142	20	6 4.3	22.4
510695	2012	UF ₁₃₃	17.0	X	289.52734	73.62630	318.51532	9.10616	0.1508060	0.23114105	2.6295695	20	8 16.6	20.1
510696	2012	UF ₁₃₅	17.3	X	245.40512	44.11945	354.86786	4.73465	0.1846763	0.22368472	2.6876858	20	6 22.6	21.3
510697	2012	UF ₁₃₇	17.3	X	249.05688	263.36715	124.84837	5.09222	0.1167499	0.21576954	2.7530195	20	6 20.8	21.2
510698	2012	UE ₁₃₈	17.2	X	276.43992	345.95120	28.87211	5.34935	0.1256557	0.22278572	2.6949114	20	7 7.9	20.8
510699	2012	UC ₁₄₆	17.2	X	244.80915	175.75806	267.09690	11.22483	0.1265416	0.23232128	2.6206562	20	8 21.4	21.0
510700	2012	UA ₁₅₂	17.8	X	238.06520	355.55353	59.39145	9.78698	0.2024994	0.21660569	2.7459301	20	7 3.5	22.1
510701	2012	UK ₁₅₃	17.2	X	274.66605	235.58298	165.61746	2.51432	0.0746221	0.22610443	2.6684762	20	8 18.1	20.7
510702	2012	UE ₁₆₀	17.2	X	205.65693	95.69838	48.34818	16.66314	0.1979833	0.22985877	2.6393400	20	10 1.7	21.6
510703	2012	US ₁₆₅	16.9	X	237.25872	95.06096	332.25080	12.18330	0.1569028	0.22181362	2.7027793	20	7 26.3	21.0
510704	2012	UN ₁₆₉	16.4	X	289.67919	110.48771	280.84926	12.00102	0.1555428	0.23177296	2.6247878	20	8 11.0	19.6
510705	2012	UP ₁₆₉	16.9	X	200.83027	204.13400	252.07443	18.31373	0.2440283	0.21410329	2.7672845	20	7 14.1	21.9
510706	2012	UT ₁₇₈	17.5	X	221.96664	24.68418	40.97380	4.60567	0.0861528	0.21503062	2.7593228	20	7 12.3	21.5
510707	2012	UY ₁₇₈	17.5	X	192.86064	292.18817	182.97564	4.28194	0.1204331	0.22259060	2.6964860	20	8 9.4	21.6
510708	2012	UC ₁₇₉	17.6	X	54.17629	346.54434	286.81869	2.77172	0.0630857	0.23808209	2.5782096	20	9 24.1	21.0
510709	2012	VJ	16.6	X	261.23740	270.51252	101.45494	12.14986	0.0315676	0.21636282	2.			

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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>
510721 2012 VL ₄₈	17.3	X	294.91607	140.64345	184.39864	4.48484	0.0705842	0.21350216	2.7724765	20	6 4.2	20.9
510722 2012 VC ₆₀	17.6	X	196.63423	70.07440	60.47992	6.69040	0.0965338	0.22664674	2.6642178	20	9 9.0	21.6
510723 2012 VN ₆₁	17.3	X	275.07895	343.14805	57.32438	15.01488	0.0901272	0.22709594	2.6607034	20	8 23.7	21.0
510724 2012 VJ ₇₄	17.2	X	339.01717	262.47724	60.14384	8.13802	0.1391990	0.22798932	2.6537482	20	8 11.8	20.0
510725 2012 VQ ₇₇	17.7	X	283.91468	152.62368	231.83335	3.15816	0.2635211	0.22914145	2.6448453	20	7 8.4	21.1
510726 2012 VP ₈₄	16.0	X	82.63106	268.54129	250.76625	22.89479	0.0579645	0.19141340	2.9818640	20	5 29.5	20.2
510727 2012 VR ₉₂	17.1	X	208.32819	239.23109	144.96100	2.34775	0.1344735	0.19538670	2.9413004	20	5 2.8	21.7
510728 2012 VZ ₉₂	16.4	X	274.18147	275.96340	73.29239	11.37075	0.3426591	0.21615728	2.7497264	20	5 4.1	20.7
510729 2012 VO ₉₄	17.3	X	265.17656	349.80755	60.57342	5.77742	0.1553397	0.22633703	2.6666477	20	8 7.0	20.9
510730 2012 VT ₉₇	16.8	X	203.10208	230.85569	226.73582	7.90240	0.1394362	0.21897823	2.7260601	20	7 25.7	21.2
510731 2012 VG ₉₉	16.9	X	289.23216	308.86175	72.52365	12.41107	0.1907785	0.23053264	2.6341941	20	7 27.9	20.2
510732 2012 VR ₁₀₂	16.5	X	130.98162	359.48681	60.59891	12.32703	0.1032091	0.17735881	3.1373830	20	4 4.8	21.3
510733 2012 VE ₁₀₃	18.2	X	217.70191	281.94335	253.12126	19.48295	0.1001337	0.37723492	1.8969744	20	—	—
510734 2012 VE ₁₀₅	16.6	X	284.52178	97.64869	235.72655	23.71992	0.1660464	0.21478015	2.7614676	20	5 16.4	20.3
510735 2012 VR ₁₁₁	16.9	X	251.45524	137.47428	224.07672	8.27090	0.0793131	0.20535095	2.8453667	20	5 24.9	20.9
510736 2012 VF ₁₁₄	13.7	X	331.53383	345.38587	269.61554	16.48893	0.0165278	0.08082783	5.2977986	20	4 30.5	20.8
510737 2012 VF ₁₁₄	16.5	X	321.00821	227.50624	115.46330	3.15882	0.0795975	0.20559668	2.8430990	20	8 6.1	20.0
510738 2012 WF ₂	17.6	X	234.00641	307.60217	147.32073	0.92184	0.0460776	0.22922931	2.6441694	20	9 9.9	21.0
510739 2012 WS ₅	17.1	X	219.04897	125.35603	244.95432	8.32579	0.2345331	0.19894529	2.9061204	20	4 18.4	22.2
510740 2012 WG ₁₃	17.5	X	186.23307	27.85298	89.19748	4.42741	0.0513557	0.21741999	2.7390696	20	8 10.1	21.4
510741 2012 WM ₁₄	17.6	X	222.02583	230.41803	199.59702	3.62689	0.1394755	0.21327231	2.7744681	20	7 11.4	21.8
510742 2012 WN ₂₀	17.5	X	278.64386	122.85295	286.67400	4.23150	0.0423893	0.22793411	2.6541767	20	9 7.4	21.1
510743 2012 XX ₁	17.3	X	252.21692	337.26582	51.56543	9.29658	0.2310776	0.21423913	2.7661147	20	6 10.2	21.5
510744 2012 XH ₁₈	16.5	X	141.33972	190.03331	248.05692	9.03734	0.0440613	0.18661996	3.0327084	20	4 24.8	20.9
510745 2012 XZ ₂₉	17.1	X	274.91228	340.20616	60.65182	4.34261	0.1740023	0.22432666	2.6825560	20	8 3.7	20.5
510746 2012 XB ₃₀	16.3	X	137.60456	143.86988	262.31269	8.47206	0.0819648	0.17453110	3.1711795	20	3 14.4	21.2
510747 2012 XK ₃₉	16.5	X	220.37457	198.05978	245.96521	12.91086	0.0555400	0.21564731	2.7540597	20	8 1.1	20.7
510748 2012 XX ₄₁	16.1	X	137.57333	272.96396	256.30918	13.83943	0.0536206	0.21419295	2.7665123	20	8 12.9	20.4
510749 2012 XL ₄₇	16.7	X	175.07112	169.25287	235.42837	8.52160	0.1434545	0.18667780	3.0320819	20	4 25.1	21.6
510750 2012 XQ ₅₀	17.2	X	339.39372	250.26742	86.33723	5.18421	0.1572739	0.23165512	2.6256779	20	9 2.6	19.9
510751 2012 XW ₅₃	17.3	X	209.42595	213.68899	274.91275	4.71684	0.0894523	0.22665576	2.6641471	20	9 15.2	21.3
510752 2012 XK ₅₆	18.3	X	107.28237	260.94910	74.17605	23.60941	0.0979048	0.39532863	1.8386421	20	—	—
510753 2012 XW ₆₂	16.5	X	178.31694	12.82607	108.37468	10.29484	0.1448925	0.21128980	2.7917961	20	8 3.1	20.9
510754 2012 XL ₉₄	17.3	X	198.55265	33.51829	89.15359	9.07910	0.1781870	0.21673258	2.7448582	20	8 25.2	21.8
510755 2012 XW ₁₁₀	17.7	X	287.41006	357.45610	90.84728	24.07802	0.0549583	0.36554408	1.9372078	20	12 22.9	19.1
510756 2012 XF ₁₂₃	16.2	X	142.34833	294.57842	108.98308	15.42752	0.1395521	0.17515428	3.1636533	20	4 1.7	21.4
510757 2012 XH ₁₂₆	16.9	X	315.89080	86.42658	273.81370	6.92519	0.2336673	0.23237843	2.6202266	20	8 5.3	19.3
510758 2012 XJ ₁₂₈	16.4	X	170.88785	109.75745	264.02435	8.80171	0.2541705	0.17813734	3.1282353	20	3 16.5	22.0
510759 2012 XA ₁₃₈	17.3	X	266.50442	1.07404	38.39856	4.72518	0.1713595	0.22070120	2.7118537	20	7 21.1	20.9
510760 2012 XQ ₁₅₂	16.3	X	142.34636	184.10021	67.27870	13.99595	0.1484789	0.23606348	2.5928865	20	12 8.4	20.3
510761 2012 YU ₂	17.0	X	227.51608	150.40850	280.91135	8.00941	0.2774154	0.21209540	2.7847222	20	7 7.2	21.7
510762 2012 YL ₈	18.0	X	334.78647	72.44731	48.47572	23.77929	0.0745592	0.38999040	1.8553824	20	—	—
510763 2012 YA ₉	16.7	X	219.90316	334.69253	113.15706	29.73553	0.1446614	0.21596823	2.7513308	20	8 1.6	21.0
510764 2013 AY ₄	17.5	X	176.59930	288.32748	136.54746	1.69508	0.1773075	0.18727647	3.0256167	20	5 22.6	22.4
510765 2013 AO ₁₁	17.7	X	209.69498	295.41528	280.42177	17.20904	0.0460891	0.38728579	1.8640104	20	—	—
510766 2013 AA ₂₃	15.4	X	120.97245	340.63431	130.66091	29.07163	0.1504355	0.17314850	3.1880385	20	6 3.2	20.8
510767 2013 AK ₂₃	16.4	X	172.49317	271.30798	127.90010	16.93547	0.2774375	0.17488455	3.1669053	20	4 27.1	22.3
510768 2013 AZ ₂₅	17.4	X	252.92042	301.37026	89.13317	6.08736	0.1724430	0.21197411	2.7857844	20	6 20.9	21.3
510769 2013 AS ₃₂	16.5	X	133.38168	282.43545	409.16127	8.52415	0.1547544	0.21439564	2.7647684	20	10 30.3	21.1
510770 2013 AZ ₃₇	15.8	X	33.49018	87.58034	120.59399	22.55533	0.0549098	0.17573575	3.1566708	20	5 31.7	20.4
510771 2013 AA ₃₈	16.8	X	150.67050	155.90307	305.54138	4.36699	0.1254071	0.18364625	3.0653590	20	6 10.4	21.6
510772 2013 AL ₄₂	15.8	X	325.90326	324.86683	305.56319	7.77876	0.0467379	0.17461816	3.1701254	20	5 6.6	20.2
510773 2013 AX ₄₈	16.8	X	277.83782	319.96746	89.17475	3.51397	0.2315299	0.22590792	2.6700235	20	8 9.7	20.0
510774 2013 AD ₅₂	18.1	X	358.21597	163.33041	258.13584	15.27330	0.0619465	0.38357940	1.8759987	20	—	—
510775 2013 AY ₅₆	16.5	X	106.49282	22.38165	110.69827	18.37419	0.1658183	0.17614387	3.1517930	20	6 10.9	21.4
510776 2013 AS ₅₇	16.6	X	164.39470	328.09704	114.04037	12.58546	0.1993719	0.18413541	3.0599277	20	6 4.2	21.9
510777 2013 AZ ₅₈	16.5	X	78.03722	126.21403	141.19354	6.62188	0.0233466	0.21301402	2.7767104	20	10 11.7	20.3
510778 2013 AM ₆₁	16.5	X	266.93601	35.67500	321.61143	10.61842	0.1127010	0.19604593	2.9347030	20	5 31.9	20.8
510779 2013 AK ₆₈	18.4	X	318.69492	340.78782	128.63617	23.76687	0.0811496	0.38176545	1.8819365	20	—	—
510780 2013 AO ₆₈	17.7	X	295.28646	144.90061	323.76917	20.16087	0.0790057	0.37280895	1.9119586	20	—	—
510781 2013 AJ ₇₀	17.0	X	255.01513	33.86550	9.90889	8.77173	0.2108006	0.20968565	2.8060166	20	7 6.9	21.3
510782 2013 AM ₇₁	16.8	X	110.95334	62.61183	76.80696	16.61494	0.2387952	0.18095054	3.0957279	20	6 27.6	21.9
510783 2013 AU ₇₂	18.0	X	43.40106	275.09638	87.38283	24.22038	0.1019352	0.37580950	1.9017680	20	—	—
510784 2013 AS ₈₃	18.1	X	331.71486	299.18618	123.13837	24.68771	0.0446280	0.36912550	1.9246570	20	—	—
510785 2013 AZ ₉₃	16.4	X	108.48774	29.91480	128.99688	16.97593	0.2431884	0.18106229	3.0944541	20	7 19.9	21.5
510786 2013 AT ₁₀₂	16.3	X	238.57635	87.88123	309.94639	18.27228	0.1701827	0.20065161	2.8896214	20	6 16.2	21.0
510787 2013 AB ₁₀₅	16.4	X	198.48155	96.10323	349.72033	16.06349	0.2176987	0.20179523	2.8786937	20	7 7.7	21.6
510788 2013 AL ₁₀₅	18.0	X	7.11493	256.84851	116.21221	23.41887	0.0971153	0.37044504	1.9200839	20	—	—
510789 2013 AB ₁₀₉	16.4	X	215.93922	107.65300	291.99166	8.06354	0.1316367	0.18880475	3.0092674	20	5 27.7	21.2
510790 2013 AQ ₁₁₀	16.9	X	67.45225	111.53970	116.16618	6.70438	0.0204355	0.19966055	2.8991757	20	8 2.7	20.8
510791 2013 AW ₁₂₀	18.4	X	282.79521	214.57367	277.13770	19.28099	0.0436946	0.38555891	1.8695721	20	—	—
510792 2013 AB ₁₂₆	17.8	X	246.40029	82.56087	96.87760	23.40942	0.0833654	0.37679801	1.8984405	20	—	—
510793 2013 AU ₁₃₂	13.6	X	157.84759	235.52164	329.98606	8.57615	0.0035031	0.08460431	5.1389500	20	10 4.3	20.5

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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>
510801 2013 BF ₃	16.3	X	157.12855	329.76662	111.59466	17.29093	0.0559781	0.17979872	3.1089350	20	5 24.8	21.1
510802 2013 BR ₃	15.5	X	122.41011	146.91328	334.46645	13.24061	0.0708076	0.17823698	3.1270693	20	5 29.2	20.4
510803 2013 BK ₉	16.6	X	243.68296	100.09235	312.58336	10.34622	0.1007123	0.20394156	2.8584606	20	7 19.1	20.8
510804 2013 BV ₁₁	16.8	X	174.76245	36.66626	95.04188	11.53023	0.0912566	0.20409733	2.8570061	20	8 15.3	21.3
510805 2013 BO ₂₁	15.9	X	57.82284	74.91193	112.72421	17.26676	0.1842310	0.17393089	3.1784708	20	6 21.8	20.1
510806 2013 BF ₂₅	17.8	X	151.43801	277.29421	187.70909	0.61562	0.2594606	0.18501996	3.0501673	20	6 21.1	23.0
510807 2013 BS ₂₇	18.4	X	55.48089	197.71495	140.93373	23.99663	0.0764909	0.36927110	1.9241511	20	—	—
510808 2013 BE ₂₉	15.6	X	73.55823	235.24846	337.23422	26.40546	0.2283361	0.17455978	3.1708321	20	8 21.9	20.3
510809 2013 BU ₂₉	16.1	X	247.35438	250.99476	91.29099	9.36395	0.0819579	0.17680267	3.1439588	20	4 29.3	20.8
510810 2013 BX ₂₉	16.4	X	4.01648	203.32417	94.25218	11.43760	0.1210835	0.20060005	2.8901165	20	8 18.3	19.9
510811 2013 BT ₃₀	17.3	X	201.71916	15.15496	40.16341	3.23267	0.1668551	0.19028160	2.9936764	20	6 1.4	22.1
510812 2013 BF ₃₂	15.7	X	13.71904	119.55329	114.17733	26.32421	0.1595529	0.17267013	3.1939239	20	6 10.3	19.7
510813 2013 BQ ₄₁	16.7	X	241.70748	258.68059	128.96832	9.29953	0.0805300	0.18779981	3.0199931	20	6 15.9	21.2
510814 2013 BJ ₄₂	15.9	X	310.54325	239.61635	134.20573	16.08404	0.1298957	0.21084157	2.7957514	20	8 29.3	19.1
510815 2013 BK ₆₂	16.1	X	36.74021	96.71428	128.84381	10.58376	0.0288033	0.17884117	3.1200224	20	6 19.7	20.5
510816 2013 BM ₆₉	15.5	X	1.28008	140.18804	111.57617	12.30915	0.0455641	0.17852155	3.1237453	20	6 6.4	19.7
510817 2013 BA ₇₀	18.4	X	133.99803	197.14818	180.88793	24.60708	0.0673909	0.39165237	1.8501298	20	—	—
510818 2013 BB ₇₂	16.5	X	174.94314	203.45370	224.89100	2.80897	0.1308266	0.18293794	3.0732663	20	5 24.7	21.3
510819 2013 BZ ₇₂	18.2	X	356.06757	287.48715	181.73129	23.28560	0.0846350	0.39606282	1.8363692	20	—	—
510820 2013 BT ₇₃	18.6	X	69.49299	25.01685	355.45094	18.97055	0.0491851	0.39089112	1.8525311	20	—	—
510821 2013 BK ₇₄	17.4	X	175.61454	54.45262	17.13823	1.65676	0.2498303	0.18884644	3.0088244	20	5 29.7	22.8
510822 2013 BL ₇₅	15.6	X	162.28391	326.87187	113.11226	10.77990	0.0652150	0.17716064	3.1397221	20	5 26.8	20.4
510823 2013 BC ₇₇	17.0	X	262.64361	310.04331	120.32236	5.71764	0.1015086	0.21102647	2.7941181	20	9 5.9	20.8
510824 2013 BG ₇₇	16.7	X	87.94813	48.22165	126.58450	15.73607	0.1395703	0.17944142	3.1130607	20	7 6.9	21.3
510825 2013 CD	18.2	X	290.10363	19.51509	118.41982	25.16031	0.0515338	0.37617840	1.9005245	20	—	—
510826 2013 CB ₄	16.8	X	185.84848	155.12433	279.80426	6.63305	0.1976886	0.18847904	3.0127333	20	6 11.0	21.8
510827 2013 CE ₄	16.5	X	190.09228	158.67685	293.26701	9.62834	0.0591219	0.19121478	2.9839285	20	7 10.0	20.7
510828 2013 CL ₆	16.9	X	256.36998	269.85093	161.60787	6.50071	0.0424959	0.20966897	2.8061655	20	9 6.0	20.7
510829 2013 CF ₁₅	16.1	X	280.73454	207.28424	136.46113	12.77512	0.0250694	0.18006322	3.1058898	20	6 16.7	20.6
510830 2013 CT ₁₇	16.9	X	110.86110	60.20137	114.18850	5.82459	0.1198523	0.18225576	3.0809303	20	7 30.2	21.4
510831 2013 CZ ₁₈	16.5	X	186.69521	278.95152	149.50714	16.50228	0.2519201	0.18150575	3.0894117	20	6 6.1	22.2
510832 2013 CZ ₂₀	16.9	X	215.53804	250.43861	218.91968	1.22313	0.0157208	0.20560715	2.8430025	20	9 5.5	20.9
510833 2013 CJ ₂₄	16.3	X	91.16509	214.56031	341.54553	9.31522	0.1769317	0.18108094	3.0942416	20	8 12.9	20.9
510834 2013 CU ₂₉	16.6	X	105.56089	18.14455	133.13391	18.67097	0.1696619	0.17667014	3.1455309	20	7 1.3	21.6
510835 2013 CF ₃₂	17.9	X	15.72403	244.25602	142.68174	25.13722	0.0844324	0.36758980	1.9300138	20	—	—
510836 2013 CJ ₃₃	16.2	X	126.30135	213.16383	288.71170	13.49887	0.1533446	0.18187926	3.0851806	20	7 8.5	21.1
510837 2013 CC ₃₄	17.9	X	186.14257	73.51332	139.70747	23.78276	0.1097739	0.36306691	1.9460094	20	—	—
510838 2013 CN ₃₆	18.2	X	96.19497	158.41987	148.87132	23.74826	0.0870277	0.36771151	1.9295879	20	—	—
510839 2013 CW ₃₆	16.5	X	120.88186	335.05739	154.48021	14.58720	0.1734491	0.17896888	3.1185380	20	6 20.4	21.6
510840 2013 CS ₄₀	18.1	X	354.68183	305.63211	151.44216	22.87814	0.1061086	0.38438235	1.8733852	20	—	—
510841 2013 CL ₄₃	16.5	X	56.82287	131.49780	122.70427	11.76775	0.3349700	0.18368238	3.0649570	20	10 10.4	21.2
510842 2013 CO ₄₄	16.5	X	32.61021	161.16231	103.68715	3.58913	0.2437525	0.18247221	3.0784934	20	9 4.3	20.1
510843 2013 CC ₄₆	18.1	X	300.88414	143.30350	176.70671	17.78344	0.0821509	0.36834223	1.9273846	20	—	—
510844 2013 CM ₄₇	17.1	X	164.95178	30.49961	71.67673	6.13401	0.1417757	0.18696761	3.0289478	20	7 3.3	21.9
510845 2013 CO ₄₇	17.0	X	218.75797	152.20409	262.65647	3.02704	0.1167059	0.18557717	3.0440586	20	6 20.4	21.5
510846 2013 CM ₅₃	16.2	X	71.45595	253.46699	321.01943	6.44901	0.0987392	0.18251127	3.0780542	20	8 1.1	20.3
510847 2013 CJ ₅₉	18.2	X	36.76946	217.26855	136.18311	24.38918	0.0817631	0.36787116	1.9290296	20	—	—
510848 2013 CF ₆₀	16.3	X	153.82621	294.31435	147.82970	10.11502	0.0654283	0.17454740	3.1709821	20	5 20.5	21.2
510849 2013 CE ₆₁	16.4	X	198.22341	140.52692	343.01038	14.65905	0.0848103	0.20398536	2.8580515	20	8 29.0	20.6
510850 2013 CR ₆₂	18.6	X	359.95343	89.49692	323.61297	18.08884	0.1022434	0.37382583	1.9084898	20	—	—
510851 2013 CT ₆₇	16.8	X	142.80176	63.22087	156.86523	12.45502	0.1014579	0.21229701	2.7829590	20	11 1.8	21.3
510852 2013 BC ₇₀	17.4	X	184.81089	350.23354	128.56407	7.28939	0.2169554	0.19772727	2.9180429	20	8 2.5	22.3
510853 2013 CY ₇₀	16.2	X	51.34638	57.94125	151.13088	17.03574	0.1680207	0.17545842	3.1599963	20	7 6.7	20.5
510854 2013 CU ₇₃	17.0	X	110.07242	15.71451	105.33699	2.36985	0.1409145	0.17439473	3.1728325	20	5 25.9	21.7
510855 2013 CG ₇₅	16.2	X	43.54534	295.84377	324.77559	15.99108	0.2146352	0.18225665	3.0809203	20	9 5.2	20.3
510856 2013 CM ₇₅	16.6	X	172.95124	157.52754	113.32386	7.99371	0.0795951	0.18582542	3.0413470	20	7 14.9	21.2
510857 2013 CO ₇₆	16.6	X	157.05515	326.44563	113.25653	14.10575	0.1463651	0.17512387	3.1640195	20	5 25.6	21.8
510858 2013 CY ₇₈	17.1	X	205.76089	323.92520	120.25560	3.62030	0.1956579	0.19966498	2.8991328	20	7 9.5	22.0
510859 2013 CJ ₇₉	18.2	X	290.21613	150.26426	1.84397	21.02374	0.0520093	0.38163387	1.8823691	20	—	—
510860 2013 CF ₈₅	16.9	X	64.40403	49.92242	125.39145	1.97103	0.1009702	0.17407026	3.1767741	20	6 1.5	21.0
510861 2013 CP ₈₆	17.7	X	158.96250	280.38905	337.21633	17.19102	0.0418404	0.36732904	1.9309271	20	—	—
510862 2013 CD ₈₈	17.6	X	92.08504	180.30293	138.80129	23.32125	0.0641667	0.36738687	1.9307244	20	—	—
510863 2013 CO ₉₁	16.5	X	31.29667	189.37881	137.44115	10.31227	0.1262896	0.21736323	2.7395464	20	11 13.4	20.2
510864 2013 CX ₉₄	16.4	X	215.45983	237.66000	157.08663	9.72089	0.1424008	0.18003292	3.1062382	20	5 23.8	21.5
510865 2013 CJ ₉₇	16.3	X	43.30712	109.46218	142.54096	10.78157	0.0235677	0.18987597	2.9979385	20	7 31.9	20.3
510866 2013 CR ₉₇	17.1	X	187.06807	298.98619	125.41903	2.20792	0.1697503	0.18145985	3.0899327	20	5 31.1	22.1
510867 2013 CB ₁₀₇	16.2	X	196.01357	359.57414	45.62983	4.02949	0.1940706	0.17918966	3.1159759	20	5 14.7	21.4
510868 2013 CH ₁₀₈	16.6	X	74.12609	235.89498	340.46183	10.49699	0.1049593	0.18354063	3.0665349	20	8 9.7	20.9
510869 2013 CG ₁₀₉	16.8	X	189.56518	85.36719	339.22335	25.40176	0.2451005	0.18575272	3.0421405	20	5 26.2	22.6
510870 2013 CJ ₁₀₉	16.1	X	140.51786	6.42999	125.24487	17.75776	0.1325497	0.18284940	3.0742583	20	7 8.5	21.1
510871 2013 CQ ₁₁₀	16.7	X	191.98696	303.99031	124.44221	12.02751	0.0746628	0.18034401	3.1026652	20	6 12.7	21.5
510872 2013 CK ₁₁₅	16.0	X	40.36592	103.27070	135.60432	10.70298	0.0597006	0.17737337	3.1372113	20	7 14.4	20.2
510873 2013 CD ₁₁₈	17.8	X	191.58335	240.18853	343.07476	18.24408	0.0801229	0.36298338	1.9463079	20	—	—
510874 2013 CS ₁₂₀	16.2	X	188.38808</									

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>
510881 2013 CT ₁₃₂	18.1	X	286.82219	337.74973	140.92777	24.98172	0.0532093	0.37174537	1.9156037	20	—	—
510882 2013 CT ₁₃₅	18.7	X	226.09146	145.00666	347.01413	16.57351	0.1331402	0.34941499	1.9963730	20	10 19.8	21.1
510883 2013 CB ₁₄₂	17.0	X	171.64521	349.16774	112.54485	7.13021	0.1313687	0.18576690	3.0419856	20	7 1.4	21.7
510884 2013 CQ ₁₄₃	16.9	X	129.34998	200.89741	320.55802	5.48961	0.0916465	0.18605945	3.0387961	20	7 31.8	21.4
510885 2013 CY ₁₄₃	17.6	X	122.33161	128.35875	43.87560	0.57218	0.1671558	0.19018431	2.9946973	20	8 12.7	22.3
510886 2013 CC ₁₄₄	16.1	X	41.89978	295.49875	315.69292	15.78227	0.2337014	0.17827207	3.1266590	20	8 24.6	20.1
510887 2013 CQ ₁₄₇	16.8	X	42.26658	187.56434	44.07494	3.29053	0.0286856	0.17852675	3.1236847	20	7 4.7	21.0
510888 2013 CW ₁₅₂	16.8	X	200.96343	269.20575	135.65855	16.46068	0.3220632	0.18345181	3.0675246	20	5 20.1	22.7
510889 2013 CP ₁₅₈	16.4	X	38.71103	276.47118	341.06064	8.34977	0.1293834	0.17943857	3.1130936	20	8 16.9	20.4
510890 2013 CK ₁₆₄	16.8	X	123.19459	227.86362	354.50815	11.24328	0.0573906	0.20505624	2.8480922	20	10 6.0	21.1
510891 2013 CU ₁₇₀	16.4	X	72.15551	248.91758	327.75554	11.79880	0.1122519	0.18080564	3.0973817	20	8 7.6	20.8
510892 2013 CH ₁₇₃	16.1	X	14.19054	271.11780	340.22163	15.29161	0.0494869	0.17296794	3.1902568	20	6 23.9	20.6
510893 2013 CX ₁₇₄	16.2	X	108.09609	217.35670	333.52441	10.05103	0.1094650	0.18480487	3.0525335	20	8 16.6	20.8
510894 2013 CE ₁₇₈	17.0	X	161.36381	276.56507	212.44638	5.98155	0.1875901	0.18998571	2.9967839	20	7 24.6	22.1
510895 2013 CA ₁₈₁	16.1	X	57.48785	315.26192	290.02773	8.26918	0.1146874	0.18600703	3.0393670	20	8 21.8	20.3
510896 2013 CU ₁₈₉	16.8	X	214.09923	323.00011	154.21226	4.61608	0.0549097	0.21109064	2.7935518	20	9 11.0	20.6
510897 2013 CS ₁₉₀	16.4	X	69.77105	271.50913	314.78021	14.12349	0.1620495	0.18416829	3.0595635	20	8 20.5	20.7
510898 2013 CS ₁₉₀	15.8	X	334.99566	357.19021	295.03564	11.64106	0.1361548	0.17884925	3.1199284	20	6 13.6	19.6
510899 2013 CR ₁₉₁	18.5	X	332.54142	283.27085	162.05120	22.81635	0.1163298	0.37844755	1.8929200	20	—	—
510900 2013 CD ₁₉₄	16.3	X	252.46693	280.81982	105.41229	11.65410	0.0618203	0.18732778	3.0250642	20	6 28.9	20.7
510901 2013 CD ₁₉₇	17.2	X	120.04637	22.06418	133.46387	5.73133	0.0907870	0.18210701	3.0826078	20	7 13.0	21.7
510902 2013 CP ₂₀₆	17.1	X	178.45763	112.38361	316.85999	15.69339	0.2168697	0.18095134	3.0957188	20	5 26.9	22.7
510903 2013 CX ₂₀₉	16.3	X	221.86959	123.91246	271.39205	7.64407	0.1327398	0.18802486	3.0175829	20	5 28.7	21.1
510904 2013 CX ₂₁₀	13.5	X	256.11212	267.01758	189.66656	19.51116	0.0346795	0.08078015	5.2998828	20	9 19.6	20.5
510905 2013 CH ₂₂₄	17.0	X	95.17646	0.56790	186.45280	8.59068	0.0141979	0.18499012	3.0504953	20	7 12.8	21.4
510906 2013 DR	18.0	X	159.28730	348.10279	303.11654	17.57640	0.0739559	0.38306674	1.8776721	20	—	—
510907 2013 DX ₆	15.6	X	170.48739	310.44451	138.67102	11.57547	0.0263766	0.17756580	3.1349443	20	6 14.4	20.3
510908 2013 DO ₈	16.9	X	107.59382	301.64075	198.02499	9.48889	0.1671089	0.17262766	3.1944478	20	6 17.8	21.9
510909 2013 DR ₈	16.7	X	72.00418	120.48851	82.84455	2.51355	0.1157743	0.17400926	3.1775165	20	7 20.1	21.0
510910 2013 DS ₁₁	17.8	X	98.17924	182.72945	127.83386	28.46801	0.0921313	0.36877573	1.9258738	20	—	—
510911 2013 DJ ₁₄	15.7	X	358.82931	354.42787	299.03379	11.03454	0.1251171	0.18453099	3.0555531	20	7 28.3	19.3
510912 2013 EM	17.9	X	20.13707	221.34875	155.06818	23.08251	0.1122656	0.36464522	1.9403900	20	—	—
510913 2013 EG ₁	16.6	X	58.32387	254.51041	327.35025	9.24475	0.0473753	0.18398518	3.0615932	20	7 17.8	20.8
510914 2013 EQ ₁	16.8	X	176.28136	126.16950	354.09856	12.88062	0.1041199	0.18989598	2.9977278	20	8 2.6	21.6
510915 2013 EM ₂	17.0	X	218.86715	359.20027	82.24137	10.25625	0.1372243	0.20088104	2.8874208	20	7 24.2	21.5
510916 2013 EN ₆	17.3	X	99.73448	24.75236	174.37128	5.05197	0.0876703	0.18470045	3.0536839	20	8 13.1	21.8
510917 2013 EC ₉	16.4	X	35.07490	279.14871	333.91804	7.72236	0.1529123	0.17678195	3.1442044	20	8 8.3	20.4
510918 2013 EP ₁₁	18.4	X	46.30163	272.15458	147.18966	25.41682	0.1618406	0.38640717	1.8668350	20	—	—
510919 2013 EK ₁₆	16.9	X	220.35857	299.60047	134.28954	6.10007	0.1071371	0.18823930	3.0152906	20	7 16.6	21.5
510920 2013 EM ₁₆	16.5	X	12.68116	135.10421	149.32470	10.34432	0.1466374	0.17884892	3.1199323	20	8 10.5	21.0
510921 2013 EJ ₁₈	17.1	X	185.10416	171.79913	322.03083	5.13011	0.0385017	0.20143629	2.8821123	20	8 27.8	21.3
510922 2013 EU ₂₄	15.6	X	358.79468	311.24945	350.37345	15.79745	0.0650993	0.18271098	3.0758108	20	8 11.9	19.7
510923 2013 EU ₃₀	16.2	X	60.97139	92.20381	136.28079	7.52548	0.1444877	0.17300393	3.1898144	20	8 10.9	20.4
510924 2013 EJ ₃₄	16.2	X	173.14032	107.15424	329.68657	26.79437	0.1251110	0.18041392	3.1018635	20	5 29.1	21.7
510925 2013 ED ₄₀	16.7	X	173.00963	31.13701	67.67741	9.58247	0.1081471	0.18974729	2.9992937	20	6 29.1	21.5
510926 2013 EL ₄₁	17.8	X	140.89916	344.88903	333.60973	16.47073	0.0624008	0.37834138	1.8932741	20	—	—
510927 2013 EU ₄₃	16.6	X	79.12971	218.60100	347.78345	10.62332	0.1022357	0.17754264	3.1352170	20	8 3.1	21.1
510928 2013 EW ₄₉	16.5	X	79.81250	19.86568	185.91427	4.86052	0.0869686	0.17759687	3.1345787	20	7 27.7	21.0
510929 2013 EX ₅₁	15.6	X	280.08516	75.56730	159.06483	9.57670	0.1523959	0.12499745	3.9615816	20	1 21.6	21.5
510930 2013 EK ₅₈	16.5	X	3.76216	263.11055	5.74731	10.69013	0.0284402	0.17322237	3.1871321	20	6 30.9	21.0
510931 2013 EZ ₆₂	16.2	X	183.79411	278.04904	168.47737	16.87540	0.2168323	0.17972601	3.1097736	20	6 23.4	21.8
510932 2013 EA ₆₇	17.9	X	15.38393	350.03299	98.28486	24.81393	0.0744402	0.38277359	1.8786306	20	—	—
510933 2013 EH ₇₅	16.9	X	105.62305	21.68672	164.64598	11.75205	0.1604423	0.17884245	3.1200075	20	8 10.7	21.7
510934 2013 EU ₉₀	15.9	X	113.16502	145.32270	84.49085	13.81831	0.1361039	0.19921972	2.9034510	20	10 18.4	20.7
510935 2013 EA ₉₃	18.1	X	2.48379	90.87479	7.89536	20.62504	0.0944057	0.38592668	1.8683842	20	—	—
510936 2013 ED ₉₄	17.9	X	196.18423	245.61802	344.14173	18.51696	0.0532079	0.36634141	1.9343960	20	—	—
510937 2013 EC ₉₇	16.3	X	46.37061	221.39123	15.64351	9.20836	0.0449195	0.17454067	3.1710636	20	7 21.4	20.7
510938 2013 EM ₁₀₁	15.9	X	77.57507	127.67188	145.21147	19.30341	0.0688029	0.19958440	2.8999131	20	10 25.0	20.4
510939 2013 EL ₁₀₃	15.8	X	29.61835	161.11153	97.28925	12.34708	0.1400832	0.17489342	3.1667983	20	8 5.4	19.8
510940 2013 EM ₁₀₄	16.4	X	130.66835	134.23381	16.94464	5.75762	0.1093723	0.17710020	3.1404365	20	7 22.3	21.2
510941 2013 ES ₁₀₄	15.5	X	14.50733	139.24345	170.34453	17.75882	0.2385516	0.18023204	3.1039500	20	10 1.8	18.9
510942 2013 EP ₁₀₇	18.4	X	199.43251	24.26993	172.13171	23.08500	0.0433729	0.35450875	1.9772037	20	—	—
510943 2013 EO ₁₁₈	18.3	X	353.99183	275.29661	182.82679	20.56305	0.1197624	0.38308766	1.8776037	20	—	—
510944 2013 EQ ₁₁₉	16.5	X	85.24406	253.10269	316.45181	15.31270	0.2350728	0.17776599	3.1325903	20	8 25.1	21.4
510945 2013 EC ₁₂₂	16.6	X	74.05396	222.41601	3.24077	9.94731	0.1742970	0.17660797	3.1344481	20	8 31.0	21.1
510946 2013 EB ₁₂₆	16.6	X	67.92021	50.81262	178.47586	14.24168	0.2009655	0.17275255	3.1929081	20	8 26.9	21.3
510947 2013 EA ₁₅₅	17.0	X	79.80354	182.72188	30.73722	0.53614	0.1190367	0.17709121	3.1405428	20	8 12.4	21.4
510948 2013 EF ₁₅₅	16.6	X	26.26903	77.80507	174.64535	9.77243	0.0173423	0.17929260	3.1147831	20	7 7.8	21.1
510949 2013 EG ₁₅₅	16.7	X	235.67777	219.35146	177.16331	2.83127	0.1762999	0.17999787	3.1066415	20	6 9.8	21.7
510950 2013 FR ₁₄	15.8	X	102.61604	62.73294	122.43675	9.67716	0.1194099	0.17519343	3.1631819	20	8 3.2	20.5
510951 2013 FU ₁₄	16.1	X	105.91651	112.24076	136.46282	12.95380	0.0841387	0.19846217	2.9108348	20	10 28.0	20.7
510952 2013 FR ₂₁	16.1	X	38.23620	241.76322	18.95713	16.60273	0.0985515	0.17355074	3.1831106	20	8 22.4	20.6
510953 2013 FS ₂₁	16.5	X	100.44675	22.04497	149.54428	2.15311	0.1140110	0.16859884	3.2451367	20	7 13.2	21.2
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ELEMENTS AND OPPOSITION DATES IN 2020

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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>
510961 2013 GP ₄₅	16.3	X	90.13376	28.53000	183.08626	18.71559	0.1528547	0.17863629	3.1224075	20	8 23.5	21.2
510962 2013 GZ ₅₁	18.1	X	59.27385	358.71777	13.96569	20.39851	0.0442403	0.36808052	1.9282980	20	—	—
510963 2013 GU ₅₆	16.4	X	109.30297	17.06442	152.22461	5.86021	0.1572934	0.17274128	3.1930468	20	7 24.5	21.3
510964 2013 GO ₆₇	16.6	X	271.34703	105.03380	238.23735	2.25625	0.0315039	0.16933534	3.2357204	20	6 1.7	21.0
510965 2013 GA ₆₈	16.3	X	99.14614	46.57628	143.05012	11.23296	0.1653095	0.17382181	3.1798005	20	8 9.4	21.0
510966 2013 GS ₆₈	18.1	X	0.95042	55.98965	44.60083	21.93334	0.0948484	0.37932012	1.8900159	20	—	—
510967 2013 GT ₆₈	18.2	X	321.16840	85.48311	40.98897	22.21867	0.1393631	0.37642158	1.8997059	20	—	—
510968 2013 GN ₆₉	18.6	X	7.12996	218.30534	226.21801	19.02753	0.0935958	0.37297424	1.9113937	20	—	—
510969 2013 GY ₇₄	16.4	X	71.76857	181.36843	55.93698	10.26708	0.0910327	0.17767363	3.1336758	20	9 3.0	21.0
510970 2013 GE ₉₈	16.7	X	98.03608	162.80603	38.66637	8.75100	0.1964828	0.17590847	3.1546042	20	8 30.6	21.7
510971 2013 GR ₉₈	16.2	X	120.78127	133.96584	48.51783	10.94880	0.2014778	0.17818612	3.1276643	20	8 30.5	21.5
510972 2013 GZ ₁₀₃	16.9	X	155.50710	304.93925	199.31875	5.74566	0.2361629	0.18366540	3.0651458	20	8 7.6	22.4
510973 2013 GX ₁₁₆	16.2	X	19.40712	263.80957	23.21497	11.28396	0.1169531	0.17615523	3.1516576	20	8 28.0	20.3
510974 2013 GO ₁₃₂	16.7	X	106.96409	229.57016	333.59555	1.86944	0.0836237	0.18440776	3.0569143	20	8 27.0	21.2
510975 2013 GM ₁₃₈	18.2	X	299.55109	69.10906	45.46117	22.15861	0.1136695	0.35767690	1.9655109	20	—	—
510976 2013 HB	18.7	X	326.03491	41.70506	64.30976	23.00756	0.0849009	0.36419818	1.9419775	20	—	—
510977 2013 HJ	18.1	X	7.09844	259.04765	201.87962	23.03223	0.1108894	0.37754839	1.8959242	20	—	—
510978 2013 HE ₅	15.9	X	135.32576	44.77008	80.95115	13.64764	0.1589119	0.17216086	3.2002195	20	6 27.0	21.0
510979 2013 HC ₇	15.4	X	90.80130	79.83036	165.79512	12.49501	0.1227584	0.17774310	3.1328592	20	10 6.1	20.1
510980 2013 HZ ₈	15.6	X	108.08476	82.30654	75.69842	25.10989	0.2143139	0.17275302	3.1929022	20	7 15.6	20.9
510981 2013 HC ₁₁	16.2	X	159.14662	15.15192	147.92102	24.38896	0.1648013	0.18284103	3.0743522	20	9 4.1	21.3
510982 2013 HR ₁₂	15.8	X	132.74529	101.94207	36.22566	23.78362	0.1909567	0.17082246	3.2169137	20	7 15.3	21.5
510983 2013 HM ₁₈	18.1	X	196.71839	107.16764	96.98311	24.76022	0.1343263	0.35869227	1.9617999	20	—	—
510984 2013 HC ₂₃	17.7	X	283.15458	123.02602	72.07258	21.91204	0.0554071	0.37785022	1.8949144	20	—	—
510985 2013 HC ₄₁	16.4	X	193.67362	108.61923	7.36197	10.11237	0.0622836	0.18014962	3.1048966	20	8 16.2	21.1
510986 2013 HF ₈₀	16.4	X	123.01609	128.39937	26.30515	9.78212	0.1543760	0.16961865	3.2321163	20	7 23.2	21.6
510987 2013 HM ₁₂₅	16.6	X	178.41281	159.88796	306.57676	6.19742	0.2166260	0.17734347	3.1375639	20	7 13.0	21.9
510988 2013 HJ ₁₄₄	16.4	X	151.46171	286.92008	221.27249	19.27696	0.2221027	0.18116999	3.0932276	20	8 3.9	22.1
510989 2013 JX ₃	16.3	X	121.48416	182.84823	64.34448	16.47841	0.1973707	0.20155774	2.8809545	20	11 13.9	21.2
510990 2013 JH ₅	16.3	X	146.52326	53.53060	88.79600	11.89313	0.1799888	0.17654246	3.1470472	20	7 30.4	21.6
510991 2013 JM ₅	15.4	X	178.59213	52.19017	89.99233	22.51997	0.0424358	0.17877829	3.1207539	20	9 7.0	20.4
510992 2013 JX ₃₅	18.0	X	199.92035	142.06850	122.72471	27.57750	0.1783266	0.36622430	1.9348083	20	—	—
510993 2013 JU ₄₀	16.2	X	109.80977	108.52368	88.96698	10.92500	0.0855315	0.17051041	3.2208373	20	8 26.0	21.1
510994 2013 JB ₅₇	18.7	X	258.06611	114.19551	56.04172	24.68918	0.0978659	0.35967581	1.9582219	20	—	—
510995 2013 JP ₆₂	16.3	X	156.28053	308.78604	213.05913	14.49300	0.1784768	0.18157163	3.0886644	20	8 25.3	21.7
510996 2013 KA ₃	18.8	X	144.35101	53.95828	282.41284	21.75982	0.1578981	0.49135671	1.5905163	20	—	—
510997 2013 KW ₁₇	16.2	X	104.60547	84.22688	145.88324	19.07895	0.1928668	0.17585311	3.1525263	20	10 10.4	21.5
510998 2013 LB ₁₅	18.3	X	285.70591	53.63886	121.17040	25.10336	0.0996350	0.36907945	1.9248171	20	—	—
510999 2013 LE ₃₀	17.9	X	91.63362	217.67271	128.53667	24.54524	0.0809771	0.35204488	1.9864182	20	—	—
511000 2013 LA ₃₆	18.2	X	213.54887	138.21870	110.34292	24.14412	0.0669312	0.36620974	1.9348596	20	—	—
511001 2013 MW ₅	17.8	X	205.97877	28.50374	235.97074	19.93396	0.0333515	0.35978192	1.9578368	20	—	—
511002 2013 MZ ₅	20.1	X	143.55172	274.19007	93.50627	29.14837	0.1766196	0.50951056	1.5525083	20	—	—
511003 2013 NG ₁₈	18.0	X	18.16767	42.01961	302.18640	5.99555	0.2151128	0.30620138	2.1800408	20	12 21.5	20.5
511004 2013 NN ₂₁	17.8	X	327.28278	244.04199	103.53874	3.03166	0.2556937	0.28499764	2.2868721	20	8 29.8	18.5
511005 2013 OD ₆	18.5	X	349.31587	101.10390	217.35415	3.20157	0.1866992	0.28301020	2.2975659	20	9 4.1	20.1
511006 2013 OZ ₇	18.2	X	347.41963	87.58865	226.40746	3.95835	0.2826718	0.28414750	2.2914312	20	8 30.4	18.9
511007 2013 PD ₄	18.3	X	87.14744	209.42207	49.48032	4.97425	0.1426607	0.30598107	2.1810871	20	11 7.5	21.1
511008 2013 PX ₆	18.5	X	208.67889	229.65604	187.47352	13.66539	0.6518017	0.23583522	2.5945594	20	5 27.4	24.5
511009 2013 PM ₁₄	18.0	X	337.12081	76.13499	321.63455	4.69019	0.1408845	0.29705885	2.2245443	20	12 2.6	19.9
511010 2013 PV ₂₃	18.3	X	252.82320	141.23646	307.52257	3.14057	0.2043358	0.28160969	2.3051772	20	9 7.8	21.2
511011 2013 PU ₂₆	18.3	X	97.56085	66.79360	181.58961	3.25131	0.1330620	0.30113900	2.2044049	20	11 3.7	21.4
511012 2013 PT ₃₇	17.7	X	41.71303	220.53045	76.08522	6.16961	0.1140210	0.29782065	2.2207492	20	10 31.9	20.2
511013 2013 PA ₅₆	18.3	X	4.66251	44.87397	307.33021	2.55422	0.0727842	0.29673374	2.2261688	20	11 15.7	20.7
511014 2013 PD ₇₁	18.2	X	311.76392	68.21227	308.58908	2.26163	0.2197743	0.28338808	2.2955231	20	9 6.8	19.7
511015 2013 PD ₇₃	18.4	X	327.71501	225.40858	88.03377	3.26726	0.2244544	0.27266254	2.3553334	20	6 24.6	19.9
511016 2013 QJ ₁	16.9	X	327.43406	48.21032	295.27520	22.56430	0.2730792	0.27706535	2.3303147	20	8 6.7	18.3
511017 2013 QU ₂	18.4	X	331.91588	44.26128	275.33830	2.08111	0.2401823	0.27781620	2.3261141	20	7 16.8	19.6
511018 2013 QK ₃	18.6	X	330.01143	170.06035	206.97407	2.66418	0.2052599	0.29152824	2.2525908	20	11 3.5	19.8
511019 2013 QJ ₆	17.3	X	318.94557	230.61217	133.45666	24.12832	0.2881936	0.28077081	2.3097665	20	8 30.7	18.5
511020 2013 QN ₂₀	17.4	X	289.86578	284.58261	121.18043	6.36214	0.0920580	0.28833709	2.2691805	20	9 29.1	19.7
511021 2013 QQ ₂₅	18.0	X	263.44694	276.19435	146.49451	3.29177	0.2093965	0.27977180	2.3152617	20	8 16.3	20.7
511022 2013 QB ₂₆	18.1	X	345.72972	225.10750	147.54814	7.16785	0.2420403	0.29582102	2.2307455	20	12 12.4	19.9
511023 2013 QB ₄₁	17.9	X	257.12799	124.80907	303.37688	5.04449	0.1396421	0.28036959	2.3119696	20	8 25.5	20.7
511024 2013 QW ₄₁	18.2	X	258.21766	233.10262	183.66508	5.26686	0.1436822	0.27635377	2.3343132	20	8 9.3	21.0
511025 2013 QO ₄₇	17.8	X	327.33582	105.29814	268.35886	6.27386	0.1516463	0.28658991	2.2783938	20	10 12.8	19.7
511026 2013 QZ ₅₆	18.2	X	24.80131	304.32212	44.99880	4.47378	0.1407133	0.30468423	2.1872717	20	12 25.2	20.8
511027 2013 QH ₆₁	17.9	X	3.43746	52.62873	317.99369	7.89979	0.2308449	0.30403389	2.1903897	20	—	—
511028 2013 QD ₆₆	18.9	X	288.61121	175.90943	217.64616	1.65766	0.2289110	0.27844559	2.3226075	20	8 9.5	20.9
511029 2013 QL ₇₂	18.5	X	341.59020	272.61165	121.22151	5.62547	0.1769584	0.29964336	2.2117342	20	12 26.4	20.4
511030 2013 QF ₈₁	17.7	X	318.82746	171.72147	189.00455	25.06201	0.2039437	0.28299246	2.2976620	20	8 25.5	19.9
511031 2013 QH ₈₉	18.6	X	322.74769	46.80314	333.60947	5.89809	0.1597257	0.29088417	2.2559146	20	10 15.4	20.4
511032 2013 RH ₃	18.0	X	336.93776	16.67990	11.95719	4.09593	0.1539060	0.29178026	2.2512935	20	12 1.6	19.8
511033 2013 RF ₁₆	18.5	X	321.96395	80.01671	332.49324	4.34712	0.1660794	0.29686744	2.2255004	20	12 11.9	20.1
511034 2013 RE ₁₉	18.3	X	297.89151	106.34952	289.26865	4.477						

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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>
511041 2013 RX ₄₇	18.3	X	311.96214	43.92174	346.31446	2.74500	0.1783980	0.28278081	2.2988083	20	10 5.3	19.9
511042 2013 RM ₅₄	18.3	X	5.09359	138.63826	223.10503	6.18456	0.1437729	0.30145844	2.2028474	20	12 14.0	20.6
511043 2013 RR ₅₇	18.0	X	20.05136	35.91121	319.76892	5.51892	0.0822822	0.30280873	2.1962939	20	12 17.7	20.4
511044 2013 RA ₅₈	17.7	X	232.67166	170.74013	290.91165	3.52017	0.0946293	0.28144629	2.3060693	20	9 15.2	20.7
511045 2013 RG ₆₄	14.4	X	211.67821	171.17398	169.58188	7.80209	0.0820667	0.08272401	5.2165296	20	3 24.2	21.6
511046 2013 RT ₆₉	18.1	X	291.13101	96.39592	293.83670	3.10148	0.2033594	0.27135022	2.3629214	20	8 12.9	20.3
511047 2013 RY ₇₄	18.3	X	316.60281	17.94957	354.07983	5.40146	0.1818135	0.28078840	2.3096700	20	9 15.5	19.9
511048 2013 RX ₈₇	18.0	X	277.52618	136.89046	176.60897	3.37834	0.1460316	0.27538927	2.3397603	20	9 2.9	20.5
511049 2013 RZ ₉₄	18.1	X	278.16766	297.17834	220.31210	3.49868	0.2122143	0.27517917	2.3409511	20	9 1.4	20.3
511050 2013 RK ₉₅	17.6	X	225.20671	26.61795	340.63416	13.34281	0.2363659	0.23893914	2.5720408	20	4 14.2	22.2
511051 2013 RU ₉₅	18.1	X	320.19288	198.39797	160.66972	8.10460	0.0995225	0.28312037	2.2969699	20	9 7.5	20.3
511052 2013 RC ₉₆	17.8	X	261.24259	298.32388	101.88780	4.04987	0.1786810	0.25844861	2.4409183	20	7 15.3	20.9
511053 2013 SK ₁₀	18.3	X	344.57848	189.47056	175.89454	4.70592	0.2407207	0.29211799	2.2495579	20	11 26.5	19.9
511054 2013 SE ₁₄	18.6	X	284.95168	93.80473	337.99631	2.84999	0.2017327	0.28573024	2.2829614	20	10 9.3	20.3
511055 2013 SP ₂₉	17.8	X	278.54693	68.68609	306.62457	3.72043	0.2315130	0.26209225	2.4182430	20	6 25.3	20.8
511056 2013 SU ₄₅	13.9	X	222.33635	206.48170	136.75479	5.27312	0.0844532	0.08360002	5.1800243	20	4 6.9	21.1
511057 2013 SO ₅₄	18.3	X	345.66321	42.21891	336.12891	2.79438	0.1718178	0.29227356	2.4887596	20	12 6.1	20.3
511058 2013 SR ₅₉	18.0	X	272.56934	166.68579	226.94496	0.70056	0.1866697	0.26709238	2.3879674	20	7 20.7	20.6
511059 2013 SB ₆₂	18.2	X	340.57515	33.51718	6.39883	5.15243	0.1451407	0.29915661	2.2141327	20	12 28.9	20.2
511060 2013 SK ₆₄	17.6	X	219.87507	108.70701	3.67008	10.73664	0.1500014	0.27660551	2.3328966	20	9 9.9	20.7
511061 2013 SM ₈₄	17.8	X	329.04256	97.31352	223.46444	20.70359	0.2959340	0.27163996	2.3612408	20	6 25.6	19.7
511062 2013 SD ₈₅	17.8	X	266.47664	289.02854	131.85729	3.50215	0.2065075	0.26871041	2.3783717	20	8 17.8	20.7
511063 2013 SY ₈₆	17.8	X	325.52178	302.92896	76.62945	8.40195	0.2195771	0.28400981	2.2921717	20	10 28.3	19.2
511064 2013 TH ₅	17.6	X	217.45683	107.49901	271.18655	24.91751	0.05806143	0.23428315	2.6060056	20	4 9.3	23.8
511065 2013 TP ₆	17.2	X	248.89465	107.97048	315.26267	13.01188	0.0958744	0.27325211	2.3519443	20	8 13.5	20.1
511066 2013 TC ₇	17.9	X	298.95044	178.47852	187.52844	0.99777	0.1975112	0.26826297	2.3810155	20	7 21.7	20.0
511067 2013 TS ₁₀	17.9	X	328.99382	224.68891	132.60285	6.45380	0.3131229	0.27822091	2.3238578	20	9 25.5	18.4
511068 2013 TR ₁₉	18.3	X	266.42378	217.97911	170.44252	2.42585	0.2284117	0.26163640	2.4210510	20	6 27.8	21.6
511069 2013 TC ₂₅	17.0	X	261.19185	167.84418	252.97406	17.96426	0.0409269	0.27269886	2.3551243	20	8 27.3	20.5
511070 2013 TW ₂₇	17.9	X	262.04764	36.43871	14.87185	2.67151	0.1874405	0.26643957	2.3918663	20	8 1.2	20.8
511071 2013 TB ₃₀	17.7	X	233.41937	153.49714	197.64127	5.03317	0.2795306	0.23509804	2.5999802	20	4 4.8	22.2
511072 2013 TZ ₃₂	17.8	X	301.54673	5.05725	20.64344	2.53776	0.1782221	0.27239809	2.3568576	20	9 2.6	19.7
511073 2013 TA ₃₃	17.6	X	283.05565	332.35909	39.89550	2.15810	0.2048423	0.26115191	2.4240445	20	7 2.1	20.3
511074 2013 TT ₃₄	18.1	X	319.63690	330.38375	63.92823	6.38221	0.1267948	0.28136518	2.3065125	20	11 1.8	20.0
511075 2013 TD ₄₈	17.6	X	349.41072	63.14830	272.22384	7.67106	0.2860198	0.28025357	2.3126076	20	10 15.6	19.1
511076 2013 TO ₅₃	17.0	X	90.15884	351.20136	341.64925	5.76465	0.1111237	0.31582836	2.1355117	20	—	—
511077 2013 TJ ₅₆	18.3	X	330.88064	126.97751	285.02456	3.25076	0.0613740	0.29589541	2.2303716	20	12 17.9	20.4
511078 2013 TG ₆₄	18.3	X	20.83658	34.75669	324.97690	1.84597	0.0373291	0.29810471	2.2193382	20	12 21.8	20.8
511079 2013 TT ₇₀	18.4	X	291.33713	231.03769	174.99996	3.25906	0.1792271	0.27774866	2.3264911	20	9 13.8	20.4
511080 2013 TE ₈₀	18.2	X	244.11997	285.67237	127.01651	2.11654	0.1700752	0.25915347	2.4364904	20	7 12.3	21.5
511081 2013 TC ₈₁	17.9	X	4.62694	36.20991	316.91123	3.74578	0.1385455	0.29258408	2.2471682	20	11 26.2	20.3
511082 2013 TJ ₈₅	18.1	X	275.86363	132.62792	315.43589	5.29946	0.119739	0.28860599	2.2677708	20	10 29.9	20.4
511083 2013 TD ₉₂	17.8	X	6.54935	84.51738	265.17283	5.85843	0.2476611	0.29366701	2.2416404	20	12 14.3	20.1
511084 2013 TV ₉₆	18.0	X	276.01850	232.84713	142.42342	2.70776	0.2244909	0.26071960	2.4267233	20	6 22.7	21.0
511085 2013 TH ₉₈	17.9	X	274.95407	252.19920	169.20118	2.70514	0.1917009	0.27072958	2.3665313	20	9 3.3	20.4
511086 2013 TO ₁₀₁	18.1	X	329.92141	20.67371	354.91662	5.17179	0.1661034	0.27859377	2.3217839	20	10 21.6	19.8
511087 2013 TJ ₁₀₈	18.1	X	244.15867	349.88421	97.86828	2.66009	0.1561670	0.26801231	2.3824999	20	9 3.1	21.1
511088 2013 TT ₁₁₃	18.0	X	308.68865	310.20068	65.99546	3.95392	0.1908240	0.27257138	2.3558586	20	9 2.8	19.8
511089 2013 TO ₁₁₆	18.1	X	292.60831	77.11450	345.54206	5.35240	0.2065120	0.27864142	2.3215192	20	10 7.8	20.1
511090 2013 TF ₁₂₁	18.0	X	355.94670	99.99155	207.74047	4.41961	0.0919753	0.26915990	2.3757230	20	8 20.9	20.4
511091 2013 TR ₁₃₆	18.1	X	281.68957	104.23124	288.51946	2.85091	0.1917758	0.27205706	2.3588268	20	8 2.2	20.5
511092 2013 TS ₁₃₇	18.6	X	311.88618	226.43265	164.83377	4.71584	0.2235856	0.27819479	2.3240032	20	10 4.3	19.9
511093 2013 TZ ₁₃₈	18.0	X	269.37290	8.72371	59.96386	8.20444	0.2468879	0.26984075	2.3717251	20	8 31.2	20.8
511094 2013 TK ₁₃₉	18.1	X	298.43841	336.63967	70.43007	3.56365	0.1987597	0.27582154	2.3373151	20	9 30.1	19.8
511095 2013 TN ₁₃₉	17.6	X	277.62598	305.63362	83.28021	6.53484	0.2258645	0.26010915	2.4305187	20	7 14.9	20.5
511096 2013 TO ₁₃₉	16.8	X	194.76266	318.24956	56.58078	10.72198	0.3929319	0.22551052	2.6731593	20	4 9.3	22.1
511097 2013 TG ₁₄₀	18.0	X	84.53643	344.91666	261.98648	3.46444	0.0771961	0.27531052	2.3402065	20	10 5.7	21.2
511098 2013 TV ₁₄₀	18.6	X	239.77774	111.82136	321.53801	0.66828	0.1599526	0.26419902	2.4053701	20	8 6.3	21.9
511099 2013 TV ₁₅₉	14.6	X	237.17136	204.69385	145.95045	1.98015	0.0445537	0.08668288	5.0564670	20	5 2.1	21.4
511100 2013 UV ₄	17.3	X	282.85194	111.09185	257.80393	9.01241	0.2117081	0.26112160	2.4242320	20	6 25.1	20.2
511101 2013 UL ₁₄	17.8	X	279.68755	297.85433	97.99520	2.67047	0.1821869	0.26426830	2.4049497	20	8 5.5	20.5
511102 2013 VD ₂	17.0	X	256.51135	228.98336	247.88133	23.19916	0.1862633	0.28432124	2.2904976	20	10 25.4	19.9
511103 2013 VE ₄	17.1	X	229.11579	224.85103	157.65050	7.47332	0.1517101	0.24190882	2.5509478	20	5 20.3	21.1
511104 2013 VO ₂₁	17.6	X	19.13786	235.79313	106.49914	6.14975	0.2120680	0.29348034	2.2425908	20	12 16.3	20.3
511105 2013 VP ₂₁	17.9	X	322.15950	241.57567	107.76441	8.62282	0.2799424	0.27160688	2.3614325	20	8 8.5	19.1
511106 2013 VK ₂₂	18.0	X	262.29930	76.79804	17.79469	6.12158	0.2035155	0.27439770	2.3453936	20	10 1.3	20.4
511107 2013 VV ₂₄	17.6	X	231.31391	137.44393	289.12531	6.85502	0.1825281	0.23724055	2.5843030	20	7 14.1	21.5
511108 2013 WE ₂₄	17.8	X	286.33992	287.48037	112.88389	22.83717	0.3278606	0.26884246	2.3775928	20	7 27.7	20.4
511109 2013 WP	15.8	X	269.82331	138.04704	242.09766	28.19090	0.1642496	0.24282567	2.5445226	20	6 24.8	19.6
511110 2013 WB ₁	17.5	X	263.75070	326.55818	87.18828	5.92882	0.1420859	0.25575792	2.4580081	20	8 14.7	20.6
511111 2013 WL ₄	17.9	X	285.79573	0.89456	53.83485	5.89787	0.1933939	0.26971179	2.3724811	20	9 16.3	20.2
511112 2013 WC ₁₄	17.7	X	288.65409	294.25784	109.27895	7.48800	0.1023749	0.26365113	2.4087014	20	9 17.9	20.4
511113 2013 WM ₁₈	18.1	X	311.66316	281.54157	93.47179	0.27507	0.2212616	0.26611769				

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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>
511121 2013 WZ ₅₇	18.0	X	294.24207	222.67423	178.69563	0.94697	0.1838523	0.26920288	2.3754702	20	9 9.7	19.9
511122 2013 WF ₅₈	18.2	X	264.52406	212.01546	213.63667	4.26188	0.1505645	0.26376307	2.4080198	20	8 28.4	21.2
511123 2013 WB ₅₉	17.8	X	297.40587	261.24546	122.43593	2.11451	0.1930827	0.26485966	2.4013686	20	8 17.1	20.1
511124 2013 WR ₆₃	16.6	X	257.66607	17.24919	358.29060	5.12171	0.2366115	0.23975295	2.5662172	20	5 28.9	20.6
511125 2013 WW ₇₄	17.0	X	267.30898	328.59714	76.40135	7.30425	0.1209792	0.25771344	2.4455582	20	8 11.7	20.0
511126 2013 WQ ₈₀	16.4	X	220.30056	336.75367	99.50297	22.88636	0.0277242	0.23361403	2.6109793	20	8 1.9	20.1
511127 2013 WD ₉₂	17.0	X	273.02878	72.38781	255.00452	15.04200	0.2028541	0.23393487	2.6085915	20	4 14.1	21.1
511128 2013 WN ₉₇	17.8	X	259.51157	26.26112	65.73802	5.67411	0.1561270	0.26788511	2.3832540	20	10 2.6	20.5
511129 2013 WZ ₁₀₅	16.3	X	204.85899	280.93125	83.47757	25.44883	0.2383291	0.22224200	2.6993050	20	4 15.4	21.5
511130 2013 WV ₁₀₇	9.9	X	358.64433	220.74689	274.69779	23.97220	0.2670962	0.01758442	14.6459406	20	1 24.2	20.2
511131 2013 XM ₉	17.7	X	231.18908	87.32012	46.18902	11.90123	0.1921201	0.26750989	2.3854821	20	10 16.1	21.0
511132 2013 XA ₁₄	17.9	X	217.84492	265.39794	267.41614	4.77421	0.1141522	0.27949134	2.3168103	20	12 1.0	20.7
511133 2013 XQ ₁₇	16.5	X	219.82395	268.26775	119.13437	7.34279	0.0375436	0.21663352	2.7456949	20	5 25.9	20.4
511134 2013 XJ ₁₈	18.4	X	241.22557	104.95175	285.79916	3.33361	0.2738049	0.24315681	2.5422120	20	5 29.7	22.7
511135 2013 XR ₁₉	17.0	X	144.86922	355.07378	159.59549	14.04258	0.1818756	0.22230665	2.6987816	20	8 13.1	21.5
511136 2013 XO ₂₃	17.3	X	177.27888	37.84578	101.02689	9.85911	0.1518618	0.23829401	2.5766808	20	8 28.6	21.5
511137 2013 XM ₂₄	19.0	X	293.07987	118.21314	99.46517	38.35254	0.4247119	0.45778806	1.6673486	20	—	—
511138 2013 XN ₂₆	18.0	X	192.84518	7.04972	124.62272	3.95831	0.1494798	0.23602460	2.5931713	20	9 1.1	21.9
511139 2013 YR ₁	17.5	X	213.24755	345.90437	99.29608	10.34498	0.1017883	0.23729705	2.5838928	20	7 28.0	21.3
511140 2013 YJ ₂	17.3	X	160.48333	267.37501	234.87386	26.04776	0.4035591	0.23317648	2.6142446	20	8 3.8	23.0
511141 2013 YX ₃	17.9	X	268.80611	326.05957	78.19892	7.13129	0.1801612	0.25710152	2.4494371	20	8 1.9	20.9
511142 2013 YG ₄	18.4	X	231.08425	105.05161	304.20371	3.39345	0.2417186	0.23682164	2.5873496	20	6 16.1	22.6
511143 2013 YU ₄	17.9	X	205.25242	168.81545	276.11620	3.17078	0.1335954	0.23395117	2.6084703	20	7 14.9	21.9
511144 2013 YX ₆	16.5	X	311.17503	222.28294	85.02437	7.97163	0.1073389	0.23239354	2.6201130	20	5 29.8	19.7
511145 2013 YV ₆	16.5	X	109.04118	63.70371	84.71997	25.00777	0.3687917	0.21261862	2.7801519	20	7 19.3	21.6
511146 2013 YH ₁₄	16.7	X	90.62624	128.11250	100.25981	14.40609	0.1293682	0.23785664	2.5798386	20	9 28.4	20.8
511147 2013 YJ ₂₀	17.4	X	206.50446	220.71940	225.89024	4.58376	0.2481341	0.23942248	2.5685780	20	7 11.1	21.7
511148 2013 YU ₂₇	17.7	X	209.19091	181.76143	287.36215	5.50948	0.2004687	0.24338008	2.5406569	20	8 13.6	21.8
511149 2013 YZ ₂₇	17.1	X	124.62107	82.72705	103.60086	15.31900	0.0469175	0.23735326	2.5834848	20	9 2.5	20.9
511150 2013 YL ₂₈	17.3	X	245.70474	98.02573	303.06365	1.92709	0.2469453	0.24032706	2.5621286	20	6 18.9	21.4
511151 2013 YM ₂₉	18.1	X	296.65538	341.13868	83.13546	7.04847	0.1854236	0.27504687	2.3417017	20	10 27.3	20.0
511152 2013 YP ₃₂	16.4	X	184.54000	206.33235	294.30497	13.04468	0.0601727	0.23764992	2.5813344	20	9 2.0	20.3
511153 2013 YV ₃₇	18.0	X	194.98682	293.33068	157.02777	4.96966	0.2392089	0.23184009	2.6242812	20	7 6.9	22.6
511154 2013 YS ₃₈	17.0	X	146.51212	245.44357	296.09946	29.16573	0.2577895	0.23374991	2.6099674	20	9 2.6	22.2
511155 2013 YR ₃₉	16.4	X	305.16952	201.03607	121.47184	10.75510	0.0777394	0.21935550	2.7229335	20	6 15.3	19.9
511156 2013 YU ₃₉	16.9	X	229.99344	291.69326	118.71874	22.46859	0.0649105	0.22613151	2.6682632	20	7 4.6	20.7
511157 2013 YC ₄₀	17.7	X	241.84503	262.87983	137.41854	6.39312	0.3041539	0.23617444	2.5920744	20	6 9.7	22.2
511158 2013 YR ₄₀	18.4	X	231.09556	162.59976	319.09176	2.35459	0.1717131	0.26364551	2.4087356	20	9 27.9	21.8
511159 2013 YV ₄₀	17.7	X	307.12974	327.38111	75.70008	8.35376	0.1123019	0.27045212	2.3681495	20	10 21.4	20.0
511160 2013 YO ₄₁	17.6	X	145.86846	302.85465	222.08751	3.19074	0.1834773	0.24267622	2.5455672	20	8 28.2	21.9
511161 2013 YB ₄₂	18.1	X	257.58282	107.20859	326.26491	1.58293	0.1774460	0.25985816	2.4320835	20	8 26.4	21.2
511162 2013 YV ₄₂	16.7	X	262.75999	282.73910	89.95695	12.37603	0.2128765	0.23513655	2.5996963	20	6 4.9	20.5
511163 2013 YF ₄₃	17.2	X	197.94534	161.12831	299.83147	13.35712	0.2059353	0.23472936	2.6027020	20	7 24.4	21.5
511164 2013 YU ₄₄	17.5	X	211.59554	339.31099	113.69244	9.74971	0.1235936	0.23959400	2.5673520	20	8 3.5	21.3
511165 2013 YS ₄₅	17.0	X	288.77265	327.31808	34.99834	4.64765	0.2101291	0.24396636	2.5365850	20	6 24.6	20.0
511166 2013 YJ ₄₉	17.1	X	170.21869	6.44435	115.09371	14.95194	0.0728969	0.22882976	2.6472465	20	7 27.7	21.0
511167 2013 YC ₅₆	16.8	X	226.01074	330.55338	109.34974	16.24320	0.0876409	0.23544277	2.5974417	20	8 6.9	20.5
511168 2013 YX ₅₇	17.8	X	257.14443	80.38600	54.64369	5.65116	0.0906481	0.27592167	2.3367496	20	12 7.9	20.2
511169 2013 YR ₆₀	16.9	X	165.44627	179.88714	314.72596	5.57246	0.2156734	0.23183655	2.6243079	20	8 7.9	21.4
511170 2013 YL ₆₂	17.8	X	218.67833	198.46558	296.92765	0.56958	0.1710177	0.25425830	2.4676636	20	10 1.3	21.3
511171 2013 YM ₆₂	16.6	X	138.87796	223.73857	293.02280	10.63998	0.1310664	0.22696678	2.6617128	20	8 7.5	20.9
511172 2013 YV ₆₃	17.2	X	187.96984	63.35370	83.52840	6.89681	0.1574532	0.24218634	2.5489987	20	9 18.6	21.3
511173 2013 YR ₆₉	18.0	X	172.59240	166.95538	132.96745	5.38747	0.2082160	0.22599717	2.6693205	20	7 26.6	22.5
511174 2013 YL ₇₃	17.2	X	223.56413	47.00494	99.04759	10.92055	0.0631854	0.26090054	2.4256012	20	11 10.4	20.5
511175 2013 YO ₇₃	17.6	X	226.35311	175.77019	333.32782	4.47789	0.1649983	0.26116290	2.4239764	20	10 28.2	20.8
511176 2013 YK ₇₅	17.8	X	177.34368	336.75084	151.55152	3.68596	0.1835311	0.23324024	2.6137681	20	8 10.3	22.0
511177 2013 YM ₇₈	16.9	X	191.79795	31.23753	66.27553	12.92565	0.1117899	0.23147657	2.6270279	20	7 20.3	21.1
511178 2013 YR ₈₂	17.2	X	256.12605	244.94863	108.98242	10.07930	0.1748985	0.22023689	2.7156638	20	5 11.5	21.4
511179 2013 YO ₈₃	17.4	X	42.91072	94.05568	232.62591	3.99046	0.1196985	0.26651384	2.3914219	20	12 5.4	20.5
511180 2013 YE ₉₃	17.3	X	188.35779	33.54739	91.43803	13.45898	0.1219611	0.23923394	2.5699274	20	8 24.4	21.4
511181 2013 YF ₉₅	17.6	X	267.29982	287.14457	100.55473	6.06288	0.2445350	0.24174850	2.5520755	20	6 25.0	21.1
511182 2013 YD ₁₀₂	17.7	X	241.72151	13.03221	132.04276	7.29583	0.0823179	0.26925787	2.3751467	20	11 30.4	20.6
511183 2013 YK ₁₀₇	16.4	X	226.81358	122.06650	302.68767	21.48750	0.0300029	0.22610250	2.6684914	20	7 23.8	19.9
511184 2013 YC ₁₀₈	18.2	X	276.96075	18.78407	24.97112	2.65972	0.1609435	0.25942405	2.4347959	20	8 16.6	21.0
511185 2013 YX ₁₀₈	16.7	X	242.20322	331.25936	70.52942	13.74628	0.1562065	0.23635919	2.5907235	20	6 25.7	20.6
511186 2013 YZ ₁₀₈	16.9	X	53.70920	107.97545	121.92404	13.00611	0.1039045	0.22334379	2.6904203	20	8 1.4	20.2
511187 2013 YA ₁₀₉	17.6	X	262.51615	184.17815	226.13856	2.47001	0.1264385	0.24558961	2.5253954	20	8 6.4	20.9
511188 2013 YC ₁₀₉	17.8	X	230.32175	7.21630	124.18263	6.96875	0.0620626	0.26082230	2.4260863	20	10 29.9	21.0
511189 2013 YH ₁₁₁	16.9	X	168.68242	206.25384	301.04678	12.22737	0.1003485	0.23249088	2.6193816	20	8 24.1	21.0
511190 2013 YA ₁₁₂	17.6	X	259.76663	272.46461	122.69343	3.77827	0.1881296	0.24213517	2.5493578	20	7 3.9	21.1
511191 2013 YM ₁₁₄	17.9	X	227.61555	131.65253	306.70364	7.96925	0.1398651	0.23805582	2.5783993	20	7 30.3	21.4
511192 2013 YJ ₁₁₈	17.7	X	188.70826	358.09721	177.96120	2.52811	0.1520207	0.25815512	2.4427680	20	10 25.4	21.1
511193 2013 YK ₁₁₉	16.5	X										

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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>
511201 2013 YT ₁₃₈	17.0	X	224.00503	74.20774	12.43740	7.25119	0.0870642	0.24359801	2.5391414	20	8 15.8	20.6
511202 2013 YU ₁₄₂	16.4	X	273.84206	80.86257	271.20473	21.24867	0.2523139	0.24177592	2.5518826	20	5 12.9	20.3
511203 2013 YW ₁₄₃	17.6	X	306.75703	289.61894	90.90681	6.58183	0.0771313	0.25862760	2.4397920	20	9 16.8	20.4
511204 2013 YB ₁₄₇	17.7	X	209.39162	41.07129	26.60343	5.73807	0.2234517	0.23281867	2.6169224	20	6 21.5	22.1
511205 2013 YV ₁₄₉	16.6	X	242.36867	166.54528	247.97079	4.42466	0.2360028	0.23929736	2.5694733	20	7 3.9	20.5
511206 2013 YB ₁₅₂	17.1	X	120.88506	280.50421	313.53089	11.92232	0.0554715	0.24564864	2.5249908	20	10 20.9	20.9
511207 2014 AL ₇	17.2	X	60.94801	101.17197	104.81071	8.97908	0.0642169	0.21544555	2.5757788	20	7 2.7	20.7
511208 2014 AK ₉	17.1	X	323.55597	233.12244	102.76952	5.99212	0.0948491	0.23473794	2.6026385	20	8 2.7	19.9
511209 2014 AH ₁₄	17.2	X	251.14107	18.23623	30.37827	15.00881	0.1014139	0.23758188	2.5818272	20	7 29.5	21.0
511210 2014 AW ₁₉	17.4	X	250.82982	276.37228	135.21096	13.88533	0.1830531	0.23736349	2.5834106	20	7 15.6	21.2
511211 2014 AY ₁₉	17.3	X	285.35270	109.85202	275.18948	3.52741	0.2514410	0.24416321	2.5352214	20	7 14.7	20.2
511212 2014 AR ₂₁	17.8	X	287.76700	89.41969	307.31696	12.77942	0.2091885	0.25534447	2.4606608	20	8 12.2	20.3
511213 2014 AZ ₂₁	17.4	X	222.09655	210.51221	205.06707	3.82292	0.2891027	0.23552775	2.5968169	20	6 13.4	21.9
511214 2014 AA ₂₂	17.3	X	291.92831	94.38102	311.79947	5.22281	0.1463069	0.25689650	2.4507401	20	9 13.7	19.9
511215 2014 AM ₂₂	17.9	X	235.13341	28.66667	80.42066	2.40873	0.1313626	0.25310756	2.4751374	20	9 22.5	21.1
511216 2014 AY ₃₁	17.3	X	146.99292	14.98989	151.09347	13.78058	0.1756556	0.23158671	2.6261949	20	8 31.5	21.5
511217 2014 AH ₄₈	17.5	X	237.29300	112.96590	296.55731	3.69845	0.3134468	0.23893708	2.5720555	20	6 16.0	21.9
511218 2014 AP ₄₈	16.8	X	269.50590	255.28865	117.76769	7.44827	0.0213618	0.22369127	2.6876334	20	7 11.5	20.2
511219 2014 AG ₄₉	17.1	X	54.70546	192.87566	70.33605	4.12760	0.0293042	0.23408839	2.6074509	20	9 9.2	20.5
511220 2014 AY ₅₂	16.7	X	145.32225	296.26401	206.71216	9.72952	0.1432488	0.21828101	2.7318619	20	7 26.6	21.2
511221 2014 AV ₅₄	17.8	X	259.35775	273.55439	129.65457	12.58108	0.1882068	0.24375765	2.5380327	20	7 14.3	21.3
511222 2014 AK ₅₆	18.1	X	207.31902	147.17831	296.88453	1.47742	0.1871650	0.23160771	2.6260362	20	7 12.6	22.2
511223 2014 AW ₅₆	16.9	X	252.96474	112.84296	320.18684	4.01912	0.1733151	0.23861991	2.5743343	20	8 17.8	20.5
511224 2014 AZ ₅₆	17.4	X	158.62622	252.31032	306.57173	11.17210	0.1797863	0.24224807	2.5485657	20	10 15.9	21.9
511225 2014 BK ₁	17.2	X	314.00285	205.44360	119.97982	7.36578	0.0714896	0.22587667	2.6702698	20	7 2.9	20.4
511226 2014 BR ₃	17.7	X	169.87384	42.26973	97.39903	7.20556	0.2056986	0.23424794	2.6062668	20	8 20.3	22.1
511227 2014 BO ₄	17.7	X	215.91603	59.94886	102.29038	6.21794	0.1682222	0.26349364	2.4096610	20	11 6.5	21.2
511228 2014 BW ₆	16.9	X	69.10431	309.30770	314.37265	13.83225	0.0579682	0.23876421	2.5732969	20	9 24.3	20.6
511229 2014 BC ₈	17.5	X	190.29099	175.51489	919.46380	8.23485	0.1055363	0.23764619	2.5813614	20	9 2.7	21.4
511230 2014 BK ₁₀	16.7	X	116.24297	81.36756	37.31636	25.39044	0.2686273	0.21880085	2.7275332	20	8 30.9	21.8
511231 2014 BJ ₁₁	17.6	X	243.60925	293.05111	121.17715	6.01959	0.2710200	0.23958549	2.5674128	20	7 1.3	21.5
511232 2014 BG ₁₂	17.0	X	53.51083	288.43680	298.63557	3.57204	0.0675024	0.21658033	2.7461445	20	7 21.6	20.4
511233 2014 BH ₁₂	17.3	X	127.49567	79.19249	310.54309	13.89058	0.1170070	0.23939902	2.5687458	20	10 10.8	21.5
511234 2014 BV ₁₂	17.3	X	264.90092	83.28834	310.20328	9.34981	0.1608545	0.23479609	2.6022088	20	7 13.1	20.7
511235 2014 BF ₁₄	17.2	X	169.82589	120.41656	325.63173	12.70607	0.1817959	0.21535516	2.7565499	20	6 10.9	22.0
511236 2014 BU ₁₄	17.6	X	209.68434	149.57511	320.92552	11.86371	0.1576993	0.24503265	2.5292208	20	8 20.1	21.3
511237 2014 BA ₁₆	16.5	X	249.58081	66.52820	311.37462	12.03610	0.2020998	0.22932668	2.6434210	20	5 26.8	20.8
511238 2014 BK ₁₇	16.1	X	197.28879	144.08602	305.52166	21.51571	0.0331898	0.22690421	2.6622021	20	7 20.4	19.7
511239 2014 BF ₁₉	17.1	X	215.15469	134.64972	307.40258	12.86658	0.0472840	0.22771998	2.6558403	20	7 29.9	20.9
511240 2014 BW ₂₄	16.4	X	1.64734	38.32068	287.35680	11.88566	0.1154967	0.23510369	2.5999386	20	9 17.4	19.7
511241 2014 BR ₂₉	16.9	X	186.69452	176.42533	302.86729	11.14810	0.1425573	0.23343632	2.6123043	20	8 7.9	21.1
511242 2014 BX ₂₉	17.6	X	210.86675	296.88596	168.11857	6.02393	0.1414853	0.23542100	2.5976018	20	8 14.7	21.6
511243 2014 BS ₃₂	18.7	X	325.47081	271.30405	334.95738	11.64549	0.2169756	0.49802580	1.5762853	20	1 30.3	19.8
511244 2014 BS ₃₃	17.3	X	267.98667	294.88531	104.19834	4.79531	0.2455960	0.24126563	2.5554795	20	7 11.2	20.5
511245 2014 BC ₃₄	17.4	X	255.10985	65.60244	332.85706	10.54426	0.1873793	0.23181013	2.6245073	20	7 4.3	21.3
511246 2014 BT ₃₅	17.8	X	193.52879	328.27116	127.32138	4.75638	0.2232176	0.22640464	2.6661168	20	7 12.9	22.3
511247 2014 BN ₃₆	17.6	X	173.01925	117.27425	27.73436	1.71326	0.1859336	0.23333949	2.6130269	20	8 28.4	22.0
511248 2014 BT ₃₈	16.7	X	279.78686	72.22830	332.39218	21.73365	0.0860146	0.23464418	2.6033318	20	8 28.8	20.0
511249 2014 BC ₄₀	17.3	X	191.33398	52.88949	75.84983	5.92787	0.2143634	0.23740363	2.5831194	20	8 25.2	21.6
511250 2014 BD ₄₇	17.6	X	208.56886	163.58919	317.50659	4.76644	0.2026162	0.23969447	2.5666346	20	8 28.5	21.8
511251 2014 BD ₄₈	17.5	X	231.14779	129.18372	322.46748	12.33134	0.2516815	0.24251070	2.5467254	20	8 9.5	21.3
511252 2014 BL ₄₈	16.9	X	74.96616	318.54865	160.20842	10.67081	0.1839266	0.17659076	3.1464734	20	4 19.6	21.2
511253 2014 BR ₄₈	17.6	X	224.80788	147.03514	319.29767	3.88920	0.1779896	0.23831486	2.5765306	20	8 28.2	21.6
511254 2014 BV ₅₄	17.4	X	180.55073	19.44788	141.71598	14.53387	0.1105820	0.24208793	2.5496895	20	10 2.6	21.4
511255 2014 BM ₆₁	17.4	X	238.40769	359.12789	74.35751	3.58362	0.0099598	0.23048428	2.6345625	20	8 24.9	20.9
511256 2014 BN ₆₃	16.8	X	210.37889	349.66605	114.78782	22.83546	0.0390899	0.23400641	2.6080598	20	8 28.9	20.7
511257 2014 BO ₆₅	16.9	X	239.03569	257.37072	148.41046	5.84636	0.0044706	0.21243114	2.7817873	20	7 16.0	20.7
511258 2014 BS ₆₅	17.5	X	232.26275	280.41141	171.10510	12.55663	0.1337053	0.24088949	2.5581391	20	8 21.6	21.2
511259 2014 CC	17.2	X	185.59479	307.45924	158.31582	12.03280	0.1514716	0.22572889	2.6714351	20	7 20.0	21.6
511260 2014 CF ₄	17.9	X	202.50989	78.80541	113.15416	3.69721	0.1162379	0.26326258	2.4110708	20	12 4.1	21.2
511261 2014 CQ ₄	17.0	X	26.49808	148.91097	144.27341	15.09560	0.0450060	0.23342274	2.6124056	20	9 12.8	20.3
511262 2014 CO ₁₁	17.6	X	200.60402	359.55826	112.80814	4.06155	0.1232849	0.23274462	2.6174774	20	8 16.5	21.6
511263 2014 CT ₁₇	17.0	X	194.68701	135.32732	339.71835	11.59574	0.1479659	0.22952054	2.6419323	20	8 13.5	21.1
511264 2014 CX ₁₈	17.2	X	127.91028	196.87725	4.50595	8.50884	0.2360445	0.22321232	2.6914766	20	9 28.1	21.6
511265 2014 CP ₁₉	17.5	X	162.48406	149.86138	23.01740	6.28149	0.2005791	0.23236724	2.6203106	20	9 23.3	21.9
511266 2014 CH ₂₀	16.1	X	40.73500	71.52375	162.87682	18.72191	0.1740212	0.20172948	2.8793191	20	7 25.7	19.9
511267 2014 CE ₂₁	17.0	X	167.74863	199.88980	324.54158	15.75644	0.1347405	0.23650015	2.5896939	20	9 12.4	21.2
511268 2014 CC ₂₄	16.4	X	42.39851	332.93368	226.77131	18.58175	0.0523965	0.17344972	3.1843464	20	5 26.8	20.7
511269 2014 CK ₂₄	17.2	X	222.11239	338.83154	130.94901	7.44820	0.1130452	0.23777605	2.5804215	20	9 8.7	20.8
511270 2014 DB ₁	17.9	X	214.14684	299.79333	171.37216	2.38934	0.1359874	0.24002744	2.5642603	20	8 20.4	21.8
511271 2014 DL ₄	17.5	X	137.47888	271.41400	299.84567	11.81931	0.1197480	0.23831631	2.5765201	20	10 10.7	21.7
511272 2014 DM ₄	17.1	X	145.50785	302.39233	191.68075	9.46946	0.1049714	0.21440341	2.7647015	20	7 14.6	21.5
511273 2014 DN ₁₄	17.5	X	175.47764	112.51101	55.02494	10.2580						

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>
511281 2014 DU ₃₃	17.1	X	64.67941	229.08672	6.45408	8.21703	0.1260675	0.21294223	2.7773345	20	8 29.0	20.9
511282 2014 DR ₃₈	17.6	X	168.41377	122.68209	24.51402	2.77409	0.1347958	0.22868069	2.6483968	20	8 27.9	21.8
511283 2014 DA ₃₉	16.0	X	344.40668	100.83363	151.88296	17.28620	0.2145122	0.18171556	3.0870332	20	5 5.9	19.6
511284 2014 DW ₄₀	17.3	X	184.69611	25.60534	119.47387	4.75419	0.1413415	0.23352219	2.6116639	20	9 11.1	21.3
511285 2014 DS ₄₂	16.4	X	37.99654	40.83569	158.92175	17.19631	0.0218829	0.18635687	3.0355620	20	5 21.6	20.9
511286 2014 DH ₄₃	17.0	X	117.33841	15.26463	172.77445	4.33628	0.0347565	0.21531457	2.7568963	20	8 17.0	20.9
511287 2014 DP ₄₆	16.7	X	155.14866	144.48110	340.98039	9.68369	0.1868567	0.21065722	2.7973823	20	7 19.7	21.5
511288 2014 DV ₅₁	17.0	X	106.72482	192.29829	20.31294	5.24021	0.0992687	0.21961712	2.7207706	20	9 14.7	21.0
511289 2014 DB ₅₈	17.1	X	245.19858	23.77133	73.76800	4.56957	0.1815651	0.24169734	2.5524357	20	9 12.0	20.6
511290 2014 DA ₅₉	17.4	X	184.59071	105.61418	11.08510	12.63271	0.2184758	0.22294759	2.6936068	20	8 5.8	22.2
511291 2014 DW ₆₁	17.3	X	203.47767	349.75879	156.49105	10.23461	0.1381188	0.23782791	2.5800463	20	10 2.9	21.2
511292 2014 DN ₆₂	17.0	X	172.62869	111.35968	8.34814	8.52920	0.0763804	0.21191158	2.7863323	20	7 29.4	21.3
511293 2014 DU ₆₃	17.3	X	167.37673	117.44828	8.11520	8.64635	0.1006095	0.21244513	2.7816652	20	7 31.2	21.7
511294 2014 DR ₆₅	17.0	X	197.45050	120.92489	2.18654	28.23951	0.1803599	0.22873100	2.6480085	20	9 2.5	21.5
511295 2014 DH ₆₆	17.3	X	258.31735	293.35791	144.10117	10.02331	0.1850861	0.23695774	2.5863588	20	8 29.9	20.6
511296 2014 DO ₆₆	17.0	X	147.65879	155.79022	23.90178	12.48188	0.1071613	0.22445068	2.6815677	20	9 19.9	21.2
511297 2014 DK ₆₇	17.0	X	225.91626	297.75761	148.83876	12.99292	0.0582404	0.21948636	2.7218511	20	8 16.1	20.8
511298 2014 DF ₇₀	17.0	X	358.85976	178.61741	102.08089	3.65969	0.1653845	0.19298579	2.9656450	20	7 13.1	20.0
511299 2014 DL ₇₀	17.4	X	185.59194	59.69663	60.87459	4.41720	0.1911832	0.22161738	2.7043745	20	8 8.9	22.0
511300 2014 DM ₇₀	17.9	X	153.17287	106.99641	92.49897	3.92500	0.1526824	0.23229106	2.6208835	20	10 18.5	22.1
511301 2014 DO ₇₂	16.3	X	44.15684	247.31891	25.03839	12.53242	0.1079114	0.21192804	2.7861881	20	9 18.2	20.0
511302 2014 DR ₇₃	17.2	X	244.93705	293.58862	144.15752	13.07642	0.2533685	0.23329614	2.6133506	20	8 3.2	21.2
511303 2014 DO ₇₈	17.4	X	94.04349	132.21992	93.74358	6.46569	0.0450072	0.21883898	2.7272164	20	9 12.5	21.2
511304 2014 DU ₈₃	17.0	X	203.71325	305.36831	140.56114	5.53059	0.1350029	0.21791231	2.7349426	20	7 13.7	21.2
511305 2014 DO ₈₄	17.5	X	75.21163	182.98895	65.54050	3.61157	0.1051705	0.22036741	2.7145914	20	9 25.4	21.3
511306 2014 DH ₈₇	17.0	X	180.13119	151.19980	345.30368	10.70079	0.0912637	0.22729962	2.6591137	20	8 27.7	21.0
511307 2014 DJ ₈₈	17.1	X	92.12595	271.37406	298.45542	2.17394	0.1309795	0.21763639	2.7372536	20	8 26.7	21.1
511308 2014 DF ₉₀	16.3	X	311.61808	150.28454	169.84903	14.68177	0.0423821	0.20917417	2.8105891	20	6 24.9	20.3
511309 2014 DF ₉₆	17.0	X	214.69112	326.52201	170.58516	14.06970	0.1317645	0.23705665	2.5856394	20	10 3.3	20.7
511310 2014 DO ₉₈	17.4	X	112.45360	265.76046	306.95965	2.06447	0.1246641	0.22337523	2.6901678	20	9 21.1	21.4
511311 2014 DD ₁₀₇	17.1	X	290.01636	195.19349	160.11765	2.79389	0.0847517	0.21040782	2.7995923	20	7 5.4	20.7
511312 2014 DH ₁₀₉	16.7	X	50.77940	122.83517	175.84472	9.66496	0.1175717	0.21560780	2.7543961	20	10 18.3	20.4
511313 2014 DL ₁₁₀	16.3	X	69.59856	12.21568	177.01488	9.58491	0.0915592	0.18858266	3.0116295	20	6 25.1	20.6
511314 2014 DY ₁₁₆	18.0	X	157.03328	211.98971	321.06994	3.93201	0.2401565	0.23028708	2.6360663	20	9 15.9	22.7
511315 2014 DY ₁₁₇	17.4	X	206.79049	63.03308	40.86011	4.93011	0.0651357	0.22406735	2.6846252	20	8 17.9	21.3
511316 2014 DL ₁₁₈	17.7	X	210.57260	7.59701	97.13060	4.33487	0.1940274	0.23066522	2.6331846	20	8 11.5	21.8
511317 2014 DP ₁₁₈	17.0	X	246.34099	14.54798	44.91362	5.89632	0.1432676	0.22449804	2.6811905	20	7 27.5	20.9
511318 2014 DV ₁₂₀	17.1	X	272.71221	234.74664	159.09916	12.04563	0.1818317	0.22845150	2.6501678	20	7 18.2	20.8
511319 2014 DW ₁₂₂	16.7	X	142.97144	335.91201	160.10569	14.05654	0.1372659	0.20979818	2.8050132	20	7 16.4	21.3
511320 2014 DF ₁₂₄	16.6	X	161.16323	350.07805	143.72450	5.55552	0.0995794	0.21589237	2.7519752	20	8 1.1	20.7
511321 2014 DX ₁₂₄	17.2	X	35.73639	53.06589	264.87576	1.82091	0.0579145	0.23698984	2.5861253	20	10 28.6	20.3
511322 2014 DE ₁₂₈	17.0	X	55.92387	82.80696	164.21205	5.10055	0.0760921	0.21500971	2.7595017	20	8 21.8	20.5
511323 2014 DU ₁₂₈	17.1	X	298.31730	230.27634	152.53117	4.50375	0.1291516	0.23015615	2.6370659	20	8 21.7	19.9
511324 2014 DY ₁₂₉	17.7	X	190.46353	72.75586	38.56067	2.80236	0.1357239	0.22231092	2.6987471	20	8 3.4	21.9
511325 2014 DU ₁₃₃	17.0	X	154.45371	319.38169	165.79346	6.22268	0.0149104	0.20509026	2.8477773	20	7 9.8	21.1
511326 2014 DB ₁₄₀	17.7	X	193.13516	106.26459	37.60859	1.70499	0.1038084	0.23363161	2.6108484	20	9 19.5	21.4
511327 2014 DU ₁₄₅	16.2	X	345.38962	23.00109	4.22304	14.01913	0.1813807	0.24287341	2.5441892	20	11 28.4	19.0
511328 2014 DF ₁₄₆	16.4	X	14.14523	51.66228	161.12528	12.30587	0.0450642	0.17592596	3.1543952	20	5 6.7	20.8
511329 2014 DG ₁₄₆	16.0	X	353.98230	238.59367	52.54412	17.13319	0.2058685	0.180171768	3.0949624	20	7 20.8	19.5
511330 2014 DJ ₁₄₆	16.2	X	210.00360	18.72969	21.02214	13.58171	0.1681449	0.19309276	2.9645496	20	5 17.7	21.2
511331 2014 ER ₃	17.0	X	164.05415	193.79044	350.71144	13.34976	0.1911507	0.23527735	2.5986590	20	10 4.3	21.4
511332 2014 EC ₉	16.7	X	268.79901	192.47474	144.49011	12.47665	0.0350344	0.19370001	2.9583505	20	5 24.0	21.0
511333 2014 EQ ₁₃	17.2	X	236.99245	321.90346	129.95421	5.53933	0.2207916	0.23898002	2.5717475	20	8 18.7	21.1
511334 2014 EU ₁₃	17.2	X	234.74610	48.23645	8.40978	12.60701	0.2533346	0.22417462	2.6837687	20	6 28.4	21.9
511335 2014 EV ₁₃	16.1	X	143.62366	294.23106	154.94966	16.99209	0.0118201	0.18625935	3.0366215	20	5 14.9	20.7
511336 2014 EQ ₁₄	17.7	X	228.80876	91.68257	13.32781	3.17869	0.1191649	0.23688414	2.5868946	20	9 8.4	21.2
511337 2014 EN ₁₆	17.0	X	250.38409	104.40699	341.48877	8.73302	0.0798777	0.23626844	2.5913868	20	9 13.9	20.4
511338 2014 EU ₁₉	16.9	X	322.38746	309.06213	24.61607	6.70158	0.0409396	0.21302736	2.7765945	20	8 1.3	20.5
511339 2014 EG ₂₂	17.9	X	208.20327	114.18927	16.17316	2.45099	0.1305951	0.23727400	2.5840601	20	9 16.5	21.8
511340 2014 EW ₂₃	16.8	X	204.57062	130.66138	13.20060	13.23624	0.1069307	0.23455207	2.6040133	20	10 2.0	20.5
511341 2014 ED ₂₅	16.8	X	129.97211	69.79909	88.10007	8.37440	0.0832225	0.21241008	2.7819712	20	7 29.9	21.0
511342 2014 EA ₂₈	17.5	X	86.69529	222.79774	311.99986	1.45715	0.1713694	0.20125167	2.8838747	20	7 10.8	21.5
511343 2014 EJ ₃₆	16.8	X	246.46050	292.36882	138.11420	9.54480	0.1551018	0.22857420	2.6492193	20	8 8.1	20.6
511344 2014 EJ ₃₉	16.2	X	10.74923	100.04069	92.83955	6.66791	0.0908955	0.17028346	3.2236985	20	4 7.2	20.3
511345 2014 EZ ₄₂	16.5	X	64.83791	23.68398	140.11936	11.75405	0.0392901	0.18410530	3.0602614	20	5 13.1	20.9
511346 2014 ET ₄₄	17.3	X	166.91626	212.16704	333.18257	12.69758	0.1779392	0.23741325	2.5830496	20	10 6.3	21.8
511347 2014 EM ₄₆	16.0	X	159.46186	36.54628	37.22181	10.78567	0.0918573	0.19117275	2.9843658	20	5 13.2	20.5
511348 2014 EU ₄₇	17.2	X	132.23577	204.93853	16.97424	11.86730	0.1309192	0.23342382	2.6123976	20	10 22.9	21.3
511349 2014 EL ₄₈	17.6	X	151.83269	75.15845	50.42318	8.34544	0.2573245	0.21319533	2.7751359	20	7 18.2	22.6
511350 2014 EF ₄₉	17.3	X	161.60522	206.59817	22.61185	6.1987	0.0836382	0.25549528	2.4596924	20	12 5.9	21.0
511351 2014 EH ₅₂	17.2	X	94.61055	265.09826	332.40348	3.82034	0.0612646	0.22401807	2.6850189	20	9 26.4	21.0
511352 2014 FW ₁	16.8	X	220.84666	17.64184	87.50557	10.32196	0.0500030	0.22748585	2.6576622	20	9 11.1	20.6
511353 2014 FR ₂	16.5	X	27.44369	24.92118	183.77463	8.23371	0.0950854					

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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>
511361 2014 FV ₂₈	17.3	X	34.74742	354.18829	277.57425	4.54079	0.0673891	0.21313741	2.7756387	20	8 22.1	20.8
511362 2014 FQ ₃₂	16.9	X	143.52470	204.83521	12.70153	13.90310	0.1968379	0.22628254	2.6670758	20	10 26.2	21.5
511363 2014 FM ₃₆	17.1	X	42.00914	221.55650	79.15619	5.95596	0.1521393	0.21139439	2.7908752	20	10 26.5	20.8
511364 2014 FU ₃₆	17.3	X	155.39100	204.24295	24.25861	5.01927	0.2129252	0.23571882	2.5954134	20	11 20.8	21.7
511365 2014 FZ ₄₀	16.7	X	128.55618	191.87838	23.44822	9.72222	0.2208611	0.21780873	2.7358095	20	10 14.4	21.4
511366 2014 FQ ₄₁	16.6	X	185.12282	93.99899	71.52289	13.49734	0.2111833	0.22874441	2.6479050	20	10 7.9	21.2
511367 2014 FW ₄₅	16.7	X	267.96609	298.72425	54.40223	10.48262	0.1218849	0.19698496	2.9253691	20	5 27.1	20.9
511368 2014 FJ ₄₉	17.2	X	171.83851	144.34724	26.52036	13.70252	0.1966702	0.23046439	2.6347141	20	9 30.4	21.6
511369 2014 FX ₅₀	17.7	X	219.87522	287.79425	166.77643	13.10041	0.2315189	0.23553830	2.5967394	20	8 1.7	22.0
511370 2014 FQ ₅₇	16.9	X	142.47976	295.49385	244.43487	2.95041	0.2642381	0.21914954	2.7246392	20	9 12.5	21.8
511371 2014 FU ₆₃	17.4	X	179.55316	290.77508	252.50470	3.72080	0.1468573	0.23759273	2.5817486	20	10 21.1	21.4
511372 2014 FM ₆₄	16.2	X	72.28872	172.63139	356.43950	9.90095	0.0589975	0.18315349	3.0708546	20	5 26.1	20.6
511373 2014 FG ₆₅	17.5	X	233.38577	310.26470	155.47765	9.64734	0.2499716	0.23915903	2.5704640	20	8 29.1	21.2
511374 2014 FL ₆₅	16.4	X	13.03015	226.09278	58.23469	15.99889	0.1266452	0.20383854	2.8594238	20	8 21.1	20.1
511375 2014 FP ₆₇	16.9	X	211.63705	51.17047	107.25203	8.35641	0.1334973	0.24126798	2.5554630	20	10 29.6	20.7
511376 2014 FL ₇₃	17.2	X	146.36887	289.57060	213.71708	6.80267	0.1700901	0.21010113	2.8023161	20	7 29.2	22.0
511377 2014 FM ₇₃	15.6	X	336.28270	241.67060	40.78647	17.12013	0.0795605	0.19755617	3.1094257	20	6 3.4	19.7
511378 2014 FP ₇₃	17.2	X	186.41226	132.27977	59.78330	11.09023	0.0251708	0.24093799	2.5577957	20	11 20.4	20.5
511379 2014 FR ₇₃	16.8	X	232.48666	310.45376	174.93797	12.63824	0.1399192	0.23633492	2.5909008	20	10 7.4	20.5
511380 2014 GJ ₆	16.3	X	147.84675	249.92048	203.33486	17.67594	0.0685146	0.17896113	3.1186280	20	5 26.0	21.1
511381 2014 GP ₉	16.5	X	20.99904	38.96089	187.89664	11.35123	0.1188217	0.18407799	3.0605641	20	6 6.2	20.4
511382 2014 GC ₁₀	17.3	X	141.27514	133.53890	62.95171	5.42346	0.0292003	0.22406791	2.6846207	20	10 1.0	21.0
511383 2014 GA ₁₇	16.7	X	116.21109	173.01487	81.08909	14.98119	0.2122671	0.22651504	2.6652504	20	11 22.1	21.3
511384 2014 GQ ₁₉	17.3	X	133.56982	156.33470	357.23106	8.96313	0.0671297	0.20310126	2.8663396	20	7 28.1	21.6
511385 2014 GS ₂₉	17.3	X	29.63857	239.99561	30.54792	3.54019	0.1212826	0.19793147	2.9160356	20	8 24.5	20.9
511386 2014 GA ₃₂	17.0	X	142.24195	111.51683	55.10438	8.21700	0.1458149	0.20986441	2.8044230	20	8 28.8	21.6
511387 2014 GW ₃₆	16.9	X	146.95375	139.45723	95.66269	14.69526	0.2251474	0.23380565	2.6095525	20	11 25.4	21.6
511388 2014 GX ₃₈	16.7	X	304.62622	198.15052	140.93131	6.45792	0.0765217	0.19878958	2.9078329	20	7 5.4	20.5
511389 2014 GQ ₄₀	15.9	X	128.09169	68.23854	99.25817	16.09213	0.0877560	0.20437837	2.8543864	20	8 10.2	20.3
511390 2014 GD ₄₆	17.4	X	193.14573	357.37415	149.18265	5.91842	0.1648296	0.23417961	2.6067737	20	9 19.3	21.4
511391 2014 GP ₅₀	16.9	X	89.87071	177.43531	66.45665	14.05651	0.1208240	0.21628650	2.7486310	20	10 12.7	21.2
511392 2014 GN ₅₃	15.8	X	27.24409	137.51266	82.58444	18.20735	0.1515785	0.18102476	3.0948817	20	6 10.2	19.2
511393 2014 GU ₅₄	13.7	X	141.86415	39.62716	179.74438	25.04428	0.0267496	0.08363806	5.1784536	20	10 7.7	20.7
511394 2014 GD ₅₆	16.7	X	88.89385	26.43098	160.21375	17.71477	0.2933272	0.18709895	3.0275302	20	8 9.2	21.6
511395 2014 GG ₅₆	16.9	X	157.23018	70.17881	134.95624	12.06036	0.1357335	0.23071183	2.6328299	20	11 1.1	21.3
511396 2014 GN ₅₆	15.8	X	306.49469	232.42930	81.06416	13.20183	0.1126378	0.17285727	3.1916183	20	5 30.7	20.1
511397 2014 GO ₅₆	16.7	X	24.89162	259.95736	10.99286	4.94572	0.1504601	0.19323295	2.9631156	20	8 12.4	20.3
511398 2014 GR ₅₆	16.2	X	17.74217	245.92172	84.66204	12.39184	0.0902951	0.22179738	2.7029112	20	10 27.7	19.8
511399 2014 GS ₅₆	17.2	X	90.97234	103.97478	161.72669	14.44178	0.1431002	0.22247505	2.6974196	20	11 9.9	21.6
511400 2014 HS ₅	16.3	X	332.34491	266.83700	24.84417	10.26021	0.0567958	0.18745935	3.0236486	20	6 13.6	20.4
511401 2014 HB ₁₀	16.6	X	79.47300	313.06716	198.80699	12.84338	0.0770502	0.17379680	3.1801055	20	5 20.2	21.1
511402 2014 HZ ₁₂	16.9	X	174.62769	309.95252	209.55438	12.11224	0.1924328	0.22247941	2.6973844	20	9 11.8	21.5
511403 2014 HR ₁₉	17.8	X	163.43244	269.36751	271.30794	1.09839	0.1338679	0.22509284	2.6764652	20	10 1.9	22.0
511404 2014 HJ ₂₁	16.6	X	84.15418	302.64378	218.58720	14.24247	0.1656662	0.18299796	3.0725942	20	6 17.9	21.2
511405 2014 HE ₂₃	16.5	X	88.02468	163.72048	114.07955	14.15902	0.0835950	0.22151564	2.7052020	20	11 16.9	20.7
511406 2014 HZ ₂₇	17.0	X	186.34932	27.90039	76.58068	3.24146	0.0499683	0.20137550	2.8826924	20	7 23.0	21.1
511407 2014 HS ₂₈	17.2	X	126.68581	135.06702	96.72478	3.08279	0.1676831	0.22511923	2.6762560	20	11 1.5	21.5
511408 2014 HH ₃₀	16.9	X	210.34739	272.98359	153.96659	7.01750	0.1078919	0.19462242	2.9489957	20	6 27.6	21.5
511409 2014 HS ₄₇	16.5	X	149.23890	55.11316	50.59711	10.40938	0.0358055	0.18310605	3.0713849	20	6 8.1	21.0
511410 2014 HQ ₅₆	17.7	X	111.61054	44.47687	160.32225	2.64217	0.1606080	0.21038379	2.7998055	20	9 12.9	22.0
511411 2014 HA ₇₀	17.5	X	104.05961	57.64016	139.99205	2.78822	0.0075390	0.20260499	2.8710183	20	8 8.9	21.5
511412 2014 HB ₁₂₇	16.3	X	54.39044	339.30633	217.76497	27.30139	0.0903616	0.18019322	3.1043958	20	6 11.4	20.8
511413 2014 HE ₁₄₇	17.1	X	117.79008	281.87203	313.95154	1.49530	0.1222719	0.22887818	2.6468731	20	10 26.1	21.2
511414 2014 HJ ₁₅₅	17.0	X	23.08542	228.17192	41.85022	8.62690	0.1568924	0.19080000	2.9882514	20	8 16.7	20.6
511415 2014 HK ₁₅₇	17.3	X	164.55990	310.36822	170.27953	9.34173	0.1805750	0.21175355	2.7877185	20	7 18.4	22.1
511416 2014 HS ₁₅₉	16.6	X	23.59825	155.82849	90.39698	9.37639	0.0257968	0.18365125	3.0653034	20	6 27.9	20.8
511417 2014 HR ₁₆₁	16.6	X	31.48315	163.90001	98.77381	12.26534	0.1283584	0.19103156	2.9858362	20	8 15.4	20.4
511418 2014 HS ₁₆₁	15.7	X	339.95944	190.55320	94.06189	11.00306	0.1573661	0.17521909	3.1628732	20	6 10.8	19.2
511419 2014 HM ₁₆₇	16.1	X	298.59355	228.56008	103.59331	11.62444	0.0925537	0.17693901	3.1423435	20	6 15.3	20.3
511420 2014 HC ₁₆₈	16.7	X	50.79499	177.46192	2.18318	4.89650	0.0760311	0.18119029	3.0929966	20	5 13.6	20.8
511421 2014 HC ₁₇₉	16.8	X	197.61564	320.02629	204.97589	13.15976	0.1894760	0.23271676	2.6176864	20	10 12.8	20.9
511422 2014 HJ ₁₇₉	16.9	X	144.93559	113.77137	118.02300	14.14934	0.1992985	0.23102288	2.6304662	20	11 21.0	21.6
511423 2014 HG ₁₈₁	16.7	X	116.38912	102.11624	120.37682	9.26076	0.0950377	0.21200853	2.7854828	20	10 9.1	21.0
511424 2014 HO ₁₈₁	16.6	X	56.99348	49.56368	146.25714	10.96373	0.1519711	0.17584843	3.1553222	20	6 25.5	20.9
511425 2014 HC ₁₈₅	16.8	X	182.90810	90.13123	56.47976	19.96885	0.0186179	0.20927454	2.8096903	20	9 25.5	21.1
511426 2014 HD ₁₈₆	16.5	X	266.97217	196.09156	173.06961	12.12195	0.0720067	0.18897560	3.0074533	20	6 23.7	20.9
511427 2014 HN ₁₈₆	16.3	X	43.04827	104.98702	95.62166	12.82899	0.1340347	0.17494217	3.1662099	20	6 8.8	20.4
511428 2014 HM ₁₈₈	17.3	X	75.63676	185.80871	75.19944	4.62249	0.0484535	0.21504738	2.7591794	20	10 4.0	21.1
511429 2014 HR ₁₈₈	16.6	X	51.13206	257.51886	9.55597	4.85234	0.0693352	0.21535081	2.7565871	20	9 11.7	20.1
511430 2014 HS ₁₉₄	17.0	X	167.07051	149.30873	51.86212	5.98081	0.2157995	0.23153214	2.6266076	20	10 29.9	21.3
511431 2014 HZ ₁₉₄	15.8	X	28.29474	185.56641	82.63528	14.65923	0.1546292	0.18767972	3.0212812	20	8 23.9	19.7
511432 2014 HL ₂₀₁	15.8	X	352.42743	185.66323	94.78152	28.60416	0.1053990	0.17957947	3.1114651	20	6 28.7	19.6
511433 2014 HQ ₂₀₂	17.1	X	116.13642	85.1								

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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>
511441 2014 JU ₂₆	16.2	X	60.62953	82.98297	175.36679	19.15434	0.1652888	0.20063277	2.8898024	20	9 24.7	20.2
511442 2014 JE ₂₇	17.0	X	200.10384	17.95401	136.76453	12.03340	0.0196046	0.22146483	2.7056163	20	10 22.1	20.9
511443 2014 JN ₂₇	16.8	X	144.81945	28.56260	163.93993	14.25787	0.1323460	0.21532695	2.7567907	20	9 30.3	21.2
511444 2014 JR ₂₇	16.1	X	335.23152	139.52420	156.27720	16.89989	0.0873803	0.17659044	3.1464772	20	6 23.2	20.4
511445 2014 JJ ₂₉	17.1	X	187.07674	52.99215	107.35401	17.98262	0.1266129	0.22518840	2.6757079	20	10 9.8	21.6
511446 2014 JZ ₄₀	16.4	X	32.16984	185.63901	60.80370	12.80027	0.0491833	0.18278926	3.0749326	20	7 13.4	20.6
511447 2014 JB ₄₁	16.8	X	69.43087	155.10754	66.77193	8.40869	0.1188352	0.18959952	3.0008519	20	8 14.4	21.1
511448 2014 JS ₄₉	16.0	X	335.17937	223.36291	92.47365	17.76168	0.12124186	0.17652703	3.1472306	20	7 10.3	19.2
511449 2014 JK ₄₉	16.9	X	196.32480	338.87483	164.02455	14.03569	0.1545469	0.21623234	2.7490900	20	9 16.2	21.3
511450 2014 JN ₅₁	17.1	X	142.45557	104.75519	78.14083	5.98989	0.0956961	0.21044388	2.7992725	20	9 15.9	21.4
511451 2014 JE ₅₄	16.3	X	355.39255	170.25949	135.77972	22.82578	0.0757502	0.18595830	3.0398980	20	8 7.9	20.2
511452 2014 JO ₅₈	16.4	X	44.68608	48.84431	157.06901	15.08486	0.1284074	0.17393660	3.1784014	20	6 17.8	20.8
511453 2014 JZ ₆₈	17.6	X	164.87691	183.11147	25.98582	4.54369	0.1893889	0.23098088	2.6307850	20	11 5.9	22.1
511454 2014 JU ₈₃	16.3	X	325.25079	186.86563	126.84547	10.74859	0.1622764	0.18123105	3.0925328	20	6 23.6	20.0
511455 2014 JF ₈₄	16.2	X	353.64325	198.63965	81.79731	13.12918	0.1378549	0.17568361	3.1572954	20	6 30.6	19.8
511456 2014 KR ₁₅	17.0	X	225.97066	50.36872	75.98094	6.31156	0.1013483	0.22181055	2.7028042	20	10 5.5	20.9
511457 2014 KP ₁₆	16.9	X	59.26113	160.15775	76.04462	10.72086	0.1099747	0.18962207	3.0006140	20	8 19.2	21.1
511458 2014 KD ₁₇	16.5	X	58.62534	129.37471	77.94863	12.51006	0.0545184	0.17696638	3.1420194	20	6 27.9	20.8
511459 2014 KA ₁₈	16.2	X	182.41047	8.30670	94.30478	10.64920	0.0442629	0.18575470	3.0421189	20	7 15.1	20.6
511460 2014 KK ₂₀	16.2	X	17.00760	177.54450	91.23903	17.87072	0.1002205	0.18172024	3.0869802	20	7 25.4	20.2
511461 2014 KS ₃₀	16.4	X	62.27759	336.94521	220.15926	16.63349	0.1743050	0.17943831	3.1130966	20	7 4.8	20.9
511462 2014 KZ ₄₀	16.8	X	7.46789	94.22373	208.96364	2.16857	0.0798747	0.19366402	2.9587169	20	8 23.3	20.5
511463 2014 KC ₄₂	16.1	X	126.89031	48.89898	89.12458	22.78933	0.0325896	0.17837746	3.1254273	20	6 22.8	20.5
511464 2014 KO ₄₄	16.2	X	57.00622	197.31565	81.11626	14.80857	0.0781638	0.20960671	2.8067212	20	10 12.1	20.3
511465 2014 KA ₅₄	16.2	X	42.27894	163.75944	93.13892	13.80881	0.1009775	0.18756158	3.0225498	20	8 21.4	20.4
511466 2014 KU ₅₆	16.5	X	36.90982	123.55629	139.42750	9.22452	0.0726315	0.18712240	3.0272772	20	8 13.2	20.4
511467 2014 KC ₇₀	16.6	X	306.94255	189.64470	156.22153	8.27215	0.1200278	0.17973906	3.1096230	20	7 10.8	20.6
511468 2014 KY ₈₀	16.9	X	180.16275	295.25730	225.97095	14.20791	0.2148763	0.22517974	2.6757765	20	9 16.6	21.7
511469 2014 KH ₈₆	16.5	X	110.94333	129.40297	132.01536	13.86534	0.1701007	0.21762267	2.7373687	20	11 24.6	21.2
511470 2014 KN ₈₆	15.6	X	352.90981	170.21124	116.86777	10.13588	0.1946422	0.17388982	3.1789713	20	7 8.4	19.0
511471 2014 KU ₉₂	16.4	X	148.04873	123.57015	68.00053	13.29857	0.0785225	0.20973512	2.8055754	20	10 5.9	20.8
511472 2014 KP ₉₇	17.0	X	132.19095	140.38881	96.52111	6.01909	0.0583424	0.22137976	2.7063094	20	11 10.2	20.9
511473 2014 KY ₉₈	16.6	X	32.10008	344.87749	259.83558	7.86647	0.0862713	0.18435145	3.0575367	20	7 12.9	20.5
511474 2014 KD ₁₀₀	16.4	X	59.69768	128.14442	101.62807	14.53857	0.1091858	0.18528144	3.0472969	20	8 8.8	20.6
511475 2014 KE ₁₀₁	16.2	X	29.18377	169.89075	80.97056	18.25901	0.1582640	0.17935789	3.1140271	20	7 28.7	20.2
511476 2014 LX ₁₁	17.1	X	119.16546	153.59314	67.49182	3.92907	0.1690312	0.20966382	2.8062114	20	10 11.6	21.6
511477 2014 LN ₂₀	17.2	X	182.38046	111.71008	90.87347	18.64197	0.2290859	0.23297919	2.6157202	20	11 17.0	21.8
511478 2014 MD ₇	17.0	X	156.97872	136.15459	62.73709	14.29087	0.1234601	0.22150432	2.7052947	20	10 23.4	21.4
511479 2014 MR ₁₅	16.3	X	73.61192	144.76059	72.94656	17.49263	0.0407364	0.18419926	3.0592206	20	8 2.6	20.8
511480 2014 MD ₄₄	16.5	X	27.82560	66.49074	208.55054	4.27095	0.1689989	0.17240528	3.1971941	20	8 24.7	20.4
511481 2014 MJ ₅₆	15.8	X	44.97226	311.80176	317.64265	9.10368	0.2035020	0.17765119	3.1339397	20	9 16.5	20.1
511482 2014 MU ₅₈	17.1	X	142.31648	75.06042	124.11021	14.13319	0.1665124	0.21097859	2.7945409	20	10 10.1	21.9
511483 2014 MC ₆₀	15.8	X	214.01945	10.55359	102.22878	13.00419	0.0827600	0.18247085	3.0785088	20	9 3.3	20.5
511484 2014 NE	16.3	X	32.48647	157.84340	115.76239	11.91588	0.0712722	0.19015687	2.9949854	20	8 23.5	20.3
511485 2014 NO	16.5	X	58.61456	110.49435	126.83570	7.74404	0.1078519	0.18518204	3.0483873	20	8 15.6	20.6
511486 2014 NZ	16.8	X	90.98053	359.87309	214.78228	8.43268	0.1139539	0.19050237	2.9913631	20	8 24.2	21.3
511487 2014 NT ₁	16.9	X	117.45785	89.88034	148.40758	13.13401	0.2262709	0.22250777	2.6971551	20	11 6.3	21.7
511488 2014 NS ₁₆	16.7	X	113.17260	311.46696	222.52873	8.71665	0.1984885	0.19140482	2.9819530	20	8 5.5	21.7
511489 2014 NT ₁₇	16.4	X	35.99460	131.72865	110.33949	12.62744	0.0748138	0.17454147	3.1710540	20	7 14.5	20.5
511490 2014 NP ₂₈	16.7	X	54.98030	129.62182	131.04134	8.31872	0.2279703	0.18189939	3.0849530	20	9 29.5	21.1
511491 2014 NB ₃₃	16.4	X	46.99850	127.15820	127.56730	11.70379	0.1128408	0.17233029	3.1981216	20	8 22.2	20.6
511492 2014 NM ₆₃	17.5	X	59.84731	62.20724	270.67886	17.16124	0.0781790	0.35712415	1.9675385	20	—	—
511493 2014 NY ₆₃	15.0	X	109.06919	325.10252	258.17131	25.87725	0.1281197	0.17573096	3.1567282	20	9 13.9	20.4
511494 2014 OG ₁₁	16.0	X	72.98237	290.13407	301.94762	11.48549	0.1242839	0.17691121	3.1426727	20	8 24.5	20.6
511495 2014 OQ ₃₄	16.6	X	111.83105	231.52352	329.93851	11.02605	0.1767954	0.18179018	3.0861884	20	9 5.6	21.6
511496 2014 OU ₄₁	16.3	X	65.05140	290.98100	340.55923	5.36202	0.1391727	0.18621979	3.0370516	20	10 8.3	20.6
511497 2014 OV ₉₆	16.0	X	104.55764	246.89588	335.32590	25.28821	0.2718758	0.17641810	3.1485260	20	9 22.3	21.6
511498 2014 OB ₉₈	18.2	X	38.31279	173.77689	150.32339	24.21296	0.0855070	0.35485284	1.9759253	20	12 16.8	21.1
511499 2014 OC ₁₁₃	16.0	X	44.45831	146.01475	119.50547	12.45654	0.0704611	0.17475551	3.1684642	20	8 28.0	20.4
511500 2014 OO ₁₁₃	16.2	X	85.23199	108.21648	108.54136	4.58920	0.1252804	0.17577166	3.1562409	20	8 24.8	20.8
511501 2014 OU ₁₂₂	16.3	X	56.33905	296.12257	313.64861	15.12852	0.2132415	0.17672318	3.1449014	20	9 5.9	20.8
511502 2014 ON ₁₂₉	15.8	X	358.40911	162.44299	108.75983	20.89702	0.1335294	0.17160180	3.2071663	20	6 27.4	19.7
511503 2014 OW ₁₅₇	16.5	X	57.71836	272.11454	316.07639	24.12374	0.2372857	0.17371933	3.1810509	20	8 17.1	20.9
511504 2014 OS ₁₇₅	15.8	X	14.51973	181.87101	110.00609	18.28199	0.0798069	0.17116423	3.2126299	20	8 20.4	20.1
511505 2014 OK ₁₈₄	16.3	X	74.99790	129.81521	116.99245	15.79905	0.3517264	0.18435970	3.0574455	20	10 21.7	21.6
511506 2014 OH ₁₈₈	18.2	X	207.13605	36.42055	163.34171	23.27069	0.0614499	0.37021161	1.9208909	20	—	—
511507 2014 OW ₂₂₇	16.1	X	87.29238	121.59813	113.56406	11.15004	0.1903593	0.17651720	3.1473476	20	9 29.9	21.1
511508 2014 OM ₂₃₉	16.0	X	230.85691	324.86801	118.07789	13.04674	0.0520284	0.17110700	3.2133463	20	8 15.6	20.7
511509 2014 OA ₃₃₈	18.7	X	4.27944	79.50777	321.49601	17.27701	0.1325236	0.38161688	1.8824249	20	—	—
511510 2014 OC ₃₄₄	15.5	X	40.05335	303.40754	320.14651	25.72433	0.2345210	0.17357107	3.1828621	20	9 1.1	19.7
511511 2014 OD ₃₄₄	17.6	X	249.29493	6.98735	318.62579	4.84786	0.2562290	0.28809949	2.2704280	20	3 14.3	21.3
511512 2014 ON ₃₆₃	16.6	X	70.52421	131.77185	124.79917	5.84166	0.1055265	0.18100685	3.0950859	20	9 25.1	21.0
511513 2014 OT ₃₈₂	18.5	X	23.43763	242.16699	112.50748	23.16390	0.0659446	0.369				

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>
511521 2014 QY ₃₇₁	18.6	X	267.50429	130.87488	358.81242	19.71852	0.0679867	0.36323107	1.9454230	20	—	—
511522 2014 QV ₃₇₄	18.0	X	251.30331	215.82435	343.39701	20.63008	0.0330188	0.39205962	1.8488484	20	—	—
511523 2014 QS ₄₃₉	19.3	X	4.68776	134.83177	87.50751	11.45065	0.3649964	0.47269782	1.6321008	20	1 29.7	19.6
511524 2014 QO ₄₄₂	18.8	X	309.18304	260.79416	201.21093	21.09507	0.1004549	0.36145262	1.9517992	20	—	—
511525 2014 QY ₄₄₂	14.0	X	279.24215	85.03763	213.23955	33.73729	0.0685800	0.08279502	5.2135464	20	4 15.3	20.9
511526 2014 RF	17.8	X	205.47897	46.07615	156.40896	23.72073	0.0632984	0.37250631	1.9129941	20	—	—
511527 2014 RN	17.8	X	258.31425	243.88225	280.78645	16.76376	0.0853924	0.38050470	1.8860912	20	—	—
511528 2014 RO ₁₂	17.7	X	355.82333	141.68478	257.91042	17.79430	0.1183330	0.36123107	1.9525972	20	—	—
511529 2014 SV	18.2	X	134.56909	146.34608	120.41878	24.03158	0.0693025	0.36464604	1.9403871	20	—	—
511530 2014 SN ₂₁₉	16.7	X	192.06685	244.10429	81.00057	16.78587	0.2470173	0.23989897	2.5651758	20	2 8.8	21.4
511531 2014 SY ₂₈₂	15.6	X	262.85122	301.74985	193.90201	17.57246	0.0168669	0.17663243	3.1459785	20	12 2.4	20.3
511532 2014 SP ₃₀₃	18.2	X	323.85678	95.83494	42.17806	21.79197	0.0613657	0.38989593	1.8556821	20	—	—
511533 2014 SN ₃₄₉	13.5	X	298.00160	171.22518	101.79123	29.52863	0.0624515	0.08337877	5.1891840	20	4 24.1	20.7
511534 2014 SQ ₃₄₉	13.5	X	274.65380	192.77800	109.42112	29.69388	0.0740398	0.08227364	5.2355490	20	4 27.9	20.8
511535 2014 SY ₃₅₀	18.8	X	44.63403	32.26760	19.94571	21.75778	0.0967720	0.38660187	1.8662082	20	—	—
511536 2014 TS ₉	17.7	X	334.06435	133.96454	298.88628	16.77838	0.1184633	0.35978854	1.9578128	20	—	—
511537 2014 TE ₁₈	18.1	X	204.80322	297.60529	273.50239	17.16690	0.0302522	0.37199033	1.9147627	20	—	—
511538 2014 TH ₃₃	18.0	X	267.85815	231.05677	271.39357	17.25382	0.0764339	0.36218418	1.9491700	20	—	—
511539 2014 TO ₃₃	18.6	X	169.86242	22.72788	232.64165	21.02078	0.0598642	0.37823204	1.8936389	20	—	—
511540 2014 TP ₃₃	18.7	X	200.37259	354.94786	223.57168	20.75952	0.0382129	0.37296774	1.9114159	20	—	—
511541 2014 TV ₃₃	18.4	X	153.98074	332.10350	331.82495	20.18668	0.0859248	0.39184584	1.8495208	20	—	—
511542 2014 TW ₃₃	17.8	X	76.61958	42.20721	308.63125	19.00436	0.0214014	0.37169400	1.9157802	20	—	—
511543 2014 TV ₅₇	17.9	X	49.00727	274.76570	40.58628	22.17351	0.0827527	0.37221010	1.9140089	20	—	—
511544 2014 TM ₅₈	17.8	X	14.84611	133.13845	220.87194	20.17464	0.0781873	0.34271354	2.0223138	20	12 16.8	20.3
511545 2014 TP ₅₉	18.2	X	61.53081	117.68764	221.72609	19.58357	0.0834084	0.35646493	1.9699635	20	—	—
511546 2014 TM ₆₃	18.2	X	13.09792	181.19383	228.24976	20.45681	0.0874142	0.36250442	1.9480220	20	—	—
511547 2014 UZ ₆₂	15.6	X	261.47650	130.54029	241.00711	2.59241	0.1870683	0.12251092	4.0150059	20	6 3.8	21.5
511548 2014 UO ₁₁₇	18.7	X	217.63046	243.77721	7.86246	8.99243	0.1163772	0.39046940	1.8538647	20	—	—
511549 2014 UV ₁₈₂	18.6	X	359.18321	8.95801	48.86217	22.39369	0.0933903	0.35857176	1.9622394	20	—	—
511550 2014 UO ₁₉₁	17.8	X	44.13012	292.09135	63.72820	22.74274	0.1030634	0.35779941	1.9650622	20	—	—
511551 2014 UD ₂₂₅	6.7	X	98.41998	295.69291	343.24298	3.65336	0.1322608	0.00344616	43.4089097	20	10 24.5	23.2
511552 2014 UE ₂₂₅	6.1	X	173.35775	335.85646	241.34465	4.50403	0.0660443	0.00340842	43.7288033	20	10 24.3	22.8
511553 2014 UO ₂₂₅	7.5	X	358.73978	166.80558	233.50198	10.71160	0.1269204	0.00343379	43.5131243	20	10 31.9	23.3
511554 2014 UL ₂₂₅	7.4	X	347.29265	188.56937	225.09652	7.96682	0.1982151	0.00312423	46.3419517	20	10 27.9	23.2
511555 2014 UM ₂₂₅	7.4	X	15.50913	358.74725	15.12721	18.28351	0.0996320	0.00331975	44.5040038	20	10 23.7	23.5
511556 2014 VN	17.8	X	97.06186	177.74666	206.05514	18.53631	0.0841167	0.39142613	1.8508427	20	—	—
511557 2014 VR ₁	18.4	X	78.89402	262.79411	102.85671	23.67309	0.0659199	0.37556352	1.9025984	20	—	—
511558 2014 VE ₂	18.2	X	51.05342	302.88503	87.02009	24.86818	0.0617557	0.37370589	1.9088981	20	—	—
511559 2014 VR ₁₁	18.5	X	243.47320	239.89944	143.62143	1.86042	0.0796288	0.28369377	2.2938738	20	6 13.8	21.3
511560 2014 VR ₂₂	16.7	X	221.32325	76.52832	231.61859	10.88646	0.1928694	0.24145937	2.5541124	20	2 3.4	21.2
511561 2014 WJ ₅₈	18.5	X	208.79844	85.19131	34.06579	4.55898	0.0748118	0.30652558	2.1785034	20	9 18.8	21.0
511562 2014 WJ ₆₂	18.3	X	312.79724	55.03216	43.81905	21.09204	0.0770428	0.35552837	1.9734216	20	—	—
511563 2014 WJ ₁₂₀	18.2	X	244.43617	111.78840	111.50652	23.44101	0.1008564	0.38122373	1.8837189	20	—	—
511564 2014 WR ₂₁₅	13.6	X	20.33146	126.04107	58.85015	20.31049	0.0208567	0.08244048	5.2284831	20	4 18.6	20.5
511565 2014 WY ₃₅₅	16.6	X	46.21563	294.92525	254.56866	15.28641	0.1737331	0.23039830	2.6352179	20	6 3.9	19.4
511566 2014 WR ₃₆₄	17.7	X	359.92488	313.85504	82.87422	23.48928	0.1009135	0.35247097	1.9848170	20	—	—
511567 2014 WZ ₃₆₉	18.1	X	18.77035	314.27093	91.86311	23.67966	0.0785993	0.36332797	1.9450771	20	—	—
511568 2014 WD ₃₉₂	13.7	X	235.16484	250.39278	91.82924	19.95230	0.0347001	0.08167346	5.2611668	20	4 29.4	20.9
511569 2014 WY ₄₅₃	17.6	X	181.20059	326.96376	169.63825	5.60303	0.0763953	0.28263707	2.2995877	20	9 2.8	20.7
511570 2014 WP ₄₆₃	12.9	X	296.03837	206.03005	78.61246	13.28389	0.1173253	0.08245780	5.2277510	20	4 18.9	19.8
511571 2014 WT ₄₆₈	17.3	X	239.02201	311.73917	110.96537	13.42438	0.1334012	0.27470537	2.3436420	20	7 26.4	20.4
511572 2014 WT ₄₇₉	16.3	X	302.24227	3.57343	274.85124	11.08015	0.1277946	0.22181200	2.7027924	20	3 27.8	20.1
511573 2014 WB ₄₈₀	17.3	X	93.24596	338.31908	263.25324	6.43140	0.0593769	0.28182294	2.3040142	20	10 6.9	20.5
511574 2014 WR ₄₉₄	17.3	X	165.00498	292.68211	254.81043	8.58843	0.0698684	0.29325693	2.2437296	20	10 22.9	20.4
511575 2014 WE ₄₉₅	16.2	X	334.95653	85.28639	148.34787	13.61480	0.1637796	0.21158651	2.7891855	20	3 22.7	19.5
511576 2014 WM ₅₁₁	14.0	X	265.81452	233.84175	66.44686	14.24579	0.0369106	0.08312446	5.1997621	20	4 12.9	21.0
511577 2014 XP ₃	18.2	X	346.04932	87.96378	48.27322	22.59448	0.0908327	0.38136005	1.8832700	20	—	—
511578 2014 XN ₈	17.9	X	107.67767	41.96642	323.00058	19.07499	0.0473541	0.37874906	1.8919152	20	—	—
511579 2014 XW ₈	18.2	X	311.27208	219.29785	261.39254	18.77485	0.1424902	0.35757425	1.9658870	20	—	—
511580 2014 XP ₁₃	17.7	X	27.97332	177.00092	254.17972	20.47737	0.0595913	0.37335286	1.9101013	20	—	—
511581 2014 XC ₁₇	17.8	X	20.82227	179.64832	245.96797	20.03859	0.0746457	0.36746536	1.9304495	20	—	—
511582 2014 XA ₄₀	13.6	X	326.79858	148.74269	96.66738	20.00958	0.0771339	0.08267550	5.2185698	20	4 21.6	20.5
511583 2014 XE ₄₁	18.1	X	252.97359	0.60489	193.36203	22.37472	0.0209857	0.36181827	1.9504840	20	—	—
511584 2014 YA ₁	18.4	X	241.49074	287.11392	297.94661	17.20266	0.0789707	0.36600701	1.9355740	20	—	—
511585 2014 YF ₄	18.1	X	222.72117	339.69760	148.27660	1.77422	0.1176294	0.29550413	2.2323400	20	10 10.6	20.7
511586 2014 YW ₆	17.0	X	97.14143	253.96717	277.88867	5.51148	0.0893572	0.25571920	2.4582563	20	7 10.7	20.1
511587 2014 YO ₁₅	18.1	X	126.92377	11.23719	310.81865	18.19637	0.0592008	0.36052141	1.9551587	20	—	—
511588 2015 AY ₉	17.9	X	174.61099	106.14157	27.20813	6.96907	0.0855255	0.28017327	2.3130494	20	8 24.6	21.2
511589 2015 AK ₂₇	18.0	X	250.75690	125.48582	274.07581	1.29203	0.1963258	0.28395039	2.2924915	20	6 29.6	21.2
511590 2015 AV ₃₀	17.4	X	59.62719	305.40163	271.13346	2.49024	0.1449064	0.25756929	2.4464705	20	7 31.1	20.2
511591 2015 AV ₁₀₈	18.3	X	20.95388	173.98545	140.28911	3.80238	0.1589397	0.29737877	2.2229485	20	11 2.9	20.6
511592 2015 AY ₁₁₀	18.2	X	280.50052	265.60866	129.28743	6.83319	0.1854709	0.29451342	2.2373435	20	8 8.0	20.5
511593 2015 AY ₁₁₁	18.2	X	20.74587	37.73999	236.16536	1.86697	0.1847429	0.26795214	2.3828565	20	8 28.6	20.5
511594 2015 AV ₁₅₃	18.3	X	291.06678	74.42427	117.13205	24.30855	0.1089744	0.36196296	1.9499642	20	—	—
511595 2015 AX ₁₅₈ </												

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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>
511601 2015 AR ₂₅₃	18.9	X	174.59422	79.89355	84.05979	2.78165	0.1338390	0.28861634	2.2677165	20	10 1.7	22.1
511602 2015 AM ₂₅₈	18.1	X	202.82460	8.48470	78.75838	4.56335	0.1659423	0.27614692	2.3354787	20	7 16.1	21.6
511603 2015 AJ ₂₈₀	17.8	X	292.46750	259.48300	140.35396	20.63720	0.1860571	0.28965081	2.2623140	20	9 11.6	19.8
511604 2015 BS ₅	17.7	X	214.20924	29.02508	92.93333	3.38162	0.0807783	0.29231454	2.2485494	20	9 27.1	20.6
511605 2015 BF ₆	18.5	X	214.41752	290.17078	140.69457	4.01381	0.1838325	0.27050214	2.3678576	20	7 3.7	22.1
511606 2015 BP ₆	16.5	X	26.31529	204.87130	318.29546	8.07712	0.0726068	0.20852015	2.8164628	20	3 12.5	20.0
511607 2015 BH ₈	17.4	X	168.58035	1.46506	91.49491	7.34219	0.0764540	0.25985738	2.4320883	20	6 18.3	20.9
511608 2015 BK ₂₁	16.9	X	137.66988	156.76056	270.90451	4.52182	0.0670259	0.22085335	2.7106081	20	4 7.3	20.9
511609 2015 BR ₂₂	18.1	X	279.15365	163.63173	244.65524	2.33225	0.0652804	0.28396955	2.2923884	20	9 12.7	20.6
511610 2015 BB ₂₃	18.1	X	290.22017	252.70032	163.06257	4.75602	0.1248467	0.29683212	2.2256769	20	10 11.5	19.9
511611 2015 BW ₂₃	18.2	X	251.62298	283.16908	183.14585	3.77788	0.1533308	0.30046457	2.2077024	20	10 15.8	20.5
511612 2015 BM ₂₄	18.0	X	155.56968	359.44686	257.22098	2.79574	0.0970788	0.31648134	2.1325733	20	—	—
511613 2015 BX ₂₄	17.2	X	79.33506	228.04433	300.01183	3.82422	0.0602353	0.23484102	2.6018769	20	6 5.9	20.6
511614 2015 BB ₂₅	17.7	X	147.23916	60.41244	155.81396	5.28690	0.1268611	0.29093265	2.2556640	20	11 11.7	21.0
511615 2015 BD ₂₅	17.2	X	87.55540	302.63445	169.24617	3.54985	0.0464653	0.21386581	2.7693328	20	4 2.2	20.7
511616 2015 BT ₂₅	18.4	X	234.35060	208.69890	272.74282	1.86227	0.0896191	0.29535358	2.2330985	20	10 20.0	20.9
511617 2015 BW ₂₅	18.5	X	155.64728	280.53230	245.07783	0.71047	0.1065382	0.27316070	2.3524690	20	9 10.8	21.9
511618 2015 BF ₂₆	16.9	X	316.21237	311.86063	321.14071	6.74661	0.1912944	0.21613367	2.7499265	20	4 3.2	20.3
511619 2015 BZ ₂₆	18.3	X	188.09821	59.05779	135.24377	4.07173	0.09644567	0.30258597	2.1973717	20	12 1.5	21.1
511620 2015 BR ₃₂	15.5	X	355.59131	298.47257	124.26124	12.40539	0.1214425	0.15331503	3.4573730	20	12 28.0	19.9
511621 2015 BT ₃₄	16.2	X	102.94696	277.41931	98.31285	4.45530	0.0997930	0.18458190	3.0549913	20	1 3.9	20.3
511622 2015 BS ₅₉	17.8	X	190.17097	131.90012	321.21913	3.89726	0.1316861	0.26657517	2.3910551	20	7 12.3	21.3
511623 2015 BE ₇₂	16.4	X	126.83445	79.02625	299.15167	8.45708	0.0906444	0.19071841	2.9891036	20	1 31.9	20.8
511624 2015 BX ₈₇	18.3	X	162.56603	270.04480	306.54580	5.39293	0.0913773	0.30354170	2.1927568	20	11 30.3	21.2
511625 2015 BR ₈₈	17.0	X	87.09721	330.01900	124.83483	5.29443	0.0320283	0.20846117	2.8169941	20	3 9.9	20.8
511626 2015 BG ₉₉	18.7	X	24.04713	65.06424	303.11696	4.33971	0.0472561	0.32198545	2.1082003	20	—	—
511627 2015 BL ₁₀₀	17.4	X	14.43565	291.49008	317.02224	10.78498	0.1369576	0.24041944	2.5614723	20	6 29.3	20.2
511628 2015 BQ ₁₀₀	18.1	X	136.94582	68.17863	134.65040	5.87536	0.1830710	0.27908288	2.3190703	20	10 14.6	21.8
511629 2015 BX ₁₀₁	18.0	X	195.04834	331.69684	154.41513	5.51782	0.1838401	0.27598174	2.3364105	20	8 27.4	21.7
511630 2015 BA ₁₀₂	16.2	X	98.11813	99.25956	334.34041	14.05468	0.1289448	0.20368315	2.8608779	20	3 7.8	20.2
511631 2015 BU ₁₀₂	18.4	X	170.64497	289.25216	180.91509	1.29524	0.1306581	0.25827610	2.4420051	20	7 13.7	22.0
511632 2015 BZ ₁₀₂	17.0	X	106.90481	131.43552	324.81761	3.50940	0.1033604	0.21404034	2.7678272	20	3 31.0	20.9
511633 2015 BJ ₁₀₆	17.8	X	214.95090	227.49068	275.98945	8.69534	0.0645247	0.28622272	2.2803420	20	10 23.7	20.8
511634 2015 BA ₁₀₇	16.6	X	24.84627	234.26015	313.59403	14.20087	0.0876994	0.20648448	2.8349437	20	4 7.9	20.4
511635 2015 BR ₁₁₈	17.2	X	173.88070	165.97995	213.77768	5.63514	0.0384024	0.22565914	2.6719855	20	3 17.6	21.0
511636 2015 BS ₁₂₆	18.1	X	198.90646	166.58952	327.50763	3.67035	0.1514989	0.28825594	2.2696063	20	9 13.8	21.4
511637 2015 BQ ₁₃₈	17.4	X	121.02737	110.94802	73.50489	5.77973	0.1664449	0.26674617	2.3900332	20	9 4.9	21.1
511638 2015 BC ₁₃₉	18.0	X	260.14768	56.41676	11.70871	5.36369	0.1186900	0.29157815	2.2523337	20	9 7.5	20.5
511639 2015 BW ₁₄₉	18.3	X	235.84731	143.36226	353.78370	3.91625	0.0534496	0.30650900	2.1785819	20	11 22.1	20.7
511640 2015 BX ₁₅₃	17.7	X	61.49142	194.35955	107.71619	7.23050	0.1261432	0.30144480	2.2029139	20	12 4.7	20.7
511641 2015 BO ₁₅₆	17.0	X	356.19679	314.67938	11.24330	7.82294	0.1451126	0.27448245	2.3449108	20	9 28.0	18.8
511642 2015 BJ ₁₉₅	17.8	X	140.69136	153.48510	100.13858	6.29150	0.1557302	0.30809922	2.1710791	20	12 23.4	21.0
511643 2015 BQ ₁₉₇	18.3	X	328.47346	339.44825	45.27315	2.00728	0.1273893	0.30627403	2.1796960	20	11 11.2	19.8
511644 2015 BT ₂₀₂	18.2	X	180.18742	98.40917	98.58515	6.31424	0.0476512	0.30625707	2.1797765	20	12 2.1	20.8
511645 2015 BW ₂₃₁	17.8	X	60.33511	206.38773	49.69364	6.41220	0.1456885	0.27972297	2.3155312	20	10 2.4	20.7
511646 2015 BR ₂₄₉	17.3	X	208.22628	288.10615	130.92068	4.36395	0.1016017	0.25688951	2.4507846	20	6 17.2	20.9
511647 2015 BM ₂₅₂	17.3	X	45.93880	331.78120	286.45535	5.40796	0.0973667	0.26455729	2.4031980	20	8 30.7	20.1
511648 2015 BZ ₂₅₂	17.7	X	179.20723	240.53896	282.77173	6.64569	0.1051463	0.28813846	2.2702232	20	10 2.3	21.0
511649 2015 BO ₂₅₈	17.8	X	134.32606	290.95837	286.34815	6.59817	0.0870010	0.29278477	2.2461413	20	10 26.6	21.1
511650 2015 BX ₂₆₀	17.9	X	80.61547	342.24163	244.57075	4.45737	0.1215314	0.26767985	2.3844722	20	9 7.3	21.3
511651 2015 BN ₂₆₁	17.1	X	56.19565	261.96353	274.91137	1.73140	0.1061761	0.22878155	2.6476184	20	5 22.5	20.1
511652 2015 BT ₂₆₂	18.7	X	325.68648	59.09112	355.47806	1.43731	0.0824594	0.31031546	2.1607297	20	12 19.9	20.5
511653 2015 BP ₂₇₀	18.3	X	322.46861	306.54041	109.47665	6.27461	0.0290648	0.30926269	2.1656305	20	12 15.5	20.6
511654 2015 BC ₂₇₈	18.5	X	186.42368	289.28704	246.57749	1.48763	0.1073933	0.29541346	2.2327968	20	10 31.9	21.4
511655 2015 BU ₂₈₈	16.7	X	24.10309	324.99908	245.24200	10.67787	0.1197713	0.23054663	2.6340875	20	5 17.4	19.5
511656 2015 BJ ₂₉₁	16.6	X	190.10912	41.00074	327.39483	5.47381	0.0199685	0.21175140	2.7877373	20	3 22.9	20.5
511657 2015 BS ₂₉₁	17.9	X	117.87944	61.67202	119.80951	2.25288	0.1316104	0.25941285	2.4348660	20	8 23.2	21.4
511658 2015 BK ₂₉₈	17.8	X	155.95126	25.71400	139.79186	5.70365	0.1701124	0.26787089	2.3833383	20	9 11.8	21.5
511659 2015 BZ ₂₉₈	17.7	X	211.94819	34.38665	135.07067	7.52104	0.0418538	0.29795942	2.2200596	20	12 5.9	20.5
511660 2015 BK ₃₀₀	17.8	X	126.04931	203.33456	38.67665	7.86215	0.0842286	0.28613806	2.2807918	20	11 19.5	20.9
511661 2015 BY ₃₀₁	18.0	X	133.61370	146.68534	97.45068	7.57337	0.0778887	0.28907923	2.2652951	20	12 3.2	21.1
511662 2015 BJ ₃₀₂	17.9	X	223.03663	77.81684	45.46845	7.70688	0.0837401	0.28028056	2.3124591	20	10 8.8	20.8
511663 2015 BF ₃₀₃	16.8	X	212.77132	36.56688	70.06086	7.83033	0.0546186	0.26390403	2.4071623	20	9 5.7	20.1
511664 2015 BG ₃₀₄	17.4	X	92.62677	85.31608	129.99066	8.82581	0.1067366	0.25208976	2.4817951	20	9 7.3	20.9
511665 2015 BY ₃₁₆	18.2	X	317.39128	283.06180	102.60579	4.88574	0.1230863	0.30183704	2.2010050	20	10 21.8	19.9
511666 2015 BD ₃₂₁	18.2	X	348.01332	320.51404	52.21426	3.43345	0.1238396	0.30894269	2.1671257	20	11 30.4	20.0
511667 2015 BE ₃₂₇	18.3	X	192.92142	95.81998	56.00908	3.23376	0.1137620	0.29057363	2.2575216	20	10 7.2	21.4
511668 2015 BZ ₃₄₄	17.6	X	264.98671	310.03748	125.04294	3.77013	0.1372573	0.29355307	2.2422204	20	9 23.1	19.8
511669 2015 BL ₃₅₅	17.1	X	57.21912	25.16249	139.51401	5.09154	0.1073048	0.22225651	2.6991875	20	5 9.6	20.5
511670 2015 BK ₃₅₆	18.5	X	188.49201	7.71612	140.22033	4.55218	0.0722646	0.28327796	2.2961179	20	9 29.9	21.4
511671 2015 BO ₃₅₆	18.4	X	263.52639	141.86451	323.00429	3.90942	0.1235456	0.30458859	2.1877295	20	11 6.3	20.6
511672 2015 BU ₃₇₇	17.9	X	348.24365	316.17498	0.11944	2.47919	0.1596753	0.28538794	2.2847866	20	8 29.4	19.0
511673 2015 BQ ₄₁₅	17.6	X	25.04429	250.67098	80.37629							

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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>
511681 2015 BG ₄₅₂	17.9	X	124.87214	142.59500	114.38409	5.16138	0.1298328	0.29980253	2.2109513	20	12 11.7	21.1
511682 2015 BV ₄₆₂	17.3	X	193.42133	232.59179	136.15899	7.12793	0.0660034	0.21360862	2.7715552	20	4 1.1	21.4
511683 2015 BV ₄₉₀	18.3	X	336.70626	252.08976	147.62389	3.33087	0.0612898	0.31191390	2.1533414	20	12 14.8	20.5
511684 2015 BN ₅₀₉	20.7	X	44.80756	143.19816	120.11423	4.15394	0.5684690	0.97607860	1.0064979	20	1 24.2	18.4
511685 2015 BT ₅₁₀	18.2	X	154.90320	317.79761	337.56833	16.18885	0.0951847	0.35004848	1.9939637	20	—	—
511686 2015 BH ₅₁₂	17.9	X	165.46108	307.31163	199.96433	5.66327	0.1468224	0.27541013	2.3396422	20	8 25.9	21.6
511687 2015 BM ₅₁₃	17.6	X	144.51914	223.07193	277.63368	6.58947	0.1512365	0.26441748	2.4040451	20	7 27.5	21.4
511688 2015 BB ₅₁₅	13.5	X	255.98633	193.91599	138.16589	31.35174	0.0639052	0.08380294	5.1716592	20	5 8.3	20.9
511689 2015 BQ ₅₁₉	18.2	X	166.91040	188.23765	98.31089	23.79116	0.0181877	0.35883384	1.9612838	20	—	—
511690 2015 BW ₅₃₂	17.1	X	75.02058	123.55992	86.68429	15.24210	0.1349015	0.25252649	2.4789328	20	8 15.6	20.6
511691 2015 BC ₅₃₄	16.2	X	201.95396	100.45849	359.06116	13.78513	0.1405262	0.24341927	2.5403843	20	8 5.1	20.3
511692 2015 BF ₅₃₅	18.1	X	215.28122	167.91349	342.79372	6.71434	0.0615456	0.29517730	2.2339875	20	11 6.3	21.0
511693 2015 BB ₅₃₇	16.9	X	358.84667	111.29454	165.36651	9.14985	0.1781514	0.22580972	2.6707975	20	7 9.2	19.6
511694 2015 BM ₅₃₇	16.1	X	329.35826	255.88640	71.62592	15.01563	0.1446784	0.21744060	2.7388965	20	7 28.3	19.3
511695 2015 CH	17.3	X	330.67988	4.87715	117.29555	25.61282	0.0630972	0.35009494	1.9937873	20	—	—
511696 2015 CQ ₁	16.9	X	14.82768	233.94012	335.94396	12.24556	0.1033110	0.22207811	2.7006328	20	4 23.3	20.2
511697 2015 CF ₃	18.0	X	162.17812	20.41805	163.34895	7.40244	0.0403124	0.29110418	2.2547778	20	10 20.6	20.8
511698 2015 CN ₁₀	17.3	X	114.57678	18.09970	143.42897	11.36546	0.1877148	0.25530478	2.4609158	20	7 27.4	21.2
511699 2015 CP ₁₀	18.0	X	259.34165	69.22533	138.35837	21.47906	0.1614721	0.34953936	1.9958995	20	—	—
511700 2015 CS ₁₂	16.5	X	53.17646	151.22000	107.41264	31.87968	0.0996378	0.24089409	2.5851065	20	9 23.5	20.6
511701 2015 CS ₂₁	17.9	X	84.69918	307.60912	343.71698	5.93626	0.1295505	0.30313524	2.1947165	20	12 15.2	21.1
511702 2015 CG ₂₄	16.7	X	31.12656	326.31382	149.73506	12.58957	0.0698490	0.18098630	3.0953202	20	1 25.6	20.7
511703 2015 CQ ₂₅	15.6	X	290.02124	235.42967	352.79784	15.70761	0.1564752	0.17388602	3.1790177	20	1 23.3	20.5
511704 2015 CW ₂₅	17.0	X	110.46338	103.88601	352.33330	9.48670	0.0910193	0.21244016	2.7817086	20	4 13.9	21.0
511705 2015 CO ₃₃	16.7	X	346.52973	214.44168	344.96193	14.54032	0.0834301	0.20314739	2.8659056	20	3 3.2	20.1
511706 2015 CE ₃₄	18.2	X	235.47110	87.33554	343.34911	6.44134	0.1880734	0.28607469	2.2811286	20	7 28.1	21.4
511707 2015 CF ₃₉	17.8	X	246.57511	313.74907	164.21773	7.13977	0.0279122	0.29093670	2.2556431	20	11 13.9	20.5
511708 2015 CF ₄₄	18.1	X	151.02456	239.43884	286.01224	0.61452	0.1298478	0.27004243	2.3705441	20	9 5.6	21.7
511709 2015 CG ₄₄	18.5	X	171.87842	59.36493	158.29658	4.48700	0.0925437	0.30434236	2.1889094	20	12 13.8	21.4
511710 2015 CO ₄₅	18.8	X	221.98651	32.14464	117.73985	3.07074	0.0810954	0.29835065	2.2181184	20	11 15.9	21.5
511711 2015 CF ₄₉	18.0	X	111.64315	131.71397	138.64431	5.47489	0.0255845	0.29855019	2.2171299	20	12 13.4	20.8
511712 2015 CG ₄₉	18.5	X	294.69304	317.56251	126.85580	4.58536	0.0972875	0.30451391	2.1880872	20	12 8.1	20.3
511713 2015 CA ₅₂	17.5	X	252.50066	147.58998	289.79261	4.61646	0.0544887	0.27185165	2.3600149	20	9 13.0	20.4
511714 2015 CC ₅₃	18.0	X	178.15696	19.80440	129.07352	4.34494	0.1534710	0.27044659	2.3681818	20	9 12.3	21.6
511715 2015 CE ₅₃	17.7	X	228.20444	87.03391	27.88642	4.93358	0.1530053	0.28246796	2.3005054	20	9 23.0	20.6
511716 2015 CH ₅₃	17.3	X	73.74407	160.74006	108.46204	3.91059	0.1112000	0.26703737	2.3882953	20	10 28.8	20.5
511717 2015 CX ₅₃	17.9	X	136.26641	233.23891	354.04946	6.99971	0.1746093	0.27809770	2.2454441	20	11 8.5	21.6
511718 2015 CX ₅₅	16.7	X	321.58797	32.16469	173.19073	2.77355	0.1122676	0.18153870	3.0890379	20	2 2.8	20.7
511719 2015 CG ₅₈	15.6	X	291.46892	127.33305	112.54017	13.88973	0.0384025	0.17305062	3.1892406	20	2 21.6	20.2
511720 2015 CM ₅₈	16.5	X	39.35102	181.13474	96.27973	14.80130	0.2585818	0.23519103	2.5992949	20	10 19.2	20.2
511721 2015 CJ ₆₃	18.7	X	290.03615	336.00970	107.66100	4.90992	0.0665433	0.30434060	2.1889178	20	11 30.0	20.7
511722 2015 CM ₆₃	17.5	X	85.39839	277.69243	14.58209	7.21056	0.1311666	0.29603496	2.2296706	20	12 15.5	20.8
511723 2015 CP ₆₃	17.8	X	128.79892	275.31414	356.80798	3.04659	0.1301831	0.30614732	2.1802974	20	—	—
511724 2015 CP ₆₄	16.7	X	262.83805	344.05025	328.19524	4.66742	0.1040610	0.22163207	2.7042550	20	3 29.8	20.7
511725 2015 DL ₂	17.4	X	245.38524	108.58991	289.72653	5.44806	0.1046795	0.27202172	2.3590311	20	7 3.6	20.4
511726 2015 DQ ₂₀	17.5	X	305.29080	279.87486	86.08501	5.05088	0.1459778	0.27161087	2.3614094	20	8 14.8	19.7
511727 2015 DJ ₂₃	17.0	X	294.11716	189.54708	147.95444	15.82920	0.1833283	0.24492562	2.5299576	20	6 5.1	20.4
511728 2015 DS ₃₀	17.3	X	218.84358	325.14341	40.36523	6.64820	0.0380413	0.22155604	2.7048737	20	4 24.4	21.0
511729 2015 DB ₃₁	18.2	X	253.09550	36.70474	49.21020	5.99365	0.1600817	0.28659067	2.2783897	20	9 25.8	20.8
511730 2015 DB ₃₃	17.6	X	14.45908	289.41559	47.34414	4.97246	0.1643034	0.28443059	2.2899106	20	11 20.8	19.9
511731 2015 DZ ₃₃	17.5	X	330.65541	213.47145	127.62120	5.19600	0.0262106	0.26576240	2.3959276	20	8 29.6	20.2
511732 2015 DF ₃₆	17.9	X	246.80150	92.18864	354.41454	10.12754	0.1633809	0.28585143	2.2823161	20	9 6.3	20.7
511733 2015 DJ ₄₂	17.6	X	44.07609	173.68447	90.08340	7.68495	0.0729872	0.25776702	2.4452193	20	9 6.7	20.7
511734 2015 DP ₄₈	18.4	X	221.22564	101.19974	52.02589	3.41381	0.0115796	0.29922654	2.2137877	20	11 29.7	20.8
511735 2015 DG ₅₃	16.9	X	250.89908	136.31377	148.59016	11.92320	0.0564807	0.18984280	2.9982877	20	2 21.7	21.1
511736 2015 DR ₅₅	17.6	X	224.63836	105.46867	324.82930	2.19028	0.1407441	0.27058112	2.3673968	20	7 18.3	21.0
511737 2015 DU ₈₁	18.4	X	112.30839	256.16350	112.74297	7.54616	0.1093160	0.29777133	2.2209944	20	12 12.4	21.7
511738 2015 DM ₈₃	18.7	X	244.99288	131.60870	4.86147	5.11697	0.0381746	0.30453128	2.1880040	20	12 6.8	21.3
511739 2015 DJ ₈₈	17.8	X	48.90294	103.28332	165.37464	6.33074	0.1086056	0.26821617	2.3812925	20	9 24.9	20.6
511740 2015 DT ₉₄	17.0	X	50.94731	135.05358	34.68143	8.91127	0.1377251	0.21672890	2.7448893	20	5 8.1	20.2
511741 2015 DU ₉₈	17.6	X	11.91984	160.76730	99.46425	2.82195	0.0739107	0.23322580	2.6138760	20	7 5.5	20.6
511742 2015 DK ₁₁₈	18.1	X	127.57060	185.20169	44.11224	7.71324	0.0828932	0.28247415	2.3004718	20	11 5.0	21.3
511743 2015 DE ₁₁₉	16.6	X	292.55097	284.48359	67.44751	5.13524	0.1953114	0.24687434	2.5166264	20	6 17.9	19.6
511744 2015 DF ₁₂₀	17.7	X	83.51499	231.95327	48.55566	7.24914	0.1191320	0.28216223	2.3021669	20	11 24.7	21.0
511745 2015 DH ₁₂₀	17.6	X	61.48772	235.33454	63.42809	7.66777	0.1304956	0.28064211	2.3104726	20	11 25.4	20.8
511746 2015 DK ₁₂₀	15.5	X	254.12632	124.14816	147.83204	19.62161	0.2090625	0.17148670	3.2086013	20	1 28.8	20.9
511747 2015 DP ₁₂₀	17.4	X	208.58869	73.47044	55.74540	7.10940	0.0803285	0.27848842	2.3223693	20	9 29.5	20.5
511748 2015 DD ₁₂₁	17.8	X	140.00666	164.05675	76.32754	7.50379	0.1552454	0.28982961	2.2613835	20	12 2.8	21.2
511749 2015 DG ₁₃₃	16.8	X	102.07107	121.10419	99.00338	14.35449	0.1253043	0.25856767	2.4401690	20	10 2.8	20.7
511750 2015 DW ₁₃₄	17.2	X	355.12806	205.93834	92.63582	13.36397	0.0602250	0.24274980	2.5450528	20	8 5.1	20.3
511751 2015 DC ₁₃₈	16.6	X	193.49393	334.66242	119.77930	22.75484	0.0129627	0.22936169	2.6431519	20	7 21.8	20.0
511752 2015 DQ ₁₄₄	18.3	X	258.58128	261.93905	177.70241	6.32806	0.1077463	0.29802268	2.2197454	20	9 23.8	20.6
511753 2015 DS ₁₄₅	16.5	X	316.44457	282.83864	279.01139	7.26990	0.0399496	0				

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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>
511761 2015 DS ₂₀₈	17.6	X	160.19719	86.80440	112.15452	5.54498	0.0987472	0.27324015	2.3520130	20	11 1.7	21.0
511762 2015 DC ₂₀₉	17.1	X	75.88406	72.59848	167.31450	14.62083	0.1538935	0.24395526	2.5366619	20	9 24.1	20.6
511763 2015 DP ₂₀₉	17.5	X	105.00727	178.96799	72.26894	11.68128	0.2258462	0.26279984	2.4139002	20	11 14.7	21.6
511764 2015 DB ₂₁₀	17.0	X	65.64067	73.14701	157.26149	15.26459	0.0111964	0.23661639	2.5888457	20	8 3.8	20.5
511765 2015 DC ₂₁₀	17.3	X	156.24984	103.12566	95.22161	9.50820	0.1068025	0.27016376	2.3698343	20	10 28.7	20.9
511766 2015 DZ ₂₁₀	17.8	X	234.61382	69.13340	93.07307	8.70185	0.0678623	0.29342162	2.2428900	20	12 21.2	20.2
511767 2015 DA ₂₁₂	17.2	X	124.81654	118.08433	125.00744	6.35420	0.0885695	0.27198596	2.3592378	20	11 19.9	20.6
511768 2015 DN ₂₁₂	17.8	X	107.00775	116.52617	145.40601	10.97965	0.0970430	0.26997133	2.3709603	20	11 25.7	21.4
511769 2015 DC ₂₁₃	18.2	X	176.08763	122.93485	105.57829	8.14087	0.0547973	0.29651201	2.2272785	20	—	—
511770 2015 DP ₂₁₃	15.8	X	243.32496	261.05818	38.97127	32.54531	0.1152235	0.16942326	3.2346008	20	3 19.4	21.3
511771 2015 DZ ₂₁₆	17.9	X	135.94424	195.79888	37.49580	3.58402	0.1281119	0.28215723	2.3021941	20	11 18.5	21.2
511772 2015 DB ₂₂₈	16.5	X	164.10928	89.78990	34.69791	22.41336	0.0412852	0.23681005	2.5874341	20	8 2.3	20.7
511773 2015 DO ₂₂₈	17.1	X	313.78608	144.42250	154.47190	8.22583	0.1940811	0.22365897	2.6878921	20	5 10.8	20.4
511774 2015 DR ₂₂₈	18.5	X	78.87509	126.60962	162.31064	0.80990	0.0410911	0.29573093	2.2311985	20	11 26.5	21.3
511775 2015 DT ₂₂₉	15.8	X	25.89822	146.53348	172.89454	29.57542	0.1839729	0.24167802	2.5525717	20	11 11.0	19.5
511776 2015 DG ₂₃₀	18.3	X	263.40533	199.68523	185.25406	2.89626	0.1894057	0.27840215	2.3228491	20	6 25.5	21.3
511777 2015 EZ	20.3	X	47.25402	65.11798	185.44358	13.21816	0.2838447	0.61823864	1.3646835	20	11 18.8	21.7
511778 2015 EK ₃	16.7	X	338.69224	89.47993	73.20560	2.04912	0.1402274	0.17887262	3.1196567	20	1 2.5	20.5
511779 2015 EF ₄	18.2	X	98.97559	240.82237	346.03545	1.30492	0.1422196	0.26633660	2.3924828	20	10 2.5	21.6
511780 2015 EM ₈	17.2	X	27.54101	224.04211	334.89021	3.64622	0.0577408	0.22149170	2.7053974	20	5 1.6	20.5
511781 2015 EL ₁₂	18.2	X	108.10139	132.73330	81.88826	6.28293	0.1139365	0.27269368	2.3551542	20	9 28.7	21.6
511782 2015 EN ₂₀	18.1	X	127.47936	289.33411	332.36912	3.67501	0.1290940	0.30199944	2.2002159	20	12 20.4	21.3
511783 2015 EU ₂₀	18.3	X	144.25868	249.81186	1.74173	2.23732	0.1360712	0.30486106	2.1864258	20	12 24.5	21.5
511784 2015 EK ₂₁	16.9	X	304.93170	118.77375	172.56489	6.66239	0.1285566	0.22415044	2.6839617	20	4 25.8	20.2
511785 2015 EE ₃₄	18.0	X	91.96698	215.89874	9.46985	1.28324	0.1405288	0.26151799	2.4211817	20	9 22.7	21.4
511786 2015 EN ₃₄	16.8	X	313.54154	45.67748	163.84737	4.09074	0.1300336	0.18249604	3.0782254	20	1 25.6	20.9
511787 2015 EF ₆₃	17.7	X	136.07988	215.46636	39.97331	8.33111	0.2725962	0.28473695	2.2882677	20	12 13.9	21.8
511788 2015 EV ₆₄	16.7	X	9.00502	141.16085	120.24274	9.63759	0.2378981	0.21945305	2.7221265	20	7 14.3	18.9
511789 2015 EZ ₇₄	16.1	X	254.49731	359.84497	10.52100	12.12847	0.1054124	0.22233429	2.6985579	20	6 2.6	20.1
511790 2015 FC ₁	17.6	X	110.51647	214.73333	47.06439	7.32173	0.1025584	0.30231332	2.1986927	20	12 1.9	20.6
511791 2015 FL ₁	16.2	X	344.78113	259.79044	10.95736	12.77905	0.1212931	0.24078819	2.5588565	20	5 29.7	19.2
511792 2015 FQ ₁₀	16.3	X	275.34765	308.90102	60.38224	13.83099	0.2040513	0.24255287	2.5464302	20	6 14.9	19.7
511793 2015 FQ ₁₂	17.2	X	297.35969	214.18046	119.28169	10.40023	0.0811839	0.23077546	2.6323460	20	6 18.3	20.6
511794 2015 FQ ₁₃	16.9	X	346.39581	213.02688	52.46048	13.73379	0.1649275	0.21415911	2.7668037	20	5 24.6	19.7
511795 2015 FR ₃₅	18.5	X	273.74558	206.92716	253.14903	6.09773	0.2585274	0.30409551	2.1900938	20	10 25.9	20.2
511796 2015 FM ₃₆	17.4	X	190.07105	87.26254	107.16496	7.02038	0.1060716	0.28795261	2.2712000	20	11 30.1	20.4
511797 2015 FD ₃₈	16.1	X	43.65562	115.64889	25.91135	15.46203	0.0243833	0.18222684	3.0812563	20	3 18.2	20.4
511798 2015 FF ₃₈	16.8	X	213.85892	40.14286	24.59749	5.43480	0.1377915	0.23584078	2.5945186	20	6 27.8	20.9
511799 2015 FC ₄₁	16.5	X	142.19076	123.86915	23.99680	15.19145	0.0495447	0.23714123	2.5850245	20	8 4.8	20.5
511800 2015 FD ₇₂	18.4	X	93.30648	102.32603	171.23634	4.74492	0.0967837	0.27305387	2.3530826	20	11 24.6	21.8
511801 2015 FS ₇₂	18.3	X	195.04819	15.77158	177.76616	5.32170	0.0646547	0.29046441	2.2580875	20	12 10.2	21.1
511802 2015 FW ₇₃	18.5	X	167.79293	218.27590	349.89042	2.28041	0.1397032	0.28201141	2.3029876	20	11 17.5	21.8
511803 2015 FK ₇₅	17.5	X	286.07141	69.77093	44.70495	6.47931	0.0609439	0.29712030	2.2242376	20	—	—
511804 2015 FB ₇₆	18.1	X	161.96966	199.77264	29.59651	7.53674	0.0697853	0.28620298	2.2804468	20	12 14.5	21.3
511805 2015 FQ ₈₂	16.7	X	25.68964	29.44581	260.59799	9.77142	0.0925181	0.26450041	2.4035426	20	9 10.2	19.7
511806 2015 FL ₁₀₇	18.1	X	137.21085	358.75201	253.49327	4.33929	0.1545253	0.28804156	2.2707324	20	12 14.6	21.6
511807 2015 FO ₁₀₇	17.4	X	97.44726	289.89405	319.00654	5.50598	0.1228453	0.26689983	2.3891157	20	10 25.6	21.0
511808 2015 FH ₁₂₀	18.6	X	298.77179	15.42601	71.46490	11.08970	0.6096365	0.33846239	2.0392123	20	—	—
511809 2015 FG ₁₂₁	17.5	X	94.51998	159.87441	74.29387	3.55466	0.1381330	0.26613420	2.3936956	20	10 8.9	20.9
511810 2015 FS ₁₂₃	18.1	X	172.07611	76.01927	143.86793	5.48927	0.1371116	0.29370623	2.2414408	20	12 10.7	21.3
511811 2015 FF ₁₃₇	17.0	X	314.03677	212.20566	146.00137	4.56678	0.1826474	0.25199057	2.4824463	20	8 10.3	19.0
511812 2015 FH ₁₃₇	17.7	X	82.60555	143.66795	128.75411	2.92383	0.1972664	0.26624287	2.3930442	20	11 18.8	21.3
511813 2015 FD ₁₃₉	18.2	X	155.35536	68.10051	108.04684	3.17521	0.1358360	0.26702767	2.3883531	20	9 25.5	21.9
511814 2015 FN ₁₄₂	17.8	X	112.23040	247.82459	17.69558	4.97820	0.2305403	0.27615363	2.3354409	20	12 7.1	21.7
511815 2015 FR ₁₄₂	18.1	X	164.78078	35.42482	190.14187	7.36835	0.0835499	0.29264258	2.2468687	20	12 14.2	21.2
511816 2015 FU ₁₄₉	18.3	X	140.46202	86.75340	145.30571	5.44082	0.0761368	0.28246665	2.3005125	20	11 24.4	21.5
511817 2015 FY ₁₄₉	17.9	X	236.68017	347.18597	85.88059	4.43230	0.1537037	0.25980794	2.4323969	20	8 3.8	21.2
511818 2015 FQ ₁₅₅	17.9	X	266.78439	67.46279	40.14401	8.76701	0.1227344	0.29263866	2.2468888	20	11 13.8	20.1
511819 2015 FB ₁₅₈	18.2	X	173.83557	137.15694	66.50992	6.38203	0.0688679	0.28619980	2.2804637	20	11 25.6	21.3
511820 2015 FN ₁₆₃	17.8	X	119.71661	180.83384	57.78915	7.00688	0.0790341	0.27206587	2.3587758	20	11 7.1	20.9
511821 2015 FC ₁₆₆	17.8	X	185.56835	79.81021	42.88671	4.96402	0.1722749	0.25932089	2.4354416	20	8 15.4	21.7
511822 2015 FT ₁₆₈	17.0	X	224.49306	226.00916	173.40475	13.32196	0.1073589	0.23222174	2.6214050	20	6 9.6	21.2
511823 2015 FV ₁₇₃	17.7	X	170.18802	47.82763	124.03471	7.94447	0.0442283	0.26702090	2.3883935	20	10 11.8	21.0
511824 2015 FL ₁₇₄	17.8	X	241.31143	39.30042	112.79734	7.79147	0.0428772	0.29479600	2.2359135	20	12 21.2	20.3
511825 2015 FJ ₁₈₃	18.0	X	194.78329	128.24620	39.48934	4.55413	0.0951923	0.28594117	2.2818386	20	10 30.8	20.9
511826 2015 FS ₂₁₂	16.1	X	19.57989	69.84964	78.98873	11.75493	0.0336213	0.17559578	3.1583481	20	2 25.4	20.6
511827 2015 FL ₂₄₉	17.5	X	61.70140	170.24433	144.19781	6.43213	0.1431375	0.28142347	2.3061940	20	12 17.9	20.7
511828 2015 FD ₂₈₈	16.5	X	150.41622	318.70893	152.69998	23.90000	0.0732858	0.23772635	2.5807811	20	6 23.7	20.7
511829 2015 FB ₂₉₄	16.9	X	51.72032	62.97436	139.73783	9.15861	0.1403931	0.21538486	2.7562965	20	6 26.5	20.4
511830 2015 FR ₃₀₂	18.1	X	229.61210	57.94808	120.61138	8.55897	0.0992967	0.29469067	2.2364462	20	—	—
511831 2015 FU ₃₀₂	16.9	X	29.07961	162.76292	118.09035	9.91260	0.1857846	0.22840582	2.6505211	20	9 21.7	20.1
511832 2015 FA ₃₀₃	16.5	X	337.76243	115.79811	130.67500	12.24826	0.1009608	0.18831807	3.0144498	20	4 25.4	20.5
511833 2015 FM ₃₀₃	17.3	X	178.27586	55.85410	131.11937	12.98806</						

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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>
511841 2015 FT ₃₂₃	17.9	X	78.82545	236.83373	65.83352	11.94939	0.0476377	0.28655805	2.2785627	20	12 12.6	20.8
511842 2015 FX ₃₂₄	17.8	X	136.87877	56.59110	133.26716	11.10177	0.1913904	0.26067390	2.4270070	20	9 27.6	21.9
511843 2015 FC ₃₂₆	18.0	X	188.79065	124.54154	74.36038	7.41359	0.0549190	0.29191515	2.2505999	20	12 10.4	20.7
511844 2015 FH ₃₂₆	18.1	X	203.55939	68.37501	81.45892	6.72124	0.2179456	0.28267583	2.2993775	20	10 7.1	21.7
511845 2015 FA ₃₃₀	16.8	X	177.84126	39.85272	36.23495	22.40156	0.0445575	0.22324712	2.6911969	20	5 31.2	20.9
511846 2015 FZ ₃₃₂	16.5	X	37.78051	241.74910	64.32492	15.26250	0.1589031	0.25692808	2.4505393	20	11 8.0	19.6
511847 2015 FR ₃₃₄	17.1	X	107.31071	157.23241	109.67960	7.49842	0.1724873	0.26577224	2.3958685	20	12 3.1	20.9
511848 2015 FD ₃₃₅	16.8	X	99.61481	72.27791	141.08011	6.43264	0.1669147	0.24033132	2.5620984	20	9 16.8	20.7
511849 2015 FW ₃₃₅	17.6	X	121.72528	127.63197	108.48963	3.55260	0.1322389	0.26063045	2.4272766	20	11 6.5	21.4
511850 2015 FB ₃₃₆	16.6	X	63.40426	0.97123	208.36635	16.14231	0.0955064	0.21549241	2.7553794	20	7 12.1	20.6
511851 2015 FZ ₃₃₆	17.1	X	73.33329	186.05037	76.60025	16.21183	0.1366478	0.24469787	2.5315272	20	10 24.9	20.9
511852 2015 FK ₃₄₀	16.5	X	75.51548	316.02079	259.92620	11.28072	0.0782597	0.23188675	2.6239291	20	8 4.5	20.2
511853 2015 FV ₃₄₀	16.5	X	145.72953	148.93126	4.22810	13.15052	0.1010945	0.24080031	2.5587706	20	8 17.2	20.5
511854 2015 FE ₃₄₇	15.9	X	136.30703	241.56850	131.66633	15.89127	0.1777307	0.17221220	3.1995834	20	2 18.3	20.9
511855 2015 FV ₃₄₇	16.1	X	103.45225	337.83725	109.62016	12.73290	0.0238914	0.19340201	2.9613886	20	3 26.3	20.4
511856 2015 FO ₃₅₄	16.3	X	250.11692	271.70805	39.69758	1.54084	0.2077549	0.17597528	3.1538058	20	3 11.3	21.5
511857 2015 FK ₃₆₃	18.3	X	251.05435	142.06273	334.41376	7.47012	0.0201936	0.30122310	2.2039946	20	11 17.0	20.9
511858 2015 FW ₃₉₀	18.0	X	176.34986	276.39312	293.01144	4.72311	0.1070518	0.29144892	2.2529994	20	12 2.9	21.1
511859 2015 FA ₃₉₇	17.0	X	114.54328	133.84101	64.45230	5.21546	0.1238106	0.24022762	2.5628357	20	9 10.5	20.8
511860 2015 FB ₃₉₇	17.5	X	121.23041	280.08749	314.16582	5.74598	0.0868498	0.26138688	2.4225915	20	10 29.2	21.0
511861 2015 GT ₁	17.8	X	199.66892	49.04770	44.78534	5.26428	0.2006633	0.26814373	2.3817213	20	7 20.1	21.6
511862 2015 GY ₄	17.0	X	25.18235	13.56445	298.13496	11.67687	0.1306653	0.26603372	2.3942983	20	10 16.3	20.1
511863 2015 GS ₁₄	17.6	X	34.61147	44.98663	197.87384	3.28374	0.1286990	0.23165396	2.6256866	20	7 24.0	20.6
511864 2015 GJ ₁₆	18.0	X	59.30759	260.51986	30.88291	2.10628	0.2306185	0.26197079	2.4189904	20	11 21.4	21.5
511865 2015 GE ₂₀	18.3	X	159.68669	194.54448	30.82930	6.63670	0.1252109	0.28920079	2.2644603	20	12 4.7	21.7
511866 2015 GU ₂₂	17.0	X	44.04881	85.53314	132.63055	13.27964	0.0187757	0.21722842	2.7406798	20	6 20.2	20.8
511867 2015 GY ₂₂	17.3	X	64.07236	65.63113	158.14314	14.13664	0.1175183	0.22951334	2.6419875	20	8 8.7	20.9
511868 2015 GN ₂₃	17.0	X	62.94334	82.04157	148.54124	13.35455	0.1168739	0.23067679	2.6330966	20	8 17.6	20.5
511869 2015 GP ₂₄	17.1	X	57.60658	211.90523	91.70215	8.49987	0.1237197	0.26759079	2.3850013	20	11 25.1	20.4
511870 2015 GS ₂₇	17.9	X	63.68196	213.15332	77.91543	3.79710	0.1805774	0.26005662	2.4308460	20	11 20.3	21.3
511871 2015 GM ₂₈	18.2	X	110.10645	2.68893	265.43220	2.29980	0.1684108	0.28213318	2.3023249	20	12 8.5	21.6
511872 2015 GQ ₂₈	18.1	X	107.23575	0.65811	252.81656	2.80104	0.1842541	0.27196502	2.3593589	20	11 16.7	21.9
511873 2015 GQ ₂₉	18.2	X	94.27933	174.61769	84.67400	1.59822	0.1913116	0.26715929	2.3875686	20	11 12.5	21.9
511874 2015 GP ₂₉	17.9	X	70.88156	213.41155	60.67478	1.22818	0.1452557	0.26289270	2.4133318	20	11 2.6	21.2
511875 2015 GK ₃₁	18.1	X	194.18250	104.08903	53.32818	2.01403	0.1221631	0.27875050	2.3209134	20	10 12.8	21.3
511876 2015 GT ₃₃	17.0	X	300.36938	289.78979	82.67411	14.54913	0.1450646	0.24777422	2.5105293	20	8 15.3	20.0
511877 2015 GB ₃₅	17.8	X	191.69562	9.08678	132.48007	2.96074	0.1455560	0.26746123	2.3857714	20	9 16.2	21.4
511878 2015 GQ ₃₅	18.6	X	226.40723	15.88443	146.56176	2.89239	0.1124245	0.29378021	2.2410645	20	12 3.1	21.2
511879 2015 GP ₃₈	17.2	X	54.74302	203.33475	122.63276	7.62664	0.1390006	0.28222575	2.3018214	20	12 24.6	20.4
511880 2015 GJ ₃₉	17.7	X	82.63332	167.46174	93.44908	7.18735	0.1512116	0.26151382	2.4218075	20	11 1.5	21.3
511881 2015 GP ₃₉	18.1	X	125.54157	145.58647	106.02112	6.71737	0.1417895	0.28019268	2.3129426	20	12 2.5	21.6
511882 2015 GV ₄₂	18.4	X	272.06957	22.19940	91.17259	5.62004	0.1010222	0.29550637	2.2323288	20	12 6.9	20.6
511883 2015 GG ₄₃	17.7	X	313.95629	349.75164	76.87393	7.17587	0.0841513	0.29017915	2.2595671	20	12 10.5	19.7
511884 2015 GV ₄₄	17.9	X	287.08204	343.10548	108.11100	7.09953	0.0513240	0.28965142	2.2623108	20	12 2.9	20.3
511885 2015 GM ₄₅	17.2	X	293.19575	216.91206	123.76191	7.08671	0.1018108	0.22521408	2.6755045	20	6 18.5	20.7
511886 2015 GP ₄₅	16.6	X	300.35788	228.91310	66.02020	10.72945	0.0776546	0.20425422	2.8554529	20	5 3.3	20.3
511887 2015 GV ₄₅	16.3	X	253.74789	134.43717	181.56652	16.86527	0.2326586	0.18166398	3.0876175	20	3 16.2	21.3
511888 2015 GK ₅₁	16.1	X	216.66033	211.01394	230.24230	25.91646	0.0990316	0.23488087	2.6015826	20	7 16.9	20.5
511889 2015 HT ₆	17.2	X	35.65181	14.04475	235.54878	12.09187	0.1544287	0.23398010	2.6082553	20	8 4.5	20.5
511890 2015 HF ₇	17.3	X	343.49422	246.93282	101.16523	6.31395	0.1144568	0.25286828	2.4766985	20	10 2.8	19.9
511891 2015 HN ₈	17.7	X	90.41236	195.29086	58.85863	6.34840	0.1313304	0.26936938	2.3744912	20	10 29.9	21.0
511892 2015 HL ₁₄	17.9	X	142.48581	39.81724	158.68441	5.15847	0.1084064	0.27216184	2.3582213	20	10 12.0	21.3
511893 2015 HJ ₁₅	17.3	X	157.01861	115.59684	88.72361	5.27713	0.1959697	0.27113868	2.3641502	20	11 1.0	21.1
511894 2015 HN ₁₅	17.2	X	6.65588	214.39780	103.74808	7.86025	0.1298004	0.24197348	2.5504934	20	10 9.8	19.9
511895 2015 HP ₁₅	17.0	X	28.70242	69.37424	184.62067	13.38637	0.1313385	0.22582847	2.6706497	20	7 27.9	20.4
511896 2015 HV ₁₅	17.8	X	174.76573	26.56913	179.54763	5.92733	0.0811310	0.29414543	2.2392091	20	12 1.3	20.8
511897 2015 HG ₂₆	16.8	X	303.70389	102.05711	159.61804	2.85579	0.0336028	0.18967626	3.0000424	20	3 31.4	21.0
511898 2015 HV ₂₇	16.6	X	336.36574	147.55514	149.61344	3.73201	0.0866956	0.22133106	2.7067063	20	6 27.8	19.8
511899 2015 HK ₂₈	17.2	X	151.27445	82.65514	44.78982	15.90804	0.1020035	0.23671060	2.5881587	20	7 17.5	21.4
511900 2015 HE ₃₀	16.6	X	288.04067	243.86507	37.48104	17.53900	0.2210529	0.18090474	3.0962505	20	3 18.4	21.3
511901 2015 HE ₃₄	17.6	X	139.35208	107.97040	79.29014	3.32248	0.1467148	0.25776064	2.4452597	20	9 23.3	21.4
511902 2015 HH ₃₉	17.8	X	142.68047	162.33970	74.98915	8.97890	0.2099820	0.27706847	2.3302972	20	11 28.4	21.5
511903 2015 HK ₄₂	15.5	X	273.49857	176.06099	84.35354	28.46733	0.1127644	0.17001010	3.2271530	20	2 21.1	20.8
511904 2015 HS ₆₀	16.5	X	38.54147	188.73296	115.28862	15.71346	0.1666970	0.23864852	2.5741284	20	11 7.6	20.2
511905 2015 HG ₆₂	17.1	X	97.43823	173.88837	93.07581	7.06999	0.1020871	0.26304030	2.4124289	20	11 19.6	20.5
511906 2015 HA ₆₅	18.2	X	194.11115	266.11379	226.81283	1.70275	0.1391375	0.26249923	2.4157428	20	9 5.5	21.9
511907 2015 HJ ₆₆	17.4	X	113.26959	321.34584	278.50229	1.86007	0.1360262	0.26461293	2.4028611	20	11 1.7	21.0
511908 2015 HU ₆₇	17.7	X	31.83484	247.64989	42.22417	4.73194	0.2735004	0.23586985	2.5943054	20	10 20.6	20.7
511909 2015 HQ ₇₃	18.0	X	83.92029	114.98245	159.70322	2.54136	0.1735680	0.26178807	2.4201158	20	11 20.1	21.6
511910 2015 HV ₇₉	17.7	X	173.03371	78.00137	27.57781	4.17139	0.1695856	0.23633640	2.5908900	20	7 9.9	22.0
511911 2015 HX ₈₅	18.0	X	107.38595	4.54676	192.87931	9.89499	0.1353414	0.24340146	2.5405082	20	8 28.7	22.0
511912 2015 HR ₈₇	16.2	X	253.11070	259.63711	66.73598	9.37939	0.0945722	0.18844356	3.0131114	20	4 14.2	20.7
511913 2015 HA ₈₈	17.2	X	180.01228	25.70261	66.87200	6.198						

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>
511921 2015 HZ ₁₁₀	16.6	X	281.42773	205.58305	151.08084	15.77745	0.1646610	0.21786737	2.7353186	20	6 14.8	20.6
511922 2015 HT ₁₂₃	18.6	X	137.89313	54.06289	179.58100	1.69407	0.1436338	0.27434096	2.3457170	20	11 20.2	22.1
511923 2015 HM ₁₃₄	16.7	X	272.48296	151.88676	141.75438	1.94667	0.1469332	0.17669735	3.1452079	20	3 18.2	21.4
511924 2015 HK ₁₄₁	17.8	X	31.08264	144.00987	151.43590	2.40150	0.0950954	0.24646226	2.5194308	20	9 30.3	20.7
511925 2015 HU ₁₅₀	15.7	X	232.68970	339.04935	30.18042	11.10677	0.1444613	0.19740013	2.9212659	20	5 5.1	20.3
511926 2015 HG ₁₅₂	17.9	X	232.89829	273.46567	225.27508	3.49293	0.1616917	0.28480492	2.2879036	20	10 29.3	20.5
511927 2015 HM ₁₅₂	17.0	X	18.94745	7.25827	285.88020	6.10870	0.1630358	0.23517148	2.5994389	20	9 11.3	19.9
511928 2015 HG ₁₅₅	17.5	X	91.52675	318.18186	298.29978	5.69213	0.0771910	0.26785833	2.3834128	20	10 24.8	20.9
511929 2015 HG ₁₆₁	18.0	X	179.73992	162.53541	11.37931	1.86452	0.1141462	0.27200044	2.3591541	20	10 17.5	21.5
511930 2015 HD ₁₆₄	17.3	X	18.31650	251.69830	60.15226	11.64883	0.1451366	0.24511583	2.5286486	20	10 15.3	20.3
511931 2015 HH ₁₆₄	16.9	X	195.53811	346.78690	63.59037	6.81221	0.0781671	0.20933626	2.8091380	20	5 23.3	21.0
511932 2015 HB ₁₆₆	17.2	X	71.84533	19.01662	212.94810	13.39536	0.1971182	0.23575299	2.5951626	20	9 8.2	21.1
511933 2015 HT ₁₆₆	17.1	X	323.10279	306.19979	56.18369	15.90625	0.1466932	0.24327517	2.5413873	20	9 19.0	20.0
511934 2015 HA ₁₆₇	17.6	X	115.69461	167.42588	75.67975	7.96778	0.0894350	0.26545949	2.3977499	20	11 8.8	21.0
511935 2015 HE ₁₆₉	18.3	X	137.76788	199.55402	40.65154	2.07995	0.1438209	0.27616675	2.3353669	20	11 27.9	21.7
511936 2015 HQ ₁₆₉	18.0	X	227.88430	170.75461	1.56778	4.31118	0.1017000	0.29774823	2.2211093	20	12 21.3	20.5
511937 2015 HS ₁₇₀	15.7	X	322.54950	178.42333	46.32615	29.66046	0.1633164	0.17372933	3.1809288	20	3 13.4	20.4
511938 2015 HT ₁₇₀	17.6	X	114.13183	191.21157	52.28637	6.07185	0.1860064	0.26241835	2.4162391	20	11 9.6	21.4
511939 2015 HE ₁₇₂	16.9	X	110.62905	337.07444	275.44981	9.80967	0.1968265	0.27000909	2.3707392	20	11 17.5	20.8
511940 2015 HM ₁₇₂	17.9	X	202.71990	223.08635	338.71987	2.37758	0.0916540	0.30164448	2.2019416	20	12 30.1	20.4
511941 2015 HE ₁₇₃	17.3	X	233.10267	90.06753	21.73513	7.98923	0.0562074	0.27166817	2.3610773	20	10 7.3	20.3
511942 2015 HQ ₁₇₃	18.0	X	147.90327	195.66910	31.92224	6.31611	0.1392903	0.27944691	2.3170559	20	11 21.7	21.5
511943 2015 HX ₁₇₃	17.2	X	112.67958	133.88105	109.87456	7.13490	0.0753269	0.26526738	2.3989074	20	11 6.6	20.7
511944 2015 HG ₁₇₄	16.9	X	80.52196	113.76482	90.47393	15.65345	0.1316477	0.22933234	2.6433775	20	8 10.8	20.8
511945 2015 HD ₁₇₅	17.3	X	98.81607	200.76979	43.89085	5.32822	0.1691663	0.25994323	2.4315528	20	10 27.1	21.1
511946 2015 HH ₁₈₅	17.2	X	25.76056	104.38618	147.35566	5.09384	0.0465972	0.21550772	2.7552488	20	7 11.4	20.6
511947 2015 HJ ₁₈₅	17.5	X	352.59699	269.77814	61.77482	14.64598	0.1340999	0.23912266	2.5707246	20	9 29.2	20.5
511948 2015 HN ₁₈₅	17.6	X	47.95334	30.32258	257.20036	5.27388	0.1228224	0.25668215	2.4521043	20	10 16.9	20.9
511949 2015 HO ₁₈₅	17.4	X	100.57065	247.50576	335.61550	3.99479	0.0688734	0.24671769	2.5176916	20	9 19.1	20.7
511950 2015 JW ₅	17.1	X	21.78108	305.78680	349.56914	6.54196	0.1975990	0.23117491	2.6293128	20	9 26.7	20.0
511951 2015 JB ₁₁	17.3	X	108.79225	6.65358	133.38320	4.35690	0.0199083	0.22079658	2.7110726	20	6 2.5	20.9
511952 2015 JB ₁₂	17.1	X	349.94622	236.18868	38.36556	3.45126	0.0443770	0.21041100	2.7995642	20	6 18.9	20.7
511953 2015 KV ₁	16.3	X	336.70063	37.20201	247.98869	13.72359	0.0865915	0.22848542	2.6499055	20	6 11.1	19.3
511954 2015 KD ₁	17.8	X	142.78880	265.86726	311.34311	10.38581	0.1044492	0.28116334	2.3076163	20	10 31.9	21.4
511955 2015 KC ₂	16.8	X	4.41892	26.29532	257.88111	10.39667	0.0652304	0.23802579	2.5786162	20	7 24.5	20.0
511956 2015 KG ₃	17.9	X	257.03758	282.84523	224.32479	4.50173	0.1666195	0.29962478	2.2118257	20	12 22.6	19.8
511957 2015 KQ ₇	17.6	X	236.26722	249.08348	250.97284	7.09281	0.1402160	0.28279903	2.2987096	20	11 6.9	20.5
511958 2015 KC ₉	16.9	X	51.73299	186.91346	93.04106	16.25452	0.1013793	0.24305802	2.5429007	20	10 17.3	20.6
511959 2015 KU ₉	16.4	X	342.54964	228.22455	135.28697	11.55868	0.2202857	0.24092997	2.5578525	20	10 31.1	18.8
511960 2015 KW ₉	16.6	X	303.19560	193.98363	99.14063	17.44455	0.0871571	0.19029045	2.9935836	20	5 8.9	20.9
511961 2015 KK ₁₂	16.2	X	198.17140	338.57590	114.08207	13.67506	0.0842967	0.22441502	2.6818518	20	7 20.4	20.0
511962 2015 KB ₁₃	17.3	X	124.83820	16.26363	148.96659	11.91713	0.0618070	0.22450081	2.6811685	20	7 30.4	21.1
511963 2015 KD ₁₄	17.1	X	20.07725	182.94363	106.19482	13.67306	0.2523596	0.22163150	2.7042597	20	9 30.9	20.3
511964 2015 KM ₁₄	16.4	X	325.54150	147.54063	137.96056	10.92257	0.0708619	0.19638395	2.9313346	20	5 28.8	20.4
511965 2015 KN ₁₇	16.8	X	32.24750	165.92161	115.20765	15.33870	0.1300148	0.23017701	2.6369066	20	9 20.5	20.3
511966 2015 KY ₁₇	16.7	X	75.43433	37.55148	172.07989	9.38540	0.0684483	0.21852955	2.7297902	20	7 26.9	20.5
511967 2015 KC ₂₄	16.5	X	208.05127	179.85064	255.96677	5.07341	0.0439130	0.21682943	2.7440408	20	7 11.6	20.3
511968 2015 KU ₂₆	16.3	X	317.42874	235.38207	101.20724	12.87916	0.0862666	0.22307888	2.6925498	20	7 23.6	19.5
511969 2015 KF ₃₈	16.3	X	286.62198	220.79533	79.56574	23.24541	0.1312268	0.18053583	3.1004670	20	4 24.6	21.0
511970 2015 KY ₄₀	16.0	X	198.86427	324.04795	70.99977	16.47199	0.0669742	0.18979359	2.9988059	20	5 11.4	20.5
511971 2015 KE ₄₂	17.5	X	53.86186	59.89507	220.00517	4.34940	0.1380292	0.24062155	2.5600378	20	10 15.2	20.9
511972 2015 KY ₄₃	18.1	X	170.36194	264.31164	305.18640	0.69870	0.1288525	0.27437401	2.3455286	20	11 21.7	21.5
511973 2015 KO ₄₇	16.4	X	352.79235	212.44481	92.59181	7.67076	0.0141752	0.22428703	2.6828719	20	8 6.9	19.9
511974 2015 KY ₅₁	17.4	X	47.84759	198.86724	76.57520	3.19432	0.1738254	0.23255244	2.6189193	20	10 7.8	20.9
511975 2015 KH ₅₈	16.3	X	281.36899	248.43214	88.41828	14.80173	0.0949843	0.18100728	3.0950810	20	5 29.9	20.7
511976 2015 KN ₅₈	17.4	X	335.28226	193.20101	194.39577	6.89860	0.0578516	0.26981217	2.3718927	20	11 13.3	20.0
511977 2015 KW ₆₀	18.0	X	112.00590	180.92529	59.07854	2.07580	0.1493172	0.26099730	2.4250017	20	11 1.7	21.7
511978 2015 KY ₆₄	17.7	X	154.17240	37.01290	115.25282	7.32688	0.1284747	0.24499941	2.5294986	20	8 22.2	21.6
511979 2015 KS ₆₇	17.3	X	29.38879	221.49007	76.61542	14.46482	0.1426183	0.24005020	2.5640983	20	10 15.1	20.7
511980 2015 KE ₇₅	16.9	X	344.50503	150.09200	198.86822	12.01903	0.2245304	0.23525682	2.5988102	20	10 4.4	19.0
511981 2015 KK ₇₅	16.8	X	295.29416	236.94184	140.05055	8.28069	0.2080633	0.22858659	2.6491236	20	7 25.6	19.8
511982 2015 KO ₈₂	16.0	X	224.86303	315.42888	86.35057	26.68498	0.1383470	0.21137412	2.7910536	20	6 10.3	20.2
511983 2015 KO ₈₆	16.9	X	162.84083	34.83742	93.89108	15.41075	0.0821444	0.23360959	2.6110124	20	7 30.3	20.9
511984 2015 KJ ₈₈	16.1	X	303.73481	162.98833	117.36783	11.69192	0.2648765	0.17938621	3.1136994	20	3 26.4	20.5
511985 2015 KZ ₉₂	16.2	X	21.04170	84.46544	212.52116	12.55385	0.1036386	0.23244014	2.6197628	20	9 10.8	19.5
511986 2015 KV ₉₃	17.8	X	184.23440	69.35719	86.26889	12.20546	0.1645463	0.25991661	2.4317188	20	9 30.7	21.8
511987 2015 KD ₉₄	16.8	X	343.72372	251.06890	85.85458	15.48456	0.1387542	0.23164265	2.6257721	20	9 18.8	19.9
511988 2015 KC ₁₀₂	17.4	X	112.06521	137.63568	79.53643	15.89625	0.0404835	0.24404727	2.5360243	20	10 2.7	21.2
511989 2015 KN ₁₀₄	16.5	X	311.00728	149.53125	112.33256	11.52328	0.1080348	0.17738544	3.1370690	20	4 5.9	20.9
511990 2015 KL ₁₂₃	17.3	X	62.18496	187.95979	117.50799	7.23447	0.1159320	0.26585281	2.3953844	20	12 1.5	20.6
511991 2015 KE ₁₂₅	18.4	X	139.36169	49.02159	186.48883	2.13958	0.1461820	0.27436327	2.3455898	20	11 23.9	22.0
511992 2015 KS ₁₂₅	18.3	X	192.05242	167.98205	74.55730	6.80315	0.1160576	0.30574764	2.1821971	20	—	—
511993 2015 KK ₁₂₈	17.4	X	301.06793	356.1335								