ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
484001 2006 DD_{3}	17.9	X	319.80682	355.07981	157.05681	4.97307	0.1701725	0.26885443	2.3775222	20	—	—
484002 2006 DD_{5}	16.9	X	204.45229	35.32235	157.75810	6.11429	0.0638150	0.18288042	3.0739107	20	11 27.9	21.4
484003 2006 DS_{11}	16.9	X	203.15303	21.09470	149.34124	1.56736	0.1243612	0.18325130	3.0697618	20	10 24.3	21.6
484004 2006 DW_{19}	18.7	X	290.45562	135.24024	19.24311	1.88943	0.1173230	0.26338231	2.4103400	20	—	—
484005 2006 DW_{25}	18.2	X	315.47871	0.82575	155.89442	5.20944	0.1672209	0.26731485	2.3866422	20	—	—
484006 2006 DU_{28}	16.5	X	155.66757	236.45264	0.79087	9.75094	0.1490143	0.17764909	3.1339644	20	11 22.3	21.7
484007 2006 DW_{37}	16.4	X	217.23499	114.94689	1.18360	13.51266	0.2483791	0.17327461	3.1864914	20	8 26.4	21.8
484008 2006 DG_{38}	16.4	X	175.71137	39.49845	149.15613	18.05829	0.1735393	0.17784620	3.1316483	20	10 21.5	21.8
484009 2006 DY_{44}	15.9	X	20.77592	318.25336	4.23345	8.77428	0.1919495	0.24043285	2.5613770	20	11 1.4	18.9
484010 2006 DQ_{48}	15.8	X	213.40299	175.68527	356.35967	16.64284	0.1767873	0.18034216	3.1026863	20	10 24.3	20.9
484011 2006 DB_{49}	16.3	X	303.70658	293.20108	160.61798	16.41177	0.1168762	0.18553569	3.0445124	20	11 30.2	20.4
484012 2006 DL_{52}	16.3	X	208.47472	353.88794	148.23239	10.18325	0.0447578	0.17460339	3.1703042	20	10 4.3	21.0
484013 2006 DU_{58}	18.3	X	290.12733	256.40316	262.82676	0.41537	0.1144256	0.26090625	2.4255658	20	—	—
484014 2006 DU_{65}	17.6	X	58.33362	338.20363	160.64211	23.56307	0.0532808	0.35321932	1.9820126	20	3 14.8	19.2
484015 2006 DN_{75}	16.8	X	68.70891	326.38102	339.17664	14.49376	0.0490302	0.18060698	3.0996527	20	11 5.7	21.5
484016 2006 DK_{103}	17.0	X	199.42540	36.30871	163.33171	11.20747	0.1682987	0.18093855	3.0958647	20	11 21.8	22.1
484017 2006 DA_{106}	17.8	X	43.18821	50.47237	355.96701	8.46730	0.2547200	0.26646222	2.3917307	20	—	—
484018 2006 DN_{107}	18.0	X	291.78733	32.39441	170.93211	3.16792	0.1349026	0.26808823	2.3820501	20	—	—
484019 2006 DF_{108}	16.2	X	278.85566	125.37175	349.66974	17.92709	0.0542178	0.18134219	3.0912691	20	11 16.5	20.8
484020 2006 DF_{118}	18.0	X	260.30286	228.91275	4.00854	6.51661	0.1317310	0.26576183	2.3959311	20	—	—
484021 2006 DL_{129}	17.8	X	235.64831	170.89824	60.29235	3.33207	0.1719158	0.26267695	2.4146531	20	—	—
484022 2006 DD_{131}	16.6	X	240.60965	33.63120	133.57352	10.89276	0.0391908	0.18491714	3.0512979	20	12 12.5	21.0
484023 2006 DE_{140}	16.8	X	149.53358	225.94636	16.22668	10.26386	0.1794271	0.17742952	3.1365494	20	11 22.8	22.2
484024 2006 DA_{143}	18.3	X	5.92768	70.47145	26.46881	3.66922	0.0902085	0.26622291	2.3931639	20	—	—
484025 2006 DH_{145}	16.6	X	130.81586	144.29335	89.93759	1.75090	0.1431394	0.17370090	3.1812760	20	10 30.7	21.6
484026 2006 DL_{164}	16.4	X	171.62607	228.59656	8.86578	8.63384	0.1361011	0.18132771	3.0914337	20	12 8.8	21.4
484027 2006 DX_{175}	16.4	X	204.55691	313.41352	152.09719	11.87291	0.2474329	0.17105177	3.2140379	20	7 29.6	22.1
484028 2006 DB_{176}	18.3	X	1.36308	43.68022	65.83853	2.24327	0.1371993	0.26839292	2.3802469	20	—	—
484029 2006 DR_{196}	15.8	X	170.32577	99.28422	144.41433	20.38324	0.2319622	0.18257206	3.0773709	20	12 15.1	21.4
484030 2006 DO_{197}	16.1	X	204.24522	223.34831	328.90538	29.15389	0.3120296	0.17955113	3.1117924	20	10 19.8	22.1
484031 2006 DE_{202}	15.9	X	235.81086	306.82225	134.69460	17.12646	0.1835621	0.17344470	3.1844078	20	8 2.9	20.8
484032 2006 DE_{206}	17.7	X	257.82395	230.79616	331.70929	5.98015	0.0515621	0.26315257	2.4117427	20	—	—
484033 2006 DU_{206}	18.2	X	295.66030	236.51677	317.50235	1.99294	0.1295992	0.26711989	2.3878034	20	—	—
484034 2006 DG_{209}	16.6	X	205.89590	154.37641	35.68707	5.84472	0.1544773	0.17949014	3.1124973	20	11 14.6	21.5
484035 2006 DA_{218}	16.9	X	101.97253	329.81049	276.34700	1.69475	0.0716355	0.17059620	3.2197573	20	10 9.4	21.6
484036 2006 DB_{218}	16.8	X	133.62092	222.39133	14.97488	9.42357	0.0548183	0.17465282	3.1697060	20	10 31.4	21.5
484037 2006 EJ_{5}	17.5	X	258.87104	212.94263	4.03137	6.20643	0.1608401	0.26483044	2.4015453	20	—	—
484038 2006 EN_{24}	16.8	X	39.25399	20.66862	336.92617	7.95726	0.0011670	0.18400744	3.0613463	20	12 1.9	21.2
484039 2006 EC_{26}	14.0	X	135.36049	125.39829	326.77124	11.56139	0.0304128	0.08339445	5.1885334	20	5 4.3	21.1
484040 2006 EE_{27}	16.2	X	152.78963	94.78749	165.44324	25.58657	0.2261119	0.18110578	3.0939586	20	12 19.7	22.0
484041 2006 EQ_{33}	16.2	X	235.79173	147.02761	20.94710	12.41665	0.1966412	0.18333855	3.0687877	20	11 12.3	20.9
484042 2006 EB_{37}	17.1	X	177.99910	146.14461	58.84616	2.03940	0.1270081	0.17725437	3.1386153	20	11 8.3	21.9
484043 2006 EV_{46}	13.4	X	293.05365	150.27520	153.91384	30.91513	0.0142480	0.08357308	5.1811376	20	5 21.5	20.7
484044 2006 EP_{55}	16.7	X	216.81797	350.41769	206.00635	3.37911	0.2481925	0.18338764	3.0682400	20	11 24.9	21.7
484045 2006 ES_{65}	18.0	X	291.92513	9.64726	188.07348	5.00454	0.1467690	0.26608363	2.3939989	20	—	—
484046 2006 FJ_{20}	15.9	X	190.15691	146.76329	31.20810	19.88359	0.1173501	0.17085220	3.2165403	20	10 19.9	20.8
484047 2006 FL_{41}	18.4	X	314.65581	149.21786	29.96804	6.66763	0.2156648	0.26679168	2.3897614	20	—	—
484048 2006 FR_{44}	17.5	X	303.57317	175.19056	350.04091	6.19303	0.1776433	0.26530860	2.3986589	20	—	—
484049 2006 FQ_{54}	17.8	X	263.04336	251.80238	289.13958	0.57019	0.1242718	0.25563957	2.4587668	20	—	—
484050 2006 FU_{54}	17.8	X	229.79630	148.39193	92.65218	2.39947	0.1408672	0.25853169	2.4403953	20	—	—
484051 2006 GF_{6}	16.0	X	182.41264	198.12060	22.53513	29.20725	0.1652039	0.17828407	3.1265187	20	11 18.4	21.4
484052 2006 GM_{24}	17.8	X	243.58590	173.93535	49.70123	2.17606	0.1300695	0.25901459	2.4373612	20	—	—
484053 2006 GH_{34}	16.3	X	170.97731	75.82497	170.32310	14.73170	0.2730565	0.17773918	3.1329054	20	12 14.5	22.1
484054 2006 GG_{35}	15.9	X	171.06392	39.01155	186.67289	11.05613	0.1904789	0.17623627	3.1506913	20	11 24.7	21.3
484055 2006 GG_{45}	16.5	X	148.47136	228.20257	6.08279	13.86868	0.1503866	0.17452347	3.1712719	20	11 10.5	21.8
484056 2006 GH_{48}	17.6	X	251.64737	175.51981	26.24602	4.37468	0.0951292	0.25712671	2.4492771	20	—	—
484057 2006 GK_{48}	18.1	X	300.46145	311.40986	236.35569	0.64963	0.1183744	0.26444641	2.4038698	20	—	—
484058 2006 GT_{54}	17.7	X	228.28530	75.69220	175.63261	1.40945	0.1327883	0.25841092	2.4411556	20	—	—
484059 2006 GV_{54}	17.9	X	267.43703	120.27992	54.99151	3.12419	0.1464127	0.25777469	2.4451708	20	—	—
484060 2006 HZ	17.7	X	348.33311	154.58666	30.31530	2.41569	0.1837000	0.27437290	2.3455350	20	1 20.5	20.1
484061 2006 HX_{8}	17.1	X	168.19940	344.38394	4.93502	12.03885	0.0986902	0.27153597	2.3618436	20	2 6.8	20.6
484062 2006 HZ_{14}	16.2	X	190.94436	1.34503	207.99099	10.16788	0.1670739	0.17637092	3.1490875	20	11 23.2	21.3
484063 2006 HV_{44}	15.6	X	84.69516	292.70919	19.64067	26.41760	0.2632984	0.17247349	3.1963511	20	12 25.5	21.4
484064 2006 HG_{48}	16.6	X	147.14072	135.51474	115.59247	3.74893	0.1752285	0.17310188	3.1886109	20	12 3.1	21.9
484065 2006 HL_{54}	16.3	X	179.79382	178.98820	13.98249	8.60483	0.1717971	0.17386950	3.1792189	20	10 23.2	21.5
484066 2006 HU_{114}	18.0	X	274.43174	45.96845	134.40345	1.81898	0.1282091	0.25781657	2.4449060	20	—	—
484067 2006 HH_{154}	17.7	X	225.26110	104.96547	126.07856	3.77187	0.1360491	0.25438994	2.4668122	20	—	—
484068 2006 JE_{8}	17.5	X	247.67312	38.49351	213.70671	5.20822	0.1783291	0.26205771	2.4184555	20	—	—
484069 2006 JV_{9}	16.9	X	200.71329	192.48544	359.81380	0.84560	0.1530540	0.17369517	3.1813459	20	11 11.9	21.9
484070 2006 JT_{27}	18.1	X	230.15448	156.44294	77.52882	3.18897	0.1732155	0.25648302	2.4533733	20	—	—
484071 2006 JQ_{81}	17.7	X	251.00123	162.36070	79.36544	3.47922	0.1470052	0.26011077	2.4305086	20	—	—
484072 2006 KY_{12}	16.3	X	165.30368	77.03927	193.84575	23.11447	0.2906774	0.17683174	3.1436142	20	—	—
484073 2006 KM_{20}	17.3	X	345.78190	140.42143	94.53531	17.75219	0.0807294	0.34792138	2.0020825	20	4 18.3	19.5
484074 2006 KN_{38}	16.3	X	176.85151	78.38361	165.64374	25.39535	0.3551133	0.17446665	3.1719605	20	12 14.1	22.6
484075 2006 KX_{43}	15.6	X	163.37227	210.00381	65.58988	26.26158	0.2583113	0.17542339	3.1604169	20	—	—
484076 2006 KW_{47}	17.9	X	202.74168	181.56402	103.09225	3.64766	0.1913004	0.25689377	2.4507575	20	—	—
484077 2006 KD_{76}	15.8	X	118.46614	147.18259	107.04169	20.40650	0.2882291	0.16637457	3.2739956	20	11 22.7	21.8
484078 2006 KO_{77}	16.7	X	206.78282	36.82309	153.61104	4.59174	0.1382161	0.17357378	3.1828289	20	11 18.2	21.6
484079 2006 KS_{83}	16.3	X	222.91570	24.49594	123.66793	11.21278	0.0700633	0.17125009	3.2115561	20	10 26.6	21.2
484080 2006 KO_{107}	17.9	X	255.12215	203.86827	34.61600	6.98627	0.1204239	0.26288337	2.4133889	20	—	—

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
484081 2006 OW_4	16.5	X	124.55743	324.80448	321.47487	32.27979	0.2336020	0.23331152	2.6132358	20	—	—
484082 2006 PY_{15}	16.5	X	120.31015	325.19421	333.07948	32.16072	0.1956622	0.23448677	2.6044968	20	—	—
484083 2006 PL_{21}	17.4	X	158.92716	311.23274	329.98682	8.72526	0.2104372	0.24055177	2.5605328	20	—	—
484084 2006 QS_5	16.7	X	343.43245	19.24176	352.59721	8.68234	0.3232093	0.21549042	2.7553963	20	11 7.7	18.7
484085 2006 QT_5	16.6	X	118.09296	224.26492	116.08968	15.16287	0.1687960	0.23936326	2.5690017	20	—	—
484086 2006 QB_7	17.0	X	137.49012	318.05630	341.95347	13.62719	0.1897806	0.23666872	2.5884641	20	—	—
484087 2006 QY_{33}	17.2	X	329.56590	58.16462	317.59375	8.00060	0.2807444	0.21278702	2.7786849	20	9 25.9	19.4
484088 2006 QO_{45}	16.9	X	43.24801	41.22941	334.76344	14.19661	0.1562470	0.22878807	2.6475680	20	—	—
484089 2006 QZ_{47}	16.7	X	117.95154	17.37539	311.34843	13.55203	0.1106789	0.23808238	2.5782076	20	—	—
484090 2006 QF_{70}	17.2	X	323.38186	100.18711	341.90364	10.68444	0.0999145	0.22558113	2.6726015	20	12 27.9	20.4
484091 2006 QB_{115}	16.6	X	127.46434	11.64118	299.46460	13.91657	0.1556518	0.23609139	2.5926822	20	—	—
484092 2006 QB_{164}	16.7	X	112.57463	330.41721	344.03361	15.65762	0.1518131	0.23042891	2.6349845	20	—	—
484093 2006 RA_2	16.6	X	303.50867	36.63608	6.15451	8.60176	0.2945907	0.20987036	2.8043700	20	9 3.3	19.3
484094 2006 RT_{11}	17.3	X	17.45139	207.00762	179.42300	14.81827	0.1914696	0.22441407	2.6818594	20	—	—
484095 2006 RU_{20}	16.9	X	283.79479	228.85503	192.51745	7.45739	0.4526451	0.20389055	2.8589374	20	7 24.9	21.0
484096 2006 RE_{36}	18.1	X	54.09850	14.61884	20.89391	8.60899	0.2993800	0.30101088	2.2050304	20	—	—
484097 2006 RL_{54}	16.9	X	104.09770	262.13567	25.13986	12.43350	0.1701772	0.22288906	2.6940783	20	12 14.8	21.5
484098 2006 RL_{59}	17.2	X	358.86232	210.15820	185.71717	10.09376	0.1509904	0.21924326	2.7238627	20	12 25.7	20.6
484099 2006 RR_{80}	17.3	X	313.66560	47.59134	5.81495	4.56214	0.1664340	0.21424705	2.7660466	20	10 24.9	20.2
484100 2006 RM_{82}	17.7	X	9.47667	27.10056	357.41876	4.95581	0.1229806	0.22065939	2.7121962	20	12 24.0	21.1
484101 2006 RH_{84}	17.6	X	349.11999	34.37089	2.03995	9.36630	0.1582628	0.21797198	2.7344433	20	12 9.6	20.7
484102 2006 RD_{88}	17.0	X	124.57901	297.13083	8.06603	13.33493	0.1808099	0.23174263	2.6250168	20	—	—
484103 2006 RM_{93}	17.2	X	295.20854	65.64595	359.50349	8.92069	0.2225092	0.20973843	2.8055458	20	9 27.8	20.3
484104 2006 RJ_{115}	17.1	X	82.04862	312.15240	8.48476	5.11458	0.0481605	0.22341930	2.6898141	20	12 25.1	21.0
484105 2006 RL_{122}	17.9	X	17.75555	43.17303	331.20785	1.66051	0.1307421	0.22212306	2.7002685	20	12 24.2	21.3
484106 2006 SC_3	17.0	X	100.65007	42.25454	285.94190	11.84371	0.2447110	0.23218213	2.6217032	20	—	—
484107 2006 SK_{11}	16.9	X	0.83868	0.18970	24.17774	10.51087	0.3056510	0.21835454	2.7312486	20	—	—
484108 2006 SK_{25}	17.3	X	15.18560	26.50488	352.74546	13.55569	0.1664679	0.22187963	2.7022432	20	—	—
484109 2006 SX_{39}	17.3	X	61.88297	219.02367	118.94005	2.51075	0.0897630	0.22484254	2.6784512	20	12 28.2	20.9
484110 2006 SE_{40}	17.3	X	314.95293	48.02888	6.73941	13.02781	0.2458493	0.21395277	2.7685823	20	10 21.2	19.7
484111 2006 SU_{41}	17.9	X	317.08596	359.32033	36.22524	6.10356	0.3289189	0.21005946	2.8026867	20	9 21.8	19.8
484112 2006 SM_{120}	17.2	X	329.29230	236.53722	163.49890	16.47647	0.2780713	0.21298733	2.7769424	20	11 14.6	19.7
484113 2006 SS_{145}	17.1	X	24.59594	17.47715	8.60572	3.17789	0.1017230	0.22337758	2.6901489	20	—	—
484114 2006 SU_{149}	16.9	X	19.54833	344.37371	355.44339	4.46247	0.1211026	0.21397688	2.7683743	20	11 6.9	20.5
484115 2006 SY_{151}	17.5	X	323.23833	259.72941	198.18631	21.63348	0.0433420	0.22448176	2.6813202	20	—	—
484116 2006 SL_{157}	17.0	X	344.50207	47.48661	0.58271	8.93646	0.1920478	0.21912962	2.7248044	20	12 23.1	20.0
484117 2006 SS_{206}	17.5	X	325.73620	178.37940	203.01923	0.77533	0.2194199	0.20947255	2.8079194	20	9 30.6	19.8
484118 2006 SV_{206}	17.5	X	315.17502	239.85554	200.66122	6.06537	0.0385448	0.21852475	2.7298302	20	12 9.8	21.0
484119 2006 SA_{228}	17.6	X	317.09424	132.42692	330.59645	6.05951	0.0539501	0.22544111	2.6737080	20	—	—
484120 2006 SN_{249}	16.9	X	238.29616	200.08198	6.44225	13.46179	0.1905703	0.23145762	2.6271714	20	—	—
484121 2006 SN_{250}	17.4	X	108.64537	322.07654	337.46581	1.80033	0.0544345	0.22426299	2.6830637	20	12 29.9	21.2
484122 2006 SJ_{260}	17.6	X	302.95884	187.60599	224.69816	2.48282	0.1728790	0.20996313	2.8035439	20	10 1.0	20.5
484123 2006 SW_{264}	17.5	X	16.55267	144.93118	236.68190	7.48275	0.1687508	0.21943323	2.7222904	20	—	—
484124 2006 SR_{267}	17.1	X	337.65172	156.36892	271.48480	3.39781	0.0767666	0.21919981	2.7242226	20	12 26.9	20.5
484125 2006 SJ_{286}	16.7	X	149.45753	262.14194	29.26254	17.18459	0.2334053	0.23597556	2.5935306	20	—	—
484126 2006 SM_{292}	17.3	X	11.30570	92.62224	299.90017	3.11289	0.1568362	0.22268596	2.6957161	20	—	—
484127 2006 SV_{292}	17.3	X	74.02449	84.21078	263.86323	2.82296	0.0969185	0.22853091	2.6495538	20	—	—
484128 2006 SB_{297}	17.4	X	120.83005	110.07832	175.29041	6.05340	0.0281078	0.22335899	2.6902983	20	12 24.9	21.3
484129 2006 SU_{310}	17.3	X	305.74098	102.90019	338.82623	4.43176	0.1438772	0.21636568	2.7479603	20	11 20.4	20.3
484130 2006 SZ_{316}	17.5	X	128.80421	239.10027	58.00803	3.45590	0.1778055	0.22980754	2.6397322	20	—	—
484131 2006 SB_{318}	18.4	X	149.98339	265.78583	84.07799	2.71517	0.1523495	0.31486970	2.1398441	20	1 13.0	20.9
484132 2006 SS_{328}	17.6	X	38.78166	228.59292	138.92567	2.52952	0.0919440	0.22202602	2.7010552	20	—	—
484133 2006 SB_{347}	17.4	X	354.56923	15.87504	10.31005	5.03401	0.1666681	0.21619306	2.7494230	20	12 6.2	20.5
484134 2006 SP_{353}	17.2	X	128.63181	282.40933	33.82696	11.97082	0.1873152	0.23286456	2.6165786	20	—	—
484135 2006 SB_{379}	17.0	X	215.24612	104.02648	154.68206	15.02146	0.0888888	0.23376739	2.6098373	20	—	—
484136 2006 SR_{396}	17.3	X	336.09853	145.47120	247.01588	3.47334	0.0812519	0.21545066	2.7557353	20	11 6.8	20.7
484137 2006 SE_{398}	16.7	X	213.73662	69.35874	60.24619	11.70146	0.1006432	0.20112270	2.8851074	20	9 25.9	21.2
484138 2006 SM_{401}	17.8	X	334.86469	350.70284	62.12974	5.94740	0.1557248	0.21269060	2.7795246	20	12 5.1	20.8
484139 2006 SO_{408}	17.3	X	348.73365	56.61885	28.60944	22.23864	0.0539882	0.22348851	2.6892587	20	—	—
484140 2006 TO_5	18.4	X	61.88764	61.25373	359.22727	6.08998	0.1352065	0.30585994	2.1816629	20	—	—
484141 2006 TP_{15}	17.0	X	55.59163	98.65831	260.53911	1.43910	0.1150959	0.22409459	2.6844076	20	—	—
484142 2006 TH_{23}	16.6	X	336.27352	47.55917	46.09489	11.81925	0.0407557	0.22285797	2.6943289	20	—	—
484143 2006 TY_{29}	18.1	X	94.90345	198.96925	199.25293	4.86643	0.1828737	0.30954059	2.1643341	20	1 7.4	20.0
484144 2006 TJ_{41}	17.1	X	55.20707	339.55316	1.79151	1.60760	0.0923048	0.21865978	2.7287062	20	12 23.5	20.9
484145 2006 TC_{42}	17.2	X	62.94739	345.78578	37.80134	12.26227	0.0608868	0.22663441	2.6643145	20	—	—
484146 2006 TL_{59}	17.5	X	298.59952	199.00947	243.52211	7.05938	0.1974264	0.21112641	2.7932363	20	11 1.5	20.4
484147 2006 TS_{73}	17.4	X	295.34130	235.36114	205.02381	12.59631	0.2278561	0.20998387	2.8033593	20	10 19.7	20.0
484148 2006 TP_{75}	16.7	X	7.79744	325.29074	55.59858	10.71206	0.1833601	0.21721552	2.7407882	20	12 23.9	20.0
484149 2006 TW_{85}	17.4	X	345.00366	134.70571	242.89090	6.96977	0.2377353	0.21149595	2.7899817	20	11 12.1	19.8
484150 2006 TU_{95}	17.4	X	317.13019	11.11540	31.00208	3.87658	0.0961670	0.20970376	2.8058551	20	10 19.4	20.5
484151 2006 TK_{100}	17.4	X	333.93495	178.40111	225.27686	7.55415	0.2282251	0.21333252	2.7739460	20	11 25.6	19.8
484152 2006 TN_{125}	17.5	X	29.43781	107.86265	267.76059	4.76359	0.0958841	0.21943023	2.7223152	20	—	—
484153 2006 UO_2	17.0	X	13.56138	103.65281	267.93141	3.26099	0.0708176	0.21718111	2.7410777	20	12 4.8	20.5
484154 2006 UA_{12}	16.9	X	14.87646	347.43605	49.34063	7.64130	0.0805990	0.22042324	2.7141330	20	—	—
484155 2006 UT_{26}	16.9	X	133.38262	236.42074	28.92588	9.87779	0.0787583	0.21989328	2.7184921	20	12 13.3	21.1
484156 2006 UZ_{26}	16.5	X	353.18262	76.31671	217.12015	11.28701	0.0917634	0.19761646	2.9191336	20	7 16.5	20.3
484157 2006 UK_{30}	17.6	X	305.87312	48.11893	22.49757	9.39830	0.1407686	0.21282230	2.7783778	20	11 4.1	20.7
484158 2006 UX_{34}	16.3	X	99.59454	314.86573	34.13485	22.14175	0.0423142	0.22888419	2.6468268	20	—	—
484159 2006 UC_{39}	17.0	X	344.45389	3.41637	27.71385	4.75044	0.0715100	0.21319569	2.7751328	20	11 16.4	20.5
484160 2006 UV_{46}	17.6	X	323.52905	11.53980	57.68923	5.82948	0.1554478	0.21382618	2.7696749	20	12 6.5	20.6

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Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
484161 2006 UV_{63}	17.4	X	311.62468	19.61608	53.23177	3.28558	0.1713877	0.21393830	2.7687071	20	11 18.2	19.9
484162 2006 UF_{65}	16.9	X	346.16661	39.94421	3.59548	9.51591	0.1693230	0.21965352	2.7204700	20	12 16.6	20.0
484163 2006 UP_{107}	17.6	X	329.31203	281.64678	149.21133	3.56229	0.1488999	0.21559451	2.7545094	20	12 20.6	20.5
484164 2006 UX_{132}	17.1	X	322.78574	22.36123	51.13177	4.61980	0.0555090	0.21643554	2.7473690	20	12 10.3	20.5
484165 2006 US_{136}	17.1	X	319.90495	176.10716	234.78796	10.89843	0.2071912	0.21058971	2.7979800	20	10 31.3	19.7
484166 2006 UJ_{140}	17.3	X	327.39991	173.68226	254.57635	9.23344	0.1241106	0.21435125	2.7651500	20	12 12.0	20.3
484167 2006 UV_{143}	16.4	X	73.68161	310.76620	36.95942	13.84955	0.2719732	0.22605126	2.6688947	20	—	—
484168 2006 UM_{158}	17.1	X	75.18869	326.87496	35.51278	13.85222	0.1725269	0.22865224	2.6486164	20	—	—
484169 2006 UO_{171}	17.3	X	357.34279	225.54708	154.17225	5.00546	0.0866611	0.21353111	2.7722259	20	11 24.3	20.8
484170 2006 UF_{175}	16.6	X	13.77901	347.09545	27.06626	18.51585	0.1529557	0.21947785	2.7219214	20	12 18.5	20.3
484171 2006 UN_{186}	16.4	X	87.69346	331.25816	343.18568	15.43328	0.1998486	0.22550587	2.6731961	20	—	—
484172 2006 UD_{227}	17.3	X	22.13404	25.16395	354.63433	4.00243	0.1470816	0.22011122	2.7166974	20	—	—
484173 2006 UM_{227}	17.5	X	334.97813	296.62147	99.50405	4.39530	0.2427357	0.21316552	2.7753947	20	11 18.5	19.7
484174 2006 UM_{235}	17.8	X	345.72116	20.15390	17.68156	2.64765	0.0867704	0.21629005	2.7486009	20	11 29.4	21.0
484175 2006 UK_{247}	17.3	X	314.82936	63.02736	10.83407	2.45249	0.0772494	0.21548980	2.7554016	20	11 28.4	20.5
484176 2006 UE_{255}	17.3	X	53.97977	126.69257	219.50004	4.75900	0.1866089	0.22026896	2.7154002	20	—	—
484177 2006 UY_{261}	17.0	X	351.37047	180.92219	223.57344	10.68920	0.0615665	0.21541226	2.7560628	20	12 14.3	20.6
484178 2006 UA_{272}	18.4	X	90.86857	168.79052	224.08714	3.29635	0.1647331	0.30604617	2.1807778	20	—	—
484179 2006 UE_{272}	17.4	X	313.99597	206.37571	229.96406	8.73461	0.1693799	0.21164616	2.7886614	20	11 27.6	20.1
484180 2006 UY_{275}	18.6	X	39.66374	358.54167	56.38451	2.93272	0.1045511	0.30177755	2.2012943	20	—	—
484181 2006 UQ_{277}	17.0	X	337.64544	149.19055	240.25023	4.68592	0.0913856	0.21168377	2.7883311	20	11 4.5	20.3
484182 2006 UP_{286}	17.2	X	335.09805	9.78711	47.21310	7.29376	0.0159761	0.21537754	2.7563589	20	12 4.3	20.9
484183 2006 UP_{335}	16.8	X	42.44924	251.77875	91.36097	13.63275	0.3271705	0.22028936	2.7152326	20	—	—
484184 2006 UV_{358}	17.1	X	357.59703	161.16830	208.74901	3.83240	0.0803142	0.21194524	2.7860374	20	11 9.9	20.4
484185 2006 UO_{360}	17.2	X	3.05525	36.61195	341.02061	1.24202	0.0744187	0.21255343	2.7807203	20	11 26.8	20.8
484186 2006 VK_{1}	17.5	X	280.30126	230.39622	236.89763	6.62542	0.1868647	0.21070880	2.7969258	20	11 4.4	20.8
484187 2006 VX_{36}	17.0	X	2.22262	138.68107	245.50280	7.57693	0.1649429	0.21540916	2.7560892	20	12 16.6	20.3
484188 2006 VG_{41}	17.3	X	17.46281	292.32705	78.08205	1.50944	0.0834908	0.21441126	2.7646341	20	12 9.7	20.7
484189 2006 VO_{43}	17.2	X	277.58097	31.67463	43.58776	13.03372	0.1914690	0.20642862	2.8354551	20	9 23.6	20.9
484190 2006 VJ_{57}	17.5	X	330.29361	318.64413	85.35200	2.94662	0.1468772	0.21008322	2.8024754	20	11 13.9	20.5
484191 2006 VN_{76}	17.1	X	103.54940	70.15381	222.90891	11.35390	0.1731601	0.21811446	2.7332524	20	12 21.1	21.7
484192 2006 VN_{98}	16.7	X	321.65705	28.31289	40.42945	17.20300	0.1454293	0.21424321	2.7660796	20	11 29.2	19.8
484193 2006 VE_{103}	17.3	X	303.27811	148.30286	295.13376	3.63615	0.1407047	0.20887998	2.8132274	20	11 16.6	20.6
484194 2006 VJ_{111}	18.0	X	94.73023	343.93008	27.48098	4.33889	0.1492932	0.30255178	2.1975373	20	—	—
484195 2006 VA_{129}	16.9	X	192.08685	211.23652	49.99655	29.13013	0.0371010	0.22572177	2.6714912	20	—	—
484196 2006 VF_{129}	16.2	X	38.73969	336.51626	40.79166	15.55404	0.1933098	0.22073415	2.7115838	20	—	—
484197 2006 VU_{132}	18.5	X	267.55725	320.76573	142.44222	1.86033	0.1433001	0.27976826	2.3152813	20	11 3.6	20.8
484198 2006 VX_{154}	18.2	X	69.99303	273.23206	151.47368	4.74411	0.1698006	0.30735675	2.1745741	20	—	—
484199 2006 WS_{1}	19.8	X	74.62724	319.88721	312.13423	17.98867	0.4639813	0.73062366	1.2208816	20	—	—
484200 2006 WD_{16}	17.2	X	335.49941	34.38206	20.02612	5.91513	0.0590949	0.21313049	2.7756987	20	12 2.5	20.7
484201 2006 WY_{19}	17.5	X	22.09671	250.24495	114.46459	4.43285	0.2061970	0.21647637	2.7470235	20	12 27.5	20.8
484202 2006 WL_{32}	17.5	X	332.84515	304.03448	111.25183	4.98432	0.0928123	0.21280551	2.7785239	20	12 2.8	20.8
484203 2006 WB_{179}	17.6	X	309.95723	49.82931	46.24227	3.73111	0.0338359	0.21632498	2.7483050	20	12 21.5	21.1
484204 2006 XT_{18}	15.4	X	17.80420	17.78392	39.62039	36.72228	0.1290186	0.22190179	2.7020633	20	—	—
484205 2006 XK_{23}	17.6	X	79.29877	223.47564	123.35600	7.08770	0.0532102	0.21939848	2.7225778	20	—	—
484206 2006 XO_{38}	18.7	X	58.88119	31.23695	42.07788	1.87605	0.1839700	0.30123229	2.2039498	20	—	—
484207 2007 AD_{30}	16.8	X	271.91206	289.46355	125.20127	15.03927	0.2658736	0.19187521	2.9770774	20	7 30.7	20.8
484208 2007 BT_{36}	17.2	X	264.47428	198.46203	312.74804	7.47904	0.1955616	0.20630405	2.8365964	20	12 4.6	20.9
484209 2007 BW_{80}	18.0	X	313.42910	273.67080	322.68497	5.08860	0.1358254	0.30659075	2.1781947	20	2 9.7	20.5
484210 2007 CC_{8}	18.6	X	335.60983	173.56795	326.77339	5.76473	0.0983108	0.29345605	2.2427146	20	—	—
484211 2007 CK_{8}	17.1	X	75.64802	279.70368	103.18171	6.33923	0.1779027	0.22094068	2.7098937	20	—	—
484212 2007 CN_{32}	16.9	X	350.68901	252.60336	145.53932	2.65140	0.0762215	0.20181246	2.8785299	20	12 3.3	20.5
484213 2007 CU_{35}	18.4	X	355.35696	209.37942	336.85323	1.50528	0.2266022	0.30169160	2.2017123	20	1 21.1	20.2
484214 2007 DA_{8}	18.8	X	42.65443	191.27512	249.36999	2.29584	0.1784375	0.29505180	2.2346210	20	—	—
484215 2007 DK_{48}	16.6	X	168.02591	258.78210	335.13291	13.30974	0.2281939	0.19334940	2.9619257	20	11 28.8	21.9
484216 2007 DR_{58}	19.0	X	292.33995	60.46345	164.72777	5.71918	0.2167962	0.29178166	2.2512863	20	—	—
484217 2007 DQ_{67}	18.6	X	14.70938	118.58673	2.28188	3.59467	0.0635792	0.29272255	2.2464595	20	—	—
484218 2007 DQ_{70}	14.1	X	275.13477	313.76195	353.75529	15.68372	0.0410659	0.08483846	5.1294900	20	4 19.4	21.1
484219 2007 DU_{89}	19.0	X	332.94277	158.65090	2.60025	2.92483	0.0819142	0.29226595	2.2487987	20	—	—
484220 2007 DK_{96}	18.3	X	351.48851	275.36165	344.12867	20.42814	0.0694528	0.38749454	1.8633409	20	5 20.9	20.4
484221 2007 DT_{98}	18.3	X	332.82574	164.15553	346.00299	5.23797	0.1717354	0.29090989	2.2557816	20	—	—
484222 2007 DP_{102}	18.7	X	82.69775	304.97101	168.27600	26.50323	0.1231848	0.38132047	1.8834003	20	3 25.1	20.0
484223 2007 DT_{102}	17.0	X	344.94422	154.60180	23.06405	26.51102	0.3065565	0.29623055	2.2286891	20	—	—
484224 2007 DY_{110}	17.4	X	232.83863	161.13346	347.95989	2.07773	0.1162543	0.19405073	2.9547848	20	10 31.6	21.6
484225 2007 DM_{115}	13.6	X	264.78739	326.95505	347.58672	30.68359	0.0818544	0.08306199	5.2023692	20	4 2.9	20.8
484226 2007 DD_{117}	16.2	X	144.10120	29.23515	157.78940	15.51741	0.1447977	0.18175223	3.0866180	20	9 19.3	21.2
484227 2007 EK_{29}	16.1	X	351.05972	1.26965	354.92703	12.50888	0.0525611	0.18328472	3.0693886	20	10 2.8	20.2
484228 2007 EG_{39}	17.8	X	231.48659	352.59945	3.40475	20.67484	0.1064192	0.38389582	1.8749677	20	4 7.2	20.1
484229 2007 EO_{54}	16.7	X	70.53390	350.81169	347.13725	11.54044	0.0481429	0.20197084	2.8770248	20	12 28.7	21.0
484230 2007 EW_{59}	17.2	X	157.87488	66.57152	179.42171	14.61002	0.2205867	0.19062646	2.9900647	20	12 8.4	22.6
484231 2007 EE_{68}	13.8	X	317.14748	279.17266	4.93170	13.45463	0.1082666	0.08481873	5.1302856	20	5 6.2	20.4
484232 2007 EK_{71}	18.5	X	27.87334	281.94530	164.04491	3.18595	0.1271268	0.29262540	2.2469567	20	—	—
484233 2007 ES_{92}	18.1	X	254.51789	290.48478	323.91478	5.52802	0.1472388	0.29318722	2.2440853	20	—	—
484234 2007 EL_{129}	17.1	X	163.17928	217.77428	353.70381	1.02175	0.0857620	0.18998090	2.9968344	20	11 4.6	21.7
484235 2007 EQ_{142}	17.1	X	227.16252	299.88086	203.49684	6.39900	0.1227856	0.18982338	2.9984921	20	10 17.4	21.6
484236 2007 EQ_{147}	16.8	X	20.74038	294.10013	78.77339	3.31321	0.0352741	0.19441699	2.9510727	20	12 5.8	20.9
484237 2007 EF_{149}	16.0	X	143.38424	128.18845	155.00965	11.93888	0.1132073	0.19799597	2.9154023	20	—	—
484238 2007 EK_{150}	17.7	X	208.24296	238.19816	15.50760	7.85635	0.0821916	0.28140467	2.3062967	20	—	—
484239 2007 EA_{153}	18.7	X	14.19104	88.82547	19.41833	7.39194	0.2085112	0.29181919	2.2510932	20	—	—
484240 2007 EQ_{172}	18.1	X	333.56179	139.12254	3.36462	8.99455	0.1251625	0.28584990	2.2823243	20	—	—

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	m		°	°	°	°		°				
484241 2007 EL_{181}	16.5	X	134.04249	348.75404	201.59682	11.73079	0.1727735	0.17591550	3.1545202	20	9 10.7	21.7
484242 2007 EM_{190}	17.1	X	177.09848	23.81951	186.71664	11.29159	0.1395823	0.19136489	2.9823678	20	11 17.0	22.0
484243 2007 EK_{198}	18.2	X	354.76784	109.93845	43.12332	7.99840	0.1653698	0.29008875	2.2600365	20	—	—
484244 2007 EV_{211}	18.0	X	19.75998	145.91316	343.05163	3.23145	0.0598156	0.29498329	2.2349670	20	1 3.4	20.2
484245 2007 EG_{215}	17.9	X	330.62130	220.91187	330.40110	6.31056	0.1504280	0.29473329	2.2362306	20	1 2.5	20.4
484246 2007 FR_{1}	16.5	X	199.75902	154.08251	358.82487	12.92891	0.0722485	0.18524093	3.0477411	20	10 2.0	21.0
484247 2007 FL_{3}	17.1	X	0.86396	135.22043	153.91701	50.76205	0.1775284	0.38716987	1.8643825	20	9 4.3	17.6
484248 2007 FN_{40}	17.6	X	253.35824	47.95641	102.65758	14.38646	0.3634419	0.20053691	2.8907232	20	10 31.9	22.1
484249 2007 FY_{40}	14.2	X	67.93078	333.42165	192.32708	14.26963	0.1220633	0.08371457	5.1752980	20	5 29.4	21.0
484250 2007 FJ_{45}	17.4	X	206.80151	220.67929	333.92018	1.90956	0.1232550	0.19573595	2.9378006	20	11 26.8	21.9
484251 2007 FA_{46}	16.3	X	154.30417	207.55717	55.17131	18.88923	0.3136381	0.18773874	3.0206480	20	12 19.6	22.0
484252 2007 FH_{46}	16.7	X	124.33001	214.23938	25.32535	4.84130	0.1010509	0.18240885	3.0792062	20	10 29.3	21.3
484253 2007 FW_{46}	16.7	X	125.21275	248.36708	30.16241	11.09198	0.1564238	0.18641799	3.0348985	20	12 16.4	21.8
484254 2007 FN_{48}	14.1	X	185.43596	35.18398	11.22200	8.95650	0.0281642	0.08481861	5.1302903	20	5 8.2	21.1
484255 2007 GH_{25}	16.4	X	161.17291	70.02893	112.97317	16.64447	0.2969480	0.18240661	3.0792315	20	10 4.7	22.2
484256 2007 GE_{30}	15.9	X	127.39550	205.50845	46.21881	9.12439	0.2862464	0.18074856	3.0980338	20	11 20.9	21.4
484257 2007 GB_{43}	16.4	X	219.01723	120.08742	21.01464	13.12842	0.0316303	0.18379465	3.0637087	20	10 15.2	20.8
484258 2007 GN_{47}	16.9	X	154.74038	184.34995	66.06956	0.95689	0.2466513	0.18534837	3.0465633	20	12 8.7	22.1
484259 2007 GO_{48}	16.4	X	111.69129	213.47665	54.43038	10.25562	0.1924042	0.17967737	3.1103348	20	11 24.0	21.6
484260 2007 GT_{62}	17.2	X	171.21719	197.31049	15.46360	3.06568	0.0828691	0.18524818	3.0476616	20	11 13.2	21.9
484261 2007 GG_{77}	15.9	X	110.17866	238.93339	35.22462	18.20663	0.2608867	0.18009576	3.1055157	20	11 30.3	21.4
484262 2007 HO_{14}	18.2	X	249.02455	357.59733	237.72608	1.94153	0.1406393	0.27971146	2.3155947	20	—	—
484263 2007 HX_{53}	18.0	X	310.22056	146.75682	67.03336	4.88127	0.1072013	0.29167582	2.2518309	20	1 12.7	20.6
484264 2007 HE_{57}	16.0	X	166.01107	130.89247	106.84711	16.96247	0.2056462	0.18551928	3.0446918	20	12 6.3	21.3
484265 2007 HW_{58}	14.1	X	161.37332	348.37178	86.73185	12.88809	0.0712532	0.08173007	5.2587370	20	5 20.9	21.4
484266 2007 HM_{71}	17.0	X	171.78540	18.52995	180.61570	11.43898	0.1904074	0.18490221	3.0514621	20	10 27.6	22.2
484267 2007 HY_{79}	16.3	X	112.74115	179.82666	62.65431	12.76415	0.0860314	0.17710210	3.1404141	20	10 23.8	21.1
484268 2007 HJ_{84}	18.5	X	280.87717	38.69588	178.38149	2.28593	0.1529709	0.28460249	2.2889884	20	—	—
484269 2007 HP_{88}	18.0	X	311.78981	128.87523	73.06664	4.51137	0.2864360	0.28860978	2.2677509	20	—	—
484270 2007 HT_{93}	18.1	X	302.21858	53.71499	189.79636	7.07996	0.1419339	0.29664327	2.2266214	20	2 2.9	20.9
484271 2007 JB_{12}	16.5	X	175.38558	64.94794	156.09004	11.82685	0.2009411	0.18542477	3.0457263	20	11 24.9	21.8
484272 2007 JD_{17}	17.9	X	269.91635	43.82965	212.30891	4.60111	0.1486147	0.28638556	2.2794775	20	1 15.3	21.2
484273 2007 JQ_{17}	16.0	X	48.07192	245.91797	75.94004	10.91513	0.0914706	0.17718480	3.1394368	20	11 13.8	20.4
484274 2007 JF_{18}	16.9	X	166.61877	95.74880	142.34110	12.82477	0.1555546	0.18520144	3.0481744	20	12 8.1	22.0
484275 2007 JX_{21}	17.9	X	301.38261	148.28884	54.39393	3.88829	0.1075838	0.28487526	2.2875270	20	—	—
484276 2007 JZ_{25}	17.6	X	275.77560	138.86415	111.45010	6.19332	0.0529232	0.28701569	2.2761399	20	1 25.9	20.4
484277 2007 JA_{33}	17.6	X	281.66519	139.22529	121.28402	5.05418	0.1915591	0.28951525	2.2630201	20	1 29.6	20.9
484278 2007 JK_{36}	18.6	X	324.63624	35.29631	140.36260	3.23820	0.1615714	0.28574885	2.2828623	20	—	—
484279 2007 JL_{40}	17.4	X	42.86038	123.68931	195.35192	12.52779	0.3473403	0.24473590	2.5312649	20	12 19.5	21.5
484280 2007 LF_{6}	16.0	X	135.26279	108.62230	102.54320	28.63705	0.0575605	0.17415618	3.1757291	20	10 18.7	21.4
484281 2007 LF_{12}	18.2	X	254.06139	61.63009	169.30683	2.15974	0.1144690	0.27894738	2.3198213	20	—	—
484282 2007 MC_{5}	18.1	X	179.07223	148.00122	135.91517	10.39357	0.1505128	0.27051309	2.3677937	20	—	—
484283 2007 PP_{3}	17.3	X	219.86996	177.85764	118.98186	5.35095	0.2453459	0.27474885	2.3433948	20	1 19.9	21.4
484284 2007 PW_{15}	16.6	X	217.46596	277.50052	346.55955	21.24886	0.3054929	0.26869157	2.3784828	20	—	—
484285 2007 PK_{18}	17.3	X	216.98287	164.84140	135.79033	14.98757	0.2217717	0.27471469	2.3435890	20	1 21.9	21.4
484286 2007 PE_{39}	17.1	X	142.90449	263.32515	46.89734	1.88310	0.2820710	0.25874628	2.4390459	20	—	—
484287 2007 RC_{10}	15.8	X	134.15547	89.20896	183.09199	24.40493	0.3661734	0.17440256	3.1727375	20	12 18.7	22.2
484288 2007 RN_{28}	17.2	X	156.03019	337.75438	350.88195	15.00291	0.1821697	0.26386971	2.4073710	20	1 6.1	21.1
484289 2007 RA_{42}	17.5	X	54.20735	278.88162	72.69853	3.97245	0.1765334	0.24258576	2.5462000	20	—	—
484290 2007 RG_{51}	17.4	X	335.30253	210.87785	203.13914	12.08388	0.2524604	0.23443336	2.6048924	20	12 25.4	19.8
484291 2007 RJ_{52}	17.7	X	214.30090	11.48763	290.40167	4.41222	0.2355862	0.27044771	2.3681753	20	1 21.9	21.9
484292 2007 RA_{59}	17.4	X	187.79098	299.94825	331.34550	8.21022	0.1430584	0.25931990	2.4354477	20	—	—
484293 2007 RJ_{98}	18.1	X	10.06055	290.56990	93.72274	3.62675	0.1607250	0.23716903	2.5848226	20	—	—
484294 2007 RU_{154}	17.9	X	147.92616	346.60712	339.53460	3.17114	0.0329900	0.26000770	2.4311509	20	—	—
484295 2007 RX_{189}	17.9	X	329.13432	56.78092	12.53747	10.05054	0.1729706	0.23668078	2.5883762	20	12 28.8	20.6
484296 2007 RW_{255}	15.8	X	175.88754	228.22353	186.67462	10.26503	0.2928627	0.12338866	3.9959423	20	5 13.3	22.7
484297 2007 RR_{296}	17.7	X	9.50749	11.31210	13.03578	2.64065	0.2132040	0.23431280	2.6057858	20	—	—
484298 2007 RD_{297}	18.0	X	352.93564	338.28656	63.58021	3.11617	0.1342895	0.23777343	2.5804404	20	12 28.7	20.7
484299 2007 SF_{11}	16.7	X	349.61395	71.59064	327.17332	15.64648	0.3058865	0.23438458	2.6052537	20	—	—
484300 2007 SJ_{12}	16.8	X	304.55277	246.45948	138.66858	13.83184	0.2696838	0.22478883	2.6788778	20	8 14.2	19.3
484301 2007 TK_{2}	18.7	X	252.01061	27.70373	23.69393	17.17202	0.0817763	0.44845591	1.6904003	20	9 8.7	19.9
484302 2007 TZ_{4}	17.9	X	333.66454	37.02979	13.84157	4.33367	0.1953298	0.23185995	2.6241313	20	12 9.9	20.3
484303 2007 TS_{17}	17.0	X	311.94300	81.38530	23.93105	29.12070	0.3190201	0.23319134	2.6141336	20	—	—
484304 2007 TH_{74}	16.7	X	351.22882	11.85385	40.57806	15.52838	0.2656223	0.23370616	2.6102931	20	—	—
484305 2007 TX_{75}	18.4	X	340.14436	77.92958	18.13713	4.88373	0.2813996	0.23843610	2.5756571	20	—	—
484306 2007 TT_{84}	17.7	X	318.46232	214.82850	202.53383	13.63081	0.2739585	0.22758150	2.6569176	20	11 14.3	19.5
484307 2007 TJ_{85}	17.4	X	345.53458	255.09139	169.64063	3.14051	0.2517149	0.23544283	2.5974413	20	—	—
484308 2007 TG_{86}	17.5	X	28.57413	350.56247	40.04447	14.86564	0.1771114	0.23999148	2.5645165	20	—	—
484309 2007 TD_{93}	17.0	X	348.84797	189.58396	203.16213	13.95349	0.2496406	0.23161240	2.6260008	20	12 22.1	19.8
484310 2007 TO_{105}	18.0	X	338.50922	263.32901	134.63633	3.11571	0.2224241	0.23254437	2.6189799	20	12 5.5	20.3
484311 2007 TM_{107}	18.1	X	323.06724	65.94898	348.39434	4.34243	0.2592958	0.23269615	2.6178409	20	11 22.3	19.9
484312 2007 TM_{108}	17.0	X	329.52685	153.54784	216.08189	11.81144	0.2869016	0.22667213	2.6640189	20	9 20.8	18.8
484313 2007 TE_{112}	17.7	X	276.47219	167.92618	247.72020	6.48789	0.3099061	0.21940114	2.7225558	20	7 30.9	21.3
484314 2007 TF_{118}	17.9	X	325.10880	255.44089	185.48047	5.79428	0.3263222	0.23328319	2.6134473	20	—	—
484315 2007 TG_{119}	17.2	X	174.93481	229.41288	23.79844	15.22478	0.0574319	0.23968514	2.5667012	20	—	—
484316 2007 TO_{120}	17.7	X	6.84747	35.87464	19.37612	17.09237	0.1271712	0.24019437	2.5630722	20	—	—
484317 2007 TV_{120}	17.3	X	319.85413	234.09400	211.94324	13.00892	0.1457327	0.23428361	2.6060022	20	12 29.3	20.2
484318 2007 TV_{125}	17.7	X	13.74837	197.23266	205.61345	4.94996	0.2358908	0.23876582	2.5732853	20	—	—
484319 2007 TX_{141}	16.9	X	4.58272	355.98853	41.97033	15.62479	0.0516861	0.23572313	2.5953818	20	12 28.7	20.5
484320 2007 TX_{144}	17.1	X	316.09946	9.61257	14.17855	1.63708	0.2252612	0.22462329	2.6801938	20	9 15.1	19.4

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
484321 2007 TP_{226}	17.9	X	335.38914	26.11154	48.35405	4.18160	0.1173560	0.23628890	2.5912372	20	—	—
484322 2007 TW_{227}	17.8	X	65.59558	347.85190	21.59194	4.92532	0.0651492	0.24328837	2.5412954	20	—	—
484323 2007 TP_{228}	17.6	X	336.98714	31.90772	29.67614	9.01187	0.2095032	0.23338757	2.6126680	20	—	—
484324 2007 TL_{284}	17.7	X	205.81628	212.84033	67.27643	1.85749	0.1676368	0.26208265	2.4183020	20	—	—
484325 2007 TQ_{333}	17.7	X	311.50749	71.81205	28.17070	3.54272	0.1641037	0.23333731	2.6130432	20	—	—
484326 2007 TE_{342}	18.0	X	314.98617	12.09014	106.57565	4.16147	0.1631059	0.23920374	2.5701437	20	—	—
484327 2007 TN_{346}	17.8	X	301.81038	60.18255	32.70715	13.81396	0.1368764	0.23456536	2.6039150	20	12 3.8	20.7
484328 2007 TV_{362}	17.4	X	357.37059	0.06364	58.59942	9.67491	0.1211500	0.23513181	2.5997313	20	—	—
484329 2007 TM_{382}	17.1	X	162.10116	191.61443	75.67810	15.57766	0.0399325	0.23900990	2.5715331	20	—	—
484330 2007 TN_{382}	17.3	X	343.22487	290.55078	131.15684	5.86264	0.2391365	0.23288319	2.6164390	20	—	—
484331 2007 TU_{397}	17.0	X	246.85402	112.37037	15.37220	12.67753	0.2127975	0.22467430	2.6797881	20	10 13.3	20.7
484332 2007 TK_{426}	18.0	X	314.32158	329.46784	120.49797	2.16001	0.1351716	0.23519315	2.5992792	20	12 26.2	20.7
484333 2007 TO_{433}	17.6	X	311.79661	313.17650	95.17977	6.93728	0.2456565	0.22555339	2.6728206	20	10 15.6	19.9
484334 2007 TQ_{435}	17.5	X	347.15082	10.21757	22.31284	4.74772	0.1306523	0.22885932	2.6470185	20	12 1.9	20.4
484335 2007 TE_{436}	16.7	X	359.06813	322.53290	91.99736	14.37835	0.2483704	0.22976118	2.6400872	20	—	—
484336 2007 TH_{443}	17.9	X	342.70467	237.44982	160.22541	13.18264	0.2675056	0.23140322	2.6275831	20	12 20.6	20.5
484337 2007 UY_{6}	18.0	X	341.15220	18.86514	51.69682	5.73811	0.2251244	0.23651411	2.5895920	20	—	—
484338 2007 UK_{7}	17.5	X	346.89225	68.26498	307.68110	11.66976	0.2956775	0.23000285	2.6382376	20	11 28.6	19.8
484339 2007 UW_{33}	17.2	X	331.01653	202.42836	236.06927	12.75389	0.2265733	0.23421011	2.6065474	20	—	—
484340 2007 UH_{37}	17.2	X	340.37389	310.26570	68.57334	8.04365	0.3256541	0.22881730	2.6473426	20	11 22.1	18.7
484341 2007 UF_{42}	17.8	X	339.21871	101.11575	321.43083	3.47710	0.0883906	0.23404525	2.6077713	20	12 28.4	20.7
484342 2007 UL_{84}	17.6	X	13.28411	347.84244	51.99248	8.35049	0.1203562	0.23646629	2.5899411	20	—	—
484343 2007 UJ_{90}	17.8	X	331.79634	29.21547	34.04791	3.07697	0.1258788	0.23266110	2.6181038	20	12 19.2	20.5
484344 2007 UG_{94}	17.7	X	341.31313	39.03542	28.00978	7.04136	0.0407933	0.23601084	2.5932720	20	—	—
484345 2007 UR_{122}	17.2	X	311.14977	5.59906	55.17709	14.64821	0.2314757	0.22515567	2.6759673	20	11 2.3	19.4
484346 2007 UL_{128}	17.1	X	106.20643	263.14983	63.36217	10.84519	0.0769097	0.24118132	2.5560750	20	—	—
484347 2007 UC_{130}	16.9	X	315.25635	47.27019	51.78718	22.60391	0.0313641	0.23468080	2.6030610	20	—	—
484348 2007 UX_{139}	17.7	X	324.77283	197.57133	230.11118	9.44841	0.1860681	0.22993280	2.6387734	20	12 14.5	20.2
484349 2007 US_{141}	17.5	X	341.75888	22.74609	70.88787	8.34135	0.1062511	0.23732092	2.5837195	20	—	—
484350 2007 VW_{9}	17.8	X	344.96786	300.67865	125.50366	2.59831	0.2391610	0.23405708	2.6076834	20	—	—
484351 2007 VY_{38}	16.9	X	16.10439	248.63773	109.24670	6.63725	0.3592401	0.23267515	2.6179985	20	—	—
484352 2007 VC_{45}	17.5	X	180.09397	320.09773	324.52970	4.60923	0.1190736	0.25098104	2.4890986	20	—	—
484353 2007 VT_{48}	18.2	X	37.87661	36.45085	326.49889	3.30331	0.1883219	0.23630939	2.5910874	20	—	—
484354 2007 VW_{51}	18.3	X	3.13064	2.73220	25.72838	6.55922	0.2174790	0.23290116	2.6163045	20	—	—
484355 2007 VO_{59}	17.9	X	321.77769	144.32023	305.32497	2.66083	0.1343896	0.23223135	2.6213327	20	—	—
484356 2007 VE_{62}	17.6	X	310.95183	64.67302	26.48274	3.10758	0.1763887	0.22988036	2.6391747	20	12 19.0	19.9
484357 2007 VS_{73}	17.0	X	274.19913	270.60536	244.52956	14.68294	0.2418179	0.23069655	2.6329462	20	12 26.6	19.8
484358 2007 VU_{75}	17.8	X	306.41915	248.00276	220.01722	12.32919	0.2305677	0.23240275	2.6200437	20	—	—
484359 2007 VL_{83}	17.2	X	318.83712	358.09203	88.41826	16.51215	0.1615522	0.22584103	2.6705507	20	12 26.6	19.9
484360 2007 VC_{87}	17.3	X	325.59933	175.64260	241.55695	12.20092	0.2725232	0.22949157	2.6421546	20	12 5.1	19.1
484361 2007 VB_{92}	17.7	X	14.54214	230.06149	187.32459	8.71298	0.1529312	0.23909355	2.5709333	20	—	—
484362 2007 VS_{100}	17.9	X	312.89337	52.66843	17.34911	2.61052	0.1030954	0.22644706	2.6657838	20	11 22.7	20.9
484363 2007 VA_{101}	16.9	X	330.63006	188.17757	251.05602	12.26224	0.1942958	0.23157898	2.6262534	20	—	—
484364 2007 VY_{107}	17.7	X	22.12767	349.43387	50.07069	4.28896	0.1827929	0.23830194	2.5766237	20	—	—
484365 2007 VB_{113}	17.8	X	316.83156	208.94968	225.17923	1.58854	0.1942152	0.22864425	2.6486782	20	12 6.4	20.2
484366 2007 VG_{116}	17.5	X	245.81915	54.58289	120.66669	4.19495	0.1858619	0.23012419	2.6373101	20	12 18.1	20.7
484367 2007 VP_{145}	17.2	X	33.22720	125.30481	259.88044	10.91116	0.1956178	0.23728812	2.5839576	20	—	—
484368 2007 VW_{147}	17.9	X	309.92529	284.66857	181.10255	3.14652	0.2071582	0.23026914	2.6362033	20	—	—
484369 2007 VE_{149}	17.4	X	344.07445	296.78945	95.93444	3.51645	0.2164956	0.23008088	2.6376411	20	12 7.9	19.6
484370 2007 VF_{149}	17.4	X	331.94981	346.99692	64.81627	7.50108	0.2335122	0.23019320	2.6367830	20	12 10.3	19.4
484371 2007 VR_{199}	17.9	X	345.29170	215.01102	224.47672	4.19630	0.1048076	0.23871864	2.5736244	20	—	—
484372 2007 VQ_{212}	17.4	X	275.51393	31.86035	91.62413	6.06633	0.0935356	0.22979444	2.6398325	20	12 7.3	20.4
484373 2007 VS_{212}	17.1	X	289.14353	53.11889	68.06582	15.90658	0.0751054	0.23268564	2.6179197	20	12 26.5	20.4
484374 2007 VQ_{213}	17.7	X	341.37090	353.41044	86.41032	6.58827	0.2161514	0.23541388	2.5976542	20	—	—
484375 2007 VR_{252}	17.8	X	347.69483	357.90905	81.17791	6.16739	0.1965183	0.23686012	2.5870694	20	—	—
484376 2007 VT_{260}	16.9	X	248.98599	137.62010	34.42680	14.85526	0.0435693	0.23705476	2.5856531	20	—	—
484377 2007 VO_{264}	17.2	X	9.39046	329.17087	61.63507	11.08594	0.1369035	0.23240135	2.6200543	20	—	—
484378 2007 VH_{268}	17.6	X	333.30268	27.30312	63.43397	13.85114	0.1308076	0.23757253	2.5818949	20	—	—
484379 2007 VA_{273}	17.0	X	357.99025	2.50515	77.22920	6.65521	0.0531956	0.24060975	2.5601214	20	—	—
484380 2007 VE_{279}	17.4	X	31.31143	289.95143	52.15164	13.58194	0.2868927	0.23270750	2.6177558	20	12 25.8	21.2
484381 2007 VF_{281}	17.5	X	335.34987	173.47646	239.59826	12.72210	0.2490480	0.22990182	2.6390105	20	12 21.5	19.7
484382 2007 VQ_{282}	16.4	X	222.13748	339.26800	68.63736	6.58222	0.1753876	0.12446630	3.9728443	20	6 9.9	22.7
484383 2007 VN_{294}	18.8	X	343.29494	54.87260	348.57060	3.88684	0.2832160	0.23157508	2.6262829	20	—	—
484384 2007 VC_{297}	16.8	X	343.55877	252.24525	84.76824	8.46389	0.2951202	0.22549985	2.6732437	20	9 20.6	18.6
484385 2007 VU_{307}	16.9	X	250.05236	239.40135	256.84580	11.71869	0.2061751	0.22290665	2.6939366	20	10 26.8	20.8
484386 2007 VT_{308}	17.8	X	291.45299	64.23502	66.78077	4.61760	0.1540638	0.23352035	2.6116776	20	—	—
484387 2007 VB_{313}	17.8	X	274.44484	236.26216	246.39126	4.08135	0.1083080	0.22747669	2.6577336	20	12 1.7	20.9
484388 2007 VN_{327}	18.0	X	338.47359	43.46114	31.17897	4.86656	0.2354552	0.23245366	2.6196612	20	—	—
484389 2007 VL_{330}	18.1	X	300.90361	33.13183	57.35455	6.38933	0.2924601	0.22321975	2.6914169	20	11 12.1	20.0
484390 2007 WQ_{11}	17.5	X	325.48853	225.19222	180.46848	5.29881	0.2719260	0.22644426	2.6658058	20	11 15.4	19.3
484391 2007 WC_{13}	17.9	X	284.69958	302.45585	180.32987	9.78763	0.0648045	0.23393693	2.6085762	20	12 23.8	21.3
484392 2007 WO_{14}	17.8	X	285.15753	26.93422	117.69501	2.57900	0.0535800	0.23584888	2.5944591	20	—	—
484393 2007 WM_{15}	18.1	X	327.96863	245.40197	187.19080	1.80141	0.1957637	0.23040910	2.6351356	20	12 29.4	20.3
484394 2007 WV_{23}	16.2	X	225.26323	300.83190	100.21439	4.48136	0.2268778	0.12596207	3.9413305	20	6 1.9	22.5
484395 2007 WQ_{39}	17.5	X	300.03478	321.77601	143.13364	4.52908	0.2274364	0.23037619	2.6353865	20	12 13.3	19.7
484396 2007 WG_{58}	16.5	X	280.19214	215.01973	309.65927	11.68734	0.1058974	0.22960446	2.6412885	20	—	—
484397 2007 WY_{61}	17.3	X	351.58241	106.65958	277.41009	10.14474	0.3128405	0.22924507	2.6440483	20	12 26.1	19.7
484398 2007 XA_{1}	17.6	X	338.61874	130.67015	264.97006	3.74510	0.2811622	0.22806674	2.6531476	20	12 6.9	19.6
484399 2007 XO_{9}	17.5	X	308.21720	261.82233	199.02973	11.04654	0.2651421	0.22906041	2.6454691	20	12 24.4	19.7
484400 2007 XT_{10}	15.9	X	232.45387	129.72601	257.59839	14.17043	0.2696653	0.12490702	3.9634934	20	5 19.2	22.5

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Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
484401 2007 XW_{15}	17.1	X	339.07827	143.08274	272.49033	12.29344	0.2423373	0.22985194	2.6393922	20	—	—
484402 2007 XH_{16}	19.6	X	183.63946	58.30153	91.29084	27.42986	0.2348528	0.76201346	1.1871191	20	—	—
484403 2007 XF_{25}	21.4	X	132.67855	302.63592	272.77530	24.48848	0.1323171	0.76600079	1.1829959	20	—	—
484404 2007 XK_{36}	17.7	X	353.42505	4.38220	57.85322	8.25167	0.2691867	0.23364040	2.6107829	20	—	—
484405 2007 XE_{38}	17.3	X	17.46143	338.67486	43.56853	6.39740	0.2556668	0.23328978	2.6133981	20	—	—
484406 2007 XB_{40}	17.5	X	332.38229	121.79775	296.32748	11.87932	0.2962561	0.22622633	2.6675175	20	12 27.8	19.3
484407 2007 XT_{51}	16.7	X	125.88109	2.96020	330.33745	7.18931	0.2696195	0.24335902	2.5408035	20	—	—
484408 2007 XU_{51}	18.2	X	290.58170	80.92256	13.99263	3.90911	0.1807219	0.22207922	2.7006239	20	11 9.2	20.9
484409 2007 XR_{52}	17.3	X	279.77379	31.55485	100.62702	6.10687	0.1045508	0.22507162	2.6766334	20	12 22.4	20.4
484410 2007 XV_{52}	17.0	X	339.94546	335.96214	106.75358	13.84556	0.2136887	0.23043560	2.6349335	20	—	—
484411 2007 XL_{54}	17.6	X	268.41355	100.56080	33.19024	5.93584	0.1205632	0.22224543	2.6992772	20	12 3.2	20.9
484412 2007 YB_{11}	16.2	X	228.86562	245.20191	332.85609	14.45453	0.2125508	0.22179062	2.7029661	20	—	—
484413 2007 YU_{26}	16.9	X	347.07149	345.11058	86.83378	14.61757	0.1445234	0.22906592	2.6454267	20	—	—
484414 2007 YU_{33}	17.2	X	27.09845	264.72846	87.51084	11.93076	0.1952151	0.22883398	2.6472140	20	12 19.9	20.5
484415 2007 YZ_{51}	16.6	X	142.90210	169.09805	145.15151	2.33486	0.2191066	0.24531282	2.5272947	20	—	—
484416 2007 YL_{58}	17.5	X	330.72207	339.86249	113.37326	15.34730	0.2104467	0.22915412	2.6447478	20	—	—
484417 2007 YL_{64}	17.1	X	5.85532	274.83944	141.26995	10.83086	0.2137466	0.23043512	2.6349372	20	—	—
484418 2007 YZ_{65}	17.2	X	303.50552	172.49942	275.66029	3.52223	0.0672936	0.22034899	2.7147427	20	12 1.9	20.5
484419 2007 YC_{67}	17.5	X	333.13374	218.78935	256.51238	1.80124	0.0998630	0.23182366	2.6244052	20	—	—
484420 2007 YW_{67}	17.7	X	322.29284	97.88983	0.67410	6.07162	0.2663097	0.22842654	2.6503609	20	—	—
484421 2007 YG_{71}	16.9	X	234.64810	47.03925	71.38368	13.69873	0.1673643	0.21289151	2.7777755	20	9 30.3	21.2
484422 2007 YW_{73}	16.4	X	175.63566	247.22531	316.79470	9.94244	0.0749629	0.21401563	2.7680401	20	11 9.8	20.7
484423 2007 YY_{73}	17.0	X	3.40935	131.18674	257.00965	4.80168	0.0354663	0.21998492	2.7177371	20	12 8.7	20.4
484424 2007 YV_{74}	17.5	X	307.36390	161.27584	300.93043	11.25934	0.1140193	0.22165963	2.7040308	20	12 26.6	20.7
484425 2008 AP_{15}	17.7	X	338.51939	222.86488	246.34176	2.80428	0.0793699	0.23198887	2.6231590	20	—	—
484426 2008 AM_{22}	17.5	X	289.59770	329.19991	123.02100	10.24808	0.1859740	0.21692913	2.7432000	20	11 6.9	20.7
484427 2008 AN_{22}	17.6	X	275.73863	143.37515	323.60217	7.32615	0.3327220	0.21800018	2.7342076	20	10 2.1	21.0
484428 2008 AJ_{23}	17.6	X	231.74251	78.48129	94.25135	4.49734	0.1306889	0.21706454	2.7420590	20	12 2.1	21.4
484429 2008 AO_{27}	17.3	X	288.98756	351.11670	154.06011	11.21184	0.1122883	0.22333303	2.6905067	20	—	—
484430 2008 AL_{28}	17.3	X	246.74190	182.25917	352.74088	3.20278	0.1725183	0.21767793	2.7369054	20	12 17.4	20.8
484431 2008 AP_{29}	16.5	X	103.10462	345.47099	319.99219	31.91211	0.0398447	0.22101003	2.7093268	20	—	—
484432 2008 AH_{38}	17.2	X	296.03303	6.49297	129.50361	17.04778	0.0973487	0.22763553	2.6564971	20	—	—
484433 2008 AT_{40}	17.3	X	280.62602	118.39998	337.88453	5.88532	0.0956022	0.21482112	2.7611165	20	11 2.0	20.8
484434 2008 AJ_{45}	17.1	X	340.28864	331.53500	110.08972	13.77635	0.2610512	0.22928244	2.6437610	20	—	—
484435 2008 AS_{45}	16.7	X	47.29387	89.11456	276.88514	10.59912	0.2004715	0.23563082	2.5960596	20	—	—
484436 2008 AR_{48}	16.9	X	312.79768	227.07819	248.18225	10.86062	0.1424448	0.23535050	2.5981206	20	—	—
484437 2008 AB_{54}	17.8	X	250.13521	224.17447	299.97946	4.47482	0.0568304	0.22360378	2.6883344	20	12 27.0	21.1
484438 2008 AK_{55}	16.8	X	167.21552	50.62346	133.45424	4.61585	0.0341286	0.21051839	2.7986120	20	10 13.6	20.8
484439 2008 AV_{76}	17.2	X	339.05593	310.29409	94.91241	7.34331	0.0240873	0.21818971	2.7326239	20	11 27.5	20.7
484440 2008 AM_{79}	17.0	X	4.59202	286.37478	135.77476	15.16353	0.1068090	0.22718949	2.6599730	20	—	—
484441 2008 AP_{91}	16.9	X	313.73458	341.62701	118.93746	22.62044	0.0272379	0.22342677	2.6897541	20	—	—
484442 2008 AL_{93}	16.6	X	53.32020	246.82853	105.07541	14.92896	0.1081135	0.22494738	2.6776188	20	—	—
484443 2008 AR_{95}	16.8	X	356.39017	86.48667	326.68248	10.31187	0.1217629	0.22530544	2.6747812	20	—	—
484444 2008 AS_{98}	17.5	X	340.24395	76.66898	330.08109	7.83066	0.2374255	0.22284051	2.6944696	20	12 19.7	20.0
484445 2008 AP_{109}	17.6	X	263.77214	228.36087	287.27045	6.45404	0.2146584	0.22262776	2.6961859	20	12 11.8	20.7
484446 2008 AL_{110}	16.9	X	58.63231	226.87898	124.47947	7.88356	0.0929848	0.22326480	2.6910548	20	—	—
484447 2008 AS_{128}	17.3	X	276.11068	325.52265	126.33489	4.42115	0.0781136	0.21551179	2.7552141	20	10 27.6	20.9
484448 2008 BW_{4}	17.5	X	301.54075	26.16304	86.43368	3.31449	0.0422493	0.22450537	2.6811322	20	—	—
484449 2008 BM_{15}	17.3	X	288.30290	324.63943	126.19084	6.29969	0.1597402	0.21821325	2.7324274	20	11 4.8	20.4
484450 2008 BD_{18}	16.8	X	233.13380	53.47838	145.57696	11.88055	0.0242910	0.22343416	2.6896948	20	—	—
484451 2008 BC_{20}	17.0	X	249.01357	105.04760	122.93272	5.99015	0.2427716	0.23365881	2.6106457	20	—	—
484452 2008 BY_{22}	16.6	X	265.58378	161.36328	332.08746	12.92278	0.1444707	0.21633745	2.7481995	20	11 20.5	20.3
484453 2008 BQ_{31}	17.3	X	311.31710	282.62159	145.59470	9.88391	0.2017438	0.21715645	2.7412852	20	11 14.0	20.1
484454 2008 BJ_{48}	17.0	X	259.48696	262.33241	274.50765	11.11339	0.2099304	0.22323767	2.6912729	20	—	—
484455 2008 BX_{50}	17.0	X	335.66970	254.38357	144.06745	5.09116	0.0841491	0.21311122	2.7758660	20	11 15.8	20.4
484456 2008 BP_{51}	17.3	X	278.02038	103.10438	8.37839	9.16907	0.1739332	0.21841885	2.7307124	20	11 7.9	20.5
484457 2008 CU_{2}	17.8	X	275.71691	354.84612	147.05946	8.98894	0.2603663	0.21940139	2.7225538	20	12 6.8	20.9
484458 2008 CC_{10}	17.6	X	213.77013	60.12167	137.05359	3.74096	0.1926706	0.21650499	2.7467815	20	12 4.4	21.8
484459 2008 CW_{13}	17.4	X	211.93608	105.66027	88.81510	3.38031	0.1363782	0.21531974	2.7568522	20	12 4.9	21.5
484460 2008 CW_{18}	17.4	X	294.70887	13.20689	88.39486	3.03665	0.2046281	0.21708301	2.7419035	20	11 23.5	20.1
484461 2008 CD_{20}	16.8	X	220.21772	223.45018	330.86088	8.55369	0.0996340	0.21620525	2.7493196	20	12 18.9	20.7
484462 2008 CM_{20}	21.5	X	58.77015	226.64942	306.93746	21.07265	0.2228218	0.66050362	1.3058278	20	7 5.6	21.2
484463 2008 CA_{37}	16.6	X	289.88980	188.58517	321.28850	12.98782	0.1903015	0.22465674	2.6799277	20	—	—
484464 2008 CJ_{38}	16.8	X	346.18336	293.73026	137.70182	15.19483	0.0950043	0.22342711	2.6897513	20	—	—
484465 2008 CX_{52}	17.1	X	329.43699	316.26524	109.47507	6.42310	0.1062156	0.21822717	2.7323112	20	12 13.1	20.2
484466 2008 CZ_{58}	17.2	X	17.19910	254.60604	151.48981	14.94330	0.1882330	0.22740884	2.6582622	20	—	—
484467 2008 CS_{60}	17.1	X	355.17170	96.87052	305.75152	10.09072	0.1962066	0.22254275	2.6968725	20	—	—
484468 2008 CH_{66}	17.9	X	308.09362	97.26343	7.94267	2.85613	0.1589316	0.22213123	2.7002023	20	12 30.8	20.5
484469 2008 CB_{88}	17.1	X	227.45219	325.48325	132.95797	10.69409	0.1760880	0.20161403	2.8804182	20	8 19.3	21.4
484470 2008 CU_{91}	17.3	X	89.64246	290.07172	9.91901	4.79263	0.0572016	0.21405883	2.7676677	20	12 6.3	21.4
484471 2008 CA_{96}	17.2	X	245.44384	28.87940	122.75658	4.79162	0.1300922	0.22051193	2.7134052	20	11 24.4	20.8
484472 2008 CT_{100}	17.6	X	263.41503	49.14624	111.02087	13.56042	0.1082016	0.22492211	2.6778194	20	—	—
484473 2008 CV_{102}	17.2	X	314.89545	180.87572	296.63381	10.47835	0.0907596	0.22616975	2.6679624	20	—	—
484474 2008 CB_{103}	17.5	X	240.03677	12.15180	172.71743	10.74057	0.0915945	0.21980162	2.7192478	20	—	—
484475 2008 CG_{105}	17.4	X	313.36113	54.51327	347.07352	11.91895	0.2364903	0.21266337	2.7797619	20	9 27.9	20.1
484476 2008 CV_{119}	17.0	X	330.25771	293.17191	173.28212	11.91281	0.1771918	0.22737367	2.6585363	20	—	—
484477 2008 CW_{121}	17.0	X	216.52028	252.73706	299.39829	9.70349	0.2118337	0.21647869	2.7470039	20	11 27.2	21.3
484478 2008 CY_{122}	17.6	X	263.13110	194.99221	303.06875	2.39611	0.1384297	0.21781075	2.7357927	20	11 27.7	20.8
484479 2008 CN_{125}	17.4	X	16.51619	74.04524	312.24004	5.28133	0.0345900	0.21904988	2.7254656	20	12 23.4	21.0
484480 2008 CF_{136}	17.6	X	240.82527	33.41070	155.90675	4.21983	0.2315456	0.22094513	2.7098574	20	12 20.2	21.2

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	m		°	°	°	°		°				
484481 2008 CD_{145}	17.2	X	261.48528	259.80510	272.85365	1.65179	0.1900827	0.22215370	2.7000202	20	—	—
484482 2008 CW_{155}	16.5	X	301.05932	294.83231	158.96018	14.30755	0.1132843	0.21865300	2.7287626	20	12 5.3	20.0
484483 2008 CA_{160}	17.2	X	208.68526	275.43187	315.99424	3.28040	0.1611171	0.21829753	2.7317241	20	—	—
484484 2008 CF_{170}	17.0	X	190.14730	283.46707	275.89665	4.41346	0.0148254	0.21337156	2.7736077	20	11 28.8	20.7
484485 2008 CG_{178}	17.0	X	337.25502	335.42402	116.81657	15.35478	0.2275399	0.22836499	2.6508371	20	—	—
484486 2008 CG_{182}	17.1	X	299.12991	351.08076	133.89241	14.64787	0.1961985	0.22240690	2.6979706	20	—	—
484487 2008 CX_{184}	16.8	X	332.75578	353.96118	74.15090	10.23533	0.3017951	0.22616558	2.6679952	20	—	—
484488 2008 CZ_{191}	17.2	X	208.41292	38.73183	164.81332	8.56290	0.1411912	0.21577555	2.7529684	20	12 12.4	21.4
484489 2008 CA_{192}	17.4	X	245.56451	317.08409	232.47669	1.93211	0.1178977	0.22080197	2.7110285	20	—	—
484490 2008 CK_{196}	17.6	X	224.23717	19.91614	181.29994	9.25816	0.0900866	0.21388603	2.7691582	20	—	—
484491 2008 CC_{198}	17.4	X	171.05964	276.62556	313.65526	1.43741	0.1926432	0.21042351	2.7994532	20	12 3.2	22.1
484492 2008 CA_{208}	17.4	X	316.87049	104.72229	319.93852	6.99688	0.1633936	0.21623939	2.7490302	20	11 15.8	20.4
484493 2008 DB_{22}	17.7	X	286.19053	5.91387	129.38446	10.02003	0.1898291	0.22194531	2.7017101	20	12 27.5	20.4
484494 2008 DV_{23}	17.4	X	214.61851	60.57835	158.27026	12.83349	0.2613019	0.21689041	2.7435265	20	12 23.5	21.9
484495 2008 DE_{24}	17.0	X	231.58805	6.42186	177.76516	8.64135	0.1217128	0.21662373	2.7457776	20	12 17.3	20.9
484496 2008 DR_{31}	16.3	X	101.14647	140.40801	157.05299	21.49703	0.1077227	0.21030370	2.8005163	20	12 21.3	21.0
484497 2008 DZ_{39}	16.7	X	279.29560	152.23901	351.16767	12.66592	0.1304060	0.21796505	2.7345013	20	—	—
484498 2008 DE_{44}	17.5	X	195.37117	76.74979	154.22255	9.94578	0.2202448	0.21225025	2.7833677	20	12 23.4	22.2
484499 2008 DQ_{54}	16.5	X	258.05110	82.69050	120.28785	16.02201	0.2552003	0.22494301	2.6776536	20	—	—
484500 2008 DJ_{58}	16.8	X	188.59840	301.05755	317.81329	12.88228	0.0574597	0.22825163	2.6517147	20	—	—
484501 2008 DM_{76}	17.3	X	314.53342	93.71785	344.30455	7.87884	0.1345835	0.21593649	2.7516004	20	12 1.3	20.4
484502 2008 DL_{82}	17.2	X	211.66427	153.37960	55.44828	5.00039	0.1436877	0.21328187	2.7743852	20	12 20.4	21.2
484503 2008 DJ_{83}	17.5	X	211.21950	25.08501	191.86762	11.77855	0.1637472	0.21455521	2.7633974	20	12 27.1	21.8
484504 2008 DE_{84}	17.1	X	205.07514	207.75557	14.27240	13.50093	0.1087857	0.21552132	2.7551330	20	—	—
484505 2008 DX_{86}	17.0	X	7.38735	59.44964	331.45195	13.97897	0.1410793	0.21981406	2.7191452	20	—	—
484506 2008 ER_{7}	20.1	X	327.80843	80.99206	323.45345	2.23761	0.6237904	0.54378566	1.4865661	20	—	—
484507 2008 ES_{13}	16.8	X	199.30229	355.91321	155.67839	15.69442	0.0813291	0.20184301	2.8782393	20	10 6.6	21.2
484508 2008 EK_{16}	16.6	X	290.76314	158.87397	1.73490	12.18206	0.2179518	0.22335871	2.6903005	20	—	—
484509 2008 EZ_{18}	17.4	X	267.26376	333.88950	171.35153	7.62074	0.2840599	0.21874975	2.7279580	20	11 22.9	20.7
484510 2008 EV_{20}	16.3	X	161.15541	290.26120	354.51509	12.21548	0.1403667	0.21602494	2.7508492	20	—	—
484511 2008 EF_{25}	17.6	X	237.55302	102.51428	131.51198	6.86622	0.2800230	0.22316710	2.6918401	20	—	—
484512 2008 EH_{28}	16.5	X	16.73019	65.33559	19.17457	22.41652	0.0341553	0.22667329	2.6640098	20	—	—
484513 2008 ET_{38}	17.9	X	272.53278	29.34431	101.14655	3.80073	0.1235428	0.21522407	2.7576691	20	12 4.1	21.3
484514 2008 ED_{45}	16.6	X	202.16234	233.25914	1.16237	7.50473	0.1657886	0.21476657	2.7615840	20	—	—
484515 2008 EL_{51}	16.9	X	282.63076	333.79785	190.38483	15.48808	0.2533050	0.22251926	2.6970623	20	—	—
484516 2008 ER_{51}	16.7	X	80.49058	333.22523	24.60647	10.93180	0.0920715	0.22174977	2.7032981	20	—	—
484517 2008 EC_{69}	17.1	X	223.30895	178.17519	93.30674	24.76066	0.6175168	0.21514557	2.7583399	20	—	—
484518 2008 EW_{90}	16.9	X	220.37294	105.35172	98.81485	12.65966	0.2730628	0.21405459	2.7677043	20	12 10.4	21.2
484519 2008 EJ_{105}	16.9	X	229.10218	55.31895	131.64642	8.36350	0.1504991	0.21608448	2.7503439	20	12 14.1	20.9
484520 2008 EP_{105}	17.1	X	286.42110	358.82971	109.91523	6.21548	0.0752166	0.21407070	2.7675654	20	12 2.4	20.6
484521 2008 EZ_{113}	16.9	X	232.64376	227.43026	340.46976	12.51824	0.1566116	0.21957182	2.7211448	20	—	—
484522 2008 EB_{120}	17.7	X	258.11245	28.54833	152.92843	3.49967	0.1613591	0.21938839	2.7226613	20	—	—
484523 2008 ET_{134}	17.5	X	219.01656	44.63538	169.08755	8.15390	0.1561872	0.21553116	2.7550490	20	—	—
484524 2008 EP_{140}	17.2	X	285.46922	318.95431	145.19460	9.54273	0.1146603	0.21262777	2.7800721	20	11 22.2	20.7
484525 2008 EP_{149}	16.4	X	259.16720	26.95398	129.37931	14.14076	0.1377719	0.21666844	2.7453999	20	12 17.4	20.0
484526 2008 ES_{152}	17.4	X	205.94101	104.87361	86.53160	3.34178	0.0618402	0.20901203	2.8120424	20	12 2.0	21.4
484527 2008 EE_{154}	18.0	X	237.00845	340.60045	188.80213	8.57395	0.1347359	0.21190877	2.7863571	20	12 3.2	21.9
484528 2008 EC_{157}	18.0	X	272.66986	122.44583	7.07742	7.35787	0.2736015	0.21587525	2.7521207	20	11 7.5	21.1
484529 2008 EK_{165}	17.3	X	293.40681	40.14127	71.36250	6.73073	0.2594083	0.21851099	2.7299448	20	11 28.2	19.4
484530 2008 EC_{167}	17.0	X	282.87143	356.38546	143.63649	8.17732	0.2018631	0.21830219	2.7316852	20	12 24.8	20.0
484531 2008 FN_{1}	17.0	X	182.95822	224.23040	1.89627	13.41467	0.1675174	0.21198888	2.7856550	20	12 8.5	21.7
484532 2008 FT_{2}	17.0	X	347.89797	244.30202	172.62398	6.53442	0.0482876	0.21507475	2.7589453	20	12 24.1	20.7
484533 2008 FF_{38}	16.9	X	107.05655	100.23978	175.74650	10.67483	0.1167522	0.20056882	2.8904166	20	11 30.2	21.5
484534 2008 FB_{58}	18.0	X	308.85887	303.21604	178.99860	9.76200	0.2497885	0.22161827	2.7043673	20	—	—
484535 2008 FA_{68}	17.0	X	299.21653	279.32951	202.68260	29.16248	0.3956539	0.21979137	2.7193324	20	12 8.3	19.3
484536 2008 FF_{81}	17.4	X	242.66377	330.06380	194.09222	7.72923	0.1528530	0.21207390	2.7849104	20	12 1.1	21.2
484537 2008 FY_{83}	18.8	X	260.00716	86.14332	158.96320	4.56255	0.0411116	0.31120444	2.1566129	20	—	—
484538 2008 FK_{89}	16.7	X	196.34692	242.44832	331.37904	15.22344	0.0588552	0.22057406	2.7128957	20	12 22.4	20.8
484539 2008 FW_{102}	17.4	X	226.09947	29.04283	170.47190	9.89341	0.2068936	0.21127941	2.7918876	20	12 17.2	21.6
484540 2008 FV_{120}	13.3	X	195.10972	339.82844	29.36458	27.69941	0.0335525	0.08382229	5.1708632	20	4 12.2	20.3
484541 2008 FJ_{133}	17.6	X	278.50386	118.12727	0.37920	2.04327	0.1426843	0.21323174	2.7748200	20	11 23.5	20.9
484542 2008 GU_{9}	16.4	X	355.77046	101.92153	199.68069	8.84550	0.0689772	0.17880063	3.1204940	20	7 30.1	20.5
484543 2008 GV_{9}	16.2	X	343.03877	113.01308	208.96312	16.50670	0.1222198	0.17892760	3.1190176	20	8 3.1	20.3
484544 2008 GL_{31}	17.5	X	147.75668	175.78461	111.13133	6.69577	0.0507252	0.21227910	2.7831155	20	—	—
484545 2008 GM_{37}	14.3	X	15.02671	153.79336	67.03578	9.06069	0.0938047	0.08400916	5.1631921	20	5 19.0	20.7
484546 2008 GR_{39}	17.4	X	247.53783	138.66189	12.80913	12.72672	0.0471217	0.21105028	2.7939079	20	12 2.8	21.4
484547 2008 GQ_{42}	17.2	X	171.84841	29.33199	192.55574	14.84608	0.0873923	0.20294862	2.8677766	20	11 29.5	21.7
484548 2008 GF_{67}	16.7	X	112.73246	301.43938	26.50096	12.63013	0.1567973	0.21183835	2.7869745	20	—	—
484549 2008 GW_{73}	14.1	X	323.08230	198.15512	81.39386	10.07442	0.0759360	0.08675643	5.0536084	20	5 17.8	20.6
484550 2008 GF_{79}	17.4	X	206.33654	132.57664	54.87306	8.69392	0.2264480	0.20491109	2.8494371	20	11 10.6	21.9
484551 2008 GG_{111}	16.9	X	228.10417	108.62607	104.74001	12.53499	0.2141023	0.21473499	2.7618547	20	—	—
484552 2008 GQ_{128}	17.3	X	224.51876	123.13418	120.95114	18.87312	0.3561759	0.21727589	2.7402805	20	—	—
484553 2008 GJ_{140}	13.9	X	14.76343	125.35467	96.66299	15.41028	0.0454429	0.08322866	5.1954215	20	5 21.3	20.6
484554 2008 GA_{144}	17.2	X	233.80888	80.97668	132.10965	10.49623	0.2656708	0.21650062	2.7468184	20	—	—
484555 2008 HN_{8}	17.0	X	139.56184	126.87009	145.57042	9.86996	0.1575465	0.20358900	2.8617598	20	12 25.8	21.9
484556 2008 HB_{18}	16.8	X	46.72805	92.56585	144.86782	10.10697	0.0412350	0.17665669	3.1456905	20	7 18.7	21.2
484557 2008 HR_{31}	14.0	X	329.13810	215.60230	54.18355	16.96991	0.0466103	0.08480896	5.1306796	20	5 15.2	20.6
484558 2008 HA_{35}	16.3	X	184.04773	244.42274	51.41337	33.16719	0.3122192	0.21478269	2.7614459	20	—	—
484559 2008 HN_{42}	14.2	X	335.23499	135.78468	120.87116	12.97032	0.0731582	0.08315431	5.1985177	20	5 10.5	20.9
484560 2008 HW_{56}	16.6	X	191.70474	83.82079	209.67878	13.97052	0.1931651	0.22090133	2.7102155	20	—	—

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
484561 2008 HK_{70}	16.6	X	188.96325	336.47901	230.54572	7.25402	0.2575511	0.20383473	2.8594594	20	11 16.6	21.6
484562 2008 JZ_{23}	16.4	X	46.39738	255.29762	65.59608	11.01215	0.0700585	0.19175362	2.9783359	20	11 10.1	20.4
484563 2008 JM_{37}	16.1	X	29.54832	213.17874	99.24538	18.37305	0.1471606	0.18378168	3.0638529	20	10 25.3	20.4
484564 2008 JM_{40}	16.3	X	17.23463	176.75856	135.27165	17.64709	0.1082748	0.18151747	3.0892788	20	9 26.3	20.4
484565 2008 KR_{37}	16.5	X	69.11081	63.75051	149.75254	9.98474	0.0545972	0.17506611	3.1647154	20	7 19.3	21.0
484566 2008 KK_{38}	14.1	X	50.15114	327.51200	216.89806	13.00676	0.1506135	0.08414887	5.1574756	20	5 31.1	20.6
484567 2008 KB_{42}	16.9	X	50.58067	169.99336	129.77774	12.29964	0.1953864	0.18468785	3.0538228	20	11 8.7	21.4
484568 2008 LT_{3}	13.4	X	343.95634	139.16744	117.12800	16.74487	0.0740690	0.08319242	5.1969302	20	5 21.9	20.1
484569 2008 LJ_{5}	15.9	X	126.76954	156.99355	103.25152	20.57222	0.2163586	0.19008048	2.9957877	20	12 3.8	21.2
484570 2008 LS_{11}	16.9	X	241.44196	68.36000	96.12910	13.02209	0.0897445	0.20340685	2.8634680	20	12 7.4	20.8
484571 2008 LS_{17}	17.5	X	92.97978	190.69818	160.39257	8.50914	0.4078274	0.27256098	2.3559185	20	—	—
484572 2008 OK	16.9	X	154.86203	22.43151	310.73943	25.78300	0.2244339	0.28859450	2.2678310	20	1 13.0	20.4
484573 2008 OA_{11}	15.6	X	78.60333	349.67258	335.88393	18.44031	0.3496821	0.18099773	3.0951899	20	—	—
484574 2008 QK_{13}	17.0	X	32.75085	28.23381	353.68299	7.58726	0.1444525	0.26470503	2.4023038	20	—	—
484575 2008 QA_{14}	17.9	X	16.76037	77.43187	332.77117	7.63729	0.1722449	0.26778753	2.3838329	20	—	—
484576 2008 QS_{16}	17.6	X	76.84769	190.74354	162.35377	10.47806	0.2334216	0.27062436	2.3671446	20	—	—
484577 2008 QF_{17}	17.4	X	77.62882	10.80450	337.05563	6.31694	0.1717791	0.27031281	2.3689631	20	—	—
484578 2008 QQ_{25}	16.5	X	123.16725	268.87645	334.45253	8.97408	0.1890882	0.17908057	3.1172412	20	11 2.2	21.8
484579 2008 QT_{25}	17.5	X	65.43167	168.38143	204.69494	10.63474	0.2391279	0.27177318	2.3604691	20	—	—
484580 2008 QA_{26}	17.6	X	232.92592	310.72333	326.74987	5.41288	0.2029882	0.29757243	2.2219840	20	1 5.5	21.2
484581 2008 QX_{27}	17.0	X	153.81866	199.09708	112.24654	7.35729	0.1290315	0.28172968	2.3045226	20	—	—
484582 2008 QG_{40}	16.1	X	295.83026	101.58027	341.16220	12.71263	0.0445090	0.17603467	3.1530964	20	10 31.1	20.6
484583 2008 QR_{42}	16.1	X	52.10477	348.60689	343.20907	21.96531	0.1142476	0.17909844	3.1170338	20	11 26.7	21.0
484584 2008 QK_{47}	18.2	X	42.51051	226.37852	156.56212	2.85512	0.2076335	0.26636106	2.3923363	20	—	—
484585 2008 RX_{2}	18.3	X	232.95357	49.27488	216.94276	2.15990	0.1795213	0.29071456	2.2567920	20	—	—
484586 2008 RP_{3}	17.8	X	34.73071	193.39435	200.61903	2.66353	0.2402690	0.26604454	2.3942334	20	—	—
484587 2008 RS_{7}	16.3	X	49.06763	69.98344	225.98429	14.10157	0.2029400	0.17353069	3.1833559	20	10 26.8	20.8
484588 2008 RM_{11}	18.1	X	91.86029	215.44805	139.63405	3.09925	0.2124494	0.27377440	2.3489521	20	—	—
484589 2008 RW_{21}	17.3	X	221.87197	288.24683	340.50853	25.48411	0.1499687	0.29113870	2.2545996	20	—	—
484590 2008 RU_{23}	18.2	X	152.17195	206.57298	188.52202	23.04083	0.1181155	0.37924899	1.8902522	20	3 2.8	20.5
484591 2008 RB_{69}	18.1	X	119.38597	358.11302	324.63431	4.75457	0.1645053	0.27329753	2.3516837	20	—	—
484592 2008 RM_{71}	16.5	X	132.60114	290.67793	327.24295	10.89189	0.1738560	0.18645284	3.0345203	20	11 28.6	21.7
484593 2008 RG_{93}	16.1	X	45.25641	158.95998	175.92987	11.07765	0.0368917	0.17335592	3.1854950	20	11 17.9	20.7
484594 2008 RK_{106}	17.1	X	156.17753	177.67806	63.84652	2.28186	0.1172511	0.18154406	3.0889770	20	12 1.2	21.9
484595 2008 RO_{118}	17.9	X	46.58787	192.21029	194.66609	6.74434	0.1356143	0.26323408	2.4112448	20	—	—
484596 2008 RB_{128}	16.5	X	55.27426	163.53100	161.26771	10.21347	0.0871700	0.17978534	3.1090893	20	11 26.1	21.1
484597 2008 RS_{136}	17.6	X	41.84854	259.90124	115.51283	3.18636	0.2084204	0.26401566	2.4064837	20	—	—
484598 2008 RP_{138}	16.0	X	137.79569	249.67102	356.50362	11.61471	0.0465262	0.17647262	3.1478775	20	11 13.5	20.9
484599 2008 RT_{143}	18.1	X	23.62259	273.83886	164.01979	3.08581	0.1608828	0.27298078	2.3535025	20	—	—
484600 2008 RS_{144}	18.1	X	43.31233	194.60826	200.14846	7.99436	0.1849531	0.26917171	2.3756536	20	—	—
484601 2008 SC_{1}	18.1	X	78.68078	313.54109	47.96499	6.36209	0.2551436	0.27198796	2.3592263	20	—	—
484602 2008 SD_{4}	17.9	X	34.59120	242.52106	135.61707	3.73576	0.2001694	0.26328561	2.4109302	20	—	—
484603 2008 SB_{27}	18.1	X	33.29038	92.96611	296.61758	0.99289	0.2292733	0.26451112	2.4034777	20	—	—
484604 2008 SM_{33}	16.1	X	73.20505	310.41257	340.63152	14.29955	0.0687516	0.17524412	3.1625719	20	10 25.8	20.9
484605 2008 SZ_{33}	17.7	X	101.47354	161.16027	195.37946	7.20142	0.2642936	0.27560913	2.3385158	20	—	—
484606 2008 SM_{35}	17.9	X	54.88081	217.27766	190.00286	6.33810	0.1411038	0.27197963	2.3592744	20	—	—
484607 2008 SK_{42}	18.0	X	54.24995	6.74204	8.58857	5.60859	0.2501858	0.26607470	2.3940525	20	—	—
484608 2008 SY_{45}	17.4	X	85.20803	181.36492	186.52637	6.29529	0.1331502	0.27156749	2.3616609	20	—	—
484609 2008 SY_{56}	17.4	X	325.71805	188.09419	22.92121	10.16654	0.0101793	0.28983692	2.2613454	20	2 19.3	20.2
484610 2008 SW_{58}	17.9	X	69.51325	232.90925	146.51828	1.89289	0.1992716	0.26956577	2.3733378	20	—	—
484611 2008 SB_{61}	17.8	X	58.99419	172.71278	194.37883	2.14405	0.2065253	0.26745000	2.3858382	20	—	—
484612 2008 SG_{64}	17.6	X	76.33378	154.73033	200.31080	11.01034	0.2550363	0.26809345	2.3820191	20	—	—
484613 Cerebrito	18.0	X	125.62911	302.41126	34.24507	5.86609	0.1912203	0.27800720	2.3250485	20	—	—
484614 2008 SO_{85}	16.4	X	24.05591	2.41538	332.14182	10.23031	0.0969962	0.17271842	3.1933286	20	10 21.9	20.8
484615 2008 SE_{95}	17.4	X	39.62010	137.45503	239.25656	3.14326	0.1862923	0.26240371	2.4163290	20	—	—
484616 2008 SY_{105}	17.7	X	30.72940	244.59440	165.84843	5.72597	0.3255111	0.26469141	2.4023862	20	—	—
484617 2008 SE_{110}	18.4	X	26.81056	5.47030	46.83098	3.14820	0.1710667	0.26619296	2.3933433	20	—	—
484618 2008 SS_{116}	18.0	X	54.57976	30.50576	8.62599	6.30335	0.0832729	0.27007215	2.3703702	20	—	—
484619 2008 SS_{119}	18.4	X	30.29924	201.66715	199.76955	1.76523	0.2002965	0.26368144	2.4085168	20	—	—
484620 2008 SU_{120}	18.8	X	42.92889	131.15834	309.78980	0.78637	0.1537285	0.27423842	2.3463017	20	—	—
484621 2008 SF_{122}	18.5	X	15.78469	70.18143	15.60086	6.36105	0.1582181	0.26848534	2.3797006	20	—	—
484622 2008 SP_{124}	18.2	X	138.96380	319.08512	10.94953	8.07285	0.1542633	0.27692751	2.3310879	20	—	—
484623 2008 SJ_{130}	17.8	X	50.48723	25.26626	345.83567	2.13870	0.2019536	0.26345033	2.4099251	20	—	—
484624 2008 SM_{143}	17.8	X	108.87793	342.74241	41.33124	9.11352	0.0922577	0.27773213	2.3265835	20	1 3.5	20.6
484625 2008 SA_{144}	18.4	X	190.23866	57.30135	27.42415	21.65275	0.0902956	0.39411774	1.8424062	20	7 11.9	21.1
484626 2008 SC_{145}	15.9	X	179.29585	247.08308	288.55815	15.09394	0.0712570	0.17249141	3.1961298	20	9 29.4	21.0
484627 2008 SA_{159}	16.4	X	345.80621	72.85442	342.64165	9.42124	0.0781827	0.17713744	3.1399963	20	12 10.0	20.6
484628 2008 SS_{164}	17.4	X	99.41207	190.15906	188.82118	22.48523	0.1638497	0.27748915	2.3279414	20	—	—
484629 2008 SS_{166}	15.9	X	292.76520	332.49332	40.69966	6.68397	0.1260797	0.15279441	3.4652220	20	7 25.3	20.6
484630 2008 ST_{166}	18.0	X	43.93569	8.36070	27.61554	3.77735	0.1837822	0.26773546	2.3841420	20	—	—
484631 2008 SL_{190}	17.7	X	83.69917	1.66538	4.39588	6.51948	0.1580428	0.27098291	2.3650561	20	—	—
484632 2008 SN_{193}	18.3	X	32.33196	254.41414	153.75511	5.46977	0.0872299	0.26628639	2.3927835	20	—	—
484633 2008 SV_{201}	17.8	X	136.63867	313.88639	15.02249	8.26075	0.1194745	0.27467462	2.3438170	20	—	—
484634 2008 SY_{214}	16.1	X	186.62595	222.11602	7.67767	11.33563	0.2262622	0.18560615	3.0437418	20	12 8.1	21.4
484635 2008 SX_{225}	17.3	X	305.03550	177.18026	27.22066	21.94637	0.1821078	0.28217747	2.3020840	20	—	—
484636 2008 SW_{230}	17.2	X	346.61004	208.93443	197.83717	14.12314	0.0626154	0.25875040	2.4390200	20	12 22.6	20.4
484637 2008 SG_{234}	18.8	X	2.40300	295.49472	119.37454	2.38725	0.2423891	0.26083295	2.4260202	20	—	—
484638 2008 SV_{281}	18.2	X	15.55533	6.62701	72.95970	3.65180	0.1730643	0.26362596	2.4088547	20	—	—
484639 2008 SX_{284}	18.4	X	9.01757	219.38078	206.85310	0.95540	0.1846343	0.26217421	2.4177389	20	—	—
484640 2008 SW_{290}	16.3	X	284.22789	101.50624	353.94166	9.22924	0.0613763	0.16838187	3.2479238	20	10 30.2	20.8

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Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
484641 2008 SG_{303}	17.8	X	206.50588	266.64573	22.39490	3.44233	0.1847517	0.28649597	2.2788918	20	—	—
484642 2008 SY_{304}	15.7	X	270.88432	40.28101	25.85528	9.90183	0.0730646	0.15633557	3.4126953	20	9 10.6	20.5
484643 2008 SE_{306}	18.3	X	128.96600	286.76543	206.44076	21.42700	0.0605972	0.39143010	1.8508302	20	6 25.9	20.8
484644 2008 SW_{307}	17.4	X	256.12839	338.43686	80.63385	7.88077	0.2841531	0.23316816	2.6143068	20	7 19.3	21.4
484645 2008 SA_{310}	18.0	X	355.00723	328.63379	122.99236	3.32857	0.1601250	0.25969015	2.4331323	20	—	—
484646 2008 TY_{5}	17.7	X	121.06107	333.58680	8.63812	6.81373	0.1296839	0.27520623	2.3407976	20	—	—
484647 2008 TP_{11}	17.5	X	346.64529	66.91721	5.45558	10.14818	0.1269276	0.26248699	2.4158179	20	—	—
484648 2008 TY_{13}	18.0	X	40.61790	209.69733	198.73019	6.15293	0.1150604	0.27042427	2.3683122	20	—	—
484649 2008 TY_{31}	18.5	X	18.30363	36.38783	46.88423	3.17032	0.1679154	0.26837947	2.3803264	20	—	—
484650 2008 TS_{47}	17.7	X	47.89441	341.19947	64.67065	7.32207	0.1326828	0.26793049	2.3829849	20	—	—
484651 2008 TV_{64}	17.8	X	155.83669	41.49028	287.28445	5.36798	0.1249228	0.28218207	2.3020589	20	—	—
484652 2008 TG_{90}	17.8	X	0.48440	31.97188	50.19628	3.79905	0.1920695	0.26224813	2.4172846	20	—	—
484653 2008 TR_{91}	17.8	X	47.74813	18.31043	43.12949	6.33964	0.2124805	0.27024196	2.3693772	20	—	—
484654 2008 TS_{92}	18.2	X	26.77575	258.78467	139.44147	0.58989	0.1740988	0.26432855	2.4045842	20	—	—
484655 2008 TA_{109}	18.1	X	198.60872	162.02585	126.39849	4.86302	0.1402695	0.28346986	2.2950815	20	—	—
484656 2008 TH_{113}	17.9	X	73.03706	275.61298	86.53227	2.42021	0.1952303	0.26709905	2.3879276	20	—	—
484657 2008 TL_{140}	15.6	X	20.53346	7.09747	2.24853	20.96502	0.0887651	0.17371636	3.1810872	20	11 26.5	20.3
484658 2008 TH_{150}	18.2	X	5.97471	271.60620	140.97845	1.83268	0.1785957	0.26199522	2.4188400	20	—	—
484659 2008 TD_{162}	17.9	X	50.28945	153.77179	217.14137	1.79827	0.1827337	0.26260986	2.4150643	20	—	—
484660 2008 TE_{171}	18.1	X	19.91967	4.54323	83.97989	2.49512	0.1430590	0.26991598	2.3712844	20	—	—
484661 2008 UK_{12}	17.8	X	340.19517	269.26455	246.83014	5.70585	0.0462280	0.28047624	2.3113834	20	—	—
484662 2008 UT_{18}	18.2	X	249.28154	227.75570	22.20299	6.96914	0.0840584	0.28248456	2.3004152	20	—	—
484663 2008 UC_{22}	18.5	X	50.09837	209.33763	206.41264	2.42268	0.0421507	0.27258382	2.3557869	20	—	—
484664 2008 UE_{26}	16.1	X	288.83554	207.54648	202.11318	9.51304	0.1265045	0.15846600	3.3820393	20	8 30.9	20.7
484665 2008 UL_{26}	18.5	X	337.68751	273.14287	181.43659	1.15415	0.1544155	0.26224669	2.4172935	20	—	—
484666 2008 UT_{37}	18.1	X	319.59553	129.60856	27.43960	5.56692	0.1690220	0.26679942	2.3897151	20	—	—
484667 2008 UM_{52}	17.7	X	143.81007	316.58780	50.89225	8.58509	0.1161645	0.28031320	2.3122796	20	2 1.7	20.9
484668 2008 UT_{64}	17.8	X	100.11422	59.74085	277.00906	4.92174	0.2162025	0.26758647	2.3850269	20	—	—
484669 2008 UN_{93}	17.2	X	41.82775	340.74591	54.09888	24.70026	0.1931096	0.26425280	2.4050438	20	—	—
484670 2008 UQ_{99}	18.1	X	357.19623	163.75597	282.33577	4.96449	0.0789645	0.26278265	2.4140055	20	—	—
484671 2008 UZ_{99}	15.9	X	282.69709	176.45136	228.31160	4.77303	0.1748180	0.15268109	3.4669365	20	8 9.4	20.6
484672 2008 UB_{101}	18.2	X	216.03908	307.86150	336.69822	3.81010	0.1265010	0.28639408	2.2794323	20	—	—
484673 2008 UM_{103}	17.6	X	47.78248	5.60118	49.19462	6.09196	0.0354229	0.26905626	2.3763331	20	—	—
484674 2008 UW_{114}	17.4	X	297.84990	247.64067	284.46593	5.63914	0.0362040	0.26997697	2.3709273	20	—	—
484675 2008 UQ_{119}	17.9	X	356.79239	102.41969	14.41094	6.85433	0.0610362	0.26954944	2.3734336	20	—	—
484676 2008 UN_{135}	18.2	X	13.47312	202.78206	233.25322	1.44470	0.1581147	0.26438082	2.4042673	20	—	—
484677 2008 UD_{155}	18.6	X	26.58863	247.82668	169.78367	0.93864	0.1345597	0.26543578	2.3978927	20	—	—
484678 2008 UD_{158}	17.9	X	17.84995	230.50448	191.06309	1.80563	0.1620906	0.26164532	2.4209960	20	—	—
484679 2008 UT_{162}	16.0	X	349.06348	113.63617	235.52656	8.92457	0.0592759	0.15779574	3.3916097	20	9 15.6	20.7
484680 2008 UV_{168}	17.7	X	19.84344	355.12322	60.34647	6.54876	0.0930712	0.26253057	2.4155505	20	—	—
484681 2008 UY_{175}	17.1	X	128.96695	100.91922	223.02589	9.54999	0.1898488	0.27319013	2.3523000	20	—	—
484682 2008 UO_{185}	17.9	X	24.18579	328.62310	64.14955	2.46302	0.1957479	0.25789878	2.4443864	20	—	—
484683 2008 UF_{200}	17.8	X	24.37674	354.42665	44.23837	3.46011	0.1678688	0.26204670	2.4185231	20	—	—
484684 2008 UO_{208}	18.4	X	356.82622	225.30697	264.87375	1.45574	0.1385749	0.27187397	2.3598857	20	—	—
484685 2008 UB_{211}	18.5	X	1.84821	61.36377	29.22170	2.41912	0.1784326	0.26434789	2.4044670	20	—	—
484686 2008 UX_{212}	17.5	X	283.15118	148.98554	66.56588	6.68635	0.0925986	0.27699630	2.3307019	20	—	—
484687 2008 UX_{217}	17.9	X	53.07698	134.19747	264.19758	3.62783	0.1467179	0.26709894	2.3879283	20	—	—
484688 2008 UF_{222}	18.0	X	111.40292	41.71661	298.17841	3.41187	0.2190439	0.27028234	2.3691411	20	—	—
484689 2008 UG_{223}	17.7	X	300.81191	189.60352	10.54865	4.70892	0.1072847	0.27527199	2.3404249	20	—	—
484690 2008 UM_{223}	15.4	X	134.20766	326.75845	246.50337	12.56607	0.0839511	0.15468562	3.4369199	20	9 29.3	20.8
484691 2008 UU_{224}	18.0	X	344.89404	160.82966	296.40097	4.30348	0.2504853	0.25828428	2.4419535	20	—	—
484692 2008 UZ_{228}	17.7	X	41.19525	196.13360	254.99055	4.84589	0.1054652	0.27194896	2.3594518	20	—	—
484693 2008 UY_{250}	18.6	X	38.08682	128.13163	301.93650	0.72819	0.1569356	0.26901461	2.3765784	20	—	—
484694 2008 UO_{264}	17.9	X	149.71387	69.52894	261.36735	5.40690	0.1387667	0.27772306	2.3266341	20	—	—
484695 2008 UU_{267}	18.0	X	308.41665	69.49909	53.28153	4.06940	0.1714733	0.25795473	2.4440329	20	—	—
484696 2008 UJ_{269}	17.6	X	225.69237	331.63971	88.60913	3.30331	0.0660085	0.22698968	2.6615337	20	7 11.8	21.2
484697 2008 UN_{275}	17.8	X	273.15618	143.48177	47.37753	6.94474	0.0748305	0.26648849	2.3915736	20	—	—
484698 2008 UE_{284}	17.7	X	318.25925	89.87440	60.19311	5.74485	0.0783148	0.26898363	2.3767608	20	—	—
484699 2008 UF_{292}	18.5	X	330.98973	166.91073	306.25104	1.36944	0.1250589	0.26281296	2.4138199	20	—	—
484700 2008 UT_{297}	17.9	X	265.37357	178.54304	26.63395	10.53328	0.0290835	0.26966605	2.3727494	20	—	—
484701 2008 UE_{313}	17.5	X	44.11515	117.30522	281.39523	6.78564	0.1763742	0.26514730	2.3996316	20	—	—
484702 2008 UB_{340}	18.5	X	337.48391	258.92441	223.46857	1.65677	0.1389848	0.26341531	2.4101387	20	—	—
484703 2008 UN_{343}	18.2	X	48.74352	111.37591	269.04612	3.67524	0.2091665	0.26215306	2.4178689	20	—	—
484704 2008 UA_{344}	18.1	X	65.44898	180.94104	215.00344	6.17236	0.1094417	0.26676275	2.3899341	20	—	—
484705 2008 UF_{345}	18.8	X	4.41621	34.53247	49.04522	1.95271	0.1514313	0.26230928	2.4169089	20	—	—
484706 2008 UA_{351}	17.9	X	115.16239	262.09794	76.42865	3.37471	0.1874455	0.26825886	2.3810399	20	—	—
484707 2008 UG_{368}	17.5	X	94.05548	91.08328	273.26444	5.04829	0.1377849	0.27107998	2.3644915	20	—	—
484708 2008 VW_{31}	17.6	X	295.97392	324.38783	74.35048	7.19779	0.1441111	0.23857375	2.5746663	20	9 13.8	20.5
484709 2008 VW_{38}	17.9	X	323.08729	101.21977	15.41719	2.66628	0.1533789	0.25788000	2.4445051	20	—	—
484710 2008 VR_{61}	18.5	X	117.72353	74.73846	53.08480	18.95519	0.0380686	0.38732271	1.8638920	20	5 27.5	20.2
484711 2008 WU_{2}	18.2	X	353.71938	32.12475	49.75319	5.41800	0.2452090	0.26203390	2.4186019	20	—	—
484712 2008 WV_{2}	17.4	X	325.45024	169.53323	278.27889	8.06514	0.1714814	0.25767419	2.4458066	20	—	—
484713 2008 WC_{11}	17.9	X	9.13334	61.00163	47.20377	6.11368	0.2766091	0.26554618	2.3972280	20	—	—
484714 2008 WM_{12}	18.4	X	246.84028	302.98880	49.83457	19.37128	0.0874145	0.38671646	1.8658395	20	5 2.6	20.1
484715 2008 WT_{18}	18.5	X	3.89894	247.31222	172.64166	1.05915	0.1713141	0.25981750	2.4323372	20	—	—
484716 2008 WO_{24}	17.6	X	332.32974	232.91852	266.67802	2.68975	0.1201052	0.26575081	2.3959972	20	—	—
484717 2008 WM_{48}	17.4	X	336.60114	71.02083	75.08846	6.99623	0.0323824	0.26800073	2.3825685	20	—	—
484718 2008 WP_{61}	17.6	X	20.34494	333.43258	69.36198	10.65681	0.2788695	0.25872460	2.4391821	20	—	—
484719 2008 WJ_{72}	18.2	X	126.40905	176.93618	251.39588	19.23803	0.0917456	0.37291856	1.9115840	20	3 5.7	20.8
484720 2008 WZ_{83}	16.7	X	353.78546	95.36967	257.35798	10.35368	0.2096472	0.23733820	2.5835941	20	10 28.8	19.2

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Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
484721 2008 WB_{121}	18.0	X	5.32835	358.90108	87.25948	2.59330	0.1629999	0.25818928	2.4425525	20	—	—
484722 2008 WX_{134}	17.8	X	152.09204	150.78199	293.68095	16.25819	0.0994631	0.37792107	1.8946776	20	5 14.0	20.4
484723 2008 WO_{135}	17.3	X	27.55922	286.27224	105.20297	6.09354	0.1273545	0.25727535	2.4483337	20	—	—
484724 2008 XG_{2}	18.0	X	49.23539	242.07918	260.48322	17.84729	0.0828849	0.36853189	1.9267232	20	2 18.2	20.1
484725 2008 XP_{2}	18.3	X	170.47892	0.94536	58.71658	23.24897	0.3471232	0.37983757	1.8882990	20	5 13.2	21.5
484726 2008 XE_{7}	17.8	X	52.74077	357.79249	19.82414	5.76275	0.2449519	0.26240468	2.4163231	20	—	—
484727 2008 XU_{15}	18.1	X	341.87142	22.02788	86.38157	2.51580	0.1386999	0.25904424	2.4371752	20	—	—
484728 2008 XQ_{37}	18.2	X	5.58415	180.63798	274.42734	4.37473	0.1432727	0.26255934	2.4153741	20	—	—
484729 2008 XW_{39}	18.1	X	339.68047	146.62455	355.38159	1.52933	0.1122928	0.26512712	2.3997534	20	—	—
484730 2008 XX_{42}	18.2	X	76.03925	245.69996	292.66456	16.40628	0.0451535	0.37916256	1.8905395	20	6 18.4	20.0
484731 2008 XU_{51}	17.7	X	319.67410	220.49635	305.46661	3.83759	0.1638278	0.26516726	2.3995112	20	—	—
484732 2008 XE_{53}	16.4	X	231.03316	222.84368	296.37625	31.36280	0.1889740	0.23441646	2.6050175	20	10 29.7	20.9
484733 2008 XF_{53}	18.3	X	190.26304	135.89696	280.37850	18.30043	0.0794685	0.38119088	1.8838271	20	5 22.1	20.7
484734 2008 YX_{9}	16.9	X	328.22055	116.50512	289.23379	6.71154	0.1941476	0.24120310	2.5559212	20	11 23.1	19.2
484735 2008 YP_{24}	17.3	X	334.13222	252.87464	134.20592	3.49000	0.2432922	0.23912062	2.5707393	20	11 13.7	19.1
484736 2008 YW_{29}	17.6	X	325.05414	67.47522	87.16473	2.36933	0.1333672	0.25817326	2.4426536	20	—	—
484737 2008 YK_{31}	17.2	X	308.00109	316.30021	109.13852	13.94371	0.1613163	0.23711045	2.5852483	20	11 14.5	20.0
484738 2008 YG_{37}	16.7	X	281.28954	359.18607	115.66146	22.76840	0.0498836	0.24026251	2.5625875	20	12 15.3	20.2
484739 2008 YJ_{66}	17.4	X	285.79687	27.09369	67.49455	3.72804	0.1776931	0.23754661	2.5820827	20	11 6.6	20.1
484740 2008 YH_{71}	18.1	X	324.72512	175.67698	313.74816	1.90511	0.1431304	0.25483276	2.4639537	20	—	—
484741 2008 YZ_{91}	17.3	X	353.55439	97.78129	289.00030	14.26915	0.0616292	0.23993553	2.5649152	20	11 30.4	20.6
484742 2008 YX_{100}	17.7	X	266.53755	280.78244	280.63658	11.13814	0.1691237	0.25380686	2.4705889	20	—	—
484743 2008 YL_{101}	17.5	X	291.61826	55.21174	117.02312	13.04684	0.1131955	0.25479495	2.4641974	20	—	—
484744 2008 YA_{106}	18.0	X	290.73847	26.83980	106.74504	5.70421	0.1679665	0.24521142	2.5279914	20	—	—
484745 2008 YG_{118}	17.6	X	176.13588	138.52783	300.76257	25.68656	0.1106790	0.38012887	1.8873342	20	6 12.8	20.4
484746 2008 YS_{132}	17.8	X	293.46776	126.85417	66.50153	2.93843	0.1549115	0.25785049	2.4446916	20	—	—
484747 2008 YW_{143}	17.7	X	315.77150	278.63994	245.33056	1.84845	0.1193506	0.25737524	2.4477001	20	—	—
484748 2008 YT_{145}	17.8	X	336.59278	299.09633	127.37675	0.74123	0.1693135	0.24447717	2.5330505	20	—	—
484749 2008 YB_{146}	17.8	X	283.69186	263.61952	234.20598	1.33533	0.1584911	0.24412519	2.5354847	20	—	—
484750 2008 YO_{150}	17.9	X	327.05663	263.27669	262.33963	1.96855	0.1327431	0.26216358	2.4178043	20	—	—
484751 2008 YT_{154}	17.9	X	270.67616	271.22409	301.56666	6.11831	0.0799426	0.25919868	2.4362070	20	—	—
484752 2008 YC_{159}	17.4	X	337.15272	176.70518	305.65156	6.90237	0.1594491	0.25607352	2.4559882	20	—	—
484753 2008 YN_{160}	18.5	X	53.98632	227.53166	347.98172	18.84725	0.0522031	0.37572246	1.9020618	20	7 22.6	20.6
484754 2008 YZ_{168}	18.0	X	359.39538	8.60915	73.20040	3.71928	0.2019671	0.25588371	2.4572026	20	—	—
484755 2009 AH_{10}	17.1	X	184.43519	6.88625	276.24205	8.55615	0.0755578	0.25885888	2.4383385	20	—	—
484756 2009 AR_{27}	18.2	X	199.06094	266.54239	116.35936	25.09458	0.1152259	0.37380665	1.9085551	20	4 27.7	21.4
484757 2009 BL_{2}	19.3	X	291.70884	56.02624	148.60523	7.15884	0.5933756	0.25093632	2.4893943	20	—	—
484758 2009 BW_{29}	17.1	X	166.74600	81.97033	125.74826	13.52996	0.1276101	0.23165917	2.6256473	20	11 13.8	21.4
484759 2009 BB_{35}	17.4	X	175.44494	135.92128	105.80456	6.71087	0.0430694	0.24130439	2.5552059	20	—	—
484760 2009 BP_{37}	18.0	X	316.14296	323.98575	120.64020	13.99620	0.2560794	0.24335905	2.5408033	20	12 30.5	19.7
484761 2009 BA_{43}	16.9	X	233.38941	17.57330	129.94893	17.41508	0.1495084	0.23204278	2.6227527	20	11 9.3	20.9
484762 2009 BL_{49}	17.7	X	169.03874	153.37562	115.09539	3.03241	0.0866696	0.24623044	2.5210119	20	—	—
484763 2009 BS_{49}	17.9	X	313.82426	48.33497	119.34941	3.68898	0.1272426	0.25648300	2.4533734	20	—	—
484764 2009 BZ_{50}	17.5	X	25.44011	83.14724	321.27053	3.86606	0.2527999	0.25293353	2.4762726	20	—	—
484765 2009 BL_{51}	17.4	X	299.68693	181.63570	326.36875	9.59347	0.0703959	0.24639673	2.5198774	20	—	—
484766 2009 BC_{61}	17.9	X	207.16208	104.02511	296.30809	19.21462	0.0558835	0.37832358	1.8933335	20	5 19.6	20.5
484767 2009 BQ_{66}	17.8	X	305.74742	211.11515	198.68458	3.05249	0.2722077	0.23292807	2.6161029	20	9 25.9	19.9
484768 2009 BJ_{68}	18.0	X	299.62060	166.71809	331.43242	5.24711	0.0559246	0.24410606	2.5356171	20	—	—
484769 2009 BT_{114}	16.7	X	89.58634	158.72718	117.22099	11.66731	0.0692074	0.22816190	2.6524099	20	11 15.3	20.7
484770 2009 BK_{126}	17.2	X	305.51483	295.74793	137.67634	10.67155	0.1787789	0.23620527	2.5918488	20	11 17.8	19.8
484771 2009 BH_{143}	17.5	X	237.28504	61.97045	119.81678	8.33562	0.1330060	0.23915918	2.5704629	20	12 25.6	20.9
484772 2009 BT_{149}	17.6	X	183.06130	272.06980	315.81015	1.28542	0.0917407	0.23439033	2.6052111	20	12 23.3	21.4
484773 2009 BY_{154}	17.9	X	307.61247	173.72748	51.13379	3.03592	0.1634063	0.26573070	2.3961181	20	1 20.4	21.1
484774 2009 BV_{156}	18.0	X	323.06824	294.44020	151.29636	6.57286	0.3066575	0.24381469	2.5376369	20	—	—
484775 2009 BH_{158}	17.6	X	239.92546	40.18383	136.82079	3.04567	0.1440575	0.23630021	2.5911545	20	12 20.4	20.8
484776 2009 BC_{159}	17.2	X	298.12882	172.09350	334.30753	15.94357	0.0739558	0.24450360	2.5328679	20	—	—
484777 2009 BJ_{162}	17.6	X	215.88641	152.00276	76.95904	3.54330	0.1268503	0.24415572	2.5352733	20	—	—
484778 2009 BD_{166}	18.3	X	281.73794	173.02072	318.86084	2.94770	0.1449901	0.24013359	2.5635046	20	12 26.4	21.1
484779 2009 BY_{171}	17.2	X	23.22261	269.28914	126.92452	6.65423	0.2304397	0.24523340	2.5278403	20	—	—
484780 2009 BU_{175}	18.4	X	158.10633	96.87379	2.49409	20.91641	0.1721071	0.37798808	1.8944536	20	6 19.6	21.6
484781 2009 BY_{177}	18.3	X	114.76551	342.15737	158.23095	23.14618	0.0414177	0.37242412	1.9132755	20	6 19.1	21.0
484782 2009 BQ_{185}	17.7	X	289.35224	168.55601	301.67804	11.44675	0.1853322	0.23918789	2.5702572	20	12 4.2	20.4
484783 2009 CJ	18.0	X	246.32220	3.77754	351.15180	18.13252	0.0535604	0.37487814	1.9049166	20	4 27.6	20.4
484784 2009 CL_{7}	17.6	X	227.75384	239.77654	136.12740	23.55526	0.0741576	0.37290419	1.9116331	20	5 21.4	20.5
484785 2009 CR_{15}	17.3	X	289.13883	337.48490	155.28081	15.28768	0.0486742	0.24259329	2.5461473	20	—	—
484786 2009 CC_{20}	17.8	X	321.27729	6.30220	131.37844	7.32167	0.0872405	0.25468955	2.4648772	20	—	—
484787 2009 CC_{30}	18.3	X	170.17088	76.47967	331.96912	19.00015	0.1021179	0.36859026	1.9265198	20	4 5.0	21.1
484788 2009 CO_{36}	17.8	X	275.68039	104.07545	62.92790	2.69658	0.1388039	0.24552736	2.5258222	20	—	—
484789 2009 CH_{41}	17.6	X	207.13188	289.02832	308.92922	4.08445	0.2269309	0.24330291	2.5411942	20	—	—
484790 2009 CC_{53}	17.1	X	229.17147	14.95185	148.52534	12.67783	0.1190233	0.23271491	2.6177002	20	11 25.3	20.9
484791 2009 DS	17.2	X	275.66663	32.62288	102.73097	10.16132	0.1041328	0.23885082	2.5726748	20	12 24.8	20.2
484792 2009 DD_{2}	17.0	X	284.27302	177.95297	331.75116	10.33238	0.0621127	0.24356594	2.5393643	20	—	—
484793 2009 DZ_{23}	18.1	X	90.94287	165.83667	1.68567	20.74503	0.0545053	0.37192558	1.9149849	20	6 27.3	20.7
484794 2009 DC_{36}	17.8	X	250.89788	231.54389	353.01788	7.86422	0.1588954	0.24718070	2.5145466	20	—	—
484795 2009 DE_{47}	18.5	X	6.52245	41.87538	29.84160	20.05903	0.2757468	0.85955281	1.0955218	20	—	—
484796 2009 DM_{75}	17.0	X	274.60649	173.66101	346.86966	12.93237	0.0721870	0.23978591	2.5659820	20	—	—
484797 2009 DU_{77}	17.2	X	335.51690	118.31115	346.28934	15.04326	0.0754844	0.24510040	2.5287547	20	—	—
484798 2009 DZ_{79}	16.8	X	131.87887	51.19104	159.81682	13.92780	0.1053887	0.21585032	2.7523326	20	10 10.8	21.1
484799 2009 DL_{87}	17.0	X	196.92638	261.15159	343.58067	25.35699	0.3501889	0.23571046	2.5954747	20	—	—
484800 2009 DJ_{88}	16.9	X	244.97607	327.66348	145.30891	9.71530	0.1788564	0.22573863	2.6713582	20	9 30.7	20.6

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
484801 2009 DU_{90}	17.8	X	330.20789	319.67616	151.47110	12.44892	0.1290577	0.24446769	2.5331160	20	—	—
484802 2009 DU_{124}	17.8	X	353.02526	75.13269	356.30015	10.79224	0.0596668	0.23767421	2.5811585	20	—	—
484803 2009 DT_{125}	17.9	X	221.63313	1.72153	187.99913	2.75387	0.1339039	0.23170104	2.6253309	20	12 13.9	21.6
484804 2009 DS_{126}	16.8	X	107.06372	358.68817	351.07293	15.29386	0.1402563	0.24314939	2.5422637	20	—	—
484805 2009 DE_{127}	18.4	X	149.18225	288.71983	171.19233	23.88781	0.0991393	0.37198294	1.9147880	20	6 9.8	21.4
484806 2009 DP_{131}	18.4	X	262.27902	301.65438	236.77994	1.75859	0.1252528	0.24087266	2.5582582	20	—	—
484807 2009 DO_{134}	17.6	X	262.85083	124.71561	49.53061	4.98028	0.1311468	0.24069798	2.5594958	20	—	—
484808 2009 DW_{134}	18.1	X	260.47575	5.14844	170.74534	6.10911	0.2247956	0.23947562	2.5681981	20	—	—
484809 2009 ER_{10}	17.5	X	297.73065	322.13199	156.52239	7.13611	0.0739425	0.23579460	2.5948573	20	—	—
484810 2009 EL_{11}	16.9	X	193.73699	205.45990	7.90962	13.54504	0.1233910	0.23390745	2.6087954	20	12 11.9	21.0
484811 2009 EW_{18}	18.1	X	262.45376	45.70069	157.09640	13.79709	0.1943851	0.24585135	2.5236027	20	—	—
484812 2009 EM_{23}	17.1	X	223.45187	158.87756	40.56979	6.17220	0.2311987	0.23154431	2.6265155	20	12 14.6	21.0
484813 2009 EF_{24}	17.6	X	241.22747	159.63409	15.97609	5.28663	0.1263344	0.23451099	2.6043174	20	12 22.4	21.0
484814 2009 FS_{1}	18.1	X	315.20851	257.36570	0.73336	18.81420	0.0965651	0.35722201	1.9671791	20	3 17.1	19.7
484815 2009 FC_{25}	16.7	X	200.68723	13.33204	153.84076	9.59188	0.2105491	0.22369344	2.6876160	20	10 18.8	21.1
484816 2009 FY_{27}	17.0	X	201.53042	25.63408	139.72786	14.53014	0.1900649	0.22326477	2.6910551	20	10 21.3	21.5
484817 2009 FF_{30}	17.5	X	347.78942	302.93711	143.65041	7.19875	0.1896170	0.24366221	2.5386954	20	—	—
484818 2009 FW_{34}	17.6	X	199.00891	203.16828	48.88531	5.78105	0.1980639	0.23574451	2.5952248	20	—	—
484819 2009 FD_{52}	16.7	X	119.61329	60.95307	151.28311	9.38030	0.0781753	0.21056131	2.7982317	20	9 26.2	20.9
484820 2009 FH_{54}	17.4	X	196.99110	18.01400	175.12712	13.17964	0.1241541	0.22508890	2.6764964	20	11 22.9	21.6
484821 2009 FF_{57}	17.7	X	261.55949	170.48109	6.06268	8.97751	0.0991719	0.23864963	2.5741205	20	—	—
484822 2009 FZ_{69}	17.5	X	176.93998	168.57765	79.00860	6.08640	0.1114885	0.22843525	2.6502934	20	—	—
484823 2009 FN_{73}	17.7	X	254.59957	113.85787	82.99851	4.91187	0.2075586	0.23944154	2.5684417	20	—	—
484824 2009 FS_{76}	17.5	X	200.47727	83.45315	151.02586	3.88300	0.2357326	0.22935601	2.6431956	20	—	—
484825 2009 GP_{3}	17.7	X	256.26070	348.41289	201.30218	3.64998	0.2143668	0.23795545	2.5791244	20	—	—
484826 2009 GY_{4}	17.8	X	236.00297	358.96602	215.49011	5.72742	0.1508204	0.23530640	2.5984451	20	—	—
484827 2009 GE_{5}	17.6	X	350.66648	138.53412	105.69513	24.45865	0.0698911	0.35862895	1.9620308	20	5 15.7	19.9
484828 2009 HM_{3}	18.1	X	283.65764	73.93803	81.67745	5.58033	0.1645122	0.23968222	2.5667220	20	—	—
484829 2009 HQ_{3}	17.2	X	303.60616	50.25893	51.68880	12.38522	0.1601284	0.23353876	2.6115403	20	12 20.6	19.9
484830 2009 HD_{4}	17.8	X	52.97785	124.33054	33.14897	21.24326	0.0462560	0.35835862	1.9630174	20	4 8.2	19.6
484831 2009 HL_{6}	17.6	X	269.10340	116.05042	94.22756	5.44812	0.2177913	0.24356083	2.5393998	20	—	—
484832 2009 HZ_{6}	17.2	X	307.85312	335.92621	131.07042	4.62157	0.0304351	0.22839313	2.6506193	20	—	—
484833 2009 HS_{8}	17.5	X	234.97013	16.19402	181.22745	13.96074	0.1410064	0.23136907	2.6278416	20	—	—
484834 2009 HC_{24}	17.1	X	332.98342	307.93034	106.34299	8.11849	0.0526146	0.22001351	2.7175016	20	12 2.6	20.5
484835 2009 HX_{39}	17.8	X	282.13158	24.86001	120.79037	4.07314	0.0749369	0.23584772	2.5944676	20	—	—
484836 2009 HD_{41}	17.2	X	96.96932	139.94732	150.08997	3.09539	0.1155746	0.22076919	2.7112969	20	12 9.4	21.3
484837 2009 HM_{48}	16.5	X	120.21238	201.24000	80.57626	14.45016	0.0674709	0.22124182	2.7074341	20	12 20.3	20.4
484838 2009 HE_{50}	17.4	X	239.08188	35.58468	162.61071	5.27876	0.0525102	0.23605914	2.5929183	20	—	—
484839 2009 HN_{59}	17.8	X	201.35954	84.64910	156.49721	6.60771	0.2834677	0.23026414	2.6362414	20	—	—
484840 2009 HU_{61}	17.7	X	280.46354	329.10482	208.24337	12.99687	0.2006496	0.24079284	2.5588235	20	—	—
484841 2009 HL_{62}	18.1	X	84.77798	78.89777	50.56346	22.05664	0.0986527	0.35681303	1.9686821	20	4 26.6	19.9
484842 2009 HS_{62}	17.3	X	189.11553	171.49443	46.66182	12.53552	0.1278995	0.22825542	2.6516853	20	12 11.7	21.4
484843 2009 HB_{66}	17.6	X	283.29474	310.98241	208.28941	13.16739	0.1938139	0.23538901	2.5978371	20	—	—
484844 2009 HL_{68}	17.9	X	230.58296	173.23953	54.08586	2.90852	0.1513626	0.23650434	2.5896633	20	—	—
484845 2009 HA_{73}	18.1	X	282.30044	113.15180	193.48960	21.24760	0.0913064	0.35699791	1.9680023	20	4 11.2	19.9
484846 2009 HO_{76}	17.4	X	224.93825	22.86421	202.47618	7.96518	0.1487050	0.23701470	2.5859445	20	—	—
484847 2009 HE_{81}	17.4	X	220.96598	50.33811	190.01877	13.44805	0.2267100	0.23411360	2.6072637	20	—	—
484848 2009 HG_{83}	16.8	X	260.05790	327.57051	139.99090	10.55852	0.1687544	0.21914599	2.7246686	20	10 14.8	20.5
484849 2009 HK_{85}	17.2	X	254.55685	118.67591	71.77774	18.03448	0.1515279	0.23350706	2.6117766	20	—	—
484850 2009 HF_{88}	19.3	X	274.16919	283.07221	222.52075	24.83018	0.5107828	0.23834274	2.5763296	20	10 27.8	22.4
484851 2009 HP_{89}	17.2	X	218.27090	175.12605	46.21043	15.18751	0.2010142	0.23118805	2.6292131	20	—	—
484852 2009 HQ_{93}	17.8	X	219.19844	58.66399	191.35639	13.10653	0.2169643	0.23504707	2.6003561	20	—	—
484853 2009 HT_{96}	17.0	X	140.53738	61.88823	143.11191	6.00255	0.0881388	0.20986232	2.8044416	20	10 10.1	21.2
484854 2009 HE_{100}	17.8	X	308.08414	349.16892	155.40102	5.21914	0.1877550	0.23847756	2.5753586	20	—	—
484855 2009 HL_{102}	17.3	X	221.16857	198.88984	56.02123	13.00614	0.1455708	0.23851430	2.5750941	20	—	—
484856 2009 JF_{3}	17.1	X	196.50978	78.52148	190.18869	13.51390	0.1389638	0.23361307	2.6109865	20	—	—
484857 2009 JP_{4}	16.9	X	162.78006	169.12360	153.08635	18.68384	0.2205628	0.23776897	2.5804727	20	1 8.4	21.4
484858 2009 JK_{5}	17.4	X	299.29757	353.94938	138.26412	14.13481	0.1030624	0.23450597	2.6043546	20	—	—
484859 2009 JE_{13}	17.3	X	217.34031	148.33218	68.09621	5.55656	0.1980881	0.23090026	2.6313974	20	—	—
484860 2009 JQ_{15}	16.5	X	242.82888	64.02233	137.44574	30.73905	0.2922685	0.23388321	2.6089756	20	—	—
484861 2009 KL_{7}	16.6	X	250.12056	260.68164	302.05962	26.38067	0.3921326	0.23538967	2.5978323	20	—	—
484862 2009 KZ_{8}	17.1	X	170.20446	25.57120	231.53246	11.50749	0.2148334	0.22428387	2.6828971	20	—	—
484863 2009 KA_{26}	16.9	X	112.57424	183.78577	111.93724	14.56563	0.1897047	0.21729331	2.7401341	20	—	—
484864 2009 LH_{1}	17.4	X	218.53908	35.33565	214.14239	12.12843	0.2436115	0.23421169	2.6065357	20	—	—
484865 2009 NJ_{2}	16.3	X	123.37697	322.99325	319.99630	14.52458	0.1319135	0.20619094	2.8376337	20	12 25.2	21.0
484866 2009 ON	16.1	X	93.88071	317.57208	312.28432	7.09587	0.1315819	0.19837990	2.9116395	20	11 6.6	20.8
484867 2009 OD_{6}	17.2	X	196.54517	113.85829	156.52688	13.28432	0.2562961	0.22579336	2.6709265	20	—	—
484868 2009 OP_{8}	15.8	X	302.30288	107.18472	300.54220	18.69735	0.2432347	0.17770294	3.1333312	20	8 29.5	19.7
484869 2009 OH_{9}	16.0	X	326.94938	170.87379	192.21694	12.16349	0.2812331	0.17833342	3.1259418	20	8 19.8	19.0
484870 2009 OU_{13}	17.0	X	202.00891	321.07823	315.69383	12.84735	0.2429138	0.22647793	2.6655416	20	—	—
484871 2009 OB_{20}	15.6	X	355.92719	355.30538	318.24757	19.25822	0.2685372	0.17792985	3.1306668	20	8 23.4	18.4
484872 2009 OH_{21}	16.1	X	139.71482	176.01290	124.34523	11.47033	0.2508036	0.21348129	2.7726572	20	—	—
484873 2009 OD_{24}	16.4	X	297.43454	26.75977	22.95520	15.98491	0.0992507	0.17667759	3.1454424	20	9 26.2	20.5
484874 2009 PW	16.9	X	86.62907	357.18491	318.73700	11.54307	0.1020103	0.20271625	2.8699677	20	12 25.7	21.4
484875 2009 PL_{2}	16.2	X	331.24917	33.99119	317.31464	16.56948	0.2142240	0.17843147	3.1247965	20	8 20.1	19.3
484876 2009 PF_{4}	16.6	X	175.78964	326.26407	307.11777	7.69384	0.1770615	0.21656241	2.7462959	20	—	—
484877 2009 PB_{5}	16.3	X	319.09840	191.33652	167.47503	13.91225	0.2570006	0.17561684	3.1580956	20	7 29.9	19.9
484878 2009 PB_{19}	16.7	X	353.71952	8.00505	349.57211	8.29590	0.1237892	0.18335260	3.0686310	20	10 12.2	20.4
484879 2009 PD_{19}	16.3	X	303.63415	63.99738	354.16547	8.35741	0.0551709	0.18451347	3.0557466	20	10 14.9	20.4
484880 2009 QE_{12}	16.8	X	161.78618	125.23936	153.19849	20.75776	0.2272721	0.21368486	2.7708959	20	—	—

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Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
484881 2009 QF_{14}	17.1	X	201.59021	284.76602	332.84224	8.76965	0.2936446	0.21955534	2.7212810	20	—	—
484882 2009 QQ_{31}	15.8	X	303.52543	19.01472	343.75844	13.52472	0.1884822	0.17067880	3.2187184	20	7 22.2	19.9
484883 2009 QH_{33}	15.9	X	275.79046	122.22531	322.76324	26.45536	0.1864629	0.17894100	3.1188619	20	9 11.3	20.4
484884 2009 QT_{34}	16.8	X	24.84303	59.45353	296.73640	13.24852	0.2735405	0.18927507	3.0042802	20	12 23.9	20.8
484885 2009 QT_{40}	15.5	X	345.61583	9.41744	345.58473	16.90565	0.1813501	0.18063187	3.0993679	20	9 24.5	18.9
484886 2009 QK_{41}	16.9	X	353.37066	208.32534	148.61704	12.19166	0.1396642	0.18429040	3.0582119	20	10 19.1	20.6
484887 2009 QH_{42}	16.0	X	306.41587	217.73135	168.35942	17.34474	0.2186160	0.17604092	3.1530217	20	8 18.0	19.9
484888 2009 QY_{46}	16.1	X	17.32927	192.82534	130.89260	12.59757	0.1324416	0.18391122	3.0624140	20	10 15.3	20.1
484889 2009 QE_{48}	15.9	X	347.81064	194.46513	156.60710	12.51154	0.1528545	0.17806085	3.1291311	20	9 28.7	19.5
484890 2009 QR_{56}	16.0	X	318.98183	23.71035	355.10256	9.27640	0.1408704	0.17918982	3.1159740	20	9 12.3	19.6
484891 2009 QQ_{58}	16.8	X	341.03056	5.79593	350.83144	9.32856	0.1185452	0.18050352	3.1008370	20	9 20.5	20.4
484892 2009 QG_{59}	16.0	X	331.27611	13.68017	13.15601	17.79674	0.1736156	0.18117781	3.0931386	20	10 12.4	19.3
484893 2009 QP_{59}	16.0	X	312.30194	87.41349	309.42692	24.90738	0.2501508	0.17928764	3.1148405	20	8 30.4	19.7
484894 2009 QM_{60}	16.0	X	340.96720	43.61135	320.93068	26.90625	0.1504345	0.18146954	3.0898227	20	9 16.6	20.1
484895 2009 QE_{64}	17.0	X	28.38524	335.69616	355.62026	2.29794	0.1799818	0.18959349	3.0009155	20	11 12.4	20.8
484896 2009 RC_{1}	15.3	X	261.45052	39.27787	24.95982	11.16427	0.1980485	0.17129777	3.2109601	20	8 12.2	20.1
484897 2009 RJ_{1}	16.4	X	320.87091	41.04144	326.31318	16.08704	0.2461150	0.17520367	3.1630587	20	8 18.8	19.7
484898 2009 RL_{7}	15.7	X	302.89291	71.05975	333.62232	14.85028	0.2273101	0.17736169	3.1373490	20	9 4.9	19.4
484899 2009 RA_{9}	16.3	X	278.91873	259.87174	197.78029	9.18285	0.0869035	0.18378174	3.0638522	20	10 30.1	20.3
484900 2009 RJ_{9}	16.6	X	326.70850	177.23162	191.49801	13.74366	0.2020712	0.17521172	3.1629618	20	9 4.1	20.1
484901 2009 RH_{15}	16.7	X	359.27359	146.81347	190.53714	10.62526	0.1416071	0.17691112	3.1426737	20	9 26.9	20.5
484902 2009 RM_{16}	16.6	X	8.67307	157.94162	188.75203	10.33850	0.0865946	0.18028722	3.1033167	20	10 21.6	20.5
484903 2009 RD_{34}	15.8	X	81.74238	274.12047	21.04337	22.43940	0.1217052	0.18617652	3.0375221	20	11 16.9	20.7
484904 2009 RL_{37}	16.0	X	65.38641	269.96213	4.31108	10.05766	0.0190163	0.17822152	3.1272501	20	9 25.9	20.4
484905 2009 RB_{45}	15.8	X	236.87757	203.54549	201.33826	11.75273	0.0859643	0.15829099	3.3845318	20	6 28.8	21.0
484906 2009 RF_{45}	16.9	X	77.34436	301.66907	8.74702	10.87272	0.1313343	0.19077328	2.9885305	20	12 7.4	21.5
484907 2009 RH_{47}	18.5	X	72.30073	42.22273	0.62740	5.43421	0.1962675	0.30085070	2.2058130	20	—	—
484908 2009 RD_{62}	18.0	X	84.47435	204.42819	191.82211	5.58921	0.2249506	0.30126722	2.2037795	20	—	—
484909 2009 RF_{62}	18.3	X	96.80107	8.34868	27.52691	3.89674	0.1216674	0.30463887	2.1874888	20	—	—
484910 2009 RO_{73}	16.1	X	352.91068	319.40750	16.30605	10.23937	0.0898582	0.17331241	3.1860281	20	9 14.3	20.1
484911 2009 SW_{3}	16.0	X	349.09810	356.96805	342.17859	10.17916	0.2189457	0.17748662	3.1358767	20	9 13.4	19.1
484912 2009 SJ_{17}	16.2	X	316.01874	193.76596	174.72182	18.12627	0.2062344	0.17623210	3.1507411	20	8 12.7	19.9
484913 2009 SM_{19}	18.1	X	65.86454	229.35146	156.77561	5.55496	0.2371346	0.29673396	2.2261677	20	—	—
484914 2009 SA_{21}	15.8	X	346.84799	335.33041	352.54719	27.26818	0.1574935	0.17397926	3.1778817	20	8 30.9	19.5
484915 2009 SR_{22}	17.1	X	322.14420	157.82149	197.83117	10.16648	0.2253901	0.17673120	3.1448062	20	8 4.1	20.7
484916 2009 SH_{26}	15.8	X	327.07237	175.60513	190.88046	28.57446	0.1619671	0.17495849	3.1660130	20	9 3.9	19.8
484917 2009 SF_{29}	16.6	X	356.37332	170.75167	192.04170	10.42089	0.0222248	0.18070461	3.0985361	20	10 19.7	20.7
484918 2009 SM_{42}	16.0	X	275.54564	82.28032	10.02348	18.06176	0.0785996	0.17854751	3.1234426	20	10 14.9	20.3
484919 2009 SH_{51}	16.3	X	321.54976	50.51475	6.97912	9.50415	0.1013391	0.18695538	3.0290800	20	11 6.9	20.2
484920 2009 SL_{52}	16.0	X	300.30387	21.21368	18.28729	10.59512	0.0822063	0.17536006	3.1611778	20	9 17.5	20.2
484921 2009 SS_{66}	16.4	X	6.71690	166.90628	180.88312	9.14235	0.0966279	0.17895995	3.1186417	20	10 21.2	20.3
484922 2009 SZ_{71}	16.9	X	259.61856	114.97285	354.59913	11.12909	0.0855364	0.18409444	3.0603817	20	10 15.2	21.3
484923 2009 SZ_{76}	16.3	X	354.59684	199.49967	186.06708	16.72515	0.1421198	0.18350333	3.0669504	20	11 25.4	20.2
484924 2009 SO_{99}	15.8	X	326.22740	43.58006	320.89084	27.19560	0.2361581	0.17507441	3.1646154	20	8 22.7	19.1
484925 2009 SB_{103}	16.6	X	33.04634	333.04979	33.77226	25.52068	0.2078878	0.27995109	2.3142731	20	—	—
484926 2009 SV_{108}	15.7	X	349.25776	130.14452	224.73969	16.39989	0.2077679	0.17658949	3.1464885	20	10 2.7	19.2
484927 2009 SD_{110}	15.9	X	339.36646	16.61190	349.09276	17.35141	0.2046398	0.17839349	3.1252400	20	9 26.4	19.2
484928 2009 SE_{113}	16.9	X	291.37108	204.61756	218.42639	7.69483	0.0760484	0.17984300	3.1084248	20	10 1.6	21.0
484929 2009 ST_{114}	16.9	X	80.67696	310.43163	350.31290	10.07858	0.1419129	0.19137529	2.9822598	20	11 30.2	21.6
484930 2009 SV_{115}	17.0	X	302.38342	215.18730	177.17294	3.39775	0.1496305	0.17741043	3.1367744	20	8 30.8	20.7
484931 2009 SL_{127}	16.7	X	350.12079	2.84238	353.90623	8.47329	0.0969851	0.17784538	3.1316580	20	10 3.7	20.6
484932 2009 SO_{143}	19.0	X	24.63678	81.83236	9.83382	5.82533	0.1915841	0.29751920	2.2222490	20	—	—
484933 2009 SC_{147}	15.6	X	290.97998	45.39471	40.51004	11.87601	0.0655371	0.18091415	3.0961431	20	11 2.0	19.7
484934 2009 SA_{150}	15.9	X	335.27107	1.24215	353.17291	10.46837	0.2233121	0.17577277	3.1562276	20	9 5.6	19.0
484935 2009 SS_{156}	16.8	X	31.08851	129.00306	184.83892	12.22201	0.1485798	0.18057939	3.0999684	20	10 20.9	20.8
484936 2009 SA_{172}	16.1	X	344.79790	345.71698	25.12499	18.50474	0.0729812	0.17671173	3.1450373	20	10 15.2	20.1
484937 2009 SR_{174}	16.3	X	318.74806	29.31729	351.71997	13.07360	0.0947391	0.17759356	3.1346177	20	9 16.9	20.3
484938 2009 SZ_{177}	16.0	X	321.68033	353.47248	17.89342	16.63065	0.0901955	0.17361494	3.1823259	20	9 15.0	20.2
484939 2009 SC_{180}	16.3	X	312.36461	189.70437	202.70594	16.78069	0.1907711	0.17417663	3.1754806	20	9 8.2	20.1
484940 2009 SD_{181}	16.7	X	257.99646	283.10741	190.57805	7.00943	0.0795227	0.18533011	3.0467634	20	10 23.6	20.9
484941 2009 SA_{187}	16.2	X	27.53120	275.20273	44.74235	10.10891	0.0938626	0.17775174	3.1327577	20	10 16.3	20.4
484942 2009 ST_{190}	16.7	X	298.80308	92.28075	348.58220	8.92009	0.1179821	0.18465328	3.0542039	20	10 29.8	20.6
484943 2009 SW_{190}	16.3	X	287.05417	118.61094	346.55175	8.83716	0.0687261	0.18872787	3.0100845	20	11 19.2	20.4
484944 2009 SM_{220}	16.2	X	18.10298	185.90162	156.88375	8.72755	0.1186439	0.18405965	3.0607673	20	11 5.6	20.2
484945 2009 SL_{240}	16.5	X	337.75066	238.19949	146.35314	17.54939	0.3257290	0.18041123	3.1018944	20	11 4.1	19.3
484946 2009 SN_{261}	18.8	X	76.40767	178.08527	234.90539	2.25437	0.1804094	0.30283837	2.1961506	20	—	—
484947 2009 SK_{271}	15.9	X	49.59239	310.00829	11.83238	10.73896	0.0587357	0.18242045	3.0790757	20	11 7.2	20.2
484948 2009 SD_{277}	16.8	X	55.32260	206.53520	83.17053	2.59462	0.1288352	0.18166390	3.0876185	20	10 19.7	21.0
484949 2009 SU_{279}	16.3	X	325.32946	344.92376	67.06080	4.84127	0.1523011	0.18318820	3.0704667	20	11 7.7	19.6
484950 2009 SO_{284}	17.7	X	103.06509	66.82967	304.94208	7.72860	0.1506713	0.30202748	2.2000797	20	—	—
484951 2009 ST_{293}	16.7	X	286.61216	185.94363	230.65988	8.52876	0.0839682	0.17597759	3.1537782	20	9 13.2	21.1
484952 2009 SB_{298}	16.4	X	352.18080	318.71967	38.26865	10.34450	0.0955143	0.17911551	3.1168358	20	10 11.6	20.2
484953 2009 SC_{303}	17.3	X	64.12503	304.27511	359.31116	9.33746	0.0863116	0.18839400	3.0136398	20	11 7.4	21.6
484954 2009 SO_{320}	16.5	X	316.84833	240.93130	181.11794	7.70602	0.1119227	0.18609728	3.0383843	20	11 9.4	20.2
484955 2009 SC_{337}	16.1	X	349.28812	118.93415	242.54190	14.85949	0.2643772	0.18006729	3.1058430	20	10 17.5	19.3
484956 2009 SL_{340}	16.8	X	330.25919	185.68214	188.67161	14.15908	0.0512668	0.17694867	3.1422291	20	9 27.5	21.0
484957 2009 SK_{342}	16.9	X	16.80598	110.32168	207.47517	9.72725	0.0592115	0.17366428	3.1817231	20	9 19.2	21.1
484958 2009 SG_{345}	16.2	X	25.08707	340.66220	16.81140	12.20298	0.0548434	0.18493504	3.0511009	20	11 19.5	20.5
484959 2009 SK_{361}	15.5	X	319.62460	337.27608	36.96377	27.38940	0.1554982	0.17368216	3.1815048	20	9 21.7	19.7
484960 2009 TU_{6}	17.8	X	73.75624	177.06949	233.71483	7.01502	0.2321091	0.30112136	2.2044911	20	—	—

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Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
484961 2009 TC_{7}	16.2	X	34.28922	123.48511	224.34182	11.62820	0.1733577	0.18602223	3.0392014	20	12 9.7	20.3
484962 2009 TJ_{7}	15.8	X	38.87125	355.45699	9.35610	10.06748	0.0976667	0.18882050	3.0091000	20	12 26.3	20.2
484963 2009 TY_{7}	18.2	X	77.04337	27.25708	34.27634	5.80657	0.2208139	0.30270997	2.1967716	20	1 19.7	19.8
484964 2009 TR_{10}	18.3	X	125.28996	337.68077	36.58175	5.20772	0.2162399	0.30803170	2.1713964	20	1 27.7	20.9
484965 2009 TF_{17}	18.2	X	52.68161	349.67880	61.34498	7.81494	0.2412882	0.29480066	2.2358899	20	—	—
484966 2009 TF_{18}	16.5	X	76.09117	317.41213	357.77686	10.24000	0.0761365	0.19611633	2.9340007	20	12 6.8	21.0
484967 2009 TN_{20}	17.9	X	98.22611	358.00899	31.36299	7.65785	0.1653980	0.30476671	2.1868770	20	—	—
484968 2009 TY_{30}	16.8	X	96.22339	148.88488	128.82996	3.55042	0.1501932	0.18769638	3.0211025	20	11 21.5	21.5
484969 2009 TE_{32}	15.8	X	300.90001	7.23466	35.79727	18.06011	0.1651236	0.17487620	3.1670062	20	9 19.1	19.9
484970 2009 TV_{37}	15.4	X	24.99656	76.37014	234.41201	14.90935	0.2353476	0.17688679	3.1429619	20	10 15.7	19.4
484971 2009 TY_{37}	18.4	X	95.16563	19.87155	2.09504	6.14891	0.1873179	0.30244440	2.1980574	20	—	—
484972 2009 TG_{39}	15.9	X	306.81264	273.91538	86.72720	16.70151	0.2304907	0.16638110	3.2739099	20	7 14.3	19.9
484973 2009 TK_{39}	15.7	X	355.93171	112.31189	244.95544	20.12923	0.2393641	0.17848504	3.1241712	20	10 24.2	19.2
484974 2009 TY_{45}	17.0	X	26.16671	281.92408	142.42558	22.92232	0.2350703	0.28959863	2.2625858	20	—	—
484975 2009 TX_{46}	15.6	X	344.98419	351.59940	36.45742	17.59857	0.1009703	0.18360041	3.0658692	20	11 6.6	19.5
484976 2009 UN_{3}	18.5	X	330.40877	338.80108	141.97052	37.45309	0.5763806	0.27786794	2.3258253	20	—	—
484977 2009 UL_{11}	16.0	X	82.91899	237.50155	37.94755	15.84347	0.0344264	0.18128350	3.0919362	20	10 22.9	20.4
484978 2009 UY_{16}	15.1	X	308.10752	121.90346	249.75422	22.11871	0.1786070	0.17072257	3.2181683	20	7 29.7	19.6
484979 2009 UK_{17}	16.1	X	25.79924	95.26247	247.90304	8.22775	0.0926896	0.18492334	3.0512296	20	11 10.1	20.1
484980 2009 UP_{24}	16.2	X	277.33845	262.48452	218.41888	16.25637	0.0385829	0.18354748	3.0664585	20	11 30.9	20.5
484981 2009 UB_{55}	18.6	X	119.18133	322.67037	29.92108	2.10098	0.2259552	0.30193238	2.2005416	20	—	—
484982 2009 UB_{58}	18.3	X	92.22257	6.89967	30.45768	7.88511	0.1701926	0.30266692	2.1969799	20	1 2.4	20.3
484983 2009 UZ_{60}	15.8	X	252.93238	60.93312	45.63139	10.94883	0.0696084	0.17899278	3.1182604	20	10 11.2	20.2
484984 2009 UW_{63}	16.4	X	316.71409	333.57112	46.26729	12.27373	0.0642570	0.17307365	3.1889577	20	9 20.6	20.7
484985 2009 UT_{77}	16.6	X	49.97372	290.16050	19.55229	9.49563	0.0619262	0.17927107	3.1150324	20	10 25.4	21.0
484986 2009 UE_{88}	15.6	X	348.11730	322.64242	41.29753	28.08621	0.1315188	0.17676918	3.1443558	20	10 20.4	19.5
484987 2009 UB_{91}	15.9	X	40.94287	81.83391	245.64879	9.37560	0.0844814	0.18452014	3.0556729	20	11 9.5	20.0
484988 2009 UL_{98}	15.7	X	168.25468	153.75282	54.33781	10.69507	0.0479398	0.17844409	3.1246493	20	11 6.4	20.4
484989 2009 UM_{103}	18.5	X	62.69299	213.49080	233.10930	2.59129	0.1113835	0.30340429	2.1934188	20	1 12.8	20.2
484990 2009 UR_{112}	16.7	X	266.23131	36.13476	59.33596	11.34447	0.1869422	0.17308714	3.1887919	20	9 28.8	21.2
484991 2009 UG_{140}	15.5	X	283.84867	231.88380	185.05854	13.38141	0.1606311	0.16861289	3.2449564	20	8 30.1	19.8
484992 2009 UJ_{147}	16.3	X	343.89814	138.28478	235.92100	8.14459	0.0761759	0.17474727	3.1685637	20	10 15.1	20.5
484993 2009 UF_{149}	16.0	X	165.08402	320.94654	236.12354	9.77487	0.0258855	0.17385124	3.1794417	20	10 17.6	20.8
484994 2009 VN	15.8	X	357.14035	53.10813	309.10226	11.03876	0.1418210	0.17794885	3.1304439	20	10 21.1	19.7
484995 2009 VZ_{14}	18.7	X	189.62540	310.31645	10.56735	3.53468	0.0331359	0.30795278	2.1717673	20	1 10.6	21.4
484996 2009 VK_{18}	15.8	X	8.09610	316.57979	44.98328	17.51565	0.0837444	0.17793357	3.1306231	20	11 6.6	19.9
484997 2009 VC_{19}	18.7	X	73.04560	48.65074	17.53330	3.39924	0.1654542	0.30189091	2.2007431	20	1 9.0	20.4
484998 2009 VR_{34}	16.5	X	18.15686	325.53570	36.31953	11.39930	0.0157567	0.17937012	3.1138856	20	11 12.1	20.8
484999 2009 VT_{35}	16.2	X	260.79591	227.00433	254.11631	9.43854	0.0780058	0.17708348	3.1406342	20	11 1.4	20.6
485000 2009 VD_{36}	15.9	X	195.70556	132.15470	43.10359	19.16976	0.0462132	0.17458840	3.1704856	20	10 28.7	20.5
485001 2009 VG_{37}	18.0	X	82.44552	193.17042	222.84330	6.78734	0.1508600	0.30198599	2.2002812	20	1 7.7	20.0
485002 2009 VE_{40}	17.6	X	133.55209	228.01284	126.97772	5.75910	0.2109335	0.30655329	2.1783721	20	1 9.2	20.3
485003 2009 VM_{68}	18.6	X	27.48639	122.21163	343.89228	1.01440	0.1481738	0.29622809	2.2287014	20	—	—
485004 2009 VN_{71}	15.4	X	117.94133	183.18020	70.94753	16.64992	0.1392100	0.17485969	3.1672056	20	11 13.5	20.5
485005 2009 VG_{74}	17.7	X	359.72682	359.56306	42.40178	2.70889	0.1010400	0.28020725	2.3128624	20	—	—
485006 2009 VE_{83}	16.0	X	49.09207	274.33112	36.23399	18.46097	0.0430263	0.17513577	3.1638761	20	10 24.4	20.4
485007 2009 VG_{90}	16.0	X	181.46200	313.28429	269.53246	9.87192	0.0192587	0.18222112	3.0813207	20	12 10.1	20.3
485008 2009 VR_{92}	15.7	X	22.59021	290.21526	72.36786	27.32729	0.2136381	0.18177079	3.0864079	20	12 14.9	19.7
485009 2009 VQ_{114}	18.2	X	39.52786	146.22606	280.44853	5.32650	0.2037497	0.28759084	2.2731042	20	—	—
485010 2009 VS_{116}	17.9	X	119.15322	277.62576	85.72503	6.06754	0.2046733	0.29464113	2.2366969	20	1 3.6	20.3
485011 2009 WD_{9}	18.0	X	95.37447	305.52265	69.32882	6.10154	0.1890484	0.29779287	2.2208873	20	—	—
485012 2009 WO_{15}	18.8	X	3.27932	273.86478	213.78359	3.55220	0.1507423	0.29344946	2.2427481	20	—	—
485013 2009 WN_{19}	18.5	X	7.23137	311.13942	173.54079	4.33496	0.0696474	0.29814558	2.2191354	20	—	—
485014 2009 WA_{32}	18.3	X	60.22436	182.64000	224.98034	2.22098	0.2109927	0.29371406	2.2414010	20	—	—
485015 2009 WO_{32}	16.3	X	339.56692	345.21998	68.47425	15.43833	0.1119071	0.18255275	3.0775878	20	12 2.4	20.0
485016 2009 WN_{36}	18.5	X	115.04968	81.25368	268.99706	3.22534	0.2154121	0.29863694	2.2167006	20	—	—
485017 2009 WN_{53}	17.8	X	70.97139	351.10289	69.18331	6.57939	0.2322788	0.29941143	2.2128763	20	1 4.3	19.0
485018 2009 WZ_{58}	16.6	X	154.69944	348.15279	222.54498	10.53225	0.1222864	0.17290927	3.1909784	20	10 23.2	21.7
485019 2009 WC_{65}	16.6	X	250.71033	76.36032	21.87911	16.08877	0.2301445	0.17378589	3.1802386	20	9 9.3	21.5
485020 2009 WV_{73}	18.4	X	122.45664	208.73240	146.53237	1.11695	0.2231232	0.30086203	2.2057576	20	—	—
485021 2009 WX_{77}	17.9	X	127.46828	317.03119	46.95367	6.82665	0.1880389	0.30255044	2.1975437	20	1 12.5	20.6
485022 2009 WL_{84}	16.3	X	223.66769	245.86774	277.12766	8.50069	0.0942467	0.17550908	3.1593882	20	11 4.9	21.1
485023 2009 WO_{86}	16.0	X	72.34119	258.13618	41.91759	9.65339	0.0883019	0.17616697	3.1515175	20	11 12.9	20.6
485024 2009 WP_{86}	18.6	X	110.32946	115.58351	269.22996	6.00169	0.1596405	0.30256103	2.1974924	20	1 11.2	20.9
485025 2009 WN_{88}	15.9	X	47.60850	262.83833	81.17373	10.83024	0.1359146	0.18155383	3.0888663	20	12 14.9	20.3
485026 2009 WK_{89}	15.7	X	353.38233	291.53393	89.82740	10.49654	0.1533150	0.17680870	3.1438872	20	11 17.5	19.4
485027 2009 WA_{92}	16.1	X	88.45941	3.36997	274.20476	11.07179	0.1176394	0.17576412	3.1563311	20	11 5.2	21.0
485028 2009 WG_{98}	16.5	X	37.72552	283.29986	35.37081	11.70533	0.0183682	0.17419910	3.1752075	20	10 16.9	21.0
485029 2009 WH_{98}	16.1	X	215.26891	249.84665	254.35306	8.67558	0.0685186	0.17268475	3.1937436	20	10 5.4	21.0
485030 2009 WJ_{99}	15.5	X	74.57620	238.55661	46.44918	16.91996	0.2035441	0.17903967	3.1177159	20	11 11.7	20.3
485031 2009 WC_{142}	16.1	X	305.18028	147.22475	266.92339	15.25023	0.0893906	0.17254851	3.1954246	20	10 1.7	20.6
485032 2009 WD_{142}	15.4	X	325.98930	316.15945	90.56542	16.99834	0.0945854	0.17558388	3.1584908	20	11 7.2	19.6
485033 2009 WU_{218}	16.2	X	100.66387	232.16441	69.84586	12.50293	0.1653902	0.18571042	3.0426024	20	12 22.9	21.1
485034 2009 WU_{232}	16.4	X	293.00977	31.98896	66.12293	19.32673	0.0671191	0.18032927	3.1028342	20	11 20.9	20.4
485035 2009 WJ_{234}	17.8	X	68.41168	138.37350	271.27580	9.51376	0.1591331	0.29341050	2.2429467	20	—	—
485036 2009 YT	16.1	X	315.82825	359.95268	15.88384	9.31730	0.1558811	0.17462932	3.1699903	20	9 3.5	19.9
485037 2009 YG_{10}	18.0	X	331.83000	347.33090	141.97262	3.07920	0.1215510	0.28319746	2.2965531	20	—	—
485038 2009 YJ_{12}	18.1	X	287.78935	124.49431	78.50410	5.97981	0.1596680	0.28597178	2.2816758	20	—	—
485039 2010 AE_{27}	18.6	X	6.99823	322.68910	142.75180	5.56808	0.1777406	0.28255941	2.3000090	20	—	—
485040 2010 AH_{27}	17.7	X	0.70550	236.17146	289.85549	4.39002	0.1744373	0.29179776	2.2512035	20	1 11.5	19.7

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Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
485041 2010 AH_{28}	17.3	X	229.20411	281.68715	317.86221	5.03665	0.1245812	0.28235171	2.3011368	20	—	—
485042 2010 AN_{29}	18.4	X	47.66254	92.48274	314.88017	2.20056	0.2310087	0.2872362	2.2749748	20	—	—
485043 2010 AO_{53}	18.2	X	16.72994	326.06808	142.32920	8.59799	0.1745887	0.28551977	2.2840833	20	—	—
485044 2010 AA_{78}	18.3	X	140.53195	53.25502	286.95077	4.25115	0.1928721	0.29670432	2.2263160	20	—	—
485045 2010 AO_{81}	18.1	X	330.39992	193.87403	23.15718	6.27228	0.1259853	0.29103236	2.2551488	20	2 14.6	20.5
485046 2010 AZ_{83}	17.4	X	254.79166	124.82675	104.09440	12.41804	0.2188426	0.26820463	2.3813608	20	—	—
485047 2010 BD_{4}	18.0	X	7.63263	53.18768	89.65650	3.70200	0.1454215	0.29001797	2.2604042	20	—	—
485048 2010 BQ_{5}	15.4	X	356.81665	21.36275	313.17313	26.19973	0.1028855	0.17299446	3.1899307	20	9 3.8	19.8
485049 2010 CP_{31}	18.4	X	342.80203	15.60933	137.44674	3.00522	0.1109950	0.28497158	2.2870115	20	—	—
485050 2010 CA_{43}	17.9	X	6.22263	106.33584	44.45579	7.23872	0.1753566	0.29032368	2.2588172	20	—	—
485051 2010 CM_{44}	19.3	X	310.06604	197.05708	10.80749	6.27656	0.4790659	0.27876458	2.3208353	20	—	—
485052 2010 CE_{80}	17.8	X	284.41995	228.90410	347.30118	5.67423	0.1201949	0.27943278	2.3171340	20	—	—
485053 2010 CB_{103}	17.8	X	221.86497	131.73267	142.51675	21.45911	0.1034920	0.28252755	2.3001819	20	—	—
485054 2010 CQ_{106}	18.0	X	329.62273	234.95451	334.39579	6.80764	0.1284743	0.29257936	2.2471924	20	1 31.0	20.5
485055 2010 CE_{150}	16.6	X	232.50554	293.58572	329.01498	28.62817	0.2343707	0.27898524	2.3196114	20	—	—
485056 2010 CB_{173}	17.1	X	225.82169	295.29680	339.33456	22.62335	0.2537764	0.27296124	2.3536148	20	1 2.7	21.6
485057 2010 CK_{183}	17.9	X	313.89909	89.48951	168.27224	3.78711	0.1554402	0.29369245	2.2415109	20	3 10.5	20.4
485058 2010 CW_{247}	18.1	X	39.54974	302.81421	130.62971	8.73563	0.2395985	0.28731624	2.2745524	20	—	—
485059 2010 DP_{6}	17.8	X	256.05967	69.18870	168.39349	4.34319	0.2000619	0.27446979	2.3449829	20	—	—
485060 2010 DR_{6}	18.2	X	270.84920	29.61238	180.31919	2.44862	0.1317281	0.27376526	2.3490044	20	—	—
485061 2010 DX_{36}	17.9	X	259.37835	257.96263	345.09631	4.28741	0.1812643	0.27897653	2.3196597	20	—	—
485062 2010 DQ_{44}	18.6	X	333.71471	329.13343	170.28439	3.57900	0.1011713	0.27493739	2.3423234	20	—	—
485063 2010 DB_{52}	17.2	X	198.40073	115.00813	180.09525	15.33651	0.2202297	0.25920470	2.4361693	20	1 2.0	21.6
485064 2010 DV_{78}	16.3	X	322.07930	202.65152	335.78762	25.59455	0.1913954	0.28571826	2.2830252	20	—	—
485065 2010 EH_{21}	17.6	X	242.59715	132.10693	71.82720	3.22125	0.1556598	0.26413735	2.4057445	20	—	—
485066 2010 EX_{21}	17.7	X	266.39315	93.97019	127.71470	6.67041	0.2436257	0.27122821	2.3636299	20	—	—
485067 2010 EL_{30}	17.9	X	317.12874	232.58926	303.89175	4.34524	0.1635816	0.27887032	2.3202486	20	—	—
485068 2010 EY_{35}	18.1	X	325.25030	210.29233	5.88301	3.24721	0.2230817	0.28680978	2.2772292	20	1 19.2	20.8
485069 2010 EV_{39}	17.8	X	266.59859	37.83552	183.91078	4.05053	0.1678137	0.27245563	2.3565258	20	—	—
485070 2010 EM_{40}	18.2	X	9.21750	325.27241	187.20037	6.22172	0.1043742	0.28714914	2.2754346	20	1 15.9	20.5
485071 2010 EU_{69}	17.4	X	255.33022	75.65413	164.25892	10.35508	0.2134467	0.27027837	2.3691644	20	—	—
485072 2010 EN_{80}	18.0	X	264.68035	84.46310	156.73133	4.95277	0.1909135	0.27651900	2.3333832	20	—	—
485073 2010 EN_{84}	15.4	X	48.84574	238.53939	19.27195	9.42131	0.1724275	0.12431508	3.9760653	20	9 2.6	20.7
485074 2010 EB_{88}	17.6	X	273.50334	61.68507	144.62797	6.97913	0.2954792	0.26930124	2.3748917	20	—	—
485075 2010 EO_{91}	17.9	X	227.50300	84.25789	165.56083	4.40688	0.1987901	0.27102838	2.3647916	20	—	—
485076 2010 EE_{99}	18.0	X	337.25128	106.24795	58.38701	4.85773	0.0873729	0.27762829	2.3271635	20	—	—
485077 2010 ER_{109}	18.7	X	312.17645	318.45954	199.43625	0.35916	0.1606769	0.27428480	2.3460372	20	—	—
485078 2010 EF_{111}	18.8	X	316.92743	85.06790	139.76768	3.32795	0.1829153	0.28801864	2.2708528	20	1 24.7	21.4
485079 2010 ET_{120}	18.0	X	272.63401	273.09505	283.94913	1.20529	0.1536700	0.26746915	2.3857243	20	—	—
485080 2010 ES_{121}	18.5	X	17.34918	80.75304	36.06874	1.93409	0.1317577	0.28153878	2.3055642	20	—	—
485081 2010 ES_{127}	17.2	X	264.33337	184.61481	36.72447	11.20403	0.1641015	0.27245566	2.3565256	20	—	—
485082 2010 EG_{129}	18.2	X	276.90666	27.25783	197.66235	5.18949	0.1907606	0.27279159	2.3545906	20	—	—
485083 2010 EK_{130}	18.1	X	260.94077	66.91701	150.12939	1.89748	0.1291708	0.26793994	2.3829289	20	—	—
485084 2010 EH_{131}	17.8	X	233.28811	152.73326	105.20876	3.73810	0.1714565	0.26835936	2.3804454	20	—	—
485085 2010 EC_{132}	17.5	X	259.12106	236.99334	27.77200	5.82482	0.1940447	0.27698962	2.3307394	20	1 15.9	21.2
485086 2010 EM_{139}	17.0	X	228.83245	194.69338	66.78133	6.26000	0.2247028	0.26856150	2.3792507	20	—	—
485087 2010 EZ_{140}	18.0	X	229.88123	286.22029	342.06800	1.00964	0.1686505	0.27288683	2.3540427	20	—	—
485088 2010 FZ_{5}	17.0	X	246.80827	51.51397	177.27388	4.97044	0.1824711	0.26784709	2.3834795	20	—	—
485089 2010 FH_{15}	17.5	X	233.58900	72.43546	167.50034	4.65562	0.1862414	0.26364564	2.4087348	20	—	—
485090 2010 FZ_{22}	18.4	X	314.62817	351.35566	157.08078	5.73594	0.1387291	0.27103723	2.3647401	20	—	—
485091 2010 FZ_{53}	18.0	X	306.37461	210.40363	343.40865	5.34256	0.1293310	0.27610202	2.3357319	20	—	—
485092 2010 FK_{88}	17.4	X	272.12869	209.90734	14.14003	7.72125	0.2526323	0.27031331	2.3689602	20	—	—
485093 2010 FJ_{90}	17.3	X	243.47404	156.24069	60.94164	5.75995	0.1060644	0.26416834	2.4055564	20	—	—
485094 2010 FJ_{94}	18.0	X	242.35381	280.82388	326.10958	4.50916	0.2087421	0.26773828	2.3841253	20	—	—
485095 2010 FV_{94}	18.2	X	213.74793	136.81410	121.81153	2.31547	0.1507026	0.26353223	2.4094258	20	—	—
485096 2010 GP_{30}	18.3	X	345.25641	9.92124	142.81785	2.72198	0.1362710	0.27766016	2.3269855	20	—	—
485097 2010 GJ_{32}	16.1	X	115.59975	167.79989	52.00622	16.51593	0.1101493	0.22916361	2.6446748	20	10 10.9	20.3
485098 2010 GF_{42}	13.2	X	249.24252	224.93482	110.36150	31.83954	0.0658556	0.08248386	5.2266499	20	5 8.8	20.6
485099 2010 GE_{66}	17.4	X	281.49608	162.53241	47.95105	2.10404	0.1389847	0.27111386	2.3642945	20	—	—
485100 2010 GG_{97}	17.3	X	204.66675	232.06448	64.37805	13.49314	0.2113119	0.26429084	2.4048130	20	1 9.3	21.5
485101 2010 GE_{100}	18.0	X	291.23695	101.47575	92.08563	3.04221	0.1922042	0.26993658	2.3711638	20	—	—
485102 2010 GT_{110}	17.8	X	235.12928	168.44120	74.67566	6.69405	0.1881039	0.26429174	2.4048075	20	—	—
485103 2010 GX_{114}	17.8	X	234.89920	25.17884	219.65020	4.64075	0.1959391	0.26400345	2.4065579	20	—	—
485104 2010 GN_{119}	18.3	X	273.72269	34.70944	227.03225	5.49331	0.2026332	0.27779170	2.3262508	20	1 21.9	22.0
485105 2010 GY_{124}	18.4	X	293.75523	31.12937	169.65819	1.05279	0.1234253	0.27263845	2.3554722	20	—	—
485106 2010 GL_{161}	16.6	X	359.35117	231.75588	89.25721	21.98841	0.2046215	0.21390706	2.7689767	20	10 3.5	20.0
485107 2010 GK_{172}	17.8	X	272.39366	80.73991	149.80618	6.71568	0.1269733	0.27576332	2.3376440	20	—	—
485108 2010 HL_{17}	16.7	X	212.04069	277.91223	291.62732	16.96102	0.1064941	0.23794380	2.5792085	20	—	—
485109 2010 HY_{107}	17.9	X	222.04896	93.72498	133.82807	2.19598	0.1450797	0.25585064	2.4574143	20	—	—
485110 2010 HZ_{108}	20.9	X	17.02608	106.63208	174.00793	22.88141	0.2084587	0.70661197	1.2483855	20	12 19.8	22.4
485111 2010 HY_{111}	17.1	X	205.24526	165.46373	116.05029	16.94318	0.1179852	0.25258349	2.4785598	20	—	—
485112 2010 JE_{34}	17.8	X	261.21180	341.68403	250.20619	4.39440	0.1842324	0.26972599	2.3723978	20	—	—
485113 2010 JY_{45}	17.9	X	258.38234	76.30637	113.90810	2.26197	0.1362752	0.25744818	2.4472378	20	—	—
485114 2010 JJ_{82}	17.8	X	243.57223	52.36100	198.50021	6.52012	0.0947036	0.26678494	2.3898016	20	—	—
485115 2010 JS_{119}	18.5	X	302.54778	79.11833	120.84109	6.52694	0.2350266	0.27212558	2.3584308	20	—	—
485116 2010 JE_{124}	17.7	X	269.34782	341.94943	261.72323	5.75267	0.3690314	0.27322552	2.3520969	20	—	—
485117 2010 JN_{154}	17.7	X	3.66190	11.40066	81.48793	7.92040	0.0743277	0.26017073	2.4301351	20	—	—
485118 2010 KY_{7}	15.8	X	246.43424	83.82197	285.73725	24.57763	0.2392781	0.17492923	3.1663661	20	5 8.1	21.4
485119 2010 KO_{57}	16.9	X	19.05069	58.02093	288.02826	7.80455	0.2253770	0.20891634	2.8129010	20	11 29.5	20.3
485120 2010 KY_{116}	17.3	X	143.50277	79.00762	233.25347	12.90458	0.2795495	0.23689602	2.5868081	20	—	—

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	m		°	°	°	°		°				
485121 2010 KJ_{123}	16.7	X	222.56771	287.16603	303.34309	27.14822	0.1310860	0.23786712	2.5797628	20	—	—
485122 2010 LB_{13}	16.4	X	46.78052	104.93127	254.13541	12.52243	0.0558377	0.21957452	2.7211225	20	12 29.6	20.1
485123 2010 LT_{102}	16.5	X	259.45729	285.96275	274.60166	15.64211	0.2014904	0.23834690	2.5762997	20	—	—
485124 2010 LE_{105}	18.0	X	214.69665	243.96539	4.14744	1.08305	0.1462676	0.25662739	2.4524531	20	—	—
485125 2010 LM_{109}	16.6	X	169.86791	353.08683	225.28047	28.47314	0.1053936	0.23428702	2.6059769	20	11 26.1	20.7
485126 2010 MA_{46}	15.2	X	306.95342	4.74918	313.92624	24.69371	0.3128103	0.18142271	3.0903544	20	4 23.1	19.8
485127 2010 MA_{54}	16.7	X	224.48875	238.12838	172.92327	15.76499	0.2501895	0.17421544	3.1750090	20	6 12.5	22.3
485128 2010 MM_{61}	16.3	X	286.46667	33.46044	347.12317	17.10427	0.2226592	0.18477282	3.0528865	20	7 16.5	20.6
485129 2010 MS_{82}	16.6	X	117.58845	85.20581	226.68129	16.22434	0.2491509	0.22713751	2.6603788	20	—	—
485130 2010 MK_{92}	15.9	X	235.70995	188.21433	194.10386	13.74933	0.1585002	0.17161522	3.2069992	20	5 26.2	21.1
485131 2010 MH_{97}	17.0	X	272.13186	225.60374	195.22742	14.64260	0.2465084	0.18794924	3.0183922	20	8 6.6	21.5
485132 2010 NH_{3}	17.5	X	306.31226	1.24590	277.47707	18.17559	0.0699635	0.37797730	1.8944897	20	3 23.8	19.9
485133 2010 NQ_{6}	16.6	X	9.54214	46.66144	302.74481	19.73331	0.1893704	0.20965660	2.8062758	20	11 7.6	20.3
485134 2010 NA_{12}	16.6	X	119.09069	315.86296	12.10963	26.87927	0.1297017	0.22865456	2.6485985	20	—	—
485135 2010 NU_{69}	16.3	X	8.74425	296.29577	56.78826	18.26272	0.1478828	0.20145869	2.8818987	20	11 11.4	19.7
485136 2010 NY_{74}	17.7	X	278.60646	99.20363	302.55153	6.77603	0.3152801	0.18231554	3.0802568	20	7 14.7	22.0
485137 2010 NY_{79}	17.6	X	258.03610	103.08644	297.11055	6.22393	0.3207098	0.17641225	3.1485957	20	6 20.6	22.6
485138 2010 OD	16.0	X	252.76427	18.46013	316.52117	12.16997	0.2219057	0.17317057	3.1877677	20	4 2.4	21.3
485139 2010 OO_{3}	17.0	X	174.05069	250.56722	13.36916	12.55577	0.2562206	0.22937601	2.6430419	20	—	—
485140 2010 OC_{22}	15.9	X	299.33155	148.56385	202.16346	27.46477	0.1613179	0.18055240	3.1002773	20	6 26.5	20.5
485141 2010 OL_{22}	16.9	X	293.94083	302.97208	78.75787	16.29045	0.3566833	0.18359379	3.0659429	20	7 1.3	20.9
485142 2010 OE_{27}	15.8	X	278.55646	92.42675	263.55088	18.89301	0.2448049	0.17628019	3.1501680	20	5 26.9	20.5
485143 2010 OP_{63}	16.7	X	261.86929	13.12999	20.70645	10.83473	0.2253716	0.17651866	3.1473301	20	6 27.7	21.6
485144 2010 OC_{99}	17.3	X	284.87709	78.56916	318.51676	6.70412	0.2619621	0.18272721	3.0756287	20	7 25.3	21.3
485145 2010 OK_{101}	17.1	X	221.00750	343.10846	308.80868	10.67595	0.2577907	0.25695894	2.4503431	20	1 17.5	21.4
485146 2010 OW_{118}	16.9	X	284.48373	257.21892	130.30189	2.13673	0.2946870	0.18073844	3.0981495	20	7 6.2	21.1
485147 2010 PV_{23}	16.4	X	85.67999	14.85039	314.57090	14.55810	0.2631216	0.22517088	2.6758467	20	—	—
485148 2010 PF_{49}	17.1	X	296.88913	342.49593	38.01941	1.04605	0.1905603	0.18272886	3.0756101	20	8 1.5	20.8
485149 2010 PK_{60}	16.7	X	52.52629	15.14199	311.67245	14.00572	0.1188014	0.21622586	2.7491449	20	12 4.4	20.8
485150 2010 PD_{62}	17.4	X	34.10197	192.38649	150.64625	3.35296	0.1853475	0.21124147	2.7922219	20	12 11.7	21.1
485151 2010 PR_{63}	17.8	X	1.69275	90.45279	153.37069	24.58322	0.0930563	0.38404577	1.8744796	20	5 31.5	20.0
485152 2010 PQ_{65}	17.5	X	293.68227	37.77250	272.93701	17.11618	0.0625495	0.38058430	1.8858283	20	5 5.5	19.5
485153 2010 PV_{80}	18.0	X	255.11027	340.82346	355.91714	19.21274	0.0710418	0.36792768	1.9288320	20	4 11.4	20.3
485154 2010 RC_{10}	17.4	X	100.69103	357.74612	304.23750	3.13967	0.0841568	0.21634447	2.7481400	20	12 24.3	21.5
485155 2010 RL_{22}	16.8	X	125.72568	13.20083	311.13996	15.32417	0.1642936	0.23476139	2.6024652	20	—	—
485156 2010 RM_{26}	17.2	X	38.97453	32.42563	311.23768	3.65130	0.0783904	0.21248680	2.7813016	20	12 2.6	21.0
485157 2010 RR_{32}	18.6	X	358.97793	284.13710	335.11421	19.20200	0.1058078	0.38506355	1.8711752	20	6 19.1	20.3
485158 2010 RB_{37}	18.2	X	287.51921	156.35743	165.21106	22.20499	0.1099761	0.38217267	1.8805994	20	5 14.4	20.5
485159 2010 RW_{54}	17.7	X	73.87019	179.12947	0.20147	20.37308	0.0367108	0.37427635	1.9069580	20	6 8.8	20.1
485160 2010 RW_{57}	16.9	X	261.41837	188.14225	189.21520	11.56340	0.1248783	0.18000345	3.1065773	20	6 19.4	21.6
485161 2010 RY_{69}	16.6	X	312.16382	335.20694	22.06959	9.94754	0.2671532	0.18761979	3.0219246	20	7 17.7	20.1
485162 2010 RT_{77}	16.4	X	281.16756	185.66942	174.22059	14.43100	0.2208549	0.17968294	3.1102704	20	6 8.9	21.1
485163 2010 RU_{96}	17.8	X	301.82839	120.07859	189.25682	22.82401	0.1018767	0.37812943	1.8939815	20	5 17.4	19.8
485164 2010 RB_{99}	16.9	X	308.27399	77.79476	351.28374	14.78507	0.1564190	0.20244188	2.8725602	20	10 28.1	20.3
485165 2010 RQ_{100}	17.5	X	108.70537	337.46656	337.82045	5.99996	0.0392536	0.21956198	2.7212261	20	—	—
485166 2010 RA_{105}	17.2	X	304.31099	142.95108	289.83519	1.01955	0.0456223	0.20275706	2.8695826	20	11 10.0	20.8
485167 2010 RF_{112}	17.1	X	70.59926	295.21147	24.33547	5.14887	0.1589622	0.21338034	2.7735316	20	12 20.3	21.3
485168 2010 RX_{127}	16.8	X	285.72540	50.77514	336.76036	12.43072	0.2271241	0.18582098	3.0413954	20	7 22.1	20.9
485169 2010 RM_{128}	16.5	X	245.04521	200.16156	197.15442	17.48399	0.2054534	0.17702725	3.1412992	20	6 16.4	21.7
485170 2010 RW_{144}	16.7	X	228.78237	240.40047	7.22721	13.21881	0.1182264	0.23550988	2.5969482	20	—	—
485171 2010 RX_{165}	17.5	X	28.71954	202.10295	180.56355	4.31335	0.1081761	0.21605507	2.7505934	20	—	—
485172 2010 RK_{167}	16.2	X	280.41978	243.22223	182.53606	13.22694	0.3501898	0.18736108	3.0247057	20	8 8.8	20.6
485173 2010 RS_{177}	17.3	X	65.12497	328.14424	44.88671	6.87663	0.0406318	0.22132529	2.7067534	20	—	—
485174 2010 RR_{180}	17.5	X	40.91747	173.45249	195.28674	9.92728	0.1014620	0.21463833	2.7626839	20	—	—
485175 2010 RM_{184}	16.7	X	153.42892	56.17901	233.83887	12.68544	0.1913365	0.23251244	2.6192196	20	—	—
485176 2010 SC_{9}	17.5	X	71.94999	148.57750	184.11666	3.29132	0.0909054	0.21665518	2.7455119	20	12 30.9	21.5
485177 2010 SK_{23}	16.2	X	273.42890	46.44223	346.51852	15.96788	0.2355657	0.18333501	3.0688272	20	7 12.4	20.8
485178 2010 SJ_{29}	16.7	X	97.16552	282.32149	26.20007	9.61867	0.1353191	0.21784666	2.7354920	20	—	—
485179 2010 SS_{35}	18.0	X	130.90201	330.74103	198.57543	23.89727	0.0330761	0.38626421	1.8672956	20	8 22.7	20.4
485180 2010 ST_{38}	18.3	X	93.51750	286.45598	197.12867	20.93964	0.0763521	0.36103759	1.9532947	20	4 23.1	20.0
485181 2010 SR_{39}	17.4	X	172.86592	51.73886	337.12051	18.05341	0.1007440	0.35869242	1.9617993	20	3 16.9	19.9
485182 2010 TB	16.3	X	138.08852	327.78439	353.35472	32.95491	0.2355072	0.23247472	2.6195030	20	—	—
485183 2010 TW_{9}	17.2	X	91.95299	35.31934	267.15855	0.71532	0.0116232	0.21240855	2.7819846	20	12 7.9	20.8
485184 2010 TM_{19}	15.7	X	117.01643	181.13437	186.88755	33.02453	0.1676013	0.23270865	2.6177471	20	1 9.8	20.1
485185 2010 TD_{28}	17.3	X	114.67122	340.59738	296.71565	3.02116	0.0697301	0.21304637	2.7764293	20	12 7.4	21.3
485186 2010 TR_{29}	17.3	X	337.93960	181.92416	201.97300	6.92099	0.0680288	0.20103417	2.8859544	20	10 26.5	20.9
485187 2010 TH_{39}	18.1	X	319.23709	253.79168	15.16788	20.27583	0.0639480	0.36923288	1.9242839	20	4 11.4	19.5
485188 2010 TX_{45}	17.0	X	327.38891	40.62062	10.96943	1.96123	0.0580952	0.20347757	2.8628044	20	11 15.3	20.7
485189 2010 TX_{60}	17.7	X	267.14739	185.72436	235.78289	1.56838	0.1801984	0.18828824	3.0147682	20	8 14.2	21.9
485190 2010 TE_{65}	16.2	X	330.40988	357.41162	2.79287	9.22716	0.1165765	0.18982286	2.9984976	20	9 11.3	19.6
485191 2010 TP_{79}	17.1	X	264.32449	254.98436	189.60431	10.92052	0.1160971	0.19252440	2.9703813	20	9 19.0	21.0
485192 2010 TX_{87}	17.5	X	7.42722	4.39825	19.75067	5.79176	0.0181744	0.20954665	2.8072574	20	12 3.4	21.4
485193 2010 TU_{89}	17.4	X	299.30287	59.65452	30.83935	8.59982	0.1488962	0.20486273	2.8498855	20	11 16.7	20.7
485194 2010 TD_{126}	17.1	X	102.19359	258.90677	40.32054	4.99458	0.0539086	0.21264134	2.7799538	20	12 19.4	21.1
485195 2010 TR_{153}	16.9	X	154.28616	345.74208	314.82704	7.53697	0.1030849	0.23119815	2.6291366	20	—	—
485196 2010 TF_{157}	17.0	X	43.58490	167.87180	171.17883	3.03879	0.1836701	0.20915772	2.8107364	20	12 17.3	20.9
485197 2010 TO_{165}	16.7	X	295.06725	5.18646	33.33748	9.11372	0.0787312	0.18871087	3.0102653	20	9 12.2	20.7
485198 2010 TS_{168}	15.6	X	275.78774	156.36664	242.63802	16.13988	0.1848153	0.18008103	3.1056850	20	7 21.4	20.2
485199 2010 TV_{184}	16.6	X	250.50056	56.88870	20.37962	6.08737	0.2440565	0.18290544	3.0736303	20	8 8.9	21.4
485200 2010 UN_{19}	16.0	X	301.64857	165.16789	216.75645	15.22728	0.0430221	0.18535249	3.0465181	20	8 24.7	20.4

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
485201 2010 US_{25}	16.2	X	223.60846	72.08091	39.16008	12.20301	0.1392340	0.18076262	3.0978731	20	9 7.4	21.1
485202 2010 UE_{35}	16.9	X	278.31281	43.90422	8.19250	11.25968	0.1062073	0.18558629	3.0439590	20	9 1.4	21.0
485203 2010 UC_{36}	16.5	X	174.71871	271.96667	286.17414	7.53250	0.0409881	0.19132889	2.9827419	20	10 31.5	21.0
485204 2010 UD_{49}	16.1	X	251.89744	323.32031	110.67769	5.98954	0.1160573	0.18286476	3.0740862	20	8 22.1	20.4
485205 2010 UO_{55}	16.9	X	255.36633	206.19622	234.71455	7.88824	0.2057726	0.18219805	3.0815809	20	8 17.7	21.7
485206 2010 UC_{59}	16.0	X	241.67303	66.30797	56.46130	12.88083	0.0464593	0.18818737	3.0158454	20	10 22.7	20.3
485207 2010 UL_{73}	16.1	X	287.00067	143.77306	258.32416	15.34749	0.1035246	0.18070865	3.0984899	20	8 19.7	20.5
485208 2010 UR_{76}	16.5	X	312.13913	127.19917	259.82749	9.38593	0.2580821	0.18830294	3.0146113	20	8 23.4	19.8
485209 2010 UR_{77}	17.1	X	106.47589	28.32058	291.01362	7.07813	0.0917320	0.21591359	2.7517949	20	—	—
485210 2010 UT_{77}	17.2	X	70.45555	343.50491	324.81941	7.00383	0.0702803	0.20185001	2.8781728	20	11 22.4	21.4
485211 2010 UK_{79}	16.7	X	343.31536	1.75765	8.13634	8.64887	0.1230001	0.19222752	2.9734389	20	10 14.3	20.2
485212 2010 UB_{80}	17.3	X	264.72700	82.55379	344.79062	6.37242	0.2413748	0.18211945	3.0824674	20	8 11.4	21.7
485213 2010 UG_{83}	16.9	X	120.54900	85.02291	250.94651	5.12468	0.0253024	0.22053559	2.7132111	20	—	—
485214 2010 UT_{85}	17.3	X	248.69076	311.08155	151.54510	3.24914	0.2395110	0.18755735	3.0225952	20	9 6.4	21.9
485215 2010 UH_{88}	16.4	X	254.95608	192.11854	252.23878	13.93178	0.3062231	0.18269946	3.0759401	20	8 6.8	21.5
485216 2010 UA_{95}	16.7	X	250.25059	39.10762	58.43758	10.21833	0.2757036	0.18455026	3.0553404	20	9 1.9	21.5
485217 2010 UT_{97}	16.5	X	243.79670	51.42566	65.59391	17.45115	0.2330553	0.18564510	3.0433161	20	9 29.1	21.4
485218 2010 UZ_{97}	16.9	X	50.15735	34.82581	314.85542	8.61769	0.1672279	0.20973995	2.8055324	20	—	—
485219 2010 UJ_{99}	15.7	X	247.19569	176.00180	235.81090	16.67640	0.1845830	0.17758664	3.1346990	20	7 5.9	20.7
485220 2010 VS	13.2	X	326.28137	337.24596	305.57365	39.02746	0.0623257	0.08179326	5.2560284	20	5 24.3	20.4
485221 2010 VN_{11}	15.9	X	279.10597	284.55314	117.67594	26.78422	0.2395832	0.17039666	3.2222705	20	7 26.1	20.3
485222 2010 VO_{15}	17.0	X	277.27480	143.57274	254.30583	7.47894	0.2890938	0.18199714	3.0838483	20	7 10.5	21.3
485223 2010 VC_{16}	16.5	X	222.02559	128.55627	353.40322	8.91572	0.0216429	0.19012847	2.9952836	20	9 26.3	20.8
485224 2010 VN_{18}	17.2	X	107.54090	209.87328	117.72569	6.89875	0.0201166	0.21557760	2.7546534	20	—	—
485225 2010 VQ_{19}	16.6	X	269.71786	198.55777	222.78488	7.42656	0.1837566	0.18333010	3.0688821	20	8 13.9	21.0
485226 2010 VU_{23}	16.8	X	303.18279	157.53373	237.13646	14.50361	0.1931488	0.18553628	3.0445058	20	8 23.9	20.8
485227 2010 VZ_{24}	17.1	X	314.12181	318.15294	59.56700	1.81120	0.2236892	0.18508163	3.0494897	20	8 24.8	20.3
485228 2010 VJ_{27}	16.2	X	319.03019	160.01421	238.22295	9.12764	0.1038855	0.18824497	3.0152301	20	10 9.2	19.9
485229 2010 VL_{27}	17.0	X	288.45444	206.89393	170.31111	1.55275	0.2960311	0.18108141	3.0942363	20	6 27.9	21.2
485230 2010 VE_{34}	16.4	X	323.56798	297.40712	58.18739	22.39649	0.2119296	0.18451544	3.0557248	20	8 25.9	20.2
485231 2010 VV_{44}	17.1	X	208.31239	235.67739	22.91558	14.68987	0.2516222	0.23295383	2.6159101	20	—	—
485232 2010 VA_{48}	16.9	X	319.53276	333.72609	61.86136	11.00967	0.0968211	0.18795093	3.0183741	20	10 14.4	20.7
485233 2010 VV_{49}	16.8	X	119.31388	52.39073	287.78733	5.31310	0.0503784	0.22208871	2.7005469	20	—	—
485234 2010 VN_{55}	17.2	X	338.56361	224.64576	135.38887	2.17980	0.2037766	0.19025133	2.9939939	20	9 24.8	20.1
485235 2010 VL_{61}	16.1	X	317.52853	2.40302	18.23579	8.70249	0.0783027	0.18700795	3.0285122	20	9 19.9	19.9
485236 2010 VR_{70}	17.3	X	232.09218	305.18931	65.31439	23.31453	0.0981725	0.36493625	1.9393583	20	5 11.9	19.6
485237 2010 VU_{70}	16.7	X	254.58277	52.87621	46.02482	18.27619	0.3093216	0.18363995	3.0654291	20	9 8.9	21.7
485238 2010 VR_{71}	16.2	X	290.80774	191.89589	224.09953	9.51317	0.2411900	0.18639942	3.0351001	20	8 27.3	20.2
485239 2010 VK_{74}	18.0	X	150.63856	13.70928	48.39657	21.96674	0.0974768	0.35686844	1.9684783	20	4 19.8	20.5
485240 2010 VO_{74}	16.4	X	266.82915	135.65420	241.34621	23.71377	0.2062889	0.17547067	3.1598492	20	6 12.8	21.2
485241 2010 VD_{84}	17.1	X	290.78507	350.00886	55.92263	5.61899	0.1261665	0.18320919	3.0702322	20	9 7.3	21.1
485242 2010 VD_{89}	16.2	X	291.82376	359.96166	48.53239	11.48306	0.1330244	0.18421333	3.0590648	20	9 14.8	20.2
485243 2010 VO_{89}	16.8	X	265.91537	190.68955	250.99178	7.12859	0.0680066	0.18504782	3.0498612	20	9 20.9	21.1
485244 2010 VF_{91}	16.3	X	98.99359	69.34542	251.08440	12.02398	0.2097839	0.21166778	2.7884715	20	—	—
485245 2010 VZ_{106}	16.5	X	319.37095	31.67845	34.98455	15.62091	0.0985905	0.19781534	2.9171767	20	11 18.3	20.1
485246 2010 VP_{114}	17.1	X	257.97942	99.94127	318.02205	3.92890	0.1356232	0.17616023	3.1515980	20	8 4.5	21.6
485247 2010 VN_{116}	16.1	X	308.17365	331.40306	37.03450	14.14034	0.1235759	0.18081565	3.0972674	20	8 19.9	20.2
485248 2010 VG_{123}	16.3	X	200.60983	280.98436	252.73412	9.48772	0.1349479	0.19213930	2.9743489	20	10 23.2	21.0
485249 2010 VK_{123}	16.7	X	271.20772	31.39956	14.49963	5.33773	0.1514468	0.17936291	3.1139690	20	8 5.4	21.0
485250 2010 VX_{136}	15.6	X	229.99650	201.49799	301.44423	29.02838	0.2470109	0.17444046	3.1722780	20	9 16.1	21.3
485251 2010 VB_{157}	17.2	X	306.95640	133.73189	254.82353	8.33718	0.1533412	0.18563625	3.0434128	20	8 30.1	21.0
485252 2010 VC_{160}	16.7	X	288.79099	310.60534	95.62529	8.86875	0.2344378	0.18230161	3.0804137	20	8 18.5	20.7
485253 2010 VO_{160}	16.9	X	281.18538	20.81746	10.73797	8.10015	0.2089158	0.18108531	3.0941918	20	7 22.9	21.2
485254 2010 VV_{162}	16.8	X	1.84252	97.49848	250.36301	9.41637	0.0789822	0.18968002	3.0000028	20	10 9.6	20.7
485255 2010 VX_{165}	16.8	X	257.26076	35.22255	63.68951	10.74129	0.1257804	0.18450655	3.0558229	20	10 2.1	21.2
485256 2010 VC_{177}	16.5	X	265.57066	41.67406	49.08232	10.12219	0.1365458	0.18833971	3.0142189	20	9 30.4	20.6
485257 2010 VY_{177}	16.6	X	177.87572	35.69165	241.60092	5.06441	0.0415120	0.21918464	2.7243483	20	—	—
485258 2010 VO_{179}	16.8	X	32.33263	309.78649	56.95017	10.12869	0.1446335	0.20481106	2.8503648	20	12 31.1	20.7
485259 2010 VK_{195}	15.8	X	173.56342	109.66814	34.73660	27.91422	0.2075571	0.17201397	3.2020410	20	9 8.2	21.7
485260 2010 VR_{196}	16.4	X	305.10954	132.28594	266.93073	14.94331	0.0957428	0.18562138	3.0435753	20	9 12.8	20.7
485261 2010 VA_{197}	16.6	X	288.36227	43.43605	18.83754	11.78268	0.0968999	0.18600588	3.0393795	20	9 28.5	20.5
485262 2010 VK_{204}	17.0	X	330.42161	65.34662	312.02105	4.20333	0.2183001	0.19249084	2.9707265	20	9 28.6	19.8
485263 2010 VY_{214}	17.2	X	330.80325	152.21841	232.43319	5.43182	0.1712926	0.19289745	2.9665503	20	10 11.9	20.3
485264 2010 VJ_{216}	16.9	X	283.68567	12.38270	51.38519	12.67399	0.1085091	0.18692253	3.0294349	20	9 26.8	21.0
485265 2010 WO_{9}	16.6	X	326.51737	10.74851	6.23803	8.35349	0.1162503	0.18815209	3.0162223	20	9 25.8	20.2
485266 2010 WN_{12}	17.1	X	283.17654	106.21992	309.78051	8.23107	0.2405341	0.18501284	3.0502455	20	8 18.4	21.2
485267 2010 WK_{13}	17.1	X	307.16436	177.33101	195.00130	2.09886	0.2171958	0.18260843	3.0769623	20	8 2.6	20.6
485268 2010 WM_{34}	16.2	X	352.85765	286.68550	71.40861	11.93537	0.1710324	0.19067176	2.9895912	20	10 24.5	19.6
485269 2010 WC_{35}	17.4	X	287.71910	1.31532	93.21613	4.01126	0.1156135	0.19342776	2.9611258	20	11 6.6	21.2
485270 2010 WN_{52}	16.5	X	196.54246	91.08352	60.92871	10.93386	0.0438787	0.18313784	3.0710295	20	10 6.2	21.1
485271 2010 WH_{55}	16.3	X	262.53581	185.15571	267.71626	17.38818	0.1756296	0.18029767	3.1031967	20	9 7.9	21.2
485272 2010 WD_{57}	16.7	X	32.66456	127.51484	220.86649	9.48768	0.1261239	0.19801833	2.9151828	20	12 4.7	20.6
485273 2010 WA_{58}	17.2	X	282.21851	202.62958	194.76987	1.90142	0.1466631	0.17777123	3.1325287	20	8 7.3	21.5
485274 2010 WN_{61}	17.2	X	232.29753	79.99540	47.74905	1.10672	0.1976270	0.18266526	3.0763240	20	9 24.7	21.9
485275 2010 XD_{15}	17.2	X	248.82943	194.41323	245.91445	2.22960	0.1789691	0.17923537	3.1154461	20	8 15.4	21.9
485276 2010 XD_{19}	16.5	X	324.71572	149.29197	220.88457	10.70840	0.0771068	0.18067833	3.0988365	20	9 10.0	20.6
485277 2010 XR_{34}	16.3	X	230.43864	31.19798	84.16154	12.57501	0.2109919	0.17933492	3.1142930	20	9 11.9	21.4
485278 2010 XF_{45}	16.1	X	42.77285	294.46253	91.10252	12.94857	0.1405412	0.21135816	2.7911941	20	—	—
485279 2010 XM_{50}	16.2	X	242.77680	190.78043	279.61714	17.75866	0.2012748	0.17757785	3.1348026	20	9 3.3	21.3
485280 2010 XW_{54}	16.0	X	279.67435	121.42105	306.01893	18.17512	0.1508085	0.17548355	3.1596947	20	9 3.1	20.5

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	m		°	°	°	°		°				
485281 2010 XY_{71}	16.8	X	259.87087	331.66299	105.70962	3.90100	0.1716128	0.18238542	3.0794700	20	8 28.1	21.2
485282 2010 XO_{76}	16.4	X	254.49367	232.55644	255.47477	9.22125	0.0674882	0.19116873	2.9844076	20	11 6.6	20.7
485283 2010 XK_{85}	16.3	X	233.00034	261.15892	238.28027	9.83716	0.0584027	0.18776458	3.0203708	20	10 25.7	20.7
485284 2010 YQ_{1}	15.4	X	219.31778	203.38279	294.67908	15.63453	0.1555095	0.17648491	3.1477314	20	9 18.8	20.6
485285 2010 YS_{3}	16.1	X	274.80571	301.02617	120.92884	27.89368	0.3177339	0.17540856	3.1605950	20	8 3.9	20.6
485286 2010 YB_{4}	16.5	X	239.74168	142.58270	307.17952	15.20759	0.2220044	0.17077408	3.2175212	20	8 11.0	21.5
485287 2010 YD_{4}	16.1	X	261.44312	147.64288	297.90983	16.04470	0.1871715	0.17473396	3.1687246	20	8 28.9	20.9
485288 2011 AK	16.0	X	306.34597	310.33175	116.46225	12.90991	0.0535056	0.18226872	3.0807842	20	11 5.9	20.3
485289 2011 AE_{11}	16.8	X	283.67788	322.34800	112.46185	18.56674	0.2986628	0.18267639	3.0761990	20	9 10.6	21.0
485290 2011 AN_{11}	16.1	X	218.14190	29.38352	115.70233	19.28319	0.1776882	0.17502745	3.1651814	20	10 10.8	21.4
485291 2011 AT_{13}	16.3	X	238.99124	149.78589	304.93588	18.28558	0.1034782	0.17057824	3.2199834	20	8 25.5	21.2
485292 2011 AN_{15}	16.3	X	280.02637	113.05108	281.02139	24.51994	0.3465738	0.17338704	3.1851139	20	7 1.6	20.8
485293 2011 AE_{22}	16.5	X	234.62765	330.98025	124.68102	12.85012	0.1968151	0.17074120	3.2179342	20	8 19.0	21.5
485294 2011 AM_{29}	16.6	X	337.03283	13.02164	338.79420	10.37059	0.2570733	0.17691307	3.1426506	20	9 3.3	19.4
485295 2011 AZ_{31}	16.0	X	194.95975	88.58625	92.88838	12.10957	0.0700033	0.17933726	3.1142659	20	11 5.7	20.8
485296 2011 AU_{42}	16.6	X	255.72102	148.83905	311.73954	16.73424	0.1760551	0.17700260	3.1415908	20	9 10.9	21.3
485297 2011 AB_{43}	16.9	X	281.15778	133.56243	309.74868	9.02700	0.1053281	0.17811033	3.1285515	20	10 5.8	21.3
485298 2011 AS_{43}	16.1	X	240.76447	354.95243	121.00943	21.96325	0.1572452	0.17383989	3.1795800	20	9 30.4	21.2
485299 2011 AM_{47}	16.3	X	312.85625	289.10009	123.68583	10.59219	0.1221144	0.18211908	3.0824716	20	10 23.5	20.2
485300 2011 AJ_{49}	16.8	X	255.85068	170.27784	299.56468	8.27041	0.1242967	0.17906929	3.1173721	20	10 3.3	21.3
485301 2011 AH_{50}	16.7	X	162.43916	117.86024	85.22205	6.53999	0.1337435	0.17394008	3.1783590	20	10 24.6	21.8
485302 2011 AN_{51}	16.0	X	323.17637	95.03498	305.58859	14.99698	0.1372877	0.17751516	3.1355405	20	10 9.1	20.0
485303 2011 AG_{54}	17.0	X	312.56689	83.95099	307.46288	6.96703	0.0364286	0.17399303	3.1777141	20	9 21.9	21.4
485304 2011 AD_{57}	17.6	X	218.66049	294.86913	121.14322	25.61183	0.0647292	0.36321926	1.9454652	20	7 4.5	19.9
485305 2011 AA_{60}	16.3	X	89.92082	5.98666	292.96697	9.87069	0.0312820	0.18402132	3.0611923	20	11 25.8	20.9
485306 2011 AF_{62}	15.7	X	176.52085	236.89889	309.35016	18.07105	0.1637183	0.17276345	3.1927737	20	10 4.3	21.3
485307 2011 AB_{67}	16.9	X	294.03893	296.48400	115.50962	13.47685	0.0997155	0.17597874	3.1537644	20	9 25.3	21.2
485308 2011 AX_{67}	16.6	X	7.11835	237.85117	119.08604	14.71731	0.0228532	0.17872032	3.1214287	20	10 31.5	21.2
485309 2011 AZ_{69}	16.2	X	272.85634	109.40891	334.65933	9.47438	0.0242092	0.17661494	3.1461862	20	10 7.2	20.8
485310 2011 AP_{71}	17.0	X	318.36129	340.79858	82.49955	11.51363	0.0645894	0.18449821	3.0559151	20	11 15.5	21.0
485311 2011 AM_{77}	15.9	X	277.79354	313.23435	103.65965	23.21013	0.2229592	0.17609241	3.1524070	20	8 19.0	20.4
485312 2011 BP_{2}	17.1	X	302.96802	62.12584	321.08451	8.94085	0.2405141	0.17651979	3.1473168	20	8 6.9	20.8
485313 2011 BZ_{3}	16.8	X	244.45269	188.04368	302.75609	6.88989	0.0642112	0.18030675	3.1030925	20	10 25.2	21.3
485314 2011 BY_{7}	17.1	X	270.00203	318.17589	116.93891	7.27146	0.1363626	0.17478676	3.1680864	20	9 12.7	21.4
485315 2011 BT_{17}	16.4	X	328.57235	278.94113	129.46221	10.98616	0.0735120	0.18130317	3.0917127	20	11 12.1	20.5
485316 2011 BC_{30}	16.6	X	252.64538	141.69554	324.64717	15.09883	0.0876272	0.17616704	3.1515167	20	9 27.2	21.4
485317 2011 BP_{31}	16.6	X	340.20650	47.17217	322.64402	10.58012	0.1092936	0.17386273	3.1793015	20	9 30.8	20.6
485318 2011 BZ_{32}	16.5	X	222.94273	32.30779	136.86735	10.87615	0.0656937	0.17991420	3.1076046	20	11 21.1	21.1
485319 2011 BL_{34}	17.2	X	231.87524	42.13203	117.09656	20.06968	0.1977698	0.18139814	3.0906335	20	11 8.4	22.3
485320 2011 BF_{44}	16.0	X	253.53839	319.01873	147.58384	18.61661	0.1740796	0.17427825	3.1742461	20	9 27.0	20.7
485321 2011 BN_{53}	17.5	X	243.85005	125.93591	16.67997	0.58783	0.1391106	0.17950593	3.1123148	20	10 31.4	21.9
485322 2011 BA_{56}	16.5	X	324.92611	157.46918	271.74781	8.96101	0.0666917	0.18703483	3.0282221	20	11 29.9	20.4
485323 2011 BA_{59}	16.8	X	265.99112	141.30558	319.69974	9.57447	0.1994929	0.17766793	3.1337428	20	9 24.2	21.3
485324 2011 BD_{68}	16.6	X	118.93868	206.45135	108.71615	12.33029	0.0846242	0.19788910	2.9164518	20	—	—
485325 2011 BL_{68}	16.2	X	238.38454	171.82241	314.40003	19.21037	0.0455673	0.17564192	3.1577950	20	10 6.2	21.2
485326 2011 BT_{68}	16.3	X	201.25060	219.92206	315.99027	14.55613	0.1590151	0.17641166	3.1486027	20	10 17.4	21.7
485327 2011 BZ_{75}	16.5	X	182.43385	51.38092	149.73629	18.84870	0.0990063	0.17289884	3.1911067	20	11 13.7	21.8
485328 2011 BE_{83}	16.1	X	170.96497	230.55140	334.51145	9.66410	0.1380741	0.17254803	3.1954305	20	10 27.8	21.5
485329 2011 BJ_{83}	16.0	X	254.61231	338.39029	117.86836	28.04839	0.1358903	0.17493188	3.1663341	20	9 26.6	21.0
485330 2011 BQ_{93}	16.2	X	186.26702	246.26764	287.54950	6.94874	0.0493954	0.16938990	3.2350254	20	10 10.2	21.1
485331 2011 BC_{95}	16.3	X	184.05340	64.98557	113.97063	18.19740	0.1047551	0.17304312	3.1893327	20	10 23.2	21.6
485332 2011 BP_{102}	16.6	X	233.22402	56.21086	97.80373	12.23232	0.1100983	0.18089557	3.0963551	20	11 10.3	21.2
485333 2011 BC_{113}	16.6	X	204.83755	345.79156	185.80551	9.63161	0.0525959	0.17341445	3.1847783	20	11 2.5	21.3
485334 2011 BC_{116}	15.6	X	107.72603	150.34329	119.64839	26.76437	0.1854627	0.17632694	3.1496111	20	11 30.4	21.2
485335 2011 BS_{118}	16.6	X	253.98385	0.86669	107.62507	11.99138	0.1794541	0.17638475	3.1489228	20	10 1.6	21.3
485336 2011 BG_{121}	16.2	X	226.80940	8.08033	146.35167	18.23694	0.1645142	0.17625124	3.1505129	20	10 29.1	21.3
485337 2011 BT_{125}	16.4	X	19.36006	30.15850	313.16428	8.88837	0.1026691	0.17736059	3.1373620	20	10 28.7	20.6
485338 2011 BS_{134}	16.3	X	280.64607	94.09104	305.62173	21.07844	0.1193226	0.16832680	3.2486322	20	8 8.9	20.9
485339 2011 BO_{142}	16.5	X	194.71790	151.87789	73.62687	6.84083	0.2640099	0.18390755	3.0624547	20	12 8.6	21.6
485340 2011 BV_{149}	16.8	X	258.37650	104.37852	336.99958	10.35268	0.0595376	0.16950896	3.2335105	20	9 11.9	21.3
485341 2011 CO_{4}	16.1	X	190.00437	221.61896	340.21613	11.79893	0.1038050	0.17722149	3.1390034	20	11 13.2	21.2
485342 2011 CB_{6}	16.1	X	264.04086	328.25792	150.75264	12.16936	0.0903069	0.17923375	3.1154648	20	11 7.3	20.5
485343 2011 CU_{10}	16.3	X	348.84084	286.12997	119.18709	10.66260	0.1029915	0.18504249	3.0499197	20	12 8.2	20.2
485344 2011 CE_{27}	16.6	X	195.30809	214.73887	321.11789	8.94545	0.0637826	0.17572086	3.1568492	20	10 21.7	21.4
485345 2011 CY_{29}	15.9	X	183.66660	78.77264	148.10542	26.37106	0.3476601	0.17363034	3.1821377	20	12 2.7	22.2
485346 2011 CH_{30}	16.5	X	163.11213	291.09750	311.01292	13.95144	0.2437264	0.17880943	3.1203916	20	12 3.6	22.2
485347 2011 CV_{34}	16.3	X	215.34378	190.60516	324.31286	4.05729	0.1372174	0.17121367	3.2120115	20	10 12.9	21.3
485348 2011 CU_{35}	16.4	X	285.03834	304.80527	119.83771	11.30180	0.2031090	0.17596583	3.1539187	20	9 11.3	20.5
485349 2011 CN_{39}	15.6	X	260.80989	104.34353	0.02029	16.48630	0.1215515	0.17156909	3.2075739	20	10 3.8	20.1
485350 2011 CZ_{41}	16.5	X	248.09864	328.79904	122.97326	12.80027	0.0623560	0.16960968	3.2322302	20	9 17.5	21.2
485351 2011 CE_{43}	16.4	X	342.21470	64.35644	302.69124	9.38297	0.0857508	0.17091955	3.2156952	20	9 29.5	20.6
485352 2011 CA_{44}	16.9	X	288.64022	271.01095	149.86303	10.13073	0.1669028	0.17447033	3.1719158	20	9 14.9	20.9
485353 2011 CN_{45}	16.0	X	281.48776	332.95501	125.26612	16.22611	0.0651884	0.17713628	3.1400100	20	11 9.9	20.5
485354 2011 CW_{48}	16.4	X	162.54916	266.67752	298.06707	9.30269	0.0900047	0.17234431	3.1979481	20	10 20.3	21.5
485355 2011 CC_{62}	17.0	X	163.63522	302.02449	281.14574	1.19538	0.0699488	0.17521828	3.1628828	20	11 16.8	21.9
485356 2011 CY_{70}	15.7	X	75.14009	139.75852	161.03506	11.09593	0.0920535	0.17059821	3.2197321	20	11 19.7	20.6
485357 2011 CJ_{71}	17.1	X	146.57080	308.71701	154.67898	24.25043	0.0987052	0.34953266	1.9959250	20	6 13.1	20.3
485358 2011 CU_{77}	16.6	X	219.64830	35.09161	105.35628	13.32761	0.3056051	0.16950819	3.2335203	20	9 23.1	22.3
485359 2011 CZ_{77}	15.9	X	109.14311	305.98341	323.98826	13.34861	0.0802340	0.17204099	3.2017058	20	11 11.6	21.0
485360 2011 CZ_{85}	16.6	X	272.93691	281.66727	161.05956	25.63567	0.2414401	0.17462435	3.1700505	20	9 8.2	20.8

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	m		°	°	°	°		°				
485361 2011 CQ_{90}	16.3	X	132.27627	325.12556	307.00948	10.17194	0.1185465	0.17750222	3.1356929	20	12 13.8	21.4
485362 2011 CY_{102}	16.4	X	252.96687	218.03036	243.72787	1.47845	0.0559562	0.16804985	3.2522004	20	10 1.6	20.9
485363 2011 CV_{107}	16.6	X	159.53500	97.82688	151.07006	11.37921	0.0670792	0.17852306	3.1237277	20	12 14.7	21.5
485364 2011 CF_{113}	16.7	X	257.99677	300.57326	169.33762	16.63988	0.2161026	0.17474443	3.1685981	20	9 28.4	21.2
485365 2011 DF_{13}	16.5	X	160.51458	78.45901	157.63849	10.28175	0.1394293	0.17640504	3.1486814	20	11 29.6	21.7
485366 2011 DE_{18}	16.6	X	192.38827	166.84484	1.66426	13.08132	0.0715207	0.16191696	3.3338124	20	10 9.1	21.6
485367 2011 DW_{26}	16.2	X	152.61446	101.16516	148.43978	17.69061	0.1592220	0.17592109	3.1544533	20	12 8.7	21.7
485368 2011 ER_{2}	16.5	X	277.52423	298.73474	148.84595	9.82500	0.0615919	0.17348641	3.1838975	20	10 19.4	20.9
485369 2011 EX_{2}	17.1	X	267.50171	273.75532	157.85866	13.60232	0.2727708	0.17147265	3.2087766	20	8 12.2	21.8
485370 2011 EK_{10}	16.2	X	153.55028	85.66432	151.38692	11.50393	0.1344361	0.17324259	3.1868841	20	11 24.8	21.5
485371 2011 EJ_{12}	16.5	X	270.49487	300.53351	154.31628	17.07381	0.2040838	0.17546265	3.1599455	20	9 28.6	20.9
485372 2011 ED_{14}	16.2	X	191.05509	63.69496	176.85026	25.72856	0.2472275	0.17258678	3.1949522	20	12 22.3	22.1
485373 2011 EG_{24}	17.8	X	288.38654	112.52117	33.27469	5.61244	0.2632420	0.18784846	3.0194717	20	12 22.3	21.0
485374 2011 EN_{30}	15.1	X	135.64178	166.34386	116.45653	9.11224	0.1592007	0.17661201	3.1462210	20	12 29.4	20.2
485375 2011 EU_{74}	16.5	X	236.82262	150.74158	352.09417	17.19196	0.1621849	0.17653875	3.1470913	20	10 14.3	21.4
485376 2011 EJ_{80}	16.2	X	220.10801	3.62316	194.95933	16.93307	0.1443354	0.17867305	3.1219793	20	12 10.4	21.1
485377 2011 FS_{21}	16.0	X	223.21149	162.94230	10.94247	28.28698	0.1296563	0.17451466	3.1713786	20	11 4.0	21.2
485378 2011 FO_{53}	18.0	X	264.70078	159.70734	95.51313	4.95483	0.1995796	0.30788722	2.1720756	20	1 3.5	21.1
485379 2011 FO_{56}	18.6	X	294.68945	356.51164	246.66248	4.50383	0.2415879	0.31211459	2.1524183	20	1 11.3	21.8
485380 2011 FY_{71}	16.0	X	183.74661	154.75677	20.91178	15.60122	0.1914741	0.16227196	3.3289484	20	10 7.2	21.6
485381 2011 GK_{24}	17.7	X	309.24629	268.99873	302.30922	3.99502	0.0644114	0.31122555	2.1565153	20	1 10.5	20.2
485382 2011 GT_{66}	17.2	X	230.27910	199.78291	64.64107	9.33248	0.1981692	0.29988031	2.2105690	20	—	—
485383 2011 GB_{85}	18.6	X	294.37842	199.13766	20.30356	4.86420	0.0821726	0.30684623	2.1769854	20	—	—
485384 2011 HZ_{19}	19.0	X	328.02352	220.54684	339.27541	2.66850	0.0918895	0.31144970	2.1554805	20	1 16.6	21.2
485385 2011 HM_{69}	18.2	X	263.35673	256.92332	23.42365	3.83892	0.1865579	0.31168849	2.1543795	20	2 4.9	21.3
485386 2011 JA_{17}	18.0	X	268.53209	167.70539	102.44646	5.97110	0.1086419	0.30912844	2.1662575	20	2 3.9	20.7
485387 2011 JS_{26}	18.1	X	196.30036	152.91954	138.55930	6.47465	0.1218785	0.29121246	2.2542188	20	—	—
485388 2011 KL_{2}	17.4	X	117.31988	266.77402	86.97048	8.42371	0.1477319	0.28359389	2.2944124	20	—	—
485389 2011 KT_{6}	17.8	X	234.06939	198.28479	69.54092	2.77141	0.1185996	0.29718204	2.2239295	20	—	—
485390 2011 KN_{27}	17.5	X	234.18678	18.07969	242.05085	6.93180	0.1068635	0.29381293	2.2408981	20	—	—
485391 2011 KZ_{30}	18.3	X	243.77030	175.48898	96.44988	3.70910	0.1814579	0.29852896	2.2172350	20	1 7.8	21.7
485392 2011 KM_{31}	17.5	X	227.36397	11.69511	276.68545	8.92636	0.2187625	0.29715235	2.2240776	20	1 12.8	21.0
485393 2011 KC_{32}	15.3	X	30.14971	37.95870	237.41058	6.74868	0.1849710	0.12353172	3.9928566	20	8 22.7	20.3
485394 2011 KN_{42}	18.6	X	290.13984	222.90680	32.61129	0.36621	0.1602415	0.31062393	2.1592989	20	2 2.1	21.1
485395 2011 KA_{48}	18.3	X	278.28283	146.10565	102.16603	6.50150	0.1574139	0.30459983	2.1876757	20	1 11.7	21.5
485396 2011 LV_{2}	14.0	X	250.52042	85.77203	259.35997	15.17132	0.1357275	0.08154525	5.2666801	20	4 27.2	21.4
485397 2011 LS_{19}	16.8	X	31.88496	134.85996	167.74772	15.06350	0.1474487	0.22683167	2.6627696	20	10 18.2	20.3
485398 2011 LN_{20}	17.1	X	21.89287	95.15335	273.04070	10.90047	0.2627215	0.23253077	2.6190820	20	—	—
485399 2011 MU_{7}	17.3	X	99.84492	185.98712	130.97568	10.40525	0.2281155	0.25527193	2.4611269	20	—	—
485400 2011 NR	18.0	X	234.83142	134.01213	140.61887	7.05016	0.2406330	0.29078664	2.2564190	20	1 2.9	21.8
485401 2011 NL_{1}	17.0	X	185.73160	168.89158	126.33497	24.25457	0.1851144	0.27851074	2.3222452	20	—	—
485402 2011 NY_{1}	17.4	X	235.33582	208.35094	80.16344	7.22813	0.1925610	0.28056467	2.3108977	20	1 23.6	21.1
485403 2011 NF_{2}	18.0	X	254.74156	349.82528	260.64494	9.13806	0.1647465	0.29074730	2.2566226	20	—	—
485404 2011 OO_{1}	17.4	X	74.07393	138.95594	237.83079	5.48715	0.1196421	0.25960692	2.4336524	20	—	—
485405 2011 OB_{2}	17.3	X	238.49118	79.49966	168.34766	12.70150	0.1240836	0.27815914	2.3242018	20	—	—
485406 2011 OL_{3}	17.7	X	248.96825	321.33637	301.55495	9.69812	0.0958629	0.28813049	2.2702651	20	1 7.3	20.8
485407 2011 OW_{6}	17.9	X	108.28552	30.51681	336.39384	5.72141	0.1333062	0.27136744	2.3628214	20	—	—
485408 2011 OG_{8}	17.5	X	141.40032	195.37455	112.40814	2.30649	0.1958555	0.26577105	2.3958756	20	—	—
485409 2011 OS_{23}	18.1	X	273.37782	173.23386	77.46106	4.43412	0.1823389	0.29643294	2.2276746	20	1 8.9	21.4
485410 2011 OV_{27}	17.4	X	69.09833	342.13195	10.95249	5.00814	0.2057822	0.25490974	2.4634576	20	—	—
485411 2011 OW_{34}	17.7	X	65.22107	28.66717	342.23985	6.26577	0.1808629	0.25822297	2.4423401	20	—	—
485412 2011 OP_{56}	13.2	X	277.62091	168.57537	139.94852	24.47022	0.0559063	0.08161286	5.2637711	20	5 4.6	20.4
485413 2011 OC_{60}	13.8	X	181.60665	283.47608	131.69774	22.15120	0.1030281	0.08257338	5.2228714	20	5 22.6	21.4
485414 2011 OD_{60}	14.2	X	254.23057	203.27110	131.37244	1.78954	0.0120511	0.08375308	5.1737113	20	5 6.4	21.1
485415 2011 OF_{60}	14.1	X	99.74806	16.49682	109.09113	15.32327	0.1240050	0.08332524	5.1914062	20	5 22.6	21.2
485416 2011 OJ_{60}	14.2	X	320.59449	302.07347	332.40199	4.19048	0.0623246	0.08509700	5.1190953	20	5 7.2	20.8
485417 2011 OK_{60}	13.5	X	54.23106	33.33739	142.03893	24.13695	0.0461207	0.08132471	5.2761975	20	5 19.8	20.6
485418 2011 OL_{60}	14.3	X	202.02423	222.31368	170.47519	10.72828	0.0351163	0.08185923	5.2532041	20	5 14.7	21.5
485419 2011 PM_{8}	17.8	X	273.36409	325.18092	320.56037	6.73127	0.1589047	0.29751535	2.2222682	20	2 23.9	20.8
485420 2011 PO_{9}	17.7	X	153.41718	147.39554	167.75155	14.72277	0.1762346	0.26908785	2.3761471	20	—	—
485421 2011 QG	13.7	X	243.46539	87.89403	269.67580	19.66119	0.1481955	0.08339327	5.1885823	20	5 2.6	21.1
485422 2011 QH_{3}	13.3	X	99.78849	238.12848	256.01524	14.59260	0.0415746	0.08321962	5.1957978	20	5 17.7	20.3
485423 2011 QO_{5}	13.7	X	294.90637	9.87802	285.25146	15.36760	0.1171931	0.08491491	5.1264110	20	4 18.1	20.6
485424 2011 QU_{14}	17.5	X	107.96439	340.93898	352.01226	3.31372	0.1515162	0.25706335	2.4496795	20	—	—
485425 2011 QS_{16}	17.8	X	106.74223	154.51299	183.23014	4.42340	0.1202040	0.25815897	2.4427437	20	—	—
485426 2011 QD_{22}	17.9	X	224.33441	334.76382	303.14915	3.87372	0.2271340	0.28434438	2.2903734	20	—	—
485427 2011 QF_{22}	16.8	X	9.09932	51.29077	330.70784	13.89502	0.3219921	0.23178413	2.6247035	20	—	—
485428 2011 QY_{25}	17.2	X	345.70984	266.68909	157.75440	9.40237	0.1991574	0.23830799	2.5765801	20	—	—
485429 2011 QP_{31}	17.8	X	218.09046	4.72955	282.27837	6.86760	0.0744350	0.28107207	2.3081158	20	1 5.5	20.9
485430 2011 QR_{41}	17.5	X	139.60692	294.88069	8.95933	1.53106	0.1842256	0.26251139	2.4156682	20	—	—
485431 2011 QZ_{49}	13.0	X	287.90685	43.42228	258.91781	21.78565	0.1359836	0.08427362	5.1523849	20	4 16.5	20.0
485432 2011 QP_{51}	16.9	X	347.16643	270.83928	126.15385	29.03778	0.3201520	0.23091032	2.6313209	20	—	—
485433 2011 QW_{54}	17.6	X	103.86466	123.43138	247.89388	5.49602	0.1268836	0.26297771	2.4128117	20	—	—
485434 2011 QG_{55}	18.1	X	62.72899	99.19348	258.20062	4.53488	0.1316592	0.24744810	2.5127347	20	—	—
485435 2011 QG_{56}	16.8	X	295.12538	200.52302	171.15475	10.73134	0.2529277	0.21118304	2.7927369	20	7 7.9	20.4
485436 2011 QO_{58}	17.2	X	52.07225	210.43201	181.48246	6.75548	0.1069069	0.25335348	2.4735354	20	—	—
485437 2011 QS_{60}	17.7	X	153.15889	50.60089	257.07886	5.43293	0.1287071	0.26432256	2.4046206	20	—	—
485438 2011 QC_{63}	17.1	X	184.69967	319.15066	358.04439	8.25403	0.1844023	0.27498613	2.3420466	20	1 16.8	20.9
485439 2011 QQ_{64}	14.0	X	272.05531	157.56347	164.03845	28.73521	0.0842859	0.08063941	5.3060479	20	5 6.7	21.3
485440 2011 QH_{65}	17.4	X	138.38008	162.89448	143.46509	3.17678	0.2058162	0.26120080	2.4237420	20	—	—

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
485441 2011 QY_{66}	17.1	X	177.11332	259.64126	58.75223	6.26488	0.2120174	0.27454993	2.3445265	20	1 11.9	21.0
485442 2011 QF_{69}	17.0	X	129.71705	16.26487	348.66942	6.68575	0.1567533	0.27098845	2.3650239	20	1 17.9	20.1
485443 2011 QO_{71}	17.7	X	168.19708	345.70137	304.64576	1.36208	0.1588916	0.26660314	2.3908879	20	—	—
485444 2011 QS_{71}	17.1	X	104.17438	170.26892	185.61913	6.47257	0.1601366	0.26157795	2.4214116	20	—	—
485445 2011 QS_{80}	17.5	X	22.79674	236.18345	208.59475	7.48357	0.1876251	0.25833755	2.4416179	20	—	—
485446 2011 QS_{85}	17.7	X	341.16932	9.26208	22.84228	5.23782	0.3331117	0.22615714	2.6680616	20	12 14.9	19.6
485447 2011 QL_{88}	17.0	X	296.41115	165.14961	346.05760	6.87149	0.1161222	0.25473646	2.4645746	20	—	—
485448 2011 QS_{88}	17.8	X	193.49564	310.45022	354.76231	3.27414	0.2121041	0.27677694	2.3319332	20	1 9.3	21.7
485449 2011 QD_{90}	14.2	X	231.96518	40.44841	333.29938	22.78092	0.0304557	0.08225194	5.2364700	20	5 16.6	21.5
485450 2011 QB_{95}	17.0	X	141.89456	357.71320	307.16337	5.88532	0.1440927	0.26503814	2.4002905	20	—	—
485451 2011 QH_{99}	14.2	X	340.85586	110.80156	148.47432	13.65227	0.0864207	0.08399846	5.1636308	20	5 19.2	20.8
485452 2011 QJ_{99}	14.1	X	38.42741	28.72177	170.46054	25.81204	0.0237236	0.08234072	5.2327051	20	5 22.6	21.2
485453 2011 RK_{2}	17.7	X	82.79222	231.22390	188.59392	5.94807	0.0961607	0.27094675	2.3652665	20	1 13.8	20.3
485454 2011 RQ_{2}	18.1	X	226.93352	291.36554	340.66933	7.13742	0.0917965	0.27606387	2.3359471	20	—	—
485455 2011 RJ_{3}	18.2	X	75.84404	189.40671	199.95206	1.79730	0.1779752	0.25860569	2.4399298	20	—	—
485456 2011 RO_{3}	14.2	X	122.95037	171.44326	314.21045	18.16996	0.0223677	0.08347296	5.1852796	20	5 30.6	21.4
485457 2011 RX_{3}	16.6	X	284.96404	265.49041	139.76622	14.92706	0.1124592	0.20992344	2.8038973	20	9 2.2	20.1
485458 2011 RV_{7}	18.3	X	13.67038	189.90213	226.23905	2.10198	0.1346952	0.24679525	2.5171640	20	—	—
485459 2011 RF_{11}	17.3	X	191.13375	32.61981	257.93073	6.40706	0.1015965	0.26660711	2.3908641	20	—	—
485460 2011 RX_{13}	17.5	X	260.26562	258.49009	185.47238	8.90780	0.2179492	0.21647771	2.7470122	20	8 31.1	21.3
485461 2011 RH_{16}	16.7	X	340.09663	218.49890	164.01957	13.61625	0.2602233	0.22608655	2.6686169	20	11 20.5	19.2
485462 2011 RF_{18}	17.6	X	330.57093	79.44705	338.31234	11.77537	0.2741723	0.22857365	2.6492235	20	12 20.2	19.8
485463 2011 RK_{18}	17.9	X	134.13822	239.05049	57.36581	4.63304	0.1836647	0.25300577	2.4758011	20	—	—
485464 2011 SD_{2}	17.7	X	256.17014	273.98286	339.51614	6.63580	0.0870313	0.27875430	2.3208923	20	1 5.5	20.9
485465 2011 SZ_{2}	18.2	X	328.67904	93.99214	335.24599	5.11422	0.2465390	0.23263234	2.6183196	20	—	—
485466 2011 SL_{11}	17.1	X	339.86248	82.68214	346.95863	12.70927	0.2528620	0.23310542	2.6147759	20	—	—
485467 2011 SD_{22}	17.4	X	25.32565	60.14373	331.11833	16.23736	0.1597846	0.24229129	2.5482626	20	—	—
485468 2011 SY_{22}	17.1	X	323.63398	213.62361	206.06017	2.87160	0.3017212	0.22417388	2.6837746	20	12 1.9	18.6
485469 2011 SO_{37}	17.3	X	310.47869	250.55860	193.70288	11.65853	0.1362683	0.22667566	2.6639912	20	12 8.7	20.3
485470 2011 SC_{39}	16.9	X	96.11558	12.88374	15.22859	6.85904	0.1175082	0.26147999	2.4220164	20	—	—
485471 2011 SK_{48}	18.1	X	212.05019	278.03780	1.49522	6.24672	0.1111326	0.27238309	2.3569441	20	—	—
485472 2011 SP_{57}	17.3	X	45.47822	174.76567	203.43864	1.96069	0.1165310	0.23618635	2.5919872	20	—	—
485473 2011 SD_{58}	17.1	X	236.27015	299.68417	200.04628	12.80157	0.1016293	0.23577917	2.5949705	20	11 4.8	20.6
485474 2011 SL_{59}	18.4	X	192.06325	68.17511	210.18597	2.88438	0.1170170	0.26712184	2.3877917	20	—	—
485475 2011 SF_{61}	16.9	X	184.37311	21.55482	277.18322	10.72711	0.1510972	0.27094615	2.3652700	20	—	—
485476 2011 SV_{62}	17.4	X	6.17511	66.39872	315.32393	14.52479	0.3031696	0.23309726	2.6148369	20	—	—
485477 2011 SK_{65}	17.7	X	354.70926	159.41978	218.41695	6.85226	0.3027125	0.22837994	2.6507214	20	12 20.9	20.2
485478 2011 SY_{70}	17.1	X	343.64444	37.39270	347.40447	11.32662	0.1988572	0.22625404	2.6672997	20	11 17.1	19.9
485479 2011 SQ_{71}	13.8	X	292.08471	74.29099	246.25288	15.05117	0.0934714	0.08323942	5.1949736	20	5 22.4	20.5
485480 2011 SY_{86}	17.9	X	3.91476	104.95281	298.77097	2.22816	0.2022730	0.23499628	2.6007307	20	—	—
485481 2011 SL_{87}	17.6	X	349.92851	72.66203	3.84124	17.79174	0.1127960	0.23964294	2.5670025	20	—	—
485482 2011 SG_{89}	17.0	X	309.48352	88.78569	5.76606	13.17051	0.1226326	0.23181117	2.6244994	20	12 22.5	20.1
485483 2011 SM_{92}	17.1	X	317.32526	219.15225	225.06362	4.42738	0.1341541	0.22821452	2.6520021	20	12 20.9	19.8
485484 2011 SB_{107}	17.2	X	9.75202	338.12706	31.56818	7.32247	0.2279994	0.22913442	2.6448995	20	12 23.3	20.4
485485 2011 SK_{107}	16.6	X	56.46067	316.22762	40.69619	12.43638	0.1111072	0.23318041	2.6142153	20	—	—
485486 2011 SB_{117}	17.7	X	357.38051	75.31479	311.25929	11.58928	0.2859305	0.22874079	2.6479329	20	—	—
485487 2011 SA_{130}	17.6	X	217.17544	103.91824	113.54877	3.64555	0.0152907	0.24457167	2.5323979	20	—	—
485488 2011 SX_{130}	18.0	X	327.16178	252.35839	173.36982	6.63746	0.1429360	0.22869410	2.6482933	20	12 14.5	20.9
485489 2011 SN_{138}	18.1	X	226.93513	89.36000	187.62158	4.48719	0.2116770	0.27766707	2.3269469	20	1 1.3	22.1
485490 2011 SU_{169}	17.9	X	20.70111	357.88395	23.48858	4.03418	0.2134603	0.23493013	2.6012189	20	—	—
485491 2011 SY_{173}	16.5	X	54.10142	8.51625	348.68261	10.30571	0.2948170	0.23927963	2.5696002	20	—	—
485492 2011 SO_{174}	17.3	X	111.49836	139.89222	199.96974	10.71985	0.2223662	0.25929744	2.4355884	20	—	—
485493 2011 SR_{181}	17.7	X	348.28213	107.23448	305.80524	2.60175	0.2458952	0.22956621	2.6415818	20	—	—
485494 2011 SK_{188}	17.7	X	334.97349	74.92959	349.18689	8.27847	0.1168544	0.23275903	2.6173694	20	12 25.9	20.8
485495 2011 SC_{192}	17.3	X	130.11870	44.61694	292.06797	9.11347	0.2457160	0.26000361	2.4311764	20	—	—
485496 2011 SQ_{193}	17.7	X	92.56632	303.01491	58.78330	3.56839	0.1936864	0.25487569	2.4636770	20	—	—
485497 2011 SH_{202}	16.7	X	281.35105	248.08608	190.56601	14.97446	0.1536925	0.21813341	2.7330942	20	10 5.8	20.0
485498 2011 SX_{210}	17.7	X	62.38100	219.06069	173.58559	5.02205	0.1130076	0.25759948	2.4462794	20	—	—
485499 2011 SY_{213}	17.4	X	355.69117	235.30235	163.81577	13.72345	0.2730096	0.23295883	2.6158727	20	—	—
485500 2011 SY_{215}	16.9	X	319.69211	204.38433	160.74260	10.10088	0.2305411	0.21651396	2.7467056	20	8 21.4	19.3
485501 2011 SQ_{230}	18.0	X	345.56817	263.78195	187.90531	24.29838	0.2335096	0.24140909	2.5544671	20	—	—
485502 2011 SQ_{232}	17.8	X	355.63490	264.87802	135.11839	5.67496	0.1644287	0.23145937	2.6271581	20	—	—
485503 2011 ST_{233}	16.8	X	4.75151	94.40663	213.00426	17.13012	0.1362414	0.20954130	2.8073052	20	8 26.5	20.4
485504 2011 SX_{242}	18.3	X	0.40024	259.18666	167.21273	9.23443	0.0513826	0.24429467	2.5343118	20	—	—
485505 2011 SY_{254}	16.6	X	316.88395	203.82930	143.09507	13.19430	0.2619102	0.21159033	2.7891520	20	7 12.1	19.4
485506 2011 SV_{260}	16.8	X	274.87734	221.03064	213.70933	8.09992	0.1383082	0.21679970	2.7442917	20	9 20.0	20.3
485507 2011 SY_{265}	14.0	X	304.86321	357.53206	307.85573	14.14438	0.0640115	0.08482637	5.1299773	20	5 22.0	20.8
485508 2011 SA_{267}	17.4	X	329.52709	23.06742	47.06298	5.41464	0.2531767	0.22818400	2.6522386	20	—	—
485509 2011 SA_{270}	16.9	X	289.98859	290.44009	110.23142	8.65919	0.1698397	0.21552861	2.7550708	20	8 27.7	20.2
485510 2011 SJ_{275}	16.7	X	325.03026	181.22608	304.71969	12.65114	0.2057549	0.24000894	2.5643922	20	—	—
485511 2011 TM_{6}	18.1	X	2.95318	343.65520	78.02948	2.97218	0.1829006	0.24075761	2.5590732	20	—	—
485512 2011 TB_{10}	17.0	X	324.38091	287.83732	184.34420	28.03627	0.4178879	0.23818729	2.5774505	20	—	—
485513 2011 TE_{13}	16.7	X	325.10858	90.49922	336.89439	12.32721	0.0965755	0.23051318	2.6343423	20	12 10.3	20.0
485514 2011 TY_{15}	16.3	X	352.01721	98.28756	338.53745	27.17160	0.2158647	0.23693055	2.5865567	20	—	—
485515 2011 UG_{7}	18.0	X	23.53558	332.17692	45.56283	2.13060	0.1720688	0.23133926	2.6280673	20	—	—
485516 2011 UG_{9}	17.3	X	342.98630	30.16176	47.18520	12.76815	0.1257499	0.23185670	2.6241558	20	—	—
485517 2011 UJ_{11}	17.8	X	42.93622	352.11333	2.49499	17.31807	0.1523197	0.23952469	2.5678473	20	—	—
485518 2011 UZ_{12}	17.6	X	35.99170	352.84153	32.04243	3.50293	0.0983559	0.23758636	2.5817948	20	—	—
485519 2011 UC_{17}	16.9	X	116.72403	121.03005	206.06008	5.47121	0.0836194	0.24326370	2.5414672	20	—	—
485520 2011 UF_{24}	17.0	X	318.41669	68.92787	29.61336	12.52188	0.2113546	0.22925193	2.6439955	20	—	—

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Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
485521 2011 UB_{30}	17.2	X	294.72214	259.73577	220.26008	11.84929	0.2091194	0.22456742	2.6806383	20	12 21.3	19.9
485522 2011 UU_{30}	16.7	X	57.06122	290.76210	52.69053	10.94246	0.1014123	0.22999091	2.6383289	20	—	—
485523 2011 UY_{30}	16.4	X	0.10643	319.52966	51.66060	17.34856	0.0570605	0.21875872	2.7278833	20	11 14.2	19.9
485524 2011 UJ_{31}	16.8	X	33.64069	173.09096	226.50757	11.29455	0.0549861	0.23671967	2.5880926	20	—	—
485525 2011 UU_{32}	17.1	X	356.14599	88.57168	349.66249	11.27577	0.1676729	0.23953609	2.5677658	20	—	—
485526 2011 UZ_{35}	17.7	X	1.43332	153.04673	216.87846	8.62356	0.2745604	0.22267844	2.6957769	20	12 15.6	20.6
485527 2011 UV_{36}	17.1	X	55.78997	298.15052	53.24248	14.81581	0.1637926	0.23343848	2.6122881	20	—	—
485528 2011 UU_{38}	17.4	X	355.76539	314.10881	65.99607	5.99866	0.1278647	0.22146517	2.7056135	20	11 27.8	20.2
485529 2011 UL_{45}	18.2	X	193.31793	167.00987	145.10885	10.66198	0.1561985	0.27090619	2.3655026	20	1 14.9	21.9
485530 2011 UX_{45}	17.1	X	7.37412	338.28682	38.51947	12.93457	0.3047254	0.22858008	2.6491739	20	—	—
485531 2011 UX_{50}	17.3	X	328.21589	344.96800	79.12962	3.28042	0.0708166	0.22499723	2.6772233	20	12 9.3	20.3
485532 2011 UW_{51}	17.6	X	350.18642	330.39883	89.99927	3.83163	0.1832671	0.23049620	2.6344717	20	—	—
485533 2011 UX_{53}	16.8	X	187.61330	64.44742	232.17159	13.77124	0.1570710	0.25811474	2.4430227	20	—	—
485534 2011 UH_{54}	17.4	X	322.77879	216.94455	227.29600	6.72002	0.1721177	0.22551507	2.6731234	20	12 30.9	20.0
485535 2011 UW_{61}	17.1	X	66.24088	284.65613	63.77624	13.64901	0.2019698	0.23510071	2.5999606	20	—	—
485536 2011 UO_{62}	17.0	X	346.98127	195.62898	227.70632	13.02223	0.2202045	0.23004370	2.6379252	20	—	—
485537 2011 UW_{66}	17.5	X	214.92651	94.19760	158.94988	6.08018	0.0770414	0.25530987	2.4608831	20	—	—
485538 2011 UK_{72}	17.7	X	344.39063	200.13408	228.33130	4.46239	0.1765427	0.23040635	2.6351565	20	—	—
485539 2011 UP_{84}	17.6	X	349.39856	30.79015	29.35174	7.66289	0.2199600	0.22821457	2.6520018	20	—	—
485540 2011 UM_{85}	17.2	X	323.53676	171.35679	272.10717	2.81966	0.0685427	0.22662512	2.6643873	20	12 28.1	20.2
485541 2011 UF_{89}	16.6	X	127.64207	56.59942	247.27285	7.71309	0.0354206	0.23582983	2.5945989	20	—	—
485542 2011 UL_{93}	17.0	X	301.95200	97.60766	22.70369	13.10838	0.2213523	0.23229916	2.6208226	20	—	—
485543 2011 UP_{104}	18.0	X	15.09073	7.77507	30.55041	2.38242	0.1187634	0.23672786	2.5880329	20	—	—
485544 2011 US_{109}	17.5	X	344.78018	29.13478	34.50741	5.42440	0.0793645	0.23058494	2.6337957	20	—	—
485545 2011 UG_{111}	16.8	X	344.79436	108.81514	265.45174	10.03655	0.1983758	0.22151716	2.7051902	20	11 4.3	19.6
485546 2011 UM_{112}	17.2	X	39.89299	148.78967	215.26973	8.15051	0.2221051	0.23354360	2.6115042	20	—	—
485547 2011 UK_{113}	16.6	X	18.74998	186.40825	226.83544	21.45068	0.0198879	0.23606247	2.5928940	20	—	—
485548 2011 UR_{114}	16.5	X	248.42308	161.41117	214.89480	8.74960	0.1117256	0.18331085	3.0690969	20	6 5.1	21.1
485549 2011 UY_{120}	17.3	X	205.32757	165.63045	144.81600	14.56385	0.2172203	0.27962480	2.3160731	20	1 23.7	21.2
485550 2011 UH_{123}	17.3	X	135.60590	284.16040	49.81276	5.41981	0.2035131	0.26245158	2.4160352	20	—	—
485551 2011 UW_{125}	16.4	X	49.88071	315.92409	9.48810	13.09544	0.2558947	0.23128683	2.6284645	20	12 20.8	20.6
485552 2011 UF_{128}	17.3	X	46.68634	230.21605	130.54359	8.40524	0.1722254	0.23807121	2.5782882	20	—	—
485553 2011 UW_{133}	17.2	X	338.01765	351.00103	99.79463	10.73854	0.1277357	0.23733060	2.5836493	20	—	—
485554 2011 UY_{140}	17.7	X	327.35284	314.00448	100.63404	3.94648	0.1815471	0.22329520	2.6908106	20	11 28.8	20.1
485555 2011 UJ_{143}	17.1	X	40.36619	222.24383	161.88103	9.28787	0.1918394	0.23682801	2.5873033	20	—	—
485556 2011 UT_{143}	16.7	X	337.76791	286.92033	92.82656	9.82816	0.1848825	0.21572348	2.7534114	20	11 1.5	19.5
485557 2011 UW_{143}	17.1	X	285.98688	31.22370	54.73989	9.86466	0.2088822	0.21259957	2.7803180	20	10 17.2	20.3
485558 2011 UZ_{144}	16.9	X	320.48910	83.69665	357.94504	13.05619	0.1592837	0.22676909	2.6632595	20	12 24.0	19.9
485559 2011 UD_{145}	17.1	X	307.88228	112.54727	39.69880	14.51313	0.1345686	0.23851963	2.5750557	20	—	—
485560 2011 UT_{159}	17.5	X	321.78942	40.19308	43.94540	9.66529	0.3549742	0.22682956	2.6627861	20	—	—
485561 2011 UW_{162}	17.1	X	304.06750	236.78507	222.56029	12.27197	0.1647616	0.22499488	2.6772420	20	12 14.9	19.9
485562 2011 UA_{163}	16.7	X	355.87025	140.45561	244.62462	8.32294	0.1474851	0.22273945	2.6952845	20	12 7.5	19.5
485563 2011 UQ_{164}	16.0	X	243.88111	295.25629	63.56162	13.49625	0.2036269	0.18377360	3.0639426	20	5 2.7	20.9
485564 2011 UN_{166}	17.0	X	314.44141	21.46109	65.60983	5.90518	0.1471176	0.22215406	2.7000173	20	12 17.2	19.6
485565 2011 UQ_{168}	18.4	X	7.74405	197.85348	204.22649	7.45108	0.1657935	0.23938168	2.5688699	20	—	—
485566 2011 US_{172}	17.2	X	322.61401	178.28826	280.94039	9.03342	0.2139908	0.22960865	2.6412563	20	—	—
485567 2011 UZ_{172}	16.9	X	339.29934	18.97324	34.80641	12.18741	0.1709176	0.22609976	2.6685130	20	12 20.3	19.8
485568 2011 UR_{175}	17.0	X	320.44111	71.31022	20.43304	11.77019	0.1507678	0.22912408	2.6449790	20	—	—
485569 2011 UO_{176}	17.8	X	355.44712	88.74437	316.60574	2.00406	0.1114254	0.22815725	2.6524459	20	12 31.1	20.8
485570 2011 US_{177}	17.5	X	319.34186	299.12829	87.91196	3.65699	0.1894904	0.21236873	2.7823323	20	9 29.6	20.1
485571 2011 UX_{182}	16.6	X	85.58564	280.25641	49.77953	15.33897	0.1395084	0.23427535	2.6060634	20	—	—
485572 2011 UH_{183}	17.5	X	45.25365	34.20504	337.43824	1.83477	0.1714325	0.23351666	2.6117051	20	—	—
485573 2011 UK_{186}	17.4	X	26.55401	282.47463	114.91244	4.44562	0.1339008	0.23743815	2.5828690	20	—	—
485574 2011 UW_{186}	17.3	X	321.93198	279.73485	193.85487	12.34576	0.2126867	0.23348811	2.6119180	20	—	—
485575 2011 UB_{189}	17.7	X	8.93279	13.08945	24.01720	7.27800	0.2444328	0.23099148	2.6307045	20	—	—
485576 2011 UK_{193}	16.5	X	3.73860	269.77965	104.52597	13.37076	0.1880675	0.22494696	2.6776222	20	12 13.7	19.6
485577 2011 UV_{196}	17.5	X	341.14644	149.34728	250.97117	9.55275	0.1486706	0.22242567	2.6978188	20	12 2.6	20.3
485578 2011 UB_{199}	17.2	X	17.18496	309.74693	69.07356	7.76153	0.1603728	0.22727551	2.6593018	20	—	—
485579 2011 UF_{199}	16.4	X	108.26519	54.17363	257.52214	13.48244	0.1058014	0.23431245	2.6057884	20	—	—
485580 2011 UD_{200}	16.3	X	78.29142	57.54956	263.40853	11.54108	0.1359015	0.22782635	2.6550136	20	12 30.1	20.3
485581 2011 UO_{200}	16.8	X	86.92769	323.88522	12.93127	6.33410	0.2208924	0.23933117	2.5692313	20	—	—
485582 2011 UT_{201}	17.7	X	19.37155	332.66443	68.15507	4.69364	0.1418831	0.23338258	2.6127053	20	—	—
485583 2011 UQ_{203}	17.4	X	345.27428	317.24946	94.10886	3.31323	0.0594619	0.22387289	2.6861796	20	12 16.8	20.8
485584 2011 UR_{203}	17.1	X	5.81279	358.02805	61.93428	11.24165	0.1380650	0.23298032	2.6157118	20	—	—
485585 2011 UU_{203}	17.9	X	294.79002	347.14685	78.03757	5.12656	0.1938029	0.21147453	2.7901701	20	10 5.4	21.0
485586 2011 UC_{204}	17.0	X	57.29455	149.72824	223.80351	8.43323	0.0839868	0.23622214	2.5917254	20	—	—
485587 2011 UQ_{205}	17.3	X	34.76804	208.88948	162.64924	3.12484	0.0751470	0.23329598	2.6133518	20	—	—
485588 2011 UC_{206}	17.0	X	9.57722	198.88501	181.17771	14.76272	0.1947068	0.22742814	2.6581119	20	12 30.2	20.5
485589 2011 UO_{237}	17.1	X	338.68958	13.88525	40.72547	12.26054	0.0963943	0.22483148	2.6785390	20	12 12.7	20.4
485590 2011 UK_{242}	17.4	X	343.19233	14.24786	49.01230	6.04501	0.0426394	0.22739821	2.6583451	20	12 28.9	20.7
485591 2011 UM_{242}	17.0	X	233.62530	118.53887	43.06046	5.63943	0.0621558	0.22163136	2.7042608	20	11 30.3	20.6
485592 2011 UC_{243}	17.5	X	62.13892	282.95366	53.22189	2.95240	0.0933651	0.22808493	2.6530066	20	12 27.6	21.1
485593 2011 UX_{245}	17.2	X	304.83847	58.59381	59.42115	11.37552	0.0757837	0.23300034	2.6155619	20	—	—
485594 2011 UD_{247}	17.7	X	301.16265	199.82614	218.09673	3.43080	0.1936234	0.21195294	2.7859699	20	10 3.4	20.6
485595 2011 UJ_{252}	17.4	X	20.07543	169.38829	213.87362	6.32432	0.1252501	0.22734934	2.6587260	20	—	—
485596 2011 UL_{255}	17.6	X	359.31161	287.14803	86.35706	9.11925	0.3112570	0.22540338	2.6740063	20	12 24.1	20.3
485597 2011 UZ_{258}	17.7	X	342.63847	81.88506	26.31131	6.44196	0.1096792	0.23980968	2.5658125	20	—	—
485598 2011 UB_{260}	17.4	X	97.65984	300.81824	37.98707	11.32518	0.1416542	0.24346736	2.5400497	20	—	—
485599 2011 UC_{263}	17.3	X	19.30003	169.31933	241.13921	9.92255	0.0189935	0.23341876	2.6124353	20	—	—
485600 2011 UN_{266}	17.8	X	358.59389	258.20175	115.39034	8.50297	0.2528363	0.22467815	2.6797574	20	12 13.5	20.6

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Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
485601 2011 UH_{268}	17.2	X	230.50269	159.34458	158.53796	4.94451	0.1932081	0.28292973	2.2980016	20	2 22.9	20.7
485602 2011 UQ_{271}	17.1	X	306.59633	216.12497	316.58006	9.15574	0.0792984	0.26068183	2.4269577	20	—	—
485603 2011 UC_{275}	17.6	X	326.86926	194.20254	242.72060	5.68213	0.1063465	0.22832984	2.6511091	20	12 26.6	20.7
485604 2011 UM_{276}	17.0	X	3.60367	357.10768	25.40073	12.80210	0.1931336	0.22434455	2.6824133	20	12 23.3	20.3
485605 2011 UJ_{284}	17.4	X	294.13335	228.36140	255.32821	5.14339	0.1103112	0.22607290	2.6687243	20	—	—
485606 2011 UB_{291}	17.4	X	200.97861	211.89698	106.71241	6.46432	0.2217308	0.27862266	2.3216233	20	1 31.7	21.4
485607 2011 UQ_{295}	17.2	X	23.32172	121.77786	297.37592	6.95973	0.1357377	0.24093010	2.5578516	20	—	—
485608 2011 UK_{305}	16.6	X	323.80696	274.71724	128.32804	14.60997	0.1217366	0.21868271	2.7285154	20	11 8.8	20.0
485609 2011 UA_{307}	17.6	X	34.18615	279.99672	83.51416	4.43649	0.2365065	0.23313012	2.6145912	20	—	—
485610 2011 UV_{312}	17.9	X	291.73018	250.00422	193.75334	2.99152	0.1689340	0.21738558	2.7393587	20	10 28.3	20.7
485611 2011 UX_{315}	17.7	X	52.77073	51.21564	329.29365	1.95344	0.1459949	0.24018517	2.5631376	20	—	—
485612 2011 UH_{316}	17.0	X	345.39620	163.96311	246.90236	4.62264	0.0417542	0.22492565	2.6777913	20	12 15.2	20.4
485613 2011 UU_{319}	17.6	X	17.51578	312.13441	52.06575	4.51311	0.1801926	0.22453266	2.6809149	20	12 18.6	20.8
485614 2011 UZ_{321}	17.0	X	3.20443	182.82253	208.80901	19.43998	0.2225697	0.22785869	2.6547624	20	—	—
485615 2011 UR_{322}	16.5	X	18.41358	141.37507	257.73505	12.43738	0.2726646	0.23412753	2.6071603	20	—	—
485616 2011 UW_{322}	17.0	X	19.69738	291.80246	77.93888	13.79864	0.2803947	0.23081482	2.6320467	20	—	—
485617 2011 UN_{330}	17.3	X	314.87400	309.76999	96.93051	9.00281	0.2217409	0.21485166	2.7608548	20	10 20.3	19.9
485618 2011 UE_{335}	16.8	X	43.68931	73.84983	291.12279	13.60502	0.1218113	0.23852383	2.5750255	20	—	—
485619 2011 UR_{336}	17.2	X	330.63454	58.31550	351.61532	14.83338	0.1994830	0.22795437	2.6540194	20	11 26.3	20.1
485620 2011 UE_{338}	16.8	X	351.94130	318.39352	63.33144	13.63942	0.2849917	0.22768652	2.6561005	20	12 16.6	19.3
485621 2011 UW_{338}	17.3	X	306.16071	263.06400	197.28137	17.07007	0.2460804	0.22718900	2.6599768	20	12 17.8	19.8
485622 2011 UQ_{360}	17.7	X	315.63487	46.01442	55.09405	4.18778	0.2075298	0.22910821	2.6451011	20	—	—
485623 2011 UF_{362}	16.4	X	279.70500	292.90085	69.21456	10.44919	0.1380480	0.18886193	3.0086599	20	6 20.8	20.5
485624 2011 UJ_{362}	17.5	X	333.62611	30.43296	62.41580	14.71473	0.2214113	0.22868892	2.6483332	20	—	—
485625 2011 UC_{366}	17.5	X	332.29401	11.40059	49.13441	4.63363	0.0958780	0.22855207	2.6493903	20	12 12.8	20.5
485626 2011 UY_{366}	17.8	X	22.02467	297.42224	73.63018	4.34442	0.1200550	0.23108538	2.6299919	20	12 26.7	21.2
485627 2011 UM_{374}	17.2	X	42.77965	92.58515	293.62975	13.97651	0.1477427	0.24212277	2.5494449	20	—	—
485628 2011 UQ_{375}	17.6	X	322.96274	196.40443	269.41640	7.46027	0.1169048	0.23583416	2.5945671	20	—	—
485629 2011 UW_{380}	18.1	X	21.84922	129.15474	249.45769	2.77243	0.1205754	0.22995246	2.6386230	20	—	—
485630 2011 UP_{383}	16.9	X	304.18007	75.90177	26.65274	13.94891	0.1430949	0.22515396	2.6759808	20	12 19.7	20.0
485631 2011 UR_{383}	16.7	X	351.82761	69.72543	30.36764	15.35910	0.0126526	0.24256038	2.5463776	20	—	—
485632 2011 UY_{389}	16.9	X	12.90432	158.75263	257.97744	13.65305	0.0902634	0.23684963	2.5871458	20	—	—
485633 2011 UH_{391}	17.1	X	328.71017	238.69471	170.38668	12.61237	0.1548744	0.22038174	2.7144737	20	11 23.8	20.1
485634 2011 UA_{398}	17.8	X	326.11043	152.96682	264.39810	4.23582	0.1885832	0.22251627	2.6970864	20	11 29.2	20.1
485635 2011 UP_{404}	16.7	X	354.24793	111.63320	195.51380	18.87911	0.3500167	0.21318992	2.7751829	20	8 23.7	18.7
485636 2011 UG_{405}	16.6	X	70.26829	69.76376	299.85006	13.52308	0.1252695	0.24534797	2.5270533	20	—	—
485637 2011 VY_{2}	17.2	X	348.52139	138.41263	281.45098	10.43731	0.2141377	0.23120193	2.6291079	20	—	—
485638 2011 VW_{8}	17.4	X	330.64984	289.92031	163.42770	12.83732	0.1048054	0.23542762	2.5975532	20	—	—
485639 2011 VN_{11}	16.8	X	108.74565	250.11880	61.88476	15.55481	0.0764607	0.23261335	2.6184621	20	—	—
485640 2011 VD_{23}	16.1	X	326.86812	334.39913	99.26801	15.42202	0.0716250	0.22881616	2.6473514	20	12 21.5	19.2
485641 2011 WD_{5}	16.7	X	40.45087	105.29447	289.43998	12.58535	0.1680392	0.24097903	2.5575053	20	—	—
485642 2011 WN_{14}	16.4	X	27.18723	325.93012	70.78795	15.56994	0.1244061	0.23502937	2.6004866	20	—	—
485643 2011 WT_{14}	16.8	X	334.40872	314.05590	93.10474	13.80171	0.1494901	0.22423906	2.6832546	20	12 2.3	19.6
485644 2011 WE_{27}	16.4	X	79.73980	241.47629	86.94772	13.08028	0.1806906	0.23104538	2.6302954	20	—	—
485645 2011 WA_{29}	16.5	X	83.19749	140.90876	221.61733	14.56169	0.1469076	0.24292070	2.5438590	20	—	—
485646 2011 WO_{29}	17.4	X	12.47381	27.44562	32.85684	12.73488	0.1694683	0.23427643	2.6060555	20	—	—
485647 2011 WD_{30}	17.3	X	319.68977	221.54591	190.94505	9.97257	0.3065459	0.21619930	2.7493700	20	11 2.9	19.0
485648 2011 WF_{34}	18.2	X	355.37033	135.41370	266.18124	0.30315	0.1007838	0.22589333	2.6701385	20	12 23.9	21.4
485649 2011 WP_{38}	17.0	X	339.43039	220.75545	247.35560	11.14045	0.0466522	0.23734353	2.5835554	20	—	—
485650 2011 WM_{39}	17.7	X	37.60359	53.95423	296.41692	3.07577	0.2279756	0.23191433	2.6237210	20	—	—
485651 2011 WC_{40}	17.5	X	312.31694	34.59698	154.15113	12.01871	0.0811181	0.26109357	2.4244056	20	—	—
485652 2011 WO_{41}	16.5	X	209.93467	125.23849	112.15501	20.05627	0.7318011	0.18840251	3.0135490	20	12 8.4	23.1
485653 2011 WU_{43}	16.7	X	250.02898	285.69744	127.30966	2.94973	0.1925095	0.19204178	2.9753558	20	7 13.3	21.1
485654 2011 WG_{49}	17.5	X	309.71065	349.52083	88.68149	2.52673	0.2086036	0.21851633	2.7299003	20	11 21.9	19.9
485655 2011 WV_{49}	16.4	X	199.28852	214.68661	232.18525	7.96361	0.2670441	0.18146124	3.0899169	20	7 3.1	21.9
485656 2011 WR_{53}	15.5	X	216.86374	167.26530	254.91311	10.29049	0.0459497	0.18349603	3.0670318	20	7 2.6	19.9
485657 2011 WN_{58}	17.9	X	3.79366	225.05172	185.28760	3.54952	0.1414655	0.22942536	2.6426629	20	—	—
485658 2011 WQ_{62}	17.6	X	19.69206	52.89919	334.42973	5.26385	0.1080217	0.23090628	2.6313516	20	—	—
485659 2011 WC_{63}	17.1	X	64.39479	299.87117	66.16645	10.58946	0.0417769	0.23290230	2.6162959	20	—	—
485660 2011 WC_{65}	16.1	X	237.14414	359.62772	71.92324	12.87012	0.1978071	0.19104794	2.9856655	20	7 24.5	20.9
485661 2011 WW_{72}	17.5	X	304.54084	134.20630	286.37407	5.15800	0.1029900	0.21221258	2.7836970	20	10 21.2	20.8
485662 2011 WK_{85}	17.1	X	124.92760	182.71274	147.65810	1.99076	0.1736252	0.24633399	2.5203053	20	—	—
485663 2011 WF_{87}	17.4	X	344.29468	0.81881	78.89119	4.55816	0.0298367	0.23157412	2.6262901	20	—	—
485664 2011 WH_{87}	18.0	X	282.75866	231.05939	228.46243	3.40104	0.1726929	0.21536947	2.7564278	20	11 1.7	21.1
485665 2011 WK_{88}	17.1	X	29.81012	147.40447	253.30217	9.90124	0.1258051	0.23352623	2.6116338	20	—	—
485666 2011 WN_{88}	15.9	X	193.01756	26.28535	75.05401	20.75128	0.0932214	0.18421839	3.0590088	20	7 25.0	20.9
485667 2011 WR_{89}	16.7	X	77.79918	306.16255	66.05171	8.89779	0.1941657	0.24193595	2.5507572	20	—	—
485668 2011 WU_{94}	17.8	X	330.77276	15.00378	103.10008	5.39993	0.0534913	0.23747197	2.5826238	20	—	—
485669 2011 WZ_{96}	17.8	X	341.09417	141.40396	257.65703	3.68615	0.1189793	0.22018133	2.7161206	20	11 27.5	20.6
485670 2011 WL_{105}	17.0	X	263.04890	334.86086	26.91385	1.83373	0.2760183	0.18754542	3.0227234	20	5 13.8	21.7
485671 2011 WN_{105}	16.1	X	285.15937	289.74081	61.41159	9.65639	0.1213195	0.18659262	3.0330046	20	6 16.1	20.2
485672 2011 WS_{105}	16.8	X	329.28429	198.55410	258.08027	16.55161	0.1417632	0.22875899	2.6477924	20	—	—
485673 2011 WG_{108}	17.0	X	225.89846	92.42005	80.05652	8.54903	0.1647008	0.21521017	2.7577879	20	11 20.9	20.9
485674 2011 WF_{115}	15.6	X	279.98789	45.69607	76.54995	34.47591	0.1902137	0.21593363	2.7516247	20	11 29.9	18.7
485675 2011 WG_{115}	17.2	X	353.50694	350.24321	90.77019	15.17956	0.2171368	0.23445962	2.6046978	20	—	—
485676 2011 WL_{115}	17.0	X	49.24010	129.33929	273.33190	11.15195	0.1800164	0.24162791	2.5529246	20	—	—
485677 2011 WU_{115}	17.0	X	337.51248	227.64460	197.85199	7.31461	0.1778370	0.22936914	2.6430947	20	—	—
485678 2011 WK_{118}	16.8	X	15.93313	5.99915	60.62818	19.49459	0.2029807	0.23588877	2.5941667	20	—	—
485679 2011 WV_{118}	17.4	X	352.74635	103.34570	264.66133	7.15123	0.2733394	0.21700455	2.7425644	20	11 22.5	19.8
485680 2011 WN_{121}	17.7	X	319.82031	34.84864	45.98291	5.12908	0.0400375	0.22596956	2.6695379	20	12 18.1	21.0

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
485681 2011 WY_{122}	17.4	X	82.92643	249.35916	87.40261	1.97758	0.0969887	0.23383760	2.6093148	20	—	—
485682 2011 WR_{132}	16.6	X	270.71957	38.59931	70.59422	10.04434	0.0766170	0.21619882	2.7493741	20	11 11.7	20.1
485683 2011 WP_{133}	16.7	X	346.10775	285.13389	140.62638	17.18904	0.1890968	0.22853229	2.6495431	20	—	—
485684 2011 WS_{139}	17.7	X	349.94516	228.31843	204.71009	4.90019	0.1503772	0.23010016	2.6374938	20	—	—
485685 2011 WD_{142}	17.5	X	296.90199	81.67357	58.04996	8.12775	0.1724754	0.23058005	2.6338329	20	—	—
485686 2011 WK_{145}	17.2	X	276.47177	193.13210	268.48317	8.22871	0.2618068	0.21050633	2.7987189	20	10 5.7	20.8
485687 2011 WV_{149}	17.2	X	9.57447	45.54015	1.52929	10.10256	0.1063433	0.23244307	2.6197407	20	—	—
485688 2011 WH_{150}	16.3	X	310.32626	257.38884	105.45946	12.52580	0.1266845	0.20011339	2.8948003	20	8 12.6	19.8
485689 2011 WL_{154}	17.7	X	333.20637	290.26804	155.63072	10.01113	0.1600534	0.22761157	2.6566835	20	—	—
485690 2011 XS_{1}	17.1	X	90.03931	135.66151	210.12282	4.93018	0.2132481	0.23891235	2.5722331	20	—	—
485691 2011 XE_{4}	16.2	X	17.64168	171.20535	261.61165	30.19059	0.1353370	0.23577499	2.5950012	20	—	—
485692 2011 YR	17.5	X	18.51853	253.50118	123.87823	12.63284	0.2102278	0.23151893	2.6267074	20	—	—
485693 2011 YS	17.1	X	319.92310	313.02779	138.23141	11.68039	0.2135869	0.22847756	2.6499663	20	—	—
485694 2011 YS_{8}	17.3	X	0.73971	293.63644	97.06290	4.83497	0.1089926	0.22220343	2.6996173	20	12 17.6	20.3
485695 2011 YL_{10}	17.2	X	357.05930	92.60849	294.38540	7.59099	0.1643033	0.21533995	2.7566797	20	12 11.7	20.3
485696 2011 YR_{11}	16.9	X	11.04046	291.77392	102.17267	6.23068	0.1250159	0.21997759	2.7177975	20	—	—
485697 2011 YH_{16}	16.8	X	13.71290	306.66736	56.25258	7.42547	0.0788490	0.21746004	2.7387333	20	11 24.8	20.3
485698 2011 YS_{18}	17.2	X	301.98533	176.11403	292.48207	7.45706	0.1500807	0.21712108	2.7415829	20	12 22.1	20.1
485699 2011 YL_{25}	15.8	X	156.13048	225.80747	298.01268	13.64825	0.1104700	0.18150991	3.0893645	20	8 26.2	20.8
485700 2011 YD_{33}	17.0	X	263.59111	257.78054	254.09521	8.35445	0.1874824	0.21294998	2.7772671	20	12 8.1	20.1
485701 2011 YB_{37}	16.6	X	258.69460	187.24980	311.74047	8.01487	0.0726072	0.20729108	2.8275848	20	11 28.6	20.4
485702 2011 YH_{39}	17.8	X	127.65449	320.30739	109.51413	24.84010	0.0930924	0.38221553	1.8804588	20	4 4.9	20.6
485703 2011 YF_{46}	16.7	X	243.03680	242.10214	311.64048	14.68772	0.1176267	0.21754966	2.7379811	20	—	—
485704 2011 YR_{47}	16.5	X	158.66080	336.29865	267.89266	11.09574	0.1321593	0.22283180	2.6945398	20	12 13.5	20.8
485705 2011 YY_{67}	17.5	X	331.16351	105.96804	317.95805	6.63508	0.2204346	0.21355174	2.7720473	20	12 18.2	20.0
485706 2011 YZ_{71}	15.9	X	236.79017	288.53355	126.04098	17.63580	0.2254577	0.17934168	3.1142147	20	6 29.1	21.1
485707 2012 AB	16.9	X	298.75892	167.95487	287.95674	12.79728	0.1584963	0.21938425	2.7226956	20	11 27.3	19.9
485708 2012 AT_{1}	16.1	X	144.62313	54.10861	110.37683	17.54181	0.1886671	0.17662526	3.1460637	20	8 26.8	21.5
485709 2012 AH_{4}	16.6	X	324.80325	315.78998	108.41769	10.66212	0.0402657	0.20964587	2.8063716	20	12 1.6	20.3
485710 2012 AO_{4}	15.9	X	79.48676	102.27700	106.67575	18.08342	0.0986622	0.17199057	3.2023315	20	8 4.1	20.5
485711 2012 AZ_{6}	18.8	X	253.64495	233.63716	118.18859	24.76960	0.0584959	0.39634789	1.8354886	20	5 24.5	21.3
485712 2012 AO_{7}	18.9	X	73.98082	295.01105	284.64338	8.57438	0.2607328	0.40479756	1.8098564	20	9 19.8	21.4
485713 2012 AE_{17}	16.3	X	137.88024	278.10901	289.38069	8.82865	0.1970556	0.17832009	3.1260976	20	10 3.1	21.7
485714 2012 AK_{17}	18.6	X	250.74305	242.16108	130.58633	20.27282	0.0727923	0.40362756	1.8133522	20	6 15.1	20.7
485715 2012 AV_{17}	16.2	X	245.53833	244.94033	312.14484	13.61833	0.0756262	0.21718104	2.7410783	20	—	—
485716 2012 AC_{23}	17.4	X	24.01163	285.37336	80.54838	12.05415	0.1433862	0.22382389	2.6865716	20	12 23.9	20.9
485717 2012 BH_{1}	18.1	X	202.32527	317.56938	130.94648	33.65689	0.1586959	0.41278374	1.7864368	20	7 25.6	20.2
485718 2012 BV_{2}	16.5	X	201.53550	30.08265	115.42826	10.12724	0.2097118	0.18963985	3.0004264	20	9 21.1	21.6
485719 2012 BV_{4}	16.5	X	334.88173	141.63128	316.32261	11.98988	0.0743211	0.21808280	2.7335170	20	—	—
485720 2012 BY_{6}	16.5	X	190.09575	300.47606	303.14350	7.61230	0.1507806	0.21563833	2.7541361	20	—	—
485721 2012 BN_{9}	16.2	X	173.02189	244.99985	304.92882	9.45013	0.1630557	0.18604845	3.0389159	20	10 12.3	21.4
485722 2012 BS_{14}	16.7	X	273.53841	199.00218	281.99417	14.02411	0.1547197	0.20601835	2.8392182	20	11 13.3	20.5
485723 2012 BD_{15}	17.3	X	334.24317	112.84317	309.97786	14.62874	0.2624458	0.21243734	2.7817332	20	12 29.2	19.8
485724 2012 BA_{25}	17.2	X	275.26790	355.51263	138.05757	9.42253	0.1436556	0.21122640	2.7923547	20	12 9.5	20.6
485725 2012 BC_{28}	17.0	X	264.88109	120.91776	61.23977	6.02306	0.0974218	0.22001362	2.7175007	20	—	—
485726 2012 BC_{35}	16.0	X	200.40448	276.31075	311.93665	16.09138	0.1091655	0.21330740	2.7741638	20	—	—
485727 2012 BX_{52}	16.2	X	284.82375	256.02580	140.50582	9.36132	0.1393957	0.18139735	3.0906424	20	8 11.9	20.1
485728 2012 BY_{55}	16.4	X	189.05541	69.20332	120.57345	7.56964	0.1490734	0.19055784	2.9907825	20	11 4.2	21.3
485729 2012 BP_{57}	17.1	X	323.53027	356.33924	118.69062	16.34664	0.0932021	0.22389968	2.6859653	20	—	—
485730 2012 BV_{57}	17.0	X	39.62981	251.40765	123.40838	13.42953	0.1840087	0.22333995	2.6904511	20	—	—
485731 2012 BC_{58}	15.9	X	197.66080	41.53004	91.74341	28.26890	0.1566668	0.17715343	3.1398074	20	9 12.4	21.5
485732 2012 BF_{59}	16.5	X	154.80984	87.29569	110.76448	15.02990	0.0553204	0.19194383	2.9763678	20	10 18.9	21.2
485733 2012 BH_{69}	16.7	X	356.08473	241.58681	118.49195	9.40315	0.1094251	0.19561993	2.9389620	20	10 28.4	20.4
485734 2012 BG_{73}	16.0	X	209.20401	317.67693	134.67866	15.98263	0.0556236	0.17753775	3.1352746	20	7 31.4	20.5
485735 2012 BQ_{75}	17.0	X	225.83490	266.26727	288.30156	7.31699	0.0882249	0.21271169	2.7793409	20	12 26.7	20.9
485736 2012 BY_{75}	17.7	X	265.88485	15.53425	100.89554	3.27406	0.1920047	0.20488504	2.8496786	20	10 25.4	21.4
485737 2012 BL_{78}	17.5	X	243.40449	31.96961	136.44585	10.20366	0.0587188	0.21137456	2.7910497	20	12 20.5	21.4
485738 2012 BZ_{79}	17.3	X	315.45224	340.39266	117.44118	13.28941	0.1566030	0.21481353	2.7611815	20	12 31.7	20.2
485739 2012 BA_{86}	18.3	X	169.43794	208.17068	155.35793	26.28058	0.1219216	0.37225003	1.9138720	20	2 10.8	20.8
485740 2012 BU_{86}	17.2	X	277.33034	96.52636	45.50685	13.32919	0.2258329	0.21174870	2.7877610	20	12 9.3	20.3
485741 2012 BS_{88}	16.1	X	164.36274	275.05604	333.05620	12.19660	0.1797805	0.20388170	2.8590201	20	12 18.1	21.0
485742 2012 BV_{89}	17.2	X	300.06822	339.60613	128.95272	11.61643	0.2084963	0.21167427	2.7884146	20	12 13.3	20.1
485743 2012 BP_{93}	16.3	X	324.39398	260.04037	115.00534	11.26445	0.1234373	0.19151093	2.9808515	20	9 24.8	20.0
485744 2012 BW_{95}	16.9	X	177.82473	34.12682	134.69451	10.84498	0.0479952	0.18839216	3.0136594	20	10 4.9	21.4
485745 2012 BM_{98}	17.4	X	267.66724	346.02567	121.02421	5.79263	0.2317631	0.20254001	2.8716323	20	10 10.5	21.1
485746 2012 BV_{99}	16.4	X	262.67100	264.69639	126.58550	16.61705	0.2626068	0.18113972	3.0935721	20	6 21.9	21.3
485747 2012 BT_{103}	15.7	X	171.45318	181.00128	330.26164	19.19671	0.1016851	0.17468763	3.1692849	20	8 29.0	20.5
485748 2012 BO_{104}	15.7	X	185.72318	341.94090	142.11196	19.35524	0.1742392	0.17490610	3.1666452	20	8 9.1	20.8
485749 2012 BH_{105}	16.3	X	26.24792	217.84246	137.43916	10.97228	0.1129353	0.20547465	2.8442246	20	12 6.4	20.2
485750 2012 BM_{105}	16.3	X	137.27765	54.04327	136.20154	28.21437	0.1586219	0.17967185	3.1103984	20	9 20.4	21.7
485751 2012 BM_{109}	16.5	X	310.84879	57.79794	323.96779	9.57144	0.0777303	0.18621926	3.0370573	20	9 6.7	20.5
485752 2012 BV_{121}	16.4	X	162.25526	200.26829	332.00991	8.50980	0.1186377	0.18119127	3.0929854	20	9 14.6	21.4
485753 2012 BF_{124}	17.9	X	160.56726	301.60790	123.34281	24.16636	0.0681002	0.38228966	1.8802157	20	5 8.9	20.7
485754 2012 BD_{126}	16.2	X	169.88428	12.36481	138.06347	15.80793	0.1278698	0.17554957	3.1589023	20	8 29.3	21.2
485755 2012 BB_{130}	16.9	X	249.11912	198.20817	346.37592	9.08333	0.1113436	0.21331551	2.7740935	20	—	—
485756 2012 BS_{134}	19.1	X	47.75262	58.28857	151.14967	20.95861	0.0293395	0.39369407	1.8437278	20	6 21.2	21.2
485757 2012 BN_{136}	16.2	X	171.61082	313.70776	189.04993	16.62059	0.1936718	0.17529634	3.1619439	20	8 16.3	21.8
485758 2012 BV_{138}	17.0	X	244.41677	182.21166	329.82987	9.78742	0.1379723	0.19814496	2.9139406	20	11 12.9	21.3
485759 2012 BM_{152}	16.9	X	355.48416	277.80576	121.02485	10.07917	0.0994127	0.21115265	2.7930048	20	12 16.6	20.5
485760 2012 CO_{2}	17.7	X	187.20208	304.15954	117.91038	28.33569	0.0882966	0.39255607	1.8472893	20	6 6.8	20.4

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	m		°	°	°	°		°				
485761 2012 CY_5	17.3	X	286.18527	23.81402	112.17561	12.72950	0.1116653	0.21176927	2.7875805	20	—	—
485762 2012 CV_{13}	16.9	X	247.75554	296.57919	138.41162	4.23314	0.2687512	0.18528641	3.0472424	20	7 29.2	21.8
485763 2012 CA_{14}	16.3	X	326.37181	43.65833	328.35982	16.56437	0.1167027	0.18525150	3.0476252	20	9 12.6	20.1
485764 2012 CM_{14}	16.1	X	341.41194	15.43672	330.60938	8.46672	0.0793639	0.17868677	3.1218195	20	9 6.2	20.1
485765 2012 CW_{14}	15.6	X	70.34208	318.57649	323.45381	16.27501	0.2050517	0.18073496	3.0981892	20	10 28.6	20.6
485766 2012 CA_{16}	17.3	X	321.86486	169.20682	294.77331	3.84264	0.0847304	0.21397390	2.7684000	20	—	—
485767 2012 CX_{18}	16.4	X	269.98075	189.56452	316.64711	8.80632	0.1491940	0.20962132	2.8065907	20	12 15.0	20.0
485768 2012 CP_{24}	17.0	X	279.71090	294.47217	167.56935	12.96081	0.0640201	0.19832759	2.9121515	20	11 13.9	21.0
485769 2012 CL_{27}	17.6	X	252.06751	47.94722	98.11130	4.57135	0.1137519	0.20492158	2.8493398	20	11 24.4	21.4
485770 2012 CO_{29}	17.0	X	12.68704	227.22269	146.09694	7.00093	0.0763359	0.20275229	2.8696276	20	12 4.1	20.8
485771 2012 CA_{38}	16.3	X	356.38946	87.22869	357.54179	14.32897	0.0340120	0.21903865	2.7255588	20	—	—
485772 2012 CJ_{38}	16.4	X	129.55201	122.36642	100.81412	7.32967	0.1460571	0.18312130	3.0712144	20	10 20.9	21.4
485773 2012 CA_{40}	16.7	X	141.13274	323.64822	273.96992	2.67236	0.1670132	0.18985995	2.9981071	20	11 14.2	21.7
485774 2012 CF_{40}	16.4	X	57.80589	309.84692	321.48158	8.10067	0.0495032	0.17813786	3.1282292	20	9 14.2	20.8
485775 2012 CK_{40}	16.4	X	155.40269	201.73504	329.41470	9.39187	0.0625654	0.17863256	3.1224510	20	9 6.1	21.2
485776 2012 CR_{40}	15.9	X	105.33893	125.17530	137.64625	12.13749	0.0599881	0.18896743	3.0075400	20	11 9.1	20.5
485777 2012 CV_{44}	16.0	X	116.41914	83.66656	154.04217	22.27333	0.1049055	0.18053962	3.1004236	20	10 25.0	21.1
485778 2012 CJ_{45}	15.5	X	281.33039	54.27422	346.18762	16.03803	0.1068910	0.17664375	3.1458441	20	8 20.3	19.8
485779 2012 CN_{45}	15.9	X	63.50214	293.00079	335.97302	9.70684	0.1059286	0.17436225	3.1732265	20	9 25.7	20.5
485780 2012 CL_{52}	15.8	X	279.09872	258.48081	149.61928	17.28416	0.1009173	0.18195430	3.0843323	20	8 25.0	19.9
485781 2012 DR_4	18.1	X	173.64949	285.23826	142.74202	23.76510	0.1374144	0.38900568	1.8585122	20	5 28.6	21.2
485782 2012 DS_4	18.5	X	214.72117	43.69415	357.08458	21.64555	0.0986996	0.39171972	1.8499178	20	5 21.5	21.2
485783 2012 DE_6	15.4	X	219.40357	98.76799	8.91612	26.15092	0.1691058	0.17503875	3.1650452	20	9 1.4	20.7
485784 2012 DZ_{10}	16.2	X	217.79156	3.05849	124.58572	14.51296	0.1713801	0.18480318	3.0525522	20	9 17.2	21.2
485785 2012 DH_{11}	15.6	X	262.40967	72.03915	309.14386	20.67933	0.1680708	0.17539829	3.1607185	20	6 22.0	20.5
485786 2012 DC_{12}	16.3	X	195.73918	29.30385	139.55370	14.48582	0.0731324	0.18598252	3.0396341	20	10 24.0	21.1
485787 2012 DB_{14}	16.1	X	351.43372	178.73503	150.70203	16.07163	0.0581814	0.17310177	3.1886122	20	8 31.6	20.2
485788 2012 DM_{16}	16.1	X	293.10668	305.55693	150.76669	11.46516	0.0485186	0.18975214	2.9992426	20	11 24.3	20.3
485789 2012 DR_{17}	16.5	X	181.19921	32.54733	162.46248	16.01701	0.2298890	0.18397023	3.0617591	20	10 30.6	21.9
485790 2012 DP_{19}	16.3	X	139.45963	60.22231	173.19757	18.87035	0.1253061	0.18265216	3.0764711	20	11 10.1	21.5
485791 2012 DF_{21}	16.2	X	178.15523	189.16753	354.88205	17.05101	0.0912349	0.18320089	3.0703249	20	10 11.9	21.1
485792 2012 DK_{22}	15.9	X	181.33073	121.19056	124.51706	16.80417	0.1881712	0.19815023	2.9138889	20	12 28.6	20.7
485793 2012 DP_{23}	16.3	X	134.85425	228.70065	357.30030	15.79911	0.1809921	0.17686037	3.1432749	20	10 20.6	21.7
485794 2012 DL_{24}	16.0	X	167.23926	177.61564	7.52670	26.90015	0.0762646	0.17692815	3.1424721	20	10 4.8	20.8
485795 2012 DQ_{24}	18.3	X	15.05548	235.11554	0.45537	20.51323	0.0686570	0.38170841	1.8821240	20	5 28.2	20.3
485796 2012 DO_{28}	16.3	X	187.51580	333.12848	164.45869	15.52288	0.2163725	0.17411176	3.1762693	20	8 24.7	21.7
485797 2012 DF_{29}	17.3	X	241.76816	24.20059	103.75725	3.82891	0.2309656	0.18967474	3.0000585	20	10 3.1	21.8
485798 2012 DN_{29}	15.7	X	108.74674	90.51231	171.64540	25.60875	0.2288899	0.17469211	3.1692307	20	11 20.4	21.4
485799 2012 DE_{33}	16.1	X	1.27834	348.09299	36.25319	10.78308	0.1089320	0.19289001	2.9666266	20	11 29.8	19.8
485800 2012 DL_{33}	16.1	X	63.70306	317.28945	357.02844	27.06767	0.1094759	0.18439282	3.0570794	20	11 13.5	21.0
485801 2012 DJ_{34}	16.3	X	209.01235	210.77735	330.49665	8.70724	0.0090858	0.19259786	2.9696260	20	11 23.8	20.6
485802 2012 DV_{34}	16.4	X	273.81947	54.16064	354.47147	15.32470	0.1728686	0.17790259	3.1309866	20	8 12.4	20.8
485803 2012 DE_{35}	16.0	X	130.67427	229.88365	3.50217	10.28630	0.1449275	0.18051886	3.1006613	20	10 27.2	21.2
485804 2012 DA_{37}	16.6	X	271.42690	282.88234	160.11843	19.33400	0.0994951	0.18562578	3.0435272	20	10 1.9	20.8
485805 2012 DD_{40}	16.4	X	271.75255	117.20882	313.87342	12.98304	0.2504697	0.18843610	3.0131909	20	8 20.5	20.5
485806 2012 DN_{40}	17.2	X	145.95835	12.70672	258.33178	1.07309	0.0686282	0.19695851	2.9256310	20	12 29.4	21.5
485807 2012 DE_{41}	16.9	X	164.51217	236.55950	332.24856	12.35716	0.0268787	0.19116498	2.9844467	20	10 30.5	21.4
485808 2012 DR_{42}	17.0	X	258.18480	200.44768	341.58345	7.65313	0.1204111	0.21128500	2.7918384	20	—	—
485809 2012 DE_{45}	16.3	X	183.17525	153.74130	87.30096	5.75099	0.0364417	0.19859207	2.9095654	20	—	—
485810 2012 DL_{45}	15.7	X	19.22904	162.72176	154.88516	27.95684	0.1218534	0.17886395	3.1197575	20	10 7.1	19.9
485811 2012 DQ_{46}	15.8	X	130.34588	117.03102	149.72972	11.99894	0.0529422	0.19024046	2.9941080	20	12 8.3	20.4
485812 2012 DA_{48}	15.8	X	326.85318	40.95482	327.40709	15.13055	0.0960482	0.18130635	3.0916765	20	9 9.8	19.7
485813 2012 DK_{48}	16.2	X	166.60310	236.27419	345.93788	16.19896	0.0934097	0.19089542	2.9872555	20	11 15.2	21.2
485814 2012 DV_{48}	15.7	X	106.21500	302.73729	328.16828	17.42064	0.1778977	0.18559575	3.0438555	20	11 18.5	21.0
485815 2012 DZ_{48}	16.3	X	158.45471	58.47950	172.22833	11.60841	0.1769161	0.18485669	3.0519630	20	11 22.5	21.5
485816 2012 DJ_{52}	16.0	X	108.22253	283.46297	323.35782	8.73551	0.0174601	0.18490528	3.0514283	20	10 10.8	20.4
485817 2012 DR_{52}	16.3	X	191.98865	302.01261	163.55268	14.33616	0.2350566	0.17166124	3.2064260	20	7 20.2	21.9
485818 2012 DU_{52}	16.7	X	210.71548	173.61917	3.84427	9.65087	0.0394323	0.18814735	3.0162730	20	11 15.9	21.2
485819 2012 DY_{55}	16.3	X	162.41023	230.21248	341.23062	11.04830	0.1499372	0.18387348	3.0628331	20	10 28.4	21.4
485820 2012 DF_{56}	16.0	X	134.26290	242.45004	336.38315	26.14998	0.1261801	0.17950314	3.1123470	20	10 2.5	21.3
485821 2012 DQ_{57}	16.3	X	130.39941	280.35749	328.25169	9.70808	0.0708325	0.18875205	3.0098275	20	11 11.9	21.0
485822 2012 DM_{60}	15.9	X	234.20978	291.91641	166.43554	16.19863	0.1042449	0.18132839	3.0914260	20	8 31.2	20.4
485823 2012 DF_{61}	20.6	X	303.96508	27.37419	15.39288	5.31174	0.4977025	0.80020020	1.1490448	20	—	—
485824 2012 DE_{63}	17.1	X	124.07284	284.71526	321.83191	9.56035	0.0611010	0.19209687	2.9747869	20	11 2.3	21.7
485825 2012 DB_{65}	16.3	X	324.77804	227.15540	153.20272	9.90951	0.0877634	0.18285288	3.0742193	20	9 29.7	20.1
485826 2012 DH_{66}	17.2	X	153.24936	242.95493	342.92814	7.31578	0.0757980	0.18958210	3.0010358	20	11 9.5	21.8
485827 2012 DB_{67}	16.8	X	195.20798	28.69529	159.80365	23.47631	0.1397750	0.19067238	2.9895847	20	11 11.3	21.9
485828 2012 DM_{67}	17.9	X	154.90412	280.63898	163.46494	21.48474	0.1048218	0.38200849	1.8811382	20	5 26.3	20.7
485829 2012 DQ_{68}	16.6	X	318.33921	261.47247	154.93001	13.08689	0.0861633	0.19774637	2.9178550	20	11 10.7	20.4
485830 2012 DJ_{71}	16.6	X	187.21340	216.63341	307.91119	10.54311	0.0386969	0.18389400	3.0626051	20	9 30.7	21.2
485831 2012 DW_{71}	16.6	X	194.48035	337.93421	284.64273	6.99739	0.1824303	0.21200026	2.7855554	20	—	—
485832 2012 DH_{72}	16.7	X	236.19034	354.09144	117.35208	11.42856	0.3041483	0.18811576	3.0166107	20	8 31.7	21.7
485833 2012 DY_{72}	18.5	X	92.52451	267.60851	160.17543	22.72641	0.1083959	0.36101345	1.9533817	20	1 23.7	20.4
485834 2012 DM_{74}	16.5	X	219.38611	164.36088	350.95167	10.48559	0.0808092	0.18537724	3.0462470	20	10 23.7	21.1
485835 2012 DS_{74}	16.8	X	225.59952	153.79905	333.90811	9.88211	0.1825659	0.18722070	3.0262176	20	9 17.3	21.7
485836 2012 DZ_{74}	16.6	X	79.92568	328.30535	334.00878	10.85756	0.0307321	0.19307455	2.9647361	20	11 17.8	21.0
485837 2012 DO_{75}	16.5	X	144.87788	101.68804	165.87197	12.41282	0.1486621	0.19810962	2.9142871	20	12 23.8	21.5
485838 2012 DY_{75}	16.4	X	171.59700	43.83325	129.59873	6.41855	0.1037411	0.18090706	3.0962240	20	9 29.6	21.2
485839 2012 DL_{76}	18.7	X	25.59659	93.69417	165.25556	23.16444	0.0646894	0.39540466	1.8384064	20	8 9.9	20.3
485840 2012 DO_{76}	16.1	X	172.90933	14.77273	164.36813	17.51858	0.1494280	0.17885986	3.1198050	20	10 6.4	21.3

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	m		°	°	°	°		°				
485841 2012 DU_{79}	17.8	X	33.85430	147.08501	6.50298	19.71701	0.0741751	0.36519812	1.9384311	20	2 29.3	19.5
485842 2012 DZ_{79}	15.5	X	199.19383	11.92925	124.83270	28.94607	0.1391937	0.18019816	3.1043390	20	9 13.5	20.8
485843 2012 DF_{86}	17.9	X	181.81409	49.53410	12.49612	21.73104	0.0648811	0.38484698	1.8718771	20	5 11.0	20.3
485844 2012 DL_{92}	17.1	X	127.95454	216.93024	15.54145	0.65988	0.1396608	0.18075007	3.0980166	20	10 26.3	22.1
485845 2012 DM_{92}	17.1	X	150.30979	279.84178	301.93139	1.31609	0.1848570	0.18350642	3.0669160	20	11 2.8	22.3
485846 2012 DO_{94}	16.5	X	68.56743	324.11947	320.91637	15.06301	0.0752277	0.18527202	3.0474002	20	10 14.1	21.2
485847 2012 EY	16.9	X	12.66877	186.11049	168.65289	11.93345	0.0383054	0.18871775	3.0101922	20	11 4.9	21.1
485848 2012 EC_{2}	18.3	X	95.33335	276.77119	162.00355	22.54581	0.0970796	0.36614396	1.9350913	20	2 12.8	19.9
485849 2012 EQ_{6}	17.2	X	209.79603	119.72411	28.76942	1.25845	0.1169402	0.18405168	3.0608557	20	10 5.1	21.9
485850 2012 EB_{9}	18.2	X	83.78715	178.05988	359.62238	20.40600	0.0764953	0.38852563	1.8600428	20	7 13.0	20.6
485851 2012 EN_{9}	18.0	X	115.92871	251.59140	190.33377	21.63010	0.1343191	0.37208620	1.9144337	20	3 30.5	19.8
485852 2012 ED_{10}	18.1	X	196.87811	260.49152	161.27109	22.81535	0.0863073	0.38687632	1.8653255	20	6 13.4	20.9
485853 2012 EG_{10}	18.3	X	42.34496	320.91128	181.50385	22.36855	0.0722526	0.36793969	1.9287901	20	2 12.2	20.1
485854 2012 EM_{11}	17.1	X	190.34856	194.03711	13.01853	8.54541	0.0516577	0.19269459	2.9686320	20	11 29.0	21.5
485855 2012 ER_{11}	16.9	X	163.55156	164.62635	40.98014	2.41201	0.0710481	0.18328799	3.0693521	20	10 28.7	21.3
485856 2012 EO_{15}	15.1	X	129.80469	217.94558	7.08603	32.47846	0.1790593	0.17388472	3.1790335	20	10 12.1	20.5
485857 2012 FB	18.0	X	179.61628	37.76416	27.59574	21.50765	0.0907347	0.38465060	1.8725142	20	5 16.3	20.4
485858 2012 FO	16.2	X	216.78321	137.49655	335.87719	11.82451	0.0683653	0.17746168	3.1361704	20	9 2.8	20.8
485859 2012 FP	18.0	X	192.94354	113.19290	87.23768	3.32497	0.2720802	0.18838840	3.0136995	20	11 9.9	23.2
485860 2012 FE_{1}	17.9	X	154.94373	348.51856	115.18573	23.21372	0.1419149	0.39293463	1.8461027	20	6 24.9	20.4
485861 2012 FP_{6}	16.4	X	84.44925	341.99299	315.64600	12.88868	0.0496864	0.19281406	2.9674057	20	11 19.9	20.9
485862 2012 FV_{6}	17.1	X	219.45444	193.56712	311.26541	5.75753	0.1294420	0.18875307	3.0098166	20	10 7.1	21.8
485863 2012 FX_{6}	16.9	X	191.85252	198.52999	326.97581	8.39930	0.0691589	0.18528840	3.0472206	20	10 7.0	21.6
485864 2012 FU_{8}	16.8	X	257.41146	287.16112	181.03377	6.48453	0.0415477	0.18815160	3.0162276	20	10 22.3	20.9
485865 2012 FL_{10}	18.3	X	139.22926	71.61112	346.32766	18.72656	0.1316302	0.37071232	1.9191608	20	3 20.9	20.6
485866 2012 FN_{14}	16.4	X	161.59650	59.03999	145.82333	13.82266	0.1993606	0.17830080	3.1263230	20	10 27.6	21.9
485867 2012 FK_{17}	17.5	X	209.25201	145.74189	20.40176	4.29005	0.1098852	0.18750844	3.0231208	20	10 26.3	22.1
485868 2012 FP_{17}	16.8	X	135.55836	99.60144	119.85961	2.12890	0.0981715	0.17752073	3.1354749	20	10 17.2	21.7
485869 2012 FS_{25}	17.1	X	189.07082	338.11378	167.50257	3.77575	0.1001170	0.17381027	3.1799412	20	9 10.4	21.9
485870 2012 FJ_{26}	16.9	X	159.54266	181.32305	31.64555	1.08937	0.1393022	0.18103600	3.0947537	20	10 31.8	21.8
485871 2012 FB_{27}	16.3	X	86.92508	254.47389	13.40912	9.48389	0.0619591	0.17475243	3.1685014	20	10 17.9	21.0
485872 2012 FF_{27}	16.6	X	213.14271	315.17066	180.22236	14.36463	0.1831465	0.18008107	3.1056845	20	9 15.6	21.6
485873 2012 FK_{28}	16.7	X	147.24043	61.14333	158.45642	11.03820	0.0494912	0.17881760	3.1202965	20	10 30.6	21.4
485874 2012 FN_{28}	16.7	X	109.66297	136.73374	124.65737	5.87081	0.1579400	0.17552637	3.1591807	20	11 14.5	21.8
485875 2012 FV_{28}	16.4	X	275.60578	66.11690	11.36964	10.61747	0.0575270	0.18149175	3.0895706	20	10 2.9	20.6
485876 2012 FC_{31}	16.6	X	120.19243	230.12353	30.42945	14.10730	0.2806966	0.17560742	3.1582085	20	11 23.2	22.3
485877 2012 FJ_{31}	16.5	X	268.27258	186.18979	353.74495	13.41035	0.1339780	0.21437040	2.7649854	20	—	—
485878 2012 FK_{31}	16.6	X	173.99188	81.48304	109.72437	6.20793	0.1118353	0.17858106	3.1230513	20	10 22.8	21.5
485879 2012 FK_{33}	15.8	X	247.51843	108.13210	354.74950	26.54446	0.0615622	0.17714258	3.1399356	20	9 24.1	20.3
485880 2012 FB_{34}	16.5	X	234.44038	99.88759	19.78995	22.34443	0.1566524	0.18168182	3.0874154	20	9 27.0	21.3
485881 2012 FU_{34}	16.3	X	263.77938	274.84292	174.75764	18.84736	0.1469998	0.18170462	3.0871572	20	9 19.8	20.4
485882 2012 FK_{35}	18.2	X	151.58385	303.08533	18.41641	35.93913	0.5813691	0.56340515	1.4518514	20	—	—
485883 2012 FJ_{37}	16.0	X	58.56104	252.96439	52.81790	11.46614	0.1313993	0.17458975	3.1704693	20	11 10.5	20.4
485884 2012 FP_{40}	16.5	X	148.64784	256.96914	347.60712	11.71147	0.2282146	0.18379624	3.0636910	20	11 25.0	22.1
485885 2012 FW_{40}	16.9	X	174.96936	211.48862	355.05140	10.68923	0.1091132	0.18634632	3.0356766	20	11 5.6	21.8
485886 2012 FB_{41}	16.7	X	285.94278	259.02388	177.01676	9.52625	0.0931960	0.18572129	3.0424836	20	10 12.6	20.6
485887 2012 FC_{42}	16.5	X	239.26124	290.82434	183.57279	21.42628	0.1493467	0.18217346	3.0818582	20	9 20.3	21.0
485888 2012 FJ_{42}	16.2	X	184.39008	142.61940	43.77053	12.19091	0.1519637	0.17884305	3.1200005	20	10 24.0	21.2
485889 2012 FR_{43}	17.5	X	261.35976	256.36038	70.03097	23.83769	0.1285352	0.37058452	1.9196020	20	4 19.3	20.3
485890 2012 FS_{47}	16.5	X	54.41914	120.61317	153.31660	9.27639	0.0474701	0.16906148	3.2392137	20	9 15.5	21.0
485891 2012 FA_{48}	16.6	X	91.97604	111.47261	147.86789	5.12886	0.0969340	0.17480635	3.1678498	20	10 20.3	21.3
485892 2012 FH_{48}	17.2	X	204.61233	52.71036	85.13633	2.32523	0.1387690	0.17924664	3.1153155	20	9 15.7	22.1
485893 2012 FL_{49}	16.7	X	129.04631	93.53136	147.64856	5.57901	0.0816883	0.18055780	3.1002155	20	11 6.0	21.5
485894 2012 FE_{52}	16.2	X	141.22017	308.26442	270.15368	8.77759	0.1820421	0.17683610	3.1435625	20	10 19.1	21.5
485895 2012 FL_{52}	17.7	X	186.51622	44.16765	349.71322	18.78774	0.1053578	0.37176350	1.9155414	20	4 6.7	20.3
485896 2012 FS_{55}	16.6	X	223.73009	75.60218	42.10068	10.54329	0.0676591	0.17536429	3.1611269	20	9 21.3	21.3
485897 2012 FK_{59}	16.5	X	213.54935	353.18047	162.44090	13.56620	0.0334738	0.18620873	3.0371718	20	10 30.4	21.0
485898 2012 FR_{59}	16.7	X	207.36350	335.75767	158.06152	13.87016	0.1327008	0.17809411	3.1287415	20	9 13.8	21.6
485899 2012 FK_{67}	18.3	X	340.37266	276.91956	25.09300	22.38719	0.0707951	0.38555876	1.8695726	20	8 14.6	20.4
485900 2012 FD_{71}	17.9	X	137.56723	332.59048	145.92749	22.24213	0.0701282	0.38447700	1.8730778	20	6 21.9	20.5
485901 2012 FT_{71}	16.2	X	149.44689	106.71785	94.74916	16.04128	0.2629757	0.17159793	3.2072146	20	10 17.5	22.1
485902 2012 FZ_{71}	16.3	X	109.07174	155.48115	148.36186	17.92969	0.2537237	0.18270917	3.0758311	20	—	—
485903 2012 FB_{79}	16.0	X	52.21662	321.09669	332.49931	15.05010	0.0563199	0.18344156	3.0676389	20	10 2.7	20.5
485904 2012 FH_{82}	16.1	X	199.11170	50.17699	133.38983	10.02452	0.0838880	0.18673497	3.0314630	20	11 11.7	20.8
485905 2012 FS_{82}	16.4	X	155.10381	96.12441	136.22110	11.41275	0.1166508	0.18543832	3.0455780	20	11 23.3	21.4
485906 2012 FM_{83}	16.5	X	213.91327	101.33534	25.93110	22.84746	0.1890289	0.17556863	3.1586737	20	9 16.8	21.8
485907 2012 GM	18.1	X	46.90396	46.66787	160.93035	23.19362	0.0316030	0.38074382	1.8853015	20	6 16.7	20.5
485908 2012 GN	18.2	X	87.39135	7.19408	150.02741	21.62037	0.0629513	0.38129616	1.8834803	20	6 8.8	20.6
485909 2012 GE_{3}	16.3	X	159.09936	168.00016	32.64258	10.42134	0.0657090	0.17385012	3.1794553	20	10 17.6	21.2
485910 2012 GW_{5}	17.9	X	83.83751	6.25832	180.73736	21.02215	0.0660046	0.38333140	1.8768078	20	7 16.3	20.4
485911 2012 GA_{6}	18.2	X	97.95449	102.25768	15.39933	21.09678	0.0773392	0.37338224	1.9100011	20	4 14.4	19.8
485912 2012 GW_{9}	16.2	X	237.03908	308.37169	201.51945	10.15230	0.0553982	0.18687259	3.0299745	20	11 15.2	20.5
485913 2012 GX_{12}	15.7	X	37.65465	291.30479	24.94403	14.91875	0.0541087	0.17008874	3.2261583	20	10 16.5	20.2
485914 2012 GZ_{15}	16.8	X	189.97569	122.84483	78.44648	19.35717	0.2113540	0.18058483	3.0999061	20	11 14.8	22.1
485915 2012 GG_{19}	16.0	X	227.87746	276.07152	195.93011	24.95601	0.1840255	0.17419980	3.1751990	20	8 28.4	21.4
485916 2012 GN_{22}	16.2	X	126.88222	94.76257	147.03661	12.43039	0.0437464	0.17188644	3.2036247	20	11 3.4	21.1
485917 2012 GB_{23}	15.4	X	73.30373	134.46233	200.54175	26.60123	0.2243518	0.17103433	3.2142565	20	—	—
485918 2012 GA_{27}	18.0	X	358.45666	308.50083	222.35820	20.03299	0.0745446	0.35165097	1.9879014	20	1 9.3	20.4
485919 2012 GX_{31}	16.0	X	213.81765	115.19893	27.38241	26.87032	0.1987657	0.17646728	3.1479410	20	10 2.4	21.2
485920 2012 GM_{32}	17.3	X	211.88622	226.38374	15.66010	2.57792	0.1671486	0.20192458	2.8774642	20	—	—

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
485921 2012 GO_{32}	16.3	X	185.54676	164.39453	35.52176	12.10851	0.0854815	0.18353616	3.0665846	20	11 11.4	21.0
485922 2012 GH_{33}	16.6	X	215.92605	103.51846	33.47384	10.25170	0.1352981	0.17514316	3.1637871	20	9 27.7	21.6
485923 2012 GM_{33}	17.0	X	183.51696	259.30370	315.30594	1.28520	0.1601207	0.18748579	3.0233643	20	11 23.8	21.9
485924 2012 GM_{35}	16.4	X	171.26974	174.47633	22.11709	11.67325	0.1034657	0.17528276	3.1621071	20	10 22.7	21.3
485925 2012 GP_{35}	16.5	X	158.41474	325.89702	250.22077	3.56671	0.2213968	0.17578972	3.1560247	20	11 1.5	21.9
485926 2012 GV_{35}	17.3	X	149.13082	232.55845	15.21387	3.33184	0.1585673	0.18011992	3.1052380	20	12 1.0	22.4
485927 2012 GO_{36}	15.7	X	211.38859	298.70179	228.78086	13.76100	0.1967842	0.18246248	3.0786029	20	10 20.2	20.7
485928 2012 GV_{36}	16.2	X	129.47313	247.30276	19.80670	11.22773	0.0481928	0.18039056	3.1021313	20	12 1.6	20.9
485929 2012 HV	17.8	X	343.79894	271.44930	7.73782	20.99932	0.0262837	0.38141055	1.8831038	20	6 21.6	20.1
485930 2012 HG_3	16.5	X	163.36687	81.62654	147.17039	13.15280	0.0914141	0.17916356	3.1162785	20	11 26.5	21.6
485931 2012 HG_4	16.7	X	190.13133	341.27241	173.67750	15.73094	0.1313840	0.17323255	3.1870073	20	9 21.4	21.7
485932 2012 HE_6	16.5	X	156.77154	55.69172	147.49754	11.78954	0.1074692	0.17148947	3.2085667	20	10 20.7	21.7
485933 2012 HK_7	15.6	X	88.28694	217.69471	74.41330	24.24851	0.0244956	0.17388355	3.1790477	20	11 18.7	20.3
485934 2012 HG_9	16.5	X	162.47497	82.22863	119.25800	10.73393	0.1617795	0.17292423	3.1907944	20	10 24.4	21.9
485935 2012 HN_9	16.3	X	177.27757	87.32612	115.01985	11.24912	0.2049289	0.17772351	3.1330895	20	11 5.7	21.8
485936 2012 HR_9	16.5	X	177.79724	45.08506	151.53137	10.22728	0.1739987	0.17629212	3.1500258	20	10 30.4	21.8
485937 2012 HX_{15}	17.9	X	348.21586	225.63727	20.33307	20.81230	0.0537994	0.37257092	1.9127729	20	4 24.5	19.4
485938 2012 HR_{20}	19.6	X	206.07436	85.02945	140.28400	24.80860	0.0539057	0.56136910	1.4553598	20	—	—
485939 2012 HV_{24}	18.1	X	344.97035	113.16431	143.58162	24.08974	0.0673267	0.37413393	1.9074419	20	5 22.3	20.5
485940 2012 HF_{25}	18.1	X	197.70948	322.15496	78.31776	24.49759	0.0705927	0.37064395	1.9193968	20	5 16.8	20.5
485941 2012 HD_{33}	16.4	X	107.36624	115.90113	171.79419	14.74388	0.2005070	0.17403202	3.1772395	20	12 13.9	21.9
485942 2012 HH_{36}	16.5	X	210.31028	14.36346	147.86971	10.27351	0.0427936	0.17788126	3.1312368	20	11 1.1	21.2
485943 2012 HK_{37}	15.8	X	185.64044	332.15171	223.26829	17.40479	0.1196214	0.17992089	3.1075276	20	11 4.9	20.7
485944 2012 HR_{38}	16.4	X	173.73343	100.26766	127.95721	12.24581	0.1804684	0.18052902	3.1005449	20	12 1.7	21.7
485945 2012 HL_{44}	16.3	X	159.34340	350.14231	202.49711	10.36737	0.0996843	0.17056691	3.2201260	20	10 6.2	21.4
485946 2012 HE_{45}	16.9	X	132.26379	102.52806	158.45013	2.22247	0.1349633	0.17691918	3.1425783	20	12 1.7	21.9
485947 2012 HK_{45}	16.5	X	177.70749	123.07847	62.20274	5.63510	0.1342285	0.17303239	3.1894645	20	10 16.9	21.7
485948 2012 HK_{49}	16.6	X	166.04350	86.04323	149.97829	10.95388	0.0302393	0.18287852	3.0739319	20	12 9.2	21.2
485949 2012 HR_{50}	16.2	X	247.96550	71.27530	70.79971	16.66549	0.1904115	0.18483136	3.0522418	20	11 3.6	20.7
485950 2012 HT_{50}	16.2	X	158.83587	69.55939	196.12901	12.42848	0.2159591	0.18289542	3.0737426	20	12 28.0	21.6
485951 2012 HD_{51}	15.8	X	107.21610	202.34197	102.41439	13.02366	0.1835729	0.17801699	3.1296450	20	12 31.7	20.9
485952 2012 HK_{51}	16.6	X	162.46043	106.02091	128.09242	11.75216	0.0768179	0.17865994	3.1221320	20	12 1.5	21.5
485953 2012 HU_{51}	16.2	X	170.51485	166.73701	46.13069	17.53927	0.0849844	0.17568105	3.1573260	20	11 11.1	21.0
485954 2012 HW_{51}	18.6	X	74.54091	358.63970	185.92602	21.11891	0.0517185	0.38169318	1.8821740	20	6 25.3	21.0
485955 2012 HV_{54}	16.4	X	164.60582	156.30425	95.34191	9.84250	0.0687202	0.18455169	3.0553246	20	12 23.2	21.0
485956 2012 HY_{54}	16.7	X	226.71480	309.55840	206.45476	10.04629	0.1763473	0.18167463	3.0874968	20	10 25.0	21.4
485957 2012 HL_{55}	16.5	X	151.24847	16.41337	204.49993	11.24251	0.0625208	0.17890639	3.1192641	20	11 3.2	21.2
485958 2012 HA_{56}	16.2	X	252.42920	324.42545	232.97407	9.64486	0.0765052	0.20336472	2.8638635	20	—	—
485959 2012 HR_{56}	16.2	X	156.63885	173.13132	101.75895	14.67938	0.2818660	0.18341165	3.0679723	20	—	—
485960 2012 HN_{61}	16.4	X	193.29998	84.57657	129.55692	15.57722	0.0678551	0.18231888	3.0802192	20	12 11.2	21.2
485961 2012 HF_{62}	16.6	X	193.10127	17.65576	179.16729	11.82211	0.1544753	0.18434401	3.0576189	20	11 14.1	21.6
485962 2012 HX_{65}	16.6	X	177.93133	201.81107	347.99991	11.39644	0.1738906	0.17741618	3.1367066	20	10 15.7	21.9
485963 2012 HB_{66}	16.3	X	187.80578	80.12694	103.37941	16.88307	0.1850325	0.17996992	3.1069631	20	10 28.1	21.7
485964 2012 HO_{68}	16.6	X	202.15468	93.85751	65.00750	26.23633	0.2060018	0.17484983	3.1673246	20	10 15.8	22.2
485965 2012 HW_{68}	16.2	X	136.51899	207.27452	82.54460	16.65155	0.2625838	0.18132780	3.0914327	20	—	—
485966 2012 HQ_{70}	16.5	X	215.89499	353.27742	189.57412	8.04768	0.2122240	0.18495321	3.0509011	20	11 13.0	21.4
485967 2012 HU_{73}	16.6	X	209.41219	317.04024	204.74606	15.34547	0.1165754	0.17879361	3.1205757	20	10 19.9	21.2
485968 2012 HB_{75}	16.6	X	172.92067	354.56194	208.20935	4.43823	0.0994316	0.17549075	3.1596082	20	11 1.9	21.5
485969 2012 HW_{75}	16.5	X	186.82394	108.46147	58.70722	11.22535	0.1129728	0.17326100	3.1866583	20	10 8.1	21.6
485970 2012 HJ_{79}	16.2	X	123.42777	223.65069	54.67848	18.29822	0.1303222	0.17655182	3.1469361	20	12 10.9	21.3
485971 2012 HS_{81}	16.4	X	167.00111	356.97995	205.76822	14.52686	0.2037437	0.17623688	3.1506840	20	10 25.1	21.8
485972 2012 HX_{81}	16.2	X	178.22004	20.99855	168.56799	17.46092	0.1782434	0.17412363	3.1761249	20	10 22.2	21.6
485973 2012 JJ	17.8	X	325.72176	108.35635	173.11795	22.35249	0.0664316	0.37099782	1.9181761	20	5 22.8	20.0
485974 2012 JR	17.6	X	321.24101	196.17519	77.95449	23.61141	0.0547830	0.36719147	1.9314093	20	5 9.3	19.7
485975 2012 JZ	16.6	X	145.74257	71.99738	180.24329	10.99420	0.1772870	0.17949485	3.1124429	20	12 4.9	22.0
485976 2012 JY_3	16.6	X	193.14448	127.40682	107.91714	8.08140	0.0819208	0.18918321	3.0052526	20	—	—
485977 2012 JS_{18}	16.7	X	152.83968	184.99492	33.36735	5.13035	0.1839894	0.17401698	3.1774225	20	10 31.1	21.9
485978 2012 JV_{23}	15.7	X	164.80426	136.50252	91.78296	16.37310	0.1036481	0.17543202	3.1603134	20	11 26.3	20.8
485979 2012 JZ_{26}	15.9	X	174.01886	86.88246	116.81223	25.91645	0.2747461	0.17684480	3.1434593	20	11 8.7	21.9
485980 2012 JV_{36}	18.2	X	199.77108	348.74702	58.22258	21.95198	0.0763896	0.36998416	1.9216780	20	5 21.4	20.0
485981 2012 JT_{38}	16.8	X	251.32499	63.98383	78.77925	11.92409	0.1973573	0.18657126	3.0332362	20	11 6.2	21.2
485982 2012 JQ_{63}	17.0	X	180.96303	151.24237	69.42394	2.74525	0.2413917	0.18230535	3.0803716	20	11 24.1	22.3
485983 2012 JM_{65}	16.5	X	191.45617	189.65304	69.92031	13.16447	0.0907978	0.19203559	2.9754197	20	—	—
485984 2012 JT_{66}	16.3	X	204.40085	52.17207	123.78859	28.76275	0.1805555	0.18100688	3.0950856	20	11 6.9	21.8
485985 2012 JW_{66}	17.9	X	311.37232	115.37848	108.34914	24.85679	0.0662896	0.35179920	1.9873429	20	1 23.2	19.9
485986 2012 KF	17.7	X	15.11000	114.70109	91.23442	24.05283	0.0352096	0.36264339	1.9475242	20	4 29.7	20.2
485987 2012 KH_2	16.3	X	178.84817	66.79477	143.47801	15.94554	0.1656326	0.17569479	3.1571615	20	11 17.5	21.7
485988 2012 KC_4	17.8	X	154.38505	276.94378	150.85032	22.83630	0.1082462	0.36786687	1.9290446	20	5 4.3	20.8
485989 2012 KP_5	16.5	X	156.00215	90.41318	130.68747	26.20463	0.2291365	0.17294402	3.1905510	20	11 14.4	22.5
485990 2012 KY_{10}	16.5	X	190.58323	359.72675	215.86284	15.73781	0.0827887	0.18195180	3.0843606	20	12 6.4	21.3
485991 2012 KZ_{11}	16.3	X	135.60521	119.76578	149.47502	16.13000	0.2522268	0.17389264	3.1789370	20	12 16.5	22.1
485992 2012 KA_{17}	15.7	X	181.57504	285.03095	229.82081	14.52709	0.1238060	0.15904491	3.3738274	20	9 6.2	21.3
485993 2012 KC_{17}	16.1	X	284.31639	240.72709	230.29429	14.70170	0.0491618	0.17534400	3.1613709	20	11 24.7	20.4
485994 2012 KV_{34}	16.8	X	198.16586	92.62036	89.76823	8.86550	0.1773908	0.17580450	3.1558479	20	10 31.2	22.0
485995 2012 KO_{38}	16.5	X	111.86343	149.55500	118.40068	4.73972	0.1551811	0.17143701	3.2092212	20	11 22.5	21.6
485996 2012 KK_{47}	16.2	X	178.25240	74.47638	139.53741	26.68318	0.2352475	0.17949611	3.1124283	20	11 21.9	22.0
485997 2012 LF	17.7	X	114.02082	257.17899	221.55241	23.18290	0.1369917	0.36550749	1.9373371	20	5 25.2	20.0
485998 2012 LS	16.2	X	186.06185	89.35568	146.46751	16.10559	0.2866605	0.18472712	3.0533900	20	12 14.6	21.8
485999 2012 LE_2	16.2	X	159.10448	69.78344	178.00512	18.37482	0.1435098	0.17677350	3.1443046	20	12 10.8	21.6
486000 2012 LP_2	16.0	X	134.38482	104.51642	174.19322	25.25762	0.2614810	0.17338778	3.1851048	20	12 24.8	22.1

ELEMENTS AND OPPOSITION DATES IN 2020

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Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
486001 2012 MR_7	18.9	X	241.83315	167.70671	276.25926	22.69122	0.1901574	0.50794452	1.5556977	20	9 5.1	20.6
486002 2012 MS_{11}	16.1	X	149.18434	97.23520	166.85135	25.55621	0.2803422	0.17526385	3.1623346	20	12 20.0	22.2
486003 2012 OG_1	17.9	X	15.89066	128.12385	122.51215	23.31537	0.0606956	0.36637365	1.9342825	20	7 5.8	19.5
486004 2012 OP_5	17.7	X	122.11757	59.73829	305.90265	4.81559	0.2023742	0.30266595	2.1969846	20	1 9.1	20.2
486005 2012 PQ_{11}	18.2	X	87.50560	115.09168	245.43148	1.72149	0.1870717	0.29188983	2.2507301	20	—	—
486006 2012 PD_{19}	17.2	X	96.49287	140.22767	205.57487	9.12670	0.3294999	0.28792505	2.2713449	20	—	—
486007 2012 PH_{22}	18.1	X	331.46391	60.55903	264.08543	3.05307	0.3006729	0.24293763	2.5437408	20	7 11.7	19.3
486008 2012 PK_{44}	14.2	X	273.67878	151.44647	147.20872	18.01014	0.1143325	0.08434503	5.1494760	20	4 8.7	21.3
486009 2012 QP_{25}	17.9	X	193.09673	359.61106	330.60202	5.39270	0.0922288	0.31691547	2.1306253	20	1 30.2	20.7
486010 2012 QS_{30}	18.3	X	162.54889	30.04041	303.45284	6.68239	0.2245025	0.30928339	2.1655339	20	1 13.8	21.3
486011 2012 QC_{37}	17.9	X	18.43539	44.74992	333.37157	4.47947	0.2384461	0.26810974	2.3819227	20	—	—
486012 2012 RN_{11}	18.0	X	126.85897	29.80397	335.88326	6.75968	0.1961017	0.30212780	2.1995926	20	1 15.6	20.6
486013 2012 RZ_{16}	16.8	X	326.27727	203.67026	191.30794	5.86004	0.1429010	0.25753637	2.4466790	20	11 8.7	18.9
486014 2012 RP_{17}	14.0	X	303.50220	281.68392	16.15818	10.62701	0.0283832	0.08305985	5.2024586	20	5 15.7	20.9
486015 2012 RN_{40}	18.1	X	90.08094	354.20525	355.20994	5.99864	0.2701717	0.28675123	2.2775392	20	—	—
486016 2012 RQ_{42}	17.4	X	343.46934	130.72560	241.41835	2.63741	0.2569110	0.25337860	2.4733719	20	11 20.0	19.0
486017 2012 SK_6	13.4	X	237.16022	76.47706	289.83274	20.84831	0.0421128	0.08459926	5.1391545	20	5 17.0	20.6
486018 2012 SQ_{23}	14.0	X	273.22794	133.25230	191.40260	24.33042	0.0887080	0.08294250	5.2073643	20	5 7.8	21.1
486019 2012 SA_{25}	14.4	X	261.67450	147.86502	187.39497	16.41105	0.0680785	0.08266838	5.2188695	20	5 9.9	21.5
486020 2012 SQ_{44}	17.9	X	108.27850	60.17749	323.67621	5.61490	0.0951010	0.30156722	2.2023176	20	—	—
486021 2012 SQ_{49}	13.7	X	323.55653	97.51032	183.69497	30.35001	0.0142500	0.08433768	5.1497752	20	5 25.7	20.8
486022 2012 SR_{52}	13.8	X	201.32012	43.71735	350.97811	29.81315	0.0463270	0.08266867	5.2188574	20	4 28.9	21.3
486023 2012 SK_{61}	18.2	X	333.85925	141.66223	253.85544	1.61602	0.1904065	0.25579014	2.4578017	20	11 26.9	20.3
486024 2012 TY_{10}	18.1	X	47.39472	146.80131	237.75463	0.45780	0.2017114	0.27418992	2.3465784	20	—	—
486025 2012 TX_{14}	13.7	X	303.66413	25.69955	261.77176	9.66927	0.0318818	0.08252286	5.2250029	20	5 4.7	20.6
486026 2012 TM_{15}	14.1	X	237.41515	163.07524	213.09774	3.51014	0.0399640	0.08379378	5.1720360	20	5 31.4	21.0
486027 2012 TF_{25}	18.4	X	190.07302	350.99321	325.49791	2.39854	0.1035239	0.30855596	2.1689361	20	1 10.0	21.4
486028 2012 TX_{28}	13.5	X	306.01483	277.81468	18.88544	30.74149	0.0703629	0.08276276	5.2149010	20	5 4.4	20.5
486029 2012 TO_{57}	17.4	X	357.74050	29.70879	20.82985	5.35436	0.2222653	0.26230872	2.4169123	20	—	—
486030 2012 TG_{66}	17.9	X	99.13175	8.37137	20.65786	6.60422	0.1060398	0.29323860	2.2438231	20	—	—
486031 2012 TN_{66}	18.5	X	44.46180	200.61178	230.28969	3.07117	0.1370792	0.28532532	2.2851209	20	—	—
486032 2012 TS_{67}	18.4	X	91.67549	99.31973	289.83730	2.34334	0.1542373	0.29127876	2.2538768	20	—	—
486033 2012 TV_{79}	14.1	X	285.07416	67.60070	248.97772	6.56477	0.1171204	0.08229793	5.2345191	20	5 5.9	21.0
486034 2012 TK_{83}	18.1	X	27.71387	67.52443	351.23880	2.43724	0.1569133	0.27786897	2.3258196	20	—	—
486035 2012 TL_{84}	18.6	X	320.10307	118.23363	347.15057	1.27517	0.1498441	0.26801070	2.3825094	20	—	—
486036 2012 TS_{84}	17.6	X	307.73504	113.30759	18.78002	23.38477	0.2680077	0.26780673	2.3837190	20	—	—
486037 2012 TK_{100}	17.9	X	7.53583	108.54179	263.20572	4.13119	0.2051610	0.25745617	2.4471871	20	12 28.0	20.5
486038 2012 TG_{108}	17.8	X	81.09258	158.70340	223.95770	5.81297	0.1547175	0.28611935	2.2808912	20	—	—
486039 2012 TQ_{124}	14.3	X	322.80488	317.63989	324.25804	9.05895	0.1593219	0.08345144	5.1861709	20	5 6.8	20.7
486040 2012 TU_{125}	17.4	X	71.57925	350.64046	24.80398	5.70023	0.1595580	0.28522356	2.2856644	20	—	—
486041 2012 TY_{127}	13.8	X	258.00020	309.37996	26.96955	14.50336	0.1311910	0.08252477	5.2249222	20	4 26.5	20.9
486042 2012 TW_{131}	17.6	X	353.12508	52.70476	25.09797	14.55487	0.3604079	0.26413657	2.4057493	20	—	—
486043 2012 TA_{132}	17.8	X	44.20677	58.50849	358.89256	5.77965	0.1333280	0.28134049	2.3066475	20	—	—
486044 2012 TB_{143}	14.4	X	280.63558	106.90326	221.24644	10.58634	0.0369579	0.08338470	5.1889377	20	5 25.6	21.2
486045 2012 TG_{147}	18.5	X	4.04751	218.27201	267.04971	5.30181	0.1659173	0.29186057	2.2508805	20	—	—
486046 2012 TD_{154}	18.5	X	337.50123	23.01357	52.96451	1.94335	0.1605380	0.26660074	2.3909022	20	—	—
486047 2012 TS_{159}	17.9	X	25.23384	47.28499	31.46645	7.58175	0.1283868	0.28457174	2.2891533	20	—	—
486048 2012 TC_{161}	18.6	X	62.54064	0.22052	48.85489	2.72041	0.1064811	0.28900949	2.2656595	20	—	—
486049 2012 TG_{162}	18.8	X	11.25004	253.15055	194.18803	4.16572	0.1777393	0.27899132	2.3195777	20	—	—
486050 2012 TG_{176}	18.8	X	42.79198	56.92722	13.28443	2.52778	0.1391974	0.28907359	2.2653246	20	—	—
486051 2012 TJ_{181}	18.5	X	0.60625	221.79535	294.82621	3.82230	0.0511443	0.30637258	2.1792286	20	1 11.0	20.8
486052 2012 TS_{185}	17.0	X	54.32208	78.56358	265.24998	4.90900	0.0496239	0.26874284	2.3781803	20	—	—
486053 2012 TD_{186}	18.0	X	54.43573	46.64052	5.94648	6.32076	0.1823541	0.28247773	2.3004523	20	—	—
486054 2012 TP_{193}	18.1	X	11.42448	251.68640	182.52121	2.30414	0.1944520	0.27247656	2.3564051	20	—	—
486055 2012 TT_{197}	16.4	X	300.37785	31.39988	353.32214	16.95888	0.2227025	0.23445529	2.6047299	20	8 20.8	19.1
486056 2012 TJ_{207}	18.2	X	46.37478	120.17392	316.25124	4.11376	0.1211827	0.28823247	2.2697296	20	—	—
486057 2012 TE_{210}	14.2	X	148.87827	285.19374	172.79279	22.81336	0.0425503	0.08219687	5.2388086	20	6 1.9	21.6
486058 2012 TP_{221}	18.9	X	26.15534	98.83243	17.11521	3.92590	0.1398363	0.29820816	2.2188249	20	—	—
486059 2012 TN_{236}	17.7	X	345.78444	47.96237	70.29580	7.27307	0.0661617	0.28478066	2.2880335	20	—	—
486060 2012 TF_{237}	13.9	X	295.22322	274.07632	43.40247	18.38289	0.0439487	0.08395647	5.1653521	20	5 26.2	20.7
486061 2012 TW_{242}	17.9	X	80.21352	307.57416	53.28434	5.35192	0.1383570	0.28103637	2.3083112	20	—	—
486062 2012 TK_{247}	18.4	X	172.45139	336.94261	349.91975	4.25634	0.2211635	0.30637842	2.1792009	20	1 15.2	21.7
486063 2012 TF_{255}	18.1	X	99.20666	172.43463	236.11253	6.74244	0.1126449	0.29897194	2.2150444	20	1 19.5	20.5
486064 2012 TK_{267}	18.4	X	19.41504	27.48610	77.25958	4.49432	0.1462305	0.28717414	2.2753026	20	—	—
486065 2012 TM_{294}	18.2	X	56.28405	12.62350	349.16468	1.57240	0.2587898	0.27108432	2.3644662	20	—	—
486066 2012 TW_{301}	17.4	X	60.11399	210.99562	155.13636	6.76813	0.1328071	0.27606602	2.3359350	20	—	—
486067 2012 TH_{309}	18.1	X	91.32049	244.88877	145.16273	5.14718	0.1545005	0.29499614	2.2349020	20	—	—
486068 2012 TT_{311}	17.7	X	79.71384	185.65307	173.75839	2.07621	0.2459546	0.27889025	2.3201380	20	—	—
486069 2012 TZ_{311}	17.8	X	23.65932	232.22118	131.32001	4.89887	0.2252008	0.26053569	2.4278652	20	—	—
486070 2012 TJ_{321}	17.3	X	97.04462	255.95554	86.88732	12.42690	0.2044643	0.28197113	2.3032069	20	—	—
486071 2012 UY_1	18.5	X	32.39036	12.70193	110.55100	0.68308	0.0274623	0.30527080	2.1844689	20	1 13.9	20.6
486072 2012 UA_2	18.2	X	33.84629	276.35940	128.56553	1.76424	0.1824325	0.27645932	2.3337190	20	—	—
486073 2012 UM_{18}	14.1	X	268.97037	45.42884	290.84508	10.97306	0.0634473	0.08098440	5.2909681	20	5 15.7	21.2
486074 2012 UN_{18}	14.3	X	316.99947	8.38900	282.23006	8.13712	0.0630231	0.08336787	5.1896364	20	5 21.6	21.0
486075 2012 UC_{26}	17.9	X	0.26040	126.77160	319.73835	6.24964	0.0962068	0.27572325	2.3378706	20	—	—
486076 2012 UC_{28}	18.7	X	20.66785	1.40420	81.67183	2.66010	0.1885193	0.27887487	2.3202233	20	—	—
486077 2012 UX_{28}	18.1	X	182.73617	352.67106	326.17368	5.85078	0.1638246	0.30323884	2.1942166	20	1 10.9	21.4
486078 2012 UZ_{30}	18.6	X	25.33650	171.15645	251.62846	0.91614	0.2212265	0.27378218	2.3489076	20	—	—
486079 2012 UE_{33}	18.4	X	18.24371	42.67180	36.77761	5.55084	0.0918720	0.27972932	2.3154961	20	—	—
486080 2012 UX_{40}	17.8	X	356.37221	0.94823	106.42675	1.47602	0.0893681	0.28235072	2.3011421	20	—	—

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Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
486081 2012 UX_{41}	18.6	X	29.35489	265.90899	200.77853	6.00686	0.1032889	0.29287183	2.2456961	20	—	—
486082 2012 UA_{42}	18.6	X	38.66929	346.03737	62.63312	2.63901	0.1776716	0.27758751	2.3273914	20	—	—
486083 2012 UF_{42}	18.3	X	60.89648	37.71014	349.11778	0.80055	0.0951546	0.27967654	2.3157874	20	—	—
486084 2012 UU_{50}	18.5	X	355.78148	5.07172	105.32682	3.18514	0.1693158	0.27749105	2.3279308	20	—	—
486085 2012 UN_{62}	17.8	X	76.84107	176.12004	186.87636	4.33445	0.2154734	0.27783528	2.3260076	20	—	—
486086 2012 UX_{75}	18.4	X	23.21621	39.57483	57.79012	2.56062	0.1562352	0.28426822	2.2907824	20	—	—
486087 2012 UN_{87}	18.2	X	21.59122	60.21701	43.39994	3.71682	0.1634835	0.28261202	2.2997235	20	—	—
486088 2012 UL_{88}	18.4	X	38.32316	7.70852	34.90396	1.74914	0.1808207	0.27243733	2.3566313	20	—	—
486089 2012 UR_{93}	17.8	X	338.62892	140.56032	337.72601	5.44140	0.1053928	0.27951815	2.3166622	20	—	—
486090 2012 UA_{133}	17.8	X	97.14487	237.13740	126.90539	2.24309	0.2152543	0.28441467	2.2899960	20	—	—
486091 2012 UC_{134}	15.9	X	50.40527	354.93815	285.11939	10.32723	0.1058946	0.24104520	2.5570373	20	9 30.6	19.4
486092 2012 UY_{134}	17.8	X	99.22618	20.59832	26.12835	8.04901	0.1734375	0.29473390	2.2362275	20	2 2.5	20.3
486093 2012 UE_{152}	17.8	X	64.58119	252.81983	126.27642	1.58814	0.2224500	0.27662121	2.3328083	20	—	—
486094 2012 UW_{155}	18.5	X	41.68592	33.62521	38.95402	7.14127	0.1452371	0.28262384	2.2996594	20	—	—
486095 2012 UA_{160}	17.5	X	57.56144	277.07231	112.62711	6.37580	0.2328173	0.27716302	2.3297672	20	—	—
486096 2012 UK_{164}	15.9	X	348.96828	121.81504	225.48512	10.83839	0.2201669	0.23924096	2.5698772	20	10 12.0	18.1
486097 2012 UZ_{165}	16.6	X	43.62464	166.99735	250.05136	25.62327	0.2151986	0.28322334	2.2964131	20	—	—
486098 2012 UL_{167}	17.9	X	117.62340	158.05447	188.30219	5.88372	0.2096666	0.28899338	2.2657437	20	—	—
486099 2012 UM_{167}	17.5	X	64.75318	199.04995	169.93114	3.73824	0.2204820	0.27583886	2.3372173	20	—	—
486100 2012 UB_{170}	16.6	X	270.35422	138.83656	318.17608	12.04855	0.2175913	0.24134643	2.5549091	20	9 30.9	19.8
486101 2012 VY_{21}	18.7	X	33.48916	35.00703	47.04584	7.06132	0.1312111	0.28375487	2.2935445	20	—	—
486102 2012 VH_{29}	19.2	X	55.47076	68.75249	344.12117	2.74201	0.1363833	0.28478150	2.2880291	20	—	—
486103 2012 VA_{30}	18.5	X	8.57180	208.66333	246.70161	1.76757	0.1263656	0.28006098	2.3136677	20	—	—
486104 2012 VH_{30}	18.4	X	359.81723	139.23837	329.38925	6.73874	0.1304901	0.28254418	2.3000916	20	—	—
486105 2012 VD_{40}	17.3	X	115.80743	101.45457	245.45735	8.91622	0.0843874	0.27967804	2.3157791	20	—	—
486106 2012 VF_{50}	17.9	X	17.38805	277.25284	95.88709	2.66261	0.1470944	0.25997063	2.4313820	20	—	—
486107 2012 VU_{52}	17.6	X	119.09928	0.60226	48.82502	7.78260	0.0222079	0.30450603	2.1881249	20	2 9.2	20.2
486108 2012 VH_{60}	17.2	X	60.84619	268.91076	61.88234	9.36415	0.0216858	0.25478794	2.4642427	20	12 16.0	20.5
486109 2012 VK_{63}	19.0	X	14.63905	268.59739	164.13243	2.80489	0.1417119	0.27350190	2.3505121	20	—	—
486110 2012 VT_{63}	18.7	X	13.88146	46.30230	52.07128	5.50785	0.1293564	0.27956375	2.3164102	20	—	—
486111 2012 VQ_{68}	18.5	X	359.06004	104.10102	353.92756	3.43037	0.2149422	0.27583357	2.3372472	20	—	—
486112 2012 VE_{70}	17.7	X	339.31249	29.38183	69.93099	7.19185	0.1066446	0.26808033	2.3820969	20	—	—
486113 2012 VS_{75}	17.7	X	42.74849	262.95633	109.46327	3.54527	0.2509021	0.26491977	2.4010054	20	—	—
486114 2012 VF_{76}	16.3	X	7.67936	106.36540	222.42757	9.08737	0.2470349	0.23865690	2.5740682	20	10 30.3	18.7
486115 2012 VN_{78}	18.3	X	72.50241	101.19196	303.77220	5.16009	0.1579560	0.28690052	2.2767490	20	—	—
486116 2012 VP_{83}	18.4	X	8.10186	315.21209	94.33984	2.68893	0.1593442	0.26253833	2.4155029	20	—	—
486117 2012 VW_{86}	18.0	X	347.31440	196.32525	328.51873	3.40727	0.1639161	0.28922085	2.2645556	20	—	—
486118 2012 VN_{89}	18.0	X	12.58146	329.58951	77.85445	3.43277	0.1995823	0.26387315	2.4073500	20	—	—
486119 2012 VV_{90}	18.4	X	351.37641	46.11501	76.37279	4.73605	0.1861159	0.27455416	2.3445025	20	—	—
486120 2012 VU_{98}	17.6	X	77.78242	316.16272	50.02331	9.36591	0.1629117	0.27862195	2.3216273	20	—	—
486121 2012 VA_{105}	18.6	X	24.57901	28.90857	62.66625	6.72716	0.2231987	0.27993148	2.3143812	20	—	—
486122 2012 VA_{113}	17.1	X	273.00888	200.66108	275.53022	4.63628	0.2016469	0.24270017	2.5453997	20	11 10.1	19.8
486123 2012 WA	17.1	X	305.02407	221.14249	255.81852	22.01604	0.2673310	0.25805547	2.4433968	20	—	—
486124 2012 WY_{4}	17.4	X	317.33386	177.11276	52.83711	6.76093	0.0718413	0.30808693	2.1711368	20	2 20.2	19.9
486125 2012 WQ_{7}	19.0	X	5.16512	50.48444	54.14710	2.63055	0.1745083	0.27614159	2.3355088	20	—	—
486126 2012 WC_{9}	17.0	X	309.85921	252.28505	148.16342	6.63193	0.2861297	0.23982047	2.5657355	20	9 24.4	18.7
486127 2012 WT_{9}	18.2	X	28.99158	303.87942	101.19441	5.51743	0.1743162	0.26475269	2.4020155	20	—	—
486128 2012 WT_{14}	17.8	X	87.21676	256.45265	96.66496	2.54294	0.1994824	0.27527662	2.3403986	20	—	—
486129 2012 WX_{14}	18.3	X	23.33525	234.11835	211.38592	2.68036	0.2043703	0.27540208	2.3396878	20	—	—
486130 2012 WS_{15}	18.3	X	336.99786	355.99940	101.18332	6.70700	0.1680166	0.25905124	2.4371313	20	—	—
486131 2012 WS_{23}	18.0	X	20.51877	342.62061	46.95349	1.96604	0.1922943	0.26172579	2.4204997	20	—	—
486132 2012 WV_{23}	17.8	X	83.05783	322.47448	79.61250	8.63708	0.0880528	0.28260715	2.2997499	20	—	—
486133 2012 WE_{25}	17.9	X	30.76011	182.56094	273.22437	3.27793	0.1751273	0.28055898	2.3109290	20	—	—
486134 2012 WK_{25}	17.9	X	356.74567	48.65179	56.11900	4.07683	0.1295253	0.27466052	2.3438972	20	—	—
486135 2012 WR_{25}	18.5	X	60.58751	127.03902	293.51736	4.40214	0.2118115	0.28409833	2.2916956	20	—	—
486136 2012 WY_{33}	17.8	X	352.88351	26.04276	80.27697	9.63286	0.1697164	0.26852261	2.3794805	20	—	—
486137 2012 XC_{6}	17.9	X	111.78456	206.60194	148.66110	5.41145	0.1547286	0.28307369	2.2972224	20	—	—
486138 2012 XG_{7}	18.3	X	10.55495	87.30609	56.52642	4.21558	0.0508272	0.29552004	2.2322599	20	1 11.0	20.7
486139 2012 XJ_{9}	18.6	X	335.82493	350.88020	104.53741	0.46247	0.2285368	0.26252924	2.4155587	20	—	—
486140 2012 XZ_{12}	16.6	X	330.95948	274.67376	89.33182	6.34315	0.1854187	0.23662615	2.5887745	20	9 29.2	18.9
486141 2012 XO_{13}	18.1	X	51.02145	208.92446	164.78689	3.43221	0.1446046	0.26618716	2.3933781	20	—	—
486142 2012 XY_{13}	18.0	X	146.81544	230.59126	103.59234	6.60025	0.2018318	0.29066141	2.2570671	20	—	—
486143 2012 XY_{23}	17.8	X	214.66158	53.10235	228.83626	1.48012	0.1340327	0.29328738	2.2435744	20	—	—
486144 2012 XQ_{30}	18.2	X	18.22024	120.99037	289.72897	2.77119	0.2022607	0.26520086	2.3993086	20	—	—
486145 2012 XD_{36}	18.3	X	6.28931	6.47476	88.02642	2.46408	0.1523122	0.27130582	2.3631791	20	—	—
486146 2012 XP_{36}	18.5	X	12.41475	200.53103	215.77249	0.49905	0.1629446	0.26357024	2.4091942	20	—	—
486147 2012 XA_{43}	17.1	X	352.98760	109.86179	272.21709	2.19225	0.1057016	0.24521626	2.5279581	20	11 30.2	19.8
486148 2012 XD_{48}	17.4	X	329.07330	230.10859	322.34586	4.59957	0.0263590	0.28688409	2.2768360	20	1 22.9	19.9
486149 2012 XA_{51}	17.9	X	275.88969	337.37627	52.95988	12.56220	0.1829187	0.22684820	2.6626403	20	7 21.3	21.5
486150 2012 XW_{51}	17.6	X	108.71650	292.90594	51.33779	5.96968	0.1642944	0.27818541	2.3240554	20	—	—
486151 2012 XO_{62}	18.6	X	38.97550	293.22414	121.55715	8.09924	0.0977691	0.27305229	2.3530916	20	—	—
486152 2012 XC_{91}	18.2	X	18.91170	45.08191	73.99448	7.88271	0.0598376	0.28682572	2.2771448	20	—	—
486153 2012 XG_{95}	16.7	X	254.90795	218.85508	246.42032	21.08854	0.0973590	0.23440221	2.6051231	20	10 8.2	20.5
486154 2012 XQ_{105}	17.2	X	322.71011	157.97320	332.35448	6.37692	0.1553971	0.25837195	2.4414011	20	—	—
486155 2012 XW_{105}	16.5	X	225.13384	158.52728	305.29734	12.40082	0.1382812	0.21509263	2.7587925	20	8 24.4	20.7
486156 2012 XF_{107}	18.3	X	44.46342	148.57739	246.82921	3.63061	0.1885636	0.26915465	2.3757539	20	—	—
486157 2012 XL_{107}	18.2	X	38.37528	275.70246	129.15035	2.76593	0.2139816	0.26984327	2.3717104	20	—	—
486158 2012 XJ_{110}	17.7	X	57.40360	128.21589	299.33145	8.18290	0.2146262	0.28289303	2.2982003	20	—	—
486159 2012 XC_{120}	17.7	X	337.74164	348.63033	83.32565	8.86469	0.1958112	0.24869421	2.5043341	20	—	—
486160 2012 XF_{120}	17.5	X	351.13807	118.15298	328.07124	4.30149	0.1290371	0.25611035	2.4557527	20	—	—

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Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
486161 2012 XR_{123}	16.5	X	307.94626	193.96034	225.85788	21.36845	0.0623191	0.23892824	2.5721190	20	11 6.1	19.6
486162 2012 XL_{132}	16.4	X	335.80789	136.35936	228.27204	11.92499	0.2283431	0.23701109	2.5859707	20	10 5.2	18.6
486163 2012 XB_{135}	17.5	X	103.07390	315.71697	83.90859	6.85439	0.0829188	0.29356162	2.2421768	20	1 11.6	20.0
486164 2012 XO_{137}	16.7	X	324.90073	199.40015	219.71824	14.13519	0.1080701	0.24533171	2.5271650	20	12 5.0	19.5
486165 2012 XZ_{137}	17.2	X	80.82143	277.01956	59.48867	9.25003	0.2391950	0.26817014	2.3815650	20	—	—
486166 2012 XG_{140}	18.6	X	359.66736	324.00585	116.92069	2.08558	0.1544430	0.26665681	2.3905671	20	—	—
486167 2012 XM_{146}	18.0	X	309.49367	97.30323	83.28027	7.20130	0.0713827	0.28289753	2.2981760	20	—	—
486168 2012 XB_{152}	16.8	X	306.98180	276.69514	116.92399	13.27722	0.2740884	0.23067294	2.6331258	20	9 7.5	19.2
486169 2012 YC_{1}	17.3	X	262.58886	281.87077	260.08321	13.48078	0.0659340	0.25289455	2.4765270	20	—	—
486170 Zolnowska	16.5	X	338.41152	172.77753	257.25703	6.72888	0.2421025	0.24336163	2.5407854	20	—	—
486171 2012 YB_{3}	18.9	X	352.70462	312.41689	114.22113	23.08977	0.1208046	0.51939815	1.5327422	20	—	—
486172 2012 YB_{5}	17.0	X	359.65903	181.94184	339.67602	7.49956	0.0402733	0.28352526	2.2947826	20	1 24.4	19.6
486173 2013 AY_{3}	18.3	X	319.49554	148.91241	334.89096	5.73162	0.3641829	0.25321839	2.4744151	20	—	—
486174 2013 AO_{8}	18.3	X	8.88564	350.25035	121.29854	3.13709	0.1443953	0.26643154	2.3919144	20	—	—
486175 2013 AU_{8}	17.4	X	282.43986	282.51061	300.44879	18.69233	0.2201823	0.27065817	2.3669475	20	—	—
486176 2013 AB_{9}	17.0	X	302.40713	326.31938	89.17958	12.80527	0.0370292	0.22618555	2.6678381	20	10 27.9	20.6
486177 2013 AQ_{13}	16.1	X	16.01702	169.69751	121.66373	15.36862	0.1575160	0.20492258	2.8493306	20	9 5.0	19.5
486178 2013 AT_{14}	17.1	X	217.25613	55.37193	107.75771	14.80908	0.1398348	0.22630807	2.6668751	20	11 9.6	21.2
486179 2013 AH_{18}	17.4	X	59.04614	305.36727	109.16306	11.72329	0.2069387	0.27279198	2.3545883	20	—	—
486180 2013 AX_{18}	17.8	X	345.12086	127.61158	331.34422	2.12019	0.1475306	0.25648231	2.4533778	20	—	—
486181 2013 AW_{19}	17.4	X	31.50708	353.28492	80.47970	3.70922	0.1860584	0.26401946	2.4064606	20	—	—
486182 2013 AE_{21}	17.8	X	12.60145	341.20096	96.32620	10.27041	0.1922213	0.26132492	2.4229744	20	—	—
486183 2013 AN_{21}	16.4	X	162.09322	146.32911	99.33701	12.91650	0.0370450	0.23807142	2.5782867	20	12 27.3	19.7
486184 2013 AM_{23}	16.9	X	353.23048	96.35540	314.62726	11.11022	0.0563069	0.23760066	2.5816912	20	—	—
486185 2013 AV_{23}	16.9	X	268.08939	45.81729	92.97408	7.44706	0.0510384	0.23894378	2.5720075	20	12 23.8	20.1
486186 2013 AJ_{35}	17.6	X	303.10279	54.76243	84.82346	6.56647	0.0598914	0.25424983	2.4677184	20	—	—
486187 2013 AW_{35}	17.4	X	24.62650	316.19435	89.92307	8.49541	0.1104599	0.25470649	2.4647680	20	—	—
486188 2013 AC_{36}	17.8	X	309.38524	56.13917	87.44463	7.45931	0.1163114	0.25627681	2.4546892	20	—	—
486189 2013 AQ_{36}	18.2	X	355.78172	63.12733	14.54350	2.58638	0.1769931	0.25582218	2.4575966	20	—	—
486190 2013 AK_{37}	17.2	X	352.01793	82.00008	301.91362	2.93676	0.2848799	0.24111549	2.5565403	20	12 26.7	19.6
486191 2013 AM_{40}	17.1	X	343.29269	348.77224	128.42044	9.90391	0.1059331	0.25921699	2.4360923	20	—	—
486192 2013 AE_{41}	18.1	X	337.03765	142.38244	289.35709	5.65250	0.1635521	0.24396087	2.5366230	20	—	—
486193 2013 AX_{42}	17.3	X	346.46890	307.49702	79.44024	5.07488	0.2057259	0.23355265	2.6114368	20	12 4.3	19.7
486194 2013 AH_{43}	17.7	X	298.60170	94.80259	72.80317	4.64893	0.1504324	0.25565120	2.4586922	20	—	—
486195 2013 AO_{44}	17.1	X	285.88023	17.13599	113.13889	4.79926	0.0793885	0.23923372	2.5699290	20	—	—
486196 2013 AS_{44}	16.9	X	262.79685	345.46959	124.49276	15.06261	0.1540155	0.22531025	2.6747431	20	10 28.1	20.6
486197 2013 AW_{47}	16.7	X	261.21726	61.64569	70.17637	12.53024	0.1289010	0.23783118	2.5800227	20	11 24.5	19.8
486198 2013 AH_{52}	16.7	X	264.08920	352.79758	74.77621	18.88807	0.1215139	0.21768541	2.7368427	20	9 10.9	20.8
486199 2013 AB_{55}	17.3	X	279.60865	347.80433	118.33744	14.21679	0.2348981	0.23209926	2.6223272	20	11 7.1	20.4
486200 2013 AK_{55}	18.0	X	335.46557	37.24468	61.79344	6.14606	0.1555605	0.25360270	2.4719146	20	—	—
486201 2013 AC_{60}	17.3	X	282.48541	146.29224	19.08588	6.12947	0.0389167	0.25562406	2.4588662	20	—	—
486202 2013 AQ_{68}	16.7	X	242.03365	251.74910	251.38437	9.90552	0.1440746	0.23112738	2.6296733	20	11 6.8	20.4
486203 2013 AD_{69}	17.2	X	283.37321	269.31241	283.52847	5.32318	0.1048338	0.26448154	2.4036569	20	—	—
486204 2013 AP_{74}	17.0	X	8.15874	91.72012	332.58100	5.59579	0.1262533	0.25251721	2.4789936	20	—	—
486205 2013 AF_{77}	17.1	X	1.19419	136.62636	332.95953	14.96474	0.1560754	0.26353486	2.4094098	20	—	—
486206 2013 AH_{77}	17.6	X	323.55831	342.35219	93.15731	10.09200	0.1369167	0.23822383	2.5771869	20	12 24.3	20.2
486207 2013 AD_{78}	17.6	X	303.61833	6.48099	148.13858	8.96751	0.1300910	0.25681690	2.4512465	20	—	—
486208 2013 AS_{80}	18.2	X	343.71447	43.79345	63.65384	2.43339	0.1547123	0.25890566	2.4380448	20	—	—
486209 2013 AH_{83}	17.1	X	350.26499	342.25054	76.04347	9.55196	0.1200462	0.24704686	2.5154546	20	—	—
486210 2013 AN_{88}	17.8	X	300.60955	140.92750	33.92496	2.73632	0.1387140	0.26308890	2.4121318	20	—	—
486211 2013 AQ_{88}	17.5	X	341.77086	8.48181	109.99390	7.63942	0.1203002	0.25903151	2.4372551	20	—	—
486212 2013 AJ_{89}	16.7	X	251.51343	6.32020	100.35625	12.46266	0.0475376	0.22202495	2.7010639	20	10 23.3	20.5
486213 2013 AQ_{91}	18.1	X	319.28324	40.36142	82.01960	2.77942	0.1432925	0.25355853	2.4722017	20	—	—
486214 2013 AN_{95}	18.2	X	343.27328	202.69462	254.94956	0.97321	0.1483149	0.25818712	2.4425661	20	—	—
486215 2013 AA_{96}	17.9	X	101.76828	271.83074	93.51089	6.40620	0.2107082	0.28184844	2.3038753	20	—	—
486216 2013 AS_{96}	16.7	X	114.61182	147.37407	103.17849	12.72339	0.0351273	0.22460910	2.6803067	20	11 9.7	20.7
486217 2013 AD_{97}	16.3	X	49.82307	164.87172	123.19590	7.06357	0.0351664	0.21359902	2.7716382	20	10 4.5	20.1
486218 2013 AQ_{97}	16.7	X	336.03668	87.98090	295.30013	11.19391	0.1180531	0.22953994	2.6417834	20	10 25.1	19.9
486219 2013 AQ_{100}	18.4	X	340.77413	355.78788	134.48871	2.00557	0.1736994	0.26210498	2.4181647	20	—	—
486220 2013 AB_{103}	17.3	X	20.83694	54.76223	315.52193	9.68104	0.3500733	0.25013004	2.4947411	20	—	—
486221 2013 AS_{103}	18.5	X	4.19186	248.45470	242.25731	1.91292	0.1288129	0.27383946	2.3485800	20	—	—
486222 2013 AE_{105}	17.2	X	290.04627	319.95375	142.21826	6.62159	0.1993426	0.23249556	2.6193465	20	11 22.6	19.8
486223 2013 AY_{111}	17.3	X	216.54336	276.54585	311.11578	5.05583	0.1384913	0.24469248	2.5315644	20	—	—
486224 2013 AV_{120}	17.8	X	354.22947	351.30982	109.62079	2.45814	0.1526093	0.25840602	2.4411866	20	—	—
486225 2013 AQ_{121}	17.7	X	71.95196	242.08487	113.08873	15.26644	0.1669481	0.25792916	2.4441944	20	—	—
486226 2013 AK_{128}	17.5	X	347.47868	62.86752	325.58044	13.78792	0.1873036	0.23941224	2.5686513	20	12 6.6	20.4
486227 2013 AY_{129}	17.3	X	67.85458	246.89286	146.72088	7.45778	0.1232313	0.26340445	2.4102050	20	—	—
486228 2013 AM_{130}	17.6	X	268.47807	225.41800	336.58313	9.26501	0.0165298	0.26129084	2.4231851	20	—	—
486229 2013 AA_{139}	17.3	X	250.93693	315.26600	170.33365	13.74187	0.1983853	0.22954601	2.6417368	20	10 22.4	20.9
486230 2013 AM_{165}	17.7	X	272.78921	344.31760	243.66780	10.13633	0.0263029	0.27395921	2.3478956	20	—	—
486231 2013 AA_{174}	18.0	X	211.36624	94.27728	174.71219	11.46817	0.1714748	0.26383792	2.4075644	20	—	—
486232 2013 BL_{4}	17.0	X	312.68183	166.76259	282.70875	13.65811	0.0611169	0.23957422	2.5674934	20	12 24.1	20.1
486233 2013 BK_{5}	16.9	X	274.69129	312.05585	132.90338	18.44173	0.1209658	0.22641141	2.6660636	20	10 18.1	20.6
486234 2013 BE_{6}	17.7	X	354.45188	173.98723	230.17936	5.60053	0.1725686	0.24444714	2.5332580	20	—	—
486235 2013 BZ_{8}	16.6	X	99.94568	8.03744	293.49603	10.89812	0.2065487	0.24053950	2.5606199	20	—	—
486236 2013 BG_{10}	17.8	X	75.43949	53.34683	323.62484	6.45458	0.1283287	0.26318891	2.4115207	20	—	—
486237 2013 BL_{11}	17.5	X	245.98991	107.06863	115.27954	5.69992	0.0979902	0.25840987	2.4411623	20	—	—
486238 2013 BG_{15}	17.9	X	248.55875	81.96255	134.68708	3.71356	0.0305839	0.26035082	2.4290144	20	—	—
486239 Zosiakaczmarek	16.6	X	313.31308	115.84331	299.04838	29.45776	0.3329573	0.23409072	2.6074336	20	9 20.9	19.5
486240 2013 BL_{19}	18.8	X	296.21986	137.70882	339.81889	2.95478	0.2395320	0.24269140	2.5454611	20	12 28.6	20.5

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Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
486241 2013 BW_{24}	17.6	X	5.36550	183.02852	237.04466	2.46318	0.1870977	0.25351881	2.4724599	20	—	—
486242 2013 BE_{26}	16.8	X	30.14779	45.60701	326.10212	13.41144	0.0104055	0.23187763	2.6239979	20	12 23.5	20.5
486243 2013 BL_{30}	17.2	X	220.57958	302.31341	300.13838	3.88391	0.1212707	0.25716662	2.4490237	20	—	—
486244 2013 BX_{30}	17.6	X	88.91987	5.76010	357.32391	5.00674	0.1749565	0.26391856	2.4070739	20	—	—
486245 2013 BH_{32}	18.1	X	54.73603	28.27628	351.98603	5.51047	0.1951686	0.25902279	2.4373098	20	—	—
486246 2013 BJ_{32}	17.3	X	244.42908	305.06179	334.22215	9.17570	0.2055932	0.27988573	2.3146334	20	1 20.5	21.2
486247 2013 BF_{33}	17.1	X	220.48360	67.59219	129.94974	14.78073	0.0821020	0.23980942	2.5658143	20	12 31.9	20.6
486248 2013 BG_{33}	17.6	X	301.20356	345.44703	129.18810	15.55439	0.0541898	0.24265599	2.5457087	20	—	—
486249 2013 BM_{36}	18.4	X	321.09803	280.68258	231.09238	1.70220	0.1113919	0.26272137	2.4143809	20	—	—
486250 2013 BV_{36}	17.9	X	86.42400	247.13554	124.93139	1.93737	0.1272693	0.26510371	2.3998947	20	—	—
486251 2013 BQ_{40}	17.6	X	294.49377	355.26183	119.68321	4.13512	0.0940361	0.23834507	2.5763128	20	12 28.1	20.3
486252 2013 BN_{41}	17.7	X	34.01019	314.15998	128.18329	10.41049	0.1746726	0.26788391	2.3832611	20	—	—
486253 2013 BK_{42}	17.8	X	262.64478	75.64522	137.53123	2.82261	0.1566197	0.25602559	2.4562947	20	—	—
486254 2013 BO_{42}	16.6	X	227.46265	202.25559	307.84301	11.11610	0.1268692	0.22459289	2.6804356	20	10 26.1	20.7
486255 2013 BB_{48}	17.6	X	337.93939	25.72053	104.71530	7.62741	0.0674558	0.26295352	2.4129596	20	—	—
486256 2013 BA_{56}	18.5	X	346.48278	352.35188	140.03344	2.65656	0.1541716	0.26607524	2.3940492	20	—	—
486257 2013 BT_{70}	17.0	X	295.97255	32.08220	153.11442	23.55896	0.1855027	0.25966717	2.4332759	20	—	—
486258 2013 BW_{75}	17.4	X	237.97757	78.19499	100.96186	6.51826	0.0812444	0.23821326	2.5772631	20	12 30.4	20.6
486259 2013 BQ_{77}	17.6	X	19.70568	315.97995	117.85884	5.45941	0.1732862	0.26074509	2.4265651	20	—	—
486260 2013 BT_{79}	17.3	X	13.63353	173.37146	253.53648	5.05707	0.1790754	0.25609406	2.4558568	20	—	—
486261 2013 CU_{2}	17.7	X	287.44322	260.65922	142.65167	11.57263	0.3519443	0.22453511	2.6808954	20	7 24.3	21.0
486262 2013 CR_{7}	18.3	X	1.38680	319.33862	155.53784	2.48062	0.1703411	0.26468491	2.4024255	20	—	—
486263 2013 CL_{9}	16.7	X	1.42049	107.92547	291.44237	10.63401	0.1031226	0.23443325	2.6048932	20	—	—
486264 2013 CN_{10}	17.6	X	238.37877	88.60926	119.23451	6.77007	0.0927995	0.24540852	2.5266376	20	—	—
486265 2013 CU_{10}	16.5	X	256.53355	185.42453	353.92584	31.51283	0.1954933	0.23649725	2.5897151	20	—	—
486266 2013 CZ_{12}	17.9	X	333.23834	63.21180	342.65067	4.40556	0.2275264	0.23494687	2.6010953	20	12 5.5	20.1
486267 2013 CE_{13}	18.2	X	354.11404	60.35076	357.01111	3.52356	0.1826523	0.24464045	2.5319233	20	—	—
486268 2013 CR_{15}	16.4	X	293.36330	118.49617	327.83418	21.49075	0.0467756	0.22495820	2.6775330	20	11 8.2	20.4
486269 2013 CN_{18}	17.4	X	283.26616	116.22814	42.60745	3.62013	0.1064382	0.24179431	2.5517531	20	—	—
486270 2013 CF_{19}	18.0	X	300.05062	13.16412	123.51985	3.71935	0.1146978	0.24127119	2.5554403	20	—	—
486271 2013 CK_{19}	17.7	X	282.14213	124.83201	99.79120	7.70056	0.1539960	0.27205318	2.3588492	20	—	—
486272 2013 CH_{31}	17.2	X	343.83240	312.62498	114.92897	6.49513	0.1859457	0.24174878	2.5520735	20	—	—
486273 2013 CG_{32}	16.0	X	308.99476	183.69950	140.30456	16.15236	0.0474309	0.17904009	3.1177111	20	6 25.7	20.4
486274 2013 CL_{33}	17.4	X	17.40131	203.48745	252.90459	5.96332	0.1857933	0.26459087	2.4029947	20	—	—
486275 2013 CQ_{37}	16.8	X	272.54561	210.32834	267.67306	12.72931	0.1992103	0.23085724	2.6317242	20	11 7.6	19.9
486276 2013 CQ_{38}	16.5	X	337.08311	100.79484	323.63146	21.70255	0.0701462	0.23414706	2.6070153	20	12 30.0	20.0
486277 2013 CK_{39}	17.1	X	345.31839	99.31430	330.27092	21.59449	0.0258686	0.23859648	2.5745028	20	—	—
486278 2013 CN_{41}	17.5	X	30.56445	267.84938	146.04561	2.99376	0.1681303	0.25832487	2.4416977	20	—	—
486279 2013 CP_{45}	18.4	X	328.80060	72.48639	1.66096	2.97558	0.1735475	0.23843870	2.5756384	20	—	—
486280 2013 CV_{47}	17.0	X	0.37659	291.49129	136.48950	8.48927	0.0615053	0.24052416	2.5607287	20	—	—
486281 2013 CY_{47}	16.9	X	308.74519	124.57325	333.06346	29.39361	0.2249870	0.23735415	2.5834783	20	—	—
486282 2013 CM_{48}	17.6	X	240.65783	350.46057	251.49503	5.81208	0.1420331	0.25446813	2.4663069	20	—	—
486283 2013 CX_{51}	18.0	X	223.76556	104.24127	106.89290	2.38632	0.1314940	0.23930549	2.5694151	20	—	—
486284 2013 CC_{53}	17.2	X	267.24309	262.06573	326.13129	5.68116	0.0627992	0.26443138	2.4039608	20	—	—
486285 2013 CT_{53}	17.0	X	332.02529	37.08915	150.96067	7.28718	0.0495215	0.27278576	2.3546241	20	1 18.8	19.9
486286 2013 CQ_{54}	18.0	X	335.24131	207.44095	208.42327	4.59811	0.2688919	0.23958518	2.5674151	20	—	—
486287 2013 CY_{54}	16.9	X	228.76968	179.05037	7.70564	7.20127	0.1245341	0.22822057	2.6519552	20	12 18.8	20.6
486288 2013 CD_{56}	17.1	X	8.81240	260.23845	143.54547	14.86138	0.1129602	0.24015375	2.5633612	20	—	—
486289 2013 CU_{60}	17.7	X	208.40957	112.72859	133.29074	6.12391	0.1207781	0.24564511	2.5250150	20	—	—
486290 2013 CF_{61}	17.2	X	269.19281	335.44592	112.42531	11.32587	0.0829097	0.21854109	2.7296941	20	10 16.3	20.9
486291 2013 CJ_{66}	17.2	X	322.05112	85.98781	321.46177	9.68021	0.1590482	0.22466793	2.6798388	20	11 2.0	20.1
486292 2013 CF_{68}	17.9	X	31.70910	115.00008	300.34693	8.04873	0.2171910	0.25749291	2.4469544	20	—	—
486293 2013 CO_{70}	17.4	X	282.84465	196.84147	286.81955	2.08925	0.1167330	0.23269053	2.6178831	20	12 17.1	20.1
486294 2013 CX_{71}	17.8	X	20.82820	277.73657	145.30656	5.99258	0.1708966	0.25722740	2.4486379	20	—	—
486295 2013 CV_{73}	17.8	X	315.15103	125.65632	313.29334	8.65067	0.1147973	0.23743743	2.5828743	20	12 12.7	20.7
486296 2013 CL_{74}	17.7	X	7.18687	214.58365	252.14840	3.58441	0.1747927	0.26172494	2.4205050	20	—	—
486297 2013 CD_{75}	18.0	X	233.32334	19.93685	183.07758	3.30346	0.1234615	0.23825359	2.5769723	20	—	—
486298 2013 CC_{76}	17.9	X	348.94298	246.83825	256.24434	3.66831	0.1206727	0.26633132	2.3925144	20	—	—
486299 2013 CH_{76}	17.5	X	226.30533	197.79197	341.53570	2.23733	0.1058989	0.22904839	2.6455616	20	12 9.3	21.0
486300 2013 CG_{77}	16.8	X	322.71099	294.08406	157.64471	22.38140	0.0522470	0.23432391	2.6057034	20	—	—
486301 2013 CF_{78}	17.6	X	29.58006	280.23733	161.42237	8.80354	0.1487812	0.26204737	2.4185191	20	—	—
486302 2013 CQ_{80}	16.6	X	3.79166	323.31198	59.06890	17.98640	0.1703553	0.23838652	2.5760142	20	12 23.5	19.7
486303 2013 CP_{81}	17.0	X	151.18303	23.94730	253.78029	7.06547	0.1399980	0.23524410	2.5989039	20	—	—
486304 2013 CG_{84}	17.2	X	193.82974	102.31761	141.70479	12.82866	0.0580551	0.23756414	2.5819557	20	—	—
486305 2013 CL_{84}	17.1	X	265.61935	91.23940	36.12792	3.42329	0.1314721	0.22479684	2.6788141	20	11 20.2	20.3
486306 2013 CW_{89}	17.2	X	306.89144	41.83662	138.21258	12.54284	0.2289885	0.25580573	2.4577019	20	—	—
486307 2013 CL_{92}	17.7	X	262.67390	76.49611	148.53421	3.88116	0.1538905	0.25753829	2.4466669	20	—	—
486308 2013 CL_{94}	17.1	X	255.16741	289.23822	171.26482	4.39835	0.0685375	0.21630886	2.7484416	20	10 10.4	20.6
486309 2013 CE_{97}	16.8	X	348.40207	264.97531	145.84051	15.44093	0.0787916	0.23354934	2.6114614	20	12 26.2	20.3
486310 2013 CM_{98}	17.3	X	192.58025	98.41983	145.18773	14.68010	0.1582611	0.23675252	2.5878533	20	—	—
486311 2013 CE_{101}	16.8	X	190.89400	289.26504	309.14895	3.57513	0.1481738	0.23467358	2.6031144	20	—	—
486312 2013 CF_{103}	16.2	X	21.53135	153.52586	121.22197	11.00458	0.0773194	0.18911378	3.0059882	20	8 7.6	20.1
486313 2013 CZ_{109}	17.0	X	76.29058	221.43578	100.94284	7.11185	0.0834599	0.22951925	2.6419422	20	12 25.7	20.9
486314 2013 CF_{110}	17.3	X	280.56249	66.21465	78.63836	5.23849	0.1453258	0.24011794	2.5636160	20	—	—
486315 2013 CV_{110}	17.7	X	246.74220	203.83289	33.61837	5.08307	0.1519587	0.25513772	2.4619899	20	—	—
486316 2013 CD_{111}	17.5	X	83.86138	22.28192	353.03140	8.17177	0.1441609	0.25846093	2.4408408	20	—	—
486317 2013 CZ_{111}	17.9	X	342.89753	86.10518	332.03850	6.88771	0.1855180	0.23863732	2.5742090	20	—	—
486318 2013 CU_{113}	17.2	X	116.29027	186.72094	148.50009	7.24370	0.1677171	0.26196947	2.4189985	20	—	—
486319 2013 CU_{114}	17.3	X	24.81651	52.15183	33.37829	15.39643	0.0741605	0.26087657	2.4257498	20	—	—
486320 2013 CO_{115}	18.3	X	34.21428	316.19299	81.92848	2.68069	0.1855786	0.25847794	2.4407337	20	—	—

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
486321 2013 CQ_{118}	17.8	X	222.30558	252.79802	329.11585	8.58373	0.1591023	0.23902051	2.5714570	20	—	—
486322 2013 CV_{122}	17.8	X	4.15492	112.39525	358.43077	10.46402	0.2026022	0.26074455	2.4265685	20	—	—
486323 2013 CR_{125}	17.6	X	261.70856	127.15582	33.30999	9.42419	0.1011787	0.23820935	2.5772914	20	—	—
486324 2013 CN_{127}	16.8	X	245.99752	69.40714	95.09620	10.37843	0.0586633	0.22814573	2.6525352	20	12 22.8	20.2
486325 2013 CO_{127}	16.8	X	191.47959	129.02475	97.78771	11.76161	0.1068252	0.22725123	2.6594912	20	12 28.0	20.5
486326 2013 CB_{135}	18.1	X	277.68471	129.87499	350.99465	12.50743	0.1389695	0.22943758	2.6425690	20	11 27.7	21.4
486327 2013 CL_{143}	18.0	X	313.69997	155.82770	305.87168	2.54684	0.1373555	0.23834753	2.5762951	20	—	—
486328 2013 CV_{143}	16.6	X	79.48906	26.83561	328.80421	17.30253	0.0613412	0.24146044	2.5541049	20	—	—
486329 2013 CR_{146}	17.2	X	319.82602	282.38410	138.45192	14.55402	0.1584623	0.22695070	2.6618385	20	11 26.9	20.2
486330 2013 CS_{147}	17.0	X	233.88240	54.15979	141.10862	8.77631	0.0320627	0.23749986	2.5824216	20	—	—
486331 2013 CC_{149}	18.1	X	265.18028	57.01931	107.08728	3.81565	0.0856352	0.23706180	2.5856019	20	—	—
486332 2013 CP_{149}	17.4	X	181.25172	185.23402	62.22178	3.40698	0.1803849	0.22869158	2.6483127	20	—	—
486333 2013 CZ_{151}	16.9	X	140.50244	180.25243	129.70005	8.73299	0.1680266	0.24396100	2.5366221	20	—	—
486334 2013 CV_{152}	16.9	X	134.67450	284.75452	354.91079	13.23919	0.0901051	0.23022633	2.6365300	20	—	—
486335 2013 CP_{156}	17.5	X	38.09550	263.83211	118.51710	3.99808	0.0495294	0.23555520	2.5966152	20	—	—
486336 2013 CO_{159}	17.6	X	256.24723	14.97572	146.06403	8.04968	0.1263325	0.23272754	2.6176055	20	12 24.3	20.9
486337 2013 CL_{160}	18.0	X	239.13094	59.41806	150.32945	8.45264	0.0852552	0.24147164	2.5540259	20	—	—
486338 2013 CE_{161}	17.7	X	245.58863	225.34427	345.62637	9.15737	0.1215616	0.24291659	2.5438877	20	—	—
486339 2013 CF_{161}	17.4	X	221.24575	146.02273	30.61246	1.50258	0.0374903	0.22409577	2.6843982	20	12 8.3	20.9
486340 2013 CW_{162}	17.4	X	214.27926	51.39637	160.44068	15.50186	0.1170083	0.23045817	2.6347615	20	—	—
486341 2013 CV_{164}	17.4	X	183.02510	105.66603	151.12137	4.77291	0.0367332	0.23991011	2.5650963	20	—	—
486342 2013 CH_{170}	17.5	X	22.49754	151.68148	324.26834	5.63759	0.0670900	0.26639241	2.3921486	20	—	—
486343 2013 CP_{170}	17.0	X	221.61237	290.32021	180.12478	5.61428	0.0332028	0.20246587	2.8723333	20	9 12.0	21.0
486344 2013 CE_{172}	17.0	X	4.24689	261.63684	160.83671	13.90085	0.0239328	0.23790191	2.5795113	20	—	—
486345 2013 CG_{175}	17.3	X	233.05654	238.03698	335.81340	11.33636	0.1404515	0.23820611	2.5773147	20	—	—
486346 2013 CL_{175}	17.7	X	251.15015	225.29178	317.50399	4.79969	0.1951926	0.23537043	2.5979739	20	—	—
486347 2013 CY_{175}	17.3	X	165.08432	314.96350	340.11216	9.89723	0.0966191	0.24468225	2.5316349	20	—	—
486348 2013 CQ_{176}	18.2	X	300.33234	311.38990	185.28219	6.58590	0.2136796	0.24382484	2.5375664	20	—	—
486349 2013 CJ_{179}	17.5	X	351.42391	290.35566	130.96333	13.07387	0.2399254	0.24382482	2.5375666	20	—	—
486350 2013 CT_{180}	16.9	X	336.37517	127.63394	303.26780	7.89218	0.1429388	0.23912061	2.5707393	20	—	—
486351 2013 CB_{181}	17.1	X	244.85687	269.81157	292.59730	7.07630	0.0872176	0.24252870	2.5465993	20	—	—
486352 2013 CJ_{181}	17.4	X	242.43281	128.19609	68.06662	8.46361	0.1607709	0.23858865	2.5745591	20	—	—
486353 2013 CB_{183}	17.2	X	283.58128	175.66875	315.40055	8.95618	0.1435618	0.23734381	2.5835534	20	12 28.4	19.9
486354 2013 CJ_{190}	17.2	X	262.43515	225.99789	304.83759	8.93090	0.1089936	0.24030813	2.5622632	20	—	—
486355 2013 CF_{193}	17.1	X	328.65614	281.91091	161.80993	12.11033	0.1337660	0.23708070	2.5854645	20	—	—
486356 2013 CD_{195}	18.2	X	290.11121	51.99766	129.00315	3.02247	0.1234408	0.25401580	2.4692339	20	—	—
486357 2013 CN_{195}	17.4	X	182.00359	285.83977	334.09326	14.21253	0.0781332	0.24225142	2.5485422	20	—	—
486358 2013 CQ_{196}	16.7	X	298.53541	229.89574	128.76768	13.39360	0.0217791	0.19130458	2.9829946	20	7 29.5	20.8
486359 2013 CB_{201}	17.6	X	228.95667	218.25703	352.03993	3.87551	0.0895478	0.24216912	2.5491196	20	—	—
486360 2013 CJ_{211}	17.0	X	304.97882	288.03562	124.72260	14.91663	0.1248999	0.22590308	2.6700616	20	10 22.6	20.3
486361 2013 CT_{211}	17.8	X	269.35646	144.76396	88.66901	2.48366	0.1406579	0.26350141	2.4096137	20	—	—
486362 2013 CA_{214}	18.3	X	321.31923	253.07103	209.52283	1.60453	0.1437897	0.24369664	2.5384562	20	—	—
486363 2013 CR_{214}	18.1	X	287.54969	24.74016	199.67642	3.24974	0.1653809	0.26426300	2.4049819	20	—	—
486364 2013 CX_{214}	17.4	X	214.97866	257.00034	315.13477	14.03497	0.0811186	0.23650574	2.5896531	20	—	—
486365 2013 DZ_{1}	16.9	X	78.18920	213.36020	133.75634	14.12091	0.0176431	0.23951307	2.5679304	20	—	—
486366 2013 DP_{2}	18.3	X	283.01257	140.07025	2.06689	4.44362	0.1585412	0.23927483	2.5696346	20	—	—
486367 2013 DL_{3}	17.2	X	141.80443	308.22655	320.82355	3.82913	0.1052788	0.22883352	2.6472175	20	12 29.3	21.2
486368 2013 DJ_{4}	17.1	X	352.93852	60.94357	326.59213	5.71904	0.0505212	0.22360400	2.6883326	20	11 24.5	20.6
486369 2013 DX_{5}	17.0	X	220.07901	185.65899	16.59428	8.65431	0.1385457	0.22900628	2.6458859	20	12 26.5	20.9
486370 2013 DF_{7}	17.4	X	253.95026	102.72420	135.49110	9.66574	0.1411829	0.25282759	2.4769643	20	—	—
486371 2013 DB_{11}	18.6	X	281.11017	157.99220	348.43357	10.93970	0.1830909	0.24134495	2.5549196	20	—	—
486372 2013 DQ_{15}	17.4	X	293.75732	126.45484	310.98532	13.33792	0.0803216	0.22096501	2.7096948	20	10 26.9	21.1
486373 2013 EJ_{4}	17.6	X	313.50218	297.84194	174.09914	11.52601	0.0660233	0.23756527	2.5819476	20	—	—
486374 2013 EL_{7}	17.3	X	0.89382	37.23097	341.58662	5.69090	0.0460797	0.21924539	2.7238451	20	11 22.6	20.9
486375 2013 EE_{9}	17.5	X	314.44021	281.46225	187.90039	4.43071	0.1026947	0.23825160	2.5769866	20	—	—
486376 2013 EZ_{10}	16.7	X	145.34608	103.03564	206.84976	8.71395	0.1714392	0.24536527	2.5269345	20	—	—
486377 2013 EH_{11}	16.4	X	314.65812	302.75767	158.36476	31.19389	0.2696337	0.23449680	2.6044225	20	—	—
486378 2013 EZ_{15}	18.1	X	279.96320	106.49558	76.66973	2.79175	0.1207266	0.24686237	2.5167078	20	—	—
486379 2013 ED_{16}	17.7	X	276.36600	122.18917	18.67214	4.72605	0.1592751	0.23363719	2.6108068	20	12 25.2	20.6
486380 2013 EF_{18}	16.7	X	239.71289	350.01492	160.91898	10.01881	0.1458188	0.21836583	2.7311544	20	11 15.0	20.6
486381 2013 EA_{20}	17.0	X	203.38171	218.67289	6.82099	7.75864	0.1566072	0.22733266	2.6588561	20	—	—
486382 2013 EH_{21}	17.1	X	144.61673	294.96323	318.62928	5.60094	0.0586403	0.22794597	2.6540846	20	12 13.7	21.0
486383 2013 EY_{21}	17.5	X	256.70757	164.11079	344.79506	11.87746	0.0774355	0.22672877	2.6635752	20	12 13.4	21.2
486384 2013 EP_{22}	17.9	X	337.58244	240.60730	194.69797	2.99696	0.2538388	0.23979042	2.5659499	20	—	—
486385 2013 EA_{27}	16.7	X	238.00392	5.87879	86.43886	3.22846	0.0596331	0.19664448	2.9287449	20	9 6.9	20.9
486386 2013 EN_{29}	17.8	X	217.82915	200.59302	25.25470	3.02732	0.1831980	0.23382618	2.6093998	20	—	—
486387 2013 ES_{29}	16.4	X	193.82138	240.90208	13.59453	11.82407	0.1532819	0.23972071	2.5664472	20	—	—
486388 2013 EK_{31}	17.8	X	261.04755	55.73328	137.41569	5.80367	0.1734624	0.23873440	2.5735111	20	—	—
486389 2013 EA_{32}	15.8	X	57.62660	82.58186	171.25290	26.86414	0.1413597	0.18120551	3.0928234	20	9 7.7	20.2
486390 2013 EL_{32}	17.1	X	194.82385	92.79954	169.30321	12.96873	0.2553617	0.23162132	2.6259334	20	—	—
486391 2013 EL_{34}	17.6	X	295.65254	35.47656	82.28934	3.47267	0.1610600	0.23289949	2.6163170	20	12 28.3	19.9
486392 2013 EP_{35}	16.8	X	216.86855	15.47234	121.28138	14.20689	0.1733141	0.21076030	2.7964701	20	10 1.5	21.3
486393 2013 EC_{36}	17.7	X	292.77944	317.02405	156.74304	6.53069	0.2541364	0.23222208	2.6214025	20	12 7.8	19.9
486394 2013 EO_{39}	17.8	X	299.23539	116.27985	30.17527	7.49079	0.0799960	0.24094287	2.5577612	20	—	—
486395 2013 EV_{41}	18.0	X	289.80294	307.81656	192.68007	4.65946	0.0399599	0.23583468	2.5945633	20	—	—
486396 2013 EO_{42}	18.0	X	299.61085	314.04021	178.99348	9.01505	0.1073368	0.23867556	2.5739341	20	—	—
486397 2013 EH_{46}	17.6	X	323.06549	262.34493	181.37496	2.57117	0.1122458	0.23069575	2.6329523	20	12 30.6	20.4
486398 2013 EC_{49}	17.6	X	333.29315	114.67483	323.17427	2.07091	0.1553270	0.23366766	2.6105798	20	—	—
486399 2013 EW_{56}	17.3	X	322.29809	259.23807	163.83812	4.86401	0.1036984	0.22189000	2.7021590	20	11 29.3	20.3
486400 2013 EP_{67}	17.6	X	306.52307	6.48589	115.77171	4.88914	0.0848434	0.23184235	2.6242641	20	—	—

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Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
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486401 2013 EX_{70}	17.6	X	316.28475	266.33847	162.91506	6.92754	0.1516995	0.22671683	2.6636687	20	11 29.1	20.4
486402 2013 ED_{71}	17.2	X	218.67093	136.20888	163.55873	11.98045	0.2663879	0.26117823	2.4238816	20	1 22.4	21.6
486403 2013 EN_{74}	17.6	X	326.51716	287.84586	129.02169	3.48097	0.0904272	0.22181355	2.7027798	20	11 27.4	20.6
486404 2013 EU_{80}	17.0	X	36.62677	230.73129	144.71270	10.88176	0.0232045	0.22794875	2.6540630	20	—	—
486405 2013 EY_{83}	16.9	X	127.36555	138.98060	139.31043	9.21346	0.1803764	0.21403245	2.7678951	20	12 24.3	21.6
486406 2013 EZ_{83}	17.1	X	162.96628	180.54673	121.19193	6.06285	0.1247137	0.23927260	2.5696506	20	—	—
486407 2013 EU_{89}	16.1	X	290.32394	35.33017	142.85968	27.86072	0.2608133	0.23812661	2.5778883	20	—	—
486408 2013 ES_{91}	16.4	X	219.04767	257.47332	324.53673	8.97889	0.0859661	0.23490086	2.6014350	20	—	—
486409 2013 EP_{92}	16.9	X	258.02335	280.38888	218.87154	12.55820	0.2619002	0.22605827	2.6688395	20	11 5.4	20.3
486410 2013 EY_{94}	17.2	X	329.13423	56.87531	355.88127	13.36519	0.0381345	0.21619070	2.7494429	20	11 17.9	21.0
486411 2013 EQ_{103}	17.5	X	240.03694	102.07638	134.06287	12.15755	0.2679127	0.24186366	2.5512654	20	—	—
486412 2013 EE_{105}	17.8	X	48.14002	264.83534	155.61673	7.65948	0.0949695	0.26113126	2.4241722	20	—	—
486413 2013 ES_{106}	17.0	X	225.94951	199.71399	27.16384	12.91215	0.2019132	0.23249776	2.6193299	20	—	—
486414 2013 EL_{108}	17.5	X	158.62355	328.73633	311.19699	2.19410	0.2053347	0.23269448	2.6178534	20	—	—
486415 2013 EW_{110}	16.9	X	303.54957	24.57411	67.87467	8.12426	0.1179560	0.22495831	2.6775321	20	12 6.7	19.9
486416 2013 EZ_{110}	17.0	X	147.27007	232.87023	56.33328	9.43737	0.0611699	0.23119225	2.6291813	20	—	—
486417 2013 ER_{111}	16.8	X	265.97981	73.02318	35.17619	11.52212	0.1221905	0.21252708	2.7809502	20	10 25.9	20.4
486418 2013 EG_{113}	16.4	X	173.50507	142.72365	93.48835	13.66931	0.0453449	0.22000891	2.7175395	20	12 23.8	20.3
486419 2013 EK_{114}	18.0	X	185.51586	153.18060	97.08949	5.27511	0.1330478	0.23022394	2.6365483	20	—	—
486420 2013 EY_{114}	17.6	X	219.97447	141.85738	127.65598	5.71263	0.1920970	0.24309266	2.5426592	20	—	—
486421 2013 EV_{116}	17.3	X	1.26364	27.58286	17.10624	12.87220	0.1379752	0.22822595	2.6519136	20	—	—
486422 2013 EX_{117}	17.4	X	263.18541	19.77353	121.85399	3.22178	0.0247065	0.22668624	2.6639083	20	12 20.5	20.8
486423 2013 EM_{120}	16.4	X	194.85764	241.57309	3.38693	14.42767	0.2173592	0.22561721	2.6723165	20	—	—
486424 2013 EG_{127}	17.8	X	239.72876	20.59511	180.79241	4.91288	0.2200708	0.23738129	2.5832814	20	—	—
486425 2013 FU	17.7	X	231.87212	255.12155	328.78536	4.68223	0.2635542	0.23689926	2.5867845	20	—	—
486426 2013 FJ_{1}	16.9	X	148.93030	265.28474	7.58456	8.93749	0.2447419	0.21277551	2.7787851	20	—	—
486427 2013 FY_{1}	16.9	X	135.31946	164.37544	135.64673	10.89581	0.0914369	0.23397109	2.6083223	20	—	—
486428 2013 FU_{4}	17.1	X	171.49928	223.94300	11.65519	13.18385	0.0880416	0.21784280	2.7355243	20	12 15.9	21.5
486429 2013 FR_{6}	17.8	X	302.01900	84.07950	76.10926	8.14457	0.1348128	0.24625924	2.5208153	20	—	—
486430 2013 FX_{6}	17.2	X	299.68193	319.87800	132.54964	12.89040	0.0658396	0.22084507	2.7106758	20	12 5.1	20.8
486431 2013 FN_{7}	16.4	X	132.56978	128.66093	144.41721	25.45449	0.0823103	0.21649194	2.7468918	20	12 24.9	21.0
486432 2013 FO_{8}	17.8	X	226.59141	69.83817	129.14087	13.33453	0.1992272	0.22860012	2.6490190	20	12 22.4	21.7
486433 2013 FO_{9}	17.3	X	157.71085	279.27959	7.96438	12.78915	0.2174462	0.22626830	2.6671876	20	—	—
486434 2013 FT_{10}	16.3	X	176.02000	66.53879	98.20583	11.52222	0.0835148	0.20029213	2.8930779	20	9 30.0	20.9
486435 2013 FS_{16}	17.6	X	235.11421	57.32748	168.18202	13.21767	0.2252470	0.23337383	2.6127706	20	—	—
486436 2013 FB_{17}	17.3	X	146.64699	212.50379	58.56665	4.23432	0.1577415	0.21729728	2.7401007	20	—	—
486437 2013 FW_{18}	17.0	X	257.57821	150.28383	47.57547	14.50058	0.1060093	0.23555169	2.5966409	20	—	—
486438 2013 FC_{19}	17.2	X	251.44808	172.51049	19.99831	4.35733	0.1718872	0.23425292	2.6062298	20	—	—
486439 2013 FC_{20}	17.4	X	188.10569	76.51225	181.63650	16.91102	0.2182499	0.22709388	2.6607195	20	—	—
486440 2013 FL_{21}	16.8	X	117.78234	106.80017	185.34436	11.49085	0.1842483	0.21167357	2.7884207	20	12 31.0	21.6
486441 2013 FY_{22}	17.9	X	251.18966	110.89338	52.64156	1.67638	0.1226346	0.22610880	2.6684418	20	12 18.7	21.1
486442 2013 FX_{23}	16.9	X	165.79172	267.18841	7.12288	16.51218	0.2242502	0.22404966	2.6847665	20	—	—
486443 2013 FA_{24}	17.3	X	348.56022	83.78908	7.18038	5.89599	0.0629965	0.23603117	2.5931232	20	—	—
486444 2013 FC_{24}	17.5	X	252.63744	168.45506	358.14873	1.90261	0.1357376	0.22766654	2.6562559	20	12 23.3	20.8
486445 2013 FJ_{24}	17.8	X	295.08660	309.68481	198.73585	9.21595	0.1438691	0.23842109	2.5757652	20	—	—
486446 2013 FO_{24}	17.4	X	252.13438	330.87369	191.36697	12.41024	0.1271511	0.22491493	2.6778764	20	12 17.4	21.0
486447 2013 GF_{2}	16.9	X	200.75698	181.49977	20.06169	8.04235	0.1522921	0.21471596	2.7620180	20	11 28.4	21.2
486448 2013 GN_{6}	16.6	X	269.84543	179.22513	9.87456	14.29407	0.1195704	0.23805341	2.5784168	20	—	—
486449 2013 GL_{7}	17.1	X	196.09450	151.89746	90.91159	14.91666	0.2214634	0.22598605	2.6694080	20	—	—
486450 2013 GR_{9}	17.4	X	247.87005	121.04979	24.02468	12.72624	0.1434932	0.21961162	2.7208160	20	11 12.9	21.1
486451 2013 GA_{10}	16.2	X	154.43612	74.08678	50.39119	7.03957	0.0837648	0.17448571	3.1717295	20	7 11.8	21.1
486452 2013 GP_{10}	17.1	X	204.41261	285.85498	11.13471	14.21974	0.1314665	0.25210862	2.4816712	20	1 12.1	21.2
486453 2013 GY_{14}	16.7	X	289.79642	63.87477	357.57330	6.03474	0.0449309	0.20211599	2.8756472	20	10 5.6	20.6
486454 2013 GX_{16}	17.6	X	204.04489	69.80798	147.42246	2.68531	0.1413881	0.22462145	2.6802084	20	12 25.4	21.6
486455 2013 GW_{17}	17.2	X	202.02877	259.69261	13.82422	15.45518	0.2222039	0.23582408	2.5946411	20	—	—
486456 2013 GO_{20}	17.0	X	236.01675	151.99940	47.14551	7.21716	0.1225980	0.22888587	2.6468138	20	—	—
486457 2013 GN_{26}	17.0	X	198.26809	149.32024	74.12266	7.57517	0.0889979	0.22202034	2.7011013	20	—	—
486458 2013 GY_{26}	16.5	X	99.32018	159.94810	105.75231	7.13023	0.0155373	0.20412959	2.8567050	20	11 2.7	20.5
486459 2013 GD_{28}	17.2	X	205.60509	164.57426	64.46757	13.75915	0.1514068	0.22847924	2.6499533	20	—	—
486460 2013 GQ_{31}	17.5	X	194.14157	271.92451	331.05504	1.12198	0.2253147	0.22315020	2.6919761	20	—	—
486461 2013 GX_{35}	17.1	X	320.09478	76.15317	19.67053	12.65501	0.1480626	0.22730462	2.6590747	20	—	—
486462 2013 GE_{36}	17.1	X	251.63296	206.94306	13.78272	7.31071	0.1700797	0.23993442	2.5649231	20	—	—
486463 2013 GL_{36}	17.5	X	225.67196	260.06283	326.62554	1.21852	0.0712202	0.23347083	2.6120469	20	—	—
486464 2013 GF_{38}	17.1	X	329.30429	298.77678	162.52864	3.94403	0.1176156	0.23234469	2.6204802	20	—	—
486465 2013 GH_{43}	17.5	X	211.69809	200.06864	42.87374	4.70504	0.1454301	0.23092063	2.6312426	20	—	—
486466 2013 GR_{43}	17.1	X	283.73340	116.69068	30.92201	14.65401	0.0983729	0.22845416	2.6501472	20	—	—
486467 2013 GB_{46}	16.4	X	52.31798	336.25689	67.02802	16.22559	0.0560305	0.23897416	2.5717895	20	—	—
486468 2013 GH_{49}	17.3	X	206.85699	226.61709	22.81252	13.05059	0.1458668	0.23168350	2.6254635	20	—	—
486469 2013 GR_{51}	17.8	X	198.71448	112.81185	143.64385	5.74031	0.2036497	0.22920084	2.6443884	20	—	—
486470 2013 GE_{52}	17.0	X	211.41017	43.63372	175.31848	14.40271	0.1276915	0.21983989	2.7189322	20	—	—
486471 2013 GK_{56}	17.4	X	306.62913	323.48019	154.50880	5.80128	0.1219993	0.23030439	2.6359342	20	—	—
486472 2013 GG_{59}	17.1	X	108.52347	293.71767	16.63056	14.29516	0.0543968	0.22129127	2.7070308	20	—	—
486473 2013 GB_{61}	17.9	X	236.49212	70.26961	154.02013	2.96167	0.1389089	0.23575610	2.5951398	20	—	—
486474 2013 GV_{61}	18.0	X	289.95601	350.13926	176.37184	3.60048	0.1573095	0.24016810	2.5632591	20	—	—
486475 2013 GV_{66}	16.7	X	294.08391	34.87246	71.04016	13.88448	0.1245461	0.22251902	2.6970642	20	12 7.4	19.5
486476 2013 GJ_{70}	16.9	X	206.31799	178.58942	35.47025	14.65951	0.1918335	0.22323573	2.6912884	20	12 16.4	21.3
486477 2013 GC_{71}	17.2	X	247.06190	355.66193	201.21387	11.63460	0.1095817	0.23079035	2.6322328	20	—	—
486478 2013 GE_{72}	17.5	X	170.57513	76.73000	196.78745	6.90359	0.3143040	0.21783869	2.7355587	20	—	—
486479 2013 GT_{72}	16.9	X	291.58213	147.21554	31.50185	5.80414	0.1019979	0.23983098	2.5656605	20	—	—
486480 2013 GK_{74}	17.9	X	261.36470	63.31846	122.63523	6.03690	0.1786272	0.23562366	2.5961122	20	—	—

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Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
486481 2013 GS_{74}	16.7	X	216.28263	23.06913	202.39015	13.56341	0.1989951	0.22382525	2.6865607	20	—	—
486482 2013 GF_{77}	17.0	X	256.71982	1.62431	186.42236	13.52815	0.1767467	0.22931460	2.6435138	20	—	—
486483 2013 GE_{81}	17.1	X	167.41478	210.36623	30.16782	4.51358	0.1531796	0.21183082	2.7870405	20	12 13.9	21.6
486484 2013 GU_{81}	16.6	X	236.28773	168.00467	61.30272	14.81015	0.1955404	0.23039014	2.6352801	20	—	—
486485 2013 GD_{82}	16.9	X	203.77916	299.60675	258.02270	7.11766	0.1989962	0.21323814	2.7747645	20	11 23.2	21.3
486486 2013 GU_{82}	16.1	X	78.53392	190.70549	91.62783	7.75074	0.1336730	0.18392476	3.0622637	20	11 8.5	20.7
486487 2013 GP_{83}	17.0	X	195.17737	173.75262	59.41585	10.83850	0.1783211	0.21670930	2.7450548	20	12 29.9	21.3
486488 2013 GF_{85}	16.6	X	220.74787	133.09967	81.43991	13.53759	0.1198142	0.22574434	2.6713131	20	—	—
486489 2013 GC_{92}	16.0	X	263.73398	302.58151	270.40886	11.79132	0.1267595	0.24131802	2.5551097	20	—	—
486490 2013 GH_{93}	17.2	X	184.92814	31.50065	198.70232	0.99055	0.1502314	0.22053733	2.7131968	20	12 20.0	21.3
486491 2013 GU_{93}	17.4	X	261.03342	153.64677	26.27205	5.60338	0.0932941	0.23191241	2.6237355	20	—	—
486492 2013 GY_{93}	16.9	X	283.51788	108.22666	20.24498	13.09742	0.1298126	0.22446096	2.6814858	20	12 19.6	20.2
486493 2013 GN_{95}	16.7	X	279.11188	113.81621	43.93958	13.22617	0.1095333	0.22926509	2.6438943	20	—	—
486494 2013 GS_{96}	17.4	X	271.26575	66.21262	158.75848	5.25987	0.1882322	0.24265286	2.5457306	20	—	—
486495 2013 GW_{96}	16.5	X	224.65920	9.35502	179.60233	25.74962	0.0894107	0.21796978	2.7344618	20	12 19.6	20.9
486496 2013 GA_{97}	17.3	X	243.52423	187.11941	29.61599	13.56896	0.1182327	0.23563673	2.5960161	20	—	—
486497 2013 GH_{98}	16.8	X	334.16947	66.68711	26.28111	22.46122	0.0634438	0.22704131	2.6611302	20	—	—
486498 2013 GX_{98}	17.1	X	217.12827	174.13892	32.66127	12.74776	0.1460506	0.22208847	2.7005489	20	12 25.5	21.2
486499 2013 GB_{99}	16.5	X	166.15833	161.76997	102.76980	16.00039	0.2088004	0.21407775	2.7675047	20	—	—
486500 2013 GH_{100}	15.9	X	353.20950	84.39036	32.92476	22.24367	0.0933229	0.24152944	2.5536184	20	—	—
486501 2013 GZ_{100}	17.4	X	237.34271	141.81972	77.73103	3.40897	0.1429087	0.23135973	2.6279123	20	—	—
486502 2013 GC_{101}	16.5	X	161.39083	214.82113	53.05200	15.76006	0.1325770	0.21743026	2.7389833	20	—	—
486503 2013 GP_{103}	17.4	X	232.23719	347.93475	252.96029	3.20379	0.1261371	0.24093609	2.5578092	20	—	—
486504 2013 GN_{104}	17.6	X	252.43062	267.63000	290.72907	3.89131	0.1616453	0.23564205	2.5959771	20	—	—
486505 2013 GL_{106}	16.9	X	19.84937	252.42493	181.99248	28.07337	0.0817719	0.24133951	2.5549580	20	—	—
486506 2013 GB_{109}	17.2	X	243.67949	222.67642	9.12211	13.26312	0.2236576	0.23735532	2.5834699	20	—	—
486507 2013 GW_{110}	16.8	X	156.67115	188.60767	78.82593	9.33414	0.1841266	0.21258685	2.7804289	20	—	—
486508 2013 GA_{111}	16.6	X	259.12274	139.72288	51.99050	15.60561	0.0675424	0.23107623	2.6300612	20	—	—
486509 2013 GW_{113}	16.8	X	193.17720	325.47129	253.47256	6.86094	0.1612220	0.21535621	2.7565410	20	12 12.6	21.1
486510 2013 GO_{114}	16.5	X	130.57579	145.81456	85.65923	13.36447	0.0561249	0.20175475	2.8790787	20	11 1.7	20.9
486511 2013 GW_{114}	17.1	X	236.48708	171.64069	64.60033	8.75769	0.1446821	0.24123554	2.5556921	20	—	—
486512 2013 GX_{115}	17.3	X	197.79194	126.27747	54.24598	1.13030	0.0114519	0.21061606	2.7977467	20	11 14.8	21.2
486513 2013 GW_{118}	17.6	X	191.03559	211.32761	3.75445	3.97543	0.0221441	0.21658794	2.7460801	20	12 19.6	21.4
486514 2013 GD_{122}	18.0	X	284.08251	282.62337	208.74600	11.24510	0.2363932	0.22863805	2.6487261	20	12 14.2	20.7
486515 2013 GZ_{122}	16.0	X	20.17162	297.26583	29.80463	10.66122	0.1153756	0.18661142	3.0328009	20	10 17.6	19.9
486516 2013 GW_{123}	16.4	X	114.19505	207.32001	74.54884	11.54450	0.1467600	0.21083293	2.7958278	20	12 15.3	20.9
486517 2013 GT_{124}	17.8	X	250.41081	352.10349	196.46463	3.89074	0.1221603	0.22882378	2.6472926	20	—	—
486518 2013 GN_{126}	17.4	X	187.06937	26.69109	218.53809	8.46855	0.1013655	0.22108067	2.7087497	20	—	—
486519 2013 GA_{127}	16.3	X	294.83979	4.92039	63.51144	12.89800	0.0265889	0.19707212	2.9245065	20	10 27.3	20.4
486520 2013 GH_{130}	17.0	X	280.12298	90.06898	80.17796	6.39661	0.1320380	0.23404296	2.6077882	20	—	—
486521 2013 GN_{130}	16.7	X	227.67212	13.65457	228.58023	13.59695	0.1894768	0.23310055	2.6148123	20	—	—
486522 2013 HN_{2}	16.2	X	55.82721	195.40698	100.19800	10.71064	0.0840949	0.19009946	2.9955883	20	10 26.6	20.5
486523 2013 HE_{4}	17.5	X	283.80777	48.99243	89.68570	6.62623	0.1825209	0.22896168	2.6462296	20	12 31.2	20.0
486524 2013 HX_{4}	17.3	X	249.84140	84.18339	139.96617	13.67611	0.1067430	0.24162902	2.5529168	20	—	—
486525 2013 HU_{5}	17.2	X	205.61394	165.40347	73.78362	13.66741	0.1231085	0.22191513	2.7019550	20	—	—
486526 2013 HK_{6}	16.6	X	184.90715	89.74712	138.01500	13.65667	0.1631606	0.21192225	2.7862389	20	12 15.9	21.3
486527 2013 HO_{7}	16.3	X	226.69685	258.24508	2.79204	28.24278	0.3561280	0.23735550	2.5834685	20	—	—
486528 2013 HC_{8}	16.8	X	221.56944	10.29795	230.48712	12.94687	0.1134731	0.22899501	2.6459728	20	—	—
486529 2013 HU_{8}	17.3	X	201.13900	54.91659	138.50641	9.98585	0.1503878	0.21243417	2.7817609	20	11 23.1	21.7
486530 2013 HB_{10}	16.4	X	173.56286	233.92174	65.77064	25.41565	0.1310646	0.24242276	2.5473412	20	—	—
486531 2013 HT_{11}	16.7	X	226.37691	146.85430	118.89107	16.44357	0.1635954	0.24415971	2.5352457	20	—	—
486532 2013 HH_{13}	17.5	X	221.78150	105.07502	121.58881	5.40673	0.2208754	0.22746493	2.6578252	20	—	—
486533 2013 HO_{13}	16.8	X	352.88928	314.90672	170.49327	15.17628	0.0512552	0.24496407	2.5296928	20	—	—
486534 2013 HG_{14}	16.6	X	266.05922	142.18301	33.32451	13.10433	0.1080775	0.23077043	2.6323842	20	—	—
486535 2013 HM_{16}	17.0	X	282.00089	142.88609	41.50323	4.62786	0.0900436	0.23804509	2.5784768	20	—	—
486536 2013 HZ_{17}	17.7	X	272.06898	14.83236	137.94142	5.81522	0.2473771	0.23003741	2.6379733	20	12 19.9	20.3
486537 2013 HA_{19}	16.9	X	221.67728	193.61219	33.03578	15.64778	0.1726329	0.22755660	2.6571114	20	—	—
486538 2013 HB_{20}	16.3	X	328.10502	292.92212	149.30166	25.39968	0.1380681	0.21312572	2.7757402	20	—	—
486539 2013 HW_{21}	16.8	X	152.09093	200.90505	47.91318	14.83321	0.0337303	0.21194995	2.7859961	20	12 11.7	20.9
486540 2013 HX_{21}	16.4	X	228.84027	34.64126	95.12972	10.30619	0.0818267	0.20494699	2.8491043	20	10 15.3	20.6
486541 2013 HS_{24}	16.9	X	183.50610	11.18568	222.88366	13.88559	0.1698628	0.21475856	2.7616527	20	12 19.8	21.4
486542 2013 HT_{24}	17.2	X	292.12003	298.67095	224.53065	10.53039	0.1299514	0.23478583	2.6022846	20	—	—
486543 2013 HY_{29}	17.4	X	285.10572	153.37023	356.53371	10.72459	0.0998038	0.23049361	2.6344914	20	—	—
486544 2013 HB_{30}	17.0	X	347.08518	82.10979	349.83257	9.16890	0.0604372	0.22306559	2.6926568	20	—	—
486545 2013 HT_{32}	17.6	X	287.53300	213.50889	340.48159	5.75045	0.1211079	0.24558535	2.5254246	20	—	—
486546 2013 HK_{35}	17.4	X	327.88221	221.72327	224.28159	13.05741	0.1549613	0.22475147	2.6791747	20	—	—
486547 2013 HS_{38}	17.3	X	139.38870	320.17005	355.83365	10.08295	0.1551218	0.22683478	2.6627452	20	—	—
486548 2013 HH_{41}	17.1	X	168.85408	359.52862	231.99375	7.10428	0.0642242	0.21141007	2.7907372	20	12 9.7	21.1
486549 2013 HK_{45}	16.9	X	319.08656	159.58210	268.56658	4.98547	0.0555229	0.20837260	2.8177923	20	11 25.9	20.6
486550 2013 HA_{46}	16.4	X	145.92917	272.91399	241.53098	7.62145	0.0302936	0.17453935	3.1710796	20	8 2.7	21.1
486551 2013 HO_{48}	17.3	X	241.17024	275.17465	231.35394	7.02568	0.1369645	0.21212115	2.7844969	20	11 8.3	21.0
486552 2013 HR_{48}	17.3	X	272.98305	274.38169	224.26150	10.77237	0.1344102	0.22152514	2.7051252	20	12 15.3	20.6
486553 2013 HW_{52}	16.5	X	28.31636	306.58014	3.22225	12.30106	0.1214595	0.18497520	3.0506593	20	10 5.6	20.5
486554 2013 HV_{58}	17.8	X	340.84072	82.97707	348.89452	6.88942	0.1188225	0.22249289	2.6972754	20	—	—
486555 2013 HJ_{59}	17.2	X	270.45380	287.06669	220.99718	11.98553	0.2003659	0.22740365	2.6583027	20	12 16.2	20.3
486556 2013 HP_{60}	17.7	X	331.24349	64.03538	6.26621	10.40344	0.2515028	0.22344996	2.6895680	20	—	—
486557 2013 HP_{67}	16.2	X	12.83922	314.69468	5.41562	8.21754	0.1506581	0.18049302	3.1009572	20	9 29.3	19.7
486558 2013 HU_{72}	17.2	X	155.36965	48.05814	217.12879	11.83737	0.1441531	0.21530847	2.7569484	20	12 31.8	21.8
486559 2013 HE_{73}	17.5	X	62.41300	9.15726	341.38534	3.77159	0.0844443	0.21490669	2.7603835	20	—	—
486560 2013 HO_{74}	17.6	X	66.86305	87.38390	250.76278	3.48257	0.0762188	0.21195460	2.7859554	20	12 29.2	21.5

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
486561 2013 HR_{78}	17.0	X	302.34604	177.86391	217.73586	9.20761	0.0987762	0.18868758	3.0105130	20	9 9.2	20.9
486562 2013 HT_{80}	17.7	X	244.35347	110.68014	15.07689	1.68253	0.0281369	0.20156733	2.8808631	20	10 30.7	21.6
486563 2013 HW_{103}	17.3	X	337.55336	166.77840	262.29296	0.85687	0.0119448	0.21571965	2.7534440	20	12 23.3	21.0
486564 2013 HY_{115}	17.1	X	116.57213	251.28781	29.32798	11.22318	0.1171387	0.20655353	2.8343118	20	12 12.9	21.7
486565 2013 HE_{121}	17.2	X	306.33699	19.55743	33.30787	11.29668	0.1376590	0.19917856	2.9038510	20	10 12.2	20.5
486566 2013 HT_{124}	17.7	X	310.93530	221.38466	241.70199	10.28860	0.1769747	0.22688205	2.6623754	20	—	—
486567 2013 HP_{129}	16.6	X	296.86910	50.59443	19.62238	17.36789	0.1260398	0.20206299	2.8761501	20	10 18.2	19.9
486568 2013 HA_{130}	17.6	X	27.04683	14.66268	346.16446	4.76385	0.0324773	0.20875916	2.8143127	20	12 1.0	21.4
486569 2013 HZ_{130}	17.5	X	336.21877	83.00994	355.22586	6.07333	0.0457589	0.22087002	2.7104716	20	—	—
486570 2013 HN_{131}	17.6	X	297.64097	215.56789	240.12439	4.16992	0.1335801	0.21658661	2.7460913	20	11 27.4	20.4
486571 2013 HM_{135}	17.6	X	220.03430	216.48381	29.70713	12.12685	0.1535745	0.23338921	2.6126558	20	—	—
486572 2013 HY_{135}	17.5	X	251.79471	129.87076	22.43960	7.54917	0.0640498	0.21551216	2.7552110	20	12 9.8	21.2
486573 2013 HX_{136}	16.9	X	346.31255	4.07605	347.29646	1.56308	0.2264812	0.18488201	3.0516843	20	9 27.8	19.9
486574 2013 HG_{141}	17.8	X	350.80414	44.19601	22.39331	5.70958	0.1107236	0.22227292	2.6990547	20	—	—
486575 2013 HW_{145}	17.3	X	149.48692	15.65655	239.48297	1.14042	0.0467239	0.21446605	2.7641632	20	12 18.5	21.1
486576 2013 JJ	15.8	X	25.50509	132.07817	147.17735	16.42660	0.0936543	0.17382439	3.1797690	20	8 18.8	20.0
486577 2013 JR	16.1	X	281.53346	10.67065	32.20323	16.17556	0.0355697	0.17835375	3.1257043	20	9 7.7	20.6
486578 2013 JW_{1}	17.4	X	217.32026	161.32424	88.11334	8.90594	0.2055903	0.23675172	2.5878590	20	—	—
486579 2013 JN_{2}	17.3	X	226.95100	322.47554	216.18551	7.25369	0.1538703	0.21344541	2.7729679	20	11 30.0	21.2
486580 2013 JU_{5}	16.0	X	36.15359	285.33985	67.19314	12.85874	0.0756797	0.19454322	2.9497960	20	12 5.5	20.1
486581 2013 JV_{6}	17.0	X	236.38923	110.80923	82.99478	30.48081	0.2870569	0.22651007	2.6652894	20	12 14.1	20.8
486582 2013 JO_{8}	16.9	X	142.86628	64.39564	258.21909	4.90144	0.0520450	0.22470896	2.6795125	20	—	—
486583 2013 JG_{16}	16.9	X	200.97878	185.90062	84.65906	15.21100	0.2254531	0.22965415	2.6409075	20	—	—
486584 2013 JA_{23}	15.9	X	70.92829	248.23937	55.79350	10.79776	0.0870793	0.19222326	2.9734828	20	11 19.6	20.1
486585 2013 JW_{25}	17.4	X	295.01229	323.38319	185.62091	12.81539	0.1223897	0.22662855	2.6643604	20	—	—
486586 2013 JE_{28}	17.3	X	263.04618	35.30118	125.04993	8.50931	0.1395539	0.21771231	2.7366173	20	12 26.9	20.8
486587 2013 JK_{28}	15.4	X	51.58623	167.63596	140.27777	29.07656	0.1826769	0.17547086	3.1598470	20	11 20.4	20.5
486588 2013 JB_{32}	16.7	X	178.34574	143.55807	106.02915	13.45294	0.0799056	0.21075722	2.7964974	20	—	—
486589 2013 JC_{35}	17.1	X	262.35266	308.33323	235.69911	10.22681	0.0842130	0.22632473	2.6667443	20	—	—
486590 2013 JD_{35}	16.3	X	250.64079	186.84324	31.43681	28.41813	0.0558464	0.23914698	2.5705503	20	—	—
486591 2013 JG_{35}	16.9	X	223.93867	141.92905	95.95397	15.31990	0.2252715	0.22863772	2.6487286	20	—	—
486592 2013 JX_{39}	15.8	X	5.98511	232.52388	108.35535	12.35114	0.0262746	0.17849543	3.1240500	20	10 10.1	20.3
486593 2013 JB_{40}	17.4	X	214.16554	73.85688	142.04822	8.45272	0.1639754	0.21447031	2.7641266	20	12 29.6	21.5
486594 2013 JB_{44}	16.5	X	305.82381	148.31977	25.07901	8.82839	0.1118090	0.24131145	2.5551560	20	—	—
486595 2013 JY_{46}	16.9	X	226.31639	98.65948	116.85862	9.89425	0.0782785	0.21779670	2.7359103	20	—	—
486596 2013 JR_{47}	16.1	X	76.24508	188.03478	102.32937	12.50463	0.1585259	0.18520236	3.0481643	20	11 19.6	20.8
486597 2013 JZ_{47}	15.6	X	279.34332	311.43908	97.91354	15.90926	0.0488596	0.17463581	3.1699119	20	9 8.9	20.2
486598 2013 JT_{50}	17.5	X	217.36301	60.78536	143.16466	10.18411	0.1548484	0.21874962	2.7279590	20	12 21.3	21.6
486599 2013 JZ_{52}	16.1	X	25.36812	290.29383	35.64769	11.75755	0.1547019	0.18432729	3.0578038	20	10 28.1	19.7
486600 2013 JC_{54}	16.9	X	224.17773	63.29447	111.98945	11.14665	0.0596476	0.20888672	2.8131669	20	12 5.5	21.0
486601 2013 JD_{55}	16.1	X	27.68553	270.73224	63.54319	10.53684	0.0866194	0.18551927	3.0446919	20	11 3.8	20.2
486602 2013 JS_{57}	16.8	X	200.46657	141.44654	77.90567	10.67213	0.0585290	0.21315485	2.7754873	20	12 30.9	20.7
486603 2013 JC_{62}	16.0	X	86.91266	43.36137	223.87941	12.39058	0.1061206	0.18261281	3.0769131	20	10 23.8	20.6
486604 2013 JR_{62}	16.2	X	31.37874	121.37823	207.02534	9.27360	0.1129441	0.18998016	2.9968422	20	11 4.6	20.1
486605 2013 KD	17.2	X	268.94713	106.08118	54.09319	6.98572	0.0948959	0.22424634	2.6831965	20	—	—
486606 2013 KF	17.2	X	249.58889	30.45198	218.17285	8.02855	0.1207886	0.23956499	2.5675593	20	—	—
486607 2013 KY_{1}	17.8	X	242.10045	136.29016	122.46271	19.01993	0.5272659	0.23177821	2.6247482	20	—	—
486608 2013 KN_{3}	16.7	X	188.13503	211.77673	62.28061	13.91731	0.1217956	0.22510916	2.6763358	20	—	—
486609 2013 KO_{7}	15.7	X	354.30918	293.79857	46.04437	17.15552	0.0981577	0.17685218	3.1433719	20	9 28.7	19.9
486610 2013 KD_{10}	15.3	X	67.34914	186.69824	82.94899	18.34987	0.1011175	0.17534256	3.1613882	20	10 13.6	20.1
486611 2013 KE_{14}	16.0	X	359.68153	244.84132	79.15226	16.66651	0.0728832	0.16924194	3.2369108	20	9 14.2	20.5
486612 2013 KR_{14}	16.0	X	316.35861	153.29469	226.88036	9.19424	0.1008447	0.18053435	3.1004839	20	9 8.6	20.0
486613 2013 KG_{16}	16.2	X	87.11353	227.23324	61.52574	10.50406	0.0705671	0.19298859	2.9656164	20	11 18.1	20.4
486614 2013 KN_{16}	15.7	X	23.93919	223.29651	90.05920	16.79252	0.0799060	0.17408088	3.1766449	20	10 7.6	20.2
486615 2013 KG_{17}	16.9	X	252.65549	189.46088	37.83108	8.68811	0.1724691	0.23727311	2.5840666	20	—	—
486616 2013 KO_{17}	17.0	X	227.06483	82.53893	137.09520	16.42286	0.1220571	0.22013555	2.7164972	20	—	—
486617 2013 LJ_{5}	16.7	X	155.87806	213.39635	74.14242	13.29764	0.1268591	0.21544850	2.7557537	20	—	—
486618 2013 LQ_{5}	15.9	X	93.57054	213.26678	100.98914	18.12549	0.0898865	0.20530472	2.8457938	20	12 29.6	20.1
486619 2013 LZ_{5}	16.1	X	29.33173	245.32508	63.64180	11.92330	0.0207072	0.17799406	3.1299138	20	9 29.9	20.6
486620 2013 LD_{8}	16.5	X	109.74304	161.36331	92.66195	5.46240	0.1298429	0.18605477	3.0388471	20	11 5.6	21.3
486621 2013 LZ_{8}	17.8	X	226.25350	63.46476	152.10767	2.67470	0.2452858	0.22129210	2.7070240	20	—	—
486622 2013 LD_{12}	15.6	X	40.90342	218.75630	97.82002	18.21028	0.2315027	0.17509045	3.1644222	20	11 21.1	20.2
486623 2013 LJ_{18}	16.6	X	152.90562	42.08734	228.30314	12.76026	0.0673462	0.20997483	2.8034398	20	—	—
486624 2013 LY_{19}	16.0	X	97.35158	141.48855	84.64882	8.00330	0.0788095	0.17191735	3.2032408	20	9 15.9	20.8
486625 2013 LX_{20}	15.5	X	90.67790	231.59251	56.13828	10.37692	0.1525541	0.18928447	3.0041808	20	11 26.9	20.3
486626 2013 LU_{21}	17.2	X	241.57394	202.72594	57.56044	5.32668	0.2325631	0.23807216	2.5782813	20	—	—
486627 2013 LU_{23}	16.2	X	45.07919	96.29784	210.95634	7.96292	0.2381685	0.17473848	3.1686700	20	11 11.3	20.5
486628 2013 LE_{24}	17.0	X	190.02727	52.93164	138.73206	8.42323	0.1506289	0.19880397	2.9074975	20	11 8.4	21.7
486629 2013 LM_{24}	16.6	X	158.22717	113.73010	105.90096	11.98632	0.0598757	0.19168826	2.9790128	20	11 14.3	21.2
486630 2013 LC_{33}	17.1	X	189.09127	129.58521	126.58051	11.53788	0.1288988	0.21788396	2.7351798	20	—	—
486631 2013 LD_{34}	17.0	X	227.20318	263.96612	16.21673	4.22177	0.1977360	0.23983405	2.5656386	20	1 11.1	21.4
486632 2013 MH_{2}	16.6	X	131.68519	105.20297	128.36713	12.27767	0.0931236	0.18642317	3.0348422	20	11 3.9	21.5
486633 2013 NN	18.6	X	119.82258	343.37152	118.84383	23.39649	0.1212442	0.39877109	1.8280452	20	5 15.9	21.2
486634 2013 NA_{7}	16.0	X	83.52257	138.41538	136.64072	10.85944	0.0613354	0.16949537	3.2336834	20	10 27.1	20.8
486635 2013 NM_{20}	16.0	X	74.30508	148.47210	161.30781	22.20026	0.1083001	0.17295769	3.1903829	20	12 2.7	21.1
486636 2013 NW_{22}	16.2	X	100.51963	331.04276	316.72109	26.75318	0.1481066	0.17543687	3.1602551	20	12 2.7	21.7
486637 2013 OC_{3}	18.4	X	112.32134	305.99037	155.62035	21.43480	0.1248801	0.39173152	1.8498806	20	4 30.1	20.7
486638 2013 OC_{4}	17.4	X	199.65125	48.85794	337.03683	22.09363	0.1038484	0.39771017	1.8312947	20	4 4.0	20.0
486639 2013 OW_{4}	15.9	X	91.70392	138.92907	155.89189	14.87707	0.2712395	0.17501225	3.1653647	20	12 14.7	21.5
486640 2013 PA	16.1	X	79.76908	143.84478	166.33878	14.69910	0.2717969	0.17340663	3.1848740	20	12 21.5	21.6

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	m		°	°	°	°		°				
486641 2013 PS	16.6	X	142.81947	327.43115	282.72499	8.91468	0.2490428	0.18118014	3.0931121	20	11 29.1	22.1
486642 2013 PK_{1}	16.3	X	120.86089	338.50035	289.70126	11.89786	0.0650253	0.17106331	3.2138935	20	11 23.6	21.3
486643 2013 PO_{1}	17.0	X	231.94086	45.97415	188.62973	8.92320	0.2194811	0.21036409	2.7999803	20	—	—
486644 2013 PZ_{1}	15.9	X	167.81202	271.02463	336.04373	20.68391	0.2386312	0.18544297	3.0455271	20	12 14.4	21.6
486645 2013 PK_{16}	17.7	X	175.10588	198.25376	156.86867	23.10776	0.0894977	0.37051776	1.9198326	20	2 2.1	20.0
486646 2013 PG_{20}	16.1	X	130.24483	152.96123	158.13674	14.75155	0.1161384	0.18672566	3.0315638	20	—	—
486647 2013 PF_{25}	16.1	X	102.52121	326.71356	323.29255	14.64677	0.2212899	0.17218419	3.1999305	20	12 12.3	21.6
486648 2013 PL_{53}	16.7	X	181.44382	300.51121	269.32822	8.42900	0.0647700	0.17133666	3.2104742	20	11 18.5	21.5
486649 2013 PN_{63}	17.0	X	120.34192	54.67321	209.35854	4.77008	0.1240999	0.17497716	3.1657879	20	11 23.9	22.0
486650 2013 PK_{72}	16.1	X	198.05530	43.14528	162.82768	28.17651	0.0873276	0.18636983	3.0354212	20	12 7.2	21.2
486651 2013 QZ	16.8	X	107.09121	113.64042	175.63079	11.04122	0.0744535	0.17624756	3.1505567	20	12 7.9	21.7
486652 2013 QM_{1}	18.1	X	345.82838	292.95831	297.18614	18.36659	0.0214350	0.39262335	1.8470783	20	3 16.3	20.3
486653 2013 QT_{1}	18.4	X	106.40959	282.69616	155.66565	24.48826	0.0793490	0.37520978	1.9037940	20	2 28.7	19.9
486654 2013 QW_{8}	15.8	X	131.55083	251.28871	339.97979	16.21745	0.1175493	0.15728128	3.3990015	20	10 17.1	21.4
486655 2013 QG_{12}	16.2	X	142.17682	283.70254	336.76822	14.67272	0.1685014	0.18161201	3.0882065	20	12 9.3	21.6
486656 2013 QJ_{13}	15.9	X	171.70416	188.41292	29.09714	10.96905	0.1680963	0.17767496	3.1336602	20	11 13.6	21.1
486657 2013 QT_{24}	16.7	X	127.09624	255.81109	6.97115	10.70959	0.1854615	0.17450863	3.1714518	20	11 27.7	22.1
486658 2013 QE_{32}	17.8	X	135.59951	181.92907	176.80253	24.05330	0.0912636	0.34910241	1.9975645	20	—	—
486659 2013 QK_{43}	16.6	X	175.10296	40.27778	189.51257	1.33276	0.2438153	0.18339896	3.0681138	20	11 30.2	21.8
486660 2013 QU_{51}	16.3	X	164.33736	88.64764	125.28653	12.57901	0.2474496	0.18054583	3.1003525	20	11 8.6	21.9
486661 2013 QL_{55}	16.3	X	94.72825	301.58450	351.21509	14.30287	0.1923893	0.17273610	3.1931107	20	12 5.1	21.7
486662 2013 QC_{61}	16.3	X	89.89107	156.96174	159.90080	11.28887	0.1370194	0.18088057	3.0965263	20	12 27.5	21.2
486663 2013 QN_{61}	16.1	X	85.97320	8.60223	313.60067	9.99050	0.1001420	0.17919002	3.1159717	20	12 26.9	20.9
486664 2013 QV_{69}	18.2	X	29.47787	316.15019	187.09348	22.89381	0.0059204	0.36768047	1.9296965	20	1 23.1	20.7
486665 2013 QZ_{77}	16.6	X	150.24672	40.40173	210.82856	4.44832	0.1151023	0.17724663	3.1387066	20	12 6.5	21.7
486666 2013 QD_{87}	15.8	X	151.37233	204.94474	354.72192	13.66791	0.0554558	0.15381414	3.4498897	20	10 2.0	21.0
486667 2013 RM_{29}	18.7	X	140.69312	302.40522	169.28417	22.77606	0.0666995	0.39588478	1.8369197	20	6 14.3	21.3
486668 2013 RO_{43}	18.4	X	162.99000	223.77196	215.89130	21.83305	0.0904650	0.39405291	1.8426083	20	5 24.4	20.6
486669 2013 RU_{51}	16.0	X	144.75595	107.70790	177.21572	26.61064	0.1797323	0.18544901	3.0454610	20	—	—
486670 2013 RW_{61}	18.6	X	144.63514	86.37605	352.14800	20.31893	0.1242212	0.38208064	1.8809014	20	4 20.1	21.3
486671 2013 SP	18.0	X	118.61242	298.45041	191.03859	21.65527	0.0810880	0.39256271	1.8472685	20	6 10.5	20.5
486672 2013 SR_{75}	18.2	X	123.97864	115.29878	312.06380	17.56253	0.1045679	0.36757200	1.9300761	20	3 5.9	20.4
486673 2013 SZ_{75}	14.6	X	121.86595	315.76677	154.04849	10.58689	0.0898516	0.08272580	5.2164542	20	5 22.3	21.8
486674 2013 TV_{12}	18.2	X	144.35764	241.25024	183.49632	22.16933	0.0784269	0.37523911	1.9036948	20	4 6.3	20.1
486675 2013 TP_{19}	14.3	X	193.99724	7.83689	19.74628	9.48583	0.0749327	0.08435478	5.1490794	20	4 25.9	21.5
486676 2013 TX_{25}	18.8	X	193.21464	245.20988	194.35818	18.82847	0.0499431	0.40068416	1.8222219	20	7 3.9	21.2
486677 2013 TH_{32}	13.9	X	196.60891	178.46960	219.76574	11.29610	0.0625815	0.08343590	5.1868150	20	5 12.5	21.0
486678 2013 TE_{73}	14.2	X	199.09105	208.10730	186.41931	9.76265	0.1336524	0.08172038	5.2591529	20	5 9.8	21.8
486679 2013 TC_{78}	13.5	X	281.37971	71.77248	235.86168	14.31173	0.0338031	0.08332706	5.1913303	20	5 2.4	20.3
486680 2013 TV_{78}	18.1	X	160.09553	43.77183	354.08562	19.16638	0.0829354	0.36914458	1.9245907	20	3 16.6	20.1
486681 2013 TM_{88}	13.1	X	248.93537	315.58287	24.67650	31.06135	0.0322303	0.08183608	5.2541946	20	4 27.4	20.2
486682 2013 TA_{98}	18.0	X	102.86691	112.46246	18.60756	20.48852	0.0867384	0.37681387	1.8983872	20	5 11.7	20.1
486683 2013 TD_{111}	17.6	X	255.93880	46.95041	221.19405	19.68386	0.0781992	0.35315853	1.9822401	20	1 7.2	20.5
486684 2013 TN_{113}	18.0	X	265.01811	47.39186	204.15733	24.21265	0.1171725	0.35396622	1.9792235	20	—	—
486685 2013 TV_{113}	18.2	X	172.72429	127.95257	218.19077	24.39305	0.0107288	0.34778296	2.0026137	20	1 5.9	21.1
486686 2013 TD_{117}	14.6	X	188.73444	158.79313	245.32872	9.01823	0.0692833	0.08394074	5.1659973	20	5 10.2	21.8
486687 2013 TP_{121}	18.5	X	67.73677	267.38156	198.25466	21.43755	0.0917512	0.36141053	1.9519507	20	1 31.3	20.8
486688 2013 UL_{1}	18.6	X	164.86305	247.51002	171.25551	22.74685	0.1445509	0.37596384	1.9012475	20	5 2.5	21.5
486689 2013 UQ_{3}	17.6	X	356.31255	295.43054	282.36415	20.01517	0.0728577	0.37773284	1.8953069	20	3 8.2	19.9
486690 2013 UG_{15}	14.2	X	223.40705	178.56365	176.57374	18.65986	0.0940218	0.08485662	5.1287581	20	4 21.0	21.4
486691 2013 VD_{9}	13.6	X	313.78345	154.35335	136.49607	15.49277	0.0465363	0.08450185	5.1431032	20	5 24.5	20.5
486692 2013 VC_{13}	19.3	X	221.01845	61.33100	200.01659	7.19482	0.5881324	0.52396664	1.5238198	20	—	—
486693 2013 WB	18.1	X	212.36800	280.62431	119.23157	22.32654	0.0807209	0.38776949	1.8624600	20	6 3.7	20.6
486694 2013 WZ	18.2	X	130.65594	13.64295	60.56591	22.63979	0.0858537	0.36718333	1.9314379	20	4 14.9	20.7
486695 2013 WP_{63}	13.1	X	282.92586	41.19665	268.47298	22.61784	0.0967508	0.08306217	5.2023614	20	4 24.4	20.2
486696 2013 WD_{64}	18.4	X	58.15667	93.63821	71.55940	23.87196	0.1090042	0.36606899	1.9353555	20	5 12.1	20.1
486697 2013 WW_{104}	17.9	X	62.44323	251.70085	261.49015	17.82828	0.0935172	0.36068292	1.9545750	20	4 10.4	20.1
486698 2013 XO_{4}	18.0	X	277.18544	146.03718	164.74699	26.95705	0.0809685	0.37848967	1.8927795	20	4 14.5	20.3
486699 2013 XF_{10}	17.5	X	17.89484	255.69942	298.85998	17.57734	0.0602136	0.36364397	1.9439501	20	3 15.7	19.6
486700 2013 YA_{2}	18.4	X	45.24530	110.62383	292.99149	2.44753	0.1641404	0.30715804	2.1755119	20	—	—
486701 2013 YR_{49}	17.6	X	247.98877	353.84592	119.26192	7.72782	0.0879430	0.26002988	2.4310126	20	10 25.7	20.7
486702 2013 YA_{78}	18.4	X	31.30056	212.48520	223.04039	4.38950	0.1096911	0.30746841	2.1740476	20	—	—
486703 2013 YQ_{104}	17.3	X	220.39627	71.19501	272.86858	18.99370	0.0811605	0.35944027	1.9590772	20	3 2.9	20.3
486704 2013 YB_{115}	17.6	X	65.59935	67.53907	293.54228	7.20464	0.1369963	0.29299374	2.2450731	20	—	—
486705 2014 AT_{16}	18.1	X	286.14264	15.77880	311.93893	17.54501	0.0640651	0.37284256	1.9118437	20	5 21.0	20.3
486706 2014 AA_{29}	17.7	X	106.99235	158.98669	346.15914	20.01405	0.0865526	0.36878806	1.9258309	20	6 19.6	20.4
486707 2014 AP_{41}	18.0	X	282.81819	288.69864	286.79655	5.25160	0.1122332	0.30861117	2.1686774	20	—	—
486708 2014 AZ_{41}	18.3	X	260.34646	31.43911	297.77460	15.91690	0.0793593	0.35687199	1.9684652	20	4 4.4	21.0
486709 2014 AN_{43}	17.7	X	80.42065	15.10779	103.46826	24.84598	0.0793354	0.34998672	1.9941983	20	4 9.5	20.4
486710 2014 AH_{49}	17.9	X	33.98745	213.28048	313.99362	19.78768	0.0789037	0.33871104	2.0382142	20	3 6.6	20.0
486711 2014 BJ_{8}	17.8	X	35.23796	32.89902	171.06343	23.80023	0.0494491	0.36223740	1.9489791	20	5 23.5	20.2
486712 2014 BB_{20}	18.1	X	67.44142	279.10847	137.37759	5.51291	0.1382166	0.31312588	2.1477814	20	—	—
486713 2014 BV_{22}	16.9	X	128.33616	145.41721	143.18163	23.62743	0.1795424	0.27004582	2.3705243	20	—	—
486714 2014 BF_{33}	18.0	X	179.14494	297.30151	148.26947	24.62317	0.0383283	0.36974180	1.9225177	20	6 27.4	20.7
486715 2014 BN_{37}	17.3	X	304.65987	157.98448	317.69211	6.26668	0.0558517	0.27422576	2.3463739	20	—	—
486716 2014 BD_{43}	17.8	X	48.77060	245.31696	283.75207	17.29210	0.0576636	0.35684744	1.9685555	20	4 2.7	20.1
486717 2014 BU_{54}	17.9	X	179.49781	273.10531	137.94445	24.08374	0.1379023	0.35895172	1.9608544	20	5 12.8	21.3
486718 2014 BP_{57}	17.9	X	269.02441	3.14956	323.26980	18.04765	0.0665630	0.35939635	1.9592369	20	4 13.0	20.5
486719 2014 BY_{60}	18.2	X	146.42795	123.15554	321.13449	17.94426	0.1185991	0.36036677	1.9557180	20	5 3.5	21.2
486720 2014 CP	17.7	X	177.17043	307.57485	126.26505	23.71245	0.0930983	0.36484984	1.9396645	20	6 9.0	20.6

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	m		°	°	°	°		°				
486721 2014 CJ_{17}	17.7	X	302.76951	336.10503	131.46139	4.23542	0.1438726	0.27377742	2.3489348	20	—	—
486722 2014 DS_{2}	18.1	X	324.60494	302.75068	354.82583	20.47664	0.0862199	0.35848529	1.9625549	20	6 6.5	20.4
486723 2014 DY_{6}	18.1	X	29.16607	244.20164	337.83151	16.74945	0.0750407	0.35476410	1.9762548	20	6 9.1	20.3
486724 2014 DN_{9}	17.7	X	236.18125	329.99847	286.66446	5.98295	0.2038175	0.29549532	2.2323844	20	—	—
486725 2014 DZ_{17}	18.9	X	71.43178	118.68935	20.29471	9.23347	0.2961820	0.34659316	2.0071942	20	5 20.0	20.8
486726 2014 DG_{38}	17.9	X	299.75201	184.78587	7.94002	6.62546	0.0961700	0.29312540	2.2444008	20	—	—
486727 2014 DN_{38}	18.0	X	297.27666	218.08475	14.65491	6.84338	0.1711735	0.30363992	2.1922840	20	1 12.0	21.0
486728 2014 DG_{43}	18.1	X	328.53277	71.62768	100.91741	3.18854	0.0853162	0.30212781	2.1995926	20	—	—
486729 2014 DO_{55}	17.9	X	238.75811	246.85681	9.75229	4.68197	0.1645503	0.29101501	2.2552384	20	—	—
486730 2014 DF_{58}	18.3	X	235.10659	230.45090	26.96510	7.54885	0.1730652	0.29049329	2.2579378	20	—	—
486731 2014 DS_{66}	17.9	X	38.51069	11.21601	48.18284	7.57077	0.0767510	0.28534437	2.2850192	20	—	—
486732 2014 DS_{73}	16.5	X	0.22548	324.17521	45.96525	10.73329	0.1113224	0.24288418	2.5441139	20	11 24.3	19.4
486733 2014 DA_{112}	18.8	X	335.66824	49.89854	93.47700	4.15760	0.1266195	0.29186175	2.2508744	20	—	—
486734 2014 DM_{116}	17.3	X	295.64948	109.40227	74.86156	6.83033	0.0463715	0.28960477	2.2625538	20	—	—
486735 2014 DQ_{122}	18.4	X	279.83593	97.25173	135.61195	4.81773	0.1235105	0.30461299	2.1876127	20	—	—
486736 2014 DQ_{140}	18.1	X	236.64901	268.61834	3.72227	6.10804	0.1717285	0.29839477	2.2178997	20	1 2.9	21.6
486737 2014 EZ_{5}	18.1	X	40.44921	298.57507	149.51797	5.15194	0.1083982	0.30431395	2.1890456	20	—	—
486738 2014 EU_{23}	18.1	X	292.94238	162.58135	31.98286	3.75009	0.0977032	0.29208683	2.2497179	20	—	—
486739 2014 EW_{24}	19.6	X	84.30891	342.17609	48.18861	8.57703	0.4198282	0.62145806	1.3599664	20	—	—
486740 2014 EO_{32}	18.4	X	294.91542	193.81326	354.39890	1.31410	0.0319838	0.29507772	2.2344901	20	—	—
486741 2014 EE_{34}	17.5	X	227.91040	135.91317	125.47532	6.74095	0.0777115	0.29269717	2.2465893	20	—	—
486742 2014 EM_{34}	18.5	X	317.48074	159.77568	39.32690	5.41577	0.0766502	0.30793960	2.1718293	20	1 3.7	21.0
486743 2014 EW_{38}	17.9	X	74.91065	334.75207	60.59540	6.73559	0.1128762	0.29281729	2.2459749	20	—	—
486744 2014 EK_{39}	17.8	X	206.93448	173.43758	117.30251	6.62957	0.2708392	0.28763187	2.2728881	20	1 2.3	21.6
486745 2014 EX_{45}	17.7	X	344.74016	278.20179	150.75460	12.19796	0.1732994	0.27379202	2.3488513	20	—	—
486746 2014 EX_{49}	17.9	X	269.12901	66.93851	110.86603	8.11506	0.1902577	0.27661553	2.3328403	20	—	—
486747 2014 FN_{3}	17.7	X	259.05089	159.79696	78.33086	7.60309	0.1282758	0.29504048	2.2346781	20	—	—
486748 2014 FH_{10}	17.8	X	218.02763	294.73672	4.76282	5.51904	0.0976465	0.30385507	2.1912490	20	1 19.8	20.9
486749 2014 FU_{10}	17.7	X	349.51767	64.98040	164.81434	23.90483	0.0408821	0.34182736	2.0258075	20	4 14.0	20.0
486750 2014 FO_{36}	17.5	X	29.32013	32.50857	70.07919	6.99474	0.0796221	0.28911171	2.2651255	20	—	—
486751 2014 FX_{36}	16.9	X	144.81429	123.65222	117.22110	15.71438	0.0826360	0.24283798	2.5444366	20	12 4.3	20.9
486752 2014 FL_{37}	17.9	X	296.13711	134.75098	28.08306	7.46268	0.0496224	0.27301714	2.3532936	20	—	—
486753 2014 FC_{42}	18.1	X	309.23087	17.26434	179.72687	5.15559	0.1090174	0.29563592	2.2316766	20	—	—
486754 2014 FQ_{51}	17.8	X	199.32048	74.84054	194.47518	3.91832	0.1569077	0.26966119	2.3727779	20	—	—
486755 2014 FE_{53}	18.1	X	254.54807	65.13922	179.13245	4.29052	0.1170366	0.29361226	2.2419190	20	—	—
486756 2014 FQ_{54}	16.6	X	169.54100	89.86356	124.82725	5.41161	0.1589803	0.23683336	2.5872643	20	11 20.9	20.7
486757 2014 FO_{56}	17.7	X	272.51609	109.32984	47.53946	13.12819	0.1135388	0.26923643	2.3752728	20	—	—
486758 2014 FV_{56}	17.6	X	240.68302	187.43285	71.31991	7.95860	0.1120235	0.29336682	2.2431693	20	—	—
486759 2014 FT_{62}	16.1	X	191.90267	161.48527	16.12557	17.43589	0.1024889	0.23551139	2.5969371	20	10 26.9	20.1
486760 2014 GJ_{2}	16.8	X	9.10853	205.61405	85.97789	3.23153	0.0349971	0.20346596	2.8629134	20	8 10.0	20.4
486761 2014 GH_{12}	18.2	X	251.29881	131.49361	111.43804	3.25814	0.0592000	0.29236057	2.2483134	20	—	—
486762 2014 GH_{26}	18.2	X	234.37273	350.27152	266.98333	1.22064	0.1938378	0.28020847	2.3128557	20	—	—
486763 2014 GR_{31}	18.1	X	272.22060	79.14450	172.04682	6.70846	0.1783188	0.29644818	2.2275982	20	1 7.7	21.5
486764 2014 GU_{33}	18.4	X	330.73826	162.51914	48.11644	7.66359	0.0558579	0.30931352	2.1653933	20	2 15.1	20.8
486765 2014 GN_{39}	17.9	X	281.42200	192.58930	44.51231	7.69272	0.0973616	0.29477180	2.2360358	20	1 9.3	21.0
486766 2014 GU_{42}	18.4	X	279.27946	4.38491	186.05862	3.30287	0.0625026	0.27617029	2.3353470	20	—	—
486767 2014 GV_{42}	18.2	X	250.07904	42.23729	187.62340	4.51302	0.1745214	0.27754857	2.3276092	20	—	—
486768 2014 GE_{44}	18.0	X	293.37699	128.02332	78.62609	6.21637	0.0855602	0.29102772	2.2551727	20	—	—
486769 2014 GG_{46}	18.8	X	355.35043	44.58166	142.46173	2.59253	0.1254708	0.31105510	2.1573031	20	2 5.4	20.6
486770 2014 GO_{49}	16.3	X	86.10802	221.18209	117.82546	32.98818	0.2002991	0.23425348	2.6062257	20	—	—
486771 2014 GP_{49}	16.2	X	90.50348	219.01471	118.86330	34.02110	0.2439345	0.23263281	2.6183161	20	—	—
486772 2014 HE	17.6	X	136.06024	166.67634	162.57503	6.83974	0.1286755	0.26877849	2.3779700	20	—	—
486773 2014 HD_{1}	17.9	X	230.30659	191.26883	67.25659	7.93499	0.1063183	0.28629776	2.2799435	20	—	—
486774 2014 HP_{8}	18.4	X	345.22369	55.79117	52.29213	6.95249	0.0651031	0.27344941	2.3508129	20	—	—
486775 2014 HU_{12}	18.4	X	297.41821	331.67967	207.17842	11.44544	0.0687545	0.28085804	2.3092882	20	—	—
486776 2014 HK_{17}	18.0	X	275.94139	349.51231	233.02596	1.75759	0.0879847	0.29014532	2.2597427	20	—	—
486777 2014 HY_{19}	18.0	X	256.54720	38.68012	221.13951	6.11580	0.1627427	0.29255381	2.2473232	20	1 5.1	21.4
486778 2014 HQ_{23}	17.7	X	256.49365	173.47398	34.34159	9.73768	0.0449509	0.27396115	2.3478845	20	—	—
486779 2014 HF_{27}	18.0	X	224.36525	234.41496	40.12002	6.90799	0.1255345	0.28569141	2.2831683	20	—	—
486780 2014 HW_{28}	18.4	X	318.72361	155.86446	62.50184	6.39115	0.0920908	0.30765388	2.1731738	20	1 31.9	20.9
486781 2014 HG_{29}	17.7	X	188.24198	181.17203	109.69888	2.27336	0.1939645	0.27238308	2.3569442	20	—	—
486782 2014 HK_{29}	18.4	X	254.84903	70.01814	169.86709	2.95225	0.1002807	0.28626810	2.2801010	20	—	—
486783 2014 HN_{37}	18.1	X	274.82580	76.73080	124.06242	3.03651	0.1320958	0.28430460	2.2905870	20	—	—
486784 2014 HB_{41}	18.0	X	234.73752	119.84240	126.02000	3.06993	0.1958455	0.27537472	2.3398427	20	—	—
486785 2014 HB_{61}	16.9	X	294.39646	247.67847	195.72514	12.50891	0.1503294	0.24302826	2.5431083	20	11 12.8	19.5
486786 2014 HT_{71}	18.2	X	18.14293	49.11187	48.20644	2.65650	0.1665968	0.28879736	2.2667689	20	—	—
486787 2014 HH_{79}	18.2	X	122.23084	175.22590	149.46907	5.57372	0.1212374	0.26111405	2.4242788	20	—	—
486788 2014 HS_{84}	18.2	X	29.28198	3.72690	71.34013	7.36662	0.1246693	0.27933221	2.3176901	20	—	—
486789 2014 HE_{93}	18.3	X	294.05370	103.01958	99.63025	3.45321	0.1439149	0.28950085	2.2630952	20	—	—
486790 2014 HM_{143}	17.5	X	350.63359	270.09433	154.85943	6.36396	0.1105258	0.25410372	2.4686643	20	—	—
486791 2014 HU_{146}	17.8	X	162.34634	208.71301	92.84755	4.86940	0.1966305	0.26928188	2.3750056	20	—	—
486792 2014 HF_{147}	18.1	X	245.28110	270.60141	23.31274	1.26733	0.1688265	0.30618606	2.1801135	20	2 5.8	21.3
486793 2014 HT_{149}	18.0	X	244.50246	228.70581	18.67715	2.95173	0.1905907	0.27968493	2.3157411	20	—	—
486794 2014 HQ_{156}	17.4	X	135.39893	224.84125	102.63194	4.32841	0.1893082	0.26447232	2.4037128	20	—	—
486795 2014 HG_{158}	18.6	X	49.80470	25.00303	98.78910	5.58165	0.0768200	0.30856221	2.1689068	20	2 14.2	20.5
486796 2014 HC_{160}	17.6	X	78.63767	247.71837	122.39765	6.63321	0.0367104	0.26711862	2.3878110	20	—	—
486797 2014 HG_{161}	17.5	X	194.44472	175.62815	92.21839	7.60915	0.2089732	0.26379268	2.4078396	20	—	—
486798 2014 HO_{163}	18.1	X	282.98711	266.07508	328.93275	4.92643	0.0541550	0.30388951	2.1910834	20	1 11.8	20.9
486799 2014 HN_{164}	18.0	X	319.99114	313.48493	245.89721	3.31267	0.0803053	0.29421023	2.2388803	20	1 8.8	20.6
486800 2014 HC_{169}	17.0	X	127.13395	179.42519	124.66138	15.77692	0.1101576	0.24322443	2.5417408	20	—	—

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
486801 2014 HQ_{171}	15.9	X	309.72315	165.90520	135.47187	9.14293	0.2133754	0.17013031	3.2256328	20	5 7.3	20.1
486802 2014 HR_{172}	17.7	X	67.61070	304.33631	112.98499	6.83305	0.0785809	0.28112980	2.3077998	20	—	—
486803 2014 HT_{176}	17.7	X	277.22843	151.73081	56.04541	5.73479	0.1645857	0.28049119	2.3113013	20	—	—
486804 2014 HY_{180}	17.9	X	252.17731	136.84743	103.12764	7.22714	0.0793049	0.28201656	2.3029595	20	—	—
486805 2014 HK_{183}	18.1	X	286.53276	306.33802	251.36613	3.08202	0.1009383	0.28255515	2.3000321	20	—	—
486806 2014 HV_{184}	17.6	X	171.34398	245.42946	65.77721	7.30639	0.1288858	0.27075141	2.3664040	20	—	—
486807 2014 HG_{185}	18.2	X	251.99676	97.60494	127.49776	5.22492	0.1444197	0.27474759	2.3434020	20	—	—
486808 2014 HO_{186}	16.5	X	318.11114	197.80396	118.94372	11.00971	0.1011151	0.18122832	3.0925638	20	6 22.8	20.4
486809 2014 HP_{187}	17.2	X	268.10542	158.36435	111.67129	8.10440	0.1597469	0.29650596	2.2273088	20	1 30.6	20.5
486810 2014 JS	15.9	X	275.62306	297.81659	81.13756	10.90997	0.1076785	0.18647689	3.0342594	20	7 12.8	20.1
486811 2014 JO_{4}	18.4	X	288.77211	122.70282	137.99339	6.50709	0.2412229	0.30308888	2.1949403	20	1 29.6	21.6
486812 2014 JA_{13}	17.8	X	306.81115	298.70621	206.67009	6.16344	0.1304280	0.27021268	2.3695483	20	—	—
486813 2014 JL_{15}	17.4	X	206.91207	166.43802	118.65867	8.27016	0.3005388	0.27349960	2.3505252	20	—	—
486814 2014 JW_{16}	16.3	X	314.66573	206.77336	112.56995	12.13296	0.0973539	0.17686534	3.1432160	20	6 21.3	20.3
486815 2014 JY_{16}	17.1	X	142.89324	177.77406	109.40204	7.63432	0.2444185	0.24078800	2.5588578	20	—	—
486816 2014 JF_{17}	18.0	X	263.14810	132.47518	103.09697	5.52653	0.1114999	0.28002762	2.3138515	20	—	—
486817 2014 JX_{18}	18.0	X	31.83799	56.39736	42.28780	5.35758	0.0612965	0.29092297	2.2557140	20	—	—
486818 2014 JD_{21}	17.1	X	252.70360	159.16640	80.47002	7.40268	0.0761060	0.29013079	2.2598182	20	—	—
486819 2014 JR_{22}	17.8	X	241.42436	143.63368	108.79113	3.98777	0.2073849	0.27584530	2.3371809	20	—	—
486820 2014 JG_{23}	16.9	X	60.78818	218.33188	111.11480	6.65830	0.1260971	0.22173522	2.7034163	20	12 20.4	20.7
486821 2014 JA_{24}	18.0	X	275.38111	147.28450	95.40895	6.23787	0.2111429	0.28970638	2.2620247	20	—	—
486822 2014 JL_{24}	17.3	X	228.09281	83.75479	171.59599	6.60739	0.0675734	0.27357609	2.3500871	20	—	—
486823 2014 JU_{25}	17.2	X	180.39226	151.66295	151.93267	24.15069	0.2471568	0.27411280	2.3470185	20	—	—
486824 2014 JD_{27}	16.3	X	342.60665	142.25794	150.76456	13.73653	0.1234149	0.17889473	3.1193997	20	6 29.0	20.3
486825 2014 JJ_{27}	15.7	X	317.09510	213.92666	111.21791	17.65132	0.1489601	0.17989060	3.1078764	20	6 26.8	19.6
486826 2014 JU_{27}	17.0	X	70.55028	181.31193	142.68883	12.95623	0.1958389	0.22619054	2.6677989	20	12 31.9	21.3
486827 2014 JK_{29}	16.9	X	173.34882	45.20901	234.74093	5.55569	0.1279007	0.25900167	2.4374423	20	—	—
486828 2014 JA_{33}	17.8	X	109.05785	113.16407	215.16564	6.09043	0.1389433	0.25393894	2.4697321	20	—	—
486829 2014 JC_{33}	18.0	X	353.49053	46.78677	81.52167	6.42539	0.1052596	0.28535539	2.2849603	20	—	—
486830 2014 JY_{36}	17.3	X	38.77088	209.81795	188.44111	7.56045	0.1211259	0.25541630	2.4601994	20	—	—
486831 2014 JK_{37}	17.6	X	83.32107	308.10337	100.40991	5.84234	0.1152596	0.28225036	2.3016876	20	—	—
486832 2014 JB_{39}	19.0	X	290.31503	148.34214	99.10632	3.78632	0.2264236	0.29797630	2.2199758	20	1 16.9	22.1
486833 2014 JW_{39}	16.7	X	157.72802	347.11801	225.30168	11.17676	0.1332224	0.22867521	2.6484391	20	11 5.4	20.9
486834 2014 JV_{43}	16.3	X	51.34593	230.13167	84.72237	10.67269	0.0970015	0.21539633	2.7561987	20	11 18.1	20.1
486835 2014 JY_{43}	18.1	X	297.97427	128.47521	115.63383	7.90423	0.1910827	0.29934152	2.2132208	20	1 24.7	20.9
486836 2014 JC_{44}	18.1	X	329.45874	354.34639	201.85780	2.75586	0.0586164	0.29965869	2.2116588	20	1 19.9	20.7
486837 2014 JC_{45}	17.9	X	332.47438	76.34732	45.98259	5.63442	0.0612535	0.27003113	2.3706102	20	—	—
486838 2014 JU_{46}	17.6	X	223.07998	157.03636	95.15346	12.49248	0.1262622	0.26981491	2.3718766	20	—	—
486839 2014 JN_{48}	18.0	X	283.35771	98.24171	87.04420	5.23431	0.1578408	0.27778300	2.3262994	20	—	—
486840 2014 JZ_{48}	17.7	X	297.95684	215.86971	314.96853	3.76242	0.0824530	0.27449806	2.3448219	20	—	—
486841 2014 JN_{49}	16.3	X	104.75000	203.72987	87.89676	13.99904	0.1669660	0.22880577	2.6474315	20	12 22.6	20.6
486842 2014 JR_{49}	17.6	X	285.81450	131.35225	99.21564	11.25642	0.0779727	0.28992723	2.2608758	20	1 8.2	20.5
486843 2014 JP_{51}	18.0	X	176.10988	108.97197	188.37342	1.16713	0.1936406	0.26478713	2.4018071	20	—	—
486844 2014 JY_{53}	17.9	X	299.50521	57.00524	103.94382	2.15711	0.1242178	0.27191343	2.3596574	20	—	—
486845 2014 JW_{57}	17.2	X	89.42782	250.27429	71.41534	7.39264	0.1391326	0.23947952	2.5681702	20	—	—
486846 2014 JF_{60}	18.2	X	253.11768	144.77241	115.84411	3.55644	0.1810807	0.28528837	2.2853181	20	1 3.7	21.6
486847 2014 JD_{62}	16.7	X	330.12346	233.94938	198.57956	14.28508	0.0856032	0.23339577	2.6126069	20	12 25.6	20.1
486848 2014 JY_{63}	17.6	X	184.56590	240.16706	56.19055	2.96713	0.2093593	0.26726300	2.3869509	20	—	—
486849 2014 JF_{67}	17.9	X	153.26997	181.66724	141.25786	4.55061	0.1031263	0.26635011	2.3924018	20	—	—
486850 2014 JC_{68}	18.3	X	306.48776	59.92584	131.57913	5.70550	0.0980103	0.28647248	2.2790164	20	—	—
486851 2014 JS_{68}	17.3	X	229.38929	10.79491	255.32238	5.44985	0.0540988	0.28132363	2.3067396	20	—	—
486852 2014 JS_{73}	18.6	X	278.87557	29.65655	191.94840	2.29282	0.2139273	0.28528419	2.2853405	20	—	—
486853 2014 JN_{74}	18.0	X	326.88147	267.67080	233.89661	4.21081	0.0975309	0.27418551	2.3466035	20	—	—
486854 2014 JO_{74}	18.1	X	205.30556	59.89693	185.26237	2.08492	0.1683462	0.26002992	2.4310123	20	—	—
486855 2014 JV_{75}	17.7	X	202.20899	42.25338	239.85001	6.09481	0.1104859	0.27206912	2.3587571	20	—	—
486856 2014 JH_{79}	17.4	X	260.74537	235.06730	49.50547	7.46320	0.0804917	0.30132247	2.2035100	20	2 20.8	20.4
486857 2014 KB_{1}	17.9	X	236.47643	120.55437	114.39337	7.67883	0.0761821	0.27323656	2.3520335	20	—	—
486858 2014 KK_{1}	19.0	X	294.53546	125.62067	142.26278	6.06025	0.2389645	0.30759743	2.1734396	20	2 13.9	21.8
486859 2014 KU_{1}	17.3	X	209.68764	132.18593	115.83484	7.04678	0.0893138	0.26611125	2.3938333	20	—	—
486860 2014 KW_{1}	16.1	X	135.69270	125.05604	56.15110	25.72602	0.0835703	0.20957311	2.8070211	20	9 19.2	20.9
486861 2014 KZ_{2}	18.4	X	250.91458	179.52283	97.17007	7.09465	0.1911939	0.29349463	2.2425180	20	1 20.7	22.0
486862 2014 KB_{3}	16.2	X	244.74270	58.38200	32.87717	22.40504	0.0533225	0.22549561	2.6732772	20	9 27.6	20.1
486863 2014 KL_{6}	17.7	X	276.08760	140.87831	52.66641	8.33924	0.0624674	0.27624576	2.3349216	20	—	—
486864 2014 KB_{10}	17.0	X	185.55733	49.82037	227.65704	9.20827	0.0889337	0.26235713	2.4166150	20	—	—
486865 2014 KH_{15}	17.6	X	243.93610	353.84163	244.41503	4.03700	0.1842042	0.27646199	2.3337040	20	—	—
486866 2014 KF_{18}	18.0	X	239.07310	83.50270	159.28208	3.74777	0.1881319	0.27326178	2.3518888	20	—	—
486867 2014 KR_{28}	17.3	X	279.83681	317.78185	190.64204	4.32322	0.1398300	0.25563003	2.4588279	20	—	—
486868 2014 KQ_{30}	17.1	X	181.64100	345.51714	224.04622	16.61765	0.0819028	0.23600757	2.5932960	20	11 30.6	20.9
486869 2014 KE_{31}	17.5	X	231.62383	207.82716	108.50329	6.31010	0.0616649	0.30219526	2.1992653	20	2 28.5	20.4
486870 2014 KM_{32}	16.9	X	31.16849	228.05196	125.79287	4.43660	0.1115662	0.22325590	2.6911264	20	12 13.8	20.5
486871 2014 KY_{32}	17.4	X	130.01553	215.37535	122.74370	7.30975	0.1024758	0.26242761	2.4161823	20	—	—
486872 2014 KA_{44}	17.4	X	108.67850	184.70352	120.87520	14.23558	0.1742731	0.23702683	2.5858563	20	—	—
486873 2014 KP_{44}	16.6	X	167.56511	78.16221	117.65432	28.72599	0.1758705	0.22550531	2.6732005	20	11 5.4	21.6
486874 2014 KG_{50}	18.0	X	209.81101	169.43827	100.69864	2.21099	0.1696367	0.27163827	2.3612506	20	—	—
486875 2014 KZ_{51}	17.2	X	146.70099	254.77576	39.76417	11.23158	0.1228970	0.24013826	2.5634714	20	—	—
486876 2014 KL_{52}	16.7	X	58.91140	248.69296	97.90245	10.61167	0.1351911	0.23040618	2.6351579	20	—	—
486877 2014 KL_{53}	17.3	X	282.60278	149.17493	101.62590	7.66292	0.0695023	0.29460022	2.2369040	20	2 1.7	20.0
486878 2014 KO_{53}	17.3	X	96.79062	231.36159	108.06256	7.84361	0.1750754	0.24151069	2.5537506	20	—	—
486879 2014 KR_{54}	17.7	X	257.85131	161.98996	128.75380	5.15209	0.2169411	0.29379014	2.2410140	20	2 11.6	21.0
486880 2014 KW_{54}	16.3	X	35.64629	161.12418	106.16848	11.04874	0.0795302	0.18712799	3.0272169	20	8 20.7	20.3

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Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
486881 2014 KH_{57}	17.9	X	232.09391	87.62709	150.22146	6.50300	0.0927028	0.26591958	2.3949834	20	—	—
486882 2014 KU_{58}	16.5	X	134.84366	161.82504	99.36599	15.26060	0.0972274	0.23018478	2.6368473	20	12 14.1	20.6
486883 2014 KH_{62}	17.6	X	222.33551	9.61664	250.35579	6.47942	0.1623190	0.27161380	2.3613924	20	—	—
486884 2014 KK_{62}	17.1	X	158.66080	165.67373	109.44595	9.77819	0.2303286	0.23209769	2.6223390	20	—	—
486885 2014 KB_{65}	17.7	X	327.07069	29.13157	87.74515	8.91497	0.0874257	0.25793866	2.4441344	20	—	—
486886 2014 KB_{67}	17.6	X	187.64956	207.55953	82.55969	8.97313	0.2175260	0.26278509	2.4139906	20	—	—
486887 2014 KT_{67}	18.1	X	263.34851	156.05746	106.45713	6.11770	0.2149687	0.28922867	2.2645148	20	1 12.8	21.4
486888 2014 KP_{70}	17.7	X	211.79345	111.21614	176.91401	5.58604	0.1826181	0.27346716	2.3507111	20	1 2.6	21.5
486889 2014 KQ_{72}	16.9	X	88.32887	241.88829	124.21779	8.52578	0.2713215	0.24529087	2.5274454	20	—	—
486890 2014 KO_{78}	18.1	X	276.49196	153.40886	53.62651	3.53866	0.1132462	0.27836953	2.3230305	20	—	—
486891 2014 KT_{78}	17.9	X	316.86892	153.47468	51.38919	8.31056	0.0399378	0.29286428	2.2457347	20	1 21.2	20.7
486892 2014 KR_{80}	17.7	X	262.06973	344.06537	239.89230	1.93990	0.0966579	0.27732873	2.3288390	20	—	—
486893 2014 KB_{81}	18.2	X	250.78226	112.49544	86.36313	2.17587	0.1125058	0.26234678	2.4166785	20	—	—
486894 2014 KC_{81}	17.5	X	15.25397	43.72209	68.45472	6.76574	0.0556685	0.27883600	2.3204390	20	—	—
486895 2014 KL_{86}	16.1	X	149.48725	88.60409	207.46560	12.22389	0.1988232	0.24393093	2.5368306	20	—	—
486896 2014 KT_{87}	17.8	X	201.02699	119.10019	130.41704	6.90800	0.0966962	0.26121917	2.4236283	20	—	—
486897 2014 KX_{87}	16.5	X	159.12471	357.19696	250.97186	9.26993	0.2205450	0.22417591	2.6837584	20	12 15.5	21.2
486898 2014 KF_{93}	16.6	X	200.22130	277.62845	171.68555	9.73144	0.0180211	0.18186147	3.0853819	20	7 18.8	21.2
486899 2014 KF_{94}	17.4	X	186.89757	129.67800	145.58986	16.37861	0.2306538	0.25993006	2.4316350	20	—	—
486900 2014 KJ_{94}	18.2	X	228.60515	191.77290	70.64449	5.54316	0.1976519	0.27242526	2.3567009	20	—	—
486901 2014 KT_{94}	17.1	X	107.78539	193.88345	111.22048	12.80883	0.0760287	0.23609055	2.5926883	20	—	—
486902 2014 KF_{95}	18.2	X	326.62637	181.78700	23.74583	5.65920	0.1226015	0.30074300	2.2063396	20	1 20.9	20.8
486903 2014 KQ_{95}	17.6	X	348.97883	276.48575	203.81582	9.26037	0.1612968	0.27487169	2.3426966	20	—	—
486904 2014 KJ_{98}	18.5	X	291.94645	11.43418	206.18984	3.77154	0.2106764	0.28772099	2.2724187	20	—	—
486905 2014 LA_{1}	17.1	X	144.97103	162.59821	130.40880	8.45239	0.1872492	0.23157061	2.6263167	20	—	—
486906 2014 LS_{1}	18.0	X	145.10918	230.24664	81.68502	7.11352	0.1206544	0.25869465	2.4393704	20	—	—
486907 2014 LX_{2}	16.9	X	5.47895	321.51839	79.39430	15.94838	0.1489738	0.23764892	2.5813416	20	—	—
486908 2014 LM_{6}	18.1	X	188.75703	119.22736	149.82458	2.51909	0.1295464	0.25919924	2.4362035	20	—	—
486909 2014 LE_{8}	16.9	X	260.83583	133.04580	102.75140	7.27486	0.0622273	0.27974702	2.3153984	20	—	—
486910 2014 LY_{11}	17.2	X	132.10784	55.98545	242.53344	3.55708	0.1987033	0.23939455	2.5687778	20	—	—
486911 2014 LC_{12}	17.9	X	267.89425	328.30780	261.33034	1.94925	0.1383859	0.27980281	2.3150906	20	—	—
486912 2014 LE_{13}	17.7	X	204.67928	31.00784	258.92014	5.69829	0.1081387	0.27196601	2.3593532	20	—	—
486913 2014 LG_{14}	17.5	X	267.44254	88.45954	103.08751	5.48988	0.0387879	0.26420504	2.4053336	20	—	—
486914 2014 LA_{16}	17.0	X	152.20187	165.39963	114.87060	17.31474	0.1720307	0.23131204	2.6282735	20	—	—
486915 2014 LP_{17}	17.0	X	107.34312	104.21180	227.40792	15.73515	0.2304432	0.23764773	2.5813503	20	—	—
486916 2014 LS_{19}	18.3	X	279.08259	20.16144	162.92542	6.21644	0.0736050	0.26459398	2.4029758	20	—	—
486917 2014 LP_{23}	18.1	X	266.99255	73.30429	161.57055	4.90127	0.1490727	0.28053832	2.3110424	20	—	—
486918 2014 LC_{28}	16.5	X	101.68712	216.29608	79.12760	32.50170	0.1616517	0.22804470	2.6533186	20	12 21.8	20.8
486919 2014 MK_{2}	18.0	X	237.73264	161.49255	98.31478	2.83411	0.1628391	0.27743464	2.3282463	20	—	—
486920 2014 MK_{4}	15.3	X	338.23417	228.99443	105.24811	22.41633	0.1266110	0.17222521	3.1994223	20	8 19.8	19.4
486921 2014 MB_{7}	17.1	X	158.71224	37.93551	253.70803	15.62745	0.2010175	0.25258836	2.4785280	20	—	—
486922 2014 ML_{9}	17.5	X	50.46760	121.71364	213.53394	10.58924	0.0886906	0.22065957	2.7121948	20	12 10.5	21.3
486923 2014 MH_{15}	16.9	X	134.65592	73.82010	235.42836	11.90449	0.1914551	0.23185775	2.6241479	20	—	—
486924 2014 MJ_{17}	16.1	X	8.03402	219.54592	142.86011	11.98260	0.1407844	0.18478314	3.0527728	20	11 19.2	20.1
486925 2014 MQ_{21}	17.9	X	220.32124	44.44688	245.81732	5.13014	0.1536021	0.27759201	2.3273663	20	1 11.7	21.7
486926 2014 MX_{21}	16.7	X	138.72732	201.39691	90.06051	14.16653	0.1568729	0.24009929	2.5637487	20	—	—
486927 2014 MM_{22}	17.5	X	158.02455	330.58841	308.35809	6.87079	0.2300278	0.22998534	2.6383715	20	—	—
486928 2014 MR_{22}	16.2	X	188.43066	339.98700	262.54841	13.65202	0.0635466	0.22657043	2.6648160	20	—	—
486929 2014 MA_{23}	17.1	X	65.11722	176.47026	189.57401	15.06676	0.1322740	0.24097271	2.5575500	20	—	—
486930 2014 MW_{23}	16.8	X	41.60315	48.16430	295.98396	9.02666	0.0709708	0.20436187	2.8545401	20	12 3.5	20.8
486931 2014 MO_{25}	16.9	X	151.08441	335.80610	288.56118	7.26516	0.0605717	0.22458190	2.6805231	20	—	—
486932 2014 MN_{31}	16.2	X	7.16149	15.09754	311.48454	7.52545	0.1090774	0.17792562	3.1307164	20	9 20.3	20.1
486933 2014 MV_{31}	17.3	X	275.18891	318.47884	293.38631	5.58101	0.0919852	0.27552713	2.3389798	20	1 23.7	20.3
486934 2014 MP_{32}	17.3	X	114.13099	169.51389	136.43023	9.73644	0.1198259	0.23883232	2.5728077	20	—	—
486935 2014 MP_{35}	18.0	X	298.95430	357.75431	235.62506	5.87260	0.1436065	0.29517559	2.2339961	20	1 16.9	21.0
486936 2014 MF_{36}	16.8	X	39.41502	228.72732	126.70503	10.09613	0.1227398	0.20241439	2.8728203	20	12 22.6	20.8
486937 2014 MH_{36}	15.9	X	308.46033	117.04973	304.91191	8.98062	0.0451459	0.19292349	2.9662834	20	10 27.1	20.1
486938 2014 MC_{37}	16.7	X	99.39747	243.23734	112.55679	27.77091	0.0542024	0.23657804	2.5891255	20	—	—
486939 2014 MU_{37}	17.2	X	120.70312	15.00322	323.44613	12.30836	0.1129165	0.23202296	2.6229021	20	—	—
486940 2014 MV_{37}	16.4	X	339.70927	241.09341	132.20903	14.39079	0.1668033	0.17543156	3.1603188	20	10 16.9	20.2
486941 2014 MZ_{37}	16.8	X	42.22843	208.07652	109.78382	8.98259	0.1400791	0.18667668	3.0320940	20	11 11.6	21.0
486942 2014 MQ_{43}	17.5	X	257.35766	16.79248	247.14834	2.89795	0.2509265	0.27926275	2.3180745	20	1 8.2	21.4
486943 2014 MW_{48}	16.5	X	189.78208	144.71354	102.06995	15.65491	0.0620190	0.23528635	2.5985927	20	—	—
486944 2014 MZ_{48}	16.6	X	0.50862	301.89988	33.41034	2.62752	0.1700403	0.18081739	3.0972475	20	9 30.9	19.9
486945 2014 MO_{49}	17.7	X	254.51264	178.25653	82.20872	3.97226	0.1974598	0.27576734	2.3376214	20	1 5.4	21.3
486946 2014 MG_{50}	16.0	X	299.93939	149.81933	263.94452	13.84813	0.0451073	0.19117874	2.9843035	20	10 2.2	20.3
486947 2014 MQ_{50}	16.1	X	300.03613	136.96498	247.10460	9.34189	0.0913015	0.17399899	3.1776415	20	8 19.3	20.4
486948 2014 MO_{51}	16.5	X	122.35942	73.23676	251.65340	12.63958	0.0856138	0.23124579	2.6287755	20	—	—
486949 2014 MV_{52}	16.6	X	209.60853	325.05585	287.41017	14.60772	0.0981124	0.24045996	2.5611845	20	—	—
486950 2014 MH_{53}	17.4	X	272.01694	56.34141	228.69456	6.17336	0.1061952	0.28771761	2.2724365	20	2 26.8	20.6
486951 2014 MP_{56}	17.8	X	175.50492	189.38198	75.83552	3.42319	0.1467848	0.23498667	2.6008017	20	—	—
486952 2014 MB_{60}	16.1	X	350.79461	55.23951	281.38450	25.37941	0.2073506	0.17418476	3.1753818	20	8 27.6	20.1
486953 2014 MS_{61}	17.0	X	166.19095	259.48512	69.07144	4.56576	0.1961955	0.25335456	2.4735284	20	1 16.0	20.9
486954 2014 MN_{63}	17.3	X	1.46537	307.43894	125.46204	22.59642	0.0426292	0.22692547	2.6620357	20	—	—
486955 2014 MS_{63}	16.7	X	354.51236	232.77729	125.08507	19.94027	0.1110976	0.18516158	3.0486118	20	10 25.2	20.9
486956 2014 MA_{64}	17.0	X	338.72925	117.18182	263.80427	6.76175	0.0862731	0.18713467	3.0271449	20	10 18.0	20.8
486957 2014 MK_{66}	16.3	X	52.22870	36.84900	249.88690	8.67851	0.0362452	0.17859207	3.1229230	20	9 23.2	20.8
486958 2014 MU_{69}	11.1	X	317.32573	175.09008	159.05737	2.44915	0.0434884	0.00330640	44.6237190	20	7 9.9	27.5
486959 2014 NX_{1}	16.3	X	34.56556	98.49883	141.85823	13.55178	0.1139832	0.17374086	3.1807881	20	7 14.3	20.4
486960 2014 NJ_{2}	17.0	X	98.55431	26.89655	259.07665	14.22439	0.1177241	0.20380793	2.8597100	20	12 2.7	21.4

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Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
486961 2014 NC_4	16.8	X	64.26684	69.69745	277.02629	8.21332	0.1073320	0.21913106	2.7247924	20	—	—
486962 2014 NE_5	17.2	X	133.12821	183.71207	112.72286	10.15347	0.1509967	0.23138058	2.6277544	20	—	—
486963 2014 NK_8	17.9	X	221.14593	353.74841	269.54977	2.14713	0.2025677	0.26169235	2.4207059	20	—	—
486964 2014 NL_9	17.2	X	337.22110	335.65878	111.11407	22.91990	0.0408901	0.22757081	2.6570007	20	—	—
486965 2014 NO_{13}	16.2	X	313.95625	260.31237	107.48869	18.02878	0.2102687	0.17084137	3.2166762	20	8 11.6	20.0
486966 2014 NX_{15}	17.2	X	229.71806	324.46160	248.11434	12.36507	0.1131784	0.23646620	2.5899418	20	—	—
486967 2014 NU_{16}	17.0	X	66.43727	113.66717	228.02026	13.71794	0.1655708	0.22778149	2.6553622	20	—	—
486968 2014 NA_{17}	16.3	X	344.77374	148.56919	208.96191	9.99883	0.2919169	0.19013408	2.9952247	20	10 7.7	18.8
486969 2014 NX_{17}	17.5	X	323.10585	331.57049	151.62265	6.23700	0.1840511	0.25753828	2.4466670	20	—	—
486970 2014 NN_{18}	16.4	X	48.05542	110.37993	121.27679	10.37026	0.0301421	0.17537924	3.1609473	20	7 12.0	20.7
486971 2014 NO_{18}	17.7	X	190.38007	51.50299	218.29324	6.19668	0.2135819	0.25504504	2.4625863	20	—	—
486972 2014 NQ_{18}	17.5	X	282.80080	25.54825	192.01086	23.36792	0.1267312	0.28202362	2.3029211	20	—	—
486973 2014 NH_{20}	17.2	X	190.40747	8.55928	218.24096	11.38709	0.1356179	0.22405479	2.6847255	20	12 22.6	21.4
486974 2014 NY_{20}	17.2	X	227.18654	92.78654	163.84731	14.64596	0.1609598	0.25775615	2.4452881	20	—	—
486975 2014 NQ_{26}	17.3	X	127.73438	108.38029	162.33188	3.34992	0.0430396	0.21551316	2.7552024	20	12 13.7	21.3
486976 2014 NV_{26}	16.9	X	23.57883	110.60976	286.90696	13.16656	0.0831411	0.22008227	2.7169356	20	—	—
486977 2014 NE_{30}	17.1	X	162.71523	31.67912	204.30369	5.17041	0.0967398	0.21692613	2.7432252	20	12 8.3	21.2
486978 2014 NP_{30}	16.7	X	75.87147	145.00316	149.64136	11.57361	0.1101675	0.19962170	2.8995519	20	11 21.2	21.1
486979 2014 NW_{30}	15.8	X	164.32653	228.57261	278.11464	10.85081	0.0400818	0.17036031	3.2227289	20	8 13.4	20.7
486980 2014 NT_{32}	16.5	X	154.05231	156.65474	121.68247	15.92291	0.1272316	0.23249766	2.6193306	20	—	—
486981 2014 NA_{33}	17.2	X	105.52709	96.41950	193.20533	4.01426	0.0346287	0.21202286	2.7853574	20	12 10.4	21.1
486982 2014 NW_{34}	15.8	X	19.33654	252.92819	78.19314	16.84734	0.2585352	0.18130912	3.0916450	20	11 13.6	19.6
486983 2014 NZ_{39}	15.6	X	252.04929	195.83734	244.42155	16.02960	0.0955270	0.17368083	3.1815210	20	8 22.9	20.5
486984 2014 NQ_{41}	16.5	X	48.47698	94.12373	251.05985	15.67360	0.0541615	0.20382642	2.8595371	20	12 11.2	20.4
486985 2014 NC_{42}	16.4	X	44.01396	75.20489	225.61291	10.84221	0.0399910	0.18321224	3.0701980	20	10 2.9	20.7
486986 2014 NM_{43}	17.1	X	197.78590	38.10316	203.13013	13.41191	0.2127150	0.23583297	2.5945758	20	—	—
486987 2014 NN_{45}	16.2	X	345.13158	190.20787	202.43276	11.58547	0.0535678	0.19713516	2.9238830	20	11 16.4	20.1
486988 2014 NP_{45}	16.9	X	195.65294	337.98276	278.42014	12.76625	0.1464533	0.23752540	2.5822365	20	—	—
486989 2014 NE_{46}	16.7	X	10.07785	115.41140	242.05794	8.40315	0.0720550	0.18871794	3.0101902	20	11 4.5	20.7
486990 2014 NX_{46}	16.1	X	278.87063	199.45226	238.83763	15.32409	0.1993437	0.18106656	3.0944055	20	9 10.8	20.5
486991 2014 NP_{47}	17.4	X	206.73419	359.92047	234.74675	14.13543	0.1073067	0.23546456	2.5972815	20	—	—
486992 2014 NA_{48}	16.6	X	162.36952	151.40012	93.12141	7.37964	0.1277042	0.22717090	2.6601181	20	12 18.5	20.6
486993 2014 NF_{51}	17.9	X	245.08932	44.76914	184.33076	1.42774	0.1327164	0.25344633	2.4729313	20	—	—
486994 2014 NU_{52}	15.8	X	239.85438	119.26100	329.41931	18.08986	0.1135684	0.17003901	3.2267873	20	8 23.7	20.5
486995 2014 NG_{54}	17.1	X	170.57838	219.09339	64.83982	3.56897	0.0827173	0.23543218	2.5975196	20	—	—
486996 2014 NK_{54}	17.0	X	171.56784	328.02104	329.76202	14.68584	0.1158605	0.24233384	2.5479643	20	—	—
486997 2014 NQ_{54}	16.2	X	320.32946	264.60588	110.93301	16.05997	0.1320882	0.17112067	3.2131752	20	9 15.2	20.3
486998 2014 NL_{55}	15.8	X	325.72668	60.94926	329.52002	23.10121	0.1514780	0.17864097	3.1223530	20	9 26.1	19.8
486999 2014 NO_{55}	16.1	X	224.11272	188.73049	343.21960	14.87576	0.0796237	0.20616920	2.8378331	20	11 21.8	20.4
487000 2014 NE_{56}	16.4	X	29.62479	226.45456	104.22874	12.35206	0.1361094	0.18466476	3.0540774	20	11 11.1	20.6
487001 2014 NX_{56}	16.5	X	143.13634	174.72115	83.49239	10.06048	0.2132554	0.21574848	2.7531987	20	12 13.8	21.3
487002 2014 NG_{57}	16.0	X	193.74458	72.25812	100.63445	14.19617	0.1121107	0.19128017	2.9832484	20	10 25.9	20.8
487003 2014 NK_{60}	15.8	X	15.89643	208.33728	127.18936	18.95619	0.1930656	0.17852706	3.1236810	20	11 6.7	20.0
487004 2014 ND_{62}	17.3	X	226.86116	301.73315	315.32479	4.50449	0.1537395	0.26124426	2.4234731	20	—	—
487005 2014 NF_{62}	16.9	X	145.38672	304.83361	310.87032	12.43765	0.1339777	0.22193580	2.7017872	20	12 14.9	21.4
487006 2014 NK_{62}	16.8	X	63.96944	54.60939	312.17062	12.48377	0.1493143	0.22419260	2.6836252	20	—	—
487007 2014 NU_{62}	17.9	X	318.54906	123.84483	75.90126	5.01055	0.1855903	0.28310915	2.2970306	20	—	—
487008 2014 OB	17.0	X	199.51487	156.18832	80.16834	5.99715	0.1642744	0.23943018	2.5685230	20	—	—
487009 2014 OO	17.1	X	172.12455	302.92962	299.61687	5.20481	0.1663040	0.22946260	2.6423770	20	12 23.5	21.3
487010 2014 OQ_1	16.6	X	141.09875	25.63200	254.30850	12.94376	0.2277203	0.22399145	2.6852316	20	—	—
487011 2014 OK_2	15.8	X	243.74182	175.35773	190.71396	13.82218	0.3130020	0.12585775	3.9435082	20	5 2.8	22.3
487012 2014 OM_3	16.3	X	30.94978	349.52130	313.05802	8.26276	0.1734857	0.18531075	3.0469755	20	10 4.9	20.3
487013 2014 OM_4	16.3	X	357.37578	44.46563	289.36466	9.37462	0.0624328	0.17844905	3.1245913	20	9 10.2	20.5
487014 2014 ON_4	16.3	X	330.47497	79.57113	290.48415	9.59369	0.1198954	0.17875985	3.1209686	20	9 15.4	20.3
487015 2014 OQ_4	16.9	X	340.69559	215.43137	149.94793	5.84341	0.0823155	0.18335106	3.0686482	20	10 4.5	20.7
487016 2014 OA_5	17.8	X	239.79291	40.41970	164.67262	4.04578	0.0695212	0.23937430	2.5689227	20	—	—
487017 2014 OY_{11}	16.7	X	356.11674	74.21249	304.03603	15.60134	0.0891728	0.19862737	2.9092206	20	11 10.9	20.7
487018 2014 OS_{12}	17.3	X	94.46061	0.95831	316.70483	1.75534	0.0794491	0.21915613	2.7245846	20	—	—
487019 2014 OC_{14}	17.3	X	158.08275	148.98942	112.40287	7.32584	0.0857904	0.22617200	2.6679447	20	—	—
487020 2014 OP_{15}	17.7	X	202.09179	339.35623	294.03149	1.22162	0.2008668	0.25403254	2.4691254	20	—	—
487021 2014 OD_{18}	16.5	X	325.39959	74.52532	291.97783	9.73181	0.1308943	0.17594686	3.1541453	20	9 1.7	20.4
487022 2014 OW_{18}	17.2	X	198.17508	33.06571	146.71464	5.16399	0.1011578	0.20840451	2.8175047	20	11 6.6	21.5
487023 2014 OX_{18}	17.7	X	321.45676	317.40768	138.59637	5.35225	0.0831714	0.22008204	2.7169375	20	—	—
487024 2014 OZ_{18}	17.0	X	6.72561	56.63388	289.89707	6.37638	0.0748012	0.18932215	3.0037822	20	10 14.8	21.0
487025 2014 OD_{20}	16.8	X	22.09366	239.31230	127.53518	6.88458	0.0771535	0.20497252	2.8488678	20	12 9.1	20.6
487026 2014 OT_{22}	18.3	X	282.75847	356.60224	222.98812	1.71652	0.1620698	0.26960187	2.3731259	20	—	—
487027 2014 OF_{23}	16.4	X	217.59482	169.59384	300.49247	12.08868	0.0175074	0.17894298	3.1188389	20	9 1.0	21.0
487028 2014 OK_{25}	17.7	X	114.37805	177.29105	122.56365	6.24062	0.0565882	0.21975353	2.7196445	20	—	—
487029 2014 OE_{27}	16.7	X	274.02980	165.56948	307.30915	14.31566	0.0918089	0.20483875	2.8501079	20	11 9.8	20.7
487030 2014 OJ_{30}	16.3	X	294.00474	283.01466	113.29869	11.85308	0.0956335	0.17582188	3.1556399	20	9 3.2	20.5
487031 2014 OV_{30}	17.2	X	358.13588	288.93315	107.70212	6.26219	0.0269997	0.20971673	2.8057394	20	12 9.5	20.9
487032 2014 OW_{30}	16.8	X	211.40483	215.09292	313.13552	5.86923	0.0235725	0.20495081	2.8490690	20	11 11.6	20.9
487033 2014 OA_{34}	17.7	X	206.12035	209.73349	26.26781	3.71364	0.0365016	0.23441645	2.6050176	20	—	—
487034 2014 OZ_{35}	17.5	X	221.75465	235.32057	322.79110	4.24673	0.0702294	0.22520572	2.6755707	20	—	—
487035 2014 OV_{36}	17.7	X	140.53892	154.47264	112.86908	6.51091	0.1189701	0.21950686	2.7216816	20	12 23.8	22.0
487036 2014 OG_{37}	17.5	X	24.37797	279.81292	126.15802	12.18939	0.0879677	0.22160898	2.7044429	20	—	—
487037 2014 OF_{39}	17.4	X	325.59846	27.12729	38.79539	2.34627	0.0649930	0.20455200	2.8527709	20	12 1.6	20.9
487038 2014 OT_{39}	16.2	X	228.97474	350.12822	112.76003	8.58677	0.1218305	0.17630749	3.1498428	20	8 31.7	21.0
487039 2014 ON_{40}	16.0	X	259.66065	142.67682	316.91445	15.34584	0.0657177	0.19022368	2.9942840	20	10 1.7	20.4
487040 2014 OG_{42}	16.6	X	183.46545	179.95617	332.12605	10.31219	0.0318882	0.18242705	3.0790014	20	9 14.3	21.1

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487041 2014 OP_{44}	16.6	X	306.89519	265.44901	133.20613	9.98818	0.0510724	0.18617182	3.0375732	20	10 1.4	20.7
487042 2014 OM_{46}	17.9	X	351.26499	7.66468	47.34446	0.88473	0.0684126	0.21361456	2.7715039	20	12 27.9	21.2
487043 2014 OP_{47}	16.4	X	36.85673	73.52347	3.40934	1.82259	0.0904933	0.24281088	2.5446260	20	—	—
487044 2014 OB_{48}	16.9	X	239.23290	26.50435	125.43874	9.90448	0.0887722	0.20923904	2.8100081	20	11 22.1	20.9
487045 2014 OS_{48}	17.9	X	280.40803	182.80225	44.07275	3.17252	0.1325625	0.26887087	2.3774253	20	—	—
487046 2014 OW_{48}	17.0	X	135.55523	295.48860	324.46330	3.75326	0.0156944	0.21322447	2.7748831	20	12 7.9	20.8
487047 2014 OP_{49}	16.4	X	348.00660	263.47606	96.33325	6.19918	0.1536318	0.18122678	3.0925813	20	10 12.6	19.9
487048 2014 OW_{51}	16.9	X	331.49706	298.44745	119.89185	10.29653	0.0787633	0.20219537	2.8748945	20	12 2.6	20.6
487049 2014 OW_{55}	16.4	X	303.46286	88.27816	317.48400	25.49393	0.1625872	0.17728637	3.1382376	20	9 6.4	20.6
487050 2014 OD_{56}	17.1	X	346.72213	295.42366	96.52273	2.26253	0.1369960	0.19252073	2.9704190	20	11 21.1	20.4
487051 2014 OR_{56}	16.9	X	231.00365	14.30313	119.46698	12.23955	0.0590228	0.19251637	2.9704638	20	10 24.2	21.3
487052 2014 OP_{57}	16.6	X	3.68006	8.99379	326.53275	13.25919	0.1275622	0.17888757	3.1194829	20	9 25.8	20.6
487053 2014 OJ_{58}	16.2	X	330.43632	242.17535	109.22124	11.27557	0.0124495	0.17357254	3.1828441	20	9 3.3	20.7
487054 2014 OW_{58}	16.4	X	92.49253	313.61437	327.19253	10.44830	0.0363456	0.19919500	2.9036912	20	11 7.5	20.7
487055 2014 OR_{65}	17.6	X	149.98028	169.28261	109.48803	6.93879	0.1460630	0.22574157	2.6713350	20	—	—
487056 2014 OA_{73}	15.8	X	20.30704	199.63690	136.27143	10.23234	0.0785512	0.18680928	3.0306590	20	10 27.9	19.9
487057 2014 OR_{79}	17.1	X	346.89085	24.06322	343.45940	8.23437	0.0973745	0.19016624	2.9948870	20	10 13.8	20.9
487058 2014 OC_{80}	16.7	X	9.00608	27.49099	331.76369	11.27654	0.0646367	0.19847442	2.9107150	20	11 2.5	20.7
487059 2014 OR_{85}	17.3	X	252.44072	120.71528	101.46525	7.44797	0.0527284	0.25422683	2.4678673	20	—	—
487060 2014 OV_{87}	17.8	X	201.66292	358.19291	250.64798	5.43771	0.0795870	0.24102119	2.5572071	20	—	—
487061 2014 OH_{89}	16.6	X	353.23122	275.93484	140.39207	13.86770	0.0559261	0.21618901	2.7494573	20	12 31.9	20.3
487062 2014 OJ_{89}	16.1	X	300.58171	251.55486	139.23044	15.62023	0.1428215	0.17443738	3.1723154	20	8 28.2	20.1
487063 2014 OJ_{90}	16.3	X	92.29113	32.78710	253.39352	4.94266	0.0599964	0.20451825	2.8530848	20	11 21.2	20.4
487064 2014 OG_{92}	17.6	X	217.22848	69.23423	148.75412	15.62280	0.0712594	0.23342009	2.6124254	20	—	—
487065 2014 OL_{93}	17.6	X	136.78080	171.30219	138.08436	11.95315	0.1057068	0.23414750	2.6070120	20	—	—
487066 2014 OO_{93}	17.4	X	140.06162	173.53979	137.45995	11.70100	0.1280209	0.23592537	2.5938984	20	—	—
487067 2014 ON_{96}	16.6	X	162.22567	154.38907	152.74068	14.51007	0.1686130	0.23552168	2.5968615	20	—	—
487068 2014 OF_{98}	16.8	X	77.79159	357.75420	325.63435	16.39691	0.2274817	0.20293792	2.8678774	20	—	—
487069 2014 OK_{98}	16.7	X	191.91404	271.43415	321.00100	8.31389	0.0982857	0.21579257	2.7528236	20	—	—
487070 2014 OV_{98}	16.6	X	102.74891	302.42729	300.38999	6.00460	0.1031187	0.17952938	3.1120437	20	10 8.4	21.3
487071 2014 OM_{99}	16.8	X	77.46297	328.22092	319.33339	8.75017	0.1239670	0.18852451	3.0122488	20	11 7.7	21.4
487072 2014 OP_{99}	17.4	X	240.69482	343.45870	317.70475	5.47539	0.1656107	0.27316166	2.3524635	20	2 13.4	20.9
487073 2014 OL_{100}	16.7	X	318.18060	269.75010	143.73122	11.51241	0.0561908	0.18439512	3.0570540	20	11 4.8	20.9
487074 2014 OV_{100}	15.8	X	308.89043	258.58378	153.13131	15.38327	0.1643714	0.17349317	3.1838148	20	10 8.6	19.7
487075 2014 OE_{102}	16.1	X	211.37867	352.37606	151.88740	12.93932	0.0601521	0.17676340	3.1444243	20	10 9.5	20.8
487076 2014 OX_{103}	17.0	X	136.90988	306.64360	338.33953	8.67773	0.0991454	0.21432110	2.7654093	20	—	—
487077 2014 OQ_{105}	16.2	X	159.00445	252.08676	321.35627	13.85126	0.0993746	0.20429906	2.8551251	20	10 29.8	20.9
487078 2014 OD_{106}	16.6	X	308.70683	300.23877	125.80881	12.75381	0.1354657	0.19257491	2.9698618	20	11 5.1	20.3
487079 2014 OO_{109}	15.8	X	233.47931	331.79439	115.39132	19.94283	0.1070421	0.17003264	3.2268679	20	8 18.1	20.7
487080 2014 OJ_{111}	17.2	X	223.42972	260.00587	49.57507	6.70304	0.1248822	0.27626170	2.3348318	20	2 11.9	20.7
487081 2014 OK_{113}	16.8	X	341.33689	260.73618	117.84018	11.54869	0.1077927	0.19099238	2.9862444	20	10 28.6	20.6
487082 2014 OZ_{117}	16.1	X	356.87283	217.01818	114.90329	10.95349	0.1081701	0.17698925	3.1417488	20	9 18.7	20.1
487083 2014 OH_{119}	17.7	X	353.89705	345.45417	99.71002	4.10885	0.0164143	0.23140879	2.6275408	20	—	—
487084 2014 OM_{119}	17.5	X	10.71630	73.01093	321.33990	5.55111	0.0435658	0.21357001	2.7718892	20	12 25.8	21.3
487085 2014 OH_{120}	16.9	X	321.41239	341.13657	62.00080	3.63999	0.1106411	0.19045553	2.9918535	20	10 23.5	20.4
487086 2014 OR_{120}	16.2	X	202.25809	341.57921	58.65262	4.23905	0.2504269	0.12490221	3.9635952	20	5 13.4	22.7
487087 2014 OD_{121}	16.4	X	220.85088	4.56108	102.88101	10.19272	0.0494343	0.17767076	3.1337096	20	9 6.9	21.1
487088 2014 OA_{123}	16.4	X	219.34670	159.97379	321.58147	11.88194	0.1358678	0.18330068	3.0692104	20	9 6.9	21.3
487089 2014 OF_{124}	17.5	X	129.70184	352.00214	281.28937	5.28442	0.0271782	0.21571915	2.7534482	20	12 18.6	21.2
487090 2014 OV_{125}	17.4	X	77.10367	284.79983	115.22157	15.03201	0.0287807	0.24669469	2.5178480	20	—	—
487091 2014 OU_{126}	17.6	X	44.92321	311.67670	17.64453	2.04153	0.0354568	0.19829046	2.9125150	20	11 13.1	21.6
487092 2014 OJ_{127}	16.1	X	332.50838	258.12888	104.64221	12.06026	0.0870559	0.17648951	3.1476767	20	9 21.1	20.3
487093 2014 OC_{130}	17.0	X	332.58446	100.44228	327.96348	6.38801	0.0845442	0.21267969	2.7796197	20	12 18.5	20.4
487094 2014 OO_{130}	17.0	X	199.41648	268.54117	341.04148	11.34454	0.1671509	0.23285264	2.6166679	20	—	—
487095 2014 OC_{133}	16.1	X	234.68951	3.37915	106.73680	10.70578	0.0940613	0.18841661	3.0133987	20	9 23.3	20.6
487096 2014 OW_{137}	17.5	X	216.82778	0.32396	253.97287	0.28588	0.1471140	0.25290762	2.4764417	20	—	—
487097 2014 OQ_{138}	17.3	X	267.42532	291.33159	279.43157	3.75609	0.1338570	0.25773118	2.4454460	20	—	—
487098 2014 OE_{139}	18.0	X	294.61586	336.97200	242.82039	1.50565	0.1200408	0.27356817	2.3501324	20	1 1.9	21.3
487099 2014 OM_{139}	17.2	X	126.25804	140.53408	143.51983	5.43473	0.0832089	0.21962312	2.7207211	20	12 29.5	21.3
487100 2014 OO_{140}	17.7	X	239.28760	73.12062	121.12660	11.34711	0.0899198	0.23282388	2.6168834	20	—	—
487101 2014 OD_{141}	16.8	X	348.85372	250.36414	116.58669	10.51119	0.1147234	0.18667705	3.0320901	20	10 24.6	20.6
487102 2014 OH_{146}	18.8	X	251.63647	94.63442	147.79947	2.78596	0.1718933	0.26432326	2.4046164	20	—	—
487103 2014 OC_{148}	18.1	X	272.22438	212.98194	20.94788	2.73638	0.1604316	0.27161353	2.3613940	20	—	—
487104 2014 OO_{150}	17.3	X	84.00742	288.72260	349.07947	1.49955	0.0470826	0.19843580	2.9110926	20	10 29.5	21.3
487105 2014 OH_{151}	17.0	X	92.59372	194.79200	69.76980	6.76999	0.0255770	0.19658161	2.9293693	20	10 23.3	21.1
487106 2014 OR_{158}	17.6	X	210.38685	141.32234	77.26711	9.41459	0.0855567	0.23265749	2.6181309	20	—	—
487107 2014 OS_{158}	16.2	X	356.70396	345.18582	351.89890	9.19973	0.0884978	0.18123523	3.0924852	20	9 19.7	19.9
487108 2014 OZ_{158}	17.5	X	184.94988	171.68459	44.80930	6.84270	0.0220201	0.21633999	2.7481779	20	12 13.5	21.4
487109 2014 OC_{159}	16.3	X	2.16904	354.62294	350.81092	8.65106	0.0962241	0.18662077	3.0326996	20	10 8.8	20.0
487110 2014 OJ_{160}	16.9	X	355.89522	2.34739	69.98988	8.30433	0.0861934	0.22341008	2.6898881	20	—	—
487111 2014 OT_{161}	17.5	X	178.43294	188.05613	92.71773	7.52110	0.1050817	0.24374860	2.5380955	20	—	—
487112 2014 OY_{162}	17.1	X	89.58623	296.20262	5.95802	5.67846	0.0458202	0.21016782	2.8017232	20	12 6.8	21.2
487113 2014 OW_{164}	17.2	X	293.89604	30.04448	82.80836	7.04421	0.0345946	0.21599052	2.7511415	20	12 20.9	20.7
487114 2014 OH_{167}	16.8	X	334.93462	25.08393	349.12748	9.93694	0.1267518	0.18282293	3.0745550	20	10 2.3	20.4
487115 2014 ON_{167}	16.2	X	64.67994	313.46657	340.51490	12.78152	0.0137824	0.19487318	2.9464653	20	10 15.8	20.5
487116 2014 OE_{169}	17.0	X	76.09622	326.73664	334.16725	14.64673	0.1371148	0.20249008	2.8721043	20	11 26.1	21.6
487117 2014 OQ_{169}	16.8	X	340.48141	259.57129	100.96968	14.51076	0.1606413	0.17748960	3.1358415	20	10 3.5	20.6
487118 2014 OA_{171}	16.7	X	266.17874	50.24613	96.41837	9.87997	0.0954241	0.21996910	2.7178674	20	12 20.5	20.0
487119 2014 OP_{171}	18.0	X	237.31441	226.38016	41.31997	5.10566	0.1270954	0.26555448	2.3971780	20	1 3.1	21.6
487120 2014 OS_{171}	17.0	X	154.25701	160.34982	89.81234	8.11011	0.0476779	0.21605238	2.7506163	20	12 18.1	20.8

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Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
487121 2014 OB_{172}	17.8	X	261.10599	84.38472	98.33006	9.91514	0.0686022	0.23545711	2.5973362	20	—	—
487122 2014 OU_{172}	17.5	X	29.51320	317.05880	84.18255	7.04372	0.0470382	0.22330690	2.6907165	20	—	—
487123 2014 OZ_{172}	16.8	X	291.40681	301.46982	105.87720	13.21990	0.1623873	0.17360394	3.1824604	20	9 5.3	21.0
487124 2014 OC_{173}	17.1	X	166.82837	167.52256	78.40245	5.94591	0.0586398	0.21998305	2.7177525	20	12 27.1	20.9
487125 2014 OM_{173}	18.0	X	296.07437	64.07073	100.43181	8.38226	0.0835221	0.24371610	2.5383212	20	—	—
487126 2014 ON_{174}	17.6	X	246.61699	203.86847	340.39328	6.80732	0.1079528	0.23188527	2.6239402	20	—	—
487127 2014 OC_{176}	16.4	X	278.32412	351.09078	68.78645	7.64899	0.1319753	0.17922713	3.1155415	20	9 7.2	20.7
487128 2014 OL_{179}	16.5	X	300.82657	99.76827	342.87802	12.30930	0.1492681	0.19255404	2.9700765	20	11 1.2	20.2
487129 2014 OG_{182}	16.3	X	62.95059	224.53380	111.14386	16.23959	0.1496190	0.20302141	2.8670911	20	12 29.0	20.5
487130 2014 OZ_{182}	16.8	X	320.81859	270.13746	117.38460	11.45777	0.0714848	0.17718439	3.1394417	20	10 5.8	21.0
487131 2014 OZ_{185}	17.2	X	198.90297	270.79593	2.34230	9.74745	0.0771516	0.24412062	2.5355163	20	—	—
487132 2014 OB_{186}	16.4	X	327.33011	289.76783	93.93895	10.94074	0.0772843	0.17967404	3.1103731	20	10 11.3	20.5
487133 2014 OX_{190}	17.8	X	242.76046	294.12886	2.85066	1.98850	0.1726281	0.26560981	2.3968452	20	2 11.4	21.4
487134 2014 OL_{195}	16.2	X	24.25284	159.99967	163.29302	27.57540	0.1857461	0.17324210	3.1868901	20	10 30.1	20.7
487135 2014 OU_{201}	18.0	X	232.84419	36.16199	200.08766	1.17376	0.0736272	0.24742728	2.5128756	20	—	—
487136 2014 OA_{202}	17.3	X	298.67809	81.71169	15.71911	3.51196	0.0551390	0.20862596	2.8155105	20	12 4.2	20.9
487137 2014 OJ_{202}	16.4	X	254.02917	123.72969	323.06481	10.90327	0.1631900	0.17766386	3.1337907	20	8 30.4	20.9
487138 2014 OY_{202}	17.5	X	77.06992	229.05172	75.02974	3.18882	0.0514195	0.20248415	2.8721604	20	11 24.7	21.6
487139 2014 OS_{204}	17.3	X	70.79238	319.39111	15.32244	4.16829	0.1056897	0.20836103	2.8178966	20	—	—
487140 2014 OS_{206}	17.4	X	270.64119	150.82443	134.24920	6.87245	0.1066044	0.27918374	2.3185117	20	3 1.4	20.6
487141 2014 OX_{206}	16.0	X	238.89878	263.76472	117.05187	3.92887	0.2735467	0.12428873	3.9766273	20	5 17.9	22.5
487142 2014 OK_{208}	17.3	X	267.56439	271.64512	274.91082	3.13720	0.0801269	0.24357601	2.5392943	20	—	—
487143 2014 OR_{209}	16.8	X	80.21357	289.98817	344.24939	2.49452	0.1035938	0.19375447	2.9577961	20	10 26.5	21.2
487144 2014 OG_{214}	15.9	X	301.91194	275.33473	111.22035	10.48986	0.0650458	0.17470391	3.1690880	20	9 5.5	20.2
487145 2014 OT_{215}	16.3	X	239.04193	359.85432	102.57932	17.84159	0.0892780	0.18626078	3.0366060	20	9 22.4	21.0
487146 2014 OS_{217}	16.4	X	358.45535	284.27290	71.09604	8.66774	0.2058306	0.18459312	3.0548675	20	10 30.9	19.7
487147 2014 OB_{218}	15.7	X	254.11010	348.25449	85.81227	11.82372	0.1116364	0.17509763	3.1643357	20	8 27.9	20.4
487148 2014 OU_{218}	16.6	X	343.10368	264.99992	101.69707	11.36997	0.2162018	0.18041073	3.1019001	20	10 17.7	19.9
487149 2014 ON_{219}	17.4	X	90.72573	228.90151	71.99991	4.80312	0.0818770	0.20958859	2.8068829	20	12 10.6	21.4
487150 2014 OE_{221}	15.9	X	347.10249	266.65246	79.77707	10.77175	0.0806080	0.17874689	3.1211194	20	9 23.1	20.0
487151 2014 OR_{221}	17.7	X	299.26433	167.56681	32.42460	6.34514	0.1553080	0.26833636	2.3805814	20	—	—
487152 2014 OV_{221}	16.4	X	310.56717	18.01834	4.64184	9.18431	0.0839096	0.17766995	3.1337191	20	9 9.8	20.3
487153 2014 OE_{222}	16.5	X	278.60470	324.55356	81.18532	10.49487	0.0594032	0.17330922	3.1860673	20	8 30.9	21.0
487154 2014 OP_{232}	15.8	X	257.52141	116.37723	357.19083	15.86038	0.0725113	0.17237223	3.1976029	20	10 15.7	20.5
487155 2014 OR_{234}	16.0	X	334.79283	30.57643	18.04113	10.11597	0.0410394	0.18082132	3.0972027	20	11 14.3	20.3
487156 2014 OP_{235}	16.1	X	316.77111	176.11236	140.95945	13.49506	0.0518879	0.17628402	3.1501224	20	6 26.5	20.5
487157 2014 OL_{238}	16.7	X	192.55021	60.10023	81.72194	2.68574	0.0178754	0.18370572	3.0646974	20	9 17.2	21.1
487158 2014 OP_{239}	16.9	X	359.04252	242.09487	105.03208	2.74130	0.1084093	0.18424759	3.0586856	20	10 10.5	20.5
487159 2014 OJ_{246}	16.5	X	280.19345	60.69336	3.80172	8.93642	0.1998419	0.17897096	3.1185138	20	9 3.5	20.6
487160 2014 OO_{246}	16.5	X	19.67794	355.93429	330.07252	9.91308	0.1023557	0.18691133	3.0295558	20	10 8.6	20.5
487161 2014 OD_{251}	16.8	X	168.12068	194.72202	31.12888	6.97192	0.0989998	0.21544948	2.7557453	20	11 29.8	21.0
487162 2014 OL_{252}	16.5	X	20.49039	354.65512	345.55853	11.10967	0.0213891	0.19340191	2.9613896	20	10 19.6	20.7
487163 2014 OK_{253}	16.9	X	304.31181	25.36232	30.32915	5.73930	0.1396705	0.18568829	3.0428441	20	10 8.3	20.4
487164 2014 OM_{254}	16.9	X	2.10070	29.21206	322.13413	17.85339	0.0924078	0.18723827	3.0260282	20	10 8.3	21.1
487165 2014 OO_{257}	16.6	X	21.15176	256.78511	89.00514	10.07617	0.1089723	0.19293843	2.9661303	20	11 14.4	20.5
487166 2014 ON_{258}	16.9	X	70.81021	267.92624	72.94450	7.53167	0.0309066	0.21593440	2.7516181	20	—	—
487167 2014 OV_{258}	16.0	X	346.83698	248.28818	97.20997	13.56447	0.0989317	0.17618380	3.1513168	20	9 22.4	20.2
487168 2014 OY_{262}	16.6	X	180.10781	103.90325	108.33344	15.64418	0.1200290	0.21308951	2.7760546	20	11 28.4	21.1
487169 2014 OT_{268}	15.9	X	333.43157	334.45442	41.05027	10.08248	0.0255879	0.18366013	3.0652045	20	10 8.2	20.1
487170 2014 OD_{274}	16.4	X	11.46560	315.13938	43.03503	7.29517	0.1908704	0.18973992	2.9993713	20	11 22.7	19.9
487171 2014 ON_{276}	17.0	X	40.38273	33.13518	92.21197	8.42180	0.0605391	0.26836259	2.3804262	20	2 7.9	19.7
487172 2014 OQ_{279}	17.8	X	289.08051	232.15735	72.14838	4.47732	0.1637348	0.30090352	2.2055549	20	4 10.9	20.5
487173 2014 OB_{281}	16.7	X	322.87752	323.30260	92.02367	10.41177	0.0910618	0.19228948	2.9728000	20	11 13.8	20.4
487174 2014 OF_{284}	16.5	X	258.01829	115.97550	350.36209	10.83525	0.0552845	0.18675602	3.0312353	20	10 13.8	20.8
487175 2014 OU_{292}	16.2	X	58.00789	3.61746	328.13821	8.86701	0.0489177	0.19067598	2.9895470	20	12 1.3	20.5
487176 2014 OC_{304}	17.1	X	258.11993	170.46300	330.73611	4.92554	0.0217019	0.21230924	2.7828520	20	12 9.5	20.9
487177 2014 OR_{307}	17.1	X	229.66857	21.31425	121.43896	3.07333	0.0177388	0.20254703	2.8715660	20	11 5.8	21.1
487178 2014 OV_{308}	17.1	X	159.00444	114.89968	95.86816	3.26977	0.0423747	0.20160886	2.8804674	20	11 3.7	21.3
487179 2014 OR_{315}	17.7	X	197.56744	40.48251	242.27700	3.14834	0.1604823	0.25458056	2.4655807	20	—	—
487180 2014 OQ_{316}	15.7	X	27.31939	357.07593	314.49859	16.59553	0.1715415	0.18119524	3.0929402	20	10 4.7	20.0
487181 2014 OT_{319}	16.2	X	255.21629	111.74914	304.22133	17.30945	0.0961845	0.16773326	3.2562914	20	8 2.2	20.8
487182 2014 OR_{327}	16.2	X	14.95263	22.61665	318.27783	5.37572	0.1119529	0.18776927	3.0203205	20	10 24.1	20.1
487183 2014 OH_{334}	15.8	X	35.80270	34.51842	260.91939	10.49244	0.0826897	0.17462083	3.1700931	20	9 16.7	20.3
487184 2014 OK_{334}	16.1	X	295.82705	96.02513	286.26495	7.63707	0.0825282	0.17172280	3.2056596	20	8 13.9	20.4
487185 2014 OS_{334}	16.8	X	31.65289	237.81025	85.06947	2.99626	0.0745757	0.18998181	2.9968249	20	10 24.2	20.8
487186 2014 OX_{336}	16.5	X	258.61674	359.06665	85.49234	11.56315	0.0563995	0.17588443	3.1548917	20	9 25.4	21.1
487187 2014 OO_{339}	16.3	X	22.51907	192.68576	127.91045	11.08583	0.0344766	0.18340695	3.0680248	20	10 6.4	20.6
487188 2014 OB_{340}	17.1	X	201.37841	270.14282	317.80549	13.53711	0.0640007	0.22763804	2.6564776	20	—	—
487189 2014 OC_{340}	16.8	X	45.08327	229.53990	114.56188	11.02902	0.0836244	0.20306191	2.8667098	20	12 11.1	20.8
487190 2014 ON_{341}	17.7	X	213.45366	279.19993	330.89477	3.52391	0.1276030	0.24547947	2.5261507	20	—	—
487191 2014 OH_{342}	16.4	X	115.53062	230.38620	346.89639	9.19463	0.0402588	0.17898065	3.1184012	20	9 17.6	21.0
487192 2014 OQ_{342}	17.7	X	209.08859	150.39730	70.42440	1.79476	0.1395391	0.23178268	2.6247145	20	—	—
487193 2014 OX_{345}	17.5	X	251.51218	168.78402	73.90000	4.32586	0.1374005	0.25577163	2.4579203	20	—	—
487194 2014 OB_{349}	16.8	X	17.32800	73.87100	273.68751	10.45500	0.1423145	0.19137556	2.9822570	20	11 10.5	20.6
487195 2014 OA_{356}	16.7	X	221.93108	105.85590	117.46763	15.66297	0.1208895	0.23831500	2.5765296	20	—	—
487196 2014 OG_{356}	17.0	X	269.94011	338.87123	90.73489	7.12380	0.0928986	0.17819732	3.1275333	20	9 13.4	21.3
487197 2014 OV_{356}	16.8	X	298.95224	100.04805	298.92655	9.87888	0.0745690	0.17719684	3.1392945	20	9 8.3	21.0
487198 2014 OE_{358}	17.2	X	168.81212	128.40122	126.66658	7.10860	0.1521471	0.21682654	2.7440652	20	—	—
487199 2014 OB_{360}	16.1	X	355.59882	190.69166	157.50975	14.50920	0.0999562	0.17094809	3.2153374	20	10 4.8	20.2
487200 2014 OD_{360}	16.7	X	283.66792	235.70979	337.05723	8.51781	0.0396741	0.24621592	2.5211110	20	—	—

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
487201 2014 OW_{363}	16.4	X	263.61693	319.51323	118.49678	12.88238	0.0523783	0.18230823	3.0803391	20	9 23.9	20.8
487202 2014 OL_{369}	16.2	X	359.13393	219.85410	130.47771	9.84285	0.0812672	0.18448751	3.0560332	20	10 15.7	20.2
487203 2014 ON_{374}	16.5	X	297.55838	308.68496	112.48088	11.75324	0.1013110	0.18798100	3.0180522	20	10 14.5	20.5
487204 2014 OY_{374}	16.2	X	327.85629	276.56341	123.50827	11.33992	0.0989969	0.18975900	2.9991703	20	11 3.1	20.1
487205 2014 OK_{375}	17.2	X	76.73675	183.05588	118.25706	6.24436	0.1437884	0.20086303	2.8875934	20	12 2.0	21.6
487206 2014 OM_{375}	16.5	X	346.85895	17.04810	328.70810	9.84076	0.0801792	0.17562076	3.1580487	20	9 12.5	20.5
487207 2014 OT_{375}	16.4	X	357.28063	27.27622	329.82259	10.39796	0.1159279	0.18418284	3.0594024	20	10 14.6	20.3
487208 2014 OZ_{375}	17.1	X	175.69029	159.09052	116.68769	11.97111	0.1564802	0.23910391	2.5708590	20	—	—
487209 2014 OF_{377}	16.2	X	348.03260	287.03741	103.04967	11.11533	0.1158836	0.19230435	2.9726468	20	11 21.8	19.9
487210 2014 OK_{377}	16.1	X	310.86502	264.04584	122.42773	10.18156	0.0780917	0.17438712	3.1729247	20	9 17.1	20.3
487211 2014 OL_{377}	17.1	X	104.29917	309.86210	350.77454	3.65092	0.1214316	0.21203967	2.7852102	20	12 27.7	21.4
487212 2014 OK_{379}	16.6	X	10.37423	314.28619	91.86407	6.88932	0.0390001	0.22297071	2.6934206	20	—	—
487213 2014 OV_{379}	17.2	X	124.30371	213.27615	87.96087	6.82067	0.0927307	0.22780875	2.6551504	20	—	—
487214 2014 OZ_{380}	16.5	X	8.52813	184.45415	143.94123	10.05431	0.1307797	0.18107918	3.0942617	20	10 4.5	20.3
487215 2014 OF_{383}	15.8	X	273.20871	338.37029	81.00966	7.95210	0.1303339	0.17485307	3.1672854	20	8 29.8	20.2
487216 2014 OF_{386}	16.6	X	296.32753	131.65148	297.99877	8.69485	0.0437720	0.19238222	2.9718446	20	10 20.1	20.7
487217 2014 OL_{386}	16.1	X	145.89550	273.46385	277.31047	7.40878	0.0261369	0.18231270	3.0802888	20	9 16.7	20.7
487218 2014 ON_{386}	16.3	X	332.88509	73.77744	299.24667	14.69971	0.1464258	0.17862280	3.1225647	20	9 19.4	20.2
487219 2014 OD_{388}	17.5	X	147.73549	302.24463	349.62451	5.81109	0.0991559	0.22877512	2.6476680	20	—	—
487220 2014 OJ_{388}	16.6	X	3.16963	5.85315	333.66810	16.71526	0.1885795	0.17857454	3.1231273	20	10 3.8	20.4
487221 2014 OT_{388}	17.7	X	198.43898	28.09508	228.68345	1.67780	0.1353565	0.24187292	2.5512003	20	—	—
487222 2014 OJ_{390}	16.5	X	15.23807	204.48581	116.01424	19.92257	0.1166192	0.17361030	3.1823826	20	10 7.7	20.9
487223 2014 OF_{391}	16.0	X	7.54237	279.26638	86.71429	10.24279	0.1195963	0.17812811	3.1283434	20	11 17.4	19.9
487224 2014 OW_{391}	16.0	X	153.52035	158.43911	209.42864	33.40768	0.2732480	0.23597102	2.5935638	20	2 21.0	21.0
487225 2014 PP	16.8	X	139.89757	299.72549	29.54854	10.15917	0.1108668	0.24412963	2.5354539	20	—	—
487226 2014 PR_{1}	17.0	X	206.70591	289.56556	328.11928	13.34982	0.0614711	0.24283312	2.5444706	20	—	—
487227 2014 PS_{2}	17.7	X	179.68549	125.84542	141.29898	4.02330	0.1275387	0.23767043	2.5811859	20	—	—
487228 2014 PZ_{4}	16.6	X	21.18640	266.47600	74.90056	3.13309	0.1621528	0.18930048	3.0040114	20	11 13.2	20.3
487229 2014 PL_{5}	17.3	X	287.91860	323.93152	135.14247	2.76656	0.0433283	0.20363149	2.8613617	20	11 22.4	21.0
487230 2014 PE_{6}	16.4	X	8.17682	69.20966	260.21182	8.36665	0.1389377	0.18044671	3.1014877	20	9 28.3	20.2
487231 2014 PZ_{7}	17.1	X	181.47915	124.80363	139.00625	13.78855	0.1573179	0.23823959	2.5770732	20	—	—
487232 2014 PG_{8}	17.0	X	93.28986	206.36243	147.59748	6.32390	0.1595471	0.22793021	2.6542070	20	—	—
487233 2014 PS_{8}	15.4	X	2.98888	203.29985	133.09098	21.35787	0.0465179	0.18246723	3.0785494	20	10 2.9	19.8
487234 2014 PA_{10}	17.4	X	181.71039	228.46324	350.71793	2.63804	0.1174345	0.21288072	2.7778694	20	12 4.4	21.7
487235 2014 PQ_{10}	16.5	X	216.91540	3.23573	143.56432	11.78011	0.0191283	0.18906280	3.0065285	20	10 26.6	20.9
487236 2014 PC_{11}	15.9	X	198.51347	136.41143	317.85293	8.74458	0.0418107	0.15220871	3.4741058	20	7 22.1	20.9
487237 2014 PD_{11}	16.1	X	305.95439	84.00418	324.79903	9.04480	0.0851782	0.18038223	3.1022268	20	10 1.1	20.2
487238 2014 PG_{12}	16.3	X	129.04121	289.36150	322.00264	13.99367	0.1208165	0.20260122	2.8710539	20	11 17.2	21.1
487239 2014 PZ_{12}	16.4	X	297.78150	274.53576	141.87481	11.64286	0.1594693	0.17565796	3.1576028	20	9 26.5	20.4
487240 2014 PM_{13}	18.0	X	256.39219	34.81876	215.25964	1.88895	0.1858219	0.26531019	2.3986493	20	—	—
487241 2014 PU_{13}	15.8	X	15.44684	168.04412	150.57720	14.32845	0.1869978	0.17511024	3.1641837	20	10 9.4	19.7
487242 2014 PX_{14}	16.3	X	232.24602	323.82505	147.74310	15.93474	0.0075787	0.17833112	3.1259687	20	9 30.9	20.8
487243 2014 PB_{15}	16.9	X	327.20852	71.89961	316.40985	8.11111	0.0662991	0.18085838	3.0967795	20	10 7.4	21.1
487244 2014 PF_{16}	17.1	X	116.98104	127.15257	126.80255	3.03293	0.0691794	0.19494993	2.9456920	20	11 9.6	21.4
487245 2014 PJ_{16}	17.1	X	177.88362	328.83609	319.14578	10.31307	0.1164868	0.23977148	2.5660850	20	—	—
487246 2014 PN_{16}	16.7	X	75.12488	142.71868	145.38803	10.26062	0.0630614	0.18943016	3.0026402	20	11 5.2	21.1
487247 2014 PT_{16}	16.1	X	277.67861	300.37816	144.24892	22.72696	0.1579731	0.17889732	3.1193695	20	10 5.6	20.5
487248 2014 PQ_{18}	16.7	X	68.84031	342.09241	343.38364	9.88172	0.0767462	0.20277641	2.8694000	20	12 13.6	21.0
487249 2014 PA_{27}	16.3	X	12.30001	350.73841	340.38750	12.01419	0.0980460	0.17656411	3.1467900	20	10 2.1	20.4
487250 2014 PU_{27}	17.5	X	101.50381	206.33122	133.04700	7.13382	0.0281367	0.22201891	2.7011129	20	—	—
487251 2014 PW_{27}	16.8	X	154.22775	257.63300	352.16064	6.89875	0.1749177	0.21401092	2.7680807	20	12 12.7	21.5
487252 2014 PY_{27}	15.7	X	159.93425	34.10130	135.18036	13.10322	0.0193894	0.16922596	3.2371144	20	9 11.7	20.4
487253 2014 PN_{30}	16.4	X	23.87623	210.84970	139.50647	12.52778	0.0266889	0.18910998	3.0060285	20	11 13.9	20.8
487254 2014 PT_{30}	16.4	X	51.69674	339.08482	334.45005	8.95998	0.0759059	0.18645666	3.0344788	20	11 2.0	20.8
487255 2014 PL_{33}	16.0	X	345.42904	345.76325	359.76641	10.15412	0.0323896	0.16934577	3.2355875	20	9 12.4	20.3
487256 2014 PN_{33}	17.5	X	158.01762	237.13958	28.13485	4.34357	0.0210577	0.21441722	2.7645828	20	—	—
487257 2014 PX_{33}	15.8	X	33.40788	206.47878	120.46619	10.33981	0.1345113	0.18396867	3.0617764	20	11 10.6	20.0
487258 2014 PJ_{34}	16.6	X	101.10454	181.32122	127.54689	13.76299	0.1922046	0.21033915	2.8002017	20	—	—
487259 2014 PR_{34}	16.6	X	79.14951	278.48694	6.68450	8.95022	0.1085937	0.18896589	3.0075563	20	11 5.6	21.2
487260 2014 PH_{35}	17.3	X	238.51829	277.00122	313.91679	12.31074	0.1306058	0.24512554	2.5285818	20	—	—
487261 2014 PU_{35}	16.7	X	299.45402	277.13581	130.75486	9.31602	0.0309767	0.17914838	3.1164545	20	10 3.6	21.0
487262 2014 PR_{37}	15.7	X	279.37089	283.20420	141.96592	11.80626	0.0564347	0.17160810	3.2070879	20	9 23.9	20.2
487263 2014 PS_{40}	16.4	X	243.76079	327.21887	160.12650	11.24582	0.0598335	0.18399331	3.0615030	20	10 27.7	20.8
487264 2014 PV_{46}	16.2	X	282.94072	112.45200	335.28115	18.39260	0.1872566	0.18237790	3.0795546	20	9 29.7	20.3
487265 2014 PO_{48}	16.1	X	357.13679	26.26577	343.75333	9.19162	0.1084493	0.18253112	3.0778310	20	10 31.4	20.0
487266 2014 PZ_{51}	16.8	X	74.01999	346.77331	326.08708	8.76518	0.0625899	0.19323575	2.9630870	20	11 29.5	21.2
487267 2014 PU_{53}	15.8	X	318.53032	326.45196	87.74954	12.66426	0.0176819	0.18331444	3.0690568	20	11 7.5	20.1
487268 2014 PT_{54}	16.4	X	93.77203	328.91351	355.81754	10.56443	0.1537274	0.20897404	2.8123832	20	—	—
487269 2014 PD_{57}	15.9	X	77.85516	219.47547	78.08680	13.30807	0.0669713	0.18718913	3.0265577	20	11 18.5	20.3
487270 2014 PJ_{57}	15.9	X	13.95955	267.51336	63.93727	17.40215	0.0895863	0.17138796	3.2098335	20	10 15.6	20.3
487271 2014 PM_{58}	16.0	X	63.81394	132.87667	145.18600	18.92521	0.0770862	0.17785755	3.1315152	20	10 12.1	20.7
487272 2014 PV_{59}	15.5	X	352.44131	267.83703	97.79097	22.48029	0.2611581	0.17444190	3.1722605	20	11 11.8	19.1
487273 2014 PH_{63}	17.6	X	202.25331	137.97315	140.68509	0.09098	0.1814455	0.25233301	2.4801998	20	—	—
487274 2014 PR_{63}	16.9	X	46.05605	352.67532	323.96519	11.39519	0.0919915	0.19056209	2.9907381	20	10 31.6	21.2
487275 2014 PN_{64}	16.2	X	356.47442	215.74365	129.67734	15.47788	0.2033573	0.17481166	3.1677856	20	10 14.6	19.9
487276 2014 PJ_{66}	16.5	X	61.37958	66.73957	300.58540	11.58426	0.0994473	0.21793671	2.7347384	20	—	—
487277 2014 PN_{68}	17.7	X	176.45524	85.70005	167.71673	5.82454	0.0464764	0.22582832	2.6706509	20	—	—
487278 2014 PD_{69}	16.9	X	67.81160	197.79068	147.71546	8.05770	0.1473422	0.21178022	2.7874844	20	—	—
487279 2014 PK_{69}	16.9	X	340.07689	74.49818	310.16795	9.41771	0.1026714	0.18432134	3.0578696	20	10 22.5	20.8
487280 2014 QK	16.2	X	129.50639	188.92114	123.75909	22.20587	0.2863953	0.22478727	2.6788902	20	—	—

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Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
487281 2014 QN_{1}	17.0	X	128.20971	136.68100	184.55702	12.46677	0.1212619	0.22174134	2.7033665	20	—	—
487282 2014 QQ_{10}	17.5	X	164.12950	18.25104	259.50520	9.96577	0.1267523	0.23122019	2.6289695	20	—	—
487283 2014 QL_{21}	16.9	X	28.65960	98.24663	239.77193	7.77472	0.0539967	0.18291853	3.0734837	20	11 1.9	21.1
487284 2014 QV_{23}	16.2	X	262.25194	133.18482	324.31764	16.06867	0.0823848	0.17556733	3.1586893	20	9 28.2	20.8
487285 2014 QC_{25}	16.2	X	286.54294	86.16611	309.08205	8.54882	0.0849247	0.15635909	3.4123530	20	8 16.7	20.9
487286 2014 QL_{25}	16.4	X	331.93995	43.86454	308.05277	8.83871	0.0516655	0.16021772	3.3573428	20	8 27.7	21.0
487287 2014 QR_{26}	17.8	X	212.44724	82.12264	177.57491	9.37384	0.2506254	0.24481397	2.5307268	20	—	—
487288 2014 QD_{34}	17.8	X	254.62119	349.02167	232.45094	2.45510	0.1318348	0.25533844	2.4606995	20	—	—
487289 2014 QZ_{34}	16.5	X	334.18234	212.87515	146.40899	10.86405	0.0809643	0.17770767	3.1332756	20	9 15.7	20.5
487290 2014 QZ_{37}	16.5	X	20.86509	51.77005	274.38324	2.52594	0.1308371	0.18297872	3.0728097	20	10 16.8	20.5
487291 2014 QO_{38}	16.4	X	329.25512	126.44434	277.08795	16.73297	0.1447652	0.18746116	3.0236291	20	10 29.9	20.2
487292 2014 QU_{38}	15.5	X	353.84028	97.74894	258.24208	12.34822	0.0455597	0.18268662	3.0760842	20	10 3.0	19.9
487293 2014 QR_{40}	17.1	X	146.74486	334.89734	310.02566	5.19270	0.0696870	0.21567320	2.7538393	20	—	—
487294 2014 QV_{41}	16.5	X	59.58572	45.24719	253.61101	8.50974	0.0752314	0.18668364	3.0320187	20	10 26.4	20.9
487295 2014 QU_{42}	16.9	X	202.01178	268.56362	325.07121	11.63370	0.2262039	0.22702112	2.6612880	20	—	—
487296 2014 QM_{43}	16.0	X	261.80256	141.93095	286.97554	13.31024	0.0661881	0.17771081	3.1332387	20	8 26.9	20.7
487297 2014 QE_{53}	17.9	X	256.23252	292.66701	309.39410	9.16173	0.1634775	0.26451965	2.4034260	20	—	—
487298 2014 QL_{56}	17.8	X	203.70760	61.12079	239.22971	4.36066	0.2357590	0.26128793	2.4232031	20	1 12.7	21.9
487299 2014 QX_{58}	16.8	X	351.70054	123.79756	262.43500	4.54208	0.0140342	0.19833688	2.9120605	20	11 13.3	20.8
487300 2014 QP_{61}	16.4	X	75.75473	97.65461	140.37833	16.88067	0.1053136	0.17454759	3.1709798	20	9 7.3	21.0
487301 2014 QZ_{61}	16.5	X	170.37967	250.10522	315.10479	13.99668	0.1005518	0.20328267	2.8646340	20	10 31.3	21.2
487302 2014 QN_{66}	17.3	X	230.69075	267.81734	318.73286	13.24518	0.0909427	0.24091911	2.5579294	20	—	—
487303 2014 QQ_{71}	16.8	X	26.01360	154.16575	178.83206	7.86148	0.0690842	0.18817391	3.0159892	20	10 28.7	20.8
487304 2014 QX_{73}	16.2	X	340.70307	85.11239	280.35131	13.51630	0.0677782	0.17925630	3.1152035	20	9 23.9	20.6
487305 2014 QY_{75}	16.8	X	32.24910	129.49793	281.34150	10.31397	0.0835681	0.22261377	2.6962989	20	—	—
487306 2014 QR_{87}	16.1	X	15.07908	115.48394	233.63566	7.68736	0.1194395	0.18619112	3.0373633	20	11 6.6	20.0
487307 2014 QZ_{88}	16.6	X	35.49178	65.69736	249.10059	6.68186	0.1710334	0.18337073	3.0684287	20	10 29.2	20.6
487308 2014 QW_{106}	16.3	X	16.68711	40.37309	310.52486	11.69191	0.0563082	0.18777016	3.0203110	20	10 30.1	20.6
487309 2014 QX_{108}	17.0	X	128.53977	43.51063	242.03527	8.34969	0.1379683	0.21754757	2.7379987	20	—	—
487310 2014 QZ_{112}	17.5	X	121.07367	104.98708	195.93948	3.88726	0.0546302	0.21696274	2.7429167	20	—	—
487311 2014 QF_{113}	16.6	X	265.79219	235.40883	219.72483	4.00480	0.1108605	0.18167484	3.0874945	20	10 3.5	20.8
487312 2014 QM_{114}	16.8	X	222.22662	337.24733	164.03385	9.95768	0.0238394	0.18697651	3.0288517	20	10 23.6	21.1
487313 2014 QQ_{115}	15.9	X	227.46557	148.21725	338.56279	26.15820	0.1417413	0.17510586	3.1642364	20	9 16.2	20.9
487314 2014 QA_{116}	16.4	X	249.70360	176.39684	314.13749	9.47500	0.0489478	0.18827162	3.0149455	20	11 3.2	20.8
487315 2014 QB_{119}	16.9	X	24.23625	212.48629	157.76887	11.87599	0.0617831	0.19565311	2.9386298	20	12 12.1	21.1
487316 2014 QW_{121}	17.0	X	72.28356	322.91235	1.29376	1.26305	0.0626495	0.19855793	2.9098989	20	12 13.8	21.2
487317 2014 QT_{126}	17.1	X	239.54959	250.10862	296.81529	3.93827	0.1014040	0.21199705	2.7855834	20	—	—
487318 2014 QP_{129}	16.8	X	98.61859	99.81199	164.92357	4.03482	0.0125127	0.18028813	3.1033062	20	10 25.3	21.2
487319 2014 QT_{129}	16.4	X	33.07706	193.31515	161.79636	10.39621	0.1086477	0.19070849	2.9892072	20	12 10.1	20.6
487320 2014 QQ_{133}	16.3	X	234.02370	349.29619	154.40350	11.27540	0.0588510	0.18620541	3.0372079	20	11 5.8	20.8
487321 2014 QR_{134}	17.0	X	60.03458	298.09909	16.04359	5.39629	0.1671402	0.18975579	2.9992041	20	11 28.3	21.4
487322 2014 QY_{134}	17.4	X	81.02673	296.77950	57.01034	3.09785	0.0805701	0.21387932	2.7692161	20	—	—
487323 2014 QQ_{144}	16.9	X	147.34617	315.42939	316.60537	9.17979	0.0884406	0.21254766	2.7807706	20	—	—
487324 2014 QV_{145}	16.8	X	246.75520	126.99809	348.09157	9.87878	0.0893464	0.17777526	3.1324814	20	10 5.2	21.4
487325 2014 QO_{152}	16.4	X	143.53676	334.43019	303.47412	13.76650	0.1717336	0.21885120	2.7271148	20	—	—
487326 2014 QG_{153}	16.0	X	44.44064	123.31126	198.81942	10.90747	0.0937044	0.18701692	3.0284154	20	11 11.2	20.2
487327 2014 QL_{153}	16.4	X	332.19758	21.78781	339.81316	16.38059	0.1963740	0.17532179	3.1616379	20	9 7.4	19.8
487328 2014 QV_{171}	17.0	X	15.74586	29.55614	343.03022	8.24421	0.0565471	0.19393288	2.9559818	20	11 29.7	21.1
487329 2014 QA_{172}	16.9	X	73.71249	152.23657	177.04354	5.98091	0.0647276	0.20158253	2.8807183	20	12 22.6	21.1
487330 2014 QV_{172}	16.9	X	126.34467	316.68151	337.35642	5.26305	0.0090165	0.20859871	2.8157557	20	—	—
487331 2014 QC_{174}	16.2	X	301.93018	196.16408	166.10567	10.46762	0.0534288	0.14985351	3.5104122	20	7 30.2	21.0
487332 2014 QU_{174}	16.7	X	149.12457	63.82120	127.65921	2.87587	0.0665034	0.17170885	3.2058332	20	9 26.1	21.6
487333 2014 QM_{175}	16.0	X	277.95285	109.93347	359.74255	11.65315	0.0595959	0.18889070	3.0083544	20	11 12.3	20.2
487334 2014 QL_{176}	16.4	X	69.55447	111.71801	166.84347	10.87619	0.0782012	0.17515976	3.1635873	20	10 16.4	21.0
487335 2014 QS_{176}	16.9	X	167.04666	110.03293	162.47618	12.84208	0.1605124	0.22303126	2.6929330	20	—	—
487336 2014 QY_{190}	16.7	X	15.06955	166.45014	161.48451	13.30397	0.1152960	0.17633824	3.1494766	20	10 11.3	20.7
487337 2014 QA_{192}	15.8	X	20.43134	42.67286	282.96175	3.84834	0.1379936	0.17768250	3.1335715	20	10 14.6	19.8
487338 2014 QK_{193}	16.6	X	173.96684	268.46843	315.34030	13.96842	0.1060556	0.20610761	2.8383985	20	11 30.5	21.2
487339 2014 QS_{194}	16.2	X	16.13273	55.18028	283.65433	6.95345	0.1739239	0.18020987	3.1042045	20	10 29.5	20.0
487340 2014 QF_{197}	17.5	X	160.74778	45.03366	220.54893	4.41083	0.2141845	0.22451375	2.6810654	20	—	—
487341 2014 QN_{199}	16.3	X	33.58739	8.11413	319.54639	14.71428	0.0562056	0.18305923	3.0719087	20	10 20.1	20.8
487342 2014 QF_{200}	16.3	X	39.19449	357.27882	317.36788	9.54257	0.1011861	0.18152959	3.0891413	20	10 20.1	20.6
487343 2014 QA_{201}	16.2	X	196.13693	241.86141	323.70630	14.28493	0.0934909	0.20594269	2.8399136	20	12 2.3	20.7
487344 2014 QA_{202}	16.6	X	181.36788	4.65720	170.10214	11.34956	0.0640195	0.18148133	3.0896889	20	10 12.4	21.2
487345 2014 QY_{203}	17.0	X	187.47291	302.67501	323.57017	12.05367	0.1604588	0.23507491	2.6001508	20	—	—
487346 2014 QE_{205}	16.4	X	290.31141	248.94727	165.55984	9.92564	0.0478203	0.17308392	3.1888315	20	9 24.4	20.7
487347 2014 QE_{206}	16.2	X	33.95460	350.00628	334.35173	8.99000	0.1159505	0.18266335	3.0763454	20	10 28.3	20.4
487348 2014 QT_{207}	16.5	X	113.11308	352.83390	250.90168	2.36178	0.0487555	0.18287604	3.0739598	20	10 18.7	20.9
487349 2014 QV_{207}	16.4	X	39.37211	340.94819	321.42429	8.44030	0.0913879	0.17562828	3.1579584	20	10 3.3	20.8
487350 2014 QB_{213}	17.5	X	134.52950	325.32875	328.68901	4.24365	0.0820781	0.21680328	2.7442614	20	—	—
487351 2014 QV_{214}	16.9	X	295.42112	128.98688	327.96213	10.35157	0.0861732	0.19188146	2.9770128	20	11 19.6	20.9
487352 2014 QB_{215}	17.0	X	152.72669	117.46587	174.26208	9.19420	0.0961473	0.22462551	2.6801761	20	—	—
487353 2014 QF_{217}	16.3	X	298.47323	117.17505	318.99420	9.98534	0.0203499	0.18730632	3.0252952	20	10 31.9	20.6
487354 2014 QE_{218}	16.4	X	130.31788	275.60987	315.04689	10.63541	0.0901622	0.18593400	3.0401628	20	10 20.0	21.2
487355 2014 QO_{220}	16.5	X	293.92211	177.32475	271.04357	4.55510	0.1421245	0.18848571	3.0126621	20	11 1.2	20.2
487356 2014 QS_{226}	16.2	X	263.76784	146.11199	338.90327	9.91140	0.0791371	0.19132980	2.9827324	20	11 10.8	20.4
487357 2014 QJ_{227}	17.5	X	178.05728	285.44245	340.13916	2.24093	0.1523736	0.22766595	2.6562605	20	—	—
487358 2014 QW_{227}	16.0	X	239.24325	310.37428	161.04902	26.33360	0.0426372	0.17307889	3.1888932	20	10 3.1	20.7
487359 2014 QT_{237}	16.3	X	232.47335	126.57436	355.00482	16.68871	0.1087384	0.16993808	3.2280648	20	9 24.1	21.1
487360 2014 QY_{241}	15.9	X	290.16668	52.70611	19.66766	12.37179	0.1370365	0.17148742	3.2085924	20	10 5.3	20.0

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Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
487361 2014 QH_{242}	16.4	X	340.97629	228.58526	147.11652	16.43525	0.0678119	0.17309132	3.1887406	20	10 19.3	20.8
487362 2014 QJ_{242}	16.8	X	101.47179	213.96824	34.68395	9.03211	0.0564011	0.17490381	3.1666729	20	10 13.2	21.4
487363 2014 QB_{244}	16.4	X	268.53446	347.38686	102.11040	9.57942	0.0842185	0.17147725	3.2087192	20	10 8.2	21.0
487364 2014 QU_{247}	17.4	X	135.35200	257.11307	33.18634	8.56336	0.0951328	0.21228053	2.7831030	20	—	—
487365 2014 QB_{248}	16.6	X	95.99107	145.77234	141.74113	13.00836	0.1078427	0.19205790	2.9751893	20	12 1.8	21.3
487366 2014 QR_{251}	17.6	X	292.00767	114.00321	121.47315	11.15994	0.2093937	0.26564924	2.3966080	20	1 9.6	21.2
487367 2014 QU_{251}	15.8	X	31.85256	237.39750	91.78187	10.20402	0.0539920	0.17638721	3.1488936	20	10 30.0	20.2
487368 2014 QA_{252}	16.1	X	129.90866	195.84917	24.83343	20.94098	0.0813107	0.17417952	3.1754455	20	10 12.5	20.9
487369 2014 QQ_{255}	16.4	X	265.46402	57.92383	88.09824	9.69897	0.0545402	0.19571558	2.9380045	20	12 17.2	20.1
487370 2014 QV_{255}	17.0	X	166.27355	193.81810	76.79748	8.60673	0.0948178	0.21454176	2.7635129	20	—	—
487371 2014 QG_{256}	16.2	X	3.77509	299.89440	57.85934	12.04388	0.0605736	0.17434214	3.1734705	20	10 26.9	20.5
487372 2014 QP_{256}	16.4	X	178.85378	129.90627	78.71469	11.66575	0.0325439	0.18721840	3.0262423	20	11 21.7	20.8
487373 2014 QX_{257}	17.0	X	247.11270	88.88775	134.45997	18.43001	0.2125340	0.23533462	2.5982375	20	—	—
487374 2014 QE_{265}	16.6	X	265.95844	36.84236	81.86388	11.78852	0.0724469	0.18539898	3.0460088	20	11 12.2	20.8
487375 2014 QV_{265}	16.2	X	6.17576	46.09307	303.56156	9.32835	0.0407328	0.17907001	3.1173637	20	10 11.4	20.6
487376 2014 QF_{272}	15.9	X	340.25848	352.61967	354.04165	10.31845	0.0703617	0.17916525	3.1162589	20	9 7.9	20.0
487377 2014 QQ_{273}	16.8	X	43.52190	12.77855	338.28365	8.39706	0.0445521	0.19508534	2.9443287	20	12 8.1	21.0
487378 2014 QR_{276}	16.5	X	309.76742	41.12889	329.17343	8.30923	0.0452914	0.16879308	3.2426466	20	8 24.1	20.8
487379 2014 QK_{277}	17.1	X	93.91688	163.64106	141.65975	7.27612	0.0641979	0.20886677	2.8133460	20	12 18.2	21.2
487380 2014 QF_{282}	16.1	X	226.60612	345.22212	137.78262	13.95101	0.0591120	0.18101547	3.0949876	20	10 2.7	20.7
487381 2014 QE_{283}	16.9	X	140.98766	276.66745	25.61351	13.48114	0.2000695	0.22788656	2.6545459	20	—	—
487382 2014 QS_{283}	17.2	X	164.52688	181.75295	93.16359	12.76064	0.0625126	0.22306625	2.6926514	20	—	—
487383 2014 QG_{288}	16.3	X	152.11251	175.49055	80.59946	15.96877	0.1922236	0.21253605	2.7808719	20	12 17.8	20.8
487384 2014 QZ_{288}	16.2	X	294.75603	324.42872	113.35661	18.59801	0.1998298	0.17829744	3.1263624	20	10 20.7	20.3
487385 2014 QU_{298}	16.8	X	317.25779	193.28313	196.26468	1.20901	0.0504949	0.17701000	3.1415033	20	9 28.8	20.8
487386 2014 QA_{301}	16.1	X	308.02147	327.82827	50.12155	7.82262	0.1327205	0.15494004	3.4331566	20	8 24.4	20.5
487387 2014 QP_{302}	16.2	X	335.13663	218.00169	158.51632	14.88174	0.0532933	0.17945968	3.1128495	20	10 11.4	20.4
487388 2014 QO_{304}	16.5	X	155.40089	86.08432	117.83934	10.25246	0.0450293	0.17791010	3.1308984	20	10 21.9	21.3
487389 2014 QD_{305}	16.7	X	2.27695	21.06279	316.19206	13.30491	0.0736989	0.17288282	3.1913039	20	9 20.2	21.0
487390 2014 QX_{307}	17.1	X	117.01577	162.88891	153.20133	3.80616	0.0881986	0.20940954	2.8084827	20	—	—
487391 2014 QF_{311}	16.8	X	66.58580	299.75345	13.60803	9.17716	0.1293358	0.20449688	2.8532835	20	12 1.9	21.1
487392 2014 QA_{312}	17.7	X	182.66908	206.17565	137.91651	6.76199	0.1180628	0.26863155	2.3788371	20	2 12.7	21.0
487393 2014 QO_{315}	16.9	X	30.30161	181.46990	137.14540	15.34220	0.1275051	0.18784099	3.0195517	20	10 28.7	21.2
487394 2014 QA_{316}	16.4	X	257.29755	343.81690	125.39624	11.69589	0.0808684	0.19285450	2.9669908	20	10 22.7	20.7
487395 2014 QG_{322}	17.8	X	282.56359	99.30501	154.43133	1.70311	0.1523366	0.26338127	2.4103464	20	1 29.3	21.3
487396 2014 QO_{326}	16.3	X	47.07899	192.48352	165.83422	10.03090	0.0728038	0.19044452	2.9919688	20	12 25.0	20.7
487397 2014 QA_{327}	15.7	X	349.15860	9.18953	17.96271	18.14562	0.2247951	0.17359841	3.1825279	20	11 13.9	19.3
487398 2014 QM_{329}	16.2	X	220.81440	82.20066	126.20114	8.59607	0.0201036	0.19887763	2.9067795	20	—	—
487399 2014 QY_{334}	16.2	X	145.29710	107.84864	121.24458	9.38289	0.0368192	0.17229082	3.1986101	20	11 7.8	21.0
487400 2014 QR_{338}	16.5	X	278.58198	113.49720	322.28886	16.21333	0.0515403	0.18321308	3.0701887	20	9 27.5	21.0
487401 2014 QN_{339}	16.5	X	263.02241	128.48259	309.65214	10.71530	0.0922817	0.17442261	3.1724944	20	9 7.1	21.1
487402 2014 QA_{342}	15.9	X	61.92511	132.10466	147.49168	16.94271	0.1000053	0.18220966	3.0814499	20	10 15.2	20.5
487403 2014 QB_{344}	16.3	X	127.46808	270.67423	307.25739	8.98782	0.0749686	0.18471105	3.0535671	20	10 1.3	21.0
487404 2014 QM_{346}	15.9	X	324.62760	319.82780	64.16664	16.56839	0.0815130	0.17575578	3.1564311	20	10 9.5	20.2
487405 2014 QT_{360}	16.3	X	99.24592	267.79116	352.78082	8.80626	0.0573148	0.17569823	3.1571203	20	10 20.9	21.0
487406 2014 QU_{360}	15.9	X	313.61111	48.28022	0.25620	11.67773	0.0425136	0.17235199	3.1978532	20	10 14.6	20.3
487407 2014 QQ_{365}	16.4	X	80.18977	100.17107	180.25251	10.45044	0.1192746	0.18672951	3.0315221	20	11 6.5	21.0
487408 2014 QW_{367}	15.7	X	342.77676	283.63132	128.90313	10.00781	0.1522806	0.17732272	3.1378086	20	12 8.6	19.4
487409 2014 QL_{370}	16.7	X	358.88378	357.94092	12.34005	10.09226	0.0863818	0.17869180	3.1217608	20	11 1.9	20.8
487410 2014 QR_{372}	16.9	X	152.68634	223.77563	68.73790	5.85524	0.0925993	0.21928567	2.7235115	20	—	—
487411 2014 QS_{374}	17.1	X	209.25440	291.73493	312.38124	5.63874	0.0134354	0.21988721	2.7185421	20	—	—
487412 2014 QZ_{375}	17.1	X	112.02109	341.67814	338.01401	6.43015	0.1019176	0.21147249	2.7901880	20	—	—
487413 2014 QR_{376}	15.7	X	319.17773	212.95241	184.08152	17.40038	0.1418455	0.16802499	3.2525212	20	10 4.6	19.5
487414 2014 QA_{378}	16.8	X	60.48180	336.78031	348.89589	15.63763	0.0795682	0.18769144	3.0211555	20	11 28.0	21.4
487415 2014 QG_{383}	16.5	X	89.52326	314.92845	344.38009	9.74737	0.0955853	0.18795448	3.0183361	20	12 2.8	21.2
487416 2014 QH_{384}	15.5	X	183.40611	198.31611	338.35162	27.92097	0.1334581	0.17864768	3.1222748	20	9 28.2	20.8
487417 2014 QW_{384}	16.7	X	121.44289	92.26422	165.70367	13.54573	0.1360892	0.19065574	2.9897586	20	11 23.1	21.7
487418 2014 QV_{394}	16.7	X	262.72047	235.92135	358.89100	4.83689	0.1214213	0.24508349	2.5288710	20	—	—
487419 2014 QT_{403}	16.8	X	98.94032	94.53627	241.92384	7.89085	0.1446683	0.21345130	2.7729169	20	—	—
487420 2014 QD_{407}	16.4	X	85.08526	281.10720	357.60864	10.36417	0.0661672	0.17787535	3.1313061	20	10 27.7	21.1
487421 2014 QU_{412}	16.6	X	100.29464	163.95716	155.25267	5.06202	0.0578675	0.21274046	2.7790903	20	—	—
487422 2014 QW_{413}	16.5	X	343.75350	95.11822	305.54922	12.86247	0.1462234	0.18482991	3.0522578	20	11 22.9	20.3
487423 2014 QZ_{417}	16.0	X	71.57239	330.37962	308.84155	5.07682	0.1682030	0.17487588	3.1670101	20	10 26.4	20.8
487424 2014 QS_{422}	16.7	X	288.05628	75.92343	349.18236	9.51838	0.0893485	0.17407061	3.1767698	20	9 26.9	21.0
487425 2014 QK_{423}	17.4	X	140.34090	289.49543	52.91618	4.30604	0.0318785	0.24089823	2.5580772	20	—	—
487426 2014 QV_{423}	16.0	X	34.98878	124.60543	210.77422	9.67600	0.0400412	0.17844810	3.1246024	20	11 5.6	20.3
487427 2014 QF_{426}	15.6	X	344.63872	65.29885	322.45668	9.38129	0.0943476	0.17432146	3.1737215	20	10 31.5	19.8
487428 2014 QR_{427}	16.1	X	127.04878	59.86127	164.31878	17.89985	0.1293021	0.17976742	3.1092959	20	10 18.7	21.2
487429 2014 QF_{429}	16.5	X	67.08849	91.24828	192.03655	10.24975	0.0474359	0.17670000	3.1451764	20	10 13.3	20.9
487430 2014 QS_{431}	16.4	X	164.98772	267.12890	30.64113	18.65466	0.1151579	0.21488909	2.7605343	20	—	—
487431 2014 RR_{3}	16.9	X	20.99495	196.61455	151.45361	10.12614	0.0355558	0.18539737	3.0460265	20	11 6.9	21.2
487432 2014 RU_{8}	16.8	X	357.49445	217.41964	129.28211	10.30476	0.0892741	0.17303996	3.1893715	20	10 6.9	21.0
487433 2014 RE_{15}	15.9	X	71.15245	20.70991	275.09522	8.32212	0.0528118	0.18487242	3.0517899	20	11 1.8	20.3
487434 2014 RK_{21}	17.9	X	235.30145	60.65205	216.35858	0.69710	0.1709467	0.26342665	2.4100696	20	1 11.1	21.8
487435 2014 RD_{27}	16.5	X	136.37502	38.22074	232.85162	13.08515	0.1868310	0.21133076	2.7914354	20	12 21.8	21.3
487436 2014 RW_{29}	16.3	X	340.12798	37.13687	342.91563	8.21603	0.1259726	0.17650174	3.1475313	20	10 16.7	20.2
487437 2014 RW_{33}	16.4	X	12.51669	184.72210	153.44040	13.14398	0.1512023	0.17530149	3.1618819	20	10 25.6	20.4
487438 2014 RO_{35}	16.0	X	347.60596	0.70876	46.43725	10.16581	0.0485358	0.19217512	2.9739793	20	12 4.1	20.0
487439 2014 RH_{36}	16.7	X	93.69593	206.22394	131.09307	7.46502	0.0673544	0.21166495	2.7884964	20	—	—
487440 2014 RU_{36}	17.0	X	16.15121	28.68579	6.82236	9.38467	0.0285824	0.19896291	2.9059489	20	12 28.7	21.1

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
487441 2014 RM_{37}	16.4	X	336.57441	209.26129	168.86379	16.75470	0.0907092	0.17065060	3.2190731	20	10 13.1	20.5
487442 2014 RT_{50}	16.3	X	32.27049	234.12769	137.43787	10.50007	0.0730719	0.19535058	2.9416629	20	12 24.5	20.4
487443 2014 RM_{61}	16.2	X	45.62032	212.56850	105.25766	10.27497	0.2305705	0.18583492	3.0412433	20	11 27.2	20.6
487444 2014 RE_{62}	15.8	X	30.89028	84.16142	262.51702	8.92764	0.1001429	0.18784478	3.0195111	20	11 23.2	19.9
487445 2014 RG_{62}	15.5	X	7.63639	248.07043	97.23595	15.73138	0.2568065	0.17529365	3.1619762	20	11 11.5	19.2
487446 2014 RU_{62}	15.9	X	335.22840	75.86125	320.89667	14.79110	0.2287822	0.17213460	3.2005450	20	10 25.0	19.5
487447 2014 RR_{63}	13.6	X	310.83018	167.21749	95.39536	27.57729	0.0583932	0.08239184	5.2305405	20	4 27.2	20.7
487448 2014 SF_{2}	15.9	X	41.96102	62.15709	254.05660	10.09081	0.0784584	0.18225742	3.0809116	20	10 24.9	20.3
487449 2014 SL_{18}	17.3	X	228.17139	243.59792	353.74178	1.87981	0.1073547	0.23170449	2.6253049	20	—	—
487450 2014 SQ_{24}	16.5	X	136.19212	274.37054	2.67603	12.42275	0.0892426	0.20470773	2.8513239	20	12 29.1	21.1
487451 2014 SJ_{25}	16.4	X	341.10835	356.73374	11.00259	9.38202	0.0624921	0.16865619	3.2444010	20	10 3.4	20.6
487452 2014 SD_{31}	16.3	X	12.09232	320.59248	23.93247	9.39223	0.0773509	0.17479415	3.1679972	20	10 20.2	20.3
487453 2014 SL_{45}	16.6	X	159.39490	93.54825	133.36154	10.91544	0.0568467	0.19278694	2.9676839	20	11 23.5	21.2
487454 2014 SM_{58}	16.9	X	46.26888	320.78818	26.10099	10.35638	0.1288299	0.19277371	2.9678196	20	12 17.7	21.2
487455 2014 SH_{74}	16.7	X	48.40562	241.16811	127.94545	11.56045	0.1231035	0.20600786	2.8393146	20	—	—
487456 2014 SD_{83}	17.4	X	110.69467	74.50853	253.43759	2.49435	0.0947977	0.21367887	2.7709477	20	—	—
487457 2014 SN_{89}	16.6	X	83.29102	278.67421	351.03857	9.45310	0.0637870	0.17252549	3.1957088	20	10 14.1	21.3
487458 2014 SP_{90}	16.1	X	169.67448	190.60898	351.98587	8.68622	0.0303856	0.16859483	3.2451882	20	10 4.5	20.9
487459 2014 SR_{100}	16.9	X	233.90922	135.65977	357.12495	8.92868	0.0197604	0.17546868	3.1598731	20	10 20.6	21.4
487460 2014 SE_{115}	16.7	X	95.16511	315.07362	342.59071	1.24264	0.0582090	0.18801569	3.0176810	20	12 4.8	21.2
487461 2014 SY_{115}	16.3	X	140.19322	216.65634	9.36957	15.52761	0.0689531	0.17420235	3.1751680	20	10 23.5	21.2
487462 2014 SJ_{117}	15.6	X	55.05600	308.76009	8.02364	9.78006	0.0941073	0.17825553	3.1268523	20	11 11.9	20.1
487463 2014 ST_{122}	16.6	X	87.42955	257.85485	68.94595	3.10460	0.0539153	0.19850744	2.9103922	20	—	—
487464 2014 SK_{133}	17.1	X	94.24202	120.95718	178.07177	11.25696	0.0975202	0.19329666	2.9624645	20	12 11.1	21.7
487465 2014 SY_{133}	15.5	X	101.68983	230.41859	32.52925	17.92780	0.1311505	0.17291782	3.1908733	20	11 3.0	20.5
487466 2014 SJ_{138}	16.9	X	127.97970	251.14004	25.24776	6.36297	0.0257726	0.19716286	2.9236091	20	12 15.5	21.2
487467 2014 SR_{146}	16.5	X	338.41298	4.92517	9.17538	11.51044	0.0884427	0.16834417	3.2484087	20	10 6.8	20.7
487468 2014 SA_{151}	16.3	X	315.31983	102.77477	349.31783	10.78077	0.1216002	0.18405703	3.0607964	20	12 11.8	20.2
487469 2014 SA_{152}	17.1	X	213.41048	296.36018	319.84868	2.97715	0.1591144	0.22843622	2.6502860	20	—	—
487470 2014 SE_{152}	16.3	X	106.27480	288.69062	355.09120	6.92387	0.1208750	0.18835324	3.0140745	20	12 3.9	21.1
487471 2014 SC_{154}	16.1	X	21.17171	137.86653	203.88184	16.30291	0.2189185	0.17363141	3.1821247	20	11 18.8	20.1
487472 2014 SE_{154}	16.9	X	234.44627	254.00103	0.03775	13.76462	0.2365364	0.23969164	2.5666548	20	—	—
487473 2014 SL_{166}	16.5	X	36.10375	0.03351	338.31072	10.74066	0.1048958	0.17779154	3.1322902	20	11 15.1	21.0
487474 2014 SG_{172}	16.9	X	92.66033	131.92006	141.89646	1.54829	0.1330198	0.18359909	3.0658839	20	11 10.9	21.5
487475 2014 SE_{173}	16.9	X	266.32230	152.76939	19.81193	7.29532	0.0836139	0.21108929	2.7935637	20	—	—
487476 2014 SG_{179}	17.1	X	48.19730	207.26542	107.46709	2.75239	0.1477163	0.17954680	3.1118424	20	11 12.5	21.4
487477 2014 SO_{196}	17.6	X	238.21345	262.42069	51.21316	7.53160	0.1246594	0.26851205	2.3795429	20	3 4.7	21.2
487478 2014 SW_{201}	16.4	X	143.88508	116.79300	106.57871	7.12769	0.1110869	0.18113257	3.0936536	20	11 1.5	21.3
487479 2014 SB_{216}	16.0	X	76.97687	206.47005	116.07232	8.60881	0.2121987	0.17868619	3.1218262	20	12 28.4	20.9
487480 2014 SY_{217}	16.1	X	59.88229	198.48239	146.32559	11.24470	0.0662068	0.17283066	3.1919459	20	12 19.6	20.8
487481 2014 SP_{218}	16.4	X	177.81347	67.46072	162.26276	10.28479	0.0291702	0.17187973	3.2037081	20	12 12.1	21.2
487482 2014 SS_{218}	15.9	X	167.62260	91.81273	155.88500	11.47242	0.0387907	0.17636861	3.1491150	20	12 21.8	20.7
487483 2014 SK_{220}	16.0	X	54.80276	203.22336	137.32734	18.70724	0.1999493	0.17926407	3.1151136	20	12 27.7	20.8
487484 2014 SF_{235}	16.3	X	225.60265	155.46223	350.19229	9.03676	0.1107970	0.17509669	3.1643469	20	10 14.8	21.1
487485 2014 SA_{244}	16.0	X	46.02812	197.88650	107.67938	9.25573	0.1746594	0.17582789	3.1555680	20	11 4.6	20.5
487486 2014 SM_{258}	16.4	X	142.62616	270.43895	33.03157	4.82861	0.0526916	0.21012311	2.8021207	20	—	—
487487 2014 SK_{263}	15.7	X	354.92508	210.06376	170.29049	17.10715	0.2041962	0.17436503	3.1731928	20	11 23.7	19.5
487488 2014 SY_{264}	16.0	X	146.59168	48.53188	198.13597	17.23071	0.1503356	0.18529741	3.0471218	20	11 29.9	21.2
487489 2014 SE_{265}	17.3	X	118.25005	287.03568	65.11733	5.69750	0.1639946	0.22427709	2.6829512	20	—	—
487490 2014 SV_{265}	15.6	X	301.28429	227.15420	241.00409	12.48757	0.0172324	0.19350977	2.9602890	20	12 19.2	19.7
487491 2014 ST_{272}	16.5	X	134.30015	290.90294	353.61340	5.41787	0.0220345	0.20211165	2.8756884	20	—	—
487492 2014 SY_{278}	16.1	X	105.79714	263.69313	357.42264	11.08827	0.0544845	0.17911901	3.1167952	20	10 28.4	20.7
487493 2014 SQ_{281}	16.6	X	180.54466	199.89163	84.31125	3.91654	0.1578729	0.21966517	2.7203738	20	—	—
487494 2014 SU_{283}	15.7	X	207.46005	308.22441	241.84410	8.97613	0.0245579	0.18995393	2.9971182	20	12 2.4	19.9
487495 2014 SH_{285}	16.0	X	3.70718	54.24496	323.31328	9.18373	0.0784169	0.17998093	3.1068364	20	11 17.4	20.2
487496 2014 SE_{288}	14.7	X	165.86577	214.96288	155.91601	8.46868	0.3694214	0.07857446	5.3986080	20	3 22.9	23.1
487497 2014 SR_{288}	16.2	X	354.18803	47.83296	312.51728	26.45286	0.2501679	0.17174361	3.2054006	20	10 8.5	20.1
487498 2014 SP_{295}	15.4	X	90.98821	23.61144	268.11044	10.14251	0.0598247	0.19059360	2.9904084	20	11 23.3	19.8
487499 2014 SQ_{295}	16.1	X	275.24802	219.21401	267.40654	9.97066	0.0499233	0.19519405	2.9432354	20	12 6.3	20.1
487500 2014 SQ_{300}	16.2	X	87.54892	294.22147	17.11880	10.26611	0.0780213	0.18225091	3.0809850	20	12 12.4	20.9
487501 2014 SM_{313}	15.8	X	231.22454	141.87610	33.54923	11.64950	0.0727683	0.18436862	3.0573469	20	12 3.1	20.3
487502 2014 SE_{315}	17.1	X	108.55244	250.26060	96.10252	4.57117	0.0992729	0.20957137	2.8070367	20	—	—
487503 2014 SS_{331}	16.3	X	25.56499	147.82256	218.71401	13.43959	0.0556122	0.18316620	3.0707125	20	12 4.4	20.6
487504 2014 SU_{331}	17.2	X	205.16433	6.51445	272.91349	4.85169	0.2061375	0.23856819	2.5747063	20	—	—
487505 2014 SK_{340}	16.4	X	98.45531	58.57829	215.96019	7.02773	0.2250229	0.18534228	3.0466300	20	11 24.6	21.5
487506 2014 SL_{349}	14.2	X	258.04662	244.10808	74.71090	28.87514	0.0598730	0.08446775	5.1444871	20	4 28.9	21.4
487507 2014 TM_{8}	15.8	X	83.83681	75.75400	248.84689	3.99856	0.0684822	0.18996085	2.9970454	20	12 25.9	20.3
487508 2014 TD_{13}	16.1	X	56.17965	57.59853	264.80987	6.59432	0.1373082	0.17836061	3.1256241	20	11 28.4	20.5
487509 2014 TC_{20}	16.1	X	223.19609	147.23579	30.20292	11.51407	0.1412696	0.17668055	3.1454073	20	11 16.5	21.0
487510 2014 TX_{37}	16.1	X	95.57894	261.90637	358.58269	6.22673	0.1409620	0.17182365	3.2044051	20	10 25.8	21.1
487511 2014 TA_{40}	16.0	X	217.35009	262.65568	24.32483	13.36433	0.1467238	0.23797247	2.5790014	20	1 13.4	20.4
487512 2014 TF_{44}	16.0	X	243.56418	321.81498	213.51998	11.48035	0.1072962	0.18156847	3.0887002	20	12 14.2	20.5
487513 2014 TM_{47}	16.4	X	85.52749	93.07280	220.62792	8.45737	0.1415224	0.18550116	3.0448901	20	12 20.7	21.2
487514 2014 TO_{66}	16.0	X	22.21770	151.10257	215.54357	11.61381	0.0693256	0.18021634	3.1041303	20	12 1.4	20.2
487515 2014 TW_{66}	15.5	X	80.95837	286.94046	0.99399	15.19440	0.1470625	0.17761329	3.1343855	20	11 10.4	20.5
487516 2014 UM_{7}	16.2	X	65.55268	326.17839	2.94874	9.97842	0.0959449	0.18726588	3.0257307	20	12 12.8	20.8
487517 2014 UB_{11}	15.8	X	68.84843	54.30145	262.87451	7.82205	0.0675400	0.17550751	3.1594070	20	11 26.9	20.4
487518 2014 UA_{23}	16.2	X	126.20147	262.22185	34.19251	4.48028	0.1658075	0.20088865	2.8873479	20	—	—
487519 2014 UV_{26}	16.1	X	91.87152	263.82381	21.36495	10.08560	0.0795785	0.17534561	3.1613515	20	11 14.1	20.9
487520 2014 UA_{28}	15.8	X	73.01771	77.87781	248.29598	11.41091	0.0801636	0.17161932	3.2069481	20	12 13.1	20.5

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	m		°	°	°	°		°				
487521 2014 UQ_{54}	15.5	X	37.94469	8.20539	333.88158	16.35583	0.1855380	0.17472780	3.1687991	20	12 4.2	20.2
487522 2014 UR_{55}	15.5	X	87.06368	245.01834	78.35140	10.98053	0.0846314	0.17915646	3.1163609	20	12 26.9	20.2
487523 2014 UJ_{60}	16.1	X	291.78716	67.36898	45.09375	10.63040	0.0455492	0.18023128	3.1039587	20	12 6.2	20.4
487524 2014 UG_{91}	16.5	X	142.51267	95.12747	230.65201	5.13891	0.0651895	0.21775480	2.7362612	20	—	—
487525 2014 UE_{93}	15.3	X	157.89429	228.38819	47.14189	10.09453	0.0796180	0.18982770	2.9984466	20	—	—
487526 2014 UY_{96}	16.0	X	196.25216	155.35258	60.63043	11.21382	0.0646476	0.17985835	3.1082478	20	12 13.2	20.6
487527 2014 US_{104}	15.9	X	221.22774	142.28517	30.03431	16.40897	0.0248448	0.18042088	3.1017837	20	11 21.5	20.5
487528 2014 UH_{112}	15.7	X	327.11301	353.13255	58.86343	11.71161	0.1360897	0.17016974	3.2251344	20	11 8.1	19.4
487529 2014 UM_{127}	16.4	X	122.07950	34.69343	233.44395	7.99329	0.0502652	0.17450205	3.1715315	20	11 26.2	21.2
487530 2014 UU_{132}	15.6	X	57.19158	256.18813	51.75171	16.10641	0.2387333	0.17262367	3.1944970	20	11 23.4	20.4
487531 2014 UL_{136}	16.2	X	146.14084	218.73945	43.83298	9.95804	0.0596899	0.17832346	3.1260582	20	12 14.9	21.0
487532 2014 UE_{149}	15.9	X	116.35406	232.94928	52.96090	10.44292	0.0798488	0.17665396	3.1457229	20	12 11.9	20.7
487533 2014 UV_{154}	16.0	X	101.64523	129.90979	168.53446	9.12986	0.1246082	0.18872915	3.0100710	20	12 18.4	20.8
487534 2014 UC_{161}	15.3	X	86.19750	64.27054	255.61959	6.19063	0.1004371	0.18252807	3.0778653	20	12 24.3	20.0
487535 2014 UW_{169}	13.7	X	178.58857	296.18968	104.13254	19.93860	0.0688375	0.08241816	5.2294269	20	5 4.7	21.1
487536 2014 US_{172}	15.6	X	197.89374	103.07615	103.22774	10.66597	0.0521664	0.17442663	3.1724457	20	12 5.7	20.4
487537 2014 UH_{176}	16.3	X	83.13422	240.57269	69.54693	4.70053	0.1024532	0.18032570	3.1028751	20	12 9.5	20.8
487538 2014 UN_{184}	16.1	X	77.78176	313.38619	10.31585	15.67247	0.0305131	0.18417772	3.0594592	20	12 10.1	20.7
487539 2014 UV_{187}	14.1	X	239.07755	96.45152	233.69760	4.59132	0.0590889	0.08358886	5.1804852	20	4 8.2	21.2
487540 2014 UF_{189}	15.6	X	119.57039	314.07230	340.09123	11.14254	0.1122173	0.19295919	2.9659176	20	12 31.6	20.4
487541 2014 UV_{190}	15.7	X	177.60984	324.84632	251.98051	9.57359	0.0626678	0.17778062	3.1324184	20	11 24.7	20.4
487542 2014 UF_{194}	16.2	X	104.37598	252.84465	45.96260	11.08232	0.1066722	0.18814680	3.0162788	20	12 18.9	20.9
487543 2014 UY_{196}	15.9	X	99.46168	60.05583	224.31607	8.47624	0.0546314	0.17529715	3.1619341	20	11 21.5	20.5
487544 2014 UZ_{197}	15.9	X	319.59742	224.01029	234.13260	11.01134	0.0515394	0.17868898	3.1217937	20	12 25.6	20.2
487545 2014 UB_{204}	14.2	X	233.82828	134.61277	216.72497	10.28228	0.0591356	0.08467946	5.1359091	20	4 27.4	21.2
487546 2014 UC_{213}	15.7	X	30.52774	231.13391	109.10346	9.27782	0.1813396	0.17541017	3.1605757	20	11 26.0	20.0
487547 2014 VO_{3}	15.7	X	61.97733	228.28986	83.59608	18.83516	0.1253769	0.17972711	3.1097608	20	11 24.6	20.3
487548 2014 VH_{7}	16.7	X	152.99622	235.82255	155.16738	1.88168	0.2359545	0.24390185	2.5370323	20	3 23.3	20.7
487549 2014 VB_{12}	16.1	X	99.93128	316.83115	342.25667	10.63521	0.1305642	0.19205487	2.9752206	20	12 18.2	20.9
487550 2014 VD_{13}	15.8	X	94.31503	220.12731	78.14989	15.52509	0.0905349	0.17736297	3.1373339	20	12 6.0	20.6
487551 2014 VA_{17}	16.0	X	106.63421	195.20138	84.36172	6.78097	0.1133911	0.17884270	3.1200047	20	11 28.9	20.7
487552 2014 VT_{22}	13.8	X	220.08739	306.64494	68.07523	28.24111	0.0476508	0.08573778	5.0935578	20	5 14.9	20.8
487553 2014 VP_{24}	13.5	X	201.03982	160.65585	234.95126	15.14713	0.0673629	0.08345640	5.1859655	20	5 13.3	20.6
487554 2014 VZ_{24}	13.9	X	247.02614	107.81499	238.90841	7.26628	0.0558604	0.08372453	5.1748876	20	5 5.9	20.9
487555 2014 VA_{25}	13.8	X	191.93397	154.42753	246.39379	12.68160	0.0667480	0.08183930	5.2540569	20	5 9.6	21.1
487556 2014 VF_{37}	15.7	X	1.36091	114.51269	252.50713	8.94280	0.1687088	0.18046227	3.1013094	20	11 11.7	19.3
487557 2014 WJ_{20}	15.8	X	128.79867	13.09007	248.26313	5.60035	0.1392821	0.17149984	3.2084374	20	11 27.9	20.8
487558 2014 WE_{48}	15.3	X	331.52727	205.04016	112.75464	3.94075	0.1989359	0.12329681	3.9979266	20	7 3.1	19.9
487559 2014 WX_{104}	16.4	X	55.91654	301.85440	30.77133	9.40113	0.0524790	0.18143511	3.0902136	20	11 28.1	20.8
487560 2014 WV_{140}	15.3	X	11.89776	59.07485	234.39532	8.01838	0.1021933	0.12317902	4.0004750	20	8 8.4	20.6
487561 2014 WM_{143}	15.7	X	185.42810	178.18590	65.57640	18.87716	0.1620829	0.18159251	3.0884276	20	12 26.8	20.8
487562 2014 WK_{159}	15.7	X	58.53770	224.30691	103.39066	10.81237	0.0737040	0.17343878	3.1844803	20	11 29.9	20.3
487563 2014 WO_{165}	17.5	X	133.92290	315.01782	71.31476	3.48414	0.1077418	0.22917700	2.6445718	20	2 18.5	21.3
487564 2014 WB_{183}	16.1	X	239.50367	340.14042	176.52853	12.85187	0.1380462	0.17303623	3.1894174	20	11 13.8	20.9
487565 2014 WT_{239}	16.7	X	119.05593	206.86404	113.38024	3.19768	0.1070422	0.19446335	2.9506036	20	—	—
487566 2014 WB_{279}	16.3	X	127.55547	226.66194	98.90042	11.82148	0.1554775	0.19935429	2.9021442	20	—	—
487567 2014 WB_{315}	16.8	X	22.59952	295.13432	101.56087	9.44902	0.1094904	0.19083405	2.9878960	20	—	—
487568 2014 WW_{349}	15.4	X	96.15324	20.11635	273.73939	9.83686	0.0737245	0.16872850	3.2434740	20	11 28.7	20.2
487569 2014 WL_{360}	16.7	X	93.37496	266.11085	95.50022	7.13528	0.2385673	0.20945352	2.8080895	20	—	—
487570 2014 WU_{364}	13.0	X	180.43453	296.38025	97.85898	31.90700	0.0676775	0.08263710	5.2201863	20	5 6.4	20.6
487571 2014 WL_{366}	13.9	X	23.25855	249.49463	324.26938	8.46451	0.0981413	0.08333405	5.1910401	20	5 19.9	20.5
487572 2014 WG_{387}	13.9	X	199.34082	181.65277	211.21950	16.65603	0.0912367	0.08276914	5.2146329	20	5 8.6	21.2
487573 2014 WZ_{391}	13.7	X	93.74028	52.54325	76.24372	22.03751	0.0509701	0.08230251	5.2343246	20	5 12.0	20.7
487574 2014 WF_{397}	15.8	X	30.78661	263.00592	93.41363	12.56095	0.0870223	0.17649676	3.1475905	20	12 2.6	20.1
487575 2014 WW_{398}	15.5	X	74.50465	229.50151	99.37157	15.04045	0.0795743	0.18377419	3.0639362	20	12 21.1	19.9
487576 2014 YN_{13}	16.6	X	92.45973	344.39893	89.62089	15.71794	0.1717896	0.22216597	2.6999208	20	3 16.3	20.5
487577 2014 YQ_{15}	21.2	X	4.28234	252.32869	81.84070	10.91809	0.2358091	1.04172546	0.9637562	20	—	—
487578 2015 AD_{28}	16.1	X	128.96621	228.31868	92.21942	3.00075	0.1506277	0.17618893	3.1512556	20	—	—
487579 2015 AK_{46}	16.3	X	315.24663	17.35586	67.82155	14.67977	0.1000876	0.17579588	3.1559510	20	12 2.0	20.2
487580 2015 BA_{92}	20.0	X	17.10726	181.33264	116.64455	17.32518	0.5641909	0.81906784	1.1313304	20	—	—
487581 2015 BE_{519}	5.5	X	81.15675	287.69646	153.16839	24.79502	0.0628935	0.00300347	47.5758861	20	3 10.8	22.3
487582 2015 DW_{130}	17.7	X	201.08771	288.02358	23.43399	21.20729	0.0806597	0.36085752	1.9539444	20	1 8.4	20.6
487583 2015 FJ_{36}	22.2	X	135.68748	98.05518	291.28465	4.42253	0.3092401	0.95107229	1.0240638	20	—	—
487584 2015 FD_{304}	17.1	X	22.91304	127.22503	170.85219	13.20276	0.2760670	0.22715181	2.6602671	20	10 18.9	20.2
487585 2015 FM_{332}	19.3	X	161.14672	230.23548	193.13348	18.36229	0.0748329	0.40262821	1.8163516	20	4 26.2	21.1
487586 2015 FT_{333}	18.2	X	237.60003	96.06042	220.32842	19.50494	0.0660927	0.36920586	1.9243778	20	2 17.3	21.0
487587 2015 FY_{333}	16.4	X	17.85157	105.48605	58.11266	16.82591	0.2059627	0.17838545	3.1253339	20	3 19.4	20.0
487588 2015 FF_{341}	17.7	X	136.00126	146.36249	270.69926	20.57545	0.0708673	0.38476980	1.8721274	20	2 23.9	20.2
487589 2015 HU_{64}	16.7	X	8.00027	117.98954	213.96445	10.61123	0.3056406	0.24295135	2.5436450	20	11 17.3	19.2
487590 2015 HR_{80}	16.4	X	64.87231	261.64957	223.38036	9.32883	0.0911764	0.18423501	3.0588249	20	3 24.8	20.5
487591 2015 HY_{181}	15.2	X	264.03988	225.49643	151.25192	36.95555	0.1938619	0.17182357	3.2044062	20	6 19.0	20.7
487592 2015 KW_{4}	18.4	X	277.33995	51.53132	226.74554	19.78315	0.0351329	0.37883782	1.8916197	20	2 15.7	21.0
487593 2015 KS_{35}	17.1	X	337.95640	191.10136	176.17635	9.33333	0.1950582	0.24124089	2.5556543	20	10 20.5	19.2
487594 2015 KT_{40}	17.5	X	11.37645	276.91381	78.14719	7.28363	0.3522418	0.24169606	2.5524447	20	12 30.6	20.5
487595 2015 KU_{107}	16.7	X	322.29781	263.72460	84.42545	16.26633	0.2953573	0.21123761	2.7922559	20	7 23.9	19.2
487596 2015 KX_{116}	17.7	X	147.56420	161.38671	136.00786	5.15159	0.1048271	0.29884177	2.2156875	20	—	—
487597 2015 KG_{121}	16.2	X	67.31061	20.94349	289.66087	34.39121	0.3018923	0.23258603	2.6186671	20	12 27.4	20.7
487598 2015 KO_{132}	17.2	X	76.88015	234.20463	78.88437	8.06059	0.0991225	0.25597331	2.4566291	20	12 22.2	20.6
487599 2015 LR_{11}	17.5	X	132.17519	8.23047	316.86861	6.95716	0.1450364	0.29176409	2.2513767	20	—	—
487600 2015 LQ_{33}	16.4	X	49.06794	205.48160	102.56634	15.83100	0.1585274	0.23240046	2.6200609	20	11 21.4	20.2

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Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
487601 2015 LC_{34}	17.0	X	8.18496	260.35250	116.62852	13.39739	0.1802730	0.23828381	2.5767544	20	12 26.6	20.1
487602 2015 LY_{37}	16.5	X	327.79581	235.59899	133.90520	4.01500	0.2430359	0.23439756	2.6051576	20	9 25.9	18.3
487603 2015 MN_{7}	16.5	X	247.50689	100.07001	287.09475	24.37108	0.2301346	0.17230753	3.1984032	20	6 5.3	21.8
487604 2015 ME_{8}	16.5	X	259.85669	270.66007	131.96148	15.09755	0.3268052	0.18003056	3.1062654	20	6 25.3	21.6
487605 2015 MH_{11}	18.3	X	85.31387	101.68425	67.31616	23.37481	0.0363689	0.38840962	1.8604131	20	6 12.5	19.9
487606 2015 MH_{15}	16.9	X	336.71179	99.21441	206.86513	10.16418	0.1013331	0.18967194	3.0000880	20	7 6.7	20.8
487607 2015 ML_{33}	17.2	X	105.10423	181.65179	103.30383	14.91473	0.1564611	0.27398491	2.3477488	20	12 23.4	20.9
487608 2015 ML_{46}	16.0	X	221.19338	322.82741	107.09393	10.40308	0.0670147	0.18408560	3.0604797	20	7 16.6	20.5
487609 2015 MD_{48}	17.6	X	65.80950	16.44667	345.35625	7.25956	0.2454685	0.25515530	2.4618768	20	—	—
487610 2015 MQ_{52}	16.2	X	358.70719	180.87075	134.01890	16.30180	0.1378405	0.20414828	2.8565307	20	9 3.1	19.4
487611 2015 MA_{57}	17.3	X	81.45201	234.56293	118.89352	5.40611	0.1553429	0.27240482	2.3568188	20	—	—
487612 2015 MO_{57}	16.8	X	28.75404	224.49646	108.96228	11.36736	0.0678344	0.23577040	2.5950348	20	11 14.5	20.3
487613 2015 MB_{60}	17.1	X	102.09419	95.00696	275.19931	21.59889	0.2849518	0.30070370	2.2065319	20	—	—
487614 2015 MD_{60}	18.1	X	124.60564	43.27020	66.54047	23.34535	0.0906650	0.37571933	1.9020723	20	5 21.2	19.9
487615 2015 MD_{62}	17.9	X	103.53928	293.46446	88.40797	3.45886	0.1319134	0.30209729	2.1997408	20	—	—
487616 2015 MP_{71}	16.7	X	310.71645	130.33382	258.08370	10.11662	0.0616383	0.22171557	2.7035761	20	9 19.3	20.3
487617 2015 MB_{80}	17.9	X	100.49135	215.37173	126.92688	7.30279	0.1316560	0.27766174	2.3269766	20	—	—
487618 2015 MT_{82}	16.7	X	268.79770	242.99134	136.16846	21.26273	0.2244880	0.18006047	3.1059214	20	6 19.6	21.6
487619 2015 MU_{84}	17.1	X	350.88123	260.45009	125.09881	13.47017	0.2699354	0.22746618	2.6578155	20	12 19.7	19.7
487620 2015 MN_{89}	17.6	X	172.80894	262.01675	111.88723	24.03406	0.0792925	0.35479261	1.9761489	20	3 7.7	20.4
487621 2015 ML_{98}	17.2	X	7.16735	231.41617	136.50679	13.48871	0.2691189	0.22929958	2.6436292	20	12 24.7	20.4
487622 2015 MU_{99}	17.1	X	296.07074	268.26342	133.01676	5.38528	0.1227506	0.21459257	2.7630767	20	9 13.4	20.3
487623 2015 MZ_{109}	17.3	X	14.04179	280.25313	103.05189	13.93429	0.2944794	0.23831527	2.5765277	20	—	—
487624 2015 MV_{117}	17.5	X	358.45267	244.21824	116.57754	10.06085	0.2608547	0.22002767	2.7173851	20	11 26.7	20.3
487625 2015 MT_{126}	16.4	X	288.32887	128.53151	319.95906	14.67805	0.0641747	0.24129721	2.5552566	20	11 9.8	19.9
487626 2015 MJ_{127}	17.7	X	86.28178	265.87941	100.11646	7.81009	0.2175383	0.27410823	2.3470445	20	—	—
487627 2015 NW_{4}	15.8	X	339.53058	198.66965	127.09723	14.41665	0.2005191	0.20138121	2.8826378	20	8 8.7	18.6
487628 2015 NX_{8}	17.6	X	33.05499	222.94506	121.41123	5.46992	0.2760155	0.23389675	2.6088749	20	12 29.9	21.2
487629 2015 NW_{18}	17.6	X	110.54119	228.26630	106.59313	7.70742	0.1339537	0.27134183	2.3629700	20	—	—
487630 2015 NT_{21}	16.7	X	0.29337	236.94949	117.83877	15.80702	0.1317770	0.24427534	2.5344455	20	11 14.2	19.9
487631 2015 NZ_{23}	17.1	X	51.57032	352.11267	341.56779	1.91587	0.1484068	0.24618304	2.5213355	20	12 23.6	20.6
487632 2015 NM_{24}	17.7	X	112.47940	214.70920	136.57907	3.67197	0.2303818	0.28427706	2.2907349	20	—	—
487633 2015 OY_{1}	17.4	X	29.25309	101.65315	275.65944	10.12782	0.2676897	0.24316376	2.5421635	20	—	—
487634 2015 OD_{3}	17.7	X	67.33645	251.54468	99.60987	3.79006	0.2756246	0.25321040	2.4744671	20	—	—
487635 2015 OS_{11}	16.3	X	297.76827	222.80252	118.39658	13.02958	0.1895709	0.18089840	3.0963229	20	6 12.4	20.4
487636 2015 OR_{12}	17.6	X	91.20132	282.54678	93.60965	7.32372	0.1266903	0.28663481	2.2781558	20	—	—
487637 2015 OD_{18}	16.6	X	149.05404	222.14338	323.10900	11.11626	0.0298155	0.21788752	2.7351500	20	9 18.1	20.5
487638 2015 OQ_{19}	16.9	X	45.07931	135.08057	169.55399	13.34146	0.1717140	0.22269604	2.6956348	20	11 10.6	20.7
487639 2015 OP_{22}	17.4	X	127.57788	29.18495	297.48458	6.22726	0.2221889	0.28368645	2.2939133	20	—	—
487640 2015 OY_{22}	17.7	X	350.59021	295.35653	288.55936	17.49635	0.0385820	0.35429198	1.9780101	20	3 17.7	20.2
487641 2015 OP_{24}	17.5	X	86.35594	104.63003	230.37522	9.48978	0.2779472	0.25869207	2.4393866	20	—	—
487642 2015 OV_{24}	17.6	X	94.25867	329.89964	52.66195	1.45245	0.2430393	0.28249500	2.3003586	20	1 1.6	19.7
487643 2015 ON_{36}	16.0	X	323.20119	141.95464	171.14536	12.43020	0.0728056	0.17830377	3.1262884	20	6 27.8	20.3
487644 2015 OV_{40}	16.4	X	322.56810	180.41713	141.25691	8.82173	0.1623608	0.17871382	3.1215044	20	6 29.1	20.2
487645 2015 OA_{64}	17.3	X	329.74534	339.53990	84.44709	15.72619	0.1805349	0.22369636	2.6875926	20	12 16.7	20.0
487646 2015 OS_{64}	17.1	X	25.02695	271.68955	75.56348	13.16025	0.1212378	0.22140024	2.7061425	20	11 28.5	20.4
487647 2015 ON_{66}	18.1	X	80.79165	136.00194	274.85128	6.74142	0.0837266	0.28971279	2.2619913	20	—	—
487648 2015 OH_{67}	16.7	X	16.69080	42.93411	275.19903	12.15037	0.1856792	0.21823296	2.7322629	20	10 10.0	20.1
487649 2015 OS_{68}	16.9	X	305.26478	294.75807	137.86870	15.07612	0.0841534	0.23899825	2.5716167	20	11 23.3	20.2
487650 2015 OS_{71}	17.6	X	21.90291	233.62377	141.48296	1.48933	0.1523228	0.24455976	2.5324801	20	—	—
487651 2015 OY_{71}	18.0	X	64.68507	247.15115	135.07901	7.01899	0.1809719	0.27161579	2.3613808	20	—	—
487652 2015 OD_{75}	17.7	X	84.95983	15.75179	329.39047	5.38026	0.1416390	0.25624463	2.4548947	20	—	—
487653 2015 OT_{75}	17.7	X	158.56686	19.79182	297.71242	5.45979	0.2114931	0.28687421	2.2768882	20	—	—
487654 2015 OM_{76}	17.8	X	119.90287	181.13483	169.34434	6.46277	0.1173645	0.27591401	2.3367929	20	—	—
487655 2015 PN_{6}	16.7	X	314.56726	159.64502	140.67118	16.39868	0.2590492	0.17562120	3.1580434	20	5 8.5	20.9
487656 2015 PB_{32}	16.2	X	311.07093	216.00183	147.31320	16.44447	0.1010434	0.19054773	2.9908883	20	8 13.5	19.9
487657 2015 PY_{33}	17.2	X	38.30988	103.64040	267.18907	13.90755	0.1526377	0.24197763	2.5504643	20	—	—
487658 2015 PF_{36}	18.1	X	82.73255	291.36010	86.97429	5.13038	0.1355440	0.27728080	2.3291074	20	—	—
487659 2015 PC_{38}	18.2	X	8.55233	79.42885	349.81971	5.06862	0.0626048	0.26658857	2.3909750	20	—	—
487660 2015 PL_{38}	15.9	X	289.29127	233.38330	123.96723	10.25791	0.1045630	0.17972219	3.1098175	20	7 2.9	20.1
487661 2015 PS_{38}	17.2	X	27.13268	299.94512	128.10980	7.64807	0.0852663	0.27416196	2.3467379	20	—	—
487662 2015 PJ_{39}	15.9	X	273.19382	226.53640	130.57877	12.48140	0.1074696	0.16966341	3.2315479	20	6 12.1	20.6
487663 2015 PE_{40}	16.9	X	269.60883	321.24252	136.29441	22.67113	0.0345168	0.22618377	2.6678522	20	11 9.4	21.0
487664 2015 PS_{41}	17.6	X	325.03864	60.42442	37.06128	6.98665	0.1157632	0.25541709	2.4601944	20	—	—
487665 2015 PV_{43}	17.3	X	8.30569	277.88280	77.19359	7.43466	0.1624472	0.22122001	2.7076121	20	11 20.1	20.3
487666 2015 PD_{54}	17.8	X	32.34854	38.99893	346.42576	16.62072	0.1657445	0.24157413	2.5533035	20	—	—
487667 2015 PB_{56}	17.5	X	25.92503	18.11628	5.93285	11.65828	0.1734213	0.23407930	2.6075184	20	—	—
487668 2015 PO_{60}	16.3	X	239.80246	309.30030	119.30299	10.01327	0.0559221	0.18865798	3.0108279	20	8 8.6	20.7
487669 2015 PO_{92}	18.1	X	51.83773	107.15100	328.37631	5.19299	0.0429836	0.30223558	2.1990697	20	—	—
487670 2015 PH_{101}	18.4	X	215.39077	186.95304	108.16587	3.87297	0.1687776	0.31995950	2.1170903	20	1 8.7	21.6
487671 2015 PP_{113}	16.5	X	300.66138	187.35582	129.99088	13.55687	0.1213459	0.17249251	3.1961162	20	5 28.6	21.0
487672 2015 PT_{115}	17.1	X	336.09344	307.56195	108.36121	7.32932	0.1724076	0.23786195	2.5798002	20	12 23.2	19.6
487673 2015 PC_{117}	18.4	X	51.54394	48.27148	1.95079	5.38699	0.1522961	0.27934018	2.3176461	20	—	—
487674 2015 PT_{135}	17.6	X	351.19309	69.26980	325.45518	12.48938	0.1593153	0.23397573	2.6082878	20	12 18.4	20.6
487675 2015 PR_{153}	18.1	X	163.97450	199.00687	126.51030	4.38695	0.1999971	0.30060659	2.2070070	20	1 3.5	21.1
487676 2015 PG_{161}	16.7	X	225.43651	307.45792	119.99831	10.96645	0.0625383	0.18323508	3.0699430	20	7 18.6	21.2
487677 2015 PT_{184}	16.7	X	224.75139	309.17225	120.98331	10.13231	0.0612243	0.18279008	3.0749234	20	7 21.4	21.0
487678 2015 PT_{226}	16.6	X	24.98298	59.18155	277.43419	10.95064	0.2059063	0.21917728	2.7244094	20	11 25.3	20.1
487679 2015 PS_{229}	17.1	X	217.46084	349.55423	266.80547	6.48519	0.0958285	0.28917288	2.2648060	20	—	—
487680 2015 PV_{231}	17.0	X	77.25680	12.10625	3.41931	9.01340	0.1908902	0.25806675	2.4433256	20	—	—

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
487681 2015 PV_{242}	17.5	X	61.53574	245.90063	115.54821	2.25890	0.1945736	0.25614445	2.4555347	20	—	—
487682 2015 PB_{260}	16.5	X	266.34147	265.89413	130.70370	12.35122	0.1200194	0.19243123	2.9713399	20	7 21.4	20.5
487683 2015 PP_{271}	18.0	X	97.93861	29.20147	355.95590	3.71331	0.0498259	0.29273002	2.2464213	20	—	—
487684 2015 PR_{283}	17.4	X	109.73981	309.46390	50.91206	5.93609	0.1519227	0.28064625	2.3104499	20	—	—
487685 2015 PR_{289}	16.9	X	325.96598	328.30189	111.83748	13.94519	0.1541535	0.23286326	2.6165883	20	—	—
487686 2015 PH_{290}	16.8	X	314.66308	332.53828	83.49257	13.15993	0.1136120	0.21679847	2.7443020	20	11 8.6	20.0
487687 2015 PJ_{294}	15.4	X	263.11191	49.66520	349.01463	17.42088	0.1214754	0.17032809	3.2231353	20	7 24.4	20.2
487688 2015 PN_{294}	17.3	X	129.64895	195.65007	134.58020	7.47416	0.1443402	0.27320275	2.3522276	20	—	—
487689 2015 PP_{294}	16.2	X	338.70710	106.96890	348.09321	31.08082	0.1988292	0.23729040	2.5839410	20	—	—
487690 2015 PD_{295}	17.9	X	75.48196	335.42819	40.31226	6.96654	0.1246020	0.26463142	2.4027492	20	—	—
487691 2015 PU_{298}	15.9	X	312.17325	183.74071	152.41913	19.13834	0.1591097	0.17553351	3.1590950	20	7 1.8	20.1
487692 2015 PN_{299}	16.6	X	292.81851	19.57688	346.03060	22.86374	0.1682223	0.17774878	3.1327925	20	7 16.6	21.1
487693 2015 PD_{308}	16.3	X	287.91556	232.79506	137.71888	27.92352	0.3925483	0.17988352	3.1079579	20	6 10.7	21.3
487694 2015 PT_{308}	18.1	X	327.56853	317.01451	321.12948	18.16943	0.0630865	0.36537499	1.9378054	20	5 6.3	20.4
487695 2015 PC_{311}	17.6	X	8.53256	86.79311	161.52231	22.61448	0.0747645	0.36673920	1.9329969	20	6 18.9	19.9
487696 2015 RJ_{1}	16.2	X	288.94267	87.30400	302.01553	8.83030	0.0755967	0.18153620	3.0890662	20	8 15.8	20.4
487697 2015 RE_{3}	18.1	X	73.04453	218.94988	133.43718	2.51971	0.1995543	0.25931811	2.4354590	20	—	—
487698 2015 RS_{18}	17.2	X	31.78575	166.34556	184.62115	13.59237	0.1951454	0.22824119	2.6517956	20	12 23.8	21.0
487699 2015 RP_{21}	17.6	X	43.91197	177.04770	180.21801	8.97325	0.1726588	0.23923015	2.5699546	20	—	—
487700 2015 RR_{21}	16.9	X	317.71826	256.08528	194.10945	6.23011	0.2690450	0.22785508	2.6547904	20	—	—
487701 2015 RJ_{24}	17.7	X	205.79333	329.70488	302.36294	6.02307	0.1115715	0.29360031	2.2419799	20	—	—
487702 2015 RY_{24}	17.7	X	81.18713	51.35508	5.71626	4.31879	0.2032900	0.28446643	2.2897182	20	1 22.8	19.6
487703 2015 RQ_{25}	16.8	X	284.38001	109.36499	326.31635	14.84754	0.1248015	0.21421739	2.7663018	20	10 1.9	20.5
487704 2015 RZ_{26}	16.0	X	326.18400	192.32836	180.70326	13.34371	0.1798820	0.19043443	2.9920745	20	9 15.9	19.2
487705 2015 RO_{28}	17.4	X	82.24078	35.89449	311.40219	6.00250	0.0825982	0.25466430	2.4650402	20	—	—
487706 2015 RG_{29}	17.6	X	120.34289	126.33177	193.58939	4.64003	0.1175780	0.26234661	2.4166796	20	—	—
487707 2015 RF_{31}	16.2	X	303.86873	359.86194	26.15078	18.04447	0.2428175	0.17705839	3.1409308	20	8 21.6	20.2
487708 2015 RQ_{34}	16.7	X	281.54857	359.13761	100.93552	15.49167	0.0332517	0.21092669	2.7949992	20	11 21.5	20.6
487709 2015 RS_{37}	16.0	X	290.13548	19.31492	1.98572	14.96258	0.2747505	0.17303109	3.1894805	20	7 12.1	20.5
487710 2015 RB_{45}	18.3	X	10.81945	284.22010	182.67331	6.60785	0.1234425	0.27102026	2.3648388	20	—	—
487711 2015 RY_{46}	18.1	X	336.14216	240.72831	218.56400	3.58674	0.1513117	0.24390277	2.5370258	20	—	—
487712 2015 RT_{47}	18.1	X	352.79363	188.88516	343.94514	4.86029	0.0771999	0.30583787	2.1817679	20	1 20.0	20.4
487713 2015 RE_{49}	17.2	X	327.90839	144.70300	321.31208	5.43836	0.2113147	0.23951873	2.5678899	20	—	—
487714 2015 RK_{49}	18.0	X	338.51268	234.11545	210.24388	5.15991	0.2183808	0.23329020	2.6133950	20	—	—
487715 2015 RC_{52}	17.5	X	307.04042	206.63501	327.90822	5.72767	0.0867778	0.27908688	2.3190482	20	—	—
487716 2015 RX_{52}	17.9	X	273.35216	170.84582	346.78766	6.21828	0.0128551	0.24997150	2.4957958	20	—	—
487717 2015 RK_{53}	16.7	X	328.47564	53.99518	337.76407	5.20121	0.0816879	0.20611848	2.8382987	20	10 20.8	20.2
487718 2015 RO_{54}	17.7	X	252.28599	51.81582	197.37788	6.13327	0.1099406	0.29776177	2.2210419	20	—	—
487719 2015 RH_{57}	17.9	X	331.51938	243.95120	247.51512	0.63922	0.1352779	0.25954656	2.4340297	20	—	—
487720 2015 RS_{63}	17.0	X	255.01063	89.80628	3.30089	9.60429	0.2528909	0.18641422	3.0349394	20	9 1.7	21.5
487721 2015 RF_{71}	16.6	X	250.43711	60.29464	17.50363	9.73368	0.2017236	0.17672575	3.1448709	20	8 15.9	21.4
487722 2015 RK_{71}	17.1	X	276.71596	58.18644	48.21780	2.91908	0.0628616	0.21619148	2.7494364	20	11 16.3	20.7
487723 2015 RN_{73}	17.6	X	91.92255	333.42840	13.54895	2.99720	0.1902472	0.25635660	2.4541798	20	—	—
487724 2015 RY_{84}	16.5	X	314.70342	62.05399	289.77236	15.82275	0.2479469	0.18175096	3.0866324	20	7 14.6	19.8
487725 2015 RR_{88}	16.3	X	320.49681	92.54516	281.25005	10.60562	0.1247815	0.19029654	2.9935198	20	9 4.7	20.1
487726 2015 RG_{93}	17.6	X	70.20688	222.83546	200.60826	4.90563	0.2067347	0.28279292	2.2987427	20	1 8.4	19.4
487727 2015 RS_{93}	17.6	X	53.61063	31.05974	353.07851	8.77369	0.1271358	0.25790012	2.4443779	20	—	—
487728 2015 RA_{95}	18.1	X	139.63495	86.11594	262.24249	5.33738	0.1381324	0.28981610	2.2614537	20	—	—
487729 2015 RO_{98}	17.0	X	261.47029	90.92312	340.05755	15.38270	0.3220170	0.17876846	3.1208683	20	8 4.2	21.9
487730 2015 RS_{98}	17.4	X	47.22337	149.24785	301.00701	4.24450	0.1611980	0.28292984	2.2980010	20	—	—
487731 2015 RX_{98}	17.0	X	34.67819	43.45983	291.04393	4.31291	0.1649961	0.22154213	2.7049869	20	11 30.4	20.5
487732 2015 RM_{100}	17.8	X	117.03291	212.82316	106.76754	2.28834	0.1851138	0.26495859	2.4007709	20	—	—
487733 2015 RL_{101}	16.7	X	78.48124	333.86522	352.35514	14.86660	0.1147887	0.23944303	2.5684311	20	—	—
487734 2015 RW_{101}	17.6	X	98.20653	296.82366	39.70793	1.87870	0.1947032	0.25609121	2.4558751	20	—	—
487735 2015 RS_{102}	17.6	X	77.67670	182.45663	159.18066	7.32950	0.1903853	0.24269859	2.5454108	20	—	—
487736 2015 RC_{103}	17.5	X	48.93280	257.12950	140.90229	6.35497	0.2160633	0.25997103	2.4313795	20	—	—
487737 2015 RN_{105}	17.8	X	29.24245	189.91162	180.62119	0.33896	0.1488356	0.23387005	2.6090735	20	—	—
487738 2015 RR_{105}	17.8	X	143.27972	345.47050	351.46321	2.74807	0.1471230	0.28549846	2.2841969	20	—	—
487739 2015 RW_{107}	17.2	X	313.57337	341.11481	37.59249	2.31639	0.2786694	0.18467384	3.0539773	20	8 17.0	20.3
487740 2015 RX_{107}	18.4	X	195.58115	319.33283	8.66133	6.15578	0.2533338	0.31197880	2.1530428	20	2 6.9	22.0
487741 2015 RJ_{108}	16.2	X	343.71260	76.67316	10.28428	26.16603	0.2248145	0.23138493	2.6277215	20	—	—
487742 2015 RN_{108}	17.4	X	56.63481	287.99057	105.37414	3.90926	0.1728244	0.25279448	2.4771805	20	—	—
487743 2015 RX_{108}	15.9	X	308.90700	318.18935	56.36737	11.01046	0.1103249	0.17888691	3.1194905	20	8 29.1	20.0
487744 2015 RM_{110}	17.9	X	352.14204	81.00825	347.76098	16.40949	0.1348062	0.24353778	2.5395600	20	—	—
487745 2015 RF_{113}	18.0	X	49.96400	256.52708	147.99797	1.71951	0.1670599	0.26282351	2.4137553	20	—	—
487746 2015 RM_{115}	17.2	X	106.40402	255.54609	76.61396	5.35471	0.2169566	0.26044026	2.4284582	20	—	—
487747 2015 RD_{116}	16.0	X	268.28020	29.34292	23.90109	17.64286	0.2100249	0.17376364	3.1805101	20	8 7.9	20.9
487748 2015 RM_{116}	17.7	X	129.71779	236.64269	129.57359	6.69679	0.1505389	0.28444084	2.2898555	20	1 14.6	20.5
487749 2015 RU_{117}	16.9	X	131.33595	207.55572	103.62173	8.58716	0.2142566	0.26111150	2.4242945	20	—	—
487750 2015 RB_{119}	16.8	X	342.13722	203.96268	192.78202	13.84252	0.1952701	0.21914613	2.7246675	20	12 3.9	19.7
487751 2015 RK_{122}	16.4	X	325.90227	300.20631	94.64334	9.26616	0.1322645	0.20947056	2.8079372	20	10 27.8	19.7
487752 2015 RE_{123}	17.7	X	56.06917	284.50289	83.56152	3.26517	0.1794595	0.24727682	2.5138949	20	—	—
487753 2015 RP_{129}	17.4	X	308.43332	113.46292	352.11936	11.86531	0.2218956	0.23335869	2.6128836	20	—	—
487754 2015 RC_{133}	18.5	X	88.24270	82.16439	336.49517	7.87794	0.0122954	0.29899232	2.2149437	20	1 6.6	21.1
487755 2015 RU_{134}	17.6	X	342.54311	241.30608	171.33086	14.39238	0.1592524	0.22610362	2.6684826	20	12 24.6	20.8
487756 2015 RF_{156}	18.0	X	9.40239	117.99641	348.11386	7.16533	0.1056599	0.27781624	2.3261138	20	—	—
487757 2015 RD_{192}	17.2	X	5.26944	17.68779	25.54639	4.27747	0.0894155	0.23077997	2.6323117	20	—	—
487758 2015 RG_{193}	16.7	X	249.18101	76.06172	13.48500	21.63763	0.2325113	0.17804513	3.1293152	20	8 31.4	21.7
487759 2015 RH_{194}	16.8	X	291.65653	352.51764	71.84303	3.16606	0.0700563	0.19864552	2.9090434	20	10 10.9	20.5
487760 2015 RW_{194}	18.4	X	232.77341	105.69735	160.49362	5.24052	0.1063256	0.29291378	2.2454817	20	—	—

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	m		°	°	°	°		°				
487761 2015 RX_{194}	17.5	X	68.74620	254.22694	67.92015	3.05427	0.0347542	0.22399624	2.6851933	20	12 9.5	21.0
487762 2015 RD_{200}	16.5	X	232.47061	87.94124	24.00188	14.55715	0.1712418	0.18283583	3.0744105	20	9 13.9	21.3
487763 2015 RV_{200}	16.9	X	215.59184	198.43376	10.50211	6.64472	0.1782242	0.24513190	2.5285381	20	12 28.5	20.5
487764 2015 RG_{201}	17.4	X	301.56515	252.97454	150.97844	2.49988	0.1855825	0.18923496	3.0047048	20	9 12.1	20.8
487765 2015 RV_{201}	17.9	X	186.11961	216.29028	53.59337	1.88980	0.1609616	0.26933657	2.3746840	20	—	—
487766 2015 RU_{202}	16.8	X	268.97392	40.92606	24.22627	18.30225	0.2261160	0.17695195	3.1421903	20	8 23.5	21.5
487767 2015 RD_{205}	16.9	X	351.73084	332.59716	41.38876	11.59694	0.0774703	0.20571787	2.8419823	20	11 4.2	20.4
487768 2015 RM_{205}	16.9	X	171.67800	127.09364	82.26928	5.93177	0.0161103	0.21383213	2.7696236	20	11 20.0	20.7
487769 2015 RQ_{205}	17.0	X	288.87365	329.83417	109.97962	3.18180	0.0360722	0.20396748	2.8582185	20	10 31.6	20.7
487770 2015 RB_{207}	16.6	X	343.63186	189.87409	153.44787	6.34590	0.1542892	0.18600111	3.0394315	20	9 9.9	19.8
487771 2015 RG_{208}	17.2	X	54.07067	259.38670	178.59766	10.23418	0.1837499	0.26936390	2.3745234	20	—	—
487772 2015 RL_{208}	17.5	X	256.13630	66.24779	72.78466	1.67111	0.0224681	0.22040867	2.7142526	20	12 6.6	21.2
487773 2015 RP_{208}	16.5	X	260.36825	54.11594	21.61776	12.58830	0.1478714	0.17933953	3.1142397	20	9 2.9	21.0
487774 2015 RH_{213}	18.1	X	170.68772	337.79994	339.82027	5.69886	0.1033189	0.29506908	2.2345337	20	—	—
487775 2015 RB_{214}	18.0	X	27.43732	49.13604	11.15869	3.23524	0.1328509	0.25872289	2.4391929	20	—	—
487776 2015 RJ_{217}	16.8	X	269.45813	246.30900	186.33490	12.20041	0.2353721	0.18244591	3.0787892	20	8 20.7	21.2
487777 2015 RR_{220}	17.4	X	7.55091	333.30729	26.81818	9.74822	0.2066924	0.21136459	2.7911375	20	11 26.2	20.7
487778 2015 RB_{222}	17.6	X	23.30892	352.41378	17.23421	5.35124	0.0596714	0.22294139	2.6936567	20	12 15.1	21.2
487779 2015 RJ_{222}	17.2	X	259.02541	8.71561	72.62785	1.98786	0.2105653	0.18024673	3.1037814	20	8 25.9	21.7
487780 2015 RG_{224}	17.1	X	276.21320	334.39704	108.27767	3.84912	0.2142703	0.18982997	2.9984227	20	9 20.4	20.9
487781 2015 RP_{224}	16.6	X	248.49760	344.68850	92.70811	4.23523	0.2041557	0.17140100	3.2096708	20	8 9.7	21.4
487782 2015 RT_{226}	16.6	X	257.96220	342.98162	86.11638	7.39228	0.1337958	0.17507736	3.1645798	20	8 21.3	21.1
487783 2015 RC_{228}	18.2	X	35.89088	211.91872	181.14766	7.09148	0.0611716	0.23981064	2.5658056	20	—	—
487784 2015 RJ_{229}	17.3	X	274.96466	3.10354	56.21576	2.55951	0.2367764	0.17738553	3.1370680	20	8 13.7	21.6
487785 2015 RO_{229}	17.7	X	292.78617	328.57433	77.91931	2.30696	0.1861439	0.18379237	3.0637341	20	8 31.6	21.3
487786 2015 RY_{231}	17.5	X	288.14104	97.74888	44.45305	5.20841	0.1201162	0.23660652	2.5889177	20	—	—
487787 2015 RV_{235}	16.7	X	146.16151	150.14961	105.45944	14.18274	0.1641052	0.22442003	2.6818118	20	12 16.2	21.2
487788 2015 RV_{236}	16.5	X	215.30011	342.79878	156.08617	11.01006	0.1695086	0.17555787	3.1588028	20	9 24.9	21.5
487789 2015 RV_{237}	16.7	X	204.83351	44.04092	170.01018	12.97655	0.1297586	0.22216730	2.6999100	20	12 23.3	20.9
487790 2015 RW_{237}	16.4	X	351.38138	208.71390	150.08723	10.57815	0.0533161	0.18572143	3.0424822	20	10 12.9	20.5
487791 2015 RL_{238}	16.9	X	260.77529	348.85931	112.45596	12.86073	0.0885665	0.18618301	3.0374515	20	10 16.1	21.3
487792 2015 RH_{239}	16.7	X	8.24834	323.68376	94.00025	14.19471	0.0567939	0.22847818	2.6499615	20	—	—
487793 2015 RP_{239}	15.7	X	264.94389	342.16715	112.41255	15.24665	0.1283975	0.18253933	3.0777387	20	10 7.6	20.2
487794 2015 RS_{239}	16.8	X	112.28050	164.49037	161.52269	15.60699	0.1403538	0.24334453	2.5409044	20	—	—
487795 2015 RZ_{240}	16.3	X	281.76457	336.33946	93.79926	12.07954	0.0346297	0.18131007	3.0916342	20	10 11.1	20.7
487796 2015 RJ_{241}	17.0	X	289.11913	292.08934	183.29677	16.81764	0.1281318	0.20610242	2.8384461	20	12 7.9	20.7
487797 2015 RM_{242}	15.5	X	11.59653	199.49659	119.48628	14.20502	0.0326497	0.17354631	3.1831648	20	9 18.5	20.0
487798 2015 SY_{1}	17.7	X	231.16194	181.56342	62.84919	6.95057	0.1360332	0.27963533	2.3160149	20	—	—
487799 2015 SA_{3}	17.6	X	174.16603	300.01192	22.76547	6.72615	0.1654812	0.29129691	2.2537831	20	1 9.6	21.0
487800 2015 SE_{4}	16.7	X	347.26508	105.42510	336.83873	25.98218	0.1201077	0.24011699	2.5636228	20	—	—
487801 2015 SV_{4}	17.9	X	170.93667	359.81578	294.38242	6.35855	0.1143900	0.27530091	2.3402609	20	—	—
487802 2015 SL_{5}	16.9	X	118.66568	80.73815	233.42972	13.45650	0.1865487	0.25755845	2.4465392	20	—	—
487803 2015 SS_{5}	16.5	X	293.86927	42.32578	338.62671	8.58711	0.2286440	0.17413945	3.1759326	20	7 23.1	20.5
487804 2015 SH_{6}	17.0	X	304.19518	150.42544	221.62335	9.59705	0.2240644	0.17615958	3.1516057	20	7 23.8	21.0
487805 2015 SZ_{7}	16.7	X	272.63411	103.66841	322.02862	8.32804	0.2604794	0.18099683	3.0952001	20	8 14.6	21.0
487806 2015 SH_{11}	17.3	X	0.11518	69.55214	299.96583	2.66299	0.1081501	0.21496862	2.7598534	20	11 15.7	20.7
487807 2015 SO_{13}	17.0	X	304.03573	201.94921	224.90096	5.55269	0.0336891	0.21412656	2.7670841	20	11 5.5	20.7
487808 2015 SB_{14}	17.4	X	50.54994	77.80035	323.50198	5.79240	0.1460722	0.25787946	2.4445085	20	—	—
487809 2015 SQ_{14}	17.6	X	165.83901	310.57058	338.61342	5.95183	0.1154068	0.27289533	2.3539938	20	—	—
487810 2015 TE_{2}	17.2	X	254.92089	239.16942	193.03737	9.78401	0.2214036	0.17601445	3.1533378	20	8 4.7	22.1
487811 2015 TO_{4}	18.4	X	233.97190	56.73587	331.67565	18.70163	0.1019014	0.37727461	1.8968413	20	6 3.6	21.1
487812 2015 TD_{13}	17.4	X	261.77810	224.07120	308.76234	9.02610	0.0778441	0.25874053	2.4390820	20	—	—
487813 2015 TD_{18}	17.2	X	19.00733	312.75952	88.14751	16.79562	0.1940566	0.23484145	2.6018737	20	—	—
487814 2015 TR_{22}	16.9	X	18.41255	229.34266	180.74287	10.60721	0.1538918	0.23526720	2.5987338	20	—	—
487815 2015 TU_{22}	16.4	X	355.61962	304.05005	59.77373	6.61225	0.0729998	0.19981819	2.8976507	20	10 27.8	20.1
487816 2015 TW_{22}	16.2	X	282.97638	214.87036	189.28249	10.39513	0.2055117	0.17430117	3.1739678	20	8 5.7	20.6
487817 2015 TZ_{22}	17.0	X	23.84013	201.29616	195.58509	10.07246	0.1301750	0.23242785	2.6198551	20	—	—
487818 2015 TQ_{23}	16.7	X	72.71105	181.01214	148.35306	1.49416	0.1921980	0.25459523	2.4654860	20	—	—
487819 2015 TJ_{25}	16.9	X	82.10221	230.21224	105.20850	16.24647	0.2131266	0.24299443	2.5433444	20	—	—
487820 2015 TB_{27}	17.5	X	347.11452	70.29543	346.68424	9.81333	0.1994628	0.22184273	2.7025428	20	—	—
487821 2015 TF_{27}	16.7	X	34.15438	5.76755	332.32990	8.27937	0.1130734	0.21369047	2.7708474	20	11 23.0	20.5
487822 2015 TH_{65}	17.2	X	252.45068	4.71915	232.86406	5.85629	0.0904978	0.26928084	2.3750117	20	—	—
487823 2015 TN_{66}	17.3	X	303.02059	249.67177	243.43870	4.37351	0.1489966	0.22461889	2.6802288	20	—	—
487824 2015 TQ_{66}	16.6	X	122.37405	33.73828	266.37896	2.77403	0.0887129	0.23265867	2.6181221	20	—	—
487825 2015 TL_{67}	16.9	X	330.69883	75.33769	288.98903	4.19598	0.1468438	0.18086138	3.0967453	20	9 10.7	20.4
487826 2015 TL_{69}	16.7	X	263.45450	102.46212	335.73476	3.65784	0.1012806	0.17511268	3.1641543	20	9 10.1	21.0
487827 2015 TY_{70}	17.1	X	15.09772	341.33441	22.24745	10.01787	0.2601393	0.21003637	2.8028921	20	12 22.5	20.7
487828 2015 TZ_{72}	16.4	X	306.79242	353.33314	32.94257	9.78764	0.0749660	0.17377198	3.1804084	20	9 11.8	20.6
487829 2015 TF_{73}	16.3	X	13.42493	333.16564	34.98802	13.34505	0.0755965	0.20421832	2.8558776	20	11 25.1	20.1
487830 2015 TD_{74}	16.7	X	355.74047	127.44706	221.18930	7.90981	0.1721719	0.18921890	3.0048748	20	10 10.1	19.9
487831 2015 TK_{75}	16.2	X	42.39485	75.14715	215.60860	8.22803	0.0589835	0.17697492	3.1419184	20	9 20.1	20.5
487832 2015 TK_{76}	16.9	X	348.80484	133.47784	215.84190	8.38818	0.1433424	0.18332998	3.0688834	20	9 24.1	20.5
487833 2015 TC_{77}	17.3	X	268.61353	48.08324	89.14701	1.35813	0.0167171	0.21467098	2.7624038	20	12 19.6	20.9
487834 2015 TN_{77}	16.9	X	81.53951	104.83661	200.59481	3.14267	0.0779138	0.20954757	2.8072492	20	12 6.1	21.0
487835 2015 TQ_{77}	16.8	X	296.31627	192.43229	215.52198	8.76293	0.0582598	0.17869363	3.1217396	20	9 20.4	21.0
487836 2015 TK_{80}	16.4	X	240.21494	236.32625	246.39096	6.04292	0.1185624	0.18155585	3.0888433	20	10 3.8	21.0
487837 2015 TX_{82}	17.0	X	247.61526	23.33697	222.41489	6.80724	0.0727061	0.26759145	2.3849973	20	—	—
487838 2015 TF_{84}	16.3	X	193.87710	315.64536	210.12305	8.25272	0.1850341	0.17471692	3.1689307	20	10 3.2	21.5
487839 2015 TW_{84}	16.3	X	180.27630	323.88683	198.78776	5.10219	0.0754076	0.17185483	3.2040175	20	9 22.0	21.1
487840 2015 TZ_{85}	16.6	X	297.43127	309.43651	143.40172	2.76716	0.0317241	0.20317290	2.8656657	20	11 27.9	20.3

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	m		°	°	°	°		°				
487841 2015 TQ_{88}	17.6	X	12.08832	182.07615	188.44897	1.79645	0.0800108	0.20253948	2.8716373	20	11 29.2	21.2
487842 2015 TF_{89}	16.4	X	77.57344	66.37080	221.52134	12.56350	0.0102823	0.18842699	3.0132880	20	10 27.7	20.7
487843 2015 TC_{91}	16.3	X	329.28471	7.01295	31.73272	12.15112	0.1225744	0.19149872	2.9809782	20	10 29.3	19.6
487844 2015 TZ_{93}	17.6	X	65.20347	8.27539	4.81017	0.82006	0.1342688	0.24177565	2.5518845	20	—	—
487845 2015 TA_{96}	16.9	X	215.82938	283.98413	220.51184	8.94457	0.0646105	0.18517663	3.0484466	20	10 10.7	21.3
487846 2015 TE_{96}	17.7	X	310.66289	172.94982	41.72244	3.00239	0.1453933	0.28633195	2.2797620	20	1 9.6	20.6
487847 2015 TY_{96}	16.2	X	279.87827	217.43515	233.86331	11.38479	0.2179309	0.18556099	3.0442356	20	9 30.1	20.2
487848 2015 TX_{99}	16.4	X	231.82164	230.32235	207.03754	6.00396	0.1352834	0.15356634	3.4535999	20	7 27.0	21.8
487849 2015 TJ_{101}	16.5	X	245.44424	319.62059	156.36121	5.24913	0.0946094	0.18045321	3.1014133	20	10 8.6	20.8
487850 2015 TA_{103}	17.3	X	199.57953	182.39160	114.91273	7.32908	0.1005051	0.27314088	2.3525828	20	—	—
487851 2015 TT_{103}	16.7	X	284.77834	4.16063	96.78127	10.60566	0.0238346	0.19917684	2.9038677	20	11 22.9	20.7
487852 2015 TA_{104}	17.5	X	136.77467	194.74551	147.75081	7.66349	0.2387559	0.27129898	2.3632188	20	1 5.8	20.9
487853 2015 TO_{104}	16.7	X	305.83847	253.87794	174.11628	9.69903	0.0845661	0.19075874	2.9886823	20	11 3.3	20.5
487854 2015 TW_{104}	16.9	X	305.96925	255.73816	172.87768	9.09904	0.0879397	0.19088152	2.9874005	20	11 4.1	20.7
487855 2015 TN_{105}	16.1	X	62.25790	161.44192	127.40674	6.33043	0.1015363	0.18281246	3.0746725	20	10 25.1	20.5
487856 2015 TZ_{105}	16.1	X	337.27693	179.91908	190.14139	9.34769	0.0942500	0.17922180	3.1156033	20	10 2.6	19.9
487857 2015 TF_{107}	16.4	X	73.97143	194.08218	79.41385	11.13280	0.0605644	0.17719295	3.1393405	20	10 16.3	21.0
487858 2015 TP_{107}	17.2	X	6.58756	193.31488	146.05442	5.58368	0.1275337	0.18171691	3.0870180	20	10 14.4	21.0
487859 2015 TT_{110}	16.0	X	288.64746	237.09340	204.16412	11.95842	0.0993042	0.18470117	3.0536760	20	10 20.9	19.8
487860 2015 TC_{113}	16.3	X	197.21828	0.22777	161.80056	11.14699	0.0571751	0.17573001	3.1567396	20	10 14.5	21.0
487861 2015 TD_{113}	16.7	X	102.74737	175.53684	147.78085	9.38159	0.3039526	0.24187478	2.5511872	20	—	—
487862 2015 TU_{113}	16.6	X	48.15001	153.38145	179.44311	12.34723	0.1181650	0.19868820	2.9086268	20	12 4.9	20.9
487863 2015 TP_{114}	17.9	X	225.55196	107.23891	173.03867	6.59050	0.1068061	0.27717101	2.3297224	20	1 4.8	21.4
487864 2015 TE_{115}	17.6	X	159.86838	220.47145	107.89485	7.01475	0.1275627	0.26566711	2.3965005	20	1 1.1	21.1
487865 2015 TJ_{117}	17.1	X	103.65038	190.07943	150.18620	15.02245	0.0333693	0.22817699	2.6522929	20	—	—
487866 2015 TK_{117}	16.1	X	350.24008	242.36921	108.72738	18.38836	0.2603267	0.18133159	3.0913895	20	10 19.3	19.5
487867 2015 TB_{123}	16.2	X	290.02489	309.08555	101.03274	9.86882	0.1311625	0.17889621	3.1193824	20	9 11.8	20.3
487868 2015 TZ_{123}	18.1	X	101.89991	238.71874	147.19516	6.87240	0.1232624	0.26978299	2.3720637	20	1 1.5	20.9
487869 2015 TW_{124}	16.7	X	345.03956	300.49111	99.17401	9.28147	0.1075004	0.20673856	2.8326205	20	12 1.4	20.1
487870 2015 TP_{125}	16.4	X	318.00231	288.55260	95.44480	10.63458	0.0880097	0.18227681	3.0806931	20	9 27.3	20.5
487871 2015 TF_{126}	16.2	X	338.92542	279.42650	80.06115	14.34159	0.0472153	0.18044178	3.1015442	20	9 30.1	20.6
487872 2015 TL_{126}	16.1	X	93.94408	224.17745	77.46961	14.24231	0.1276817	0.22118137	2.7079274	20	12 20.5	20.2
487873 2015 TB_{128}	17.0	X	198.52840	28.23506	129.02521	12.11643	0.0347401	0.18656868	3.0332641	20	10 16.3	21.6
487874 2015 TN_{128}	16.4	X	298.30985	318.81903	89.27147	12.44608	0.1381719	0.18220572	3.0814943	20	9 24.1	20.4
487875 2015 TP_{130}	17.4	X	279.86270	49.69010	97.25027	10.06660	0.1688934	0.21906407	2.7253479	20	—	—
487876 2015 TR_{130}	16.4	X	310.60019	309.14001	73.83302	11.94177	0.1012721	0.17682125	3.1437385	20	9 13.4	20.6
487877 2015 TW_{130}	17.1	X	34.97259	257.75573	127.16236	6.71044	0.0617288	0.22718168	2.6600339	20	—	—
487878 2015 TC_{133}	17.1	X	221.67034	79.39281	103.44177	10.17919	0.0932169	0.21066567	2.7973074	20	12 7.1	21.0
487879 2015 TS_{133}	15.8	X	241.96007	346.22767	105.75836	11.46354	0.0246834	0.17212515	3.2006621	20	9 16.6	20.5
487880 2015 TX_{134}	17.1	X	49.95782	216.47399	177.39266	15.44087	0.1506213	0.24042652	2.5614220	20	—	—
487881 2015 TX_{136}	16.7	X	117.96888	215.10428	84.41695	12.36503	0.1228394	0.23136996	2.6278348	20	—	—
487882 2015 TX_{138}	16.3	X	286.64715	297.86087	154.94271	10.09065	0.0714746	0.19481359	2.9470662	20	11 10.2	20.3
487883 2015 TH_{139}	16.9	X	280.14250	68.48955	98.15421	14.30431	0.1979374	0.22617970	2.6678841	20	—	—
487884 2015 TS_{142}	16.4	X	9.52488	186.25166	153.04776	11.39223	0.0487431	0.18373792	3.0643394	20	10 12.7	20.6
487885 2015 TP_{145}	15.3	X	255.44053	67.11888	13.25680	17.13420	0.1369205	0.17500039	3.1655077	20	9 4.9	20.0
487886 2015 TC_{146}	17.1	X	340.14581	97.36887	309.93110	3.54887	0.1204545	0.21399186	2.7682452	20	12 4.9	20.3
487887 2015 TM_{146}	17.2	X	51.45251	165.41291	191.00884	7.48012	0.1941095	0.23140941	2.6275362	20	—	—
487888 2015 TC_{147}	17.6	X	138.42233	293.77267	28.44425	8.29339	0.1431647	0.26471248	2.4022587	20	—	—
487889 2015 TC_{148}	17.0	X	312.54970	89.84083	12.41177	13.85076	0.1647960	0.22578470	2.6709948	20	—	—
487890 2015 TD_{148}	16.9	X	331.91638	45.61521	14.86457	6.18389	0.0431585	0.22119622	2.7078062	20	12 6.8	20.5
487891 2015 TH_{149}	17.4	X	312.54968	96.88657	4.33691	4.27453	0.0843865	0.23289166	2.6163756	20	—	—
487892 2015 TR_{152}	18.1	X	13.84153	195.55286	200.85470	4.50100	0.1187593	0.23174417	2.6250052	20	—	—
487893 2015 TM_{153}	18.0	X	231.20833	221.71080	11.49546	7.61318	0.0520147	0.26939907	2.3743167	20	—	—
487894 2015 TW_{155}	17.6	X	9.79884	122.45232	11.39586	6.87806	0.0471647	0.28567176	2.2832730	20	—	—
487895 2015 TY_{156}	17.2	X	278.43072	315.91215	195.47851	11.77967	0.0385254	0.24361621	2.5390149	20	—	—
487896 2015 TT_{161}	18.2	X	193.11128	181.69259	119.93843	1.52641	0.1601431	0.29256732	2.2472541	20	—	—
487897 2015 TH_{166}	17.7	X	174.53731	128.17357	196.84444	9.37604	0.2726030	0.29306377	2.2447155	20	1 16.8	21.6
487898 2015 TV_{167}	16.6	X	58.47924	239.21580	90.31306	3.97811	0.1013376	0.21903239	2.7256107	20	12 14.1	20.5
487899 2015 TT_{170}	17.3	X	334.15919	308.16382	126.01668	6.01260	0.0338168	0.21965149	2.7204867	20	12 27.6	20.7
487900 2015 TW_{170}	17.0	X	52.48665	225.18309	142.29248	5.02037	0.0910224	0.23081512	2.6320444	20	—	—
487901 2015 TU_{174}	16.1	X	350.93597	173.82106	187.30249	13.29202	0.0517227	0.18643398	3.0347250	20	10 12.9	20.0
487902 2015 TF_{177}	16.8	X	118.54928	151.94153	92.76220	10.00016	0.0423626	0.19165219	2.9793866	20	10 31.7	21.2
487903 2015 TV_{177}	16.9	X	352.70487	337.77543	60.63525	7.08474	0.0400047	0.21588672	2.7520232	20	12 6.3	20.6
487904 2015 TA_{180}	16.3	X	44.31408	232.88265	64.60114	17.05649	0.0838144	0.17997400	3.1069162	20	10 15.5	20.8
487905 2015 TC_{180}	16.8	X	317.29321	302.86199	88.36126	10.40334	0.1346843	0.18207553	3.0829631	20	10 2.5	20.6
487906 2015 TB_{183}	17.0	X	348.20509	13.17691	24.81382	6.67470	0.0482449	0.21480004	2.7612971	20	11 29.1	20.5
487907 2015 TE_{183}	17.7	X	327.42964	281.29135	194.84668	4.74809	0.1957584	0.23617109	2.5920988	20	—	—
487908 2015 TJ_{183}	17.1	X	35.11919	170.43861	195.27922	4.68037	0.0234069	0.22535667	2.6743758	20	12 21.2	20.7
487909 2015 TM_{183}	16.7	X	105.33750	257.08712	26.57788	5.86273	0.0421870	0.22047121	2.7137393	20	12 4.1	20.6
487910 2015 TX_{183}	16.2	X	317.24422	349.68286	43.49030	11.88287	0.1315418	0.18384573	3.0631413	20	10 4.3	19.9
487911 2015 TR_{184}	16.5	X	238.57251	294.21479	193.26040	10.54709	0.0553133	0.19131844	2.9828505	20	10 21.1	20.6
487912 2015 TC_{192}	17.4	X	25.78079	307.54171	61.43338	4.04501	0.1606543	0.22681496	2.6629004	20	—	—
487913 2015 TY_{193}	17.7	X	131.03240	17.95502	324.36214	7.16546	0.1432099	0.27470296	2.3436558	20	—	—
487914 2015 TJ_{194}	17.2	X	25.45795	38.83718	319.81454	9.93255	0.1790194	0.22001965	2.7174511	20	12 21.7	20.8
487915 2015 TZ_{194}	16.7	X	3.36841	15.05950	351.73407	9.08330	0.1636307	0.20969901	2.8058974	20	11 20.6	20.1
487916 2015 TX_{195}	16.2	X	307.45107	98.15491	295.97437	12.75291	0.1970449	0.18717218	3.0267405	20	8 31.6	19.8
487917 2015 TB_{196}	16.0	X	327.73341	12.42578	331.06241	14.29102	0.1966274	0.17752355	3.1354417	20	8 7.6	19.4
487918 2015 TG_{197}	16.6	X	335.06740	322.29173	32.25068	6.96755	0.1742482	0.18884556	3.0088338	20	9 11.7	19.8
487919 2015 TL_{200}	17.5	X	42.51491	30.59747	5.08404	14.92402	0.1264628	0.24350527	2.5397861	20	—	—
487920 2015 TZ_{200}	17.2	X	84.28878	295.96457	29.34900	9.13064	0.1740459	0.23839481	2.5759545	20	—	—

ELEMENTS AND OPPOSITION DATES IN 2020

ECLIPTIC AND EQUINOX 2000.0, EPOCH 2020 MAY 31.0 TT

Planet	H	G	M	ω	Ω	i	e	μ	a	TE	Oppos.	V
	m		°	°	°	°		°				
487921 2015 TM_{203}	15.9	X	261.17506	44.24690	30.69395	21.46580	0.1551793	0.17292777	3.1907508	20	9 7.5	20.8
487922 2015 TU_{203}	16.5	X	308.29106	150.57925	240.41056	5.92398	0.1263438	0.18281443	3.0746504	20	9 8.8	20.3
487923 2015 TF_{204}	18.1	X	196.89981	324.51635	15.56305	2.21665	0.0994855	0.30523102	2.1846587	20	2 18.3	21.1
487924 2015 TN_{206}	15.5	X	228.93057	264.63996	216.34873	21.17288	0.1233845	0.17737905	3.1371443	20	9 15.5	20.5
487925 2015 TO_{206}	17.6	X	143.30427	313.96408	35.10664	6.74162	0.1206594	0.27685834	2.3314761	20	1 6.9	20.7
487926 2015 TV_{206}	17.3	X	4.66258	30.27453	4.75458	2.96494	0.0984722	0.22270537	2.6955595	20	12 27.9	20.5
487927 2015 TZ_{206}	17.1	X	292.25482	252.48846	142.54229	9.74295	0.0764013	0.17332047	3.1859294	20	8 29.5	21.2
487928 2015 TG_{207}	17.6	X	10.95125	176.26306	266.38408	3.75340	0.0667142	0.25335768	2.4735081	20	—	—
487929 2015 TB_{208}	16.7	X	26.61734	61.55875	279.36752	8.01255	0.1724524	0.21075538	2.7965136	20	11 26.0	20.4
487930 2015 TJ_{209}	16.5	X	56.55567	256.92421	59.68190	5.70514	0.0590811	0.20944924	2.8081277	20	11 18.0	20.2
487931 2015 TR_{209}	17.5	X	41.54486	5.28366	14.19354	5.15732	0.2260697	0.23332197	2.6131578	20	—	—
487932 2015 TA_{210}	16.0	X	290.43596	59.92257	359.47597	10.08559	0.1072493	0.18261431	3.0768962	20	9 23.7	19.9
487933 2015 TP_{213}	18.0	X	1.37390	154.31043	354.08906	7.83190	0.0410072	0.29118947	2.2543375	20	1 6.3	20.6
487934 2015 TH_{217}	18.1	X	6.13634	29.14042	17.69033	7.17896	0.1093793	0.23382023	2.6094441	20	—	—
487935 2015 TB_{219}	17.0	X	339.77823	248.67253	169.92589	2.41023	0.0771739	0.22436999	2.6822106	20	12 19.8	20.1
487936 2015 TE_{220}	17.4	X	10.39719	352.73796	23.27902	8.83360	0.0554315	0.22020502	2.7159258	20	12 3.4	21.0
487937 2015 TG_{220}	17.7	X	333.80750	61.35277	34.44055	4.12811	0.1636667	0.23501807	2.6005700	20	—	—
487938 2015 TU_{220}	16.9	X	18.85811	353.41596	16.95003	6.46596	0.0409997	0.22148174	2.7054786	20	12 6.6	20.6
487939 2015 TO_{223}	17.2	X	49.86674	322.39760	26.03269	14.54340	0.2776356	0.22677853	2.6631856	20	—	—
487940 2015 TC_{231}	16.9	X	124.14110	355.91859	321.03755	13.00670	0.1519285	0.24241215	2.5474156	20	—	—
487941 2015 TK_{231}	16.5	X	240.96062	224.25030	346.04166	12.61808	0.0511174	0.23728083	2.5840106	20	—	—
487942 2015 TP_{232}	16.7	X	64.33596	260.29367	119.52250	15.13426	0.1347378	0.23997766	2.5646149	20	—	—
487943 2015 TS_{234}	16.8	X	67.75333	235.62980	89.58361	7.18005	0.0385156	0.21605853	2.7505641	20	12 11.1	20.5
487944 2015 TB_{235}	15.9	X	247.69044	357.34502	90.94963	6.54383	0.1120787	0.17459867	3.1703614	20	9 5.3	20.5
487945 2015 TM_{235}	16.9	X	8.57305	240.88824	134.99103	5.19642	0.0854665	0.21067963	2.7971838	20	12 4.5	20.5
487946 2015 TB_{239}	15.6	X	281.85490	80.63226	288.59332	24.28729	0.2380885	0.17134073	3.2104234	20	6 19.8	20.3
487947 2015 TN_{241}	17.6	X	106.63597	5.39478	342.19245	5.25151	0.1303486	0.26351869	2.4095083	20	—	—
487948 2015 TP_{242}	17.1	X	85.62995	55.10941	281.24228	8.14601	0.1807295	0.24074897	2.5591344	20	—	—
487949 2015 TB_{243}	17.4	X	8.85611	16.19668	36.87260	12.33555	0.0437538	0.23340288	2.6125538	20	—	—
487950 2015 TK_{246}	17.4	X	285.87689	177.30823	231.72529	1.88066	0.1937195	0.18334940	3.0686667	20	8 20.9	21.2
487951 2015 TN_{251}	16.7	X	32.32794	165.38704	188.75641	4.34826	0.0806780	0.21427845	2.7657763	20	12 8.9	20.3
487952 2015 TH_{252}	16.9	X	334.48528	332.35792	68.80190	2.89929	0.0902121	0.20316445	2.8657451	20	11 13.7	20.3
487953 2015 TT_{255}	16.3	X	297.35989	78.46820	315.46549	16.07112	0.1834656	0.17550627	3.1594219	20	8 18.1	20.3
487954 2015 TA_{260}	16.3	X	283.94678	59.06442	3.58885	8.80182	0.1966808	0.18201156	3.0836854	20	9 7.2	20.3
487955 2015 TW_{263}	18.1	X	57.29516	125.93457	224.02577	10.07608	0.1111114	0.23611601	2.5925019	20	—	—
487956 2015 TG_{265}	16.9	X	352.07232	127.34453	249.02730	5.31138	0.0696774	0.21106217	2.7938030	20	11 7.9	20.3
487957 2015 TL_{265}	16.6	X	319.63871	269.65036	202.84640	20.91635	0.1090168	0.24190148	2.5509995	20	—	—
487958 2015 TS_{281}	18.3	X	260.42757	302.79313	322.51226	3.47278	0.0464634	0.30258716	2.1973659	20	1 25.0	20.9
487959 2015 TH_{282}	16.7	X	258.02957	217.50335	223.85824	8.21236	0.1104949	0.18368740	3.0649011	20	9 4.1	21.2
487960 2015 TD_{288}	16.7	X	34.52487	50.31294	313.09194	14.95326	0.2235416	0.22154862	2.7049340	20	—	—
487961 2015 TW_{290}	16.4	X	167.27998	358.21118	267.61832	14.59802	0.0964386	0.24624364	2.5209218	20	—	—
487962 2015 TH_{296}	17.0	X	274.90791	69.29671	22.69857	10.84779	0.0467034	0.20419084	2.8561338	20	10 24.7	20.8
487963 2015 TR_{297}	18.1	X	275.71666	293.40738	305.30575	2.08315	0.0950077	0.30045519	2.2077484	20	1 3.2	20.8
487964 2015 TC_{298}	16.1	X	268.27940	159.89882	267.77884	16.15461	0.1812115	0.17390964	3.1787298	20	8 15.1	20.9
487965 2015 TL_{298}	16.7	X	64.04986	48.45086	311.32204	9.08840	0.1977368	0.23797633	2.5789735	20	—	—
487966 2015 TV_{298}	15.8	X	335.70250	63.88995	275.30461	8.99638	0.1244998	0.17426709	3.1743816	20	8 14.8	19.7
487967 2015 TJ_{300}	17.6	X	56.25041	156.39499	253.33173	4.18541	0.1046945	0.25499940	2.4628801	20	—	—
487968 2015 TW_{300}	17.2	X	336.91467	4.82949	105.77581	7.13317	0.0367108	0.24731908	2.5136085	20	—	—
487969 2015 TA_{301}	17.7	X	161.29930	173.25094	137.73050	3.19004	0.2261818	0.27865271	2.3214564	20	—	—
487970 2015 TB_{301}	18.1	X	68.15619	346.06110	81.75390	4.17021	0.0862131	0.27508492	2.3414858	20	—	—
487971 2015 TW_{303}	16.1	X	330.35353	4.87909	30.58026	15.32465	0.0913462	0.19229932	2.9726986	20	10 27.0	19.8
487972 2015 TA_{304}	15.8	X	323.61757	341.56211	40.82918	18.19291	0.0671733	0.18024233	3.1038318	20	10 5.8	20.0
487973 2015 TE_{305}	17.0	X	299.23952	274.94343	147.98616	11.29238	0.1065138	0.19210630	2.9746895	20	10 17.6	20.8
487974 2015 TY_{305}	17.2	X	75.10234	162.17755	181.17594	14.03990	0.1966261	0.24071380	2.5593837	20	—	—
487975 2015 TE_{307}	16.1	X	268.82622	312.13212	105.62404	15.21690	0.0714509	0.17739861	3.1369137	20	8 31.9	20.6
487976 2015 TN_{307}	16.8	X	40.34139	243.04016	127.68292	13.25037	0.2030415	0.23193703	2.6235499	20	—	—
487977 2015 TE_{308}	16.9	X	15.58451	277.80235	96.90771	16.92332	0.1784793	0.21888760	2.7268125	20	12 27.8	20.0
487978 2015 TL_{310}	16.1	X	279.12719	330.67870	79.45328	18.90181	0.2175260	0.17598073	3.1537407	20	8 14.4	20.7
487979 2015 TT_{312}	17.9	X	61.35763	257.98331	149.94183	2.78092	0.1887341	0.25682977	2.4511646	20	—	—
487980 2015 TP_{314}	17.3	X	17.51760	69.56018	342.82464	5.74512	0.0545411	0.24048741	2.5609896	20	—	—
487981 2015 TQ_{319}	17.5	X	252.91150	295.76913	151.33040	0.73738	0.1507790	0.18044534	3.1015034	20	9 2.4	21.9
487982 2015 TS_{319}	17.4	X	320.03113	324.69129	46.13302	2.10158	0.1590604	0.18465174	3.0542209	20	9 3.1	20.8
487983 2015 TZ_{319}	16.2	X	198.10212	117.53483	24.08468	12.72312	0.1068821	0.18181684	3.0858867	20	9 19.3	21.0
487984 2015 TZ_{321}	15.7	X	234.15520	221.92235	267.88779	14.77702	0.1518587	0.18117461	3.0931750	20	9 26.4	20.7
487985 2015 TO_{322}	17.1	X	305.85579	22.53556	69.08233	4.14055	0.0552000	0.22109585	2.7086256	20	12 10.8	20.4
487986 2015 TP_{323}	16.2	X	251.49169	10.77350	86.10484	11.66731	0.0875605	0.18345289	3.0675126	20	9 28.6	20.7
487987 2015 TH_{326}	16.5	X	3.39386	236.04565	162.68573	14.28289	0.1073736	0.22082756	2.7108191	20	12 31.1	20.1
487988 2015 TO_{326}	15.7	X	280.21781	327.42660	82.00730	11.58099	0.2004800	0.17601960	3.1532763	20	8 16.1	20.1
487989 2015 TF_{329}	17.1	X	15.93591	281.30225	103.13192	8.02235	0.1353814	0.22144539	2.7057747	20	—	—
487990 2015 TZ_{329}	17.2	X	224.92867	197.54511	96.82941	10.21919	0.1094895	0.29781625	2.2207711	20	1 20.4	20.4
487991 2015 TY_{331}	17.2	X	311.63401	44.06530	76.81747	15.26522	0.0689656	0.23276289	2.6173405	20	—	—
487992 2015 TL_{332}	15.6	X	92.90401	144.75096	83.76205	15.88071	0.0460274	0.17131069	3.2107986	20	9 13.4	20.5
487993 2015 TE_{335}	16.7	X	248.95151	311.79335	137.22047	12.70053	0.1266763	0.17354151	3.1832235	20	9 4.5	21.3
487994 2015 TU_{336}	16.5	X	256.84138	61.30407	37.95716	9.77782	0.2342545	0.18171433	3.0870472	20	9 15.3	21.1
487995 2015 TA_{337}	16.3	X	286.53273	227.92416	193.25198	21.82667	0.1721749	0.18324294	3.0698551	20	9 8.1	20.3
487996 2015 TW_{341}	16.9	X	299.68837	326.81915	98.95556	17.59637	0.2144753	0.20399252	2.8579846	20	10 18.4	20.4
487997 2015 TK_{344}	17.2	X	85.44476	239.02860	82.36992	3.19420	0.0736620	0.22923491	2.6441264	20	—	—
487998 2015 TD_{345}	16.9	X	268.73447	118.78236	37.11991	11.00712	0.2205286	0.22264165	2.6960738	20	12 18.6	20.0
487999 2015 TH_{345}	16.7	X	276.59920	272.32781	167.32069	3.40658	0.1205431	0.18959205	3.0009307	20	9 29.9	20.5
488000 2015 TK_{345}	17.5	X	97.83614	143.22555	154.68250	2.61973	0.0996166	0.22519247	2.6756757	20	12 19.3	21.4